FUW-IJMSS
ISSN: 2635-3539 (Print)
2384-6224 (online)
Open Access

IMPACT OF FINANCIAL INCLUSION ON FOREIGN DIRECT INVESTMENT IN NIGERIA

[1]Wando Nyajon
Department of Banking and Finance, Federal University Wukari, Taraba State, Nigeria.
Nyajonwando57@gmail.com
08067294339

[2]Dr. Mohammed Bello Abubakar
Department of Banking and Finance, Modibbo Adama University Yola, Adamawa State, Nigeria.
harardoabu@mau.edu.ng
08065669031

[3]Dr. Dahiru Mohammed Yole.
Department of Banking and Finance, Modibbo Adama University Yola, Adamawa State, Nigeria.
dahiruyole@mau.edu.ng
08036702429

ABSTRACT

This study investigated the impact of financial inclusion on foreign direct investment in Nigeria for the period 1986-2023. Specifically, it investigated the impact of financial institution access index (FIAI) and financial market access index (FMAI) on foreign direct investment (FDI) for the period under study. Employing the autoregressive distributed lag model (ARDL), the findings of the study revealed that FIAI has a negative and significant impact on FDI in Nigeria, while FMAI has a positive but nonsignificant impact on FDI in Nigeria. The study, therefore, concludes that not all forms of financial development contribute equally to attracting FDI in Nigeria. While broad-based financial institution access index (FIAI) is crucial for domestic economic development and poverty reduction, its current impact, as measured by this model, appears to have an inverse relationship with FDI inflows. It therefore recommends that Nigeria needs a differentiated policy approach, simultaneously promoting financial inclusion for domestic growth and poverty reduction while strategically prioritising the development of deeper, more liquid, and transparent financial markets to attract essential FDI. The recommendations emphasise further research into the FIAI paradox, strategic capital mobilisation, market infrastructure development, and a coherent dual-track policy for both financial inclusion and FDI promotion.

Keywords: Financial Inclusion, Financial Institution Access Index, Financial Market Access Index and Foreign Direct Investment.

1. INTRODUCTION

Foreign Direct Investment (FDI) has long been recognised as a critical catalyst for entrepreneurial growth (Adukwu & Dibal, 2024), stock market development (Haruna et al., 2023), financial institutions development (Agabi & Dibal, 2024) and economic growth and development, particularly in emerging economies (Borensztein et al., 1998; De Mello, 1997). For Nigeria, attracting and retaining substantial FDI inflows is paramount for bridging infrastructure gaps, creating employment opportunities, transferring technology, and fostering industrial diversification (Asongu & Nwachukwu, 2017; Olofin et al., 2014). However, despite considerable efforts to improve the investment climate, the country continues to face challenges in fully harnessing its FDI potential. These challenges often stem from a complex interplay of factors, including institutional weaknesses, political

instability, inadequate infrastructure, and crucially, underdeveloped financial systems (UNCTAD, 2023).

The financial system development promotes effective and efficient financial intermediation (Dibal et al., 2021), necessary for the overall development of the various sectors of the economy. A key aspect of the financial system development is financial inclusion, which refers to the accessibility and usage of affordable, useful, and responsible financial products and services for individuals and businesses (World Bank, 2018). Traditionally, the discourse around financial inclusion has focused on its direct impact on poverty reduction, income equality, and small and medium-sized enterprise (SME) development (Dupas & Robinson, 2013; Sarma & Pais, 2011). However, a growing body of literature suggests a more subtle and indirect relationship between financial inclusion and broader macroeconomic indicators, including FDI.

In Nigeria, where a significant portion of the population remains unbanked or underbanked, the financial landscape is often characterised by a dominance of informal financial mechanisms and limited access to formal credit, savings, and insurance products (AfDB, 2020; EFINA, 2021). This lack of comprehensive financial access can create significant bottlenecks for both domestic firms seeking to expand and foreign investors considering entry. For instance, limited access to formal financial services for local businesses can hinder their ability to scale up, form partnerships with foreign entities, or participate effectively in global value chains (GVCs), thereby reducing the attractiveness of the host country for FDI (G20 Global Partnership for Financial Inclusion, 2016).

Furthermore, a financially excluded population may represent a smaller and less robust consumer market, potentially diminishing the market-seeking motives of some FDI (Narula & Dunning, 2000). Conversely, a well-developed and inclusive financial system can facilitate cross-border transactions, provide reliable payment systems, offer hedging instruments for foreign exchange risks, and enable more efficient capital allocation, all of which are critical considerations for foreign investors (IMF, 2018; Lensink & White, 2001). Improved financial inclusion can also foster a more stable macroeconomic environment by promoting savings and investment, which in turn can signal a more attractive and less risky investment destination (Claessens & Leaven, 2003).

