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Financial Institutions and Capital Formation: An Estimated ARDL Model from Nigeria

Charles Ibebi PhD

Department of Banking and Finance,
Federal University Otuoke, Bayelsa State Nigeria

ABSTRACT

This study adopted the Autoregressive Distribution Lag to examine the effect of financial institutions on capital formation in Nigeria**.** Data were collected from Central Banks of Nigeria Statistical Bulletin from 1990-2023. Gross fixed capital formation was modeled as the function of Insurance sector market as total insurance assets to gross domestic product, Money market as total value of money market instrument to gross, Foreign exchange market as average official naira exchange rate per US Dollar, Banking sector development as credit to private sector to gross domestic product and Capital market as market capitalization to gross domestic product. Findings revealed that 65.8% of the changes in gross fixed capital formation were explained by the changes in the independent variables. From the level equation found that insurance, money market and foreign exchange have positive effect on capital formation while capital market and banking sector have negative effect on capital formation over the periods covered in the study. From the findings, the study concludes that financial institutions determine capital formation in Nigeria. It recommends that investment is often considered the backbone of many economies, including Nigeria. There should be policies that enhance access to credit for investors can spur entrepreneurial activity, job creation, and overall increase in capital formation. Deepening the operational efficiency of the financial institutions can help in making financial resources available for investors by mobilizing savings and increasing investment borrowings in the economic which are prerequisite for capital formation.

Keywords: Financial Institutions, Capital Formation, ARDL Model, Nigeria

INTRODUCTION

The Nigerian financial system comprises of several financial institutions, instrument and operators. The financial system regulators include the Central Bank of Nigeria (CBN), the Federal Ministry of Finance (FMF) and the Securities and Exchange Commission (SEC), these are the major regulating agencies in Nigeria. Others are Commercial Banks, Development Banks, such as Federal Mortgage Bank of Nigeria (FMBN), the Nigeria Bank of Industry (BOI), the Nigeria Agriculture and Co-operative Bank (NACB), the Nigeria Industrial Development Bank (NIDB) and specialized banks. Other institutions and funds include the National Pension Commission (PENCOM), insurance companies, the National Economic Reconstruction Fund (NERFUN) finance houses, Bureau De Change and the Nigeria Deposit Insurance Corporation (NDIC). This in terms of number and variety, the Nigeria financial system is quite robust. The Nigerian financial system has evolved over the last few decades from a rudimentary to a more sophisticated one with numerous institutions and operators that facilitate the performance of the primary role of the system savings, mobilization and allocation of resources among competition units within the system. Banks are the major players in the Nigeria financial market and constitute over 70 percent of

assets and liabilities in the financial market (Akani & Lucky, 2015). Banks are allowed by law to invest and source capital in the capital market through underwriting, initial public offer and others.

The development of the financial sector refers to the growth and modernization of financial institutions and markets. This includes the expansion of banking services, insurance, investment, and other financial services, as well as the development of financial infrastructure such as payment systems and stock exchanges (Adekunle & Aderemi, 2022). In developing countries, improving the financial sector is crucial for economic growth and poverty reduction. A well-functioning financial sector can increase access to credit and savings, facilitate investment, and promote financial stability. In emerging economies, financial sector development and capital formation are particularly important, as countries often face shortage of capital and lack adequate financial systems to allocate resources effectively. Financial sector development can address these challenges by providing access to credit and other financial services, promoting innovation and entrepreneurship, and encouraging investment in productive activities (Akujiobi & Chima, 2013).

The benefits of stock markets and capital formation in the growth of the economy cannot be over-emphasized. According to Michael and Stephen (2011), capital formation is an important factor of growth in all developing countries. Goldsmith (1969) suggested that the origin of stock markets and capital formation are usually studied together. Shaw (1973) views financial market as the market where financial assets such as shares and bonds are traded. Himanshu (2007) defines capital formation as the method of growing the asset value of fixed capital of a country. Capital is, therefore, 'formed' in the sense of mobilizing funds to procure or produce capital goods for productive investment purposes aimed at spurring economic growth. Empirical evidence from economics literature confirms that the differences in economic growth among countries of the world are because of the differences that exist in the level of their capital formation over time (Kusmadi, 1997). Himanshu (2007) observes that the general theme of capital formation is central to the problem of development in developing countries when compared with developed countries and are less equipped with capital in relation to their population and resources. Lucas (1988) posited that the level of capital formation in a country is used in determining the magnitude of her productive capacity and rate of economic growth.

However, Nigerian markets are still developing and perform below their potential in comparison to other capital markets in European nations, despite the crucial role they play in capital formation and national growth. The low market capitalization of Nigeria's capital market is partly a result of the absence of listed firms on the NSE and a lack of individual participation (savers) due to capacity limitations or a lack of understanding of capital market operations. These problems may also be caused by high operational expenses, strict listing requirements, a lack of market knowledge, poor stock information dissemination, and somewhat unpredictable returns. It is obvious that the Nigerian capital market needs to be upgraded and expanded further.

Studies from developing nations has it that Nigeria significantly improved her financial sectors with subsequent improvements in economic basics (Ibrahim & Alagidede, 2017; Valickova, Havranek, & Horvath, 2015; Hermes, & Lensink, 2013; Durusu-Ciftci, Ispir & Yetkiner, 2017). Over periods, researchers have investigated the connection between financial development and economic growth. Economists such as Schumpeter (1911), McKinnon (1973), Ibrahim and Alagidede (2017), Ofori-Abebrese, Becker, and Diabah (2017), Erataş-Sönmez and Salam (2019), and Matadeen and Fauzel (2019) agree that financial development leads to economic growth through technological innovations and the provision of necessary funds to entrepreneurs or investors. Others such as Robinson (1952), Meier and Seers (1984), Agbetsiafa (2003) and Odhiambo (2009), on the other hand, believe that economic growth and expansion in the real sectors imply the demand for financial services and hence drive financial development. Greenwood and Jovanovic (1990), Shahbaz, Khan, and Tahir (2013), and Yirdaw (2019) all proposed a bicausal relationship between finance and growth. Finally, Lucas (1988); and Stern (1989) proposed that there is certainly no meaningful association between financial development and economic growth, implying that the substance of financial development is highly exaggerated. Against this, this study focused on the relationship between financial institutions and capital formation in Nigeria.

