Asian Economic and Financial Review

journal homepage: http://aessweb.com/journal-detail.php?id=5002

FINANCIAL MARKET STRUCTURE AND ECONOMIC GROWTH: EVIDENCE FROM NIGERIA DATA

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ABSTRACT

In this paper, we investigate both the long run and short run relationships between financial structure and economic growth using time series data. The presence of a unit root in the time series data was tested using Augmented Dickey – Fuller and Philips – Perron tests. The long run relationship among the variables is estimated using Johansen and Juselius (1990) maximum likelihood procedure. While the vector error correction model is used to estimate short run the dynamic coefficients. The main results reveal that financial market structure has a negative and significant effect on economic growth based on Nigeria data. This suggests a low level of development of the country's financial sector. The paper therefore recommends that there is a need to put appropriate financial policies in place that will encourage the growth per capita GDP.

Keywords: Financial market structure, Co integration test, ECM, Economic Growth, Nigeria

INTRODUCTION

Since independence, the financial sector has been on the increase. Today, we have about 24 strong banks and well functional stock market. Other financial institutions like insurance companies, finance companies etc are growing. Also included are specialized banks such as industrial development banks, agricultural and rural development banks and mortgage banks. The financial sector has been liberalized in Nigeria. However, despite the growth record of banks and non-bank financial institutions in Nigeria, and financial liberalization policy, the Nigeria economic growth is sluggish. The per capita income is less than $4,000. Most of the industries are winding up and thus giving rise to unemployment. At this junction, it might be necessary for one to ask if the financial

market in Nigeria is underdeveloped to support the investment needed to boost economic growth. And if the financial sector is well developed, its under-performed role might be due to the absence of strong policy (policies).

The relationship between economic growth and financial sector is dynamic, such that the latter, at one stage influences the former, while at another stage, the former may influence the latter. Thus, finance is not exogenous. At an early stage of development, entrepreneurs mainly depend on their savings for the needed investment funds. As the economy develops, banks emerge to facilitate the financing of new investments. Further growth in the economy sees the development of markets for tradable securities. Such markets do not replace but complement banking functions. For Nigeria, identifying the relationship between financial system and economic growth is crucial, in view of the continuing progress of this sector, particularly the recent consolidation exercises within the financial markets.

In carrying out this investigation, we formulate the following questions; 1) how does the financial system in Nigeria affect economic growth? This question is vital for economic theory posits that financial intermediations induce economic growth and development. To answer the first question, the second one emerges; 2) which of the financial market variables lead to faster growth? Moreover, the purpose of the study is to analyze the two questions above, thereby contributing to the body of empirical investigation on the relationship between financial system and economic growth using numerous variables of the financial markets (mainly bank based). The use of bank based variables to study the finance/growth nexus in Nigeria is necessitated by lack of data on market based variables for the Nigerian economy.

This paper will contribute to the empirical literature on financial markets and economic growth in Nigeria, since it will provide country specific results concerning Nigeria's financial system – growth relationship. Also, since the paper uses six financial market variables to make analysis, it stresses the importance of looking at the range of financial market assets and not just few for an investigation of this nature. The paper is organized as follows. Section 2 is an overview of the Nigerian financial system. Section 5 deals with the methodology. Section 3 focuses on the literature review both the theoretical and empirical literature. Section 4 is the model specification, method of analysis and discussion of the empirical results, while section 5 concludes the paper.

Overview of Nigerian Financial System

The Nigerian financial system comprises of various institutions, instruments and regulations. According to Central Bank of Nigeria (1993), the financial system refers to the set of rules and

regulations and the aggregation of financial arrangements, institutions, agents that interact with each other to foster economic growth and development of a nation. The financial system plays a key role in the mobilization and allocation of savings for productive purposes. It also assists in the reduction of risks faced by firms and businesses in their production processes, improvement of portfolio diversification, and insulation of the economy from external shocks (Nzotta, 2004). In addition, the system provides linkages for different sectors of the economy and encourages a high level of specialization and economies of scale.

The Nigerian financial system can be divided into two sub-sectors; the formal and informal sectors. The informal sector has no formalized institutional framework, no formal structure of rates and comprises the local money lenders, thrift collectors, savings and loan associations and all forms of 'Isusu' associations (Nzotta and Okereke, 2009). According to Olofin and Afangideh (2008), this sector is poorly developed and not integrated into the formal financial system, therefore, its exact size and effect on the economy remain unknown and are a matter of speculation. The formal sector on the other hand comprises of bank and non bank financial institutions. Bank financial institutions are the deposit taking institutions. As financial intermediaries, they channel funds from surplus economic units to deficit units to facilitate trade and capital formation.

They include; central bank, commercial banks, development banks, co-operative and commerce banks, etc. while, the non banks financial institutions include; the money markets, capital markets, insurance companies, pension funds, etc. These institutions are not deposit taking institutions, but some of them perform intermediation functions of channeling funds from surplus to deficit units for economic activities, for instance, money and capital markets.

The regulatory institutions in the financial system are; the Federal Ministry of Finance, Central Bank of Nigeria as the apex institution in the money market, the Securities and Exchange Commission (SEC) as the apex institution in the capital market, Nigeria. Deposit Insurance Corporation (NDIC), National Insurance Commission (NAICOM) and the National Pension Commission (PENCOM).

Financial Sector Reforms in Nigeria

Financial sector reforms have been a regular feature of the Nigerian financial system. The reforms have evolved in response to the challenges posed by developments in the system such as; globalization, technological innovations and financial crisis. The reforms act proactively to strengthen the system, by preventing financial crisis, strengthening the market mechanisms and

upholding ethical standards. Financial reforms in Nigeria dates back to 1952, when the Banking Ordinances was enacted.

At the inception of the 1987 financial reforms, the banking system was highly repressed. According to Emenuga (2005) interest rate controls, selective credit guidelines, exchange rate regulations, ceiling on credit expansion and use of reserve requirements and other direct monetary control instruments characterized the reforms. Entry into the banking system was also restricted. Consequently, the reform package of this era was to dismantle the regulation of interest rates, introduce liberalization and the establishment of a market based autonomous foreign exchange market, among others.

