Financial Sector Development and Capital Formation: A Comparative Analysis of Nigeria and South Africa

Nwabeke Chidinma Elizabeth M.Sc, Nathaniel Chinedum Nwezeaku Ph.D, Nzotta Samuel Mbadike Ph.D, Uzoamaka Chris-Ejiogu Ph.D and Sampson Ikenna Ogoke M.Sc
Department of Financial Management Technology,
Federal University of Technology, Owerri

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ABSTRACT
This study 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 sourced from Central Bank of Nigeria Statistical bulletin and World Bank data base. 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. From Nigeria, the study conclude that credit to private sector have positive and significant effect, interest rate spread have negative and no significant effect while money supply and market capitalization ratio have positive and significant effect on Nigeria capital formation. However, from south Africa, credit to private sector have negative and no significant effect, interest rate spread have positive and significant effect, money supply have positive and no significant effect while market capitalization ratio have positive and significant effect on south African capital formation. It recommends that the need to increase the size of the markets in both countries by increasing the number of financial instruments available to investors so as to increase trading as well as improve liquidity in the markets and government effort to increase the operational efficiency of the financial sector; the banking habit shall be increase and banking density reduced through effective branch banking policies to enhance effective savings mobilization and credit allocation that will bridge the wide savings-investment gap in the economy.

Keywords: *Financial Sector Development, Capital Formation, Comparative Analysis, Nigeria and South Africa*

1. INTRODUCTION

The opinion that finance has a major role to play in the realization and achievement of desired macroeconomic policies such as capital formation can be traced to the classical monetary policy theories such as Milton Friedman. It was later deepened by the 20th century economists such as Schumpeters in 1911 who argued that the creation of credit through the banking system was an essential source of entrepreneurial capacity to drive real growth.

Levine et al (2000) opined that financial intermediaries emerge to lower costs of researching potential investments exerting corporation, controls, managing risks, mobilizing savings and conducting exchange.

Capital formation is a complex process of channeling domestic generated or externally mobilized resources into private use. Capital formation is a component of gross domestic product by income together with consumption and net exports and services as an indicator of the level of investment in the economy. The concept means that society does not apply the whole of its current production activity to the needs and immediate desire of consumption but directs some part of it to the creation of capital goods (Jhingan, 2005). The intensity and the growth of capital formation is driven financial sector development as well as the institutional, political and social environment of the country.

The relationship between financial sector development and capital formation has been thoroughly analyzed in the theoretical and empirical literature. The conventional wisdom of the classical economists about these links is that financial sector development is a major determinant of long-term economic growth, which in turn is related to the conjecture that in the long run there must exist an expected positive return on the capital formation Ahmed & Miller, 2000).Capital formation promotes production and determines the speed of economic growth and development. It play important role in increasing the production potential of the economy and brings about balance growth of different sector of the economy that results in technical progress (Lucky and Uzah, 2016). Economic theories have shown that capital formation plays critical role in the model of economic development and determine the National capacity to produce. This means that inadequate capital formation is a major constraint to economic development.

Most African countries, particularly those in Sub-Saharan Africa, have recently undergone extensive financial sector reforms. The reform package includes interest rate liberalizations, removal of credit ceilings, restructuring and privatization of state-owned banks, introduction of a variety of measures to promote development of financial markets, including money and stock markets, and private banking systems, along with bank supervisory and regulatory schemes. A particularly interesting outgrowth of these financial sector reforms has been a surge of interest in the establishment of stock exchanges and their rapid proliferation in the recent years (Senbet and Otchere, 2005)**.**Existing studies on financial sector development focused on financial sector development and economic growth while this study focused on financial sector development and capital formation.

2. LITERATURE REVIEW

Financial Sectors Development

Financial sector development is often understood to mean that; sectors and agents are able to use a range of financial markets for savings and investment decisions (Shaw, 1973). Encompassing long maturities; financial intermediaries and markets are able to deploy larger volumes of capital and handle larger turnover, without necessitating large corresponding movements in asset prices (market liquidity); and the financial sector can create a broad menu of assets for risk-sharing purposes.

Financial sector development allow savers to invest in a broad range of quality investment and risk-sharing instruments and allow borrowers to likewise tap a broad range of financing and risk management instruments. Financial sector development is widely believed to confer important stability benefits to an economy, albeit with caveats. For instance, by increasing

transaction volumes, it can enhance the capacity to intermediate capital flows without large swings in asset prices and exchange rates. But it can also attract volatile capital inflows, complicating macroeconomic management.
Shaw and McKinnon (1973) refer financial sector development as the improvement or increase in the pool of financial services that are tailored to all the levels in the society. That it also refers to the increase in the ratio of money supply to Gross Domestic Products or price index which ultimately postulates that the more liquid money is available in the economy, the more opportunities exist in that economy for continued and sustainable growth. Financial deepening implies the ability of financial institutions to effectively mobilize savings for investment purposes. It enables the commercial banks perform their intermediary functions and achieve its operational objectives.

Market Capitalization Ratio
Capital Market capitalization refers to the total naira market value of a company's outstanding shares. Commonly referred to as market cap is calculated by multiplying a company's shares outstanding by the current market price of one share, the investment community uses this figure to determine a company's size, as opposed to using sales or total asset figures (Osinubi, 2004). In this study, capital market capitalization is measured in relationship to Broad Money Supply which signifies percentage of Broad Money Supply that is invested in the Nigeria capital market.

Beck and Levine (2004) showed that with market capitalization, there is no theory suggesting that mere listing of shares will influence resource allocation and economic growth. Levine and Zervos (1998) also indicate that market capitalization is not a good predictor of economic growth. However, Yartey (2008) differs on this issue and opined that the assumption behind this measure is that overall market size is positively correlated with the ability to mobilize capital and diversify risk on an economy-wide basis. For these unsettled discussions, we shall use market capitalization as a ratio of GDP, total value of shares traded ratio and turnover ratio, each at a time to determine the performance of each of them, and avoid multicollinearity in the model since Demiguc-Kunt and Levine (1996) has observed that different measures of stock market development are highly correlated.