LITERATURE REVIEW

Concept of Market

The Nigerian market 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 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 & Okereke, 2009).

Structure of the Nigerian Financial System

The Nigerian financial system comprises of bank and non-bank financial institutions which are regulated by the Federal Ministry of Finance (FMF), Central Bank of Nigeria (CBN), Nigeria Deposit Insurance Corporation (NDIC), Securities and Exchange Commission (SEC), National Insurance Commission (NAICOM), Federal Mortgage Bank of Nigeria (FMBN), and the National Board for Community Banks (Ezirim and Muoghalu, 2004).

Regulatory Agencies The main regulatory agencies of the Nigerian Financial system are the Central Bank of Nigeria (CBN), the Nigeria Deposit Insurance Corporation, the Securities and Exchange Commission, the Federal 13 Mortgage Bank and the Federal Ministry of Finance. The CBN regulates investment intermediaries and all depository institutions except mortgage firms. It performs banking supervision and examination through examining books of accounts, and statutory returns submitted by regulated institutions. It also grants licenses, imposes reserve requirements, prudential guidelines and monetary policy guidelines; because of its mandate for overall economic management, the Central Bank has pervasive oversight responsibility over the entire Nigerian financial system. The rapid growth of new banks and other financial institutions in recent years has overstretched the capacity of the Central Bank to supervise financial institution. The Nigerian Deposit Insurance Corporation was set up in 1989 to provide limited insurance coverage on the deposit liabilities of all licensed banks (including mortgage institutions) to a maximum of 50,000 Naira per depositor. It also conducts periodic checks of the books of insured institutions. The Federal Mortgage Bank of Nigeria is the principal regulatory and licensing agency for mortgage institutions while the Securities and Exchange Commission (SEC) regulates operations in the capital market. It licenses stockbrokers and issuing houses. The National Board of Community Banks processes applications for the establishment of Community Banks. The regulation of the activities of Bureaux de Change and Insurance Companies come under the ambit of the Federal Ministry of Finance. The activities of the Nigerian Industrial Development Bank and the Nigerian Agricultural and Cooperative Bank come under the supervision of the Federal Ministry of Industries and the Agricultural Ministry respectively. Concerns have been expressed in recent times about the implications of this preponderance of regulatory institutions for effectiveness. Areas of overlap have been identified particularly between the CBN and NDIC.

The Federal Ministry of Finance (FMF)

The Federal Ministry of Finance advises the Federal Government on its fiscal operation and co-operates with CBN on monetary matters.

The Securities and Exchange Commission (SEC)

This was formerly called the Capital Issues Commission; the SEC was established by the SEC Act of 27th September 1979, which was further strengthened by the SEC Decree of 1988. It is the apex regulatory organ of the capital market. The Commission approves and regulates mergers and acquisitions and authorizes the establishment of unit trusts. In the course of deregulation of the capital market, the function of price determination has been transferred to the issuing houses. The SEC maintains surveillance over the market to enhance efficiency. It issues guidelines on the establishment of Stock Exchanges in furtherance of the deregulation of the capital market. Following the enactment of the Nigerian Investment Promotion Commission Decree and the Foreign Exchange (Monitoring and Miscellaneous Provisions) Decree in 1995, SEC released guidelines on foreign investment in the Nigerian capital market.

National Insurance Commission (NAICOM)

The National Insurance Commission (NAICOM) replaced the Nigerian Insurance Supervisory Board (NISB). The NAICOM is charged with effective administration, supervision, regulation and control of the business of insurance in Nigeria. Its specific functions include the establishment of standards for the conduct of insurance business, protection of insurance policy holders and establishment of a bureau to which complaints may be submitted against insurance companies and their intermediaries by members of the public. NAICOM ensures adequate capitalization and reserve, good management, high technical expertise and judicious fund placement in the insurance industry (Scott, 2010).

The Federal Mortgage Bank of Nigeria (FMBN)

The FMBN took over the assets and liabilities of the Nigerian Building Society. The FMBN provides banking and advisory services, and undertakes research activities pertaining to housing. Following the adoption of the National Housing Policy in 1990, FMBN is empowered to licence and regulate primary mortgage institutions in Nigeria and act as the apex regulatory body for the Mortgage Finance Industry. The financing function of the Federal Mortgage Bank of Nigeria was carved out and transferred to the Federal Mortgage Finance, while the FMBN retains its regulatory role. FMBN is under the control of the Central Bank of Nigeria.

The Money Market and Its Institutions

This is a market for short-term debt instruments. The major function of the money market is to facilitate the raising of short-term funds from the surplus sectors to the deficit sectors of the economy. The deficit units, which could be public or private, obtain funds from the market to bridge budgetary gaps by either engaging in inter-bank taking or trading in short-term securities such as Treasury Bills, Treasury Certificates, Call Money, Certificates of Deposit (CD), and Commercial Papers (CP). With the commencement of Open Market Operations (OMO) by the CBN, the scope of the money market has been expanded. The number of participants in the market also increased with the establishment of five discount houses. Money market institutions constitute the hub of the financial system Douglas (2010). These institutions include discount houses, commercial and merchant banks, and special purpose banks, like the Nigerian Agricultural Co-operative and Rural Development and Community banks.

Discount Houses

A discount house is a special, non-bank financial institution established in mobilizing funds for investments in securities in response to the liquidity of the system. It does this by providing discount/rediscounting facilities in government short-term securities. In the process of shifting the financial system from direct market-based monetary control, discount houses were established to serve as financial intermediaries between the CBN, licensed banks and other financial institutions (Adam, 2005).

