

# **CAPITAL FLOWS AND STOCK MARKET DEVELOPMENT IN SELECTED AFRICAN COUNTRIES**

**Roseline Nyakerario Misati and Kethi Ngoka**

## **Abstract**

*Strong global growth and increased financial integration led to increased cross border flows prior to the Global Financial crisis. During this period, cross border gross positions increased markedly reflecting opening of capital accounts and reduced transaction costs. Financial globalization increased much faster than trade globalization. However, since the Global Financial Crisis, capital flows experienced a slowdown and are yet to recover to their pre-crisis levels. Post-crisis, foreign direct investment flows continue to dominate total flows. Portfolio and other investment flows have also increased over time presenting challenges to policy makers due to their volatility. In addition, there is heterogeneity in gross flows and positions across countries, with valuation effects due to asset price and exchange rate changes becoming an increasing part of the dynamics of the net foreign asset positions of countries.*

*Financial integration is important since it eases financing constraints for productive investment projects, fosters diversification of risk and contributes to the development of financial markets. This paper seeks to understand the role of capital flows on stock market development. Understanding the role of capital flows on African economies is critical to policy makers in Africa where stock markets are rapidly evolving and markets are increasingly being integrated. . This study examines the linkages between capital flows and stock market development in Africa using panel data methodologies. It focuses on the relationship between foreign direct investment and remittances and stock market development. It finds a positive relationship between FDI and stock market capitalization confirming the complementarity theory but the relationship between remittances and stock market development is largely negative, implying a dominance of consumption smoothing theory of remittances. The study recommends strengthening of institutions to attract inflows and provision of incentives that condition remittances to investment.*

*Key Words: FDI; Remittances; stock market; Africa*

## **Introduction**

Strong global growth and increased financial integration led to increased cross border flows prior to the Global Financial crisis. During this period, cross border gross positions increased markedly reflecting opening of capital accounts and reduced transaction costs. Financial globalization increased much faster than trade globalization. However, since the Global Financial Crisis, capital flows experienced a slowdown and are yet to recover to their pre-crisis levels. Post-crisis, foreign direct investment flows continue to dominate total flows. Portfolio and other investment flows have also increased over time presenting challenges to policy makers due to their volatility. In addition, there is heterogeneity in gross flows and positions across countries, with valuation effects due to asset price and exchange rate changes becoming an increasing part of the dynamics of the net foreign asset positions of countries.

Financial integration is important since it eases financing constraints for productive investment projects, fosters diversification of risk and contributes to the development of financial markets. As most emerging markets progressively integrate into the world economy through increased capital flows, questions as to whether, these flows have implications for financial development, particularly the stock market, which is a catalyst of growth gain prominence. Accompanying the increased integration is the evolution of capital flows to most African countries from aid flows towards foreign direct investment (FDI), remittances and short term capital flows.

There is however a dearth of knowledge on the impact of capital flows on the various channels of economic growth, specifically on the linkage between capital flows and different components of financial development. This study analyses the patterns of various forms of capital flows and stock market linkages (portfolio flows, remittances; FDI and other investments) but quantitatively focuses on foreign direct investment (FDI) and remittances as the main forms of capital flows to Africa due to data availability for the entire sample of countries considered in this study.

No consensus exists in the literature on the capital flows-stock market growth nexus. The literature is dominated by the complementarity and substitutability views on the FDI-stock market relationship while theories on relationship between remittances and stock markets range from moral hazard in the labour market to financial resource mobilization, (Doytch, 2013; Shahbaz et al., 2013; Julio, 2011; Giulia and Zazzaro, 2011). Although a few studies have analyzed the relationship between capital flows and stock market growth, most of them concentrate on the effect of foreign direct investment yet other forms of capital flows particularly remittances are equally if not more important (Omar and Xavier, 2009; Nunnenkamp, 2004;2002a). Moreover,

scanty literature exists that isolates the effects of remittances on various components of financial development. Most of the literature focuses on remittances-banking sector development or remittances-financial sector development linkages yet the effect of remittances may be different on different components of the financial system (Aggarwal et al., 2011; Giuliano and Ruiz-Arranz, 2009). This is particularly important for African economies whose levels of development of various sectors of the financial system are different. In African countries, the banking sector dominates as opposed to the stock market. However, research in this area is scanty in African countries. One previous attempt in this area using African data focused on the determinants of financial development in Africa (Mihasonirina and Yartey, 2009). The authors demarcated the determinants of the components of financial sector development but their focus was on all the determinants without specific emphasis on capital flows. In addition, the authors used only the size indicator of stock market development.

This study contributes to the existing work further by first, using both the size indicator of stock market development and the liquidity measure of the stock market development as dependent variables in separate regressions. This is important since results are often highly sensitive to the indicator used and it is not unusual to obtain different and even conflicting results depending on the choice of indicators. Second, the study analyses in detail the effect of capital flows, mainly remittances and FDI on stock market development in the light of the global financial crisis. Third, the study analyses the relative importance of these two types of capital flows on stock market development in Africa. This is critical in African countries whose developmental goals are not only constrained by inadequate capital but also in the light of the recent crisis, which affected FDI and remittance flows. Understanding the proportionate contributions will provide insights for policy makers on where to focus and the most optimal combinations of capital flows for enhanced stock market growth.

