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THE IMPACT OF FOREIGN CAPITAL INFLOWS ON ECONOMIC GROWTH IN SELECTED WEST AFRICAN COUNTRIES

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MASTER OF ECONOMICS
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THE IMPACT OF FOREIGN CAPITAL INFLOWS ON ECONOMIC GROWTH IN SELECTED WEST AFRICAN COUNTRIES

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Universiti Utara Malaysia,
In Fulfillment of the Requirement for the Degree of Master of Economics
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Abstract

The West African countries have been identified with inadequate capital for investment, being one of the poorest sub-regions in the world. This study employed panel data from 1980 to 2013 to examine the impact of foreign capital inflows on the economic growth in the selected West African countries using Two Gap Theory. The objective of this study is to examine the nature of relationship between foreign capital inflows and the level of economic growth selected West African Countries and to observe the causality between foreign capital inflows components and economic growth. The study adopts Pedroni cointegration and granger causality test. The result shows the existence of long run relationship between foreign capital inflows and economics growth in selected West African country. All the variables were positive but only foreign direct investment is significant. Net migrant remittance, foreign direct investment and official development assistance cause growth in the short run. The study recommends policies to encourage capital inflows via macroeconomic management, a flexible exchange rate, financial sector supervision, large reserves and diversification of domestic economies.

Keywords: capital inflows, Pedroni cointegration, granger causality, economic growth.
Abstrak


Kata kunci: aliran masuk modal, kointegrasi Pedroni, sebab-penyebab granger, pertumbuhan ekonomi.
Acknowledgement

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Musibau Hammed Oluwaseyi
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<tr>
<td>AU</td>
<td>African Union</td>
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<tr>
<td>BRVM</td>
<td>Bourse Regional De Valeurs Mobilieres</td>
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<td>BBC</td>
<td>British Broadcasting Corporation</td>
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<tr>
<td>BOPs</td>
<td>Balance of Payments</td>
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<td>CBN</td>
<td>Central Bank of Nigeria</td>
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<td>CEEC</td>
<td>Central and Eastern European Countries</td>
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<td>CNPC</td>
<td>China National Petroleum Corporation China</td>
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<td>COMESA</td>
<td>Common Market of East and Southern African</td>
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<td>ECA</td>
<td>Europe and Central Asia</td>
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<td>ECM</td>
<td>Error Correction Model</td>
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<td>ECOWAS</td>
<td>Economic Community of West African States</td>
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<td>ECT</td>
<td>Error Correction Technique</td>
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<td>EU</td>
<td>European Union</td>
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<td>FDI</td>
<td>Foreign Direct Investment</td>
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<td>FCI</td>
<td>Foreign Capital Inflows</td>
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<td>FPI</td>
<td>Foreign Portfolio Investment</td>
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<td>FE</td>
<td>Fixed Effects</td>
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<td>GCN</td>
<td>Guinean Central Bank</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>GDPR</td>
<td>GDP Growth Rate</td>
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<td>GFI</td>
<td>Global Financial Integrity</td>
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<td>IMF</td>
<td>International Monetary Fund</td>
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<td>INF</td>
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<td>IV</td>
<td>Instrumental Variable</td>
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<td>less developed nations</td>
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<td>LFRDR</td>
<td>Library of Congress Federal Research Division report</td>
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<td>MENA</td>
<td>Middle East and North Africa</td>
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<td>MNCs</td>
<td>Multinational Corporations</td>
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<td>OECD</td>
<td>Organization for Economic Cooperation and Development</td>
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<td>Acronym</td>
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<td>OLS</td>
<td>Ordinary Least Squares</td>
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<td>Official development assistance</td>
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<td>Private Domestic Saving</td>
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<td>Real Exchange Rate</td>
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<td>RIT</td>
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<td>SADC</td>
<td>South Africa Development Community</td>
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<td>School Feeding Programme</td>
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<td>Sub-Saharan Africa</td>
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<td>Transparency International</td>
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<td>Transnational corporations</td>
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<td>TOT</td>
<td>Terms of Trade</td>
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<td>TSCS</td>
<td>Time Series Cross Sectional data</td>
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<td>UN</td>
<td>United Nations</td>
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<td>UNCTADS</td>
<td>United Nations Conference on Trade and Development Statistics</td>
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<td>US</td>
<td>United States</td>
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<td>VAR</td>
<td>Vector Auto Regressive Model</td>
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<td>VECM</td>
<td>Vector Error Correction Model</td>
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<td>WAC’s</td>
<td>West African Countries</td>
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<td>WDI</td>
<td>World Development Indicators</td>
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<td>WAMZ</td>
<td>West Africa Monetary Zone</td>
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CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

Over the years, some appreciable economic developments have been achieved by West African countries with regards to economic growth. One of the salient sources is via Foreign Capital inflows. A nation can achieve fast economic growth through the motivation of foreign capital. Foreign investments have been viewed as form of merger and acquisition which as do with the existing interest rather than new investment (Madhok & Keyhani, 2012).

Foreign Direct Investment inflow has been seen as the main activities that enhance economic growth of any nation from the developing world. Obida and Abu (2010) stated that capital needed for domestic investment, employment creation, managerial skills and transfer of technology can be achieved through foreign direct investment. Although, event had changed over times where foreign direct investment inflow is subject to countries within the region of Africa as many Nigerians’ investors heavily invest in Ghana and other West African countries. Nigeria also receive managerial skills, investments from other African countries.

Efforts had been made by governments of developing countries to solve these economic doldrums (depression) without achieving success as planned. The governments of these countries have neglected investment especially foreign direct investment (FDI) which will not only guarantee employment for them but will also
have positive impact on economic growth and development. Foreign Capital is high imperative in any economy as it reduces the difference between the desired gross domestic investment and domestic savings. (Vijayakumar et al, 2010)

A study in 2012 claimed that, there is a connection between foreign direct investment, economic growth and foreign capital. According to Chi-Chi (2012), asserted that, FDI cause growth in an economy through foreign capital and also facilitate an increase in the total investment in such economy and subsequently provide extra job opportunities to the residents and poverty reduction. The study claimed that, FDI linkage to the home economy is a form of forward and backward association.

According to Adegbite and Ayadi (2011), in their study claimed that, domestic revenue-generation gap will be filled in the developing economy through the help of FDI, given that most emerging countries' governments do not seem to be able to make enough revenue to meet their expenditure required to attain sustainable growth.

Another study in 2014, claimed that, the benefit of capital inflows in an economy are in the form of spillover effect when economy enjoy poverty reduction through employment creation and increase in per capita income via remittance and adoption of foreign technology (Hussain, 2012).

The impact of Foreign capital inflows is high imperative in moving nations from the period of economic depression to achieve economic success as supported by supported by the above mentioned literatures which are of the same opinion.
1.1.1 Trends of FDI inflows in Africa and across Africa sub-regions

Statistics have shown a rapid increase in FDI over a few decades in most of the countries in the globe. For instance, global inward FDI flows rose to US$207.7 billion in 1990 to a peak of US$1.402 trillion in 2000 as against US$54.1 billion in 1980. Although the world FDI later fell in 2003 to US$565.7 billion starting from 2001 before skyrocketing to US$2.100 billion in 2007.


Then again, after very nearly ten years success in the growth of international investment, this inflows to Africa fell from a top of US$72 billion in 2008 to $59 billion in 2009 - about 19% fall contrasted with 2008 – due to the economic meltdown. This global economic meltdown later resulted to another fall in FDI inflows in Africa about US$44 billion in 2010. The steady economic recovery followed from 2011 such that international investment streams to Africa appreciated by 3.6% in 2013 to achieve US$57 billion above US$55 billion record in 2012, (UNCTAD, 2014) however representing only 3.9% of the worldwide aggregate.
There are various fascinating and changing qualities of foreign direct investment inflows in Africa. One of these features is that foreign direct investment inflows differ across sub-region as characterized by the United Nations (UN). Somewhere around 1970 and 2013, the normal foreign direct investment inflows by sub-region was most high in Northern part of Africa about (US$4.84 billion), with West Africa region of (US$3.64 billion) being the second largest in Africa, in which the least is moving to Central Africa region which is just US$1.65 billion (UNCTADS, 2014).

North Africa, oil rich region, led by a huge margin somewhere around 2003 and 2010 preceding West Africa assumed control from 2011, although this last with in short period of time. In any case, as far as the normal rate of the aggregate inflows to Africa, West Africa got the most elevated amid the same period at 31.29%, the second was North Africa (29.67%), Central Africa (15.25%), Southern Africa (12.02%), and East Africa (11.77%).

The nation differences in terms of foreign investment inflows and major beneficiaries of this international investment in West African region are countries which natural endowments, adequate infrastructural facilities and large market size in term of their population. According to UNCTADS 2014, starting from 1970 to 2013, the main five nation beneficiaries in the West Africa region were Mauritania (3.4%), Liberia (4.7%), Cote d'Ivoire (4.8%), Ghana (12.4%), and Nigeria (57.5%), the greater part of which are metal producers and fossil fuel and exporters and their aggregate inflows had been shared among these countries. They attracted more than 80% of the aggregate inflows (see figure 3).
In 2013, for instance, aside from Nigeria (the biggest oil exporter and producer in the West African sub-region), oil production in Côte d'Ivoire and Ghana pulled in impressive investment from foreign transnational corporations (TNCs), China National Petroleum Corporation (CNPC), ExxonMobil (United States), Royal Dutch Shell (United Kingdom), China National Offshore Oil Company (CNOOC) and from State-possessed petroleum organizations in Thailand and India.

In 2007 and 2013, foreign direct investment projects moved into Ghana rose at a compound annual growth rate of more than 50% due to the poor state of infrastructural facilities in other West African countries. This is the highest growth rate in Africa. With regards to FDI projects in the West African region, Ghana among the entire Africa countries in 2013 was the fourth-most recipient of FDI (Oriji et al, 2014).

The real attributes relate to the share of entire foreign direct investment inflows Africans' sub-region. As part of GDP, foreign direct investment inflows to real beneficiaries in term of its worth were much smaller: somewhere around 1970 and 2013, the five top beneficiaries as far as the share of FDI inflows in GDP included smaller economies like Gambia (2.6%), Liberia (20.1%), Cape Verde (2.9%) and Mauritania (4.2%) (Anyanwu, 2015).

The super trend occurred as result of difference in foreign direct investment projects among Africans' sub-regions. Amid 2013, for instance, in West African region, foreign direct investment projects improved by 20.5% the largest amid the Africans’
five sub-regions as against 7.4% expansion in East Africa and a decrease of 28.7% in North Africa and in addition a decrease of 21.7% in Central Africa (Anyanwu, 2015).

Figure 1
Comparison of FDI in Africa with other continents.

From figure 1 above shows that the percentages of FDI in Africa compared with other continents are relatively low (Jones, 2013). Foreign Capital inflow is highly important in West African economy, the World’s poorest continent as compared to other counterpart.
Fundamentally, critical part of the changing character of FDI exercises in West Africa is traced to rate at which the intra-regional investment is expanding into new FDI projects. This growth in intra-regional investment is being driven by Nigeria, the regional powerhouse of West Africa. In fact, statistics has shown that there is large expansion in Nigerian investments into intra-African investment, prominently after world financial and economic crises (2008–2013). Somewhere around 2008 and 2012, for instance, investment from Nigeria in relation with other African countries has 73.2 percent growth in FDI more than other West African Countries (Ayanw u & Yameogo, 2015). Likewise, in 2007 and 2013, intra-regional investment in Nigeria has increased by sum of 10.7% while the quantity of projects rose by 11.6%.
Amid the same period, its occupation creation also increased by 11.4% (Moore et al., 2014).

Figure 3: The trend of FDI among African West Africa Countries.

Among West Africa countries Nigeria and Ghana have the highest FDI. The records of FDI from 1990 to 2014 shows that, foreign investment in Nigeria had been rising over time while other West African countries were extremely low over years. Apart
from Nigeria only Ghana had an appreciable increase from 2005 and increased till 2014.

1.1.2 Foreign Capital Inflows in West African Countries

In West African countries, domestic private investment has been proved to be below in the sub-region to attain the desired level of economic growth. This is as a result of mismatch between her level of saving limits and capital necessities. Since the nature of FCI severely dislikes vacuum, remote capital inflow is by all accounts logical and sensible option wellspring of reserve funds to stimulate growth. This is relied upon to argue the domestic resource of the sub-region, quick-track her development strides and, therefore, raises the standard of living of her people (Diao & Breisinger, 2010). Excellent as that might sound, however, there has been a lot of controversies in recent times as torching the desirability of foreign capital inflows.

According to Udeh (2015), different schools of thought have defined the relationships between foreign capital inflow and economic growth. They are the complementary hypothesis school; the substitution hypothesis school and the last school of thought, who contends that the impact of foreign capital inflow is a function of the enabling environment and conditions obtainable in the host economy.

The complementary hypothesis assumes that foreign capital inflow is advantageous to economic growth and development of less developed nations (LDC's). This is done by supplementing the low funds of these nations, expanding the pool of
financial resources available for productive investments and promoting a rapid transfer of technology to the developing countries.

The second school of thought, perhaps for more radical, has contrary opinion to the first group. The results of the second group shows that foreign capital inflows act to relax the saving efforts of less developed countries and render them vulnerable to perpetual domination and enslavement by the economically advanced economies of the north principally the United States of America, Germany, Britain, and France. The third school of thought believe that the effect of outside capital inflow is a component of host nation's conditions which could permit or blemish its efforts aimed at exploiting the full advantages of capital inflows.

This school of thought (third) argued that foreign capital inflow has profits and costs. However, is the extent at which nation can diversify the level of her absorption capacity. Findings of this school of thought are that capital inflow is necessary but not a sufficient condition for economic growth or emergence from poverty (Kanu, 2015). The divergence in the stands of these schools of thought and the policy implications serve as a motivation to revisit the issue of linkages between foreign FCI and economic growth GDP in the selected West African countries using Nigeria, Ghana, Guinea, Gambia, Liberia, Serra Leone, Cote d’Ivoire and Mauritana as case studies.
1.2. Statement of Research Problem

According to the Onyeiwu, (2015) Public and private investments among African countries have been facing a perennial shortage of resources in the respect of financing their investments. The lack adequate finance has reduced the ability of governments to embark on public expenditure in infrastructure and social services required to boost domestic demand, encourage private sector activity and sustain high level of growth for economic transformation. The chronic resource gaps emanate from imbalances between exports and imports, between debt payments and resource inflows and between domestic savings and domestic investments (Yohannes, 2014).

