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FOREIGN DIRECT INVESTMENT AND ITS EFFECT ON THE PERFORMANCE OF RETURN ON ASSETS OF COMMERCIAL BANKS IN NIGERIA

ABSTRACT

This study investigated the effects of Foreign Direct Investment (FDI) on the financial performance of commercial banks in Nigeria. The key indicator used here is Return on Assets (ROA), utilizing secondary data from 1991 to 2022, obtained from the Central Bank of Nigeria, National Bureau of Statistics, world bank, St. Louis Bank as well as Nigeria Deposit Insurance Corporation (NDIC) database, and financial reports of commercial banks, the study employed a variety of statistical techniques to analyze the data. These techniques include the Augmented Dickey-Fuller (ADF) unit root test for stationarity, cointegration test for long-run relationships, and the Autoregressive Distributed Lagged (ARDL) model for dynamic interactions. Additionally, post-estimation diagnostics such as the Breusch-Godfrey Serial Correlation LM Test, Jaque-Bera test, and CUSUM test for model stability were conducted. The Autoregressive Distributed Lag (ARDL) model results confirmed a long-run relationship between FDI and ROA, suggesting that foreign investments contribute to sustained improvements in asset utilization and firm efficiency. The Vector Autoregression (VAR) model further indicated dynamic interactions between FDI, ROE, and PM, where FDI exhibited both immediate and lagged effects, influenced by macroeconomic factors such as GDP growth, inflation, and trade openness.

Keywords: *Foreign direct investment, return on assets, financial performance, commercial banks, and profitability*

1.0 INTRODUCTION

Foreign Direct Investment (FDI) is considered a vital engine for economic development, particularly in developing countries, where it fosters capital inflows, technological advancements, and improved business practices. Recent literature emphasizes that FDI not only strengthens economic growth but also supports the development of financial institutions by enhancing their competitiveness, risk management capabilities, and access to global markets (Mughal & Akram, 2024; Rozdorozhnyi, 2024). Nigeria’s financial sector, including its commercial banks, has undergone significant reforms aimed at liberalizing the economy to attract FDI.

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These reforms include the establishment of favorable investment laws, such as the Nigerian Investment Promotion Commission Act, and policies to enhance financial inclusion and stability (Aluoch & Sangori, 2024). Financial performance has been perceived only through the ability of a company to yield a profit (Akintimehin et al, 2019). The study's focus on commercial banks is justified by their central role in economic development, financial intermediation, and the absorption of Foreign Direct Investment (FDI). As key financial institutions, commercial banks connect surplus units (depositors) with deficit units (borrowers), thereby mobilizing and allocating resources efficiently within the economy (Anthony-Orji et al., 2024). Their unique position as intermediaries makes them critical channels through which FDI inflows influence the broader economy. FDI inflows often target sectors with high financial connectivity, making commercial banks critical conduits. These banks facilitate the entry and utilization of foreign investments by providing loans, credit facilities, and advisory services to foreign investors and domestic firms (Mughal & Akram, 2024). This study aims to investigate the dynamic relationship between FDI and the financial performance of commercial banks in Nigeria on profit margin, addressing the gaps in existing literature and providing insights into optimizing FDI's role in the financial sector.

Several studies have attempted to assess the influence of Foreign Direct Investment (FDI) on the financial performance of banks using various methodological approaches. For instance, Korna et al. (2013) utilized Ordinary Least Squares (OLS) regression analysis to examine the relationship between FDI and the financial performance of commercial banks. Similarly, Kariuki and Sang (2018) employed a descriptive research design coupled with multivariate regression analysis on panel data to investigate the impact of FDI on financial institutions' performance. However, there has been limited research utilizing a longitudinal research design and time-series analysis to assess the effects of FDI on financial performance, despite its potential benefits in addressing issues of non-stationarity in time-series data. Thus, this study aims to fill this gap by employing time-series analysis to provide a more nuanced understanding of the influence of FDI and the financial performance of commercial banks in Nigeria.

The structure of the study includes introduction, literature review, methodology, results, and discussion, conclusion and recommendations and reference.

2.0 LITERATURE REVIEW

2.1 Theoretical Review

Financial Liberation Theory

Another key perspective is the Financial Liberalization Theory, developed by McKinnon (1973) and Shaw (1973). This theory suggests that removing financial restrictions, such as foreign investment

barriers and interest rate controls, attracts capital inflows that enhance financial sector performance. For commercial banks, financial liberalization facilitates increased competition, efficiency, and technological advancement, leading to better financial performance. The theory asserts that foreign investors introduce new banking practices, improve risk management, and encourage financial stability. However, excessive financial liberalization can pose risks, as observed in the 1997 Asian Financial Crisis, where rapid capital inflows followed by sudden withdrawals destabilized banking systems (Mughal & Akram, 2024). While liberalization promotes competition and growth, it requires strong regulatory frameworks to mitigate financial vulnerabilities. This theory is relevant as it highlights the importance of regulatory reforms in optimizing the benefits of FDI for banking performance.