In Nigeria, the capital market was a major beneficiary of structural reforms to the economy, which began in 1999, as a result of which the trend growth rate of the economy rose from 3% to 4% per annum before the turn of the last century, to around 7% per annum since 2003. Additional reforms to the financial services sector, including the 2004/2005 increase in banks' minimum capital base saw further inflows of investment into the capital market. The cashless policy of the Nigerian economy has also further improved the competitiveness of the economy cum ease of funds into the capital market to compete with improve capital market like the South African capital market.

The market witnessed a steep decline in trading volumes and overall market capitalization, with the value index dropping from 33,358.3 points in 2006 to 20,730.6 points in 2014, and the value of approved new issues dropping precipitously to N2.03 billion in 2014 from N1,410 trillion in 2006. According to NSE (2014), the listed equities of Nigeria capital market was 190 with 48 listed bonds (including one exchange traded fund), and an average daily turnover this year of US$17 million, the market capitalization of equities on the NSE currently stands at N6.54trn, while that of bonds is slightly lower at N3.74 trillion, (Nigerian

Stock Exchange, 2014). Figure 2.1 below shows the trend of Nigeria capital market capitalization as percentage of gross domestic product from 2008-2019

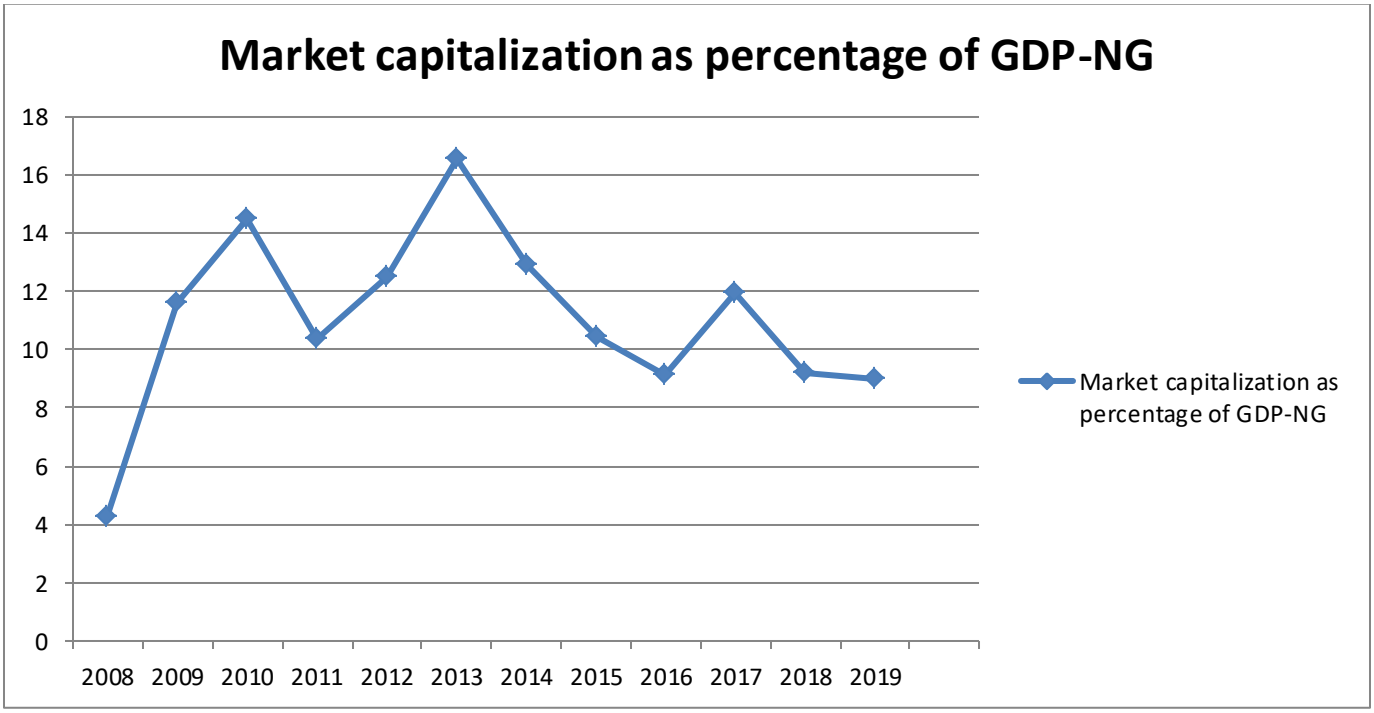

Figure 2.1: Nigeria capital market capitalization as percentage of gross domestic product from 2008-2019.

Between 2008-2019 Nigeria capital market capitalization was 4.26 in 2008, 11.6 in 2009 14.4 in 2010, 10.3 in 2011 and 8.9 in 2019

Johannesburg Securities Exchange was renamed JSE Securities Exchange, which provided a market for securities trading with a regulated procedure. The JSE's market capitalization stood at USD614 billion as at end May 2009 and the market turnover was USD300 billion in 2008 calendar year SARB (2009) cited in Uyaebo et al (2015). Between 1995 and first quarter 2013, JSE averaged 15,656 Index points reaching an all-time high of 40,984 Index points in March of 2013 and a record low of 4,308 Index points in September of 1998. The FTSE/JSE All Share Index has a base value of 10,815.083 as of June 21, 2002 (Uyaebo et al., 2015).

The JSE plays a key role in the commercial and economic development of South Africa. It is a strong driver of the South African economy and the companies listed on the JSE represent a sizeable part of South Africa's economic activity. Companies across the range of industry and commerce meet to raise the public capital needed to expand their businesses and in doing so, they create new jobs, products, services, wealth and economic opportunities (Mkhize & Mswell-Mbanga, 2006). It has about 400 companies listed with a market capitalization of R6,633.6 billion as of March 25, 2011, the strongest performance in SSA (World Development Indicators, 2011). According to a press release by the African Capital Markets news, in 2010, JSE revenues increased 9% per year over- year to R1, 255 million in 2010 (2009: R1, 156 million) despite a challenging environment. Moreover, South Africa's

Johannesburg Stock Exchange (JSE) led African exchanges in Initial Public Offerings (IPO) transactions and capital raised in the past five years, amounting to $2.7 billion.