Ndambendia & Njoupouognigni, 2010; Michalowski, 2012 and Omurwa, (2015) show conflicting evidence on the exact impact of FCI on the economic development of nations and that the impact of foreign capital flows may vary from one country to another and depending on the type of foreign capital flow and the social and economic environments of the recipient countries. Among these West African countries Nigeria and Ghana attract the major foreign direct investment with a large merging while other West Africa countries receive small resources inflows from 1970 till date as shown in the Figure 2.

More so, the features of remittance inflows are highly advantageous to the economic disposition of developing countries. It has been opposite in the case of West African economies. The largest percentages of the inflows to the region came through
informal channels with strong implications for money laundering, fraud, illegal foreign exchange markets and terrorism financing. This further adversely affects effective management of macroeconomic variables such as money supply growth, inflation, exchange rate stability and the current account balance. This current account gaps pose problem to financial sector policy with regards to economic growth in the West African Sub-region (Sekyere, 2011).

The quest for external financing among West Africa countries is highly imperative due to low level of income to facilitate domestic resource in order to achieve economic growth via adequate investment. This phenomenon has impacted negatively on the economic growth of the sub region, which has been characterized by periods of low and volatile growths and periods of economic stagnation. A fall out of the erratic and slow growth pattern in the sub region is that their economies cannot permit an increase in the living condition of her people. However, since the introduction of economic reforms in the mid-1980s many of the West African economies have recorded some form of stunted growths (Anyanwu, 2015).

External sources of financing for investment and growth in the Sub-region have experienced an important change in the most recent two decades. Regardless of the expanded stream in absolute terms of capital and investments to West Africa nations, they are still described by low per-capita salary, high unemployment rates, deteriorating economies and low and falling growth rates of GDP; issues which investment and foreign capital inflows (IMF, 2011). This situation could be credited to the way that most of the investments depend on speculation and on short run
premise. When the profits are made, the funds are repatriated. The governor of the Central Bank of Nigeria-Sanusi Lamido Sanusi, well over $20 billion left the Nigerian economy by means of capital flight between year 2008 and 2009. There is undoubtedly, capital flight has a harming outcome on the growth of any economy. Based on these banes this study will investigate the total foreign inflow coming to the West African region and how effective the international capital were utilized in the West Africa as well as the importance of the effect of foreign capital inflows on economic growth.

1.3 Research Questions

The following research questions are therefore considered relevant to the study.

1. What is the relationship between foreign capital inflows (FCI) and the level of economic growth in West African Countries?
2. To what extent has foreign direct investments and overseas development assistance affected the level of economic growth in West African Countries?
3. To what extent has Economic Migrant’s remittances and Real exchange rate affected the level of economic growth in West African Countries?
4. Is there any causality between foreign capital inflows components and economic growth?
1.4 Objectives of the Study

Centrally, the study is intended to ascertain the impact of foreign capital inflows on economic growth in selected West African Countries. The specific objectives of the research are:

1. To examine the nature of relationship between foreign capital inflows and the level of economic growth in selected West African Countries.
2. To determine extent at which foreign direct investments and overseas development assistance affected the level of economic growth in selected West African Countries.
3. To examine the extent that Economic Migrant’s remittances and Real exchange rate affected the level of economic growth in selected West African Countries.
4. To observe the causality between foreign capital inflows components and economic growth.

1.5. Significance of the Study

The importance of foreign capital on economies growths among west African countries like Mauritania, Cote’d’ Iviore, Nigeria, Ghana, Gambia, Guinea, Liberia, Sierra loene among others is that, foreign capital has assisted many of this developing countries to achieve economic growth (Anyanwu, 2012). International investments had been found significant and positive for economic growth in the developing countries due the fact that, it impacts on economic growth are many viz;
stimulating domestic investment, employment creation, poverty reduction, capital formation increase and also, enhancing the technology transfer in the host countries (Alguacil, 2011).

According to Khan (2007), Uzoma, Kalu and Onyinye (2015) international investments has become the most significant source of external resource flows to developing economies over the decades and has become an essential part of capital formation in these economies, although the global distribution of foreign direct investments has continued to fall. Governments of these developing countries need to induce foreign direct investment in order to attain a level of economic development. But it is also quite discouraging that, the continent still remains underdeveloped and poor. Some scholars accounted for this to be as result of unattractiveness of the region to international investors as result of lack of some main determinants of FDI in the host nation.

This research work is justifiable for several reasons. First, it focuses on the West African countries, one of the least developed regions in the world. Second, the region has lagged behind its counterparts in the past four decades in terms of savings rates and continues to face difficulties in attracting international capital in order to reduce saving-investment gap.

Third, most of the West African countries are reported to be experiencing high level of corruption and political instability as the corruption perception indices and political risk rating have revealed.
Fourth, past (empirical) studies on impact of foreign capital and economic growth in West African countries focused only on individual country and lacked the basis for generalization in most of the studies on foreign capital in Africa (Farole, 2010). According to Oyin and Ahokangas (2014), the poor economic growth and development in developing countries has been traced to the inadequate inflow of foreign investment into the region. West African countries including like Nigeria, Ghana, Sierra Leone, Gambia, Guinea, Ivoire Coast and Mauritania among others had made several attempts to encourage Foreign Investors but all these efforts is abortive. The issue of poor infrastructural facilities had been the major obstacle of FDI inflow to the region most in particular Selected West African countries would be the center focus of this research work.

Many economic regions especially developing economies found that FDI is one of the most important factors to enhance economic development (Morrissey and Udomkerdmongkol, 2012). Foreign direct investment is seen as a combination of capital, technology, marketing and managerial experts. It is highly imperative for West African countries to improve their business environment climate in order to attract FDI. Nigeria as a country, with her vast natural resource and population (large market size) among other West African countries but this has not transformed to economic growth (Asiedu, 2003).

In the case of the homogeneous West African countries viz Mauritania, Cote’D Ivoire, Nigeria, Ghana, Sierra Leone, Gambia and Guinea. Foreign investors had underlined the poor state of the infrastructure has a major bane effecting foreign
capital among above selected West African countries. The major challenge of their economic developments is the inadequate infrastructural facilities like power, road and conducive environment for foreign investment. The importance of this study derives from the desire of ECOWAS governments to reduce among other things poverty, income inequality, unemployment, and barriers to economic development. This implies that key sectors of the economy such as agriculture, energy and power, transport, health, communication and education, have to grow at higher rates. To achieve this goal, huge funds are needed to invest in the sectors.

This study is highly imperative because it will guide the countries concerned on the measures to be taken by policy makers and governments to encourage foreign capital inflow in order to spur and sustain economic growth among West African countries. Additionally, this study focuses on the West Africa because of the general perception that Africa is structurally different from the rest of the world, African policy makers should learn from the economic success of LAC and East Asia by creating an enabling environment to attract foreign capital. Lastly the study is important due to the fact it will capture the policies employed in the each of the selected West African countries Nigeria, Ghana, Serra Leone, Gambia, Guinea, Manritania for African leaders to learn from one another.

1.6. Scope of the Study

The scope of this study limit itself to identify the impact of foreign capital inflows into eight selected WACs. Precisely, this study examines countries such as West
African Countries. The study also covers the period from 1980 to 2013 due to the availability of the data. Equally, the study would investigate the variables that could influence the decision to invest by MNCs.

Based on this study, it is believed that the selected sample might represent the entire WACs and it is also believed that data will be very much accurate by providing sufficient and reliable information that can be useful when taking decisions by both local and foreign investors as well as the government at large.

1.7 Organization of the Study

The study consist five chapters, Chapter One comprises the background of the study, the problem statement, research questions, objectives of the study, scope of the study and organization of the study. Chapter Two includes reviews of the related and relevant conceptual and empirical literature concerning the impact foreign capital inflows in West African countries and effects of infrastructural development on foreign capital inflows. Chapter Three contain the theoretical framework, methodology use to achieve research objectives. Chapter Four is concern about data analysis of the empirical results. Lastly, Chapter Five which include summary, conclusion, recommendations as well as the implication for further research.
CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In this chapter, we shall review both theoretical and empirical literature on economic growth and the measurements of foreign capital inflows. Thus, our discussion would begin with the review of economic growth theory. Next is the review of literature on Foreign direct investment, Official development remittance, Real exchange rate, Real interest rate and other potential determinants of foreign capital considered in this study, and finally, empirical studies on economic growth and foreign capital inflows in the world and the regions of Africa. Empirically, Benmamoun & Lehnert (2013) show that AID and FDI are positively and significantly associated with economic growth in low income economies. Moreover these variables are equally important for countries that are highly dependent on FDI.

Driffield and Jones (2013) found that all FCI have a positive and significant impact on economic growth if the government controls her institutions. Additional interesting is the way that coefficient estimates related to these foreign capital streams are of similar magnitude. Nwaogu and Ryan (2015) make an aggregate Capital variable that measure aggregate external financing (AID, FDI and settlement). In any case, they found that these variables are also significant. Their findings are similar to that of Driffield and Jones.
2.2.1 The Theory of Economic Growth

The neo-classical theory of growth was established or developed to explain economic growth and therefore focused mainly on an industrial economy. As capital and labor are the two main factors of production in an economy.

However, this theory is focused on the way growth of output is influenced by the growth of labor which is assumed to be given exogenously, and the growth of capital stock due to investment. Sundrum (Aheniy, 2012). Although, under neo-classical theory, there are different methods of analyzing the effect of FDI inflow on the economy, Barro, Robert & Sala-i-Martin (2004) has observed that the capital stock, labor and total factor productivity are the major determinants of output growth in any economy.

Thus, the growth in the Solow model, focused on the total production function along with the relationship between growth rate and investment in an economy. In the basic Solow model, there is a closed economy producing one single (composite) good using both labor and capital. Mello (1999), Akinlo (2004), and Adeniyi, Omisakin & Egwaikhide (2012) used this model (Solow neo-classical model) in form of Cobb Douglas production function (1928) to access the impact of FDI on economic development. However, the production function refers to the inputs of capital (K) and labor (L) which are necessary to produce output. The Cobb-Douglas production function can be written as:
The production function above expresses constant returns to scale which simply implies that output will double when inputs are doubled. Hence, the production in terms of output per labor and capital per labor, which are given respectively by:

\[ y = \frac{Y}{L} \]

\[ k = \frac{k}{L} \]

This gives \( y = k \). Therefore, firms will produce more output per worker with additional more capital per worker in the production.

On the other hand, the second equation of the Solow model explains how accumulation capital in the economy of a given country. Thus, the following equation gives the capital accumulation as:

\[ K' = sY - dK \quad \text{--------------------- (2.02)} \]

From (2) above, the difference between gross investment \( sY \), and depreciation \( dK \), is the change in the capital stock \( \dot{K} \). Therefore, the model assumes that workers save a constant fraction, \( s \), of their combined rental income and wage. As it is a closed economy, savings equals investment and investment is used to accumulate capital.
Hence, depreciation occurs every period irrespective of how often output is produced in the production.

Hence, the capital accumulation equation in per worker terms will be written as:

\[ k = sy - (n + \delta) k \] \hspace{1cm} (2.03)

By taking the production function and capital accumulation together, the Solow swan model can be solved. Therefore, the production function in terms of output per worker is given by:

\[ y = ka. \]

As the steady-state quantity of capital per worker is determined by the condition, \( \Delta k = s*f(k) - (\delta+n)k = 0 \) It indicates that the economy is at its steady state as there is no change in the capital-labor ratio over time.

However, there will be a limit to the growth as a result of diminishing returns, as it has been suggested that an exogenous increase in investment whether domestic or foreign the capital and output per worker would increase temporarily.

More so, if FDI inflows to the host nation create an expansion to the physical capital accumulation, more output with the same number of workers will be produced in the economy (Mabrouk, 2004). In that example, it can be proved that FDI is related with growth as a net increase in capital per workers is produced. In this way, this increment in the volume of investment and/or its productivity will prompt long term
"level" impact and medium-term transitional expansions in growth because of the inward FDI. As a result of diminishing returns to capital conventional assumption, the beneficiary economy would move to its steady state, leaving no permanent impact on output growth as if FDI had never occurred.

Be that as it may, neoclassical hypotheses were gone up against with disadvantages in clarifying the long haul financial development. However, Solow Growth model distinguishes mechanical advancement as determinant of financial development, yet it neglected to clarify what decide the innovative headway. To this impact, endogenous development hypothesis which is otherwise called new development hypothesis advanced to restrict the neoclassical speculations and expect steady minor result of capital. Along these lines, the consistent peripheral result of capital suggests that interest in physical capital and human capital can make outside economies and efficiency is said to be enhanced (Choi, 2013).

The endogenous growth theories state that the long-run growth of a nation is not just depended on the volume of physical investment but also relies on upon the efficiency in which investment is utilized in the economy. Subsequently, endogenous growth model focuses on incorporating organizational, managerial, technical and human skills, accumulation of knowledge additionally advancement and mechanical advance endogenously in the growth theories which are regularly brought by FDI (Trebilcock & Prado, 2011). The long-run economic growth in the endogenous growth model is seen as an element of innovative advancement getting from knowledge spillovers and technology transfers (Lehmann et al 2013).
In a nutshell, one can infer that the new growth theory gives awesome backing to the thought that FDI could be a strong factor in supporting economic growth. More importantly, FDI is expected to transfer knowledge, promote learning by doing that can lead in technology spillovers and increment in human capital where development in the host nation could be enhanced.

2.2.2. Theoretical reviews on Foreign Direct Investment

The universal movements of FDI have basically and rapidly increased in the most recent decade, either in stock or flow, which firmly strongly reflects on the home and host nation macro indicators. The increasing in the outward FDI will increasing the foreign affiliate’s employments, the economy presence in the worldwide market and build the exchanges to the local economy, which affect decidedly on the domestic economy. Then again, this expansion of the production locally abroad fulfills the foreign demand, transfer technology and increments the host local output and employments, which affects positively on the host economy.

In fact, there is no general FDI definition, but all different definitions have the same general characteristics. They categorized FDI from portfolio venture, and different matters of the vital relationship between the immediate financial specialist and direct investment enterprise from one side. In accordance with the reports of UNCTAD and OECD, United Nations Conference on Trade and Development and Organization for Economic Co-operation and Development respectively. Defined foreign direct investment as the form of investment which deals with a strategic long term
association ship that reflected a lasting interest of a resident entity in one economy (i.e. direct investors) in an element (direct investment enterprises) people in an economy at the expense of investors. The target of direct investors for lasting interest is to gain high degree of influence in order to control the enterprise based in the other economy of their interest (UNCTAD & OECD, 2008).

