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Research Article

Financial System Development and Economic Growth the Nigerian Stock Market and Bank Perspective

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Abstract: This study examines empirically the short-run and long-run relationships between financial system development and economic growth in Nigeria. The study adopted a multivariate OLS analysis for the estimation process, cointegration analysis for long-run equilibrium relationship and the associated error correction model to determine the short-run impact of the variables. The Granger causality test was used to determine the direction of causality among the variables. The findings of the study were that financial development (measured by banking system and stock market development) positively influenced economic growth in Nigeria; that causality runs from finance to growth in the finance-growth nexus. We therefore recommend that the ongoing reforms in the banking system and capital market should be intensified so as to boost the development of these segments of the financial system and by that increase their role in economic growth. Also the regulation and supervision of the financial system should be strengthened as it plays a great role in determining both its stability and the extent of the services provided.

Keywords: Co-integration analysis, economic growth, financial systems, granger causality test, unit root test JEL

INTRODUCTION

It has long been recognized and accepted that financial systems, that is financial intermediaries and financial markets, play an important role in a country's economic growth and development (Claus *et al*., 2004). Financial systems perform the key functions of mobilizing savings, allocating capital, providing an efficient payment system, monitoring and exerting corporate governance, as well as ameliorating risk (Aziakpono, 2008; Starkey, 2010). A major determinant of the ability of a financial system to effectively and efficiently perform these key functions is the extent to which a country's financial system is developed. Both theoretical and empirical literature suggests that the development of the financial system is crucial for resolving agency and information asymmetry problems as well as reducing transaction costs (Hermes and Lensink, 1996; Levine and Zervos, 1998; Goodhart, 2005; Chakraborty and Ray, 2006).

The Nigerian financial system however remains largely underdeveloped due to a number of factors, which include the adoption of financially repressive policies, poor macroeconomic management and political corruption, together giving rise to bank insolvencies, low savings rates and inefficient resource allocation. The underdevelopment has meant that the Nigerian economy struggles to accelerate economic growth and reduce poverty. Several researchers such as Ogun (1986), Ndebbio (2004), Akinlo and Akinlo (2007), Adelakun (2010), Ibrahim (2012) and Chinaemerem and Chigbu (2012), have reported positive effects of financial system development on economic growth in Nigeria. Consequently, there exists a strong case for the promotion of financial development in Nigeria.

From a theoretical viewpoint, in the course of executing the key functions alluded to above; the financial system positively influenced factor accumulation, innovation and plays a crucial role in understanding variations in growth, since economic growth is often discontinuous (Allen and Oura, 2004). The theoretical literature also distinguishes between the effects of these key functions on economic performance, when performed by financial intermediaries (banks) and when performed by the financial markets (stock markets) (Aziakpono, 2008; Starkey, 2010). This issue has gained considerable attention and is commonly termed the "bank-based versus the market-based" debate. Contributors to this debate explored the separate effects of the banking system and stock market on the promotion of economic growth and investigated issues such as; "Do financial systems perform different functions or are they doing the same thing in different ways?" "Can one say that a bank-based system is 'better' than a market based system?" (Allen and Oura, 2004). There exist no uniform definition of what constitutes a bank-based

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system or a market based system (Levine, 2002). However, a bank based system principally refers to a financial system dominated by the banking sector performing the key growth enhancing functions, while a market based system is characterized by the stock market predominantly stimulating economic growth (Beck and Levine, 2002).

The stock markets and banks are two major components of the financial system that promote efficiency in capital. However, when it comes to the specific role of stock markets and banks in promoting economic growth, there are conflicting theoretical findings. Stiglitz (1985) showed that banks perform a better role in promoting economic growth than stock markets especially when it comes to resource allocation. Singh (1997) indicated that stock markets do not lead to long-run economic growth due to macroeconomic instability, volatility and arbitrariness of pricing process. Jappelli and Pogano (1994) and Atje and Jovanovic (1993) have all indicated that stock markets contribute positively to economic growth. However, Boyd and Prescott (1986), Boyd and Smith (1992) and Blackburn *et al*. (2005) have all shown that both stock markets and banks are necessary agents in the promotion of economic growth. Therefore, they consider stock markets as complements to banks rather than substitutes. A large body of empirical research exists within this field investigating the relationship between financial development and economic growth (or finance-growth relationship), using either banking system development measures or stock market development measures, albeit with focus on developed countries. Studies analyzing the effects of financial development utilizing banking system development indicators alone include Ibrahim (2012), Chinaemerem and Chigbu (2012), Adelakun (2010), Odedokun (1998), Allen and Ndikumana (2000) and Ferreira da Silva (2002) among others. Overall, findings indicate that banks have a positive influence on economic growth. Furthermore, developing nations are said to be largely bank-based economies as these countries have a dualistic structure-a large labour intensive low productivity sector and a smaller modern manufacturing sector-so the transition from a traditional economy to a modern economy is funded more by banks within these countries as opposed to the newly established stock markets. Hence, during the early stages of economic development the level of financial development, based upon bank development measures, is a good indicator of future economic growth (Ferreira da Silva, 2002). Studies examining financial development based solely on stock market development indicators include Filer *et al*. (1999), Choong *et al*. (2005), Vazadikis and Adamopoulos (2009) and Donwa and Odia (2010) among others. These studies commonly found that stock market development promotes economic growth within the respective countries and developed countries were more likely to be classified as market based financial systems. It was also discovered that developed economies benefited more from stock market development than developing economies. This finding was confirmed by Singh (1997), Azarmi *et al*. (2005) and Chakraborty (2008) who examined the impacts of stock markets on economic development in India (a developing economy) and found that stock market development was unlikely to promote quicker industrialization and long-term economic growth.

Given the increasing role of stock markets and banks in both developed and developing countries in promoting economic growth, recent studies-including Levine and Zervos (1998), Arestis *et al*. (2001), Beck and Levine (2004), Dritsaki and Dritsaki-Bargota (2005), Blackburn *et al.* (2005), Vazadikis and Adamopoulos (2009), Yucel (2009) and Starkey (2010) are now modelling the relationship between financial development and economic growth by simultaneously utilizing banking system and stock market development indicators in their empirical work. Beck and Levine (2004) pointed out that "any examination of stock market effects on growth should simultaneously consider the impact of growing intermediating sector". They further argued that omitting a stock market variable makes it difficult to appropriately examine bank development and economic growth when controlling for stock market system. Most of the empirical research assessing the finance-growth relationship, using both bank and stock market development measures, employ either cross-country or panel data analysis like those of Levine and Zervos (1998), Rousseau and Wachtel (2000), Beck and Levine (2004) and Starkey (2010). However, the time-series work in this area is mainly based on advanced (European) countries as can be seen in the work of Arestis *et al*. (2001) and Dritsaki and Dritsaki-Bargota (2005).

In sharp contrast to the extensive investigation in previous literature of financial development effects on economic growth, there is still little research on how economic growth is affected by banking system and stock market development simultaneously in time series context for developing countries such as Nigeria. Of the Nigeria studies undertaken, many of these studies (such as, Akinlo and Akinlo, 2007; Agu and Chukwu, 2008; Odeniran and Udeaja, 2010; Adelakun, 2010; Ndako, 2010) favour the usage of multiple banking sector development measures. Hence, there are scanty available time series data studies of the finance-growth relationship in Nigeria employing both bank and stock market development measures in their study. The inclusion of data of the stock market as part of the indicator of financial development could provide better insight on the nature (positive or negative) and direction (unidirectional or bidirectional) of the relationship between financial development and economic growth in Nigeria. This research attempts to fill this gap. Against this backdrop, this study will investigate the

relationship between financial system development and economic growth in Nigeria by employing time series data analysis and will utilize both banking system and stock market development indicators.

