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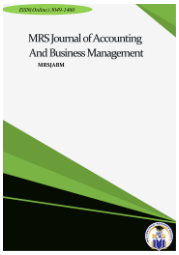

THE ROLE OF MACROECONOMIC STABILITY AND INSTITUTIONAL QUALITY IN ATTRACTING FOREIGN DIRECT INVESTMENT IN NIGERIA

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Abstract: *Nigeria's economy has undergone periods of turbulence, influenced by factors like volatile oil prices, rising inflation, and fluctuations in the exchange rate. The focus of the study was to analyze the role of macroeconomic variables and institutional quality in attracting foreign direct investment in Nigeria from 1996 to 2023. Various econometric and statistical techniques were employed Considering the behavioral pattern of the variables used for estimation, this study adopted Autoregressive Distributed Lagged model (ARDL). The findings of the analysis show that the lagged values of FDI positively influence current FDI levels, the exchange rate (EXR)) has a negative and significant effect suggesting that past exchange rate values negatively impact FDI, Inflation (INF) and interest rate (INT) coefficients are not statistically significant, indicating they do not have a strong direct influence on FDI, Institutional quality (IQ) shows a mixed impact, with the current value, and its lagged value approaching significance but not quite reaching it. In the light of the findings and analysis of this research, the researcher recommends that given the negative and significant impact of exchange rate on FDI, policymakers should prioritize stabilizing the exchange rate. This can be achieved through prudent monetary and fiscal policies, as well as interventions in the foreign exchange market when necessary. Stabilizing the exchange rate will reduce investment uncertainty and create a more conducive environment for foreign investors.*

Keywords: *Macroeconomic stability, institutional Quality, FDI*

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1. Introduction

Foreign Direct Investment (FDI) plays a vital role in the economic development of emerging economies like Nigeria. It serves as a channel for capital inflow, technology transfer, and employment generation, thereby fostering growth. The extent to which a country attracts FDI is largely influenced by macroeconomic stability and institutional quality. In Nigeria, examining the interplay between these factors and FDI is essential for policy formulation aimed at boosting investment inflows.

Macroeconomic stability refers to the predictability of economic indicators such as inflation, exchange rates, and fiscal policy. A stable macroeconomic environment reduces uncertainty for investors and supports long-term investment decisions. In contrast, instability marked by volatile inflation or exchange rates deters FDI by raising investment risks (Kurul & Yalta, 2017). Institutional quality involves the strength of governance, enforcement of property rights, rule of law, and transparency in business processes. Strong institutions reduce transaction costs, improve regulatory efficiency, and create a more secure investment climate. Conversely, weak institutions can increase legal uncertainties and deter foreign investors.

Nigeria's economy has experienced both stability and volatility, driven by factors such as fluctuating oil prices, inflation, and exchange rate instability. For example, the Central Bank of Nigeria has implemented policies to stabilize the naira, aiming to enhance investor confidence (Adenuga, 2023). Institutionally, although there have been efforts to tackle corruption and improve governance, challenges remain. Bureaucratic inefficiencies, contract enforcement issues, and unpredictable regulatory decisions such as halting major oil sector transactions raise concerns about Nigeria's investment climate (Reuters, 2024).

Empirical studies reinforce these observations. Nwankwo (2006) found that macroeconomic stability enhances FDI, while

political instability discourages it. Oke, Adeusi, and Aluko (2012) highlighted the roles of energy consumption and political stability in driving FDI. Kurul and Yalta (2017) concluded that not all institutional indicators influence FDI, but government effectiveness, corruption control, and voice and accountability are particularly impactful. Adenuga (2023) noted that Nigeria's low FDI levels reflect poor institutional quality and called for reforms to strengthen governance. Encouragingly, Nigeria's foreign capital inflow rose significantly in the first half of 2024, from $2.16 billion to $6 billion, attributed to relaxed currency controls. The majority of this capital originated from the UK and Netherlands, targeting Nigeria's banking sector (Reuters, 2024).

Recognizing the importance of FDI, the Nigerian government has introduced reforms to improve macroeconomic conditions and institutional quality. These include exchange rate unification, fuel subsidy removal, and efforts to streamline regulatory procedures. The Central Bank has allowed greater flexibility in naira trading and plans to automate foreign exchange transactions to increase transparency. Anti-corruption initiatives and ease-of-doing-business reforms are also ongoing. The Risk and Uncertainty Theory supports these actions by emphasizing that investors prefer low-risk environments. Macroeconomic stability reduces uncertainty in inflation and exchange rates, making returns on investment more predictable and appealing. Empirical evidence shows that inflation volatility and exchange rate unpredictability significantly deter FDI (Ogunleye, 2008; Asiedu, 2006).

Similarly, institutional quality is critical in reducing risks related to corruption, expropriation, and legal disputes. Countries with strong institutions tend to attract more FDI due to greater legal clarity and reduced corruption (Ali, Fiess, & MacDonald, 2010; Globerman & Shapiro, 2002). Nigeria's persistent challenges such as contract enforcement issues and bureaucratic delays undermine investor trust and elevate transaction costs (Transparency International, 2023).

