An analysis of push and pull factors of capital flows in a regional trading bloc

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by

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ABSTRACT

Inflows of Foreign Direct Investment (FDI) and Foreign Portfolio Investment (FPI) into Sub Saharan Africa (SSA) between 2000 and 2014 remained a minute fraction (at only 2% and 1% respectively) of global inflows. This study seeks to explain this phenomenon by examining the push (global) and pull (domestic) factors that may help to explain inflows of FDI and FPI in SSA and the mechanisms through which these factors affect inflows (the how). As ongoing regional integration efforts in Africa through trading blocs, the study also discusses the role of regional trading blocs in explaining capital flows into SSA. In the process, the research challenges some of the established theories and contributes to policy for managing international capital inflows.

The study identifies possible explanatory variables from existing theory and empirical studies. Data on possible determinants of FDI and FPI is largely extracted from the World Bank and IMF databases. The determinants considered are macro-economic, infrastructural, institutional, resource endowment and geographical related. These are modeled into econometric model of FDI and FPI. Several hypotheses on the possible determinants are then tested using panel regressions with random effects. The results indicate that SSA's FDI during the period reviewed is mainly pulled by macroeconomic dynamics, infrastructure and human resources factors and pushed by global macroeconomic performance. Likewise, FPI is largely pulled by GDP and infrastructure factors. The results further show that FDI and FPI inflows in regional trading blocs of SADC, COMESA and ECOWAS are affected by different risk, return, macroeconomic, trade and distance factors. The effects of factors such as distance and macroeconomic factors also vary across the regional trading blocs, suggesting their importance of these blocs in capital flows.

Key words: Foreign Direct Investment, Foreign Portfolio investment, capital inflows and push and pull factors.

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GLOSSARY OF TERMS

Term	Definition
Balance of Payment	The net of payments and receipts from a country's international monetary transactions over a specific period.
Emerging Countries	Those countries experiencing rapid economic growth and are progressing towards becoming advanced economies.
GDP	The total monetary value of all goods and services produced in an economy for a specific period.
Foreign Direct Investment	Foreign investment into a domestic firm which gives the foreign investor a controlling stake or influence in the investee firm. The World Bank uses more than 10% as the standard threshold.
Foreign Portfolio Investment	Foreign investments into a country's shares and stocks which gives the foreign investor less than 10% stake of an investee firm.
Interest rate differential	The difference between domestic real interest rates and foreign interest rates.
Openness to trade	The degree to which a country trades with others, calculated as GDP-weighted sum of exports and imports.
Panel data	Observations obtained from multiple countries, over multiple periods of time (years)
Overseas Development Assistance	Also known as development aid, these are capital flows to developing countries from advanced countries comprising grants or concessional loans or both.
Pull factors	Domestic factors that attract foreign capital to a country
Push factors	Foreign or global factors which drive international capital to a country
Regional Trading Bloc	A group of countries in a region agreeing to reduce regional barriers to trade and promote trade and investment into member countries.
Tax differential	The gap between domestic and foreign total tax rate (as percentage of commercial profits)

ACKNOWLEDGEMENT

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1 INTRODCTION

Over the course of the last decade, Foreign Direct Investment (FDI) and Foreign Portfolio Investment (FPI) inflows into Sub-Saharan Africa (SSA) have risen 371% compared to 35% in the rest of the world (IMF, 2014). Give that in most African countries domestic savings lag behind demand for investment finance, the international capital market is an alternative source of finance that can fill this gap (Kabadayi, Emsen and Nisanci, 2012). Foreign capital inflows such as FDI are argued to benefit a country through improving the productive capacity, the balance of payments, tax revenues, knowledge and technology transfers (Asiedu, 2002). On the other hand, FPI can improve the efficiency of a country's financial markets through increased liquidity, technology and knowledge, as well as improved corporate governance (Evans, 2002). As a result, countries and regions around the world have made efforts to attract capital inflows to supplement their domestic savings and boost economic growth and development (Mahembe and Odhiambo, 2013).

Despite the expected benefits, it is increasingly acknowledged that if not carefully managed, foreign capital flows can present huge risks to the stability of the local economy. Experiences from emerging markets show that increasing inflows, especially FPI, can present short-term and medium-term risks to macro-economic stability, due to increased exposure to external dynamics (IMF, 2016). For this reason, a better understanding of the drivers of foreign capital investments is expected to contribute to policy options which are aimed at managing the tradeoffs between the positive and negative impacts of foreign capital flows (Byrne and Fiess, 2011).

Some of the policies aimed at attracting foreign capital by developing countries as those in Sub Saharan Africa include trade policy reforms and privatization (United Nations on Conference and Trade [UNCTAD], 1999:15). Regional integration, as in the case of Southern African Development Community (SADC) is also aimed at boosting capital inflows by for example adopting trade and investment protocols in 1996 and 2006 respectively (Mahembe and Odhiambo 2013:15). In the case of the SADC, the rationale for integration is to boost trade and encourage investment through more openness to trade and capital movement, more integrated markets, greater policy stability and commonality (SADC, 2006). Related to Africa's increased regional integration has been the

improvement in African stock markets, growing from just 11 stock exchanges in 1990 to 22 by 2005 (Francis, Hasan and Ofori 2015:240).

1.1 Characteristics of private capital flows

FDI concerns cross border investments into domestic equities of a magnitude that gives the foreign investor a controlling stake or influence in the investee firm. A standard of more than 10% of ordinary shares is often used as the cut-off point (data.worldbank.org). FDI has also been defined as long term and physical investment (Kabadayi, Emsen and Nisanci, 2012:190). On the other hand, FPI (also commonly referred to as portfolio equity) refers to cross border investments into domestic equity securities (IMF BoP database definition). In this case, the purchase of shares and stocks by foreigners does not give them a controlling stake, and as a benchmark, the foreign investor acquires less than 10% of the stake in a domestic firm. Despite this distinction, both FDI and FPI are equity flows and together with debt flows (bonds, bank lending and suppliers credit) form the largest chunk of private capital flows.

FDI is said to be largely motivated by the need to enjoy firm-specific intangible assets while FPI is viewed as pursuing higher returns to capital (Blomström and Kokko 1997:3). Together, FDI and FPI form the total private capital movements (Kabadayi, Emsen and Nisanci 2012:190). Given this growing share of FDI and FPI, it is important for countries to develop policies that manage these forms of capital flows to their best developmental interests. While FPI has mostly lagged FDI in most of SSA, for countries like South Africa, it is the main source of long-term capital (Aron, Leape and Thomas 2010:2). Therefore, the inclusion of FPI in studies of determinants of capital inflows in the SADC and COMESA can reflect this growing influence of FPI in overall capital flows.

The motivations driving FDI and FPI are different (Kabadayi, Emsen and Nisanci 2012:190). Some of the factors that affect FDI are resources, market size, labour costs, taxes, infrastructure, openness to trade (Gossel and Biekpe, 2015; Kabadayi, Emsen and Nisanci 2012:190; Ranjan and Agrawal, 2011; Asiedu, 2002) while FPI is affected by output, openness to trade, foreign interest rates and performance of stock markets (Gossel and Biekpe, 2015; Aron, Leape and Thomas, 2010; Asiedu, 2002).

1.2 Trends in foreign private capital flows (FDI and FPI)

Over the past fifteen years (2000 to 2014), FDI dominated global net capital inflows with over 1.574 trillion US$ average annual net inflows globally. Coming second was portfolio equity net inflows at 622 billion US$. Official development assistance came a distant third with inflows of 110 billion US$ (IMF BoP data). Further, official development assistance (ODA) inflows showed signs of slowing down, recording the lowest (5%) annual growth relative to both FPI (31%) and FDI (6%) during the period after the 2008/2009 global financial crisis. This near stagnation of ODA implies stagnating capital flows to countries that depend on ODA for economic development, mostly developing countries in Sub Saharan Africa. Overall, World FPI flows have grown at a negative average growth rate of -28% annually over the period under study. As evident in figure 1 below, FPI and FDI fluctuated highly in the 15-year period, with periods of booms punctuated by busts coinciding with the early 2000s recession (commonly called the internet bubble affecting USA, Canada, Europe and others) and the 2008-9 global financial crisis (believed to have started in the USA due to the collapse of the sub-prime mortgages markets and then spreading globally). These fluctuations point to the potential exposure that countries face from an increased reliance on global capital markets, as well as the changing composition of capital towards more FPI.

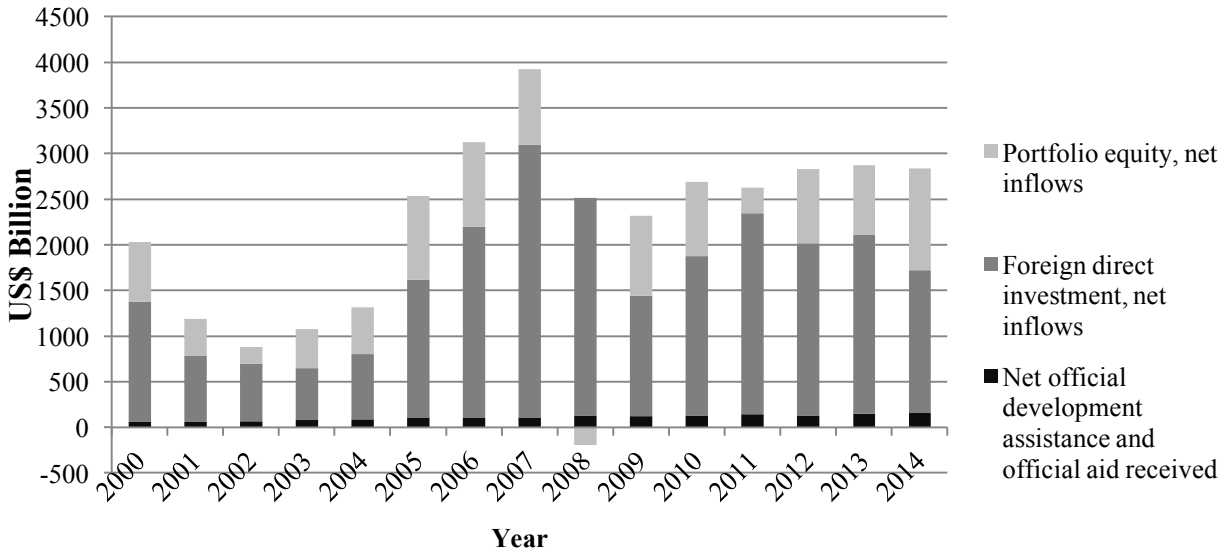

Figure 1. World capital flows 2000 to 2014. Data source: IMF BOP database ((https://data.worldbank.org/)

Between 2000 and 2014, FDI inflows for Sub Saharan Africa grew 584% compared to world total inflows of 18% in absolute figures. Against an FDI world share for Sub Saharan Africa of only 2 % over the period, such a growth rate holds some promise. Further, world FPI grew 70% compared to SSA inflows of only 29%. Sub Saharan Africa may be lagging behind the world, having received less than 1% of the world FPI inflows over the 15-year period under study (IMF database). For this reason, Asiedu (2002) suggested that efforts of most countries in Sub Saharan Africa to attract FDI have failed. Despite this gloomy picture, Sub Saharan Africa appeared to have a comparative advantage with FDI inflows as it registered a 21% average annual growth rate versus a world rate of 8%. Even the annual growth rate of FPI, though negative, was much better than that of the rest of the world (about -2% versus world rate of -28% over the period 2000 to 2014). The picture in figure 1 suggests volatility of flows to SSA which may be characterized by sudden surges and reversals of flows, posing macroeconomic risks. During the period after 2009, ODA and official assistance in SSA does not show strong growth whereby annual growth slows down to 5% after 2009 compared to an average of 16% during the period before 2008.

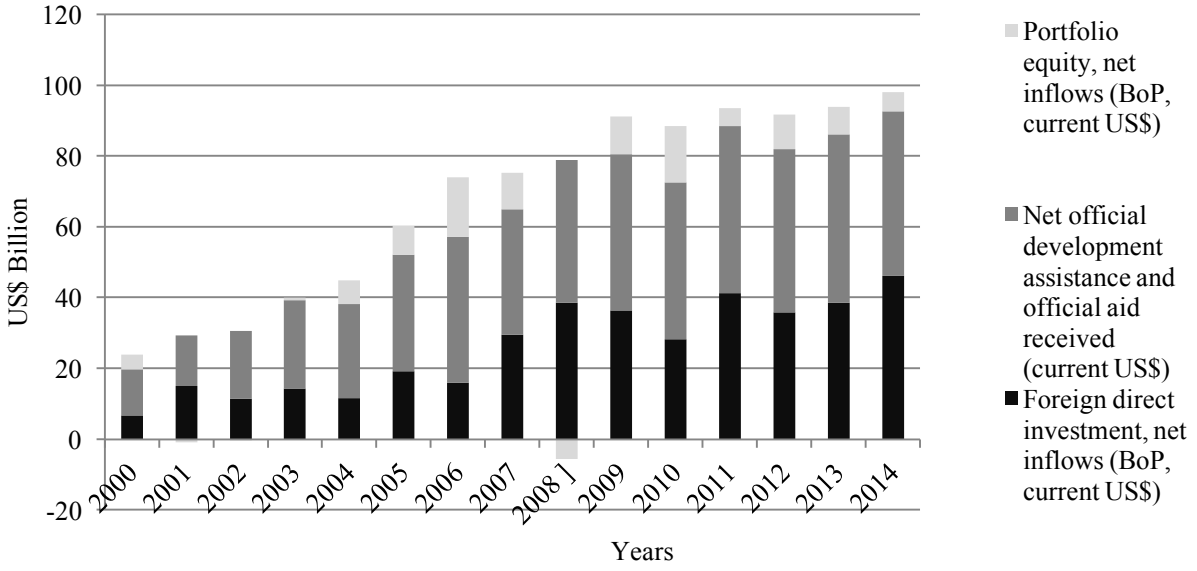

Figure 2. Capital flows to Sub-Saharan Africa. Data source: IMF BOP database ((https://data.worldbank.org/)

1.4 Problem definition

Between 2000 and 2014, private capital flows to Sub Saharan Africa grew at a rate that was dramatically faster than that of the rest of the world. During the period, FDI and FPI grew by 371% compared to a global average of 35% (World Bank, 2014). However, despite such rapid growth, FDI and FPI inflows to Sub-Saharan Africa only accounted for 2% of global FDI flows and 1% of global FPI flows (World Bank, 2014).

The small fraction of global capital flows to Sub Saharan Africa is against a huge gap between domestic savings and investment finance demand. Foreign capital inflows are believed to have capacity to accelerate growth by providing necessary capital for business growth, savings mobilization, and influence conduct of corporate sector, and efficiency of capital allocation among others (Asiedu 2002:107; Moss, Ramachandran and Standley 2007:3). The question then is why has observed private capital inflows to Sub-Saharan Africa remained as at such paltry proportions of global capital inflows over the period 2000 to 2014? (World Bank data, 2014). Solow (1956) advances the proposition that capital has various levels of responsiveness to real returns to capital, implying the presence of alternative explanations for global capital flows. In the process, observed capital flows have not always followed theory. For example, the prediction of the neoclassical theory has been violated in practice (Lucas 1990, Alfaro, Kalemli-Ozcan and Volosovych, 2008). In the ensuing debate, many factors have been advanced. Lucas (1990) and Lipsey (2000), some of the leading researchers in the area, argue that differentials in information asymmetries, quality of human capital, institutions and infrastructure, as well as GDP and taxes could also determine capital flows.

Despite a long-standing interest in the pattern, composition and impact of international capital flows, very few studies have dwelled on the drivers of both FDI and FPI in Sub Saharan Africa, and the impact of regional trading blocs. At a global level, a surge in FPI to some developing countries observed since the early 2000s have raised debate about the risks to capital accounts, like those witnessed in emerging countries in the early 1990s. In that regard, an understanding of the factors driving different forms capital can inform efforts by Sub Saharan Africa countries to attract and manage capital to the benefit of their economies.

Among some of the new potential factors of capital flows is regional integration, but the success of regional blocs in attracting capital inflows is still unclear (Mahembe and Odhiambo, 2013:36), despite the increasing trend of regional integration alongside liberalization of capital accounts (Misati, Ighodaro and Were *et al*, 2015). The interpretation of the classical Heckscher-Ohlin-Mundell model by Antra`s and Caballero (2009) leads to the conclusion that trade and capital flows should substitute each other. This implies that the twin objectives of increasing trade and investment by Sub Saharan Africa regional trading blocs such as SADC, COMESA and ECOWAS can't be achieved at the same time. But Antra's and Caballero (2009) goes on to goes on to argue that trade integration increases return to capital, which can attract foreign capital. Experiences from the European union and North American Free Trade Agreement also suggest that regional integration can facilitate investment flows into member states.

Hence, the purpose of this research is to investigate the push and pull factors that explain the FDI and FPI flows to Sub Saharan Africa over the period from 2000 to 2014 with a focus on the effect of regional trading blocs such as SADC, COMESA and ECOWAS.

