THE IMPACT OF BANKING AND CAPITAL MARKET FINANCIAL INCLUSION ON ECONOMIC DEVELOPMENT IN NIGERIA

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Abstract

The study investigates the relationship between financial inclusion and economic development in Nigeria between 2003 and 2020 using the human development index (HDI) and variables from banking and the capital market. A separate model was specified for each of the industries in the financial sector. The econometric techniques employed include the ADF unit root test, ARDL bounds test, and Error correction model. The summary of the findings indicates the existence of a long-run relationship between HDI and capital markets inclusion, while there is no relationship recorded between banking inclusion and HDI. Secondly, the short-run models show that there is a relationship between HDI and capital market inclusion, while there is a negative relationship between HDI and banking inclusion. The study recommends the drafting of a comprehensive financial inclusion plan in the country among others.

Keywords: Financial Inclusion, Banking, Capital Market, Economic Development.

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1. Introduction

The term financial inclusion came became popular in the early 2000s, following a study that concluded by identified poverty as a direct consequence of financial exclusion (Babajide, Adegboye, & Omankhanlen, 2015). Ensuring the availability of financial services of different types to all agents of the economy, these services have to be tailored to the needs and financial capacity of the people, these products include payments, savings, credit, insurance and pensions etc. Nigeria presently operates a dual financial system, with the formal and informal
financial sectors cohabiting without limited interaction (Babajide, Adegboye, & Omankhanlen, 2015).

Financial Inclusion is a situation where financial services are conveyed through a collection of intermediaries, primarily existent in the non-government sector, to avail all and sundry who might need them, it refers to a financial system that is accessible to the largest possible section of the population in an economy (Kama & Adigun, 2013). Despite financial exclusion being identified as a development challenge, the problem remains prevalent as only about 50% of the world’s population is financially included (World Bank, 2014). The implications of this are far-reaching as it could easily translate into lower wages, misallocation of capital and irregularity in occupation choices. On the other hand, the importance of financial inclusion cannot be overstated, for instance, wages in the USA increased from 40% to 90%, with the transition from autarky to a fully financially inclusive economy (World Bank, 2014). Besley et al (2018) when financial inclusion is first introduced into an “unbanked economy”, the most interesting observation is on the share of self-employed entrepreneurs in the economy and the greatest beneficiaries of financial inclusion are workers due to employment creation that occurs. Also, the size distribution of firms changes with an increase in average firm size, with small firms being squeezed out as marginal entrepreneurs exit and join the labour force (Besley, Buchardi, & Ghatak, 2018).

The role of the financial sector in economic development is considered the world over in academic and government quarters. Some researchers consider that the operation of the financial sector purely responds to economic development, and adjustment to varying demands from the real sector and is, therefore, overstated. Notwithstanding disagreement, financial institutions strengthen economic prosperity (Wakdok, 2018). Financial markets and institutions help to relieve the effects of information and transaction costs that check direct pooling and investment of the savings of the society (Wakdok, 2018).

Economic development is a wider idea than economic growth because development reflects social and economic advancement of which economic growth is a requirement, while Growth is a necessary precondition for development it is not a sufficient condition as it cannot guarantee development (Sen, 1998). Sen (1998) further argues that development is about establishing freedom for people and eliminating barriers to greater freedom. Greater freedom in Sen’s opinion is what allows people to control their future. Poor welfare, the inadequacy of
economic opportunities, corruption, incompetent governance, lack of education and lack of health were among the factors he considered to be the threats to greater freedom (Sen, 1998).

Economic development is the system through which developing economies transition into advanced economies (Cypher, 2014). In other words, the process by which countries with deplorable living standards become nations with enhanced living standards, explains the process by which the welfare, education and health indices improve, during the process, there is a population transition of the labour force from agriculture to industry, and then to services (MBN, 2021).

In 2017, the financial development reports suggest that the level of financial inclusion is not the same across countries, around the world, ownership of bank accounts is set at 50% of the adult population, therefore it goes without saying that exactly half of the adult population worldwide remain unbanked, meaning that they do not own a bank account with any conventional financial entity (World Bank, 2018). However, it is understood that not all of the 2.5 billion unbanked require financial services, but systemic impediments such as cost of operations, travel distance, and documentation necessities are vital, for instance, nearly 20 per cent of the unbanked population attribute their exclusion to distance, the low-income demography primarily residents in rural locations are more likely to experience difficulty in accessing services (World Bank, 2018). In terms of corporate entities, the nascent ones predominantly classified under micro, small and medium enterprises face greater challenges, an example of this is seen in emerging markets where 35 per cent of small firms identify inadequate access to finance as the principal obstacle to their activities, in comparison to the 25 per cent of large establishments in developing economies and 8 per cent of large entities in developed economies (World Bank, 2018).