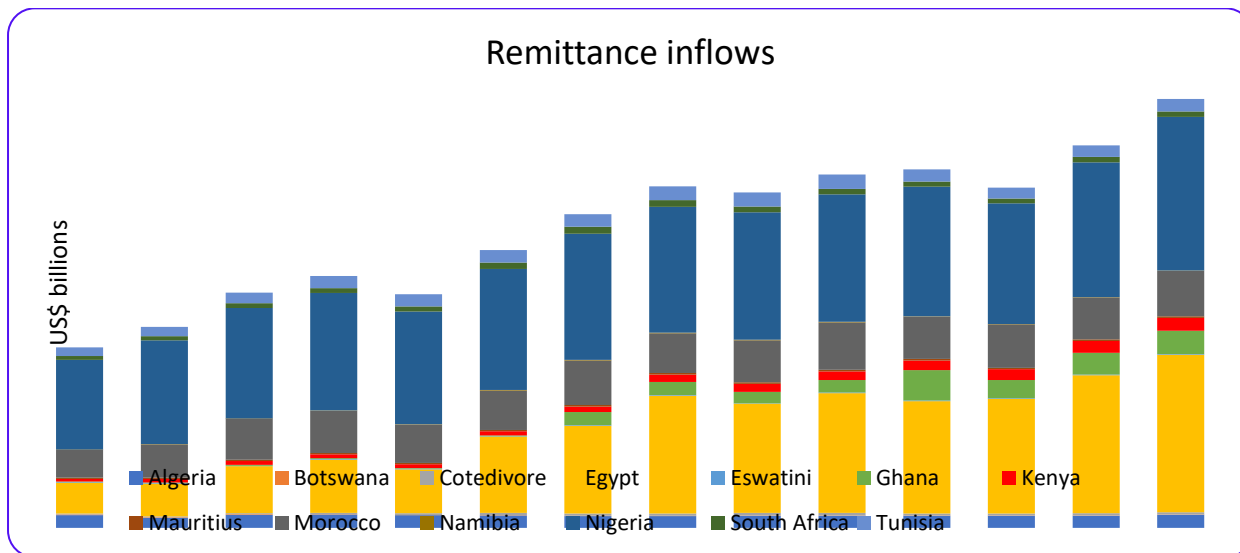
The next section provides trend analysis of indicators of various components of capital flows while section three provides a brief literature review including empirical findings of related work on the subject. The method and results are presented in section four and five, respectively, while section six concludes the paper with some policy proposals.

## **2.0. Trends analysis of capital flows and stock market development in Africa**

In this section we analyse trends of some of the indicators of capital flows as well as stock markets in Africa. Chart 2.1 shows that generally shows upward trends of remittance flows to the selected African countries, particularly after 2009. Egypt, Nigeria and Morocco are the highest recipients of remittances followed by Ghana, Algeria, Kenya and Tunisia. Based on 2018 World Bank estimates, the shares of remittances to GDP are also high with 10.8 percent, 7.4 percent, 6.1 percent 6.1 percent, 5.0 percent for Egypt, Ghana, Morocco,

Nigeria and Tunisia, respectively. Countries not included in the sample due to lack of stock market data such as Gambia, Comoros, Senegal, Cabo Verde and Togo also have very high remittances to GDP ratio. Respectively, the 2018 estimates recorded 20.5 percent, 19.3 percent, 13.6 percent, 12.8 percent and 8.2 percent.

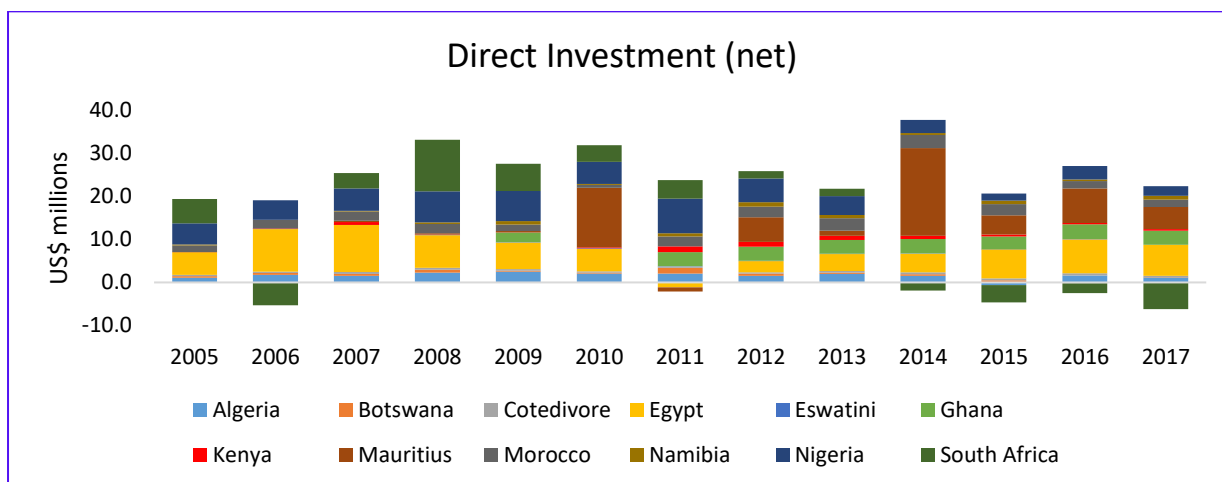
**Chart 2.1. Remittance inflows to selected countries in Africa**



The high remittances/GDP ratios is not only an indicator of the importance of remittances to these economies but it also shows the potential of its contribution.

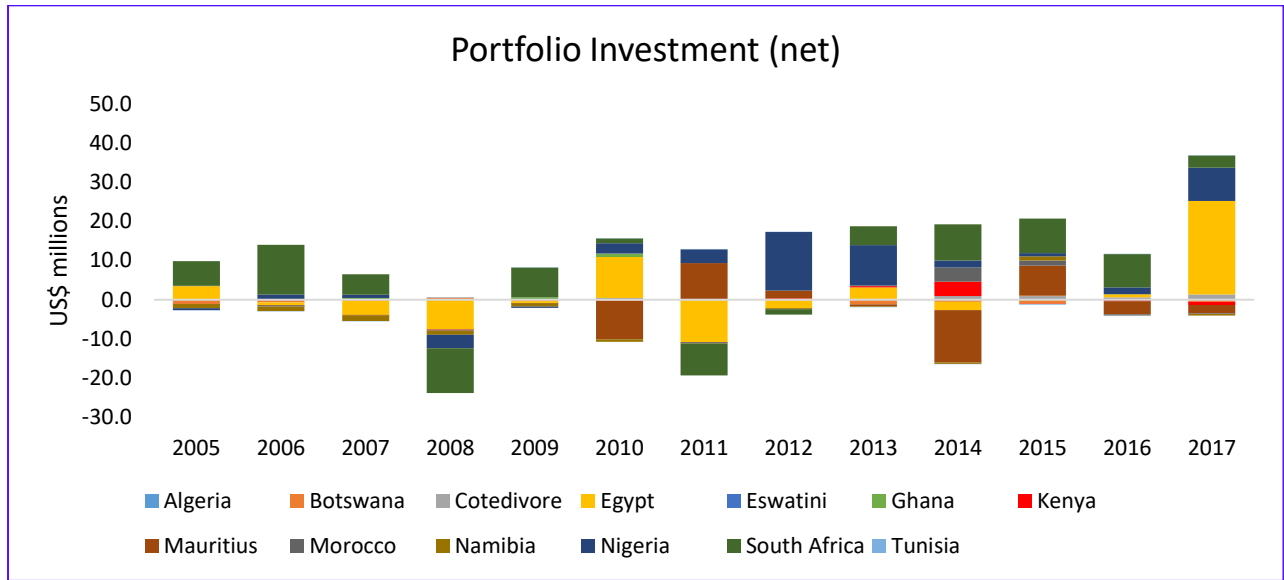
Chart 2.2 provides the trends of foreign direct investment. Foreign direct inflows to Mauritius were very high thus leading to an increase in total inflows for the selected countries similar to 2008.

