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Financial Integration and Economic Development: A Comparative Evidence from two Sub-Saharan African Countries – Nigeria and South Africa (1986 – 2023)

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ABSTRACT: The effect of financial integration on economic development of Nigeria and South Africa was examined in this study. There has been a lot of scholarly research done on the connection between financial integration and economic development, especially in emerging nations where financial openness is considered as a means of attracting foreign capital and promoting growth. Nigeria and South Africa, two of the largest economies in Africa, present an intriguing case for comparative analysis. In specific term, the effect of money supply to real gross domestic product, private sector credit to real gross domestic product, and foreign direct investment to real gross domestic product on human development index in Nigeria and South Africa were ascertained. The study employed an *ex post facto* research design using secondary data sourced from World Bank Development Indicators from 1986 to 2023. The Auto-Regressive Distributive Lag (ARDL) technique was utilized in analyzing the data. The result that emanated from the study showed that money supply to real gross domestic product, private sector credit to real gross domestic product, and foreign direct investment to real gross domestic product have no significant effect on human development in Nigeria and South Africa. With regard to the nature of relationship in the short-run, there is an insignificant positive relationship between money supply to real gross domestic product and human development index in Nigeria and South Africa; the relationship between private sector credit to real gross domestic product and human development index is negative and insignificant in Nigeria but insignificant and positive in South Africa; and foreign direct investment to real gross domestic product is insignificantly and negatively related with human development index in Nigeria and South Africa. The study recommends that monetary authorities of Nigeria and South Africa through the Central Banks are advised to reduce interest rates and ease access to credit as they are the two ways that can increase money supply which spur economic development. Governments should establish favorable conditions for the expansion of the private sector, such as improved infrastructure, dependable regulations, and easier access to capital for small and medium-sized businesses

Keywords: Financial integration, economic development, Nigeria, South Africa

1. INTRODUCTION

Financial integration and economic development have a nuanced and intricate relationship. Financial integration entails a rise in cross-border capital movements, which includes a widespread increase in international financial intermediaries and instruments as well as active participation by local lenders and borrowers in global money and capital markets (Vo, Vo, & Ho, 2020). Economic theory and policy have placed a great deal of emphasis on the connection between financial integration and economic growth, especially in light of globalization and financial market deregulation. Despite their mutual relationship, the phenomena of financial globalization and integration are conceptually distinct (Aizenman, Jinjarak, & Park, 2020; Ekwunife, Nduka, & Ogini, 2022; Nduka, Atueyi, Osakwe, & Mbanefo, 2021; Obidike, Onyeka, & Nduka, 2022). However, the relationship between financial integration and economic development is complex. While integration can lead to improved access to capital and investment, it can also expose countries to risks such as capital flight, external financial shocks, and increased economic volatility. These risks are particularly pronounced in developing countries with weaker financial institutions and less resilient economies. Increased financial ties made possible by cross-border financial flows are collectively referred to as financial globalization (Omah, 2020).

Financial integration has grown significantly with globalization, driven by technological advances, liberalization of financial markets, and increasing international capital flows. It is believed that financial integration can enhance economic development by providing countries with access to larger pools of capital, diversified investment opportunities, and advanced financial technologies. However, the benefits of financial integration are not uniform across countries (Emeka & Isiaq, 2023). Emerging economies, particularly those in Africa, may experience different impacts from financial integration due to varying institutional frameworks, financial structures, and macroeconomic policies. Some economies might benefit from access to foreign capital, while others could be exposed to risks such as financial volatility and contagion effects (Logan, Okanya, Nduka, Manasseh, Ede, Onoh, Omeje, Ozioko, & Agu, 2021; Monogbe, Akinpelumi, Achugbu, & Nduka, 2016). Ifurueze (2023) attributed financial integration as the process through which one economy's financial markets become deeply integrated with those of other

economies or with the rest of the world is known as financial integration. Financial integration can be summed up theoretically as a one-stop-shop market where financial instruments, such as bonds, stocks, shares, and loan arrangements, are negotiated, closed, and traded on, and where players in the market have free access to easily available information.

Nigeria's economy is largely dependent on oil exports, which have historically driven its growth. Oil exports have historically been the main factor driving Nigeria's economic growth (Nduka, Ananwude, & Osakwe, 2019; Ogunewe, Ananwude, & Nduka, 2020). Nigeria is one of the biggest economies in Africa, but its financial system has lagged behind due to inadequate regulatory frameworks, low levels of financial inclusion, and a significant susceptibility to outside shocks, most notably changes in the price of oil globally (Emeka & Isiaq, 2023; Aniefor, Nduka, Ananwude, & Ezeaku, 2021; Anusi & Nduka, 2022; Nduka, Achugbu, & Ucheahara, 2016). Nigeria has worked to open up its financial markets and draw in outside capital in recent years. Deeper financial integration is nevertheless hampered by issues including capital controls, currency volatility, and an excessive reliance on the oil industry. Though it has expanded, Nigeria's capital market is still small in comparison to other emerging markets. Portfolio inflows and foreign direct investment (FDI) are susceptible to outside shocks like changes in commodity prices and the state of the world economy (Asongu & Odhiambo, 2021).

South Africa, in contrast, has a more diversified and developed economy, with a sophisticated financial sector that includes well-established capital markets, banking institutions, and regulatory bodies. South Africa is more integrated into global financial markets compared to Nigeria, benefiting from foreign investment and trade relationships with advanced economies. However, South Africa also faces issues that have an impact on the country's prospects for long-term economic growth, including social instability, high unemployment, and inequality (Prasad & Ye, 2022). The financial markets of South Africa are among of the most advanced in the continent, providing more varied and liquid financial products. Due to its increased exposure to international financial markets, its economy is more susceptible to shifts in capital flows and global financial crises.