1.5 Purpose and significance of the research

Private capital flows are considered to play an important economic purpose. Besides contributing to domestic demand for capital investment, foreign capital can also improve technology, management and employment (Asiedu, 2002). However, international capital inflows can present challenges to macroeconomic management due to risks paused by global booms and bust cycles (IMF, 2016). Policy challenges can also include the loss of monetary control mainly through the exchange rate, balance of payment account and inflationary pressures (Fernandez-Arias & Montiel 1996:57). To perform the dual purpose of attracting foreign capital while mitigating their negative effects, policy mechanisms to manage both the domestic factors and influence global factors are necessary. Authors like Brana and Lahet (2008:3) took the view that a push and pull framework implies that push factors could be managed by sound domestic policies while push factors imply vulnerability to global economic developments. However, recent literature argues that even for push factors, domestic macroeconomic, financial and exchange rate policies can be useful tools to re-configure and stabilize inflows (Gossel and Biekpe, 2015; Kim, 2000; Montiel and Reinhart,

1999). Therefore, understanding the drivers of capital inflows for Sub Saharan Africa, as well as the mechanisms through which they impact flows can contribute towards improving policies.

Furthermore, unlike most researches on private capital flows to Sub-Saharan Africa, which largely focus on FDI, this study considers both FDI and FPI to take account of the changing nature of total private capital flows (Evans 2002:8)[1]. In addition, the current study pays attention to the effect of regional trading blocs which are SADC, COMESA and ECOWAS. Many studies show that both country and regional specific factors can shape the effect of push and pull factors of capital flows (Chuhan et al, 1998; Jeanneau and Micu, 2002; Jevcack et al., 2010; Gossel and Biekpe, 2015). In addition, regional trading blocs also have institutional as well as political roles (Darku and Appau, 2015:44). Understanding their effect on capital inflows of capital could be crucial in optimizing their role.

1.6 Research Questions and Scope

This study seeks to answer the following primary research question:

> *Which push-pull factors most significantly explain the FDI and FPI inflows to the Sub-Saharan African region?*

In addition to the primary research question, the following related sub-questions are explored:

i. How do the effects of the push and pull factors of private capital inflows differ between the three regional blocs of SADC, COMESA and ECOWAS member countries?
ii. What are plausible explanations for the mechanisms through which significant push and pull factors affect private capital inflows?

1.7 Study objectives

The main aim of this research is to explain the flows of FDI and FPI flows to Sub-Saharan Africa and into regional trade blocs of SADC, COMESA and ECOWAS. This is to be accomplished by meeting the following objectives of the study:

i. To identify the determinants of FDI and FPI inflows to selected Sub-Saharan African countries.
ii. To describe the mechanisms by which identified determinants affect FDI and FPI inflows into Sub-Saharan African countries.

[1] South Africa for example relies on FPI inflows to fund its current account deficit (Gossel and Biekpe 2015 pp.12).

iii. To discuss possible variations in the determinants of FDI and FPI between three regional blocs of SADC, COMESA and ECOWAS.

1.8 Research Assumptions

It is assumed that the United States of America is a suitable proxy for the global economy. While it could be argued that the rise of China could limit this assumption, in the context of this study, this is not expected to have a significant effect as China is also beholden to global business cycles.

This study also assumes that discrepancies in accounting for cross border production and ownership that Lipsey (2000) raises regarding balance of payment (BoP) data do not affect the results and model estimation as focus is on net inflows not net flows. This is because discrepancies that are ascribed to the use of BoP data (as in the case of 1998 data reported by IMF in 1999) pertain to the differences between inflows and outflows. Instead, the benefits of utilizing BoP data which is readily available for many countries and many years compared to direct investment activity far out-weigh the concerns.

Further, one of the limiting factors to the study of FPI is lack of data. Most countries in Sub Saharan Africa do not yet have stock exchanges, while data collection is not on a regular basis. This study relies on World Bank's database. Although there are huge gaps in FPI data for many countries, the study tries to maximize on the most recent periods (2000 to 2014) which happen to have the largest data available. The analyses from this data are assumed to provide adequate insights which can lead to plausible conclusions regarding the research questions.

1.9 Research limitations

The major constraint for this research was availability of data for some variables, key among them being FPI, domestic stock market returns, infrastructure, rates of taxes, exports and imports and fixed and mobile phone subscriptions. Despite focusing the selection of variables in the periods where most data could be found, there remained gaps in data which compromised running of regressions. For instance, the number of variables in the Sub-Saharan Africa FDI and FPI models had to be limited for E-view (the econometric package used for analysis) to accept running the models.

The problem of limited observations was further compounded by the non-stationarity as well as lack of normality of some observations. This is because first differencing reduced the data further, while taking logs for some negative numbers also led to the same effect. To limit the effect of taking logs, some variables were transformed by a constant to make them positive. The transformation improved the stability of the regression coefficients in the model.

Gaps in data further rendered some variables redundant (for example domestic stock market returns) and not usable in the regression due to insufficient observations, which could have reduced the explanatory power of the models. As mentioned in the preceding section, to limit the effect of attrition of observations due to various causes, variables were not discarded completely but were kept for use in other tests where they might be relevant. The resulting process was an iterative one. Further, despite E-views student version being affordable, it was limited with regards to storage capacity and lack of some important tests such as heteroscedasticity tests, which subsequently could not be performed.

2 THE ROLE OF REGIONAL BLOCS

2.1 Introduction

Regional groupings have been increasing alongside liberalization of capital accounts (Misati, *et al*., 2015) and this is also the case for Africa, which by 2007 had 13 trade and monetary regional blocs. According to Blomström and Kokko (1997) regional integration concerns reducing trade barriers and restrictions on investment. Investment could be intra-regional or international. The classical Heckscher-Ohlin-Mundell (Antra's and Caballero, 2009) model suggests that trade and capital flows substitute each other, meaning that regional integration can reduce investment by increasing trade. However, empirically, trade integration is found to increase returns to capital and thus attract capital inflows to the integrating region (Antra`s and Caballero 2009).

In Sub-Saharan Africa, the largest regional blocs cooperating under a regional trading agreement (RTA) are the Common Market for East and Southern Africa (COMESA) and the Southern African Development Community (SADC) and Economic Community of West African States (ECOWAS). Beyond potentially enhancing trade and enlarging the market, trading blocs oftentimes include investment promotion and institutional frameworks that potentially open-up capital mobility and lower risk for member countries.

2.2 The regional blocs in Sub-Saharan Africa

Common Market for East and Southern Africa (COMESA)

COMESA was formed in 1994, replacing a preferential trade area that was formed in 1981. At formation, COMESA had 21 member states and currently has 19 members (COMESA, 2016). The aim of the reconstituted grouping was to create a larger common market and reduce barriers for intra-regional trade. A common external tariff regime was adopted in 2009 while a Regional Investment Agency was formed in 2006 "to make COMESA one of the major destinations for regional and international investors" (COMESA, 2016). The COMESA region recorded the highest growth of 494% (with a year-on-year average annual rate of growth of 15%) in intra-regional exports worth 5 billion US$ between 2000 and 2014. Trade with the world grew at a much slower rate of 211% over the period as shown in table 1 below.

Table 1. Average annual growth rates of intra and extra-regional trade 2000-2014.

	Intra-COMESA exports	COMESA exports to rest of World	Intra-SADC exports	SADC exports to the rest of the world	ECOWAS exports to the rest of the world
Total merchandise exports (US$ billions)	5.004	80.883	15.060	133.503	87.732
Average annual growth rate	15%	11%	10%	12%	12%
Growth rate for period	494%	211%	169%	304%	354%

Source: WTO. www.wto.org. Data on intra-ECOWAS exports were not available.

Southern African Development Community (SADC)

SADC was founded in 1992, succeeding the Southern African Development Coordination Conference (SADCC), whose focus was political independence rather than trade and investment. A SADC protocol on trade was signed in 1996 for the establishment of a Free Trade Area by 2000. To liberalize trade within the bloc, SADC members harmonized customs classification and clearance procedures at its ports of entry, removed restrictive quotas and duty on most items (SADC 1996). The bloc currently has 15 member states (SADC website), eight of which are also members of the COMESA. In terms of volume, SADC intra-regional trade is far and away higher than that of COMESA by more than 10 billion US$. However, intra-regional exports grew at slower pace (169%) to that of COMESA (494%).

Economic Community of West African States (ECOWAS)

Located in the West African region, ECOWAS was established in 1975. Membership currently consists of 15 member states. The regional body was formed to promote trade based on economic cooperation. In 2005, ECOWAS signed a trade and investment framework agreement (TIFA) with the United States of America (UNCTAD, 2015). Over the 15 years from 2000 to 2014, ECOWAS grew its exports with the rest of the world by 354% which is higher than SADC and COMESA. Average annual growth rate of export to the rest of the world was 12%.

The members of the three regional blocs as well a one trading bloc non-member country included in this study are presented in table 2.

Table 2. Countries and regional blocs included in this study

Regional bloc	SADC	COMESA	ECOWAS	Other	Total
Member countries	SADC member countries included in the sample are Botswana, Lesotho, Malawi, Mauritius, Mozambique, Namibia, South Africa, Swaziland, Tanzania and Zambia.	COMESA member countries included in the sample are Kenya, Mauritius, Malawi, Sudan, Seychelles, Tanzania, Uganda, Swaziland and Zambia.	ECOWAS countries are Benin, Burkina Faso, Cote d'Ivoire, Niger, Mali, Senegal and Togo	Other refers to Cameroon which does not belong to the selected regional blocs.	
Sample	10	9	7	1	21

Six countries are common between SADC and COMESA which are Botswana, Mauritius, Malawi, Swaziland, Tanzania and Zambia.

2.3 Trends in capital flows in Sub-Saharan Africa by regional bloc

All three regional blocs (SADC, COMESA and ECOWAS) experienced negative average annual growth rate in exports during 2002 and 2009 owing to recessions originating in advanced countries. Average annual growth in exports to the rest of the world was 12% for the three blocs. Coupled with the high levels of export dependence on the rest of the world compared to intra-regional trade, Sub Saharan Africa's regional blocs appear to be highly exposed to global economic and financial cycles. Further, regional trading blocs are morphing into influential institutions for foreign capital flows. In that regard, despite UNCTAD's (2015) observation that at present investment attraction activities happen at national level, regional blocs are already influential frameworks to facilitate investment inflows. This is happening through for example the 2009 COMESA investment agreement, the 2006 SADC investment protocol and Trade and Investment Framework Agreement of ECOWAS. The inflows of capital (FDI and FPI) into the three regional trading blocs of SADC, COMESA and ECOWAS are presented in figures 3 and 4.

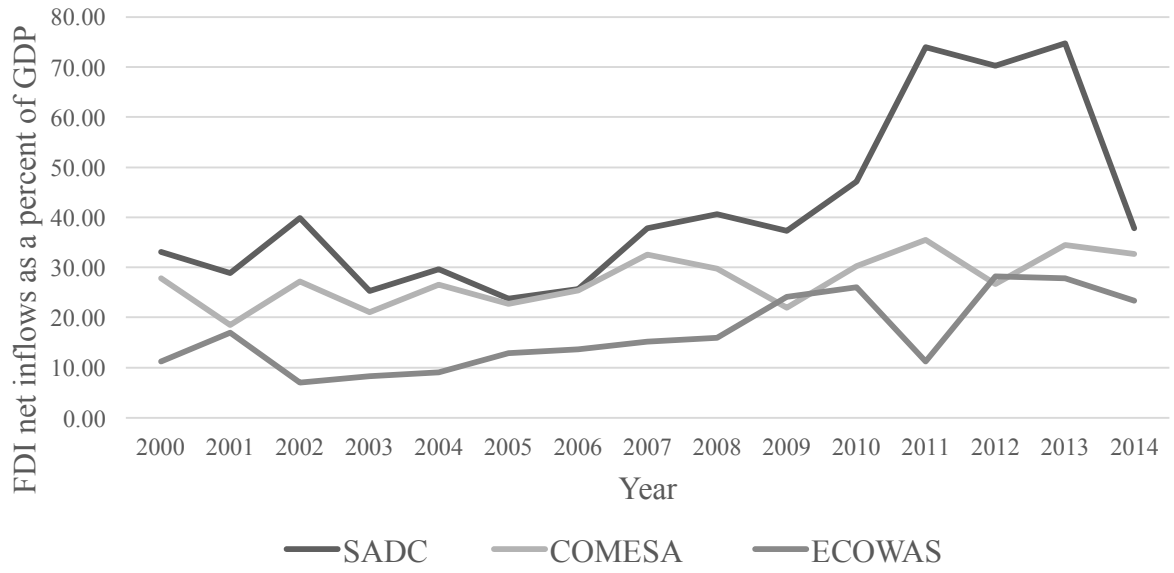

Figure 3. Net FDI inflows by regional trading blocs for selected countries (identified in table 2). Data Source: IMF Balance of Payment Database and author's calculations

From table 3, SADC attracted more FDI compared to other regional blocs while ECOWAS attracted the lowest. There is a somewhat similar pattern of inflows for SADC and COMESA which could be because their memberships intersect. For all regions, major slumps in FDI net inflows occurred around 2000 to 2003, followed by a period of some moderate growth, only to suffer another slump around 2008 to 2009 in the case of SADC and COMESA and for ECOWAS from 2010 to 2011. The slump around 2008 to 2009 coincides with the 2008/2009 global financial crisis, which could have increased investor risk. The earlier slump of around 2000 to 2002 could be associated with the end of what has come to be known as the dot-com bubble around 1999 to 2000. Figure 3 also shows a jump in FDI inflows following the global financial crisis (between 2009 and 2011) followed by a sharp fall in 2013. ECOWAS appears to follow the same trend with SADC and COMESA, but differs in the onset of rises and falls from the other regional blocs.

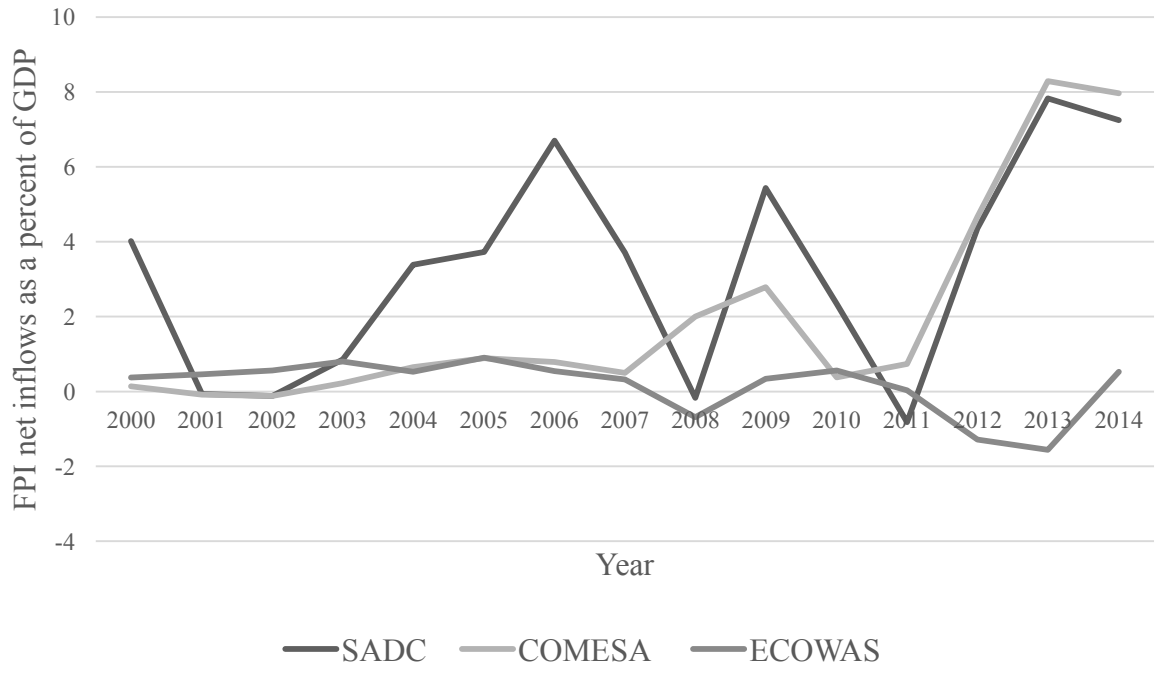

Figure 4. Portfolio equity, net inflows by regional trading bloc for selected countries (identified in table. 2). Source: IMF Balance of Payment Database and author's calculations

The SADC region received significantly higher amounts of FPI than other regional blocs. SADC encompasses South Africa which is a major economy that is highly integrated into global capital markets. It is interesting, however, to note that the trend of FPI inflows for SADC and COMESA (to which South Africa is not a member), are generally the same except 2007 and 2009 when COMESA showed sustained growth while SADC suffered a major slump possibly due to the 2008 global financial crisis of 2008/2009. Both SADC and COMESA experienced major peaks in 2006, 2009 and 2013. ECOWAS on the other hand experienced negative net inflows from 2011 to 2013 when both SADC and COMESA were experiencing exponential growth in FPI inflows.