Therefore, the combination of macroeconomic stability and robust institutions creates a favorable investment environment. Investors are more likely to commit capital to countries where economic and policy risks are minimized. In Nigeria's case, while progress has been made, sustained reforms are necessary to attract and maintain FDI inflows. Macroeconomic stability and institutional quality are key drivers of FDI in Nigeria. Although the country has initiated promising reforms, addressing lingering challenges is essential. Strengthening economic fundamentals and improving governance will boost investor confidence and contribute significantly to Nigeria's long-term development.

Foreign Direct Investment (FDI) is widely acknowledged as a critical driver of economic growth, particularly in developing countries. It brings essential capital inflows, technology transfer, and employment opportunities, which are instrumental in fostering economic development. For Nigeria, a country with vast natural resources and significant market potential, attracting FDI is crucial to addressing its developmental challenges, such as poverty, unemployment, and infrastructural deficits. Despite these inherent advantages, Nigeria's ability to attract and retain substantial FDI inflows has been inconsistent, raising concerns about the underlying factors affecting investor confidence.

A key issue that emerges is the role of macroeconomic stability and institutional quality in shaping the FDI landscape in Nigeria. Macroeconomic stability, characterized by predictable inflation rates, stable exchange rates, and sound fiscal policies, is a fundamental determinant of investment decisions. Investors are typically risk-averse, and economic instability introduces an element of unpredictability that can deter FDI. For instance, periods of high inflation and fluctuating exchange rates in Nigeria have been linked to reduced FDI inflows, as they increase the risk of capital losses and reduce the attractiveness of the investment climate (Ogunleye, 2008; World Bank, 2021). Similarly, institutional quality is another critical factor influencing FDI. Strong institutions that ensure transparent governance, enforce property rights, and uphold the rule of law create an environment conducive to investment. Conversely, weak institutions, characterized by corruption, bureaucratic inefficiencies, and poor regulatory frameworks, increase the cost of doing business and deter potential investors. Nigeria's ranking in global indices such as the Corruption Perceptions Index and the Ease of Doing Business Index has consistently highlighted significant institutional weaknesses, which are major deterrents to FDI (Transparency International, 2023; World Bank, 2021).

The Nigerian government has recognized these challenges and implemented various reforms aimed at improving macroeconomic stability and institutional quality. Efforts such as the unification of exchange rates, reduction of fuel subsidies, and anti-corruption initiatives are part of broader strategies to create a more attractive investment environment. However, despite these measures, the response from foreign investors has been mixed. While some sectors, such as telecommunications and banking, have seen increased foreign investment, others, particularly the oil and gas sector, continue to experience uncertainty and reduced investor confidence (Reuters, 2024). The disparity in FDI inflows across different sectors raises questions about the effectiveness of current policies and the extent to which macroeconomic stability and institutional quality are being achieved. For example, recent studies have shown that while Nigeria has made progress in certain areas, challenges such as regulatory unpredictability, legal uncertainties, and corruption persist, undermining the overall investment climate (Adenuga, 2023; Asiedu, 2006). Furthermore, the global economic landscape has evolved, with investors becoming increasingly selective about their destinations. Countries that can offer not only natural resources but also a stable macroeconomic environment and robust institutions are more likely to attract sustainable FDI. In this context, Nigeria faces stiff competition from other developing countries that are also vying for limited global investment capital.

The problem, therefore, is multifaceted. On one hand, Nigeria's macroeconomic instability, marked by volatile inflation and exchange rates, poses significant risks to investors. On the other hand, the persistent institutional weaknesses, such as corruption and regulatory inefficiencies, further compound the challenges, making it difficult to create a predictable and transparent investment environment. This dual challenge undermines Nigeria's potential to attract and sustain FDI, which is crucial for achieving its economic development goals. Addressing this problem requires a comprehensive understanding of the interplay between macroeconomic stability, institutional quality, and FDI. It is essential to identify the specific macroeconomic and institutional factors that most significantly impact FDI inflows and to evaluate the effectiveness of current policies aimed at improving these areas. Moreover, there is a need to explore best practices

from other developing countries that have successfully attracted FDI through robust macroeconomic and institutional frameworks. The study seeks to investigate the role of macroeconomic stability and institutional quality in attracting FDI to Nigeria. By examining the specific challenges and opportunities within Nigeria's economic and institutional landscape, the study aims to provide insights into how the country can enhance its attractiveness to foreign investors.

Following the introduction, section two presents a review of related literature, while section three outlines the methodology and data considerations. Section four contains the analysis and interpretation of results, and section five concludes the study with policy recommendations.

2. Literature Review

Risk and Uncertainty Theory, originally developed by Frank H. Knight in 1921, provides a foundational framework for understanding how risk and uncertainty influence investment decisions. Knight differentiated between measurable risks, which can be quantified and managed, and unmeasurable uncertainties, which are inherently unpredictable. This distinction is particularly relevant when examining the combined effects of macroeconomic stability and institutional quality on Foreign Direct Investment (FDI) inflows in Nigeria.

