

Capital Flight, Remittance Flows, and the Financing of Development in Nigeria: An Empirical Analysis

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Abstract

This study examined the effect of capital flight and remittance inflows on development financing in Nigeria, with particular emphasis on the moderating role of remittances in the relationship between capital flight and development financing. Development financing was proxied by Gross Fixed Capital Formation, while capital flight, remittances, institutional quality, exchange rate, inflation, real interest rate, and economic growth served as the explanatory variables. Annual time-series data covering the study period were obtained from relevant national and international databases. The study adopted the Autoregressive Distributed Lag (ARDL) modelling approach to estimate both the short-run and long-run dynamics among the variables. The ARDL Bounds Test for cointegration revealed the absence of a long-run equilibrium relationship among the variables. The estimated results further showed that capital flight exerted a negative but statistically insignificant effect on development financing, while remittance inflows also had a negative and insignificant effect. However, the interaction term between capital flight and remittances was positive and statistically significant in the short run, indicating that remittances help mitigate the adverse effects of capital flight on development financing. The findings suggest that although remittances do not independently promote development financing, they serve as an important compensatory source of finance capable of offsetting resource losses associated with capital flight. The study concludes that reducing capital flight and enhancing the productive utilization of remittance inflows are critical for improving development financing in Nigeria. Consequently, the study recommends stronger measures to curb capital flight, improve institutional quality, and create policies that encourage the channeling of remittances into productive investments and development-oriented projects.

Keywords: Capital Flight, Remittances, Development Financing, Gross Fixed Capital Formation, ARDL Model.

I. Introduction

Nigeria's development financing landscape has been shaped by large and volatile cross-border flows: official development assistance, foreign direct investment, portfolio flows, private savings abroad (capital flight) and migrant remittances. Despite recent macroeconomic reforms and signs of recovery, Nigeria still wrestles with high inflation, fiscal pressures and persistent gaps in domestic financing for infrastructure and social spending (IMF, 2025).

Remittance inflows have become an important external financing source for Nigeria in the last decade. Official data and multilateral reports show that remittances to Nigeria rose notably in recent years (reaching tens of billions of dollars in 2023–2024), supporting household consumption, foreign-exchange reserves and informal investment channels (World Bank/IMF data, 2024–2025). Remittances can therefore play a countercyclical role and partially substitute for constrained domestic finance, but their development impact depends on how they are intermediated into productive uses. (World Bank, 2024)

Conversely, capital flight, broadly defined as illicit, poorly-recorded or otherwise unproductive outflows of private and corporate wealth, represents a drag on Nigeria's ability to mobilise domestic resources. New cross-country estimates and recent country studies indicate that capital flight from many African countries, including Nigeria, continues to be large and persistent, undermining domestic investment, compressing the tax base and increasing reliance on external borrowing (PERI, 2025; Antwi et al., 2025). The net effect is fewer investible funds available for public and private development projects.

The simultaneous rise of remittances and evidence of substantial capital flight presents a policy puzzle: while remittances inject foreign currency and household liquidity, capital flight drains wealth and may offset those gains at the macro level. Recent empirical work on African economies suggests capital flight reduces growth and fiscal capacity, while remittances have heterogeneous effects—positive for consumption and welfare but mixed for investment and financial development unless channelled through formal and productive financial intermediation (Antwi et al., 2024; Peprah et al., 2025). For Nigeria, the balance between these two flows matters critically for development financing: large remittance receipts may bolster reserves and household welfare, but unreversed capital flight can still starve the economy of long-term capital.

Recent macroeconomic changes in Nigeria (exchange-rate liberalisation, subsidy removals and fiscal reforms) altered incentives for both capital outflows and remittance behaviour in 2023–2024; official reports note improved external balances and higher official remittance estimates, but also a more dynamic environment for private capital seeking safe havens abroad (Reuters/CBN reporting, 2024–2025). These evolving policy and market conditions require updated empirical analysis that jointly models capital flight and remittances when assessing their net effect on development financing indicators (e.g., investment, public revenue and credit to the private sector).

Despite existing studies on capital flight or remittances separately, there is a shortage of recent empirical research that (1) uses up-to-date estimates of capital flight and remittance flows for Nigeria, (2) models their simultaneous and possibly interacting effects on development financing outcomes, and (3) accounts for structural breaks from Nigeria's 2023–2024 reforms. This study addresses those gaps by employing recent time-series/cross-section methods to quantify how capital flight and remittance inflows together influence Nigeria's capacity to finance development, both through public revenue channels and private investment, while controlling for exchange-rate, macro policy and financial-sector depth.

Statement of the Problem

Nigeria continues to face a widening gap between available domestic resources and the volume of financing required to achieve sustainable development goals (SDGs). Despite successive fiscal and monetary reforms, public revenue remains volatile, and domestic savings are inadequate to finance critical infrastructure and industrial development. Consequently, the country depends heavily on external sources of finance such as foreign direct investment, remittances, and borrowing (IMF, 2024; World Bank, 2025). However, the persistence of capital flight has become a major constraint to domestic resource mobilisation, eroding the benefits of these inflows and exacerbating the financing deficit (Antwi, Asongu, & Gyamfi, 2024).

Over the past decade, remittance inflows have emerged as one of Nigeria's most stable external financial flows, often exceeding foreign direct investment and official development assistance (World Bank, 2024). Yet, the extent to which remittances translate into productive investment or contribute meaningfully to national development financing remains unclear. Much of the remittance inflow is used for consumption rather than capital formation, thereby limiting its potential to stimulate economic growth or improve financial depth (Ajide & Raheem, 2025). On the other hand, capital flight, arising from weak institutions, macroeconomic instability, exchange-rate volatility, and corruption, has led to the loss of billions of dollars in private wealth, which could have been channelled into domestic investment (UNCTAD, 2023; Olayungbo, 2021).

Empirical evidence on the simultaneous effect of capital flight and remittance flows on development financing in Nigeria remains fragmented and inconclusive. Some studies emphasize the positive role of remittances in reducing poverty and improving welfare (Okonkwo & Osabuohien, 2023), while others highlight the destabilising impact of capital flight on growth and fiscal stability (Ajayi & Ndikumana, 2020; Antwi et al., 2025). Yet, few empirical analyses have jointly investigated how these two opposing flows interact to shape the availability of domestic funds for development projects.

Moreover, Nigeria's recent macroeconomic transitions, including exchange rate unification, fuel subsidy removal, and foreign-exchange liberalisation in 2023–2024 have further altered the dynamics of financial inflows and outflows (CBN, 2024). These policy shifts may have significant

implications for the balance between capital retention and remittance utilisation, but existing literature has not adequately captured these evolving patterns. The lack of up-to-date empirical evidence on the combined influence of capital flight and remittance flows therefore leaves policymakers with limited guidance on how to harness external resources for sustainable development financing in Nigeria.

Against this backdrop, this study seeks to empirically investigate the relationship between capital flight, remittance inflows, and development financing in Nigeria, examining whether the beneficial effects of remittances can offset the adverse effects of capital flight, and how these dynamics influence the country's capacity to mobilise resources for sustainable economic development.

II. Literature Review

The financing of development in Nigeria has remained a major challenge, largely due to limited domestic savings, inadequate investment resources, and structural economic constraints. In this context, external financial flows play a crucial role in complementing domestic resources and supporting economic growth. Two key channels through which such resources interact with the domestic economy are capital flight and remittance inflows.

Capital flight, defined as the unrecorded or poorly recorded outflow of capital from the country, represents a significant leakage of domestic resources that could otherwise be mobilized for investment and development. Conversely, remittance inflows, funds sent home by Nigerians living abroad, serve as a critical source of external financing that can support household consumption, human capital development, and productive investment.

While capital flight tends to drain the economy, remittances and other foreign inflows can inject resources that potentially finance development objectives. The interplay between these opposing flows raises important questions about the net availability of capital for economic development and the mechanisms through which these flows influence growth, investment, and human capital formation.

This literature review, therefore, seeks to examine existing studies on capital flight, remittance flows, and their implications for financing development in Nigeria, highlighting key themes, empirical findings, and gaps that motivate the current study.

Theoretical Perspectives

Understanding the nexus between capital flight, remittance inflows, and development financing in Nigeria requires grounding the analysis in well-established theories that explain cross-border financial flows, investment behaviour, and resource mobilisation. The theories that resonate strongly with this study include: the Dependency Theory, the Portfolio Diversification Theory, the Resource Drain and Resource Augmentation Hypotheses, the Financial Intermediation Theory, and the Dual-Gap Theory. Together, these frameworks provide a conceptual lens for analyzing how external financial movements influence domestic development financing.

Dependency Theory

The Dependency Theory, rooted in the works of scholars such as Prebisch (1950) and reinforced in modern political economy literature, posits that developing countries remain dependent on advanced economies through unequal economic relationships that perpetuate underdevelopment. According to the theory, peripheral nations like Nigeria often experience capital outflows due to structural dependence, weak institutional capacity, and economic policies that favour capital accumulation abroad (Dos Santos, 1970; Amin, 1974).

In the context of this study, capital flight is a manifestation of dependency, as local elites and corporations transfer wealth to foreign financial markets perceived as safer or more profitable (Ajayi & Ndikumana, 2020). These outflows weaken domestic investment capacity and limit development financing. Conversely, remittance inflows, though also externally driven, represent a counter-flow of resources from migrant workers in developed economies back to their home countries. While remittances can mitigate the effects of dependency by injecting foreign exchange and reducing external vulnerability, their developmental impact depends on whether they are channeled into productive investments or consumed (Olayungbo, 2021). Thus, Dependency Theory provides a useful lens for analysing the asymmetric nature of Nigeria's financial integration, where capital flight drains

domestic resources while remittances attempt to refill the gap.

Portfolio Diversification Theory

The Portfolio Diversification Theory, introduced by Markowitz (1952), suggests that investors allocate assets across countries and instruments to maximize returns while minimizing risk. Applied to international capital movements, this theory explains capital flight as a rational response to macroeconomic uncertainty, political instability, exchange rate volatility, and weak governance in the domestic economy (Antwi, Asongu, & Gyamfi, 2024).

In Nigeria's case, persistent inflation, inconsistent fiscal policy, and currency depreciation encourage investors to move assets offshore to diversify their portfolios. Thus, capital flight is not always illicit but can represent a form of risk-hedging behaviour (Ndikumana & Boyce, 2018). However, large-scale portfolio diversification outflows reduce domestic liquidity and investment, posing a challenge for development financing.

On the other hand, remittance flows can be interpreted as reverse portfolio decisions made by migrant workers who choose to send part of their foreign earnings home for family support, savings, or investment. According to this theory, remittances can serve as a stabilising source of finance, especially when domestic capital markets are underdeveloped or volatile (Ajide & Raheem, 2025). Thus, while capital flight represents risk diversification abroad, remittances reflect risk-sharing and altruistic transfers back home, both influenced by macroeconomic expectations.