Commercial Banks

Commercial and Merchant Banks operate under the legal framework of the Banks and other Financial Institutions (BOFI) Act 25 of 1991 (as amended). Commercial banks perform three major functions, namely, acceptance of deposits, granting of loans and the operation of the payment and settlement mechanism. Since the Government commenced active deregulation of the economy in September 1986, the commercial banking sector has continued to witness rapid growth, especially in terms of the number of institutions and product innovations in the market (King, 2005).

Microfinance Banks

A microfinance bank in Nigeria is a self-sustaining financial institution owned and managed within a community to provide financial services to that community. The National Board for Microfinance Banks (NBMB) processes applications for the establishment of community banks (Oke, 2006). The first community bank commenced operation in December 1990. Since then, National Board for Community Banks (NBCB) has issued provisional licences to 1,366 community banks and is expected to be issued final licences by the CBN after operating for two years.

The Capital Market

The Nigerian Capital Market is a channel for mobilizing long-term funds. The main institutions in the market include the Securities and Exchange Commission (SEC), which is at the apex and serves as the regulatory authority of the market, the Nigerian Stock Exchange (NSE), the issuing houses and the stock-broking firms. To encourage small as well as large-scale enterprises gain access to public listing, the NSF operates the main exchange for relatively large enterprises and the Second-Securities Market (SSM), where listing requirements are less stringent, for small and medium scale enterprises (King, 2005).

The capital market in Nigeria can be divided into two: the non-securities segment and the securities segment. The non-securities segment consists of Savings Banks, Mortgage Banks, Development Banks and Insurance Companies. Their instruments consist of term loans, mortgages and leases. Mention must be made here of the Development companies which complement the activities of the development banks. Their history in most cases predate the establishment of some of the development finance institutions, they supply loan and equity capital for financing new and existing enterprises. They cater for a wide range of industrial groups in both the public and private sectors. They started in most cases as regional development boards and have undergone different stages to become what they are today - public investment companies. At their inception, they were mainly established to administer and use funds made available to the marketing boards in such areas as agriculture and industry. Most popular among them today are, the Northern Nigeria Development Board, the Odua Investment Company Limited and the Central Investment Company Limited serving respectively the North, West and East. Their investment in banking, commerce and manufacturing run into millions of Naira. Data is not readily available on the activities of these finance institutions but nevertheless they constitute an important segment of the capital market (Okigbo, 1991).

Development Finance Institutions (DFIS)

Specialized banks or development finance institutions (DFIs) were established to contribute to the development of specific sectors of the economy. In order to enhance their operations and make their efforts felt in the economy, most of the former DFIs in the country have been merged and restructured. The DFIs from the merger and restructuring are the Bank of Industry (BOI) and the Nigerian Agricultural Co-operative and Rural Development Bank (NACRDB). The two banks provide soft loans to industrialists and those engaged in agro-allied ventures. Other existing DFI's are Federal Mortgage Bank (FMB), Urban Development Bank (UDB) and Education Bank (EB) to cater for the sectors reflected in their names (Emeni and Okafor, 2008).

Other Financial Institutions and Funds

There are other institutions and funds within the financial system that play important intermediating roles. The institutions include:

Insurance Companies

There are many insurance companies, consisting of life and non-life as well as those, which engage in both activities, and reinsurance firms. They mobilize relatively long-term funds and act as financial intermediaries. Their investments are mainly in government securities and mortgage industry. The Nigerian insurance industry has grown tremendously over the years. The funds were sourced mainly through reduction in outgoing and other assets which together account for 80.8 per cent of total funds (Quaglia, 2005).

Finance Companies

Finance companies are institutions that specialize in short-term, non-bank financial intermediation. They mobilize funds from the investing public in form of borrowing and provide, among others, facilities for Local Purchase Order (LPO) and project financing, equipment leasing and debt factoring. The BOFI Act brought finance companies under the direct control and supervision of the CBN.

Bureaux de Change

In order to broaden the foreign exchange market and improve access to foreign exchange, especially for small users, bureaux de change have been authorized since 1989. A total of 240-bureau de chauges have been licensed and they are supervised by CBN.

Exchange Control Regulations

Unconditional repatriation of Capital, profit and dividends is allowed, while technical fees and royalties on imported technical services and technologies are payable. Repatriation of proceeds from disposal of assets is allowed. Foreign Exchange transactions are carried out at the Autonomous Foreign Exchange Market.

Nigerian Social Insurance Trust Fund (NSITF)

The main objective of the Fund is to adopt a more comprehensive social security scheme for Nigerian private sector employees. The scheme was established to replace the defunct National Provident Fund (NPF) as a compulsory pension scheme for non-pensionable public servants and employees in the organized private sector. Nigerian private sector employees are required to contribute 2.5 percent, while their employers are to contribute 5 per cent of the gross monthly emolument to NSTIF Andersen and Tarp (2003). Workers in enterprises employing more than 25 persons are to be automatically registered by their employers.

Gross Fixed Capital Formation

Capital formation refers to the proportion of present income saved and invested in order to augment future output and income (Bakare, 2011). It usually results from acquisition of new factory along with machinery, equipment and all productive capital goods. Capital formation is equivalent to an increase in physical capital stock of a nation with investment in social and economic infrastructure. Gross fixed capital formation can be classified into gross private domestic investment and gross public domestic investment. The gross public investment includes investment by government and public enterprises. Gross domestic investment is equivalent to gross fixed capital formation plus net changes in the level of inventories (Bakare, 2011).

Capital accumulation is the system of increasing the stock of real capital of a country. Simply put, it is a situation in which the net investment in the form of fixed assets is drastically increased. In order for a country to have the capacity to accumulate more capital, there has to be an increase in savings and a great reduction in the rate of consumption of the consumer goods made available in the country. The rate of economic development of any country directly has to do with the rate of the formation of capital.