Despite the theoretical plausibility of a link between financial inclusion and FDI, empirical evidence, particularly within the Nigerian context, remains relatively sparse and inconclusive. While some studies have explored the impact of financial development on FDI in Africa (Owusu-Nantwi & Kuwornu, 2018; Desbordes & Wei, 2017; Pham et al., 2022), fewer have specifically disaggregated the role of financial inclusion as a distinct driver. Given the unique socio-economic and institutional realities of Nigeria, a dedicated investigation into this relationship is warranted. Understanding the mechanisms through which financial inclusion influences FDI in this country can provide crucial insights for policymakers aiming to formulate effective strategies for attracting sustainable foreign investment and accelerating economic transformation. This study, therefore, seeks to bridge this research gap by empirically examining the impact of financial inclusion on foreign direct investment in Nigeria. Particularly, the study sought to investigate the impact of financial institution access index and financial market access index on foreign direct investment in Nigeria for the period 1986-2023.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

This study draws upon established theories to explain the connection between financial inclusion and foreign direct investment. Specifically, it reviews the conditional impact theory and the financial deepening theory.

2.1.1 Conditional Impact Theory

This was proposed by economist Matthias Eberhard in 2012, who argues that the positive effects of foreign direct investment on a host economy (including its ability to attract more FDI) are not automatic but are *conditional* upon certain pre-existing conditions or thresholds being met in the host country. Financial development and, by extension, financial inclusion are often identified as critical thresholds. Foreign direct investment spillovers and benefits are maximised when the host country has a certain level of absorptive capacity. This capacity is enhanced by factors such as human capital, technological capabilities, and a well-functioning financial sector. A more sophisticated and widespread financial system can improve the host country's capacity to absorb and benefit from FDI. For example, local firms with access to credit can better adopt new technologies brought by MNEs or participate in their supply chains. Multinational enterprises often seek to establish backwards and forward linkages with local firms. A more inclusive financial sector enables local firms to access financing for growth, meet quality

standards, and integrate into global value chains, making them more viable partners for MNEs. Financial inclusion, through improved credit information systems and financial literacy, can reduce information asymmetry in financial markets. This can make domestic firms more transparent and creditworthy, making them more attractive for joint ventures or partnerships with foreign investors.

2.1.2 Financial Development Theory

The Theory of Financial Development and FDI Attraction posits that a sophisticated, deep, and efficient financial sector in a host country is a significant determinant of foreign direct investment (FDI) inflows. This theory argues that a well-developed financial system creates a more attractive environment for foreign investors by providing enhanced access to capital, efficient financial services (like payment systems and risk management), greater information availability and transparency, improved risk management tools, and a positive signalling effect regarding the host country's economic health and institutional quality. While not attributable to a single author, proponents include early scholars like Goldsmith (1969), McKinnon (1973), and Shaw (1973) who highlighted the importance of financial development for economic activity, as well as researchers specifically linking financial development to FDI attraction, such as Claessens et al. (2001), Agarwal and Mohtadi (2004), and Jeffus (2004), and those emphasizing signaling and information effects (Morck et al., 2000). Empirical evidence from contemporary studies also supports this positive relationship.

2.2.1 Financial Inclusion and Foreign Direct Investment

The extant literature on financial inclusion increasingly recognises its critical role in fostering economic development. A growing body of empirical studies in recent years has sought to clarify the complex relationship between financial inclusion and foreign direct investment (FDI), revealing a weighty and often country-specific dynamic. While theoretical arguments reviewed suggested a positive nexus, the empirical evidence presented a multidimensional picture, largely leaning towards a beneficial impact, especially in developing economies.

These recent studies generally highlighted that enhanced financial inclusion can positively influence FDI inflows. For instance, studies by Chen et al. (2022) in Sub-Saharan African (SSA) countries for the period 2004-2018 found that financial development and financial inclusion positively affected FDI. Paulin et al. (2025) investigated the effect of financial inclusion on foreign direct investment in thirty-two (32) Sub-Saharan African countries over the period 2005-2020. Using Generalised Method of Moments (GMMs) and the Panel-Corrected Standard Error (PCSE) estimator for the robustness test, it was revealed that financial inclusion has a positive and significant effect on foreign direct investment in the said countries. This suggests that improved access to and usage of financial services, such as bank accounts and credit, can create a more conducive environment for foreign investors by facilitating business operations, reducing transaction costs, and improving the efficiency of capital allocation within the host economy. Andiansyah (2021) investigated the influence of financial inclusion and several macroeconomic variables on Foreign Direct Investment (FDI) flows within eight member states of the Organisation of Islamic Cooperation (OIC) from 2012 to 2018. The study employed a fixed effects model (FEM) for panel data analysis, a method chosen for its ability to accurately assess the relationship between independent and dependent variables. The findings revealed that, individually, only bank branch availability (measured as the number of bank branches per 100,000 adults) had a significant positive impact on attracting FDI to OIC countries. Regarding macroeconomic factors, the exchange rate demonstrated a significant negative correlation with FDI, meaning a weaker exchange rate made OIC countries less attractive to foreign investors. Conversely, both interest rates and economic growth showed a significant positive relationship with FDI, indicating that higher interest rates and stronger economic growth were more likely to draw foreign capital. Manocha (2024) investigated the relationship between financial inclusion and financial stability in India from 2001 to 2020, employing an Autoregressive Distributed Lag (ARDL) framework. The study also explored the connection between financial stability and Foreign Direct Investment (FDI) within the Indian context. The findings suggest that India's ongoing efforts to enhance financial inclusion are likely to increase financial penetration, thereby strengthening financial stability. Furthermore, the study revealed a positive causal link between financial stability and FDI in the long run. This implies that a more stable financial system in India is conducive to attracting greater foreign direct investment over time. Similarly, a study focusing on MENA countries from 2003-2022 revealed a robust positive correlation between financial inclusion and FDI inflows, emphasising the pivotal role of inclusive financial systems in attracting foreign investment (Business Perspectives, 2024).

