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Capital Flows and Real Interest Rates: Empirical Evidence from West African Countries

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Abstract

To rejig the economy, nations tend to consider real interest rate ceilings. Incidentally, this tends to hurt middle- and low-income populations and corporate investors as it limits access to finance and reduces prices. However, when efforts are exerted to increase capital flows, it deepens better opportunities in enhancing economic prospects. This study examined the effect of capital flows on real interest rates of selected West African countries. The study adopted an *ex post facto* research design and evaluated the effect of capital flows on macroeconomic performance in W/A for 33 years (1991 to 2023). A purposive sampling technique was adopted. Data were extracted from the World Development Index (WDI) and the International Monetary Fund (IMF). The validity and reliability of the data were premised on the global recognition of WDI as a reputable source. Descriptive and inferential System Generalized Method of Moments (GMM) statistics were used to analyze the data at the 0.05 level of significance. The findings demonstrated that capital flows significantly had a joint effect on real interest rates in West Africa. Consequent to the findings, the study recommends that West African countries adopt pragmatic and holistic economic policies capable of attracting higher capital flows that should be maximized in stabilizing real interest rates in West African countries.

Keywords: Capital flows, Diaspora remittances, Foreign direct investment, Foreign Aids, Portfolio Investment, Real interest rates.

1. Introduction

Even though real interest rates are rarely articulated explicitly, the goals of the low interest rate policies many developing nations cannot be overemphasized and especially among the West African nations under study, follow three general principles of the desire to boost investment, the desire to improve the distribution of investment across sectors; and the desire to keep financial costs low to prevent the potential inflationary effects of interest rate liberalization. There has been a lot of criticism in the economic literature of the idea that low interest rates encourage investment and growth and it has been demonstrated that lowering real interest rates below levels of market equilibrium will undoubtedly boost demand for investment but decrease actual investment since at low interest rates, not enough savings will be produced to finance these investments (Uchendu & Anyanwu, 2024; Ding & Sui, 2021).

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Matarr and Momodou (2021) posited that that real interest rate represents the interest paid on an investment or loan in terms of its purchasing power. Furthermore, it expresses the borrowers and lenders preferred rate of repayment. Estimates of future inflation throughout the period until a loan or investment matures are the foundation of prospective real interest rates. Real interest rates are interest rates with an inflation adjustment applied. Mushtag et al. (2022) illustrated that real interest rates tend to be negative when inflation exceeds the nominal interest rate, and that real interest rates are positive when the nominal interest rate is higher than inflation and are negative when the rate of inflation is equal to the nominal interest rate. It may be surprising to learn that some households have reduced their savings balances in order to pay off debt, especially credit card debt, which has relatively high interest rates in responses to higher interest rates in every economy Nwamuo & Agu, 2019; Nwagu et al., 2023). This is due to the recent low interest rates offered on savings accounts. The nominal interest rates less inflation equals the real interest rate.

All contending investors who are prepared to borrow at the reduced rate will need to share the available cash due to the excessive demand for investment. In situations where lending rates are limited and rationed, financial intermediaries are unlikely to decide to offer funds based on a ranking of return on investment rates. The financial intermediaries' judgments will probably also be heavily influenced by other considerations, like the ability to offer collateral and political clout. A strategy of low interest rates will therefore not only discourage investment but also lower the average rate of return on investment to levels below the highest possible rate. The interest rate policies in place in West Africa are also largely influenced by efforts to better allocate resources.

The problem of real interest rates in West African countries is a complex and worrisome concern as primary challenge with real interest rates include the excessively high, impeding significant economic growth and obstructing major expected economic growth and at the same time making borrowing unnecessarily high and disturbing for corporate and private investors in the developing and emerging economies. Evidently, studies have shown that excessively high interest rates hinders and stifles investments, industrial and value creations, job creation opportunities and generally economic development of nations. According to Olukumi and Umar (2021), high real interest rates are closely associated with inflation rates when not mitigated and currency disparities and incidentally, all these factors jointly deepen the widening gaps of economic progress and impact on the living standards of the citizens.