Resource Drain and Resource Augmentation Hypotheses

The Resource Drain Hypothesis argues that capital flight constitutes a leakage of national savings and reduces the funds available for domestic investment and development financing (Ndikumana & Boyce, 2018). By transferring capital abroad, economic agents deprive the home economy of critical resources that could finance infrastructure, industrial expansion, and human capital development. This drain of resources also weakens the fiscal base, leading to higher public borrowing and debt accumulation (Antwi et al., 2024).

In contrast, the Resource Augmentation Hypothesis views remittances as an external source of finance that supplements domestic resources. Remittances can enhance financial inclusion, increase foreign exchange reserves, and support household-level investment in education, health, and small businesses (Okonkwo & Osabuohien, 2023; World Bank, 2024). However, the developmental effect of remittances depends largely on the efficiency of financial intermediation and the macroeconomic environment. If remittances are channelled through informal markets or used primarily for consumption, their ability to augment national development finance remains limited. The juxtaposition of these two hypotheses highlights the opposing effects of capital flight and remittances on Nigeria's financial ecosystem, one draining and the other replenishing the pool of investible funds.

Financial Intermediation Theory

The Financial Intermediation Theory (Gurley & Shaw, 1960) emphasises the role of financial institutions in mobilising and allocating funds efficiently between savers and investors. A well-functioning financial system facilitates development financing by channelling savings into productive investment. However, in economies characterised by shallow financial systems, weak regulation, and low confidence, capital tends to move out of the country or remain outside formal channels.

In Nigeria, capital flight often reflects inefficiencies in domestic financial intermediation — including poor credit access, unstable interest rates, and limited investment opportunities (Olayungbo, 2021). Meanwhile, remittances can strengthen the intermediation process by increasing deposit mobilisation and improving liquidity in the banking system (Ajide & Raheem, 2022). When remittance inflows are absorbed by formal institutions, they can enhance financial depth and stimulate lending for development projects. Conversely, if financial institutions fail to channel these inflows productively, remittances may have minimal impact on national development financing.

Thus, Financial Intermediation Theory provides a microeconomic perspective on how the efficiency of Nigeria's financial system mediates the effects of both capital flight and remittance inflows on development outcomes.

Dual-Gap Theory

The Dual-Gap Theory, developed by Chenery and Strout (1966), posits that developing economies face two major constraints to growth, a savings gap and a foreign exchange gap. The theory argues that when domestic savings are insufficient to finance investment needs, and foreign exchange reserves are inadequate to pay for imports of capital goods, external inflows become necessary to bridge these gaps.

In Nigeria, capital flight widens both the savings and foreign exchange gaps by diverting funds abroad, reducing domestic savings, and increasing external borrowing needs (UNCTAD, 2023). Conversely, remittance inflows can help bridge these gaps by providing foreign currency that eases balance-of-payment constraints and supplements investment capital. The theory therefore, aligns with the study's objective of assessing whether remittances can compensate for the adverse effects of capital flight in supporting Nigeria's development financing efforts.

Synthesis of Theoretical Perspectives

The relationship between capital flight, remittances, and development financing is multidimensional and cannot be adequately explained by a single theoretical framework. Consequently, this study draws insights from Dependency Theory, Portfolio Diversification Theory, Resource Drain and Resource Augmentation Hypotheses, Financial Intermediation Theory, and Dual-Gap Theory. While these theories differ in their assumptions and analytical focus, they collectively provide a comprehensive explanation of how cross-border financial flows influence the capacity of developing countries such as Nigeria to mobilise resources for development.

At the structural level, Dependency Theory explains why developing economies experience persistent capital outflows. The theory argues that unequal integration into the global economy creates conditions under which domestic wealth is transferred to advanced economies, thereby perpetuating underdevelopment. From this perspective, capital flight represents a manifestation of structural dependency that deprives Nigeria of resources required for investment and development. However, the theory pays limited attention to individual economic decision-making and tends to view external financial flows largely as outcomes of historical and structural inequalities.

To address this limitation, Portfolio Diversification Theory provides a microeconomic explanation for capital flight. Unlike Dependency Theory, which emphasizes structural factors, Portfolio Diversification Theory views capital flight as a rational response by investors seeking to minimize risk and maximize returns. Macroeconomic instability, exchange rate volatility, inflation, and weak governance encourage investors to move assets abroad. The theory also offers an explanation for remittance flows, as migrants allocate part of their earnings to their home countries for consumption, savings, or investment. While this framework effectively explains the motivations behind financial flows, it does not sufficiently address their broader developmental implications.

The developmental consequences of these flows are better captured by the Resource Drain and Resource Augmentation Hypotheses. The Resource Drain Hypothesis views capital flight as a leakage of domestic savings that reduces the funds available for investment, infrastructure development, and economic transformation. In contrast, the Resource Augmentation Hypothesis regards remittances as an external source of finance that supplements domestic resources, enhances foreign exchange availability, and supports household welfare and investment. Together, these hypotheses establish a direct conceptual link between the study variables by portraying capital flight and remittances as opposing financial forces: one depletes domestic resources while the other replenishes them. However, these hypotheses do not explain the mechanisms through which remittances are transformed into productive development outcomes.

This gap is addressed by Financial Intermediation Theory, which emphasizes the role of financial institutions in mobilizing savings and allocating resources efficiently. The theory suggests that the developmental impact of remittances depends on the capacity of the financial system to channel inflows into productive investment. Likewise, inefficient financial intermediation may encourage capital flight by reducing investor confidence and limiting domestic investment opportunities. Thus, the theory highlights the importance of financial sector development as a mediating factor between external financial flows and development financing. Nevertheless, its focus is largely domestic and does not fully account for the broader macroeconomic resource constraints

faced by developing economies.

The Dual-Gap Theory complements this perspective by providing a macroeconomic rationale for the importance of external financial flows. The theory posits that developing countries are constrained by shortages of domestic savings and foreign exchange, both of which limit investment and growth. Capital flight exacerbates these constraints by draining savings and foreign currency resources, whereas remittances help bridge the savings and foreign exchange gaps by providing stable external finance. The theory therefore directly links remittances and capital flight to the financing of development and explains why countries with insufficient domestic resources often rely on external financial inflows.

Although these theories offer valuable insights, none independently provides a complete explanation of the nexus among capital flight, remittances, and development financing. Dependency Theory overemphasizes structural constraints while underestimating individual financial decisions. Portfolio Diversification Theory explains investor behaviour but overlooks development outcomes. Resource Drain and Resource Augmentation Hypotheses focus on resource effects without adequately considering institutional transmission mechanisms. Financial Intermediation Theory highlights financial sector efficiency but pays less attention to external resource constraints. Dual-Gap Theory explains the need for external finance but does not fully account for the institutional and behavioural factors influencing financial flows.

Consequently, the theories are best viewed as complementary rather than competing. Collectively, they suggest that development financing in Nigeria is determined by the interaction between resource leakages through capital flight and resource inflows through remittances, with the effectiveness of these flows largely dependent on the quality of financial intermediation and the broader macroeconomic environment. Capital flight widens domestic resource gaps and constrains development financing, while remittances provide an alternative source of finance that can support investment, human capital development, and economic growth. However, the extent to which remittances can offset the adverse effects of capital flight depends on the ability of Nigeria's financial system to mobilise, allocate, and utilise these resources efficiently.

Therefore, this study is principally anchored on the Resource Drain and Resource Augmentation framework, supported by the Financial Intermediation and Dual-Gap perspectives. This integrated theoretical approach provides the most suitable foundation for examining whether remittance inflows can compensate for the development financing losses associated with capital flight in Nigeria and how the country's financial system influences this relationship.

Empirical Review

Leykun Fisseha (2022) examined the effect of capital flight on domestic investment in 30 African countries from 2000 to 2019 using the System-GMM estimator. The findings revealed that capital flight significantly reduces domestic investment, while financial liberalisation has no significant effect. The study concluded that reducing capital flight is essential for enhancing investment in Africa. Basher et al. (2023a) investigated the effect of capital flight on economic growth in selected emerging Asian economies between 1981 and 2019. Using the ARDL Bounds testing approach, the study found that capital flight significantly impedes economic growth. The authors recommended policies that promote private-sector development and encourage capital retention.

Bashir et al. (2023b) assessed the impact of capital flight on economic growth in Pakistan from 1976 to 2018 using the World Bank residual method and ARDL model. The results showed that capital flight negatively affects economic growth in the long run, although the short-run effect was insignificant. The study highlighted the severity of capital flight and its adverse implications for economic development. Badwan (2021) examined the impact of capital flight on economic growth and financial stability in Palestine using time-series data from 2000 to 2020. Employing OLS, Johansen cointegration, and an error correction model, the study found that capital flight exerts a negative effect on economic growth. The author recommended policies that promote domestic investment and improve the investment climate.

Otieno, Kiprop, and Muluvi (2021) investigated the determinants of capital flight in East African Community countries from 1988 to 2018 using a fixed-effects panel model. The findings

indicated that corruption, external debt, and exchange rate depreciation increase capital flight, whereas economic growth reduces it. The study emphasized the importance of debt management and anti-corruption measures. Akinlo (2024) examined whether institutional quality moderates the effect of capital flight on economic growth in 26 Sub-Saharan African countries between 1998 and 2018 using a two-step GMM estimator. The findings showed that capital flight negatively affects economic growth, while rule of law and control of corruption promote growth. However, institutional quality was not found to significantly mitigate the adverse impact of capital flight.

Otieno, Mose, and Thomi (2022) analyzed the effect of exchange rate movements on capital flight in East African economies from 1988 to 2018 using Ordinary Least Squares estimation. The study found that exchange rate depreciation significantly increases capital flight, suggesting that currency instability encourages investors to move capital abroad. Peprah, Ngalawa, and Derera (2023) examined the roles of capital flight, tax revenue, and governance in economic growth across 28 Sub-Saharan African countries from 1996 to 2018 using dynamic panel estimators. The results showed that capital flight hinders economic growth, while tax revenue promotes it. Furthermore, good governance was found to reduce the negative effect of capital flight and enhance the positive contribution of tax revenue to economic growth.

Salisu and Isah (2021) investigated the relationship between capital flight and economic growth in 28 Sub-Saharan African countries from 1986 to 2010 using the Mean Group (MG) and Pooled Mean Group (PMG) estimators. The findings revealed that capital flight significantly hinders economic growth, with its adverse effects becoming more severe under conditions of macroeconomic uncertainty. The study also found that domestic investment and human capital promote growth, while foreign aid and foreign direct investment are insufficient to offset the negative effects of capital flight. The authors recommended policies aimed at reducing macroeconomic uncertainty and promoting domestic investment and human capital development to support economic growth.

Sodji (2024) examined the relationship between tax revenue mobilization and capital flight in 30 African countries over the period 1998–2018 using the dynamic Generalized Method of Moments (GMM) estimator. The findings revealed that increased tax revenue mobilization significantly reduces capital flight. However, the effectiveness of tax revenue in curbing capital flight weakens in countries with abundant natural resource and oil wealth. The study concluded that while improved tax mobilization can help stem capital flight, effective management of natural resources and greater transparency in the extractive sector are essential for enhancing this effect.

