



## **Foreign Inflows and Financial Institutions Access: A Dynamic Panel Least Square Method**

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### **Abstract**

This study assessed the impact of foreign inflows on financial institution development in 45 sub-Saharan African countries over the period of 1986 to 2023. Foreign inflows were measured using foreign direct investment, diaspora remittances, and official development assistance as independent variables. Financial institutions development, the dependent variable, was measured by financial institutions access. Using Dynamic Panel Least Squares (DPLS), the study found that foreign direct investment positively and significantly affected financial institutions access in the studied SSA countries; while diaspora remittance and official development assistance exerted adverse but significant influences on access to the financial institutions of the studied SSA countries. Given the mixed influences of the foreign inflows on financial institution access, SSA countries should maintain liberalized policies, particularly by minimizing restrictions on the inflows of foreign direct investment, to further develop their financial institutions as well as the economy at large while strengthening institutional quality which is crucial to mitigate the negative influences that may stem from the informal remittance channels, size of the economy, exchange rate volatility, weak regulatory frameworks, inadequate supervisory mechanisms, and corruption.

**Keywords:** Foreign Inflows, financial institutions development, diaspora remittance, foreign direct investment, and financial institutions access

## **Introduction**

Foreign inflows, including foreign direct investment, foreign portfolio investment, external debts, diaspora remittances, and official development aids, play a significant role in fortifying financial institutions across Sub-Saharan Africa (SSA) (World Bank, 2020). While these inflows contribute to the growth and stability of the region's financial sector, their impact is multifaceted and influenced by various factors. Anidiobu et al. (2020) argued that the increased in foreign inflows to Sub-Sahara Africa countries in recent decades can be attributed to globalization, liberalization policies, and efforts to attract investment. For instance, trade openness, facilitated by reduced trade barriers, has made the region more attractive to foreign investors (Akinwande et al., 2018). Increased access to foreign markets has incentivized foreign companies to establish operations in Sub-Saharan Africa, leading to increased foreign direct investment (FDI).

Additionally, globalization has fostered integration with global financial markets, allowing Sub-Saharan African countries to access a wider pool of foreign capital through portfolio investments and international bond markets (Dollar & Kraay, 2004). Moreover, globalization has facilitated the dissemination of information about investment opportunities in the region to a broader audience of international investors (Gyimah-Brempong & Quartey, 2010).

Liberalization policies have also created a more welcoming environment for foreign investors in Sub-Saharan Africa by reducing restrictions on foreign ownership and investment regulations, leading to increased foreign direct investment (FDI) and portfolio inflows (Agboba & Eregbe, 2016). As well, the relaxation of financial regulations, such as interest rate liberalization, has made the region's financial markets more attractive to foreign investors seeking higher returns, resulting in increased portfolio investments (Egbe, 2010). Furthermore, the liberalization of foreign exchange controls has facilitated the repatriation of profits and dividends by foreign investors, boosting confidence and potentially leading to higher inflows (Calderón & Reisen, 2006).

The foreign capital inflows essentially represent the movement of capital from countries with excess funds to countries with a greater need for investment. These inflows emerged as crucial sources of capital to financial institutions in the region, providing them with the resources to expand their operations, improve their services, and contribute to economic growth.

Financial institutions, such as banks, played a crucial role in channeling these foreign inflows to recipient countries (World Bank, 2020). These inflows in addition to the funds local deposited in the financial institutions particularly the banking institutions were utilized to deepen the financial markets, promote the transfer of technology and management expertise, and bolster the liquidity of financial institutions (International Monetary Fund, 2021 as cited in Agabi & Dibal, 2024). While foreign inflows play progressively important role in the financial sectors of these countries, these inflows remain a debatable subject of discourse among scholars and policy makers. For instance, Ain, et al., (2024); Agabi and Dibal (2024), Mustapha-Jaji and Adesina-Uthman (2023), Okeke (2023), Adekunle et al. (2022), Tarus (2015), and Williams (2016) posit that these inflows are advantageous, providing essential resources like capital, technology, and expertise that contribute to the growth and modernization of financial institutions. Conversely, other studies (Ahmed,et al., 2022; Chude & Chude, 2023; Emiola & Fagbohun, 2021; Githaiga & Kabiru, 2014; Ndikumana & Verick,

2008) express concerns about the potential negative effects of foreign inflows downsides like crowding out domestic investment, increasing financial instability, and weakening local institutions. The variations witnessed from the outcomes of these reviewed literatures could depend on the geographical scope, the periods covered, or depending on others factors such as the composition of the inflows and financial institutions development. Although foreign capital is becoming more influential in Sub-Saharan Africa's financial sector, the lack of consensus among scientific studies that clearly explain direction these inflows directly impact the growth and development of local financial institutions have issues of concern.