REVIEW OF RELATED LITERATURE

There have been a lot of studies on the relation between financial system development and economic growth. Hybrid empirical research in this area emerged mostly from the mid 1990s when there was greater available financial system data to use in calculating both bank development and stock market development indicators for specific countries. Levine and Zervos (1998) empirically investigated whether six measures of stock market development and a single banking development measure (i.e., PSC) are robustly associated with current and future rates of economic growth in forty-nine countries from 1976 to 1993. Employing OLS cross country regressions, instrumental variables approach and sensitivity checks, Levine and Zervos (1998) found a positive link between financial development and economic growth suggestive of an integral role in the growth process for financial development and economic growth suggestive of an integral role in the growth process for financial factors. Specifically, it was found that two stock market development measures (i.e., TURN and VALT) and the banking system development measure were positively and significantly correlated with current and future rates of economic growth, capital accumulation and productivity growth.

Levine and Zervos (1998) work was criticized by Beck and Levine (2004). According to Beck and Levine (2004), the OLS regression approach used failed to:

- Account for potential simultaneity bias
- Control for fixed country effects
- Control for the routine use of lagged dependent variables in the growth regressions. Beck and Levine (2004) however acknowledged an important methodological improvement made by Rousseau and Wachtel (2000). Rousseau and Wachtel (2000) applied the panel GMM technique-which removes any bias from unobserved country-specific effects and eliminates effects from simultaneity bias-to data on forty seven countries from 1980 to 1995 and found leading effects for both stock market development (measured by MCP and VALT) and banking development (measured by BLL) on per capita output. Therefore, Beck and Levine (2004) also employed the GMM technique to examine the impact of stock markets and banks on economic growth in forty countries over the period from 1976 to 1998. Beck and Levine (2004) improve on earlier studies (Rousseau and Wachtel, 2000), by:
    - Averaging the data over five-years (to avoid business-cycle effects)
    - Controlling for other growth determinants and reverse causation
    - More carefully deflating the data for financial development indicators
    - Performing robustness checks of the results. Beck and Levine (2004) find, on the balance, that bank and stock market development is important and has positive effects on economic growth

The effect of financial development on economic growth in Greece was assessed by Hondroyiannis *et al*. (2005). Johnansen and Juselius (1990) cointegration and Granger causality tests were applied to monthly data from 1986: 01 to 1999: 12. Hondroyiannis *et al*. (2005) found a long-run relationship between banking development (measured by PSC and the ratio of bank credit extended to industries as to GDP), stock market development (measured by MCP and the ratio of market capitalization of industrial shares as to GDP) and economic growth, with bi-directional causality between economic growth and financial development measures. Overall, finance has a weak effect on growth in Greece, with banking development considerably more important for growth than stock market development. Law (2004) used traditional panel data estimation and dynamic panel data estimations (namely: the mean group and pooled mean group estimation) when analyzing the finance-growth nexus in fourteen developing countries. Over a twenty-four year period, from 1978 to 2001, Law (2004: 20) estimates indicated that both banks and stock markets are important in promoting economic growth, with the impact of banking sector development more influential compared to stock market development.

The effect of Egypt's financial development on TFP and economic growth was investigated by Bolbol *et al*. (2005) for the period from 1974 to 2002. The authors studied the interactions of bank-based and market-based financial indicators with two enabling factors (per capita income and private net resource flows). Banking development measures were found to have a negative impact on TFP growth, only becoming positive impact when after a certain threshold level of per capita income (Bolbol *et al*., 2005). Hence, the banking system's positive impact on Egypt's economic growth is highly dependent on improvements to per-capita income. Stock market development had more prominent effects on TFP growth, particularly when related with private net resource flows (Bolbol *et al*., 2005). Hence, indicating that the Egyptian stock market's influence on growth depends sparingly on foreign capital inflows. Bolbol *et al*. (2005) concluded that over the sample period the widening of financial development, to include the stock market, has positively impacted on TFP and growth in Egypt.

Ahmad (2005) investigated the long-run relationship between financial development (banking sector and stock market development) and economic growth in Malaysia. Six variables based on Malaysian quarterly data from 1978: 1 to 2002: 4 were employed, namely real GDP per capita, investment rate and ratios of credit, deposit, market capitalization and value of shares traded to GDP. Two dynamic frameworks were adopted-Vector Auto Regression (VAR) with error correction formulation for causality analyses and dynamic OLS (DOLS) procedure for estimation of growth finance long-run relation. Results of the causality analyses showed that there is bi-directional causality between financial development (banking sector and stock market development) and economic growth. Analyses on growth-finance long-run relations indicate that banking sector development and stock market development individually have an independent positive effect on long-run economic growth. They enhance economic growth through both channels -the volume and efficiency of investment, with the latter being the main source of their independent effect. The study also showed that banking sector development and stock market development complement each other in the growth process.

Naceur and Ghazouani (2007), using GMM estimates, failed to find a significant relationship between banking development, stock market development and growth for eleven countries of the Middle-East North-Africa (MENA) region for the period from 1973 to 2003. After controlling for stock market development, the impact of banking development on growth became negative, which Naceur and Ghazouani (2007) explained could have been due to the underdeveloped nature of MENA financial systems hampering economic growth or caused by unstable MENA growth rates. Frank (2007), using all aggregate stock market development indicators and PSC as a banking development indicator, examined the effects of financial deepening on economic growth in South Africa from 1989 to 2001. OLS regression results reveal a positive relationship between banking development and growth and also a negative relationship between stock market development and growth. Frank (2007) Johansen cointegration and Granger causality results indicates a positive relationship between banking development and growth with a high probability that growth causes banking development, while there was no significant causal relationship between stock market development and economic growth. Frank (2007) explained that market liquidity was by far the most influential component of the aggregate stock market index, while market size had no importance and international market integration had very little importance. This led (Frank, 2007) to conclude that "given the rather thin trading of the JSE securities Exchange then, this may be the reason that a significant causal relationship between stock market development and growth could not be found".

In contrast, Gondo (2009) found that stock market development (measured by VALT) and banking system development (measured by PSC) have a complimentary and progressive impact on economic growth in South Africa. This is interesting given that Frank (2007) similarly used PSC as a banking development indicator and VALT comprised the largest proportion of the stock market development measure used by Frank (2007) which is argued could have been largely responsible for the inconclusive causal findings. Frank (2007) analysed quarterly data form 1980: 01 to 2001: 04 and included stock market volatility as the only control variable. While Gondo (2009) examines annual data from 1970 to 1999, employs the instrumental variables approach and includes a wider set of control variables (e.g., inflation, trade openness, government share of real GDP, investment share of real GDP and periods of monetary authorities intervention and regulation). These findings, illustrate that employing differing econometric methods can often result in mixed or conflicting results. Msuku (2009) utilized the Ordinary Least Square (OLS) regression technique to examine the relationship and causality between financial development and economic growth in Malawi, from 2001: 1 to 2009: 2. He used real GDP as a proxy for economic growth, the stock market variable where represented by Turnover Ratio (TOR), value Traded Ratio (VTR) and Market Capitalization Ratio (MCR) while banking system variables was represented by Bank Credit to Private Sector (PSC). After controlling for other factors associated with economic growth, the result indicates that both stock market and banking development indicators are both positively and robustly correlated with future rates of economic growth. Furthermore the result also showed that the causality between financial development and economic growth runs from financial development to economic growth, that is, it is supply-leading.