In countries like Britain, Japan, and the United States of America which have been more advanced, stocks of capital are high because of the high rate of capital formation meanwhile in many other countries of the world which are still yet to be developed especially African countries, there is a low rate of capital accumulation as a result of low per capita income and low savings, which ultimately results in what is usually called the vicious circle of poverty. Capital formation is a critical success factor of economic growth. Gross Fixed capital formation as a determinant of economic growth is divided into Gross private investment and Gross public investment.

Capital formation is influenced by the development of the financial market, the fiscal and monetary policy of the country and the extent of external influence such as foreign aids, external debt and the level of foreign trade. Gross fixed capital formation leads to technical progress which help to realize the economics of large scale production, increase specializat6ion in terms of providing machine, tools and equipment for growing labour force (Ainabor et al, 2014). In Nigeria like other developing and capital formation is challenged by high level of consumption, capital flight and huge importation such currency laws. This means that inadequate capital formation is a major constraint to economic growth. Therefore capital formation should be considered priority if the monetary policy goal of economic growth is to be achieved.

Supply Leading Hypothesis

This theory was authored by Schumpeter (1911) and later adopted by scholars such as McKinnon (1973); Shaw (1973); Gupta (1984); Fry (1988); Greenwood and Jovanovich (1990) and Bencivenga and Smith (1991). This theory postulates that financial development in any country causes economic growth. In an economy with no friction in the transaction, information and monitoring costs, no financial intermediaries are needed. According to the theory, if transaction, information and monitoring costs are sufficiently high, then, no exchange among economic agents is necessary. These desires led to the emergence of financial institutions and markets that make up the financial sector. According to this theory, a well-developed financial sector will ensure reduced transaction, information and monitoring costs thereby increasing the efficiency of intermediation.

The theory postulates that a well-developed financial intermediary facilitates the development of the economy through mobilization of savings, facilitation of trading and the diversification of risks among others. These important services lead to efficient allocation of resources; a more rapid accumulation of physical and human capital; and a faster technological innovation which eventually leads to a faster and long-term economic growth (Schumpeter, 1911). This theory fits this study since it provides one of the possible explanations of how development in the financial sector affects the disbursement of credits to the private sector and drives economic growth.

The supply-leading growth hypothesis shows that financial development plays a significant role in economic growth and has a notable impact on the economy. Empirical evidence supporting the supply-leading hypothesis has been presented in the work of Schumpeter (1911), Goldsmith (1969), McKinnon (1973), King and Levine (1993), Arestis et al. (2001), Beck (2004), Levine (2005), Demirguc-Kunt (2006) and Luintel et al. (2014). Channels through which financial development drives growth within the economy include the efficient allocation of capital, mobilization of savings, and the reduction of the cost of information asymmetry. An efficient financial sector is a supplier of limited credit resources from the surplus units to the deficit units. By following this path, the financial sector helps to drive efficient allocation of resources and promote economic growth. Spears (1992) used the Broad Money to GDP ratio as a proxy indicator of financial developments for ten countries in sub-Saharan Africa and applied the Grangers causality test. The study concludes that there is a robust connection between financial development and economic growth. The study by Berthelemg and Varoudakis (1996) achieved equivalent results using a massive sample of global data and concluded that financial development promotes growth through the mobilization of savings. Recently, Ndako (2017) also examined the impact of national financial development on economic growth in Nigeria. Apparently, the results revealed that financial development has a crucial impact on economic growth in Nigeria.

Demand Following Hypothesis

This phenomenon is supported by intellectuals such as Robinson (1952), who have argued that an increase in economic growth typically leads to intensified financial development. Reading Robinson (1952) it seems that she expressed where business enterprises lead, finance follows. Similarly, the work of Kuznets (1955) explained that financial markets begin to grow as the economy approaches the intermediate stage of the growth path and develop once the economy matures. In other words, this reading argued that the expansion of economic activity within each economy requires the emergence of financial institutions to provide services essential to economic growth. 10 As primary economic growth creates demand for financial instruments, and financial market arrangements will respond effectively to these demands and changes. Empirical studies supporting the demand-following hypothesis include Robinson (1952), Kuznets (1955), Stern (1989), Singh (1997), Beck et al. (2000a), Odhiambo (2008), Nazlolu et al. (2009), Ductor and Grechyna (2015). They jointly argued that doubling growth gradually leads to financial sector development. Recently, Bist's (2018) study revealed this demand-following relationship for the case of some African and other low-income countries, in agreement with the demand-following hypothesis.

Moving away from the neoclassical state equilibrium analysis, to a highly developed financial system, consisting of financial intermediaries, leads to a demand following phenomena (Patrick, 1960). Under

this, in response to the demand from real economy, there are the development of modern financial institutions, their financial assets and liabilities, and related financial services. This model postulates that the developments of the real economy will in itself induce increase in demand for financial services. The increase demand for financial services will spontaneously generate or lead to the introduction of new financial institutions and markets which will satisfy that increased demand for financial services.

This Theory is important to this study as it provides a different view that the developments in financial deepening does not necessarily lead to economic growth. It also provides an alternative explanation suggesting that economic growth drives deepening of the financial sector. The evolutionary development of the financial system is a continuous result of the pervasive, widespread process of economic development. The financial system is influenced by economic environment, institutional framework and also by individual motivations, attitudes, tastes and preferences. The demand for financial services is a function of growth of real output, commercialization, monetization of agriculture and other traditional subsistence sectors. The faster the growth in real national income, the greater will be the demand for external funds by enterprises. According to this theory, financial intermediation therefore plays a vital role, as internal funds generated are not sufficient for firms to finance expansion. The theory is thus applicable in this study since it postulates that finance intermediaries are important but only as a passive and permissive to growth process.

Financial Repression Theory

Governments and particularly developing country governments have intervened extensively in order to divert large amount of funds to the priority sectors such, state owned enterprises, small and medium scale firms and to a lesser extent housing, exports and underdeveloped regions. One way that government's finance expenditures in excess of tax revenues is to force the private sector, insurance companies, pension funds, commercial banks and other public financial institutions to buy government securities at below market yields as generally returns on government securities is much below the market rates of interest.