Classification of FDI: It is fascinating to state significant types of FDI to improve understanding about the way of the nature of foreign capital in real terms for practical sense. Inward Foreign Direct Investment: This is known as part of long term capital inflows into a nation apart from portfolio foreign investment, foreign aid or external borrowings. The inward FDI flows mean that investment is done by an entity outside the host nation from its home country. Outward Foreign Direct Investment: This is the part of long term capital outflows in addition to aid, a repayable external debt or portfolio investment, by the entity from a home country to host country.

Horizontal Foreign Direct Investment: This is considered as an investment undertaken by a multi-product firm in the same line of production plants situated in different countries.

Vertical Foreign Direct Investment: In this category, the real investment procedure is divided into upstream and downstream stages after the complication stage, and then only transferred to foreign countries (abroad). Here, the newly established assembly plants’ demand for parts and the components is usually exchange with exports from
home country suppliers. Buckley (2014) stated that the aim of vertical FDI is to exploit scale economics at different stages of production arising from vertically integrated product relationship in view of the resource positions.

Greenfield Foreign Direct Investment: This is the type of investment where the MNC (Multinational Company) constructs completely new facilities and production plants into the host country.

Brownfield Foreign Direct Investment: It is an outcome of mergers and acquisitions which has to do with the foreign capital management of the existing investment. Brownfield foreign direct investment implies that the MNCs (Multinational Companies) or an associate of the MNCs tends to merge with or acquire an already existing firm in the host country, thus, constituting in a new MNCs affiliate.

Conducive economic environments in the presence of good economic reforms, investment oriented policies and multinationals reinvested earnings increment will induce high flow of FDI among countries in the world. According to UNCTAD (2010), this reflects a rapid increase in both the volume of FDI and number of multinationals, because of the accelerated process of globalization and privatization in the world economy.

In the context of the endogenous growth or neo-classical growth models, Theoretically, the influence of foreign investment on the economic growth of the recipient countries vary in the conventional counterparts to the recent growth models. Therefore, the economic growth of the conventional theories saw growth not
in the context of closed economy but rather in an open economy. Upon the arrival of externality-based growth models and the addition of FDI in the model of economic growth, the possible impact of FDI was limited to the short run level of income, as many current researches failed to cover an endogenous long run role of FDI in the determination of economic growth. The emphases on diminishing returns of capital in the long run, the neo-classical models, conclude that, FDI can only have impact on growth in the short run.

The effect of FDI on economic growth may be either direct or indirect. FDI enhances production, transfer of technology, employment creation, added value and export. Hence, Gross Domestic Product has direct impact via these factors. To put it further, per capita income of the residents can be raised up due to employment opportunities and thus, the increase in income is calculated directly in GDP. The same goes for value added and export. Equally, an increase in GDP can also be affected indirectly by FDI, viz as viz, knowledge and technical know-how via license, imitation and job training and transition of technology. Moreover, as the technology of production is enhanced in the economy, the supply cost of the products will be minimized and best quality of products will be provided, thereby improving production and per capita output in the economy (Behname, 2012).

Bagli & Adhikary (2014) in his effort to differentiate between inputs into foreign capital and domestic capital, developed Solow’s swan model to test the impact of foreign capital on growth and found that the technology growth rate is an increasing function in foreign capital. He made an assertion that the domestic capital increases
with the increase in foreign capital. Nevertheless, it can be viewed that FDI may not only increase the productivity of firms receiving FDI but also to all firms. Furthermore, FDI can boost overall economic growth by enhancing competition in the local input market and hence boost home firms to achieving high productivity through several efficient techniques (Adams, 2009).

2.2.3. Theoretical review on Official development assistance

Growth and development models identify that the major factors that influence long-term economic growth and development are availability of capital and labor as well as their productiveness (investment/savings) and technological progress. The developing countries suffered from the low domestic savings as a result this bane, savings cannot sustain the required investment, and the unsustainable current account deficit denies these economies from importing capital goods for investment. The arguments ascertained that Official development assistance inflows to developing nations range from giving a big push out of a poverty trap, bridging the financial gap to inducing better policies and institutional environment for investment. The success of the Marshall plan in 1950s created a great deal of optimism that ODA flows to developing economies would spur economic growth and development in recipient economies.

The classical economists postulate that capital accumulation is the engine of growth but in the absence of technological progress and official development Assistance (ODA) was assumed to increase physical capital stock hence economic growth.
Schumpeter (1954) and Veledinah, (2014) emphasized that technological progress was an important determinant of economic growth and therefore; ODA only spur economic growth when it is combined with the transfer of entrepreneurship and new skills. Until late 1960s, only few aid data was available, and the IS-LM (Investment Saving-Liquidity Preference Money Supply) macroeconomic theory was adopted in the aid-growth literature.

The ISLM framework was employed to evaluate the impact of foreign aid by assessing the activity or growth that is induced by a given amount of foreign aids that enters a country and researchers classified the impact into 3 viz as viz; primary effects, marginal effects and total effects of official development assistance (ODA) on the national output. Jean, (2015) identified the two major bane: the marginal outcome is often different from what foreign aid actually finances (because aid is fungible i.e. can be replaced) and separating the long-run capacity effect (change in investment) and the short run activity effect.

Sachs et.al (2005) found that sub Saharan-Africa necessitate temporary big push from foreign aid ODA so as to stimulate economic growth and reduce poverty. The big push model lost credibility for a while but gained it again in 2005 and is used as a rationale for large foreign aid programs. Sachs (2005) claimed that, it is feasible for aid to accelerate growth in Africa to meet the Millennium Developmental Goals target of reducing the poverty rate to moderate level(halving Poverty rate) by 2015 if the foreign aid inflows are encourage by the government. The big push theory postulates that once a country achieves self-sustaining growth, it will stop receiving...
aid. Easterly (2006) concluded that, there is no evidence of poverty traps and also
never found much data backing take-offs that it encouraged aid and investment in an
economy and therefore; He found very little evidence in support of the theory. To
Easterly, the poor nations like China, India Botswana, Benin, and Lesotho advanced
quite nicely and rapidly out of poverty without significant foreign assistance while
other countries like Zaire and Chad had no growth or declined despite substantial
foreign assistance inflow to these countries.

2.2.4. Theoretical review on Workers Remittances

Workers Remittances are considered substantial and increasingly important medium
of external finance that are growing not only nominally but also relatively in relation
to other transfers to developing economies (Dovelyn, 2006). Even though developed
economies remain the dominant sources of migrant remittances, large amounts come
from developing economies.

In the recent years, the amount of remittances heading off to the developing nations
has multiplied (World Bank: 2006). Sub-Saharan Africa was at the bottom of the
table of remittance receipts, adding up to US$ 8.1 billion in 2005 which spoke to a
72% expansion from the 2001 figure of US$ 4.7 billion. As far as remittance/GDP,
Cape Verde, Lesotho, Guinea Bissau and Senegal best the chart.

However, after several years of strong growth, settlement streams to creating nations
started to back off in the second from last quarter of 2008. This slowdown developed
further in 2009 because of the global financial crisis, despite the fact that the accurate
magnitude of the growth moderation is difficult to decide given the vulnerabilities about global economic growth. In nominal dollar terms, the official records of the incomes made abroad by citizens of the developing countries in terms of remittances in 2008 was $283 billion which was an increase of 6.7% of the remittance 2007's $265 billion although, there was a slight fall in 2008 about 1.8% of the inflows in 2007 and further forecast were made on the future fall of 0.9% in 2009 (Ratha et al., 2010).

However, migrant remittances inflows to Africa are considerably lower than Foreign Direct Investment (FDI) flows and Overseas Development Assistance (ODA), they are however stable. This assumes that, through the securitization of future inflows, they can potentially ease access to, and lower borrowing costs for foreign capital.

Migrant remittances include accumulated stock of wealth transfers of earnings or transfers of earnings by individuals or groups of migrants to their home countries as some sort of contract agreed upon between these migrants and their families. These transfers are usually meant to assist dependents, repay loans, invest or for other developmental objectives.

Wahba (1991) migrants' remittances can be grouped into four categories: potential remittances i.e. left over money with the migrant after all expenditure in the host country; retained savings i.e the difference between potential remittances and the amount transferred during the period; discretionary remittances i.e. transfer in excess of fixed remittances; and fixed remittances i.e. the minimum amount of money a
migrant needs to transfer to meet the basic needs and obligations of relations back at home. This categorization of migrants’ remittances has essential policy implications given that each transfer is motivated differently. For instance, fixed remittances are occasioned for the purpose of diversifying sources of income and to meet other family needs.

In case of discretionary migrants’ remittances, they depend on the need to maintain a store of value in the host country or the country of origin which in turn depends on the difference between real interest rates, general macroeconomic stability, expected movements in exchange rates, the ease of conversion of one currency into another and the efficiency of the payments mechanisms between the home and host economies.

Although, saved remittances vary oppositely with discretionary remittances. In fact, an increase in discretionary remittances tends to decrease in the transfer of saved remittances and consequently slows the increase of retained earnings which has the potential to induce growth and development of the migrant’s home economy.

As torching the structure of the economy, it is demonstrated that in an economy with high proportion of farming to GDP, a decrease in key commercial enterprises, a prevalence of natural disasters would tend to be associated with higher rates of migration and consequently a greater level of remittance money. Here, an unfavorable monetary circumstance in the host nation would lessen migrants’ remittance inflows. Likewise, movement is more prominent to more educated
members of the household thus too remittance inflow is higher for this category of migrants. In the meantime the level of remittances varies directly with size of family unit at home and adversely with the age of the migrant and duration of time abroad. In case of gender difference, female migrants tend to transmit more for family care, while male migrants tend to dispatch more for future related reasons (inheritance).

Worker migrants' remittances include an essential mechanism in which the resources can be transferred from developed economies into developing economies (Singer, 2010). Workers remittance is the second-largest source of foreign capital, behind FDI, of external funding for developing economies (Ratha, & Sirkeci, 2010). Therefore, there are a lot of debates with regards to remittance in developing nations since worker migrants' remittances tend to be fairly insignificant for more developed economies. Yet, studies on remittances of workers has so far focused mostly on its impact on income distribution within countries, along with the determinants of workers’ remittances on individual decision making unit, or its impact for a particular nations.

These literatures are of the opinion that, migrants' remittances are form of income or capital transfer had led to controversies among scholars. Taylor & Castelhano (2016) argued that households’ recurrent expenditure is made from remittances. He concluded that, at aggregate level it difficult to divert remittance into productive activity since most of the worker remittance is received by the households and decision on its usage is subject to their wish.
As far as we know among published the articles, Giuliano & Ruiz-Arranz, (2009) are the first to include migrants' remittances into investment equation in estimation. The study expressed that the parameter of migrants' workers' remittance variable was found positive and significant across all specifications. He concluded that, the tool of economic growth is indeed migrants' remittances. The growth and development can be enhanced through investing this remittance. Notwithstanding this, other studies such as Adams & Klobodu (2016) and Nsiah, Fayissa & Wu (2016) discovered different connections.

Evidence has shown that among scholars there are conflicting results on the association between growth and migrants' remittance. Some were saying positive and others found it to be negative as claimed by Chami et al (2003) concluded that, migrants' remittances and economic growth are inversely related. Based on this fact there is need to investigate on the impact of this variable on economic growth.

2.2.5. Theoretical review on Real Exchange Rate

The real exchange rate (RER); in an open economy, real exchange has been one of the most crucial factors that enhance economic growth. Real exchange rate is considered as the relative price with measures the relative market value of common baskets of domestic and internationally produced goods. The stability of the real exchange rate is a vital tool that can guaranty economic growth because stable RER induce foreign capital which bridge the saving gap and motive investment in an
economy. The decision making on domestic and foreign production and consumption choice is influenced by real exchange rate in that economy.

The decisions on saving and invest are function of RER, and also the area that the government divert international capital flows to. Instability in the RER has positive effects on demand and supply in the economy, government finances, the price stability of commodity and factor, income and wealth distribution, employment, and in fact on general success of economic policies (Razin & Collins 1997; Al-Shubiri, 2010).

2.2.6 Theoretical review on real Interest Rate

Past studies have demonstrated that the expense of increasing the pull of capital in a nation influences its FDI outflows (Pan 2002; Froot & Stein 1991; Hong & Smart 2010). Higher interest rates on loan such costs, making firms acquire higher returns to live up to their desires net of debt repayments. Locally, it can be contended that organizations contend on generally rise to balance, since they are confronted with comparative financing costs. Universally, however, firms from source nations with high loaning rates are at a cost disadvantage in raising capital, contrasted and those from nations with low lending rates (Lane 2012; Grosse & Beck et al. 2011). One may expect that, since in a world with mobile capital, risk adjusted expected profits for every global resource would be equalized, cost of capital differences have no bearing on FDI. In the real life, capital mobility is not perfect. Only big multinational enterprises can raise capital globally. Furthermore, difficulties, for example,
exchange rate fluctuation and hidden costs conflict with expansion of capital up in a third nation (Brada et al. 2011).

2.3 Empirical Literature Review

Many developing economies had realized the essence to encourage foreign capital in order to boost domestic resource, in view of expansion in disequilibrium between capital requirements and domestic capital stock. This led to fact that made developing economies to drive their attention towards encouraging foreign capital. Foreign capital inflows had been proved empirically as crucial tools for augmenting the supply of fund to invest in the home economy (Kareem 2012).

Less developing economies like Africa need to encourage foreign capital to fill the gaps between their investment funds and foreign exchange, improve capital accumulation within their territory and development is expected to solve problem of poverty within the region. Hence, the benefit of FCI is for enhancing productivity generally recognized since the recent economic meltdown. Progressively, financial improvement studies demonstrate that there is a powerful connection between economic growth and foreign capital flow (Oriji et al 2014).

The foreign capital inflows and economic growth connection can be clarified in two channels viz. direct channels and indirect channels. For the FCI's direct channel and growth connection has been transmitted via: exchange of innovation; lower cost of capital as result of risk allocation; development of the capital market in financial sector as well as enlargement of domestic savings. The indirect channels’ stand on
the reason that financial flow enhances specialization; encourages better strategies and motivates FCI through sound economic policies (Busse & Hefeker, 2007).