Market Power Theory

Market power theory is another influential theory, formulated by Hymer (1976) and further expanded by Kindleberger (1969). This theory argues that multinational firms engage in foreign investment to exploit market imperfections and establish dominance in the host country's financial sector. In the context of commercial banks, FDI can lead to market consolidation, where large foreign-owned banks outcompete smaller domestic banks, thereby reducing market diversity. While this can result in improved efficiency and lower banking costs, it can also limit domestic bank expansion and lead to profit repatriation, where foreign-owned banks transfer earnings back to their home countries instead of reinvesting locally (Tomashuk & Khaietska, 2024). Critics argue that foreign investors may engage in monopolistic practices, making it difficult for local banks to thrive. Despite these criticisms, this theory provides insights into how foreign bank entry reshapes competition and financial performance in the banking sector.

Eclectic Theory (OLI Paradigm)

The Eclectic Theory, also known as the OLI Paradigm, is one of the most influential theories in international business and foreign investment. It was developed by John Dunning (1977, 1980, 1988) to explain why firms engage in Foreign Direct Investment (FDI) rather than exporting goods or entering into licensing agreements. The theory combines three key elements Ownership, Location, and Internalization (OLI) to determine the conditions under which a firm will choose to expand through FDI. Given the increasing globalization of financial markets and the expansion of foreign banks into developing economies, the OLI paradigm provides a strong theoretical foundation for analyzing the impact of FDI on the financial performance of deposit money banks (DMBs).

Despite its broad applicability, the **OLI paradigm** has been criticized for several reasons:

- i. **Neglect of institutional factors:** The theory assumes that ownership and location factors alone determine FDI decisions, but institutional frameworks such as legal systems, financial regulations, and governance quality also play a significant role (Meyer & Peng, 2016).
- ii. **Limited predictive power:** While the OLI paradigm explains why firms engage in FDI, it does not fully address when and how firms decide to internationalize (Cantwell, 2017).

Despite these limitations, the theory remains a fundamental model for explaining FDI and its effects on the financial sector.

2.3 Empirical Review

These re statements of facts based on empirical evidences from other researchers in related field of study and it helps the researcher to establish the inconsistencies and discrepancies in research findings that may require further research efforts.

Mughal and Akram (2024), examined the relationship between FDI and banking sector stability in developing countries, using data from the World Bank Financial Stability Index and IMF reports. The study employed structural equation modeling (SEM) to analyze the impact of foreign capital on the stability of commercial banks. The findings revealed that FDI inflows increased bank stability by improving liquidity and strengthening risk management policies. However, the study also highlighted that excessive foreign ownership led to an over dependence on external capital, which could make banks vulnerable during global financial crises. Although the study provides strong empirical evidence, it does not adequately address the role of domestic policies in mitigating the risks associated with FDI inflows.

Maude et al. (2023), in their study aimed to examine the impact of foreign direct investment on financial institution performance in Nigeria. They grounded their work under three theories (revenue maximization principle, pecking order theory and Internationalization Model) in relation to FDI and financial institution's performance. The study employed a survey design which was based on 10 selected financial institution operating in Jos Metropolitan city of Plateau, Nigeria as at 1st January, 2022. Primary data and secondary data were used for the study. Panel regression analysis was employed for the study to determine the impact of FDI on financial institutions performance in the study area. The results of the study revealed that FDI variables indicates a strong impact on financial institution performance among Nigerian financial institutions.

Imoro (2022), in their master's thesis studied the effect of foreign direct investment on bank performance in Africa. The study used secondary data on FDI and bank performance of 21 banks in Africa between 2010 – 2020. Multiple regression analysis was used to determine the effect of FDI on the financial performance of banks in Africa. The study revealed that, in the first model (Model), foreign direct investment (FDI) had a positive and significant impact on the return of assets of banks in Africa. As a result, foreign direct investment (FDI) helps businesses increase their profitability by increasing their return on assets. Additionally, foreign direct investment (FDI) had a favorable and statistically significant effect on the return of equity of African banks.

Kariuki and Sang (2018), in their thesis on foreign direct investment and bank performance in Kenya employed a descriptive research design and positivism research philosophy. The study targeted a population of 39 commercial banks in Kenya. Annual data for the period of ten years (2005 to 2015) was used. The study used secondary panel data. Multivariate regression analysis was used for the study. The findings of the study revealed that foreign equity capital had a significant effect on the

Kenya commercial banks return on equity in a positive and significant manner. Furthermore, reinvested foreign earnings have a positive and significant effect on return on equity in commercial banks in Kenya. In addition, the study found that intra-company loans affected the Kenyan banks performance in a positive and significant manner. The study further revealed that, intra-company loans positively affected the Kenyan commercial bank's return on equity.