In measuring financial sector development, many existing studies mostly used easily accessible, standardized quantitative indicators with long-term data across various countries. Examples include the ratio of financial institutions' assets to GDP, liquid liabilities to GDP, and deposits to GDP (Cihak, 2012). Although these metrics offer a basic understanding, they cannot fully represent the diverse range of financial institutions, markets, and products within a country's financial sector (Cihak, 2012; Svirydzena, 2016).

This study filled gap in literature by using financial institution access as one of the four standardized indicators of healthy financial institutions such as the depth, access, efficiency, and stability to measure financial institutions development. As a result of the foregoing that this study sought to investigate the impact of foreign inflows (diaspora remittances, FDI, and official development assistance) on financial institutions access in selected Sub-Saharan African countries from 1986 to 2023. Specifically, i) it investigated the impact of foreign direct investment on financial institutions access in SSA countries; ii) investigated the impact of diaspora remittance on financial institutions access in SSA countries, iii). Assessed the impact of official development assistance on financial institutions access in SSA countries. The rest of the paper is organized as follow: part two is for theoretical reviews and conceptual framework, part three is for a methodological approach, part four is for results and discussion of the findings, while five stood for conclusion and policy recommendations.

## **Theoretical Review and Conceptual Framework**

### **Theoretical Reviews**

The supporting theories of this study are the theory of financial intermediation and foreign capital flows financial deepening theory.

The theory of Financial Intermediation and Foreign Capital Flows, developed in mid-20th century with roots in Keynes (1936) and McKinnon (1973), highlights financial institutions as crucial bridges between foreign capital (FDI, portfolio investments, loans) and

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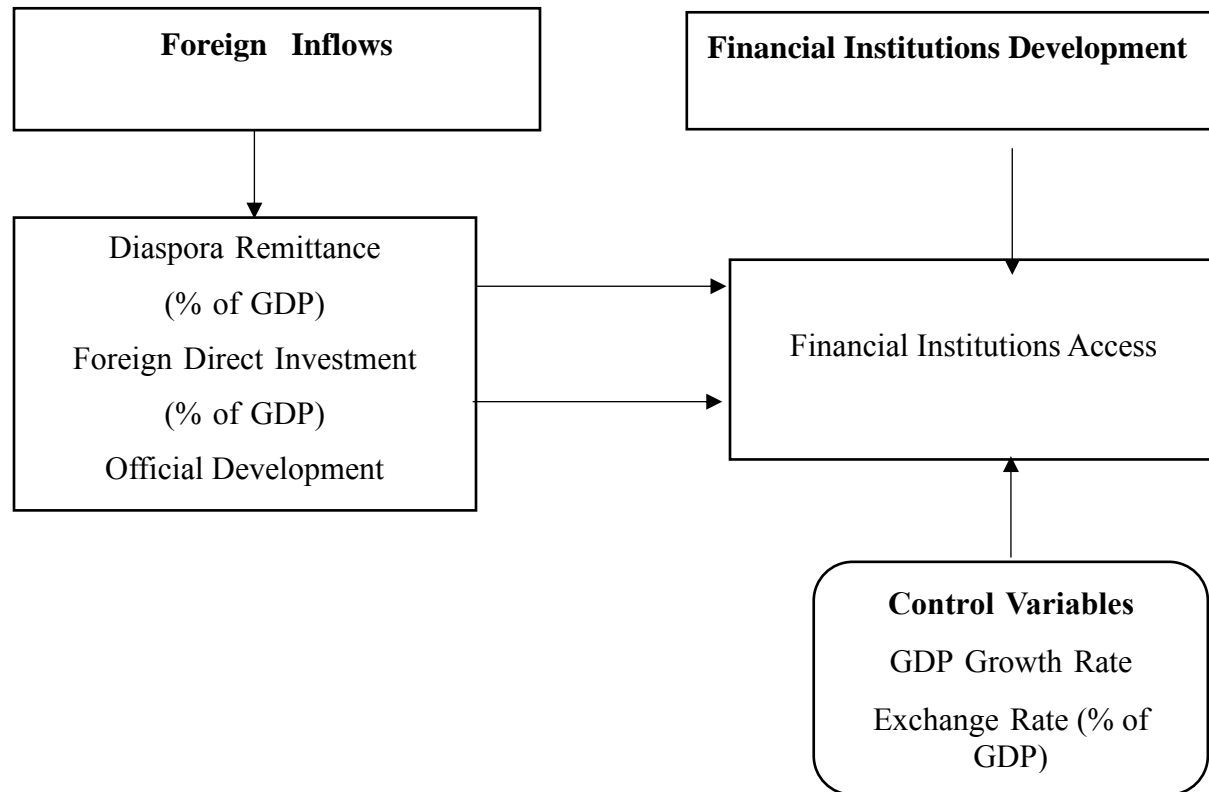
domestic borrowers. Efficient financial markets channel this capital, driving investment and growth. Financial intermediaries reduce information asymmetry by screening borrowers (Stiglitz & Weiss, 1981), manage risks via insurance, and enable diversification and efficient capital allocation. This financial intermediation role significantly impacts financial system development.