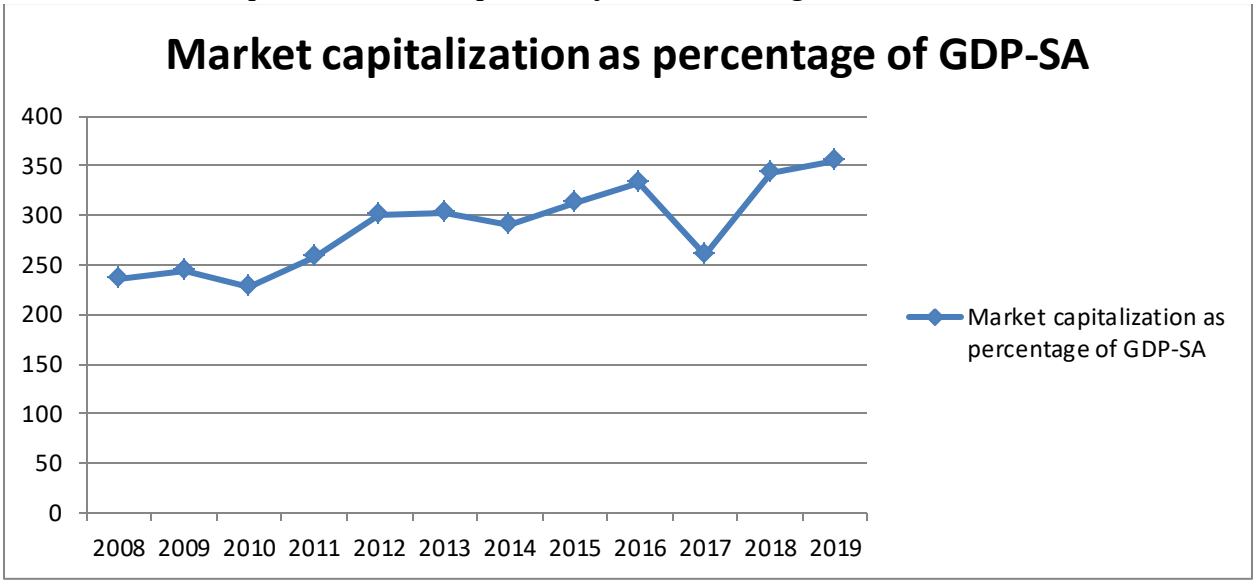

Figure 2.2: South African capital market capitalization as percentage of gross domestic product for 2008-2019

Between 2008-2019 South African capital market capitalization was 236.4 in 2008, 243.7 in 2009 228.4 in 2010, 257.6 in 2011 and 353.9 in 2019

Credit to Private Sector

The credit to private sector is said to be the engine of economic growth for a country, especially, for developing economies (William, Zehou, and Hazimi, 2019). The private sector remains the nucleus that drives economic growth. Private sector funding (credit) is no doubt a driver of the real economy, particularly in developing economies like Nigeria where the financial markets are porous and near well developed to mobilize the needed resources to accelerate the desired level of economic development. The credit to private sectoris the part of the economy that is run by individuals and companies for profit and is not state controlled. Therefore, it encompasses all for-profit businesses that are not owned or operated by the government. Companies and corporations that are government run are part of what is known as the public sector, while charities and other non-profitable organization are part of the voluntary sector. From the above, private sector funding refers to various sources of fund to private investors.

Credit to private sector entails the ways and means by which private firms and households (individuals) readily have access to fund to finance their investment and promote economic growth. It involves the pros and cons through which individuals and statutory firms' gain access to the availability of credit (fund) to finance and promote their investment drive. Credit to private sector involves credit extended by the banking and financial institutions to the private sector of the economy alone and basically include firms and households excluding loans disbursed to the government. According to the global economic report (2019), domestic credit to private sector by banks refers to financial resources provided to the credit to private sector by other depository corporations (deposit taking corporations except central banks), such as through loans, purchases of non-equity securities, and trade credits and other accounts receivable, that establish a claim for repayment.

According to global economy report, if the banking industry credit to the private sector is about 70 percent of GDP and more, then the country has a relatively well developed financial system. However, in developed and advanced economies the amount (rate) of credit to the private sector can hover above 200 percent of GDP. Conversely, in some developing and poor countries (economies), the amount of credit disbursed to the private sector could be less than 15 percent of GDP. Thus, private sector funding remains a financial bane in poor economies as this constitutes major challenges confronting private sector investment and economic growth.