Economic development is the process of improving a country's citizens' social, political,

and economic well-being. In the 20th and 21st centuries, economists, politicians, and others have used the term often (Ifurueze, 2023). Economic development includes the majority of the population's access to basic healthcare, education, and sustainable means of subsistence (Ayadi, 2021). On the other hand, the idea is centuries old in the West. Other terms that are frequently used while talking about economic growth are modernization, westernization, and notably industrialization. The environment and environmental challenges are directly related to economic development. Even in some scholarly publications, industrial and economic development is frequently conflated. (Ifurueze, 2023). While economic growth is a phenomenon of increased market productivity and GDP, economic development is an endeavor of policy intervention aimed at enhancing the economic and social well-being of people. As a result, one step in the process of economic development is economic growth.

The statement that contemporary national economic institutions are becoming more open and connected with surrounding, regional, and global economies is linked to the necessity of including financial integration. As a result, an economic analysis that ignores the global financial markets' integrating dynamics may not provide a clear picture of how developed a nation's financial sector is (Malefane & Odhiambo, 2018). The potential role of economic integration was demonstrated by the signing of the Kigali Declaration, the Free Movement of People Protocol, and the African Continental Free Trade Area (AfCFTA) at the 10th Extraordinary Summit of the African Union (AU) Assembly of Heads of State and Government on March 21, 2018, in the Republic of Rwanda in Kigali. The Industrial Development Policy Framework and Regional Indicative Development Plan of the Southern African Development Community (SADC) prioritize economic integration as well. The regional integration agenda of the block is guided by the SADC Regional Indicative Development Plan, which serves as an implementation framework guide for the years 2005 to 2020 (Chiwira, 2022). In terms of SADC programs, the Common Agenda, and Strategic Priorities, it also offers clear guidance. The 1992 SADC Treaty codifies these strategic priorities and common agenda. Deepening the integration agenda is the primary mandate of the 1992 SADC Treaty (AllAfrica.com as referenced in Chiwira, 2022).

2. LITERATURE REVIEW

Clarification of Concepts

Financial integration is the process through which the financial markets of several nations grow more intertwined and dependent on one another, enabling the unrestricted movement of money, financial services, and investment across national boundaries. It comprises taking down obstacles that prevent cross-border financial transactions, which unites the financial markets. Financial integration is the term for a broad range of financial operations, including banking, Foreign Direct Investment (FDI), portfolio investment, and cross-border financing. It can take place at several levels, including global, regional, and bilateral. Financial integration, thus, entails increase in cross-country capital movement, which involves an active participation of local borrowers and lenders in international markets and a widespread use of international financial intermediaries and instruments (Ifurueze, 2023). The term "economic development" describes the persistent, coordinated efforts of communities and policymakers to raise the standard of living and strengthen the local economy. Both qualitative and quantitative changes to the economy are a part of this process. Economic development covers more ground than economic growth, which is mainly concerned with the gradual rise in the production of products and services. This includes things like higher living standards, decreased inequality, stronger infrastructure, greater health and education, and increased welfare.

Theoretical Underpinning

The theoretical framework for the study is based on the seminar work of McKinnon and Shaw (1973) who explained the role financial institutions play in economic development and demonstrated that development of the financial sector is a catalyst for economic growth and development. According to the McKinnon's model (1973), investment cannot be triggered unless sufficient savings is mobilized in the form of bank deposit liabilities which eventually leads to economic growth. McKinnon and Shaw (1973) later identified two theories of financial integration which are the theory of liberalization and the theory of repression. The theory of liberalization explains that financial markets allow financial integration which reflects an increasing use of financial intermediation by savers and investors as well as the monetization of the economy. The theory explains that the higher the real rate of interest, the greater the degree of financial integration. This theory encourages the expansion of the

financial markets as a result of higher rate of interest which contributes to economic development. The theory of repression on the other hand, explains how government intervenes in the financial intermediation to determine the financial prices. The main characteristics of financial repression are interest rate control, restriction of capital account movement, restriction entry to financial markets and so on. The intervention of government encourages mostly the borrowers to borrow as much as they can in order to invest into their choice projects which in turn promote economic growth.

Empirical Studies

Nigeria

Emeka and Isiaq (2023) adopted the structural vector auto-regressive (SVAR) model to assess the degree to which global uncertainties affect the relationship between financial integration and consumption smoothing in Egypt and Nigeria using quarterly data from 2010 to 2020. The study hypothesizes that global uncertainty shocks will have adverse effects on consumption smoothing in both Nigeria and Egypt. The main results from the study showed that the economic policy uncertainty shock has a more declining effect on consumption smoothing in Egypt than other global uncertainty proxies. On the other hand, global economic condition shocks have a more declining effect on consumption smoothing in Nigeria than other global uncertainty proxies. In addition, financial integration accounted for more variability in consumption smoothing in Egypt than in Nigeria; this may be due to the fact that Egypt is more financially integrated than Nigeria.

Ifurueze (2023) determined the effect of financial integration on economic development in Nigeria. The Autoregressive Distributive Lag (ARDL) Approach was used for the data analysis. The results of the study revealed that financial integration have significant short and long run policy effect on economic development in Nigeria. This connotes that financial integration is the driver of economic development in Nigeria. An active and efficient financial integration enhances growth and development of the economy.

Abdullahi, Ibrahim, Hook and Ngah (2023) investigated the impact of financial integration on economic development using the dynamic panel quantile estimator on a sample of 95 countries from 2004-2019. The results showed that the impact of financial integration on economic development varied

across income levels. This study found that financial integration impacted economic development negatively in middle and high-income countries. However, financial integration did not significantly affect economic development in low-income countries.