2.4 An emerging story

The composition of capital flows to Sub-Saharan Africa is still dominated by ODA (18% of total capital flows). However, if the global trend (where ODA id only 5% of the total capital flows) is anything to go by, Sub-Saharan Africa might see a decline in ODA flows, replaced by FDI and FPI inflows. This would make it imperative to attract more FDI and FPI. Further, as SADC is widely regarded as the more integrated of the regional blocs, the fact that it receives significantly higher

capital inflows may suggest that regional blocs have some sort of effect on capital flows. To build on this point, the observed growth in FPI inflows into COMESA despite the global financial crisis adds weight to this possibility. Further, the descriptions of FDI and FPI flows to regional trading blocs of SADC, COMESA and ECOWAS appear to suggest a closer and immediate response of FPI with major global economic events than for FDI.

Linked to FDI and FPI inflows could be the trend of trade expansion that was experienced by the three regional trading blocs in this study over the same period (2000 to 2014). Sub-Saharan Africa trade with the world expanded by an average of 12%. The reginal blocs also made efforts to promote investments within member countries as evidenced by investments and trade agreements. This trend continued to increase for example with the COMESA, SADC and the East African Community trading blocs entering a Free Trade Area (World Investment Report, 2014). In this regard, regional blocs elicit attention in the study of foreign capital inflows as they endeavor to facilitate investment, potentially offer enlarged markets, open-up trade, stronger institutions among others.

As trade patterns of the regional trading blocs and Sub Saharan Africa's capital inflows discussed above suggest, these trading blocs are vulnerable to global dynamics. Hence, this study focusses on both global, as well as domestic factors in the investigation of factors that determine capital inflows. Using a push and pull approach, which considers global and domestic factors, and sampling three regional blocs from Sub Saharan Africa, this study is expected to offer new insights into the understanding of factors behind the volume and patterns of cross border capital flows. In this study, push factors are external factors that drive capital towards a recipient country while pull factors are those that attract capital to the domestic/regional economy (Fernandez-Arias and Montiel 1996: 60). Put in other words, push factors are global elements that affect all Sub Saharan African countries while pull factors refer to the "relative attractiveness" of individual countries (IMF, 2011). Hence, the study complements others who have focused on Sub Saharan Africa, with key distinguishing features being a focus on both FDI and FPI, and sampling based on regional trading blocs (SADC, COMESA and ECOWAS). It is believed that a better understanding of the factors that drive capital inflows contributes to the development of an evolving theory of global capital flows as well as inform policy.

3 LITERATURE REVIEW

3.1 Introduction

The review of literature on factors that affect international capital flows has been divided into three sections. The first section reviews the theoretical frameworks that inform the study of international capital flows, specifically focusing on the determinants of FDI and FPI. Then the review of each of FDI and FPI is broken down by developed, emerging and Sub Saharan Africa countries. Finally, the common themes emerging from the literature review section, including a summary of the gaps identified in existing literature tied together in the conclusion.

3.2 Theory of the determinants of capital flows

From a generic economic growth point of view, explanations of capital movements can be traced back to the interpretation of the neoclassical growth models such as Harrod-Domar model (Solow 1956), which posits that labor and capital should be in fixed proportions to achieve equilibrium growth. Of relevance to this study, is a key import of Solow's model that capital is expected to flow from countries with high levels of physical capital and therefore low marginal productivity per unit of capital (developed countries) to those with opposite characteristics (less developed countries). However, Lucas (1990) argued that the neoclassical growth model's implication that capital will be attracted by higher marginal returns to capital and labor in poorer economies until an equilibrium is achieved is inadequate. He reasons that this is because it fails to adequately explain the reality of observed capital flows. While there are observed capital flows from rich to poor countries, which in recent years have been rising, there are high levels of discrepancies (Sardadvar, 2011; The World Bank, 2004). To support this argument Lucas (1990) used the case of India and USA, arguing that although the marginal productivity of capital in India was 58 times that of USA, observed capital flows from USA to India fell far short of what the neoclassical theory could fully account for. Instead, most of the FDI flows take place between developed economies which have narrow differential returns to capital (Lipsey 2000). This phenomenon is referred to as the *Lucas paradox* after Lucas (1990).

Lucas (1990) then offers two explanations for the paradox. First, differentials in human capital says that differential rates of return to capital can be attributed to differences in productivity of labor, if there are no spill-overs of knowledge between two countries. This implies that reducing differences

in human capital can reduce the gap in rate of return to capital between rich and poor countries. Second, capital market imperfections encompassing asymmetric information and political risk, prevent capital from flowing from regions of low to high returns. Therefore, even though high risks would be expected to be compensated for by high returns, factors such as information asymmetries prevent efficient assessment of the risk-return outcome by foreign investors.

3.2.1 FDI

Among the prominent theories of explaining capital flows was by Dunning in the 1970s commonly known as the "eclectic paradigm" or the OLI (Ownership, Location and Internalization). In an improved version of the theory, Dunning (2000) offers explanations on the motivations of Multinational Entities (MNEs) to make cross border investments using the OLI paradigms. The "O" pertains ownership (such as assets and transactions), while the "L" refers to locational benefits (such as natural or created endowments) and lastly the "I" standing for internalization of intermediate product market. This theory however, does not evolve along with the changes in institutional changes that are happening at the MNE level (through new forms of organization) and at national levels. Dunning and Lundan (2008) argue that institutions, which are the "rules of the game" and their enforcement are hard to predict especially for Sub Saharan African countries. According to Dunning and Lundan (2008), the scarcity of foreign investment triggers competition, which in turn creates incentives for countries to develop more efficient institutions to attract capital. Still, outcomes of institutional changes are inherently unpredictable, in addition to resistance to change due to vested interests and presence of informal institutions. Therefore, the OLI model's rigidity fails to account for institutional changes and influences.

3.2.2 FPI

Markowitz's theory of portfolio selection published in the journal of finance marked a turning point in explaining how investors make decisions on the choices of portfolios they invest in. Markowitz (1952) rejected a previously held theory that investors select portfolios to invest to maximise discounted value of future returns. Markowitz (1952) instead advanced a new hypothesis that investors pursue diversification in selecting portfolios to invest in, considering risks to expected returns. The theory emphasizes the necessity to diversify across securities that have lower-covariances among them. Because of this breakthrough in theory, Markowits' theory, summed up

by "expected return- variance of return" rule has guided models that are used in guiding investments.

3.3 Empirical evidence of determinants of capital flows

3.3.1 FDI flows

3.3.1.1 Developed countries

Developed countries are the main source of international capital but also receive substantial foreign capital inflows. It is therefore crucial to review literature on factors that drive inflows to advanced or developed economies. Amongst literature on this topic is Lipsey (2000) who explores the FDI inflows and outflows for 22 developed countries using balance of payment data. The findings show that the size of a country's economy and historically high levels of gross capital formation have a significant but negative effect while trade openness and per capita real incomes are significant and positively related to FDI inflows. High growth rate in per capita real incomes is found to attract FDI only in the short term and less so in the long-term. Lipsey thus concludes that high income countries and those that traded more tended to have more FDI inflows, while countries with high nominal GDPs and historically high gross capital formation attracted less FDI inflows.

In another study, Hara and Razafimahefa (2005) conduct an analysis of the factors affecting the inflows of FDI for Japan using Ordinary Least Squares (OLS) regressions. Contrary to Lipsey (2000), the level of GDP (a measure of the size of a country's economy) was the most significant factor with a ratio of 1:20 for change in GDP and FDI inflows. The paper also adds two factors related to risk which are exchange rate volatility and inflation. They find that high levels of exchange rate volatility discourage FDI inflows, as this increases risk to investors' returns. Low inflation is found to attract FDI inflows, possibly because of foreign investors flocking to buy cheaper assets during recessions and deflation times or due to lower associated risk.

Koojarroenprasit (2013) investigates the factors that determine FDI inflows to Australia for the period 1986 to 2011, following significant fluctuations in FDI for some years. Using an OLS regression, Koojarroenprasit analyzes the effect of market size (GDP) and in addition factor costs (wages), protection (encompassing openness to trade and customs duties), risk (real interest and exchange rates, as well as inflation) and research and development on bilateral FDI flows from USA, the UK and Japan. The study finds the main pull factors to be a larger GDP (in line with

conventional expectation), exchange rate depreciation and lower interest rates. The factors found to discourage FDI inflows were openness to trade and higher corporate tax rates.

As the literature reviewed above suggests, FDI flows between and among the developed world tend to be inconsistent with the theory of capital movement that is based on locational variations in abundance and returns to capital. In summary, size of economy (GDP) is found to be a significant factor despite literature showing inconsistencies. Other factors found to attract FDI were openness to trade, income levels (an indicator of market size), low levels of inflation, depreciated exchange rates and lower interest rates in the domestic market. The factors found to discourage FDI in developed economies are high levels of exchange rate volatility and inflation. Some of these factors are also relevant for emerging countries reviewed in the next section.

3.3.1.2 Emerging markets

Literature on FDI inflows to emerging market countries is important in that the dynamics are expected to differ from those observed among advanced economies due to different economic fundamentals. Bevan and Estrin (2004) investigate the most significant determinants of bilateral flows between eighteen developed countries of the European Union (EU) and eleven emerging countries of the Central and Eastern European Countries (CEEC) over the period 1994 to 2000. Their findings show that the GDP of both source and investee countries are significant and positive factors, thus adding evidence to the importance of GDP in the determination of capital flows. The same study also found that cost per unit of labor in the domestic economy was a significant but negative factor implying that lower costs attracted FDI inflows, contrary to the finding of Lipsey (2000) for developed countries and Koojarroenprasit (2013) in the case of Japanese FDI[2]. Therefore, the underlying factor related to labor costs is returns.

Bevan and Estrin also include geographic distance, which is found to be significant but negatively affecting FDI inflows. This leads to the conclusion that the further a country is from the source of investment, the less the FDI it can attract. This suggests important implications for Sub Saharan Africa which is geographically positioned even further away from main sources of FDI. Another factor investigated by Bevan and Estrin are regional effects. They find that integration in the EU

[2] For Japanese investments in Australia, higher wages in the later is found to attract more FDI and this is explained by Japanese preference for highly skilled labor by Koojarroenprasit (2013).

bloc was an important determinant of FDI inflows to the emerging economies of CEEC. Further evidence to support this finding comes from a study by Blomström and Kokko (1997:1) who find that the North American Free Trade Agreement (NAFTA) had a significant impact on FDI investments in Mexico. They argue that increases in FDI due to membership to a regional bloc is associated with key policy reforms to the investment climate, which tend to be more permanent in the context of a regional bloc than if they are at individual country level.

The positive effect of GDP on FDI is further upheld by Ranjan and Agrawal (2011) who explore the factors of capital flows for the BRIC countries (Brazil, Russia, India and China) over a thirty-five-year period, using panel data estimation method. Their findings confirm the significance of labor cost and openness to trade as identified by Bevan and Estrin (2004) and Lipsey (2000) respectively. Thus, the implication is that countries that have lower levels of infrastructure would be expected to attract less FDI.

A more recent investigation into the factors of FDI inflows to an emerging market economy is by Gossel and Biekpe (2015) which focuses on South Africa for the period 1986 and 2013. The study uses the Vector Error Correction Model to examine several push and pull factors. The investigation finds that the most significant pull factors are domestic output (GDP), followed by domestic treasury bill interest rates and domestic share prices. They interpret the significance of domestic share prices and short-term domestic treasury bills to mean that South Africa's FDI is predominantly of the equity form. They further note that while pull factors are significant in the short-term, the long-term FDI inflows for South Africa are generally pulled by factors related to domestic business cycles (GDP, interest rates and share prices). The implications of these findings are that South Africa's long-term foreign capital inflows are sensitive to domestic output shocks and investment related factors. This leads to a recommendation that the country should focus on those industry and trade measures that attract more FDI inflows to balance the risk associated with the FPI inflows (which are more volatiles than FDI).

Literature on FDI inflows for emerging economies suggests that factors that have a positive effect are domestic GDP, membership of a country to a regional economic bloc, level of openness to trade and infrastructure for recipient country, domestic treasury bill rates and share prices. Those factors

that appear to discourage FDI to emerging economies include costs of labor and distance from investing to investee country. As Gossel and Biekpe (2015) and IMF (2011) conclude, FDI in emerging economies is largely driven by domestic business cycle and prospects than push factors. This is not to ignore the effect of loose monetary policies in advanced economies, a push factor used by IMF (2011) to explain accelerated capital flows to emerging markets. As suggested by literature from emerging economies, smaller economies would be at a disadvantage to attract FDI, implying that the rationale for regional integration (which enlarges the market) is strong. Further, the implications of the above-reviewed literature are that, to attract more FDI, policy options for emerging markets should lead to positive growth rates, low-cost business environment and free trade regimes. However, the policy options towards push factors are not clear from the literature reviewed so far.

3.3.1.3 Sub-Saharan Africa

The Sub Saharan Africa region comprises mainly developing countries. The determinants of FDI inflows for the region cannot be assumed to be like those for advanced and emerging economies reviewed above. Therefore, this section reviews literature on determinants of FDI in Sub Saharan Africa. One study that suggests the unique influences on Sub-Saharan Africa's FDI inflows is Asiedu (2002), who uses a relatively large number (thirty-two) of Sub Saharan African countries and hence the results are more relevant in explaining FDI in Africa than most country-specific studies. Using OLS estimation, Asiedu finds that just being situated in the region (represented by an Africa dummy in the study) has significant and negative effect on FDI inflows (holding other factors constant) whereby African countries receive FDI that is 1.3% below the rest of the developing countries included in Asiedu's research sample.

The finding by Asiedu (2002) are extended to sub-regions of Africa by Nsiah and Wu (2014) who find that regional dummies of East and southern Africa were positive and significant, leading to the conclusion that these sub-regions could undertake reforms that attracted FDI inflows.

Apart from the "regional effect", Asiedu found that while domestic return on investment was a significant factor for the rest of the world, that was not the case for Africa. This leads to the conclusion that Africa may be associated with such high risks even lucrative rates of return on

investment are sometimes rendered insignificant. This effect may be stronger given the nature of most FDI where one cannot easily disinvest even in the face of increasing risks. However, this finding is contrary to that of Nsiah and Wu (2014) who find that return on investment had a positive and significant effect on FDI inflows, after controlling for spatial effects.
Another difference found by Asiedu was that infrastructure is not a significant factor for Sub-Saharan Africa despite being a significant factor for attracting FDI in other developing countries. Asiedu argues that infrastructure is not attractive to foreign direct investors because most FDI investment especially in natural resources is in remote locations, far from developed infrastructure.

Anyanwu (2011) uses OLS and Generalised Linear Model with lagged independent variables to investigate the potential explanatory factors of long-term FDI inflows in Africa for the periods 1980 to 2007. The investigation confirms that like the case for developed and emerging countries, a larger market size (in this case represented by population size) and openness to trade were significant and positive determinants. Anyanwu further finds that GDP is insignificant, which casts doubt on whether GDP size is as important for Sub-Saharan Africa (which have much smaller individual economies) as it is for advanced and emerging economies. Anyanwu argues that GDP may not be an important determinant of FDI for Africa because of a counteracting effect of the cost of doing business. Related to the cost of doing business is infrastructure. Anyanwu found that higher levels of government expenditure positively impacted FDI inflows and argued that this effect is realized through infrastructure developments, thus suggesting that infrastructure may be an important factor to consider, despite the findings by Asiedu (2002) earlier. However, government expenditure is not always in infrastructure as some may be in education (impacting human resources) among others.

From the ensuing discussion, some factors of FDI inflows affect Sub-Saharan Africa differently from the rest of the world. Literature suggests that Sub-Saharan Africa's FDI inflows are impacted by market size, openness to trade and geographic location. Literature also suggests that infrastructure and human resources could have an effect. The regional effect may be more insightful when looked at sub-regional levels as applied by Nsiah and Wu (2014). The significance of some determinants may also need to be viewed from a global (push) and domestic (pull) perspective. By so doing, Asiedu (2004) concludes that although the African continent made strides in improving

infrastructure and policies, the improvements by other regions (in the global economy) were much more competitive than Africa.

The implications for the regional effect is summarized by Asiedu (2002) who argues for Sub-Saharan Africa to further open-up trade and find ways to make investors around the world access as much information on the region as possible by reducing information friction which affects risk perceptions. Further, the literature reviewed suggests that regional blocs may be an important determinant of capital flows. For example, Keho et al (2012:18) in a time-series analysis of ten African countries, finds that investment decisions by investors on FDI investments in Africa often took a regional outlook, depending largely on the "environment of neighboring countries."

3.3.2 FPI flows

3.3.2.1 Developed countries

There are relatively fewer studies on determinants of FPI inflows for developed countries available than other countries. As observed by Egly, Johnk and Liston (2010), most available literature focuses on capital flows from developed countries to developing or emerging countries.