Ayadi *et al*. (2008) investigated the relationship between financial development and economic growth in Nigeria during post-SAP period, 1986 to 2003. The Spearman (1904) Rho test was employed to find the relationship between financial development and economic growth. Three broad categories of measures which capture the banking sector and stock market components of the financial sector were used. The result of the spearman Rho test reveals a lack of consistent relationship between financial system development and economic growth in post-SAP Nigeria economy.

Starkey (2010) investigated the relationship between financial system development and economic growth in seven African countries, from 1988 to 2008. The Pedroni panel cointegration approach and Kao

panel cointegration technique were used to find the long-run growth relationship. Furthermore, the short-run linkages between financial development and economic growth was analysed by Holtz-Eakin *et al*. (1989) panel Granger causality test. The results of the Pedroni cointegration tests shows that there are long-run relationship between overall financial development (measured by LOFD and OFD) and economic growth, banking system development (measured by LPSC) and economic growth, as well as stock market development (measured by LMCP and LVLT) and economic growth. In contrast, the Kao test fails to find any cointegration between finance and growth. However, on the balance, findings largely support a conclusion of cointegration between financial development and economic growth since the Pedroni approach is more appropriate for examining cointegration in heterogeneous panels. Estimates of these long-run cointegrating relationship show that five financial development measures have the expected positive linkages with growth. However, only four of the five financial development measures were found to have significant long-run linkages with growth, as the relationship between LOFD and growth was not found to be significant in the long-run. The panel Granger causality results show that economic growth Granger causes banking system development in the short-run (i.e., there is demand-following finance), irrespective of the measure of banking development used, while there is bi-directional, reciprocal causality between economic growth and both of the measures of overall financial development and one measure of stock market development (i.e., LVLT).

Boca (2011) using a data set of 93 countries from 2000 to 2007 applied a fixed effects estimation and two-step GMM estimator to examine the impact of financial development on economic growth and how institutional quality affects the role of financial development on economic growth. The results showed that bank credit has a negative impact on economic growth. However, when interacted with protection of property rights, bank credit has a positive impact on economic growth. Additionally results further indicated that stock market capitalization is important for economic growth. For countries that exhibit low levels of protection of property rights, stock market capitalization has a negative impact but countries that exhibit high protection of property rights the impact of stock market capitalization on growth is positive.

METHODOLOGY

The study aims at providing empirical evidence on the short run and long run relationship between financial system development and economic growth in Nigeria. The data were sourced from the Central Bank of Nigeria statistical bulletin, Nigeria Stock Exchange (NSE) Fact book and Securities and Exchange Commission database. The study hypothesized that banking system and stock market development do not have a significant effect on the economic growth of Nigeria. The study employed annual time-series data from 1980 to 2011. The study employed Augmented Dickey-Fuller unit root test, Johansen Co-integration test, Error Correction Mechanism (ECM) and Granger causality test. In order to ensure the reliability and validity of results obtained from the empirical analyses, other diagnostic tests such as the Variance Inflation Factor (VIF), Breusch-Godfrey Serial Correlation LM Test and Breusch-Pagan-Godfrey Heteroskedasticity Test were also carried out to check for the problems of multicollinearity, heteroskedasticity and autocorrelation in the model. The model was estimated with the aid of econometric software package, E-views 7.0.

THEORETICAL FRAMEWORK

There is ample theoretical evidence reinforced by a number of empirical works, which supports a positive relationship between financial system development and growth. Principally, the financial system functions to mobilize and channel financial resources through institutions or intermediaries from surplus economic units to deficit units. A well developed financial system enhances investment by identifying and funding good business opportunities, mobilizing savings, enabling trading, hedging and diversifying risk and facilitating the exchange of goods and services. These functions result in a more efficient allocation of resources, rapid accumulation of physical and human capital and faster technological progress, which in turn result in economic growth. An efficient financial system is one of the foundations for building sustained economic growth and an open vibrant, economic system. In the early neoclassical growth literature, financial services were thought to play only a passive role of merely channeling household savings to investors. However, many later studies have been associated with more positive roles for the financial sector.

The theoretical underpinnings of the relationship between financial development and growth can be traced back to Schumpeter (1911) and most recently, Mckinnon (1973) and Shaw (1973). Schumpeter (1911) in his theoretical link between financial development and economic growth opined that the services provided by financial intermediaries are essential drivers for innovation and growth. His argument was later formalized by Mckinnon (1973) and Shaw (1973) and popularized by Fry (1988) and Pagano (1993). The Mckinnon-Shaw paradigm postulates that government restrictions on the operations of the financial system, such as interest rate ceiling, direct credit programs and high reserve requirements may hinder financial deepening and this may in turn affect the quality and quantity of investments and, hence, have a significant

negative impact on economic growth. Therefore, the Mckinnon-Shaw financial repression paradigm implies that a poorly functioning financial system may retard economic growth.

The endogenous growth literature also supports this argument that financial development has a positive impact on the steady-state growth (Bencivenga and Smith, 1991; Bencivenga *et al*., 1996; and Greenwood and Jovanovic, 1990. Well-functioning financial systems are able to mobilize household savings, allocate resources efficiently, diversify risks, induce liquidity, reduce information and transaction costs and provide an alternative to raising funds through individual savings and retained earnings. Mckinnon (1973) and Shaw (1973) are the most influential works that underpin this hypothesis and suggest that better functioning financial systems lead to more robust economic growth. Mckinnon (1973) considered an outside money model in which all firms are confined to self-finance. Physical capital has a lumpy nature where firms must accumulate sufficient savings in the form of monetary assets to finance the investment projects. In this sense, money and capital are viewed as complementary assets where money serves as the channel for capital formation 'complementarily hypothesis'. The 'debt-intermediation' view proposed by Shaw (1973) is based on an inside money model. He argues that high interest rates are essential in attracting more savings. With more supply of credit, financial intermediaries promote investment and raise output growth through borrowing and lending. Also, King and Levine (1993a) found that higher levels of financial development are associated with faster economic growth and concluded that finance lead to growth. Neusser and Kugler (1998) and Choe and Moosa (1999) reached the same conclusion. More specifically, the roles of stock markets and banks have been extensively discussed in both theoretical and empirical studies. The key findings of studies are that countries with well-developed financial institutions tend to grow faster; particularly the size of the banking system and the liquidity of the stock market tend to have strong positive impact on economic growth.