The role of banks in the financial inclusion procedure is critical and cannot be overstated, this is because there exists a universal believe that the financial inclusion process cannot be carried out or undertaken without the banks, also some views hold that only an inclusive financial system will promote financial inclusion while the banks remain the critical agent of achieving this through the provision of efficient and key financial services (Nwafor & Israel, 2018). Hence, most countries today formulate their financial inclusion strategies in a manner that growth in rural areas should be facilitated by banks. Banks on their part should deploy core banking solutions (CBS) that will enhance the volume and form of services required in
capturing the low-income and rural population (Nwafor & Israel, 2018). According to (Hellwig, 1991), banks have considerable control over the trend in resource allocation, risk management, and economic growth. Similarly, (Gerschenkron, 1962) emphasizes the importance of a vibrant banking system in an economy, stating that they determine to a considerable extent the general prosperity of any country. Countries with strong banking systems such as Japan are seen to have witnessed more periods of sustainable economic growth (Mayer, 1998; Allen & Gale, 1995).

The second aspect of the financial system observed in this study is the capital market. The securities and exchange commission are the regulatory agency that is tasked with the development and regulation of activities of the capital market. The commission was initially established as an arm of the central bank of Nigeria in 1962. It became an independent entity in 1977. In its 59 years of existence, the securities and exchange commission has enabled financial inclusion by licensing capital market operators which include recent operators ushered in by financial technology. Furthermore, it has increased financial inclusion by introducing a variety of products to be traded on the Nigerian stock exchange to provide an option for all and sundry in the country (SEC, 2021).

The role of the financial sector in the development of economies is considered the world over, particularly in academic and government quarters, while some experts believe that the activities and processes of the financial sector purely respond to economic development, and conformity to evolving requirements of the real sector and is, therefore, exaggerated. Nonetheless, financial institutions consolidate economic progress (Wakdok, 2018). Financial markets and institutions help to relieve the effects of information and transaction costs that check direct pooling and investment of the savings of the society (Wakdok, 2018).

Besides facilitating the movement of capital from surplus units of the economy to the deficit areas, financial inclusion also fosters development by providing resources for innovation, research and development which is considered a necessary prerequisite for economic progress. The lack of access to affordable formal financial services in developing economies is proven to stall economic growth and development (Ali, Fatima, & Ahmed, 2019). Cerra and Qureshi (2020) observe the differences in financial inclusion across countries, regions, and income levels are due to structural conditions in the economy. If one considers that extending financial services to a wide swath of the population entails certain costs and that these costs are likely to
exhibit economies of scale, then it stands to reason that financial inclusion will be naturally higher in countries in which structural conditions are such that the per-person costs of providing financial services are lower (Cerra & Qureshi, 2020).

The importance of this study cannot the overstated because of how critical financial inclusion is to the economy. Financial inclusion if actualized can be a delivery agent for government intervention mechanisms, enable savings and consequently investment, improve general well-being, improve the resilience of entities by building resistance against economic shocks, facilitate trade and monitor cash flows which are important for policy planning and national security purposes.

The broad objective of this study is to investigate the relationship between financial inclusion and economic development in Nigeria. The specific objectives are to analyse the long and short-run relationship between banking/capital market inclusion and economic development in Nigeria.

Most of the studies conducted in the area of financial inclusion have been concerning economic growth and focused on banking services alone. This is a gap we intend to bridge as we will explore the nexus between financial inclusion and economic development in Nigeria using the banking sector and the capital market individually.

2. Literature Review

2.1. Theoretical Literature Review

While the term financial inclusion is new in economic parlance, the general notion of financial inclusion and the relevance of financial services have a strong theoretical background in economics. The idea came into being as a result of the recognition of the importance of differentiating the concept of financial inclusion from financial development which reflects the depth of the financial sector. This was done by a group of World Bank researchers, led by Thorsten Beck and Asli Demirguc-Kunt. While financial depth might be high due to the increased availability of capital, financial inclusion might still be low if a large amount is assigned to a small number of households and firms (Diego, Asli, Peria, & Soledad, 2014). From Beck and Demirguc-Kunt’s perspective, financial inclusion means “the extent to which households and firms can access and use formal financial services”. While other researchers
widely agree with this definition, some express the opinion that financial inclusion should be about the inclusion of poor households and small firms (Sarma & Pais, 2011)

Many theories examine the importance of financial inclusion and establish the nexus between financial inclusion and economic prosperity across all the schools of thought in economics.