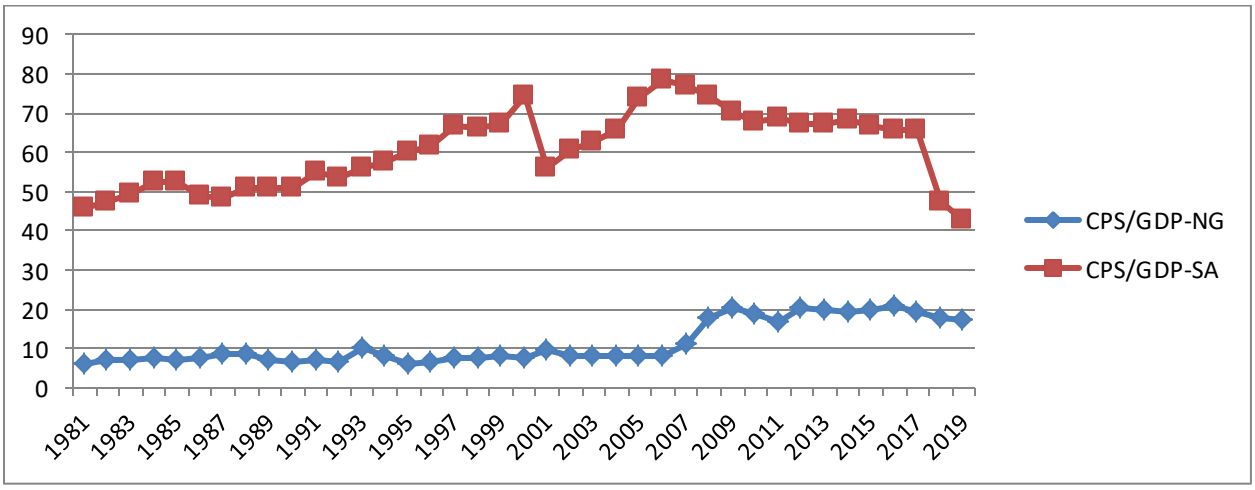

Figure 2.3: Trend showing fluctuation of percentage of private sector credit to gross domestic products for Nigeria and South Africa. The trend shows that South Africa has higher private sector credit than Nigeria.

Money Supply

Monetary Policy refers to the specific deliberate actions taken by the Central Bank to regulate the value, supply and cost of money in the economy with a view to achieving Government's macroeconomic objectives. The objectives of monetary policy vary amongst various countries. While the objective of monetary policy is predicated on achieving price stability in a country, other countries seeks to achieve price stability and other diverse macroeconomic objectives. The Central Bank of Nigeria, like other central banks in developing countries, achieves the monetary policy objective via the volume of money supply.

The total volume (stock) of money in circulation among the public at a particular point of time is called money supply. Money supply is the entire stock of currency and other liquid instruments in circulation in an economy at a particular time. The money supply can include cash, coins, and balances held in checking and savings account, and other near money substitutes. Economists are of the view that detailed analysis of money supply remains key variable towards understanding macroeconomic paradigm and a tonic that guides macroeconomic policy.

Interest Rate

Interest rate spread in an economy is crucial for growth and development, as numerous authors suggest a critical link between the efficient intermediate and economic growth. Efficient intermediation benefits real economy by allowing higher expected return to a saver and providing more opportunity by cheap investable funds (Quaden, 2004). Higher interest

rate spread discourages a potential saver and is a barrier for a potential investor, since the cost of intermediating between a saver and an investor has strong implication for effective mobilization of funds. Inefficiency of financial intermediary causes high intermediation cost and increases loss of productive funds in intermediary process. This leads to a reduction in lending, investment and economic growth.

The interest rate spreads (measured as the difference between deposit and lending rates) not only indicate the level of inefficiency of the banking sector but show the level of development of the financial system. Bank interest rate spreads have several important implications for growth and development of any economy. Specifically high interest rate spreads tend to discourage potential savers and thus limiting the quantum of funds available to potentials investors. A reduction in lending arising from low savings often leads to low investment and thus the economic growth rate. Incidentally, interest rate spreads in Nigeria increased by a large amount over the study period.
The interest rate spreads was low at 2.5 in 1986. It increased to 5.2 in 1987 following governments' liberalization of the entering requirements into the banking business and the total removal of interest rate control. The spreads experienced a fall in 1988 which could be linked to the establishment of the Nigerian De-posit Insurance Corporation and relaxation of bank port-folio restrictions. It rose to 8.2 and 8.9 in 1989 and 1990. This was the period when banks were permitted to pay interest on demand deposits. Auction markets for government securities were introduced; capital adequacy standards were reviewed upward and the extension of credit based on foreign exchange deposits was banned. All these might have in one way or the other influenced the interest rate spreads. It dropped to 6.51 in 1991 when embargo was placed on bank licensing.

The economy of South Africa is fabricated by a large financial sector that is greatly sophisticated, well developed and highly regulated. The total market value of the assets within the financial sector, in December 2016, averaged 298% of GDP (South African Reserve Bank [SARB], 2016), surpassing those of other nations in the region and other developing countries. Kganyago (2016) maintains that the biggest portion of the South African financial system is consumed by the commercial banks, with assets of around 112% of GDP. However, rapid growth in nonbank financial sector, for instance insurance companies and pension funds, has seen the share of commercial banks assets declining since 2008. At the end of 2016, the share of total financial assets of commercial banks in South Africa dropped by 72% between 2009 and 2016 (SARB,2016).

The majority of banking assets are domestic, with a share of 95% and most major banks in South Africa contracted their operations to developed economies and non-African emerging market economies (Banking Association of South Africa [BASA], 2016**).** This segment consumes about 46% of the total financial sector assets in South Africa (SARB, 2016). The second largest financial sector that occupies the financial assets in South Africa is the private banking sector with 37% portion of the total assets. Unit trusts that are institutions that pool money from various investors to invest in assets such as shares, property and bonds, consume 14% of the total financial assets in South Africa, other segments consume only 3% of the total financial sector assets (SARB, 2016).

Kganyago (2016) asserted that South Africa has a world class banking system because of its observance of the international banking regulation frameworks. This has seen a steadily

increasing number of foreign players acquiring stakes in major banks in South Africa. Furthermore, Kganyago (2016) argues that the South African banking sector is highly concentrated and compares favorably to the developed economies. The South African banking sector comprises 15 branches of foreign banks, 36 foreign bank representatives, 6 foreign controlled banks, 10 locally controlled banks and 3 mutual banks (SARB, 2016). The last quarter of 2016 reviewed that about 91% of the total banking sector assets was represented by the five major banks, also known as the "Big Five," in South Africa, namely Standard bank, Capitec, FirstRand bank (FNB), ABSA and Nedbank (BASA, 2016). Generally, the number of banks in South Africa has been declining over the years. Locally controlled banks sorely decreased from 18 to 10 between 2010 and 2016, with branches of foreign banks increasing to 15 in 2016, from 13 in 2009 (SARB,2016). This trend could be attributable to factors such as liquidations, mergers or amalgamations of financial institutions.