Model specification: The review of theoretical and empirical issues revealed that a variety of control variables should be considered in models which assess finance-growth linkages and that no single financial development measure is able to fully capture all the dimensions of the impact of banking system and stock market development on economic growth. Consequently a variety of financial development measures are currently employed in empirical studies to proxy different aspects of the financial system. This study will employ five proxies for financial system development to capture the banking system and stock market aspects of financial development. These proxies are liquid liabilities of the banking system/GDP, private sector credit/GDP, stock market capitalization/GDP, turnover ratio and value of shares traded/GDP. Furthermore, we included three control variables in our model to capture other factors associated with economic growth in Nigeria. These variables are inflation rate, government final consumption expenditure and investment rate. Based on theoretical and empirical considerations as well as on data availability, the model of the work of Christopoulos and Tsionas (2004), Apergis *et al*. (2007), Aslan (2008), Acaravci *et al*. (2009), Kiran *et al*. (2009), Starkey (2010) and Jalil *et al*. (2010), were adopted and modified in terms of variables included to capture the Nigeria context.

Table 1: Summary of variables and a priori signs

Variables	Definition	A priori sign
RGDPPC	Real GDP per capita	Dependent Variable
LL	Liquid liabilities	+
PSC	Credit to private sector	+
MCP	Stock market capitalization	+
TR	Turnover ratio	+
VLT	Value of shares traded	+
INF	Inflation rate	-
GOV	Government expenditure	+
INV	Aggregate investment rate	+

The research paper thus proposes the time series data model below:

$$Y_t = \beta_0+\beta_1 FD_t+\beta_2 X_t+\mu \quad (1)$$

where,

Y_t = The dependent variable: RGDPPC
FD_t = A set of financial system development proxies: LL, PSC, MCP, TR and VLT.
X_t = A set of control variables: INF. GOV, INV
M = The error term

The variables adopted are defined in Table 1 above and mathematical signs of the coefficients indicate the a priori expectations of the explanatory variables.

Operationalization of variables: There are a variety of approaches that can be used to measure economic performance, financial development and controlling for other factors that may influence growth. Hence, the specific variables included in empirical models are often a controversial topic. Since much of the controversy which surround the set of variable used in empirical research is largely due to their computation variations, there is need to clearly describe how the variables used in this study are computed. The variables adopted and their measurements are defined in Table 2 below.

PRESENTATION AND ANALYSIS OF EMPIRICAL RESULTS

This session deals with the presentation and analysis of the empirical results obtained from the

Table 2: Summary of variables and their measurement

Variables:	Measurement
Real GDP per Capita (RGDPPC)	Real GDP/Population
Liquid Liabilities Ratio (LL)	M2 money supply (currency plus demand and interest bearing liabilities of bank and non-bank financial intermediaries)/GDP
Private Sector Credit (PSC)	Domestic credit provided to private sectors (by way of loans, trade credit, purchases of non-equity securities)/GDP
Market Capitalization (MCP)	Stock market capitalization (share price multiplied by total number of shares outstanding)/GDP
Turnover Ratio (TR)	Total amount of securities traded/Total value of listed shares (market capitalization).
Value Traded (VLT)	Total value of shares traded during the period/GDP.
Inflation Rate (INF)	Percentage change in consumer price index
Government Expenditure (GOV)	Government final consumption expenditure/GDP
Investment Rate	Gross fixed capital formation/GDP

Table 3: Summary statistics

	VLT	TR	PSC	MCP	LL	INV	INF	GOV
Mean	1.176720	4.358869	17.05518	15.15679	24.85620	12.76583	20.83711	10.62756
Median	0.555000	1.800000	14.98000	10.12500	24.02500	10.02500	13.36500	9-511032
Maximum	6.730000	11.60000	36.89000	64.36000	38.14000	38.26000	72.84000	18.86000
Minimum	0.080000	0.280000	8.830000	5.860000	12.80000	2.996645	5.380000	5.100000
Std. Dev.	1.481752	4.254623	6.649381	12.50357	6.820068	7.817770	18.40401	4.110421
Skewness	2.157665	0.464399	1.445945	2.345148	0.311652	1.909901	1.490144	0.251355
Kurtosis	7.788262	1.470336	4.907061	8.805747	2.176694	6.413737	3.932381	1.715419
Jarque-Bera	55.39937	4.270047	15.99988	74.27410	1.421787	34.99266	13.00194	2.537154
Probability	0.000000	0.118242	0.000335	0.000000	0.491205	0.000000	0.001502	0.281231
Observations	32	32	32	32	32	32	32	32

Researcher's Computation (2012) using E-views 7.0

Table 4: Correlation matrix

	VLT	TR	PSC	MCP	LL	INV	INF	GOV	RGDPPC
VLT	1								
TR	0.7582	1							
PSC	0.4659	0.2	1						
MCP	0.8926	0.72	0.409	1					
LL	0.2774	-0	0.887	0.227	1				
INV	-0.292	-0.6	0.164	-0.29	0.43	1			
INF	-0.323	-0.4	-0.184	-0.33	-0.2	-0.04	1		
GOV	0.0559	-0.2	0.409	0.108	0.48	0.468	-0	1	
RGDPPC	0.8386	0.85	0.462	0.822	0.21	-0.35	-0.3	-0.1	1

Researcher's Computation (2012) using E-views 7.0

estimation exercise. The data analysis is both descriptive and inferential. These will assist in formulating appropriate policies from the analysis.

Descriptive analysis:

- **Summary statistics:** Table 3 above presents a descriptive statistics of time series data variables for the financial system development proxies and control variables. The essence of this is to indicate the level of disparity among the variables.

The table above shows the descriptive statistics of the variables used in the analysis. The Table showed that between 1980-2011, the average Liquid Liabilities ratio (LL), Private Sector Credit (PSC), Market Capitalization (MCP), Turnover Ratio (TR) and Value Traded (VLT), Inflation Rate (INF), Government Expenditure (GOV) and investment rate (INV) variables is 24.85, 17.055, 15.15, 4.35, 1.17, 20.8, 10.62 and 12.76, respectively. This indicates that the variables exhibit significant variation in terms of magnitude, suggesting that estimation in levels may introduce some bias in the result. It was observed that Real GDP per capita (RGDPPC), Inflation Rate (INF), Government Expenditure (GOV) and Investment Rate (INV) were positively skewed. The descriptive analysis also revealed that most of the variables used in the study were normally distributed except for Turnover Ratio (TR), Liquid Liabilities ratio (LL) and government expenditure as observed from the Jarque-Bera statistics.

- **Correlation analysis:** In an attempt to explore the relationship between dependent variable (RGDPPC) and explanatory variables used in the study, we carried out correlation analysis using Pearson product moment correlation method. The correlation matrix table is used to determine the direction and strength of the relationship between the variables. The results are presented in Table 4 above.