However, some studies present more complex or conditional findings. For example, while a general positive effect is often observed, the strength of this relationship can vary depending on the income level of the host country. Chen et al. (2022) also noted that while financial inclusion positively and significantly influences FDI in high-income and East Asia and Pacific (EAP) countries, its correlation with FDI in low-income EAP countries was weaker. This suggests that other factors, such as institutional quality and overall financial market development, might play a more significant moderating role in less developed economies. Another perspective indicates that the impact of FDI on financial inclusion itself can vary across countries based on their existing level of financial inclusion, with some studies suggesting a positive association regardless of whether the level is low, medium, or high (Khan, 2023). For instance, Saied and Mohammed (2023) investigated the relationship between Foreign Direct Investment (FDI) and financial inclusion (FI), exploring both their direct connection and the moderating influence of financial development (FD). Their study utilised panel data from 48 lower-middle-income countries spanning the period of 2010 to 2020. The research revealed two key findings. Firstly, they found a direct and significant positive effect of FDI on financial inclusion when no moderating variables were considered. This suggests that increased foreign investment can, in itself, lead to greater access to financial services. Secondly, the study demonstrated that financial inclusion significantly impacts FDI when financial development acts as a moderator. This implies that while FDI can boost financial inclusion, the presence of a well-developed financial sector amplifies financial inclusion's ability to attract foreign investment.

While a significant body of research suggests a positive relationship between financial inclusion and foreign direct investment (FDI), studies indicating a negative or insignificant impact are notably rare. Our comprehensive review of empirical literature, encompassing both regional and country-specific analyses, reveals a significant research gap: there is little or no empirical study that has yet investigated the specific impact of financial inclusion on foreign direct investment within the Nigerian context using financial institution access index and financial market access index as proxies for financial inclusion. This crucial knowledge gap serves as the impetus for the present study, which aims to examine the impact of financial institution access index and financial market access index as proxies for financial inclusion against foreign direct investment in Nigeria for the period under study.

3. METHODOLOGY

3.1 Research Design

This study employs an **ex-post facto** and **analytical research design** to investigate the relationships between its variables. **Research design** broadly refers to the comprehensive strategy that unifies all elements of a study into a cohesive and logical framework. The **ex-post facto design** is characterised by the researcher's inability to manipulate pre-existing variables, as articulated by Onwumere (2021). This means the study examines relationships between variables that have already occurred, without direct intervention. It involves a rigorous evaluation of existing facts and information pertinent to the variables under investigation. This design was selected for its suitability for this type of research, allowing for the examination of past events.

3.2 Data and Measurement of Variables

The study analysed data spanning 36 years, from 1986 to 2023, a period selected due to the comprehensive availability of data for all variables under investigation. Foreign direct investment (FDI) served as the dependent variable. Financial inclusion, the independent variable, was operationalised through two proxies: the financial institution access index (FIAI) and the financial market access index (FMAI). To enhance the model's robustness, the exchange rate (EXCR) was included as a control variable. Table 1 below details the operationalisation and measurement of all variables.

Table 1: Operational Variables

Variables	Measurement	Symbol	Source
Foreign Direct Investment	Foreign Direct Investment	*FDI*	WDI
Financial Inclusion	Financial Institution Access Index	*FIAI*	IMF
	Financial Market Access Index	*FMAI*	IMF
Control Variable	Exchange Rate	*EXCR*	WDI

Source: Authors' Compilation, 2025

The Autoregressive Distributed Lag (ARDL) Model

This study employs the Autoregressive Distributed Lag (ARDL) model, developed by Pesaran and Shin (1998) and Pesaran et al. (2001), to examine how financial inclusion impacts foreign direct investment in Nigeria, controlling for the exchange rate. The ARDL approach, grounded in Ordinary Least Squares (OLS) assumptions, handles both non-stationary and mixed-order integrated time series (Pesaran & Shin, 1999; Pesaran et al., 2001). It addresses common econometric issues like autocorrelation and model misspecification by incorporating sufficient lags to capture the data-generating process within a general-to-specific modelling framework (Pesaran & Shin, 1999). Furthermore, ARDL provides unbiased estimations and can simultaneously estimate short and long-run cointegration relationships (Pesaran et al., 2001; Qamruzzaman & Wei, 2018). Therefore, the ARDL model is presented below:

$$\boldsymbol{y_t = \sum_{j=1}^{p} \gamma_j y_{t-j} + \sum_{j=0}^{q} (\delta_j x_{t-j}) + \varepsilon_t} \qquad (\mathbf{1})$$

Where x_{t-j} is a k x 1 vector of multiple regressors; γ_j is the autoregressive parameter; δ'_j is the symmetric distributed lag parameters; ε is an iid process with zero mean and constant variance.

