TITLE PAGE

THE IMPACT OF FOREIGN DIRECT INVESTMENT ON ECONOMIC GROWTH: A COMPARATIVE STUDY OF GHANA AND NIGERIA

BY

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ABSTRACT

The economic development performance can be used to measure the economic growth of a given country. In economic analysis, a country can attain economic growth through the growth in national income measurement. However, the role of foreign direct investment (FDI) on economic growth continues to be debated and tested in the literature on international economics and development economies. This paper extends the previous empirical studies on the issue by providing some evidence from time series data for the period 1971 to 2013 of Ghana and Nigeria. The primary objective of this study is to analyze the impact of FDI on economic growth of Ghana and Nigeria taking trade openness, Gross Fixed Capital Formation and human capital as control variables. To investigate the long run equilibrium relationship, Johansen and Juselius co-integration approach is analyzed, while the speed of adjustment in the short run is analyzed through the use of VECM method. In addition to check for the direction between FDI, T.OPEN, GFCF, HK and economic growth, granger causality test is performed for both Ghana and Nigeria. In Ghana, all the explanatory variables have long run relationship with economic growth. In Nigeria, FDI, GFCF and HK have long run relationship with economic growth. However, the VECM results in Ghana reveal that only T.OPEN and GFCF are statistically significant and therefore have short run relationship with economic growth. Similarly, the coefficient of ECM is statistically significant at 1% level of significance. Thus, 23.3% of the adjustment is achieved due to the correction of the adjustment speed in a year. In Nigeria, the coefficient of ECM is statistically significant at 1% level of significance. Thus, 10.8% of the adjustment is achieved due to the correction of the adjustment speed in a year. To this effect, Ghana's correction of the speed of adjustment in a year moves faster than that of Nigeria.

ABSTRAK

Prestasi pembangunan ekonomi boleh digunakan untuk mengukur pertumbuhan ekonomi sesebuah negara tertentu. Dalam analisis ekonomi, sesebuah negara boleh mencapai pertumbuhan ekonomi melalui pertumbuhan dalam pengukuran pendapatan negara. Namun, peranan pelaburan langsung asing (FDI) terhadap pertumbuhan ekonomi berterusan menjadi perdebatan dan diuji di dalam karya tentang ekonomi antarabangsa dan ekonomi pembangunan. Kajian ini meneruskan kajian empirikal yang terdahulu terhadap isu tersebut dengan menyediakan beberapa bukti daripada data siri masa Ghana dan Nigeria dari tempoh 1971 kepada 2013. Objektif utama kajian ini adalah untuk menganalisis kesan FDI terhadap pertumbuhan ekonomi Ghana dan Nigeria dengan mengambil keterbukaan, pembentukan modal kasar tetap dan sumber manusia sebagai pembolehubah terkawal. Untuk menyiasat hubungan keseimbangan jangka panjang, pendekatan Johansen dan Juselius ko-integrasi di analisis, sementara kecepatan penyelarasan dalam jangka pendek dianalisis melalui penggunaan VECM method. Tambahan itu, untuk memeriksa hubungan arah di antara FDI, T.OPEN, GFCF, HK dan pertumbuhan ekonomi, ujian penyebab granger digunakan untuk Ghana dan Nigeria. Di Ghana, semua pembolehubah bersandar mempunyai hubungan jangka panjang dengan pertumbuhan ekonomi. Namun, keputusan VECM di Ghana mendapati hanya T.OPEN dan GFCF adalah secara statistik signifikan dan maka mempunyai hubungan jangka pendek dengan pertumbuhan ekonomi. Begitu juga, koefisyen ECM adalah secara statistik signifikan pada aras 1% signifikan. Oleh itu, 23.3% penyelarasan ECM dicapai disebabkan kecepatan pembetulan penyelarasan dalam satu tahun. Di Nigeria, koefisyen ECM adalah secara statistik signifikan pada 1% aras signifikan. Maka, 10.8% penyelarasan dicapai disebabkan kecepatan pembetulan penyelarasan dalam satu tahun. Dalam kesan ini, korelasi kecepatan pembetulan penyelarasan dalam satu tahun oleh Ghana bergerak lebih pantas dari Nigeria.

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In the name of Allah, Most Gracious, Most Merciful. All praise is to Allah the owner of the Worlds, and blessings and prayers is upon the Great prophet his family members, friends and those who follow them sincerely till the Day of Judgment.

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ABBREVIATIONS

ADF	Augmented Dickey Fuller
ECM	Error Correction Model
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GFCF	Gross Fixed Capital Formation
HK	Human Capital
IMF	International Monetary Fund
MNCs	Multi-national Companies
OECD	Organization for Economic Co-operation and Development
OLS	Ordinary Least Squares
R&D	Research and Development
SIC	Shwarz Information Criterion
T.OPEN	Trade Openness
UNCTAD	United Nations Conference on Trade and Development
VAR	Vector Autoregressive
VECM	Vector Error Correction Model
WDR	World Development Report
WIR	World Investment Report

CHAPTER ONE

INTRODUCTION

1.1 Introduction

Foreign Direct investment (FDI) is an integral part of an open and effective international economic system and a major catalyst to economic development. FDI is simply defined as the long term participation by one country into another country. Normally, it involves participation in management, joint venture, transfer of technology and expertise (Agrawal & Khan, 2011). Similarly OECD (2008) referred FDI as a category of investment that reflects the objective of establishing a lasting interest by a resident enterprise in one economy (direct investor) in an enterprise (direct investment enterprise) that is resident in an economy other than that of the direct investor. However, the lasting interest signifies the long term relationship that will exist between the direct investor and the direct investment enterprise. Thus, a significant degree of influence on the management of the enterprise is expected to hold. Therefore, the statistical evidence of such a relationship is the 10% or more direct or indirect ownership of the voting power of an enterprise resident in one economy by an investor resident in another economy.

For many years FDI has been playing a vital role on economic growth. There were lots of discussions on the relationship between FDI and economic growth in both present and past theoretical and empirical literatures. However, most of the studies conducted on FDI and economic growth focus on the traditional neo-classical and the endogenous growth

theories. In recent time with the coming of endogenous theories it has come to the notice that FDI has taken into account as one of the long run economic growth determinants (Barro & Sala-i-Martin, 2004). Thus, FDI flow has gained its popularity due to its rapid increase that began in the late 1990s and was subsequently regarded to be incorporated as one of the economic growth determinants. According to Osinubi and Amaghionyeodiwe (2010), FDI help to fill the saving-investment gap and technological gap in developing economies as most of the developing countries government does not seem to be able to generate sufficient revenues to meet their expenditure necessities. Additional benefits are in the form of externalities and the adoption of foreign technologies. These externalities are in the form of licensing introduction of new processes by the foreign firms and employee training (Onu, 2012).

1.2 Trends in FDI Flows

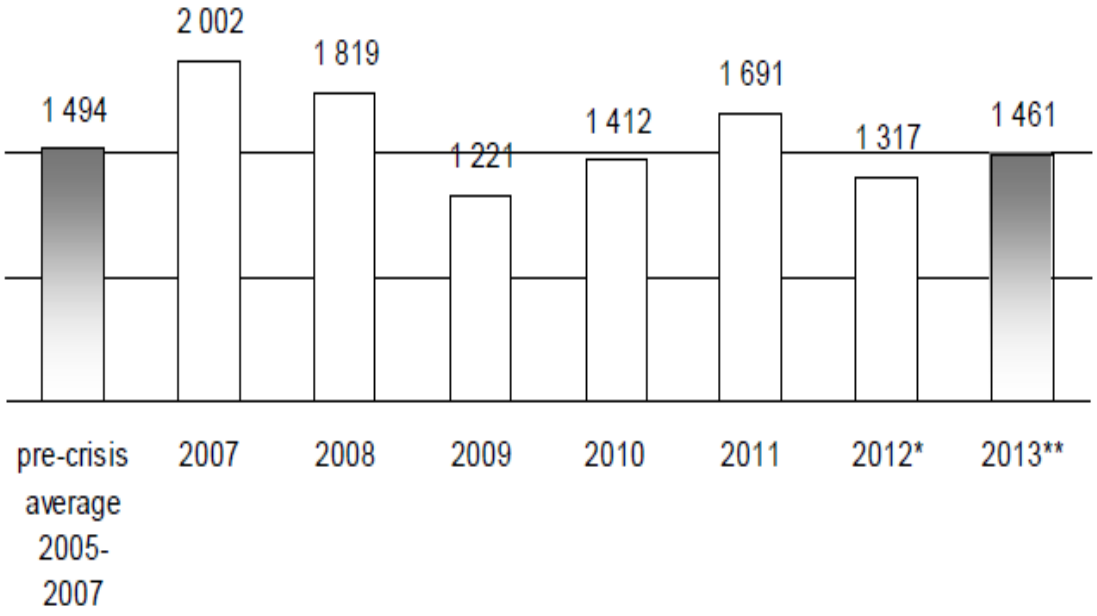
The trend of FDI flows has in recent years prior to economic crisis shown an upward movement thereby showing a speculation that the economic environment is at a better stage. To this effect, this section intends to discuss the trends in global FDI, FDI trends in Ghana and FDI trends in Nigeria.

1.2.1 Trends in Global FDI

In our dynamic age of privatization, liberalization, and globalization, FDI has emerged as an important form of international capital flow. Recognizing the importance of investment with no borders, the World Bank has devoted its 2005 issue of "World

Development Report" to the issue of trade and investment, discussing in detail the importance of foreign capital flow to the economies of the host countries. According to the World Bank, only few countries have grown without being open to trade (World Development Report, 2005). Generally, there is a wide agreement on the importance of openness that leads to FDI flows. Hence, recognizing the importance of openness to economic growth, an increasing number of countries have adopted more liberal policies towards the flow of foreign capital. As a result, FDI inflow to developing countries increased from 0.1 percent of global GDP in 1970 to 3 percent in 2001 (World Bank, 2005).

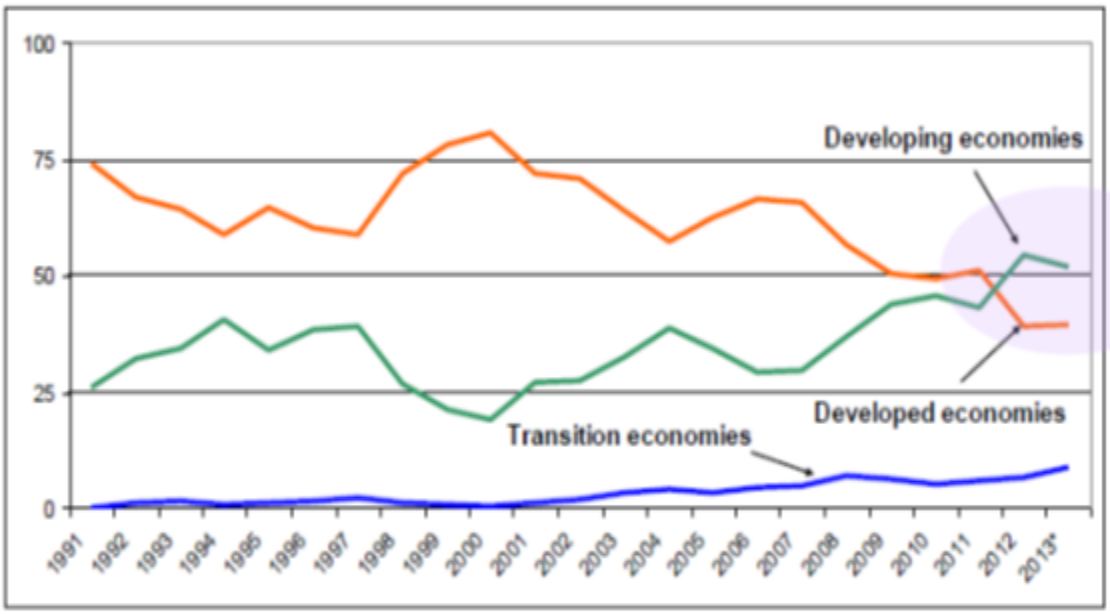
The global FDI was said to have returned to growth with inflows shooting to 9% in 2013 to $1.45 trillion following the 2012 collapse (Figure 1.1). However, forecast made by UNCTAD that FDI flows is expected to increase to $1.6 trillion in 2014, $1.7 trillion in 2015 and $1.8 trillion in 2016 (UNCTAD, 2014). Among major regional and inter-regional groupings, Asia-Pacific Economic Cooperation (APEC) and Brazil, Russia, India, China and South Africa (BRICS) countries almost doubled their share of global FDI inflows from the pre-crisis level. APEC now accounts for more than half of global FDI flows, while BRICS jumped to over one fifth. However, ASEAN level of FDI inflows doubled compared to the pre-crisis level. Regional and inter-regional groups to which developed economies are members (e.g. G20, North American Free trade Agreement (NAFTA) are all experiencing a slower recovery (UNCTAD, 2014).