West African nations have supported capital accumulation by abolished barriers against capital inflows inside their region of West Africa. Moreover, Southern part of Africa received the almost all the FCI moved to Africa as an aftereffect of its nearness, refinement and business sector market size advantage which have given her monopoly power over others SSA countries while West African sub-region got an infinitesimal rate. Case in point, South Africa received at least 54.4% of the aggregate (FDI) inflows in 2005 to the region of Africa while an average of around 45.6% was dispersed among the other African sub-region and this trends of FDI inflows in among African countries and regions have not change till date in term its. In this perspective, actions were taken by various national powers to encourage more FCI inflows to Africa.

Among these activities is denoted by successful economic integration of among themselves in large territorial blocs, for example, The Common Market of East and Southern African (COMESA), the Economic Community of West African States (ECOWAS), South Africa Development Community (SADC) and Bourse Regional De Valeurs Mobilières (BRVM). The coming together of countries of these territorial blocs consolidated with enabling environments which helped African nations to enjoy trade agreements developed economies.
With reference to UNCTADS 2015, the largest bulk of FCI inflows go to South Africa followed by Nigeria whereas the West Africa sub-region is left with a limited amount of the inflows. The while West African countries are left with limited FCI is yet unclear. To our knowledge little has been done as regards the impact of foreign capital inflows on economic growth among West African countries.

2.3.1 Overview of ECOWAS Member States Economy

ECOWAS is in Western Africa. It is a regional institute of 15 West African nations formed in 1975. There were 16 nations in the organization until Mauritania withdrew membership from ECOWAS in 2002. The major purpose of forming ECOWAS was to realize economic integration, socio-political interactions and shared development in order to form a unified economic zone in Western Africa (Hill, 2012). ECOWAS members are further divided into L’Union Economique et Monétaire Ouest-africaine (UEMOA) and non-UEMOA members. UEMOA was enacted in 1994, which was previously two separate organizations: the Communauté Economique de l’Afrique de l’Ouest (CEAO) as a kind of francophone ECOWAS and the Franc zone monetary union. Guinea is the remaining francophone country in the sub-region, which is not a UEMOA member (Njoku, 2011). Guinean government has continually distancing itself from France. Guinea uses its own currency. Another monetary union that is coming up from ECOWAS member states is West Africa Monetary Zone (WAMZ).
2.3.2 Demographic Characteristic of ECOWAS Member States

Eventually, all the countries in ECOWAS had their independence in 1960s with exception of Ghana, Guinea, Cape Verde, Guinea Bissau, and Liberia. These countries have had military personnel attempt to take over the government at least once. For example, Nigeria have had more coups d’état among ECOWAS member states and 6 out of 15 attempted, plotted, alleged had succeeded. Majorities of ECOWAS population are between the ages of 15-64 years.

Most of ECOWAS member states population lives in rural area except Cape Verde, Gambia, and Liberia. Like other parts of the continent, ECOWAS member states continue to face many development problems. These include low literacy rates, high unemployment rates and high adult prevalence HIV/AIDS, which constitute a heavy burden for the ECOWAS countries, and hence deter their development. For example, literacy rate in Burkina Faso, Niger, and Guinea is below 30.0 per cent as compared to Togo, Cape Verde, Ghana, Liberia, and Nigeria that are above 50.0 per cent. Unemployment rate, people living below two dollars daily, and HIV/AIDS adult prevalence among ECOWAS member states are generally high (Ouedraogo, 2013).

2.3.3 Socio-economic Characteristics of ECOWAS Member States

In general, industrial sector has less developed in ECOWAS member states than other sectors. This can be seemed from its contribution to GDP. But in some countries agriculture contributes more to their GDP and employed most of their labor force population. For instance, Agricultural sector contributes more (76.9 per cent) to
Liberia GDP than other sectors as compared to Cape Verde, which services contribute more (74.3 per cent) to its GDP than other sectors. Major export commodities among ECOWAS member states are agricultural products and to some like Cote d’Ivoire and Nigeria is petroleum which contributes much to their economy. Secondary economic activities in Cote d’Ivoire and Nigeria are oil exploration and refining with natural gas distribution (Njoku, 2011).

Other industries among ECOWAS member states includes; power generation, construction materials, bus assembly, truck assembly, ship building and repair, timber products, food items, and beverages. Capital equipment, foodstuff, vehicle/parts, and fuel are the main imports of ECOWAS member states. There is an intra-trade between ECOWAS member states. France, Germany, USA, Netherlands, China, Japan, Belgium, and Ukraine are some inter-trade partners of ECOWAS member states (World Bank world development indicator).

Nigeria is the biggest player in ECOWAS economy. Nigeria gross domestic product by purchasing power parity is more than three times of the entire ECOWAS member states. Cote d’Ivoire is the only country in ECOWAS member states that has current account surplus and the second oil producer order than Nigeria (Ouedraogo, 2013).

### 2.3.5 Trends of FDI, ODA and Remittance among the Leading West African Countries between 2004 and 2010.

Mauritania, Cote’d Voire, Nigeria, Liberia, Gambia, Guinea, Ghana and Sierre Loene are the West African leading Countries. These countries recorded the
following percentage of FDI, ODA and remittances from 2004 to 2010. Remittance: Gambia 30.7%, Ghana 5.2%, Guinea 14.3%, Liberia 9.6%, Nigeria 41.5%, S/Leeone 5.0%. ODA: Gambia 37.6%, Ghana 63.6, Guinea 51.7%, Liberia 67.6%, Nigeria 22.5, S/Leeone 80.6%. and FDI: Gambia 31.3%, Ghana 31.2%, Guinea 34.0%, Liberia 22.8%, Nigeria 36.0%, S/Leeone 14.4% respectively (UNCTAD, 2015).

2.4 Empirical Reviews on Foreign Capital Inflows in West Africa

The role of foreign capital inflow in economic development and growth has been subject to contentious in most of the literature of economics. There are a lot of conflicting results were some were saying it has positive effect while other proved that it has negative effects on economic growth.

A study in India, Narayan (2013) examined the correlation with reference to economic growth and foreign capital inflows. He employed Granger causality test to examine causal association between the two variables. He concluded the two variables adjusted to equilibrium in the long run and also GDP granger cause foreign portfolio investment.

In Pakistan, Aurangeb & Haq, (2012) use 30 year time series data from 1981 to 2010 to investigate the possible impact of foreign capital inflows on GDP. The series were stationary at order of one. They concluded that foreign capital has direct association with growth and significant. The study evinced that foreign capital is a tool for economic growth as its components granger cause economic growth. These two studies in Asia region found that capital flows as an important tool to bridge chronic
gaps between desired domestic saving and investment in developing countries. These results support the outcomes of the literatures reviewed below in West Africa.

Obiechina and Ukeje (2013) employed Johansen Co-integration test to examine the association between capital flows in Nigeria on economic growth with 40 years time series data ranging from 1970 to 2010. The result suspects that the series could have long run association after confirmed stationary at I (1). They concluded that there is one cointegration vector among the variable and significant but, there is a weak endogeneity between FDI and economic growth. They are the same opinion with Aurangeb & Haq that FDI cause GDP.

Odhiambo (2011) in Tanzania, established a causal relationship between growth and capital deepening through the use of multivariate model. He founded that foreign capital is the connection between growth and financial deepening and also GDP cause financial depth in the country regardless of short and long run. Also, official development assistance cause foreign capital while capital inflows cause economic growth. They concluded that, financial development enhanced growth.

In 2015 among WAMZ, Adeniyi, Omisakin, Egwaikhide and Oyinlola, causal relationship between GDP and FDI among the four top leaders in West African zone from 1970 to 2005 viz, Cote’d’ lviore, Ghana, Nigeria, Gambia and Sierra Loene. Using three financial sector development measurement – banking sector credit, liquid liabilities total and private segments credit to check various ramification of financial intermediation. They concluded that, FDI has positive impact on growth in
these countries depending on the financial indicator employed by the country. But for Nigeria, there is relationship between FDI and Growth with the financial deepening.

Olusanya (2013) examined the impact of FDI and growth via granger causality test to estimate 40 years data from 1970 to 2010 especially the pre and post deregulated period of Nigerian economy. He concluded that FDI cause growth in the pre deregulated period 1970 to 1986 but not in the post 1986 to 2010. Also finalized that, in the entire period of 1970 to 2010 FDI cause growth and vice versa.

Adams (2009) reviewed various empirical in Sub-Saharan African countries on the association between FDI and growth. He found that necessary condition to enjoy economic growth in the country is by encouraging foreign capital but not sufficient to attain growth. Only through improvement in the domestic savings, transfer of new technology, importing managerial skills, innovation will make FDI positive and significant to economic growth in relation to its advantages and cost. He added that most recipients of FDI in the region encourage this while countries Botswana had decline in FDI because of failure to motivate this factors and Lesotho had appreciable increase about 22% in the period.

Njoupouognigni (2010) investigated the long run association between FDI, foreign aid and growth in SSA countries using time series data of 27 years from 1980 till 2007 via panel analyses- mean group and dynamic fixed effect. He found that FDI is positive and significant among the Sub-Saharan African and emphasized that policy
maker should take into consideration of human capital development as a major factor that enhance FDI in the region.

In African continent, Gohou and Soumare (2012) used 52 African countries from 1990 to 2007 to check the link between FDI and poverty reduction. He employed FDI net inflows per capita from UNCTADS and found that FDI is positive and has significant effect on poverty reduction in Africa with its greater impact on the welfare in poor economies than developed ones. Its impact was ambiguous in West Africa and not significant Central and East Africa.

Adefabi (2011) found a weak effect of FDI on growth using panel data of 24 countries in SSA over the period of 1970 to 2006. Adefabi shows both FDI and the interaction term between FDI and human capital influenced economic growth positively but not in a significant manner. The finding indicates economies with weaker initial labor skills likely to experience smaller inflows of FDI.

Fambon (2013) used foreign aid and foreign direct investment as a components of foreign capital inflows to capture its impact on growth via co-integration approach covering periods from 1980 to 2008 time series data. He concluded that domestic capital stock with FDI have positive impact in both short and long on growth in Cameroun and labor force found significantly negative on growth due attribute of developing countries of unlimited supply of labor.

Ekeocha, Malaolu and Oduh (2012) It ascertained the long run relationship of foreign portfolio investment in Nigeria which need to be encouraged in country.
Foreign portfolio investment has increased with respect to different sorts of capital inflows to Nigeria before the wake of global economic meltdown. Of course, there is no empirical regularity with regards to foreign portfolio investment determinants in Nigeria. This study tries to add to the stock of knowledge by modeling the long-run determinants of FPI in Nigeria over the period of 1981-2010 on quarterly data. The variables considered are market capitalization, real exchange rate, real interest rate, real gross domestic product and trade openness. Time series analysis specifically the finite distributed lag model and discovers that FPI has a positive long-run relationship with market capitalization, and trade openness in Nigeria.

Karras (2006) used data on foreign aids and per capita GDP 37 years series from 1960 to 1997 to investigate the relationship between foreign aid and growth. The study made use of 71 aid-receiving developing countries as a sample. He found that the effect of foreign aid on economic growth (GDP) is positive, permanent, significant and sizable, while Eregha (2012) examined the linkage between international aid and economic growth (GDP) and welfare which was conducted for small open economy. They concluded that external transfer has an impact on the performance of the economy of the recipients. They encourage adequate infrastructural facilities as a tool to motivate foreign capital.

Ezeabasili, Isu and Mojekwu (2011) investigated the correlation between economic growth and external debt using time series data from 1975 to 2006 in Nigeria’s economy. The study were constraint with availability of data which limit the study on the variables used for the purpose of investigation. He found a negative or inverse
linkage between growth and external debt in Nigeria. On average Gross Domestic Product (GDP) will decrease by 0.027 per cent, while a 1 per cent increase in total debt service on average Gross Domestic Product will decrease by 0.034 per cent which were found significant at the ten per cent level. In addition, they concluded that, external debt granger cause external debt service payment. It was significant at 1% debt cause economic growth.

2.4.1 Foreign Capital Inflow in Sierra Leone.

After the end of civil war, Sierra Leone government has made great effort to encourage FDI via the implementation of favorable policies to foster investment into their economy. The investment Code of 2005 were done in such a manner as to achieve a desired result and this favor Sierra Leone has its abolished any restriction with regards to foreign capital and ownership of foreign investment. The foreign are free to invest in the economy without any barrier.

The history made us know that the Sierra Leone governments encourage investment for small, big scale industries and also facilitate a program in quest to search foreign investor to bring capital and expertise to enhance economic growth in the country. Among the policies is exchange rates arrangement open and non-levy obstruction with tariff rates is equal for all neighboring ECOWAS countries and also monetary integration with countries.

World Bank records demonstrate that investments protection law in Sierra Leone security is very strong. Investors' rights (extended to some areas viz;
1. Foreign investments have free access to all segments of the economy.
2. Foreign ownership of companies rights were increased to 100 percent
3. Foreign managerial, technical and unskilled workers usage freedom.
4. There is no exchange barrier between home and host countries.
5. Capital repatriation and loan remittance are guaranteed.

The latest UNCTAD records for FDI for Sierra Leone in 2011; Inward FDI Flows was $49 million, Inward FDI Stocks: $313 million and Outward FDI Stocks: $316 million. In Sierra Leone, there has been a significantly more changed administration for FDI, tending to investor concerns. The aim of the government is to provide an enabling environment to induce investor confidence viz promotion of investment and privatizing public enterprises.

Once more, the administration of Sierra Leone has extended the scope for FDI by reducing the number of industries closed to foreign investors. Given the developing significance of FDI in Sierra Leone, it has been a territory that has few or no empirical research on effect of FCI inflows on growth hence it is crucial to investigate the effect of FDI flows in economic growth in Sierra Leone (Faroh and Shen, 2015).

2.4.2 Foreign Capital Inflow in Nigeria

Nigeria, like other developing countries, has adopted policies over the years to encourage foreign capital inflow. The effort started in the mid-1950s and has continued up to the time of this study. This offshore capital inflow in Nigeria was
last reported at N7.7 billion (only FDI and portfolio investment in 2010) (World Bank Report – 2011). According to Udoidem (2014), Nigeria has constantly ranked among the largest recipient of foreign capital in Africa, particularly, foreign direct investment. Over the last decade, the country, made about $120 billion as proceed of foreign investments.

Both private and public sectors of Nigerian economy have utilized the foreign capital to boast their entrepreneurial capabilities in line with government development plans. Over time, government’s plan to stimulate inflow of resources was with expectation to speed up growth and transform the economy in line with classical economist’s prescription. In particular, rapid increase in Gross Domestic Product (G.D.P) and GDP per capita were expected. Other expectations included improved balance of payment, creation of employment opportunities and stimulation of the overall development of the economy.