Studies have shown that capital flows are favourably disposed to tackle the problem of real interest rates that countries face (Adegbie et al., 2023; Okafor et al., 2021). Evidently, Sule et al. (2021) when countries spread their capital flow net to attract sufficient capital flows from diaspora remittances, foreign direct investment, aids and portfolio investments, these channel tend to enhance capital flows and improve the funding of capital projects, and increase investment opportunities available to nations. The significance of capital flow are desirously important for the developing economies and the West African countries are expected to take such

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chances when offered. Aguguom (2018) posited that capital flows promotes efficient allocation of resources, enhance effective investments, creates unprecedented opportunities for investors and expanding economic policies that could stimulate competitiveness of corporate organizations and as well provide funding for development projects and economic expansion among the developing and emerging economies.

Studies have considered the implications of real interest rates in literature, but in the emerging economies of West Africa, there are insufficient empirical evidence of the extent capital flows have affected real interest rates across the West African countries (AlMustafa et al., 2023; Oke & Ruth, 2021). Though there are existing studies, but among these studies there have been mixed results and divergent opinions on the effect of capital flows on real interest rates and these have created inconsistencies and gap in literature. This study is aimed at contributing to the few existing studies, bridge identified gaps and extent the frontiers in literature. In contributing to knowledge and addressing the problem of real interest rates, the study considered the following hypothesis.

Hypothesis One (H_{01}): *Capital flows have no significant effect on real interest rates in West Africa.*

The rest of the study was structured in this way: Section 2, the study provided literature review, while section 3 the methodology, section 4 the study data analysis, results and discussion of findings, while in section 5, the study concluded with recommendations, limitations and suggestion for future studies.

2. Literature Review and Theoretical Framework

2.1 Conceptual Review

Diaspora Remittances

Diaspora remittances is defined as money sent home by someone living abroad and diaspora remittances are now acknowledged as a significant factor in the growth and development of the nation because of the enormous amounts involved (Arshad et al., 2021). Furthermore, Mohamed and Sivarajasigham (2021) described diaspora remittances as foreign remittances or money sent by a government, corporation, or individual from one nation to another. These transfers may be made for trade payments, investments, or personal assistance. Agbola (2013) also defined diaspora remittances as the means of sending money from one nation to another, usually by a foreign workers or relatives working outside their national borders to relatives or friends back home. Since the recipients of these transactions can use them to pay for necessities like common products and other living expenditures, they play a critical role in maintaining the economy of many developing nations. Businesses and governments can also send money abroad as remittances to pay suppliers or provide overseas help.

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Foreign Direct Investment

Giammanco and Gitto (2019) stated that a foreign direct investment (FDI) is the buying of an asset in another nation that grants the buyer direct control over the asset (e.g. acquisition of land and building). Put another way, it is an investment made by a budget manager with its headquarters in another nation that takes a controlling interest in a budget manager, a piece of real estate, or an industrial asset like a factory in another nation. The idea of direct control so sets it apart from a foreign portfolio investment or foreign indirect investment. According to Asamoah et al. (2019), the concept of FDI is unaffected by the source of the investment: it can be made "inorganically" by purchasing a firm in the target nation or "organically" by growing an existing business's activities there. A type of cross-border investment known as foreign direct investment (FDI) occurs when a stake in and substantial degree of control over an enterprise located in another economy are established over time by an investor from one country (Aguguom, 2020; Henok & Kaulihowa, 2021).