Some of the deregulation exercises were discontinued and reintroduced (for example, in 1991, when the government placed an embargo on bank licensing and capped interest rates- a year later, market forces were permitted to determine rates in 1992 and 1993). This reflected the inconsistency of policy and implementation in Nigeria (Omotar, 2007). In mid 2004, another round of banking system reform was undertaken. The reasons given were that the liberalization reforms during the Structural Adjustment Programme (SAP) of the mid-1980s were poorly managed and the banking system was adjudged weak and fragmented and that the short-term arbitrage opportunities were often financed rather than productive private investments. Consolidation and improved supervision of the banking system were needed to strengthen it (Okonjo and Osafo, 2007). Some key elements of the 2004 reforms include the following;

The minimum capitalization for banks should be raised to a minimum of ₦25bn (approximately $250m), from ₦2bn (approximately $15m); the banks should comply before the end of December 2005. Only banks that meet these requirements can hold public sector deposits and participate in the Dutch Auction System (DAS) of buying and selling foreign exchange.

1. Consolidation of banking institutions through mergers and acquisitions.
2. Phased withdrawal of public sector funds from banks.
3. Adoption of a risk focused, and a rule based regulatory framework.
4. Adoption of zero tolerance in the regulatory framework.
5. The automation process for reporting of returns.
6. Strict enforcement for the contingency planning framework of systemic banking distress etc (Okagbue and Aliko, 2005).

The implementation of the 2004 banking reforms triggered various mergers which reduced the number of deposit banks in Nigeria from 89 to 25. In an attempt to meet up with the new capital

requirements, the banks raised an equivalent of $3bn from domestic capital markets and attracted about $652m of foreign direct investment (FDI) into the Nigerian Banking System. This reform was also introduced to enable Nigerian banks to become active domestic and global players in the financial markets.

On the side of the capital markets, the markets have an upward trend. Aggregate volume and values, as well as the total number of transactions have increased phenomenally. Market capitalization has improved tremendously at the growth rate of 37.3 percent per annum (from ₦2.1trillon in 2004 to ₦2.9trillion in 2005). These growth rates were driven by banking consolidation programme which resulted in new listing (equities and bonds), supplementary shares and price appreciation in the equities division. Finally, the reforms impacted positively on the growth of the financial system. The system moved from a rudimentary one at inception to a more sophisticated one in 2009 with diverse institutions and operators, diversified financial assets and an enhanced regulatory framework.

LITERATURE REVIEW

Theoretical Literature

The role of financial sector in economic growth has been well recognized in the development literature and has been the subject of great debate amongst economists of both old and new (Jao, 1976). The seminal paper by Patrick (1966) has initiated widespread investigations into the role of financial sector as an engine for economic growth. It points out two possible relationships between financial development and economic growth. First, as the economy grows, it generates demand for financial services, which is termed "a demand-following phenomenon". According to this view, lack of financial institutions in developing countries is an indication of lack of demand for their services. Second, the establishment and the expansion of financial institutions in an economy may promote growth, and (Patrick, 1966) terms this "supply leading phenomenon" or 'financial-led' growth hypothesis". This latter view has been popular among governments in developing countries as a means to promoting economic growth and development (Habibullah and Eng, 2006).

Meltzer (1969) and Stein (1970) observe that only countries with high per capita incomes can experience rapid growth in financial assets. Such countries are none other than the developed countries. What is crucial here is what constitutes the financial assets that wealth holders must have as a result of high per capita income. Levine *et al.* (2000) enumerated the composition of financial assets as follows; bank credit which includes credit to private and credit to the public sectors, and stock market developments which include all instruments, long run or short run that are traded in

the stock markets. Only when such financial assets are identified with a country will such country be able to approximate financial deepening/development adequately.

Financial resources are mobilized from surplus economic units and channeled to economic activities or deficit economic units by financial institutions. In doing this, they evolve appropriate structures necessary for the intermediation functions which they perform Nzotta and Okereke (2009). Various studies have shown that there is a strong and positive relationship between the financial sector and economic growth and development. Porter (1966) shows that the level of financial institution development is the best indicator of general economic development. Goldsmith (1969) contends that financial institution development is of prime importance for real development because the financial superstructure in the form of both primary and secondary securities accelerates economic growth and improves economic performance to the extent that it facilitates the migration of funds to the best users. In the empirical study, the study calculated the values of the financial interrelation ratio (FIR), the ratio of all financial instruments at a given time to the value of the national wealth. It finds that the ratios for developing countries were far lower than those of developed countries and concluded that because the development of financial institutions affects economic development, the low level of the financial superstructure affects economic development negatively.

There is a general observation by economists that as per capita income of some countries increases, these countries usually experience more rapid growth in financial assets than in national wealth or national products. Developed countries of Europe, the United States, Japan, etc. whose financial assets have grown faster than their gross national products (GNP) have been cited as good examples of this general observation (Ndebbio, 2004). The works of Gurley and Shaw (1967), Goldsmith (1969), Meltzer (1969), Stein (1970), Meier (1984) and Jao (1976) are very clear on this observation. For example, Meier (1984) observes that in the United States, the growth of financial assets relative to GNP has been remarkably fast given that 'the ratio increased from about unity at the beginning of the last century to 4.5 in the 1980s. In the case of Japan, Meier (1984) further observes that the ratio of financial assets to GNP rose from 10% in 1885 to over 150% in the 1980s. Meier and other economists share the opinion that as countries rise along the scale of wealth and income, their financial structure usually becomes increasingly rich in financial assets, institutions and markets. Thus financial growth in excess of real growth of output has been seen as a common phenomenon in most developed countries.