MacCarthy, Ahulu, and Thor (2022) examined the asymmetric and nonlinear relationship between capital flight and economic growth in Ghana using quarterly time-series data spanning 1976–2020. The study employed a nonlinear Autoregressive Distributed Lag (NARDL) framework, supported by unit root tests, cointegration analysis, and the Wald test to capture both short-run and long-run asymmetries in the relationship. The findings revealed that both increases and decreases in capital flight significantly affect economic growth, confirming the presence of nonlinear dynamics. Capital flight and other macroeconomic variables were found to explain about 75.3% of variations in economic growth. The model also indicated a relatively fast adjustment speed of approximately 35.6% toward long-run equilibrium after short-run shocks. The study concluded that capital flight is a major determinant of economic performance in Ghana. It recommended that policymakers strengthen macroeconomic stability to reduce incentives for capital outflows and implement effective mechanisms to recover illicitly transferred funds held abroad, in order to support domestic investment and economic growth.

Ur Rehman and Hysa (2021) examined the effect of financial development and remittances on economic growth in six Western Balkan countries using panel data from 2000 to 2017. The study employed the System Generalized Method of Moments (System GMM) to address endogeneity and dynamic effects in the model. The findings showed that both financial development, measured by broad money supply, and remittances have a positive and significant impact on economic growth. However, the interaction between financial development and remittances was found to negatively affect economic growth, suggesting a substitution effect between the two variables in the region. The study concluded that while remittances and financial development independently support growth, their combined effect may reduce growth performance. It recommended policies aimed at

strengthening non-deposit financial institutions and adopting measures such as narrower interest rate margins to promote investment and enhance economic growth in the Western Balkan countries.

Adekunle et al. (2022) examined the structural relationship between remittances and financial sector development in 53 African countries using panel data covering 1986–2017. The study employed the Pooled Mean Group (PMG) estimator while accounting for cross-sectional dependence in the panel framework. The results revealed a positive and significant relationship between remittances and financial development in both the short run and long run. This suggests that remittance inflows contribute to financial sector deepening across African economies, particularly in the short term. However, the authors caution that while remittances provide immediate financial support and welfare gains, sustained financial sector development in the long run may require complementary policy measures beyond reliance on migrant transfers. The study concludes that policymakers should leverage remittances for short-term financial inclusion while pursuing broader structural reforms to strengthen financial systems in Africa.

Jushi et al. (2021) examined the determinants of economic growth in Balkan countries, with particular emphasis on the role of remittances and foreign direct investment (FDI), using data from 2000 to 2017. The study utilized a vector autoregressive (VAR) model based on 144 observations, incorporating dummy variables to capture the effects of the 2008–2012 financial crisis. Data were sourced from the World Bank database and analysed using EViews software. The empirical results showed that remittances, population growth, and labour force participation do not have a significant effect on economic growth in the region. In contrast, previous GDP levels, trade openness, and FDI were identified as significant determinants of economic growth. The study concluded that while remittances are important financial inflows, they do not directly drive sustainable economic growth in Balkan economies. It recommended that policymakers prioritize trade expansion and FDI attraction as more effective channels for promoting long-term economic development.

Panthi and Devkota (2026) examined the impact of remittances on economic growth in Nepal over the period 1980–2021, with emphasis on the mediating role of financial development. The study employed the Autoregressive Distributed Lag (ARDL) bounds testing approach and an error correction model using annual time-series data, with robustness checks including alternative specifications and a post-2001 remittance boom period. The results showed that remittances exert a positive and statistically significant effect on real GDP per capita, while financial development also contributes positively to growth. However, the interaction between remittances and financial development was negative and significant, indicating that the growth-enhancing effect of remittances diminishes as the financial sector deepens, consistent with diminishing marginal returns. The study concluded that although both remittances and financial development independently support economic growth, their combined effect may weaken over time. It recommended that policymakers design complementary strategies that align remittance inflows with financial sector development to maximize their contribution to sustainable economic growth.

Bindu et al. (2022) examined the relationship between remittances and financial development in BRICS economies using annual data from 1990 to 2019. The study employed multiple financial development indicators, including domestic credit to the private sector, bank deposits, and liquid liabilities as a percentage of GDP. Analytical techniques included fixed and random effects models, Johansen cointegration tests, a vector error correction model, and Wald tests. The results indicated that remittances have a positive and significant effect on bank deposits, with a 1% increase in remittances associated with a 4.5% rise in bank deposits. The study also confirmed a long-run relationship between remittances and financial development, while no significant short-run relationship was observed. This suggests that remittances contribute more to financial deepening through long-term savings mobilisation rather than immediate financial sector expansion. The study concluded that remittances play a key role in enhancing financial development in BRICS economies over time and recommended policies aimed at reducing transaction costs and providing incentives to encourage remittance inflows and their channeling into formal financial systems.

Keho (2024) examined the relationship between remittances, financial development, and domestic investment in 10 Sub-Saharan African countries over the period 1975–2019, with emphasis on the mediating role of financial development. The study applied the Pooled Mean Group (PMG)

estimator within a panel framework to capture both short-run and long-run dynamics. The findings revealed that both remittances and financial development positively influence domestic investment. Moreover, their interaction effect was positive, indicating that remittances and financial development act as complements in promoting investment, with financial systems serving as a key transmission channel. The results also showed a threshold effect: when domestic credit to the private sector exceeds about 21% of GDP, remittances have a positive and significant impact on investment, whereas below this threshold the effect is negative. The study concluded that strengthening financial sector development is essential for maximizing the investment benefits of remittances and recommended policies that deepen financial systems and reduce transaction costs to enhance the growth impact of remittance inflows.

Pandikasala et al., (2022) examined the determinants of remittance inflows in India, with particular emphasis on the role of financial development and financial openness. Using multiple regression and the Autoregressive Distributed Lag (ARDL) cointegration approach, the study analysed both short-run and long-run relationships, incorporating dummy variables to capture the effects of the global financial crisis and adverse external shocks such as oil price and output fluctuations in host countries. The findings showed that financial development and financial openness significantly influence remittance inflows in both the short and long run. Remittances were also found to be resilient during periods of financial crisis, although they were negatively affected by adverse economic shocks in host economies. The study concluded that financial sector conditions in both sending and receiving countries play an important role in shaping remittance flows, and it recommended policies that enhance financial development and openness to sustain and channel remittances effectively for economic development.

Ngoma et al.,(2021) examined the impact of workers' remittances on economic growth in 15 remittance-receiving Asian countries over the period 1984–2010, with emphasis on the moderating roles of financial development and institutional quality. The study employed a Partial Gram-Schmidt orthogonalization procedure alongside the Pooled Mean Group (PMG) estimator to assess how the marginal effect of remittances varies across different levels of financial development and institutional quality. The findings showed that remittances have a positive effect on economic growth in the long run. This effect increases with higher levels of financial development, indicating a complementary relationship between remittances and financial sector development. In contrast, the growth impact of remittances declines as institutional quality improves, suggesting a substitution effect between remittances and institutional quality. Overall, the study concluded that financial development strengthens the growth-enhancing effect of remittances, while institutional improvements reduce their marginal contribution. It recommended policies that deepen financial systems to better channel remittance inflows into productive investment and sustainable economic growth.

Islam (2022) examined the relationship between remittances and economic growth in selected South Asian economies using annual panel data from 1986 to 2019, with trade openness and foreign direct investment as control variables. The study employed second-generation panel unit root tests, panel GLS, fully modified OLS (FMOLS), and Dumitrescu–Hurlin panel causality tests to ensure robust analysis under cross-sectional dependence. The results from both GLS and FMOLS estimations indicated a positive and significant effect of remittances on economic growth. The causality analysis further revealed a unidirectional relationship running from remittances to economic growth. The study concluded that remittances play a key role in driving economic growth in South Asia. It recommended policies aimed at facilitating international migration, reducing remittance transfer costs, and creating supportive migration frameworks to enhance remittance inflows and their contribution to economic development.

Dada and Akinlo (2023) examined the absorptive role of financial development in the remittance–growth nexus in Nigeria using annual data from 1986 to 2017. The study employed the Autoregressive Distributed Lag (ARDL) bounds testing approach and Vector Error Correction (VECM) Granger causality techniques to assess short-run, long-run, and causal relationships among remittances, financial development, and economic growth. The findings revealed that both remittances and financial development positively influence economic growth. However, their interaction effect varies over time: they act as substitutes in the short run but become complementary in the long run.

The causality results showed a unidirectional relationship from economic growth to financial development, bidirectional causality between remittances and financial development in the short run, and a long-run causal flow from both remittances and financial development to economic growth. The study concluded that the remittance–finance–growth relationship in Nigeria is dynamic with time-lagged effects and recommended policies that enhance financial sector development to better harness remittance inflows for sustainable economic growth.

Odhiambo and Musakwa (2024) investigated the impact of remittance inflows on bank-based financial development in 26 Sub-Saharan African countries, with emphasis on the moderating role of governance quality. The study employed the Generalized Method of Moments (GMM) estimator and used multiple proxies of financial development, including liquid liabilities, bank deposits, and deposit money bank assets. The results showed that remittances have a generally positive effect on bank-based financial development, particularly when financial development is measured by liquid liabilities and bank deposits. Governance quality was found to strengthen this relationship, indicating that better regulatory effectiveness enhances the financial development gains from remittances. However, when financial development is proxied by deposit money bank assets, remittances alone had no significant effect, although their interaction with government effectiveness became positive and significant. The study concluded that remittance inflows contribute to banking sector development in Sub-Saharan Africa, with governance playing a critical reinforcing role. It recommended improvements in regulatory quality and government effectiveness to maximize the financial development benefits of remittances.

Mohammed (2022) examined the relationship between remittances, institutional quality, and human development in Sub-Saharan Africa using data from 2004 to 2018. The study employed a dynamic panel framework estimated with the System Generalized Method of Moments (Sys-GMM) to address endogeneity, omitted variable bias, and unobserved heterogeneity. The results indicated that remittances have a positive and significant effect on human development in Sub-Saharan Africa. However, the interaction between remittances and institutional quality showed a substitution effect, implying that remittances contribute more strongly to human development in countries with weaker institutions, while their marginal effect declines as institutional quality improves. The study concluded that remittances play an important role in enhancing human capital development in the region, particularly where institutional structures are less developed. It recommended policies that facilitate increased remittance inflows by encouraging both skilled and unskilled migration and improving remittance channels.

Khan (2025) examined the impact of migrant remittances on human capital development and economic growth in 61 developing countries using balanced panel data from 1995 to 2020. Human capital was proxied by per capita health expenditure and secondary school enrollment, while economic growth was measured by real GDP per capita. The study employed fixed effects estimation supported by the Hausman test, with two-step Generalized Method of Moments (GMM) used as a robustness check. The results showed that remittance inflows have a positive and significant effect on both human capital development and economic growth. Specifically, remittances enhance health and education outcomes, with stronger effects on health in upper-middle-income countries and on education in low-income countries. The study concluded that remittances contribute meaningfully to economic development across developing economies. It recommended that policymakers design strategies to channel remittance inflows into productive sectors such as education and health to maximize their development impact.