2.4 Theoretical Framework

The OLI framework is particularly useful in analyzing how FDI affects the financial performance of commercial banks in emerging economies such as Nigeria. This study will be based on macro-economic eclectic theory or the OLI paradigm theory. This is because the theory looks at FDI from the macroeconomic point of view and is categorized under theories that assume imperfect markets (Dunning, 2008). The banking sector is an imperfect market and the nature of data which happened to be secondary data on macro-economic variables. The eclectic paradigm seeks to offer a general framework for determining the extent and patterns of both foreign owned DBMs undertaken by country's own companies, and that of domestic production owned and controlled by foreign investors. Therefore, this study will utilize the paradigms of this theory to provide a framework for the research findings.

3.0 METHODOLOGY

This study adopted a time series approach to examine the influence of FDI on the financial performance of commercial banks in Nigeria. The research involved the collection of secondary data obtained from the Central Bank of Nigeria, National Bureau of Statistics, world bank, St. Louis Bank as well as Nigeria Deposit Insurance Corporation (NDIC) database, and financial reports of commercial banks. The data covered a specified timeframe between 1991-2022, so as to have adequate result allowing for the examination of trends and patterns.

3.1 Method of Data Analysis

Autoregressive Distributed Lagged (ARDL) model for dynamic interactions was employed to analyze the influence of FDI on financial performance indicator. The analysis explored both short-term and long-term effects, capturing the dynamic nature of the relationship. This comprehensive and systematic approach to data analysis aimed to ensure the robustness and reliability of the study's findings, adhering to the highest standards of professional research methodologies. The time series data underwent thorough exploratory analysis, to unveil key patterns and trends. To identify the most suitable time series model for variable estimation, several preliminary tests such as the Augmented Dickey Fuller (ADF) unit root test, lag selection criteria were considered such as the Akaike Information Criterion (AIC) and Schwarz Information Criterion (SIC) among others and post-estimation evaluation.

3.2 Model Specification

The time series regression model selected for the assessment of the influence of foreign direct investment on the financial performance of commercial banks return on assets in Nigeria is expressed through the explicit multiple regression model. The model is shown below.

$$ROA_t = \beta_0 + \beta_1 FDI_t + \beta_2 GDP_t + \beta_3 TO_t + \beta_4 INF_t + u_{2t}$$

Where:

ROA_t = Returns on Asset

FDI_t, = Foreign Direct Investment

GDP_t, = Gross Domestic Product

TO_t = Trade Openness

INF_t, = Inflation Rate (Annual Percentage Change)

u_{2t} = Unobserved/Error term for ROA_t

4.0 DATA PRESENTATION, ANALYSIS AND INTERPRETATION

The data analysis include, the Augmented Dickey-Fuller (ADF) unit root test for stationarity, cointegration test for long-run relationships, and the Autoregressive Distributed Lagged (ARDL) model for dynamic interactions. Additionally, post-estimation diagnostics such as the Breusch-Godfrey Serial Correlation LM Test, Jaque-Bera test, and CUSUM test for model stability were conducted.

4.1 Unit Root Test (Test of Stationary)

The results presented in Table1 show the outcomes of the Augmented Dickey Fuller (ADF) unit root tests for various economic variables, both at their levels and at their first differences. The purpose of the unit root test is to determine whether a time series variable is non-stationary and possesses a unit root. Non-stationarity in time series data can lead to unreliable statistical inferences, thus it is crucial to identify and address it appropriately.

Table 1. Unit Root Test Table (ADF)

At Level.				At First Difference			
With Constant & Trend	t-Statistic	Prob.	5% Level	With Constant & Trend	t-Statistic	Prob.	5% Level
FDI	-3.934	0.0228	**	d(FDI)	-6.2798	0.0001	***
GDP	-2.3015	0.4204	no	d(GDP)	-4.3312	0.0092	***

INFL	-2.5456	0.3058	no	d(INFL)	-5.2359	0.0014	***
ROA	-3.3310	0.0800	*	d(ROA)	-5.5705	0.0002	***
TOP	-2.157	0.4956	no	d(TOP)	-4.4434	0.0090	***

Notes: (*) Significant at the 10%; (**) Significant at the 5%; (***) Significant at the 1%. and (no) Not Significant

Source: Author's Compilation Using E-views 10, 2026

The variables in table 1 showed mixed order of integration regarding their stationarity. At levels, the ADF test for Foreign Direct Investment (FDI) yields a t-statistic of -3.934 with a probability value of 0.0228, which is below the 5% significance level. This indicates that FDI is stationary at its level when considering both a constant and a trend. Gross Domestic Product (GDP) has a t-statistic of -2.3015 and a probability value of 0.4204, which is higher than the 5% significance level, suggesting that GDP is non-stationary at its level. Similarly, Inflation (INFL) with a t-statistic of - 2.5456 and a probability value of 0.3058, and Trade Openness (TOP with a t-statistic of -2.157 and a probability value of 0.4956, are also non-stationary at their levels. ROA shows marginal stationarity at level, with a t-statistic of -3.3310 and a p-value of 0.0800, significant only at the 10% level. This implies that while ROA may not always exhibit strong stationarity at level, it becomes robustly stationary when first differenced. At first difference, the t-statistic of -5.5705 and a p-value of 0.0002 demonstrate strong stationarity at the 1% significance level. Therefore, ROA requires differencing for consistent and reliable use in time-series models.