Theoretical disagreements do exist about the role of the financial system in economic growth. Some economists see the role as minor or negligible, while others see it as significant. Robinson

(1952) argues that the financial system does not spur economic growth, rather the financial system simply responds to development in the real sector. In contrast, Goldsmith (1969), Mckinnon (1973), Levine and Zervos (1996) emphasize the positive role of financial system in economic growth. In particular, De Gregorio and Guidotti (1995) show convincingly that measures of banking development are strongly correlated with economic growth. In addition, they share the same view that a well functioning financial system is critical to sustained economic growth. Mckinnon (1973) and Shaw (1973) in extending formal theoretical analysis of the relationship between growth and financial deepening to developing countries, two major propositions have emerged: one, that growth of reamoney balances augurs well for economic growth, and two, that the growth of an economy depends in part on the degree of financial development or financial intermediation. Empirical studies to justify these propositions have been carried out on an international basis by, Shaw (1973), Jao (1976), Fry (1978) and Ogun (1986).

Empirical Evidence

There is an ever-expanding body of empirical evidence that countries with better developed financial systems – mostly captured by depth and efficiency measures experience faster economic growth. Cross – country studies show that developed banks and markets are associated with faster growth and that this relationship is robust to controlling for reverse causality or potential omitted variables Levine and Zervos (1998). These findings are also confirmed by a panel and time series estimation techniques (Christopoulos and Tsionas (2004); Rousseau and Sylla (1999). Research also indicated that financial sector development helps economic growth through more efficient resource allocation and productivity growth rather than through the sale of investment or savings mobilization Beck *et al.* (2000). Furthermore, cross-country time series studies also show that financial liberalization boosts economic growth by improving the allocation of resources and the investment rate Bekaert *et al.* (2001), Bekaert *et al.* (2005).

To further understand the relationship between financial development and economic growth, researchers have also employed both firm level and industry level data across abroad cross-section of countries. These studies better address causality issues and seek to discover the mechanisms through which finance influences economic growth. For instance, King and Levine (1993) use IMF data and various financial indicators to conclude that there is a positive relationship between financial indicators and growth, and that financial development is robustly correlated with subsequent rates of growth, capital accumulation, and economic efficiency. They correctly emphasize that policies that alter the efficiency of financial intermediation exert a first-order influence on growth. Similarly, Atje and Jovanovic (1993) examine the role of stock markets on development, and conclude that there is a positive effect on the level as well as on the growth. They

could not, however, establish a significant relationship between bank liabilities and growth. Levine and Zervos (1996) use various measures of stock market development, and conclude that there is a significant relationship. When they include banking depth variables in their regressions, they turn out to be non-significant.

Arestis and Demetriades (1997) use time series analysis and Johansen cointegration analysis for US and Germany. In Germany, they find an effect of banking development growth. In the US, there is insufficient evidence to claim a growth effect of financial development, and the data point to the direction that real GDP contributes to both banking system and stock market development. Demirguc and Maksimovic (2002) use firm level data and a financial planning model to show that more developed financial system-as a proxy by larger banking systems and more liquid stock markets allow firms to grow faster than the rates they finance internally. Consistent with Demirguc and Maksimovic (2002), Love (2003) also uses firm level data and shows that the sensitivity of investment to internal funds is greater in countries with less developed financial systems. Beck *et al.* (2005) use firm level survey data for a broad set of countries and shows that financial development eases the obstacles that firm face to grow faster; and this effect is stronger particularly for smaller firms. Recent evidence also suggests that access to finance is associated with a faster rate of innovation and firm dynamism consistent with the cross – country finding that finance promotes growth through productivity increases.

Rajan and Zingales (1998) use industry level data across countries and show that industries that are naturally heavy users of external finance as measured by the finance intensity of U.S industries – benefits disproportionately more from greater financial development compared to other industries. By using industry data, they highlight a distributional effect and find that industries that are naturally composed of small firms grow faster in financially developed economies, a result that provides additional evidence that financial development disproportionately promotes the growth of smaller firms. Also, using industry level data, Wurgler (2000) shows that countries with higher levels of financial development increase investments more in growing industries and decrease investment more in declining industries, compared to underdeveloped financial systems.

There are also, numerous individual country case studies that provide consistent evidence. For instance Jayaratne and Strahan (1996) compare states within U.S and show that bank branch reform boosted bank lend quality and accelerated real per capita growth rates. Similarly Guiso *et al.* (2002) examine the individual regions of Italy. It finds that local financial development enhances the probability that an individual starts a business, increases industrial competition and promotes growth of firms. And these results are stronger for smaller firms which cannot easily raise funds

outside of the local area. Bertrand *et al.* (2007) provide firm level evidence from France that shows the impact of 1985 deregulation, eliminating government intervention in bank lending decision fostered greater competition in the credit market, inducing an increase in allocation efficiency across firms.

Besides debates concerning the role of finance in economic development, economists have debated the relative importance of bank based and market based financial system for a long time Goldsmith (1969); Boot and Thakor (1997); Allen and Gale (2000), Demirguc and Levine (2001). However, research findings in this area have established that the debate matters much less than was previously thought, and that it is financial services themselves that matters more than the form of their delivery Levine *et al.* (2000), Demirguc and Maksimovic (2002). Financial structure does change during development, with financial system becoming more market based as the countries develop (Dermirguc-Kunt, and Levine, 1996 and 2001b).

Financial development has been shown to also play an important role in dampening the impact of external shocks on the domestic economy Beck *et al.* (2006) and Raddatz (2006), although financial crises do occur in developed and developing countries alike Demirguc and Detragiache (1998) and Demirguc and Detragiache (1999), Kaminsky and Reihnart (1999). Indeed, deeper financial system without necessary institutional development has been shown to lead to a poor handling or even magnification of risk rather than its mitigation. More generally, some political economy theorists also suggest that better functioning financial systems make financial services available to a wider segment of the population, rather than restricting them to politically connected incumbents Rajan and Zingales (2003), Morck *et al.* (2005). Yet others argue that financial access, especially to credit, only benefits the rich and the connected, particularly, at early stages of economic development and therefore, while financial development may promote growth its impact on income distribution is not clear (Lamoreaux, 1994).

Finally, if access to credit improves with aggregate economic growth and more people can afford to join the formal financial system, the relationship between financial development and income distribution may be non-linear, with adverse effects at early stages, but a positive impact after a certain point. Investigating income levels rather than growth rates, Honohan (2004) shows that even at the same average income, economies with deeper financial system have fewer poor people.

