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IMPACT OF FOREIGN FLOWS ON STOCK MARKET PERFORMANCE: EVIDENCE FROM SELECTED SUB-SAHARAN AFRICAN COUNTRIES (1986-2020)

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Abstract

This study used panel estimation techniques to evaluate the impact of foreign flows on stock market performance: evidence from selected sub-Saharan African countries covering the period, 1986-2020. Foreign flow was disaggregated into foreign portfolio investment, foreign direct investment and diaspora remittances while stock market performance was proxied by market capitalization and liquidity respectively. The study found among other things that diaspora remittance negatively and insignificantly impacted on stock market capitalization and while it shares a positively significant relationship with market turnover. Foreign direct investment and stock market capitalization were found to have a positive but insignificant relationship while a positively significant relationship exist with stock market turnover. Also, foreign portfolio investment was found to significantly affect both stock market capitalization and stock market turnover respectively. The conclusions drawn in this study are considered significant as it opens new research frontiers in the area of discovering the degree to which Sub-Saharan African countries are embracing foreign investment patronage on domestic market activities with emphasis on policy initiatives and practice.

Keywords: Foreign Direct Investment, Foreign Portfolio Investment, Diaspora Remittance, Foreign Flows, Stock Market Performance.

INTRODUCTION

Prior to the spread of financial liberalization policy in the early 1980s, many developing African Countries imposed restrictions on foreign capital investment. This is in order to protect domestic investors from foreign competition. Today, several developing markets have removed barriers to foreign capital inflow due to rising globalization. This has led to foreign investors spreading their investment options across different international markets. More so, foreign capital flow is believed to be a catalyst for economic growth because it brings about managerial skills, international production and access to international capital markets for many Sub-Saharan African Countries (Iriobe, Obamuyi & Abayomi, 2018; Abubakar, Hassan & Okowa, 2018).

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However, several arguments have erupted on the impact of foreign capital flows on developing economies, some empirical literatures (Shaveta, Neha & Rajesh 2019; Arikpo & Ogar, 2018; Akinmulegun, 2018; Lee & Chung, 2016; Owen 2013; Rhee & Wang, 2009) opined that foreign capital inflow complements and stimulates domestic investment, enhances market liquidity, and reduces the level of information asymmetry. While others are of the opinion that, foreign capital flows are transient in nature and usually causes volatility, which increases uncertainty and disrupts the smooth operation of the host market (Adebisi &Arikpo, 2017; Obadan, 2013; Dornean, Isan & Oanea, 2012; Chen, Li, & Wei, 2006; Goudarzi & Ramanarayanan, 2011; Schuppli & Bohl, 2010).

Thus, it is important to note that, foreign capital flow have become an increasingly imperative source of capital for developing Sub-Saharan African countries. Omorokunwa, (2018) sees foreign capital flow as a good indicator of the marketability of the country. It plays key roles in enhancing investment and facilitating macroeconomic goals attainment (Adebisi & Arikpo, 2017). This is partly due to the process of financial globalization which has accelerated the international economic integration for many sub-Saharan African countries (Osaze, 2011). Nevertheless, Yilmaz (2012) argues that the composition of foreign capital flows to developing and emerging Sub-Saharan African countries have changed overtime and its now more dominated by foreign portfolio investment (FPI) than foreign direct investment (FDI), official development assistance, and international bank loans. Obadan (2004) also classified foreign capital flows into foreign private investment, official development finance, private and government capital and Diaspora remittances. The volatile nature of FPI and its susceptibility of reversals, therefore, endanger developing countries. FPI followed by short-term cross boarder bank loans have been adjudged the most volatile of the other capital flows, they have a short time horizon and could be easily divested, while FDI is more stable in nature.

Diaspora remittances on the other hand, are a significant part of international capital flows, especially with regard to labor-exporting countries. With foreign direct investment (FDI) and foreign portfolio on a downward trend in recent years, remittances reached close to the level of FDI flows in 2018. Excluding China, remittances to low- and middle-income countries ($462 billion) were significantly larger than FDI flows in 2018 ($344 billion). This makes remittances the largest source of foreign capital inflows in the LMICs, excluding China (World Bank, 2020). Diaspora remittances tend to be more stable than other capital flows, and they tend to be countercyclical—increasing during economic downturns or after a natural disaster when private capital flows tend to decrease. According to World Bank estimates, remittances stood at a total of US$573 billion as at 2019, of which US$422 billion went to developing countries that involved 250 million migrant workers. Remittance flows to low-income countries (LICs) are high, reaching around $40 billion in Sub-Saharan Africa or around 3 percent of their combined GDP. Such inflows can act as buffers against adverse economic shocks at the country level, as well as smooth consumption at the household level.

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Foreign capital flow has long been a controversial issue for the beneficial and adverse effects. Two main aspects are concerned when it comes to foreign capital flows, destabilization and demonstration effects. Destabilization effect deals with the issue that whether foreign capital flow increases or decreases the performance and volatility of stock market while demonstration effect indicates whether the fundamental factors on stock markets would change (Kit and Yi, 2006). Today, the flow of foreign capital is highly dependent on the functioning of the financial market (Adebisi & Arikpo, 2017). A well organized, lucrative and liquid market triggers domestic and international investors (Omorokunwa, 2018). However, the studies of Omorokunwa, (2018), Akinsola and Odhiambo (2017), Worlu and Omodero, (2017), all opined that for there to be a sustained foreign capital inflow, the performance of the stock market as well as the economic policies of government should be consistent and stable. They further opined that, the ability for a market to attract and sustain foreign capital inflow depends on some factors such as efficiency of the market, good ethical practices, and continuous increase in market capitalization, good economic outlook, political stability, government policies, financial system stability, stock market infrastructure, transparency and regulatory framework.