**Chart 2.2. Net foreign direct investment**



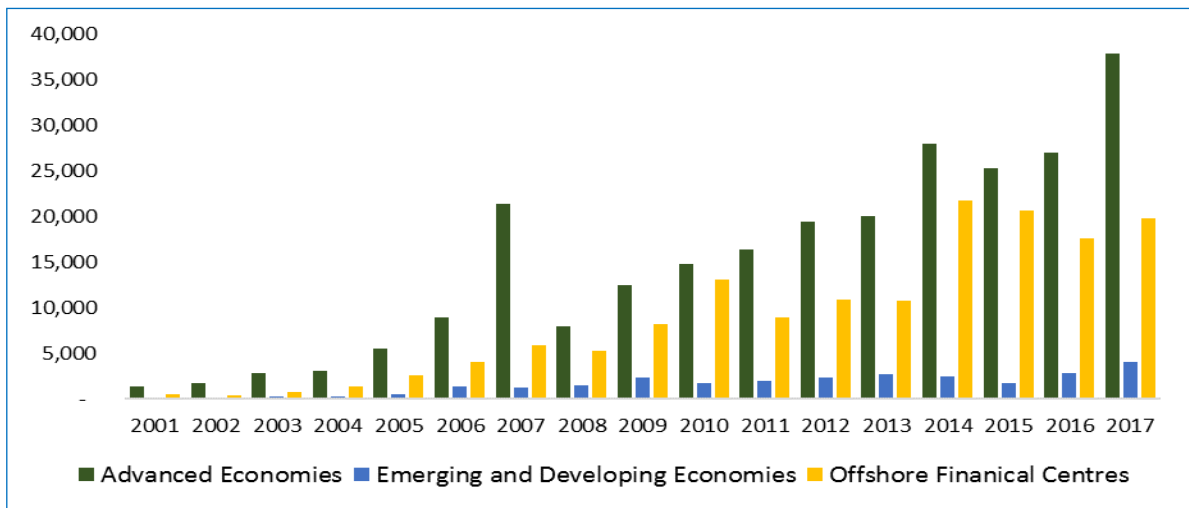
However, the general FDI trend exhibits relatively more volatility compared to remittances which have increased steadily (Chart 2.1). Countries such as South Africa recorded negative direct investments since 2014 while investment to Egypt increased over similar periods. Investment to Ghana and Cote d’ivoire was however stable while the one of Kenya albeit low has remained stable since 2012.

**Chart 2.3: Net Portfolio flows**

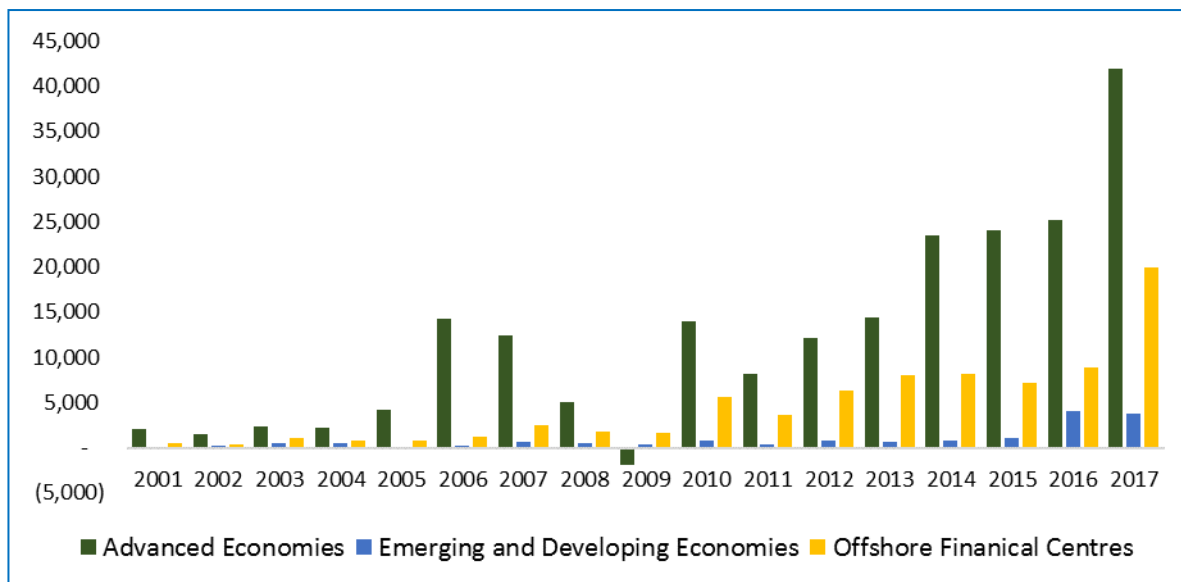


Net portfolio flows have generally maintained a positive trend since 2012 (Chart 2.3). Equity and debt inflows have increased over time and are more volatile compared with FDI flows (Chart 2.4 & 2.5). In addition, debt inflows become more prominent in 2017 but this does not cut across all the economies (Chart 2.5).

**Chart 2.4 Equity inflows to selected countries in Africa by origin**



**Chart 2.5 Debt inflows to selected countries in Africa by origin**



Portfolio equity and debt inflows from advanced economies and offshore financial centres have remained dominant. This is despite the Euro area crisis and the retrenchment in global banking. The increase in flows from financial centres reflects a boom in special financial entities and special purpose vehicles as well as a redomiciling of Multi National Corporations to financial centers.. Increased portfolio inflows imply a possibility of better yields in the selected African countries which may have attracted relatively higher flows. High portfolio flows also imply improved equity prices as well as credit conditions with possible positive growth effects in the short term. However, high portfolio flows are associated with risks of reversals especially in emerging markets whose level of development does not allow easy dispersion of such flows across assets and sectors.

