FINANCIAL INTERMEDIATION AND ECONOMIC GROWTH IN NIGERIA

Adebayo Oluranti Olufemi, Taiwo Adewale Muritala, Riyaz Muhmmad, Wasiu Akintunde Yusuf, Saji George, Ebunoluwa Oluwaseun Oyegoke

ABSTRACT

Objective: This study examined the impact of financial intermediation on economic growth in Nigeria. The study employed secondary data obtained from the Central Bank of Nigeria statistical bulletin from year 1987 to 2020.

Method: The independent variable - Financial intermediation was proxied by credit to private sector, broad money supply, lending rate, market capitalization and total value of shares traded while the dependent variable - Economic growth was proxied by gross domestic product and per capital income. Autoregressive Distributed Lag (ARDL)/Bound testing to co-integration was used to establish the short run and long-run dynamic impact of financial intermediary on economic growth in Nigeria.

Results: The study revealed a high speed of adjustment in the short run (Cointeq(-1) = (-0.9995; -0.981099) for the two models respectively. Similarly, for the GDP model, the study revealed that in the long run, credit to private sector (β1 = 0.0121); market capitalization (β4 = 0.05423) and total volume of shares traded (β5 = 1.62669) all established positively significant impact on economic growth in Nigeria at 5% significance level except broad money supply (β2 = -0.00511) and lending rates (β3 = -0.14194) which established negatively significant impact on economic growth in Nigeria at 5% significance level. However, for the PCI model, the study revealed that in the long run, credit to private sector (β1 = 0.002216); market capitalization (β4 = 0.095095) and total volume of shares traded (β5 = 1.915620) all established positively significant impact on economic growth in Nigeria at 5% significance level except broad money supply (β2 = -0.008476) and lending rates (β3 = -0.313843) which established negatively significant impact on economic growth in Nigeria at 5% significance level.

Conclusion: The study therefore, recommends that management of banks should be encouraged to pursue policies that will deepen the efficient allocation of financial services for economic growth in Nigeria.

Keywords: growth in Nigeria, economic growth, dynamic impact, central bank of Nigeria.

a Ph.D. Student in Management Sciences and Finance, Department of Business Administration, Nile University of Nigeria, FCT, Abuja, Nigeria. E-mail: bayofemi4@gmail.com
b Ph.D. in Accounting and Finance, Department of Business Administration, Nile University of Nigeria, FCT, Abuja, Nigeria. E-mail: muritala.adewale@nileuniversity.edu.ng Orcid: https://orcid.org/0000-0002-9946-0159
c PhD in Bus, Administration, School of Management and Business Studies, Monad Unuiversity, Hapur (U.P.) India. E-mail: riaz1977ms@gmail.com
d Ph.D. in Economics, Department of Economics, Nile University of Nigeria Abuja, Nigeria. E-mail: yusufwasiu@nileuniversity.edu.ng Orcid: https://orcid.org/0000-0003-0461-3253
e PhD in Bus, Administration, Department of Business Administration, Nile University of Nigeria, FCT, Abuja, Nigeria. E-mail: saji.george@nileuniversity.edu.ng Orcid: https://orcid.org/0000-0002-8573-7524
f Ph.D. in Economics, Department of Economics, Nile University of Nigeria, Abuja, Nigeria. E-mail: ebunoluwa.oyegoke@nileuniversity.edu.ng Orcid: https://orcid.org/0000-0002-6786-7093
RESUMO


Método: A variável independente - Intermediação financeira foi representada pelo crédito ao setor privado, oferta monetária ampla, taxa de empréstimo, capitalização de mercado e valor total das ações negociadas, enquanto a variável dependente - Crescimento económico foi proxy pelo produto interno bruto e rendimento per capital. Os testes Autoregressive Distributed Lag (ARDL)/Bound para co-integração foram utilizados para estabelecer o impacto dinâmico de curto e longo prazo do intermediário financeiro no crescimento económico na Nigéria.

Resultados: O estudo revelou uma alta velocidade de ajuste no curto prazo (Cointeq(-1) = (-0,9995; -0,981099) para os dois modelos respectivamente. Da mesma forma, para o modelo do PIB, o estudo revelou que no longo prazo, crédito ao setor privado ($B1 = 0,0121$); capitalização de mercado ($B4 = 0,05423$) e volume total de ações negociadas ($B5 = 1,62669$) estabeleceram um impacto positivamente significativo no crescimento económico na Nigéria a um nível de significância de 5%, exceto a ampla oferta monetária ($B2 = -0,00511$) e taxas de empréstimo ($B3 = -0,14194$) que estabeleceram um impacto negativo significativo no crescimento económico na Nigéria a um nível de significância de 5%. No entanto, para o modelo PCI, o estudo revelou que, no longo prazo, o crédito ao setor privado ($B1 = 0,002216$); a capitalização de mercado ($B4 = 0,095095$) e o volume total de ações negociadas ($B5 = 1,915620$) estabeleceram um impacto positivamente significativo no crescimento económico na Nigéria a um nível de significância de 5%, exceto a ampla oferta monetária ($B2 = -0,008476$) e as taxas de empréstimo. ($B3 = -0,313843$) que estabeleceu um impacto negativo significativo no crescimento económico na Nigéria ao nível de significância de 5%.

Conclusão: O estudo recomenda, portanto, que a gestão dos bancos seja incentivada a prosseguir políticas que aprofundem a alocação eficiente de serviços financeiros para o crescimento económico na Nigéria.

Palavras-chave: crescimento na Nigéria, crescimento económico, impacto dinâmico, Banco Central da Nigéria.

RESUMEN


Método: La variable independiente (la intermediación financiera se representó mediante el crédito al sector privado, la oferta monetaria amplia, la tasa de interés, la capitalización de mercado y el valor total de las acciones negociadas), mientras que la variable dependiente (el crecimiento económico se representó mediante el producto interno bruto y el ingreso per cápita). Se utilizaron pruebas de retardo distribuido autorregresivo (ARDL)/ligado a la
cointegración para establecer el impacto dinámico a corto y largo plazo del intermediario financiero en el crecimiento económico en Nigeria.

Resultados: El estudio reveló una alta velocidad de ajuste en el corto plazo (Cointeq(-1) = (-0,9995; -0,981099) para los dos modelos respectivamente. De manera similar, para el modelo del PIB, el estudio reveló que en el largo plazo, el crédito al sector privado (β1 = 0,0121); la capitalización de mercado (β4 = 0,05423) y el volumen total de acciones negociadas (β5 = 1,62669) establecieron un impacto positivamente significativo en el crecimiento económico de Nigeria con un nivel de significancia del 5%, excepto la oferta monetaria amplia (β2 = -0,00511) y las tasas de interés (β3 = -0,14194), que establecieron un impacto negativo significativo en el crecimiento económico de Nigeria con un nivel de significancia del 5%. Sin embargo, para el modelo PCI, el estudio reveló que, a largo plazo, el crédito al sector privado (β1 = 0,002216); la capitalización de mercado (β4 = 0,095095) y el volumen total de acciones negociadas (β5 = 1,915620) establecieron un impacto positivamente significativo en el crecimiento económico de Nigeria con un nivel de significancia del 5%, excepto la oferta monetaria amplia (β2 = -0,008476) y las tasas de interés. (β3 = -0,313843), que estableció un impacto negativo significativo en el crecimiento económico de Nigeria con un nivel de significancia del 5%.

Conclusión: Por lo tanto, el estudio recomienda que se debe alentar a la administración de los bancos a implementar políticas que profundicen la asignación eficiente de servicios financieros para el crecimiento económico en Nigeria.

Palabras clave: crecimiento en Nigeria, crecimiento económico, impacto dinámico, banco central de Nigeria.

1 INTRODUCTION

The role of financial intermediation in economic growth has been widely recognized as a leading issue in the world. This attention is well-justified, since a better understanding of how the financial sector contributes to economic growth has important regulatory implications. Central Bank of Nigeria (2017) opined that financial system is a set of rules, regulations and the aggregation of financial arrangements, institutions, agents, that interact with each other and the rest of the world to foster economic growth and development of a nation. Thus, well-functioning financial institutions enhances overall economic efficiency, create and expand liquidity, mobilize savings, promote capital accumulation, transfer resources from traditional (non-growth) sectors to the more modern growth-inducing sectors, and also encourage a competent entrepreneur response in these modern sectors of the economy (Kolawole, 2020). The efficiency of financial systems cannot be taken for granted, especially as information gathering is one of their key functions.