Furthermore, Ndebbio (2004) studied the relationship between financial deepening and economic growth and development using selected sub-Saharan African countries for just one decade (from 1980-1989). He used M_2/GDP and growth rate of per capita real money balances (PCRMB) to

represent financial deepening and other control variables which affect economic growth such as the rate of inflation, human capital and the growth rate of labor as explanatory variables as against real per capita GDP which is dependent variables. His regression results showed that financial deepening does positively affect per capita growth of output in these selected SSA countries, even though his parameter estimate of the variable of financial deepening was insignificant in one of his equations and he attributed this to shallow finance and the absence of well functioning capital market in most SSA countries.

Earlier on Jao (1976), Fry (1978) and Ogun (1986) had carried out a study on similar topic using the same variable M_2/y to represent financial deepening in their respective studies. Their results were in line with the result of Ndebbio (2004). The study found that out of 34 SSA countries used in the study, Mauritius had financial depth of over 45%, six others had financial depth of above 30% and the rest of 25% countries had financial depth of below 30%. Also, King and Levine (1993) used four indicators namely; the ratios of liquid liabilities to GDP (DEPTH); the ratio of credit allocated to the private sector to GDP (PRIVY); the ratio of credit allocated to the private sector to domestic credit (PRIVATE); and the ratio of deposit money Bank domestic assets to the total domestic assets (BANK) to check whether financial development leads to economic growth. They found statistically significant results proving a close link between financial development and economic growth with four indicators.

Then, Berthelemy and Varoudakis (1994) used the indicator (DEPTH) in their empirical analysis on panel data. Unlike King and Levine, their regressions did not fit a positive impact of financial development on growth. De Gregorio and Guidotti (1995) used the ratio of domestic credit to private sector to GDP (PRIVY) to study the influence of banking sector on the economy. According to them, "the main advantage of (PRIVY) over other monetary aggregates are that it measures more accurately the role of financial intermediaries in channeling funds toward private sector".

They found that financial development is correlated to economic growth, but its impact changes depending on regions, period and income level. Besides, they sustained that the main transmission channel of financial development impacts on economic growth is the capital margin productivity. Further, Levine and Zervos (1998) integrated their work on the work of King and Levine (1993) and included stock market indicators. Their findings were that banking and stock market indicators robustly correlate with current and future rates of economic growth, capital accumulation, productivity growth and private savings. Levine (1997) used a measure of deposit money bank credits to the private sector divided by GDP over the period 1976-1993. The results also confirm

that of King and Levine (1993) findings. Patrick (1966) in his own study concluded that financial system exert a growth influence on the capital stock by improving the existing stock of capital, efficiently allocating new investment among the rate of capital formation by providing incentives for savings and investment.

Model Specification and Sources of Data

Mankiw *et al.* (1992) developed a model which resembles the Solow- Swan model in the sense that it assumes constant returns to scale, but differs by including human capital in the growth model. Its deviation from the Solow – Swan model is remarkable because relatively small changes in resources devoted to physical and human capital accumulation may lead to large changes in output per worker. This model of Mankiw *et al.* (1992) is one of the endogenous growth models that highlight the existence of a variety of endogenous mechanisms that foster economic growth and it has suggested new roles in public policy.

This model can be used to analyze the linkages between financial deepening and economic growth. This can be done by extending the equation to include variables FD and Z, which indicate the financial deepening variables and other control variables that affect economic growth. Alfro et al (2004) explored this to examine the role of the local financial market in enhancing FDI for economic growth. Thus, we specify the model as:

$$Y = f(k, h, FD, Z) \qquad 1$$

Where y = output, $k =$ capital, $h =$ human capital and $Z =$ other variables affecting growth and FD is the financial deepening variables.

If k is divided into foreign direct investment (FDI) and domestic investment (DI) , then the model becomes

$$Y = f(FDI, DI, h, FD, Z) \qquad 2$$

Taking the logarithm of the variables then the model is therefore specified as:

$$\ln PCG = \alpha_0 + \alpha_1 \ln FDI + \alpha_2 \ln DI + \alpha_3 \ln HDI + \alpha_4 \ln FD + \alpha_5 \ln GOVEX + \alpha_6 \ln INFLR + \alpha_7 \ln RER + \alpha_8 \ln POPR + v_t \qquad 3$$

Where, PCG is per capita GDP, FDI is foreign direct investment, DI is domestic investment, HDI is a human capital index, FD represents all the financial deepening variables used in the study- $(M2, PCR, LLY, BANK, PCRMB, BTOT)$, $GOVEX$ is government expenditure, $INFLR$ is the inflation rate, RER is the real exchange rate, $POPR$ is the population growth rate. For the financial deepening variables, M2 is the ratio of broad money to GDP, PCR is the

financial sector credit to the private sector as a ratio of GDP, LLY is the ratio of liquid liability of the financial system to GDP, BANK is the banking sector credit to the private sector as a ratio of GDP, PCRMB is the per capita real money balances, and BTOT is the ratio of commercial bank assets to commercial bank plus central bank assets.

The sources of data include; World Development Indicator (WDI) database of the World Bank; International Financial Structures (IFS) data base; Central Bank of Nigeria (CBN) statistical bulletin; and Federal Bureau of Statistics. The data cover the period 1970 – 2008.

RESULTS AND DISCUSSION

Unit Root Test

The analysis begins with the test of stationarity of the data (unit root) using the ADF and PP tests. The results are presented in Table 1. All the variables, except GDP per capita, inflation rate, and Bank credit to the private sector, are stationary at first difference in both the ADF and PP tests. Note that variables that are stationary at level are both stationary without and with trend. We also examine the relationship among the financial structure variables. The results are reported in Table 2. As can be seen in Table 2, the financial variables are highly correlated. Therefore, to avoid multi-collinearity the variables are included individually in the model.

