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EFFECT OF DOMESTIC DEBT AND EXCHANGE RATE ON PRIVATE INVESTMENT IN NIGERIA: AN ASYMMETRIC ARDL APPROACH

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Abstract

Policy formulation in Nigeria has been affected by inconsistent and possibly nonlinear impacts of domestic debt and exchange rate fluctuations on private investment in Nigeria, thus the need for a study that investigate the disproportionate effects of exchange rate and domestic debt on private investment in Nigeria, using the asymmetric Nonlinear Autoregressive Distributed Lag (NARDL) approach. The findings reveal significant asymmetries in the relationships, with positive shocks in exchange rate and domestic debt exerting stronger effects on private investment compared to negative shocks. In the long run, exchange rate appreciation, increased domestic debt, and economic growth positively influence private investment, while negative shocks are largely insignificant. The results for the short run estimates reveal positive exchange rate shocks and negative domestic debt shocks significantly impact private investment, having -0.288 as the error correction term, translating to a steady progression towards long-run equilibrium. These results accentuate the pivotal role of macroeconomic stability in promoting investment-friendly conditions. Recommendations from the findings supports policies that prioritize exchange rate stability in the mitigation of the adverse effect of volatility. Strengthening monetary and fiscal policies to maintain a stable and competitive naira will encourage investment by reducing uncertainties and the cost of imported capital goods.

Keywords: private investment, exchange rate, domestic debt, asymmetric, Nigeria

JEL Classification Codes: F34, H6, H63

1.0 Introduction

The dynamics between domestic debt, exchange rates, and private investment pose important question for researchers, especially in emerging economies like Nigeria. Rising levels of domestic debt, often used to finance public spending, can exert considerable pressure on the economy by crowding out private investment through increased borrowing costs and competition for financial resources (Iyoha, 2021). As private investors face higher interest rates due to government borrowing, their ability to access affordable credit may diminish, potentially stifling economic growth. Moreover, shifts in the exchange rate, which are particularly impactful in an import-dependent economy

like Nigeria, can create uncertainty and risk for private investors, deterring investment in sectors reliant on imported goods (Ezeabasili et al., 2020). Examining the nuanced effects of domestic debt and exchange rate fluctuations on private investment is therefore critical to formulating effective policies to stabilize Nigeria's investment climate.

Understanding the effects of domestic debt and exchange rate fluctuations on private investment in Nigeria is crucial for shaping policies that promote sustainable economic growth. As the government increasingly relies on domestic borrowing to finance budget deficits, the debt accumulated may lead to a hike in interest rates, which could deter private investment, which is essential for job creation and innovation (Iyoha, 2021). Exchange rate volatility, on the other hand, adds another layer of uncertainty for investors, particularly in an import-reliant economy like Nigeria, where currency depreciation can significantly increase production costs and reduce profit margins (Ezeabasili et al., 2020). By examining these relationships, policymakers can better assess the trade-offs involved in domestic debt financing and develop strategies to stabilize exchange rates, thereby fostering a favourable investment climate. Such insights are critical for crafting balanced fiscal and monetary policies that stimulate private sector growth while maintaining macroeconomic stability.

This research enhances the literature by offering a subtle and insightful exploration of how these economic factors interact in an emerging economy context. First, it uses an asymmetric autoregressive distributed lag (ARDL) model, accounting for dynamics in both domestic debt and exchange rates whether upward or downward shifts, thus revealing the nonlinear effects that are often overlooked in traditional models. By distinguishing between the impacts of currency depreciations versus appreciations, as well as increases versus decreases in domestic debt, the study provides more accurate insights into how these factors affect investment decisions. Additionally, it addresses the gap in empirical research specific to Nigeria, where economic conditions, such as heavy import dependence and fluctuating debt levels, create unique challenges for private investors. This analysis equips policymakers with a deeper understanding of how debt management and exchange rate stability can foster an environment conducive to private investment, ultimately contributing to economic growth and development.