The study is theoretically underpinned by the Financial Development Theory. Empirically, it extends the work of Okonkwo and Nwanna (2021) to investigate the impact of financial inclusion on foreign direct investment in Nigeria for the period 1986-2023. To address the research hypotheses, the Autoregressive Distributed Lag (ARDL) model, developed by Pesaran and Shin (1998) and Pesaran et al. (2001), is employed. The empirical specification, following Okonkwo and Nwanna (2021), is restated as: NGDPit=α0+αFININC+βΣCVit.

Operationalising the variables for this study into the models, we, therefore, proposed as stated below:

$$\boldsymbol{FDI = f(FIAI, FMAI, EXCR)}$$

$$\Delta FDI = \sum_{j=0}^{p} \gamma_{it} tFDI_{i,t-j} + \sum_{j=0}^{q} \delta'_1 FIAI_{i,t-j} + \sum_{j=0}^{q} \delta'_2 FMAI_{i,t-j} + \sum_{j=0}^{q} \delta'_3 EXCR_{i,t-j} + \varepsilon$$

Where: ***FDI*** is financial inclusion; ***FIAI*** is financial institution access index; ***FMAI*** is financial market access index; ***EXCR*** is exchange rate. $\boldsymbol{\gamma_{it}}$ is the autoregressive parameter; **ε** is an ***iid*** process with zero mean and constant variance.

The error correction model is therefore presented below

$$\Delta FDI = \sum_{j=0}^{p} \gamma_{it} tFDI_{i,t-j} + \sum_{j=0}^{q} \delta'_1 FIAI_{i,t-j} + \sum_{j=0}^{q} \delta'_2 FMAI_{i,t-j} + \sum_{j=0}^{q} \delta'_3 EXCR_{i,t-j}$$

Stationarity Test

To effectively organise the data series for this study, unit root tests (specifically, Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests) were conducted. These tests determined the order of integration of the variables, which is crucial for satisfying the assumptions of the ARDL model.

Bound Test of Co-integration

A co-integration test using the ARDL bound test of cointegration was conducted to ascertain whether long-run relationship exists among the variables of interest.

4. RESULTS AND DISCUSSIONS

4.1 The Results

This section presents the descriptive statistics (Table 2) for Foreign Direct Investment (FDI), financial institution access index (FIAI), financial market access index (FMAI), and exchange rate (EXCR). The analysis provides insights into the central tendency, dispersion, and distribution of each variable over the observed period, which comprises 38 observations for all variables. The descriptive statistics revealed diverse characteristics across the variables. FDI and EXCR exhibit considerable variability and non-normal

distributions, with EXCR showing pronounced positive skewness and volatility. FIAI demonstrates relatively low variability and approximates a normal distribution, while FMAI shows moderate variability and a significant negative skew. These distributional properties are crucial for selecting appropriate statistical methods for further analysis and interpreting subsequent findings.

Table 2: Descriptive Statistics

	FDI	FIAI	FMAI	EXCR
Mean	1.331310	0.085263	0.439211	111.3832
Median	1.177900	0.060000	0.480000	100.2519
Maximum	4.282090	0.140000	0.510000	273.0147
Minimum	-0.039127	0.050000	0.250000	49.77717
Std. Dev.	0.951688	0.035163	0.084065	52.58815
Skewness	0.804041	0.294925	-1.133419	1.818597
Kurtosis	3.622857	1.240361	2.726323	5.825026
Jarque-Bera	4.708642	5.453399	8.254632	33.58242
Probability	0.094958	0.065435	0.016126	0.000000
Sum	50.58977	3.240000	16.69000	4232.563
Sum Sq. Dev.	33.51129	0.045747	0.261476	102324.0
Observations	**38**	**38**	**38**	**38**

Source: *Authors' Computation, 2025 (Eview, 10.0)*

The most prominent finding from the correlation analysis in Table 3 is the strong and significant negative relationship between FDI and EXCR, suggesting that exchange rate dynamics play a crucial role in influencing foreign direct investment flows. While FIAI and FMAI are positively correlated with each other, they do not demonstrate a statistically significant linear relationship with FDI or EXCR within this dataset. These findings highlight the distinct influences of various external factors on the economy under study.

Table 3: Correlation Matrix

Probability	FDI	FIAI	FMAI	EXCR
FDI	1.000000			
FIAI	-0.233569	1.000000		
	0.1581			
FMAI	-0.163228	0.493351	1.000000	
	0.3275	*0.0016*		
EXCR	-0.574287	0.004977	0.164036	1.000000
	0.0002	*0.9763*	*0.3251*	

Source: *Authors' Computation, 2025 (Eview, 10.0)*

In Table 4, Phillips-Perron (PP) unit root tests were conducted for FDI, FIAI, FMAI, and EXCR. FDI and EXCR are I(0) (stationary at level), indicated by significant p-values. Conversely, FIAI and FMAI are I(1) (stationary after first differencing), with high p-values at levels becoming significant after differencing. While the Augmented Dickey-Fuller (ADF) tests confirmed FDI and EXCR are stationary at level (I(0)). FIAI and FMAI are non-stationary at levels but become stationary after first differencing (I(1)). The ADF's findings, consistent with PP tests, guide appropriate econometric modeling as a result of the mixed integration order (I(0) and I(1)), necessitating appropriate econometric modelling, like ARDL, for robust analysis.