Zardoub and Sboui (2023) examined the effect of financial flows, foreign direct investment (FDI), remittances, and official development assistance (ODA), on economic growth in developing countries using panel data from 1990 to 2016. The study also incorporated control variables such as domestic credit, life expectancy, gross fixed capital formation, inflation, and institutional factors, and applied panel data techniques with tests for individual heterogeneity and model specification across income-group classifications. The empirical findings revealed mixed and ambiguous effects of financial flows on economic growth, indicating that their impact is not uniformly positive across countries. While these inflows can support development, their effectiveness appears to depend on country-specific conditions and institutional settings. The study concluded that improving the

business and institutional environment is essential for enhancing the growth benefits of financial inflows. It recommended policies that strengthen domestic investment conditions and attract productive foreign and financial inflows in developing economies.

Adow (2025) investigated the impact of remittances on GDP per capita growth in 15 East African countries over the period 2000–2022 using data from the World Development Indicators. The study applied fixed effects estimation and System Generalized Method of Moments (System GMM) to control for unobserved heterogeneity and endogeneity. The results showed that remittances have a positive and significant effect on economic growth in the region. However, inflation and rapid population growth were found to weaken this effect. Financial depth was identified as a key factor that enhances the growth impact of remittances. The study concluded that remittances can meaningfully contribute to economic development when supported by stable macroeconomic conditions and a well-developed financial system. It recommended policies that promote financial inclusion, macroeconomic stability, and investment-friendly environments to maximize the developmental benefits of remittance inflows in East Africa.

Haouas et al., (2026) examined the causal relationship between remittances and financial development in the MENA region using annual data from 1980 to 2015. The study employed a bootstrap rolling Granger non-causality approach with rolling window techniques to capture time-varying dynamics and structural changes in the relationship. The results showed evidence of bidirectional and time-varying causality between remittances and financial development, with remittances generally predicting financial development in several sub-periods. However, the reverse causality from financial development to remittances was found to depend on the financial development proxy used. The study also identified structural breaks, indicating that macroeconomic shocks have persistent long-run effects on both variables. It concluded that the remittance–financial development nexus is dynamic and sensitive to structural changes, and recommended policy responses that enhance financial system resilience and stability to better harness remittance inflows for development.

Sghaier (2021) examined the conditional impact of remittances on economic growth in seven MENA countries (Tunisia, Morocco, Algeria, Egypt, Jordan, Lebanon, and Turkey) over the period 2000–2018. The study applied the System Generalized Method of Moments (System GMM) estimator to a panel data framework to account for endogeneity and dynamic effects. The findings showed that remittances have a positive and significant effect on economic growth in the region. Financial development was also found to complement remittances in enhancing growth, indicating that deeper financial systems strengthen the growth impact of remittance inflows. The study concluded that the effectiveness of remittances in promoting economic growth depends on the level of financial sector development. It recommended policies that strengthen financial systems in order to improve the developmental benefits of remittance inflows in MENA economies.

Miao and Qamruzzaman (2021) examined the effects of remittances on financial openness, economic openness, and financial stability in least developed countries over the period 1975–2018. The study employed GMM and System GMM estimators, complemented by Granger causality tests within a panel framework, to assess both the magnitude and direction of relationships among remittances, gross capital formation, government debt, openness, and financial stability. The findings revealed the presence of cross-sectional dependence and confirmed long-run cointegration among the variables. Empirical results showed that remittances have a positive and statistically significant effect on both financial and economic openness, as well as financial stability in least developed countries. The causality analysis further indicated bidirectional relationships among the key variables, supporting a feedback hypothesis. The study concluded that remittance inflows play a crucial role in enhancing openness and stabilizing financial systems in least developed economies. It recommended policies that encourage remittance inflows and strengthen macroeconomic frameworks to maximize their developmental benefits.

Cui et al. (2023) examined the impact of remittances on poverty reduction in 15 selected Asian economies using panel data covering 2000–2020. The study controlled for key macroeconomic variables, including GDP per capita, inflation, and population growth, to isolate the effect of remittances on poverty levels. The empirical results showed that remittances have a significant

negative effect on poverty, indicating that higher remittance inflows are associated with lower poverty rates across the sampled economies. However, the magnitude of this effect varies across countries, with some economies benefiting more strongly than others. The study concluded that remittances play an important role in poverty alleviation in developing Asia and recommended policies that facilitate remittance inflows and improve their productive use to enhance poverty reduction outcomes.

Nyasha and Odhiambo (2022) investigated the impact of remittances on economic growth in South Africa using annual time-series data from 1970 to 2019. The study employed the Autoregressive Distributed Lag (ARDL) bounds testing approach to capture both short-run and long-run dynamics. The findings revealed that remittances exert a negative effect on economic growth in both the short and long run, contrary to the commonly expected positive relationship. The study concluded that in the South African context, remittance inflows do not translate into productive investment or growth-enhancing activities. It recommended policies aimed at improving the productive utilisation of remittances to better support economic growth outcomes.

Synthesis of Empirical Literature

The empirical literature on capital flight, remittances, and development financing presents substantial evidence that both capital outflows and external financial inflows significantly influence economic development outcomes in developing economies. However, the direction and magnitude of these effects vary across countries, institutional environments, and levels of financial sector development.

Studies on capital flight consistently demonstrate its detrimental consequences for economic growth, domestic investment, and development financing. Evidence from Africa (Fisseha, 2022), Sub-Saharan Africa (Akinlo, 2024; Salisu & Isah, 2021; Peprah et al., 2023), Asia (Basher et al., 2023), Pakistan (Bashir et al., 2023), Palestine (Badwan, 2021), Ghana (MacCarthy et al., 2022), and East Africa (Otieno et al., 2021; Otieno et al., 2022) reveals that capital flight drains domestic resources needed for productive investment and economic growth. The literature further identifies exchange rate instability, corruption, weak governance, and external indebtedness as major drivers of capital flight. These findings suggest that capital flight constitutes a significant constraint to development financing by reducing the pool of domestic savings available for investment and infrastructure development.

Conversely, the literature on remittances generally portrays remittance inflows as an important source of development finance. Studies conducted in South Asia (Islam, 2022), East Africa (Adow, 2025), Nepal (Panthi & Devkota, 2026), South-East Europe (Bucevska, 2022), Asia (Ngoma et al., 2021), and developing countries generally (Khan, 2025) found that remittances positively influence economic growth, human capital development, poverty reduction, and financial sector development. Similarly, Mohammed (2022) reported that remittances improve human development in Sub-Saharan Africa, while Cui et al. (2023) found that remittances significantly reduce poverty in selected Asian economies. These studies collectively suggest that remittances serve as an alternative source of development financing by supplementing household income, increasing savings, stimulating investment, and supporting human capital accumulation.

However, the evidence on remittances is not entirely unanimous. Nyasha and Odhiambo (2022) found that remittances negatively affect economic growth in South Africa, while Jushi et al. (2021) reported that remittances do not significantly influence economic growth in Balkan countries. Similarly, Zardoub and Sboui (2023) observed ambiguous effects of remittances and other financial flows on growth across developing countries. These divergent findings imply that the developmental impact of remittances may depend on country-specific economic structures, institutional conditions, and the extent to which remittances are directed toward productive rather than consumption-related activities.

A major theme emerging from the literature is the critical role of financial development and institutional quality. Several studies demonstrate that financial development strengthens the positive effects of remittances on economic growth and investment (Sghaier, 2021; Keho, 2024; Adow, 2025; Ngoma et al., 2021). Similarly, Dada and Akinlo (2023) found that remittances and financial development complement each other in promoting long-run growth in Nigeria. Other studies reveal that governance quality enhances the developmental benefits of remittances and mitigates the adverse

effects of capital flight (Peprah et al., 2023; Odhiambo & Musakwa, 2024). Nevertheless, Akinlo (2024) reported that institutional quality does not significantly moderate the impact of capital flight on growth in Sub-Saharan Africa, highlighting the mixed nature of the evidence.

Although the reviewed studies provide valuable insights, several gaps remain. First, most studies examine either capital flight or remittances in isolation. The capital flight literature focuses largely on its effects on economic growth and investment, while the remittance literature emphasizes growth, poverty reduction, financial development, and human development. Very few studies jointly examine capital flight and remittances within a unified development financing framework. Yet, both variables represent opposite sides of international financial flows: capital flight constitutes a leakage of domestic resources, whereas remittances represent an inflow of external resources.

Second, existing studies largely concentrate on economic growth as the outcome variable, with limited attention given to the broader concept of development financing. Financing development encompasses the mobilization of resources required for productive investment, infrastructure provision, human capital development, poverty reduction, and sustainable economic transformation. Consequently, focusing solely on economic growth may not adequately capture the full developmental implications of capital flight and remittances.

Third, despite Nigeria being one of Africa's largest recipients of remittances and simultaneously experiencing substantial capital flight, empirical studies that investigate the combined effects of these two financial flows on development financing remain scarce. Existing Nigerian studies, such as Dada and Akinlo (2023), primarily examine the remittance–finance–growth nexus, while studies on capital flight tend to focus on growth or investment without considering the offsetting role that remittances may play.

Accordingly, the present study on "Capital Flight, Remittances and the Financing of Development in Nigeria" seeks to address these gaps by integrating capital flight and remittance inflows within a single analytical framework. Unlike previous studies that examine these variables separately, this study recognizes that capital flight reduces the domestic resources available for development financing, while remittances may serve as a compensatory source of external finance. By focusing specifically on development financing in Nigeria, the study extends the existing literature and provides a more comprehensive understanding of how international financial leakages and inflows jointly influence the country's capacity to finance sustainable development. This approach is expected to generate policy-relevant evidence for strengthening domestic resource mobilization, reducing capital flight, and enhancing the developmental utilization of remittance inflows in Nigeria.

III. Methodology

This study adopts the Autoregressive Distributed Lag (ARDL) bounds testing approach to cointegration proposed by Pesaran et al. (2001) to investigate the effect of exchange rate fluctuations on foreign investment, with institutional quality serving as the moderating variable. The ARDL technique has several advantages over conventional cointegration methods, such as Engle and Granger (1987), Johansen (1988), and Johansen and Juselius (1990). First, the ARDL approach is applicable irrespective of whether the underlying variables are integrated of order zero, $I(0)$, or order one, $I(1)$, thereby removing the necessity for prior unit root testing. This reduces the likelihood of erroneous integration order classification and improves the robustness of the estimation. Second, the bounds testing procedure is particularly appropriate for studies with relatively small sample sizes, in contrast to the Johansen approach, which generally requires large samples for reliable inference. Third, the ARDL framework allows each variable to have a distinct optimal lag structure, offering greater flexibility than traditional cointegration techniques. As noted by Öztürk and Acaravci (2010), while conventional cointegration methods estimate long-run relationships within a multivariate system, the ARDL approach relies on a single-equation framework. It combines ordinary least squares (OLS) estimation with an unrestricted error correction model (UECM) to assess the presence of a long-run equilibrium relationship among the variables. Cointegration is established by testing the joint significance of the lagged level variables within the bounds testing framework. Data for all variables employed in the study were sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin (2025) and the World Development Indicators (WDI, 2025).