The economic situation of the early 1980s sparked off the debate on the desirability of foreign capital inflow into the country. While some scholars expressed positive views, others doubted the achievements. Critics evidenced the lack of corresponding growth in entrepreneurial activities to support their opinion. Successive governments have however continued to rely on stimulation of foreign capital inflow as a strategy for growth in activities of the entrepreneurs.

Nigeria received about 70% of regional total of all the FDI inflows to West Africa (UNCTAD World Investment Report 2006) had shown Nigeria dominated the entire
developing economies. Furo (2012) the process of economic development of any economy is via encouragement of Foreign Capital flow and they languish in external debt bane and in poverty. He used co-integration test, variance decomposition with impulse response and Exogeneity test to examine the causality between foreign capital inflows and growth in Nigeria. He concluded that FDI cause GDP and has positive relationship while other variables such as foreign aid was negative, remittance was positive and external debt was negative on GDP. The results show that FDI has highest impact on growth.

Dauda (2008), in his study employed trade openness, domestic investments, private capital flow using FDI as a component for foreign capital to investigate its impact on growth with time series data from 1986 to 2006 with full descriptive analyses, OLS regression and causality test. He found general all the variables put together have positive impact on economic growth. He further recommended that policies such as conducive business environment and macroeconomic stability will enhance growth in developing economies.

In case of Nigeria, empirically, results have shown that ODA and FDI had positive impacts and found significant on the economic growth in the republic of Nigeria under the investigation period. The results proved that A percentage rise in the inflows of Development Assistance abroad and foreign capital led to 0.21 percent increase in the output growth and also 0.11 percent with respect to Nigerian economy. Over decades Nigeria among other West African countries has made billions of petrodollars as result of contributions of foreign capital and development.
assistance to their economy. This success made by Nigeria among other Africa countries had been subjected to the positive impact of foreign investments because of their internal economic advantage of vast natural resource (Ogunleye, 2008).

Nigeria as a nation as recorded increase in their level of employment creation for the Nigerian populace, importation of technological know-how and appreciation in tax base for country all due to the positive impact of foreign investment in Nigeria (Adeniyi et al., 2012). Another of success of economic development is the enhancement of infrastructural base like power generation and human capital development among others as the majority of the developmental partners i.e. donors continue to give scholarships to the host country is the one of salient channel in which foreign development Assistance has contributed positively to the increase in output.

According to central bank of Nigeria report, 2014 Nigeria has built her domestic saving through proceed of foreign investment and development assistance. Empirical results showed that on average one dollar appreciation in the home investment led to 0.005 percent increase in output. This could be seed of recapitalization of financial sector in Nigeria i.e. the privatization and deregulation of banking sector and a great policy reforms viz public-private partnership, fiscal discipline transparency and the effort of EFCC and ICPC for fighting against corruption. This policy reforms had increased productivity level in Nigeria (Oriji, 2012).
According to Hernandez- Coss and Bun (2006), claimed that among other West African countries, Nigeria top the region in term of remittance. Aurangzeb & Haq (2012) any host economy with high level of educated residence, good market size, good tax policy, good institutional environment and political stability will receive large foreign capital while other researchers emphasized on exchange rage, socio-economic, socio-political, cultural and legal environments as a main determinant of foreign capital. Nigeria as a country lacks most of these salient features in her economy. Ekwe and Inyiama (2014) proved that export earnings and migrants remittance are salient form of foreign inflows while foreign aid in term of peace keeping and debt servicing could be form of outflows of capital.

2.4.3 Foreign Capital Inflow in Ghana

Ghana recorded private capital flows 7.52% of GDP in 2011, according to the World Bank. Private capital inflows consist of portfolio investment and net foreign direct investment. (UNCTAD, 2014) defined FDI as the investments inflows to attain a long lasting management interest i.e. the 10 percent or more for voting stock of a corporation that is useful for an economy than its investor.

In relation to the Ghanaian economy, the issue of foreign direct investment is not different. Insah (2013) studied into FDI and Growth in Ghana adopting Dynamic Ordinary Least Squares. He found out that coefficient of FDI in Ghana is positive but its impact on a three year lag is negative on the economic growth in Ghana.
Therefore it is highly imperative for the policy makers in Ghana to concentrate on the current inflows.

Oriji et al., (2014) Official Development Assistance was said to be significant in Ghana. One percent rise in the inflows of Development Assistance results to 0.03 percent rise in the total output of the economy. Ghana is popular with the production of cocoa and gold. The presence of these natural endowments gave Ghana edge over other West African countries which attracted developmental partners in order to support economic growth in Country.

The Ghanaian governments adopted public private partnership to improve the efficiency of Development assistance which has indeed made positive impact on the use of ODA in term of its productivity in the economy of Ghana.

Also, with the engagement of the donors in human capital formation which has improved level of output in the country. In some years ago, FDI has not been significant in Ghana due to that, most the international firms in Ghana were operating on economic islands which are resource-seeking firms. Most of these companies that are extracting natural resource tend to have extremely weak integration with the domestic economy (Rugraff, 2011).

2.4.4 Foreign Capital Inflow in Liberia

The economy of Liberia has experienced rapid growth for the period between 2006 and 2011 respectively. Growth achieved in 2010 was 6.1%, up from 4.6% in 2009,
which was appreciated due to increase in both FDI and exports in the country. Growth rate attained in 2011 was 7.3% with an estimated projection of 8.9% in 2012. A result of an appreciation in the price of commodity goods such as palm oil, mineral and rubbers.

Liberian economy is a mono-product which solely depends on agricultural products. The records shown that agricultural contributes over 77 percent of the Liberian economy and over 70 percent of employment opportunity. The proceed from agricultural products such as cocoa, coffee, sugarcane, rice, rubber and timber gave Liberian royalty payments of over USD 1.57 million in 2010 and USD 30 million by 2015 (Beekman, 2013).

Aning and Edu-Afful (2013) examined the relationship between FDI and improved living standard in the Liberia economy. The researchers designed major case studies on leading FDIs in Liberia from different sectors of the economy. The study found that job creation and industrial economic diversification are challenged by the structural characteristics of the sectors, low human capacity level and high energy costs are majored contributing factors for the downturn. The study showed that inasmuch FDI has provided certain level of jobs; they have so far not been of a scale that addresses the extremely high unemployment rate in the country.

Furthermore, official development assistance constitutes major source of foreign capital to Liberia, this funding by all standards should translate into increase growth (Mlachila & Takebe, 2011). The corruption in the Liberian such as embezzlement of
funds, asset misappropriation caused a lot to poor economic growth in the country (Beekman, 2013).

2.4.5 Foreign Capital Inflow in Guinea

Republic of Guinea is a small country among West African countries, with her underdeveloped market is controlled by United State of America. Most of the FDI in Guinea is from U.S. The country’s Investment Code in Guinea assured the right of all individuals or private legal entities of both Guinean and foreign nationality to embark on any economic activity based on the current laws and regulations governing the state. The Ministry of Commerce creates unit that promote investment (Lamine, 2010).

According to GCN Guinean Central Bank in 2006 FDI accumulated in Guinea to $125 million while it increased to $385.9 million in 2007. The Guinea being rich in Natural resource, 67% of FDI goes to mining sector, 7% to commercial banks and 25 percent to telecom out of the total national appreciation in FDI in 2007. More so, Guinea entered agreements with Chinese and other mining firms to develop the country bauxite. Among the firm are their top leaders viz Alcoa-Rio and Global Alumina which entered into a project worth $7 billion.

Generally among west African countries, Official development assistance with respect to government expenditure revealed that lowest moved to Cote’d’ Iviore about 31 percent, Ghana 38 percent, Gambia 80 percent, Guinea 91 percent, Sierra Leone 150 percent, Guinea Bissau 221 percent and Liberia 221 percent. (World bank
reports 2008) with large inflow of aids to West African countries. The region achieved only 6.9 percent growth rate 2012 although more than double of growth in the world. Statistically we can see that foreign Capital inflow is highly important in West African economies, the World's poorest continent as compared to other counterpart (Baharumshah et al., 2015)
CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

The impact of foreign capital as a bedrock for economic growth in the developing countries is subjected to debate among scholars. A group of economists in the 1950s and 1960s showed that capital inflow to an economy has positive impact on its growth. They argue that it serves as a net inflows or addition to productive resources in the less developed economy and serve as the additional source of capital to domestic savings. The Harrod-Domar model explained the favorable effect through the use of the two-gap model where the capital inflows argument the gap between domestic savings and investments. This position came under attack in the early 1970.

A group of economists argued that, given any welfare function which contains present consumption and future consumption, argued the optimal allocation of resource would lead to the conclusion that, the part of the foreign capital will be allocated to present consumption and the remainder to augment resources available for investment. Two hypotheses were advanced to explain how foreign capital could lead to a decline in domestic savings.

First, foreign capital could induce government to relax their tax efforts and increase their consumption expenditure or else to liberalize imports. Second, private foreign investment pre-empts investment opportunities and displaces domestic investment. If
savings were determined by available investment opportunities, this would be a cause domestic saving to fall. Another group of economists also claimed that foreign aid has a lot of objectives apart of enhancing growth in the recipient counties. Capital-output ratio will also increase in total and technology and managerial expertise will be introduced from abroad.

The available literature indicates that authors have followed several different approaches when exploring the association between foreign capital inflows and growth. Some have explored the relationship between foreign capital and domestic savings; others have investigated the correlation among foreign capital, capital formation and growth, while some others have looked at the relationship between foreign capital and the incremental output-capital ratio.

Capital flows especially foreign direct investment have been considered as one of the main factors underlying the strong growth rate in many continents especially the Asian economies miracle for the last fifteen years. Its role in growth process has for long been a topic of intense debate. The trends of foreign capital inflows in the world had shown among other continents, Africa recorded the lowest percentage of foreign capital inflows.

A lot studies has emphasized importance of foreign capital in an economy for example Ekwe & Inyama (2014); Baharumshah et al. (2015); Fambon (2013) Chi-Chi (2012); Origi, Uche & Ilori (2014); Abdulwaheed (2004); Anyanwu (2012); Furo & Nkoro (2012) and More (2011) found positive impact between foreign
capital inflows and economic growth but still, more empirical work is needed. To our knowledge there is no published on the causality between foreign capital inflows and economic growth. The contribution and performance of external capital to these countries can be evaluated with reference to its effects and to what extent is its contribution to economic growth.

3.2 Data

There are several sources for data will be used for Foreign Capital inflows determinants and the measurement for Growth (GDP) from eight selected West African countries. World Bank databank, UNITADS and IMF data bank will be used to retrieve data on the Real Gross Domestic Products, Foreign Direct Investment (FDI), Official development assistances (ODA), Workers’ migrants’ remittances (REM), Real Exchange Rate (RER) and Real Interest Rate (RIR). In the study, one observation is used for each variable for each year and for each country.

3.3. The Variables of this study

Eight specific variables are in the model: Foreign Direct Investment (FDI), Official development assistances (ODA), Workers’ migrants’ remittances (REM), Real Exchange Rate (RER) and Real Interest Rate (RIR). The data collected for these variables are annual basis between 1980-2014.
3.3.1 Dependent Variables of this study

In this study, Real Gross Domestic Products is used as a dependent variable that is regressed on the components of foreign capital inflows. Real Gross Domestic Products are used as the indicator of economic growth. All variables are collected in US dollars on annual base.

3.3.2 Independent Variables of this study

The independent variables used in this study are Foreign Direct Investment, Official development assistances, Workers’ migrants’ remittances, Real Exchange Rate and Real Interest Rate. All retrieved from the World banks’ databank, UNITADS and IMF data bank.

3.4 Theoretical Framework

The contention for foreign capital inflows is typically established on the need to supplement the level of domestic savings that can supply the required assets (money related, technical and administrative) for economic growth (GDP). This takes after the generally recognized theory of two-gap model as propounded by Chenery and Strout, 1966 and taking after Harrod-Domar (H-D) economic growth model.

The essential contention of the two-gap model is that most developing nations confront either a lack of domestic savings funds to investment opportunities or a deficiency of foreign exchange to fund required intermediate goods and imports of capital (Lam, (2016); Asongu & Jellal (2016); Kolawole (2013); Gupta & Islam
(2012); Ali (2014) and Oriji et al, 2014). Hence, foreign finance aid can play a fundamental role in the argumentation of domestic resources with a specific end goal to mitigate investment funds and foreign exchange.

From the essential knowledge of the Harrod- Domar model, Growth of output is a component of increments to the stock of capital:

\[ Y = (\Delta K) = (I) \]  \hspace{1cm} (3.1)

Note that; \( Y \) = Output growth
\( K \) = Capital stock while \( I \) = investment.

We recall aggregate national income.

\[ Y = C + S + T \]  \hspace{1cm} (3.2)
\[ N = C + I + G + (X - M) \]  \hspace{1cm} (3.3)

Where,
\( Y \) = aggregate income
\( S \) = private saving
\( T \) = tax
\( N \) = aggregate expenditure
\( C \) = Consumption
\( G \) = government expenditure
\( X \) = export
\( M \) = import

Thus, the two gap model;

\[ E-Y = (I-S) + (G-T) + (X - M) \]  \hspace{1cm} (3.4)
Note: E and Y must be of same *value for* in order to attain equilibrium (E-Y) must be equal to.

Therefore,

\[(I-S)+(G-T)=(M-X)=F\]  \hspace{1cm} (3.5)

F in equation represents foreign capital inflows. Assuming we omit the (G-T) fiscal balance from the equation (3.5) above, then:

\[I=F+S=F+SY\]  \hspace{1cm} (3.6)

Note that s represents economy’s propensity to save.

In the equation (3.6) above, implies that the aggregate investible resources (I) needed for the growth in an economy is the horizontal summation of the private savings (S) and foreign capital inflows (F).

If we substitute equation (3.6) into (3.1) we shall obtain:

\[Y=f(I) = f(F, S)\]  \hspace{1cm} (3.7)

This study focuses mainly on the impact of capital flows on West African economic growth. The study related with the impacts of capital flows on West African economic growth based on the above model were supported by Gourinchas & Jeanne (2013), Tiwari & Mutascu (2011), Odhiambo (2011), Ali (2014), Ahmed & Zlate (2014) and Nweke (2015). In order to estimate foreign capital inflows in this study we employ real gross domestic product for growth and remittance, official development assistance, foreign portfolio investment and foreign direct investment. Following their model with a little modification the model for this study is specified as thus;
\[ \ln(RGDP)_t = B_0 + B_1 \ln(FDI)_t + B_2 \ln(FPI)_t + B_3 \ln(ODA)_t + B_4 \ln(REM)_t + B_5 \ln(PDS)_t + B_6 \ln(REXR)_t + B_7 \ln(RINT)_t + u_t \] (3.8)

Note; \( \ln \) represent the natural log, \( RGDP \) represent real gross domestic product, \( PDS \) represents private domestic savings (as in Harrod-Domar model) \( RINT \) represents real interest rate, \( REXR \) represents real exchange rate and \( u \) is the white noise.