The table above shows how the variables relate to one another in the sample data from 1980-2011. The table shows that the co-efficient of correlation of a variable with respect to itself is 1.000. This indicates that there exists a perfect Correlation between a

Table 5: Results of augmented Dickey Fuller test at levels

	Levels			
Variables	ADF Statistics	Critical value at 5% significance level	Order of integration	Remarks
RGDPPC	-2.17	-3.56	I(0)	NONSTATIONARY
LL	-2.16	-3.56	I(0)	NONSTATIONARY
PSC	-3.6	-3.56	I(0)	STATIONARY
TR	-2.59	-3.56	I(0)	NONSTATIONARY
MCP	-2.85	-3.56	I(0)	NONSTATIONARY
VLT	1.33	-3.56	I(0)	NONSTATIONARY
INF	-3.25	-3.56	I(0)	NONSTATIONARY
GOV	-2.7	-3.56	I(0)	NONSTATIONARY
INV	-2.4	-3.56	I(0)	NONSTATIONARY

Researcher's Computation (2012) using E-views 7.0

Table 6: Results of ADF unit root tests at first difference

	First difference			
Variables	ADF Statistics	Critical Value at 5% Significance level	Order of integration	Remark
dRGDPPC	-4.35	-3.57	I(1)	Stationary
dLL	-7.7	-3.57	I(1)	Stationary
dPSC	-4.88	-3.57	I(1)	Stationary
dTR	-6.28	-3.57	I(1)	Stationary
dMCP	-4.58	-3.6	I(1)	Stationary
dVLT	-4.78	-3.6	I(1)	Stationary
dINF	-4.5	-3.6	I(1)	Stationary
dGOV	-5.69	-3.58	I(1)	Stationary
dINV	-6.12	-3.58	I(1)	Stationary

Researcher's Computation (2012) using E-views 7.0

variable with respect to itself. The correlation co-efficient among variables are discussed below: The result showed that there exist a positive relationship between VLT, TR, PSC, MCP, LL with a co-efficient of 0.83, 0.85, 0.46, 0.82 and 0.21, respectively. This shows that a very strong relationship exist between financial development proxies and economic growth in Nigeria. On the other hand, INV, INF and GOV had a negative relationship with economic growth (RGDPPC) with a co-efficient of -0.35, -0.30 and -0.10. An implication that inflation negatively affects economic growth. In the same vein, the negative government expenditure could possibly be caused by the reckless and unprioritised spending on projects with no economic value in Nigeria.

Econometric (inferential) analysis:

- **Unit root tests for variables:** It has been established in most econometric literatures that most time series variables are non-stationary and using non-stationary variables in the model might lead to spurious regression which cannot be used for precise prediction. Hence, our first step is to examine the characteristics of the data in order to determine if the variables are stationary and the order of integration. For this purpose, Augmented Dickey-Fuller (ADF) test was used. A variable is stationary if the absolute ADF value is higher than any of the absolute critical value for the Augmented Dickey-Fuller (ADF) statistic at 5% level. The unit root test was carried out on both levels I(0) and first difference I(1). The result of the unit root test with intercept and trend is presented in Table 5 above:

The result of the unit root tests at level shows that only PSC was stationary at levels, since the absolute calculated ADF value of -3.6 is greater than the absolute critical ADF value of -3.56 at 5% level of significance, While RGDPPC, LL, TR, MCP, VLT,,INF,GOV and INV were non-stationary at levels since their absolute ADF values of -2.17,-2.16, -3.6, -2.59, -2.85, 1.33, -3.25, -2.7 and -2.4 respectively less than the absolute critical ADF value of 3.56 at 5% level of significance. In order to ensure stationarity of all the variables, there was the need to take the first difference of the variables to obtain stationarity.

The Table 6 above shows that at the first difference all the variables became stationary. dRGDPPC, dLL, dPSC, dTR, dMCP, dVLT, dINF, dGOV and dINV, were all stationary since the absolute ADF test statistics with constant and trend values of -4.35, -7.7, -4.88,-6.28, -4.58, -4.78, -4.5, -5.69 and -6.12, respectively were greater than the absolute critical ADF value of 3.58 at 5% level of significance. Thus, all the variables are integrated of order one I(1). Having found that the variables are characterized by a unit root process, the cointegration test is further employed to determine whether a long-run relationship exist among the variables.

- **Tests for co-integration:** Having established that the variables are characterized by a unit root

Table 7: Test of unit root for ECM result

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.386531	0.0079
Test critical values:	1% level	-4.284580	
	5% level	-3.562882	
	10% level	-3.215267	

Researcher's Computation (2012) using E-views 7.0

Table 8: Over-parameterized Error Correction Model (ECM) result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	53.88096	37.65172	1.431036	0.1705
DINF	0.159216	1.902958	-0.083668	0.9343
DINF(-1)	0.226371	2.004852	-0.112911	0.9114
DINV	43.02610	11.49900	3.741727	0.0016
DINV(-1)	13.42586	8.982109	-1.494734	0.1533
GOV	6.577380	14.19806	0.463259	0.6498
DGOV(-1)	11.99008	6.579320	1.822389	0.0884
DLL	22.92070	14.75503	-1.553416	0.1387
DLL(-1)	2.519329	13.31170	0.189257	0.8521
DMCP	7.637059	4.110186	1.858081	0.0806
DPSC	24.31350	14.00595	1.735941	0.1007
DPSC(-1)	9.611632	17.19116	0.559103	0.5834
DVLT	20.29862	37.80152	0.536979	0.5982
ECM(-1)	0.483010	0.156107	-3.094092	0.0066
R-squared	0.675523	Mean dependent var		42.77013
Adjusted R-squared	0.446481	S.D. dependent var		218.7158
S.E. of regression	162.7221	Akaike info criterion		13.32065
Sum squared resid	450134.3	Schwarz criterion		13.92783
Log likelihood	186.8097	Hannan-Quinn criter.		13.51489
F-statistic	2.949336	Durbin-Watson stat		1.446423
Prob (F-statistic)	0.020733			

Researcher's Computation (2012) using Eviews 7.0

process, we then proceed to test for co-integration between RGDPPC and the regressors' (LL, PSC, TR, MCP, VLT, INF, GOV and INV). The Engle and Granger (1987) two stage method was used to carry out the co-integration test. The choice of this method is based on the fact that it is easy to use and possesses some unique capabilities. Johansen (1991) generalized the testing procedure for more than one cointegration relationships. However, Johansen test works better in large samples than small samples since it converges slowly. In this sample, we only have 32 years data. So instead of choosing Johansen test, we chose Engle and Granger test. The process of Engle and Granger test is to run an OLS regression at level for RGDPPC and the regressors, save the residuals and then test whether residual are stationary by using the Augmented Dickey Fuller (ADF) test for unit roots. Compare Test Statistic from computer output with appropriate Engle-Granger critical value. The result of the unit root tests on the OLS residuals is reported in the Table 7 above:

From the table, it was observed that the residual is stationary since the absolute ADF test statistics with a value of -4.38 is greater than the absolute critical ADF value of -3.56 at 5% level of significance, then the stationarity of the residual is confirmed. This leads us to conclude that RGDPPC and the regressors (LL, PSC, TR, MCP, VLT, INF, GOV and INV) are co-integrated at the 5% test levels. Thus there is a long-run equilibrium relationship between the dependent variable (RGDPPC) and the explanatory variables.

- **Error correction model analysis:** The short run adjustment dynamics can be represented by an error correction model. According to Engel and Granger (1987), once a set of variables are stationary in first difference I(1) and a cointegration has been established, any dynamic analysis should incorporate the error correction mechanism, which measure deviation from the long-run equilibrium. Also, it is able to determine the speed at which the explained variable returns to equilibrium after a deviation has occurred. The result from ECM model is presented below (Table 8):

Although the result of the over-parameterized error correction model for economic growth (RGDPPC) seems fairly well estimated, it cannot be interpreted in his present form.