The Schumpeterian Theory

The Schumpeterian Theory attributes economic development to innovation. Innovation to Joseph Alios Schumpeter refers to a new product, system, market, or raw material of industry structure. The theory posits that disruptive innovation is responsible for economic development. The role of financial inclusion come to the fore when explaining the cyclical process where it is assumed that investment is financed with bank credits which increase income and prices thus enabling cumulative expansion throughout the economy (Schumpeter, 1911).

The Keynesian Theory

The Keynesian theory opposes earlier theories that promote saving, instead, it proposes higher consumption to increase effective demand which will then drive investment. However, the theory hints at the critical role of financial inclusion through its explanation of the marginal efficiency of capital and the rate of interest. The marginal efficiency of capital is seen to have an inverse relationship with investment in developed economies. Nevertheless, the marginal efficiency of capital is recorded to be low in underdeveloped economies where investment is low, Keynes attributes this to the underdevelopment of money and capital markets. Secondly, Keynes assumes the rate of interest to be a determinant of the economy (Keynes, 1936). While the role of savings is downplayed in this theory, other aspects of financial inclusion such as the capital market and access to credit are identified as key drivers of economic progress.

The Monetary Approach

From another perspective, financial inclusion is expected to condition the efficacy of monetary policy in an economy, this is because financially excluded households have inadequate access to instruments that facilitate saving and credit, as a result, changes in policy interest rates may only have a limited direct effect on their intertemporal consumption decisions (Mehrotra & Yetman, 2014). The theory is premised on the assumption that there are two types of
consumers, those who are financially included save and accumulate capital, varying the accumulation rate in response to shocks to smooth consumption, in contrast, financially excluded consumers earn only wage income and consume all of their income each period (Mehrotra & Yetman, 2014). Then there are monopolistic competitive firms that use labour and capital, both rented from consumers, to produce differentiated final goods, and finally, there is a monetary authority that sets interest rates to maximise the weighted sum of the welfare of included and excluded households, where the weights are equal to the share of each type of consumer in the economy (Mehrotra & Yetman, 2014).

2.2. Empirical Literature Review

Young-Park and Mercado (2018) analyzed the determinants of financial inclusion and the potency of financial inclusion in addressing poverty and inequality using an original formulated model with data from 177 countries. The findings signify that per capita income, demographic conditions and rule of law are chief among factors that determine financial inclusion for other parts of the world and Asia, while factor such as completion of basic education and literacy enhances financial inclusion in other parts of the whole world excluding Asia (Young-Park & Mercado, 2018).

Similarly, (Tita & Aziakpono, 2019) Examined the relationship between financial inclusion and income inequality in Sub-Saharan Africa using disaggregated data from the World Bank’s global financial index as a variable in descriptive statistics. The results confirmed that financial inclusion is positively correlated with income inequality and that asymmetric information, policy impediments and poor financial infrastructure are the main factors that affect account ownership and access to credit, (Tita & Aziakpono, 2019).

Garcia-Herero and Turegano (2015) conclude that financial inclusion aids in decreasing income inequality. The study utilized the pooled or panel ordinary least square regression approach, alongside the Kuznets ratio and descriptive statistics with gross national income, GDP per capita, government expenditure on consumption, trade openness and credit to the private sector as variables and the findings indicate that financial inclusion and financial deepening have different impacts on income inequality, the latter guarantees an increase in equitable distribution measured by the Gini coefficient while the size of the financial sector
proxied by financial deepening is seen to harm income equality (Garcia-Herero & Turegano, 2015).

Ibrahim and Aliero (2020) used the linear and quantile regression technique to analyze the nexus between financial inclusion and income per capita and the findings report a positive correlation between financial inclusion and per capita income. The positive impact of financial inclusion on income equality is seen to be common across all household brackets, and the first stage of the analysis showed that disparity in access to financial services increases the gap between different income brackets while gradual convergence became evident in the second and third stages of the analysis (Ibrahim & Aliero, 2020).

According to (Zia & Prasetyo, 2018) in a study that emphasizes the role of financial inclusion in poverty alleviation and income equality in Indonesia, despite being a major tool in poverty alleviation, financial inclusion is not very potent when it comes to closing inequality gaps. The conclusion was based on the outcome of a panel data analysis with data ranging from 2 years across 33 provinces in Indonesia (Zia & Prasetyo, 2018).

Similarly, (Ong-A-Kwie-Jurgens, 2016) employs a general equilibrium model to examine the relationship between financial inclusion, GDP and inequality in the case of Suriname. The results show that financial inclusion impacts GDP and inequality represented by the Gini coefficient, however, the degree of impact is specific to varying factors that represent, the size and quality of services in the financial sector, the study went further to recommend the elimination of barriers to credit such as collateral, interest rates etc (Ong-A-Kwie-Jurgens, 2016).