Financial institution facilitates the channeling of funds between lenders and borrowers indirectly. That is, savers (lenders) give funds to an intermediation institution (such as a bank), and that institution gives those funds to spenders (borrowers). Adewole,
Dare and Ogunyemi (2019) stated that financial intermediation involves the transformation of mobilized deposits liabilities by banks and non-banks institutions into assets or credits such as loans and overdraft. This means that financial intermediation is the process of taking in money from depositors and lending same to borrowers for investments which in turn help the economy to grow (Manasseh, Okoh, Abada, Ogbuabor, Alio, Lawal, Nwakoby & Asogwa, 2021).

Financial intermediation is thus those strategies whose implementation can quicken the pace of economic development. This has prompted the introduction of different reforms in Nigeria overtime which were targeted at making the system more effective to achieve its growth potentials. In July, 2004, the central bank of Nigeria (CBN) launched a 13-point agenda aimed at creating bigger banks with stronger statements of financial position, ensuring safe and sound banking practice and enhancing regulatory capacity to supervise the industry (Ogiriki & Andabai, 2014). The reform programme was driven by the following factors; Nigerian banks were small, depended on government or public sector deposits and unable to meet the country’s funding needs and banking penetration was low and retail offering were limited. However, despite the various reforms in the Nigerian financial sector, the sector still has not addressed the financial gaps in the system. Also, given the active involvement of financial intermediaries (especially deposit money banks) in transactions ranging from payment, acceptance of deposits and selling of loans and advances among other services rendered to both the public and private sector and the volumes of empirical evidence in support of the finance-development growth nexus, it is imperative to thoroughly examine the effect of financial intermediation on economic growth in Nigeria.

However, the effect of financial intermediation on economic growth has generated a heated debate. In spite of this seeming obvious link between financial intermediation and economic growth, economists remain polarized in their opinions and findings. While some studies found that financial intermediation drives economic growth and exerts a significant impact on it (Tonye and Andabai, 2014; Nwite, 2014), others have argued and found that financial intermediation has no significant impact on economic growth (Beck and Hesse, 2016). However, Odhiambo (2011) argued that a bi-directional causality exists between financial intermediation and economic growth. This study seeks to contribute to the existing body of literature by examining the effect of financial intermediation on economic growth in Nigeria.
According to National Bureau of Statistics (NBS, 2022), sixty three (63) percent of people in Nigeria live in poverty, representing 133 million people are living on less than $1 per day. Several studies (such as Aye, 2015 and Alhassan, Ogoja, Ekadi and Nkemakonam, 2022) were carried out on impact of financial intermediation variables on economic growth. Okereke-Onyiuke (2019) examined the impact of financial intermediation on economic growth using variables such as broad money velocity and credit to private sector. The focus has been almost entirely on bank based financial intermediation measures, while ignoring the possible impact of non-banking influence on Nigerian economy.

Furthermore, ordinary least square (OLS) method, fully modified OLS (FMOLS) and error correction model were used to estimate the multiple regression models of previous studies while neglecting the usage of autoregressive distributed lags model (ARDL). Finally, the previous studies (Ekong and Okon, 2016 and John and Nwekemezie, 2019) on financial intermediation and economic growth concentrated on growth of gross domestic product while nothing much has been done on impact of financial intermediation on per capital income in Nigeria. Therefore, there is considerable uncertainty about the effect of financial intermediation on Nigerian economy. Hence, the need for this study. Therefore, arising from the above problems generated, the questions raised are: what is the effect of credit to private sector on economic growth in Nigeria?, what is the effect of money supply on economic growth in Nigeria?, to what extent do lending rates affect economic growth in Nigeria?, what is the effect of market capitalization on economic growth in Nigeria?, and to what extent does total value of shares traded affect economic growth in Nigeria?.

Practically, this study will contribute to providing the decision/ policy makers and other key actors in the government with the road-maps that will necessitate prompt, responsive and efficient policymaking in the Nigerian financial sector. It will also suggest the panacea through which frequent failures in the Nigerian financial sector and policies can be effectively tackled.

Empirically, this study will serve as a foundation or base for future researchers who may in due course of time wish to embark on the investigation by assessing the effect of financial intermediation on economic growth in Nigeria. In other words, this research will serve academia as a useful and veritable reference that will stimulate future research.
for other related studies in relation to financial intermediation and its contribution to Nigerian economic growth.

Monetary and fiscal policies play a significant role in accelerating development by influencing the cost of availability of fund, controlling credit, maintaining balance of payment equilibrium as well as taxation. Thus, this study will assist in providing government policy makers with the necessary tools needed at formulating economic policies that will help in shaping, designing and implementing fiscal policies and at the same time would help the government to think about new and better ways of doing things and provides new understandings and discoveries that will improve Nigerian economy. This study is vital for investors in financial institutions in the sense that it would provide information on the performance of financial institutions in Nigeria and would also help them to analyze every aspect of their targeted investments in the country. The study would help the policy makers in the country to better plan and address issues of crowding out of financial institutions.

The outcome of this study is expected to educate the general public about the general objective of financial intermediation, policy target and its direction, dominant channel of policy transmission of financial institutions and its effectiveness whose importance in general economic decision making cannot be overemphasized. This study would provide information that will enable the researchers to investigate and understand trends and relationships of variables involved in this study and probably build on it in their studies on financial intermediation.

2 LITERATURE REVIEW

According to Nwaogwugwu (2016), financial intermediation involves the transformation of mobilized deposits liabilities by financial intermediaries such as banks into bank assets or credits such as loan and overdraft. It is simply the process whereby financial intermediaries take in money from depositors and lend same out to borrowers for investment and other economic development purposes (Andrew & Osuji, 2013). Financial intermediation is a productive activity in which an institutional unit incurs liabilities on its own account for the purpose of acquiring financial assets by engaging in financial transactions on the market. Therefore, through the process of financial intermediation, certain assets or liabilities are transformed into different assets or
Financial intermediation is the process by which intermediaries provide a linkage between surplus units and deficit units in the economy.

The size of the financial sector is usually measured by two basic quantitative indicators: “monetization ratio” and “intermediation ratio”. Monetization ratio includes money-based indicators like money supply ratio to gross domestic product, whereas intermediation ratio consists of indicators concerning bank-based measures like private sector credit ratio to gross domestic product and capital market-based measures such as market capitalization ratio to gross domestic product (Ndébbio, 2014). Financial intermediation is thus measured by relating monetary and financial aggregates such as credit to private sector to the Gross Domestic Product (GDP). The Private Credit (PRIVCRED), is defined as the credit issued to the private sector by banks and other financial intermediaries divided by GDP, excluding credit issued to government, government agencies and public enterprises, as well as the credit issued by the monetary authority and development banks. It measures general financial intermediary activities provided to the private sector. This domestic credit to GDP ratio serves as a proxy for financial depth.

The size of the banking sector is described by assets held by deposit money banks (ASSETS) and liquid liabilities (LIQUID), both expressed as a percentage of GDP. The Commercial-Central Bank (COM-CENBAN), is the ratio of commercial bank assets to the sum of commercial bank and central bank assets. It reflects the advantage of financial intermediaries in channeling savings to investment, monitoring firms, influencing corporate governance and undertaking risk management relative to the central bank.

2.1 CREDIT TO PRIVATE SECTOR

According to Kolawole et al., (2019) financial deepening refers to the increased provision of financial services with a wider choice of services geared towards the development of all levels of society. Financial deepening is a concept connected to financial reforms designed to increase both the structure and services within a financial system. For Nnanna and Dogo (1998) the concept of financial deepening is usually employed to explain a state of an atomized financial system (i.e.) a financial system which is largely free from financial repression. There are many different ways in which the financial sector can be said to “deepen”. For example; (a) the efficiency and
competitiveness of the sector may improve (b) the range of financial services that are available may increase (c) the diversity of institutions which operate in the financial sector may increase, (d) the amount of money that is intermediated through the financial sector may increase, (e) the extent to which capital is allocated by private sector financial institutions to private sector enterprises responding to market signals may increase, (f) the regulation and stability of the financial sector may improve and (e) particularly important from the welfare perspective more of the population may gain access to financial services (DFID, 2004).