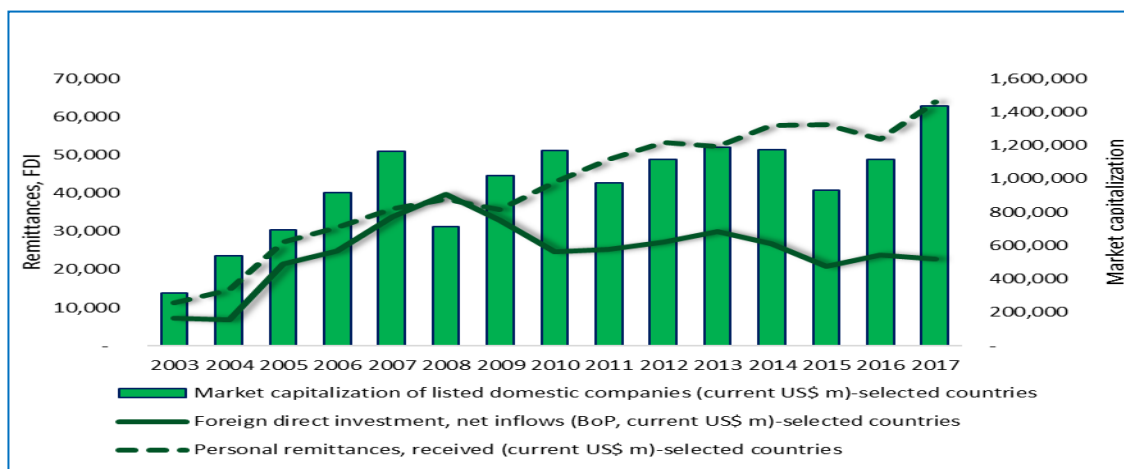
### Stock Markets in Africa

There are about 30 organized stock exchanges on the African continent where securities can be listed but only 14 of them are active with a continuous time series data. The oldest African exchange is the Alexandria stock exchange in Egypt which started operations in 1883 while the newest are ALTX East African Exchange in Uganda and Maseru securities exchange in Lesotho whose operations started in 2016, (see Dirk, et al., 2018 for a comprehensive analysis). Johannesburg Stock Exchange (JSE) in South Africa is the largest in terms of stock market capitalization. As of July 2019, the combined stock market capitalization in the 14 active stock markets stood at \$ 1,220.8 billion with the top stock exchange at \$ 899 billion being South Africa. Morocco ranks second followed by Egypt and Nigeria, whose stock markets were affected in the 2016 and 2017 by the external shocks leading to currency adjustments and a drop in investments from foreign investors. The 14 countries constituting our sample with active stock markets include: South Africa; Egypt; Morocco; Tunisia;

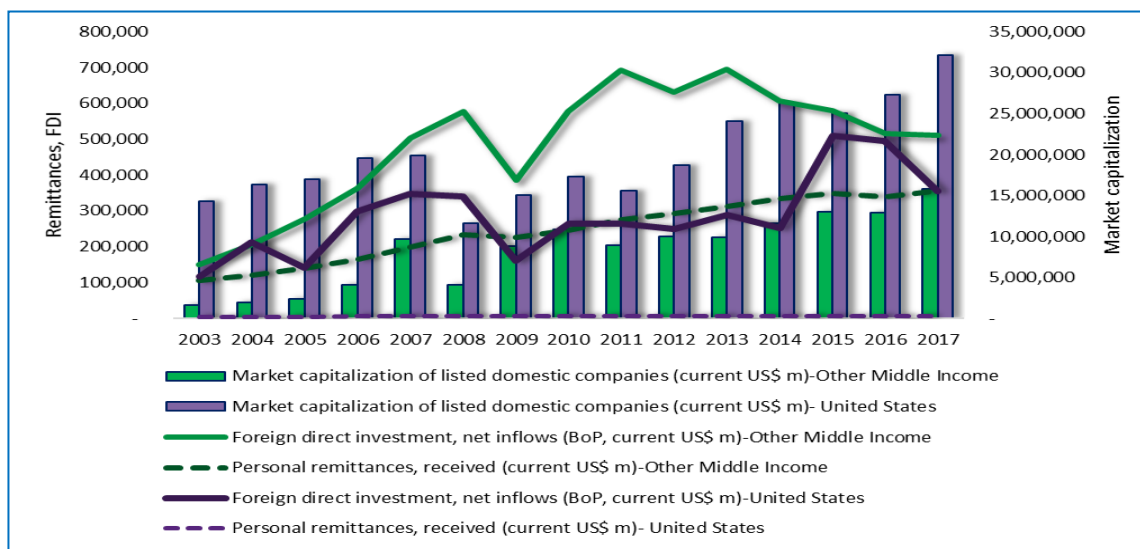
Nigeria; Ghana; Kenya; Mauritius; Namibia; Swaziland, Cote D' Ivoire; Botswana; Zimbabwe and Algeria. Other stock markets in countries such as Malawi, Tanzania and Zambia are still small by international standards and have insufficient time series data observations to fit our sample period.

This study focusses on FDI inflows which remain the largest and most stable source of external finance for developing economies compared with portfolio investments, and official development assistance. As shown in Chart 2.6, FDI inflows have remained stable while remittances have maintained an upward trend with the exception of the period during the global financial crisis. In addition, remittances and FDI comove positively with stock market capitalization.

**Chart 2.6 Trends in Stock Market Capitalization, FDI and Remittances in Selected Countries**



A comparison for other middle income countries (excluding the selected countries for the study) shows that FDI flows are much more volatile compared. Remittances however maintain an upward steady trend. As per the World Bank definition, middle income countries comprise a variety of countries at different stages of development with per capita GNI ranging from as low as US\$ 1,006 to US\$ 12,235 in 2018.





### 3.0. Literature review

Two extreme theories that link FDI and stock markets exist in the literature. Proponents of the complementarity theory contend that FDI goes to countries with good institutions and fundamentals, helping develop the domestic financial system. FDI can fuel the development of stock markets through different channels. First, FDI can be positively related to the participation of firms in capital markets, since foreign investors might want to finance part of their investment with external capital or might want to recover their investment by selling equity in capital markets. Second, given that foreign investors partly invest through purchasing existing equity, the liquidity of stock markets will likely rise. Thus, the value traded domestically, the value traded internationally, or both might increase, depending on where these purchases take place. Moreover, foreign investors help develop local stock markets by its investment spillover effects. From a political economy point of view, FDI inflows encourage country's political elite to adopt market friendly regulations especially investor protection and better governance regulations which promote the development of the stock market. In sum, FDI can be a complement, of stock market development (Doytch, 2013; Issouf and TchanaTchana, 2011; Stijn et al., 2002; Errunza, 1983). However, some literature cautions that for countries to fully benefit from capital flows including FDI, they must attain some threshold level of stock market development. In this line of argument, if the stock market is not developed up to a certain threshold level, then the presence of foreign capital flows exert no impact or even a negative impact over the development process (Shahbaz et al., 2013; Syed and Pardhasaradhi, 2010; Chee-Keong et al., 2010; Alfaro et al., 2009; Desai et al., 2005).