Previous studies on the impact of interest rate spread on the banking system efficiency are very few not only in the context of South Africa but across all the developing economies. Majority of the available studies put more emphasis on the determination of productivity and competition within the banking system. In a study conducted by Okeahalam (2016) for the 61 banking branches in South Africa, the results indicated that the productive efficiency of these banks was 83%. These results implied that financial institutions could reduce their costs by 17% without significant changes of their output mix. Similarly, using the parametric stochastic frontier, Ncube (2009) concluded that the cost and profit efficiencies of the major four banks in South Africa averaged 55% and 92%, respectively.

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).

Gross fixed capital formation, has been in terms of theory recognized as an essential component to facilitate economic growth and employment (Overseas Development Institute (ODI, 2016). Keynes argued that new and additional investment increases the aggregate demand in the economy (Tobin, 1965). An increase in domestic investment occurs when existing firms make new investment or new domestic investors enter the market (Faulkner, Loewald & Makrelov, 2013).

Theoretical Foundations

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.

Demand Following Hypothesis

Moving away from the neo-classical 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.

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 general 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

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. The study recommends that there is a need to increase the size of the markets in both countries by increasing the number of financial instruments available to investors so as to increase trading as well as improve liquidity in the markets.

Popoola, Ejemeyovwi, Alege, Adu andOnabote (2017) investigated the short run effect, long run effect and causal relationship between stock market and economic growth in Nigeria. The Augmented Dickey Fuller unit root test, Ordinary Least Squares, Johansen Cointegration test and Pairwise granger causality methods were applied to the variables. The OLS result showed that the all share index had a significant but negative relationship with economic growth; The Johansen cointegration test showed that a long run relationship exists between the stock market performance and economic growth in Nigeria in the long run while the Granger causality test results showed that stock market performance does not granger cause economic growth but economic growth granger causes stock market performance at 5 percent significance level. The study suggested some of the possible reasons for the negative impact of stock market on the Nigerian economic growth and recommended that efforts should be made to improve the stock market performance to have a positive effect on the real gross domestic product of Nigeria overtime.

Akani and Uzah (2018) examined micro financing and macroeconomic stability in Nigeria from 1992-2015. The objective was to investigate the relationship between micro finance lending operation and Nigerian macroeconomic stability. The required data were sourced from Central Bank of Nigeria (CBN) Statistical Bulletin and Stock Exchange Annual Report. The study modeled Nigeria real gross domestic product as a function of micro finance lending to agricultural sector, mining and quarrying, manufacturing sector, transport and communication, real estate and micro finance other lending. The Ordinary Least Square multiple regressions with econometric view were used as data analysis techniques. Cointegration test, Granger Causality Test, Augmented Dickey Fuller Test and Error Correction Model were used to examine the variables and its relationship to the dependent variables. The study found that microfinance lending to the various sectors of the economy have positive but insignificant effect on Nigerian macroeconomic stability except lending to agricultural sector and mining and quarrying. The stationarity test proved presence of stationarity at first difference, the cointegration test indicates the presence of long run relationship and the granger causality test prove no causal relationship among the variables. The study concludes that microfinance operation does not significantly affect Nigerian macroeconomic stability.

Onwubu and Okorie (2018) evaluated the influence of microfinance bank loan and advances on industrial output in Nigeria over the period of 2008 to 2014. The study employed secondary data from the central bank of Nigeria statistical bulletin. The multiple regression model of ordinary least square method was employed as ran via STATA 11 econometric software. The study revealed that microfinance bank loans and advances showed significant impact on industrial output in Nigeria over the study period. The study therefore recommended a reduction in the cost of capital by the Nigerian government.

Nwude and Anyalechi (2018) examined the impact of microfinance activities on rural economic growth and savings in Nigeria for the period 2000–2015. The ordinary least square regression was also deployed as the technique of analysis. The findings showed that the introduction of micro finance banking in Nigeria have not contributed to agricultural productivity but had assisted in increasing rural savings habits in Nigeria. As a way of improving economic growth in Nigeria the recommendations were; that conscious effort should be geared towards the provision of basic infrastructure by the government; micro finance institutions should be encouraged to embark on relationship lending; diversification of some farm productive resources, especially risk relating to climate change should be diversified to increase productivity.

Courage and Leonard (2019) examined the effect of commercial bank sectorial credit to the manufacturing and agricultural sub-sectors on economic growth in Nigeria with time series data from 1981 to 2015, using co-integration and error correction mechanism. The study specifies a three equation model to analyze the variables which include; real GDP, bank sectorial credit to manufacturing and agriculture subsectors, monetary policy rate, financial market development, sourced from CBN statistical bulletin and also the interaction variables, Empirical result revealed that commercial bank credit to the manufacturing and agricultural subsectors significantly affects economic growth in Nigeria both in the short run and in the long run. Furthermore, development of the financial sector enhances the growth effects of commercial banks credit to the manufacturing and agricultural subsectors of the economy. The study recommends that the Nigerian apex financial authorities should encourage banks via deliberate policy to increase credits to these subsectors of the economy.

Olorunmade, Samuel, and Adewole, (2019) examined the determinant of private sector credit and its implication on economic growth in Nigeria. The fluctuation in the supply of money and credit is the basic causal factor at work in cyclical process; when money supply falls, prices decrease, profit decrease, production activities become sluggish and production falls and when money supply expands, price rise, profit increase and the total output increases and finally growth takes place. Sample regression analysis was used to analyses data obtained from Central Bank of Nigeria statistical bulletin from 2000 to 2017. It was revealed in the determinant of credit supply that there was significant relationship between Total credits to private sector and money supply in Nigeria. The study also finds that there was significant relationship between private sector credit and economic growth in Nigeria. They recommend that there should be persistence increase of money supply to Nigerian economy in order to increase the flow of credit to the real sector of the Nigerian economy, financial institutions should distribute more credit to the real sector for productive purposes in order to increase Gross domestic product.