Portes and Rey (2005) used a gravity model with panel data to investigate the factors impacting bilateral international equity capital flows for 14 developed countries in North America, East Asia, Europe, Switzerland and Australia from 1989 to 1996. They find that the most important factor for capital inflows is information asymmetry. Information friction influenced investors' decisions on where to invest. Portes and Rey infer that geography determines information friction and indirectly the flows of assets. This phenomenon is often termed "home bias" where investors tend to invest more in their home country than outside. However, this finding contradicts the theory of risk diversification where investors invest less in a geographically closer country as it tends to have closely correlated business cycles with the home country. This leaves a gap in theory and observed flows.

The "home bias" theory is applied by De Santis and Lührmann (2009) to analyze factors affecting international portfolio flows in the Organization for Economic Cooperation and Development (OECD) countries between 1970 and 2003. The research explores channels through which the contradictions between the risk diversification motives of investors under the portfolio theory of

investment and the "home bias" theory is addressed. The study finds population age to be a significant factor (of portfolio flows) for other countries included in the analysis but insignificant for OECD countries. Their interpretation of this finding is that due to general homogeneity of OECD countries, which is characterized by aging populations, older investors tend to engage in portfolio rebalancing (shifting from risky foreign investments towards less risky domestic assets). This reduces investment towards global fixed income assets, despite the potential for risk diversification benefits for OECD countries. The implication therefore is that from a push-pull view point, countries or regions with predominantly aging populations are less likely to push more PFI to Sub Saharan Africa.

Kristin (2008) investigates the factors behind foreign inflows into USA portfolio equities using a cross sectional time series Feasible GLS estimation technique. The study finds that despite investors earning less returns to their investments from USA's portfolios relative to their home countries, push factors including levels of bilateral trade with the USA and corporate governance as well as pull factors in form of relatively higher returns in the equities market drove capital to USA. Kristin's study therefore implies that high levels of trade and low levels of corporate governance (a risk factor) push capital to developed countries while higher returns in the equities markets attracts foreign capital to advanced economies.

The USA stock market performance is further investigated by Egly, Johnk and Liston (2010) for the period 1977 to 2007. Using a VAR model, the results indicate that improved stock market performance in the USA encourages net inflows of investments in stocks while risk aversion increases net inflows in USA corporate bonds. This finding adds weight to the push-pull effects of relative risk and stock market performances in the analysis of FPI flows. Egly Johnk and Liston (2010) however suggest that further research with an expanded set of factors is required to reduce the impact of omitted variables.

Thus, in summary, available literature suggests that important push factors for FPI inflows into advanced economies include geography (through its effect on information asymmetry), population ages, trade and corporate governance. The most important pull factors are equity market returns

and riskiness of assets. However, the trade-off between market returns and risk can be explored further by looking at the dynamics for emerging markets in the next section.

3.3.2.2 Emerging markets

Emerging markets are among the most studied in the literature of global financial flows due the magnitude and cyclical pattern of capital inflows in recent times. The motivation for investigating determinants of capital inflows to emerging markets has largely been aimed at better understanding its evolution and effects to find ways to manage its negative consequences (Bonizi 2013:2). Most authors reviewed distinguish between domestic and global factors in their analyses.

Mody, Taylor and Kim (2001) use a push and pull framework with a vector error correction model to determine the fundamentals behind capital flows to 32 emerging countries for the period 1990 to 2000. Driving the study was the search for an empirically manageable framework grounded in theory to forecast international capital flows. Their findings show that domestic factors such as lower risk ratings (using credit ratings), higher stock prices and stability of inflation have more positive impact on capital inflows to emerging countries than the push factors such as lower interest rates and lower GDP growth rate of the USA. The implications of Mody et al.'s findings are that emerging market capital inflows are a result of domestic investment opportunities and risk levels, as well as global economic performance.

The role of the global interest rates was confirmed by Bryne and Fiess (2011) who finds that United States long-term real interest rate is an important push factor in a study of 78 emerging and developing countries for capital inflows over 1993 to 2009. Uncommon to other studies reviewed, they also find human capital as an enabling factor. The implications from this finding is that countries with a better labor quality are better able to capture the waves of global capital flows than those with lower quality.

Literature in this section emphasizes the important role of both push and pull factors on FPI flows. It appears that capital flows to emerging countries follow the neoclassical motivations of capital movement in search of better returns from emerging market assets. However, for emerging market

countries to capitalize on this advantage emanating from high economic growth rates, factors such as exchange rate risk, inflation and sovereign ratings require prudent management.

3.3.2.3 Sub-Saharan Africa

While it is important to review literature on FPI flows in developed and emerging countries, most of Sub-Saharan Africa is made up of frontier economies that are characterized by lower market sizes and unstable economic fundamentals. Literature on Sub-Saharan Africa's FPI inflows is useful to shed more light on the African region's most important factors. This section reviews literature on capital flows in Sub Saharan Africa.

Nielsen and Bjørnskov (2012) use panel data analysis to investigate various factors on Sub-Saharan Africa FPI inflows. They use linear regression to analyze factors for FPI inflows for 29 African countries over the period from 1996 to 2010. The results show that the most significant and positive factors are regulatory quality (in the areas of investment and level of risk), control of corruption (also a risk factor), financial market openness, size of market and infrastructure (represented by mobile phones subscription). On the other hand, tax burden is found to have a negative effect on FPI. The study further discovers an over-investment in South Africa at the expense of investment in the neighboring countries at a time when these other countries were performing better in terms of GDP growth rates than South Africa. This inconsistency leads Nielsen and Bjørnskov to conclude that investors developed too much confidence in South Africa to the extent that they did not see opportunities in other well performing economies in the region. The study of Nielsen and Bjørnskov complements earlier findings by Alfaro, Kalemli-Oczan and Volosovych (2008) who tested empirically the alternative hypotheses advanced by Lucas (1990), and found that protection of property rights, low levels of corruption, among other risk-reducing factors, are the most important factors for attracting foreign capital inflows into a country. Therefore, both studies seem to uphold the institutional proposition which Lucas (1990) called 'country risk'.

An earlier country level study by Ekeocha et al (2008) models the long-term determinants of FPI inflows for Nigeria, over a 20-year period (1986-2006) using an error correction model. They find a positive effect of capital market rates of return on FPI, adding to the risk-based determinants of FPI in Sub-Saharan Africa. The study goes further to confirm the important positive role of

domestic GDP growth rate, real interest rates and institutional quality on FPI for Nigeria in the long-term. However, contrary to conventional expectations, they find a negative relationship between trade openness and FPI flows.

Chi-Chi et al. (2015) investigate the impact of banking sector development on FPI inflows for South Africa and Nigeria using the Vector Auto Regression model with data from 1980 to 2013. Among the most important factors found to be significant were interest rates which were positively associated with higher levels of FPI inflows. Therefore, they conclude that governments can manage interest rates to encourage capital inflows.

Gossel and Biekpe (2015) examine the push and pull factors of capital inflows for South Africa over the period 1986 to 2013 using Vector Error Correction models. Their results show that in both the short and long-term, push factors determine FPI flows to South Africa. The most important factors impacting FPI flows in the long-term is domestic and foreign output and in line with Chi-Chi et al (2015), domestic and foreign interest rates, while domestic stock market performance was found to be only significant in the short term.

This review of literature on FPI determinants for Sub-Saharan Africa suggest that the important factors are related to market size (including domestic and foreign GDP), risk (such as property rights and institutional quality), and return factors (such as interest rates and stock market performance and tax). The finding on foreign output adds weight to the susceptibility of FPI to foreign business cycles. For this reason, Gossel and Biekpe (2015) argue that a country that relies on PFI to fund current account deficits such as South Africa is at risk of external business cycles, because FPI is more pushed than pulled. The policy implications suggested by various authors vary from those meant to reconstitute the composition of capital flows to reduce dependency on FPI (Gossel and Biekpe, 2015), increased liberalization of financial markets and capital market reforms (Ekeocha et al, 2008), investor protection or risk reduction (Nielsen and Bjørnskov, 2012) and interest rate management (Chichi et al, 2015).

3.4 Conclusion

Early theoretical explanations of global capital flows relied on the neoclassical models such as the modification by Solow (1956) where capital moves in search of higher productivity. However,

Lucas's Paradox disputes this sole explanation, instead offering alternatives such as capital market imperfections, risk and human capital factors (Lucas, 1990). Yet Dunning's OLI paradigm for FDI also falls short as a theory due to its inability to respond to institutional changes that are redefining global capital flows.

Using a push and pull lens to analyze existing literature on FDI and FPI flows, empirical literature review in this section was aimed at explaining gaps in theory. Among some of the leading pull determinants of capital inflows are macro-economic fundamentals and prospects for economic growth, while push factors mainly pertain the loosening of monetary policies by advanced economies (IMF, 2011). Various literature reviewed identified specific push factors that include domestic market size and growth rate, openness to trade, inflation, exchange rates, interest rate, geographical location, human resources and institutional quality. IMF (2011) summarises the main pull factors as including size of the market, institutional quality, stability of the economy, openness to trade and expected growth. Literature reviewed identified push factors with potential applications to the analysis of Sub-Saharan Africa which include international macro-economic performance, interest rates and stock market returns. However, a gap in literature pertains inconsistencies in the relationships between these factors and capital flows, and the lack of studies exploring regional effects.

4 METHODOLOGY

4.1 Introduction

This section presents the approach used in the study to identify and collect data, sampling, econometric modeling and model estimation techniques used into to conduct the empirical analysis. The approach adopted for this study is panel estimation, which exploits the advantages of both the cross sectional and time series characteristics. The variables have been identified from the literature review section and are further described and specified in the form of instrumental variables. The data collection and treatment is also described. A general econometric model is specified and alternative estimation methods including the fixed and random effects models are assessed.

4.2 Data issues

4.2.1 Data type and sources

The current study utilizes panel data, which Hsiao (2007) defines as time series observations for several individuals or a pool of longitudinal observations. Literature demonstrates a wide reliance on cross-country panel data regression estimation for analyzing determinants of FDI and FPI.[3] In this case, data on the FDI and FPI (dependent variables) and the independent variables specified above will be collected by country over a 15-year period (2000 to 2014) which coincides with a period of surging portfolio investments in low income developing economies' assets on the back of stronger macro-economic performance, juxtaposed with low interest rates in advanced economies (IMF, 2016). By opting for panel data, the study takes advantage of heterogeneity of Cross-sectional and series analysis (Greene, 2003).

Advantages of panel data:

Hsiao (2007:3) points out that the advantages of panel data come from combining the cross-sectional and time series dynamics of data. The first advantage of panel data is improved accuracy which comes from more degrees of freedom as well as sample variability, thus increasing the efficiency of the parameters. Second, Greene (2003) regards the possibility for modeling cross-

[3] These include Kabadayi, Emsen and Nisanci (2012 pp.194), Alfaro, Kalemli-Ozcan, and Volosovych (2005), Mkenda and Mkenda (2000), Ross (2015), Anyanwu (2011) and Nsiah and Wu (2014).

individual heterogeneity as the fundamental advantage of panel datasets over either time or cross-sectional sets.

The third key advantage is the ability to control for the effect of missing variables. Here, Hsiao (2007:5) argues that omitted variables can influence the observed effects of model variables, if the two are correlated. Hence the combination of intertemporal and individual variability helps to control the impact of omitted variability. Baltagi (2013) concludes that this variability of panel data deals with the problem of multicollinearity.

Fourth, Hsiao (2007) asserts that the use of multi-country observations allows researchers to make more insightful inference into individual country's behavioral dynamics. In the current study, it is expected that it is possible to for instance to infer into the effect of membership to a regional bloc by holding the individual characteristics constant to observe changes in effects of factors across regional blocs. Baltagi (2013) adds that macro panel data with longer time series does not suffer from non-standard distributions which are found in root tests of time series data. The selection of panel data over either time series or cross-sectional data or others was motivated by these advantages.

However, panel data comes with some disadvantages as well. First, panel data is costly to collect. In response, this study will rely on already available panel data from secondary sources mainly IMF and World Bank, among others. Therefore, there will be no additional costs of data collection. Second, Baltagi (2013) observes that among the challenges of panel data is missing data points which often are a result of lack of continuous time series data for some countries. This is especially true for FPI data. Even where balanced panels exist, Baltagi warns that failure to account for cross-sectional dependence can lead to invalid or inconsistent inferences. For this reason, cross sectional correlation will be tested.

4.2.2 Data collection and sampling

Data collection

This study utilizes secondary data which is obtained from the World Bank and the IMF (www.imf.org) online data sources. The World Bank is regarded as a great source of data, so is the

IMF (Baltagi 2013). Trade (exports and imports) data is obtained from World Trade Organization (www.wto.org). The national annualized FDI and FPI net inflows, as well as macroeconomic variables will be extracted from the World Bank Development Indicators database, which also includes IMF data. Data on membership to SADC, COMESA and ECOWAS regional groupings will be sourced from the websites of the regional blocs. Lastly, data on distances between capitals or source countries of foreign capital inflows (for this study proxied by the United States of America) and those of Sub Saharan Africa countries included in the study will be sourced from Geodistance (www.cepii.fr). Geodistance is a source of comprehensive set of gravity-related variables often used in trade and market access studies developed by Mayer and Zignago (2011). Geodistance measures distance between the biggest economic centre in a country, which means that measurement is not always based on the capital city. Mayer and Zignago use city level data that considers population distribution in the country, and where distance between two countries is based on distance between the biggest cities in each country, weighted by proportion of the city to country population. This is to reduce the bias induced by border effects. This study will use modifications to the econometric models recommended by Greene (2003:293) who recommends use of unbalanced panels due to missing data points.

The advantages of utilizing secondary data include economy in time and resources and feasibility. Baltagi (2013) listed numerous sources of credible panel data which are easily accessible for research, including the World Bank and the IMF sources.

However, there are disadvantages that come along use of secondary sources for research. These include lack of control over the data collection, which takes away the researcher's ability to influence the accuracy of the data. However, for this study, the main sources of data are assumed to have high quality data, which address the research questions of the current study. The researcher is cognizant of the changes in data standards and definitions such as the IMF's data from 2005 onwards which was defined according to the 6th edition the institution's Balance of Payments Manual, which necessitates either adjustment for comparability or segmentation of the time series.

Sampling

The ideal sampling frame for this study would have been all 50 Sub-Saharan African countries. However, due to lack of data for some countries, the study shall select those countries for which data on required variables exist. Therefore, the current study relies on convenience sampling which is a non-probability sampling method. Other authors as Alfaro, Kalemli-Oczan and Volosovych (2008:252) used the same approach, when constrained by availability of data. However, the potential source of bias for this approach is for example the possibility that low income countries are less likely to be able to have data on capital inflows and other variables which renders them ineligible for this study. The biggest implication of the non-probability sampling adopted here is that the results of the study will not be generalizable.

There are two main categories of samples which are tailor-made to address the research questions of this study, maintain validity of results as well as respond to the practicalities of data availability.

1. The Sub-Saharan Africa sample (21 countries)
2. The regional samples (comprising SADC, COMESA and ECOWAS countries for which data on main variables is available)

With a time-series period of a maximum of 15 years, and cross section of 21 countries, the maximum observations should be 315 per variable. There are inevitably gaps in data from the sources identified above.

For both dependent and independent variables, some data cleaning is undertaken to avoid the influence of outliers. This includes transforming some variables into log linear form. Variables are labeled appropriately as defined in the general model above. Observations that are outliers and may affect parametric statistics and bias analyses are cross-checked with other sources to ascertain their authenticity before deciding to drop them. Dropped outliers have been noted in the results presentation, together with inference into any meaning they may represent. The identification process of outliers is aided by scatter and box plots. With the box plots, extreme boundaries are defined to serve as rejection criteria. In terms of structuring, data rows corresponding to specific countries and time periods are arranged as stacks and ready for importation into the analysis

package. Further, due to missing data, the study uses the unbalanced panel approach to maximize on available data.

Computation of summary statistics

Descriptive statistics are computed based on the main variables (dependent and independent) with a focus the stylized facts that form the background of the current study regarding the volumes and patterns of FDI and FPI inflows into the Sub Saharan Africa region and regional blocs versus global flows. Summarized statistics such as the mean, standard deviation and measures of normality are presented in tables. The correlation coefficient is also used to check for highly correlated variables, so that they are not included in the same estimation.

Data cleaning

The first step taken before data analysis was to clean the data. The main import of the process was to remove outliers which have the potential to skew the results. Box and whisker diagrams are used to identify outliers, which were categorized as falling 1.5 x interquartile range between 25^{th} and 75^{th} percentiles.

4.3 Modelling issues

Given vast amount of work that already exists on international capital flows, this study takes a deductive approach to contribute towards an evolving theory of global capital flows. Leacock Warican and Rose (2015) defines deductive research as one which starts from major premises then works backwards, using logic to come to conclusions. This study starts with formulating hypotheses based on existing economic theory and empirical literature on drivers of international capital flows. Using country level observed data on FDI, FPI and explanatory variables, the hypotheses are tested through running panel regressions to find out the effect of explanatory variables on capital inflows for Sub-Saharan Africa countries. The aim is to develop general models for FDI and FPI in the region.