Source: World Investment Report (2014)

Figure 1.1: Global FDI inflows (Billions of US dollars)

Thus, it was suggested that the larger increase will come from developed nations. Hence, FDI flows increased by 9% in developed economies to $566 billion maintaining 39% of the global flows as the developing nations acquired 54% of the total with $778 billion in 2013. The transition economies got the remaining of $108 billion (Figure 1.2). More than a decade, Africa got 26% share of the extractive industry in the value of Greenfield projects while LDCs got 36%. However, the shares of the value of announced projects in both Africa and LDCs are declining rapidly with manufacturing and services constitute 90%.



Source: World Investment Report (2014).

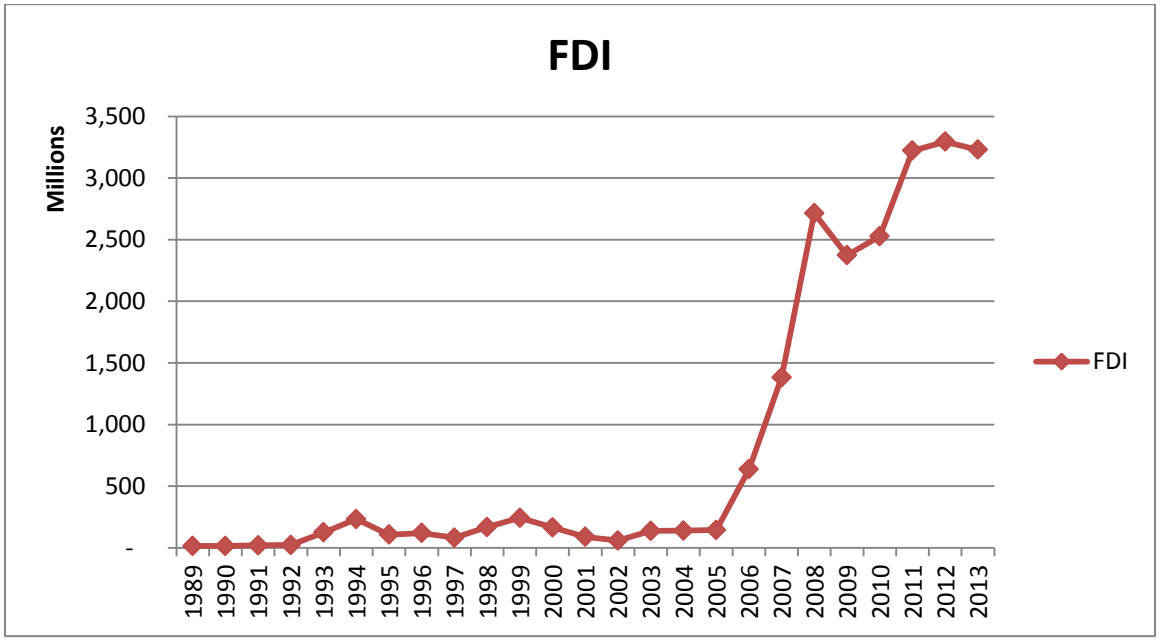
Figure 1.2: FDI inflow shares by major economic groupings (Percent)

1.2.2 FDI trends in Ghana

Insah (2013) pointed out from the World Investment Report (2012) that the discovery of oil, led to a vast inflows of FDI into Ghana. During the period, Ghana was rated as the third followed by Congo and Algeria in FDI inflows in Africa. In addition, the report discovered that major recipients of FDI are the new and emerging oil- and gas producing countries in Africa. However, Ghana is said to have benefited from FDI in the newly developed Jubilee oil field in December 2010, where commercial production started.

However, the period 1983-88 witnessed slow-moving inflows, averaging about $4 million per annum, and the highest and lowest inflows during the period being $6 million in 1985 and $2 million in 1984 respectively. Hence, 1989-92 recorded moderate inflows

averaging about $18 million per annum the highest and lowest being $22 million in 1992 and $14.8 million in 1990 respectively (Tsikata, Asante, & Gyasi, 2000). The 1993-96 was a period of significant, but oscillatory inflows, which peaked in 1994 at $233 million, but fell by more than 50% the following year to $107 million. See Figure 1.3. Moreover, the quality of FDI statistics in Ghana tend to be questionable since the promotion and monitoring of FDI in Ghana are carried out without proper coordination in arriving at a total figure by many agencies (Abdulai, 2005).



Source: World Development Indicator, 2014

Figure 1.3: FDI inflow in Ghana

However, the introduction of Ghana Investment Promotion Act 1994 through the Free Zones Act, 1995 has granted certain tax incentives and investor protection policies to attract foreign investors and also make the environment conducive for their operations. Thus, the right and proper policy action taken in Ghana have raised the number of foreign direct investment thereby enriching economic growth at increasing level. Therefore,

Ghana's shares of FDI was said to have been multiplied from 2005 to $636M in 2006 and represent 19.4% of gross fixed capital formation according to 2008 World Investment Report (WIR) in (Boateng, 2010). In addition, Ghana experienced increased global attention as a result of hosting 2008 Africa Cup, the UNCTAD XII (United Nations Conference on Trade and Development) and WAIPA (World Association of Investments promotion Agencies) meetings see figure below. Therefore, the country had strong GDP growth and significant increases in FDI inflows during that period.

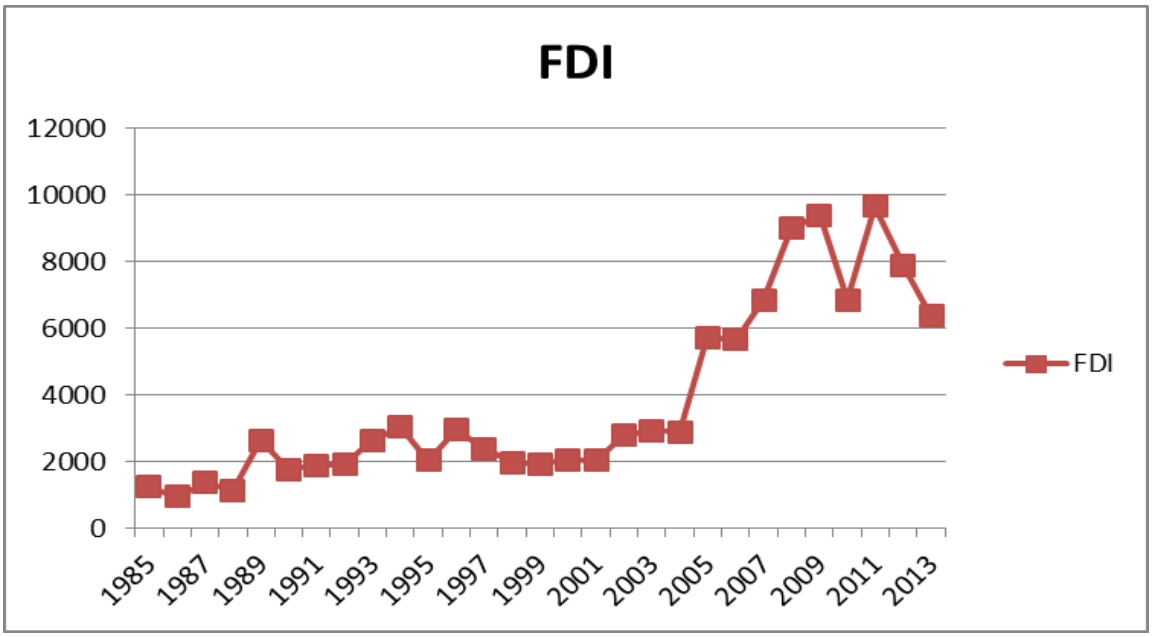
Ghana's Foreign Direct Investment inflows (FDI) declined during the first half of 2013. According to the latest Global investment trends monitored by the UN Conference on Trade and Industry Ghana's FDI inflows declined by 11 percent in 2013. The report however stated that in spite of the decline in Ghana's Foreign Direct Investment inflows for this 2013, future prospects look positive. It says though the country has seen massive increase in investments in the oil and gas sector that set up a vehicle assembly plant by Mahindra will lead to an increase in investments in the automotive industry in the country. Mahindra, a large Indian automotive manufacturer is looking to set up a vehicle-assembly plant in partnership with a local Ghanaian firm soon. The move is has raised hopes for a diversification of investments away from the oil and mining sector (http://business.peacefmonline.com/pages/economy/201311/179618.php).

Notwithstanding, Ghana is still affected by challenges. In Doing Business 2014, a report by the World Bank and International Finance Corporation(IFC) that scores 189 economies on the ease of setting up shop there – getting electricity, paying taxes, lining up credit and so forth – Ghana ranked 67th overall, representing a backslide from its 2013

ranking of 62nd. Securing construction permits, starting a business and resolving insolvency were found to be some of the biggest headaches for entrepreneurs here relative to the rest of the world. Regionally, however, Ghana fared quite well on the Doing Business report, ranking fifth out of all countries in Africa, and in certain areas it even out performed developed nations. (http://www.myjoyonline.com/business/2014/may-27th/the-future-of-fdi-in-ghana.php).

1.2.3 FDI trends in Nigeria

Inflows of FDI to Nigeria have been marked with fluctuations in the past three decades. Nigeria among the top five in Africa pooled above USD 3 billion. The two principal recipients of FDI in sub-Saharan Africa Angola and Nigeria are the dominant oil producer countries. Nigeria was Africa's largest recipient of FDI flows ($8.92 billion) in 2011, accounting for over one fifth of all flows to the continent (Insah, 2013). Thus, Nigeria portion of FDI flows to Africa remain an issue of concern in the region as the nation is being regarded as the "giant" of Africa. Hence, real foreign direct investment was said to have been fluctuating into Nigerian economy for over a period of time as shown in (Figure 1.4). After the implementation of Structural Adjustment Programme (SAP) in 1986, and the subsequent liberalization of some aspects of the economy, FDI continue to be on an increasing trend ranging from N3, 620.10 ('000) in 1986 to as high as N70, 714.60 ('000) in the year 2000. Thus, the increasing trend shoot to the highest of N178, 478.0 ('000) in 2009, while a drop was observed between 1995 and 1996 (Ojo, 2012).



Source: World Development Indicator, 2014.

Figure 1.4: FDI inflow in Nigeria

The dropping trend between 1995 and 1996 and the relative slow growth in 1997 and 1998 were specifically attributed to the reversal of the Structural Adjustment Programme (SAP) policies by government in 1994. The 1995 level of N10, 899.6 (‘000) was a decline of 3.9 percent from the preceding year’s level of N11, 339.20 (‘000). Subsequently, the level further dropped to N10, 436.10 (‘000) in 1996 and there was a continuous persistent increase in the subsequent years.

Foreign direct investment (FDI) into Nigeria fell from USD 9.65 billion in 2009 to USD 7.88 billion in 2010 as a result of the global economic crisis and uncertainty over a petroleum industry bill which is perceived as unfavorable to transnational corporations (Figure 1.5). However, Chinese direct investment in non-oil sectors has been successful. Chinese enterprises have invested in manufacturing; telecommunications, power and

transport, and Chinese construction companies are active in Nigerian infrastructure projects. The volume of trade between Nigeria and China was estimated at USD 10 billion in 2011 (African Economic Outlook, 2012). In addition, Nigeria has again emerged number one destination for Foreign Direct Investment (FDI) in Africa, according to the United Nations Conference on Trade and Development (UNCTAD). UNCTAD said in its World Investment Report 2013, titled: "Global Value Chains: Investment and Trade for Development," that FDI inflows to Nigeria stood at $7.03billion. South Africa recorded $4.572 billion, Ghana ($3.295 billion), Egypt ($2.798 billion), and Angola ($6.898 billion), among others.