2.2 MONEY SUPPLY

The money supply is the total amount of money—cash, coins, and balances in bank accounts—in circulation. The money supply is commonly defined to be a group of safe assets that households and businesses can use to make payments or to hold as short-term investments. There are several standard measures of the money supply, including the monetary base, M1, and M2.

2.3 LENDING RATES

Lending rate is the amount that a bank charges on money that it lends. Most interest rate charged by banks is given short term loan to creditworthy of the customers. Prime rate is a guide for computing interest rates for other borrowers Ndongo, (2018). He also defined base lending rate as minimal interest rate on which financial institutions base the rates using for lending.

2.4 MARKET CAPITALIZATION

Market capitalisation is an indicator for capital market mass and represents total market worth of domestic stocks (Gbric, 2020). Market capitalisation is also calculated using market share price or price per share multiply by total quantity of shares of companies (Ibrahim & Mohammed, 2020). The total market capitalisation is a figure that includes securities, Exchange Traded Funds (ETFs) and bonds, so it is made of equities and debt (Bello et al., 2019; NSE, 2020).
2.5 TOTAL VALUE OF SHARES TRADED

Value of transactions is an indicator of liquidity in the capital market, it is total turnover of domestic stocks (Gbric, 2020). Value of transactions measures liquidity of capital market, and it also represents the total value of stocks transacted (Ibrahim & Mohammed, 2020). Liquidity is also seen from the perspective of the level of ease that shares are traded in the stock market i.e., total securities traded (Adigwe et al., 2015). The value of transactions indicator complements market capitalisation because it shows if market size is utilized by trading, due to the fact an upsurge in value of dealings promote economic growth (Odo et al., 2017; Emmanuel & Elizabeth, 2020).

2.6 CONCEPT OF ECONOMIC GROWTH

Economic growth has been defined by Bloom and Williamson (2018) as the consistent process in which the productive capacity of the country and its economy is increasing overtime to bring about rise in the levels of national income. Growth always depends to a large extent on availability and functionality of resources and how they are aggregated by that country. The greater the level of the quality and quantity of the available resources, the more potentiality a country has to grow. In the perspective of neo-classical theory, economic growth came about by increases in the quantity of factors of production and the efficacy of their allocations. In economics, “economic growth” specifically refers to the growth of potential output, that is, production at full employment which is a consequence of growth in aggregate demand. According to Awolisi (2017) economic growth is seen as the provision of input that leads to greater output and improvement in the quality of life of people. Bloom and Williamson (2018) give their own view of concept of economic growth by saying that: economic growth is referred to as the quantitative and sustained increase in a country’s per capita output or income which is accompanied by expansion in its labour force, consumption, capital and volume of trade and welfare (Ishaq & Usman 2022).

In this study, the conceptual framework is presented as shown in the figure below.
The diagram on the figure above shows the relationships that exist among the variables, that is, the independent variables, moderating variable and the dependent variable. The gross domestic product in the country is predicated by the volume of financial intermediation, money supply, lending rates, market capitalization and total value of shares traded.

2.7 THEORETICAL REVIEW

This study reviewed two theories namely the theory of financial intermediation and the classical theory of interest rate. The theory of financial intermediation was recognized by Alkerlof (1970) and Spence (1973) who justified the existence of financial intermediaries because of the reduction in information asymmetries and transaction cost due to their existence in the economy. Financial intermediaries in literature have been found to both provide liquidity and alter the risk nature of certain financial assets (Claus...
& Grimes, 2003). However, the classical theory holds that demand for and supply of capital determines the rate of interest. This study is anchored on the classical theory of interest rate which postulated that interest rate is an equilibrium factor between the demand for and the supply of investible funds. According to the classical theory, interest is the price paid for saving of capital. Like the value of other things, the price of saving is determined by its demand for and supply of savings. Demand for capital comes mostly from businesses. There are, of course, some people who borrow for purposes of consumption, litigation or religious or social ceremonies. According to the supply side of classical theory of interest rate, the money which is to be used for purchasing capital goods is made available by those who save from their current income. By postponing consumption of a part of their income, they release resources for production. Savings involve the element of waiting for the future enjoyment of savings. According to (George-Anokwuru, 2017), interest rate boosts the level of economy as a result of interest rate. Hence, interest rate is the price paid for the use of money.

2.8 EMPIRICAL REVIEW

The purpose of this section is to offer an overview of the background to this study. Significant research literatures published on particular topics which are related to this study are examined. Various studies are reviewed and critiqued for the purpose of having a deeper understanding of the subject matter of the study as a whole.

2.9 EMPIRICAL STUDIES OF DEVELOPED COUNTRIES

Ho, Huang, Shi and Wu (2017) studied the effect of financial deepening on innovation efficiency for various democratic levels of political institutions using panel data from 69 countries spanning 1970-2010. Using panel data analysis, the study found that financial deepening promotes innovation only when a country’s political institutions are sufficiently democratic. This study concluded that innovation is stronger for countries with lower incomes than for countries with higher incomes.

Dimitrios Asteriou and Konstantinos Spanos (2018) examined the relationship between financial development and growth in the EU during the past economic crises. The variables used in the study are growth rate of GDP, ratio of liquid liabilities to GDP,
ratio of commercial bank assets to the sum of commercial bank plus central bank assets and stock market capitalisation to GDP. Using, panel data analysis of 26 EU countries, the results suggest that when the crisis period is not included, financial development promoted economic growth, while during the crisis periods has an adverse effect on economic activity. Alberto and Simone (2018) analysed the impact of financial development on economic growth. The study used physical capital, gross capital investment and the human capital. Using, finance-extended model of endogenous growth, the study supports empirical evidence on the shape of the finance-growth nexus.

Su-Yin Cheng & Han Hou (2019) tested if non-intermediation services tell us more in the finance–growth nexus in eight OECD countries. The variables used in the study are financial size, real GDP per capita, private credit, intermediation activities and non-intermediation services. Using, time-series cointegration techniques and Granger causality tests, the study showed that there is a long-run equilibrium relationship among economic growth, intermediation activities, and non-intermediation activities in Austria, France, and Korea. Kundu and Vats (2020) examined the effect of financial intermediation linkages on the cross-border transmission of idiosyncratic shocks. The variables used in the study are bank lending financial intermediation, growth, regulation, cross-border spillovers, idiosyncratic shocks, credit, and Great Moderation. Natural experiment estimation was employed in the study. The study showed that there is a causal elasticity of bank loan supply on economic growth.

Paweł Kawa, Marta Wajda-Lichy, Kamil Fijorek & Sabina Denkowska (2020) investigated whether financial development and trade openness enhance economic growth in 11 new EU member states. Variables used in the study are credit to GDP ratio or stock market capitalization and Real GDP. Bootstrap panel-data approach based on seemingly unrelated regression (SUR) system were the tools employed in the study. The study showed that there is statistically significant unidirectional Granger causality from finance to economic growth is evidenced in five countries under examination (Bulgaria, Lithuania, Poland, Romania, and Slovenia).

2.10 EMPIRICAL STUDIES OF DEVELOPING COUNTRIES

Sharmiladevi (2015) examined the relationship between financial deepening (FD), foreign direct investment (FDI) and economic growth in India during the time period
2000 to 2013. A multiple regression model was built taking economic growth as dependent variable and financial deepening and FDI as independent variables. The result of the Pearson correlation coefficient and the regression model jointly indicate that financial deepening together with foreign direct investment is having a high impact upon explaining economic growth.