Cointegration Test

To test the long run relationship among the variables we utilize the Johansen and Juselius (1990) maximum likelihood procedure. The results are reported in Tables 3a and 3b. From the Tables there appears to exist a long–run relationship between financial development and economic growth in Nigeria. Furthermore, to obtain the long run estimates of the long-run relationship we normalize the long run coefficient by multiplying by minus one. The results of the normalized coefficients are reported in Table 4. Here, the signs on FDI, HDI, DI, GOVEX, POPR and RER are consistent for most of financial deepening – growth nexus. The foreign direct investment (FDI), population rate (POPR), government expenditure (GOVEX), real exchange rate (RER) and human capital (HDI), are positively signed, while DI is negatively signed. The domestic investment being negative indicates that in the long run, domestic financial market is underdeveloped or it is small and could not support the needs of domestic investors. This also implies that, domestic investment is being displaced by foreign direct investment or that local investors do not access the domestic financial markets. This lends support to recent studies which find that capital importing countries tend to be over-dependent on foreign capital. Therefore, foreign capital is a substitute for domestic capital Edwards (1995) and Cohen (1993). The coefficients of DI in most cases are significant. The

inflation (INFLR) variable carries a negative sign except when PCR (see column 5) is included as the financial deepening measure and is highly significant. This conforms to theory that higher inflation adversely affects economic growth. Higher inflation will erode the purchasing power of per capita income, while the low inflation rate will increase the purchasing power of per capita income. The financial development variables are negative except in column 3 when the ratio of commercial bank assets to commercial plus central bank assets (BTOT) is the measure of financial deepening. These indicate that in the long run, financial deepening has a negative and significant effect on the economic growth of Nigeria.

Short-run Dynamic Coefficients

The short-run dynamics of the Per Capita GDP – financial deepening relationship was estimated following Hendry's general to specific approach. Given the fact that the number of observations is not very large, we restricted the lag structure to a maximum of three periods. This lag length was determined using the conventional information criteria (Akaike information and Schwartz Bayesian information criteria). With Hendry's general to specific approach, insignificant lags were sequentially eliminated and the most parsimonious ones were retained. The results are presented in Table 5. From the results in Table 5, it is seen that the constant terms are negative and significant in columns 1, 2, 3, 5, and insignificant in columns 4, 6 and 7.

However, we ignore them since they do not have much economic implications. Some of the parameter estimates of the financial deepening variables are positive, while others are negative in different periods. Meanwhile, they are all statistically significant. For instance, at current period, M2 and BTOT have a negative and significant impact on PCG, whereas the insignificant ones were removed from the models. This suggests that the supply of the financial deepening or development is small and or that the financial system in Nigeria is underdeveloped. Indeed, the dismal growth performance witnessed in Nigeria could be attributed partly to the underdevelopment of the financial markets. At lag one, PCRMB, BANK, PCR, M2 and LLY have a positive and significant effect on PCG. The implication of this is that the positive and significant effect of these variables on PCG will only occur after some times and not instantaneous. At lag 2 periods, BTOT, PCR and LLY become negative and significant, while at lag 3 periods, PCR, LLY, PCRMB and LLY appear positive and significant. However, the lagged values of PCG have a positive and significant impact on the current PCG. In addition, foreign direct investment (FDI) has marginal impact on PCG of the current period, whereas it has a positive and significant effect on PCG in column 5 only. At lag 1, the coefficient of FDI becomes negative and significant throughout, while at lag 2, 3, FDI becomes positive and significant in PCR, LLY and M2 models only. The implication of this is that FDI is not complementing the growth of PCG in Nigeria.

This may be as a result of not having strong absorptive capacity in the form of developed financial system in Nigeria. This supports the work of Eid (2008) which finds that financial development is the leading channel through which FDI's positive spill-over accelerates economic growth. Domestic investment (DI) which is used to proxy domestic capital has positive and significant effect on PCG in most of the models at a level, except in columns 3 and 4 where BTOT and BANK are used as financial deepening variables. At lag 1, DI has a negative and significant impact on PCG in columns 1, 3, 4, 5, and 7. The result implies that at the short run period, domestic investment supports PCG positively and significantly in Nigeria. Furthermore, human capital development which we use HDI to proxy has a negative and significant impact on PCG, both at the level and lag periods in all the models.

This result may explain the negative impact of FDI on PCG, since human capital also acts as absorptive capacity for FDI inflows to a country. Meanwhile, the result suggests that the level of human capital development is quite low to bring about robust growth. For real exchange rate (RER), it has a positive and significant impact on PCG in column 5 only, being insignificant and non existed in all other columns in level period. Moreover, at lag 1, 2, and 3 periods, RER plays negative and significant role in the growth of PCG in Nigeria. This result is expected since the country's exchange rate remains volatile and unreliable. Also, government expenditure (GOVEX) maintains negative and significant in all models at lag 1, 2, and 3 periods except in column 4 where it is positive and insignificant. In fact at level period, GOVEX has insignificant coefficients and was eliminated for not being parsimonious. This result confirms the negative impact of the size of the public sector on economic growth.

The population growth rate is positive and significant in column 1 only at level (i.e., the model without financial deepening variables). At lag 1, it is insignificant in most of the columns except in columns 2 and 6 where it is negative and significant. At lag 2, it becomes positive and significant. The result suggests that the positive impact of population growth rate is not an immediate occurrence, it takes time to manifest. Finally, inflation rate is negative and significant at level, and insignificant at lag 1 in most of the models. Thus, the implication of the result is that inflation rate constitutes a threat to the growth of per capita GDP in Nigeria.

The diagnostic statistics conducted on these models suggest that the model estimates are generally desirable. The high R^2 and adjusted R^2 of 0.91 and 0.82 respectively on the average show that the model has a good fit. The Breusch – Godffrey serial correlation test shows that we cannot reject the null hypothesis of no serial correlation of any order. Therefore, we can conclude that our model is free from any order of serial correlation. The autoregressive conditional heteroscedasticity (ARCH)

test shows that we cannot reject the null hypothesis of no heteroscedasticity. Also, the Ramsey Reset test shows that our models are well specified and that there are no specification errors and incorrect functional forms. The normality test conducted shows that the residuals of the models are normally distributed. It is apparent from the foregoing that our model estimates are generally robust. This is validated by the high F- statistic, which is statistically significant at 1%. Thus, the analysis based on the estimates of the models should be taken with high degree of confidence.