Iheanacho, Okere and Onoh (2023) assessed the role of institutional structure on asymmetries dynamic impact of financial integration, capital market development on economic performance in Sub-Saharan Africa (SSA). The study classified economic performance into RGDPC, nominal gdp and human capital development, and employed (PNARDL) modeling framework, and a panel of 16 nations of SSA over the period 1996–2019. The finding of this research output showed that iIn the long run, a rise in positive shock to the financial integration index leads to a rise in RGDPC, while a negative shock to FI leads to a fall in RGDPC.; both shocks (positive and negative) to MCAP reduce RGDPC. Institutional quality index (INSQI) is revealed to have a positive and significant impact on RGDPC in the long run and indeed intensify their asymmetries; and both shocks to FI exert inverse influence on nominal GDPC, while positive and negative shocks to MCAP exert a positive and negative influence on GDPC, respectively. INSQI also affects GDPC negatively and significantly and indeed reduces their asymmetries; and positive and negative shocks to FI reduce HCD as well as shocks to MCAP. INSQI, on the other hand, adds to HCD and intensifies their asymmetries.

Justice and Tamuno (2023) explored the effect financial market integration on economic growth in Nigeria over the period of thirty-two years ranging from 1990 to 2021. The study designed and specified a multiple regression model to examine the individual and joint effects of the proxies of financial market integration (trade openness, credit to private sector and government expenditure) on economic growth in Nigeria (measured in Gross Domestic Product). The model was estimated by Ordinary Least Square technique using E-views 12 statistical package. The annual time series data used were collected from Central Bank of Nigeria (CBN) statistical bulletin and analyzed with the aim of achieving the stated objectives. The study found that trade openness, credit to private sector and government expenditures have individual and joint significant effect on economic growth in Nigeria.

Chiwira (2022) used panel data covering the period 1980 to 2019. It employed the Autoregressive Distributed Lag (ARDL) Bounds and the Toda and Yamamoto and Dolado and Lütkepohl (TYDL) models to examine the relationship and the direction of causality respectively. Financial integration spurs economic growth only in the long run. The analysis reveals long run positive relationships between foreign direct investment net inflow, trade openness and real interest rate with economic growth whilst net foreign assets have a significant negative relationship with economic growth. The impact of financial integration, especially through foreign direct inflow, depends on the absorptive capacity of the host nation. Financial integration triggers economic growth for the low-income countries and it is economic growth that causes financial integration for the middle-income countries.

Arazu, Mobosi, and Mba (2022) ascertained how Nigeria's sectoral performances are impacted by financial globalization. The sectors of interest include Trade, Agriculture, Construction, Industrial and Service. Annual Time series data for the period, 1981-2019 was analysed using a Classical Linear Regression Method in an Error Correction Framework. Results established a strong significant association between financial globalization, construction and trade sectors. It indicates the insignificant consequences of financial globalization on the industrial, service, and agricultural sectors, respectively. The result further finds that terms of payment impact the agricultural sector, while terms of trade impact the industrial sector, respectively. The exchange rate is the only variable that shows a significant negative impact on the five selected sectors.

Iwegbu, Kainu and Cardoso (2022) evaluated the impact of financial development and regional financial integration on ECOWAS' industrial sector. This study assesses whether regional financial integration and financial development have a stronger effect on the growth of the industrial sector of ECOWAS member countries that have high level of institutional quality than it does in countries with lower level. Major findings from the study reveals that deepening regional financial integration can only enhance the industrial output of ECOWAS member countries that has sound institutional quality framework; this is important and is a strong enhancing factor for member countries experiencing low industrial sector output. Credit to the private sector alone both for countries with low industrial output and

countries with high industrial output does not improve the level of industrial performance.

Orji, Okafor, Obi and Ukeje (2022) examined the effects of regional integration on economic growth of ECOWAS member countries from 2010 to 2020. Unlike previous studies that mainly utilised variables like terms of trade and export to capture regional integration, this study employed the regional integration index computed from 2010 to 2020 and made available by the African Regional Integration Index (ARII) in five dimensions to capture the effects of regional integration on economic growth of ECOWAS members. The objective of the study was to examine the effects of trade and financial integrations on economic growth using trade integration index and financial integration index as proxies for trade integration and financial integration respectively. To overcome the potential problems such as cross-sectional dependence among countries, serial correlation of the error term, and more importantly, the problem of identification and endogenous regressors that characterise some panel data regression methods like the pool mean group (PMG), fixed effect (FE) and random effect (RE), this study employed an instrumental variable (IV) regression based on the dynamic panel data (DPD) method, within the framework of the generalised method of moments (GMMSYS).The results show that aggregate regional integration in five dimensions (composite regional integration index), though has a positive relationship with economic growth, does not exert a significant impact on economic growth of ECOWAS members. Interestingly, trade integration and financial integration, both have a significant positive impact on economic growth of ECOWAS members, meaning that ECOWAS members are better-off with integration in trade and finance.

Adekunle, Onanuga and Odusanya (2021) examined the benefits of financial integrations in four of Africa regional trade blocs: COMESA, ECCAS, CEN-SAD and ECOWAS. We regress de-jure and de-facto indices of financial integration on growth outcome using the dynamic system generalised method of moment and pooled mean group estimation procedure. Findings revealed that total foreign asset and liabilities and foreign liabilities as a percentage of GDP are inversely related to growth outcomes in COMESA. In CEN-SAD, they found that foreign liabilities as a percentage of GDP hurts growth. In ECCAS, growth-financial integration relationship showed that foreign liabilities as a percentage of GDP inhibit real per capita GDP in the long run. In ECOWAS,

foreign liabilities as a percentage of GDP are inversely related to real per capita GDP in the long run.