Generally, therefore, foreign capital flow has significant potential benefits for countries around the world. Countries with sound macroeconomic policies and well-functioning institutions are in the best position to reap the benefits of capital flows and minimize the risks (Sethi and Patnaik, 2016). Meanwhile, the potential benefits of opening domestic markets to foreign investors cannot be overemphasized. However, the main factor underlying this process has been the increased globalization of investments seeking higher rates of return and the opportunity to diversify risk internationally. Today, many developed and developing countries have encouraged inflows of capital by dismantling restrictions, deregulating domestic financial markets, and improving their economic environment and prospects through the introduction of market-oriented reforms.

Thus, the recent global financial crisis has raised more concerns on the role of foreign investor transactions on developing Sub-Saharan African markets, as it is widely held that stock markets tend to react more to foreign portfolio investment than foreign direct investment and Diaspora remittance flows during crisis. Chung, (2016) opined that foreign investor are to blame for severe capital flights out of countries affected by financial crises. In fact, recent empirical study shows that during periods of financial crisis and instability, like in the 2008 financial crises, foreign equity investors reallocated substantial quantities of portfolio capital from developing Sub-Saharan African countries to developed countries (Fratzscher, 2012). Meanwhile, theories justifying increased investment under integration are reasonably sound, but in practice the story is more complicated. Instead, foreign portfolio investment is often blamed for disrupting local financial markets, for its short-termed nature exacerbating volatility and instability, actually hindering new investment because firms are reluctant in expanding their capital stock when they do not trust foreign capital will stay long (stiglitz, 2000). These becomes a major problem for developing

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economies, as the world competes for available foreign capital inflows, developing Sub-Saharan African countries are in a disadvantaged position, as investors diversify and spread its risks to countries with favourable and better investment climate.

However, the existence of a well-developed and liquid stock market is a potent incentive to foreign investors which facilitate the inflows of foreign capital. The key issue that emerges is that capital flows may be detrimental in countries with relatively underdeveloped financial markets. Financial markets matter in the growth process because they help allocate foreign capital towards productive ventures. More so, countries with weak financial markets may be more vulnerable to rising inflation cost, high cost of capital and declining employment figures which invariably render the host nation in an awkward position. These unwanted economic indicators are altogether signaled by the stock exchange which is a reliable gauge of the performance of businesses and the macro economy as indicated by the market capitalization and market turnover ratio.

Although many Sub-Saharan African countries have removed restriction on financial capital flow, and achieved significant progress in both financial market and the real economy, yet the subject matter of foreign capital flows remains controversial. Consequently, some empirical literature has shown that foreign capital enhances financial market efficiency, mobilizing long-term debt and equity finance, enhances international trade integration, financial system stability and stock market infrastructure (Aigheyisi, 2016; Arikpo&Ogar, 2018; Iriobe, Obamuyi, & Abayomi, 2018; Akinmulegun, 2018; Semeh, 2017; Gupta, 2017; Pandey, 2016; Kapoor &Schan, 2015; Okafor, Ezeaku, & Eje, 2015; Tsaurai, 2014; Irfan, 2014). Others have criticized foreign capital flow as the root cause of financial crises, and deficit balance of payment (Odo, Anoke, Nwachukwu, & Promise, 2016; Abubakar & Danladi, 2018; Idenyi, Ifeyinwa, Obinna, & Promise, 2016; Onyeisi, Odo, &Anoke, 2016; Odo, Anoke, Nwachukwu, &Agbi, 2016; Ahmed, Slesman & Evelyn, 2015; Ezeoha, Ogambe&Onyiuke, 2009).

Thus, as a result of these controversies, the study seeks to examine whether or not the influx of foreign investment capital has any effect on the performance of domestic stock markets in Sub-Saharan Africa. Therefore, the gap which this study aims to fill is to provide clear evidence and contribute to recent literatures by including Diaspora remittance as one of the key variables in examining the impact of foreign flows on stock market performance in sub-Saharan African Countries from the period (1986-2020) using disaggregated economic variables as foreign direct investment, foreign portfolio investment and Diaspora remittance as measures for foreign flows and market capitalization and market turnover as measures for stock market performance. A purposively selected number of Sub-Saharan African countries is chosen on the basis of data availability, and existence of functional stock markets. The study covers a thirty-three (34) year period, 1986-2020.

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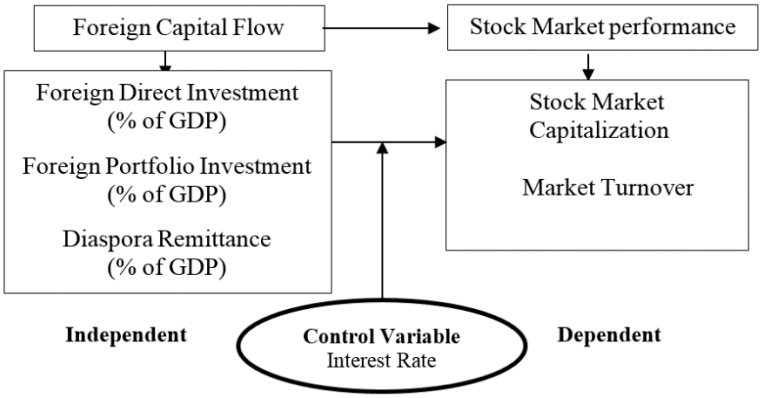
Aside the introduction section, the study is divided into four sections. Section 2 presents a review of literature, 3 contains the methodology, 4 presents the results and their discussions while section 5 conclusion.