Macroeconomic stability encompasses the predictability of key economic indicators such as inflation, exchange rates, and fiscal policies. According to Risk and Uncertainty Theory, when these variables are stable, the associated risks for investors are more manageable. Stable inflation rates, for example, allow investors to forecast costs and returns with greater accuracy, reducing the risk of unexpected financial losses. Similarly, stable exchange rates mitigate the risk of currency fluctuations that could erode the value of foreign investments (Akinyemi, 2023). In Nigeria, periods of macroeconomic stability have been associated with increased investor confidence, as the predictability of economic conditions reduces the level of uncertainty and encourages long-term investment commitments (Central Bank of Nigeria, 2024).

Institutional quality plays a critical role in minimizing uncertainties. High-quality institutions ensure the enforcement of contracts, protection of property rights, and reduction of corruption, which are key factors in creating a conducive business environment. Knight's theory underscores that while risks can be calculated, uncertainties stemming from weak institutions are harder to predict and manage. In Nigeria, institutional weaknesses such as corruption, bureaucratic inefficiencies, and legal ambiguities increase the level of uncertainty, discouraging foreign investors (Nwankwo & Odozi, 2022). Conversely, improvements in institutional quality, such as reforms to enhance transparency and streamline regulatory processes, reduce these uncertainties and create a more predictable investment climate (Adenuga, 2023).

The interplay between macroeconomic stability and institutional quality significantly impacts FDI inflows in Nigeria. According to Risk and Uncertainty Theory, the combined reduction of risk through stable macroeconomic conditions and mitigation of uncertainty through strong institutional frameworks creates an optimal environment for foreign investment. Empirical studies have shown that countries with both macroeconomic stability and high institutional quality attract more FDI, as the combined effect reduces the overall risk and uncertainty perceived by investors (Kurul & Yalta, 2017).

In Nigeria, the lack of either factor can undermine the positive effects of the other. For instance, even if macroeconomic indicators are stable, poor institutional quality can deter FDI due to unresolved uncertainties. Similarly, strong institutions may not fully compensate for macroeconomic instability, as the risks associated with unpredictable economic conditions remain high. Thus, the synergistic effect of both stable macroeconomic policies and robust institutional frameworks is crucial in fostering a favorable investment climate.

Risk and Uncertainty Theory highlights the importance of reducing both measurable risks and unmeasurable uncertainties to attract FDI. In the Nigerian context, the combined effects of macroeconomic stability and institutional quality are critical for creating a predictable and secure investment environment. Policymakers must focus on sustaining macroeconomic stability and strengthening institutional quality to reduce risks and uncertainties, thereby enhancing the country's attractiveness to foreign investors.

Empirical Reviews

An empirical review of the role of macroeconomic stability and institutional quality in attracting Foreign Direct Investment (FDI) in Nigeria reveals various insights from studies conducted over the years. These studies explore different aspects of the relationship between macroeconomic conditions, institutional frameworks, and FDI inflows, using diverse methodologies and datasets. Each study provides valuable contributions but also presents areas for critique, highlighting limitations in methodology, data scope, and generalizability.

Akinlo (2021) examined the impact of macroeconomic stability on FDI inflows in Nigeria from 1980 to 2020. Using time series data and the Autoregressive Distributed Lag (ARDL) model, the study found that macroeconomic stability, particularly inflation and exchange rate stability, significantly influences FDI. While the study's findings underscore the importance of policy consistency, a potential critique is its reliance on a single-country dataset, which may limit the generalizability of its conclusions. Additionally, the ARDL model assumes a linear relationship, which may overlook potential nonlinearities in the data.

Obasi and Uchenna (2020) focused on institutional quality and its effect on FDI in Nigeria from 1995 to 2019. Utilizing a panel data approach and Generalized Method of Moments (GMM), the study revealed that strong institutions, reflected in good governance, transparency, and legal enforcement, are critical in attracting FDI. A critique of this study could point to the potential endogeneity issues inherent in institutional quality measures, which the GMM approach attempts to address but may not fully resolve. Moreover, the study's reliance on governance indicators from international databases may not fully capture local nuances.

Adewuyi and Adebayo (2019) explored the joint impact of macroeconomic stability and institutional quality on FDI in Nigeria from 1981 to 2018 using a Vector Error Correction Model (VECM). They found that both factors have a long-term positive effect on FDI inflows. The study's long-term perspective is commendable, but the VECM approach assumes cointegration among variables, which may not always hold. Furthermore, the

study's focus on Nigeria alone may limit its applicability to other contexts with different macroeconomic and institutional characteristics.

Anyanwu (2018) analyzed the relationship between institutional quality and FDI in Sub-Saharan Africa, with a specific focus on Nigeria. Employing cross-country data from 1990 to 2017 and the Two-Stage Least Squares (2SLS) method, the study found that political stability and control of corruption are significant determinants of FDI. While the use of cross-country data enhances the study's generalizability, a potential critique is the heterogeneity across countries, which may obscure country-specific dynamics. Additionally, the 2SLS method requires valid instruments, and the choice of instruments can significantly influence the results.