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. It was recommended that the financial sector should be deepened, policies should be directed to discourage capital flight and government expenditure should be directed towards infrastructural development as against consumable goods to enhance capital formation in Nigeria

3. METHODOLOGY

This study empirically investigates the relationship between financial sector development and capital formation in Nigeria. The relevant data were sourced from Central Bank of Nigerian Statistical Bulletin and World Bank data base. Time series data were used and econometric method of data analyses which involves Ordinary Least Square (OLS) were employed. The multiple regressions formulated were based on financial sector development and capital formation.

CF/GDP = f(CPS/GDP, M2/GDPMCR, IRS) (1)

Transforming equation 1above to econometric method, we have:

$$CF/GDP = \alpha + \alpha_1 CPS/GDP + \alpha_2 M2/GDP + \alpha_3 MCR + \alpha_4 IRS + \mu_i \quad (2)$$

Where:

CF/GDP= Percentage of capital formation to gross domestic product
CPS/GDP= Percentage of private sector credit to gross domestic product
M2/GDP = Percentage of broad money supply to gross domestic product
MCR = Percentage of market capitalization to gross domestic product
IRS = Interest rate spread
μ = Error Term
$\beta_1 - \beta_4$ = Coefficient of Independent Variables to the Dependent Variable
β_0 = Regression Intercept
A-priori, b,> 0, b_3> 0, b_3<>0, b_4>0

The above equation shows that financial sector development is expected to have a positive effect on capital formation of the two African countries.

Estimation Techniques

i. Stationarity Test:

Time series data are assumed to be non-stationary and this implies that the result obtained from Ordinary Least Square (OLS) may be misleading (Suleyman, 2014). It is therefore necessary to test the stationarity of the variables using the Augmented Dickey Fuller 1979 to test both level and first difference. The ADF test constructs a parameter correction for higher order correlation by assuming the times series follows an auto regressive process. Mathematically expressed as

$$\Delta y_t = c + \beta_t + \alpha y_{t-1} + \sum_{t-i}^{k} \gamma_j \Delta y_{t-j} + \varepsilon_t \qquad (3)$$

$$\Delta y_t = c + \alpha y_{t-1} + \sum_{t-i}^{k} \gamma_j \Delta y_{t-j} + \varepsilon_t \qquad (4)$$

Equation 5 is used to test for the null hypotheses of non-stationarity of unit root against trend stationarity alternative in $Y_t$where y refers to the examined time series. Equation 6 tests the null hypotheses of a unit root against a mean stationarity alternative.

ii. Johansen Cointegration Test

The cointegration test established whether a long run equilibrium relationship exist among the variables. It is generally accepted that to establish a cointegration, the likelihood ratio must be greater than the Mackinnon critical values. The model can be stated as

$$\Delta X_t = \mu + \Psi_1 \Delta X_{t-1} + \Psi_2 \Delta X_{t2} + \ldots + \Psi_{p-1} \Delta X_t - p + 1 \qquad (5)$$

Where μ is a constant term.

ΔX_t Represents the first cointegrating differences

iii. Granger Causality

To determine the direction of causality between the variables, the study employed the standard Granger causality test (Granger, 1969). The test is based on Vector Error Correction Model (VECM) which suggests that while the past can cause or predict the future cannot predict or cause the past. Thus, according to Granger (1969) X Granger cause Y if past value of X can be used to the past value of Y, the test is based on the following regression model.

$$CF/GDP = \alpha_{2t} + \sum_{j=1}^{k} \phi_{2j} CPS/GDP_{t-j} + \sum_{j=1}^{k} \beta_{2j} M2/GDP_{1-j} + \sum_{j=1}^{k} \lambda_{2j} MCR_{t-j} + \sum_{j=1}^{k} \theta_{2j} IRS_{t-j} \sum_{j=1}^{k} + \mu \qquad (6)$$

$$CPS/GDP = \alpha_{2t} + \sum_{j=1}^{k} \phi_{2j} CF/GDP_{t-j} + \sum_{j=1}^{k} \beta_{2j} M2/GDP_{1-j} + \sum_{j=1}^{k} \lambda_{2j} MCR_{t-j} + \sum_{j=1}^{k} \theta_{2j} IRS_{t-j} + \sum_{j=1}^{k} + \mu . \qquad (7)$$

$$M2/GDP = \alpha_{2t} + \sum_{j=1}^{k} \phi_{2j} CF/GDP_{t-j} + \sum_{j=1}^{k} \beta_{2j} CF/GDP_{1-j} + \sum_{j=1}^{k} \lambda_{2j} MCR_{t-j} + \sum_{j=1}^{k} \theta_{2j} IRS_{t-j} + \sum_{j=1}^{k} + \mu . \qquad (8)$$

$$MCR = \alpha_{2t} + \sum_{j=1}^{k} \phi_{2j} CF/GDP_{t-j} + \sum_{j=1}^{k} \beta_{2j} CF/GDP_{1-j} + \sum_{j=1}^{k} \lambda_{2j} CF/GDP_{t-j} + \sum_{j=1}^{k} \theta_{2j} IRS_{t-j} + \sum_{j=1}^{k} + \mu . \qquad (9)$$

$$IRS = \alpha_{2t} + \sum_{j=1}^{k} \phi_{2j} CF/GDP_{t-j} + \sum_{j=1}^{k} \beta_{2j} CF/GDP_{1-j} + \sum_{j=1}^{k} \lambda_{2j} CF/GDP_{t-j} + \sum_{j=1}^{k} \theta_{2j} CF/GDP_{t-j} + \sum_{j=1}^{k} + \mu . \quad (10)$$

iv. Vector Error Correction Model

Co-integration is a prerequisite for the error correction mechanism. Since co-integration has been established, it is pertinent to proceed to the error correction model. The VECM is of this form

$$\Delta y_t = \alpha\beta y_{t-1} + \sum_{i=1}^{j=1} \Gamma_j \Delta y_{t-1} + \pi + \varsigma_t, t = 1,....., T \quad (11)$$

Where Y_t is a vector of indigenous variables in the model, α is the parameter which measures the speed of adjustment through which the variables adjust to the long run values and the β is the vectors which estimates the long run cointegrating relationship among the variables in the model. π is the draft parameter and is the matrix of the parameters associated with the exogenous variables and the stochastic error term.