This study utilizes an asymmetric autoregressive distributed lag (ARDL) model to investigate the nonlinear impacts of domestic debt and exchange rate changes on private investment in Nigeria. Traditional linear models may overlook these asymmetric effects, which can result in an incomplete

understanding of the dynamics at play (Shin et al., 2014). The asymmetric ARDL approach enables the analysis of how positive and negative changes in domestic debt and exchange rates distinctly affect private investment, capturing the reality that currency depreciations may impact investment differently than appreciations, and that rising debt levels may have varied effects depending on the state of the economy. By providing a comprehensive understanding of these relationships, this research seeks to inform policymakers on strategies to manage domestic debt and stabilize exchange rates to create a favourable environment for private investment in Nigeria.

2.0 Literature Review

The interplay between domestic debt, exchange rates, and private investment has been widely explored in the literature, particularly in developing economies where government borrowing and currency fluctuations present distinct challenges for economic growth. Domestic debt often serves as a means for governments to bridge budget deficits, but the subsequent impact on private investment remains complex and context-specific. Crowding-out theory suggests that increased domestic debt can reduce private investment by raising interest rates, as government borrowing competes with the private sector for limited financial resources (Iyoha, 2021). However, some studies find that in economies where financial markets are underdeveloped, government borrowing may complement private investment by providing liquidity and strengthening the financial system (Krugman, 1988). The dual perspectives highlight the need for a contextually grounded analysis, especially for countries like Nigeria, where both the scale of government debt and the private sector's access to credit are evolving rapidly.

Exchange rate fluctuations represent another critical variable influencing private investment, particularly in import-dependent economies like Nigeria. Currency depreciation can lead to increased costs for imported capital goods, which discourages investment in sectors reliant on foreign inputs (Ezeabasili et al., 2020). Conversely, if a depreciation boosts exports by making them more competitive, it could potentially encourage investment in export-oriented sectors (Obstfeld & Rogoff, 1995). Empirical studies on this topic present mixed findings, with some suggesting that the impact of exchange rates on investment varies according to sector, level of import dependence, and the flexibility of the exchange rate regime (Dornbusch & Fischer, 1980). This duality emphasizes the importance of examining the asymmetric effects of exchange rates, as appreciations and depreciations may have distinct implications for investment decisions across different sectors.

The skewed responses, which recognize that the upward or downward shift changes in variables which may not have identical impacts, have garnered increasing attention in the analysis of economic variables affecting investment. Shin et al. (2014) proposed the asymmetric ARDL model to capture such dynamics, allowing researchers to investigate how increases and decreases in variables like exchange rates and domestic debt differentially affect private investment. Studies using dynamic models have shown that in uncertain economic conditions, adverse shock elicits stronger responses than the positive shocks (Bahmani-Oskooee & Hajilee, 2013). For instance, in Nigeria, the adverse effects of increased debt tend to affect private investment more than the decrease debt, considering the heightened risk aversion and reduced credit availability following unpredictable government finances. Similarly, exchange rate depreciations might deter investment more significantly than appreciations encourage it, especially in an environment with high inflation and volatile capital flows (Adeniyi et al., 2021).

Research specific to Nigeria underscores the importance of analysing domestic debt and exchange rate effects in an asymmetric context, due to the unique economic structure and challenges faced by the country. Nigeria's reliance on oil revenue makes the economy susceptible to both domestic debt accumulation and exchange rate volatility due to fluctuations in global oil prices (Akinlo & Lawal, 2015). Iyoha (2021) noted that domestic debt in Nigeria, when poorly managed, has historically crowded out private investment, leading to limited capital flow into critical sectors. Furthermore, exchange rate instability has been shown to adversely impact private investment, as high import costs and inflationary pressures create an unpredictable business environment (Ezeabasili et al., 2020). This study aims to build on this body of knowledge by employing an asymmetric ARDL approach to capture the threshold effect of domestic debt and exchange rate fluctuations on private investment in Nigeria, thereby providing a more detailed insights into the mechanisms through which these economic variables impact investment.