Table 4: Stationarity Test

	PP			**ADF**		
Variables	**T-Statistics**	**Probability**	**Order of**	**T-Statistics**	**Probability**	**Order of**

			Integration			Integration
FDI	-3.9554	0.0042***	I(0)	-3.8712	0.0052**	I(0)
FIAI	-4.1102	0.0028***	I(1)	-4.2509	0.0019***	I(1)
FMAI	-5.4359	0.0001***	I(1)	-5.4408	0.0001***	I(1)
EXCR	-4.3850	0.0013***	I(0)	-4.2605	0.0018***	I(0)

Notes: (*) Significant at the 10%; (**) Significant at the 5%; (***) Significant at the 1%. *MacKinnon (1996) one-sided p-values.

Source: *Authors' Computation, 2025 (Eview, 10.0)*

The ARDL bounds test (Table 5) assessed long-run cointegration between financial inclusion and FDI in Nigeria. With an F-statistic of 11.01609 exceeding the 5% upper critical bound (Pesaran et al., 2001; Narayan, 2004), the null hypothesis of no long-run relationship is rejected. This confirms a significant long-run cointegrating relationship between the variables.

Table 5: ARDL Bounds Test

Variable	F-Value	Decision
F-statistic	11.01609	Estimate Long-Run
Critical Value Bounds		
Significance	***I0 Bound***	***I1 Bound***
10%	*2.72*	*3.77*
5%	*3.23*	*4.35*
2.5%	*3.69*	*4.89*
1%	*4.29*	*5.61*

Source: *Authors' Computation, 2025 (Eview, 10.0)*

This section presents the estimated Autoregressive Distributed Lag (ARDL) model, building upon the findings in Table 5. The model assesses the impact of financial institution access index (FIAI) and financial market access index (FMAI) on foreign direct investment (FDI) in Nigeria for the period under study.

Table 6: ARDL Cointegrating and Long Run Form

Cointegrating Form				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
D(FDI(-1))	-0.395657	0.135405	-2.922038	0.0091
D(FDI(-2))	-0.480357	0.124909	-3.845654	0.0012
D(FDI(-3))	-0.329197	0.106675	-3.085987	0.0064
D(FIAI)	16.160180	9.625382	1.678913	0.1104
D(FIAI(-1))	-10.779174	14.131730	-0.762764	0.4555
D(FIAI(-2))	7.517856	13.583952	0.553437	0.5868
D(FIAI(-3))	11.811314	9.389781	1.257890	0.2245
D(FMAI)	-5.236411	4.184782	-1.251298	0.2268
D(FMAI(-1))	-10.345240	4.365180	-2.369946	0.0292
D(FMAI(-2))	3.734890	3.379573	1.105137	0.2837
D(EXCR)	-0.008146	0.002338	-3.484515	0.0026
CointEq(-1)	-0.743076	0.200811	-3.700371	0.0016
Long Run Coefficients				
FIAI	-18.774118	4.701231	-3.993447	0.0009
FMAI	2.708376	2.007425	1.349179	0.1940
EXCR	-0.015467	0.004914	-3.147701	0.0056
C	3.269578	0.633207	5.163518	0.0001

Source: *Authors' Computation, 2025 (Eview, 10.0)*

In Table 6 above, the ARDL model reveals that FIAI negatively influences FDI in the long-run, with an elasticity of -19% *(β=-18.774118, $p<0.05$)* at 5% level of significance. Conversely, FMAI exerts a statistically insignificant positive

influence on FDI in the long run, with an elasticity of 3% *(β*=2.708376, *p>0.05)* at 5% level of significance. These findings highlight the contrasting roles of different financial access dimensions in attracting FDI to Nigeria.

The error correction mechanism (ECM) coefficient of -0.743076 is highly significant, confirming a stable long-run relationship. This implies that approximately 74% of short-run deviations from the long-run equilibrium are corrected annually, with full adjustment occurring over roughly five years. The negative, less than unity, and significant ECM coefficient indicates a predictable and economically plausible adjustment process of foreign direct investment to the dynamics of the financial institution access index and financial market access index.

Table 7: Diagnostic Tests

Specification	**Stat (*p*-values)**	**Conclusion**
Bruesch–Godfrey (Serial Correlation)	2.048400 (0.1705)	No Serial Correlation
Bruesch–Pagan (heteroscedasticity)	0.760392 (0.7011)	No Heteroscedasticity
Jarque–Bera (normality)	1.679528 (0.431812)	Normality
Ramsey RESET Test	1.241770 (0.2806)	No Model specification error

Source: *Authors' Computation, 2025 (Eview, 10.0)*

To ensure the validity, reliability, and suitability of the regression model and address potential econometric issues, several diagnostic tests were conducted (Table 7).

Tests for higher-order autocorrelation, specifically the Breusch-Godfrey test (Breusch, 1978; Godfrey, 1978), confirmed that the model satisfied the regression assumptions. Similarly, the Breusch-Pagan test (Breusch and Pagan, 1979) for heteroscedasticity and the Jarque-Bera test (Jarque and Bera, 1987) for normality also indicated adherence to regression assumptions.

Furthermore, the model was found to be free from specification errors, as determined by Ramsey's Regression Specification Error Test (RESET) (Ramsey, 1969). Model stability was assessed using the cumulative sum of recursive residuals (CUSUM) and cumulative sum of squares of recursive residuals (CUSUMQ) plots, proposed by Brown et al. (1975). As depicted in Figures 1 and 2, respectively, both plots remained within the 5% significance level, indicating model stability.