Nyasha and Odhiambo (2015) study examines the impact of bank-based financial development on economic growth in Ghana during the period from 1970 to 2014 using the autoregressive distributed lag (ARDL) bounds testing approach. The empirical results of this study showed that the impact of bank based financial development on economic growth in Ghana is sensitive to the proxy used to measure bank based financial development. The results also tend to vary over time. Overall, the results show that when the ratio of domestic credit extension to the private sector by banks to GDP, and the composite index are used as proxies, bank-based financial development has a positive impact on economic growth in Ghana. However, when the ratio of deposit money banks' assets to GDP is used as a proxy, bank-based financial development has a negative impact on economic growth. These results apply, irrespective of whether the analysis is done in the short run or in the long run. Other results show that when the ratio of the claims of deposit money banks on the private sector to broad money is used as a proxy for bank-based financial development, bank-based financial development is found to have a negative impact on economic growth in the short run, but a positive impact in the long run. However, when the ratio of quasi liquid liabilities to GDP is used, the relationship tends to be positive in the short run, but negative in the long run.

Bakang (2015) examined effects of financial deepening on economic growth in the Kenyan banking sector. The study achieves this objective using quarterly time series data from 2000 to 2013. Financial deepening, the independent variable was captured by four alternative indicators: Liquid Liabilities (LL) as ratio to nominal Gross Domestic Product (GDP); Credit to the Private Sector (CPS) as ratio to nominal GDP; Commercial Bank Assets as ratio to commercial bank assets plus Central Bank Assets (CCBA); and Commercial Bank Deposits (CBD) as ratio to nominal GDP. The dependent variable, economic growth, was measured by real GDP. All the variables were integrated at level I (1) and the Johansen Jeluisus cointegration test showed evidence of cointegrating equations between GDP and financial deepening indicators. Four models were estimated to determine the long run and short run effects. The study found that banking sector in
Kenya has an important role in the process of economic growth. Specifically, the empirical results reveal that liquid liabilities, credit to the private sector, commercial-central bank assets and commercial bank deposits have positive and statistically significant effects on GDP.

Gisanabagabo and Ngalawa (2016) empirically investigated the possible cointegration and causal link between financial intermediation and economic growth in Rwanda, using quarterly data spanning 1966Q1 to 2010Q4. A Structural Vector Autoregressive model was used to analyse the short-run dynamics between the variables used. The findings showed evidence of cointegrating relationship between financial intermediation and economic growth. The study observed that a shock to domestic private sector credit accounts for the largest portion of fluctuations in real output growth, while the shock to potential liquidity came second.

Biplab and Yadav (2018) examined the relationship between financial development and economic growth for five major emerging economies: Brazil, Russia, India, China and South (BRICS) during 1993 to 2014 using banking sector and stock market development indicators. The variables used are size of the financial intermediaries, credit to deposit ratio (CDR) and domestic credit to private sector (CPS), real GDP, Inflation and export. Generalized method of moment system estimation (SYS-GMM) was adopted in the study. All the selected banking development indicators such as size of financial intermediaries, CDR and CPS are positively significantly determining economic growth.

Eric, Muazu & Yakubu (2019) examined the causal relationship between financial development and economic growth in Africa. The variables used are real GDP, Private sector credit and savings. The study made use of frequency-domain spectral causality technique which allows the causality to vary across time and the study showed that even though there is some evidence of demand-following, supply-leading and feedback hypotheses, for most part, the study find strong support of neutrality hypothesis. Benjamin (2019) examined the effect of financial intermediation on economic growth within the East African Community (EAC). The variables used in the study are real GDP, Private sector credit, savings, capital formation and FDI. Using, panel data analysis, the DOLS and FMOLS models, the study showed that financial intermediation has a positive and significant effect on economic performance of the EAC countries in the long run.
2.11 EMPIRICAL STUDIES IN NIGERIA

Manasseh, Okoh, Abada, Ogbuabor, Alio, Lawal, Nwakoby, & Asogwa (2021) investigated the impact of financial intermediation on economic growth in Nigeria. Data was sourced from the Nigerian Bureau of Statistics and World Bank Development indicator from 1994: Q1 to 2018: Q4 was used for analysis, and the Ordinary Least Squares (OLS) technique was adopted for the evaluation of the hypotheses. Per-capita GDP was utilized in measuring economic growth, while bank credit, bank liquidity reserves and bank deposits are to measure financial intermediation. Further examination revealed that deposit is positively and significantly connected to Per-capita GDP, implying that a rise in bank deposits gives about 0.244193 rises in economic growth. The research work further noted that bank credit affected economic growth positively. Though, the effect was discovered to be inconsequential. The study also observed bank liquidity reserve asserts substantial and positive effects on economic growth. Subsequently, the study recommended good policy reforms that might stimulate the efficiency and growth of banks which serve as a crucial factor for economic expansion in Nigeria.

John and Nwekemezie (2019) investigated the effect of financial intermediation on economic development in Nigeria. The data is from 1986 to 2017. The data were obtained from the Central Bank of Nigeria Statistical Bulletin, World Bank (World Development Indicators) and International Monetary Fund (World Economic Outlook). The study focused on money supply, credit to the private sector and lending rate to measure explanatory variables, while the unemployment rate and real GDP were used to measure dependent variables. The autoregressive distributed lag (ARDL) method was used to analyze the data. Findings indicated that credit to the private sector did not really impact positively on economic development. This might be because of the exorbitant lending rate. The exorbitant lending rate is unfavourable to the growth of the economy. Therefore, the study suggested that the regulatory authority should formulate policies that would force banks to reduce their lending rates to nurture the real sectors of the economy to achieve better.

Usman, Alimi and Onayemi (2018) examined the effect of bank intermediation activities on economic growth in Nigeria. The study adopted secondary data obtained from the Central Bank of Nigeria Statistical Bulletins from 1983 to 2014. OLS results
revealed that loans and advances, and money supply have a positive effects on economic growth. The Cointegration result showed the existence of a long-run correlation between variables. The study established that financial mediation by banks has a significant influence on economic growth in Nigeria.

Markjackson, Timinipre, Nelson, and Okoyan (2017) examined the impact of financial intermediation on economic growth in Nigeria. The research adopted secondary data obtained from the Central Bank of Nigeria Statistical bulletin from 1992 to 2015. The study employed the Engle-Granger Representative Theorem of Error Correction to analyze functional correlation. The findings revealed that loans and advances to the agriculture sector, manufacturing sector, forestry, fisheries, and commercial bank credit to small scale enterprises have a significant impact on economic growth in Nigeria. The study recommended that banks should be more effective in mobilizing and distributing funds to entrepreneurs in the real sector. The consequence of this is that supervisory authorities should continuously take measures to liberalize the financial structure to avoid shock in the system.

Oluwasogo, Princess, Oluwatoyin and Folasade (2017) investigated the effect of financial intermediation on economic growth in Nigeria. The period covered was from 1980 to 2014. The study adopted the Johansen cointegration test and Error Correction Model. The study revealed that financial intermediation has a long-time relationship with economic growth. Gisanabagabo and Ngalawa (2016) examined the probable cointegration and causal connection between financial intermediation and economic growth in Rwanda. Quarterly data covering 1966: Q1 to 2010: Q4 was utilized. A Structural Vector Autoregressive model was used to evaluate short-run dynamics between variables used. Results revealed evidence of a cointegrating correlation between financial intermediation and economic growth. Olowofeso, Adeleke and Udoji (2015) investigated the influence of private sector credit on economic growth in Nigeria. The study used the Gregory and Hansen (1996) cointegration

Iwedi, Okey-Nwala, Kenn-Ndu bushi & Adamgbo (2016) examines the long run and short run dynamics between financial intermediation development and economic growth in Nigeria using annual time series data spanning the period 1970-2015 by employing the VAR testing approach, Johansen co integration testing technique and Engle and granger causality test. The results indicate that there is a presence of long run equilibrium between financial intermediation development indicators and economic
growth. This implies that both indicators affect Nigeria economy in the long run while the VAR result shows that both indicators of financial intermediation development exhibit positive and negative signs when lagged once or twice and this relation is low and insignificant especially in the case of credit to private sector to GDP, this coefficient did not show the expected sign. A possible explanation for this is that credits to private sector are not channeled to productive uses but are diverted to other personal uses. The result of causality shows a unidirectional causality running from the financial intermediation development indicators to real GDP and not vice versa.