The second theory focuses on the substitution role of FDI to the development of the stock markets. Under this approach, it is argued that FDI tends to be larger in countries that are riskier, financially underdeveloped, and institutionally weak. Under this line of thought, FDI is a substitute for stock market development. FDI takes place to overcome the difficulties of investing through capital markets, given that shareholders rights are not protected. In this line of argument, some authors contend that FDI does not crowd in investment or it has the opposite effect of displacing domestic producers or pre-empting their investment opportunities. In this case, FDI is likely to substitute for domestic investment when it takes place in sectors where there are plenty of domestic firms. Thus the positive effects of FDI are not guaranteed (Julio, 2011; Sinclair, 2010; Agosin and Mayer, 2000; Hausmann and Fernandez-Arias, 2000).

Similarly, the literature reveals different views with respect to the relationship between remittances and stock market development. On the one hand, the literature argues that remittances remove liquidity constraints and facilitate access to credit for the migrant's relatives and if the remittances are efficiently intermediated, they

should allow for funding of growth enhancing projects by talented but financially constrained entrepreneurs. This in turn is expected to boost stock market development through savings accruing from entrepreneurship. In this case remittances become a substitute for inefficient or inexistent credit markets, remittances help alleviate credit constraints and contribute to efficient allocation of capital. Moreover, remittances can also be directly invested in equity markets, which in turn enhance long term financial mobilization for growth of the corporate sector. Most corporate sector institutions in turn boost their stock market development through their new listings or active secondary market trading. Remittances can also enhance credit worthiness of recipients besides contributing to the accumulation of human capital with positive implications on growth.

However, the role of remittances on growth can be negative if it encourages permanent financial dependency and if it encourages moral hazard by the recipients since the remitters have no chance to monitor the end-use of the remittances. In this case, the recipients may consider remittances as a substitute for labour income and reduce their labour supply, preferring more leisure to work. Thus, funds that would otherwise be invested in the stock market and/or be invested in companies that can or are already listed in the stock market are not realized or are diverted due to possibility of moral hazard practices. Furthermore, worker's remittances may also affect the competitiveness of the tradable sector of the recipient countries through the appreciation of the real exchange rate, that can also possibly discourage foreign investors with possible negative implications on the stock market (Giulia and Zazzaro, 2011; Kagochi, et al., 2010 ).

The existing empirical literature depicts mixed results and is highly sensitive to the indicators of stock market used. Some of the empirical studies in this area which have mainly focus on advanced economies and a few developing countries outside Africa are summarized below:

Table 3.1: Summary of empirical evidence of impact of capital flows on stock markets

<i>Author/s</i>	<i>Country/ies</i>	<i>Data</i>	<i>Methodology</i>	<i>Findings</i>
<i>Wu, (2018)</i>	China	2002-2017	VAR	Short term international capital flows will initially promote the rise of stock returns but after making profits, investors will withdraw capital quickly leading to a decline in the yield rate and increasing volatility in the stock market.

<i>Kunofiwa, (2018)</i>	Emerging Markets	1994-2014	Pooled OLS, Fixed Effects and Random Effects	Positive relationship between FDI and stock market developments
<i>Atiya and Jawaid, (2017)</i>	Pakistan	1991-2015	OLS and Granger causality	Remittances positively and significantly affect the stock market while FDI has an insignificant impact on the stock prices.
<i>Feng, Ching and Chun, (2017)</i>	China	1997-2013	Local projections approach	The findings show that a positive short-term capital net inflows shock significantly increases stock prices while a positive FDI net inflows shock has no effect on stock prices.
<i>Raza et al., (2015)</i>	Pakistan	1976-2011	ARDL	FDI and worker's remittances have significant positive effects on stock market capitalization Findings show a bidirectional causal relationship between FDI and stock market capitalization and a unidirectional causal relationship from workers' remittances to stock market development
<i>Loncan and Caldeira, (2015)</i>	Brazil	2001-2013	6-factors Arbitrage Pricing Theory model	The results generally provide support for the revaluation effect hypothesis. Foreign portfolio capital flows have a positive and statistically significant effect on IBOVESPA's index returns. Foreign portfolio capital also increases returns especially for commodities, industry and cyclical consumption sectors
<i>Ndong, (2015)</i>	Africa	1990-2013	Least Squares, 2SLS and LSDV	The results show that net portfolio equity investment flows have a positive but not statistically significant effect on equity returns.

<i>Kwaku and Wiafe, (2013)</i>	Ghana	1990-2010	ARDL	The study supports the complementarity hypothesis. FDI positively affects stock market development. In addition there is bi causality between FDI and stock market development.
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#### 4.0. Data and Methodology

##### 4.0.1. Data sources

This study used annual data for 13 countries covering the period 1995-2018 in Africa. The data for remittances was obtained from ‘migration and remittances data’ in the World Bank database. Data for stock market indicators, FDI, GDP and inflation was obtained from the ‘World Development Indicators’ available in the World Bank database while data for the proxy for institutions was obtained from the transparency international and the World Bank Worldwide Governance Indicators. The KAOPEN variable is sourced from the Chin and Ito index.

##### 4.0.2. Model and description of variables

Traditionally, convectional theories contend that stock market development depends on macroeconomic factors, institutional variables, liberalization and privatization. In this line of reasoning, a number of studies have explored the macroeconomic and institutional determinants of stock market development. Income, gross domestic investment, banking sector development, stock market liquidity, financial liberalization and political risk among other factors constitute what has been identified in the literature as determinants of stock markets (Asongu, 2012; Rahman et al., 2009; Nair, 2008; Yartey, 2008; Yartey and Adjasi, 2007; Valeriano and Lin, 1999; Ross and Zervos, 1998).

Following from previous work, we use market capitalization and turnover ratio as the two main indicators of stock market development and net FDI inflows and remittances as the main indicators of capital flows. The construction of the the market capitalization and turnover ratio is based on Beck et al., (2000). Market capitalization is measured as total market value of listed shares as a proportion of GDP. Market capitalization measures the size of the stock market. Turnover ratio is calculated as the total value of traded shares in the stock exchange divided by market capitalization and it measures the liquidity or activity in the stock market relative to its size.