From a different perspective, (Nguemnang & Roger, 2020) studies how remittances and financial inclusion address income inequality. The panel data research employed the generalized method of moments to analyze ATM outlets, bank branches, credits, deposits and insurance against remittances, Gini, Atkinson and Palma ratio for 47 countries. The findings conclude that remittance and financial inclusion reduce income inequality and the study recommends policies that provide migrants with financial services that will spur remittances and thus reduce income inequality (Nguemnang & Roger, 2020).

Kim (2015) saw that income inequality was detrimental to the overall growth of the economy, that the nexus is more prevalent in low-income countries and that the growing problem can be
decisively addressed through reduction of inequality. In the study which was estimated using a formulated least square regression model with data from 40 OECD countries, financial inclusion, proxied by accessibility was confirmed as a causal factor to both income inequality and economic growth, furthermore, it improves the relationship between the two variables (Kim, 2015).

Similarly, (Saab, 2017) studies the relationship between financial inclusion and economic growth in Lebanon, Morocco, Egypt, Jordan and Tunisia using the VAR and Granger Causality models. The results of the vector autoregressive model indicate credit, borrowing and average loan size affect growth positively, also, the findings of the granger causality test show a bi-directional between credit cards, mobile accounts and gross national product per capita (Saab, 2017). Variables such as GDP growth rate, average loan size, GDP per capita, the number of borrowers, gross loan portfolio, population, mobile accounts, credit card owners and gross national income were estimated using the vector autoregressive model and the pairwise granger causality test (Saab, 2017).

In a cross-country analysis of the European Union with emphasis on Turkey, (Yorulmaz, 2012) uses the multidimensional financial inclusion index and human development Index for regions in Turkey to check how financial inclusion improves economic development and also compare the level of financial inclusion in Turkey to other countries in the European Union. Based on the results of the ordinary least square regression model, a positive connection between financial inclusion and HDI is confirmed despite a few exceptions, and further estimations showed that the size of the financial system has a direct relationship the economic development and income and development are all determinants of financial inclusion while income inequality and urbanization are inversely related to financial inclusion in Turkey (Yorulmaz, 2012).

A panel data analysis conducted by (Gourene & Mendy, 2019) studies the impact of financial inclusion on economic growth across 8 countries of the West African economic and monetary union. The causality test measured the nature of the relationship between the supply of financial services and the demand for financial services in the countries and the results show no causality between the variables in the short run and a bi-directional causality in the long run (Gourene & Mendy, 2019).
According to Ratnawati (2020), all the variables of financial inclusion are significantly effective on economic growth, poverty, income inequality and financial stability in Afghanistan, Bangladesh, Brunei Darussalam, India, Indonesia, Malaysia, Pakistan, Philippines, Singapore, and Thailand. The generalised method of moments was used to estimate the impact of the number of commercial bank accounts, the number of commercial bank branches, number of ATMs, outstanding deposits with commercial banks, outstanding loans from commercial banks and non-performing loans to gross loans on GDP, poverty rate, Gini coefficient and bank Z-score (financial stability) (Ratnawati, 2020).

Similarly, (Le, Chuc, & Taghizadeh-Hesary, 2019) analyse the trend of financial inclusion in Asia and the impact it has on financial efficiency and financial stability, estimating data that covers 12 years in an analysis that involves principal component analysis, descriptive statistics, feasible generalised least squares, Bartlett test of Sphericity and Kaiser-Meyer-Olkin measure of sampling adequacy. The analysis covers 10 high-income countries, 7 upper-middle-income countries and 14 low and lower-income countries and the results show that financial inclusion significantly and negatively impacts the level of financial efficiency in the whole sample as well as the two subsamples of countries of different income levels on one hand while financial inclusion is found to significantly and positively affect the level of financial sustainability in the whole sample, (Le, Chuc, & Taghizadeh-Hesary, 2019).

Onuora (2019) examined the effect of the capital market on the economic growth of Nigeria as a case study covering a period of 2001 – 2017 using time series data to capture capital market revenue covering the period under review. The study employed the ordinary least squares regression method to analyse the data obtained from the CBN statistical bulletin and World Bank and found that there was no significant positive relationship between some indices of economic growth and the Capital Market in Nigeria (Onuora, 2019). Relationship between transportation and capital market revenue; the growth rate in GDP and capital market revenue were not significant; however adequate security and capital market revenue indicate a positive significant relationship in Nigeria (Onuora, 2019).

Similarly, (Adesanya, Adediji, & Okenna, 2020) examined the impact of stock exchange market activities on economic development in the Nigerian economy using the multiple regressions technique to measure the effect of stock exchange market development on the Nigerian economy. The findings reveals that the market capitalization (CAP) had a positive
relationship with GDP, with the relationship being statistically insignificant while ALLSHARE has a positive and significant relationship with GDP and TNOV has a positive and significant relationship with GDP (Adesanya, Adediji, & Okenna, 2020).