4.3.1 Selection of independent variables and expected signs

As in the reviewed literature, several theories have been put forward to explain the determinants of FDI and FPI. Applications of theory to international capital suggest that if capital markets are efficient, and capital can move freely while investors are driven by the risk-return outcome of their investments, then investors' objective is to hold a diversified portfolio by investing in different parts of the world (Forbes, 2008). This suggests that risk factors are a potential determinant of international capital flows to Sub-Saharan Africa. Further, the factors of FDI and FPI inflows can be brought together into a push and pull framework for Sub Saharan Africa. Besides the push-pull classification, other literature such as the World investment report classified the determinants of FDI into economic, policy and business facilitation factors as presented annex 3 (World investment report, 1998). The literature review points to the dominance of macroeconomic risk and return, infrastructure and relatively unexplored special factors which are institutional or productivity factors as well as investment risk-related factors.

More specifically, several standard and dynamic models estimation techniques in the reviewed literature led to the conclusion that the factors in table 3 below are the most significant push-pull factors of FDI and FPI:

Table 3. Significant push and pull factors identified in literature

Factor	Expected effect	Definition	Source of data
GDP	Push and pull	GDP/per capita	World Bank database 2016
Openness to trade	Pull	[exports + Imports]/GDP	World Bank database 2016
Interest rate differential	Push and pull	Difference between domestic and USA annualized real interest rates (%)	IMF database 2016
Returns	Push and pull	Stock market return (%) being average annual growth rate of stock market index	Bloomberg (World Bank Database 2016)
Taxes	Pull	Taxes on commercial profits (%)	World Bank, Doing Business project (http://www.doingbusiness.org/).

Inflation	Pull	Consumer price index	International Monetary Fund, International Financial Statistics and data files.
Exchange rate volatility	Push and pull	Percentage change of annualized exchange rates (local currency unit to US$)	Calculated from IMF international finance statistics data.
Institutions	Pull	Rule of law index	The Worldwide Governance Indicators (World Bank database 2015)
Infrastructure	Pull	Ratio of total of mobile and fixed telephone subscribers to GDP	International Telecommunications Union (World Bank database 2016)
Human resources	Pull	Percentage gross primary school enrolment	UNESCO data (World Bank database 2016)
Distance	Pull	Distance from USA capital to capital of sample countries	Geo_cepii database http://www.cepii.fr
Regional bloc membership	Pull	Dummies for SADC, COMESA, both (SADCOMESA) and ECOWAS	Websites of respective regional blocs
Fuel and mineral exports	Pull	Total fuel and mineral exports as proportion of GDP	World Bank online database

Gross Domestic Product:

As a measure of the monetary value of the production of all goods and services, Gross domestic product in nominal terms measures the performance of the economy. Empirical research on international capital flows uses nominal GDP as an indicator of market size and real GDP as a measure of strong future market. Most studies find GDP to significantly affect capital inflows (Koojarroenprasit, 2013; Ranjan and Agrawal, 2011; Bevan and Estrin, 2004; Gossel and Biekpe, 2015; Hara and Razafimahefa, 2005). In contrast, Lipsey (2000) found a negative effect of nominal GDP for developed country FDI inflows when it is considered relative to size of the country. For this study, GDP is expected to be significant and positively related to both FDI and FPI inflows given economic logic that a larger or growing market offers more investment opportunities and attract more capital. This study will use only real GDP per capita as a measure of economic development as using nominal GDP in the same model may lead to high levels of correlation.

Openness to trade:

Several studies reviewed suggest that a higher level of openness to trade is associated with higher FPI (Gossel and Biekpe, 2015; Nielsen and Bjørnskov, 2012 and for FDI, (Anyanwu, 2011; Ranjan and Agrawal, 2011; Asiedu, 2002). However, Gossel and Biekpe (2015) find that the significance for FPI is only in the short run and thus there is the possibility that openness to trade will affect FDI positively but will not exert a significant long-term effect on FPI. The factor will be derived from the sum of annual exports and imports as a ratio of GDP.

Interest rates

Assuming foreign investors are not looking to borrow from the domestic market but are bringing in capital off-shore, it is to be expected that higher domestic interest rates attract more inflows of FDI and FPI. Conversely, lower interest rates in foreign markets would push capital towards the domestic economy. The study draws on the findings of Gossel and Biekpe (2015) who find that in the case of South Africa, interest rates pulled FDI while FPI was subject to both push and pull effects. In the current study, the factor under investigation is the interest rate spread between the domestic real interest rates and those of a representative advanced economy (in this case USA). Abidi et al (2016) suggests that lower interest rates in advanced economies push FPI to those less developed countries that experience strong economic performance. Therefore, a bigger interest rate differential is expected to push foreign investments from developed to Sub-Saharan Africa if the later has higher real interest rates.

Stocks returns

According to the standard equity valuation model, share values or prices are derived from the present value of expected future profits (Brealey and Myers, 1988 pp.188). This suggests that present stock market performance affects future investments of FDI and FPI inflows. Empirical research by Gossel and Biekpe (2015) on South Africa's capital flows showed that share prices pulled FDI but did not significantly affect FPI in the long run. Garg and Dua (2014, pp.22) argue that in the case of emerging markets, an improvement in market returns attracted investments which they termed "income effect". However, as more emerging markets perform better, they compete amongst each other. Abidi et al (2016 :5) finds that the covariance of frontier market betas with global market returns rose after 2008. For Sub-Saharan Africa, investors' expectations of market

returns depend on covariance with both global and local markets. Garg and Dua (2014) argue that the impact of stock market returns can be attracting or discouraging inflows, depending on expectation of the future. Investors could buy or sell in response to a bullish market if they expect continued price rise or fall in future respectively. Very few countries have available data on stock market returns and therefore high risk of the variable being redundant.

Taxation

Tax rates are commonly used as an investment incentive. Beer and Cory (1996) argue that the level of taxes directly impact the profitability of business as it is an important part of the domestic investment climate. Taxes eat into the investor' profits. Therefore, the lower the tax rates, the more favorable a country is likely to be in terms of FDI and FPI inflows in line with the findings of Koojarroenprasit (2013) and Nielsen and Bjørnskov (2012) for Australia and Sub-Saharan Africa respectively. The specific measure to be applied in this study is the corporate tax rate (%).

Inflation

Price movements can send different signals to investors and in the process, impact the magnitude and composition of inflows. As Hara and Razafimahefa (2005) find out for Japan, lower inflation attracts FDI. They argue that during deflationary periods, investors tend to increase investments to buy cheaper assets from distressed agents, which they term "fire-sale FDI". Koojarroenprasit (2013) argues from a risk point of view that higher inflation reflects higher levels of instability in the economy which discourages FDI. In the same vein, Ranjan and Agrawal (2011) argue the same for emerging economies. They suggest that relative stability of inflation tend to attract FDI. As inflation levels rise, some portfolio rebalancing could be expected as investors shift towards less-risky assets such as hard assets or risk hedged securities.

In addition, higher inflation levels are expected to induce interest rate hikes by the central bank as a money supply control policy response. This tends to increase the cost of capital for businesses while widening the interest rate differentials with stable (usually advanced) economies. This differential could attract long-run portfolio investors exploiting lower foreign interest rates. However, Gossel and Biekpe (2015) suggest that short term portfolio investors are discouraged by high inflation, as it increases the risk to their returns. From this discussion, stable inflation is

expected to attract foreign capital while runaway or volatile inflation levels imply instability in the economy, discouraging investors who fear high volatility of returns. In this study, inflation is specified as annual consumer price index.

Exchange rate volatility

With international investment, exchange rate movements can directly or indirectly affect profits. An appreciating currency is likely to increase profits for foreign investors and would possibly attract more investment. However, a weakening currency could attract export-oriented FDI as Koojarroenprasit (2013) found in the case of Australia, as it makes exports more competitive. Another mechanism through which exchange rates can impact FDI and FPI inflows can be through its volatility. Gossel and Biekpe (2015) argue using the case of South Africa that the effect of exchange rate volatility on FPI is not pronounced in the short-term as investors tend to hedge. They realize, however that in the long-term, the negative effect of exchange rate volatility on FPI increases. The variable is specified as the standard deviation of each country's percentage change in the annual exchange rate relative to the US$.

Natural resource exports

Asiedu (2002) and Anyanwu (2011) finds that natural resource endowment such as petroleum in the case of Angola attracts FDI despite high political risk because the risk-adjusted returns were attractive enough. Natural resources may also affect the type of FDI that is attracted and significantly affects the resource dependent country's institutions. Asiedu and Lien (2011) find that beyond a certain threshold, mineral resources as a percentage of exports can have a negative effect on FDI. Mineral and oil exports from the world bank can provide a useful proxy for evaluating the effect of natural resources.

Infrastructure:

Several studies suggest that infrastructure improvement has a positive effect on capital inflows, such as Asiedu (2002), Ranjan and Agrawal (2011), Nielsen and Bjørnskov (2012) and Ezeoha and Cattaneo (2011). However, Asiedu (2002:115) in a comparison finds that while infrastructure is a significant determinant for FDI in other developed countries, it was not so for Sub-Saharan Africa's resource rich countries. They suggest that infrastructure may not be deterrent to FDI if real returns after factoring the cost implications of undeveloped infrastructure remain attractive. This study

contents that combining fixed telephones (Asiedu 2002) and mobile telephone lines (Ezeoha and Cattaneo 2011) as a proxy for infrastructure is a better proxy of infrastructure that either of them alone. Better infrastructure is expected to attract more FDI and FPI inflows into Sub Saharan Africa.

Human resources quality

In the quest to resolve the Lucas paradox, Lucas (2000), argues that increasing the effectiveness of labor in a poor country narrows its marginal productivity gap with developed countries. That process involves increasing returns to capital which is expected to attract international capital to the poor country. However, this is under the assumption that all the externalities of human capital of a country entirely benefit that country, which may not hold in the face of labor migration. In a case of a developed country (Australia), Koojarroenprasit (2013) concluded that Japanese FDI into Australia was attracted by higher wages because of preference for highly skilled labor over cheaper unskilled labor by Japanese investors. However, empirical work by Alfaro et al (2008:355) finds years of schooling to be an insignificant factor of capital inflows to developing countries. To explore this factor for Sub-Saharan Africa, his study uses school enrolment which is a broader indicator of access to education in a country. The a priori expectation of this study is that higher gross enrolment ratios are associated with higher FDI and FPI inflows.

Institutions:

Institutions are the "rules of the game" as well as their enforcement (Dunning and Lundan, 2008) According to Lucas (2000), institutions governing business such as contract enforcement and business regulations imply risks and costs to investments. Other studies such as Alfaro et al (2008) and Nielsen and Bjørnskov (2012) add weight to the proposition that better quality institutions tend to attract more FPI. While Nsiah and Wu (2014), found an unexpected negative relationship of FDI with more political rights, which they explained as frictional effects of transition to more democratic institutions. Therefore, an ingoing expectation of this study is that better institutions

will be significant and positively related to FDI and FPI. The measure of institutional performance in this study will be the rule of law[4] measured by the protection of property rights.

Geographic distance

Ghosh and Wolf (2000) find evidence that location may matter in foreign capital inflows as Africa and the Western hemisphere got less inflows than those regions which were closer to the main sources of capital in their empirical findings. They also found that elasticity of FDI to distance was much higher than for FPI and concluded that this stressed the importance of distance for supervision which is more important for less liquid FDI than FPI. Further, the conclusion by Bevan and Estrin (2004) that the further a country is from the source of investment, the less the FDI it can attract also adds to the case for distance. The expected effect is that distance has a significant and negative effect on both FDI and FPI. The measure of the distance factor will be the average distance between Sub Saharan Africa's capitals and USA capital weighted by GDP.

Regional bloc membership:

Regional blocs are motivated by the desire to benefit economically from boosting trade and investment through access to larger markets, improved economies of scale and institutional strengthening. There are several theories that suggest that regional blocs influence international capital inflows. These include Bevan and Estrin (2004) in a study of emerging countries of the Central and Eastern European Countries where announcement of impending accession of a country into the EU bloc attracted FDI to that country. Keho et al (2012:18) found that FDI inflows in ten African countries tended to take a regional outlook, with high dependence on neighboring countries. Nsiah and Wu (2014) use spatial effects to argue that the reason why countries closer to each other tend to receive similar levels of FDI was due to information sharing, agglomeration and transfers of factors of production. Blomström and Kokko (1997:6) argues that regional integration improves growth (stimulated by increased competition and resource allocation efficiencies) in the integrating economies, which then increases the attractiveness of the region as a destination of capital investments in the medium to long-term. From this point of view, membership to a regional

[4] Rule of Law is defined as measuring the perceptions of agents on the rules that govern conduct in society including contract enforcement, property rights, the police, and court processes. It also includes the probability of crime and violence. World Governance Indicators. World Bank Data 2014.

bloc can be expected to attract FDI and FPI. Dummies for membership to COMESA, SADC and ECOWAS will be used to examine the possible regional effects.

4.3.2 Model specification

The study is informed by Hsiao (2008:8)'s emphasis that the main assumption of standard statistical inference is that outcomes of a dependent variable Y, given independent variables X, are random and based on a probability distribution that has a fixed dimensional parameter vector $\theta, f(y|x;\theta)$ where the latter is a standard linear regression model which takes the following forms:

$$E(y|x) = \alpha + \beta' x \text{ and } Var\ (y|x) = \sigma^2 \text{where } \theta' = \left(\alpha, \beta', \sigma^2\right)^{Equation.1} \quad \textit{(Equation 1)}$$

The panel data model is therefore expressed in the following simple form:

$$Y_{it} = \beta' \mathrm{X}_{it} + \Upsilon \mathrm{Z}_i,\ i\ =\ 1\ldots N,\ t\ =\ 1\ldots T \quad \textit{(Equation 2)}$$

Where:

- X_{it} represents the $k \times 1$ vector of those independent variables which are cross-sectional variants,
- Z_i is the $h \times 1$ vector of country specific variables that are time invariant (such as distance and regional block membership, which don't change over time),
- β and Υ are column vectors of parameters

As stressed by Hsiao (2007:9), studies that rely on panel data such as the current one seeks to infer on β, having controlled for the effect of Υ_{it}, where β is the structural parameter while the Υ_{it} is the incidental parameter.

The above general form can be simply put in a linear panel model as follows according to Croissant and Millo (2008):

$$Y_{it} = \alpha_{it} + \beta_{it} X_{it} + \mu_{it} \quad \textit{(Equation 3)}$$

Where i = 1,…N is the country index, t=1,…T being time index, while μ_{it} is a random error term whose mean is zero.

Assumption:

That α_{it} is equal to α *for all i and t,* β_{it} is equal to β for all *i* and *t* which is referred to as parameter homogeneity.

If all data across countries and time series is pooled under the assumption of parameter homogeneity, the following general model is specified:

$$Y_{it} = \alpha + \beta X_{it} + \mu_{it} \qquad \textit{(Equation 4)}$$

However, the researcher knows that individual countries are heterogeneous beyond factors that have been identified such as distance. Therefore, the model needs to reflect this heterogeneity. Croissant and Millo (2008) advise that one should include an assumption that the error term includes a country-specific component and is time invariant. Hence, the resulting model can be represented as:

$$Y_{it} = \alpha + \beta X_{it} + \mu_i + \varepsilon_{it} \qquad \textit{(Equation 5)}$$

This is *referred* to as an unobserved effects model, where ε_{it} is assumed to be well behaved and not correlated with both regressors and the country specific error component μ_{it}.

Model specification

The economic model that was presented above can be transformed into an econometric model with mathematical representation and incorporating the independent variables that have been suggested by literature as effecting FDI and FPI. Therefore, the general models, in some cases transformed in natural logarithms (to allow for elasticity interpretation) of the variables are as follows:

Model 1:

$$FDI_{it} = \alpha + \beta_1(GDPd) + \beta_2(GDPus) + \beta_3(Tradeop) + \beta_4(IRdiff) + \beta_5(RETURN) + \beta_6(Taxd)$$
$$+ \beta_7(Infld) + \beta_8(Exchvold) + \beta_9(Infrad) + b_{10}(HRQd) + \beta_{11}(Instqd) + \beta_{12}(Geodist)$$
$$+ \psi(SADC; COMESA; ECOWAS) + \mu_{it}$$

(t=2000, 2001…2014; i=1, 2….20)

Model 2:

$$FPI_{it} = \alpha + \beta_1(GDPd) + \beta_2(GDPus) + \beta_3(Tradeop) + \beta_4(IRdiff) + \beta_5(RETURN) + \beta_6(Taxd)$$
$$+ \beta_7(Infld) + \beta_8(Exchvold) + \beta_9(Infrad) + b_{10}(HRQd) + \beta_{11}(Instqd) + \beta_{12}(Geodist)$$
$$+ \psi(SADC; COMESA; ECOWAS) + \mu_{it}$$

(t=2000, 2001…2014; i=1, 2….20)

Where:

Where FDI= net FDI inflows as a ratio of GDP and FPI is net foreign portfolio equity inflows as a ratio of GDP

GDPd is domestic GDP (US$ per capita); GDPus is GDP of USA per capita; Tradeop is domestic openness to trade ratio; IRdiff is the interest differential between domestic and USA real interest rates (%); RETURN is stock market return (domestic or USA market); Taxd is the tax rate on commercial profits (%); Infld is the domestic consumer price index; Exchvold is exchange rate volatility; Infrad is domestic infrastructure (ratio of fixed and mobile phone subscription to GDP; HRQd is domestic human resource quality measured by primary and secondary school enrolment ratio; Instqd is domestic institutional quality (rule of law index); Geodist is distance (kms) between a country and the USA; (SADC, COMESA, ECOWAS) being 3 regional blocs. [5]

β is a coefficient of dependent variables;

ψ =1(1=regional dummy).