Foreign Aids

Foreign aids are kinds of support that a nation freely gives to another, whether in the form of a grant, loan, or gift (Awad, 2021). Furthermore, Nwosa et al. (2020) described foreign aid as any kind of voluntary help, whether in the form of a grant, loan, or gift, which a nation gives to another. Although food, supplies, and services like humanitarian help and military support can also be considered forms of foreign aid, most people associate it with financial contributions. According to Nwamuo and Agu (2019), more inclusive definitions of aid encompass any cross-border support provided by foundations, non-governmental organizations (NGOs), and religious institutions. Foreign aid from the United States often refers to financial and military support given by the federal government to other nations. The worldwide transfer of money, products, or services from one nation to another for the benefit of the recipient nation or its people is known as foreign aid. Aid can be humanitarian emergency relief, military aid, or economic assistance (e.g., Aid given following natural disasters).

Portfolio Investment

Literature has revealed that a broad variety of asset classes are included in the term portfolio investment including equities, bonds issued by governments or corporations, mutual funds, exchange-traded funds, real estate investment trusts, and bank certificates of deposit (James & Emmanuel, 2020; Nwafor, 2020). A portfolio is meant to help someone achieve their financial objectives while controlling risk. The strong performance of some investments may balance out the bad performance of others if one invests in a variety of uncorrelated assets. This is a fundamental idea in investing that is referred to as diversity. Paul et al. (2016) stated that possession of a stock, bond, or other financial asset with the hope that it would increase in value over time, generate income, or both is known as a performance investment (PI).

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Exchange Rates

Effiong et al. (2022) defined exchange rate as the value of a currency in relation to another nation. Both the rate at the conclusion of the period and the average rate throughout a given amount of time can be used to describe them. Maiga (2017) stated that the International Monetary Fund (IMF) divides currency rates into three main categories that represent the variety of exchange rates within a nation as well as the role played by the authorities in setting the rates: One can refer to three types of exchange rates: (1) the market rate, which is determined primarily by market forces and is referred to as "floating"; (2) the official rate, which is defined as "fixed" by authorities; and (3) arrangements that fall somewhere in between, where the rate remains stable in relation to another currency. Matarr and Momodou (2021) showed that a currency, for instance, can be hybrid, pegged (fixed), or floating and that governments have the authority to set restrictions and limitations on exchange rates in pursuance of targeted economic policies. `

2.2 Theoretical Review

Theory of Real interest rates Determination: Theory of interest rate determination early development was traced to renowned economists of Adam Smith and David Ricardo in the 18th and 19th centuries, but the theory of interest was brought to effective literature by Knut Wicksell in 1900 following his critical review of the works of Adam Smith is famous book, "The Wealth of Nations" published in the year 1976 which was later expanded by Knut Wicksell in the early 19th century (Szymanski, 1974). The theory of real interest rates which has evolved over the years has tremendous contribution from various Economics scholars, making it to have multiple definitions and propositions (Romer, 1990). The theory of interest rate determination provides a detailed and elaborate framework for a clear understanding of real interest rates and their functionality in the financial market. It considers such factors of supply and demand for loanable funds, the case of time preference, liquidity preferences and shareholder market performance expectations (Alzaidy et al., 2017; Erickson et al., 2015). According to Fazzari et al. (1988), the theory of interest rate determination is a function of demand and supply forces at the financial market and its implications to an economy. Gandelman & Rasteletti (2017) reported that the role of policymakers, financial analysts and economists are imperative in the dynamic functionality of real interest rates.

Philip's Curve Theory: The Philip's curve theory as proposed by an economist William Philip in the year 1958 and the theory was an outcome a critical and detailed study by Williams Philip in the United Kingdom spanning from 1986 to 1957 (Abizadeh, 2008). The Philip's curve theory has evolved over the years, however the theory is concerned with the relationship between lower unemployment and higher wage inflation arising from an in-depth study by William Philip. The Philip curve theory suggest that the concepts of macroeconomic deeply reflect the extent of inflation and unemployment within an economy (Miller, 2010). The relationship between wage inflation and unemployment as observed in the United Kingdom was represented in a graphical downward-slope curve, which depicted the regular faceoff between inflation and unemployment. The theory suggested that government of nation through macroeconomic indexes could reduce unemployment by accepting a higher rate of inflation or rather reduce inflation by accepting a

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higher rate of unemployment. Wages tend to rise as labour becomes scarcer and this eventually leads to higher inflation, in other words, when unemployment is high, wages pressures tend to reduce, leading to lower inflation or even deflation.