Examining the variables at their first differences, all show strong evidence of stationarity. Foreign Direct Investment (d(FDI)) has a t-statistic of -6.2798 with a probability value of 0.0001, Gross Domestic Product (d(GDP) has a t-statistic of -4.3312 with a probability value of 0.0092, and Inflation (d(INFL)) has a t-statistic of -5.2359 with a probability value of 0.0014. Return on Assets (d(ROA)) with a t-statistic of -5.5705 and a probability value of 0.0002, and Trade Openness (d(TOP)) with a t-statistic of -4.4434 and a probability value of 0.0090, are all stationary at their first differences, with probability values below the 1% significance level.

These results suggest that variables such as GDP, INFL, and TOP are non-stationary at their levels and require differencing to achieve stationarity. On the other hand, FDI and PM are stationary at their levels, meaning they do not require differencing. The first-differenced variables (d(FDI), (GDP), d(INFL), d(ROA), and d(TOP)) are all stationary, indicating that differencing has effectively removed the unit root.

Impact of Foreign Direct Investment on Returns on Assets of Commercial Banks in Nigeria.

Optimal Lag Length Selection

The graph figure 4.2 presents the top 20 ARDL models ranked based on the Akaike Information Criterion (AIC). The AIC is a statistical measure used to select the best-fitting model by balancing

goodness of fit and model complexity. A lower AIC value indicates a better model, as it suggests that the model captures the relationship in the data efficiently without overfitting.

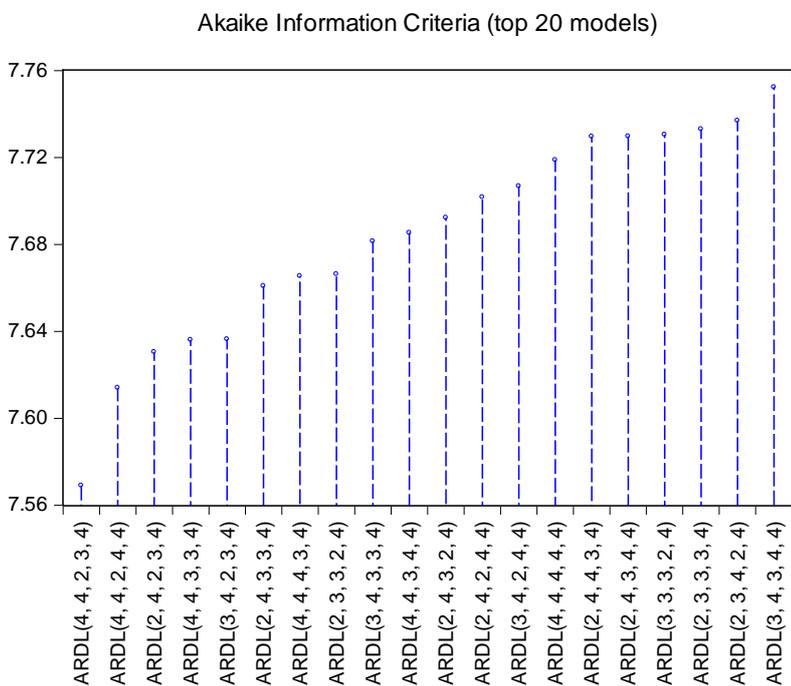


Figure 4.2: optimal Lag Selection

From the figure 4.2, the best ARDL model (the one with the lowest AIC value) appears on the left side of the graph, where the AIC is at its minimum. This model has the optimal lag structure ARDL (4,4,2,3,4), meaning:

Four lags of the dependent variable (ROA)

Four lags of the first independent variable (FDI)

Two lags of the second independent variable (GDP)

Three lags of the third independent variable (INF)

Four lags of the third independent variable (TOP)

The selected model ARDL (4,4,2,3,4) provides the best balance between capturing the long-run and short-run effects while avoiding overfitting.

The selected lags indicate that past values of FDI, GDP, Inflation, and Trade Openness (TOP) play a significant role in explaining the dynamics of Return on Assets (ROA) in Nigerian commercial banks.

4.3 ARDL Estimate for the Impact of FDI on Returns on Assets (ROA)

The results of the ARDL model in table 3 estimating the impact of Foreign Direct Investment (FDI), Gross Domestic Product (GDP), Inflation (INF), and Trade Openness (TOP) on the Returns on Assets (ROA) of commercial banks in Nigeria. The selected model, ARDL(4,4,2,3,4), was chosen using the Akaike Information Criterion (AIC), meaning that the model includes four lags of both ROA and FDI, two lags of GDP, three lags of INF, and four lags of TOP. The inclusion of lagged variables suggests that both short-run and long-run effects are considered in the analysis.