Model Specification

Based on the conceptual relationships, the empirical model is specified as follows:

Functional relationship

$$DF = f(CF, REM, CF * REM, IQ, EXCR, RIR, INT, GDPGR) \quad (1)$$

The econometric model of equation (1)

$$DF_t = \beta_0 + \beta_1 CF_t + \beta_2 REM_t + \beta_3 (CF * REM)_t + \beta_4 IQ_t + \beta_5 EXCH_t + \beta_6 INF_t + \beta_7 RIR_t + \beta_8 GDPGR_t + \mu_t \quad (2)$$

Whereas:

DF = Development Financing (proxy by Gross Fixed Capital Formation as % of GDP;

CF = Current account balances as a percentage of GDP

REM = Remittances inflow as a percentage of GDP

CF*REM = Interaction term between capital flight and remittances

IQ=Institutional Quality Index

EXCR = Exchange Rate

INF = Inflation Rate

RIR = Real Interest Rate

GDPGR = gross Domestic Product growth rate

μ = Error term

The Augmented ARDL-ECM (Short- run dynamics) version of equation (1):

$$\begin{aligned} \Delta DF_t = & \alpha_0 + \sum_{i=1}^p \alpha_1 \Delta DF_{t-i} + \sum_{i=0}^{q1} \alpha_2 \Delta CF_{t-i} + \sum_{i=0}^{q2} \alpha_3 \Delta REM_{t-i} + \sum_{i=0}^{q3} \alpha_4 \Delta CF * REM_{t-i} \\ & + \sum_{i=0}^{q4} \alpha_5 \Delta IQ_{t-i} + \sum_{i=0}^{q5} \alpha_6 \Delta EXCR_{t-i} + \sum_{i=0}^{q6} \alpha_7 \Delta INFL_{t-i} + \alpha_8 RIR_{t-1} \\ & + \alpha_9 GDPGR_{t-1} + \lambda ECT_{t-1} + \mu_t \end{aligned} \quad (3)$$

Δ = first-difference operator,

ECTt-1= lagged error correction term,

λ = speed of adjustment coefficient,

p, q1...q6 = optimal lag lengths,

μ_t = serially independent disturbance term.

The coefficient of the error correction term is expected to be negative and statistically significant to confirm long-run convergence toward equilibrium.

The Long-run Dynamics of Equation (1)

$$DF_t = \theta_0 + \theta_1 CF_t + \theta_2 REM_t + \theta_3 CF * REM_t + \theta_4 IQ_t + \theta_5 EXCR_t + \theta_6 INFL_t + \theta_7 RIR_t + \theta_8 GDPGR_t + \mu_t \quad (4)$$

Table 1: A Priory expectations of the independent variable on Developmental finance

Variable	Symbol	Expected Sign	Theoretical Justification
Capital Flight	CF	-	Resources Drain Hypothesis: reduces domestic Savings
Remittances Inflow	REM	+	Resource Augmentation Hypothesis: increases financing capacity
(CF*REM) Interaction	CFREM	$\pm$	May offset or amplify capital flight effects
Institutional Quality	IQ	+	Strong institutions attract investment and retain capital
Exchange Rate	EXCR	$\pm$	Depreciation may attract remittances,

			but fuel capital flight
Inflation Rate	INFL	-	High inflation erodes real returns and deters investment
Interest Rate	INT	-	High rates discourage borrowing and domestic investment
GDP growth rate	GDPGR	+	Economic growth encourages capital retention and inflows

Source: Author's Concept (2026).

IV. Results

Table 2: Descriptive Statistics of the Variables

	DV	CF	REM	REM*CF	INST	INFL	RIR	EXCR	GDPGR
Mean	27.850	3.352	3.829	17.679	4.166	19.039	2.539	161.217	4.000
Median	27.570	1.895	4.117	4.294	4.250	13.127	4.947	130.245	3.925
Maximum	48.400	20.794	11.340	172.838	4.611	72.836	18.180	645.190	15.330
Minimum	14.170	-3.699	0.118	-15.323	3.417	5.388	-31.453	8.040	-2.040
Std. Dev.	10.196	5.475	2.621	36.966	0.311	15.983	9.661	143.195	3.674
Skewness	0.214	1.358	0.560	2.745	-0.738	2.037	-1.469	1.427	0.541
Kurtosis	1.926	4.698	3.188	11.098	2.843	6.327	6.018	5.185	4.022
Jarque-Bera	1.893	14.542	1.825	135.586	3.120	39.199	25.126	18.302	3.137
Probability	0.388	0.001	0.402	0.000	0.210	0.000	0.000	0.000	0.208
Sum	946.890	113.984	130.171	601.099	141.636	647.330	86.329	5481.390	136.000
Sum Sq. Dev.	3430.572	989.300	226.674	45094.050	3.183	8430.071	3080.319	676659.900	445.347
Observations	34	34	34	34	34	34	34	34	34

Source: Authors' Compilation (2026)

Table 2 presents the descriptive statistics of the variables used in the study, including development financing (DV), capital flight (CF), remittance inflows (REM), the interaction term between remittances and capital flight (REM*CF), institutional quality (INST), inflation rate (INFL), real interest rate (RIR), exchange rate (EXCR), and GDP growth rate (GDPGR). The descriptive statistics provide information on the central tendency, dispersion, distribution, and normality of the variables over the study period.

The dependent variable, development financing (DV), has a mean value of 27.85 and a median value of 27.57, indicating that the distribution is relatively symmetric around its central value. The maximum and minimum values of 48.40 and 14.17 respectively suggest considerable variation in development financing over the study period. The standard deviation of 10.20 indicates moderate volatility. The skewness coefficient of 0.214 implies a slight positive skewness, while the kurtosis value of 1.926 is less than the benchmark value of three, indicating a platykurtic distribution. Furthermore, the Jarque-Bera probability of 0.388 suggests that the variable is normally distributed.

For capital flight (CF), the average value is 3.35, while the median is 1.90, indicating that some extreme high values may have influenced the mean. The variable ranges from -3.70 to 20.79, reflecting substantial fluctuations in capital movements during the study period. The standard deviation of 5.48 further confirms significant variability in capital flight. The positive skewness coefficient of 1.358 indicates that the distribution is heavily skewed to the right, implying the occurrence of periods of unusually high capital outflows. The kurtosis value of 4.698 exceeds three, indicating a leptokurtic distribution characterized by relatively extreme observations. The Jarque-Bera probability value of 0.001 reveals that capital flight is not normally distributed.

Remittance inflows (REM) recorded an average value of 3.83 with a median of 4.12. The proximity of the mean and median suggests a relatively balanced distribution. Remittances varied between 0.12 and 11.34 over the period under review, with a standard deviation of 2.62 indicating moderate fluctuations. The skewness coefficient of 0.560 suggests mild positive skewness, while the

kurtosis value of 3.188 is close to the normal benchmark. The Jarque-Bera probability of 0.402 indicates that remittances follow a normal distribution.

The interaction term between remittances and capital flight (REM*CF) has a mean value of 17.68 and a median of 4.29, indicating a large divergence between the two measures and suggesting the presence of extreme values. This is further supported by the wide range between the maximum value of 172.84 and the minimum value of -15.32. The standard deviation of 36.97 reveals substantial volatility in the interaction effect. The skewness coefficient of 2.745 and kurtosis value of 11.098 indicate a highly positively skewed and strongly leptokurtic distribution. The Jarque-Bera statistic is significant at the 1% level, confirming non-normality. This suggests that the combined effect of remittances and capital flight experienced considerable fluctuations during the study period.

Regarding institutional quality (INST), the mean value of 4.17 and median value of 4.25 indicate relative stability in institutional performance. The variable exhibits a narrow range, from 3.42 to 4.61, and a low standard deviation of 0.31, suggesting limited variation in institutional quality over time. The negative skewness value of -0.738 indicates a slight leftward distribution, while the kurtosis value of 2.843 approximates normality. The Jarque-Bera probability of 0.210 confirms that institutional quality is normally distributed.

The inflation rate (INFL) recorded a mean of 19.04%, indicating a relatively high inflationary environment during the period under study. Inflation ranged from 5.39% to 72.84%, reflecting episodes of significant macroeconomic instability. The standard deviation of 15.98 demonstrates substantial volatility in price levels. The skewness coefficient of 2.037 indicates strong positive skewness, suggesting the presence of extreme inflationary episodes. The kurtosis value of 6.327 further confirms a leptokurtic distribution. The significant Jarque-Bera statistic indicates that inflation is not normally distributed.

For the real interest rate (RIR), the average value is 2.54%, although the median value of 4.95% suggests that some negative observations reduced the overall mean. The minimum value of -31.45% and maximum value of 18.18% reveal substantial fluctuations in real returns to investment. The standard deviation of 9.66 further reflects this variability. The negative skewness coefficient of -1.469 indicates a distribution characterized by more extreme negative observations, while the kurtosis value of 6.018 suggests a leptokurtic pattern. The Jarque-Bera probability confirms non-normality.

The exchange rate (EXCR) has a mean value of ₦161.22 per US dollar and a median of ₦130.25, indicating the persistent depreciation of the Nigerian currency during the study period. The wide gap between the minimum value of ₦8.04 and the maximum value of ₦645.19 demonstrates substantial exchange rate volatility. The high standard deviation of 143.20 further supports this observation. The positive skewness coefficients of 1.427 and kurtosis value of 5.185 indicate a right-skewed and leptokurtic distribution. The Jarque-Bera test rejects the null hypothesis of normality.

Finally, GDP growth rate (GDPGR) recorded an average growth rate of 4.00%, with values ranging from -2.04% to 15.33%. This suggests periods of both economic expansion and contraction. The standard deviation of 3.67 indicates moderate variability in economic growth performance. The skewness coefficient of 0.541 suggests mild positive skewness, while the kurtosis value of 4.022 indicates a slightly leptokurtic distribution. However, the Jarque-Bera probability of 0.208 suggests that GDP growth is normally distributed.

Overall, the descriptive statistics reveal substantial variations in capital flight, inflation, real interest rates, and exchange rates, reflecting the macroeconomic instability that has characterized the Nigerian economy over the study period. In contrast, remittances and institutional quality exhibit relatively lower volatility, suggesting greater stability. The non-normality observed in several variables, particularly capital flight, inflation, exchange rate, and the interaction term, indicates the presence of extreme observations and structural changes that may influence development financing. These characteristics justify the use of robust econometric techniques capable of accommodating non-normal distributions and macroeconomic volatility in examining the relationship between capital flight, remittances, and development financing in Nigeria.