Eze and Emeh (2017) investigated the role of macroeconomic stability in attracting FDI to Nigeria during 1986 to 2016, applying a Structural Vector Autoregression (SVAR) model. The study found that inflation targeting and stable fiscal policies are crucial in attracting FDI. The SVAR model provides valuable insights into dynamic relationships, but its results are sensitive to the choice of identification restrictions. Moreover, the study's focus on macroeconomic variables may overlook the potential interaction effects with institutional quality.

Olayemi (2016) focused on the relationship between exchange rate volatility and FDI in Nigeria from 1990 to 2015, using a GARCH model. The study found that exchange rate stability significantly determines FDI inflows. A critique of this study could highlight the model's limitation in capturing other macroeconomic variables that may simultaneously affect FDI. Additionally, exchange rate volatility may have different effects on different sectors, which the study does not address. Usman and Adeola (2015) analyzed the impact of institutional quality on FDI from 1980 to 2014 using an Ordinary Least Squares (OLS) regression. They found that governance indicators such as regulatory quality and the rule of law positively influence FDI. While the OLS approach is straightforward, it may not adequately address endogeneity or omitted variable bias. Moreover, the study could benefit from a more nuanced analysis of specific institutional reforms and their direct impact on FDI.

Adegoke and Fapohunda (2014) analyzed macroeconomic stability and FDI inflows in Nigeria from 1981 to 2013, employing a Cointegration and Error Correction Model (ECM). The study highlighted the positive role of fiscal stability and inflation control in attracting FDI. The ECM approach provides valuable long-term insights but assumes that variables are cointegrated, which may not always be the case. Furthermore, the study's focus on macroeconomic stability may underplay the role of institutional quality.

Bello and Ibrahim (2013) examined the role of institutional quality in FDI inflows in Nigeria from 1995 to 2012 using a Fixed Effects Model (FEM). The study found that institutional quality significantly impacts FDI, especially aspects related to corruption control and government effectiveness. While the FEM approach controls for unobserved heterogeneity, it may not capture time-varying institutional dynamics. Additionally, the study could explore more granular institutional indicators to provide deeper insights.

Lastly, Okechukwu and Akpan (2012) examined the combined effects of macroeconomic stability and institutional quality on FDI in Nigeria from 1980 to 2010 using a Structural Equation Model (SEM). They found that both macroeconomic stability and institutional quality are crucial for attracting FDI. The SEM approach allows for the examination of complex relationships, but its results are highly sensitive to model specification and identification assumptions. The study could benefit from a more detailed analysis of how specific institutional reforms interact with macroeconomic stability to influence FDI.

Research Gap

Despite extensive research on the role of macroeconomic stability and institutional quality in attracting Foreign Direct Investment (FDI) in Nigeria, several critical gaps remain. While existing studies highlight the significance of macroeconomic stability, particularly in controlling inflation, exchange rate volatility, and fiscal policies, many rely on linear models that may not adequately capture the complex, dynamic interactions between macroeconomic variables and FDI inflows.

Institutional quality is another crucial factor frequently examined in these studies. Research by Obasi and Uchenna (2020) and Bello and Ibrahim (2013) emphasizes the role of governance, transparency, and legal enforcement in attracting FDI. However, these studies often depend on governance indicators from international databases, which may not fully capture the nuanced, local-level institutional dynamics in Nigeria. Moreover, the potential endogeneity of institutional variables, although addressed using methods like the Generalized Method of Moments (GMM) or Two-Stage Least Squares (2SLS), may not be entirely resolved, leaving room for further methodological refinement.

Another notable gap is the limited scope of cross-country comparisons or sector-specific analyses. Anyanwu (2018) provides a broader Sub-Saharan Africa perspective, but the heterogeneity across countries might obscure Nigeria-specific dynamics. Most studies focus on aggregate FDI inflows without dissecting the sectoral differences in how macroeconomic and institutional factors affect various industries. For instance, Olayemi's (2016) focus on exchange rate volatility does not account for sector-specific variations in FDI responses to exchange rate changes.

Additionally, the interaction effects between macroeconomic stability and institutional quality are underexplored. While studies like Adewuyi and Adebayo (2019) and Okechukwu and Akpan (2012) recognize the joint impact of these factors, they do not delve deeply into how improvements in institutional quality might amplify or mitigate the effects of macroeconomic stability on FDI inflows.

Lastly, there is a methodological gap in the use of advanced econometric techniques that can better handle the complexities of the data. For example, Structural Vector Autoregression (SVAR) and Structural Equation Models (SEM) used in some studies are sensitive to identification restrictions and model specifications.

3. Methodological Issues

In carrying out this study, we will use time series secondary data. The secondary data will be obtained from Ccentral Bank of Nigeria statistical bulletin (2023). The research data will span from 1996 to 2023, a period long enough for robust econometric analysis. This study employs a linear model specification that transitions from a general framework to a more specific one,

aligning with established theoretical constructs. To effectively address the research objectives, the Auto Regressive Distributed Lag (ARDL) model will be utilized, specifically employing the bounds testing approach along with a dynamic Error Correction Model (ECM) as articulated by Pesaran and Shin (1998). The focus of this analysis is to assess both the long-run and short-run impacts of the macroeconomic variables selected and institutional quality on inflow of FDI in Nigeria, spanning the years 1996 to 2023.