RESULTS AND DISCUSSION OF FINDINGS

The tables below gives details on the effect of monetary policy variables on bank credit to the private sector in Nigeria.

Table 1:**Presentation Unit Root Test**

Variable	ADF Statistics	MacKinnon @ 1%	MacKinnon @ 5%	MacKinnon @ 10%	Prob.	Decision	Conclusion
			ADF at Level: Nigeria				
CF	-1.611028	-3.653730	-2.957110	-2.617434	0.4655	1(0)	Not stationary
CPS/GDP	-0.830495	-3.653730	-2.957110	-2.617434	0.7967	1(0)	Not stationary
IRS	-1.223997	-3.653730	-2.957110	-2.617434	0.2323	1(0)	Not stationary
M2_GDP	-0.658098	-3.653730	-2.957110	-2.617434	0.8432	1(0)	Not stationary
MCR	-1.961505	-3.653730	-2.957110	-2.617434	0.3015	1(0)	Not stationary
			ADF **at First Difference: Nigeria**				
CF	-4.556466	-3.699871	-2.976263	-2.627420	0.0012	1(1)	stationary
CPS/GDP	-5.916160	-3.689194	-2.971853	-2.625121	0.0000	1(1)	stationary
IRS	-	-3.699871	-2.976263	-2.627420	0.000	1(1)	stationary

	6.327112			0		
M2_GDP	-8.322692	-3.670170	-2.963972	-2.621007	0.0000	1(1)	stationary
MCR	-7.404742	-3.679322	-2.967767	-2.622989	0.0000	1(1)	stationary
			ADF at Level: South Africa			
CF	-2.952572	-3.661661	-2.960411	-2.619160	0.1508	1(0)	Not stationary
CPS/GDP	-1.660397	-3.653730	-2.957110	-2.617434	0.1637	1(0)	Not stationary
IRS	-2.868243	-3.653730	-2.957110	-2.617434	0.0603	1(0)	Not stationary
M2_GDP	-0.863867	-3.661661	-2.960411	-2.619160	0.7861	1(0)	Not stationary
MCR	-0.294303	-3.670170	-2.963972	-2.621007	0.9145	1(0)	Not stationary
			ADF at Difference: South Africa			
CF	-6.016159	-3.670170	-2.963972	-2.621007	0.0000	1(1)	stationary
CPS/GDP	-11.83188	-3.670170	-2.963972	-2.621007	0.0000	1(1)	stationary
IRS	-5.048230	-3.699871	-2.976263	-2.627420	0.0004	1(1)	stationary
M2_GDP	-6.725418	-3.670170	-2.963972	-2.621007	0.0000	1(1)	stationary
MCR	-7.435217	-3.670170	-2.963972	-2.621007	0.0000	1(1)	stationary

Source: Author's Computations using E-Views 9.0

Table 1 analyzes the stationarity test of the result. It shows that all the variables are stationary at first difference and integrated in the order of 1(1), this means the null hypotheses of non-stationarity is rejected and the alternate accepted. This enables us to present the cointegration test results.

Table 2: Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
		Nigeria		
None *	0.683720	72.68296	69.81889	0.0290
At most 1*	0.435799	56.99797	47.85613	0.0476
At most 2*	0.351280	49.25529	29.79707	0.0447
At most 3	0.098756	5.839920	15.49471	0.7144
At most 4	0.080941	2.616554	3.841466	0.1058
		SOUTH AFRICA		
None *	0.578721	72.38107	69.81889	0.0308
At most 1*	0.466357	55.58283	47.85613	0.0405
At most 2*	0.397877	36.11395	29.79707	0.0453
At most 3	0.247380	10.38786	15.49471	0.2521
At most 4	0.049624	1.577839	3.841466	0.2091

Source: Author's Computations using E-Views 9.0

Trace Statistic value test indicates two cointegrating equation at 5% level denoting rejection of null hypotheses at 5% level of significance. The results of Johansen's maximum likelihood cointegration tests reported in table above indicate any full-rank trend. To this extent, the results provide good evidence of multicollinearity among the time cointegration.

Table 3: Estimated Error Correction Model Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
		Nigeria		
C	0.543245	0.699375	0.776757	0.4449
D(CF(-1))	0.151414	0.222609	0.680179	0.5029
D(CPS_GDP(-1))	0.086356	0.476198	3.181346	0.0076
D(IRS(-1))	-0.452599	0.389158	-1.163021	0.2563
D(M2_GDP(-1))	0.231479	0.510277	3.453634	0.0042
D(MCR(-1))	0.019231	0.137701	-2.139656	0.0301
ECM(-1)	-0.164204	0.162918	-1.007890	0.3236
R-squared	0.886999	Mean dependent var		-0.459516
Adjusted R-squared	0.641252	S.D. dependent var		3.428388
S.E. of regression	3.662525	Akaike info criterion		5.629862
Sum squared resid	321.9382	Schwarz criterion		5.953666
Log likelihood	-80.26287	Hannan-Quinn criter.		5.735414
F-statistic	6.381155	Durbin-Watson stat		1.321420
Prob(F-statistic)	0.000051			
		SOUTH AFRICA		
C	-0.162318	0.171262	-0.947771	0.3527
D(CF(-1))	0.409762	0.177138	2.313233	0.0296
D(CPS_GDP(-1))	-0.711706	0.520606	-0.722808	0.4768
D(IRS(-1))	0.059068	0.082022	2.720147	0.0084
D(M2_GDP(-1))	0.083320	0.076314	1.091804	0.2858
D(MCR(-1))	0.006776	0.003597	1.883921	0.0417
ECM(-1)	-0.416026	0.120286	-3.458641	0.0020
R-squared	0.571766	Mean dependent var		-0.097452
Adjusted R-squared	0.464708	S.D. dependent var		1.220584
S.E. of regression	0.893024	Akaike info criterion		2.807273

Sum squared resid	19.13980	Schwarz criterion	3.131076
Log likelihood	-36.51273	Hannan-Quinn criter.	2.912825
F-statistic	5.340694	Durbin-Watson stat	2.222682
Prob(F-statistic)	0.001269		

Source: Author's Computations using E-Views 9.0

The estimated regression results proved that financial sector development can explain 64.1 percent variation in Nigeria capital formation but 46.4 percent variation in South Africa. From both countries the regression model is statistically significant when judged from the F-statistic and probability. The error correction coefficient indicates that the variables could adjust by 16.4 percent annually from Nigeria but 41.6 percent from South Africa. The Durbin Watson statistic from Nigeria proved the absence serial autocorrelation while that of South Africa proved the presence of serial autocorrelation within the periods covered in the study.