μ_{it} is the error variable accounting for other influences on the dependent variable, due to unobserved variables which are assumed to be time invariant or well-behaved.

[5] In running the models in E-views, the variables were modified to as follows: *GDPd* = GDPD; *GDPus* =GDPUSD; *Tradeop* = TRADE; *IRdiff* = MIRDIF; *RETURN* = DRETURN (domestic) and USRETURN (for USA return); *Taxd* = TAXD (for domestic tax rate) and USTAX (for US tax rate); *Infld* = AINFL; *Excvold* = EXCVOL; *Infrad* = INFRA; *HRQd* = HRQ; *Instqd* = ROLD; *Geodist* =DIST. An additional factor added later is FMEXP = Fuel and mineral exports

Fixed Effects modeling

The fixed effects model (FE) (also referred to as least squares dummy variables or within model) is used when one is interested in making inference into the impact of time-variant variables. The effects of independent and dependent variables are explored per country, whereby individuals have unique conditions that may affect the dependent variable (for example corporate culture). Therefore, the main assumption for the Fixed Effects model is that there is correlation between the independent variables and the country's error term, a condition that removes the impact of time-invariant characteristics to clear the way for assessing only the impact of independent variables on dependent variable. This is because if the country-specific error term μ_i is correlated, then the Ordinary Least Squares estimator of β will not be consistent in which case Croissant and Millo (2008) advise treating μ_i as an additional set of n parameters that can be estimated.

According to Baltagi, M.H (2013) the general regression model with fixed effects can be adapted from the general format presented in (equation 4) as follows:

$$Y_{it} = \alpha_i + \beta_1 X_{it} + \mu_{it} \qquad \textit{(Equation 6)}$$

Where α_i represents *i...n* country specific intercepts which are to be estimated and represent the effect of being country *i*.

β_1 stands for a slope coefficient that is similar for all countries in the model

μ_{it} represens the error term including the country specific component and time variant.

The equation 6 above is extended to multiple regressors defined in models 1 and 2 and estimation and inference can be done using the OLS regression. The regression will estimate β_1 and α_i intercerpts. Hypotheses associated with the models can be tested at 5% confidence intervals using both *t*-and *F*-statistics.

The random effects model

Failure of the assumption that μ_i is correlated with regressors implies that the composite error μ_{it} is also uncorrelated, which leads the OLS estimator to be inconsistent. Therefore, the random effects (RE) specification would be preferable in that case. Croissant and Millo (2008) caution that

the common error of individual country series, tends to induce correlation across composite error terms, which reduces the efficiency of the OLS parameters. Such a case would necessitate the use of other estimators such as the Generalized Least Squares which use the variance of the error components.

The Random Effects model assumes that cross-country variation is random and not correlated with both dependent and independent variables in the model. The Random Effects model has an advantage of allowing for inclusion of time-invariant variables such as distance and membership to a regional trading bloc as explanatory variables, which Fixed Effects model covers under the intercept. However, the Random Effects model suffers from potential bias arising out of omitted variables. The determination of which model to use between these two options is aided by the Hausman test.

The general random effect model can be represented as:

$$Y_{it} = \beta_0 + \beta_1 X_{it} + \mu_{it} \qquad \textit{(Equation 8)}$$

Where $\beta_{1i} = \beta_1 + \mu_i$ (Individual specific and model specific for, each country, error terms)

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \ldots \beta_k X_{kit} + \mu_i + \mu_{it} \qquad \textit{(Equation 9)}$$

The main assumption is that both the two error terms (μ_i and μ_{it}) are random and not correlated. If that is the case, then μ_{it} can be left out and the random effect model can be used as follows:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \ldots \beta_n X_{nit} + \xi_{it} \qquad \textit{(Equation 10)}$$

ξ_{it} represents the composite error term (if all the error terms are random)

The assumptions for equation 10 is that individual specific errors ξ_{it} are not correlated with the regressors X and Y. It is also assumed that the sample is drawn from a larger population and unobserved errors for individual intercept are part of composite errors.

4.4 Analytical techniques

4.4.1 Unit root tests

Unit root tests were carried out to determine if the variables were level stationary. Several methods were used which are the Lewin, Lin and Chu t* (Levin et al, 2002), IM Pesaran and Shin W-stat (Hsiao, 2006:24), ADF-Fisher Chi-square (Startz 2015:336) and PP-Fisher Chi-square (Bolboaca:2011) and using the majority decision criterion. If there was a tie, then the Hadri test (Hadri, 2000) was performed to give final verdict. The results in Table 4 show that FDI, FPI, openness to trade (TRADE), interest rate difference (MIRDIF), domestic stocks return (DRETURN), domestic taxes (TAX), tax differential (TAXDIFF), US tax (USTAX), inflation (AINFL), exchange rate volatility (EXCVOL) and human resources quality (WHRQ) are stationary at level. On the other hand, domestic GDP (GDP), US GDP (GDPUS), infrastructure development (INFRA), fuel and mineral exports (FMEXP) and rule of law (ROL) have a unit root.

Table 4. Unit root tests at level

	Statistic (p-value)				
Variable (series)	**Levin, Lin & Chu t***	**IM Pesaran and Shin W-stat**	**ADF-Fisher Chi-Square**	**PP-Fisher Chi-Square**	**Cross sections (Obs)**
AINFL	-6.128 (0.000)	-5.543 (0.000)	112.897 (0.000)	189.637 (0.000)	21 (270)
DRETURN	-2.832 (0.002)	-0.637 (0.262)	23.649 (0.097)	37.081 (0.002)	8 (77)
EXCVOL	-9.312 (0.000)	-6.201 (0.000)	115.517 (0.000)	142.575 (0.000)	21 (252)
FDI	-4.109 (0.000)	-3.829 (0.000)	87.049 (0.000)	131.766 (0.000)	21 (273)
FM-EXP	4.657 (1.000)	-0.316 (0.376)	44.442 (0.369)	87.169 (0.000)	21 (233)
FPI	-10.310 (0.000)	-6.185 (0.000)	92.924 (0.000)	127.605 (0.000)	19 (198)
GDP	2.598 (0.995)	6.746 (1.000)	9.583 (1.000)	6.372 (1.000)	21 (273)

GDPUS	-4.531 (0.000)	-1.176 (0.120)	40.840 (0.522)	16.172 (0.999)	21 (273)
Log GDPUS	-4.929 (0.000)	-1.4195 (0.0779)	43.61 (0.4029)	17.35 (0.9997)	21
INFRA	1.292 (0.902)	6.168 (1.000)	5.275 (1.000)	1.544 (1.000)	21 (273)
MIRDIF	-4.850 (0.000)	-4.450 (0.000)	91.378 (0.000)	133.637 (0.000)	21 (266)
ROL	1.119 (0.869)	0.681 (0.752)	40.999 (0.340)	72.639 (0.001)	19 (209)
TAX	-7.253 (0.000)	1.118 (0.868)	51.128 (0.113)	56.958 (0.040)	20 (160)
TAXDIFF	-7253 (0.000)	1.118 (0.868)	51.128 (0.112)	56.958 (0.040)	20 (160)
TRADE	-8.701 (0.000)	-3.004 (0.001)	79.784 (0.000)	40.567 (0.534)	21 (249)
USRETURN	-10.072 (0.000)	-5.595 (0.000)	102.280 (0.000)	77.365 (0.001)	21 (273)
USTAX	-14.848 (0.000)	-11.201 (0.000)	194.335 (0.000)	83.935 (0.000)	21 (273)
WHRQ	-9.864 (0.000)	-3.198 (0.000)	81.322 (0.000)	64.738 (0.014)	21 (219)

Table 5. Unit root tests with first differencing

	Stat (p-value)				
Variable (series)	**Levin, Lin & Chu t***	**IM Pesaran and Shin W-stat**	**ADF-Fisher Chi-Square**	**PP-Fisher Chi-Square**	**Cross sections (Obs)**
GDPD	-4.943 (0.000)	-4.035 (0.000)	84.760 (0.000)	149.523 (0.000)	21 (252)
GDPUSD	-0.600 (0.274)	-2.008 (0.022)	51.174 (0.157)	71.751 (0.003)	21 (252)
INFRAD	-1.767 (0.038)	-1.181 (0.118)	47.08 (0.272)	77.105 (0.001)	21 (252)
ROLD	-2.534 (0.006)	-2.984 (0.001)	72.083 (0.001)	169.641 (0.000)	19 (190)
FMEXPD	-4.221 (0.000)	-3.300 (0.001)	88.788 (0.000)	198.851 (0.000)	20 (203)
GDPUSD2	-6.970 (0.000)	-4.105 (0.000)	80.755 (0.000)	186.222 (0.000)	21 (231)
INFRAD2	-3.003 (0.001)	-5.642 (0.000)	107.269 (0.000)	221.637 (0.000)	21 (231)
DRETURND1	-5.784 (0.000)	-3.852 (0.000)	51.836 (0.000)	117.14 (0.000)	69
TAXD1	-8.778 (0.000)	-2.166 (0.015)	86.48 (0.000)	144.799 (0.000)	20

After taking first differences, the unit root tests were conducted on the variables that had unit root at level. The results are presented in table 5. They show that after the first differencing, domestic GDP (GDPD), rule of law (ROL), domestic tax (TAXD1) and fuel and mineral exports (FMEXPD) become stationary. However, US GDP (GDPUSD) and Infrastructure development (INFRAD) have evidence of some unit root, therefore a second difference was taken. The results show that after second differencing, the US GDP (GDPUSD2) and infrastructure development (INFRAD2) become stationary. Therefore, all the data to be used in the analysis is now stationary.

4.4.2 Model estimation techniques

The Jarque-Bera test

The Jarque-Bera (JB) was used to understand the normality of the data before using it in regression modeling. The results in Table 8 show that all the variables are normally distributed at 5% significance level except FDI, USA GDP (GDPUS), infrastructure (INFRA), domestic tax (TAX),

differential tax (TAXDIF), distance (DIST), and rule of law (ROLD). In accordance with Startz (2015), the non-normal variables were transformed by taking the logarithmic form for use in subsequent panel regression modeling.

Variables correlation tests

To check if the assumption of independence of independent variables holds, a correlation test is done whose results are presented in the table 6. High negative correlation (a coefficient of -0.81) was found between USA GDP (LGDPUSD2) and USA tax (USTAX). Moderate collinearity was also found for inflation and infrastructure (correlation coefficient of -0.56), USTAX and return on US stocks (USRETURN) and human resources quality and USTAX. Therefore, tax differential (LTAXDIFF) will be used in place of USTAX as it has low correlation with the other variables.

Table 6. Variable correlation analysis

	LFDI	FPI	AINFL	DIST	DRETURND1	EXCVOL	EXPORTSD	FMEXPD1	GDPD1	HRQD1	LGDPUSD2	LINFRA	LTAXDIF	MIRDIF	ROLD	TAXD1	TRADE	USRETURN	USTAX	TAXDIFFD1
LFDI	1.000	-0.175	0.297	0.269	0.021	-0.192	0.056	0.152	0.177	0.236	0.001	-0.170	-0.371	0.054	-0.309	0.178	-0.008	0.038	0.145	0.178
FPI	-0.175	1.000	-0.487	0.125	0.061	-0.082	0.210	0.104	0.384	-0.160	0.293	0.384	0.091	-0.127	0.032	0.013	0.017	0.169	-0.222	0.013
AINFL	0.297	-0.487	1.000	0.004	-0.008	0.006	-0.127	0.138	-0.386	0.010	-0.216	-0.562	-0.209	0.250	-0.247	-0.022	-0.318	-0.245	0.166	-0.022
DIST	0.269	0.125	0.004	1.000	0.053	-0.043	-0.185	-0.082	0.306	0.041	-0.007	-0.019	-0.182	0.301	-0.055	0.142	0.505	-0.073	0.076	0.142
DRETURND1	0.021	0.061	-0.008	0.053	1.000	-0.016	0.318	0.172	0.072	-0.263	0.244	0.032	0.027	-0.139	-0.151	-0.097	0.013	-0.257	-0.204	-0.097
EXCVOL	-0.192	-0.082	0.006	-0.043	-0.016	1.000	0.055	-0.285	-0.058	0.004	0.193	0.140	0.063	0.059	-0.186	-0.191	0.145	-0.030	-0.017	-0.191
EXPORTSD	0.056	0.210	-0.127	-0.185	0.318	0.055	1.000	0.508	0.482	0.015	0.303	0.019	0.119	-0.031	-0.095	0.129	-0.290	0.178	-0.144	0.129
FMEXPD1	0.152	0.104	0.138	-0.082	0.172	-0.285	0.508	1.000	0.347	0.067	0.176	-0.205	-0.103	-0.071	-0.125	0.090	-0.047	0.136	-0.012	0.090
GDPD1	0.177	0.384	-0.386	0.306	0.072	-0.058	0.482	0.347	1.000	-0.096	0.162	0.272	-0.079	-0.063	-0.036	0.170	0.240	0.339	0.069	0.170
HRQD1	0.236	-0.160	0.010	0.041	-0.263	0.004	0.015	0.067	-0.096	1.000	-0.130	-0.374	-0.074	0.349	0.181	0.044	-0.133	0.421	0.326	0.044
LGDPUSD2	0.001	0.293	-0.216	-0.007	0.244	0.193	0.303	0.176	0.162	-0.130	1.000	0.219	0.217	-0.051	-0.220	0.271	-0.070	-0.282	-0.810	0.271
LINFRA	-0.170	0.384	-0.562	-0.019	0.032	0.140	0.019	-0.205	0.272	-0.374	0.219	1.000	0.016	-0.311	-0.006	0.037	0.230	0.013	-0.330	0.037
LTAXDIF	-0.371	0.091	-0.209	-0.182	0.027	0.063	0.119	-0.103	-0.079	-0.074	0.217	0.016	1.000	-0.113	-0.045	-0.031	-0.116	-0.027	-0.214	-0.031
MIRDIF	0.054	-0.127	0.250	0.301	-0.139	0.059	-0.031	-0.071	-0.063	0.349	-0.051	-0.311	-0.113	1.000	-0.193	-0.048	-0.075	-0.013	0.028	-0.048
ROLD	-0.309	0.032	-0.247	-0.055	-0.151	-0.186	-0.095	-0.125	-0.036	0.181	-0.220	-0.006	-0.045	-0.193	1.000	0.191	0.099	-0.040	0.150	0.191
TAXD1	0.178	0.013	-0.022	0.142	-0.097	-0.191	0.129	0.090	0.170	0.044	0.271	0.037	-0.031	-0.048	0.191	1.000	0.141	0.157	-0.203	1.000
TRADE	-0.008	0.017	-0.318	0.505	0.013	0.145	-0.290	-0.047	0.240	-0.133	-0.070	0.230	-0.116	-0.075	0.099	0.141	1.000	0.097	0.205	0.141
USRETURN	0.038	0.169	-0.245	-0.073	-0.257	-0.030	0.178	0.136	0.339	0.421	-0.282	0.013	-0.027	-0.013	-0.040	0.157	0.097	1.000	0.494	0.157
USTAX	0.145	-0.222	0.166	0.076	-0.204	-0.017	-0.144	-0.012	0.069	0.326	-0.810	-0.330	-0.214	0.028	0.150	-0.203	0.205	0.494	1.000	-0.203
TAXDIFFD1	0.178	0.013	-0.022	0.142	-0.097	-0.191	0.129	0.090	0.170	0.044	0.271	0.037	-0.031	-0.048	0.191	1.000	0.141	0.157	-0.203	1.000

Selection of the appropriate model between pooled OLS, Fixed effect and random effect

The pooled model assumes that all coefficients and intercepts of individual countries are the same, therefore suppressing variability across countries, which is not realistic. On the other hand, the fixed effect model assumes that intercepts are time invariant but can vary across countries. Lastly the random effect model assumes that the different countries share the same mean value for the intercept

The Hausman test (Startz, 2015) assesses whether the unique errors (μ_i) are correlated with regressors. The null hypothesis for the Hausman test specifies that the unique errors are not

correlated with the regressors and if the test fails to reject the null hypothesis then the RE model is used. Practically the process involves running RE and FE models and then using the Hausman's test statistic to check if the difference in coefficients is not systematic. If the *p*-value is statistically significant (<5%), then the null hypothesis is rejected and thus the random effects model is deemed appropriate for explaining FDI and FPI.