Experts argued that the FDI trend had been encouraging, though Nigeria needed to continue to address its security and political challenges to improve on the trend (Ojo, 2012).

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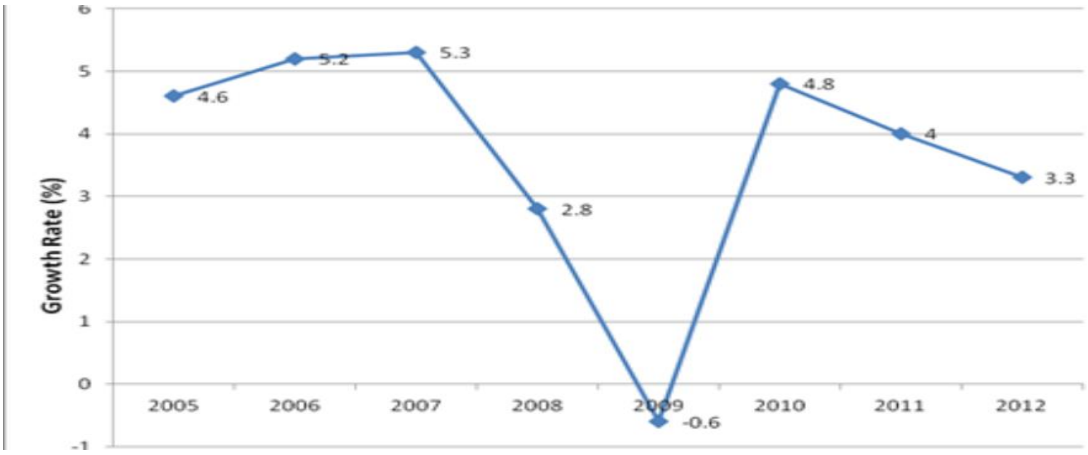
1.3 Economic Growth Performance

This section intends to discuss the global economic growth performance, the performance of economic growth in Ghana and the economic growth performance in Nigeria.

1.3.1 Global Economic Growth Performance

The world economy continues to suffer, with far reaching consequences. Well into the fifth year of the global breakdown, the financial system is being sustained only by the activities of the world's major central banks. The aftermath of the Arab Spring has

created more drivers for fragmentation than integration. The Middle East remains the most problematic region geopolitically as the world emerges from the financial crisis.

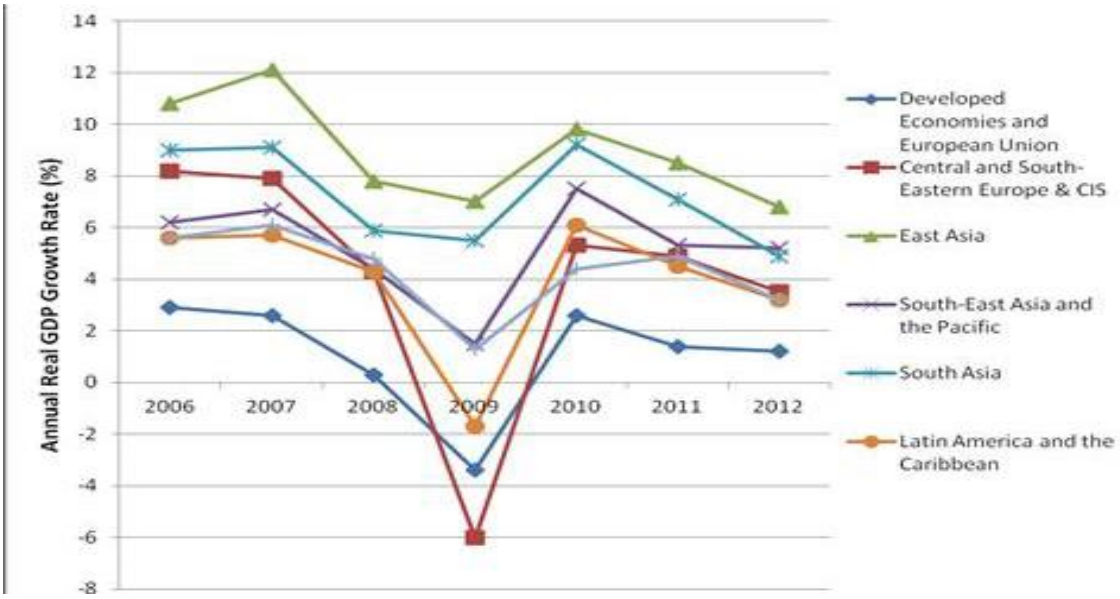


Source: World Economic Outlook, 2013

Figure 1.5: World Output Growth

Global economic conditions improved modestly in 2012, yet global growth slowed to 3.3% (Figure 1.5). Growth slowed down during 2012 in a number of the large developing economies, such as Brazil, China and India, which enjoyed a long period of rapid growth prior to the global financial crisis, and managed to recover quickly at a robust pace in 2010. The main sources of acceleration were emerging market economies, where activity picked up broadly as expected. A spillover effect of the weak growth in developed economies is seen especially in the area of international trade. The growth of exports decelerated sharply in 2012 due to a fall in aggregate demand in the American and Japanese markets. As such developing countries have been forced to adjust their macroeconomic policies due to the volatility of international capital flows.

High unemployment, reduced consumption spending, continued bank risk, continued deleveraging by firms and households and fiscal tightening led to slower growth in the Eurozone. The countries of Central and South-Eastern Europe (non-EU) and the Commonwealth of Independent States (CIS), having managed an exceptionally strong recovery in 2010, saw a deceleration of growth by 1.4 percent-age points in 2012. Growth decelerated by 1.7 percentage points in East Asia, as growth in China slowed to 7.8% in 2012. The South Asian and the Middle Eastern Regions also saw a substantial deceleration.



Source: World Economic Outlook, 2013

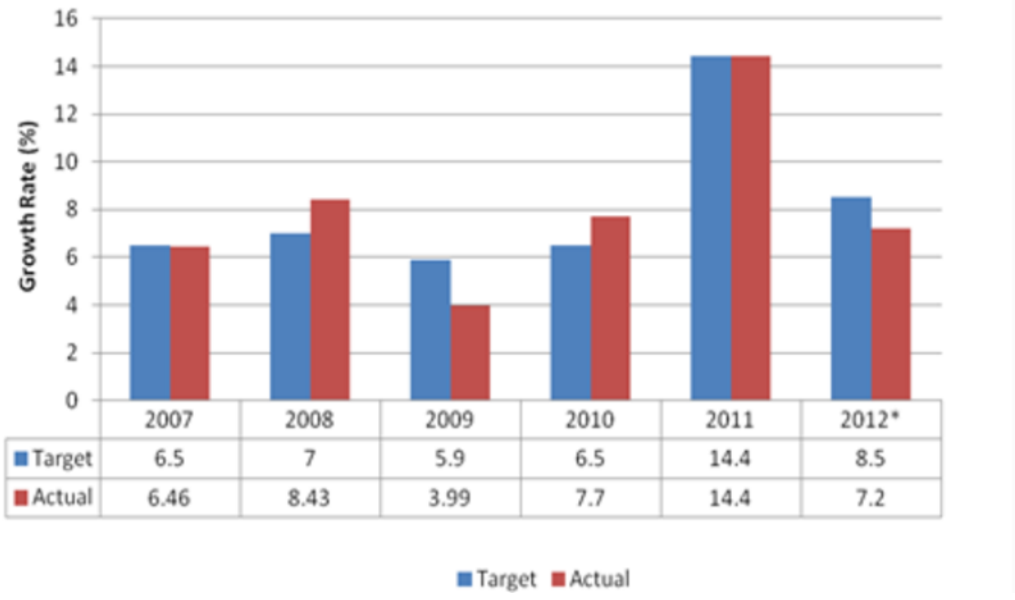
Figure 1.6: Trends in Growth Performance of Regions of the World

The Latin America and Caribbean Region also followed the same downward trend, after an impressive performance in 2010. The economic growth for the region is estimated at

3.2% in 2012, compared with 4.5% in 2011 (Figure 1.6). For example, growth in Brazil dropped from a peak of 7.5% in 2010 to an estimated 1.3% in 2012.

1.3.2 Economic Growth Performance in Ghana

Although Ghana made phenomenal strides in economic growth, with a record of high GDP growth of 14.4% in 2011, it failed to sustain the momentum, thus falling to a lower growth rate than was targeted for the year 2012.



	2007	2008	2009	2010	2011	2012*
Target	6.5	7	5.9	6.5	14.4	8.5
Actual	6.46	8.43	3.99	7.7	14.4	7.2

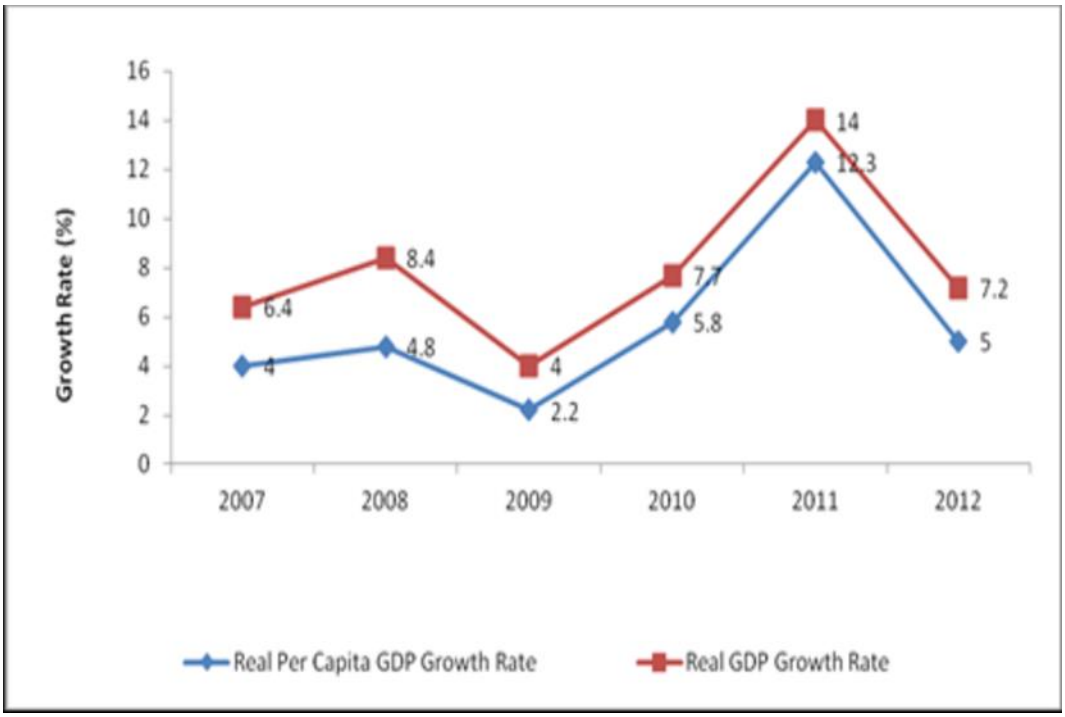
***** Real Growth rates (including oil)

Source: Ghana Statistical Service (GSS)

Figure 1.7: Trends in Target and Real GDP Growth Rates in Ghana

Comparatively, Ghana fared better than other countries in the Sub-Region, growing about 2 percentage points higher than the average for Sub-Saharan Africa. Ghana's economic

growth in 2012 of 7.2% was 7.2 percentage points lower than for 2011 and 2.2 percentage points lower than the target for 2012 (see Figure 1.7). This translates into a real GDP of GHC 30.1 billion and nominal GDP of GHC 73.1 billion.



*****Growth rates of GDP at 2006 constant prices

Source: Ghana Statistical Service (GSS); Budget Statement for 2012.