The lagged error correction terms (ECTs) appear negative and significant in all the models, suggesting that the PCG will adjust to its long run equilibrium path in relation to changes in the explanatory variables. However, the coefficients of the ECTs which are 0.44 on the average suggest that the speed of adjustment to the equilibrium is slow and at least 44% of the equilibrium errors are completed in a year. Moreover, the significant coefficients of the ECT further confirm the existence of a long run equilibrium relationship between the dependent and independent

The result is not consistent with the result of Ndebbio (2004) which finds that financial deepening plays positive and significant role in the growth of per capita output in the 34 selected Sub–Saharan African countries including Nigeria. The difference in the results may be as a result of the difficulties encountered while pooling data for cross country analysis which may arise because of lack of balanced growth paths across countries. Also, the inability of the panel estimates to correspond to the country specific estimates may be another reason why this result differs from that of Ndebbio (2004). Furthermore, this result is not in line with King and Levine (1993), Levine and Zervos (1996), Levine and Zervos (1998) and many other international studies that find positive and robust impact of financial deepening on per capita output. From the theoretical literature, it is ascertained that differences in institutional development, legal origin, infrastructural development, macroeconomic instability, etc., may be strong reasons why some can have growth supporting financial system, while others do not have. Therefore, it is possible that while developed countries experience positive and significant effect of financial deepening on economic growth, the effect of financial deepening on economic growth in developing countries is indeterminate.

CONCLUSION

This study attempts to explore the link between financial deepening and economic growth in Nigeria. We examine the relationship between financial deepening variables and economic growth variable by analyzing their long run properties and short run dynamics. The econometric results from the error correction mechanisms show that financial deepening has a negative and significant impact on economic growth in Nigeria. The negative signs of the coefficients of the financial

market variables imply that the supply of these financial assets is not enough to raise the economy to the desired level. In all, we repeat that the literature on money and finance is quite vocal on the role of the supply of financial assets in economic growth. If the supply is small, the financial deepening in such economy is most likely to be shallow. For the Nigerian economy, the supply of financial assets over the sampled period is far below the level needed to achieve economic growth. We therefore recommend that there is a need to put appropriate financial policies in place that will encourage the growth per capita GDP. This is the only option for the attainment of a balanced and sustainable growth in Nigeria. (Romer P.M., 1986)

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Table-1. Unit Root Test

Variable	ADF				PP			
	Level		First Differences		Level		First differences	
	No Trend	With trend	No trend	With Trend	No Trend	With trend	No trend	With Trend
LNPCG	-2.72*	-2.56	_	-4.38***	-1.26	-1.19	-5.83***	-6.03***
LNFDI	-2.49	-4.17**	-8.44***	-8.35***	-2.34	-4.14**	-16.7***	-16.2***
LNDI	-0.97	-1.58	-4.25***	-4.25***	1.14	-1.05	-4.22***	-4.41***
LNHDI	-0.11	-1.99	-8.35***	-8.57***	-0.11	-1.72	-8.56***	-8.57***
LNINFLR	-4.15***	-4.05**	_	_	-3.64***	-3.60**	_	-7.51***
LNGOVEX	-2.05	-2.16	-4.66***	-4.48***	-2.07	-2.20	-4.66***	-4.48***
LNPOPR	-1.19	-1.22	-0.16	-4.13**	-0.07	0.76	-0.81	-2.25
LNRER	-1.64	-2.83	-4.73***	-4.66***	-1.83	-2.42	-4.73***	-4.66***
LNPCR	-1.60	-1 82	-5.82***	-5.74***	-1.61	-1.93	-5.81***	-5.72***
LNBANK	-3.30**	-2.60	-4.55***	-4.48***	-3.26**	-3.27*	-12.1***	-12.0***
LNLLY	-2.42	-2.24	-5.63***	-5.62***	-2.43	-2.24	-5.63***	-5.60***
LNBTOT	-0.69	-**0**.35	-6.69***	-3.23*	-0.73	-0.10	-6.67***	-7.23***
LNPCRMB	-1.37	-1.46	-4.49***	-4.41***	-1.63	-1.74	-4.48***	-4.40***
LNM2	-1.90	-1.89	-5.78***	-5.69***	-1.90	-1.89	-5.76***	-5.68***
Critical Values								
1%	-3.6	-4.2	**-3.6**	-4.2	-3.6	-4.2	-3.6	-4.2
5%	-2.9	-3.5	**-2.9**	-3.5	-2.9	-3.5	-2.9	-3.5
10%	-2.6	-3.1	**-2.6**	-3.2	-2.6	-3.1	-2.6	-3.2

Note: ADF and PP denotes Augmented Dickey- Fuller and Phillips- Perron unit root tests respectively. (***), (**) and (*) denote significant at1%, 5%, and 10% critical values respectively. The critical values follow Mackinnon, (1996) p_ value.

Table-2. Correlation Matrix of the Financial Deepening Variables

Variables	LnLLY	LnM2	LnPCR	LnBTOT	LnBANK	LnPCRMB
LnLLY	1.0000	0.8980	0.8644	-0.2619	0.6927	0.8296
LnM2		1.0000	0.8707	-0.1050	0.7292	0.7996
LnPCR			1.0000	-0.1055	0.7372	0.8117
LnBTOT				1.0000	-0.4338	0.1485
LnBANK					1.0000	0.4086
LnPCRMB						1.0000

Note: All figures are approximated to 4 decimal points.