2. REVIEW OF RELATED LITERATURE

Foreign flow is the independent variable for this study measured using a disaggregated economic ratio as foreign direct investment to GDP, foreign portfolio investment to GDP and Diaspora remittances to GDP, while the dependent variable stock market performance is measured by market capitalization and market turnover in selected Sub-Saharan African countries. The control variable for this study includes interest rate and exchange rates. The figure 1.1 below shows the conceptual framework for this study.

Figure 1.1 Conceptual Framework



Source**:** Author's Compilation

2.3.7 Foreign investment in Sub-Saharan Africa

The pursuit for the attainment of economic development is sought after by all global economies, which by effect is expected to transcend to improving livelihoods and standard of living. However, several factors hinder the process of achieving sustained economic development, especially in developing countries. In this regard, assessing the extent of economic expansion orchestrated by foreign direct investment (FDI) inflows in vulnerable economies such as Sub-Saharan Africa (SSA), particularly in the face of the significant fall in global FDI inflow, is worthwhile. It is on record that the 2015 global economic recession heavily affected vulnerable economies including Sub-Saharan Africa, as many foreign investors withdrew their investment from the region. This action was presumed to be in connection with the fall in investment profit and global oil shock particularly for oil-producing economies like Nigeria, Angola, Gabon, and Egypt (UNCTAD 2018).

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However, despite the continuous fall in global FDI inflows, the region recorded a positive increase in 2018 where FDI inflow to the region increased by 6%. According to United Nations Conference on Trade and Development (UNCTAD 2018), FDI inflows in 2017 stood at $US38 billion, increasing to $US40 billion in 2018, but decreased by 10% in 2019 to $32 billion, spreading disproportionately across the region. The natural resources dominated economies, such as Nigeria and Angola, suffered more serious setbacks in FDI inflows than diversified economies including Egypt and South Africa, which witnessed stable increase in FDI inflows. For instance, UNCTAD (2019), further reveals that the Northern sub-region registered growth in FDI inflows from $US13.4 billion in 2017 and $US13.9 billion in 2018. Egypt, the biggest economy in the Northern region received the largest share of FDI flows increasing by 11% in 2019, viz. $US9 billion compared to $US7.9 billion recorded in 2018. The growth in FDI to the continent could be attributed to the oil and gas sector of the economy, food processing, investment in real estate, and renewable energy technologies. Similarly, the Southern sub-region registered a drastic increase in FDI inflow from $US1 billion in 2017 to $US4.5 billion in 2018. South Africa, the hub of FDI inflows in the Southern region, suffered a sharp fall in FDI inflows from 2014, recording a significant recovery amounting to $US7.1 billion in 2018 relative to $US1.3 billion achieved in 2017. FDI inflows to South Africa decreased by 15% to $4.6 billion in 2019, despite key investments in mining, manufacturing (automobiles, consumer goods) and services (finance and banking).

However, apart from the Southern sub-region with an FDI increase of 22% (4.4 billion), the rest of the sub-region experienced sharp fall in FDI inflow in 2019 compared to the previous year. West Africa recorded a 21% drop in FDI inflows, followed by East Africa (9%), and Central (7%), respectively. FDI to West Africa decreased by 21 per cent to $11 billion in 2019. This was largely due to the steep decline in investment in Nigeria, after consecutive increases in 2017 and 2018. Inward FDI to Nigeria almost halved, to $3.3 billion, due to a slowdown in investment in the oil and gas industry. Ghana also witnessed a dropped by 22 per cent to approximately $2.3 billion in 2019, as against $US3.3 billion received in 2018 respectively. FDI flows to East Africa also decreased, from $9 billion in 2018, to $7.8 billion in 2019. Inflows to Ethiopia contracted by a fourth from $US3.1 billion to $2.5 billion. This was caused by instability in certain parts of the country, including regions with industrial parks. Similarly, inflows to Kenya dropped by 18% to $1.3 billion compared with $1.6 billion in 2018, despite several new projects in IT and healthcare.

FDI flows to Central Africa decreased by 7 per cent to nearly $8.7 billion. The key highlight in the sub-region was the decrease in FDI to the Democratic Republic of the Congo (9 % to $1.5 billion). Angola, the biggest recipient in Central Africa, recorded only but a slight improvement in 2019, with negative inflow of $US-4.1billion, compared to $US-6.5billion in 2018. The FDI stock in the country, decreased significantly to $USD18.6billion, compared to $USD32.4billion in 2010.

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4. THEORETICAL REVIEWS

Base Broadening Theory, FDI Dependency Theory, Neoclassical Theory of Portfolio flow, Trade off Theory and the Pure Self- Interest Theory are considered as having some linkage with the study. These theories and their linkage to the variables under study are discussed in table 1 below:

Table 1: Theoretical Underpinning of the Variables under Study

Theory	Argument	Relevance of the theory to the study
Base Broadening Theory Merton (1987)	The theory contends that expanding the number of investors, through the liberalization of the financial markets, to include investors from foreign countries would lead to increased diversification.	This theory is relevant as it suits the Stock Market Performance of selected Sub-Saharan countries by expanding investor's base to increased risk sharing. This theory was also been adopted by Osoro, (2020).
FDI Dependency Theory Todaro & Smith (2003)	The theory is premised on the fact that foreign firms, often from advanced markets, possess superior advantage over the domestic firms in developing markets.	The Neo-Classical theory of Investment is therefore applied in explaining the effect of foreign portfolio investment on stock market performance in Sub-Saharan Africa. This theory was also adopted by Osoro, Simiyu amd Omagwa (2020)
Neo Classical Theory of Investment	This theory therefore contends that if the return on equity investment in the stock market is high, such a market is likely to attract more foreign investment as compared to a market with low return on investment.	This theory will relevant in addressing foreign portfolio investment and stock market performance. Thereby providing insight on the Neo-classical thought which states that Market with high return is likely to attract more foreign investment as compared to a market with low return on investment. This theory was also adopted by Osoro, (2020), Osoro, Simiyu and Omagwa (2020).
Pure Self-Interest Theory	According to the Pure Self Interest Theory an emigrant sends remittances with the aspiration to inherit or makes investments for the future with the intention to return home in future and derive benefits from such investments.	The theory of Pure Self Interest aids in explaining the effect of Diaspora remittances on stock market performance in Sub-Saharan Africa. This theory was also adopted by Osoro, (2020)

Source: Authors Compilation.

Empirical literature

Several empirical works were reviewed on the impact of foreign flows on stock market performance in Sub-Saharan African. However, some empirical findings showed that foreign capital flows stimulate stock market efficiency and stability (Aigheyisi, 2016; Azeez & Obalade, 2019; Igann, Kutun & Mirzaei, 2016; Arikpo & Ogar, 2018; Ajayi, Adejayan & Obalade, 2017; Akponen & Umoffiong, 2020). While others with divergent opinion assert that foreign capital flow leads to financial crises and uncertainty in the host countries financial market (Adebisi & Arikpo, 2017; Obadan, 2013; Omodero & Ekwe, 2016; Itodo, Uwaleka, Ogwuche & Awak, 2020. Thus, as a result of these controversies, the study seeks to examine whether or not the influx of foreign investment capital have any

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significant (long or short run) effect on the performance of domestic stock markets in Sub-Saharan Africa. Therefore, the gap the study seeks to fill is to provide clear evidence and contribute to recent literatures by including Diaspora remittance as one of the key variables in measuring the impact of foreign flows on stock market performance in Sub-Saharan African countries from the period (1986-2020) using disaggregated economic variables as foreign direct investment, foreign portfolio investment and Diaspora remittance as measures for foreign flows and market capitalization and market turnover as measures for stock market performance.

Table 2: Summary of related empirical works

Authors Name/Year	Objectives of the Study	Methodology	Findings
Muhammad, Muhammad, Shamila and Shujahat (2017)	Examined the relationship between foreign portfolio investment and capital market performance in China	ARDL	The result showed a negative but significant relationship between inflation and stock market performance as well as a positively significant relationship between foreign portfolio investment and stock market performance.
Azeez and Obalade (2019)	Examined the factors determining the development of the Nigerian stock market.	ARDL	According to the results, the determinants of stock market development are the robustness of the banking sector, stock market liquidity and foreign direct investment inflows both in the long run and the short run.
Aigheyisi (2016)	Examined the impact of development in stock market on foreign capital flow and its impact on economic growth in Nigeria.	FMOLS Technique	The results showed that there is a significant positive relationship between foreign capital inflow, investment within the country and capital market development in Nigeria.
Gbalam and Ekokeme (2020)	Ascertained the impact of stock market development on foreign direct investment inflows in the Nigerian economy.	Engle Granger Error Correction Model	The empirical results indicate that market capitalization and value of deals in the exchange exert a positive impact on foreign direct investment inflows to Nigeria.
Arikpo and Ogar (2018)	Investigated the impact of stock market development on foreign capital inflow in Nigeria.	Vector Autoregressive model	The results indicate the existence of a significant linear relationship between foreign capital inflows and market capitalization, number of listed corporations, all share index, turnover ratio and value of transactions.
Iriobe, Obamuyi and Abayomi (2019)	Investigated whether foreign portfolio investment in money	ARDL	The results of the analysis revealed a significant and positive relationship between foreign portfolio investment in

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	market instruments have an influence on market performance in Nigeria.		money market instruments and the performance of the Nigerian stock market
Adigun, Sakariyahu and Lawal (2017)	Examined the impact of foreign direct investment on stock market development in Nigeria.	ARDL	The results indicated that capital inflow has a long run equilibrium relationship with the development of the Nigeria capital market.
Orji, Orji and Ogbuabor (2018)	Estimated the impact ofstock market development and foreign private investment on economic growth in Nigeria.	OLS/ Engle Granger Error Correction Model	The result showed that market capitalization, all share index and real exchange rate have statistically significant impact on economic growth, while foreign direct investment, trade openness and gross national savings have insignificant impact on growth. The study also showed that there is a long-run relationship among stock market development, foreign private investment and economic growth in Nigeria.
Makoni and Marozva (2018)	Examined the relationship between foreign portfolio investment and financial market development in Mauritius.	ARDL/VECM	The results show co-integrating relationships between FPI and Foreign Direct Investment (FDI), FMD and real economic growth (RGDPG). The vector error correction model further confirmed the existence of long run relationships between the variables under observation. Short run causality was found to emanate from FPI, FDI and RGDPG to FMD. Granger-causality results confirmed that FMD causes both FPI and FDI, while FPI causes FDI.
Onyeisi, Odo and Anoke (2016)	Determined the impact of foreign portfolio investment on stock market growth in Nigeria.	VECM/Granger Causality Model	The result revealed that the vector error correction model indicates long-run significant impact of foreign portfolio investment on stock market growth in Nigeria, and the Granger Causality shows there is no causality between foreign portfolio investment and stock market growth in the Nigerian economy.
Omodero and Ekwe (2016)	Investigated the impact of foreign direct investment on stock market performance in Nigeria.	OLS Multiple Regression	The study revealed that FDI has an insignificant and negative impact on the economy and the macroeconomic variables that determine the performances of the Nigerian stock market.