Despite the growing body of research on domestic debt, exchange rate, and private investment, recent empirical studies remain sparse, particularly in exploring the asymmetric effects of these variables in Nigeria. While existing studies highlight individual impacts, few have utilized advanced models like the asymmetric ARDL approach to capture the nonlinear and dynamic relationships among these variables. This gap underscores the need for contemporary empirical investigations that address the complexities of domestic debt and exchange rate fluctuations on private

investment within Nigeria's unique economic context.

By addressing the gaps in current literature through the use of an asymmetric ARDL model, this research adds more in-depth understanding of the contributing factors to private investment in Nigeria. Most existing studies in this area employ linear models, which fail to capture the differential impacts of increases versus decreases in domestic debt and exchange rates. Through an asymmetric approach, this study seeks to offer more targeted insights for policymakers, enabling the development of balanced strategies for debt management and exchange rate stabilization that are responsive to the specific needs of the Nigerian economy.

3.0 Methodology and Model Specification

Building on prior researches, the nexus between private investment, domestic debt, exchange rate and economic growth is researched by using the ARDL (Auto Regressive Distributive Lag) techniques, the error correction and granger causality. Though, the long run and short run analysis are allowed through the conventional econometrics methods which account for mutual relationship between parameters of study. On this basis, previous studies failed to consider the asymmetric components that sure exist among macroeconomic variables. This study aims to look at the short run asymmetric relationship and also the long run asymmetric relationship between private investment, domestic debt, exchange rate and economic growth using the NARDL (Non-linear Autoregressive Distributive Lag) techniques of analysis which was introduced via Shin, Yu, and Greenwood-Nimmo (2014), taking into consideration the positive and negative disintegration partial sum of the observed variables. The methodology is novel and can present us with another dimension of analysis. Also, the techniques have the merit of providing insights to the asymmetric reactions of the explanatory variables in the both the short run and long run to deviations. The deviations in the analysed variables are depicted by logging the variable (logarithmic form). The asymmetric form of cointegration association can be expressed as follows:

$$PIV_{2t} = F\ (DD_t, EXR_t, GDP_t) \qquad (3.1)$$

The above variables will be converted to their logarithm form, thus the functions log-linear form is presented in the equation below:

$$lnPIV_{2t} = \beta_1 + ln\beta_2^+ lnDD_t^+ + \beta_3^- lnDD_t^- + ln\beta_4^+ lnEXR_t^+ + \beta_5^- lnEXR_t^- + ln\beta_6^+ lnGDP_t^+ + \beta_7^- lnGDP_t^- + \mu_t \qquad (3.2)$$

Where PIV is demonstrating private investment, DD elucidates domestic debt, EXR stipulates the exchange, GDP denotes the economic growth of the economy, and $\beta = (\beta_1, \beta_2^+, \beta_3^-, \beta_4^+, \beta_5^-, \beta_6^+, \beta_7^-)$ are indeterminate vector of the parameters. Similarly,

$DD_t = DD_0 + DD_t^+ + DD_t^-$, $EXR_t = EXR_0 + EXR_t^+ + EXR_t^-$, $GDP_t = GDP_0 + GDP_t^+ + GDP_t^-$ where DD_t^+ and DD_t^- , EXR_t^+ and EXR_t^-, GDP_t^+ and GDP_t^- are stepwise aggregations of positive as well as negative fluctuations in FD_t, FDI_t , GDP_t:

$$DD_t^+ = \sum_{j=1}^{t} \Delta DD_j^+ = \sum_{j=1}^{t} max\emptyset\left(\Delta DD_j, 0\right), FD_t^- = \sum_{j=1}^{t} \Delta DD_j^-$$