The above model will be used to estimate the impact of foreign capital inflows on economic growth of the selected West African countries and its impact on the economy of the individual countries. These countries were selected based on the fact that, these countries share some similar features (e.g. level of development, trade pattern, institutions and colonial system etc. The selected countries also have some of economic integration. In fact, capital inflows into one of the member-country could serve as form of assistance to less recipient members.

3.5. Description of the model

The purpose of this model is to assess the various impacts of capital flows on growth process. The effects of capital inflows included in the model shall show the effect of each independent variable on the dependent variable.

In equation (3.8) Real Gross Domestic Products is identified as the various components such as is used as a dependent variable that is regressed Foreign Direct Investment(FDI), Official development assistances(ODA), Workers’ migrants’
remittances (REM), Foreign Portfolio Investment (FPI), Private Domestic Savings (PDS), Real Exchange Rate (RER) and Real Interest Rate (RIR).

\[ \text{RGDP}_{it} = \text{RGDP} \] is Real Gross Domestic Products of countries \( i \) at period \( t \). \( \text{Git} = \) The growth rate of GDP of country \( i \) at period \( t \).

\[ \text{FDI}_{it} = \text{The Inflows of Foreign Direct Investment (gross foreign direct investment) over real GDP (dollar term) in country } i \text{ at period } t. \]

\[ \text{FPI}_{it} = \text{Foreign Portfolio Investment in country } i \text{ at period } t. \]

\[ \text{ODA}_{it} = \text{Official development assistances in country } i \text{ at period } t. \]

\[ \text{REM}_{it} = \text{Workers' remittances in country } i \text{ at period } t. \]

\[ \text{PDS}_{it} = \text{Private Domestic Savings in country } i \text{ at period } t. \]

\[ \text{REXR}_{it} = \text{Real Exchange Rate in country } i \text{ at period } t. \]

\[ \text{RINT}_{it} = \text{Real Interest Rate in country } i \text{ at period } t. \]

### 3.6 Estimation Procedure

In this study we estimate relationship between foreign capital inflows and the level of economic growth via FMOLS method of estimation and the causality between foreign capital inflows and economic growth in selected West African Countries, namely Mauritania, Côte d'Ivoire, Nigeria, Ghana, Gambia, Guinea, Liberia, Sierra Leone. These countries were selected based on the fact that, these countries share...
some similar features (e.g. level of development, trade pattern, institutions and colonial system etc.) but they also have some of economic integration and five of them are leaders in term of foreign capital inflows (UNCTAD, 2014).

3.7 Data and estimation Methods.

The study will utilize data from eight selected West African countries and the analysis will use panel data techniques, and fully modified ordinary least squares (FMOLS) estimation to investigate the relationship between components of foreign capital inflows (Foreign Direct Investment, Official development assistances, Workers’ migrants’ remittances, Real Exchange Rate and Real Interest Rate and economic growth.

3.8 Panel Unit Root Tests

In study to examine the panel cointegration, it is highly imperative to check in the series as unit root. There are lots of test introduced to check unit root in past decades among them are Quah (1992, 1994); Levin and Lin (1992, 1993); Maddala and Wu (1999); Hadri (2000); Levin, Lin and Chu (2002) and Im, Pesaran and Shin (1997, 2003). The panel unit root is an extension of the univariate unit root test recognized before which has low power such as Augmented Dickey-Fuller test (Said and Dickey, 1984). The panel unit root test has power to detect problem of heteroskedasticity with different relationship. And also has specification for null and alternate hypothesis.
Since each test has its own advantages. As for this study we shall choose Levin, Lin and Chu (LLC) 2002. A lot of the empirical studies used LLC and the strength of this test has been tested in various Monte Carlo tests. LLC test is considered to be the simplest when carrying out estimation.

3.8.1 Levin, Lin and Chu (LLC; 2002)

In LLC it is establish that the main hypothesis of panel unit root is as follows:

$$\Delta y_i = \Phi_i y_{i,t-1} + \sum_{\ell=1}^{p_i} \rho_{i,\ell} \Delta y_{i,t-\ell} + \epsilon_{i,t} \quad m=1,2,...$$  \hspace{1cm} (3.09)

Where $y_{i,t}$ refers to variable $i$.

$\ln rgdp_i$, $\ln fdi_i$, $\ln fdi_{i,t}$, $\ln oda_i$, $\ln rem_{i,t}$, $\ln pds_{i,t}$, $\ln rint_{i,t}$, and $\Delta$ refers to the first difference i.e. Order one. The Null hypothesis test is $H_0 : \Phi_i = 0$ if a series has unit root $H_0 : \Phi_i < 0$ when there is no unit root. $p_i$ is unknown.

Note; LLC; 2002 involves 3-step in the testing.

1. We obtain ADF regression for each individual panel and generate two orthogonalized residuals.

2. The estimation of the ratio of long run to short run innovation deviation for each individual.

3. We compute the pooled t-statistics.
where $\hat{\sigma}_{e,i}$ is standardized error from estimation of equation (3.10). This value can also be calculated from regression $\hat{\varepsilon}_{i,t}$ on $\hat{\varepsilon}_{i,t-1}$.

$$
\hat{\sigma}_{e,i}^2 = \frac{1}{T-p_i-1} \sum_{t=p_i+2}^{T} (\hat{\varepsilon}_{i,t} - \bar{\Phi}_{i,t-1})^2
$$

(3.14)

For the second step: We estimate the ratio of long run to short run standard deviation. For this Ho for unit root/long term variance for the model is estimated below;

$$
\hat{\sigma}_{y,i} = \frac{1}{T-1} \sum_{l=1}^{T} \Delta y_{i,l}^2 + 2 \sum_{l=1}^{2} W_{k,l} \left[ \frac{1}{T-1} \sum_{l=2}^{T} \Delta y_{i,l} \Delta y_{i,l-i} \right]
$$

(3.15)

Note; $w$ refers to the weights. $\bar{K}$, truncation lag parameter depends on data. For each individual $i$, LLC define the ratio of the long run standard deviation to innovation standard deviation as;

$$
\hat{s}_i = \frac{\hat{\sigma}_{y,i}}{\hat{\sigma}_{e,i}}
$$

(3.16)

and mark this estimation with $\hat{s}_i = \hat{\sigma}_{y,i}/\hat{\sigma}_{e,i}$ . The average standard deviation ratio is $S_N = (1/N) \sum_{i=1}^{N} \hat{s}_i$, and the estimation is $\hat{S}_N = (1/N) \sum_{i=1}^{N} \hat{s}_i$. Before we proceed to the third stage, LLC reminds us that there are two items that should be noted.

Firstly, the estimation for $\hat{\sigma}_{y,i}$ under a null hypothesis is $\hat{\sigma}_{y,i}^2/(1 - \sum_{l=1}^{p} \hat{\rho}_{i,l})^2$, and as a result of $\hat{\sigma}_{e,i}^2$ is a constant estimation for $\hat{\sigma}_{e,i}^2$ under the null hypothesis, thus, $\hat{s}_i$ can
be estimated with $\left| 1 - \sum_{i=1}^{p} \hat{\rho}_{i,t} \right|$. Moreover, the characteristic of size and power for panel unit root test is increased by estimating long term variance through first difference.

The last step is to estimate the coefficient $\Phi$ and to calculate the value of statistic-$t$ for panel. For all cross-sectional and time series observation combined

$$\tilde{e}_{i,t} = \Phi \tilde{\nu}_{i,t-1} + \tilde{\epsilon}_{i,t}$$  \hspace{1cm} (3.17)

For the total of observations $\tilde{T}$, where $\tilde{T} = T - g - 1$ is the average number of observations per individual in the panel, and $\tilde{p} = \frac{1}{N} \sum_{i=1}^{N} P_i$ is the average of the internal for individual ADF regression. The conventional statistic-$t$ regression to test $\Phi = 0$ is:

$$t_{\Phi} = \frac{\hat{\Phi}}{STD(\Phi)}$$  \hspace{1cm} (3.18)

where

$$\hat{\Phi} = \frac{\sum_{t=1}^{T} \sum_{i=2+\tilde{p}}^{T} \tilde{\nu}_{i,t-1} \tilde{\epsilon}_{i,t}}{\sum_{t=1}^{T} \sum_{i=2+\tilde{p}}^{T} \tilde{\nu}_{i,t-1}^2}$$  \hspace{1cm} (3.19)

$$STD(\hat{\Phi}) = \Phi_{\tilde{p}} \left[ \sum_{i=1}^{N} \sum_{t=2+\tilde{p}}^{T} \tilde{\nu}_{i,t-1}^2 \right]$$  \hspace{1cm} (3.20)
If $H_0: \Phi = 0$, LLC states that t-statistic regression ($t_{o}$) has normal distribution for the ADF model without intercept and trends, but divergent to a negative for the ADF model with intercept and trend. Subsequently, the calculation of coordinated t-statistic is as below:

$$\Phi_{m}^{2} = \left[ \frac{1}{NT} \sum_{i=1}^{N} \sum_{t=2}^{T} (\bar{e}_{i,t} - \Phi \bar{v}_{i,t-1})^2 \right]$$

(3.21)

When tabulated mean value is adjusted for $p$:?

and the standard deviation is adjustment $\mu_{ADF}^*$ has been given by LLC with a deterministic specification (m=1,2,...) and time series dimension $T$.

According to Levin et al (2002) state that, limited tabulation for correct statistics if normal where $N \to \infty$ and $T \to \infty$ with $\sqrt{N/T} \to 0$ or $N/T \to 0$, depends on the model specification. More so, the Monte Carlo simulation shows that is suitable for moderate sized panel (value of $N$ is between 10 and 250 individuals and $T$ between a span of 20 and 250) whereby they are almost similar with panel data for this study. Generally, the LLC test has been accepted as one of the panel unit root test. However, it should be mentioned that this LLC test has a homogeneity limitation, where a null hypothesis is $\Phi_i = \Phi = 0$ versus alternative hypothesis $\Phi_i < 0$ for all individual units $i$. 

$$t_{o}^* = \frac{t_{o}N^{T}\hat{S}_{p}^{2}STD(\hat{\Phi})\mu_{m\bar{y}}^{*}}{\sigma_{m\bar{y}}^{*}}$$

(3.22)
3.9 Causality Tests

Pedroni’s heterogeneous panel cointegration method tests just for the presence of long run relationship (association). The tests show the existence or absence of long run equilibrium among the variables, however don’t show the direction of causality when the variables are found co integrated.

Having distinguishing the quantity of co incorporated comparisons (Johansen's techniques) we utilized a mistake revision model (ECM) for a nation by nation investigation. (Cointegration requires that the variables to be integrated are of the same order I(1) i.e. first difference).

The presence of unit roots in variable and found stationary at first difference I(1), the Error Correction Model (ECM) is utilized to analyze the long-run or co integrating relationships between the variables and additionally the presence and the direction of causality between the time series.

We shall the following form to estimate the bi-variate ECM for each country.

\[
\Delta G_{it} = \alpha_0 + \sum_{i=1}^{n_1} \alpha_{1i} \Delta G_{it-1} + \sum_{i=1}^{n_2} \alpha_{2i} \Delta FCI_{it-1} + \varphi ECT_{it-1} + u_{1it} \quad (3.23)
\]

\[
(i=1\ldots n_1) \quad (i=1\ldots n_2)
\]

\[
\Delta FCI_{it} = b_0 + \sum_{i=1}^{n_1} b_{1i} \Delta FCI_{it-1} + \sum_{i=1}^{n_2} b_{2i} \Delta G_{it-1} + \varphi ECT_{it-1} + u_{2it} \quad (3.24)
\]

\[
(i=1\ldots n_1) \quad (i=1\ldots n_2)
\]
Where $\Delta$ is the difference operator for each series, $G_t$ is the RGDP, $FCI_t$ is the FCI speak to the segment of outside Capital inflows, $ECT_{t-1}$ is the error correction term derived from the long- run co integrating relationship, $v_1t$ and $v_2t$ are the white noise error terms $t$ means the years and $n_1$, $n_2$ are the lag orders of $\alpha$’s and $\beta$’s individually.

The VECM results recognize short-run and long-run Granger causality. The coefficients of the lagged error correction term show that there is a long-run causal relationship between economic growth and FCI.

It additionally shows that FCI and economic growth are adjusting to their long-run equilibrium relationships i.e. the speeds of adjustment to equilibrium in the long run among the series. The coefficients (and the magnitudes) of the ECM shows the speed of adjustment to the long-run equilibrium relationship.

If $\varphi$ is find statistically significant in the first equation, but not significant in the second then we say that FCI Granger causes RGDP, if the inverse happens we say that RGDP granger causes FCI. If by chance $\varphi$ is statistically significant in both equations we say that there is a bi-directional relationship.

### 3.10 Fully Modified Ordinary Least Squares (FMOLS) Estimation.

In this stage we shall adopt FMOLS procedure from Christopoulous and Tsionas (2003, 2004). Full modified OLS (FMOLS) introduced by pedroni (1996). FMOLS tackles consistent estimates in panel series, non-exogeneity and serial correlation
problems. Due to the fact that the variables are found cointegrated with trend through the panel unit root test and panel cointegration test, we proceed to estimate FMOLS for heterogeneous cointegrated panels (Pedroni, 1996, 2000). FMOLS make it possible for consistent and efficient estimation of cointegrated vectors. It handles the problem of non-stationary regressors and problem of simultaneity biases. Since OLS can yield biased results due to the that regressors are exogenously determined in the case of order one $I(1)$.

We shall start with the OLS following cointegrated system

\begin{align}
  y_t &= \alpha_t + x_t' \beta + e_t, \\
  x_t &= x_{t-1} + e_t
\end{align}

where $\varepsilon = [\varepsilon, \varepsilon']$ is the stationary with covariance matrix $\Omega$. The estimator $\beta$ will be consistent when the error process $\omega + [\varepsilon, \varepsilon']$ satisfies the assumption of cointegration between $y_t$ and $x_t$.