In the same vein, (Briggs, 2015) examines the impact of the capital market on the Nigerian economy from 1981-2011 Briggs (2015) the Nigerian economy was viewed in terms of economic growth, while the performance of the stock market is an impetus for the growth and development of the Nigerian economy. The economic growth was proxy by Gross Domestic Product (GDP), while the capital market variables considered were; Market capitalization (MCAP), Total New issues (TNI), Value of Transactions (VLT), and Total Listed Equities and Government Stocks (LEGS) (Briggs, 2015). Johansen co-integration and Granger causality tests were applied and the result shows that the Nigerian capital market and economic growth are co-integrated, this indicates that a long-run relationship exists between the capital market and the growth of the Nigerian economy therefore the result shows the clear relative positive impact the capital market plays the economic growth and invariably on the economy (Briggs, 2015).

Correspondingly, (Ologunwa & Sadibo, 2016) estimated the relationship between capital market development and economic growth in Nigeria Using aggregate data for growth indicators and capital market indicators, and a structural dynamic model to investigate the issue. The findings show that the capital market ratio and turnover ratio are both significant and positive drivers of economic growth in Nigeria and that stock markets affect economic growth through savings mobilization (Ologunwa & Sadibo, 2016). Therefore, it is asserted that large, liquid and efficient stock markets can ease savings mobilization.

Agu Betram (2018) appraised the responsiveness of economic growth to capital market development in Nigeria intending to determine the impact of market capitalization on Real Gross Domestic Product (RGDP), ascertaining the effects of the value of shares traded in the capital market on Real GDP and finding out whether the total number of issues in the capital market impact on RGDP in Nigeria. The study adopted time-series data from 1995-2016 and analysed using descriptive statistics and the ordinary least square (OLS) regression Technique (Agu Bertram, 2018). The result of the study shows that market capitalization was found to have a negative relationship with Real Gross Domestic Product (GDP) in Nigeria, also the
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study reveals that there is a limited contribution of the capital market to the development of the industrial sector (Agu Bertram, 2018).

Anderu (2020) empirically examines the nexus between capital market and economic growth in Nigeria between 1980 and 2017 using the Auto-regressive Distribution Lag model and Bound Cointegration Testing and the results revealed that there is a long-run relationship between capital market and economic growth in Nigeria (Anderu, 2020). To justify the findings, post-estimation tests were conducted, the Jarque-Beta test suggests that the residuals for both models are normally distributed since the probability value is greater than the 5% significant level, the hypothesis of normal distribution for residuals cannot be rejected and the Breusch-Godfrey Serial Correlation (LM) test re-affirms that these hypotheses of no autocorrelation can be rejected since the probability value is greater than the 5% critical value (Anderu, 2020).

Correspondingly, (Enekwe, Eziedo, & Agu, 2018) examine the effect of the Nigerian capital market on the economic development in Nigeria with the economic growth proxied by Gross Domestic Product (GDP) while the capital market variables considered include; market capitalization (MCAP), Number of listed securities (NLS), and Total value of securities traded (TVST) over 30 years (1981-2012). The data were analyzed using descriptive statistics, Pearson correlation and multiple regressions and the findings indicate that economic growth is significantly influenced by only MCAP, therefore the factor that does not significantly influence economic development is, NLS and TVST (Enekwe, Eziedo, & Agu, 2018). This is a clear indication that a capital market is a tool for the economic development of the country, the evidence from this study reveals that the activities in the capital market tend to impact positively on the economy but not to the extent it is supposed to (Enekwe, Eziedo, & Agu, 2018).

Also, (Okoye, Modebe, & Okorie, 2016) investigates the relationship between capital market development and economic growth using Nigerian data on GDP (a proxy for economic growth), market capitalization ratio, value traded ratio and stock market turnover ratio (proxies for capital market development) over the period 1981-2014 and estimated using the vector error correction model, the study shows that in the short-run, market capitalization ratio and turnover ratio have a significant negative effect on aggregate national output (GDP), the study also shows a positive effect of value traded ratio as well as a negative effect of inflation rate on
GDP though not significant (Okoye, Modebe, & Okorie, 2016). The long-run estimate shows that all the exogenous variables have a significant negative impact on GDP and that changes in market capitalization ratio, value traded ratio and turnover ratio produce more than proportionate changes in GDP. With an adjustment speed of about 91.12 per cent, the model presents an inherent capacity to overcome short-run disequilibrium, finally, the Granger causality test shows evidence of the causal impact of market capitalization ratio, value traded ratio and turnover ratio on aggregate national output, the study further shows uni-directional causality from GDP to inflation (Okoye, Modebe, & Okorie, 2016).