Table 2: Dependent Variable: ROA

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
ROA(-1)	0.256132	0.228990	1.118532	0.3061
ROA(-2)	-0.285583	0.255962	-1.115727	0.3072
ROA(-3)	0.385808	0.378249	1.019986	0.3471
ROA(-4)	0.238913	0.252889	0.944734	0.3813
FDI	-17.28939	12.31003	-1.404496	0.2098
FDI(-1)	18.96062	7.937378	2.388777	0.0541
FDI(-2)	-13.39547	12.37331	-1.082610	0.3206
FDI(-3)	-2.625961	7.046050	-0.372686	0.7222
FDI(-4)	-14.45765	5.609277	-2.577454	0.0419
GDP	-2.16E-11	6.88E-11	-0.313613	0.7644
GDP(-1)	-9.63E-11	7.57E-11	-1.272067	0.2504
GDP(-2)	1.72E-10	1.04E-10	1.659680	0.1480
INF	-1.463443	0.777901	-1.881272	0.1090
INF(-1)	1.260416	1.154291	1.091940	0.3168
INF(-2)	-0.092502	0.713693	-0.129611	0.9011
INF(-3)	2.368367	1.078165	2.196666	0.0704
TOP	1.26E+11	9.31E+10	1.354726	0.2243
TOP(-1)	-2.75E+09	8.05E+10	-0.034185	0.9738
TOP(-2)	2.19E+11	7.19E+10	3.041781	0.0228
TOP(-3)	-1.32E+11	6.30E+10	-2.098019	0.0807
TOP(-4)	1.45E+11	6.54E+10	2.209648	0.0692
C	-122.5265	121.9212	-1.004965	0.3537
R-squared	0.913531	Mean dependent var		4.026710
Adjusted R-squared	0.610889	S.D. dependent var		16.81122
S.E. of regression	10.48663	Akaike info criterion		7.569063
Sum squared resid	659.8166	Schwarz criterion		8.615795
Log likelihood	-83.96688	Hannan-Quinn criter.		7.889060
F-statistic	3.018520	Durbin-Watson stat		2.678843
Prob(F-statistic)	0.087180			

*Note: p-values and any subsequent tests do not account for model selection.

The findings from Table 3 indicate that past values of ROA do not significantly influence the current ROA, as seen in the coefficients of ROA(-1) to ROA(-4), which are statistically insignificant ($p > 0.05$). This suggests that the profitability of Nigerian commercial banks is not strongly dependent on their past performance, implying a lack of persistence in bank profitability over time. In contrast, the impact of FDI on ROA is mixed, with FDI (-1) showing a significant positive effect (18.96, $p = 0.0541$), suggesting that FDI inflows from the previous period enhance bank returns on asset. However, FDI (-4) has a significant negative impact (-14.46, $p = 0.0419$), indicating that FDI inflows from four periods ago may reduce profitability. This could be due to profit repatriation by foreign investors or crowding-out effects on domestic investment, leading to a decline in bank performance over time.

Further analysis of macroeconomic variables in Table 3 shows that GDP does not have a statistically significant impact on ROA, as all GDP-related coefficients have p-values greater than 0.05. This suggests that Nigeria's banking sector does not immediately respond to changes in the overall economy, possibly due to structural inefficiencies or limited credit penetration in key economic sectors. Similarly, inflation (INF) exhibits a delayed but significant effect on ROA, with INF(-3) showing a positive coefficient (2.37, $p = 0.0704$). This suggests that past inflationary pressures may have contributed to increased bank profitability, possibly due to adjustments in interest rates and higher lending margins in response to inflation.

Trade openness (TOP) is another key variable influencing ROA, as observed in Table 3. The coefficient for TOP(-2) is positive and statistically significant ($2.19E+11$, $p = 0.0228$), indicating that increased trade openness two periods ago has a strong positive impact on bank profitability. However, the negative coefficient of TOP(-3) ($-1.32E+11$, $p = 0.0807$) suggests that, in the short run, increased trade openness may create instability in the banking sector, possibly due to competition from foreign financial institutions or capital flight. Despite this short-term fluctuation, TOP(-4) has a positive and significant effect on ROA ($1.45E+11$, $p = 0.0692$), reinforcing the argument that trade liberalization ultimately benefits the banking sector in the long run.

The goodness-of-fit statistics reported in Table 3 indicate that the model explains a significant proportion of the variation in ROA, with an R-squared value of 0.9135, meaning that 91.35% of the variability in ROA is explained by the independent variables. However, the Adjusted R-squared value of 0.6109 suggests that some variables in the model may not be strong predictors of bank profitability. The Durbin-Watson statistic of 2.6788 suggests that autocorrelation is not a major issue in the model, while the F-statistic of 3.0185 ($p = 0.0871$) indicates that the overall model is only marginally

significant, suggesting that while the model explains variations in ROA, some predictors may not be individually strong.