2.3 Empirical Review

Uchendu and Anyawu (2024) aim of this research was to explore how the utilization of foreign exchange across different sectors affects economic growth in Nigeria, along with its policy implications. The methodology employed in this study consisted of analyzing annual time series data spanning from 1997 to 2022. Pre-diagnostic tests for unit roots were conducted to ensure the stationarity of the variables used, namely: economic growth (represented by real gross domestic product), visible transactions, invisible transactions, Treasury bill rate, and exchange rate. Upon confirming stationarity through first differencing, the Ordinary Least Squares (OLS) estimation method was applied to model the data. The results revealed that the utilization of visible and invisible foreign exchange transactions, as well as the exchange rate and Treasury bill rate, had a significant and positive impact on economic growth in Nigeria throughout the study period. These findings reinforce the theoretical foundation supporting the implementation of pertinent policies to foster economic growth, both globally and specifically within Nigeria. The result of the study of Uchendu and Anyawu (2024) was found to be consistent with some other previous studies who had documented significant effects (Adegbie et al., 2023; Timothy et al., 2023; Nguyen et al., 2021; Orji et al., 2020; Ehigiamusoe and Lean, 2019; Phimmavong, 2017). On the contrary, the study found that the other studies did not find significant effects, such as the studies by (Ojiambo & Ocharo, 2016; Onwuteaka et al., 2023; Ding & Sui, 2021).

Bojang and Suliswanto (2024) explored the issue of stagnant employment growth in the Gambia to examine the macroeconomic performance in Gambia, despite an expanding workforce, especially considering the rapid entry of college graduates into the job market. The study employed quantitative methods, analyzing annual time-series data spanning from 1990 to 2021 sourced from the Gambia, focusing on variables like GDP growth, foreign direct investment, and unemployment rates. In addition, the study sourced data from the World Bank database and analyzed using the E-views statistical software. The study utilized augmented Dickey-Fuller unit root tests and autoregressive distributed lag (ARDL) models on the available datasets. The findings indicated a lack of long-term correlation among the variables studied. Specifically, in the short term, economic growth showed a negative and insignificant impact on unemployment rates in the Gambia, while foreign direct investment had a positive and significant effect.

The implications of this study underscore the importance for the Gambian government to implement fiscal discipline, directing planned expenditures towards necessary infrastructure development that supports business growth and job creation. The result of the study of Bojang and Suliswanto (2024) was found to be consistent with some other previous studies who had documented negative and insignificant effects (Okafor, et al., 2021; Sule et al., 2021; Ojiambo & Ocharo, 2016; Olatunji & Shahid, 2015; Onwuteaka et al., 2023; Omoniyi, 2022; Amador, et al., 2021; Oke & Ruth, 2021).). On the contrary, the study found that the other studies did not find significant effects, such as the studies by (Baba & Afroz, 2023; Effiong et al., 2022; Ajisafe and

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Okunade, 2021; Nguyen et al., 2021; Orji et al., 2020; Ehigiamusoe and Lean, 2019; Malefane & Odhiambo, 2018; Olukumi & Umar, 2021; Rehman, 2021).