Using the Hausman test, with the null hypothesis being that the random effect model is appropriate, and the alternative which says that the fixed effect model is appropriate, with treated data (first and second differencing). The results of the Hausman test were carried out with respect to FDI and FPI as dependent variables. The test gave a Chi-square statistic of 10.69 (p-value, 0.6366) for FDI and a Chi-square statistic of 17.62 (p-value, 0.1726) for FPI. Both outputs indicate that the random effects model is the preferred model as the p-values are not significant at both the 5% and 10% significant level, leading to a failure to reject the null hypothesis. Therefore, the conclusion is to proceed using the random effects model.

Panel co-integration modeling

Cointegration tests were done through panel co-integration modeling with the following results:
Using the Kao Residual Cointegration test whereby the null hypothesis is stated as "no cointegration" while the alternative is that there is cointegration among the following variables FDI, AINFL, GDPD, GDPUSD, INFRA, TRADE, MIRDIF, RETURN, USTAX, EXCVOL, HRQ, ROLD and FMEXPD produced the results in table 7. The results fail to reject the null hypothesis which leads the conclusion that the variables are not cointegrated. Therefore, no problem of endogeneity in the model is expected.

Table 7. Kao residual cointegration test results

	ADF t-statistic	**ADF equation coefficient RESID (-1)**	**Dependent variable D (RESID (-1))**	**R^2**	**observations**	**Regression SE**
Coefficient		-1.304 SE (0.233)	0.210	0.574	38	0.012
t-statistic	-0.0489	-5.504	1.329			
p-value	0.481	0.000	0.192			
Observations	315	38				

Estimating the model

The statistical package selected (E-Views) provides for testing the individual and time effects which helps in specifying the model correctly. Individual and time effects were also tested using the F-statistic (likelihood ratio) and the Lagrange Multiplier (LM) test. Finally, panel cross section dependency was tested because of the suspicion that since the cross-sectional parameter (N) is not very large, the assumption is that the error components in the models may not be independent for the cross section. This is because residual dependence caused by cross sectional dependence can invalidate test statistics and reduce efficiency of the estimators. These tests are performed after removing variables with potentially non-zero cross section means such as rule of law, interest rate differential, fuel and mineral exports and human resources quality.

The starting point was to estimate a pooled OLS model, a process that involved writing down two models of interest within the limitation imposed by the number of observations available. From this, variables with adequate observations to proceed with further estimations were selected. The estimation reduces the impact of attrition of variables and observations by not completely dropping insignificant factors but continuously iterate with variables along the tests.

5 RESEARCH FINDINGS, ANALYSIS AND DISCUSSION

4.1 Descriptive statistics

Average GDP per capita in the sampled Sub-Saharan Africa countries is US$ 2116 which is only 4.39% of USA's average for the period under study. FDI as a percentage of country GDP in Sub Saharan Africa is 3.1% while for FPI its even smaller being 0.08 %. The data for FDI, FPI, GDP, infrastructure development (INFRA), trade openness (TRADE), human resources quality (HRQ), exchange rate volatility (EXCVOL), rule of law (ROL) and fuel and mineral exports (FMEXP) were found to be leptokurtic which shows that the distribution is positively skewed with a longer right tail than left, an insight into the normality of the series which was discussed in the sections above. Table 8 presents summary statistics by variable.

Table 8. Descriptive statistics for the sample.

Variable	Mean	Std. Dev	Skewness	Kurtosis	Jarque-Bera	p-value	Obs
FDI	100.031	0.020	0.341	3.881	2.48	0.289	48
FPI	100.008	0.018	2.200	7.257	74.99	0.000**	48
GDP	2116	2379.81	1.379	3.321	78.413	0.000**	244
GDPD	111.482	175.063	-1.105	7.753	54.944	0.000**	48
GDPUS	48212.7	1699.73	-0.584	2.142	4.7553	0.0927*	244
INFRA	0.425	0.402	1.095	3.502	3.8163	0.1484	244
TRADE	0.9158	0.4471	1.1354	3.7663	11.4872	0.0032**	48
MIRDIF	103.995	7.099	0.3382	5.371	78.027	0.000**	48
DRETURN	120.553	29.707	0.858	3.800	7.167	0.0278**	48
USRETURN	102.562	15.092	-0.721	1.882	6.658	0.036**	48
TAX	29.733	9.837	0.249	2.288	1.508	0.470	48
TAXDIFF	29.733	9.837	0.248	2.288	1.508	0.470	48
USTAX	52.661	3.564	-1.091	2.876	9.559	0.008**	48
AINFL	106	6.24	1.94	8.683	615.89	0.000**	312
EXCVOL	100.02	0.112	0.7019	5.714	114.428	0.000**	294
HRQ	0.0003	0.0002	2.105	9.879	769.67	0.000**	284
ROL	99.601	0.606	0.435	2.854	1.1737	0.5561	244
ROLD	0.0049	0.0762	0.355	3.828	2.380	0.304	48
FMEXP	565.225	649.932	1.606	5.696	178.763	0.000**	244
FMEXP	47.697	203.892	1.761	9.561	110.890	0.000**	48
DIST	12312	1593	-0.128	3.077	0.141	0.932	48

**Significant at p<0.05, *Significant at p<0.1. Calculation of the variables [6]

[6] FDI is (Net inflows/GDP)+100 (constant); FPI is (Net inflows/GDP)+100 (constant); GDP is GDP per Capita (2010 constant $); GDPUS is GDP per capita (constant 2010 US$); TRADE is (Imports + Exports in 2010$)/GDP current $;

Descriptive statistics by region

Mean FDI inflows for ECOWAS and COMESA regions are just below those of the whole sample (about 3% of GDP). However, the FDI inflows for SADC (and those in SADCOMESA are above 5% which is higher than the average for the whole sample (3.6%). As for FPI, ECOWAS receipts are negligible, below 0.1%. It can also be noted that SADC is leading in both FDI and FPI inflows (as percentage of GDP). Although most countries in SADC are in COMESA, the mean inflows of COMESA are far and away below those of SADC. This may be due to a disproportionately large economy such as South Africa which is a member of the SADC bloc but is not in COMESA. The summaries for FDI and FPI inflows by region are presented in table 9.

Table 9. Summary of FDI and FDI net inflows statistics 2000 to 2014

	Mean	Standard deviation	Skewness	Kurtosis	Observations
FDI (net inflows)					
COMESA	0.03	0.0211	0.2633	2.1922	45
ECOWAS	0.03	0.0331	2.8385	12.2519	105
SADC	0.06	0.0827	3.2222	12.8884	60
SADCOMESA	0.05	0.0695	3.4837	23.0713	120
FPI (net inflows)					
COMESA	0.001	0.0032	2.8853	13.2333	36
ECOWAS	0.000	0.0031	-2.9937	19.4202	93
SADC	0.005	0.0130	2.0381	7.2581	44
SADCOMESA	0.019	0.1039	6.5702	46.2599	85

4.2 FDI. model estimation for SSA

The first model for FDI at Sub-Saharan Africa level was estimated using the panel Estimated Generalized Least Squares (EGLS) method with random effects. The results of the model for FDI are presented in table 10 below. In total 14 variables were entered in the model. Out of the 13 variables, 5 were found to be significant within a 5% significance level. These are domestic GDP

MIRDIFF is (domestic interest rate-US interest rate)+100 (constant); DRETURN is Stock return (%, year-on-year)+100 (constant); USRETURN is US stocks return+100 (constant); TAX is Total tax rate (% of commercial profits); TAXDIFF is (Domestic tax %age minus US tax %age); USTAX is US tax rate; AINFL is consumer prices (annual %)+100 (constant); EXCVOL is Annual exchange rate return series (% change)+100(constant); INFRA is (fixed plus mobile subs)/Population, WHRQ is Primary school enrolment divided by GDP; DIST is kilometres from capita to the capital of USA, ROL is rule of law index (World Bank) + 100 (constant); FAMEXP is ((Mineral plus fuel)/GDP)*100; GDPD and ROLD and FMXPD are first differences of GDP, ROL and FMEXP; GDPUSD2 and INFRAD2 are second differencing of GDPUS and INFRA.

(GDPD1), exchange rate volatility (EXCVOL) rule of law (ROLD), infrastructure development (LINFRA) and Human Resources (HRQD). Falling within the 10% level of significance is USA GDP (LGDPUSD2). Overall, the Sub-Saharan Africa FDI model can explain 54% of FDI net inflows into sample countries. The model's F-statistic is 1.808 and was found to be within 10% significance level which makes the model reliable.

The sign accompanying domestic GDP is negative which runs contrary to expectations of this study. Similarly, a positive sign on exchange rate volatility also runs contrary to expected results. Therefore, before inferring into these results, a cross section dependence test (in table xx) is conducted to check on the validity of these results.

Table 10. FDI. model estimation for SSA

Variable	coefficient	SE	t-stat (p-value)
Constant	4.689	0.034	136.035 (0.000)
GDPD	-0.000	0.000	-2.528 (0.019)**
LGDPUSD2	0.003	0.002	1.724 (0.098)*
USRETURN	-0.000	0.000	-0.263 (0.795)
DRETURN1	0.000	0.000	0.099 (0.922)
AINFL	0.000	0.000	1.005 (0.325)
EXCVOL	-0.001	0.000	-2.418 (0.024)**
HRQD1	0.000	0.000	2.557 (0.018)**
TAXD1	0.000	0.000	0.375 (0.711)
MIRIF	-0.000	0.000	-0.944 (0.355)
ROLD	-0.001	0.000	-3.500 (0.002)**
TRADE	-0.000	0.000	-0.672 (0.508)
LINFRA	0.000	0.000	2.358 (0.027)**
FMEXPD1	-0.000	0.000	-1.232 (0.231)
DIST	-0.000	0.000	-1.184 (0.248)
REGION	-0.000	0.000	-0.202 (0.841)
R^2=0.54; F-stat (p-value) = 1.808 (0.098); histogram normality test (Jarque-Bera of 0.88 and a p-value of 0.64) Correlated random effects Hausman statistic was set to zero.			

**Significant at p<0.05, *Significant at p<0.1.

Table 11. Residual cross-section dependence test with respect to the FDI model

Test	Statistic	D.F	p-value
Breusch-Pagan LM	187.245	171	0.187
Pesaran-scaled LM	0.878		0.379
Pesaran CD	-0.563		0.573

**Significant at p<0.05, *Significant at p<0.1.
Periods included, 13; cross sections included, 21; total panel (unbalanced) observations, 253

The dependent variables are domestic GDP GDPD1), US GDP (LGDPUSD2), openness to trade (TRADE), infrastructure development (LINFRA), US stock market return (USRETURN), inflation (AINFL), exchange rate volatility (EXCVOL), rule of law (ROLD) and distance (DIST) which the analysis package could handle. The results lead to the conclusion that there is no cross-section correlation in the residuals based on majority criteria whereby two of the tests (the Breusch-Pagan LM and Pesaran scaled LM fail to reject the null hypothesis that there is no cross-section correlation (table 11).

The results presented in table 10 show that during the period covered by this study FDI in sampled SSA countries was attracted by pull factors of better infrastructure development and, higher levels of human resources quality, lower levels of rule of law, high exchange rate volatility and lower levels of GDP per capita. The result where rule of law is associated with more FDI may be argued in line with the findings of Asiedu (2002) and Anyanwu (2011) that Angola still attracted FDI despite high political risk because the risk-adjusted returns from mineral investments were attractive enough. Domestic GDP per capita is found to discourage FDI is in line with Lipsey (2000), but runs contrary to findings by several authors including Ranjan and Agrawal (2011) and Gossel and Biekpe (2015). Exchange rate volatility has negative sign as expected and like findings by other authors Koojarroenprasit (2013). To some extent FDI is also pushed by USA GDP which suggests that the region is exposed to global business cycles for its FDI. In this case, the influence major global economic upheavals such as the global economic crisis which characterized the period under study could explain the significance of USA GDP. Lastly, the variable on regional bloc membership is found to be insignificant in the model.

4.3 FPI in Sub-Saharan Africa

FPI inflows to Sub Saharan Africa are modeled in the same way for FDI above, using an iterative method. Cross section dependence tests could not be carried out due to non-zero cross section means in some of the included variables. The model of FPI for the region is presented in table 12.

Table 12. EGLS random effects model for FPI (SSA)

Variable	Coefficient	SE	t-stat (p-value)
Constant	101.02	0.042	2393.02 (0.000)
GPD1	0.000	0.000	2.453 (0.016)**
LGDPUSD2	0.029	0.058	0.501 (0.618)
USRETURN	0.000	0.000	0.217 (0.829)
AINFL	-0.000	0.000	-1.221 (0.226)
TRADE	-0.004	0.004	-1.136 (0.259)
LINFRA	0.004	0.002	1.986 (0.050)**
DIST	0.000	0.000	2.341 (0.022)**
LTAXDIF	0.003	0.001	-0.194 (0.848)
ROLD	0.051	0.004	0.767 (0.445)
HRQD1	-0.000	0.000	-0.526 (0.600)
FMEXPD1	0.000	0.000	0.529 (0.598)
TAXD1	-0.000	0.001	-0.583 (0.562)
R^2 =0.31; F-Stat (p-value) =2.85 (0.002); Correlated random effects Hausman statistic was set to zero.			

**Significant at p<0.05, *Significant at p<0.1.

From the results of the FPI model for Sub-Saharan Africa, only three out of thirteen variables entered in the model were significant (within 5% significance level). These are domestic GDP, infrastructure development (LINFRA) and distance (DIST). Although this model has low explanatory power signified by an R^2 value of 31%, the p-value of the F-statistic is highly significant (p-value of 0.002). The explanatory power of the model is affected by attrition of observations due to the reliance of the RE model on cross sections to estimate the group's effects.

The results show that FPI is pulled by higher GDP, infrastructure development and distance. While GDP and infrastructure development results are as expected, the positive sign on distance goes contrary to the priory expectation that longer distances should discourage FPI. The expectation of a negative sign is in line with findings of Ghosh and Wolf (2000) that Africa and the Western hemisphere got less capital inflows than those regions which were closer to the main sources of

capital due to distance. However, using the portfolio theory of investment it can be argued that investors are expected to invest away from their "home" to diversify risk. Overall, the results suggest that Sub Saharan Africa's FPI is mainly pulled and not pushed. This implies that policies of Sub Saharan Africa governments and regional blocs predominantly affect the inflows of FPI into the region.

4.4 FDI and FPI in regional blocs

The second research question of this study pertains whether the drivers of foreign capital inflows differ across regional blocs which are SADC, COMESA and ECOWAS. To answer this question, significant factors for FDI and FPI inflows in these blocs were modeled by each region using the same procedure as for Sub Saharan Africa. The significance of different variables is assessed for each of these regional blocs. A fourth sample representing an artificial regional bloc (SADCOMESA) is created from the intersection of SADC and COMESA to aid in the analysis of regional dynamics. The results are presented in tables 13 to 20.

FDI in SADC

The most significant factor found to be driving FDI inflows in SADC is USA's GDP (LGDPUSD2). The results suggest that larger GDP of USA leads to less FDI inflows in SADC. The pull factors (which are significant at 10% significance level) are exchange rate volatility (EXCVOL) and fuel and mineral exports (FMEXPD1). Instead of discouraging FDI inflows as found in reviewed literature, exchange rate volatility is positively associated with FDI. A potential explanation for this effect could be the availability of hedging mechanisms as argued by Gossel and Biekpe (2015) in the case of South Africa's capital inflows. Domestic GDP is not significant so it is removed from the estimated model whose results are presented in table 13.

Table 13. EGLS results for SADC FDI

Variable	Coefficient	SE	t-stat (p-value)
Constant	4.547	0.030	153.768 (0.000)
LINFRA	-0.000	0.000	-1.165 (0.263)
EXCVOL	0.001	0.000	1.930 (0.074)*
HRQD1	-0.000	0.000	-0.459 (0.654)
LGDPUSD2	-0.003	0.001	-2.342 (0.034)**
MIRDIF	0.000	0.000	1.286 (0.219)
DIST	0.000	0.000	1.472 (0.163)
ROLD	0.000	0.000	0.676 (0.510)
FMEXPD1	0.000	0.000	1.804 (0.093)*
R^2= 0.672; F-stat (p-value) =3.59 (0.018); Breusch-Pagan LM stat (p-value) = 2.962 (0.375); Pesaran scaled LM stat (p-value) = -0.015 (0.988); Pesaran CD stat (p-value) = 0.183 (0.855).			