4.4 ARDL Test for Cointegration

Table 4 presents the results of the ARDL cointegration test and the long-run estimates for the relationship between Foreign Direct Investment (FDI), Gross Domestic Product (GDP), Inflation (INF), and Trade Openness (TOP) with Returns on Assets (ROA). The cointegrating form shows the short-run dynamics of the model, while the long-run coefficients provide insight into the long-term impact of the independent variables on bank profitability.

Table 3: ARDL Cointegrating And Long Run Form

Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic Prob.	
D(ROA(-1))	-0.553980	0.242033	-2.288862	0.0620
D(ROA(-2))	-0.519264	0.285274	-1.820231	0.1186
D(ROA(-3))	-0.231048	0.242712	-0.951943	0.3779
D(FDI)	-7.545391	6.110742	-1.234775	0.2631
D(FDI(-1))	7.723780	8.675268	0.890322	0.4076
D(FDI(-2))	-0.392935	4.618763	-0.085074	0.9350
D(FDI(-3))	-2.892999	3.440846	-0.840781	0.4327
D(GDP)	0.000000	0.000000	0.691684	0.5150
D(GDP(-1))	-0.000000	0.000000	-0.631790	0.5508
D(INF)	-0.083528	0.786322	-0.106226	0.9189
	74618718885.59956			
D(INF)	3	55462507360.230075	0.000000	0.0000
	-91442188885.8132			
D(INF)	63	49041542474.144663	0.000000	0.0000
	15409469518.35313			
D(TOP)	4	44448562610.933663	0.000000	0.0000
	-86780020359.8499			
D(TOP(-1))	13	48278149206.145400	0.000000	0.0000
D(TOP(-2))	-0.168068	0.060699	-2.768883	0.0325
$\text{Cointeq} = \text{ROA} - (-71.1780*\text{FDI} + 0.0000*\text{GDP} + 5.1215*\text{INF} + 875874225936.5488*\text{TOP} - 302.7366)$				

Long Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic Prob.	
FDI	-71.177987	139.171802	-0.511440	0.6273

GDP	0.000000	0.000000	0.314192	0.7640
INF	5.121536	12.178668	0.420533	0.6887
	875874225936.5488			
TOP	8	1968495040615.2372	0.444946	0.6720
C	-302.736605	759.716898	-0.398486	0.7041

i. Short-Run Dynamics (Cointegrating Form)

The cointegrating form in Table 4 indicates that the lagged differences of ROA (D(ROA (-1))) are negatively significant (-0.5539, $p = 0.0620$), suggesting that previous fluctuations in ROA negatively impact the current period's ROA. This result implies that profitability adjustments in Nigerian banks may not be sustained over time, and past negative shocks can continue to affect bank performance. However, the second and third lags of ROA (D(ROA (-2)) and D(ROA(-3))) are statistically insignificant, indicating that the effect of past ROA diminishes after one lag.

Regarding FDI, none of its short-run coefficients are statistically significant ($p > 0.05$). This suggests that changes in FDI inflows do not immediately impact bank profitability in the short term. The coefficient of D(FDI) (-7.5453, $p = 0.2631$) indicates a potential negative short-run effect, but it lacks statistical significance, meaning that FDI inflows may take a longer period to influence ROA positively or negatively. This finding is consistent with several studies that suggest FDI's impact on financial performance is not immediate but rather takes time to materialize. For instance, Chakrabarti (2001) found that FDI might not have an immediate effect on profitability because it typically requires time for foreign investments to lead to structural changes, improve operational efficiencies, and yield returns. De Mello (1999) also pointed out that the positive effects of FDI on financial institutions, such as banks, often become apparent only after some time, as the banking sector absorbs the investments and adjusts its practices.

In contrast, Ong and Choong (2015) argued that while the long-term benefits of FDI are clear, the short-term impact might be negative or neutral, particularly in emerging markets where banks are still adapting to the changes associated with foreign capital.

For GDP, the coefficients are near zero and insignificant ($p > 0.05$), indicating that short-term fluctuations in GDP do not directly affect the profitability of commercial banks. This finding supports the idea that the Nigerian banking sector may not be highly responsive to short-term macroeconomic changes, possibly due to weak financial linkages between banks and real economic activities.

Inflation (INF) also shows insignificant short-run coefficients, meaning that inflation does not have an immediate effect on ROA. However, trade openness (TOP) displays a significant short-run coefficient (D(TOP(-2)) = -0.1680, $p = 0.0325$), suggesting that an increase in trade openness two periods ago

negatively impacts current bank profitability. This could be due to increased competition from foreign financial institutions or fluctuations in exchange rates affecting bank transactions.