The selection of this model is grounded in the understanding that economic improvement is closely tied to the performance of critical economic variables from prior periods. The ARDL model is particularly advantageous due to its flexibility in accommodating the integration order of the regressors. Specifically, it can be effectively applied regardless of whether the individual variables are integrated of order I(0) or I(1), which simplifies the modeling process and enhances robustness (Pesaran et al., 2001). Furthermore, the ARDL model allows for the inclusion of an adequate number of lags to accurately capture the underlying data-generating process. This characteristic facilitates the transition from a general framework to a more specific analysis, ensuring that both immediate and delayed effects are considered (Laurenceson & Chai, 2003).

The model will investigate not only the short-term relationship but also the long-term trends, thereby offering critical insights for policymakers. Understanding these dynamics is essential for formulating effective strategies to bolster the FDI inflow, which is a key driver of economic development and stability in Nigeria. Moreover, this analytical approach contributes to the broader literature on FDI by highlighting the interconnectedness of these variables and their impact on overall economic performance.

3.2 Model Specification

The functional relationship of macroeconomic variables, institutional quality and foreign direct investment can be specified in the following model

$$\begin{aligned}\mathrm{FDI}_t &= \beta_0 + \sum_{i=1}^{p}\beta_1 FDI_{t-1} + \sum_{i=1}^{p}\beta_2 EXR_{t-1} + \sum_{i=1}^{p}\beta_3 INF_{t-1} + \\ &\sum_{i=1}^{p}\beta_4 \mathrm{INT}_{t-1} + \sum_{i=1}^{p}\beta_5 \mathrm{IQ}_{t-1} + \sum_{i=1}^{p}\alpha_i \Delta FDI_{t-1} + \sum_{j=0}^{q}\alpha_i \Delta EXR_{t-j} + \sum_{j=0}^{q}\alpha_i \Delta INF_{t-j} \\ &+ \sum_{j=0}^{q}\alpha_i \Delta INT_{t-j} + \sum_{j=0}^{q}\alpha_i \Delta IQ_{t-j} + \psi ECT_{t-j} + \varepsilon_t \qquad (4)\end{aligned}$$

The model is explicitly defined as follows

$$FDI_t = \beta_0 + \beta_1 \mathrm{EXR}_t + \beta_2 \mathrm{INF}_t + \beta_3 \mathrm{INT}_t + \beta_4 \mathrm{IQ}_t + \mu_t \qquad (2)$$

Where : FDI = foreign direct investment, EXR = real exchange rate, INF = inflation rate, IQ = calculated average of institutional quality variables, β_0 = Intercept, β_1 to β_4 are the coefficient of the parameters of the model while μ is Stochastic variable or error term.

The a-priori expectation is as follows $\beta_1 < 0$, $\beta_2 < 0$, $\beta_3 < 0$, $\beta_4 > 0$

Therefore, the ARDL model for the objectives is specified as Equation 3 below:

$$\begin{aligned}\mathrm{FDI}_t &= \beta_0 + \sum_{i=1}^{p}\beta_1 FDI_{t-1} + \sum_{i=1}^{p}\beta_2 EXR_{t-1} + \sum_{i=1}^{p}\beta_3 INF_{t-1} + \\ &\sum_{i=1}^{p}\beta_4 \mathrm{INT}_{t-1} + \sum_{i=1}^{p}\beta_5 \mathrm{IQ}_{t-1} + \varepsilon_t \qquad (3)\end{aligned}$$

Unit Root Test

Since the integration order of a time series is crucial for time series analysis, the Augmented Dickey-Fuller (ADF) unit root test will be employed to assess the time series characteristics of the model's variables. The Akaike Information Criterion (AIC) was used to determine the optimal lag selection.

Test for Cointegration

Bound testing is a method used to determine the existence of a long-run equilibrium relationship between the dependent variable and the lagged values of the explanatory variables by computing the F-test statistic. This involves testing the null hypothesis (H_0: $\alpha j = \beta j = 0$), which suggests the absence of a long-run relationship among the variables, meaning that the coefficients of all k+1 variables are equal to zero. If the null hypothesis is rejected, it indicates the presence of a long-run relationship between the variables.

The bounds test involves comparing the calculated F-statistic to two critical values: the lower bound and the upper bound. If the F-statistic exceeds the upper bound critical value, the null hypothesis of no cointegration is rejected, confirming a long-run relationship. Conversely, if the F-statistic is below the lower bound critical value, the null hypothesis cannot be rejected, indicating no long-run relationship. However, if the F-statistic falls between the lower and upper bound critical values, the results are inconclusive, leaving uncertainty about the presence of a long-run relationship.