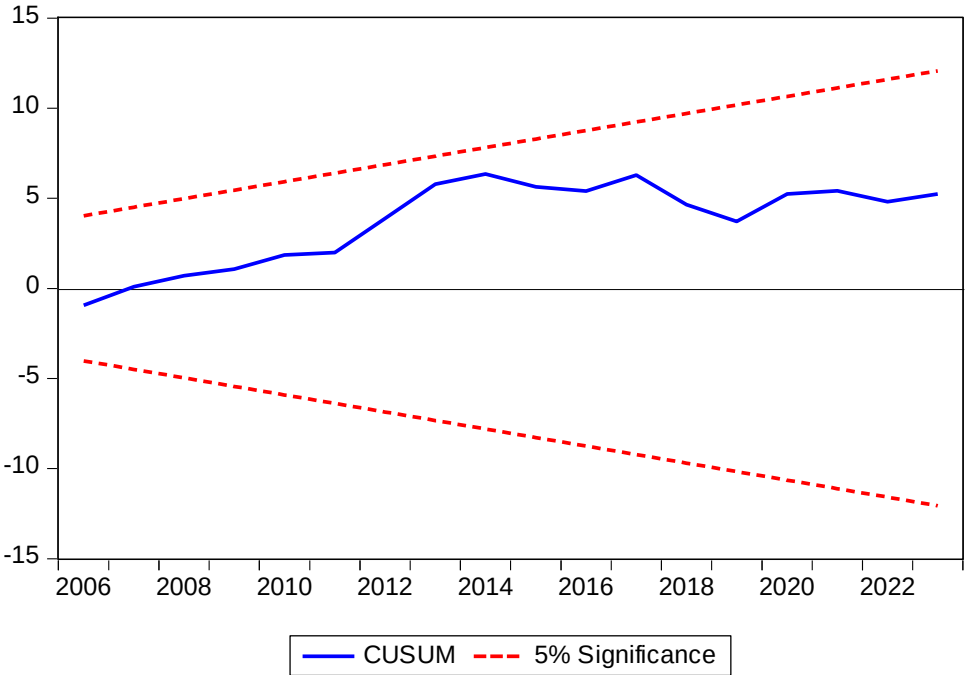

Figure 1: CUSUM Graph
Source: *Authors' Computation, 2025 (Eview, 10.0)*

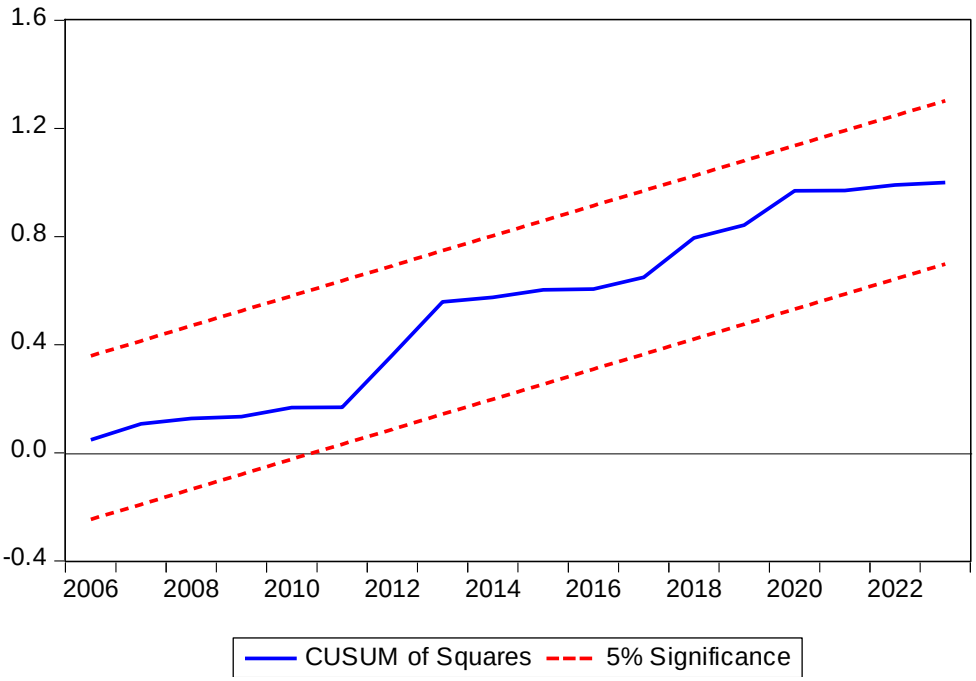

Figure 2: CUSUM of Squares Graph
Source: *Authors' Computation, 2025 (Eview, 10.0)*

4.2 Discussion of Findings

This study investigated the impact of financial inclusion on foreign direct investment in Nigeria for the period 1986-2023. Specifically, it investigated the impact of financial institution access index (FIAI) and financial market access index (FMAI) on foreign direct investment for the period under study. The ARDL model used reveals a complex and contrasting relationship between financial access dimensions and Foreign Direct Investment (FDI) in Nigeria, indicating that a singular approach to financial inclusion is insufficient for FDI attraction. Notably, the Financial Institution Access Index (FIAI) surprisingly exhibits a significant negative influence on FDI (elasticity of -19%). This counterintuitive finding may stem from increased domestic capital mobilisation diverting foreign investment, reduced reliance of local SMEs on foreign capital due to enhanced domestic financial access, or a short-term focus on consumption over investment by newly financially included populations. It could also suggest that FIAI, as constructed, might not capture aspects directly relevant to large-scale FDI or that its impact varies with Nigeria's stage of development.