Table 3: Correlation Matrix of the Variables

	CF	REM	CF*REM	IQ	INFL	RIR	EXCR	GDPGR	
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CF	1.0000								
REM	0.3478	1.0000							
CF*REM	0.8949	0.5405	1.0000						
IQ	-0.2026	0.2701	-0.1049	1.0000					
INFL	-0.2160	0.2691	-0.1530	0.3454	1.0000				
RIR	-0.0446	0.2505	-0.0407	0.3114	0.8220	1.0000			
EXCR	0.0198	0.5963	0.0783	0.4084	0.1380	0.1820	1.0000		
GDPGR	0.4613	0.0521	0.3066	-0.5331	-0.4079	0.2691	-0.0481	1.0000	

Source: Authors' Compilation (2026)

Table 3 presents the pairwise correlation coefficients among the variables employed in the study. The correlation matrix is useful for assessing the direction and strength of the linear relationship between variables and for detecting potential multicollinearity problems among the explanatory variables. Overall, the correlation analysis indicates that most of the explanatory variables are only weakly or moderately correlated, suggesting the absence of serious multicollinearity problems. The only notably high correlation is between inflation and real interest rate ($r = -0.8220$) and between capital flight and the interaction term ($r = 0.8949$), the latter being expected due to the nature of interaction variables. Consequently, the correlation matrix provides preliminary evidence that the variables can be included in the same regression model without severe multicollinearity concerns, although additional diagnostic tests are necessary to confirm this conclusion. Furthermore, the results reveal diverse relationships among capital flight, remittances, and macroeconomic indicators, supporting the need for a multivariate econometric analysis to determine their individual and combined effects on development financing in Nigeria.

Table 4: Unit Root Test for Stationarity (Augmented Dickey Fuller)

Variables	Level	First Differences	Integration order
	Intercept and Trend	Intercept and Trend	
DF	-0.564897	-4.385615***	I (1)
CF	-2.622332	-4.870054***	I (1)
REM	-3.754215**		I (0)
CF*REM	-2.607204	-5.633075***	I (1)
IQ	-2.943607	-5.746437	I (1)
INFL	-1.666398	-4.433591**	I (1)
RIR	-2.550804	-4.369727	I (1)
GDPGR	-2.965259	-8.021652	I (1)

Unit Root Test for Stationarity (Phillips- Perron)

Variables	Level	First Differences	Integration order
	Intercept and Trend	Intercept and Trend	
DF	-0.564897	-4.372679***	I (1)
CF	-2.140426	-5.222855***	I (1)
REM	-3.748002***		I (0)
CF*REM	-2.506204	-5.233075***	I (1)
IQ	-2.496722		
INFL	-2.550698	-8.642463***	I (1)
RIR	-3.058127	-6.73315***	I (1)
GDPGR	-2.911055	-6.72261	I (1)

Note: ***, **, and * are 1%, 5% and 10% level of significance respectively

Source: Authors' Compilation (2026)

Table 4 presents the results of the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests conducted to determine the stationarity properties of the variables used in the study. Testing for stationarity is essential because regression involving non-stationary variables may produce spurious results, thereby leading to misleading inferences. The tests were performed under the specification of an intercept and trend, and the results indicate the order of integration of each variable.

The ADF results show that development financing (DF) is non-stationary at level, as the test statistic of -0.564897 is not statistically significant. However, after first differencing, the variable becomes stationary with a test statistic of -4.385615, significant at the 1% level. This indicates that development financing is integrated of order one, $I(1)$. Similarly, capital flight (CF) is non-stationary at level but attains stationarity after first differencing with a test statistic of -4.870054, implying that the variable is also integrated of order one.

In contrast, remittances (REM) are stationary at a level, with an ADF statistic of -3.754215 that is significant at the 5% level. This suggests that remittances are integrated of order zero, $I(0)$, and do not require differencing before inclusion in the model. The finding implies that remittance inflows exhibit a stable long-run pattern over the study period.

The interaction term (CF*REM) is non-stationary at the level but becomes stationary after first differencing, with a significant ADF statistic of -5.633075 at the 1% level. Therefore, the interaction variable is integrated of order one. Likewise, institutional quality (IQ) is found to be non-stationary at the level but stationary at first difference, indicating an integration order of $I(1)$. The same pattern is observed for inflation (INFL), real interest rate (RIR), and GDP growth rate (GDPGR), all of which become stationary only after first differencing and are therefore integrated of order one.

The Phillips-Perron (PP) test results largely corroborate the findings of the ADF test. Development financing, capital flight, the interaction term, inflation, real interest rate, and GDP growth rate are all non-stationary at level but become stationary after first differencing, confirming their $I(1)$ status. Remittances remain stationary at level under the PP test, thereby reaffirming their classification as an $I(0)$ variable. The consistency between the ADF and PP tests strengthens the reliability of the stationarity results and reduces concerns regarding test-specific biases.

A notable outcome of the analysis is the presence of a mixed order of integration among the variables. Specifically, remittances are integrated at level, $I(0)$, while development financing, capital flight, the interaction term, institutional quality, inflation, real interest rate, and GDP growth rate are integrated of order one, $I(1)$. Importantly, none of the variables is integrated of order two, $I(2)$.

The implication of these findings is that the variables satisfy one of the key requirements for the application of the Autoregressive Distributed Lag (ARDL) bounds testing approach. According to Pesaran, Shin, and Smith (2001), ARDL estimation can be employed when variables are a mixture of $I(0)$ and $I(1)$, provided that none is integrated beyond the first order. The absence of $I(2)$ variables therefore justifies the use of ARDL techniques for investigating the long-run and short-run relationships among capital flight, remittances, and development financing in Nigeria.

Overall, the unit root results indicate that while most variables exhibit stochastic trends and require differencing to achieve stationarity, remittances display a stable behavior at level. The mixed integration orders observed in the data further support the adoption of ARDL estimation as the most appropriate econometric framework for the study.

Table 5: Bound Test for Cointegration (Dependent Variable: DF)

T-Statistic	Value	K
F-statistic	1.323913	8
Level of Significance	Lower (Bound I (0))	Upper Bound I (1)
10%	1.95	3.06
5%	2.22	3.39

2.50%	2.48	3.70
1%	2.79	4.10

K is the number of exogenous variables in the model

Source: Output from Software (2026)

Table 5 presents the results of the ARDL bounds test for cointegration, which is used to determine whether a long-run equilibrium relationship exists among the variables in the model, with development financing (DF) specified as the dependent variable. The test is based on the computed F-statistic, which is compared against the lower and upper critical bounds at different levels of significance.

The calculated F-statistic value of 1.323913 is the key indicator for decision-making. This value is compared with the critical bounds provided by Pesaran et al. (2001) for a model with eight (8) explanatory variables ($K = 8$). At the 10% significance level, the lower and upper bounds are 1.95 and 3.06 respectively. Similarly, at the 5% level, the bounds are 2.22 and 3.39, while at the stricter 1% level, the bounds range from 2.79 to 4.10.

A necessary condition for the existence of cointegration is that the computed F-statistic must exceed the upper bound critical value. However, in this case, the F-statistic (1.323913) is below the lower bound value at all conventional significance levels. This indicates that the statistic falls entirely within the non-rejection region of the null hypothesis.

Consequently, the null hypothesis of no long-run relationship (no cointegration) among development financing, capital flight, remittances, and the associated explanatory variables cannot be rejected. This implies that there is insufficient empirical evidence to support the existence of a stable long-run equilibrium relationship among the variables over the study period when DF is used as the dependent variable.

From a methodological perspective, this result suggests that the variables do not move together in the long run in a way that restores equilibrium after short-run shocks. In other words, changes in capital flight, remittances, institutional quality, and other macroeconomic variables do not exhibit a statistically stable long-run association with development financing in the estimated model.

The implication of this finding is important for policy interpretation. It suggests that development financing in the Nigerian context may be driven more by short-run dynamics and structural shifts rather than a stable long-run equilibrium relationship with capital flight and remittances. Therefore, policy measures aimed at improving development financing should focus not only on long-term structural reforms but also on short-term macroeconomic stabilization and financial system responsiveness.

In summary, the bounds test result indicates the absence of cointegration among the variables, implying that the relationship between capital flight, remittances, and development financing is not anchored in a long-run equilibrium within the specified model framework.

Table 6: Long and short run Dynamics of estimated results for the selected ARDL (Selected Model: ARDL (1, 0, 2, 0, 0, 0, 0, 2, and 0))

Panel A: Long-Run Dynamics: DV

Variable	Coefficient	Standard Error	T- statistics	P-Value
CF	-3.040656	4.841454	-0.628046	0.5379
EXCR	0.268304	0.298729	0.898152	0.3810
GDPGR	-3.351140	4.277475	-0.783439	0.4436
INFL	0.323235	0.972525	0.332367	0.7435
IQ	4.763815	36.261525	0.131374	0.8969
REM	-9.271275	9.186956	-1.009178	0.3263
CF*REM	0.389434	0.694531	0.560715	0.5819
RIR	2.217778	2.785434	0.796206	0.4363
C	12.499973	156.655546	0.079793	0.9373

Panel B: Short-Run Dynamics

D(CFLT)	-0.201031	0.256232	-0.784566	0.4429
D(EXCR)	-0.017633	0.016893	-1.043830	0.3104

D(EXCR(-1))	-0.029586	0.026509	-1.116052	0.2791
D(GDPGR)	-0.221559	0.188182	-1.177363	0.2544
D(INFL)	0.021371	0.064217	0.332788	0.7431
D(INST)	0.314957	2.415105	0.130411	0.8977
D(REM)	-0.612965	0.398953	-1.536436	0.1418
D(CF*REM)	0.035278	0.037205	0.948226	0.3556
D(CF*REM(-1))	0.037654	0.017906	2.102827	0.0498
D(RIR)	0.146627	0.101835	1.439844	0.1671
CointEq(-1)	-0.066114	0.064408	-1.026496	0.3183

$$\begin{aligned} \text{Cointeq} = & \text{DV} - (-3.0407 * \text{CFLT} + 0.2683 * \text{EXCR} - 3.3511 * \text{GDPGR} + \\ & 0.3232 * \text{INFL} + 4.7638 * \text{INST} - 9.2713 * \text{REM} + \\ & 0.3894 * \text{CF} * \text{REM} + \\ & 2.2178 * \text{RIR} + 12.5000) \end{aligned}$$

Panel C: Goodness-of-fit measures

R-Squared	0.960389			
Adj. R-Squared	0.931782			
F-statistics	33.57103			
P-value (F-stat.)	0.00000			
Durbin-Watson Statistics	1.657425			

Panel D : Diagnostic Tests

	Test	Probability
Breusch-Godfrey Serial Correlation LM Test:	1.027130	0.5984
Heteroskedasticity Test: Breusch-Pagan-Godfrey	16.16566	0.2403
Heteroskedasticity Test: ARCH	0.556289	0.4558
Ramsey RESET Specification Test	0.009589	0.9231
Jarque-Bera Statistics	1.299421	0.522197

Note: ***, **, and * are 1%, 5% and 10% level of significance respectively

Source: Authors' Computation (2026)

Table 6 presents the long-run and short-run dynamics of the selected ARDL (1, 0, 2, 0, 0, 0, 0, 2, 0) model, which examines the effect of capital flight, exchange rate, economic growth, inflation, institutional quality, remittances, the interaction between capital flight and remittances, and real interest rate on domestic investment (DV). The long-run coefficients reported in Panel A indicate that none of the explanatory variables has a statistically significant effect on domestic investment, as all p-values exceed the conventional 5% significance level.