Furthermore, (Obubu, Konwe, Nwabenu, Omokri, & Chijioke, 2016) evaluates the contribution of the Nigerian stock market to economic growth using the regression analysis and ordinary least square technique. The result indicates a positive relationship between economic growth, all share index and market capitalization with a 99.1% R-square value and a 99% adjusted R-squared value implying that economic growth in Nigeria is adequately explained by the developed model (Obubu, Konwe, Nwabenu, Omokri, & Chijioke, 2016). The result of this study which established positive links between the capital market and economic growth suggests that policies geared toward rapid development of the capital market should be initiated (Obubu, Konwe, Nwabenu, Omokri, & Chijioke, 2016).

Adeoye (2015) empirically examines the impact of the Nigerian Capital Market on the Nigerian economy looking at 20 years from 1992 to 2011. The Nigerian Capital Market was a proxy as Market Capitalization against some variables of the economy such as Gross Domestic Product (GDP), Foreign Direct Investment, Inflation Rates, Total New Issues, Value of Transaction and Total Listing, the data was estimated using the multiple regression analysis, and the results show that Capital Market has an insignificant impact on the Economy within the period under review (Adeoye, 2015).

3. Methodology

The study makes use of secondary data on the human development index, sourced from the United Nations development report, credit to the private sector as a percentage of GDP and broad money supply (M3), sourced from the central bank of Nigeria, net portfolio investment sourced from the Nigerian bureau of statistics, and annual market capitalization sourced from the Nigerian stock exchange.
The first step we take in the analysis of the variables is the unit root test. As a precondition to conducting other econometric techniques, we are going to undertake the augmented dickey fuller unit root test and the Phillips Perron test.

Secondly, we will conduct the Johanssen-Cointegration test or the ARDL bounds test to confirm if a long-run relationship exists between the models. The choice of which model to use here will be determined by the outcome of the unit root test. If all the variables are stationary at the same level, we conduct the Johanssen cointegration test where the long-run relationship will be ascertained if a certain number of cointegrating equations are identified in the trace and the maximum Eigenvalue test.

Subsequently, if the outcome of the unit root test shows that the variables are not stationary in the same form, the auto-regression distributed lag bounds test was adopted to confirm the relationship between the variables where we will conclude a long-run relationship if the value of the F-statistic is greater than the upper critical bound at 5% significance (Shin & Smith, 2001). If a long-run relationship is proven, we shall proceed to analyse the short-run relation using the error correction model and if a long-run relationship isn’t concluded, we shall utilise the ARDL short-run model to estimate for that.

**Model Specification**

The general model of the study is specified as:

Equation 1 Financial Inclusion Model

\[ Economic Development = \alpha + Financial Inclusion + \mu \] \hspace{1em} (1)

However, the model will be broken down to the individual sectors under review i.e. Banking and Capital Market.

Equation 2 Banking Inclusion Model

\[ HDI = \alpha + \beta_1 CPS + \beta_2 BM + \mu \] \hspace{1em} (2)
Where:

HDI = Human Development Index

CPS = Credit to Private Sector

BM = Broad Money Supply

μ = Stochastic Error Term

Equation 3 Capital Market Inclusion Model

\[ HDI = \alpha + \beta_3 NPI + \beta_4 AMC + \mu \] \hspace{1cm} (3)

Where:

HDI = Human Development Index

NPI = Net Portfolio Investment

AMC = Annual Market Capitalization

μ = Stochastic Error Term

4. Findings

Table 1: Augmented Dickey-Fuller Unit Root Test

<table>
<thead>
<tr>
<th>Variable</th>
<th>ADF T-statistic</th>
<th>Test Critical Value at 5%</th>
<th>Probability</th>
<th>Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDI</td>
<td>-3.701106</td>
<td>-3.759743</td>
<td>0.0551</td>
<td>Level</td>
</tr>
<tr>
<td>CPS</td>
<td>-4.800080</td>
<td>-3.791172</td>
<td>0.0276</td>
<td>First Difference</td>
</tr>
<tr>
<td>BM</td>
<td>Near Singular Matrix</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NPI</td>
<td>-4.406380</td>
<td>-3.759743</td>
<td>0.0171</td>
<td>First Difference</td>
</tr>
<tr>
<td>AMC</td>
<td>-5.697385</td>
<td>-3.828975</td>
<td>0.0031</td>
<td>Level</td>
</tr>
</tbody>
</table>

Source: Author’s Summary of E-views output.

From the table above, the human development index is seen to be stationary at the level form. The Schwarz information criteria chose 1 out of a maximum of 3 lags. The trend and the constant terms in the regression are significant. Most importantly, the Augmented Dickey-
Fuller T-statistic is greater than the test critical value at the 5% level and the probability is just at about 0.05. This allows us to reject the null hypotheses that state the human development index has a unit root.