Ehiedu, Odita and Kifordu (2020) examined empirically financial integration impact on Nigeria economic growth volatility. Three research hypotheses were stated from which an empirical model was formulated to link the influence of financial integration using economic output as explained variable and degree of openness, foreign private investment, exchange rate foreign debt as explanatory variables over the period of 1987– 2019. Multiple regression analysis was employed to estimate the relevant variables. In addition, they tested for stationarity and determined long run association between the variables of the models. The work also reconciled the disequilibrium which exists in the short and long run relationships of the variables in the models. The result showed a non-significant degree of openness but positively associated with gross domestic product. Foreign private investment was strongly and statistically significant to gross domestic product.

Abdullahi, Gimi, and Elijah (2019) investigated the impact of banking sector integration on economic growth in a panel of 108 developed and developing countries. Using annual data from 2000-2015 and employing the panel quantile regression method, the results show that the banking sector integration on economic growth varies across income level. Banking sector integration is reported to have affected growth positively at very low income level but it has negative impact for middle income level. Banking integration has no impact on growth at upper low income and high income levels.

Ezeaku, Anyalechi, Onwumere and Okereke (2019) evaluated determinants of international financial integration (IFI) and how they impact on the Nigerian economy over the period 1986– 2015. The error correction model was employed to regress the key determinants of IFI against GDP growth, and to ascertain the speed of adjustment. The results showed that financial market capitalisation and trade openness both have negative and insignificant influence on economic growth. The real effective exchange rate has positive but insignificant effect on economic growth while inflation exerted positive and significant impact on the economy. The Engel and Granger cointegration test result shows evidence of long-run association between economic growth and the independent variables. The dynamic estimate provided evidence of long-

run causality running from IFI determinants to economic growth. The coefficient of the error correction term indicates that the system corrects disequilibrium in the previous period at the speed of 81.43% annually to get at the steady state.

South Africa

Barro and Bassolet (2023) examines the effects of international financial integration on economic growth in seven West African Economic and Monetary Union's countries (WAEMU)1, over the period 1980 - 2019. Methodologically, the study applies heterogeneous panel techniques taking into account inter-individual dependence (MG, CCEMG and AMG). The results show that the stock of external debt and the opening of the capital account negatively affect long-term economic growth in the WAEMU region. The country analysis confirms the panel results for South Africa, Benin, Burkina Faso and Mali. Sectoral misallocation of external capital could be a plausible explanation.

Monareng (2022) determined the effects of the efficiency of the financial sector on economic growth in South Africa through an augmented Solow-Swan growth model using annual data from 1975 to 2020. The financial sector development is characterised by the role of the banking sector in enhancing growth through the productive use of a country's stock of financial capital. In this study, autoregressive distributed lag (ARDL) and instrumental variable models are used to estimate the derived augmented financial sector induced growth regressions. The ARDL method observes a positive but insignificant effect of financial sector development on economic growth. However, using internal instruments, instrumental variable regression provides joint endogeneity between regressors. The estimation results showed that financial sector development has a significant positive effect on economic growth, hence, increased efficiency in the banking sector can lead to enhanced growth. In addition, the results observe that the quality of institutions is crucial to the relationship between financial sector and economic growth.

Onah (2022) examined the impact of financial integration on economic growth in Southern African Development Community (SADC) and Economic Community of West African States (ECOWAS) countries over the period 1993–2013. Using the Panel ARDL PMG Model developed by Pesaran and Shin, other control variables (trade openness, inflation, government expenditure, and institutional

quality) were captured in the model. It was found that there is a significant and positive impact of financial integration on economic growth in the ECOWAS region in the long run. Whereas, even after controlling for necessary variables, financial integration exacerbates negative and insignificant effects in determining economic growth in the SADC region, both in the short run and long run. The insignificant and negative impact of financial integration on the region's economic growth was attributed to several possible factors, including the low level of financial development in the SADC region, which is unconnected with the poor level of governance, unstable and fragile financial stability, or low creditworthiness, that are prevalent in developing countries like those in SADC countries.

Mesagan (2021) evaluated the impact of financial integration on environmental pollution through foreign direct investment and output growth channels between 1980 and 2017. The study employs panel cointegration techniques using the fully modified ordinary least squares to estimate the country-specific and panel data from the five largest African nations. The findings show that financial integration positively impacts pollution in Nigeria, Algeria, Egypt, Angola, and in the panel, while it reduces pollution in South Africa. Also, financial integration lowers pollution through the foreign investment channel in the panel, Nigeria, Egypt, Angola and Algeria, but not in South Africa. Lastly, financial integration increases pollution through the output growth channel in the panel, Algeria, South Africa, Nigeria and Angola, but not in Egypt.

Paramaiah, Sello, Kumar and Machema (2021) explored the relationship between financial integration and economic growth in the Southern African Development Community (SADC). The nexus between financial integration and economic growth works through several channels such as enabling the flow of funds across countries. This flow of funds augments the pool of available domestic savings. The financial integration is able to spur economic growth, therefore, several countries have adopted financial integration agendas in order to boost growth. The empirical evidence on the effects of financial integration on economic growth is not conclusive. In this paper, a modest attempt has been made to investigate relationship financial integration and economic growth in the SADC region. This study employed the Chin-Ito index and the ratio of Foreign Direct Investment (FDI) to Gross Domestic Product

(GDP) to measure financial integration in the SADC region. The results reveal that there is a positive and statistically significant relationship between financial integration and economic growth in the SADC countries.