This study acknowledges the existence of other measures of stock market development as identified by Beck et al., (2000) and others but it only used the size and one liquidity measures because of data constraints.

Our regression model is specified as follows:

$$SMD_{it} = \alpha_0 + \alpha_1 Cflows_{it} + \alpha_3 X_{it} + \varepsilon_{it}$$

Where  $SMD_{it}$  represent stock market indicators,  $Cflows_{it}$  represents FDI and remittances (REM), which will be entered independently in similar models.  $X_{it}$  represents all the control variables that determine stock market development identified in the literature. These include: GDP growth, inflation, institutional variables, financial liberalization indicator and savings rate.  $\varepsilon_{it}$  represents individual, time and error components of the model. Each of the included variables and the apriori signs are briefly explained below. Remittances and FDI are our main variables of interest. All the variables with the exception of the institutional quality proxy, inflation and the financial liberalization indicator are expressed as a percent of GDP.

Remittances form one of foreign exchange earnings for African economies. It is argued that some shares of the remittances may be used to smoothen consumption over time and spending would infact be delayed via saving and investing in the stock market. Moreover, sometimes it is possible for remittances to be invested directly in the stock market. As more investment in the stock market leads ultimately to a rise in market capitalization, apriori, a positive sign is expected between remittances and stock market development (Billmeier and Massa, 2009).

Net FDI inflows, the difference between disbursements and repayments in million U.S. dollars is used in this study. FDI is increasingly being recognized as a major source of economic development. The general belief is that FDI facilitates the transfer of technology, organizational and managerial practices, skills and access to international market. The apriori sign between FDI and stock market development is ambiguous depending on whether FDI is viewed as a complement or a substitute to the stock market (Stijn et al., 2002).

In addition, since removal of current account restrictions propagated capital flows, we use the financial openness index, KAOPEN, developed by Chinn and Ito (2008) to capture current account liberalization. The index is also referred to as the Chinn-Ito financial openness index in the literature. KAOPEN is an index measuring a country's degree of capital account openness. It is the first principal component of four types of restrictions on cross border capital flows reported in the International Monetary Fund's Annual Report on Exchange Rate Arrangements and Exchange Rate Restrictions (AREAER). These restrictions include: the existence of multiple exchange rates, restrictions on current account and capital account transactions and existence on requirements regarding export proceeds. Removing capital controls allows domestic and foreign

investors to engage in more portfolio diversification (Chinn and Ito, 2006). Financial liberalization is thus believed to relax borrowing constraints, leading to higher investment including investment through the stock market. According to the international asset pricing models, liberalization leads to a drop in the cost of equity and debt capital through integration of segmented markets. In addition, better corporate governance and investor protection arising from capital market liberalization promotes financial development (Bekaert et al., 2005; King and Levine, 1993a, b). Further discussions of the growth-associated benefits of capital market liberalization are available in Tswamuno et al. (2007). Another strand of literature argues that financial liberalization induces excessive risk-taking, increases macro-economic volatility, generates financial fragility and increases the probability of financial crises with negative implications on investment (Misati and Nyamongo, 2011; Rousseau and Wachtel, 2011; Loayza and Ranciere et al., 2006; Nicola and Funke, 2001). In support of this view, Shleifer and Vishny (1986) argue that improvement of stock market liberalization may weaken corporate governance by reducing the incentives for shareholders to monitor managers, leading to a less efficient allocation of resources. The apriori sign is thus ambiguous based on these diverse arguments on financial liberalization.

Institutions can be interpreted either as the set of rules and norms that shape the social, political, and economic interactions among the members of a society, or as organizational institutions such as political, economic, social, and educational bodies. Institutions may affect stock market development in two ways. First, better institutions—which are associated with more transparency, less corruption, and better protection of property rights—foster investor confidence, thus leading to high demand for securities and larger stock markets. Second, better institutions promote economic growth in general, thus enhancing market fundamentals that lead to highly developed stock markets (Billmeier and Massa, 2009). As a proxy for the quality of institutions, we use regulatory quality as measured by the Worldwide Governance Indicators.

Income is proxied by GDP and is also included as a possible explanatory variable of stock market development based on the demand following hypothesis which postulates a causal relationship from economic to financial development. According to this theory, an increasing demand for financial services might induce an expansion in the financial sector as the real economy grows. Moreover, continual economic expansion requires more financial services and new instruments (Valeriano and Lin, 1999; Cesar and Lin, 2002). Higher income also means better education, better business environment and wealthy citizens with possible positive implications on the stock market.

Savings rate, which is calculated as a ratio of gross savings to gross disposable income is also included since part of such savings are likely to be invested in the stock market. Apriori a positive sign is expected since the larger the saving rate, the higher the flow of capital to stock markets. We also include credit to the private

sector to capture the effect of availability of diversified menu of financial instruments for investors, the role of financial intermediaries in provisions of long-run financing of investment projects and the impact of competition from the financial intermediation on stock market development (Naceur, et al., 2007; Valeriano and Lin, 1999).

Inflation is included to capture the level of macroeconomic stability. High inflation can lead to uncertainty about the future profitability of investment projects. This is especially true if the high inflation is also associated with increased price variability. The effect is more conservative investment strategies than would otherwise be the case, ultimately leading to lower levels of investment (Misati and Nyamongo, 2011). Inflation erodes investment returns, thus most companies will hold on expansions which will dampen activity in the stock market. It also depresses disposable incomes of households, which in turn reduces any savings that would otherwise be invested in the stock market. In an inflationary environment, investors therefore rely more on debt instruments since economic agents cannot rely on any stock market price signals given volatility in value and return of financial assets. In this case inflation hurts the ability of the market to screen out agents of heterogeneous productivity and risk because of the noise in the price signaling process thus exacerbating intensity of information asymmetry (Khan, 2004). The a priori sign is therefore negative.

To account for heterogeneity in resource endowments for the countries in the sample, we include a dummy defined as 1 for resource rich countries and 0 otherwise. As pointed out in Billmeier and Massa, (2007), traditionally, rent seeking, slower industrial growth due real exchange rate appreciation (Dutch disease), increased volatility of commodity prices and weakening institutional quality due to the ruling coalition having less incentive to promote industrial growth given the advantages they draw from resource rents are some of the explanations explaining resource curse in the literature. Existing empirical evidence show that a majority of resource dependent countries have low level of financial development, (Shahbaz et al., 2017; Elhannani, et al., 2016). On the other hand, it is also argued that inward FDI flows are associated with resource seeking and are thus influenced by natural resource endowments with possible positive effects on stock market development, Ezeoha and Cattaneo, (2017). A priori an ambiguous sign is expected between natural resource endowment and stock market development.