Whereas Financial Deepening theory by Robert Aliber, emerging in the 1970s, posits that foreign capital inflows, notably Foreign Direct Investment (FDI) from foreign financial institutions, significantly enhance a nation's financial landscape. This theory underscores the injection of fresh capital into domestic financial systems, empowering local banks to expand their loan portfolios. Consequently, a wider array of borrowers, encompassing both businesses and individuals, gain access to credit, thereby stimulating economic growth. Furthermore, the infusion of foreign capital facilitates the adoption of cutting-edge technologies within domestic banks. Advanced IT systems and online banking platforms are implemented, leading to heightened operational efficiency and improved customer experiences. This technological advancement further supports the development of innovative financial products, including investment tools, insurance, and wealth management services, fostering a more inclusive and diversified financial system. Through these multifaceted advancements, foreign inflows act as a catalyst for financial deepening, the progressive evolution of a financial system to offer a broader spectrum of instruments and services to an expanding segment of the population.

## Conceptual Framework

Building upon Trochim's (2006) definition of a conceptual framework as a structure organizing interrelated concepts for logical interpretation, this study employs such a framework to examine the impact of foreign inflows on financial institution development within select Sub-Saharan African countries from 1986 to 2023. Specifically, the framework analyzes the influence of diaspora remittances, foreign direct investment and official development assistance on financial institutions' access within these SSA countries, while incorporating exchange rates and growth rates as control variables. This approach aims to provide a structured and coherent analysis of how these external factors shape the evolution and accessibility of financial institutions in the region.

**Figure 1: Conceptual framework.**



**Source:** Author's Construction, 2025.

## Methodology

This study uses ex-post facto and analytical research designs. Ex-post facto, as defined by Onwumere (2021), deals with pre-existing variables, while analytical design examines cause-effect relationships. These designs are suitable for this research. Data from WDI and IMF (1986-2023, 45 SSA countries) were used. Foreign inflows (remittances, FDI) were independent variables, financial institutions access was the dependent. Models were based on Aliber's financial deepening (1970). Empirically, following Agabi and Dibal (2024), foreign inflows and a financial institution index were used, with inflation as a control. This study uses panel data, unlike their time-series approach. The model proposed by Agabi and Dibal (2024) is presented as follows:

$$FII=f(DR, FDI, ODA, INF).....(1)$$

From the above model, their study further specified the model in a linear equation as:

$$FII = \sum_{j=0}^p \gamma_{it} FII_{i,t-j} + \sum_{j=0}^q \delta'_1 DR_{i,t-j} + \sum_{j=0}^q \delta'_2 FDI_{i,t-j} + \sum_{j=0}^q \delta'_3 ODA_{i,t-j} + \sum_{j=0}^q \delta'_4 INF_{i,t-j} + \varepsilon \dots (2)$$

To align with the study's focus, the model was modified. Financial institutions access became the sole dependent variable, replacing broader measures. Independent variables were only foreign direct investment and diaspora remittance. GDP growth rate and exchange rate were used as control variables.

The model therefore, stated and presented below as follow:

$$FIA = f(FDI, DR, ODA, GDPGR, EXCR) \dots \dots \dots (3)$$

Accordingly, the econometric specification is presented as follows:

$$FIA_{it} = \delta_o + \sum_{j=0}^{q=1} \delta_1 FDI_{it-j} + \sum_{j=0}^{q=1} \delta_2 DR_{it-j} + \sum_{j=0}^{q=1} \delta_3 ODA_{it-j} + \sum_{j=0}^{q=1} \delta_4 GDPgr_{it-j} + \sum_{j=0}^{q=0} \delta_5 EXR_{it-j} + \mu_{it} \dots \dots \dots (4)$$

Where:

FIA	=	Financial institutions access
FDI	=	Foreign direct investment
DR	=	Diaspora remittance
ODA	=	Official development assistance
GDPgr	=	Gross domestic product growth rate
EXR	=	Exchange rate
$\delta_o$	=	constant or the intercept
$\delta_1 - \delta_4$	=	coefficients of the parameters or explanatory variables
$\mu_{it}$	=	the residual or error term.