Beer, Ajuwon and Ojo (2020) examined the impact of capital inflows on domestic investment in the South African economy from 1985 to 2018. The study employed an Auto-Regressive Distributive Lag (ARDL) to obtain a robust result. The causality test found a one-way causality between domestic investment and portfolio investment with the causation stirring from domestic investment to foreign portfolio investment (FPI). This was also detected between domestic investment and economic growth. However, a bidirectional bond was observed between economic growth and foreign direct investment (FDI). The study found out that foreign capital inflow does not harm domestic investment in South African but stimulates it. Also, the study found out that economic growth (GDP), FDI and FPI significantly contributed to domestic investment.

Ibrahim (2020) examined the threshold effects of trade and financial integration on structural transformation in 32 African countries using a sample splitting estimation approach over the period 1985 to 2015. Our evidence suggests that, trade and financial integration effects do not evolve independently but complement each other in explaining cross-country differences in countries' level of structural transformation in Africa. However, the transformation-inducing effect of trade (financial) openness slows as financial (trade) integration progresses above the estimated optimal threshold levels.

Tembo and Makina (2020) assessed the impact of regional financial integration on banking sector development with specific focus on the impact of the SADC protocols on trade and finance and investment. A total of 14 countries made up the study sample and the panel cointegration fully modified ordinary least squares model alongside the GMM were used to estimate the nature of impact. Study findings showed regional integration through the protocol on trade had a positive and significant impact on size and efficiency of the banking sector using the FMOLS estimator. GMM estimations for the same variables were largely insignificant. Study findings also pointed to an improvement in global financial integration indicators as a result of the trade protocol, which in turn also contributed to an increase in the level of monetization of regional

financial markets. The finance and investment protocol had a positive and significant impact on private sector credit for both estimators and largely insignificant relationship with broad money. The impact of the finance protocol was not significant enough to be detected in global integration measures, implying their implementation may not have significantly improved global integration for SADC countries. The study also uncovered the complimentary relationship between institutional quality and social capital in the financial development process.

Banyen (2019) employed several panel data estimation methods to test these hypotheses using data from 405 banks across 47 African countries over the period 2007-2014 and compares the results for five sub-regional markets. The findings reveal that deeper financial integration has significant positive effects on overall bank profitability in Africa. Specifically, the study finds that financial freedom and cross-border banking enhance bank profitability in Africa and across the regional economic communities. The study finds that higher operating cost in the 2007-2014 period reduced bank return on assets but increased overall bank profitability. The study also finds a direct negative relationship between deeper financial integration and competition changes on bank stability. The study further showed that financial integration enhances competition, efficiency and bank lending behavior in Africa, resulting in banking convergence in Africa and the regional economic communities.

Ekpo and Chuku (2017) using time-varying parameters from a state-space model, assess the degree and timing of financial integration in Africa and found results that indicate contemporary patterns toward increasing financial globalisation relative to regionalisation. Second, using carefully specified parametric and nonparametric regression analyses, we found that higher levels of financial integration are associated with higher levels of growth and investment, but not necessarily total factor productivity. The relationships become even clearer when they zoom in on the non-parametric iso-growth surface plots, which showed that there is a threshold level of financial development that is consistent with growth in a financially segmented economy.

Khetsi and Mongale (2015) analyzed the impact of financial integration through the capital markets on economic growth in South Africa from 1971-2013. The study employed an Auto-Regressive Distributive Lag (ARDL)

technique. The results indicated that there is a positive relationship between economic growth and financial integration through the capital markets in South Africa.

Egbetunde and Akinlo (2014) assessed the impact of financial integration on economic growth in sub-Saharan Africa (SSA). Using a dynamic panel Generalised Method of Moment (GMM), the paper finds that financial integration had a negative and significant impact on economic growth in SSA. The results also reveal that institutional quality had a negative and significant impact on economic growth in SSA. The results of the paper further showed that financial development had negative impact on economic growth in the region. The paper concluded that the economies did not reap the benefits of financial integration.

3. METHODOLOGY

This study used an "*ex-post facto"* research design to carry out a research on the effect of financial integration on economic development in Nigeria and South Africa from 1986 to 2023. The data were diligently sourced from the World Bank development indicators as available in https://data.worldbank.org. The dependent variable is economic development measured by Human Development Index (HDI). The independent variables are Money Supply to Real Gross Domestic Product (MSRGDP), Private Sector Credit to Real Gross Domestic Product (PSCRGDP), and Foreign Direct Investment to Real Gross Domestic Product (FDIRGDP). The model was estimated using the Auto-Regressive Distributive Lag (ARDL) technique of data analysis as against the traditional Ordinary Least Square (OLS). This ARDL was structured in such a way to accommodate dynamism and shocks that are associated with long term time series data

This study adapted and modified the model of Ehiedu, Odita and Kifordu (2020) whose study focused on financial integration and growth volatility nexus in Nigeria. The original model of Ehiedu, Odita and Kifordu (2020) is stated as:

$$GDP = f(DOP, FPI, EXR, FD) \quad 1$$

Where:
GDP = Gross domestic product
DOP = Degree of openness
FPI = Foreign private investment
EXR = Exchange rate
FD = Foreign debt

Owing to the fact that this study has one dependent variable to measure development in Nigeria and South Africa, the model of Ehiedu, Odita and Kifordu (2020) is functionally modified as follows:

$$HDI = f(MSRGDP, PSCRGDP, FDIRGDP) \quad 2$$

Econometrically transforming Equ. 2 will result in the following:

$$LogHDI_t = \beta_0 + \beta_1 LogMSRGDP_t + \beta_2 LogPSCRGDP_t + \beta_3 LogFDIRGDP_t + \varepsilon_t \quad 3$$