Due to the some nuisance parameters, that limit distribution of OLS estimator. Semi correction can be made to the OLS following Philiphs and Hansen (1990) which eliminate the second order bias cause to the fact that the regressor are endogeneous. FMOLS estimator is stated as thus;

\begin{equation}
  \hat{\beta}_{FM} - \beta = \left( \sum_{i=1}^{N} \hat{\Omega}_{22}^{-1} \sum_{i=1}^{T} (x_t - \bar{x}_i)^2 \right)^{-1} \sum_{i=1}^{N} \hat{\Omega}_{12}^{-1} \hat{\Omega}_{22}^{-1} \left( \sum_{i=1}^{T} (x_t - \bar{x}_i) e_{t,i} - T \tilde{y}_i \right)
\end{equation}
\[ \hat{\epsilon}_t^* = \epsilon_t - \hat{\Omega}_{22}^{-1} \hat{\Omega}_{21} \hat{\gamma}_t \]

Where, the covariance matrix can be decomposed as \( \Omega = \Omega_0^c + \Gamma_t + \Gamma_i \) where \( \Omega_0^c \) represents the contemporaneous covariance matrix, and \( \Gamma_t \) being a weighted sum of autocovariances. And also, \( \hat{\Omega}_0^c \) is the appropriate estimator of \( \Omega_0^c \).

For the purpose of the analyses in this study, both the within-dimension and between dimension panel FMOLS test Pedroni (1996, 2000) will be used. One of the salient advantages of the within-dimension estimator is that the pooled data give way for greater flexibility in the presence of heterogeneity of the cointegrating vectors. Note that test statistics from the within-dimension estimator are built to test the null hypothesis \( H_0 : \beta_i = \beta_0 \) for all \( i \) against the alternative hypothesis \( H_A : \beta_i = \beta_A \neq \beta_0 \) where the value \( \beta_A \) is the same for all \( i \), test statistics constructed from the between-dimension estimators are designed to test the null hypothesis \( H_0 : \beta_i = \beta_0 \) for all \( i \) against the alternative hypothesis \( H_A : \beta_i \neq \beta_0 \), so that the values for \( \beta_i \) are not constrained to be the same under the alternative hypothesis. The salient thing to note is that, this application has the following benefits such as the advantage of the between dimension estimators is the fact that the point estimate have a more useful interpretation in the event that the cointegrating vectors are heterogeneous. To be precise, point estimate can be interpreted as the mean value for the cointegrating vectors.
The estimation will be conducted by performing the following tests. Firstly, the order of integration of the RGDP and components of foreign capital inflows viz REM, FPI, ODA, FDI, RINT, REXR Series will be tested. Then, we shall use Johansen's approach and when the series are found stationary at the order of one I(1) we shall perform cointegration test between the economic growth and foreign capital inflows components. Note, the Pedroni test allows for cross-sectional independency among different individual effects. Second, in order to detect the direction of causality between the two variables we use the technique of Error Correction Mechanism ECM.
CHAPTER FOUR

EMPIRICAL ANALYSIS AND FINDINGS

4.0 Introduction

This chapter provides empirical estimation based on the modeling strategy presented in Chapter Four. Section 4.1 examines the properties and characteristics of panel data employed using diagnostic test and estimation method with some preliminary analysis on the order of integration for each set. The following Section 4.2 shall illustrate our main focus point, namely the long run equation. Observe the relations among the growth of the economy, foreign capital inflows into the country using time series figures for the selected West African countries. In addition, the study investigate whether the impact of foreign capital inflows components cause economic growth in the Selected countries of West African countries via penal causality test. Followed by Section 4.3 illustrates the diagnostic test and finally in Section 4.4, presents the summary of the findings.

4.1 Descriptive Statistics

The summary of the statistics used in this empirical study is presented in Table 4.1 below.

Prior to estimation of the growth models, the summary statistics was computed for all the variables employed in this study. The results presented in Table 4.1 reveal that the mean, median and the normality results of all the components of foreign capital
inflows in the selected countries of West African countries. As may be observed from the Table, Migrant remittance has the lowest mean value of 1.48E+08 and the mean value of Real exchange rate is 408.3730 which is the highest among the variables whereas the mean values of FDI, RGDP, ODA and RIR are 20.01208, 1.90E+1, 1.49E+08 and 1.19E+08 respectively.

Table 4.1: Summary Statistics Of The Variables Used In The Regression Analysis

<table>
<thead>
<tr>
<th>Statistics</th>
<th>GDP</th>
<th>RIR</th>
<th>REEX</th>
<th>FDI</th>
<th>ODA</th>
<th>REM</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEAN</td>
<td>1.90E+10</td>
<td>1.19E+08</td>
<td>408.373</td>
<td>20.01208</td>
<td>1.49E+08</td>
<td>1.48E+08</td>
</tr>
<tr>
<td>MEDIAN</td>
<td>2.83E+09</td>
<td>12.98221</td>
<td>103.5542</td>
<td>4.279500</td>
<td>68.49350</td>
<td>6000000</td>
</tr>
<tr>
<td>MAX</td>
<td>5.69E+11</td>
<td>3.13E+10</td>
<td>7024.500</td>
<td>358.0125</td>
<td>2.64E+09</td>
<td>2.64E+09</td>
</tr>
<tr>
<td>MIN</td>
<td>9.218579</td>
<td>-51.61725</td>
<td>-82.89210</td>
<td>-212.0524</td>
<td>-82.89210</td>
<td>-50.45215</td>
</tr>
<tr>
<td>STD DEV</td>
<td>6.58E+10</td>
<td>1.88E+09</td>
<td>1099.474</td>
<td>53.99717</td>
<td>3.25E+08</td>
<td>3.82E+08</td>
</tr>
<tr>
<td>KURTOSIS</td>
<td>44.50066</td>
<td>274.9263</td>
<td>23.61662</td>
<td>23.44095</td>
<td>26.14308</td>
<td>21.27619</td>
</tr>
<tr>
<td>JARQUE PROB</td>
<td>21832.96</td>
<td>872292.7</td>
<td>5874.939</td>
<td>5436.016</td>
<td>7062.047</td>
<td>4662.542</td>
</tr>
<tr>
<td>BERA PROB</td>
<td>0.000000</td>
<td>0.000000</td>
<td>0.000000</td>
<td>0.000000</td>
<td>0.000000</td>
<td>0.000000</td>
</tr>
<tr>
<td>SUM</td>
<td>5.29E+12</td>
<td>3.32E+10</td>
<td>113936.1</td>
<td>5583.371</td>
<td>4.16E+10</td>
<td>4.12E+10</td>
</tr>
<tr>
<td>SUM SQ</td>
<td>1.20E+24</td>
<td>9.79E+20</td>
<td>3.36E+08</td>
<td>810563.3</td>
<td>2.93E+19</td>
<td>4.05E+19</td>
</tr>
<tr>
<td>OBS.</td>
<td>279</td>
<td>279</td>
<td>279</td>
<td>279</td>
<td>279</td>
<td>279</td>
</tr>
</tbody>
</table>

Source: Author.

The maximum and minimum outline the maximum and minimum values of each of the series. The standard deviation is a measure dispersion that explains how the variable spreads. Among the series, Real exchange rate (REEX) has the largest value of standard deviation (1099.474) while Real Interest Rate (RIR) has the lowest standard deviation (1.88E+09).
The value of the kurtosis and skewness of variables are important to fortify the analysis. The measurement of the histogram tail shape is referred to as skewness. This as to do with how variable is close to zero. A long right tail indicates that the distributive is positively skewed and long left tail is negatively skewed. The above table shows that, real interest rate, real gross domestic product foreign direct investment, official development assistance and net migrant remittance are positively skewed and their values are greater than zero. The peakness or flatness of the distribution of the series is measure via Kurtosis measures. It is found to be normal distribution if Kurtosis is 3, the distribution is peaked (leptokurtic when kurtosis is greater than 3) and it is flat when the value is below 3 known as platykurtic. All the variables involved are leptokurtic since RGDP =44.50066, RIR=274.9263, REEX=23.61662, FDI= 23.44095, ODA=26.14308 and Rem=21.27619 because their values is greater than three.

The normality of the variables is tested through Jarque – Bera. The error term normality can be verified via Jarque - Bera, it also measures the difference between the skewness and kurtosis of the series with those from the normal distribution. From the table above, all the variables measured are significant at 1% level. Therefore, we can accept the null hypothesis that there are normal distributions among the series with the probability value of 0.0000.
4.2 Results of Panel Unit Root Tests

In this sub-section, the main issues in time series will be determined, namely the existence of the unit root problem. To avoid spurious results in the time series analysis, in the first stage, the LLC unit root test is conducted to examine the stationarity for each data set in the study. A brief description of the error correction model used to unify the long and short run estimate is also examined.

Table 4.2:

The Penal Unit root result

<table>
<thead>
<tr>
<th>Variables</th>
<th>LEVEL</th>
<th>FIRST DIFFERENCE</th>
<th>Stationary Order</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Constant</td>
<td>Constant</td>
<td>Constant</td>
</tr>
<tr>
<td></td>
<td>LLC</td>
<td>+Trend</td>
<td>LLC</td>
</tr>
<tr>
<td>InGDPit</td>
<td>-6.15756</td>
<td>4.38164</td>
<td>-3.02067</td>
</tr>
<tr>
<td></td>
<td>(1.0000)</td>
<td>(1.0000)</td>
<td>(0.0013)</td>
</tr>
<tr>
<td>InIRIt</td>
<td>-0.18423</td>
<td>0.62460</td>
<td>-7.08227</td>
</tr>
<tr>
<td></td>
<td>(0.4284)</td>
<td>(0.7339)</td>
<td>(0.0000)</td>
</tr>
<tr>
<td>InREEXit</td>
<td>-0.15916</td>
<td>-1.60099</td>
<td>-13.6399</td>
</tr>
<tr>
<td></td>
<td>(0.1513)</td>
<td>(0.0548)</td>
<td>(0.0000)</td>
</tr>
<tr>
<td>InFDIt</td>
<td>-1.59293</td>
<td>-1.96820</td>
<td>-13.2528</td>
</tr>
<tr>
<td></td>
<td>(0.0556)</td>
<td>(0.0245)</td>
<td>(0.0000)</td>
</tr>
<tr>
<td>InODAit</td>
<td>-4.12295</td>
<td>-3.41552</td>
<td>-16.5293</td>
</tr>
<tr>
<td></td>
<td>(0.0002)</td>
<td>(0.0003)</td>
<td>(0.0000)</td>
</tr>
<tr>
<td>InREMIt</td>
<td>0.04478</td>
<td>-3.49947</td>
<td>-15.0203</td>
</tr>
<tr>
<td></td>
<td>(0.5179)</td>
<td>(0.0000)</td>
<td>(0.0000)</td>
</tr>
</tbody>
</table>

Note: The number in ( ) denotes probability value. The lag length is chosen based on the Akaike’s Information Criteria (AIC) where maximum lag order was specified (k) in autoregression and then the appropriate lag order was selected according to the AIC. All the reported values for the LLC t-stat are distributed N(0,1) under null of unit root or no cointegration. N.B: * Indicates significant at the 5% level.

The results suggest that variables are integrated of order one, I(1) at 5 percent level of significance. Thus, the economic growth indicator RGDP, follows an integrating I(1) process so that the foreign capital inflows variables are a stationary process. So, all the variables can be carried forward for cointegration test. The result of the
Johansen cointegration test which is used to assess the presence or otherwise of a long run relationship among the variables reveals robust results. The result of the Johansen cointegration test is shown in tables below.

4.3 Co-integration Analysis Result and Interpretation

In determining the number of co-integrating vectors, trace test and maximum eigen value test using the more recent critical values of Mackinon-Haug-Michelis (1999) was applied. The assumption of no deterministic trend and restricted constant was for all the variables. The choice was tested using Akaike Information Criterion (AIC) and Schwartz Information Criterion (SIC). The results below show cointegrating relationship among variables used.

Table 4.3

<table>
<thead>
<tr>
<th>S/No</th>
<th>Test</th>
<th>Statistic</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Panel v-Statistic</td>
<td>-0.610904</td>
<td>0.7294</td>
</tr>
<tr>
<td>2</td>
<td>Panel rho-Statistic</td>
<td>-1.302613</td>
<td>0.0964</td>
</tr>
<tr>
<td>3</td>
<td>Panel PP-Statistic</td>
<td>-1.878597</td>
<td>0.0301</td>
</tr>
<tr>
<td>4</td>
<td>Panel ADF-Statistic</td>
<td>-2.000235</td>
<td>0.0227</td>
</tr>
<tr>
<td>5</td>
<td>Group rho-Statistic</td>
<td>-1.238286</td>
<td>0.1078</td>
</tr>
<tr>
<td>6</td>
<td>Group PP-Statistic</td>
<td>-2.842358</td>
<td>0.0022</td>
</tr>
<tr>
<td>7</td>
<td>Group ADF-Statistic</td>
<td>-4.426511</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Source: Author.

Kao Residual Cointegration Test

<table>
<thead>
<tr>
<th>t-Statistics</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADF</td>
<td>-1.778384</td>
</tr>
</tbody>
</table>

Source: Author.
The result of from the Pedroni test, at 5% level of significant all the variables under the Panel v-Statistic and the Panel ADF-Statistic shows a long run relationship meaning that null hypothesis was accepted at that 5% level. Meanwhile, under Panel rho-Statistic and Panel PP-Statistic null hypothesis is rejected and we accept the alternative hypothesis because the significant level is less than 5%. The Kao residual cointegration test reject null hypothesis since it is not up to 5% level of significant. This means that we have a long run relationship among all the four variables in our model.

The Granger causality results at lag 2 for short run causality (presented in table 4.6) show the impact of individual variable of foreign capital on growth. To see which of the variable cause growth in the selected West African countries via Wald Test.

<table>
<thead>
<tr>
<th>Table 4.5: Wald Test (Short Causality Test)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent Variable</td>
</tr>
<tr>
<td>-------------------</td>
</tr>
<tr>
<td>Δln REEX</td>
</tr>
<tr>
<td>Δln RIR</td>
</tr>
<tr>
<td>Δln FDI</td>
</tr>
<tr>
<td>Δln REM</td>
</tr>
</tbody>
</table>

N.B: * Indicates significant at the 5% level.

The table 4.5 above shows the short causality running from independent variables to the dependent variable. Real exchange rate is 11.193(0.0037), Foreign direct investment is 5.706(0.003), Net migrate remittance is 19.861(0.000) shows that is a short run causality running from FDI, REM and REEX to GDP except real interest rate. We can conclude that, there exist short run causality between foreign capital
variables and economic growth in the selected West African countries. FDI, REM and REEX cause growth in the selected West African countries.