On a priori basis, it is expect that the independent variables (except exchange rate) to positively impact the dependent variable at a 5% significance level.

The data analysis employed a structured approach, beginning with pre-estimation tests to validate the dataset's suitability. These tests encompassed Panel Descriptive Statistics, Panel Correlational Analyses, and Panel Unit Root tests, ensuring a robust foundation for subsequent analyses. Following this, Dynamic Panel Least Squares estimation was utilized, specifically examining the Pooled effect, fixed effect, and random effect models.

The Haussmann Test served as a critical selection criterion, determining the most efficient model for the data. Finally, post-estimation tests and inferences were conducted to confirm the validity and reliability of the findings. This involved cross-sectional individualized results and Dynamic Panel Least Squares as robustness checks. The inferences and conclusions drawn from this study were based solely on the validated estimates, ensuring the accuracy and integrity of the research outcomes.

## Results and Discussion of findings

To show the basic descriptive characteristics of the panel datasets, table 1 presents the basic descriptive statistics.

**TABLE 1: Panel Descriptive Statistics**

Variable	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	RSD	Kurtosis	JB STAT
DR	4.34	1.13	235.93	0.000	16.33	9.746	3.76	113.42	875923.2
EXR	4.6	5.70	9.13	-5.99	2.45	-0.98	0.53	4.06	347.36
FDI	3.48	1.78	161.82	-28.6	8.93	10.231	2.57	149.75	1529434.
FIA	0.08	0.04	0.79	0.000	0.114	3.075	1.43	13.44	10230.37
GDPGR	1.39	1.56	4.20	-3.39	0.85	-1.86	0.61	9.32	3232.41
ODA	19.68	19.85	23.16	13.16	1.33	-0.54	0.07	3.13	80.84

*Source: Author's Computation (2025)*

The descriptive statistics, including central tendency, dispersion, and normality tests, revealed that all variables deviated from normality. Kurtosis exceeds 3, and skewness is non-zero. The relative standard deviation (RSD), reflecting combined central tendency and dispersion, was above unity for financial development indicators, indicating high dispersion. Non-normality aligns with typical financial time series behavior, which often exhibits platykurtic or leptokurtic distributions rather than mesokurtic.

Table 2 presents the panel bivariate correlation matrix, illustrating the linear association between the panel series.

**Table 2: Panel Correlational Matrix**

Correlation						
t-Statistic						
Probability	DR	EXR	FDI	FIA	GDPGR	ODA
DR	1.000000					
EXR	-0.069881	1.000000				
	-2.862743					
	0.0043					
FDI	0.027969	-0.011687	1.000000			
	1.143413	-0.477637				
	0.2530	0.6330				
FIA	-0.033445	-0.179811	0.139502	1.000000		
	-1.367514	-7.469859	5.757145			
	0.1716	0.0000	0.0000			
GDPGR	0.007003	0.039750	0.290180	-	1.000000	
	0.286182	1.625709	12.39155	-		
	0.7748	0.1042	0.0000	0.6351		
ODA	-0.070865	0.077724	0.008480	-	0.083691	1.000000
	-2.903260	3.185869	0.346569	-	3.432114	
	0.0037	0.0015	0.7290	0.0000	0.0006	

*Source: Authors' Computation (2025)*

The linear association of all the variables are shown with their correlation coefficients, t-statistics and associated probability value. The results rule out suspicion of multicollinearity as the coefficients of correlation are below the 0.9 or 90% threshold. This supports the fact that the estimates can be unbiased and independently distributed.

**Table 3: Summary of Panel Unit Root Test**

VARIABLE	IPS			LLC			ADF FISHER		
	Test Stat	Pvalue	Inference	Test Stat	Pvalue	Inference	Test Stat	Pvalue	Inference
DR	-22.574	0.000	I(0)	-27.319	0.000	I(0)	581.388	0.000	I(0)
EXR	-20.061	0.000	I(0)	-18.302	0.000	I(0)	553.275	0.000	I(0)
FDI	-20.742	0.000	I(0)	-29.268	0.000	I(0)	698.694	0.000	I(0)



FIA	-18.929	0.000	I(0)	-15.819	0.000	I(0)	489.775	0.000	I(0)
GDPGR	-20.264	0.000	I(0)	-19.402	0.000	I(0)	554.564	0.000	I(0)
ODA	-19.626	0.000	I(0)	-14.546	0.000	I(0)	508.279	0.000	I(0)

**Source: Authors' Computation (2025)**

Unit root tests (Im, Pesaran and Shin; Levin, Lee and Chu; ADF Fisher) indicate all variables are stationary at level I(0). This stationarity justifies using static panel models: pooled, fixed, and random effects. The Hausmann test, presented with model results, selects the most appropriate model.