Where:
HDI = Liquidity ratio
MSRGDP = Cash reserve ratio
PSCRGDP = Open market operation
FDIRGDP = Loan to deposit ratio of rural bank branches
β_0 = a constant term
β_1- β_3 = is the coefficient of the independent variables in the equations
$\boldsymbol{\varepsilon}$ = the error term
t = the time trend

4. RESULTS AND DISCUSSION OF FINDINGS

Descriptive Statistics of Data

The descriptive statistics give an insight to the mean, median, maximum, standard deviation, skewness, kurtosis, Jarque-Bera, p-value and number of observations of the data. The data descriptive statistics are shown in Table 4.1, human development index, money supply to real gross domestic product, private sector credit to real gross domestic product, and foreign direct investment to real gross domestic product have the mean of 0.526842, 17.68952, 9.997876, and 1.331338 respectively for Nigeria, while that of South shows 0.667368, 21.26249, 106.8186, and 1.242040 accordingly. The median for the variables are 0.52500, 15.4398, 8.68557, and 1.17790 for Nigeria; 0.65000, 20.0449, 110.887, and 0.80593 for South Africa accordingly for human development index, money supply to real gross domestic product, private sector credit to real gross domestic product, and foreign direct investment to real gross domestic product. The maximum and minimum value for human development index are 0.670000 and 0.450000; 27.37879 and 9.063329 for money supply to real gross domestic product; 19.62560 and 4.957522 for private sector credit to real gross domestic product; and 4.282088 and -0.039522 for foreign direct investment to real gross domestic product. The maximum and minimum value for human development index South Africa are 0.740000 and 0.620000;

32.85134 and 13.56341 for money supply to real gross domestic product; 142.4220 and 64.85738 for private sector credit to real gross domestic product; and 9.677949 and -0.198546 for foreign direct investment to real gross domestic product. The standard deviation were observed to be 0.048273, 6.220933, 3.543516, and 0.951670 sequentially for human development index, money supply to real gross domestic product, private sector credit to real gross domestic product, and foreign direct investment to real gross domestic product in Nigeria, while for South Africa, is 0.036958, 5.144561, 21.27667, and 1.785003 respectively for human development index, money supply to real gross domestic product, private sector credit to real gross domestic product, and foreign direct investment to real gross domestic product. All the variables were positively skewed to normality for Nigeria, whereas in South Africa, private sector credit to real gross domestic product is negatively skewed to normality. From the Kurtosis coefficients, all the variables were leptokurtic in nature with the exception of money supply to real gross domestic product in the context of Nigeria, while for South Africa, human development index, money supply to real gross domestic product, private sector credit to real gross domestic product are not leptokurtic in nature. The Jarque-Bera statistic p-values for all the variables disclose the normality of human development index, money supply to real gross domestic product, private sector credit to real gross domestic product, and foreign direct investment to real gross domestic product at a significant level of 5% for Nigeria and South Africa. This entails that the data were normally distributed and inference from model estimations are reliable in statistical term of reference.

Table 4.1: Descriptive Statistics of Data

	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis	Jarque-Bera	P-value	Obs
					Nigeria					
HDI	0.526842	0.52500	0.670000	0.450000	0.048273	0.855125	3.985719	6.169614	0.04574	38
MSRGDP	17.68952	15.4398	27.37879	9.063329	6.220933	0.180287	1.338288	7.577891	0.03137	38
PSCRGDP	9.997876	8.68557	19.62560	4.957522	3.543516	0.769381	3.228724	8.831829	0.02721	38
FDIRGDP	1.331338	1.17790	4.282088	-0.039522	0.951670	0.804018	3.623062	9.708817	0.04495	38
					South Africa					
	Mean	**Median**	**Maximum**	**Minimum**	**Std. Dev.**	**Skewness**	**Kurtosis**	**Jarque-Bera**	**P-value**	**Obs**
HDI	0.667368	0.65000	0.740000	0.620000	0.036958	0.589083	1.767694	50.60220	0.00015	38
MSRGDP	21.26249	20.0449	32.85134	13.56341	5.144561	0.742134	2.619956	60.71685	0.00091	38
PSCRGDP	106.8186	110.887	142.4220	64.85738	21.27667	-0.595061	2.428960	79.75892	0.00571	38
FDIRGDP	1.242040	0.80593	9.677949	-0.198546	1.785003	3.177402	14.76260	283.0086	0.00000	38

Source: Output data from E-views 12.0

Tests for Stationarity of Data

Data are expected to be stationary for inference made from estimation to be robust and statistically reliable. Most time series data are encumbered by stationarity defect which lead to spurious regression result. To avoid this and ensure that the data are cleaned of stationarity problem, the data were subjected to stationarity test through Augmented Dickey-Fuller (ADF). The ADF results for the variables at two set estimations: constant; and trend and constant; and are summarized in Tables 4.2 and 4.3, However, by virtue of the result in Table 4.3, all the variables became stationary at the same level at the first difference estimation that is, the data are integrated of order one.

Table 4.2: ADF Test Result at Level

		Nigeria	
Variables	**Constant**	**Trend and Constant**	**Remark**
HDI	-2.986705 (0.04)**	-3.051053 (0.13)	Stationary
MSRGDP	-0.936745 (0.76)	-3.068313 (0.12)	Not Stationary
PSCRGDP	-2.375549 (0.15)	-3.996309 (0.02)**	Stationary
FDIRGDP	-3.871595 (0.00)*	-4.221699 (0.01)*	Not Stationary
		South Africa	
HDI	-0.389897 (0.90)	-1.394232 (0.84)	Not Stationary
MSRGDP	-1.740601 (0.40)	-2.375293 (0.38)	Not Stationary
PSCRGDP	-1.986799 (0.29)	-0.826917 (0.95)	Not Stationary
FDIRGDP	-5.164787 (0.01)*	-5.999186 (0.00)*	Stationary

Source: Output data from E-views 12.0

Note: The optimal lag for ADF test is selected based on the Akaike Info Criteria (AIC), p-values are in parentheses where (*) and (**) denote significance at 1% and 5% respectively.