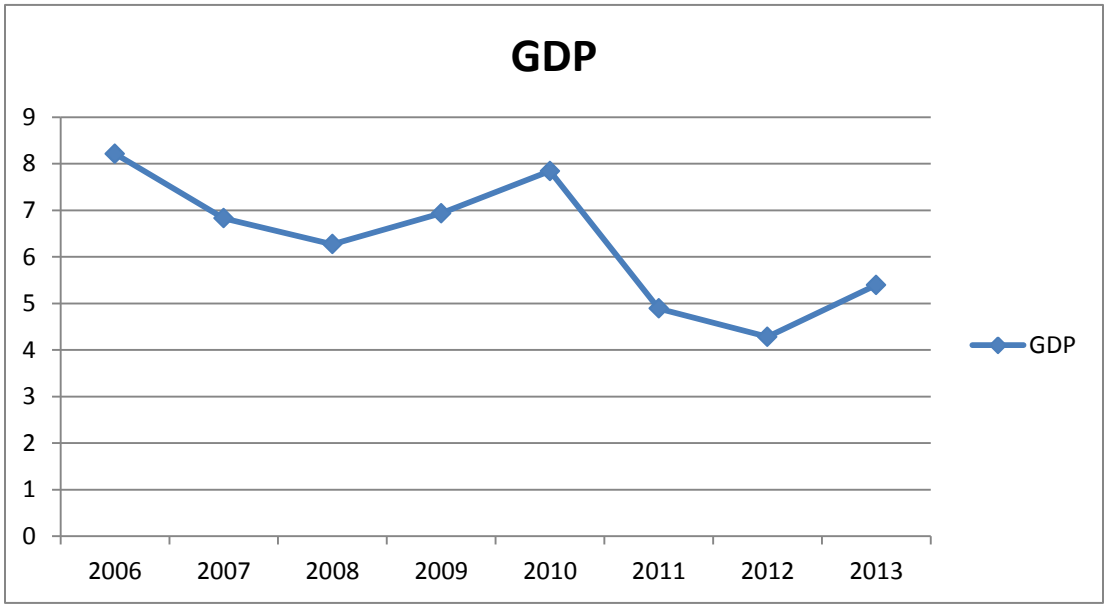
Figure 1.8: Trends in Real GDP and Real Per Capita GDP Growth Rates in Ghana

Ghana recorded fast growth in 2011, buoyed by oil revenues and the strong export performance of cocoa and gold. The growth rate has been comparatively high, despite the world-wide recession. The main drivers of growth in 2012 have been the persisting high prices for Ghana's major export commodities – cocoa and gold. The decrease in the real GDP growth rate also translated into a decrease in the real per capita GDP growth rate

from 12.3% in 2011 to 5% in 2012, based on a population growth rate of 2.2% (Figure:1.8).

1.3.3 Economic Growth Performance in Nigeria

Real GDP growth averaged 7.8 percent from 2004 to 2007, and growth of 6.4 percent in 2007 exceeded the low-income sub-Saharan (LI-SSA) median (4.0 percent), and the LI median (6.0 percent). Hence, during the era of National Economic Empowerment and Development Strategy (NEEDS) until the period 2007, Real GDP growth rate rebounded to 8.3 per cent reflecting significant effect to that economic policy. Inspite of the fall in real GDP growth rate to 6.3 per cent in the period 2008-2009, the major drivers remained agriculture, wholesale and retail trade, and services sectors (Sanusi, 2010).



Source: World Development Indicators, 2014.

Figure 1.9: NIGERIA GDP ANNUAL GROWTH RATE (% change in GDP)

However, Nigeria's economy has experienced strong growth in recent years. Nigeria rebased its GDP from 1990 to 2010, resulting in an 89% increase in the estimated size of the economy. As a result, the country now boasts of having the largest economy in Africa with an estimated nominal GDP of USD 510 billion, surpassing South Africa's USD 352 billion. The exercise also reveals a more diversified economy than previously thought. Nigeria has maintained its impressive growth over the past decade with a record estimated 5.4% growth of real gross domestic product (GDP) in 2013, up from 4.3% in 2012. See Figure 1.9. This growth rate is higher than the West African sub-regional level and far higher than the sub-Saharan Africa level (World Bank Group 2013; Doing Business; http://www.doingbusiness.org/data/exploreeconomies/nigeria/).

The performance of the economy continues to be underpinned by favorable improvements in the non-oil sector, with real GDP growth of 5.4%, 8.3% and 7.8% in 2011, 2012 and 2013, respectively. Agriculture, trade and services continue to be the main drivers of non-oil sector growth. The oil sector growth performance was not as impressive with 3.4%, -2.3% and 5.3% estimated growth rates in 2011, 2012 and 2013, correspondingly. Growth of the oil sector was hampered throughout 2013 by supply disruptions arising from oil theft and pipeline vandalism, and by weak investment in upstream activities with no new oil finds (African Development Bank Group, 2014; http://www.afdb.org/en/countries/west-africa/nigeria/nigeria-economic-outlook/)

According to Nigeria National Bureau of Statistics estimates, the country's GDP advanced 7.67 percent year-on-year in the last quarter of 2013, higher than the revised

figure of 6.81 and 6.99 percent recorded in the third quarter and the corresponding period of 2012, respectively. For 2013, growth rate was estimated at 6.87 percent, up from 6.58 percent in 2012. GDP Annual Growth Rate in Nigeria averaged 6.13 Percent from 2005 until 2014, reaching an all-time high of 8.60 Percent in the fourth quarter of 2010 and a record low of 3.46 Percent in the first quarter of 2012.

Despite the fact that the extensive volume of research on the subject, there is clash of evidence in the literature regarding the argument on the relationship between FDI and economic growth. Specifically, a two-way discussion has been deliberated in the study of FDI-growth relationship. In the first place, most of the researchers have perceived FDI as a key element that could solve the problem of scarce local capital and overall low productivity in most of developing nations (Mello, 1999). Consequently, it has been argued that foreign direct capital function as a potential growth enhancing player in the host country. However, this observation is challenged by many authors. For instance, Carkovic and Levine (2002) show that there is no robust impact from FDI on growth if country specific level differences, endogeneity of FDI inflows and convergence effects are taken into consideration. Furthermore, Akinlo (2004) shows that both private capital and lagged foreign capital have no statistically significant impact on the economic growth. He suggested that the findings appear to support the argument that extractive FDI might not be growth enhancing as manufacturing FDI does.

Secondly, economic growth itself has regularly been acknowledged as a key determinant from among several determinants of FDI inflow into the host countries by identifying the

significance effect of FDI on growth. Perhaps, increase in the growth of an economy might entice more FDI by multi-national companies (MNCs) which will give the additional opportunities to generate more profits (Tang, Selvanathan, & Selvanathan, 2008). Consequently, two components of research have developed; one that argues on the impacts of FDI on economic growth, while the other identifies these impacts and then attempt to recognize the determinants of FDI flow into the host countries. Thus, a two-way causality between the two variables distinguishes a third line of exploration in the FDI literature.

1.4 STATEMENT OF THE PROBLEM

In general, study in the field of economic growth is quite complex as the direction of causality usually runs both ways from supposed causes to growth and vice versa. It has been observed that economic growth is a key to economic development as it is one of the main objectives of every country in the world. FDI and its possible contribution to growth is not an exception. It is rather more difficult as FDI is often related with more than one growth promoting factor, such as deepening capital formation, greater degree of openness and export proceeds among others. However, one of the current global trends particularly in the developing countries is trade openness. Therefore it is pertinent to establish a relationship as by the economic growth model between economic growth, FDI and international trade. Most of the countries that are engaged in open economy outweigh those countries that have closed economy in terms of their economic growth. The influence of trade openness on economic growth based on the previous studies is hitherto

not reaching overall consensus, though the export-led economic growth hypothesis have major supporters.

FDI has been recognized for its effect in economic growth and development in developing nations. FDI has been known to boost economies, lead to technological advances and they increase the nation's income in general. Economic growth is the feature to a nation's progress and prosperity. However, investment provides base to the economic development to the developing nations. Thus, standard economic theory points to a direct, causal relationship between economic growth and FDI that can run in either direction. In other words, FDI itself may contribute to host country economic growth, by enhancing the country's capital stock, introducing complementary inputs, inducing technology transfer and skill acquisition, or increasing competition in the local industry of a recipient country. In contrast, FDI may hinder competition and thus hamper growth, especially if the host country government affords extra protection to foreign investors in the process of attracting their capital.

Foreign Direct Investment (FDI) has emerged as the most important source of external resource flows to developing countries over the 1990s and has become a significant part of capital formation in the developing countries despite their share in global distribution of FDI continuing to remain small or even declining (Insah, 2013). Therefore, the research is set out to investigate the impact of FDI on economic growth in Nigeria and Ghana. However, the effects of FDI in the host economy are perceived to be increase in the employment, increase in productivity, and increase in exports and, of course,

increased pace of transfer of technology. Since the mid-1970s, however, developed countries have attracted the bulk of FDI and correspondingly, the developing countries failed to create an enabling environment for foreign investors. The 1980s and 1990s have seen considerable changes in the level and composition of FDI in the developing countries.

Macaulay, (2003) made it known that effort has been made to encourage foreign direct investment into the economy by foreign investors, yet there are some that do not show interest to come to Nigeria because of some lingering problems in the economy such as poor infrastructural facilities, corruption and insecurity. Government has adopted several policies to attract foreign direct investment in this globalization era. Particularly, the government implemented IMF monitored liberalization of its economy, welcomes foreign investors in the manufacturing sector, offers incentives for ownership of equity in all industries except special ones like military equipment, oil and gas industries, and iron and steel industries. Despite Nigeria's effort on privatization programs since 1980s like investment promotion commission in 1981, introduction of structural adjustment programs(SAP) in 1986, Export processing zones decree in 1991, National Economic Empowerment and Development Strategies (NEEDS) till 2004, The 7-point agenda in 2007 in order to reform its economy as well as the Transformation Agenda in 2011, foreign direct investment is yet to be inclined in the economy (Oladimeji and Opeyemi, 2013). This further brought about a low pace of social development, backwardness in infrastructural development and technology transfer.

On the other hand, Ghana is making a comeback in terms of attracting FDI. An African front runner in the mid-1990s, Ghana slipped into economic crisis in 1998 and has only recently begun to recover. A renewed sense of purpose and optimism emerged following the country's peaceful transfer of power and the first new political leadership in 20 years. After 1996, FDI inflows declined and Ghana barely just made the ranks of the top 20 FDI recipients in Africa in 1996 to 2000. The main deterrent to new FDI was the deterioration in economic conditions. In 1998 and 1999, Ghana's economy suffered a shock with the fall in prices of its major exports – cocoa and gold – and the rise in price of its major import, oil resulting in severe trade imbalances a rapidly depreciating currency and high interest rates, accompanied by an expansionary fiscal policy, yielded unsustainable budget deficits, (UNCTAD, 2003). The immediate challenge is to broaden and sustain the recovery. For this, a stable macroeconomic environment is a priority. According to Baharumshah & Law (2010), the relationship between FDI and economic growth is yet unclear, and that recent evidence shows that the relationship may be country and period specific. Therefore, there is the need to carry out more study on their relationship.

Several reasons may be advanced to explain such disparity of empirical results. To mention a few, tests are traditionally conducted using data sets usually belong to heterogeneous groups of countries. Also, previous studies have used a variety of theoretical models. Moreover, empirical studies have usually implemented using a number of different econometric techniques in testing and estimation. Hence, this disparity in results does not disqualify the need for further investigation of the subject as long as it is clearly indicated that the analysis and the obtained results are not necessarily

generalized to other cases of studies. Thus, it would be exciting to know the impact of FDI on growth, given this contrast in the economic condition of these two countries.

1.5 Objective of the Study

1.5.1 General Objective

The general objective of this study is to examine the impact of FDI on economic growth in Ghana and Nigeria for the period 1971 to 2013.

1.5.2 Specific Objective

The specific objectives of this study are:

I) To examine the relationship between FDI and the economic growth and three other key macroeconomic variables, namely: gross fixed capital formation, trade openness and human capital of Ghana and Nigeria.

II) To test whether there is any evidence of causality between FDI and economic growth including the list of above three variables in Ghana and Nigeria.

III) To examine the co-integration relationship between FDI, economic growth and three other key macroeconomic variables in Ghana and Nigeria.