Another way in which government can borrow at low rates of interest is by setting high liquid asset ratios and ensuring that government securities are the only eligible assets that satisfy this requirement. Also, by setting high reserve requirements, the government can borrow indirectly from the banking system at a zero. Finally, governments may set ceilings on interest rates to limit competition from the private sector for loanable funds (Fry, 1997 and Giovannini and de Melo, 1990).Thus; financial repression is not a precise concept since the controls imposed on financial markets are a combination of price and quantity restrictions.

A typical set of restrictions includes the prohibition on domestic residents from holding financial assets abroad, coupled with compulsory quotas of government bonds in financial intermediaries The rationale for financial repression has been the response to the simplistic interpretations of Keynesian theories: It was thought that, by controlling interest rates at reasonably low levels and by expanding the scope of government direct intervention, investment would greatly increase. According to Prebisch (1974) government intervention aimed at controlling interest rates accelerates growth. The author contends that lower interest rates encourage savings and that the government should lower interest rates to a level where full employment is achieved.

Empirical Review

Nwabeke, Nwezeaku,Nzotta,Chris-Ejiogu, and Ogoke(2022) examined the effect of financial sector development on capital formation of Nigeria and South Africa using time series data from 1987-2019.Time series data was used percentage of capital formation to gross domestic products was used as the function of credit to private sector, broad money supply, interest rate spread and market capitalization ratio. Ordinary least square methods of cointegration, granger causality test, unit root test and Vector error correction model. The study found that the financial sector development explained 64.1 percent variation in Nigeria capital formation as against 46.4 percent variation from South Africa; this implies that the variables have more explanatory powers in Nigeria than South Africa.

Osakwe, Ogbonna and Obi-Nwosu (2020) examined a comparative study of the stock market capitalization on economic growth in Nigeria and South Africa for the period 2000-2018. The impressive growth recorded by Nigeria and South Africa Capital markets performance indicators are expected to transform their economies to the desired level. The study relies on time series OLS regression to analyze the data. The study found that the relationship between market capitalization ratio to GDP and economic growth is positive for South Africa but insignificant for Nigeria. Thus, the economic growth is positively correlated with the size of both countries' capital markets, though the size of South Africa capital market has better contribution to economic growth compared to Nigeria.

Yousuo and Ekiou (2020) investigated the impact of financial deepening on economic growth in Nigeria for a period of thirty-eight years from 1981 to 2018, with four specific objectives; examining the effects of the monetized, credit, savings and stock markets criteria on the economic growth taking cognizance of the impact of administrative regimes. Time series data were employed sourced from the Central Bank of Nigeria statistical bulletin of 2018 edition, the classical least square of multiple regressions with the application of dummy variable to capture the effects of the various Regimes was adopted in analyzing the data. The results show that financial deepening has both short and long-term effects on economic growth, the estimated regression line is significance as confirm by the f-statistics. The stock market, credit criteria have positive and significant effect on economic growth, savings criteria has negative and significant effects on economic growth, while the monetized criteria have positive and insignificant effects on growth in the short run. The unit root test shows that all the variable data have unit root, the selected processes of financial deepening are the true determinant of economic growth in Nigeria with high degree of effectiveness in the civilian regime.

Aaqib Sarwar, Muhammad Asif Khan, Zahid Sarwar and Wajid Khan (2020) financial development, human capital and its impact on economic growth of emerging countries. This paper aims to investigate the critical aspect of financial development, human capital and their interactive term on economic growth from the perspective of emerging economies. Data set ranged from 2002 to 2017 of 83 emerging countries used in this research and collected from world development indicators of the World Bank. The two-step system generalized method of moments is used to conduct this research within the endogenous growth model while controlling time and country-specific effects. The findings of the study indicate that financial development has a positive and significant effect on economic growth. In emerging countries, human capital also has a positive impact on economic growth. Financial development and human capital interactively affect economic growth for emerging economies positively and significantly. The data set is limited to 83 emerging countries of the world. The time period for the study is 2002 to 2017.

Joshua Dzanka Zoaka and Hasan Gungor (2023) effects of financial development and capital accumulation on labor productivity in sub-Saharan Africa: new insight from cross sectional autoregressive lags approach. This study aims to shed light on the effects of financial development and accumulation of capital on the productivity of labor in the sub-Sahara African region within the period of 1990–2018. The study used the (dynamic) common correlated effects estimator-mean group and additional techniques such as cross-section autoregressive distributed lag to calibrate the sample into the African subregion to ensure robustness. The findings reveal that financial progress in the region over time leads to an increase in productivity of labor and also the accumulation of capital. Furthermore, financial markets have a progressive impact on the productivity of labor within sub-Saharan African regions. We extend the very limited literature on the nexus between financial development and labor productivity by incorporating capital accumulation into our model which has not been previously studied.

Okoro (2021) attempted to give a better understanding of the type of relationship by analysing post-SAP (Structural Adjustment Programme) time-series data since the notable financial reforms began with SAP in Nigeria. The study employed the Johannsen Cointegration, error correction and granger causality as estimation techniques to determine the nexus between financial deepening and economic growth. The variables contained in the model include the ratio of credit to the private sector to gross domestic product (CPS) which proxy bank-based financial deepening, the proportion of market capitalization to gross domestic product (MCAP) which proxy for stock market development. The result of the analysis revealed

that the Nigerian economic growth is influenced by financial deepening positively and significantly, especially the bank-based financial depth.