Table 4.3: ADF Test Result at First Difference

		Nigeria	
Variables	**Constant**	**Trend and Constant**	**Remark**
HDI	-7.555577 (0.00)*	-7.443599 (0.00)*	Stationary
MSRGDP	-4.960965 (0.00)*	-4.892155 (0.00)*	Stationary
PSCRGDP	-5.745166 (0.00)*	-5.665730 (0.00)*	Stationary
FDIRGDP	-9.425673 (0.00)*	-9.359770 (0.00)*	Stationary
		South Africa	
HDI	-4.856094 (0.00)*	-4.806019 (0.00)*	Stationary
MSRGDP	-7.771726 (0.00)*	-6.659242 (0.00)*	Stationary
PSCRGDP	-5.010917 (0.00)*	-5.546420 (0.00)*	Stationary
FDIRGDP	-6.091232 (0.00)*	-5.990464 (0.00)*	Stationary

Source: Output data from E-views 12.0

Note: The optimal lag for ADF test is selected based on the Akaike Info Criteria (AIC), p-values are in parentheses where (*) and (**) denote significance at 1% and 5% respectively.

Co-integration ARDL Result

The unit root test through ADF proved that the variables are stationary and have no stationarity defect that may encumber the result of the analysis. The ARDL test of the long run relationship between financial

integration and economic development are detailed in Tables 4.4. The result reveals that there is no long-run relationship between financial integration variables and economic development measured by human development index. This assertion is based on the fact that the value of the f-statistic value of 3.118714 and 0.653388 for Nigeria and South Africa is lower than the upper and lower bound test of 4.35 and 3.23 respectively at a 5% significance level.

Table 4.4: Bound Test for HDI → MSRGDP + PSCRGDP + FDIRGDP

T-Test	5% Critical Value Bound		Remark
F-Statistic	**Lower Bound**	**Upper Bound**	
	Nigeria		
3.118714	3.23	4.35	Null Hypothesis Accepted
	South Africa		
0.653388	3.23	4.35	Null Hypothesis Accepted

Source: Output data from E-views 10.0

ARDL Short Run Relationship

Human Development Index and Financial Integration Variables

The result in Table 4.5 shows money supply to real gross domestic product has insignificant positive relationship with human development index in Nigeria and South Africa; private sector credit to real gross domestic product has negative insignificant relationship with human development index in Nigeria, while there exist a positive insignificant relationship between private sector credit and human development index in South Africa; foreign direct investment to real gross domestic product has negative relationship with human development index in Nigeria and South Africa. A unit increase in money supply to real gross domestic product lead to a insignificant 0.07% and 990% appreciation in human development index in Nigeria and South Africa respectively, whereas a unit rise in private sector credit to real gross domestic product decreases human development index in Nigeria insignificantly by 0.2% but for South Africa, it insignificantly appreciate by 0.016%. On the other hand, a percentage increase in foreign direct investment to real gross domestic product results in 0.3% and 0.1% reduction in human development index in Nigeria and South Africa respectively. When money supply to real gross domestic product, private sector credit to real gross domestic product, and foreign direct investment to real gross domestic product are held constant,

human development index would amount to a 29.88% and 0.081% respectively for Nigeria and South Africa. The result in Table 4.5 shows the adjusted R-square value to be 0.298840 and 0.952437, an insinuation that 29.88% and 95.24% changes in human development index in Nigeria and South Africa were respectively as a result of joint variation in financial integration variables: money supply to real gross domestic product, private sector credit to real gross domestic product, and foreign direct investment to real gross domestic product. The F-statistic which determines if the changes in the dependent variable is significant or not, showcases that the aforementioned magnitude of changes in human development index was significantly (0.003643 < 0.05 for Nigeria; 0.00000 < 0.05 for South Africa) explained by financial integration variables for both Nigeria and South Africa. The traditional Durbin Watson test of autocorrelation shows a value of 2.12 and 1.92 for Nigeria and South Africa respectively. This implies that there is no autocorrelation in the model of the study.

Table 4.5: ARDL Result of Human Development Index and Financial Integration

Variables	**Nigeria**		**South Africa**	
	Coefficient	Prob.	Coefficient	Prob.
HDI(-1)	0.526074	0.0017	0.974001	0.0000
MSRGDP	0.000717	0.7348	9.91E-05	0.7987
PSCRGDP	-0.002879	0.4406	0.000166	0.0640
FDIRGDP	-0.003291	0.6813	-0.001262	0.1173
C	0.270977	0.0065	0.000809	0.9750
R-squared	0.376746		0.957722	
Adjusted R-squared	0.298840		0.952437	
S.E. of regression	0.040910		0.008109	
Sum squared resid	0.053556		0.002104	
Log likelihood	68.45125		128.3330	
F-statistic	4.835864		181.2229	
Prob(F-statistic)	0.003643		0.000000	
Durbin-Watson stat	2.129132		1.920310	

Source: Computer output data using E-views 12.0

Granger Causality Effect Estimation

To determine the effect of financial integration variables: money supply to real gross domestic product, private sector credit to real gross domestic product, and foreign direct investment to real gross domestic product (in line with the specific objectives and model estimated) on human development index in Nigeria and South Africa, the granger causality analysis was performed. The regression output in Table 4.6 reveals the following:

1. Money supply to real gross domestic product has no significant effect on human development index due to the fact that causality does not run from money supply to real gross domestic product to human development index at a significant level of 5% in Nigeria and South Africa. Nevertheless, causality runs from human development index to money supply to real gross domestic product at a significant level of 5% in South Africa but no evidence of causality from human development index to money supply to real gross domestic product at a significant level of 5% in Nigeria. This implies that human development index has significant effect on money supply to real gross domestic product in South Africa but has no significant effect on money supply to real gross domestic product in Nigeria.