Ekong and Okon (2016) conducted a study on the effect of financial intermediation and economic growth in Nigeria. Annual time series data covering 1970 to 2013 were used to analyze the long run and short run relationships between the development of financial intermediaries and economic growth along with the direction of causality between the indicators. The results of the unit root test show that the variables are integrated at I(0) and I(1). Using bound testing technique for cointegration, a stable long-run relationship was found between the indicators of financial intermediation and the economic growth. Error correction coefficient was statistically significant. It was concluded that credit to private sector and financial savings have positive impacts on economic growth in both short runs and long-run. However, money supply has a negative influence on economic growth. Usman, Alimi and Onayemi (2018) evaluated the effect of bank intermediation activities on economic growth in Nigeria using secondary data obtained from Central Bank of Nigeria Statistical Bulletins within the period 1983 and 2014. The OLS regression result showed that loan and advances and money supply have positive effect on economic growth. The cointegration result indicated the existence of a long-run relationship between the variables. The study concluded that financial intermediation by banks has statistically significant impact on economic growth in Nigeria.

John and Nwekemezie (2019) examined the effect of financial intermediation on the development of the economy of Nigeria using data spanning 1986 to 2017. The data were obtained from Central Bank of Nigeria Statistical Bulletin, World Bank (World Development Indicators) and International Monetary Fund (World Economic Outlook). The study considered credit to private sector, lending rate and money supply as independent variables, while real GDP growth rate and unemployment rate were used as dependent variables. Auto-regressive distributed Lag (ARDL) technique was employed
for the analyses. In other to achieve the objective of the study, series of tests were conducted, including normality test, stationarity test, cointegration test, ARDL estimation and error correction. The tests provided the basis for the conclusion that credit to private sector do not really contributes positively to the development of the economy. Chimaobi (2020) examined financial inter-mediation indicators on the economic growth, The Nigerian perspective from 1990 – 2018. The variables used are credit to private sector, broad money supply, interest rate and lending rate, RDGP. Using Vector error correction model, the study showed that there is a significant relationship between financial inter-mediation indicators and economic growth.

2.12 LITERATURE GAP

Several studies (such as John and Nwemazine, 2019; Iwedi, Okey-Nwala, Kenn-Ndubuisi & Adamgbo, 2016; Ekong & Okon, 2016; Usman, Alimi and Onyemwe, 2018; Manasseh, Okoh, Abada, Ogbuabor, Alio, Lawal, Nwakoby, & Asogwa, 2021 and Aye, 2015) were carried out on financial intermediation variables using variables such as broad money velocity and credit to private sector. The focus has been almost entirely on bank based financial intermediation measures, while ignoring the possible impact of non-banking influence such as capital market development on Nigerian economy. The previous studies also failed to consider the lending rates on economic growth in Nigeria. Furthermore, ordinary least square (OLS) method, fully modified OLS (FMOLS) and error correction model were used to estimate the multiple regression models of previous studies while neglecting the usage of autoregressive distributed lags model (ARDL). Finally, the previous studies (Ekong and Okon, 2016; and John and Nwemazine, 2019) on financial intermediation and economic growth concentrated on growth of gross domestic product while neglecting the impact of financial intermediation on per capital income in Nigeria. Hence, constitute the research gaps which this current study duly considered.

3 METHODOLOGY

This study adopted expost-facto method of research design and this is because investigation started after the fact has occurred without interference from the researcher
and also for the fact that data needed for the study already exists. The secondary data that will be used in this study was sourced from World Bank Indicators and International Monetary Fund over a period of thirty four (34) years from 1987 to 2020. The choice of 1987 was because it beset the phases of the major reforms in the financial system and the period of structural adjustment programme (SAP). It is also important to note that in 2008 there were financial crises across the world and hence this study considered the effect of these crises on financial system in Nigeria while 2020 was also chosen because as at the time the study was carried out, the 2021 Central Bank of Nigeria statistical bulletin will not be released.

In this research study, the Gross Domestic Product as proxy for economic growth, credit to private sector, money supply, lending rate and market capitalization as all proxies for financial intermediation for the period of 34 years (1987 to 2020) representing the population of the study respectively. The sample for the study will be implied on Nigeria economic growth involving a macroeconomic time series annual data drawn from Central Bank of Nigeria (CBN) Statistical Bulletin from 1987 to 2020. The sampling technique that will be used for drawing the sample size is called judgmental sampling technique, which is a technique whereby the researcher will be guided by what he/she consider will provide the required data, which in this study was informed by the content and periodical gaps that exist in the literature.

Due to the nature of this study, secondary source of data will be used. The data was extracted from Central Bank of Nigeria (CBN) Statistical Bulletin from 1987 to 2020. Annual reports, journals among others. The set of time series data that was used in this study include the Gross Domestic Product and per capital income as proxies for economic growth, credit to private sector, money supply, lending rate and market capitalization as all proxies for financial intermediation.

The estimation technique will be based on the nature of data used for the study. Autoregressive distributed lags model (ARDL) and Granger Causality Tests will be employed to achieve the objectives of the study. Autoregressive distributed lags model were used to achieve objectives, one and two while Granger Causality Test was used to examine objective three so as to test for the direction of the causality that exist between the independent and dependent variables. The coefficient of determination, $R^2$ was used to test the goodness of fit of the regression line to sample observations or the explanatory power of the independent variable. The F-test was also used to test the overall significance.
of the regression model. T-test procedure is used to test for the exact level of statistical significance of the coefficients. These are set by the theory of econometrics and are aimed at investigating whether the assumptions of the econometric method employed are satisfied or not.

3.1 MODEL SPECIFICATION

Following the review of literature and particularly the classical theory of interest rate, where interest rate is assumed to serve as a vehicle for financial intermediation for economic growth in any economy. Therefore, this model is adapted from the study of (Onwumere, Ibe, Ozoh and Mounanu, 2013) which was stated as:

\[
GDP = f(BMV, CPS) \quad (1)
\]

\[
GDP = \beta_0 + \beta_1 BMV_{t1} + \beta_2 CPS_{t2} \quad (2)
\]

Econometrically, it can be written thus:

\[
GDP = \beta_0 + \beta_1 BMV_{t1} + \beta_2 CPS_{t2} + \mu_t \quad (3)
\]

where:

- \( GDP \) = Economic Growth (Proxy with Growth Rate of Gross Domestic Product)
- \( BMV \) = Broad Money to Velocity
- \( CPS \) = Credit to private sector
- \( \mu \) = Error term
- \( \beta_0 \) = Constant
- \( \beta_1 \) and \( \beta_2 \) = Slope of coefficient

3.2 SPECIFICATION OF MODEL ONE

For the purpose of this study, the model is re-modified to capture the objectives raised in the study. It is important to note that non-banking financial sub-sector play a major role in enhancing the financial intermediation of any economy. Therefore, the model is re-modified and stated as:
GDP = \( f(\text{CPS}, \text{BMS}, \text{LR}, \text{MCGDP}, \text{NTS}) \) \hspace{1cm} (4)\\

GDP = \( \beta_0 + \beta_1\text{CPS}_{t1} + \beta_2\text{BMS}_{t2} + \beta_3\text{LR}_{t3} + \beta_4\text{MCGDP}_{t4} + \beta_5\text{NTS}_{t5} \) \hspace{1cm} (5)\\

Econometrically, it can be written thus:

\[ \text{GDP} = \beta_0 + \beta_1\text{CPS}_{t1} + \beta_2\text{BMS}_{t2} + \beta_3\text{LR}_{t3} + \beta_4\text{MCGDP}_{t4} + \beta_5\text{NTS}_{t5} + \mu_t \] \hspace{1cm} (6)\\