$$= \sum_{j=1}^{t} max\emptyset(\Delta DD_j, 0) \quad (3.3a)$$

$$EXR_t^+ \sum_{j=1}^{t} \Delta EXR_j^+ = \sum_{j=1}^{t} max\emptyset\left(\Delta FDI_j, 0\right), EXR_t^- = \sum_{j=1}^{t} \Delta EXR_j^-$$

$$= \sum_{j=1}^{t} max\emptyset(\Delta EXR_j, 0) \quad (3.3b)$$

$$GDP_t^+ = \sum_{j=1}^{t} \Delta GDP_j^+ = \sum_{j=1}^{t} max\emptyset\left(\Delta GDP_j, 0\right), FD_t^- = \sum_{j=1}^{t} \Delta GDP_j^-$$

$$= \sum_{j=1}^{t} max\emptyset(\Delta GDP_j, 0) \quad (3.3c)$$

The equation stated above depicts the subset of a non-linear interaction based on the partial fragmentation of the asymmetric form of cointegration. The ARDL model can be adapted to fit equation (3.1) following (Pesaran, Pesaran, Shin, & Smith, 1999; Pesaran, Shin, & Smith, 2001) as:

$$\Delta PIV_{2t} = \rho_0 + \omega_1 PIV_{2t-i} + \emptyset_2^+ DD_{t-i}^+ + \cap_3^- DD_{t-i}^- + \emptyset_4^+ EXR_{t-i}^+ + \cap_5^- EXR_{t-i}^- + \emptyset_6^+ GDP_{t-i}^+ + \cap_7^- GDP_{t-i}^- + \sum_{i=1}^{d} \cap \Delta PIV_{2t-i} + \sum_{i=0}^{e} (\vartheta_i^+ \Delta DD_{t-i}^+ + \gamma_i^- \Delta DD_{t-i}^-) + \sum_{i=0}^{f} (\vartheta_i^+ \Delta EXR_{t-i}^+ + \gamma_i^- \Delta EXR_{t-i}^-) + \sum_{i=0}^{g} (\vartheta_i^+ \Delta GDP_{t-i}^+ + \gamma_i^- \Delta GDP_{t-i}^-) + \emptyset_t \quad (3.4)$$

Where d, e, f, and g are the lagged values of the different orders. The problem of the uncertainty in reporting the cointegration in Eqn (3.1) when estimated would hinder the provision of reliable outcome of the asymmetric results made it necessary to impose into Eqn (3.1) the below coefficients:

$\beta_2^+ = -\frac{\emptyset_2^+}{\omega_1}$ and $\beta_3^- = \frac{p_3^-}{\omega_1}$, $\beta_4^+ = -\frac{\emptyset_4^+}{\omega_1}$ and $\beta_5^- = \frac{p_5^-}{\omega_1}$, $\beta_6^+ = -\frac{\emptyset_6^+}{\omega_1}$ and $\beta_7^- = \frac{p_7^-}{\omega_1}$

The equation $\sum_{i=0}\vartheta_i^+$ analyse the potential impact of domestic debt, foreign direct investment, exchange rate as well as economic growth effects on private investment $\sum_{i=0}\gamma_i^-$ processes the short-run influence of domestic debt, exchange rate and economic growth on private investment. Consequently, the asymmetric short-run and long-run effect fluctuations of domestic debt, exchange rate and economic growth on private investment are portrayed using the Error Correction Model (ECM) preceding equation depicted below as:

$$\Delta PIV_{2t} = \sum_{i=1}^{a}\sigma_i\Delta PIV_{2t-i} + \sum_{i=1}^{b}p_i(n_i^+\Delta DD_{t-i}^+ + n_i^-\Delta DD_{t-i}^-) + \sum_{i=1}^{c}zi(n_i^+\Delta EXR_{t-i}^+ + n_i^-\Delta EXR_{t-i}^-) + \sum_{i=1}^{d}(n_i^+\Delta GDP_{t-i}^+ + n_i^-\Delta GDP_{t-i}^-) + \beth_i ECT_{t-i} + \emptyset_t \quad (3.5)$$