Table 4: VAR Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
			Nigeria			
1	-323.6016	NA	4085.712*	22.49043*	23.64687*	22.86740*
2	-310.2705	18.06156	9636.499	23.24326	25.55614	23.99720
			South Africa			
1	-654.5254	NA	3.30e+13*	45.30169*	46.46936*	45.67524*
2	-632.3172	29.61097	4.47e+13	45.48781	47.82314	46.23490
3	-612.3280	19.98913	8.95e+13	45.82187	49.32486	46.94251

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

The result of the test for VAR residual serial correlation using LM test indicates that there is no serial autocorrelation in the model. This however implies that the variables included in the VAR model are well behaved, implying that the result of the VAR model has a high predictive ability; it also shows that the result can be relied on in making forecasting. From the above, we select lag 1 the appropriate lag length

Table 5:Pairwise Granger Causality Tests

Null Hypothesis:	Obs	F-Statistic	Prob.
	Nigeria		
CPS_GDP does not Granger Cause CF	31	0.42423	0.6587
CF does not Granger Cause CPS_GDP		3.57155	0.0426
IRS does not Granger Cause CF	31	1.84344	0.1784
CF does not Granger Cause IRS		0.68131	0.5148
M2_GDP does not Granger Cause CF	31	0.52135	0.5998
CF does not Granger Cause M2_GDP		2.45870	0.1052
MCR does not Granger Cause CF	31	0.17199	0.8429
CF does not Granger Cause MCR		3.33998	0.0012
	South Africa		

CPS_GDP does not Granger Cause CF	31	0.67816	0.5163
CF does not Granger Cause CPS_GDP		1.56318	0.2285
IRS does not Granger Cause CF	31	1.65023	0.2115
CF does not Granger Cause IRS		0.86478	0.4329
M2_GDP does not Granger Cause CF	31	2.26646	0.1238
CF does not Granger Cause M2_GDP		3.83581	0.0347
MCR does not Granger Cause CF	31	3.93088	0.0322
CF does not Granger Cause MCR		0.25635	0.7758

Source: Author's Computations using E-Views 9.0

From Nigeria, the study found that there is unidirectional causality from capital formation credit to private sector and a unidirectional causality from capital formation to market capitalization ratio while from south Africa, the study found unidirectional causality from capital formation to money supply and a unidirectional causality from market capitalization to capital formation.

Discussion of Findings

The results presented in table 3 found that the independent variables 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. Credit to private sector has positive and significant effect on Nigeria capital formation but negative and no significant effect on capital formation in South Africa. The positive effect of credit to private sector on Nigeria capital formation confirms our a-priori expectations but contrary to the negative effect on South African capital formation. The positive effect of the variable confirms the findings of Lucky and Utah (2016) that 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 estimated regression results found that interest rate spread have negative and no significant effect on capital formation but positive and significant effect on capital formation of south African economy. Money supply has positive and significant effect on Nigeria capital formation and positive and significant effect on capital formation of the South Africa economy. The positive effect of the variables on capital formation confirms the a-priori expectations and justifies the various financial sector reforms such as the recapitalization of the banking sector.

Empirically the positive effect of the variables on capital formation confirm the findings of Osakwe, Ogbonna and Obi-Nwosu(2020)that 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. the findings of Popoola, Ejemeyovwi, Alege, Adu and Onabote (2017) that the all share index had a significant but negative relationship with economic growth; The Johansen cointegration test showed that a long run relationship exists between the stock market performance and economic growth in Nigeria in the long run while the Granger causality test results showed that stock market performance does not granger cause economic growth but economic growth granger causes stock market performance at 5 percent significance level. The findings of Akani and Uzah (2018) that microfinance lending to the various sectors of the economy have positive but insignificant effect on Nigerian macroeconomic stability except lending to agricultural sector and mining and quarrying.

CONCLUSION AND RECOMMENDATIONS

Conclusion

This study examined the effect of financial sector development on the capital formation of Nigeria and South Africa using time series data from 1987-2019.Ordinary least square methods were used to analyze the effect of financial sector development and capital formation of the two countries. The study concludes that Nigeria financial sector development explained more variation on capital formation than South Africa. from Nigeria, the study conclude that credit to private sector have positive and significant effect, interest rate spread have negative and no significant effect while money supply and market capitalization ratio have positive and significant effect on Nigeria capital formation. However, from south Africa, credit to private sector have negative and no significant effect, interest rate spread have positive and significant effect, money supply have positive and no significant effect while market capitalization ratio have positive and significant effect on south African capital formation.

Recommendations

i. The study recommends that there is a need to increase the size of the markets in both countries by increasing the number of financial instruments available to investors so as to increase trading as well as improve liquidity in the markets.
ii. The study suggested some of the possible reasons for the negative impact of stock market on the capital formation and recommended that efforts should be made to improve the stock market performance to have a positive effect on the gross fixed capital formation of Nigeria and South Africa.
iii. The operational efficiency of the financial sector should be enhanced; the banking habit shall be increase and banking density reduced through effective branch banking policies to enhance effective savings mobilization and credit allocation that will bridge the wide savings-investment gap in the economy.

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