## **5.0. Discussion of Results**

In this section we report the results estimated using panel data estimation models. The dependent variable is the stock market capitalization as a ratio of GDP. We estimated four models using FDI and remittances in separate models. The two indicators which capture the effect of capital flows on stock market development are our main variables of interest, which we focus on in analysing our results.

Table 1: The dependent variable is stock market capitalization

Independent variables	Pooled Model (with FDI)	Pooled model (With Remittances)	FE model (with FDI)	FE model (with Remittances)
GDPG	0.072 (2.39)***	0.050 (0.72)	0.028 (0.92)	0.0278(0.46)
Credit to the private sector	0.473 (1.82)*	1.778(2.17)**	0.902 (1.62)	0.861(1.024)
CPI	-0.200 (-1.92)**	-0.389(-1.88)*	-0.286 (-1.83)*	-0.296(-1.42)
FLIB	0.394 (5.16)***	-0.0001(-0.014)	0.350 (2.56)***	-0.001(1.27)
Inflation	-0.025 (-1.13)	-0.064(-0.74)	-0.024 (-1.34)	-0.009(-1.14)
GDS	0.033 (2.45)***	0.092(2.17)**	0.027 (1.74)*	0.0113(2.95)***
FDI	0.001 (7.73)***		0.001 (6.78)***	
Remittances		-0.383(-4.65)***		-0.427(-6.07)***

For all the coefficients the t-statistics are in parenthesis; \*, \*\*, \*\*\* denote 10%, 5% and 1% significance levels, respectively.

In Table 1, column 2 reports the results from the pooled model including foreign direct investment. The results show that FDI positively and significantly explain stock market development. This is consistent with other previous studies (Malik, 2013; Raza et al., 2012; Anokye and Tweneboah, 2009). A similar result is observed in column 4 where a similar model is estimated but using a FE model.

The estimations based on the FE model indicate that there are period specific conditions that influence stock market development. The results show that the period 1995 to 2007 were characterised by conditions that impeded stock market development while the period 2008-2014 was characterized by conditions that favoured stock market development. During the periods when stock market growth was negative in African economies, there was relative stability in the developed countries compared to African economies, mainly USA and Europe, where large capital flows were flowing towards from the East Asian economies. However, the global



financial crisis of 2007-2009 saw many investors reassess the risk premium in the developed world and since African economies whose financial integration is still limited were relatively insulated from the financial crisis, capital flows relatively increased during this period thus partly explaining why the stock market performance was enhanced during this period. The increasing trends of stock market growth are manifested in South Africa, Tunisia, Botswana, Namibia, and Mauritius.

In column 3, we used the same model but we replaced FDI with remittances. In this case, the coefficient of remittances is negative and highly significant implying that higher levels of remittances deter stock market performance. This is consistent with theories that negatively link remittances and economic growth. In this case it is argued that remittances take place in an environment of asymmetric information where actions of the recipient cannot be directly observed or monitored by the remitter. Remittances are thus subject to agency and moral hazard problems, which is manifested in; reduction of labour force participation by recipients, limit in job searches, reduced labour effort, investment in riskier projects among other unobservable actions. Remittances differ from private capital flows in terms of their motivation and their effects and do not therefore act as a source of capital for investment and growth. Remittance instead substitute for labour income and lower work effort ( see Singh et al., 2011; Chami et al., 2005). It would also be possible that the compensatory role of remittances in form of consumption smoothing dominates the investment role and/or that weak institutional environments deter effective use of remittances including channeling of them to stock market growth.

The coefficient of financial liberalization is positive and highly significant in all the models with FDI . However when FDI is replaced with remittances, the coefficient of financial liberalization loses its significance and instead turns negative. In the literature a dual role of financial liberalization has been identified both theoretically and empirically. In this case, it seems that financial liberalization is sensitive to the variables used in the model. These results are generally mixed. However the significant effect manifests itself positively suggesting that financial liberalization would be a boost to stock market development. This is in line with the proposition that financial liberalization tends to relax borrowing constraints, leading to higher investment including investment through the stock market. They are consistent with the international asset pricing models which predict that liberalization leads to a drop in the cost of equity and debt capital through integration of segmented markets. In addition, better corporate governance and investor protection arising from capital market liberalization promotes financial development (Bekaert et al., 2005; King and Levine, 1993a,b). Further discussions of the growth associated benefits of capital market liberalization are available in Tswamuno et al. (2007).

The coefficient of credit to the private sector has the expected positive sign in all the models but it is only significant in the pooled models. This is consistent with the theories that support complementarity between banking sector development and stock market development (Odhiambo, 2010; Quartey and Gaddah, 2007)

The coefficient of GDP growth is positive as expected but it is significant in only one of the pooled models. This suggests that GDP growth which enhances household and corporate incomes would be generating wealth effects that increase stock market growth. This result corroborates previous studies (See Kemboi and Tarus, 2012; Cherif and Gazdar, 2010). But much weight should not be accorded this result since the coefficient is not significant in three out of four models.

The coefficient of inflation is negative in both the pooled and FE model but it is not significant in any of the models. This implies that, although the findings are consistent with the theory that links the two negatively, the negative effect is not important in explaining stock market performance. This result corroborates previous studies particularly where foreign investors whose incomes and purchasing power is not necessarily sensitive to changes in inflation in domestic economies dominate (Aurangzeb, 2012).

The coefficients of savings and institutional variables are highly significant and bear positive and negative signs, respectively as expected. The high significance of savings underscores the theoretical and practical arguments that higher savings motivate the savers to allocate their funds in diversified portfolio including the stock market. The significance of the corruption perception index representing institutional variables imply that weak institutions discourage investment in the stock market and deter stock market growth.

In Table 2, we estimated similar models described in table 1 but we used a different institutional quality variable and we incorporated a dummy to control for resource rich countries. We used regulatory quality as a measure of institutional quality. The dummy variable is defined as 1 for all countries with strong natural resources and zero otherwise.