**Significant at p<0.05, *Significant at p<0.1.

FDI in COMESA

In COMESA, FDI is driven by (table 14) two factors which are interest rate differentials and exchange rate volatility. Exchange rate volatility has a positive sign, a result which is not as expected from theory. However, it can be argued that depending on the nature of the FDI, there is a possibility that returns to investments remain attractive to investors after accounting for the risk posed by exchange rate volatility. For example, Asiedu (2002) and Anyanwu (2011) find that Angola still attracted FDI despite high political risk because the risk-adjusted returns from mineral investments were attractive enough. In addition, it is possible that a positive relationship exists between foreign investment and exchange rate volatility due to the availability of hedging mechanisms. This is however expected to be in the short-run as argued by Gossel and Biekpe (2015) regarding FPI inflows in South Africa.

Interest rate differential has both pull and push effect due to the two components of foreign and domestic interest rates. The results therefore suggest that the bigger the gap between local minus foreign interest rates, the more FDI inflows to COMESA. Unlike results for FDI in SSA region, GDP per capita is found to be insignificant and with a negative coefficient. The model explains 25% of COMESA's FDI, with a significant F-statistic. The results also show that there is no cross-sectional correlation in residuals.

Table 14. EGLS results for COMESA FDI model

Variable	Coefficient	SE	t-stat (p-value)
Constant	4.427	0.061	72.778 (0.000)
GDPD1	-0.000	0.000	-1.485 (0.143)
FMEXPD1	0.000	0.000	1.450 (0.152)
EXCVOL	0.002	0.001	2.799 (0.007)**
MIRDIF	0.000	0.000	2.025 (0.047)**
AINFL	0.000	0.000	0.238 (0.812)
HRQD	0.000	0.000	1.433 (0.157)
R^2= 0.25; F-stat (p-value) = 2.621 (0.015); Breusch-Pagan LM stat (p-value)= 30.014 (0.092); Pesaran scaled LM (P-value) =1.391 (0.164); Pesaran CD (p-value) = -0.296 (0.768)			

**Significant at p<0.05, *Significant at p<0.1.

FDI in ECOWAS

FDI in ECOWAS is driven by push factors of USA Tax rates (USTAX) and stock market returns (USRETURN) and pulled by infrastructure development. The results (table 15) suggest that high tax rates in USA discourage FDI investment in ECOWAS, which is contrary to the expectation that high US tax rates would drive investors to invest away from USA. Possible explanations could be the existence of even higher tax rates in the region than USA. A second explanation is that higher tax rates in USA would reduce the returns to investors, reducing available investment capital for the region. This argument is supported by the significant (at 10% significance level) of USRETURN. The model explains 26% of the FDI in ECOWAS and has a very significant F-statistic, increasing the acceptability of the model.

Table 15. EGLS results for ECOWAS

Variable	Coefficient	SE	t-stat (p-value)
Constant	4.610	0.004	1174.78 (0.000)
GDPD1	-0.000	0.000	-0.728 (0.469)
USTAX	-0.000	0.000	-2.075 (0.042)**
LINFRA	0.000	0.000	2.311 (0.024)**
FMEXPD1	0.000	0.000	0.979 (0.331)
HRQD	0.000	0.000	0.406 (0.686)
USRETURN	0.000	0.000	1.765 (0.082)*
MIRDIF	-0.000	0.000	-1.547 (0.126)
AINFL	0.000	0.000	0.792 (0.431)
DIST	0.000	0.000	0.251 (0.803)
R^2 = 0.26; F-Stat (p-value) = 2.709 (0.009); Durbin-Watson stat = 0.782; Breusch-Pagan LM stat (p-value) = 47.829 (0.0007); Pesaran scaled LM (P-value) =4.139 (0.000); Pesaran CD (p-value) = 1.14 (0.254)			

**Significant at p<0.05, *Significant at p<0.1.

FDI in SADCOMESA

As mentioned earlier that some SADC countries also belong to COMESA, it is interesting to assess the drivers of FDI in this group. The results in table 16 show that pull factors which are infrastructure development, human resources quality and inflation are significant factors for attracting FDI to SADCOMESA. Inflation is consistent with a positive sign of exchange rate volatility in the cased of SADC. A potential explanation for a positive sign on inflation is that higher inflation might indirectly increase interest rate differentials (through monetary policy), thereby encouraging investors to exploit interest rate differentials to increase investment. If the investments in SADCOMESA have returns which are higher than the risk posed by higher inflation, FDI would increase despite unstable macroeconomic performance. Another factor, distance, is significant (at 5% level of significance) but unlike results for FPI in Sub Saharan Africa the factor has a negative sign suggesting, as expected, that the further a country is from the source of investment, the less the FDI inflows to that country.

Table 16. EGLS random effects results for FDI in SADCOMESA

Variable	Coefficient	SE	t-stat (p-value)
Constant	4.559	0.034	132.59 (0.000)
LINFRA	0.000	0.000	2.826 (0.008)**
EXCVOL	0.000	0.000	1.263 (0.215)
HRQD1	0.000	0.000	1.818 (0.077)*
LGDPUSD2	-0.000	0.002	-0.184 (0.855)
AINFL	0.000	0.000	2.003 (0.053)*
MIRDIF	0.000	0.000	0.951 (0.348)
DIST	-0.000	0.000	-2.191 (0.035)**
ROLD	-0.000	0.000	-0.298 (0.768)
FMEXPD1	-0.000	0.000	-0.300 (0.766)
R^2 = 0.45; F-Stat (p-value) = 3.258 (0.0054); Breusch-Pagan LM stat (p-value) = 18.584 (0.233); Pesaran scaled LM (P-value) =0.654 (0.513); Pesaran CD (p-value) = -1.881 (0.060)			

**Significant at p<0.05, *Significant at p<0.1.

FPI at regional level

Models of FPI inflows in regional blocs of SADC, COMESA, ECOWAS and an artificial one termed SACCOMESA were developed. The results of the regression EGLS models are presented in tables 17 to 20.

FPI in SADC

At regional bloc level, regressions were done with respect to FPI. The results show that domestic factors of fuel and mineral exports, rule of law and domestic return affect FPI inflows in SADC. The results suggest that increasing fuel and mineral exports leads to increased FPI inflows, a result which is according with expectations from theory. On the other hand, higher exchange rate volatility and longer distance from USA's capital discourage FPI in SADC. Another factor, rule of law has a positive effect on FPI. Finally, distance is significant in SADC as in Sub Saharan Africa FPI and SADCOMESA for FDI, despite the sampled countries being in the same continent (and therefore geographically close to each other), which confirm the findings of Bevan and Estrin (2004), that distance is a significant factor of foreign investment.

The results of the model are presented in table 17. Out of 5 independent variables in the model, 4 are significant within the 10% level of significance. The results also show that FPI in SADC is more pulled than pushed as the 5 factors in the model explain 57% of the FPI. The model is also good due to a high R^2 and a significant F-statistic. In addition, the model also does not suffer from cross section correlation.

Table 17. EGLS results for SADC

Variable	Coefficient	SE	t-stat (p-value)
Constant	100.265	2.359	42.503 (0.000)
EXCVOL	-0.002	0.024	-0.082 (0.936)
FMEXPD1	0.000	0.000	3.296 (0.005)**
DRETURND1	-0.000	0.000	-1.985 (0.065)*
DIST	-0.000	0.000	-2.436 (0.027)**
ROLD	0.097	0.042	(2.307) 0.035**
R^2 = 0.576; F-Stat (p-value) =4.346 (0.011); Breusch-Pagan LM stat (p-value) = 1.476 (0.224); Pesaran scaled LM (P-value) =0.336 (0.737); Pesaran CD (p-value) = -1.215 (0.224)			

**Significant at p<0.05, *Significant at p<0.1.

FPI in COMESA

One factor was found to be significant for COMESA FPI model, being USA GDP (LGDPUSD2). The variable explains 12% of the FPI in the bloc. Other factors were regressed in univariate regression models and were found to be insignificant as presented in the results table 18. The

paucity of significant factors compared to other regions might reflect the level of development of the bloc.

Table 18. EGLS results for COMESA

Variable	Coefficient	SE	t-stat (p-value)
Constant	100	0.0004	248917.3 (0.000)
LGDPUSD2	0.035	0.018	2.004 (0.055)*
R2 =0.12; F-statistic (p-value) = 4.017 (0.054)			
TRADE	-0.001	0.003	-0.428 (0.671)
MIRDIF	0.000	0.000	0.524 (0.619)
TAXD1	-0.000	0.000	-0.531(0.614)
USTAX	0.001	0.001	-1.376 (0.218)
AINFL	0.000	0.000	1.064 (0.328)
EXCVOL	-0.000	0.021	-0.000 (1.000)
FMEXPD1	0.000	0.000	0.892 (0.407)
USRETURN	0.000	0.000	1.779 (0.125)
LGDPUSD2	0.128	0.061	2.087 (0.082)*

. **Significant at p<0.05, *Significant at p<0.1

FPI in ECOWAS

The results for the FPI model in ECOWAS show that openness to trade and distance determine FPI inflows. With regards to trade, a 1% increase in openness to trade leads to a 0.2% increase in FPI as presented in table 19 of the results. As noted earlier, ECOWAS trade with the rest of the world grew at the highest rate (354%) compared with the other trading blocs. It can be argued therefore that increased integration in ECOWAS or individual country openness to trade attracted FPI investments.

Distance has a positive sign which suggest that within the region, countries that are further away from the USA capital tend to receive more FPI. As explained earlier, the positive sign is in line with the portfolio investment theory where investors would seek to diversify their risk by investing further away from their countries, if the further away a country is, the less its economy is correlated from the source country.

Table 19. EGLS results for ECOWAS

Variable	Coefficient	SE	t-stat (p-value)
Constant	99.99	0.013	7907 (0.000)
TRADE	0.002	0.001	2.255 (0.028)**
DIST	0.000	0.000	1.762 (0.084)*
LINFRA	-0.000	0.000	-0.786 (0.436)
AINFL	-0.000	0.000	-0.105 (0.917)
FMEXPD1	0.000	0.000	0.623 (0.536)
GDPD1	0.000	0.000	0.558 (0.579)
HRQD1	-0.000	0.000	-0.441 (0.661)
R2 =0.214; F-statistic (p-value) = 2.14 (0.054). cross section dependence test was not applicable due to non-zero means in the data			

**Significant at p<0.05, *Significant at p<0.1.

FPI in SADCOMESA

The combination of some SADC and some COMESA countries to make a bigger sample enabled a more insightful analysis into FPI determinants at regional level. The results show that domestic GDP (GDPD1) and distance (DIST) which both have positive signs are significant factors. The sign of distance implies that the further a country is away from the investor country, the more the FPI, which is contrary to expectations based on reviewed literature as well as the effect of distance in SADC FDI which has a negative sign as well. Another factor which is significant and with a positive sign for the coefficient (at 10% level of significance) is openness to trade (TRADE). The significance is contrary to Gossel and Biekpe (2015) who conclude in a study of South Africa's capital flows that openness to trade does not affect FPI significantly in the long run. Regarding the sign, there is a possibility that if the trade is predominantly natural resource-based, the threshold theory by Asiedu and Lien (2011) where, beyond a certain threshold level of natural resources as a percentage of exports, will lead to a negative effect on capital inflow. Therefore, the SADCOMESA FPI inflows could be negatively affected by trade. All the tests presented in table 20 on cross section correlation fail to reject the hypothesis of no correlation at 5% significance level which makes the results acceptable. Further, although the estimated model has low explanatory power (R^2), the F-statistic has a very significant p-value which also makes the model acceptable.

Table 20. EGLS results for SADCOMESA

Variable	Coefficient	SE	t-stat (p-value)
Constant	99.361	0.937	106.059 (0.000)
GDPD1	0.000	0.000	2.173 (0.034)**
DIST	0.000	0.000	3.026 (0.004)**
LGDPUSD2	0.057	0.074	0.779 (0.439)
TRADE	-0.003	0.002	-1.933 (0.058)*
MIRDIF	-0.000	0.000	-1.372 (0.176)
EXCVOL	0.006	0.009	0.656 (0.514)
FMEXPD1	-0.000	0.000	-0.563 (0.575)
R^2 = 0.33; F-statistic (p-value) = 3.931(0.002); Breusch-Pagan LM stat (p-value) = 23.43(0.075); Pesaran scaled LM (P-value) = 1.539(0.124); Pesaran CD (p-value) = 1.484(0.138)			

**Significant at p<0.05, *Significant at p<0.1.

In conclusion, the discussion has attempted to explain and reconcile some unconventional findings in this study, mainly positive effect of distance on both FDI and FPI, negative effect of openness to trade, rule of law and domestic return at Sub Saharan Africa level and within regional blocs. This is in addition to explaining the variability of factors determining investment across regional blocs, which suggest that regional blocs matter in the analysis of foreign capital flows.

6 RESEARCH CONCLUSIONS

Factors affecting FDI and FPI at SSA

The study looked at two levels, Sub-Saharan Africa and regional blocs. With respect to Sub-Saharan Africa level the main conclusion is that FDI and FPI are more pulled than pushed. The factors pulling the capital inflows are mainly GDP per capita (attracts FPI while discouraging FDI), infrastructure developments, human resources quality and distance away from US capital. While exchange rate volatility discourages FDI, rule of law discourages FDI which suggests that political risk is not enough to deter investors in Sub Saharan Africa region, and that returns may still be lucrative after adjusting for political risk. The only push factor at Sub Saharan Africa level is USA's GDP which is positively associated with more FDI. This factor suggests that Sub-Saharan Africa's FDI is exposed to global business cycles.

FDI and FPI at regional level

At the regional bloc level, FDI inflows are pulled fuel and mineral exports, infrastructure development and human resources quality. In addition to these, FDI within the regional blocs appears to be associated with economic instability, mainly exchange rate volatility and inflation. The conclusion from this unconventional result is that if Sub Saharan Africa's FDI is predominantly natural resource-based, then the risk-adjusted returns could still be attractive to investors. Further, the region might also be benefiting from availability of hedging mechanisms as argued by Gossel and Biekpe (2015) in the case of South Africa's capital inflows.

The push factors for FDI in the regions show that improvements in the economic performance (GDP and stock market returns) in the USA impacts negatively on SADC and ECOWAS' inflows. At the same time, if taxes increase in USA (a proxy for source country for investments), FDI flows to ECOWAS reduces possibly due to reduced profitability. Further, lower interest rates in USA lead to wide interest rate differentials which encourage investment in the COMESA region.

The conclusion on FPI in the regional blocs is that inflows are mainly pulled than pushed. The main pull factors are fuel and mineral exports, openness to trade, domestic GDP and rule of law. COMESA which is the largest of all the blocs analyzed is affected by global economic performance regarding FPI inflows.

The effect of distance is not well defined as its sign was not stable across regions and types of capital. However, its significance at both Sub Saharan Africa level as well as in SADCOMESA FDI and FPI, SADC and ECOWAS' FPI, leads to the conclusion that FDI and FPI in regional blocs is affected by distance in different ways.

Finally, despite the insignificance of region as a factor in regression modelling, the high variability of factors of FDI and FPI across regional blocs leads to the conclusion that regional blocs may matter in international capital flows. Given the small size of individual economies, and the weak significance of GDP per capita found in this study, the concept of regional blocs could be a real route to increasing foreign capital inflows. For instance, the study discovers that ECOWAS, which increased trade at the highest rate than other blocs, attracts FPI through increased trade. This contradicts the argument by Antra's and Caballero (2009) that trade and capital flows are substitutes, as in this study, the two have a positive relationship, making regional blocs a potential route to increasing foreign investment.

7 RECOMMENDATIONS FOR FUTURE RESEARCH

This study proved that SADC, COMESA and ECOWAS regional blocs are effected by different factors. However, this does not mean that being a member of a regional bloc is a factor for attracting or discouraging foreign capital inflows. This area requires a more in-depth focus on specific regional blocs to determine the relevant factors and the specific characteristics of the regional blocs that attract or discourage investment.

The variability in the effect of distance in different regional blocs and between FDI and FPI warrants further research. Further research would seek to explain why distance has opposite effects across different regional blocs as found out in this study. In addition, the role of ECOWAS' success in increasing trade and the significance of trade openness on FPI requires further investigation to provide a more definitive conclusion on the possible role regional trading blocs as a route to increasing foreign capital flows through enhanced trade.

The understanding of how individual factors affect FDI and FPI requires more than just quantity of inflows and determinants. More understanding of the source and composition of foreign investment capital is necessary to explain the mechanisms of how individual factors affect FDI and FPI. This is important for instance to explain unconventional results of this study where macroeconomic instability (in form of exchange rate volatility and inflation) is associated with more FDI investment.

From a methodology point of view, future studies of this nature may need to use more data that is currently not readily available such as FPI inflows and rates of return on stocks. While the majority of Sub-Saharan Africa countries do not have stock exchanges, the data on over-the-counter transactions could be found from sources other than the World Bank, such as central banks of individual countries. This is because panel data methods require sufficient amounts of data to respond to demands of statistical rigor.

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