Once a long-run cointegration relationship is established, the next step is to estimate the short-run error correction model (ECM). The ECM captures the short-term dynamics of the variables and measures the speed at which the system returns to equilibrium after a short-term disturbance. This approach allows for the specification of the short-run dynamic error correction model, which provides insights into the immediate adjustments of the series and how quickly they converge towards the long-run equilibrium.

$$\begin{aligned}\mathrm{FDI}_t &= \beta_0 + \sum_{i=1}^{p}\beta_1 FDI_{t-1} + \sum_{i=1}^{p}\beta_2 EXR_{t-1} + \sum_{i=1}^{p}\beta_3 INF_{t-1} + \\ &\sum_{i=1}^{p}\beta_4 \mathrm{INT}_{t-1} + \sum_{i=1}^{p}\beta_5 \mathrm{IQ}_{t-1} + \sum_{i=1}^{p}\alpha_i \Delta FDI_{t-1} + \sum_{j=0}^{q}\alpha_i \Delta EXR_{t-j} + \sum_{j=0}^{q}\alpha_i \Delta INF_{t-j} \\ &+ \sum_{j=0}^{q}\alpha_i \Delta INT_{t-j} + \sum_{j=0}^{q}\alpha_i \Delta IQ_{t-j} + \psi ECT_{t-j} + \varepsilon_t \qquad (4)\end{aligned}$$

The variables in equations 4 are as defined in equation 1. The *ECT* in equation 4 is the error correction terms for equation 1 while the coefficient of ECT (Ψ) measures the speed of adjustment and Δ is the 1st difference operator.

where

$$ECT = (FDI_t - \beta_0 - \beta_1 \mathrm{EXR}_t - \beta_2 \mathrm{INF}_t - \beta_3 \mathrm{INT}_t - \beta_4 \mathrm{IQ}_t) \qquad (5)$$

Post Estimation Tests

The following post estimation tests will also be conducted for the purpose of this research work: normality test, Test for serial correlation, heteroscedasticity test, stability test and cusum and

cusum square test.

4. Empirical Result

Descriptive Analysis

Typically, empirical analysis begins with a preliminary assessment to lay the groundwork for more detailed estimation. Accordingly, summary statistics were generated for the relevant variables in this study. This initial analysis offers insights into the general behavior and distributional characteristics of the data series. Specifically, the descriptive statistics shed light on how the variables are distributed, as reflected in the results shown in Table 1.

Table 1: Descriptive Outcomes

Variables	Mean	Maximum	Std_Dev	Skewness	Kurtosis	J_B Stat.
FDI	1.224789	2.900249	0.882630	0.188423	1.947788	1.457356
EXR	189.0473	492.2918	126.9782	0.953862	3.017935	4.246358
INF	12.68496	29.30000	3.017151	1.261228	5.313527	13.66772***
INT	17.22071	0.453157	0.037561	-0.346579	4.612473	3.593961
IQ	0.390436	0.453157	0.037561	-0.400369	2.644093	0.895826

*Authors' calculation. *** (**) [*] signify the decline of null hypothesis of normal distribution at 1% (5%)[10%] level of significance respectively. fdi designates foreign direct investment; IQ stands for institutional quality , EXR represents exchange rate, while INT means interest rate.*

The table presents descriptive statistics for five economic variables FDI, exchange rate, inflation, interest rate, and institutional quality based on 28 observations. The mean and median values are generally close, suggesting a relatively symmetrical distribution. Exchange rate shows the highest variability, indicating significant volatility, while inflation and interest rates exhibit moderate fluctuations. Institutional quality reflects moderate stability. Skewness and kurtosis reveal some deviation from normality, especially for inflation, which is leptokurtic. The Jarque-Bera test confirms that inflation significantly departs from normality, while other variables are more normally distributed.

Unit Root Test

Foreign direct investment (FDI), inflation rate proxied by INF, exchange rate (EXR), interest rate (INT), institutional quality (IQ) variables in table 4.2 are tasted for stationarity so as to avert inconsistencies which could have arisen owing to spurious results emanating from non-stationary data used for regression interest rate is included in the model to serve as control variable.

Table 2: Augumented Dickey Fuller Unit Root Test

ADF statistics						
Variables	**Level**	**1st Difference**	**Critical Values**	**Order of Integration**	**P-Value**	**Decision**
FDI	-1.059955	-7.093461*	1% -3.711457 5% -2.981038* 10%-2.629906	*I*(1)	0.0000	Reject H_0
EXR	1.390087	-3.754948*	1% -3.711457 5% -2.935001* 10%-2.629906	*I*(1)	0.0090	Reject H_0
INF	-2.135047*		1% -2.653401 5% -1.953858* 10% -1.609571	*I*(0)	0.0338	Reject H_0
INT	-0.490011	-6.085558*	1% -2.656915 5% -1.954414* 10% -1.609329	*I*(1)	0.0000	Reject H_0
IQ	-1.800605	-3.175516*	1% -3.808546 5% -3.020686* 10% -2.650413	*I*(1)	0.0000	Reject H_0

*Author's computation (*shows the variable is stationary at 5% level of significant*

The result shows that with the exception of inflation rate (INF) which is stationary at the level, all others variables are integrated of order one, I(1) or so to say stationary at first difference, This implies that there is a mixture of order of integration which makes the autoregressive distributed lag model (ARDL) appropriate for analysis.

To test for cointegration, the researcher employed the Bound test. The result of the bound test is shown in table 4.3 as follows.