Where, σ_i, p_i, and z_i are the short-run parameters while p_i^+, p_i^- are the symmetric adjustment of the short-run, while $\beth_i$ postulates the error correction term of the parameters. NARDL estimation has the following steps: the appropriateness of the ARDL method on the issue of the order of the variables (either order zero, one or mixed). To ascertain this the unit root test certify the stationarity of the variables are all less than order two I(2), as this turn the predictable F-statistics to be invalid and ineffective in the prediction of the cointegration. To cushion this problem the Augmented Dickey Fuller (ADF) and Phillips-Perron (PP) test of unit root were used in determining the variables' order of integration. Thereafter, the ordinary least Square (OLS) in equation (3.3) is enumerated to help improve and depict the NARDL model last condition of depressing insignificant lags. Subsequently, the NARDL estimation, the bound test is conducted to confirm if there is long run association among the variables under study (Pesaran et al., 2001). This involves the null hypothesis of the Wald F test, H_0: $\omega_1 = \emptyset_2^+ = p_3^- = \emptyset_4^+ = p_5^- = \emptyset_6^+ = p_7^- = 0$ contrary to the null hypothesis, H1: $\omega_1 \neq \emptyset_2^+ \neq p_3^- \neq \emptyset_4^+ \neq p_5^- \neq \emptyset_6^+ \neq p_7^- \neq 0$. In conformity with the known path, the presence of cointegration between private investment, domestic debt, exchange rate and economic growth in the short run and long run asymmetries of the variables are coordinated; as well interpretations are certain to be completed. In addition, the dynamic asymmetric aggregated multiplier impact of 1% disparity in ΔDD_{t-i}^+ and ΔDD_{t-i}^- ΔEXR_{t-i}^+ and ΔEXR_{t-i}^- ΔGDP_{t-i}^+ and ΔGDP_{t-i}^- respectively were computed as:

$G_h^+ = \sum_{j=0}^{h}\frac{\partial CO_{2t+j}}{\partial FD_{t-1}^+}, G_h^- = \sum_{j=0}^{h}\frac{\partial CO_{2t+j}}{\partial FD_{t-1}^-}$, h = 1,2,3…….…….. It should be noted that G refers to multiplier effect -as h$\emptyset\infty$ $G_h^+\emptyset$ β_2^+ and $G_h^-\emptyset$ β_3^-, h$\emptyset\infty$ $G_h^+\emptyset$ β_4^+ and $G_h^-\emptyset$ β_5^-, h$\emptyset\infty$ $G_h^+\emptyset$ β_6^+ and $G_h^-\emptyset$ β_7^-.

4.0 Results Presentation and Discussions

4.1 Pre-Estimation Tests

Every study needs test that will help guarantee the robustness and reliability of the dataset used in the analysis of the study, thus the need for this section that outline the preliminary analysis of the study. The data comprises annual observations spanning from 1985 to 2023. Central Bank of Nigeria (CBN) and the World Bank were the sources of the key economic and financial variables. These diverse sources provide a comprehensive basis for analysing the relationships central to this research. Table 4.1 provides the descriptive statistics of the study which provide understanding of the distribution and characteristics of the variables. Private investment (PIV)'s mean value of 12.933, signifying the average level of investment during the period under review. The standard deviation of PIV is 0.103, suggesting low variability around the mean, while the skewness of 0.833 indicates a moderate positive skew, where values are concentrated below the mean with some higher outliers. The mean exchange rate (EXR) is 202.6, reflecting the average value of the Nigerian naira against foreign currencies over the study period. Domestic debt (DD) has a mean of 4461.155, highlighting the substantial size of Nigeria's domestic borrowing. The Jarque-Bera test for all variables in this study is statistically significant at the 5% level, indicating that they deviate from normal distribution. These findings suggest that advanced statistical techniques, such as the ARDL model, are necessary to analyse the non-uniform effects of macroeconomic variables (exchange rates and domestic debt) on private investment.