The model can be transformed into ARDL-ECM form as:

\[ \Delta \text{GDP}_t = \beta_0 + \beta_1\Delta\ln\text{GDP}_{t-1} + \beta_2\Delta\ln\text{GDP}_{t-2} + \beta_3\Delta\text{CPS}_{t-1} + \beta_4\Delta\text{CPS}_{t-2} + \beta_5\Delta\ln\text{BMS}_{t-1} + \beta_6\Delta\ln\text{BMS}_{t-2} + \beta_7\Delta\ln\text{LR}_{t-1} + \beta_8\Delta\ln\text{LR}_{t-2} + \beta_9\Delta\ln\text{MCGDP}_{t-1} + \beta_{10}\Delta\ln\text{MCGDP}_{t-2} + \beta_{11}\text{NTS}_{t-1} + \beta_{12}\text{NTS}_{t-2} + \beta_{13}\text{ECM}_{t-1} + \mu_t \] \hspace{1cm} (7)\\

where:

GDP = Economic Growth (Proxy with Growth Rate of Gross Domestic Product)\\
BMV = Broad Money to Velocity (Proxy with the ratio of M2 to nominal GDP)\\
MSD = Money Stock Diversification (Proxy with the ratio of demand deposits to the narrow money stock)\\
CPS = Credit to Private Sector (Proxy with the ratio of credit to private sector to GDP)\\
MCGDP = Market Capitalization (Proxy with the ratio of listed shares to GDP)\\
LR = Lending Rates\\
NTS = Number of traded Shares\\
\( \mu = \) Error term\\
\( \beta_0 = \) Constant\\
\( \beta_1, \beta_2, \beta_3, \beta_4 \), and \( \beta_5 = \) Slope coefficient

### 3.3 SPECIFICATION OF MODEL TWO

The second model was used to analyze the impact of financial intermediation on economic growth using per capital income as a proxy for economic growth in Nigeria. The model is specified as:

\[ \text{PCI} = \( f(\text{CPS}, \text{BMS}, \text{LR}, \text{MCGDP}, \text{NTS}) \) \] \hspace{1cm} (8)
PCI = β₀ + β₁CPS₁ + β₂BMS₂ + β₃LR₃ + β₄MCGDP₄ + β₅NTS₅ \hspace{1cm} (9)

Econometrically, it can be written thus:

PCI = β₀ + β₁CPS₁ + β₂BMS₂ + β₃LR₃ + β₄MCGDP₄ + β₅NTS₅ + μₜ \hspace{1cm} (10)

The model can be transformed into ARDL-ECM form as:

ΔPCIₜ = β₀ + β₁ΔlnPCIₜ₋₁ + β₂ΔlnPCIₜ₋₂ + β₃ΔCPSₜ₋₁ + β₄ΔCPSₜ₋₂ + β₅ΔlnBMSₜ₋₁ + β₆ΔlnBMSₜ₋₂ + β₇ΔlnLRₜ₋₁ + β₈ΔlnLRₜ₋₂ + β₉ΔlnMCGDPₜ₋₁ + β₁₀ΔlnMCGDPₜ₋₂ + β₁₁NTSₜ₋₁ + β₁₂NTSₜ₋₂ + β₁₉ECMₜ₋₁ + μₜ \hspace{1cm} (11)

where:

PCI = Per Capital Income

3.4 APRIORI EXPECTATIONS

(i). It is expected that there will be a positive relationship between credit to private sector and economic growth.

(ii). It is expected that there will be a positive relationship between money supply and economic growth.

(iii). It is expected that there will be negative relationship between lending rates and economic growth in Nigeria.

(iv). It is expected that there will be a positive relationship between market capitalization and economic growth in Nigeria.

(v). It is expected that there will be a positive relationship between total value of shares traded and economic growth in Nigeria.

The data used for the study is secondary in nature. Secondary data such as market capitalization, credit to private sector, total value of shares traded, lending rates, broad money, Gross National Product and Gross Domestic Product were collected from CBN statistical bulletin of year 2020.

Mathematically, this can be written as: β₁, β₂, β₃ and β₄ > 0
4 FINDINGS AND DISCUSSIONS

4.1 PRE-TEST ANALYSIS

4.1.1 Descriptive Statistics Results for the Model

In order to avoid the wrong use of econometric tools, the descriptive properties of the data was determined before determining the best statistical tool to use for the analysis. Table 1 presents the descriptive statistics of the data for the model.

Table 1

<table>
<thead>
<tr>
<th>STATISTICS</th>
<th>GDP</th>
<th>PCI</th>
<th>CPS_GDP</th>
<th>BMS</th>
<th>LR</th>
<th>MC_GDP</th>
<th>NTS_GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>8312075.</td>
<td>19.57059</td>
<td>14.62059</td>
<td>1975.463</td>
<td>2.649118</td>
<td>0.181798</td>
<td>0.011837</td>
</tr>
<tr>
<td>Median</td>
<td>3448404.</td>
<td>12.45000</td>
<td>12.10000</td>
<td>612.6858</td>
<td>5.920000</td>
<td>0.148299</td>
<td>0.009125</td>
</tr>
<tr>
<td>Maximum</td>
<td>40544100</td>
<td>72.80000</td>
<td>36.90000</td>
<td>6927.902</td>
<td>18.18000</td>
<td>0.638112</td>
<td>0.035850</td>
</tr>
<tr>
<td>Minimum</td>
<td>-0.712677</td>
<td>5.400000</td>
<td>5.900000</td>
<td>18.09360</td>
<td>-3.145000</td>
<td>0.033485</td>
<td>0.003650</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>1.507384</td>
<td>1.575457</td>
<td>1.001388</td>
<td>0.869748</td>
<td>-1.179030</td>
<td>1.135656</td>
<td>1.358757</td>
</tr>
</tbody>
</table>

Source: Author’s Computation, (2024)

The summary of the statistics used in this empirical study is as presented in the Table 4.1. It can be observed that gross domestic product (GDP) has the highest mean value of 8312075 while number of traded shares (NTS) has the lowest mean value of 0.011837 whereas per capital income (PCI), credit to private sector (CPSGDP), broad money supply (BMS), lending rate (LR) and market capitalization (MCGDP) have mean values of 19.57, 14.62, 1975.46, 2.64911 and 0.1817 respectively. The standard deviation measures how concentrated the data are around the mean, hence it can be observed from the study presented in Table 4.1 that gross domestic product (GDP) has the highest mean value of 11684952 while number of traded shares (NTS) has the lowest mean value of 0.007447 whereas per capital income (PCI), credit to private sector (CPSGDP), broad money supply (BMS), lending rate (LR) and market capitalization (MCGDP) have mean values of 17.40064, 7.2483, 2338.381, 10.303 and 0.152 respectively. This gives the
implication that the values for the operational data values are further from the mean on averages. The measure of how asymmetric a distribution can be called skewness. All the variables were positively skewed except lending rate meaning that the mass of the distribution is concentrated on the right (that is, it is said to be left-skewed). The implication of this is that the skewness tends to say more on the mean value of the distribution being higher or lower than the median. Hence, positively skewed value indicates a higher mean value over the median value. On the part of Kurtosis, all the variables used present positive values which mean that the distribution is leptokurtic (too tall).

### 4.1.2 Unit Root Test

**Table 2**

Result of Unit Root (Stationarity) Test

<table>
<thead>
<tr>
<th>Variables</th>
<th>Augmented dickey-fuller (ADF)</th>
<th>5% Critical level</th>
<th>Philip-Perron (PP)</th>
<th>5% critical level</th>
<th>Order of integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP</td>
<td>-12.03872</td>
<td>-3.464865</td>
<td>-6.256851</td>
<td>-3.463547</td>
<td>I(1)</td>
</tr>
<tr>
<td>PCI</td>
<td>-5.669668</td>
<td>-3.463547</td>
<td>-5.732580</td>
<td>-2.895924</td>
<td>I(1)</td>
</tr>
<tr>
<td>CPS</td>
<td>-4.868193</td>
<td>-3.465548</td>
<td>-4.914650</td>
<td>-3.465548</td>
<td>I(0)</td>
</tr>
<tr>
<td>BMS</td>
<td>-6.595399</td>
<td>-3.464198</td>
<td>-6.474873</td>
<td>-3.464198</td>
<td>I(1)</td>
</tr>
<tr>
<td>LR</td>
<td>-12.13555</td>
<td>-3.464198</td>
<td>-11.86949</td>
<td>-3.464198</td>
<td>I(1)</td>
</tr>
<tr>
<td>MCGDP</td>
<td>-12.43388</td>
<td>-3.464198</td>
<td>-12.55823</td>
<td>-3.464198</td>
<td>I(1)</td>
</tr>
<tr>
<td>NTS</td>
<td>-7.298927</td>
<td>-3.463547</td>
<td>-7.568744</td>
<td>-3.463547</td>
<td>I(0)</td>
</tr>
</tbody>
</table>