Table 2: The dependent variable is stock market capitalization

<i>Independent variables</i>	<i>Pooled Model (with FDI)</i>	<i>Pooled model (With Remittances)</i>	<i>FE model (with FDI)</i>	<i>FE model (with Remittances)</i>
<i>GDPG</i>	0.035 (1.67)*	0.0005(0.017)	0.028 (1.21)	0.037(1.65)*
<i>Credit to the private sector</i>	0.285 (1.76)*	0.905(3.92)***	0.365 (2.09)**	0.258(1.49)
<i>INSTQ</i>	0.049(9.21)***	0.042(7.40)***	0.048 (8.74)***	0.047(8.21)***
<i>FLIB</i>	0.301 (1.92)**	0.318(1.68)*	0.294 (1.66)*	0.389(2.16)**
<i>Inflation</i>	0.005 (0.05)	0.030(1.59)	-0.005 (-0.50)	-0.011(-0.97)
<i>GDS</i>	-5.14E-11(-1.41)	-8.51E-14(-0.75)	1.42E-16 (0.01)	0.007(0.60)
<i>FDI</i>	0.101 (2.25)**		0.096 (1.92)**	
<i>Remittances</i>		0.380(2.85)***		-0.244(-2.01)**
<i>ResourceD</i>	-2.355(-9.25)***	-1.32(-4.40)***	-2.401(-8.94)***	-2.611(-5.82)***

The results remain largely the same as in table 1 with the institutional quality variable highly significant in all the estimated models implying that stronger institutions are an incentive for increased growth and investment including in the stock market. Similar to the results in Table 1, our variables of interest bear the expected signs and are highly significant in all the models. The results show a positive relationship between FDI and stock market consistent with the complementarity theory of FDI on stock market development. Remittances have a negative effect on stock market development implying that the compensatory role of remittances in consumption smoothing would be dominating the investment role.

The dummy for natural resources is negative and significant in all the models considered implying that the resource curse hypothesis is dominant in the countries considered in the sample. The results are consistent with the findings of Ezeoha and Cattaneo, (2017) who found out that the relevance of natural resource endowment as a major driver of FDI and hence investment, including in the stock market in Sub-Saharan Africa has been declining. Rather investors in SSA are more keen on institutional quality than resource endowments. Similar results were also reported by Elhannani et al., (2016).

Table 3: The dependent variable is turnover ratio

<i>Independent variables</i>	<i>Pooled Model (with FDI)</i>	<i>Pooled model (With Remittances)</i>	<i>FE model (with FDI)</i>	<i>FE (with Remittances)</i>
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GDPG	0.012 (0.29)	0.010 (0.31)	0.009 (0.19)	0.028 (0.85)
Credit to the private sector	-0.030 (-2.27)**	-2.013 (-5.77)***	-0.031 (-2.07)**	-0.105 (-8.18)***
CPI	-0.552 (-2.20)**	-0.367 (-3.06)***	-0.531 (-1.89)*	-0.286 (-2.14)**
FLIB	0.214 (2.08)**	0.002 (5.09)***	0.205 (1.82)*	0.006 (8.28)***
Inflation	-0.039 (-1.68)*	-0.002 (-0.13)	-0.032 (-1.22)	-0.119 (-2.64)***
GDS	0.033 (1.36)	0.069 (3.12)***	0.034 (1.27)	0.079 (3.45)***
FDI	-0.001(-3.21)***	-	-0.001 (-3.00)***	
Remittances		0.144 (1.79)*		0.012 (0.14)

For all the coefficients the t-statistics are in parenthesis; \*, \*\*, \*\*\* denote 10%, 5% and 1% significance levels, respectively.

Table 3 presents the results from the pooled and FE effects models but instead of using stock market capitalization as a dependent variable, we use turnover ratio. The results however show conflicting signs to earlier results for remittances and FDI when stock market capitalization was used as the dependent variable. In this case, FDI is negative and highly significant while remittances are positive but largely insignificant. The results imply mixed results depending of the relationship between capital flows and stock market development. The results also suggest that it would be incorrect to make blanket conclusions on such relationships while relying on only one indicator. The results are highly sensitive to the indicator used.

The coefficients of financial liberalization and credit to the private sector are positive and negative, respectively. The interpretation of the financial liberalization is similar to previous paragraphs. However, the coefficient of credit to the private sector is negative and highly significant in this case, contrary to the earlier results when the stock market capitalization was used as the dependant variable. This results suggest that increased credit to the private sector substitutes for stock market development. This result is plausible since most of the banking sector is relatively more developed than the stock markets in most African countries, thus, it is possible that most of the savings are still channeled to banking sector and since the actors would be the same, it limits available savings to be channeled to the stock market. Yartey (2008) found out that very high

levels of banking sector development have a negative impact on growth of stock markets. Stock markets and banks and stock markets tend to substitute each other as financing vehicles. These result also corroborate the works of Kapingura, (2012) and Dey, (2007).

The coefficient of GDP and inflation have the expected positive and negative signs, respectively. However the coefficient of GDP is not significant in any of the models while inflation is highly significant in only one of the models. These results are similar to the ones obtained when stock market capitalization was used as the dependent variable. The results suggest that these two factors are not very important in determining stock market growth. Savings and institutional variables are important in explaining stock market growth. The coefficients have the expected positive and negative signs, respectively. The coefficients are also highly significant

#### **4.0. Conclusions and policy implications**

The paper examined the effect of capital flows on stock market growth in Africa. It uses stock market capitalization and turnover ratio as indicators of stock market development and FDI and remittances as indicators of capital flows. We used panel data methodologies and data covering the period 1990 to 2014 for selected African countries.

The results for the relationship between FDI and stock market development are mixed depending on the indicator used. When stock market capitalization is used as the dependant variable, the coefficient of FDI is positive and significant but the sign changes when the turnover ratio is used. This suggests that FDI enhances the size of stock market growth while it deters its efficiency. The coefficient of remittances is also sensitive to the indicator used but it largely has a negative effect on stock market growth underscoring the fact that remittances differ from private capital flows in terms of their motivation and their effects and do not therefore act as a source of capital for investment and growth. The results suggest that the compensatory role of remittances in form of consumption smoothing dominates the investment role and/or that weak institutional environments deter effective use of remittances including channeling of them to stock market growth. The results also indicate that saving and institutional variables are important determinants of stock market development while GDP growth and inflation are not very significant in explaining stock market development.

In terms of policy implications, these results suggest a need for strengthening of institutions in African economies to make them conducive to investment in the stock market; provision of incentives that condition remittances towards productive investment rather than consumption and policies that promote savings mobilization.



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