Adegbie et al. (2023) studied diversification of the economy, tax revenue and sustainable growth in Nigeria. The study employed an ex-post facto research design, using secondary data time series collected from the Statistical Bulletin of the Central Bank of Nigeria for 30 years spanning from 1990 to 2020. The study employed descriptive statistics and inferential analysis in the study analysis as unit root estimation was carried out to test for validity of regression data. The result of the analysis showed that diversification of the economy had a significant effect on sustainable growth and consumer price index in Nigeria. The result as reported in the study of Adebie et al., (2023) was found to be in tandem with some other previous studies who had documented significant effects (Uchendu & Anyawu, 2024; Al Mustafa et al., 2023; Nxumalo & Makoni, 2021; Timothy et al., 2023; Ajisafe and Okunade, 2021; Nguyen et al., 2021; Orji et al., 2020; Ehigiamusoe and Lean, 2019; Malefane & Odhiambo, 2018; Rafidi & Verikios, 2021). On the contrary, the study found that the other studies did not find significant effects, such as the studies by (Oke & Ruth, 2021; Sule et al., 2021; Ojiambo & Ocharo, 2016; Olatunji & Shahid, 2015; Onwuteaka et al., 2023; Omoniyi, 2022; Okafor et al., 2021).

Bitetto et al. (2023) explored the potential impact of financial soundness metrics on international capital inflows as a mechanism for learning. Utilizing time series data from the International Monetary Fund's financial soundness indicators, the study employed principal component analysis for panel data analysis, incorporating both cross-sectional and time-independent data. Their findings indicate a significant correlation between IMF's financial soundness and international capital inflows across participating nations. The result of the study of Bitetto et al. was found to be consonant with some other previous studies who had documented significant effects (Onyekwelu, 2022; Adeyemi et al., 2022; Timothy et al., 2023; Ajisafe and Okunade, 2021; Nguyen et al., 2021; Orji et al., 2020; Ehigiamusoe and Lean, 2019; Malefane & Odhiambo, 2018; Algaeed, 2021; Awad, 2021). On the contrary, the study found that the other studies did not find significant effects (Oloke et al., 2022; Smith, 2021; Ojiambo & Ocharo, 2016; Olatunji & Shahid, 2015; Onwuteaka et al., 2023; Omoniyi, 2022; Ding & Sui, 2021).

Omoniyi (2022) studied budget implementations, foreign direct investments, portfolio investments and their implications and effects on macroeconomic performance and economic performance in Nigeria. The study employed an ex-post factor research design, using time series data obtained from documented and relevant sources, the National Bureau of Statistics, The Central Bank of Nigeria Statistics Bulletin and other documented data in respect to the identified data. The regression analysis showed that that economic performance and macroeconomic performance were significantly impacted by foreign direct investments and portfolio investments in Nigeria. The findings recorded in this study conducted by Omoniyi (2022 is found to be in tandem with the result documented in some prior studies who had reported significant effects (Bhardwaj & Kumar, 2020; Zhou et al., 2020; Baba & Afroz, 2023; Effiong et al., 2022; Ajisafe and Okunade, 2021; Nguyen et al., 2021; Orji et al., 2020; Ehigiamusoe and Lean, 2019; Malefane & Odhiambo, 2018; Olukumi & Umar, 2021; Rehman, 2021). On the contrary, the

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Adeyemi et al. (2022) studied capital inflows, healthcare expenditures and macroeconomic performance. The aim of the study was to examine the effect of capital inflows and government expenditure on the healthcare and their effect on macroeconomic and economic development of Nigeria. An ex-post facto research model was adopted, using secondary data of time series collected from the Central Bank of Nigeria and Nation Bureau of Statistics. A combination of descriptive and inferential (multiple regression) analysis were employed for the study data estimation. The study found that capital inflows and government expenditure on healthcare had a positive effect on the macroeconomic performance of Nigeria. In addition, the study found that real interest rates exhibited a negative and insignificant effect on foreign direct investments. The result of the study of Adeyemi et al. (2022) found to be consistent with some other previous studies who had documented negative effects (Iballi et al., 2022; Ibrahim et al., 2023; Olatunji & Shahid, 2015; Onwuteaka et al., 2023; Omoniyi, 2022; Siddique et al., 2021). On the contrary, the study found that the other studies found significant effects, such as the studies by (Asamoah et al., 2019; Bitetto et al., 2023; Timothy et al., 2023; Akarara & Ouseibai, 2022; Nguyen et al., 2021; Orji et al., 2020; Ehigiamusoe & Lean, 2019; Malefane & Odhiambo, 2018; Onyekwelu, 2022; Ewubare & Nwabueze, 2019).