Capital flight (CF) exhibits a negative coefficient (-3.040656), implying that a one-unit increase in capital flight leads to approximately a 3.04-unit decline in domestic investment in the long run. Although this result aligns with theoretical expectations that capital flight drains domestic savings and investment, the relationship is not statistically significant ($p = 0.5379$). This suggests that while capital flight may adversely affect investment, the effect is not sufficiently strong to establish a systematic long-run relationship within the study period.

Exchange rate (EXCR) has a positive coefficient (0.268304), indicating that exchange rate depreciation is associated with a marginal increase in domestic investment. This outcome may reflect the possibility that depreciation enhances export competitiveness and stimulates investment in tradable sectors. However, the coefficient is statistically insignificant ($p = 0.3810$), implying that exchange rate movements do not significantly influence domestic investment in the long run.

Economic growth (GDPGR) shows a negative coefficient (-3.351140), suggesting that increases in economic growth are associated with reductions in domestic investment. This result is contrary to conventional economic theory, which predicts that economic growth should stimulate investment through increased economic opportunities and profitability. Nevertheless, the coefficient is

statistically insignificant ($p = 0.4436$), indicating that economic growth does not exert a meaningful long-run influence on investment during the study period.

Inflation (INFL) carries a positive coefficient (0.323235), suggesting that moderate inflation may be associated with increased investment activity. However, the insignificant p -value (0.7435) indicates that inflation does not significantly affect domestic investment in the long run.

Institutional quality (IQ) records a positive coefficient (4.763815), implying that improvements in institutional quality promote domestic investment. This finding aligns with institutional theory, which argues that stronger governance structures reduce uncertainty and encourage investment. Nonetheless, the coefficient is highly insignificant ($p = 0.8969$), suggesting that institutional quality has not played a significant role in explaining long-run investment variations in the economy under study.

Remittances (REM) exhibit a negative coefficient (-9.271275), indicating that increases in remittance inflows are associated with lower domestic investment. This finding may suggest that remittances are largely used for consumption rather than productive investment purposes. However, the relationship is statistically insignificant ($p = 0.3263$).

The interaction term between capital flight and remittances (CF*REM) has a positive coefficient (0.389434), suggesting that remittance inflows may partially offset the adverse effect of capital flight on domestic investment. However, the coefficient is statistically insignificant ($p = 0.5819$), indicating that remittances do not significantly moderate the impact of capital flight on investment in the long run.

Real interest rate (RIR) displays a positive coefficient (2.217778), implying that higher real interest rates may encourage savings mobilisation and investment. Nevertheless, the coefficient remains statistically insignificant ($p = 0.4363$), indicating the absence of a significant long-run relationship.

Overall, the long-run results suggest that although the explanatory variables exhibit theoretically meaningful signs in some cases, none significantly determine domestic investment over the long horizon.

The short-run estimates presented in Panel B reveal that most variables remain statistically insignificant, indicating limited immediate effects on domestic investment. The contemporaneous change in capital flight [D (CFLT)] has a negative coefficient (-0.201031), suggesting that increases in capital flight reduce domestic investment in the short run. However, the effect is statistically insignificant ($p = 0.4429$).

The current and lagged changes in exchange rate [D (EXCR) and D(EXCR(-1))] both have negative coefficients (-0.017633 and -0.029586 respectively), indicating that exchange rate volatility may discourage investment in the short run. However, neither coefficient is statistically significant. Economic growth [D (GDPGR)] records a negative but insignificant coefficient (-0.221559; $p = 0.2544$), while inflation [D(INFL)] and institutional quality [D(INST)] maintain positive but insignificant relationships with domestic investment.

Remittances [D(REM)] exert a negative coefficient (-0.612965), suggesting that increases in remittance inflows may reduce investment in the short run. However, the effect is not statistically significant at the 5% level ($p = 0.1418$), although it approaches significance.

A notable result emerges from the lagged interaction term between remittances and capital flight [D(CF*REM(-1))], which has a positive coefficient (0.037654) and is statistically significant at the 5% level ($p = 0.0498$). This finding indicates that the combined effect of remittances and capital flight from the previous period contributes positively to current domestic investment. In practical terms, remittance inflows appear capable of mitigating some of the adverse effects of capital flight on investment, but this moderating effect materialises with a one-period lag rather than immediately. This represents the only statistically significant explanatory variable in the short-run model.

The contemporaneous interaction term [D(REMCFLT)] is positive but insignificant, suggesting that the moderating role of remittances becomes effective only after some time. The real interest rate [D(RIR)] exerts a positive but statistically insignificant influence on investment.

The error correction term, CointEq(-1), has a negative coefficient (-0.066114), which satisfies the theoretical requirement for convergence toward long-run equilibrium. The coefficient implies that

approximately 6.61% of any disequilibrium in domestic investment is corrected annually (or per period depending on data frequency). However, the error correction coefficient is statistically insignificant ($p = 0.3183$). This lack of significance indicates that deviations from long-run equilibrium are not corrected in a systematic manner. Consequently, there is weak evidence of a stable long-run adjustment mechanism between domestic investment and the explanatory variables. The insignificant error correction term is consistent with the earlier Bounds Test result (F-statistic = 1.323913), which failed to exceed the lower critical bound, indicating the absence of a long-run cointegrating relationship among the variables.

The model demonstrates a strong explanatory power, with an R-squared value of 0.9604, indicating that approximately 96.04% of the variation in domestic investment is explained by the included variables. The adjusted R-squared of 0.9318 further confirms the model's high explanatory capability after adjusting for degrees of freedom. The F-statistic of 33.57103 with a probability value of 0.0000 indicates that the model is jointly significant, meaning the explanatory variables collectively explain changes in domestic investment.

The Durbin-Watson statistic of 1.6574 is reasonably close to 2, suggesting no serious autocorrelation concerns. The diagnostic tests further confirm the robustness of the model. Breusch-Godfrey LM test ($p = 0.5984$) indicates absence of serial correlation, Breusch-Pagan-Godfrey test ($p = 0.2403$) suggests homoscedastic residuals. ARCH test ($p = 0.4558$) confirms absence of autoregressive conditional heteroskedasticity, Ramsey RESET test ($p = 0.9231$) indicates correct model specification and Jarque-Bera test ($p = 0.5222$) confirms that residuals are normally distributed.

The stability of the estimated ARDL model was evaluated using the Cumulative Sum (CUSUM) and Cumulative Sum of Squares (CUSUMSQ) statistics (see appendix). As depicted in the first plot, the CUSUM line remains within the 5% significance boundaries throughout the evaluation period (1985–2024). This confirms that the model's recursive residuals are structurally stable, and the estimated parameters remain robust over time without noticeable structural shifts.

Similarly, the CUSUMSQ test presented in the second plot shows that the cumulative squared residuals also lie within the critical bounds at the 5% significance level. This further reinforces evidence of parameter constancy and absence of instability in the variance of the residuals. The combined diagnostic outcomes indicate that the selected ARDL specification is appropriate, reliable, and stable for policy analysis and forecasting of stock market returns in Nigeria.

The ARDL results reveal that there is no statistically significant long-run relationship between domestic investment and capital flight, exchange rate, economic growth, inflation, institutional quality, remittances, or real interest rate. This finding is reinforced by the insignificant error correction term and the earlier Bounds Test result, both of which indicate the absence of cointegration. In the short run, the only significant variable is the lagged interaction term between remittances and capital flight, suggesting that remittance inflows help cushion the adverse investment effects of capital flight after a one-period lag. The model is statistically sound and passes all post-estimation diagnostic tests, implying that the estimated coefficients are reliable despite the generally weak individual variable significance.

V. Discussion of Findings

The study examined the effect of capital flight, remittance inflows, and their interaction on development financing in Nigeria, using Gross Fixed Capital Formation as a proxy for development financing. The ARDL bounds test revealed the absence of a long-run cointegrating relationship among the variables, while the ARDL estimates indicated that only the lagged interaction between capital flight and remittances significantly influenced development financing in the short run.

The long-run coefficient of capital flight was negative (-3.0407), although statistically insignificant. Similarly, the short-run coefficient was also negative and insignificant. These findings suggest that increases in capital flight tend to reduce development financing in Nigeria, but the effect is not sufficiently strong to establish a statistically significant relationship during the period covered by the study. The negative sign is consistent with the Resource Drain Hypothesis, which posits that capital flight deprives an economy of resources that could otherwise be invested in productive activities, infrastructure, and economic development. The result also aligns with Dependency Theory,

which argues that developing economies experience persistent resource leakages to developed economies, thereby constraining domestic capital accumulation.

Empirically, the finding is consistent with studies by Fisseha (2022), Basher et al. (2023), Bashir et al. (2023), Badwan (2021), Salisu and Isah (2021), and Peprah et al. (2023), all of whom reported that capital flight adversely affects investment, economic growth, and development outcomes. However, unlike these studies that found statistically significant negative effects, the present study found an insignificant relationship, suggesting that other macroeconomic factors and policy interventions may have moderated the impact of capital flight on development financing in Nigeria.

The estimated coefficient of remittances was negative (-9.2713) and statistically insignificant in the long run, while the short-run coefficient was also negative and insignificant. This finding implies that remittance inflows did not significantly contribute to development financing in Nigeria during the study period. This result contradicts the Resource Augmentation Hypothesis, which argues that remittances supplement domestic resources, increase savings, and support investment and development financing. It also departs from the Dual-Gap Theory, which views remittances as an important source of foreign exchange capable of bridging domestic savings and investment gaps.

A plausible explanation is that a substantial proportion of remittances in Nigeria may have been directed toward household consumption, family maintenance, and social expenditures rather than productive investment. Consequently, remittance inflows may have improved household welfare without translating into measurable increases in gross fixed capital formation. The finding supports the studies of Jushi et al. (2021) and Nyasha and Odhiambo (2022), who reported that remittances do not necessarily promote economic growth or productive investment when they are not effectively channelled into productive sectors. However, it contrasts with the findings of Islam (2022), Khan (2025), Adow (2025), Ngoma et al. (2021), and Dada and Akinlo (2023), who found positive contributions of remittances to growth and development outcomes.

The interaction term between capital flight and remittances (CF*REM) produced one of the most important findings of the study. Although the long-run interaction coefficient was positive but insignificant, the lagged short-run interaction term was positive and statistically significant at the 5 per cent level. This indicates that remittances moderate the adverse effects of capital flight on development financing after a one-period lag. This finding provides strong support for the integrated Resource Drain–Resource Augmentation Framework, which serves as the principal theoretical foundation of the study. The result suggests that while capital flight drains domestic resources, remittance inflows partially replenish those resources and help cushion the negative effects of capital outflows on development financing.

The finding is also consistent with the Dual-Gap Theory, which argues that external financial inflows can compensate for domestic savings shortages. The significance of the lagged interaction term indicates that the beneficial effects of remittances do not occur immediately but materialise after some adjustment period as funds are absorbed into the economy and financial system. Empirically, the result aligns with Keho (2024), Dada and Akinlo (2023), Sghaier (2021), and Ngoma et al. (2021), who found that remittances become more effective in promoting investment and growth when supported by complementary financial and institutional mechanisms.