Table 4.1; Descriptive Statistics of the Variables

	PIV	EXR	DD	RGDP
Mean	12.933	202.684	4461.155	13595.420
Median	12.924	154.730	1350.005	14510.520
Std. Dev.	0.103	103.448	6001.623	4211.622
Skewness	0.833	1.114	1.456	-0.216
Kurtosis	4.878	2.880	4.091	1.797
Jarque-Bera	9.986	20.130	15.323	1250779

Source: Authors' Computation

The unit root tests presented in Table 4.2 was conducted using both the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) methods, reveal that all four variables are non-stationary at their levels but become stationary after first differencing, indicating they are integrated of order one, I(1).

Table 4.2; Unit Root test

	ADF		PP	
	Level	First Diff.	Level	First Diff.
PIV	-0.019	-8.363*	-0.649	-5.559*
EXR	-0.477	-9.327*	-0.325	-9.366*
DD	3.723	-6.621*	-2.306	-5.887*
RGDP	-0.982	-4.690*	-0.553	-13.530*

*&** indicates statistical significance at 1% & 5% respectively

This result satisfies a critical assumption for the application of the ARDL model, as none of the variables are integrated of order two, I(2). Consequently, the ARDL framework is appropriate for analysing the long-run and short-run relationships among the variables in this study

4.2 Empirical results and discussions

Nigeria's economic structure, characterized by exchange rate volatility and high domestic borrowing, presents a compelling case for understanding how these factors differently influence private investment in both upward and downward movements. Private investment is a critical driver of economic growth, and its responsiveness to key macroeconomic variables like exchange rates and domestic debt has significant policy implications. Insights into the dynamics of the relationship between the variables under study will help in addressing the gap that private investment and its responsiveness to macroeconomic variables creates, this will aid in policy making that are formed from evidence-based findings to foster a conducive investment climate in Nigeria. Table 4.3 which presented the results from the asymmetric ARDL bounds test, indicate an F-statistic of 6.16, which surpassed the critical bounds at the 5% level of significance. This result affirms the existence of long run relationship private investment, exchange rate, and domestic debt. This accentuates the need for policies that will address both immediate and sustained impacts of exchange rate fluctuations and domestic borrowing on private sector activities. Findings from the long run analysis support the context of happenings in Nigeria, given the exchange rate volatility and rising domestic debt level that pose persistent challenges. The study's results emphasize the importance of considering both positive and negative movements in these variables, as their asymmetric effects may have different implications for private investment. This nuanced understanding is crucial for designing targeted interventions that stabilize the macroeconomic environment and encourage sustainable private sector growth.

Table 4.3: Asymmetric ARDL Bound Test

F-Statistics	Lower Bound	Upper Bound
6.16**	2.56	3.49

*&** indicates statistical significance at 1% & 5% respectively

Source: Authors' Computation

Finding from Table 4.4, the asymmetric ARDL model, indicate that the parameters for both positive and negative exchange rate (EXR) shocks are statistically significant at the 5% level. Exchange rate has a positive shock (appreciation of the naira) parameter of 0.517, signifying a 1% rise in exchange rate leads to a 0.517% rise in private investment (PIV). Conversely, a negative shock in the exchange rate (depreciation of the naira) has parameter of -0.214, signifying a 1% fall in exchange rate leads to a 0.214% fall in private investment (PIV). These results highlight the asymmetric bearing of exchange rate movements, with positive shocks having a stronger influence on private investment than negative shocks. This means in Nigeria, the stronger influence of exchange rate appreciation on private investment could be attributed to the import-dependent nature of the Nigerian economy. When the naira appreciates, the cost of importing capital goods, machinery, and raw materials decreases, reducing production costs and encouraging investment in the private sector. Conversely, a depreciation of the naira increases import costs, raising production expenses and creating economic uncertainty, which discourages investment. The weaker response to depreciation may reflect firms' partial adaptation to exchange rate volatility or government interventions to mitigate the impact of currency devaluation. The findings align with the work of Bahmani-Oskooee and Hajilee (2013), who document the asymmetric effects of exchange rate changes on investment, particularly in developing economies. Additionally, the J-Curve theory provides a theoretical framework to understand these dynamics, as it suggests that exchange rate depreciation initially increases costs and negatively affects economic activities before any long-term adjustments can occur. These results underscore the importance of exchange rate stability in fostering a conducive environment for private sector investment in Nigeria.