It has been proved that, foreign capital inflows cause growth in the short term. The effect of repatriation of profits by the foreign investors back to their home land led to long run distortion in the west African economy which produce negative effect over time. Thus is the short run inflow of remittance, development assistance and foreign direct investments have positive impact on the economic growth in the selected West African country.
Table 4.6

FMOLS (Individual) Results, Dependent Variable: lnGDP

<table>
<thead>
<tr>
<th>Indicator/country</th>
<th>Nigeria</th>
<th>Ghana</th>
<th>Gambia</th>
<th>Guinea</th>
<th>Liberia</th>
<th>Mauritania</th>
<th>Sierra Leone</th>
<th>Cote D’Ivoire</th>
</tr>
</thead>
<tbody>
<tr>
<td>lnRIRit</td>
<td>2.08</td>
<td>-3.05</td>
<td>1.95</td>
<td>-2.74</td>
<td>-3.16</td>
<td>-2.30</td>
<td>5.54</td>
<td>-0.64</td>
</tr>
<tr>
<td></td>
<td>(0.16)</td>
<td>(0.0000) *</td>
<td>(0.0000) *</td>
<td>(0.0000) *</td>
<td>(0.003) *</td>
<td>(0.0339) **</td>
<td>(0.7312)</td>
<td>(0.02) **</td>
</tr>
<tr>
<td>lnREEXit</td>
<td>3.49</td>
<td>2.35</td>
<td>6.83</td>
<td>7.05</td>
<td>-7.7</td>
<td>6.20</td>
<td>2.26</td>
<td>1.07</td>
</tr>
<tr>
<td></td>
<td>(0.0000) *</td>
<td>(0.0000) *</td>
<td>(0.40)</td>
<td>(0.0000)</td>
<td>(0.001) *</td>
<td>(0.0000) *</td>
<td>(0.076)***</td>
<td>(0.3920)</td>
</tr>
<tr>
<td>lnFDlit</td>
<td>-9.81</td>
<td>3.22</td>
<td>4.81</td>
<td>-7.81</td>
<td>-2.73</td>
<td>7.58</td>
<td>2.97</td>
<td>3.08</td>
</tr>
<tr>
<td></td>
<td>(0.0003)*</td>
<td>(0.0000) *</td>
<td>(0.0000)</td>
<td>(0.0000)</td>
<td>(0.04) **</td>
<td>(0.000) *</td>
<td>(0.13)</td>
<td>(0.07)***</td>
</tr>
<tr>
<td>lnODAit</td>
<td>-3.23</td>
<td>9.82</td>
<td>1.55</td>
<td>8.05</td>
<td>9.36</td>
<td>-0.97</td>
<td>7.44</td>
<td>7.08</td>
</tr>
<tr>
<td></td>
<td>(0.0045)*</td>
<td>(0.0000) *</td>
<td>(0.0000)</td>
<td>(0.0000)</td>
<td>(0.000) *</td>
<td>(0.0057) *</td>
<td>(0.33)</td>
<td>(0.0035)</td>
</tr>
<tr>
<td>lnREMlit</td>
<td>-1.01</td>
<td>11.52</td>
<td>0.95</td>
<td>-3.09</td>
<td>0.42</td>
<td>4.78</td>
<td>40.25</td>
<td>0.64</td>
</tr>
<tr>
<td></td>
<td>(0.74)</td>
<td>(0.0000) *</td>
<td>(0.0000)</td>
<td>(0.0226)</td>
<td>(0.59)</td>
<td>(0.0000) *</td>
<td>(0.0002) *</td>
<td>(0.6752)</td>
</tr>
</tbody>
</table>

Note: The null hypothesis for the ρ-ratio is H0=ρ= 0; Figures in parentheses are t-statistics (*), (**), and (***). Significant with 95% (90%) confidence level.
Table 4.6 above also presents the fully modified ordinary least square of the selected individual countries in west Africa. The estimated coefficient of the real interest rate is positive in three countries [2.08 (Nigeria), 1.95 (Gambia), and 5.54 (Serria Leone)] while the remaining five countries are negative-3.05(Ghana), -2.74 (Guinea) -3.16(Liberia), -2.30 (Mauritania) and − 0.64 (Cote d, Iviore) and statistically significant at 5% except Nigeria and Serria Leone were not statistically significant at 5 per cent level. The estimate of coefficient for Real Exchange Rate for Nigeria, Ghana, Gambia, Guinea, Mauritania, Serria Leone and Cote d’ Ivoire are positive (3.49, 2.35, 6.83, 7.05, 6.20, 2.26 and 1.07 respectively) while only Liberia are negative and statistically significant at the 5% level except Gambia, Serria Leone and Core d’ Ivoire. The estimate coefficient for FDI inflows for Ghana, Gambia, Mauritania, Serria Leone and Cote d’ Ivoire are positive (3.22, 4.81, 7.58, 2.97, and 3.08 respectively. Nigeria, Guinea, Liberia, is negative-9.81, -7.81 and -2.73 statistically significant at and 5% level.

Except Serria Leone and Cote’d ivoire. The estimate of official development assistance is positive for all countries except Nigeria and Guinea. [9.82(Ghana), 1.55(Gambia), 8.05 (Guinea), 9.36(Liberia), 7.44(Serria Leone and -7.08(Cote’d ivoire)] and all were statistically significant at 5%. These results show that Net Migrant Remittance were positive seven in six west African countries Ghana, Gambia, Guinea, Liberia but negative in Nigeria (11.52, 0.95, 0.42 , 4.78 , 40.25, and 0.64 respectively) -1.01(Nigeria) and -3.09 (Guinea). It is significant Ghana, Gambia, Mauritania and Serria Leone.
Table 4.7

FMOLS (Group) Results, Dependent variable: InGDPit

<table>
<thead>
<tr>
<th>InRIRit</th>
<th>InREEXit</th>
<th>InFDIit</th>
<th>ODAit</th>
<th>REMit</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.601645</td>
<td>1053586</td>
<td>2.4800</td>
<td>5.98191</td>
<td>13.9486</td>
</tr>
<tr>
<td>(0.7572)</td>
<td>(0.8032)</td>
<td>(0.0014)</td>
<td>(0.786)</td>
<td>(13.9486)</td>
</tr>
</tbody>
</table>

Note: The null hypothesis for the r-ratio is H0=βi= 0; Figures in parentheses are t-statistics (*) and (**) significant with 95% (90%) confidence level.

Table 4.7 shows all the group fully modified ordinary Least square for the panel of the selected West African countries. This shows generally the impact of capital inflows on economic growth in the Selected West African Countries. From the above results the variables of foreign capital inflows are positive for all the variables 0.601645, 1053586, 2.4800, 5.98191, 13.9486 for real interest rate, real exchange rate, foreign direct investment, official development assistance and Net migrant remittance respectively but only foreign direct investment is significant. Hence, it is accomplished that all variables are cointegrated and have a long term relation.

4.7 Summary of Chapter

The analysis results establish that increase the foreign capital inflows and more growth in the economy since the variables are find positive and significant foreign capital inflows are found significant on economic growth in the Selected West African countries there is long run relationship exist. Similarly, the results confirm that the effects of foreign capital inflows and economic growth on depend on foreign direct investment, official development assistance and net migrant remittance, so that at high inflows of foreign capital the growth will be greater and vice versa.
Other important determinant is foreign direct investment which is found significant. All these variables have positive impact on growth. Foreign direct investment, net migrant remittance, real exchange rate and real interest rate cause growth in the short run. This finding lends support to the ones reported by previous studies (see Orji et al., 2014; Sbia, Shahbaz & Hamdi, 2014).
CHAPTER FIVE

SUMMARY OF MAJOR FINDINGS, POLICY IMPLICATIONS AND CONCLUSION

5.1 Summary of Major Findings

Main conclusions can be taken from the study. First of all, this was an attempt to recognize the impact foreign capitals inflows on the economic growth rates in the selected sample of West African countries namely Nigeria, Ghana, Gambia, Guinea, Sierra Leone, Liberia, Cote ‘d’ Ivoire and Mauritania. Using Pedroni, Kao and Fully Modified Ordinary Least Squares (FMOLS) Tests, the results showed there is long run relationship running from foreign capital inflows to economic growth in West Africa countries and coefficients of foreign capital inflows were positive and foreign direct investment is an important variable for all the selected West African countries. All the Variables are positive to Nigerian and Серria Leone, Net Migrant remittance were negative in Ghana, Gambia, Guinea, Liberia and official development assistance and FDI were negative Gambia. Foreign direct investment, real exchange rate and net migrant remittance cause economic growth in the short run. The results from these analyses also support for the historical evidence presented by Abdul Waheed (2004) and Oriji et al (2014). They showed that foreign capital inflows have positive relationship to the economic growth. Capital inflow is positive to Nigeria and Gambia.
5.2 Policy Implications

Since the study has established that foreign capital inflows is positively correlated to economic growth, economic growth rate in the selected West African countries is a function of amount of foreign capital inflows other things remain constant.

Firstly, since foreign capital inflows has positive relationship on the economic growth in the selected West African countries. Therefore, necessary measures need to be taken to accelerate national income beyond the take-off stage in West Africa region. Fiscal policy will be beneficial in controlling capital inflows. By adopting a budget surplus, inflation pressure and appreciation of the real exchange rate can be lowered. A reduction in government expenditure has the same effect as a decrease in demand for loanable funds because it can lower interest rates. However, this policy has to be balanced with the development responsibility of the government. Moreover, West African economies need to amass foreign reserves. Large reserves may be useful in the face of large capital reversal. With high investments to imports and low exposure to foreign debts, the region will be able to cover this chronic gap that the emanated from low capital inflows without much difficulty.

Second, it is highly imperative to pursue active monitoring and intervention by the monetary authority. Reshaping the financial sector with prudential regulations may help to stunt the negative effects of capital setback in the region.

Third, sound macroeconomic and structural reforms need to be deepened to encourage more capital inflows into their economies viz, a strong domestic sector,
import liberalization, greater exchange rate flexibility, fiscal tightening, easing
restrictions on capital outflows, and large international reserves. Easier repatriation
of funds can induce more capital inflows, more quality jobs need to be created to
increase per capita income and reduce poverty in the region. Trade partnership
should be encouraged with the other continents for more investments to flow into the
region.

Forth, based on the results, real exchange rate affects economic growth in West
African. Hence, West African governments should pursue monetary policy
framework that complements the existing exchange rate policy. Flexible exchange
rate policy has positive effects on output growth. In theory, currency depreciation is
associated with possibilities for both contractionary and expansionary effects on
outputs of different sectors. It affects both output and money supply. Flexible
exchange rate is self-adjustment and self-balancing since it bridges the chronic
imbalance in the trade gap.

Fifthly, net migrant remittance and foreign aid have a positive impact on economic
growth. It indicates that increasing the level of remittance and developmental aid
(whether by changing the composition or level of total aid) have a sizable impact on
long-run growth. A change in the composition of aid toward developmental aid, and
an increase in its quantity can be expected to create sizable returns in the long-run.
Therefore suggests foreign aid flows should be invested into developmental projects
that will boost the nations GDP and reduce the level of poverty in the region.
However Debt reduction could become a more successful policy tool than obtaining
additional loans. However, policymakers are urged to maximize the positive impact of remittances by ensuring their efficient and reliable transfers, reducing the cost of transfers, ensuring that the recipients of these funds have access to other financial services and more productive for both the individual and the country of origin. This would go a long way to boosting development outcomes. Policymakers can put in place sufficient incentives and mechanisms for migrants and their families to invest remittances in capital-accumulation projects that benefit the whole economy.

Lartey (2013) found that there is a positive relationship between remittances and growth, as well as a positive interaction effect between remittances and financial depth on growth and further provide evidence for the existence of an investment channel through which remittances affect growth, and indirect evidence that remittances contribute towards a stable macroeconomic environment, and hence, growth, through a consumption smoothing effect.

5.3 Limitation of the Study

The study was limited to the period due to the availability of data on our variables of foreign direct investment, net migrant remittance, real exchange rate and real gross domestic product. Other than having data for only a few years there were missing data for certain countries leading to exclusion of certain variable like portfolio investment, real interest rate. Thus, including more variables and countries might provide more useful information on impact of foreign capital inflows on the economic growth of West African countries. Secondly, some basic objective of the
study is suffered due to inadequacy of time series data from related agencies for some the countries in the region. There has also been a problem of sufficient homogenous data from different sources.

More so, on the methodology the balanced panel constrained us to have few observations because of missing data for some countries for some periods. Though our analysis was based on a panel, we think our results would have been improved if we had a large number of observations; in fact some panel tests like Pedroni (2004) perform worse in small samples. Therefore if higher frequency data, quarterly or monthly, can be available, the investigation of the causal links between FDIs, Net Migrant Remittance, Real exchange rate and economic growth in selected West Africa Countries can be revisited in future research.

5.4 Recommendation for Future Research

Given the limitations of the present study, we recommend that future research should consider the issues highlighted below. First, future studies that employ a rich datasets by expanding their coverage on the impact of foreign capital on economic growth in other regions such as North Africa, Central Africa, Southern Africa, West Africa and other developing countries Asia.

Second, other potential determinants of foreign capital inflows that were omitted in this study such as foreign portfolio investment, official development assistance can be included to see how they affect economic growth. But this will require a large datasets that include many countries. Third, this study only examines impact of
foreign capital inflows on economic growth via cointegration and causality test other statistical methodology can be employed in the future studies.

Fourthly, foreign capital inflows impact on domestic investment in West African countries can be centre of research for further studies.

5.5 Conclusion

Foreign capital inflow, which comprises FDI and Foreign Portfolio Investment and Net Migrant remittance enhance the economic growth of the country. With the increased in these variables of foreign capital inflows, West African countries are still characterized by low per-capita income, low and falling growth rates of GDP and high unemployment rates. This has led to a lot of arguments in the literature. This study therefore examined the impact of Foreign Capital Inflow on the economy of West African region. Among the findings was that impact Foreign Capital Inflows on economic growth of West African countries is a function of foreign direct investment, net migrant remittance and real exchange rate while the variables were jointly cointegrated and cause economic growth in the short run. Policy recommends that, issues on foreign capital Inflows should not be ignored in policy decisions aimed at promoting the economic development of West Africa especially for foreign direct investment the significant variable. Consequently, steps to attract more Foreign Capital should be undertaken by the West African governments as one of the ways of boosting their economy as practiced by developed countries and other developing countries such as Asian Tigers.
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