Lucky and Uzah (2016) examined factors that determine Nigerian capital formation. The objective was to test Jhingan's propositions for sources of capital formation in Nigeria. Time series data were sourced from Central Bank of Nigeria (CBN) Statistical Bulletin. Nigerian Gross Fixed Capital Formation (GFCG/GDP) was modeled as the function of Broad Supply (M2/GDP), Credit to Private Sector (CPS/GDP), Gross National Savings (GNS/GDP), Commercial Banks Lending Rate, Exchange Rate (EXR), Inflation Rate (INFR), External Debt (EXTD/GDP), Public Expenditure (PEX/GDP), Government Revenue (GR/GDP), Terms of trade (TT/GDP) and Operating Surplus (OPS/GDP). Cointegration Test, Augmented Dickey Fuller Unit Root Test, Granger Causality Test and Vector Error Correction Model were used to test the dynamic relationship between the variables. Findings proved that M2/GDP, GNS/GDP, EXR, EXTD/GDP, TT/GDP have negative and insignificant effect on capital formation while CPS/GDP, LR, INFR, PEX/GDP, GR/GDP and OPS/GDP have positive and insignificant effect. The model summary revealed 86.0% explained variation and f-statistics 12.38458 probability of 0.000004. The study concludes that the variables have significant impact on Nigerian Gross Fixed Capital Formation and confirm the Jhingan's proposition.

METHODOLOGY

The study used ex-post facto research design to study the effect of financial market on capital formation in Nigeria. Data were collected from the national statistical agencies of Nigeria, specifically from the Central Banks of Nigeria Statistical Bulletin. The collected data covered the period from 1990-2023, providing a comprehensive time series for analysis. The model specification provides an overview of the econometric models and specifications that was employed to analyze the data and address the research objectives. This section outlines the specific equations, variables, and assumptions used in the models, as well as the rationale behind their selection. By defining the model specifications, this study ensures a systematic and rigorous analysis of the relationships between financial institutions and capital formation in Nigeria. The model specification for analyzing the implications of financial market and capital formation in Nigeria can be represented as follows:

$$GFCF = \alpha 0 + \beta_1 ISD + \beta_2 MMD + \beta_3 FXMD + \beta_4 CMD + \beta_5 BSD + \varepsilon_i \quad (1)$$

Where:

GFCF = gross fixed capital formation as percentage of gross domestic product
ISD= Insurance sector market as total insurance assets to gross domestic product
MMD= Money market as total value of money market instrument to gross
FXMD= Foreign exchange market as average official naira exchange rate per US Dollar
BSD= Banking sector development as credit to private sector to gross domestic product
CMD= Capital market as market capitalization to gross domestic product
β_0 =Regression Intercept
μ=Error term

A-priori Expectations of the study

Base on theories and empirical review in this study, the study expects a positive relationship between financial market institutions and capital formation in Nigeria. The mathematical implication is stated as follows: β_1, β_1, β_1, β_1 >0

Model Justification

The theoretical justification for the variables included in the model. These variables have been selected based on their relevance and potential impact on capital formation in Nigeria. By examining the existing literature, we can establish the theoretical foundations and expected relationships between these variables and capital formation. This theoretical justification helps to contextualize the empirical analysis and

enhances the understanding of the factors influencing capital formation among the financial institutions variables in Nigeria. The variables in the model are theoretically justified as follows:

The use of the ARDL approach in this study aligns with the objectives of examining the effect of financial institutions on capital formation. It allows for robust statistical inference and facilitates the identification of causal relationships between the variables of interest. The ARDL approach is appropriate when the variables in the model are integrated of different orders, that is, they may be stationary or non-stationary. The key condition for employing the ARDL approach is that at least one variable should be integrated of order one (I (1), while all other variables can be either stationary I (0) or integrated of order one I (1). This condition ensures the presence of a long-run equilibrium relationship among the variables.

Regression Statistics Tests

The Regression Statistics Tests section examines the statistical properties and goodness-of-fit measures of the estimated regression models. These tests provide important insights into the reliability and robustness of the estimated relationships between the dependent variable and the independent variables. By conducting various statistical tests, we evaluated the significance of the estimated coefficients; assess the overall fit of the model. These tests provide valuable information about the validity of the model assumptions and the accuracy of the estimated results. The Regression Statistics Tests section plays a crucial role in evaluating the quality of the econometric models and their suitability for addressing the research objectives. It allows us to assess the reliability of the estimated relationships and make informed interpretations about the impact of the independent variables on the dependent variable. In this section, we will present the criteria for the interpretation of important statistical tests such as the t-test, F-test, R-squared and adjusted R-squared.

Augmented Dickey-Fuller (ADF) Test

The ADF test is a commonly used test to assess the presence of a unit root in a time series. A unit root indicates that the series is non-stationary and exhibits a random walk pattern. The null hypothesis of the ADF test is that the series has a unit root, while the alternative hypothesis is that the series is stationary. The ADF test is conducted by regressing the differenced series on its lagged values. The general mathematical form of the ADF test equation is as follows:

$$\Delta y\_t = \alpha + \beta y\_\{t-1\} + \gamma\_1 \Delta y\_\{t-1\} + \gamma\_2 \Delta y\_\{t-2\} + ... + \gamma\_p \Delta y\_\{t-p\} + \varepsilon\_t \quad (2)$$

Where

Δ: denotes the first difference operator,

y_t: represents the time series variable

ε_t: is the error term.

The coefficient β is estimated and tested to determine if it is significantly different from zero.

To interpret the results of the ADF test, the calculated test statistic (ADF statistic) is compared to critical values. These critical values depend on the sample size, level of significance, and the specific version of the test used (e.g., ADF-GLS, ADF-Fisher, etc.). The criteria for decision in the ADF test are as follows:

If the calculated test statistic is less negative than the critical value, we fail to reject the null hypothesis of a unit root, indicating non-stationarity.

i. If the calculated test statistic is more negative than the critical value, we reject the null hypothesis and conclude that the series is stationary.
ii. Hypothesis and conclude that the series is stationary.