1.6 The Significance of the Study

It is generally believed amongst Economist and Financial scholars that economic growth and development of an economy depends on the level of investments both local and foreign mobilized through savings (Amaghionyeodiwe, 2010). However, the economic

performance of a nation can be determined by its economic growth. Thus, this study is significant as it will identify the effect of FDI on economic growth in Ghana and Nigeria. In addition, it will also provide vital information available to the stake holders, such as, foreign and domestic investors. By identifying the relevant issues, the relationship and causality between growth and FDI will assist the government to plan and execute effective policies to attain future high growth rates.

However, by exploring the causality between FDI and growth in Ghana and Nigeria empirically is of vital significance for the effects it provides for development strategies in the countries. Hence, if a unidirectional causality from FDI to growth is established, this will support the FDI stimulated growth hypothesis and provide solid evidence where FDI will be attracted by these two countries. In contrast, if the causality process runs in the opposite direction where the magnitude of FDI inflows depends on the absorptive capacity of the host country, then the growth-motivated FDI hypothesis prevails. Hence, it will indicate the urgency of modifications required to achieve higher growth rates that may be essential to attract more FDI in these countries. In addition co-integration analysis and error-correction modeling offers channels to perceive the short-term dynamic adjustment towards the long-run equilibrium as well as the long-term relationships among variables in the system.

The right and accurate action to safeguarding economic growth is vital since it is the central thump to the development of any nation. The strength of an economy is an indication that the development and prosperity of its citizens are at high level and

secured. However, this study remains important in the development literature as most of the developing nations, where Ghana and Nigeria are not exempted; depend on private foreign capital (mostly in the form of FDI) for their investments projects to be financed. Thus, studies on the impact of FDI flows on growth continue to be essential, in order to look for the answers to FDI-growth nexus especially in the developing countries. Therefore, analysis of the relationship between FDI and economic growth from Ghana and Nigeria may raise an effort to help these countries to develop their international trade and economic policy to better their economy.

This study focuses on the effects of FDI on economic growth using the time-series data over the period 1971 to 2013 for the comparative analysis of Ghana and Nigeria. A study of these countries' experience is useful as they are among the leading economies in Sub Saharan Africa, and their findings can also provide some policy implications for developing countries.

1.7 Scope and Limitation of the study

The aim of this study is on the impact of FDI on the economic growth of Ghana and Nigeria based on time series data for the period 1971 to 2013. This study will also employ yearly data on GDP, FDI, OPENNESS, GFCF and HUMAN CAPITAL. The data will be obtained from various sources including Annual Reports from Central Bank of Nigeria, Ghana Statistics Service, World Development Indicators, IMF as well as UNCTAD. However, lack of time is the limitation in this study.

1.8 Organization of the study

This study comprises of five chapters. Chapter 1 discusses the background, global, Ghana and Nigerian FDI trends as well as their economic performances. Next is the problem statement, general and specific objectives of study, significance of study and scope and limitation of the study. Last part of the chapter describes the whole structure of the study. Chapter 2 discusses on both theoretical and empirical literature reviews of the economic growth, FDI, trade openness, GFCF and human capital respectively. Chapter 3 describes the econometric models and methodology that will be utilized in determining the impact of FDI on economic growth. Chapter 4 presents the empirical results of the analysis. Finally, chapter 5 provides the summary and conclusion of the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The economic growth of an economy is said to be the increase in the amount of the goods and services produced over a period of time. Therefore, economic growth is being measured by the percentage change in GDP on an annual basis. Thus, each nation has a different economic growth. As the economists are trying to make an effort to appreciate why countries are growing at different rates; the study of economic growth models is highly essential. However, this chapter discusses the ideas in theoretical literature and previous work on economic growth. Thereafter, the chapter proceeds to explain the theoretical studies on FDI, trade openness, gross fixed capital formation as well as human capital. Finally, the empirical studies on the aforementioned are discussed.

2.2 Theoretical Frameworks

This section will discuss the theories on economic growth and the theories that were reviewed from the previous literatures on Foreign Direct Investment, Trade Openness, Gross Fixed Capital Formation and Human Capital.

2.2.1 The Theories of Economic Growth

The establishment of neo-classical theory of growth was developed primarily to explain economic growth and is therefore set mainly in the context of an industrial economy. Here, the economy has two main factors of production which are capital and labor. Therefore, the theory is mainly concerned with 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, 1990 in (Aheniy, 2012). Although there are different methods of analyzing the effect of FDI inflow on the economy under neo-classical theory, Barro, Robert & Sala-i-Martin (2004) has observed that the major determinants of output growth in any economy are the capital stock, labor and total factor productivity. Thus, the growth implied by the Solow model, focusing on the aggregate production function and the relationship between investment and growth rate of 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 & Egwaaikhide (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:

$$Y = f(K, L) = K^{\alpha} L^{1-\alpha} \quad \text{---------- (1)} \qquad \text{where } 0<\alpha<1$$

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:

$$y \equiv Y/L$$

$$k \equiv K/L$$

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 will explains how capital is accumulated in the economy of a given country. Thus, the following equation gives the capital accumulation as:

$$\dot{K} = sY - dK \quad \text{---------- (2)}$$

From (2) above, the difference between gross investment sY, and depreciation dK, is the change in the capital stock Ḱ. 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:

$$\dot{k} = sy - (n + \delta)\, k \quad \text{---------- (3)}$$

By taking the production function and capital accumulation together, the Solow model can then be solved. Therefore, the production function in terms of output per worker is given by: $y = k^{\alpha}$.

As the steady-state quantity of capital per worker is determined by the condition, $\dot{k} = 0$. It implies that the economy is at its steady state as there is no change in the capital-labor ratio over time.

Moreover, it has been suggested that an exogenous increase in investment whether domestic or foreign the capital and output per worker would increase temporarily, as there will be a limit to this growth as a result of diminishing returns. In other words, if FDI inflows to the host country generate an addition to the physical capital accumulation, more output with the same number of workers will be produced in the economy (Mabrouk, 2004). In that instance, it can be established that FDI is associated with growth as a net increment in capital per worker is generated. Therefore, this increment in the volume of investment and/or its efficiency will lead to long-term "level" effect and medium-term transitional increases in growth due to the inward FDI. As a result of diminishing returns to capital conventional assumption, the recipient economy would converge to its steady state, leaving no permanent impact on output growth as if FDI had never taken place before. .

However, neoclassical theories were confronted with drawbacks in explaining the long term economic growth. Though, Solow Growth model identifies technological progress as determinant of economic growth, but it failed to explain what determine the

technological advancement. To this effect, endogenous growth theory which is also known as new growth theory evolved to oppose the neoclassical theories and assume constant marginal product of capital. Thus, the constant marginal product of capital implies that investment in physical capital and human capital can create external economies and productivity is said to be enhanced (Ek, 2007).

The endogenous growth theories therefore state that the long-run growth of a country is not only influenced by the volume of physical investment but also depends on the efficiency of utilizing investment in the economy. Hence, endogenous growth model centers on incorporating organizational, managerial, technical and human skills, accumulation of knowledge as well as innovation and technological progress endogenously in the growth theories which are often brought by FDI (Pasche, 2013) and (Mankiw, Romer & Weil, 1992). The long-run economic growth in the endogenous growth model is viewed as a function of technological progress deriving from knowledge spillovers and technology transfers (Mankiw, Romer & Weil, 1992).

In a nutshell, one can conclude that the new growth theory provides great support for the idea that FDI could be a strong factor in supporting economic growth. More importantly, FDI is assumed to transfer knowledge, promote learning by doing that can lead in technology spillovers and increase in human capital where growth in the host country could be enhanced.

2.2.2 Theoretical reviews of Foreign Direct Investment

Theoretically, however, in the context of either neo-classical or endogenous growth models, the influence of FDI on the economic growth of the receiving country differ in the recent growth models from their conventional counterparts. Therefore, the economic growth of the conventional theories are being augmented by discussing growth in the context of an open rather than a closed economy, and the emergence of externality-based growth models. Yet, with the inclusion of FDI in the model of economic growth, the traditional growth theories limit the possible impact of FDI to the short-run level of income, as recent research has continuously uncovered an endogenous long-run role of FDI in the determination of economic growth. According to the neo-classical models, FDI can only affect growth in the short run because of diminishing returns of capital in the long run.

In contrast with the conventional neo-classical model, which requires that long run growth can only happen from the both exogenous labor force growth and technological progress, the rise of endogenous growth models (Barrow and Sala-i-Martin, 1995) made it possible to model FDI as promoting economic growth even in the long run through the permanent knowledge transfer that accompanies FDI. Thus, as an externality, this transfer of knowledge, with other externalities, will account for the non-diminishing returns that result in long run growth. However, the establishment of FDI in the recipient country, total production is harnessed through the combination of labor and physical capital, where physical capital could either be domestic (K_d) or foreign-owned (K_w) (Mello, 1999).

Similarly, the effect of FDI on economic growth may be either direct or indirect. FDI enhances production, employment, added value and export. Hence, these factors promote GDP directly. To put it further, individual's income can be raised up due to employment opportunities and thus, the increase in in income is calculated directly in GDP. The same goes for value added and export. Conversely, an increase in GDP can also be affected indirectly by FDI, visa vie, 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).

In his effort to differentiate between inputs into foreign capital and domestic capital, Findlay (2014) developed Solow's model and postulated 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. However, it can be viewed that FDI may not only increase the productivity of firms receiving FDI but also to all firms. Also, FDI can boost overall economic growth by enhancing competition in the local input market and hence encourage domestic firms to achieving high productivity through various efficient techniques (Adams, 2009).

On the other hand, there are other literatures that contradict the preposition that FDI benefits recipient economies. Thus, a model was established by Reis (2001) to analyze the effects of FDI on economic growth when returns on investment may be restored. She

made her argument with regards to the introduction of FDI, that the foreign enterprises will supersede and replace the domestic enterprises in the R&D sector. Hence, the domestic welfare will adversely be affected as the returns on capital are shared among the foreign firms. She further argued that the impact of the strength of the interest rate is responsible for determining the impact of FDI on economic growth. However, FDI will have a negative impact on growth, if domestic interest rate is lower than the world interest rate and vice versa.

Moreover, Firebaugh (1992) outline other additional suggestions on the adverse effect of FDI inflows on domestic investment. He argued that FDI may not likely support domestic investors; an impression that multinationals enterprises may not reinvest their profits; it may not likely motivate associations with local enterprises and may likely apply inappropriate capital-intensive techniques. Therefore, an economy is expected to gain less from FDI inflows than domestic investment, as multinationals are less likely to provide reasonable impact to government revenue. Thus, FDI may be harmful if not worse if domestic investments are "crowds out" and consumption pattern are inappropriately stimulated.

2.2.3 Theoretical reviews of trade openness

The static benefits from trade and losses from trade restrictions have been scrutinized in detail in the theory of international trade. Hitherto, the trade theory did not offer comprehensive guidelines on how growth and technical progress can be influenced by international trade. In contrast, the benefits of trade can be emanated from various

fundamental sources in the new trade theory. This can be from differences from comparative advantage and economy-wide increasing returns (Yanikkaya, 2003). The traditional models of international trade also expressed the relationships that exist between trade openness and economic growth. However, according to the belief of Adam Smith and Ricardo, specialization and optimal distribution of resources would be available with the introduction of openness. In their models, with openness there would be specialization in production of goods by countries that have comparative labor productivity advantage and such goods could be exported.

Moreover, the sectors that cannot compete with foreign investors can utilize other sectors' factors of production thereby attaining a better allocation of resources. This can further be emphasized by Hecksher-Ohlin model which stated that a country can export the goods that uses its abundant factors more intensively. This shows that the resources in an economy will shift to the other sectors that draw upon the abundant factor with the increase in degree of openness and subsequently lead to production increase (Zeren & Ari, 2013). According to the neoclassical growth models initiated by Solow, openness has a temporary effect on economic growth. It implies that the growth rate of output will converge to its autarky steady-state value as the economy converges to its free trade steady-state (Lopez, 2005). Hence, technology is considered as exogenous in neoclassical growth models. Therefore, trade policy of a given economy does not have an impact on technology.