Table-3a. Johansen and Juslius Cointegration Test Results with Financial Deepening

	λ –Max test							
H_o	HA_1	LNLLY	LNBANK	LNPCR	LNBTOT	LNPCRMB	LNM2	5% critical value
$r=0$	$r=1$	120.7(0.00)	119.6(0.00)	117.1(0.00)	146.2(0.00)	114.0(0.00)	115.1(0.00)	58.43
r≤1	r=2	100.1(0.00)	79.69(0.00)	90.01(0.00)	101.2(0.00)	84.49(0.00)	88.76(0.00)	52.36
r≤2	r=3	52.67(0.01)	57.34(0.00)	47.40(0.04)	82.98(0.00)	57.96(0.00)	47.83(0.03)	46.23
r≤3	r=4	40.23(0.04)	38.01(0.08)	36.78(0.11)	57.52(0.08)	45.30(0.00)	40.69(0.04)	40.08
r≤4	r=5	36.43(0.02)	25.28(0.37)	30.89(0.11)	28.49(0.37)	32.59(0.07)	29.86(0.14)	33.88
r≤5	r=6	18.15(0.48)	21.67(0.24)	16.11(0.66)	26.04(0.24)	18.97(0.41)	17.81(0.51)	27.58
r≤6	r=7	13.25(0.43)	10.80(0.67)	11.42(0.61)	10.08(0.67)	13.44(0.41)	11.01(0.65)	21.13
r≤7	r=8	8.514(0.33)	7.019(0.49)	8.212(0.36)	7.178(0.49)	7.657(0.41)	7.790(0.40)	14.26
r≤8	r=9	0.026(0.87)	0.181(0.67)	0.236(0.63)	0.241(0.67)	0.616(0.43)	0.002(0.96)	3.841

Note: λ-Max indicates 5, 4, 3,3,4,4 cointegrating eqn(s) for lnlly, lnbank, lnpcr,lnbtot, Lnpcrmb, and lnm2 models respectively. Figures in parentheses are the p-values.

Table -3b. Trace test

H_O	HA_1	LNLLY	LNBANK	LNPCR	LNBTOT	LNPCRMB	LNM2	5%critical value
r=0	r=1	390.0(0.00)	359.6(0.00)	358.2(0.00)	459.8(0.00)	375.0(0.00)	358.9(0.00)	197.4
r≤1	r=2	269.3(0.00)	240.0(0.00)	241.1(0.00)	313.7(0.00)	261.0(0.00)	243.8(0.00)	159.5
r≤2	r=3	169.3(0.00)	160.3(0.00	151.1(0.00)	212.5(0.00)	176.5(0.00)	155.0(0.00)	125.6
r≤3	r=4	116.6(0.00)	103.0(0.01)	103.7(0.01)	129.6(0.00)	118.6(0.00)	107.2(0.01)	95.75
r≤4	r=5	76.4(0.01)	64.94(0.12)	66.87(0.08)	72.02(0.03)	73.26(0.03)	66.48(0.09)	69.82
r≤5	r=6	39.94(0.22)	39.67(0.23)	35.98(0.40)	43.54(0.12)	40.68(0.20)	36.61(0.37)	47.86
r≤6	r=7	21.77(0.31)	18.00(0.57)	19.87(0.43)	17.49(0.60)	21.71(0.31)	18.80(0.51)	29.80
r≤7	r=8	8.540(0.41)	7.200(0.55)	8.449(0.42)	7.419(0.53)	8.273(0.44)	7.792(0.49)	15.50
r≤	r=9	0.026(0.8	0.181(0.6	0.236(0.6	0.241(0.6	0.616(0.4	0.002(0.9	3.841

8	7)	7)	3)	2)	3)	6)

Note: Trace test indicates 5, 4, 4 5, 5, 4 cointegrating eqn(s) for these growth - financial market equations respectively. Figures in parentheses are the p- values

Table-4. Normalized long run Cointegrating Coefficients of the PCG – FD model

	1	2	3	4	5	6	7
Variable		LNLLY	LNBTOT	LNBANK	LNPCR	LNM2	LNPCRMB
LNPCG	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
LNFDI	0.205 (0.023)	0.100 (0.013)	0.128 (0.008)	0.150 (0.015)	0.118 (0.012)	0.136 (0.016)	0.149 (0.019)
LNDI	-0.328 (0.054)	-0.075 (0.036	-0.177 (0.017)	-0.205 (0.035)	-0.157 (0.033)	-0.168 (0.044)	-0.199 (0.059)
LNHDI	0.265 (0.043)	0.095 (0.028)	0.071 (0.014)	0.158 (0.028)	0.121 (0.026)	0.142 (0.037)	0.189 (0.044)
LNINFLR	-0.456 (0.054)	-0.131 (0.036)	-0.116 (0.019)	-0.437 (0.037)	0.422 (0.030)	-0.381 (0.044)	-0.342 (0.057)
LNGOVEX	0.131 (0.017)	0.023 (0.012)	0.159 (0.008)	0.097 (0.011)	0.080) (0.011)	0.075 (0.015)	0.079 (0.021)
LNRER	0.868 (0.081)	0.379 (0.050)	0.628 (0.0270	0.641 (0.052)	0.568 (0.0472)	0.610 (0.061)	0.650 (0.079)
LNPOPR	7.853 (0.334)	5.266 (0.192)	3.293 (0.110)	5.815 (0.214)	4.739 (0.177)	6.019 (0.241)	6.939 (0.314)
FD		-0.370 (0.056)	0.932 (0.052)	-0.021 (0.021)	-0.198 (0.040)	-0.115 (0.066)	-0.191 (0.106)

Note: Standard errors are parentheses.