As in the tradition, the over-parameterized error correction model was reduced to achieve parsimonious error correction model, which is data admissible, theory-consistent and interpretable. Parsimony maximizes the goodness of fit of the model with a minimum number of explanatory variables. The reduction process is mostly guided by statistical considerations, economic theory and interpretability of the estimates (Adam, 1992). Thus, our parsimonious reduction process made use of a stepwise regression

Table 9: Parsimonious Error Correction Model (ECM) result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-52.07278	38.74011	-1.344157	0.1947
DRGDPPC(-1)	0.503822	0.243235	2.071335	0.0522
DRGDPPC(-2)	0.397960	0.173621	2.292113	0.0335
DLL	-18.25431	11.55454	-1.579838	0.1306
DMCP	10.27934	4.014372	2.560636	0.0191
DPSC	33.75434	12.95342	2.605825	0.0174
DINV(-1)	-18.55118	7.530898	-2.463343	0.0235
DTR	13.86542	16.61635	0.834444	0.4144
DVLT	-11.05845	12.65416	-0.873898	0.3931
ECM(-1)	-0.587644	0.146835	-4.002075	0.0008
R-squared	0.614235	Mean dependent var		49.40358
Adjusted R-squared	0.431504	S.D. dependent var		219.4945
S.E. of regression	165.4960	Akaike info criterion		13.32257
Sum squared resid	520389.6	Schwarz criterion		13.79405
Log likelihood	-183.1773	Hannan-Quinn criter.		13.47023
F-statistic	3.361415	Durbin-Watson stat		2.050728
Prob(F-statistic)	0.012503			

Researcher's Computation (2012) using E-views 7.0

procedure (through the elimination of those variables and their lags that are not significant), before finally arriving at interpretable model. The result from the parsimonious ECM is presented above (Table 9):

An examination of result shows that over 61% of the systematic variation in economic growth (dRGDPPC) have been explained by the regressors, that is the final variables that entered the parsimonious model namely liquid liabilities ratio (dLL), private sector credit (dPSC), market capitalization (dMCP), Turnover ratio (dTR) and value traded (dVLT), Investment Rate (dINV). This is indicated by the coefficient of determination (R^2) of 0.614. While about 39% of the systematic variations in economic growth (dRGDPPC) was left unexplained by the model which has been captured by the error term. This implies that other factors apart from the financial sector also affect Nigeria's economic growth in the short-run, although not statistically significant. On the basis of the overall statistical significance of the model as shown by the F-statistics, it was observed that the overall model was statistically significant since the calculated F-value of 3.36 was greater than the critical F-value at 5% level of significance. Thus, the hypothesis of a significant linear relationship between economic growth (proxied by RGDPPC) and all the explanatory variables is validated.

On the basis of the individual statistical significance of the model , as shown by the t-ratios, the result showed that in the short run, DRGDPPC(-1) (previous year real per capita GDP) and DRGDPPC(-2) (last two years real per capita GDP) has a significant impact on current dRGDPPC since DRGDPPC(-1) and DRGDPPC(-2) with a t-value of 2.07 and 2.29, respectively were greater than the critical t-values at 5% level of significance. The result also revealed that previous year economic growth has a positive relationship with current economic growth. The result showed that stock market development (measured by market capitalization as a ratio of GDP) has a significant impact on current economic growth in the short-run since dMCP with a calculated t-value of 2.56 is greater than the critical t-value at 5% level of significance. The result also showed that there exist a direct relationship between market capitalization and economic growth in Nigeria.

It was observed that banking system development (measured by private sector credit as a ratio of GDP) has a significant impact on Nigeria's economic growth in the short-run since (dPSC) with a calculated t-value of 2.605 is greater than the critical t-value at 5% level of significance. The result also revealed that there exist a positive relationship between private sector credit and Nigeria's economic growth. The result showed that previous year investment (dINV(-1)) has a significant impact on Nigeria's economic growth, although the result showed an inverse relationship between previous investment and current economic growth. An implication that previous investment slows down economic growth. This fact may be attributable to the huge Capital Replacement Cost (CRC) which tend to outweigh whatever economic benefit such investment tend to confer on the growth process. The result revealed that Liquid Liabilities ratio (LL), Turnover Ratio (dTR) and value traded (dVLT) have no significant impact on Nigeria's economic growth in the short-run since the calculated t-value of -1.57, 0.83 and -0.87, respectively were less than the critical t-value at 5% level of significance. The result further showed that there exist a direct relationship between turnover ratio and Nigeria's economic growth in the short-run but there exist an inverse relationship between value traded and economic growth. Liquid liabilities ratio also have an inverse relationship with growth. The coefficient of the ECM was also correctly signed and significant at 1% level. Thus, the model is able to correct for any deviation in economic growth from short-run equilibrium situation to long-run equilibrium. The coefficient of the ECM, with a value of -0.58 means that the speed of adjustment is about 58% which

Table 10: Long run analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1990.682	285.6417	6.969156	0.0000
LL	-37.28189	20.31852	-1.834873	0.0814
MCP	17.37925	5.380949	3.229774	0.0042
PSC	60.16671	22.92952	2.623984	0.0163
TR	108.0194	29.96911	3.604356	0.0018
VLT	82.23561	65.10346	1.263153	0.2211
GOV	-30.22480	12.83460	-2.354948	0.0289
INV	24.90658	11.46350	2.172686	0.0420
INF	-6.891559	2.516548	-2.738497	0.0127
AR(2)	-0.385202	0.169071	-2.278351	0.0338
R-squared	0.914722	Mean dependent var		3092.133
Adjusted R-squared	0.876346	S.D. dependent var		784.8101
S.E. of regression	275.9740	Akaike info criterion		14.33969
Sum squared resid	1523233.	Schwarz criterion		14.80676
Log likelihood	-205.0954	Hannan-Quinn criter.		14.48911
F-statistic	23.83621	Durbin-Watson stat		1.614453
Prob(F-statistic)	0.000000			

Researcher's Computation (2012) using E-views 7.0

indicates that the speed of adjustment to long- run when there is a temporary disequilibrium would be relatively fast. The Durbin Watson statistic of 2.05 indicates the absence of autocorrelation in the model.

- **Long run analysis:** The long run relationship between the dependent variable (RGDPPC) and the regressors (LL, MCP, PSC, TR, VLT, GOV, INV, INF) is estimated using Ordinary Least square (OLS) technique. The result is presented in Table 10 above:

An examination of result shows that about 91% of the systematic variation in economic growth (dRGDPPC) in the long run have been explained by all the regressors namely Liquid Liabilities ratio (LL), Private Sector Credit (PSC), Market Capitalization (MCP), Turnover Ratio (TR) and value traded (VLT), Inflation Rate (INF), Government Expenditure (GOV) and Investment Rate (INV). This is indicated by the coefficient of determination (R^2) of 0.91. While about 9% of the systematic variations in economic growth (dRGDPPC) were left unexplained by the model which has been captured by the error term. This implies that other factors apart from Inflation Rate (dINF), Government Expenditure (dGOV) and Investment Rate (dINV) also affect Nigeria's economic growth in the long-run. After adjusting for the degree of freedom the model explain about 87%s of the total systematic variations in economic growth (dGDPPC) as shown by the adjusted R-square of 0.876.

On the basis of the overall statistical significance of the model as shown by the F-statistics, it was observed that the overall model was statistically significant since the calculated F-value of 23.8 was greater than the critical F-value at 5% level of significance. Thus, all the explanatory variables jointly have a significant impact on Nigeria's economic growth in the long run and the existence of the hypothesis of a significant relationship between the dependent variable (RGDPPC) and all the independent variables in the long-run is validated.