On the other hand, the relationship between trade openness and growth exist in endogenous growth theories initiated by Romer. Thus, technology is considered internally and such models indicate learning by doing. This implies that productivity and efficiency in developing nations would be enhanced with openness through the use of new technologies and attaining a rise in production (Ahmadi, Reza & Mohebbi, 2012). In a nutshell, the technology will be will be affected positively with the increase in trade openness of an economy. Therefore, openness will lead to the increase I the amount of imported goods and services. This shows that any country that is open to foreign markets will grow faster than the country that is closed to foreign markets. Through enhancing the information stock of a country, trade openness will induce growth to be increased. There will be transfer of knowledge from developed nations if the international externalities of knowledge are perfect, hence growth will be affected in favor of developing nations and vice versa (Zeren & Ari, 2013).

However, it has been stated that by cutting down tariffs trade openness would encourage FDI thereby inducing growth to have positive effect in the long run. In other words, if trade barriers are removed, the relative price of domestic manufactured goods will fall which lead to reduction in national production. Thus, when the national prices fall, imports become attractive (Levine, Ross & Renelt, 2014). Moreover, it has been suggested by Grossman & Helpman (1995) that growth would be affected positively by trade openness in so far as the reduction in tariffs would increase resource allocated to R&D. Therefore, if the decrease in tariffs cuts down the resources allocated to R&D reduction in growth will be observed. On the other hand, (Lopez, 2005) studied the

relationship between openness and economic growth in a micro framework and observed that the performance of firms exporting are better than those firms not exporting. This shows that the growth of exporting firms is greater than their counterparts.

2.2.4 Theoretical reviews of Gross Fixed Capital Formation

According to Ros (2012) Gross Fixed Capital Formation is an element of expenditure on GDP which specifies the amount of value added that was not rather consumed but invested in the economy. Thus, GFCF can be perceived to be measured as the net increase in physical assets, i.e. investment less disposal. Also, from the modern growth theory, economic growth is perceived to be the outcome of capital accumulation that results into investment. Hence, capital formation is vital to economic growth (Omankhanlen, 2011). However, both the classical and neoclassical growth model unanimously assumed that capital is core to economic growth. This implies that investment will not exist without the presence of capital, and there would be no growth with the absence of both. Therefore, capital accumulation tends to promote productive capacity of various economic units by raising the number of firms. To this effect, cost of production will be minimized and productivity of factor endowments will be enhanced with greater economies of scale and better quality of products. Specifically, it can be observed that capital accumulation raises investment which generate employment opportunities through expansion of production bases and subsequently raises savings that will lead to a larger investment thereby promoting economic growth (Adegboyega & Odusanya, 2014).

However, the assumption of neoclassical growth theory on capital is that it plays a role as the highest risk adjusted rate of return. The post war neoclassical theory in the analysis of FDI was emanated from this assumption as the major theoretical framework (Parviz, 2011). The major implication of neoclassical growth theory is that the level of productivity by all countries is assumed to be similar. Due to the uncertainty in the theory "New growth theories" emanated thereby making technology as an endogenous variable (Grossman & Helpman, 1995). In addition to neoclassical framework, the "Q" theory stated that the ratio of the market value of the existing capital stock to its replacement cost, i.e. the "Q" ratio, is the major force motivating investment and growth (Bakare, 2011). Hence, Tobin pointed out that Q will not be the same with unity due to the delivery lags and increasing marginal cost of investment.

Additionally, Findlay (2014) applies simple aggregate production function method where output in the host country is a function of the labor inputs and a homogenous stock of capital. Hence, foreign investment is taken to be the marginal addition to the stock of capital, thereby inducing domestic wage rate to increase while domestic return to capital was said to be reduced. Therefore, foreign investors would obtain the marginal product of capital as the benefit to the host country is what Findlay referred to as the "little triangle" which is the difference between total output minus the income of the foreign investors and the level of output prior to the establishment of foreign investment. The variations in the wage rate and return on capital will result to the variations in the domestic labor and capital, but they cancel out, as the benefit of the domestic labor would be borne by capital. To this effect, the return on investment obtained by the foreign investors will be

greater than the long-run supply price. Thus, a margin for further benefit to the host country would be through taxation.

2.2.5 Theoretical reviews of Human Capital

The element for the human capital captures the contribution of education to economic growth of a nation. However, GDP is said to be raised significantly when the population of a country are educated. Thus, GDP is expected to have positive relationship with human capital. Perhaps, a certain reverse causality could exist in some cases (Stohldreier, 2009). As such, an investor might more likely invest in an area where a higher level of education is assured. Accordingly, high level of human capital can increase GDP but a higher level of education is said to be attained with an increasing GDP.

According to Hassen & Anis (2012) FDI in terms of technology transfer increases the existing stock of knowledge of the host economy. Certainly, the embracing of management practices and more effective organization, training of local staff and technical assistance can promote the productivity of local firms to a high level. Thus, FDI that is associated with technological externalities are varied and their effects on long-term growth are a common feature of endogenous growth models (Pasche, 2013).

However, there was also a modification of Solow's model by Mankiw, Romer and Weil (1992) which expressed that there would be biasedness in estimating the coefficients on saving and population growth in ignoring accumulation of human capital in Solow's model. They stated that changes in income-per-capita in the cross country lead to the

changes in the saving rate, the level of labor productivity and population growth rate. Apparently, by introducing new knowledge and investments in physical infrastructures like roads and industries, FDI may lessen what Romer (1993) termed as “idea gaps” and “objective gaps” between developed and developing nations.

However, the human capital feature of the new growth theory which is in contrast to the Solow model and other neoclassical growth models, sees capital as central to growth, but, it takes a wider view of capital that includes human capital in addition to physical capital as is in the models presented (Mankiw, Romer and Weil, 1992). Similarly, it was suggested that growth rates differ because the positive response made by technology diffusion may exceed the negative response caused by diminishing returns to physical capital. Hence, a technology parameter was established in the production function to allow the model to generate growth through learning-by-doing and knowledge spillovers. In this case, FDI can play a vital role in enabling these knowledge spillovers across boundaries by bridging the technology gap that exists between developed and developing nations via the increase of the stock of knowledge brought about by FDI in making new products and processes, introducing new administrative arrangements and enhancing skills of the labor force to be at high level.

2.3 Empirical studies

This section discusses the empirical literatures on Foreign Direct Investment, Trade Openness, Gross Fixed Capital Formation and Human Capital.

2.3.1 Foreign Direct Investment

There are lots of researches being studied by many researchers worldwide using different approaches to study the relationship between FDI and economic growth. However, the findings of the researchers yielded inconsistent results. Hooi and Wah (2010) took a study on the relationships between FDI, domestic investment and economic growth in Malaysia for the period of 1970-2009 and used Granger causality test to examine the causal relationship between FDI, domestic investment and economic growth. Their results show that FDI has positive impact to the economic growth. In order to identify the possible long-run equilibrium relationship among the variables they employ the Johansen-Juselius multivariate co-integration test in vector autoregressive system. The findings conclude that the real output will increase in the long-run with increase in FDI. From the study of Parviz (2011) on the economic growth determinants in Canada using the Beach-Mackinnon approach in estimating his model employing annual data for the period 1976 to 2008, he found out that FDI is positive but not significant. This shows that FDI does not influence economic growth in Canada. However, total factor productivity and domestic investment are the main determinants of economic growth in Canada.

Zakari, Mohammed and Adamu (2012) examine the role of FDI on economic growth and make a comparison among selected countries of Africa and Asia and employ panel regression for the period 1990 to 2009 by considering 15 countries from each region making 30 countries as a whole. They made their analysis in two ways. Their first analysis was on the aggregate data and subsequently disaggregates data by taking each region into consideration so as to have a peculiar assessment on the impact of FDI on

economic growth from each region. From their empirical result from both Africa and Asia, FDI has positive relationship with GDP growth. Also, there was an evidence of one-way causality to only African region but in Asia there was no evidence of such causality. Thus, FDI promotes economic growth.

Saidin (2012) examines the impact of FDI, Openness and Gross Fixed Capital Formation to economic growth using panel data technique in estimating the model in the ASEAN-4 countries. The findings of the result show that all the variables have positive relationship with the GDP growth. However, the variable that plays a vital role in promoting economic growth among other variables is FDI. However, Hossain and Hossain (2011) conducted study on Bangladesh, Pakistan and India and analyzed the causal relationship between FDI and GDP using Granger Causality test. From their result, both in the short and long run they found co-integration between FDI and GDP in Pakistan but in Bangladesh and India there was no co-integration. On the other hand, there was a unidirectional relationship between FDI and GDP in Pakistan and India but found no causal relationship in Bangladesh. They attributed the absence of granger causality relationship between FDI and GDP due to the presence of political instability, inappropriate indicators of trade liberalizations, and government tariffs among others in Bangladesh.

Ismail, Saadiah, Ridzuan, and Ahmed (2014) carried out an investigation via the modification of standard Cobb Douglass production function by employing Autoregressive Distributive Lag technique on the relationship between FDI and Export

on the economic growth of Malaysia for the period 1980 to 2011. Though, export promotes growth more, but FDI also contributed to the economic growth of Malaysia and both have positive correlation with growth most importantly in the long run. Also, Roy and Berg (2006) examine FDI and economic growth of U.S. using time series data to a simultaneous-equation model. FDI has a positive and significant effect on the economic growth of U.S. Conversely, the relationship between GDP growth and the share of FDI in respect to GDP for the period 1970 to 2001 indicates that FDI increases with the increase in U.S. economy. Erhieyovwe and Jimoh (2012) carried out a study on granger causality test of FDI on economic growth of Nigeria and their result revealed that GDP growth does not granger cause FDI in Nigerian economy.

Tang, Selvanathan, and Selvanathan (2008) carried out an investigation employing a multivariate vector auto-regression system with error correction model and the innovation accounting approach to study on the causal link between FDI, domestic investment and economic growth in China. They found a two-way directional causality between domestic investment and economic growth but only a one-way directional causality from FDI to domestic investment and to economic growth. However, their result suggested that domestic investment is not crowding out but is moving along side with FDI. Similarly, Feridun and Sissoko (2011) carried out a causality analysis for Singapore on the impact of FDI on economic development and found that FDI granger cause economic growth in Singapore. Similarly, a study was carried out by Zaheer and Bashir (2011) on the role of FDI and trade openness on economic growth in Pakistan and Malaysia employing Johansen co-integration test and Granger causality test to examine the relationship and

determining the direction of causality respectively for the period of 1980 to 2010. In Pakistan there is no significant impact of FDI and exchange rate on its economic growth. In addition to that FDI does not granger cause GDP in Pakistan. Conversely, GDP granger causes FDI in Malaysian economy during the period under study.

Agrawal and Khan (2011) examined the effect of FDI on economic growth of China and India and the result revealed that FDI has a significant impact on GDP growth in China more than that of India. The main reason at which economic growth in China is more affected by FDI is due the large size of its market, high level of infrastructures, labor efficiency and government support. Also, a study being examined on the impact of economic growth of Malaysia on FDI revealed that GDP and FDI have no positive relationship. Although, there is positive relationship between FDI and GDP related to manufacturing sector but there was no such relationship in financial sector (Nabi & Malarvizhi 2014). Similarly, Jarita (2007) employs time series data using quarterly data for the period 1990 to 2002 to analyze the causal relationship between FDI and economic growth. Moreover, he took an investigation on the impact of FDI on the economic growth stability of Malaysia and vice versa. However, employing Generalized Autoregressive Conditional Heteroskedasticity technique the result showed that FDI does not have significant causal relationship with economic growth in Malaysia. Notwithstanding, economic growth stability of Malaysia does promote FDI stability and vice versa. An empirical investigation was analyzed by Asghar, Samia and Rehman (2012) on the relationship between FDI and economic growth employing heterogeneous panel for the

period 1983 to 2008 in selected Asian countries. From their finding, there was two-way directional relationship between FDI and economic growth.

However, a comparative study between South Asian countries and China to analyze the impact of FDI and their economic growth using annual data was tested using granger causality test. The findings show that China's economy is moving faster compared to that of economic growth of Asian countries considered under study. Bashir, Mansha, Zulfiqar & Riaz (2014). In addition to their finding, there was negative impact of FDI on economic growth in Bangladesh, India and Pakistan. Abbas, Akbar, Nasir, Ullah and Naseem (2011) examine the impact of FDI on economic growth in the South Asian Association for Regional Cooperation (SAARC) countries using data for the period 2001-2010. The result shows that FDI has positive and significant impact on GDP. The economy was growing rapidly from the beginning of the year of study but it was adversely affected towards the end of the year of study due to the economic meltdown in American and European markets. Adams (2009) suggested that FDI is necessary but not a sufficient condition in determining economic growth in Sub-Saharan Africa. Faruku, Asare, Yakubu and Shehu (2011) analyzed the impact of FDI on GDP growth in Nigeria using granger causality test for the period 19970 to 2004. They found that FDI impact positively on GDP growth. Similarly, all the variables used in the study with the exception of inflation rate that has a negative impact have contributed positively to GDP growth in Nigeria within the period under study.