The panel estimations made up of the pooled, fixed effect and random effect results below form the basis for the test of hypothesis.

**Table 4: Estimation Output for Model**

	Pooled			Fixed Effect			Random Effect		
	Coefficient	Std. Error	P. value	Coefficient	Std. Error	P. value	Coefficient	Std. Error	P. value
C	0.64	0.04	0.00	0.64	0.04	0.00	0.639944	0.040245	0.00
DR	-0.00	0.00	0.00	-0.00	0.00	0.00	-0.000824	0.000152	0.00
FDI	0.00	0.00	0.00	0.00	0.00	0.00	0.001433	0.000281	0.00
LODA	-0.02	0.00	0.00	-0.02	0.00	0.00	-0.024940	0.002070	0.00
LGDP	-0.01	0.00	0.01	-0.01	0.00	0.03	-0.008232	0.003112	0.00
LEXR	-0.01	0.00	0.00	-0.01	0.00	0.00	-0.012833	0.001110	0.00
Diagnostic test									
R <sup>2</sup>	0.214092			0.236491			0.214092		
Adj R <sup>2</sup>	0.211350			0.210125			0.211350		
Hausman Test									
5.643624 (0.3425)									

**Source: Authors' Extract from the full Results.**

This study, examining foreign inflows' impact on SSA financial development (1986-2023), revealed a low R-squared, indicating minimal multicollinearity between foreign inflows and financial development, suggesting independence. While individual regressors impacts will be detailed, exchange rates and economic growth negatively affected financial access. This highlights the persistent exchange rate and growth challenges in SSA countries, which broadly hinder economic progress.

The Hausman test favored the random effects model, confirmed by its non-significant p-value, indicating consistency and efficiency. Despite this selection, the pooled, fixed, and random effects models displayed a degree of consistency in their estimated results.

The impact of the individual foreign inflows variables on the financial institutions' access are discussed as follows:

In the investigation of the impact of diaspora remittance on financial institutions access of selected Sub-Saharan Africa. Foreign direct investment positively and significantly boost financial access in Sub-Saharan Africa (SSA), with a unit change in FDI leading to a 0.01% increase in financial institutions access. This supports the financial deepening theory, as more capital allows institutions to expand lending. This finding aligns with similar research on developing economies, such as Ain et al.'s (2024) work in Pakistan.

Conversely, in investigating the impact of diaspora remittance on financial institutions access of selected Sub-Saharan Africa. Foreign direct investment and official development assistance both have negative but significant impact on financial institutions access in Sub-Saharan Africa (SSA) during the study period. These shown that a unit change in diaspora remittance resulted in a statistically significant 0.01% decrease in financial institutions access while a unit change in ODA resulted 2% decrease in financial institutions access in the SSA countries. This aligns with similar findings in Nigeria and Bangladesh (Agabi & Dibal, 2024; Ahmed et al., 2022), both developing economies ilk those in SSA.

## Conclusion and Policy Implications

This research examines how foreign inflows affect financial institution access in Sub-Saharan Africa (1986-2023), addressing conflicting prior studies and World Bank policy reviews. Analyzing 45 SSA countries over 37 years, it captures key changes. Econometric techniques were used to assess the impact of foreign direct investment, diaspora remittances and official development assistance (proxies for foreign inflows) on financial institutions access. The study presents empirical findings from these tests.

The study firstly revealed a positive and significant relationship between foreign direct investment and financial institution access. Given the positive influence of foreign direct investment on financial institution access, sub-Saharan African countries should maintain liberalized policies, particularly by minimizing restrictions on inflows of foreign direct investment, to further develop their financial institutions. This implies that if informal channel of FDI into SSA countries are impassable it will deepen the financial institutions access in the studied SSA countries. Conversely, diaspora remittance and official development assistance exhibited an adverse but statistically significant effect on the same variable. The adverse but significant impact of diaspora remittance and official development assistance on financial institution depth in the SSA may stem from informal channel, weak regulatory frameworks,

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inadequate supervisory mechanisms, and corruption. Therefore, strengthening institutional quality is crucial to mitigating these negative influences.

The study found a positive, significant link between foreign direct investment (FDI) and financial institution access. Thus, SSA countries should maintain liberal FDI policies to enhance financial development. Conversely, diaspora remittances negatively impacted access, potentially due to weak regulations, poor supervision, and corruption. Strengthening institutional quality is vital to counter this negative effect.

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