3. Methodology

The study examined the effect of capital flows on real interest rates in West Africa. In addressing the challenging concern of real interest rates in West Africa.

Dependent Variable: The dependent variable of the study is Real interest rates.
Independent Variable: The independent variable is Capital Flows and were surrogated with Diaspora Remittances (DSR), Foreign Direct Investment (FDI), Foreign Aids (FRA), and Portfolio Investment (PTI). The study adopted an expo facto research design and evaluated the effect of capital flows on macroeconomic performance in W/A for 33 years (1991 to 2023). Purposive sampling technique was adopted. Data were extracted from the World Development Index (WDI) and international monetary Fund (IMF). The validity and reliability of the data were premised on the global recognition of WDI a reputable source. Descriptive and inferential (System Generalized Method of Moments GMM) statistics were used to analyze the data at the 0.05 level of significance. The descriptive statistics includes; measures of central tendency and dispersion (mean, standard deviation, minimum, and maximum), distribution characteristics (skewness and kurtosis) and trend analysis. Additionally, it incorporates unit root tests using the Im-Pesaran-Shin (IPS) and Levin-Lin-Chu (LLC) unit-root tests approaches to check for stationarity and the Pedroni test to determine cointegration among the variables. A correlation matrix is also employed to understand the relationships between the key macroeconomic indicators and capital flows.

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Model Specifications

$RITR_{it} = \alpha_0 + \beta_1 DSR_{it} + \beta_2 FDI_{it} + \beta_3 FRA_{it} + \beta_4 PTI_{it} + \varepsilon_{it}$

Where

RITR = Interest Rate, DSR = Diaspora Remittances, FDI = Foreign Direct Investment FRA = Foreign Aids, and PTI = Portfolio Investment.

Table 1: Measurement of Variables

Variable type		Measurement	
Dependent Variable **Real Interest Rate**		$+i = (1+r)(1+\pi_\varepsilon)$ Where i = Nominal Interest Rate r = Real Interest Rate π_ε = Expected Inflation Rate	Sources Iballi et al. (2020 Danso et al. (2019)
Independent Variable	Diaspora Remittances	Diaspora Remittances as a percentage of GDP	World Development Indicators (WDI); Xia et al (2022)
	Foreign Direct Investment	FDIV as a percentage of GDP	WDI; Arshad et al. (2021)
	Foreign Aids	Foreign Aids as a percentage of GDP	WDI; Henok & Kaulihowa (2021)
	Portfolio Investments	Portfolio Investments as a percentage of GDP	WDI; Ibarra-Olivo (2021)

4. Data Analysis, Results and Discussions

The study investigates the effect of capital flows on real interest rates (RITR) in West Africa. The results lend support to the alternative hypothesis (H_1), indicating a significant effect of specific capital flows on real interest rates, while the null hypothesis (H_0), asserting no significant effect, is rejected.

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Table 2: Real interest rates and Capital Flows

Variables	**System GMM2**				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
	Coef.	**aster**	**Se**	**Tstat**	**Pval**
L.RITR	0.1929		0.0845	2.2823	0.0202
DSR	0.4380	**	0.1532	2.8590	0.0188
FDI	-2.3514		2.2889	-1.0273	0.3311
FRA	0.0720	**	0.0253	2.8434	0.0193
PTI	2.7493		2.5463	1.0797	0.3084
Constant	0.6708		3.3420	0.2007	0.8454
Model Diagnostics					
Observations	320				
No of Country	10				
Hansen_test	0.566 (0.753)				
Sargan_test	0.160 (0.923)				
AR(1)_test	-2.130 (0.033)				
AR(2)_test	-0.360 (0.719)				
No. of Instr.	8				
F - Stat.	10.22				
Prob > F.	0.002				