Bound Test

Table 3: ARDL Bound test result

Null hypothesis: No long run relationship exists		
f- statistic	2.563591	K = 4

Critical Value Bounds			
Significance	I0 Bound	I1 Bound	Decision
10%	2.45	3.52	No cointegrated
5%	2.86	4.01	No cointegrated
2.5%	3.25	4.49	No cointegrated
1%	3.74	5.06	No cointegrated

Author's computation using E-view

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
FDI(-1)	0.406497	0.178948	2.271593	0.0364
FDI(-2)	0.330322	0.177819	1.857631	0.0806
EXR	0.007368	0.004968	1.483287	0.1563
EXR(-1)	-0.011528	0.005430	-2.122941	0.0487
INF	0.007363	0.026807	0.274675	0.7869
INT	-0.000908	0.045850	-0.019811	0.9844
IQ	9.029117	5.102794	1.769446	0.0948
IQ(-1)	-7.747684	4.009287	-1.932434	0.0701
C	0.382311	2.925263	0.130693	0.8976

R-squared	0.797429	Mean dependent var	1.299672
Adjusted R-squared	0.702102	S.D. dependent var	0.871601
S.E. of regression	0.475720	Akaike info criterion	1.619451
Sum squared resid	3.847266	Schwarz criterion	2.054946
Log likelihood	-12.05286	Hannan-Quinn criter.	1.744858
F-statistic	8.365169	Durbin-Watson stat	1.785069
Prob(F-statistic)	0.000134		

The ARDL estimation results in Table 4.3 reveal key insights into the relationships between the dependent variable (FDI) and the explanatory variables. The lagged values of FDI are significant, with FDI(-1) showing a positive and significant effect (coefficient: 0.4065, p=0.0364), indicating that past values of FDI positively influence current FDI levels. FDI(-2) is also positive but not significant at the 5% level (p=0.0806). The exchange rate (EXR) at its current level is not significant (p=0.1563), but its lagged value (EXR(-1)) has a negative and significant effect (coefficient:-0.0115, p=0.0487), suggesting that past exchange rate values negatively impact FDI.

Inflation (INF) and interest rate (INT) coefficients are not statistically significant, indicating they do not have a strong direct influence on FDI in this model. Institutional quality (IQ) shows a mixed impact, with the current value (p=0.0948) and its lagged value (p=0.0701) approaching significance but not quite reaching it. The overall model is robust, with an R-squared of 0.7974, suggesting that approximately 79.7% of the variability in FDI is explained by the model. The F-statistic is significant (p=0.000134), indicating that the model is a good fit. The Durbin-Watson statistic of 1.785 suggests no significant autocorrelation in the residuals.

Post Estimation Test

The diagnostic tests results show that the regression models passed all checks for serial correlation (Breusch-Godfrey LM test), heteroskedasticity (ARCH test), and normality of errors (Jarque-Bera test), as presented in Table 4.5 4.7 below.

Table 5: Breusch-Godfrey Serial Correlation LM Test

F-statistic	0.477285	Prob. F(2,15)	0.6296
Obs*R-squared	1.555594	Prob. Chi-Square(2)	0.4594

Table 6: Heteroskedasticity Test: ARCH

F-statistic	0.218184	Prob. F(8,17)	0.9828
Obs*R-squared	2.420977	Prob. Chi-Square(8)	0.9653
Scaled explained SS	0.549036	Prob. Chi-Square(8)	0.9998

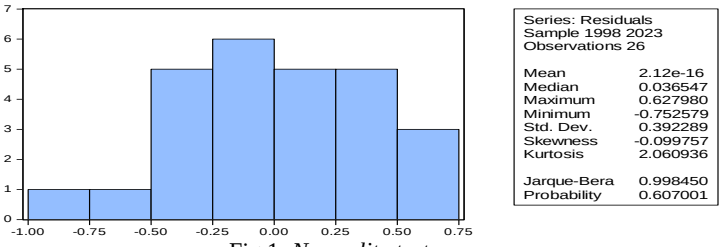

Fig.1: *Normality test*

The results of the diagnostic test, correlation LM test and Hetroscedasticity test, shown in table 4.5 and 4.6 indicate that all the probability values of the tests are above 5% levels of significant implying that none of the null Hypotheses can be rejected therefore there is no evidence of serial correlation and the residual is homoskedastic. Also Jarque Bera Normality test shows that the variables are normally distributed. Absence of these second order econometrics problems reinforces the reliability and robustness of the research findings.

The cusum and cusum square results in the figure 2 and 3 below show that the model is stable