2. Private sector credit to real gross domestic product has no significant effect on human development index in Nigeria and South Africa owing to that fact that causality does not from private sector credit to real gross domestic product to human development index at a significant level of 5%.

3. Foreign direct investment to real gross domestic product has no significant effect on human development index in Nigeria and South Africa. This is hinged the supportive of the granger causality test that there is no unidirectional or bidirectional causal relationship between foreign direct investment to real gross domestic product and human development index at a significant level of 5%.

Table 4.6: HDI → MSRGDP + PSCRGDP + FDIRGDP

Null Hypothesis	Obs	F-Statistic	Prob.	Remarks
Nigeria				
MSRGDP does not Granger Cause HDI	37	0.50066	0.4840	No Causality
HDI does not Granger Cause MSRGDP		0.17293	0.6801	No Causality
PSCRGDP does not Granger Cause HDI	37	2.00019	0.1664	No Causality
HDI does not Granger Cause PSCRGDP		0.59569	0.4456	No Causality
HDI does not Granger Cause FDIRGDP	37	1.21873	0.2774	No Causality
FDIRGDP does not Granger Cause HDI		1.32129	0.2584	No Causality
South Africa				
MSRGDP does not Granger Cause HDI	37	0.82277	0.3708	No Causality
HDI does not Granger Cause MSRGDP		4.19469	0.0483	Causality
PSCRGDP does not Granger Cause HDI	37	2.25260	0.1426	No Causality
HDI does not Granger Cause PSCRGDP		2.34351	0.1351	No Causality
HDI does not Granger Cause FDIRGDP	37	0.58174	0.1409	No Causality
FDIRGDP does not Granger Cause HDI		1.57451	0.2181	No Causality

Source: E-views 12.0 version data output

Discussion of Findings

This study examined the effect of financial integration on economic development with the aim of evaluating the effect of money supply to real gross domestic product, private sector credit to real gross domestic product, and foreign direct investment to real gross domestic product on human development index in Nigeria and South Africa from 1986 to 2023. Firstly, the study found that there is no long run relationship between financial integration variables (money supply to real gross domestic product, private sector credit to real gross domestic product, and foreign direct investment to real gross domestic product) and human development index in Nigeria and South Africa. There are few studies on financial integration and economic development in Nigeria and South Africa, aside the comparative analysis of the two biggest economies in Africa. On the nature of short-run relationship, money supply to real gross domestic product has insignificant positive relationship with human development index in Nigeria and South Africa; private sector credit to real gross domestic product has negative insignificant relationship with human development index in Nigeria, while there exist a positive insignificant relationship between private sector credit and human development index in South Africa; foreign direct investment to real gross domestic product has negative relationship with human development index in Nigeria and South Africa. On the effect of financial integration on economic development measured by human development index, this study revealed that financial integration variables: money supply to real gross domestic product, private sector credit to real gross domestic product, and foreign direct investment to real gross domestic product have no significant effect on economic development in Nigeria and South Africa. This refutes the earlier findings of Ifurueze (2023), Justice and Tamuno (2023), and Arazu, Mobosi, and Mba (2022) that financial integration has significant effect on economic development in Nigeria, while it supports the result of Ehiedu, Odita and Kifordu (2020) on the insignificant effect of financial integration on economic growth in Nigeria. On the other hand for South Africa, the non-significant effect of financial integration on economic development in South Africa is in unison with Monareng (2022) but disagrees with Paramaiah, Sello, Kumar and Machema (2021) and Khetsi and Mongale (2015) on the significant effect of financial integration on economic development in South Africa.

5 CONCLUSION AND POLICY IMPLICATIONS

This study examined the effect of financial integration on economic development in Nigeria and South Africa. The study identified that financial integration variables of money supply to real gross domestic product, private sector credit to real gross domestic product, and foreign direct investment to real gross domestic product have no significant effect on human development index in Nigeria and South Africa. This study therefore, concluded that financial integration has no significant effect on economic development in Nigeria and South Africa. The monetary authorities of Nigeria and South Africa through the Central Banks are advised to reduce interest rates and ease access to credit as they are the two ways that can increase money supply which spur economic growth. When firms and individuals have improved access to credit, they can invest in productive projects, resulting to job creation, higher earnings, and general growth in the economy, which directly influences the income component of the human development index. Governments should establish favorable conditions for the expansion of the private sector, such as improved infrastructure, dependable regulations, and easier access to capital for small and medium-sized businesses (SMEs). Incentives like tax breaks or subsidies for sectors that employ large numbers of people (e.g., manufacturing, services) can further boost job creation resulting in economic growth which is a key driver of human development index improvement, because it directly influences the income per capita which is the core components of human development index. It is recommended that the governments of South Africa and Nigeria should loosen their restrictions on international trade. This is founded on the idea that foreign direct investment facilitates the creation of new companies, the growth of current industries, and the construction of new infrastructure. These investments provide jobs that improve household incomes and contribute to the reduction of poverty, thereby enhancing economic security and quality of life which constitutes human development index.

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