Source: *Authors' Computations (2024) using stata MP17; Note: RITR = Real interest rates, DSR = Diaspora Remittances, FDI = Foreign Direct Investment, FRA = Foreign Aids and PTI = Portfolio Investment. Significance value in square bracket [ ]. "aster" represents the significance level, where *** denotes a 1% significance level, ** denotes a 5% significance level, and * denotes a 10% significance level*

The lagged real interest rate (L.RITR) has a positive coefficient of 0.1929, with a p-value of 0.0202, which is statistically significant at the 5% level. This suggests a degree of persistence in real interest rates over time, indicating that previous levels of real interest rates tend to influence the current rates. This persistence could be due to structural factors in the financial markets or monetary policy inertia. Also, the diaspora remittances (DSR) variable shows a significant positive effect on real interest rates, with a coefficient of 0.4380 and a p-value of 0.0188. This result suggests that increases in remittances are associated with good impact of easing constrains on real interest rates, which may indicate that remittances stimulate domestic savings, leading to impressive implications for the economy and lower demand for loanable funds and consequently creating lesser pressure on domestic real interest rates. This finding aligns with existing literature, which highlights the dual role of remittances in boosting household income while also influencing broader economic variables, such as real interest rates. The coefficient for foreign aid (FRA) is significant, with a value of 0.0720 and a p-value of 0.0193. This positive relationship

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suggests that higher levels of foreign aid are associated with lower real interest rates. One possible explanation is that foreign aid inflows increase the supply of funds in the economy, thereby easing financial constraints and reducing inflationary expectations. This result underscores the distinct impact of foreign aid on financial conditions, a topic widely debated in the context of economic development. Conversely, the foreign direct investment (FDI) coefficient is negative (-2.3514) but not statistically significant (p-value = 0.3311). This result implies that FDI does not have a discernible effect on real interest rates within this analysis. Similarly, the coefficient for portfolio investment (PTI) is positive (2.7493) but statistically insignificant (p-value = 0.3084). The lack of significance for these variables may suggest that while they contribute to capital flows, their immediate impact on real interest rates is muted, reflecting broader financial market dynamics that require further investigations.

Model Diagnostics

A thorough examination of the model diagnostics, supports the reliability of the findings. The Hansen test statistic (0.566) with a p-value of 0.753 indicates that the over-identification restrictions are not rejected, suggesting the validity of the instruments used in the analysis. Similarly, the Sargan test statistic (0.160) with a p-value of 0.923 further corroborates this finding, reinforcing the robustness of the estimation approach. The autocorrelation tests reveal important insights into the model's reliability. The AR(1) test statistic of -2.130 and a p-value of 0.033 suggest the presence of first-order autocorrelation, which is expected in dynamic panel data contexts. However, the AR(2) test statistic of -0.360 and a p-value of 0.719 indicate that there is no evidence of second-order autocorrelation, an essential requirement for the GMM estimator's validity. This absence of second-order autocorrelation affirms the robustness of the results. The model also benefits from a favorable instrument count, with 8 instruments used for 10 cross-sectional units. This ratio aligns with econometric best practices, as having fewer instruments than cross-sections mitigate concerns related to over fitting and enhances the robustness of the estimates. The appropriate use of instruments further strengthens the credibility of the findings.

The results ($F(4, 9) = 10.22$; Prob. = 0.002) indicated a rejection of the null hypothesis (H_0) positing that capital flows have no significant effect on real interest rates in West Africa. The empirical evidence supports the acceptance of the alternative hypothesis (H_1), highlighting the complex interactions between different forms of capital and real interest rates in the region. Specifically, the significant effects of diaspora remittances and foreign aid underscore the importance of these inflows in shaping financial conditions.