Credit to the private sector is seen to be stationary at the first differenced form. The Schwarz information criteria chose 1 out of a maximum of 3 lags. The trending term is statistically insignificant at 0.0746 while the constant term in the regression is significant at 0.0427. The Augmented Dickey-Fuller T-statistic is greater than the test critical value at the 5% level and the probability is less than 0.05. This allows us to reject the null hypotheses that state credit to the private sector has a unit root (Thathsarani, Wei, & Samaraweera, 2021).

The unit root test result of broad money is inconclusive, this is because there is a near singular matrix error. The error occurs as a result of structural breaks in the data. One of the demerits of the Augmented Dickey-Fuller unit root test is the sensitivity to structural breaks.

Net portfolio investment is seen to be stationary at the first differenced form. The Schwarz information criteria chose 0 out of a maximum of 3 lags. Both the trend and the constant terms in the regression are insignificant. The Augmented Dickey-Fuller T-statistic is greater than the test critical value at the 5% level and the probability is less than 0.05. This allows us to reject the null hypotheses that state net portfolio investment has a unit root.

Annual market capitalisation is seen to be stationary at the level form. The Schwarz information criteria chose 3 out of a maximum of 3 lags. The trend in the regression is statistically significant at 0.0008 while the constant term in the regression is insignificant at 0.9339. The Augmented Dickey-Fuller T-statistic is greater than the test critical value at the 5% level and the probability is less than 0.05. This allows us to reject the null hypotheses that annual market capitalisation has a unit root.

From the results above we see that not all the variables are stationary at the same stage. This means that we are restricted to use the ARDL long-form bounds test to analyze the long-run relationship between banking inclusion and economic development, and insurance inclusion and economic development in Nigeria.
Autoregressive Distributed Lag Long Form and Bounds Test

The ARDL bounds test to cointegration is estimated with EViews version 12 to achieve the objective of estimating the long-run relationship. The model selection method is the Akaike information criterion. For the interpretation, we shall rely on the F-statistic method where cointegration will be determined if the F-value is seen to be greater than the I (1) at 5% significance (Pearson, Shin & Smith, 2001). The model is set at an unrestricted constant and no trend where the null hypothesis states no level relationship. If cointegration is established, we will conduct the error correction model, if not, we use the short run, autoregressive lag model.

The equation for this specific model is:

Equation 4 Banking Inclusion ARDL

\[ HDI_t = a_0 + \sum_{i=1}^{p} \beta_1^i CPS_{t-i} + \sum_{i=1}^{q} \beta_2^i BM_{t-i} + \mu_t \quad \ldots \ldots \ (4) \]

The summary of the result is:

Table 2: Banking Inclusion ARDL Bounds Test

<table>
<thead>
<tr>
<th>Test Statistic</th>
<th>Value</th>
<th>Significance</th>
<th>I (0)</th>
<th>I (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-statistic</td>
<td>3.25497</td>
<td>10%</td>
<td>2.63</td>
<td>3.35</td>
</tr>
<tr>
<td>K</td>
<td>2</td>
<td>5%</td>
<td>3.1</td>
<td>3.87</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.5%</td>
<td>3.55</td>
<td>4.38</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1%</td>
<td>4.13</td>
<td>5</td>
</tr>
</tbody>
</table>

Source: Author’s summary from Eviews-12 output

The F-statistic value is not greater than the I (1) therefore we can accept the null hypothesis of no levels relationship. This means that there is no cointegration between banking inclusion and economic development in Nigeria when HDI is the dependent variable. Having confirmed the absence of cointegration, we proceed to estimate the data using the ARDL model to establish the nature of a short-run relationship.

Short-Run ARDL Model

The equation for the short-run ARDL model for Banking Inclusion is presented as:
Equation 5 Banking Inclusion Short-Run ARDL

\[ \Delta HDI_t = a_0 + \sum_{i=1}^{p} \beta_{1i} \Delta CPS_{t-i} + \sum_{i=1}^{q} \beta_{2i} \Delta BM_{t-i} + \mu_t \] \hspace{0.5cm} (5)

The summary of the result is:

Table 3: Banking Inclusion ARDL Short Run Test

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Probability</th>
<th>R-squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDI (-1)</td>
<td>0.799925</td>
<td>0.0001</td>
<td>0.952126</td>
</tr>
<tr>
<td>BM</td>
<td>0.002007</td>
<td>0.2790</td>
<td></td>
</tr>
<tr>
<td>CPS</td>
<td>-0.001033</td>
<td>0.4260</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>0.081074</td>
<td>0.1299</td>
<td></td>
</tr>
</tbody>
</table>

Source: Author’s summary from Eviews-12 output.