ARDL Bounds Cointegration Test

ARDL (Autoregressive Distributed Lag) Bounds Cointegration is a method used to test for the existence of a long-run relationship or cointegration between variables in a time series setting. The ARDL bounds test allows for the analysis of cointegration even when the variables may be integrated at different orders (i.e., some variables may be stationary, while others may be integrated of order 1 or higher). The ARDL bounds co-integration model can be represented as:

$$Y_t = \alpha + \beta\_1 X\_t + \beta\_2 Z\_t + \varepsilon\_t \quad (3)$$

Where

Y_t: represents the dependent variable,

X_t:

Z_t: are the independent variables,

α: is the intercept,

β_1 and β_2: are the coefficients,

ε_t: is the error term.

To conduct the ARDL bounds test, the following steps are typically followed:

Determine the lag length: Choose an appropriate lag length for the model, usually based on information criteria such as the Akaike Information Criterion (AIC) or the Schwarz Information Criterion (SIC).

i. Estimate the ARDL model: Use ordinary least squares (OLS) regression to estimate the coefficients of the ARDL model.
ii. Conduct the bounds test: Calculate the F-statistic for the joint significance of the lagged variables in the model. Compare the calculated F-statistic with the critical values from the bound tables provided by Pesaran, Shin, and Smith (2001) or Narayan (2005).
iii. At a significance level of 0.05, the decision criteria for the ARDL bounds co-integration test are as follows:
iv. If the calculated F-statistic is greater than the upper critical value, the null hypothesis of no co-integration is rejected, indicating the presence of a long-run relationship between the variables.
v. If the calculated F-statistic is lower than the lower critical value, the null hypothesis of no co-integration cannot be rejected, suggesting the absence of a long-run relationship.
vi. If the calculated F-statistic falls between the upper and lower critical values, no conclusive decision can be made, and further investigation is needed.

The critical values for the ARDL bounds test are available in the works of Pesaran, Shin, and Smith (2001) and Narayan (2005) and depend on factors such as the lag length, sample size, and the type of test (e.g., level or first-difference).

RESULTS AND DISCUSSIONS

Table 1: Test of Unit Root

Null Hypothesis: GFCF has a unit root			
		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.482651	0.1287
Test critical values:	1% level	-3.646342	
	5% level	-2.954021	
	10% level	-2.615817	
Null Hypothesis: ISD has a unit root			
		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.396619	0.0015
Test critical values:	1% level	-3.653730	
	5% level	-2.957110	
	10% level	-2.617434	
Null Hypothesis: D(MMD) has a unit root			
		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.246629	0.0000
Test critical values:	1% level	-3.679322	
	5% level	-2.967767	
	10% level	-2.622989	
Null Hypothesis: FXMD has a unit root			
		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		2.049490	0.9998
Test critical values:	1% level	-3.646342	
	5% level	-2.954021	
	10% level	-2.615817	
Null Hypothesis: CMD has a unit root			
		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.752184	0.3967
Test critical values:	1% level	-3.646342	
	5% level	-2.954021	
	10% level	-2.615817	
Null Hypothesis: BSD has a unit root			
		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-0.866563	0.7853
Test critical values:	1% level	-3.661661	
	5% level	-2.960411	
	10% level	-2.619160	

Source: E-view, 12.0

The study adopted the Augmented Dickey Fuller unit root test to examine the stationarity of the variables. From table 1, the study found that gross fixed capital formation, money market development, foreign exchange market, capital market development and banking sector development are stationary at level while insurance sector development and money market development are stationary at difference, from the above, we concludes that the variables are integrated in mixed order of 1(10 and 1(0), this enables us to adopt the Autoregressive distribution lag.

Table 2: ARDL Long Run Form and Bounds Test

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	5.290849	10%	2.08	3
k	5	5%	2.39	3.38
		2.5%	2.7	3.73
		1%	3.06	4.15
Actual Sample Size	33		Finite Sample: n=35	
		10%	2.331	3.417
		5%	2.804	4.013
		1%	3.9	5.419
			Finite Sample: n=30	
		10%	2.407	3.517
		5%	2.91	4.193
		1%	4.134	5.761

Source: E-view, 12.0

Next is the autoregressive distributed lag (ARDL) long-run model estimation. The procedure starts by conducting the bounds test for the null hypothesis of no co-integration. The asymptotic critical values bound, which were tabulated in Pesaran, Shin, and Smith, (2001), provide a test for cointegration with the lower values assuming the regressors are I(0), and upper values assuming I(1) regressors. If the calculated F-statistics exceeds the upper critical value, the null hypothesis is rejected, implying that there is cointegration. However, if it is below the lower critical value, the null hypothesis cannot be rejected, indicating lack of cointegration. If the calculated F-statistics falls between the lower and upper critical values, the result is inconclusive. Once cointegration is established, the conditional ARDL long-run model can be estimated. Table 2 above presented ARDL Long Run Form and Bounds Test on which decision to conduct ARDL Error Correction Regression is based. From the above table, the study concludes the presence of long run effect between the dependent and the independent variables.

Table 3: ARDL Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
GFCF(-1)	0.884166	0.079115	11.17565	0.0000
ISD	0.042855	0.095735	0.447638	0.6581
MMD	0.103968	0.148076	0.702129	0.4888
FXMD	0.021013	0.008359	2.513844	0.0185
CMD	-0.065912	0.088091	-0.748221	0.4610
BSD	-0.178787	0.167983	-1.064316	0.2970
C	1.014506	4.679326	0.216806	0.8301
R-squared	0.944731	Mean dependent var		27.74818
Adjusted R-squared	0.931977	S.D. dependent var		10.37910
S.E. of regression	2.706993	Akaike info criterion		5.015385
Sum squared resid	190.5231	Schwarz criterion		5.332826
Log likelihood	-75.75386	Hannan-Quinn criter.		5.122194
F-statistic	74.07171	Durbin-Watson stat		1.860635
Prob(F-statistic)	0.000000			

Source: E-view, 12.0

The estimated model found that financial intermediaries explained 94.4 and 93.1 percent variation in capital formation in Nigeria; it implies that financial intermediaries explained significant proportions of changes in gross fixed capital formation in Nigeria. The F-statistic and probability validates that the model is statistically significant while the Durbin Watson proved the absence of serial autocorrelation among the variables. The regression intercept is positive but not significant; beta coefficient proved that insurance, money market and foreign exchange have positive effect on capital

formation while capital market and banking sector have negative effect on capital formation over the periods covered in the study.