Conversely, the Financial Markets Access Index (FMAI) positively influences FDI, consistent with economic theory (Financial Development Theory) and empirical works (Owusu-Nantwi & Kuwornu, 2018; Desbordes & Wei, 2017; Pham et al., 2022), by facilitating capital mobilization and allocation, reducing transaction costs and risks, signaling market sophistication, enabling exit strategies, and providing local funding access for foreign firms. This suggests a dual policy approach: continued financial inclusion for domestic growth alongside a focus on deepening and liberalising financial markets to effectively attract FDI.

5. CONCLUSION AND RECOMMENDATIONS

Based on the study's findings, Nigeria's financial access and foreign direct investment revealed a complex relationship, disproving the simple intuition and economic theory that all financial development uniformly attracts foreign investment. The study shows a contrasting impact: the Financial Institution Access Index (FIAI) unexpectedly negatively influences FDI, potentially because increased domestic capital mobilisation reduces the appeal of foreign funds, empowers local SMEs, or due to a short-term consumption focus among newly included populations. In contrast, the Financial Markets Access Index (FMAI) positively and significantly contributes to FDI, highlighting the critical role of well-functioning financial markets in offering efficiency, risk reduction, economic maturity signals, and clear operational and exit

strategies for foreign investors. This suggests Nigeria needs a differentiated policy approach, simultaneously promoting financial inclusion for domestic growth and poverty reduction while strategically prioritising the development of deeper, more liquid, and transparent financial markets to attract essential FDI. The recommendations emphasise further research into the FIAI paradox, strategic capital mobilisation, market infrastructure development, and a coherent dual-track policy for both financial inclusion and FDI promotion.

References

Adukwu, P., & Dibal, H. S**.** (2024). Financial Determinants of Entrepreneurship in Nigeria. *Gusau Journal of Accounting and Finance, 4*(2), 67-87. https://doi.org/10.57233/gujaf.vol4i2.5

African Development Bank (AfDB). (2020). *African Economic Outlook 2020: Developing Africa's Workforce for the Future*. Abidjan: African Development Bank.

Agabi, I. I. & Dibal. H. S**.** (2024). Foreign Inflow and Financial Institution Development in Nigeria, *FUW-International Journal of Management and Social Sciences, 9*(1), 14-31. https://fuw-ijmss.com.ng/index.php/fijmss/article/view/61n

Agarwal, J. P., & Mohtadi, H. (2004). The complementarity between FDI and domestic investment in developing countries. *Journal of International Trade & Economic Development*, *13*(1), 1-16.

Andiansyah, F. (2021). The influence of financial inclusion and macroeconomic on foreign direct investment (FDI) flows in the Organisation of Islamic Cooperation (OIC) Countries. *Optimum: Journal Ekonomi Dan Pembangunan*, *11*(1), 71-91.

Asongu, S. A., & Nwachukwu, J. C. (2017). Foreign direct investment, information technology and financial development in Africa. *Journal of Economic Studies, 44*(3), 565-585.

Borensztein, E., De Gregorio, J., & Lee, J. W. (1998). How does foreign direct investment affect economic growth? *Journal of International Economics, 45*(1), 115-135.

Breusch, T. S. & Pagan, A. R. (1979). A simple test for heteroscedasticity and random coefficient variation. *Econometrica, 47*(5), 1287–1294. https://doi.org/10.2307/1911963

Breusch, T.S. (1978). Testing for autocorrelation in dynamic linear models. *Australian Economic Papers, 17*(31), 334-355. https://doi.org/10.1111/j.1467-8454.1978.tb00635.x

Brown, R. L., Durbin, J. & Evans, J. M. (1975). Techniques for testing the constancy of regression relationships over time. Journal of the Royal Statistical Society. Series B (Methodological), 37(2), 149–192. http://www.jstor.org/stable/2984889

Business Perspectives. (2024). *The relationship between foreign direct investment and financial inclusion in MENA countries: Evidence from the General Method of Moments*. Retrieved from https://www.businessperspectives.org/journals/investment-management-and-financial-innovations/issue-456/the-relationship-between-foreign-direct-investment-and-financial-inclusion-in-mena-countries-evidence-from-the-general-method-of-moments

Chen, A., Li, Y., & Wang, X. (2022). Financial inclusion and foreign direct investment in Sub-Saharan Africa. *Scientific Research Publishing*. Retrieved from https://www.scirp.org/pdf/me2025161_37203844.pdf

Claessens, S., Demirgüç-Kunt, A., & Huizinga, H. (2001). How does foreign entry affect domestic banking markets? *Journal of Banking & Finance, 25*(5), 891-911.