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Ohiaeri (2017)	Examined the relationship between capital market performance and foreign portfolio investment in Nigeria.	VECM / co-integration test	The study findings disclosed a unidirectional causality between capital market performance in one hand and also between foreign portfolio investments.
Agu, Ogu and Ezeanyeji (2019)	Investigated the impacr of foreign portfolio investment and stock market returns in Nigeria.	Unrestricted error correction model, OLS AND ARDL Bound test.	The result showed that there is no long run relationship between FPI and stock market returns in Nigeria.
Adebisi, Arikpo (2017)	Examined financial market performance and foreign portfolio inflows in Nigeria.	ARDL	The study revealed that financial market performance has no long run causal relationship with FPI in Nigeria.
Onyeisi, Odo and Anoke (2016)	Accessed the impact of foreign portfolio investment and srock market growth in Nigeria.	VECM and Granger causality test	The result revealed a long-run significant impact of foreign portfolio investment on stock market in Nigeria.
Osoro, Simiyu and Omagwa (2020)	Investigated the effect of diaspora remittance on stock market development in Kenya	ARDL Model	The study findings document a significant positive effect of diaspora remittances on stock market development in the short run as evidenced by the negative and significant coefficient of the Error Correction Term (ECT). Equally, diaspora remittances had a significant positive effect on stock market development in the long run.
Williams (2016)	Examined the effect of remittances on financial development in Sub-Saharan Africa.	Panel data	Remittances positively influence financial development in Sub-Saharan Africa.
Efobi, Asongu, Okafor, Tchamyou and Tananken (2019)	Assessed how remittances directly and indirectly affect industrialization in Africa.	GMM, FE, QR	The findings broadly show that for certain initial levels of industrialization, remittances can drive industrialization through the financial development mechanism.
Ochenge, Ngugi and Murlu (2020)	Examined the dynamic relationship between foreign equity inflows and liquidity of the Kenya stock market.	VECM	The study revealed a one- way causality link from inflows to liquidity and also foreign investors promote rather than impede local liquidity.

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Adekunle, Tella, Subair and Adegboyega (2020)	Examined the relationship between remittances and financial development in Nigeria.	PMG estimation techniques	The result indicated a positive short-run and long-run relationship between remittances and financial development in Africa.
Donou-Adonsou, Pradhan and Basnet (2020)	Investigated the relationship between remittances and financial development in SSA.	PMG error correction model	The finding showed that a positive and significant long-run relationship exist between remittances and financial development.
Fromenti (2017)	Analyzed the long-run and short-run impact of remittances of financial development in emerging and developed economies.	PMG approach	The result showed the existence of a positive long-run relationship with a slight positive and significant short-run relationship between remittances and financial development.

Source: Authors Compilation

3.0 METHODOLOGY

3.1 Data

The nature of data includes foreign direct investment, foreign portfolio investment, Diaspora Remittance, market capitalization and market turnover. A secondary source of data will be obtained from the World Bank Africa Development Indicator and Central Bank Statistical Bulletin of selected African countries form the period (1986-2020). The use of secondary data in this study is informed by the fact of the study being based on historical research that requires past quantitative data to test the research hypotheses. The various data were sourced based on the parameters of the variables. The population for this study comprises of all Sub-Saharan African Countries, and the sample size would be chosen on the basis of data availability. The study covers a thirty-four (34) years period from (1986-2020). Annualized panel data analysis was used to determine the impact foreign flows on stock market performance in selected Sub-Saharan countries.

Table 3: Embodies Sub-Saharan African countries

Regions	Sub-Saharan African Countries
West Africa	Benin, Burkina Faso, Cape Verde, Cote d'Ivoire, Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo, Namibia
East Africa	Burundi, Eritrea, Ethiopia, Kenya, Madagascar Malawi, Mauritius, Mozambique, Rwanda, Seychelles, South Sudan, Tanzania, Uganda, Zambia, Zimbabwe, Comoros

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Central Africa	Angola, Cameroon, Central African Republic, Chad, Congo (Brazzaville), Congo Dem (Kinshasa), Equatorial Guinea, Gabon, Sap Tome & Principe, Eswatini
Southern Africa	Botswana, Lesotho, Namibia, South Africa Swaziland, Lesotho

Source: IMF, 2021

3.2 Model/Estimation Procedure

The estimation processes for this study look thus: first, the panel datasets were described by way of showing their basic characteristics. This was done by showing the positional averages like the median, the aggregative averages like the mean, the variability averages like the standard deviation and the shape averages like the Skewness and Kurtosis. Second, the degree of linear association across the panel series was shown by using the panel correlation matrix. This showed whether the series shared positive, negative or no correlation respectively. Third, a multi-method panel unit root tests were conducted following the frameworks suggested by Levin Lin and Chu (2002), Breitung (2000), Im Pesaran and Shin (2002), ADF Fisher as well as the Philip Peron (Maddala 1999). This framework followed the equation presented below:

$$\Delta y_{it} = \alpha_i + \theta_i + \delta_i t + \rho_i y_{i,t_{-1}} + \sum \gamma_j \Delta y_{t_{-j}} + \nu_{i,t} \qquad Eq.$$