On the basis of the individual statistical significance of the model, as shown by the t-ratios, the result showed that three of the financial development measures [that is, Private Sector Credit (PSC), Market Capitalization (MCP), Turnover Ratio (TR)] have a significant positive relationship with economic growth in the long run since their calculated t-values were greater than the critical t-value at 5% level of significance, while Liquid Liabilities ratio (LL) and value traded (VLT) had no significant impact on Nigeria's economic growth in the long-run. The result also revealed that four of the financial development measures [i.e., Private Sector Credit (PSC), Market Capitalization (MCP), Turnover Ratio (TR), Value Traded (VLT)] have the expected positive sign, while Liquid Liabilities ratio (LL) is the only financial development measure that display a negative sign contrary to expectation. In terms of control variables, government expenditure (GOV) is found to be negatively related to economic growth, contrary to the expected sign. The result also revealed that Government Expenditure (GOV) have a significant impact on economic growth in the long-run, since its calculated t-value is greater than the critical t-value at 5% level of significance. Also, Investment Rate (INV) has significant positive impact on Nigeria's economic growth in the long-run. Regarding Inflation Rate (INF), this variable is found to be negatively related with Nigeria's economic growth in the long-run. Since its calculated t-value is greater than the critical t-value at 5% level of significance. The result also revealed that inflation significantly impact economic growth in the long-run. The Durbin Watson statistic of 1.61 can be approximated to 2, which indicate the absence of autocorrelation in the model.

- **Diagnostic tests:** In order to ensure the reliability and validity of the results obtained from the

Table 11: The Variance Inflation Factor (VIF)

Included observations: 32

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	113337.2	41.41214	NA
LL	491.6640	119.0872	8.094920
MCP	96.57080	13.45034	5.344176
PSC	482.4084	58.82219	7.549949
TR	689.0713	9.198958	4.415226
VLT	8270.063	10.61145	6.427273
GOV	267.5997	12.64392	1.600387
INV	115.1479	9.347692	2.491085
INF	11.81303	3.290387	1.416293

Researcher's Computation (2012) using E-views 7.0

Table 12: Breusch-Godfrey serial correlation LM test

F-statistic	0.773933	Prob. F(2, 18)	0.4759
Obs*R-squared	2.375500	Prob. Chi-Square(2)	0.3049

Researcher's Computation (2012) using E-views 7.0

Table 13: Breusch-Pagan-Godfrey Heteroskedasticity test

F-statistic	0.287429	Prob. F(8, 23)	0.9633
Obs*R-squared	2.908434	Prob. Chi-Square(8)	0.9400
Scaled explained SS	1.207823	Prob. Chi-Square(8)	0.9966

Researcher's Computation (2012) using E-views 7.0

empirical analysis, three diagnostic tests were carried out to check for the problems of multicollinearity, heteroskedasticity and autocorrelation. The tests carried out to ensure the robustness of the results are shown below:

- **Multicollinearity test:** In order to test for the presence or otherwise of multicollinearity, we employed the use of the Variance Inflation Factor (VIF) for all the explanatory variables. The variance inflation factor is presented in Table 11 above.

The rule is that if the VIF>10, then a problem of multicollineariy exists. The table above suggests that the regression does not have problems of multicillinearity, since for all the explanatory variables the VIF is lower than the required benchmark of 10. In other words, there is no reason to suspect serious multicollinarity in the model.

- **Serial correlation test:** Serial correlation does not affect the unbiasedness or consistency of OLS estimators but it does affect their efficiency. This can lead to the conclusion that the parameter estimates are more precise than they really are. There will be a tendency to reject the null hypothesis when it should not be rejected. In order to verify whether this study is confronted with the problem of serial correlation we employed the Breusch-Godfrey Serial Crrelation LM test. The Breusch-Godfrey Serial Correlation test is presented in Table 12 above.

The table above shows that the F-statistic and Obs*R-square values of 0.77 and 2.37 with p-values of 0.47 and 0.30s, respectively indicates the absence of autocorrelation in model since the F-statistic and Obs*R-square with p-values of 0.47 and 0.30 are greater than the critical values at 5% level of significance. Thus, we can conclude that there is no autocorrelation in the model.

- **Heteroskedasticity test:** Heteroskedasticity does not cause OLS coefficient estimates to be biased nor inconsistent but it can cause the variance (thus standard errors) of coefficients to be underestimated. This may lead you to judge that a relationship is statistically significant when it is actually too weak to be confidently distinguished from zero. In order to verify the presence or otherwise of heteroskedasticity in the model we employed the use of the Breusch-Pagan-Godfrey-Test. The Breusch-Pagan-Godfrey heteros kedasticity test is presented in Table 13 above.

The Table 13 above shows that the F-statistic and Obs*R-square values of 0.28 and 2.90 with p-values of 0.96 and 0.94, respectively indicates the absence of heteroskedasticity in model since the F-statistic and Obs*R-square with p-values of 0.87 and 0.84 are greater than the critical values at 5% level of significance. Thus, we can conclude that there is no heteroskedasiticity in the model.

- **Granger causality test:** Granger (1969) causality is employed to test for the causal relationship between two variables. This test states that, if past values of a variable *y* significantly contribute to forecast the future value of another variable *x* then *y* is said to Granger cause *x*. Conversely, if past

Table 14: Result of granger causality test

Null Hypothesis:	Obs	F-Statistic	Prob.
DRGDPPC does not Granger Cause DLL	29	0.63944	0.5363
DLL does not Granger Cause DRGDPPC		0.3499	0.7083
DPSC does not Granger Cause DRGDPPC	29	1.4435	0.2559
DRGDPPC does not Granger Cause DPSC		0.49098	0.618
DRGDPPC does not Granger Cause DMCP	29	0.15378	0.8583
DMCP does not Granger Cause DRGDPPC		0.63775	0.5372
DTR does not Granger Cause DRGDPPC	29	0.9583	0.3977
DRGDPPC does not Granger Cause DTR		0.45531	0.6396
DVLT does not Granger Cause DRGDPPC	29	18.211	0.0000
DRGDPPC does not Granger Cause DVLT		0.09213	0.9123
DRGDPPC does not Granger Cause DINF	29	0.16919	0.8453
DINF does not Granger Cause DRGDPPC		0.44421	0.6465
DRGDPPC does not Granger Cause DGOV	29	0.18107	0.8355
DGOV does not Granger Cause DRGDPPC		0.39248	0.6796

Researcher's Computation (2012) using E-views 7.0

values of *x* statistically improve the prediction of *y*, then we can conclude that *x* Granger causes *y*. In order to determine the direction of causality which prevails between the various measures of financial development and economic growth, we conducted a Granger Causality analysis to enable us detect which financial development variable (s) causes economic growth and vice versa. The result from the Granger causality analysis is presented in the Table 14 above.

The Granger causality results are presented in Table 14. Here, the p-value is used to decide the level of significant. For granger causality to have been established between the pairs of variables, p-value must be less than the choosing level of significant. Using 5% as the level of significance, we can infer that none of the variables have a bi-directional relationship in the model but there is a unidirectional causality from financial development to economic growth (RGDPPC) when value traded (VLT) is used as a measure of financial development.