Jadhav (2012) analyzed the determinants of FDI in the economy of Brazil, Russia, India, China and South Africa employing panel data for the period 2000 to 20009 and suggested that the economic factors in these countries impacted more significantly on FDI than the political and institutional factors. Similarly, Tiwari and Mutascu (2011) carried out an investigation in 23 Asian States using panel data to examine the impact of FDI on economic growth for the period 1986 – 2008 and found that FDI and exports promote growth in the economy of the countries under study. However, analysis on the impact of FDI on Nigerian economic growth for the period 1970 to 2001 applying error correction model revealed that private capital and lagged foreign capital have little, hence the impact on the economic growth are not statistically significant. In addition, both labor force and human capital play a vital role in enhancing economic growth in Nigeria (Akinlo, 2004). Baharumshah and Law (2010) examine the relationship between FDI, economic freedom and economic growth in 85 countries using panel data based on the Generalized Method of Moments approach for the period 1976 to 2004. From the empirical findings, economic freedom promotes and has positive impact on the economic growth, whereas FDI does not have positive impact in the host countries.

Saqib, Masnoon and Rafique (2013) analyzed the impact of FDI on economic growth of Pakistan for the period of 1981- 2010 where the variables studied have long-run relationship. However, FDI in Pakistan has a negative and significant impact on its economic growth. Olusanya (2013) carried out an investigation on the effect of FDI inflow on economic growth before and after the deregulation of the economy of Nigeria. The author uses granger causality test for the period 1970 to 2010 and the period was

divided into 1970-1986, 1986-2010 and 1970-2010 respectively. In the first period, there was granger causality relationship between GDP and the inflow of FDI, but there was no such granger causality relationship in the second period. Moreover, the granger causality relationship exists between GDP growth and the inflow of FDI when considering the whole period under study. Similarly, Imoudu (2012) examines the impact of FDI on Nigerian economic growth for the period 1980-2009 using Johansen Co-integration Approach and vector error correction model where FDI is disaggregated into different sectors. From the findings, agriculture, manufacturing, mining and petroleum sectors have minor contribution in promoting economic growth in Nigeria. However, telecommunication sector play a vital role in promoting economic growth most importantly in the long-run. Hassen and Anis (2012) analyzed the relationship between FDI and economic growth of Tunisia employing time series data for the period 1975 to 2009 and found that FDI can enhance economic growth of Tunisia especially in the long-run.

2.3.2 Trade openness

Saidin (2012) analyzed the impact of economic variables including openness on the economic growth studying 4 countries in Asian states for the period 1981-2008 employing three panel data techniques. However, both pooled and random effects model revealed openness to have impacted negatively on GDP growth. In addition, with the exception of Indonesia, openness has no significant impact on growth in the other countries under study in using OLS estimation. This indicates that openness has no correlation with the economic growth of Malaysia, Philippines and Thailand. Zaheer and

Bashir (2011) carried an investigation on the impact of FDI and trade openness on economic growth of Malaysia and Pakistan employing Johansen co-integration and Granger causality test. However, there is one way directional relationship between openness and GDP growth both countries. Also, the causality direction runs from openness to GDP. Rizavi, Khan and Mustafa (2010) conducted a study on the impact off openness on economic growth in Bangladesh, India and Pakistan for the period 1980-2008 using panel data technique for the analysis. During the period under study of these three countries, the authors found that openness has a significant impact on economic growth. Also, Yanikkaya (2003) carried out an investigation on a cross section of countries to examine the relationship between various measures of openness and growth. However, the findings of the author revealed no difference between developed and developing nations when assessing the positive and significant relationship between openness and growth. Moreover, the increase in trade volumes induces population density to impact positively on economic growth. Also, trade enhances economic growth in various ways, like economies of scale, transfers of technology and comparative advantage.

Ahmadi and Mohebbi (2012) employed an empirical growth model by applying regression techniques to analyze the impact of trade openness on economic growth in Iran for the period 1971 to 2008. From their analysis, the impact of trade openness in Iran is positive and significant on economic growth. Zeren and Ari (2013) carried out an investigation using Granger non-causality test in heterogeneous panels on the G7 countries for the period 1970-20011 to re-examine the causal relationship between trade

openness and economic growth. Their findings revealed a two-way directional causality relationship between trade openness and economic growth. As it was supported by the endogenous growth theories, openness in G7 increases with the increase in growth and vice versa. Bajwa and Siddiqi (2011) analyzed the causal relationship between trade openness and economic growth in Bangladesh, India, Pakistan and Srilanka in pre and post SAARC implementation period and apply panel co-integration approach for the analysis. There was a single directional causal relationship in the short run which runs from GDP to openness for the first period, but a negative relationship was established in the long run. In the second period of the analysis, there were two way directional causal relationships between openness and GDP. Thus, a positive causal relationship was established in the long run.

Jadhav (2012) finds trade openness among other determinants of FDI variables as positive and significant. This further indicates that trade openness play a vital role in attracting FDI in BRICS countries. Similarly, Juma (2012) finds trade openness in Sub Saharan Africa as a vital role in enhancing economic growth. Sharma and Kaur (2013) conducted a study using Granger causality test on China and India for the period 1976 to 2011 to analyze the causal relationships between FDI and trade, taking exports and imports as proxy to trade. The findings for China revealed one way directional causal relationship that is running from FDI to exports and FDI to imports, as two-way directional relationship was established between exports and imports. Conversely, there were two-way directional causality relationship between FDI and exports, FDI and imports, as well as exports and imports in Indian economy. This implies that FDI granger

causes imports, then exports and subsequently, exports granger cause FDI. However, Atoyebi, Adekunjo, Edun and Kadiri (2012) carried out an investigation in Nigeria to investigate the effect of international trade on economic growth for the period 1970 to 2010. Openness has a negative effect on real GDP from the result obtained using time series data. Similarly, Umoh, Jacob, and Chuku (2012) found trade openness hindering economic growth in Nigeria which shows that openness does not influence economic growth.

The analysis on the effect of FDI in the economy of Pakistan, economic growth is found to be negatively affected by trade (Saqib et al., 2013). Imoudu (2012) used degree of openness as a proxy to the Nigerian foreign sector and the result also revealed a negative impact and statistically insignificant to the economic growth. This implies that such variable does not encourage FDI to be established in Nigerian economy. Olomola (2004) analyzed the causal relationship between FDI and economic growth adopting granger causality test by including openness where export growth serves as a proxy in the Nigerian economy for the period 1970 to 2002. He concluded that all the independent variables including export growth have positive impact and are statistically significant to the output growth per capita. Thus, there is long-run relationship between independent variables and the dependent variable. Similarly, there was single directional causal relationship that exists in the short-run, which is running from export growth among the independent variables to the output growth per capita.

Hassen and Anis (2012) analyzed the effect of FDI on economic growth in Tunisia for the period 1975 to 2009 including trade openness among the explanatory variables. From the results, the variables under study including trade openness are co-integrated and thus have long-run relationship with the real GDP. Moreover, the economic growth of Tunisia is negatively affected by the trade openness. The negative effect of trade openness on economic growth is due to the fact that Tunisia economy is engaged mainly in the exporting primary products. In order to ascertain the factors responsible for economic growth in Malaysia, Ros (2012) used time series data for the period 1970 to 2010 and adopted Johansen Juselius Co-integration technique. However, trade openness among other explanatory variables is suggested to be the factors responsible for economic growth in the long-run. Conversely, trade openness and FDI revealed negative effect in ascertaining economic growth of Malaysia, though; they are statistically significant in the short-run. In addition, using Granger causality test, GDP is granger caused by the trade openness. Moreover, the results of OLS analysis revealed that trade openness and other variables are statistically significant at 1% level, implying that trade openness has a positive impact on the economic growth of Malaysia during the study under review.

2.3.3 Gross Fixed Capital Formation

Saidin (2012) examined the effect of Gross Fixed Capital Formation among other economic variables in four Asian states for the period 1981-2008. In the estimation, three popular panel data techniques were employed for the analysis. All the variables including Gross Fixed Capital Formation with the exception of openness are positively related with the GDP growth. However, OLS results revealed only gross fixed capital formation

revealed positive impact and it is significant in enhancing GDP growth in each of the four Asian states being studied. Similarly, a comparative study in China and India on the effect of FDI on their economic growth, Gross Capital Formation revealed 1% significant level for China economy, while 5% significant level revealed in Indian economy (Agrawal, Gaurav & Khan, 2011).

Hooi and Wah (2010) analyzed the relationship between FDI, Domestic Investment and economic growth in Malaysia and measured Real Gross Fixed Capital Formation as a proxy to Domestic Investment. The results revealed that Domestic Investment after taking its natural logarithm is negatively related to the economic growth in Malaysia. Notwithstanding, Domestic Investment coefficients has a 1% statistical level of significant. This implies that GDP growth in Malaysia will diminish when Domestic Investment increases. Thus, the negative effect of Domestic Investment on the GDP growth was attributed to various techniques and the sample period employed for the analysis. Similarly, a study was carried in India employing time series data to investigate the co-integration relationship between growth, Domestic Investment and economic growth, where real Gross Domestic Capital Formation serves as a proxy to Domestic Investment. From the findings, there exist long-run relationships between GDP, gross domestic capital formation and export in the economy of India. Also, gross domestic capital formation is statistically significant and has positive effect on the economic growth in India (Sultan & Haque, 2011).

Bakare (2011) examined the relationship that may exist between capital formation and the economic growth of Nigeria for the period 1979 to 2009 adopting Harrod-Domar model employing OLS multiple regression technique. The findings obtained revealed that there exist a relationship between capital formation and the economic growth in Nigeria. The study further suggested that GNP growth rate can be positively related to saving ratio and capital formation. Also, Adegboyega and Odusanya (2014) carried out an investigation in Nigeria employing time series data for the period 1986 to 2011 to analyze the connection between trade openness, FDI, capital formation and economic growth. There were long-run relationships between independent variables and the economic growth from the Johansen co-integration result obtained. Furthermore, the level of Capital Formation revealed positive impact and statistically significant to the Nigerian economic growth during the period of the study.

Tiwari and Mutascu (2011) carried an investigation to study 23 Asian countries for the period 1986-2008 applying panel data approach to analyze the effect of FDI on economic growth taking Gross Capital Formation as percentage of GDP as a proxy to Capital. From the results, there were high inflows of Gross Capital Formation among other variables. However, Gross Capital Formation has positive and impacted significantly on the economic growth of the countries under consideration. Hence, capital and labor play a vital role in these economies. Similarly, the study was conducted on the impact of the economic variables on FDI and its relationship with Nigerian economic growth for the period 1980 to 2009 by the application of OLS. Gross Fixed Capital Formation was among the explanatory variables that analyzed. Hence, gross fixed capital formation was

found to have impacted positively on GDP growth in Nigeria during the study under consideration (Omankhanlen, 2011). Also, Chia and Ogbaji (2013) examined the link between FDI and Nigerian economic growth on the telecommunication sector for the period 1981 to 2009 employing OLS technique. Gross Fixed Capital Formation was incorporated in explanatory variable to serve as a proxy to domestic investment and was found to play a vital role in enhancing Nigerian economic growth.

However, a study on the effect of Chinese Investment and trade in the economic growth of Nigeria was carried out and added Gross Capital Formation among other variables. The results revealed that labor force and growth in Gross Capital Formation play a vital role in enhancing exports to China which contribute to the Nigerian economic growth (Djeri-wake, 2009).