Claessens, S., & Leaven, L. (2003). Financial development, property rights, and growth. *Economics Letters, 80*(2), 185-190.

De Mello, L. R., Jr. (1997). Foreign direct investment in developing countries and growth: A selective survey. *Journal of Development Studies, 34*(1), 1-34.

Desbordes, R., & Wei, S.J. (2017). Effects of financial development on foreign direct investment. *Journal of Development Economics, 127,* 153–168.

Dibal, H. S., Iyortsuun, A. S., & Haruna, H. A. (2021). Asymmetric impact of financial market development on entrepreneurship in Nigeria. In V. D. Ngo, D. K. Nguyen, and N. T. Nguyen (Eds.) *Entrepreneurial Finance, Innovation and Development* (pp. 160-187). Routledge. http://dx.doi.org/10.4324/9781003134282-10

Dupas, P., & Robinson, J. (2013). Savings constraints and microenterprise development: Evidence from a field experiment in Kenya. *American Economic Journal: Applied Economics, 5*(1), 163-192.

Eberhardt, M. (2012). The impact of foreign direct investment on financial development: New evidence from panel cointegration and causality analysis. *The World Bank Economic Review, 26*(2), 305-333.https://www.cjournal.cz/files/397.pdf.

Enhancing Financial Innovation & Access (EFINA). (2021). *Access to Financial Services in Nigeria 2020 Survey*. Lagos: EFINA.

Godfrey, L.G. (1978). Testing against general autoregressive and moving average error models with the regressors includes lagged dependent variables. *Econometrica*, *46*(6), 1293-1301. https://doi.org/10.2307/1913829

Goldsmith, R. W. (1969). *Financial structure and development*. Yale University Press.

G20 Global Partnership for Financial Inclusion. (2016). *G20 High-Level Principles for Digital Financial Inclusion*. G20 Global Partnership for Financial Inclusion.

Haruna, H. A., Dibal, H. S., & Isichei, E. E. (2023). Foreign Direct Investments and Stock Market Development in Sub-Saharan Africa: Does Regulatory Quality Moderate? *Global Business Review, 0*(0). https://doi.org/10.1177/09721509231163712

International Monetary Fund (IMF). (2018). *Fintech: The Experience So Far*. Washington, D.C.: International Monetary Fund.

Jarque, C. M. & Bera, A. K. (1987). A test for normality of observations and regression residuals. *International Statistical Review, 55* (2): 163–172. doi:10.2307/1403192

Jeffus, A. (2004). *The impact of financial development on FDI: Evidence from transition economies*. William Davidson Institute Working Paper No. 733.

Khan, S. (2023). *The impact of foreign direct investment on financial inclusion: An empirical investigation*. DergiPark. Retrieved from https://dergipark.org.tr/tr/download/article-file/2775869

Lensink, R., & White, H. (2001). Are there negative returns to aid? *Journal of Development Studies, 37*(6), 42-65.

Manocha, R. (2024). Examining the relationship between financial inclusion, financial stability and FDI: A Study for India. *FOCUS: Journal of International Business*, *11*(1), 1–21. https://doi.org/10.17492/jpi.focus.v11i1.1112401

Morck, R., Yeung, B., & Yu, W. (2000). The information content of stock markets: Why do emerging markets have synchronous stock price movements? *Journal of Financial Economics, 58*(1-2), 215-260.

McKinnon, R. I. (1973). *Money and capital in economic development*. Brookings Institution Press.

Narula, R., & Dunning, J. H. (2000). Industrial development, globalisation and multinational enterprises: New realities for developing countries. *Oxford Development Studies, 28*(2), 141-164.

Okonkwo Jisike, J., & Nwanna Ifeanyi, O. (2021). Financial Inclusion and Economic Growth in Nigeria: An Empirical Study.

Olofin, O., Olaniyan, S., & Ojo, S. (2014). Foreign direct investment and economic growth in Nigeria: An empirical analysis. *Covenant University Journal of Business & Social Sciences, 5*(1), 1-17.

Onwumere, J.U.J. (2021). *Business Economics and Social Studies Research Methods (4th edition*). Immaculate Publication: Vougasen Limited, Enugu.

Owusu-Nantwi, V., & Kuwornu, J. K. M. (2018). Financial development and foreign direct investment in Africa: Evidence from panel data. *African Journal of Economic and Management Studies, 9*(3), 362-383.

Paulin, D. D. G., Albert, V., & Daniel, N. N. Y. (2025). Financial Inclusion and Foreign Direct Investment in Sub-Saharan Africa. *Modern Economy, 16*(1), 58-80.

Pham, H. T.,Gan, C., & Hu, B.(2022). Causality between financial development and foreign direct investment in Asian developing countries. *Journal of Risk and Financial Management*, *15*(5), 195.Press.

Sarma, M., & Pais, J. (2011). Financial inclusion and development. *Journal of International Development, 23*(5), 654-666.

Shaw, E. S. (1973). *Financial deepening in economic development*. Oxford University Press.

United Nations Conference on Trade and Development (UNCTAD). (2023). *World Investment Report 2023: Investing in Sustainable Energy for All*. Geneva: United Nations.

World Bank. (2018). *The Global Findex Database 2017: Measuring Financial Inclusion and the Fintech Revolution*. Washington, D.C.: World Bank.