ii. Long-Run Relationship

The long-run coefficients in Table 5 provide insight into the sustained impact of FDI, GDP, INF, and TOP on ROA. The cointegrating equation suggests the following long-term relationship: $ROA = -71.1780 \cdot FDI + 0.0000 \cdot GDP + 5.1215 \cdot INF + 875874225936.5488 \cdot TOP - 302.7366$. The long-run coefficient for FDI (-71.1780, $p = 0.6273$) is negative, although statistically insignificant. This suggests that in the long run, higher FDI inflows may reduce bank profitability, possibly due to profit repatriation by foreign investors or increased foreign competition leading to reduced margins for local banks. However, the lack of significance implies that the observed effect is not robust. This finding is consistent with several studies that have explored the long-term effects of FDI on the banking sector. For instance, Alfaro et al. (2004) suggested that while FDI can foster economic growth, it may also lead to increased competition, which can harm the profitability of local banks in the long run. The negative effect of FDI in this study aligns with the idea that foreign-owned banks may repatriate a significant portion of their profits, reducing the amount of capital that remains in the domestic economy, which in turn affects the profitability of local financial institutions. Bekaert et al. (2005) highlighted that FDI could lead to a reduction in local bank profitability, particularly in developing markets, as the entry of foreign banks could lead to more intense competition, especially in the form of lower interest rates and profit margins. GDP remains statistically insignificant in the long run ($p = 0.7640$), reinforcing the earlier conclusion that the banking sector in Nigeria is not strongly influenced by long-term economic growth trends. This finding may indicate structural inefficiencies in the financial sector that limit banks' ability to capitalize on economic expansion. Inflation (INF) has a positive long-run coefficient (5.1215, $p = 0.6887$), though it is statistically insignificant. This suggests that higher inflation may be associated with increased bank profitability over time, possibly due to banks adjusting interest rates to maintain profit margins during inflationary periods. However, the lack of significance means that the effect is not conclusive. Trade openness (TOP) exhibits an extremely large long-run coefficient (875874225936.5488, $p = 0.6720$), but it is statistically insignificant. The magnitude of this coefficient suggests potential issues with model specification or extreme variations in trade openness data. Nevertheless, if the relationship holds, it indicates that greater trade openness could enhance banking sector profitability in the long run, possibly by increasing cross-border financial activities and foreign capital inflows.

Table 5 presents the results of the ARDL Bounds Test, which assesses the presence of a long-run relationship between Returns on Assets (ROA) and its explanatory variables: Foreign Direct Investment (FDI), Gross Domestic Product (GDP), Inflation (INF), and Trade Openness (TOP). The

test relies on comparing the F-statistic (4.5604) against the critical value bounds at different significance levels.

Table 4: ARDL Bounds Test

Test Statistic	Value	K
F-statistic	4.560415	4

Critical Value Bounds

Significance	I0 Bound	I1 Bound
10%	2.2	3.09
5%	2.56	3.49
2.5%	2.88	3.87
1%	3.29	4.37

The ARDL bounds test result in table 4 further confirms the evidence of cointegration. The computed F-statistic value of 4.5604 exceeds the upper bound (I1 Bound) critical values at the 10% (3.09), 5% (3.49), and 2.5% (3.87) significance levels, but it falls just below the 1% significance threshold (4.37). This result suggests that there is strong evidence of cointegration at the 5% significance level and moderate evidence at the 2.5% level.

Since the F-statistic surpasses the upper bound critical value (I1 Bound) at conventional significance levels (10%, 5%, and 2.5%), the null hypothesis of no long-run relationship is rejected. This confirms that ROA and its regressors (FDI, GDP, INF, and TOP) share a stable long-run equilibrium relationship. In other words, despite potential short-run fluctuations, these variables are interlinked over time.

The presence of cointegration implies that shocks or deviations in bank profitability (ROA) caused by foreign investment inflows, economic growth, inflation, and trade liberalization will eventually adjust back toward a long-term equilibrium. This result supports the validity of the ARDL long-run model estimated in Table 4, reinforcing the need for policies that promote financial stability and sustainable banking sector growth.