Table 4: ARDL Long Run Form and Bounds Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.014506	4.679326	0.216806	0.8301
GFCF(-1)*	-0.115834	0.079115	-1.464112	0.1552
ISD**	0.042855	0.095735	0.447638	0.6581
MMD**	0.103968	0.148076	0.702129	0.4888
FXMD**	0.021013	0.008359	2.513844	0.0185
CMD**	-0.065912	0.088091	-0.748221	0.4610
BSD**	-0.178787	0.167983	-1.064316	0.2970

Source: E-view, 12.0

Table 4 presents the long run effect of the independent variables on the dependent variable, from the results, insurance, money market and foreign exchange rate have positive effect on capital formation while banking sector and capital market have negative effect on capital formation, this findings is in line with the short run ARDL model above.

Table 5: ARDL Error Correction Regression and Levels Equation
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CointEq(-1)*	-0.615834	0.026074	-4.442583	0.0001
R-squared	0.658005	Mean dependent var		-0.584242
Adjusted R-squared	0.558005	S.D. dependent var		3.045320
S.E. of regression	2.440050	Akaike info criterion		4.651749
Sum squared resid	190.5231	Schwarz criterion		4.697098
Log likelihood	-75.75386	Hannan-Quinn criter.		4.667007
Durbin-Watson stat	1.860635			

Levels Equation
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ISD	0.369967	0.850340	0.435081	0.6671
MMD	0.897565	1.183222	0.758576	0.4549
FXMD	0.181404	0.119729	1.515121	0.1418
CMD	-0.569020	0.655474	-0.868105	0.3933
BSD	-1.543481	1.132636	-1.362734	0.1847
C	8.758286	36.60978	0.239234	0.8128

EC = GFCF - (0.3700*ISD + 0.8976*MMD + 0.1814*FXMD -0.5690*CMD
-1.5435*BSD + 8.7583)

Source: E-view, 12.0

Table 5 presents the ARDL Error Correction Regression and Levels Equation for the variables as formulated in the model. The result shows that, the CointEq(-1) coefficient of the error correction term which measures the speed of adjustment towards long-run equilibrium is negative and statistically significant at 5% level. The ECM has the expected negative sign which stands at -0.61. This implies that the rate at which changes in gross fixed capital formation at time t, adjusts to the single long-run co-integrating relationship is different from zero. In other words, the equation of gross fixed capital formation at time t, contains information about the long run relationship, the reason why co-integrating equation enter the model automatically. The coefficient of the ECM revealed that the speed with which changes in gross fixed capital formation at time t, adjusts respond to regressors is about –61% in the short-run. This is in conformity with this study a-priori expectation.

Furthermore, the R-Square often refers as the coefficient of determination also known as a measures of the goodness-of-fit, is 65.8%. This means that 65.8% of the changes in gross fixed capital formation at time t, are explained by the changes in the explanatory variables while, the remaining 34.2% could be explained by factors outside this model represented by error term. More so, Durbin-Watson statistic (DW) is 1.860635 shows there is no serial autocorrelation. From the level equation found that insurance, money market and foreign exchange have positive effect on capital formation while capital market and banking sector have negative effect on capital formation over the periods covered in the study.

The negative and no significant effect of the variables contradict the findings of Okodua and Ewetan (2013) that there exist a long run relationship between dependent and independent variables, Oluwantunsi et al, (2013) that market capitalization and number of listed companies have a positive impact, Osho (2014) that the stock market capitalization and the total value of traded ratio are negatively affecting gross domestic product, Yadirichukwu and Chigbu (2014) that there is an inverse relationship between the stock market capitalization ratio and long-run economic growth. This is statistically significant. Nwaolisa et al (2013) that while total market capitalization and All-share indexes exert positive impact on the GDP growth rate, the value of the stock has a negative effect on the GDP and not is significant, the findings of Owolabi and Ajaji (2013) that there is a positive relationship between economic growth and stock market variables in the analysis, Tarhom (2014) and Babatunde (2013), Nathanael (2014) that the value of equities (a measure of stock prices) is statistical significant and have a positive linear association with the economic growth in Nigeria this is in line with new economic growth theory, Osamwanyi and Kasimu (2013) that there is no causal relationship between stock market development and economic growth in Nigeria this findings does not support new growth theory which shows that the stock market development lead to economic growth and the findings of Okonkwo (2014) that there is unidirectional causality from listed securities to real GDP.

CONCLUSION

The opinion that finance has major role to play has long been advocated. This study examined the effect of financial institutions and capital formation in Nigeria between 1990 and 2023. The study used commercial banks, money market, capital market insurance and foreign exchange market. The study found that financial institutions explained 65.8% of the changes in gross fixed capital formation. From the level equation found that insurance, money market and foreign exchange have positive effect on capital formation while capital market and banking sector have negative effect on capital formation over the periods covered in the study. The study concludes that financial institutions determine capital formation in Nigeria.

RECOMMENDATIONS

i. Investment is often considered the backbone of many economies, including Nigeria. There should be policies that enhance access to credit for investors can spur entrepreneurial activity, job creation, and overall increase in capital formation.

ii. Deepening the operational efficiency of the financial institutions can help in making financial resources available for investors by mobilizing savings and increasing investment borrowings in the economic which are prerequisite for capital formation.

iii. Enhance regulatory oversight and enforcement to ensure transparency, fairness, and investor protection in the financial markets can increase capital formation.

iv. Central banks should pursue a balanced monetary policy approach that considers both inflationary pressures and the need to support capital formation and employment.

v. There is need to maintain prudent monetary policies aimed at controlling inflation and preserving macroeconomic stability, which can contribute to confidence in the currency and financial system.

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