$$t = 1,2 \dots \dots \dots, T; i = 1,2 \dots \dots \dots .. N.$$

Where $H_0: \rho_i \equiv \rho = 0 \quad \forall \quad i,$

$$H_i: \rho_i < \rho = 02 \ \forall \quad i.$$

Fourth, the major panel estimators for the study included the Mean Group (MG) and Pooled Mean Group (PMG) models following the form specified by Pesaran, Shin, and Smith (1999). The standard equation appears thus:

$$\gamma_i(L) z_{it} = \alpha(L) y_{it} + d_i X_{it} + \varepsilon_{it} \qquad Eq.$$

i = 1, 2, 3 ……N which is for the cross-sectional unit, given that the mean group models long run and short-run coefficients, the long-run coefficient for each cross-section is given as:

$$\varphi_i = \frac{a_i(1)}{b_i(1)} \qquad Eq.$$

The mean group estimator for the entire panel was represented thus:

$$\varphi = \frac{1}{N} \sum_{i=1}^{N} \varphi_t \qquad Eq.$$

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The MG estimators are considered more consistent and have asymptotic normal distribution for N and T that are sufficiently large but is inconsistent in the face of small T hence can become quite biased. The Pooled Mean Group occupies an intermediate position between MG and the fixed effect model and remedies the defects in the MG model. This it does by allowing the short-run coefficients to vary and the long-run coefficient to be pooled across cross sections. PMG combines the efficiency of pooled estimations and addresses the problem of pooling heterogeneous dynamic relationships. PMG model according to Pesaran, Shin and Smith (1999), appears thus:

$$Z_{it} = \sum_{j=i}^{n} \gamma_{i\,j} Z_{i,t-j} + \sum_{j=0}^{m} \partial_{ij} \gamma_{i,t-j} + \mu_i + \varepsilon_{it} \qquad Eq.$$

Where: Y is the vector of explanatory variables, that is, foreign direct investment, foreign portfolio investment, diaspora remittance, exchange rate and inflation rate. The PMG is reparametrized in a vector error-correction framework, making it capable of measuring the response of stock market performance to the shocks and dynamics of foreign flows in the investigated countries. This reparametrized VECM form appears as follows:

$$\Delta Z_{it} = \sigma_i \left(Z_{i,t-1} - \beta_i y_{i,t-1} \right) + \sum_{j=1}^{n-1} \delta_{ij} \Delta Z_{i,t-j} + \sum_{j=0}^{m-1} \delta'_{ij} y_{i,t-j} \mu_i + \varepsilon_{it} \qquad Eq.$$

where δ shows the short-term effects of the lagged dependent variable and δ' means the short-term effects of independent variables, and β_i shows the long-term effect. Lastly, the error correction coefficient σ_i measured the speed of adjustment. The parameters of interest included β_i and σ_i and showed the existence of long-term effect if σ_i < 0. The higher absolute value ofσ_i, the faster the rate of convergence to long-run equilibrium.

The choice of either the MG or PMG estimator was based on the results of the Hausman test (Hausman. and Shapiro 1976) with a H_o that the PMG estimators are better, efficient and consistent and an H_1 that the MG estimators are better, more efficient and consistent. The large and significant statistic implied that the difference between the PMG and the MG approach is significant, and, with that, we reject the H_o and settle for the MG; otherwise, we refuse to reject H_o and go with PMG.

3.3 Description of Research Variables

The table 4 below summarizes the variables used in this study, and where they were also applied in similar studies.

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S/N	Variables	Measurement	Previous Studies	Apriori Expectation	Role
1	Stock market capitalization	$\frac{Market\ Value\ of\ \ Listed\ Securities}{GDP}$	Chinn and Ito (2006)		Dependent Variables
2	Market Turnover	$\frac{Market\ Turnover\ Ratio}{Market\ Capitalization}$	Osoro(2020), Gbalam & Ekokeme (2020)		Dependent Variable
3	Foreign direct investment	$\frac{Foreign\ Direct\ Investment}{GDP}$	Omodero & Ekwe (2017) Yartey & Adajasi (2007)	+	Independent Variable
4	Foreign portfolio investment	$\frac{Foreign\ Portfolio\ Investment}{GDP}$	Elekwa, Aniebo & Ogu (2016), Makoni (2018)	+	
5	Diaspora remittances	$\frac{Diaspora\ Remittances}{GDP}$	Osoro, (2020), Osoro, Simiyu & Omagwa (2020)	+	
6	Exchange Rate	Official Rate of exchange as previewed by CBN statistical bulletin	Iriobe, Obamuyi & Abayomi (2018)	–	
7	Interest Rate	Official lending rate as previewed by CBN statistical bulletin proxied by prime lending rate	Eniekezimene (2013), Iriobe, Obamuyi & Abayomi (2018),	–	

Source: Author's Compilation

4. RESULTS

The dataset for this study is presented in Appendix One. It is a full panel data of the investigated SSA countries with the relevant time variable and cross-sectional identifier. The presentation contains the outcome variables which are stock market turnover (MT) and market capitalization (MC). While MT is an indicator of market liquidity, MC is an indicator of market size and depth. The explanatory variables as well the moderators are also contained in the data table in Appendix One. The key explanatory variables include Foreign Direct Investment (FDI), Foreign Portfolio Investment (FPI) and Diaspora Remittance (REM) while we controlled for Exchange Rate (EXC) and Real Interest Rate (RIR) respectively. The results of the basic descriptive statistics which represent the first part of selected preliminary tests are presented in the form shown in table 4.1. the table contains key measures of central tendency and measures of dispersion.