In the short run, 95% of the variation in HDI is seen to be caused by broad money and credit to the private sector, however, the findings show that the individual independent variables are statistically insignificant. This enables us to conclude that a short-run relationship does not exist between banking inclusion and economic development.

**Auto-Regressive Distributed Lag Bounds Test**

From the unit root tests we have conducted, we find that the variables for estimating the impact of capital market inclusion on economic development are not stationary in the same form, this enables us to conduct the autoregressive distributed lag bounds test to measure long-run relationships.

The equation for this specific model is:

Equation 6 Capital Market Inclusion ARDL Bounds Test Model

\[ HDI_t = a_0 + \sum_{i=1}^{p} \beta_{1i} NPI_{t-i} + \sum_{i=1}^{q} \beta_{2i} AMC_{t-i} + \mu_t \] \hspace{0.5cm} (6)
The summary of the result is:

Table 4: Capital Market Inclusion ARDL Bounds Test

<table>
<thead>
<tr>
<th>Test Statistic</th>
<th>Value</th>
<th>Significance</th>
<th>I (0)</th>
<th>I (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-statistic</td>
<td>7.748074</td>
<td>10%</td>
<td>2.63</td>
<td>3.35</td>
</tr>
<tr>
<td>$K$</td>
<td>2</td>
<td>5%</td>
<td>3.1</td>
<td>3.87</td>
</tr>
<tr>
<td>2.5%</td>
<td></td>
<td>3.55</td>
<td>4.38</td>
<td></td>
</tr>
<tr>
<td>1%</td>
<td></td>
<td>4.13</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

Source: Author’s summary from Eviews-12 output

The F-statistic value is greater than the I (1) therefore we can accept the alternative hypothesis of a long-run relationship. This means that there is cointegration between capital market inclusion and economic development in Nigeria when HDI is the dependent variable. Having confirmed the presence of cointegration, we proceed to estimate the data using the error correction model to establish the nature of a short-run relationship.

**Error Correction Model**

The equation for the capital market inclusion model is presented as:

Equation 7 Capital Market Error Correction Model

\[
\Delta HDI_t = a_0 + \sum_{i=1}^{p} \beta_{1i} \Delta NPI_{t-i} + \sum_{i=1}^{q} \beta_{2i} \Delta AMC_{t-i} + yECT_{t-i} + \mu_t \quad \text{........... (7)}
\]

The summary of the results is:

Table 5: Capital Market Inclusion Error Correction Model

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Probability</th>
<th>R-squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>D(AMC)</td>
<td>3.18E-07</td>
<td>0.0306</td>
<td>0.631428</td>
</tr>
<tr>
<td>CointEq (-1) *</td>
<td>-0.424708</td>
<td>0.0001</td>
<td></td>
</tr>
</tbody>
</table>

Source: Author’s summary from Eviews-12 output

In the short run, 63% of the variation in HDI is seen to be caused by insurance penetration rate and gross premium income. Secondly, the findings show that the individual independent variables are statistically insignificant. This enables us to conclude the existence of a short-run relationship between insurance inclusion and economic development.
5. Conclusion

From the results above, we see that there is no nexus between banking inclusion and economic development in Nigeria. This is because we could not establish a long-run relationship, short-run relation or causal relationship between the banking inclusion variables and the human development index (Dube, 2018). The first banking inclusion variable in this study is a credit to the private sector as a percentage of GDP, the result of no nexus which is similar to the findings of (Adagye, Bashir, & Usman, 2020) could be a result of issues ranging from the inadequacy of credit to the private sector, allocative inefficiency within the economy, the poor marginal productivity of capital or other economic factors that may affect activities of the private sector such as ease of doing business. This will prevent the credit to the private sector from impacting activities that will enhance economic development. Secondly, broad money (M3) is seen to be insignificant to economic development, this is consistent with the findings of (Okoye, Adetiloye, Erin, & Modebe, 2017). The broad money supply might not impact the economic development of a country over time if the purchasing power of money diminishes over time or if the effective demand created within the economy is for foreign products, this is plausible in the case of Nigeria where there is the overreliance on imports.

We further observe that there is nexus between capital market inclusion and economic development in Nigeria. This is because we observe a positive direct relationship between the variables in the trend analysis. Also, the autoregressive distributed bounds test indicates a long-run relationship, while the error correction model reports a positive significant relationship in the short run.

We hereby recommend that financial inclusion strategies should be inclusive and sector-specific. Also, there is a need for a comprehensive financial inclusion plan that will encompass institutions across all tiers of government with to address specific inclusion problems.
REFERENCES