DISCUSSION OF RESULTS

The results of the foregoing empirical analysis are far reaching, inclusive and worth mentioning.

First and foremost, the empirical results have given credence to the existence of a positive association (correlation) between financial development proxies and economic growth in Nigeria. In particular, all the financial development proxies such as Liquid Liabilities ratio (LL), Private Sector Credit (PSC), Market Capitalization (MCP), Turnover Ratio (TR) and Value traded (VLT) are found to be positively associated (correlated) with the level of economic growth. This is in line with the empirical findings of Demirguc-Kunt and Levine (1996). The dynamic approach to the empirical analysis shows that private sector credit and market capitalization are strong financial development proxies which are highly linked to economic growth in Nigeria in the short run. More specifically, positive short-run linkages exist between economic growth and banking development (in terms of PSC), stock market development (in terms of MCP). In the same vein, it is observable from the empirical results that in the long run, Private Sector Credit (PSC), market capitalization and Turnover Ratio (TR) significantly influences and are strongly linked to economic growth in Nigeria. Investment Rate (INV) is also found to be a strong factor in the growth process of Nigeria in the long-run.

Secondly, the empirical findings indicate that the coefficient of Private Sector Credit (PSC) is positive and significantly related to economic growth (RGDPPC) in Nigeria. The import of these findings is that the banking system in Nigeria is truly performing their intermediation role of channeling funds to the private sector. This indeed is the major role of the financial sector towards the economic growth process. More specifically, the PSC finding suggests that the financial deepening-by way of increasing credit availability to private sector-has a positive influence on real activity. Allen and Ndikumana (2000), Ghirmay (2004) and Padachi *et al*. (2007) similarly show that a positive, significant long-run relationship exist between banking development (particularly PSC) and growth. While findings also suggest that enhancing the size and liquidity of stock markets has a significantly positive impact on economic growth. Similar positive, significant long-run linkages between stock market development (measured by MCP and TR) and economic growth have been found by Odhiambo (2010) and Adenuga (2010). The empirical results also revealed that Liquid Liabilities (LL) and Value Traded (VLT) are not significant indicators of financial development in the long-run and are therefore insignificantly linked to economic growth in Nigeria. Thirdly, Government expenditure (GOV) is found in this study to be significant but negatively signed. This means that Government expenditure adversely impact economic growth in Nigeria in the long run. A possible explanation for this negative relationship between government spending and growth could be that the involvement of government in economic development

of Nigeria has exceeded certain threshold, which is not conducive for growth enhancement. The reckless and unproductive government expenditure on white elephant projects witness in Nigeria over the past years and the consequent monumental economic loss of the country could have also contributed to the negativity of the sign. Moreover, as noted by Ngongan (2007), economic growth varies enormously over time in response to varying fiscal and monetary policy issues. The negative linkages between government expenditure and growth found in this study are in line with the findings of Al-Yousif (2000), Mariotti (2002), Romm (2003) and Starkey (2010). Similarly, inflation (INF) is significantly linked to economic growth in the long run and the inflation coefficient is negative. This is consistent with the theoretical argument that inflation inhibits economic growth and in line with existing literature (Adersen, 2003; Gillman and Harris, 2004; Kemel *et al*., 2007).

Lastly, the result from the Granger causality test indicates that financial development measure by value traded (VLT) is found to cause economic growth in Nigeria, without a feedback effect. It means that it is finance that causes economic growth. This outcome, thus re-affirms the finance-led growth hypothesis. The result is in consonance with the findings in previous studies conducted by Odedokun (1996), Ghirmay (2004), Ghali (1999), Christopoulos and Tsionas (2004) and Apergis *et al*. (2007). These general and particular findings have important policy implications for the domestic economy.

Policy implications: As each of the findings above carries with it some policy implications, they are dealt with in the remaining paragraphs.

First, in general, as the relationship between financial development and economic growth in Nigeria is found to be positive, it implies not only those efforts to reform and deepen the banking system and stock market in Nigeria were proved to be fruitful, but also points to the fact that financial development (i.e., banking system and stock market development) has played an important role in economic growth. Perhaps, in the long-run, by continuing the progress made in the financial liberalization and focusing more on enhancing the efficiency of the financial institutions/markets a higher and more promising economic growth will certainly be the result. At this juncture, it is also worth mentioning that if Nigeria government is thinking seriously to continue experiencing a sustainable economic growth, the next stage of financial development should be centered on developing a long-term bond market. By doing so, it would contribute long-term capital to grow at reasonable real cost as well as stabilize exchange rate expectations and hence enabling the monetary authorities or central bank to intervene effectively to dampen macroeconomic cycles caused by external shocks.

Next, the results of the (negative) impact of inflation and government expenditure on growth have important policy implications for both domestic policy makers and development partners. First, as far as the inflation is concerned, from the aggregate demand stand point, if it reaches beyond certain rates, inflation will lead to a decrease in the purchasing power and an increase in the cost of living, hence retarding the economic growth. Second, given that the monetary authority (central bank) have to balance the credit requirements by the private and public sector against both inflationary and balance of payment pressures, it is not always possible for the central bank to increase the nominal interest rate above the expected (or actual) inflation rate through contractionary monetary policy. This being the case, the central bank can think of an alternative way by working on an expectations channel to reduce inflation. This requires credibility of the monetary authority in following through its monetary program as communicated in advance to the stakeholders.

Finally, in general, government expenditure if prudently routed for basic physical development of a country can provide a conducive environment for economic growth. In particular, the government should confine itself to fulfill its core functions as protection of persons and property, national defence, education, monetary stability and physical infrastructure. Anything beyond this function, however, will contribute to less and less productive activities of the economy. Eventually, as the government become larger and undertakes more activities for which it is ill suited, negative returns set in and economic growth is retarded. Perhaps, this is likely the case of Nigeria where governments (or through Government Linked Companies) become deeply involved in the provision of private goods i.e., goods for which the consumption benefits accrue to the individual consumers such as food, housing, medical service and child care. Therefore, it is advisable for the government to outsource the provision of such goods to the private sector as this sector is well-known to have the ability to allocate the goods more efficiently than the public sector.

CONCLUSION

This study sought to explore the short-run and long-run relationship between financial system development and economic growth based on the relative contributions of the banking system and stock market. It empirically examined the effects of stock market and banking development indicators on economic growth. In sum, the results strongly reject the notion that financial development is unimportant or harmful in Nigeria. It is found that, even after controlling for other factors associated with economic growth, banking system and stock market development

are both positively and robustly correlated with economic growth. Furthermore, since measures of stock market development and banking development both enter the growth regression significantly, the findings suggest that banks provide different financial services from those provided by stock markets. The study also finds that causality between financial development and economic growth runs from financial development, that is, it is supply-leading. The strong, positive link between financial development and economic growth and the Granger causality test results suggest that financial factors are an integral part of the growth process in Nigeria. Specifically, our findings suggest that financial system development will lead to economic growth. Therefore, for significant growth, the focus of policy should be on measures to promote growth in the financial sector in order to facilitate investment and thus, lead to economic growth. We therefore recommend that the ongoing reforms in the banking system and capital market should be intensified so as to boost the development of these segments of the financial system and by that increase their role in economic growth. Also the regulation and supervision of the financial system should be strengthened as it plays a great role in determining both its stability and the extent of the services provided.

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