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Table 4.1: Summary of Basic Descriptive Statistics

Variable	Mean	Std Deviation	Coefficient of Variation	Min	Max
SMC	2.665	1.547	0.581	-0.942	5.864
MT	1.251	1.098	0.878	-1.544	3.919
FDI	0.185	1.282	6.930	-5.993	2.352
FPI	0.516	0.978	1.895	-2.568	3.216
REM	-0.314	1.352	-4.306	-5.322	2.316
EXC	2.739	2.196	0.802	-4.720	6.596
RIR	1.134	1.052	0.928	-1.834	3.049

Source: Author's Computation 2022

From the result, we give particular attention to the coefficient of variation which is the relative standard deviation that connects the mean to the series standard deviation. It can be inferred that an overwhelming majority of the series are not vastly dispersed as the coefficient of variation fall below one (1). This is with the exception of FPI and REM which traditionally have remained fluctuating in SSA countries. The case of REM with negative relative standard deviation of -4.3 is symptomatic of the oscillatory profile of Diaspora Remittances in SSA as is the case in most developing economies. It is also observed that the average Market turnover (1.3) falls short of Market Capitalization which stand at 2.67. It is interesting to note that liquidity and returns of the stock market in SSA evidently fall short of the market size and depth.

Next, the linear association of the variables under study is shown through the result of the bivariate correlational matrix reported in table 4.2. The pairwise correlational coefficients are shown for all the pooled series.

Table 4.2: Panel Correlational Matrix

Variables	SMC	MT	FPI	FDI	REM	EXC	RIR
SMC	1.000						
MT	0.560	1.000					
FPI	0.156	0.009	1.000				
FDI	0.001	0.013	0.185	1.000			
REM	-0.156	0.054	0.113	0.215	1.000		
EXC	0.159	0.101	0.098	0.110	0.469	1.000	
RIR	0.305	0.246	0.182	-0.077	0.169	0.177	1.000

Source: Author's Computation 2022

There is a predominance of positive correlation in the linear association between the foreign flow variables and the studied stock market performance indicators. This is with the exception of Remittances that is found to negatively correlate with stock market capitalization. It can be deduced that the inflow of foreign financial resources shares a

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positive co-movement with the liquidity and depth of the stock market in the investigated SSA countries. This does not suggest causation and impact given that correlation is just an indicator of association not elasticity.

The presentation of the pre-estimation tests is concluded with the summary of the panel unit root tests. For the purposes of comparison and robustness, we adopted five different panel unit root tests with representation for those that assume stationarity of the whole cross section and those that focus on stationarity of the individual cross sections. Five different tests including the Levin Lin and Chu(2002), Breitung (2000), Im Pesaran and Shin(2002), ADF Fisher as well as the Philip Peron Fisher tests. A summary of these tests is presented in table 4.3 below:

Table 4.3. Summary of Pane Unit Root Tests Results

Var	LLC	Breitung	IPS stat	ADF-fisher	PP-fisher	Order of Integration
EXCR	-8.603(0.00)**	-5.440(0.00)**	-7.538(0.00)**	80.871(0.00)**	99.573(0.00)**	I(1)
FDI	7.801(0.00)**	-8.141(0.00)**	-10.045(0.00)**	111.284(0.00)**	716.120(0.00)**	I(1)
FPI	-7.503(0.00)**	-3.063(0.00)**	-6.747(0.00)**	72.82(0.00)**	119.8(0.00)**	I(0)
MT	-9.688(0.00)**	-11.900(0.00)**	-11.240(0.00)**	127.111(0.00)**	707.989(0.00)**	I(1)
REM	-7.107(0.00)**	-3.401(0.00)**	-7.074(0.00)**	76.717(0.00)**	373.402(0.00)**	I(1)
RIR	-3.827(0.00)**	-1.724(0.84)**	-3.498(0.00)**	38.41(0.00)**	212.20(0.00)**	I(0)
SMC	-3.310(0.00)**	-7.079(0.00)**	-9.031(0.00)**	103.02(0.00)**	417.54(0.00)**	I(1)

Source: Author's Computation 2022

The unit root tests results show that the series are a combination of I(0) and I(1) orders of integration. While FPI and RIR are stationary at order 1, the rest of the series are stationary at first difference. The stationarity properties of the panel series provide sufficient justification for the use of Panel-ARDL of the Pooled Mean Group (PMG) and Mean Group (MG) combination. Dynamic fixed effect (DFE) is adopted in this study as a robustness check to the fundamental estimation approach.

4.2 Results of Panel ARDL Estimators

The general results of the Panel-ARDL following the MG, PMG and DF estimators are presented in table 4.4 below;

The result contains the short-run and long-run estimates as well as the respective speed of adjustments for the two models with Market turnover (MT) and Stock Market Capitalization (SMC) as their respective dependent variables. The details of these results are shown in the Appendix sections. Before the use of the results for our hypotheses testing, two joint statistics are of interest. Firstly, the Haussmann test guided the selection of a more efficient model between the MG and PMG. Given that in the two models (MT and SMC), the Haussmann Statistics are greater than 0.05, it is concluded that PMG is more efficient and reliable than the MG. The DFE serves as a robustness check for the PMG estimators.