Discussion of Findings

The result of the study in this model revealed mixed results. Nevertheless, the combined explanatory variables collectively exerted a significant effect, suggesting that capital inflows had a significant effect on real interest rates. This is in tandem with some other prior studies by Awad (2021) who found significant effect and also consistent with some other previous studies who had documented significant effects (Rafidi & Verikios, 2021; Timothy et al., 2023; Akaraka & Ouseibai, 2022; Nguyen et al., 2021; Orji et al., 2020; Ehigiamusoe and Lean, 2019; Malefane &

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Odhiambo, 2018; Onyekwelu, 2022; Urama et al., 2022). For instance, Okafor et al. (2021) conducted an empirical analysis of the causal relationship between financial deepening, financial market development, and economic growth in Nigeria. They utilized time series data spanning 25 years, sourced from the Central Bank of Nigeria and other relevant bureaus. The findings of their regression analysis revealed significant a long-term relationship between financial deepening, cash flows, financial market development, economic growth, and foreign direct investment in Nigeria.

On the other hand, some other studies did not find significant effect but insignificant effects, while other found negative effects (Braiton & Odhiambo, 2023; Ibrahim et al., 2023; Olatunji & Shahid, 2015; Onwuteaka et al., 2023; Omoniyi, 2022; Siddique et al., 2021) Sule et al., 2021; Ojiambo & Ocharo, 2016; Olatunji & Shahid, 2015; Onwuteaka et al., 2023; Omoniyi, 2022; Amador, et al., 2021; Oke & Ruth, 2021). For instance, Sule et al. (2021) studied the effect of capital inflow and governance quality on foreign direct investment, trade openness, and economic growth in Nigeria. Results indicated that the interaction between foreign direct investment and governance quality did not significantly impact economic performance.

5. Conclusion and Recommendations

Conclusion: The study examined the effect of capital flows on real interest rates of the sampled countries in West Africa. The result showed that diaspora remittances exerted positive and significant effects, while each of foreign direct investments, foreign aids and portfolio investments exhibited insignificant effects. However, the joint statistics revealed the capital flows had a positive significant effect on real interest rates of sampled countries in West Africa. Furthermore, the findings provide compelling evidence of the significant effects of specified capital flows on real interest rates in West Africa. While the lagged real interest rate does not exhibit a strong influence, the substantial impact of diaspora remittances and foreign aid highlights the intricate relationships between capital flows and financial conditions. This analysis contributes to the broader understanding of the economic dynamics in West Africa and underscores the importance of targeted policy interventions that consider the unique economic contexts of the region.

Implications: The positive relationship between diaspora remittances and real interest rates greatly demonstrates strong implications of diaspora remittances in enhancing and stabilizing cash flow opportunities and strengthen capital funding of essential projects. It could equally intensify economic policies aimed at facilitating remittance flows enhances domestic savings and investment, suggesting the significance of capital flows in stabilizing real interest rates. Additionally, the significant role of foreign aid in influencing real interest rates calls for a re-evaluation of aid strategies to ensure that they effectively contribute to economic stability without exacerbating inflationary pressures.

Recommendations: Arising from the result in objective of the study; which was to investigate the effect of capital flows on real interest rates in west Africa, we recommend that the apex banks in the countries should put strategic economic measures in place on monetary policies aimed at controlling inflation, stabilize exchange rates and ensure adequate liquidity in the

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economy to mitigate the problem of real interest rates. Notably, unhealthy inflation rates are systematically sensitive to the real interest rates, exchange rate policies and unhealthy interplay of inflation rates capable of distorting efficient market dynamics.

Limitations and Suggestion for Further Studies: While this study had made significant contributions to knowledge, there were some limitations. First, the study could only use limited measures for both capital flows and macroeconomic performance of countries since all measures available in literature cannot be covered in one research study. Secondly whereas all other countries in West Africa could have been selected for the study, the study was constrained to adopt and sample only 10 countries.

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