Table-5. Short run Dynamic PCG – FD Model: Dependent Variable ΔPCG

	1	2	3	4	5	6	7
Variable		ΔPCRMB	ΔBTOT	ΔBANK	ΔPCR	ΔM2	ΔLLY
C	-0.019 -2.400)**	-0.051 -4.760)***	-0.020 -2.234)**	0.007 (1.049)	-0.074 - 6.610)***	0.014 (1.766)	-0.014 -(1.391)
ΔPCG(-1)	0.271 (2.791)**	- -	- -	0.412 (2.992)	- -	0574 5.146)***	- -
ΔPCG(-2)	- -	- -	0.275 (2.700)**	- -	-1.075 - 5.333)***	- -	- -
ΔPCG(-3)	0.724 (6.395)***	0.372 (3.137)***	1.156 (11.14)***	0.836 (7.085)*** *	0.680 6.176)***	1.149 8.757)***	1.151 9.246)***
ΔFDI	- -	0.004 (0.957)	- -	- -	0.016 (3.340)*** *	- -	- -
ΔFDI(-1	-0.011 -(2.044)**	-0.012 -(2.310)**	- -	-0.014 -	-0.029 -	-0.019 -	-0.031 -3.961)***

				3.907)***	6.135)***	6.630)***	
ΔFDI(-2)	- -	- -	0.005 (1.810)*	- -	0.012 (2.498)**	- -	0.005 (1.773)*
ΔFDI(-3)	- -	- -	- -	- -	0.017 (3.099)***	0.009 (2.659)**	- -
ΔDI	0.097 (4.173)***	0.154 (4.173)***	0.035 (1.706)	0.035 (1.367)	0.028 (7.016)***	0.060 (3.043)***	0.189 (4.887)***
ΔDI(-1)	-0.069 -(2.665)**	- -	-0.105 -5.224)***	-0.066 - (2.588)**	- -	-0.085 - 3.677)***	-0.117 -4.959)***
ΔDI(-2)	0.055 (2.179)**	0.050 (1.764)*	0.076 (3.319)***	- -	0.221 (4.880)***	- -	0.152 (4.155)***
ΔDI(-3)	0.043 (1.814)*	0.086 (3.462)***	- -	- -	0.071 (2.962)	0.047 (4.707)***	- -
ΔHDI	- -	- -	-0.017 -2.758)**	- -	-0.035 - 3.386)***	-0.042 - 4.096)***	-0.035 -3.552)***
ΔHDI(-1)	-0.021 -(2.770)**	-0.036 -3.266)***	- -	-0.032 - 3.876)***	-0.086 - 6.340)***	-0.070 - 7.273)***	-0.039 -3.844)***
ΔHDI(-3)	-0.015 -(1.827)*	-0.023 -2.815)**	-0.025 -3.989***	-0.012 -(1.586)	-0.092 - 6.196)***	-0.019 - 3.170)***	-0.084 -5.845)***
ΔRER	- -	- -	- -	- -	0.103 (4.009)***	- -	- -
ΔRER(-1)	-0.028 -(1.428)	-0.076 -2.745)**	-0.018 - (1.345).	-0.054 - 3.234***	-0.113 -5.412***	-0.050 -3.556***	-0.061 -3.457***
ΔRER(-2)	- -	-0.030 -(1.296)	-0.122 - 4.983***	- -	- -	-0.091 -3.441***	- -
ΔRER(-3)	- -	- -	- -	- -	-0.113 -4.211***	- -	-0.083 -2.992)**
ΔGOVEX (-1)	-0.005 -(1.308)	- -	-0.033 -(5.795)	-0.006 -(1.416)	-0.017 -3.804***	-0.024 -4.334***	-0.021 -5.339***
ΔGOVEX (-2)	- -	-0.015 -2.871)**	- -	0.006 (1.578)	- -	0.014 3.726)***	- -
ΔGOVEX (-3)	- -	- -	- -	- -	-0.014 - 3.529)***	- -	-0.024 -5.339)***
ΔPOPR	0.590 3.539)***	1.588 (1.199)	- -	-1.559 -2.756)**	- -	- -	-1.344 -2.461)**

ΔPOPR(-1)	- -	-1.693 -(0.772)	- -	- -	- -	-6.172 -5.282***	- -
ΔPOPR(-2)	- -	0.900 (0.742)	0.407 (2.661)**	3.372 2.892)***	0.942 3.413)***	11.07 (5.869)***	3.370 (3.457)***
ΔPOPR(-3)	- -	- -	- -	-2.866 -3.030***	-0.559 -(1.775)	-5.927 -5.086***	-2.889 -3.291***
ΔINFLR	-0.17 -(2.059)*	0.000 (0.013)	-0.012 -(1.713	- -	- -	- -	- -
ΔINFLR(-1)	- -	- -	- -	0.007 (0.886)	0.015 (1.597)	0.017 (1.918)*	0.000 (0.013)
ΔFD	- -	- -	- -	-0.027 -4.069)***	- -	-0.107 -4.732)***	- -
ΔFD(-1)	- -	0.139 (2.885)**	- -	0.020 (2.267)**	0.085 4.121)***	0.130 4.575)***	0.081 (2.053)*
ΔFD(-2)	- -	- -	-0.188 -5.149)***	- -	-0.080 -(2.519)*	- -	-0.149 -3.664)***
ΔFD(-3)	- -	0.160 (2.610)**	0.155 4.586)***	- -	0.131 5.112)***	- -	0.057 (2.107)*
ECT1(-1)	-0.440 -6.424***	-0.707 -6.284***	-0.763 -9.062***	-0.308 -2.687)**	-0.559 -6.305***	-0.026 -4.259***	-0.325 -2.943)**
R2	.0.89	089	0.94	0.88	0.95	0.95	0.95
ADJ. R2	0.81	0.78	0.87	0.78	0.85	0.88	0.85
F-STATS	11.20	7.326	14.95	7.793	10.44	13.26	10.09
LM TEST	0.058 (0.954)	1.454 (0.266)	0.974 (0.400)	1.185 (0.332)	0.045 (0.956)	6.014 (0.014)	0.564 (0.588)
NORMALITY	0.147 (0.919)	2.052 (0.358)	0.504 (0.777)	0.457 (0.797)	5.520 (0.063)	1.183 (0.553)	1.064 (0.587)
ARCH	0.000 (0.982)	0.865 (0.359)	0.027 (0.870)	0.414 (0.525)	0.562 (0.459)	6.060 (0.019)	2.531 (0.124)
RESET	0.344 (0.562)	1.772 0.208	3.459 (0.081)	0.782 (0.389)	1.664 (0.229)	0.018 (0.320)	1.086 (0.320)

Note: Δ before any variable stands for first difference. The t- statistic values are in parentheses. (***), (**) and (*) represent significant at 1 percent, 5 percent and 10 percent critical values respectively.