4.5 Post Estimation Tests

i. Normality of Error Term

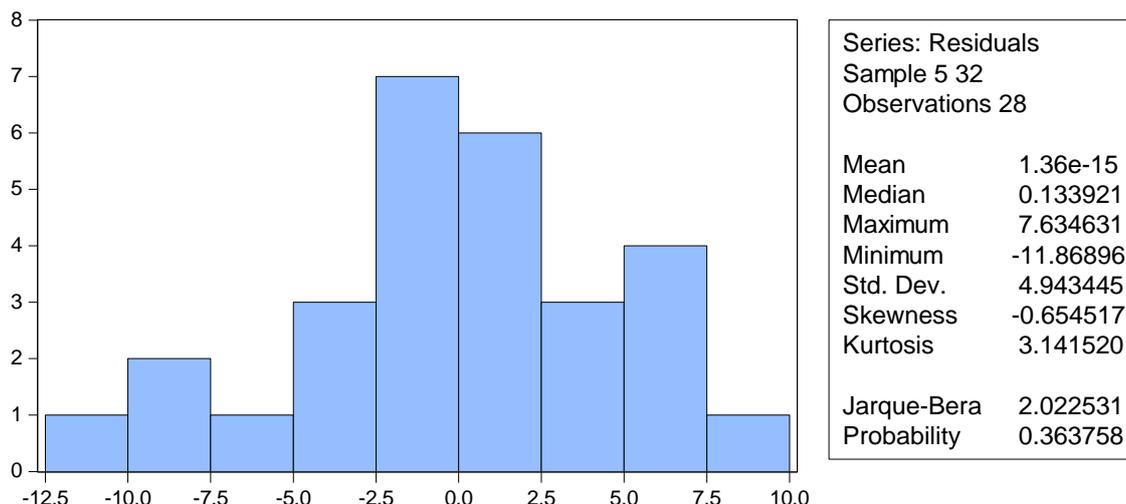


Figure 4.3 Normality of Error Term

The normality of the residuals is assessed using the Jarque-Bera (JB) test, as shown in Figure 4.3. The histogram of residuals indicates a bell-shaped distribution, suggesting that the errors are approximately normally distributed. The Jarque-Bera test statistic is 2.0225, with an associated p-value of 0.3638. Since the p-value is greater than 0.05, we fail to reject the null hypothesis of normality, indicating that the residuals follow a normal distribution.

iii. Test for Serial Correlation (Autocorrelation) of Error Term

Table 5: Breusch-Godfrey Serial Correlation LM Test:

F-statistic	2.893582	Prob. F(4,2)	0.2730
Obs*R-squared	23.87457	Prob. Chi-Square(4)	0.0001

The Breusch-Godfrey Serial Correlation LM test was conducted to examine the presence of autocorrelation in the residuals of the ARDL model. The test results, as presented in Table 6, provide both the F-statistic and the Obs*R-squared (Chi-square) statistic.

The F-statistic of 2.8936 has a p-value of 0.2730, which is greater than 0.05. This implies that we fail to reject the null hypothesis that the residuals are not free from serial correlation.

iv. Test for Heteroskedasticity of Error Term

Table 6: Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.433122	Prob. F (21,6)	0.9280
Obs*R-squared	16.87091	Prob. Chi-Square (21)	0.7189
Scaled explained SS	0.829501	Prob. Chi-Square (21)	1.0000

The Breusch-Pagan-Godfrey test was conducted to check for heteroskedasticity in the residuals of the ARDL model. The results, as presented in Table 7, indicate that the F-statistic is 0.4331 with a p-value of 0.9280, and the Obs*R-squared statistic is 16.8709 with a p-value of 0.7189. Additionally, the Scaled Explained Sum of Squares test statistic is 0.8295, with a p-value of 1.0000.

Since all p-values are greater than 0.05, we fail to reject the null hypothesis of homoskedasticity. This suggests that the variance of the error terms is constant, implying that heteroskedasticity is not a significant issue in the model. The absence of heteroskedasticity strengthens the reliability of the estimated coefficients, indicating that standard errors and hypothesis tests are valid and unbiased.

5.0 CONCLUSION and RECOMMENDATIONS

5.1 Conclusion

The study titled "Foreign Direct Investment and its effects on the Performance of Return on Assets of Commercial Banks in Nigeria" aimed to investigate how Foreign Direct Investment (FDI) affects the financial performance of return on assets of commercial banks in Nigeria. The research was conducted to address the gaps in existing literature and to provide a comprehensive analysis of the relationship between FDI and financial performance indicator such as Return on Assets (RoA). The study utilized secondary data for the period from 1991 to 2022. The data were obtained from reliable sources such as, Nigeria Deposit Insurance Corporation (NDIC), Central Bank of Nigeria (CBN), National Bureau of Statistics (NBS), and financial reports of commercial banks. Key financial indicators, including FDI inflows, GDP, inflation rates, and import and export, were collected to analyze their effects on the financial performance of commercial banks.

The population of the study consisted of all commercial banks operating in Nigeria within the specified period. The exact number of commercial banks varied over the years due to mergers, acquisitions, and regulatory changes. However, the study focused on a consistent dataset to ensure the robustness of the analysis.

The study employed a variety of statistical techniques to analyze the collected data. Initially, the Augmented Dickey-Fuller (ADF) unit root test was conducted to check for stationarity in the time series data. cointegration test for long-run relationships, and the Autoregressive Distributed Lagged (ARDL) model was then used to estimate the dynamic interactions and effects of the variables on return on assets of Commercial banks. For model specification, the study utilized the Akaike Information Criterion (AIC) and Schwarz Information Criterion (SIC) for optimal lag selection.

Post-estimation tests, including the Breusch-Godfrey Serial Correlation LM Test and the Jaque-Bera test, were conducted to validate the results.

5.2 Recommendations

These results provide valuable insights for policymakers and financial institutions aiming to optimize the benefits of FDI in the banking sector. Based on these findings, the study recommends enhancing FDI policies, strengthening regulatory frameworks, improving financial infrastructure, encouraging investment, policy stability, diversification, and adopting robust risk management practices. Additionally, promoting transparency, fostering collaboration with foreign investors, and facilitating knowledge transfer are essential for leveraging the benefits of FDI to boost the financial performance of commercial banks in Nigeria.

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