Institutional quality exhibited a positive but statistically insignificant coefficient in both the long run and short run. This suggests that improvements in governance and institutional effectiveness tend to support development financing, although the effect was not sufficiently strong to be statistically significant. The positive sign is consistent with Financial Intermediation Theory, which emphasizes the importance of efficient institutions in mobilising and allocating financial resources. Strong institutions are expected to improve investor confidence, reduce uncertainty, and encourage domestic capital retention. The finding partly agrees with Peprah et al. (2023) and Odhiambo and Musakwa (2024), who reported that governance quality enhances the developmental benefits of financial inflows. However, it is closer to Akinlo (2024), who found that institutional quality did not significantly moderate the negative effects of capital flight in Sub-Saharan Africa.

The exchange rate recorded a positive but insignificant coefficient in the long run, while the short-run coefficients were negative and insignificant. The positive long-run sign suggests that

currency depreciation may encourage domestic production and investment by improving competitiveness, but the insignificant relationship indicates that exchange rate movements have not been a major determinant of development financing in Nigeria.

This outcome can be explained by the mixed effects of exchange rate depreciation in Nigeria. While depreciation may stimulate exports and attract remittances, it also raises production costs through higher import prices, thereby offsetting potential gains. The result is broadly consistent with Portfolio Diversification Theory, which suggests that exchange rate uncertainty can simultaneously encourage capital flight and influence remittance behaviour. The opposing effects may explain the overall insignificance of exchange rate movements in the model.

Inflation exerted a positive but insignificant influence on development financing in both the long run and the short run. This result contradicts the study's a priori expectation and conventional economic theory, which predicts that inflation, discourages investment by increasing uncertainty and reducing real returns. The insignificant result suggests that inflationary pressures in Nigeria did not independently determine development financing during the study period. Instead, investment decisions may have been influenced more by structural and institutional factors than by changes in the inflation rate alone.

Real interest rate had a positive but statistically insignificant effect on development financing in both the long run and short run. Although higher real returns theoretically encourage savings and investment, the lack of significance suggests that interest rate movements were not a critical driver of development financing in Nigeria. This finding deviates from the predictions of Financial Intermediation Theory, which expects interest rates to influence resource allocation and investment behaviour. The result may reflect the underdeveloped nature of financial intermediation and limited access to credit within the Nigerian economy.

GDP growth exhibited a negative but insignificant coefficient. This result is contrary to conventional economic theory and the study's a priori expectation that economic growth should stimulate investment and development financing. The finding suggests that periods of economic growth in Nigeria may not have translated effectively into productive capital formation. Growth may have been driven largely by consumption, extractive activities, or sectors with weak linkages to domestic investment. A major finding of the study is the absence of a long-run equilibrium relationship among development financing, capital flight, remittances, and the control variables. The insignificant error-correction term further confirms the lack of cointegration.

Overall, the findings provide stronger support for the Resource Drain and Resource Augmentation Framework, while also validating aspects of the Dual-Gap Theory and Financial Intermediation Theory. The evidence suggests that remittances can partially offset the harmful effects of capital flight, but their effectiveness depends on the capacity of the financial system and policy environment to channel those inflows into productive investment and development-oriented activities.

VI. Conclusion and Recommendations

This study examined the effect of capital flight and remittance inflows on development financing in Nigeria, with particular emphasis on the moderating role of remittances in the relationship between capital flight and development financing. Gross Fixed Capital Formation was used as a proxy for development financing, while institutional quality, exchange rate, inflation, real interest rate, and economic growth were included as control variables.

The ARDL Bounds Test results revealed the absence of a long-run co-integrating relationship among the variables, indicating that capital flight, remittances, and development financing do not maintain a stable long-run equilibrium relationship in Nigeria. The estimated long-run and short-run coefficients showed that capital flight exerted a negative but statistically insignificant effect on development financing, suggesting that although capital flight drains resources from the domestic economy, its independent impact on development financing was not sufficiently strong during the study period.

Similarly, remittance inflows were found to have a negative and insignificant effect on development financing, implying that remittances have not been effectively channelled into productive investment capable of stimulating capital formation. The finding suggests that a substantial

proportion of remittance inflows may have been utilized for consumption and household welfare rather than investment purposes.

The most important finding of the study is that the lagged interaction between capital flight and remittances had a positive and statistically significant effect on development financing. This indicates that remittance inflows possess the capacity to mitigate the adverse consequences of capital flight on development financing over time. Consequently, while remittances may not independently stimulate development financing, they become more effective when viewed as compensatory external financial resources that offset the resource losses arising from capital flight.

The study therefore concludes that capital flight remains a potential threat to development financing in Nigeria, while remittances represent an important complementary source of development finance. However, the developmental benefits of remittances can only be fully realized when appropriate institutional and financial mechanisms exist to channel such inflows into productive investments. The study further concludes that the relationship between capital flight, remittances, and development financing in Nigeria is predominantly short-run in nature, with limited evidence of long-run stability.

The findings of this study underscore the need for the Nigerian government, the Central Bank of Nigeria, and other regulatory authorities to implement comprehensive measures aimed at reducing capital flight and strengthening the domestic investment environment. This can be achieved through stricter monitoring of cross-border financial transactions, enhanced anti-money laundering frameworks, improved tax administration, and policies that promote transparency and accountability in the financial system. Furthermore, efforts should be intensified to improve institutional quality through stronger governance structures, effective regulatory oversight, reduced corruption, and the enforcement of the rule of law. Maintaining macroeconomic stability through prudent exchange rate management, inflation control, and a conducive interest rate regime is also essential for fostering investor confidence, discouraging capital flight, and promoting sustainable development financing.

In addition, policymakers should focus on transforming remittance inflows into a more effective source of development financing by creating an enabling environment that encourages productive investment of remitted funds. This can be achieved through the introduction of diaspora investment programmes, remittance-backed investment instruments, diaspora bonds, and targeted incentives that channel remittances into critical sectors such as infrastructure, agriculture, manufacturing, and small and medium-scale enterprises. Financial institutions should also deepen financial inclusion and develop innovative savings and investment products that mobilise remittance inflows for capital formation. Strengthening partnerships between government, the private sector, and the Nigerian diaspora, alongside improving the monitoring and documentation of remittance and capital flow data, will further enhance the capacity of remittances to offset the adverse effects of capital flight and contribute meaningfully to long-term development financing in Nigeria.

VII. Contribution to Knowledge

This study contributes to the existing literature by empirically examining the interactive effect of capital flight and remittance inflows on development financing in Nigeria. Unlike many previous studies that investigated the independent effects of either capital flight or remittances, this study demonstrates that remittances can moderate the adverse effects of capital flight on development financing. The significant positive interaction effect provides new evidence that remittances serve as a compensatory mechanism capable of offsetting resource losses associated with capital flight. This finding enriches the literature on development finance and offers important policy insights for developing economies seeking alternative sources of investment financing amidst persistent capital outflows.

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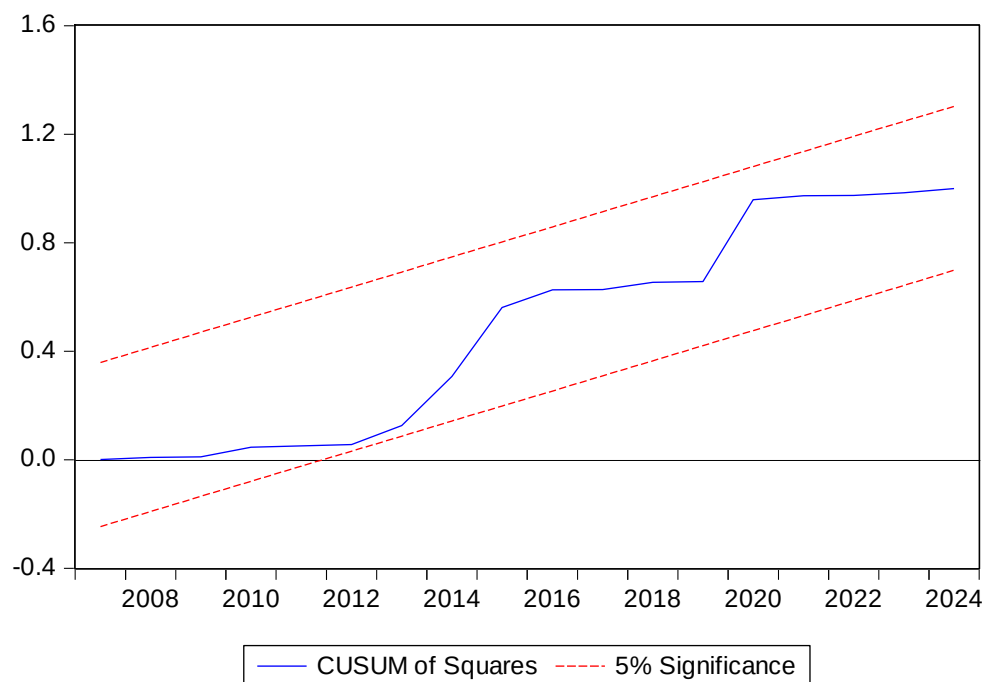
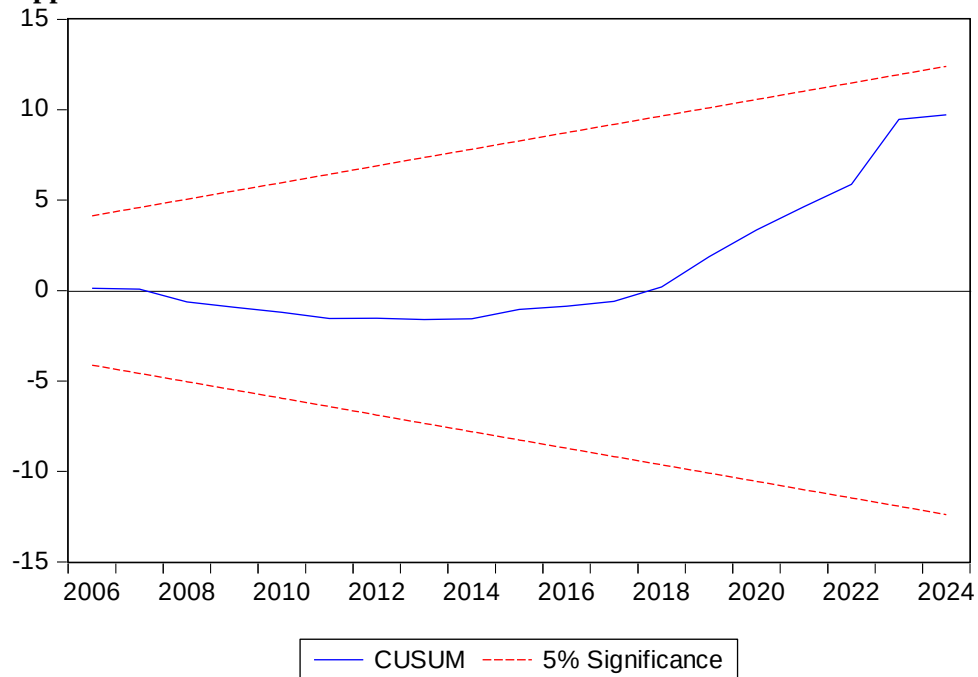
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Appendices



Akaike Information Criteria (top 20 models)