Source: Author’s computation (2024)

Non-stationarity is a common feature of time series data. The problem with non-stationary or trended data is that the standard Ordinary Least Square estimator produces bias and incorrect regression estimates which mislead the researcher to incorrect conclusions. In other words, the application of OLS on non-stationary series leads to spurious regression results. It is vital therefore, to perform unit root test to examine the order of integration of the series and avoid spurious regression. Regression becomes spurious when both the dependent and independent variable(s) are not stationary at level. A spurious regression usually has a very high $R^2$, $t$ statistics that appear to provide significant estimates, but the results may be intuitively meaningless. This is because the OLS estimates may not be consistent, and therefore the tests of statistical inference are not valid. To avoid the aforementioned problems, Augmented Dickey Fuller (ADF) and Philips-Perron unit root tests was conducted in this study and the result is presented in
table 1 above. The result of the Augmented Dickey Fuller test reveals that CPS and NTS are stationary at levels. The result of Philips-Perron test revealed that CPS and NTS are stationary at levels. That is integrated of order zero \([I(0)]\) while GDP, PCI, BMS, LR and MCGDP are stationary at first difference which mean that they are integrated of order one, that is \(I(1)\). To estimate these series with combination of \(I(0)\) and \(I(1)\), the ARDL Bound Test of cointegration is conducted and the result is presented below.

**Table 3**

*Cointegration Test (Bound Testing Approach)*

<table>
<thead>
<tr>
<th>Model Specification</th>
<th>Dependent Variable (GDP) F-Statistics</th>
<th>Bound CV (10%)</th>
<th>Bound CV (5%)</th>
<th>Bound CV (1%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjusted R²</td>
<td>5.319270</td>
<td>2.03</td>
<td>2.32</td>
<td>2.96</td>
</tr>
<tr>
<td>AIC</td>
<td>5.319270</td>
<td>3.13</td>
<td>3.5</td>
<td>4.26</td>
</tr>
<tr>
<td>SC</td>
<td>5.418140</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model 2: Dependent Variable: PCI</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>5.596422</td>
<td>2.03</td>
<td>2.32</td>
<td>2.96</td>
</tr>
<tr>
<td>AIC</td>
<td>6.391757</td>
<td>3.13</td>
<td>3.5</td>
<td>4.26</td>
</tr>
<tr>
<td>SC</td>
<td>5.064171</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Author’s computation (2024)

The result of the unit root tests show that some variables are integrated of order one \(I(1)\) while others are stationary at level \(I(0)\). So, the most appropriate test of cointegration is the Autoregressive Distributive Lag (ARDL) Bound test. This is employed for all the models (GDP and PCI models) estimated in this study. The result is contained in Table 2. The null hypothesis of the test is that, there is no long-run relationship (no cointegration) between the variables. To conduct this test, the study imposed maximum lag length of four while employing the adjusted \(R^2\), Akaike Information Criterion (AIC) and Schwarz Criterion (SC) in order to avoid bias restriction in lag selection. The choice of these three lag selection criteria is justified because only an appropriate lag selection will be capable of identifying the true dynamics of the models. The decision rule is to reject the null hypothesis when F-statistics of the test is greater than the Critical Value of upper bound at a chosen level of significance (5% in this study). On the other hand, the null hypothesis is not rejected when the F-statistics is less than that of the Critical Value of the lower bound. When the F-statistics falls between the upper and the lower bound, the test is inconclusive. The results of the test indicate that the F-statistics of GDP model for adjusted R2 and AIC are 5.319270 while the F-
statistics of GDP model for SC is 5.418140 with Critical Values of upper bound 3.5. Similarly, the results of the test indicate that the F-statistics of PCI model for adjusted R2 is 5.596422 while AIC is 6.391757 and the F-statistics of PCI model for SC is 5.064171 with Critical Values of upper bound 3.5. This shows that the F-statistic of each of the models is higher than the Critical Value of the Upper Bound in all the models. It implies the rejection of the null hypothesis. Hence, the test shows that there is cointegration in all the models. In short, the ARDL bound test of cointegration shows that there is long-run equilibrium relationship between the variables in all the models. This leads to the modelling of long-run relationship using autoregressive distributed lags (ARDL).

Table 4

Estimates of Error Correction Model Results

<table>
<thead>
<tr>
<th>Model Specification</th>
<th>AIC Coefficient Variable (Standard Error)</th>
<th>Adjusted R² Coefficient Variable (Standard Error)</th>
<th>SC Coefficient Variable (Standard Error)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1: Dependent Variable (GDP)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D(CPS)</td>
<td>-0.000150 (0.000214)</td>
<td>-0.000150 (0.000214)</td>
<td>-0.000199 (0.000219)</td>
</tr>
<tr>
<td>D(BMS)</td>
<td>0.083017 (0.062567)</td>
<td>0.083017 (0.062567)</td>
<td>-0.000605 (0.020528)</td>
</tr>
<tr>
<td>D(LR)</td>
<td>-0.142139 (0.031931)***</td>
<td>-0.142139 (0.031931)***</td>
<td>-0.151608 (0.032306)***</td>
</tr>
<tr>
<td>D(MCGDP)</td>
<td>0.030842 (0.041243)</td>
<td>0.030842 (0.041243)</td>
<td>0.047067 (0.018860)</td>
</tr>
<tr>
<td>D(NTS)</td>
<td>1.628960 (0.306687)***</td>
<td>1.628960 (0.306687)***</td>
<td>-1.691325 (0.313219)***</td>
</tr>
<tr>
<td>CointEq(-1)</td>
<td>-1.001395 (0.015887)***</td>
<td>-1.001395 (0.015887)***</td>
<td>-0.999538 (0.016301)***</td>
</tr>
<tr>
<td>Model 2: Dependent Variable (PCI)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D(CPS)</td>
<td>-0.000254 (0.000357)</td>
<td>-0.000362 (0.000395)</td>
<td>-0.000311 (0.000361)</td>
</tr>
<tr>
<td>D(BMS)</td>
<td>0.197070 (0.103538)*</td>
<td>0.173519 (0.111640)</td>
<td>0.207378 (0.104979)*</td>
</tr>
<tr>
<td>D(LR)</td>
<td>-0.251603 (0.065352)***</td>
<td>-0.247686 (0.078515)***</td>
<td>-0.310165 (0.055429)***</td>
</tr>
<tr>
<td>D(MCGDP)</td>
<td>0.060017 (0.067821)</td>
<td>-0.083349 (0.074878)</td>
<td>-0.069301 (0.068671)</td>
</tr>
<tr>
<td>D(NTS)</td>
<td>1.535726 (0.463021)**</td>
<td>1.489269 (0.513907)*</td>
<td>1.806061 (0.444804)***</td>
</tr>
<tr>
<td>CointEq(-1)</td>
<td>-0.801686 (0.101276)***</td>
<td>-0.795637 (0.124722)***</td>
<td>-0.981099 (0.018654)***</td>
</tr>
</tbody>
</table>

Source: Author’s Computation, (2024).
Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1 denotes 1%, 5%, 10% level of significance respectively.
As indicated in Table 3, the error correction term (CointEq(-1)) for both models (GDP and GNI) are negative and significant at 1% given the P-value shown in parenthesis which indicate that the residuals are not serially correlated and that there is no problem of heteroskedasticity in the model selected.