Table 4.4; Asymmetric ARDL Model Estimation

Variables	Coefficients	T-Statistics
EXR+	0.517**	1.995
EXR-	-0.214**	-1.891
DD+	0.451**	1.987
DD-	-0.423	-0.137
RGDP+	0.128	0.221
RGDP-	-0.002	-0.113

*&** indicates statistical significance at 1% & 5% respectively

Source: Authors' Computation

Correspondingly, domestic debt (DD) shocks have a positive coefficient of 0.451 at 5% level of statistical significance, while the negative shock is not statistically significant. This suggests that a 1% positive shock in domestic debt (a surge in government borrowing) leads to a 0.451% increase in private investment (PIV). However, the absence of statistical significance for the negative shock implies that reductions in domestic debt have an inconclusive or negligible effect on private investment within the scope of study. The asymmetric impact, with positive shocks having a stronger influence, underscores the relevance of government borrowing in stimulating private sector activities when appropriately utilized. In Nigeria, the government role of borrowing to finance public infrastructure and services to complement private sector activities could the reason for the observed positive relationship between domestic debt and private investment. For example, domestic debt is often used to fund critical infrastructure such as roads, electricity, and water supply, which reduce operational costs for private businesses and encourage investment. However, the insignificance of negative shocks suggests that reductions in government borrowing may not immediately translate into increased private investment, possibly due to existing structural bottlenecks or the crowding-out effects of previous high debt levels. The result aligns with Keynesian economic theory, which emphasizes the role of government spending and borrowing in stimulating aggregate demand and private sector growth during periods of underinvestment. Empirical studies, such as those by Checherita-Westphal and Rother (2012), of the opinion that borrowing of the government if moderate can have significant positive effect on private investment, especially where infrastructures of the economy are in deficits. However, the insignificance of negative shocks highlights the need for policies that ensure efficient use of borrowed funds to maximize their developmental impact.

Findings from the long-run asymmetric ARDL model presented in Table 4.5 indicate that all positive coefficients for the exchange rate (EXR), domestic debt (DD), and real GDP (RGDP) are statistically significant at the 5% level. Explicitly, a 1% positive shock in EXR leads to a 0.572% increase in private investment (PIV), while a 1% increase in DD and RGDP results in a 0.231% and 0.041% increase in PIV, respectively. In contrast, all negative coefficients for EXR, DD, and RGDP are statistically insignificant. This implies that negative shocks form these variables have less significant impact on private investment during the scope years. The significant positive effects of EXR, DD, and RGDP align with Nigeria's economic structure, where exchange rate appreciation

reduces import costs, thereby encouraging private sector growth through cheaper capital goods. Additionally, domestic debt, when used effectively, provides critical infrastructure that enhances private sector productivity. The positive effect of RGDP reflects the importance of overall economic growth in driving private investment by increasing market opportunities and improving investor confidence. The insignificance of negative shocks may be attributed to adaptive mechanisms or delayed responses by private investors to adverse conditions, particularly in a volatile economy like Nigeria. These findings align with the work of Bahmani-Oskooee and Hajilee (2013), who demonstrated that exchange rate movements have an asymmetric impact on investment, with appreciations often yielding more substantial benefits in developing economies. Furthermore, the role of domestic debt in supporting investment is consistent with Checherita-Westphal and Rother's (2012) argument that government borrowing, when allocated efficiently, fosters private sector growth by addressing infrastructure gaps. Lastly, the positive relationship between RGDP and private investment is supported by neoclassical growth theories, which emphasize the importance of economic expansion in providing a conducive environment for private sector activities.