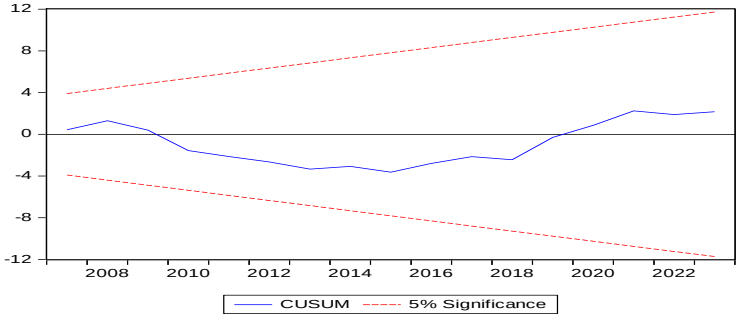

Fig.2: *Cusum test*

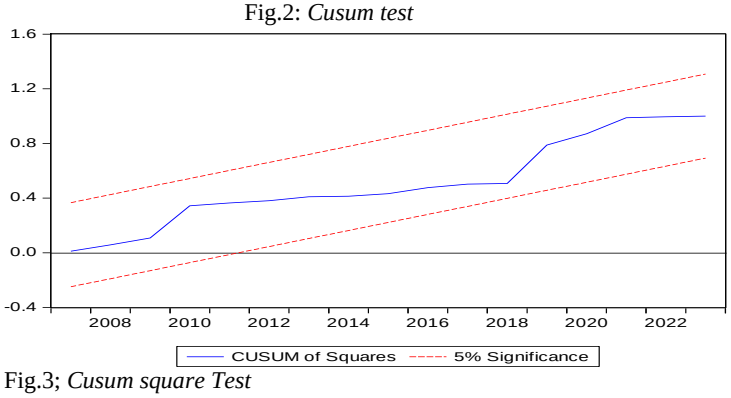

Fig.3; *Cusum square Test*

Discussion of Results

The findings of this study provide important insights into the determinants of Foreign Direct Investment (FDI) in the context of the examined economy. Firstly, the positive influence of lagged

FDI on current FDI levels highlights the inertia or persistence in investment flows. This result aligns with existing literature that suggests past investment levels often create a momentum effect, where previous investments build investor confidence, infrastructure, and networks that attract further FDI. For example, studies by Alfaro et al. (2004) and Blonigen (2005) support the notion that FDI tends to be path-dependent, where prior inflows enhance the attractiveness of the host country.

Furthermore, the persistence of FDI, as indicated by the positive influence of lagged FDI, resonates with current studies that explore the role of global value chains (GVCs) and regional integration in fostering sustained investment flows. For instance, Chen et al. (2020) illustrate how integration into GVCs creates feedback loops where initial investments lead to network effects, further attracting FDI. This reflects a modern understanding that past investments not only enhance host country appeal but also embed countries deeper into global production networks.

The negative impact of exchange rate volatility on FDI remains a critical concern in recent literature, particularly in light of increased global economic uncertainty and currency fluctuations. Studies such as Ghosh et al. (2019) highlight that in a post-global financial crisis world, currency stability has become even more pivotal. The unpredictability associated with volatile exchange rates can deter investment, as investors seek to mitigate risks associated with currency depreciation and inflationary pressures. Recent findings also suggest that inflation and interest rates, while traditionally significant, may now play a more complex or indirect role in FDI decisions. According to Jadhav (2021), investors in the current global economy are increasingly focused on structural reforms and market potential rather than short-term macroeconomic indicators. This shift aligns with the findings in this study, where inflation and interest rates did not exhibit strong direct effects on FDI.

Institutional quality remains a central theme in contemporary FDI research, particularly with the growing emphasis on governance, transparency, and regulatory quality. Recent studies by Nguyen et al. (2022) confirm that institutional factors like political stability, corruption control, and legal frameworks significantly influence investment decisions. However, the mixed impact observed in this study underscores the complexity of these relationships, suggesting that while institutions matter, their effects may manifest in conjunction with other factors or over a longer time horizon.

5. Conclusion and Policy Recommendation

This study examined the influence of macroeconomic variables specifically exchange rate and inflation rate and institutional quality on foreign direct investment (FDI) in Nigeria. Given the behavior of the data series involved, the Autoregressive Distributed Lag (ARDL) model was employed for estimation. The results revealed that lagged values of FDI have a positive influence on current FDI inflows, suggesting a level of persistence in investment trends. Exchange rate, however, was found to have a negative and statistically significant effect, indicating that volatility or unfavorable movements in the exchange rate discourage foreign investment. Inflation and interest rates, on the other hand, were not statistically significant, implying they do not exert a strong direct effect on FDI inflows. Institutional quality exhibited a mixed effect; both the current and lagged values approached significance but did not reach conventional thresholds, suggesting a potentially complex and indirect influence.

These findings enhance the understanding of FDI dynamics in Nigeria, emphasizing that while exchange rate stability plays a crucial role in attracting investment, inflation and interest rates might be less influential. The ambiguous effect of institutional quality points to the need for deeper investigation into the mechanisms through which governance and institutional factors shape investment decisions. In alignment with earlier empirical work, this study adds nuanced insights into the determinants of FDI.

Based on the results, it is recommended that policymakers focus on stabilizing the exchange rate, as its volatility has been shown to deter foreign investment. This can be accomplished through sound monetary and fiscal management, alongside strategic interventions in the foreign exchange market when necessary. A stable exchange rate reduces investor uncertainty and fosters a favorable investment climate. Furthermore, efforts should be made to strengthen institutional frameworks by improving regulatory quality, enhancing political stability, and upholding the rule of law. Actions such as minimizing bureaucratic obstacles, promoting transparency, and fighting corruption are essential for boosting investor confidence and encouraging more sustained and substantial FDI inflows.

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Compliances with Ethical Standards:

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Conflict of Interest: The authors have no conflicts of interest that are relevant to this work

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