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Table 4.4 Summary of the MG, PMG and DFE Estimators

Model 1: Market Turnover							**Haussmann Test**
Variables	**Pooled Mean Group Estimation**			**Mean Group Estimation**			
	Coeff	**Z-ratio**	**P-value**	**Coeff**	**Z-ratio**	**P-value**	
Long Run							
FDI	0.289	3.07	0.002	-0.228	0.90	0.367	0.3264
FPI	-0.615	4.10	0.000	-0.602	3.30	0.001	
REM	0.261	2.58	0.010	0.442	0.98	0.328	
EXC	0.027	0.16	0.873	0.410	1.00	0.316	
RIR	0.197	1.82	0.068	0.173	1.09	0.275	
Short Run							
ECT	-0.272	4.83	0.000	-0.444	6.31	0.000	
FDI	0.028	0.41	0.682	0.065	1.05	0.292	
FPI	0.066	1.95	0.051	0.118	4.04	0.000	
REM	0.310	1.08	0.278	0.181	1.12	0.264	
EXC	-0.418	1.45	0.146	-0.494	1.27	0.205	
RIR	-0.066	1.07	0.284	-0.051	0.77	0.442	
Model 2: Stock Market Capitalisation							Haussmann Test
Variables	Pooled Mean Group Estimation			Mean Group Estimation			
	Coeff	Z-ratio	P-value	Coeff	Z-ratio	P-value	
Long Run							
FDI	0.038	0.97	0.333	0.149	0.57	0.566	0.2413
FPI	0.403	3.50	0.000	-0.888	1.25	0.211	
REM	-0.219	1.74	0.082	-0.077	0.23	0.821	
EXC	0.458	3.46	0.001	0.796	1.49	0.137	
RIR	-0.168	2.80	0.005	0.496	1.58	0.115	
Short Run							
ECT	-0.215	3.22	0.001	-0.319	4.01	0.000	
FDI	0.049	1.53	0.125	0.006	0.16	0.876	
FPI	0.010	0.22	0.824	0.049	1.19	0.233	
REM	-0.178	0.90	0.366	-0.192	0.85	0.394	
EXC	0.266	1.19	0.233	0.074	0.32	0.746	
RIR	0.026	1.54	0.124	-0.040	1.26	0.208	
Dynamic Fixed Effect							
Variables	Model 1: D.MT			Model 2: D.SMC			
	Coeff	Z-ratio	P-value	Coeff	Z-ratio	P-value	
Long Run							
FDI	-0.060	0.42	0.673	-0.024	0.13	0.900	
FPI	0.190	1.07	0.287	0.009	0.04	0.970	
REM	0.194	1.23	0.217	-0.487	2.33	0.020	
EXC	0.056	0.28	0.783	0.442	1.65	0.098	
RIR	0.257	1.36	0.174	0.201	0.80	0.422	
Short Run							

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ECT	-0.300	6.40	0.000	-0.180	5.54	0.000
FDI	0.031	0.72	0.469	0.038	1.10	0.271
FPI	0.021	0.51	0.609	-0.016	0.47	0.640
REM	0.064	0.75	0.453	-0.026	0.38	0.701
EXC	-0.395	1.56	0.120	-0.302	1.50	0.133
RIR	-0.080	1.68	0.093	0.005	0.14	0.891

Source: Author's Computation 2022

Next, we evaluated the error correction representation which is a show of the adjustment speed of the studied market indicators to foreign inflows. As a sign of adjustment of stock market performance to the dynamics of foreign inflow, the error correction term which is the first lag of the residual entered with a correct sign. In both the first and second models, the error correction terms were found to be negatively significant. In the stock market capitalization model, the speed of adjustment is 21.5% and 30% for the market turnover model. This implies that market capitalization adjusts back to long-run equilibrium from short-run distortions arising from foreign inflows at a speed of 21.5% while market turnover does that at a velocity of 30%. This further means that full equilibrium happens under 5years for market capitalization while it is slightly over 3years for market turnover. It is also important to state that in both models, the error correction representations fall within predictable threshold as they are all less than unity (<1). The discovery of a rightly signed speed error correction term is also evidence in favour of long-run convergence between foreign inflows and the performance of the studied stock markets in SSA countries.

5. CONCLUSIONS

This study used panel estimation techniques to evaluate the impact of foreign flows on stock market performance: evidence from selected sub-Saharan African countries covering the period, 1986-2020). Foreign flow was disaggregated into foreign portfolio investment, foreign direct investment and diaspora remittances while stock market performance was proxied by market capitalization and turnover respectively. Given the foreign outlook of the study and the interest sensitivity of the variables under study, exchange rate and interest rate were used as control variables. The study found among other things that diaspora remittance negatively and insignificantly impact on stock market capitalization and while it shares a positively significant relationship with market turnover. Foreign direct investment and stock market capitalization were found to have a positive but insignificant relationship while a positively significant relationship exist with stock market turnover. Also, foreign portfolio investment was found to significantly affect both stock market capitalization and stock market turnover respectively.

Evidently, foreign flows aid stock market turnover and market capitalization through providing stable financial resources in developing stock market. This evidence is corroborated by such studies as Olayungbo and Quadri, (2019); Osoro, Simiyu and Omagwa, (2020); Pradhan and Basnet, (2020), Arikpo and Ogar (2018), Kabuga (2021)

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Adekunle, Ogunade, Kalejaiye and Balogun (2020). Iriobe, Obamuyi and Abayomi (2019). Itodo, Uwaleka, Ogwuche, & Awak (2020), Osoro, Simiyu & Omagwa (2020), Abubakar and Danladi, (2018), Akponem and Umoffiong, (2020). Olayungbo and Quadri, (2019), Osoro, Simiyu and Omagwa, (2020). Foreign flows will remain vital for both financial and economic performance. The conclusions drawn in this study are considered significant as it opens new research frontiers in the area of discovering the degree to which Sub-Saharan African countries are embracing foreign investment patronage on domestic market activities with emphasis on policy initiatives and practice.

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