Table 4.5; Long-run Asymmetric ARDL Coefficients

Variables	Coefficients	T-Statistics
EXR+	0.572**	2.443
EXR-	-0.426	-0.895
DD+	0.231**	2.661
DD-	-0.110	-0.938
RGDP+	0.041**	2.211
RGDP-	0.009	0.151

*&** indicates statistical significance at 1% & 5% respectively

Source: Authors' Computation

From table 4.6, the results of the short-run convergence asymmetric ARDL model, reveal that only the positive shock in exchange rate (EXR) and the negative shock in domestic debt (DD) are statistically significant. A positive shock in EXR has a significant coefficient, indicating that an appreciation of the naira in the short run positively impacts private investment (PIV) by cutting the cost of foreign-sourced capital goods. On the other hand, negative shock in DD shows that a decrease in domestic debt significantly influences private investment, possibly reflecting improved fiscal discipline or reduced crowding-out effects, which enhance private sector access to credit in Nigeria. The results also reported exchange rate appreciation to have a positive significant effect which accentuates on the reliance of private investment on cheaper foreign sourced inputs. The significant impact of a reduction in domestic debt may suggest that lower government borrowing reduces pressure on

the financial system, freeing up resources for private investors. -0.288 as the coefficient of the error correction term (ECT), signifies the statistical significance in the long run. This implies that deviation from the long run would be corrected at 28.8% each year; with this being a relatively moderate speed of adjustment towards equilibrium after a short-run shock. The significant ECT reflects the presence of a robust mechanism to restore equilibrium in the system, which is vital in an economy characterized by frequent macroeconomic shocks.

Table 4.6; Short-run Asymmetric ARDL Coefficients

Variables	Coefficients	T-Statistics
EXR+	0.191**	2.861
EXR-	-3.107	-0.891
DD+	3.868	1.117
DD-	-0.251**	-1.897
RGDP+	0.031	0.997
RGDP-	0.003	.767
ECT	-0.288*	-2.969

*&** indicates statistical significance at 1% & 5% respectively

Source: Authors' Computation

5.0 Conclusion and policy implications

This study examines the skewed impacts of exchange rate (EXR) and domestic debt (DD) on private investment (PIV) in Nigeria, using the Nonlinear ARDL approach. The findings reveal significant imbalances in the effects of exchange rate and domestic debt shocks, with positive movements in EXR and DD having stronger effects on private investment than negative movements. The long-run results demonstrate that exchange rate appreciation, increased domestic debt, and economic growth positively influence private investment, while negative shocks are largely insignificant. In the short run, increase in EXR value and decline in domestic debt DD shocks are essential factors of private investment, the adjustment speed toward the long run equilibrium as indicated by the error correction term is significantly moderate. These results accentuate the importance of macroeconomic consistency in fostering a conducive environment for private sector growth. The study employs a novel asymmetric ARDL approach, uncovering significant nonlinear effects of domestic debt and exchange rate on private investment, revealing dynamics previously overlooked in conventional analyses.

To promote private investment in Nigeria, policymakers should prioritize exchange rate stability to mitigate the adverse effects of volatility. Strengthening monetary and fiscal policies to maintain a stable and competitive naira will encourage investment by reducing uncertainties and the cost of imported capital goods. Additionally, the government should manage domestic debt judiciously, ensuring that borrowing is directed toward infrastructure and productive sectors that complement private sector activities. Reducing reliance on excessive borrowing

will also prevent crowding out private sector access to credit. Lastly, fostering sustainable economic growth through diversification and improved governance will enhance the long-run positive impacts of macroeconomic factors on private investment.

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