Table 5

Estimated Results of Long Run Relationship

<table>
<thead>
<tr>
<th>INDEPENDENT VARIABLES</th>
<th>Model 1: Dependent Variable = GDP</th>
<th>Model 2: Dependent Variable = PCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPS</td>
<td>0.0121150 (0.000213) ***</td>
<td>0.002216 (0.000442) ***</td>
</tr>
<tr>
<td>BMS</td>
<td>-0.005117 (0.020364)</td>
<td>-0.008476 (0.043187)</td>
</tr>
<tr>
<td>LR</td>
<td>-0.141942 (0.032206)***</td>
<td>-0.313843 (0.069723)***</td>
</tr>
<tr>
<td>MCGDP</td>
<td>0.054230 (0.018800)***</td>
<td>0.095095 (0.039539)***</td>
</tr>
<tr>
<td>NTS</td>
<td>1.626692 (0.308929)***</td>
<td>1.915620 (0.553665)***</td>
</tr>
<tr>
<td>C</td>
<td>56.360681 (6.376332)***</td>
<td>95.725950 (11.903499)***</td>
</tr>
</tbody>
</table>

Source: Author’s Computation, (2024).
Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1 denotes 1%, 5%, 10% level of significance respectively.

The results of the autoregressive distributed lags (ARDL) model in Column 1 of Table 4 are presented to examine the impact of financial intermediation on economic growth in Nigeria. The results indicate that BMS and LR have negative relationship with growth rate of GDP while credit to private sector, market capitalization and total value of shares traded have positive relationship with growth rate of GDP. However, the coefficients of CPS, LR, MCGDP and NTS are indicated to be statistically significant. This is shown by the standard error, t-statistics and the P-values of the coefficients. On the basis of the standard error, coefficient of a variable is said to be significant when half of the coefficient is greater than the standard error of the coefficient. In Table 4, the coefficients of CPS, LR, MCGDP and NTS are 0.0121150, 0.141942, 0.054230 and 1.626692 while the standard errors of the coefficients are 0.000213, 0.032206, 0.018800 and 0.308929 respectively. Since half of each coefficient is greater than its standard errors, the variables of credit to private sector, lending rates, market capitalization and
total volume of shares are significant determinant of growth rate of GDP. By magnitude, a unit increase in CPS will lead to 0.0121150 increase in growth rate of GDP and a unit increase in LR will lead to 0.141942 decrease in growth rate of GDP while a unit increase in MCGDP and NTS will lead to 0.054230 and 1.626692 increase in growth rate of GDP respectively.

The autoregressive distributed lags (ARDL) model in Column 2 of Table 4 are presented to examine the impact of financial intermediation on per capital income in Nigeria. The result also revealed that CPS, MCGDP and NTS have positive and significant relationship with per capital income. The coefficients of CPS, MCGDP and NTS are 0.002216, 0.095095 and 1.915620 while the standard errors of the coefficients are 0.000442, 0.039539 and 0.553665 respectively. Since half of each coefficient is greater than its standard errors, the variables of CPS, MCGDP and NTS are significant determinant of per capital income. Therefore, a unit increase in CPS will lead to 0.002216 increase in per capital income and a unit increase in MCGDP and NTS will lead to 0.095095 and 1.915620 increase in per capital income respectively. On the other hand, the result revealed that LR has negative and significant relationship with per capital income. The coefficient of LR is 0.313843 while the standard error of the coefficient is 0.069723. Since half of each coefficient is greater than its standard errors, the variable of LR is a significant determinant of per capital income. Therefore, a unit increase in LR will lead to 0.313843 decrease in per capital income in Nigeria.

Table 6
Result of Diagnostic Test for all the Models

<table>
<thead>
<tr>
<th>Models</th>
<th>Breusch-Pagan-Godfrey Heteroscedasticity Test:</th>
<th>Breusch-Godfrey Serial Correlation LM Test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Breusch-Pagan-Godfrey test of Heteroscedasticity Test:</td>
<td>Breusch-Godfrey Serial Correlation LM test</td>
</tr>
<tr>
<td></td>
<td>F-statistic</td>
<td>P-value</td>
</tr>
<tr>
<td>GDP model</td>
<td>5.127753</td>
<td>0.0000</td>
</tr>
<tr>
<td>PCI model</td>
<td>3.326377</td>
<td>0.0010</td>
</tr>
</tbody>
</table>

Source: Author's computation, (2024)

Breusch-Pagan-Godfrey test of Heteroscedasticity and Breusch-Godfrey Serial Correlation LM test were conducted for all the models in this study and the results are presented in Table 5. Heteroscedasticity test is usually conducted to test the presence or otherwise of heteroscedasticity (variability of variance of the series) in the model. The null hypothesis of the test is that the series are homoscedastic (there is no heteroscedasticity). The null hypothesis is rejected when the probability value of the F-
statistics of the test is less than a chosen level of significance (usually 5%). In this case, the result of the Breusch-Pagan-Godfrey test of heteroscedasticity presented in table 4.5 shows that the F-statistics of test are 5.127753 and 3.326377 with p-value 0.0000 and 0.0010 for the model GDP and PCI respectively. Since, all the P-values are greater than 5%, the null hypothesis is not rejected. So, the test shows that there is no heteroscedasticity in all the models.

Another test conducted is the Breusch-Godfrey Serial Correlation LM test. Its null hypothesis is that there is no serial correlation. That is, the error terms of different periods are not correlated. The null hypothesis is rejected when the probability value of the F-statistics of the test is less than a chosen level of significance (usually 5%). In this study, the F-statistics for serial correlation tests for the entire models are GDP= 0.238353 and PCI=0.270703 Since the probability values of the F-statistics of the respective models are greater than 5% level of significance, the null hypothesis is accepted and we conclude that there is no serial correlation in all the models. Therefore, the results of all the models are free from the problem of heteroscedasticity and serial correlation (autocorrelation).

**Figure 1**

*Plot of cumulative sum of recursive residuals for GDP model*
The study proceeded by testing for stability of long run coefficients using the CUSUM tests. The test results for cumulative sum of recursive residuals for model 1 are shown in Figure 1 while those for model 2 are depicted in Figure 2. To establish stability, it is expected that the cumulative should remain within the two critical lines at 5% significance level. Otherwise, there is problem of instability. However, it was shown in Figure 1 and Figure 2 that the CUSUM plots are within the two critical bounds. It therefore suggests stability of parameters for GDP and PCI models.

5 CONCLUSION AND RECOMMENDATIONS

The study examined the impact of financial intermediation on economic growth in Nigeria while the specific objective of the study are to examine the effect of credit to private sector on economic growth in Nigeria. The study employed secondary data obtained from the Central Bank Statistical Bulletin 2020. Two models were employed in the study to achieve the objectives of the study. The first model was used to determine the effect of financial intermediation on growth rate of gross domestic product in Nigeria. The second model was used to examine the effect of financial intermediation on growth
rate of gross domestic product in Nigeria. From the findings of the study it was revealed that credit to private sector positively influence the economic growth in Nigeria. Secondly, the analysis revealed that lending rates has negative significant impact on economic growth in Nigeria. The study also revealed that there is a positive significant relationship between market capitalization and economic growth in Nigeria. Finally, the study revealed a positive significant relationship between total volume of shares traded and economic growth in Nigeria. Based on the findings of this study, it was concluded that there is a positive relationship between credit to private sector on economic growth in Nigeria. It also concluded that there is a positive relationship between market capitalization on economic growth in Nigeria. Finally, the study concluded that there is a significant relationship between financial intermediation on economic growth in Nigeria. In line with the findings of this study, the following recommendations were made:

1. That management of banks should be encouraged to pursue policies that will deepen the efficient allocation of financial services for economic growth in Nigeria;

2. Nigerian government should strive to stabilize their capital market thereby pursuing competitive market policies. This will improve the competitiveness of local firms by enhancing domestic investment output;

3. The security exchange commission should also implement policies and programs aimed at restoring the customers’ confidence, trust and loyalty with a reflective effect in increased market capitalization;

4. Mechanisms should be put in place by deposit money banks to enlighten and indulge the rural dwellers, financially disadvantaged and/or financially excluded with the use of financial services so as to enhance their willingness to source for financial help for their potential investment opportunities and other financial needs;

5. It is recommended that effective policy should be made to achieve a downward review of the gap between lending and deposit interest rate, as well as in the overall profits earned by banks.
REFERENCES


206-213. doi.org/10.1016/j.sbspro.2014.03.668