2.3.4 Human Capital

Mankiw, Romer, David and Weil (1992) use education as a proxy for human capital to the standard growth equation. The result suggested that the host economy must have attained a level of development that helps it earn the benefits of higher productivity, thereafter FDI will be expected to have positive impacts on growth. In other words, (Mello, 1999) finds a contrary result that the correlation between FDI and domestic investment developed economies is negative. However, the result of Roy and Berg (2006) shows that FDI impacts on growth through its interaction with human capital both directly and indirectly. Conversely, when applying large sample the coefficient for FDI reveals a negative result after it is regressed with the technology gap between the source

and host. Similarly, Baris (2012) on their analysis reveal same results in that, inward FDI coming through the interaction between FDI and human capital has strong positive effects on growth. Hence, the result of De Mello (1997) also shows that FDI has positive impacts on economic growth in both developing and developed economies and further made a conclusion that the spillovers of knowledge and technology from investing countries is the one responsible for influencing the long-run growth in host countries.

Akinlo (2004) carried an empirical analysis on the effects of FDI on growth in Nigeria for the period of 1970 to 2001. His result shows that export, labor and human capital have positive relationship with Nigerian growth. However, he concludes based on the findings on human capital that it is essential for Nigeria to promote stock of human capital through an educational policy. Also, Hassen and Anis (2012) examined the impact of FDI on economic growth in Tunisia for the period 1975 to 2009 and use school enrolment rates at secondary level as a proxy to human capital. The result reveals that human capital has a positive relationship with economic growth of Tunisia. Similarly, human capital has statistically significant on GDP growth in Tunisia.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter will discuss on the specification of the model that is established on the arguments from the theoretical literature. However, annual time series data of 1971 to 2013 will be employed to examine the causal relationship between FDI and economic growth of Ghana and Nigeria. Hence, the analysis will also provide econometric techniques to examine the relationship between Trade openness, Gross Fixed Capital Formation and Human Capital on GDP. The subsequent sections will present the source of data for the study and buttress on the techniques and procedures in running the econometric analysis.

3.2 Theoretical Growth Model

The standard neoclassical growth theory uses production function and the conventional growth accounting framework by incorporating human capital in the Cobb-Douglas production function as follows:

$$Y_t = K(t)^{\alpha} H(t)^{\alpha} [A(t)]^{1-\alpha-\beta}, 0 < \alpha < 1 \text{ ---------- (3.1)}$$

Where Y at time t represents real output, K is the stock of capital, L is the labor, the stock of human capital is denoted by H and α and β denote the share of capital and human

capital respectively. The labor-augmenting factor is A which describes the economic level of technological progress and time is denoted by t.

However, equation (3.1) indicates that the quantity and quality of physical capital employed, the quantity of labor employed and the average level of skills of the labor force determine the total output of the economy. Therefore, increase in output is influenced by the increase in K, L, A, or H and the occurrence of the perpetual increase in stock of capital per worker or the average quality of labor or of capital also induce the continuous increase in output per worker.

Moreover, there is an assumption that individuals spend time increasing skills like going to school as an extension to the neoclassical growth model. Therefore, human capital can be included by modifying the Solow growth model with labor assumptions, that is, workers with skills and education. In this case, it can be viewed that human capital is accumulated by individuals spending time acquiring new skills in the economy.

To this effect, identifying rich and poor countries can now be explained by the extension of this new growth theory. As the neoclassical theory is not left out with some limitations which failed to explain what determine the technological advancement, new growth theory emerges to assume marginal product of capital. Therefore, constant marginal product of capital implies that investment in both physical and human capital can

establish external economies and productivity is said to be enhanced. As such, countries that spend most of their time in accumulating human capital, acquiring high investment rates in physical capital as well as high level of technology will perform better.

3.3 Specification of the model

Basically, the work of Mello (1999), Zaheer and Bashir (2011), Agrawal & Khan (2011) and Masnan, Shaari and Hussain (2013) will be adopted when estimating and examining the empirical model of the relationship between FDI, trade openness, GFCF and human capital with economic growth.

GDP = f (FDI, T.OPEN, GFCF, HK) ---------- (3.2)

Where

GDP	= Gross Domestic Product
FDI	= Foreign Direct Investment
T.OPEN	= Trade Openness
GFCF	= Gross Fixed Capital Formation
HK	= Human Capital

GDP specification from the above equation is obtained from the production function. Thus, GDP from the above equation indicates that GDP serves as a function to FDI, T.OPEN, GFCF, and HK. However, when constant technology is assumed, the level of

output in the economy will be increased with the increase in the amount of labor and/or capital. According to the new growth theory by following the Barro and Sala-i-Martin (1995) there was an extension to this production function by including human capital and employ trade openness.

FDI is assumed to be a key element for the development of developing nations. FDI is said to move along with package of capital, market access and technology management. To put it further, some foreign investors do not remit the profit they make abroad, but re-invest such profit in the host countries. In that instance, FDI plays a positive impact on such economic growth. Conversely, a negative effect is said to be on economic growth if such profit is remitted to the investor's country.

Also, consumers can have different choices at their disposal with economic openness. Similarly, in normal wear and tear, GFCF is essential in quantifying the value of the acquisition less disposals of fixed assets which is going to be replacement in the future for obsolescence of existing assets. In addition, human capital is said to be included in the new growth theory due to its vital role play in enhancing economic growth of a country. Thus, human capital and trade openness are added as additional variables to the model.

Therefore, the GDP functions above can simply be specified as model below:

$$\mathbf{Y_t = \beta_0 + \beta_1 FDI_t + \beta_2 T.OPEN_t + \beta_3 GFCF_t + \beta_4 HK_t + \varepsilon_t \text{ ------ (3.3)}}$$

β = the parameter for the explanatory variables

t = time series

ε = error term

Other variables have been explained in equation (3.2).

GDP and FDI in the model above will be transformed into log and thus the new model will now be transformed as below:

$$\mathbf{lnY_t = \lambda_0 + \lambda_1 lnFDI_t + \lambda_2 T.OPEN_t + \lambda_3 GFCF_t + \lambda_4 HK_t + \varepsilon_t \text{ ------ (3.4)}}$$

Where λ = the parameter for the explanatory variables

ln = Log

Other variables have been explained in equation (3.2).

3.4 Measurement of variables

This part will provide on how the variables on the econometric models of this study will be measured. However, Gross Domestic Product is the dependent variable for the models of this study, while FDI, T.OPEN, GFCF and HK are the independent variables.

3.4.1 Gross Domestic Product (GDP)

GDP measures the total output produced in a given economy usually a year. Thus, the output produced can be categorized into 3 classifications: the output produced, the incomes generated in the production of output, or the expenditures on the output, by taking their aggregates into account. Hence, the economic growth is defined as the GDP growth rate for Ghana and Nigeria. Therefore, economic growth of a country can be assessed through the enhancing of GDP. Broadly speaking, GDP can be applied to analyze the economic performance of a given economy.

3.4.2 Foreign Direct Investment (FDI)

FDI inflow simply means a business enterprise that is established in a country different from the country's investor. However, such investor can attain to a lasting interest with the existence of FDI. Though, FDI is divided into inward FDI and outward FDI, but the data that will be utilized for this study will be on FDI inflow. Therefore, job opportunities for a given economy, technology transfer and transfer of skills are said to be improved with the presence of FDI inflow.

Moreover, FDI net inflow can be obtained by the formula below:

FDI net inflow = FDI inflow – FDI outflow

However, the values of FDI net inflow can either be positive or negative.

3.4.3 Trade Openness

Ghana and Nigeria have been operating as an open economy for many years. Their development depends on international trade through participation in terms of export and import. However, it has been suggested that trade barriers should be cut down by the developed countries as such will enhance economic growth of developing nations thereby leading to productivity increase (Lopez, 2005). To this effect, trade openness promotes competition and makes choices available at the economic disposal. It also creates employment and advances chances to establish in other countries.

However, trade openness can be obtained by the formula below:

Trade openness = (total import + total export)/ total GDP

3.4.4 Gross Fixed Capital Formation (GFCF)

GFCF can be defined as an increase in stock of capital assets which can be utilized for the next productive activities in the actual sector of an economy. Therefore, GFCF measures only the net increase in the value of fixed assets as all kinds of financial assets are not included.

According to European System of Accounts (ESA) GFCF is defined as the resident acquisition of producers of fixed assets minus disposal for a given period of time including certain additions to the value of intangible assets earned by the productive economic activities of a producer.

3.4.4 Human Capital

Education can be used as a proxy to measure human capital (Mankiw, Romer, David and Weil, 1992). Similarly, secondary school enrolment rates can also be used as a proxy to human capital (Hassen & Anis, 2012). To put it further, Agrawal, Gaurav and Khan, (2011) uses human development index (HDI) as a proxy to human capital.

3.5 Econometric Procedures

Prior to estimating any other econometric technique, unit root test is the primary aspect when analyzing the impact of FDI on economic growth. Hence, the Vector Autoregressive (VAR) method will be used in the next section to test for co-integration using Johansen and Juselius (JJ) co-integration test. However, Granger causality between economic growth and FDI will be test in order to determine the causality direction. Subsequently, the co-integration test will be employed based on Johansen's and Juselius' method to investigate the long run relationship between economic growth and the explanatory variables, as the short run relationship will be analyzed through the use of vector error correction model method.

3.5.1 Unit root test

Unit root test is key factor when ascertaining the stationarity of time series data of a given study. Therefore, series can be regarded as stationary if it does not have problem of unit root. However, the characteristic equation of the process of unit root 1 is said to be non-stationary in the linear stochastic process. In other words, if the characteristic equation of

the other roots fall within the unit circle at which the absolute value is less than one, the process will be stationary when taking the first difference.

However, ordinary least squares (OLS) is frequently used in estimating the coefficients of the slope of the autoregressive model. Thus, the use of OLS depends on the stationarity of the stochastic process. Hence, there will be 'spurious regression' as Granger and Newbold suggested in using OLS if the stochastic process is non-stationary. This however, will lead to high R^2 values and high t-ratios and in the end produce non-economic meaning results.

In estimating the slope coefficients, unit root should first be tested by taken the null hypothesis as there is presence of unit root. Therefore, we can use OLS if we reject the null hypothesis. But, if we do not reject the null hypothesis, the difference operator to the series can then be applied as shown in the equation below:

$$\Delta Y_t = Y_t - Y_{t-1} = \varepsilon_t \text{ ---------- } (3.5)$$

However, the unit root test that will be used for this study to ascertain the stationarity of the variables of interest is Augmented Dickey-Fuller (ADF) test. ADF test is a test for a unit root in a time series data which serves as an augmented version of Dickey-Fuller test. Hence, there is a negative number in using ADF statistic when testing unit root. Therefore, the strong evidence in rejecting the null hypothesis that there is presence of

unit root problem applies to the higher negative number of ADF. Thus, the equation of ADF test specification is given below:

$$\Delta Y_t = \beta_1 + \beta_2 t + \delta Y_{t-1} + \alpha i \Delta Y_{t-1} + \varepsilon_t \text{ ---------- } (3.6)$$

Where Y_t is the variable of the model of the study, the differencing operator is denoted by **Δ,** the time trend is denoted by t and $\boldsymbol{\varepsilon}$ is the error term which is normally distributed with zero mean and constant variance. Hence, β_1, β_2 and **δ** as well as ***αi*** are the set of parameters that will be estimated from the equation. However, the null hypothesis and the alternative hypothesis in unit root from the above equation can be as follows:

$H_o : \delta =$ (Y_t is non-stationary)

$H_1 : \delta =$ (Y_t is stationary)

Based on the test, we can reject null hypothesis if the t-test statistic has a negative values lower than the tabulated critical value. On the other hand, we do not reject null hypothesis if **δ** is found to be equal to zero. This shows that there is presence of unit root and therefore Y_t is non-stationary.

3.5.2 Vector Autoregressive Models (VAR)

On the basis of Vector Autoregressive model (VAR) approach, the study will use Johansen and Juselius (1990) co-integration test to analyze the variables from the study

based on our models. Also, Granger causality test will be used to examine the causal relationship between FDI and economic growth. However, past literatures usually employ one of the two major co-integration methods, namely; (i) Engel-Grangers Two Estimation Method; and (ii) Johansen's Maximum Likelihood Method applying either the Maximum Eigen value statistic and/or the Trace statistic.

This study will employ Johansen's approach as the former approach has some drawbacks which is attributed to have only variables that cannot exceed two and also requires a larger sample size in order to do away with possible errors when estimating a model. However, Johansen's approach can allow for hypothesis testing on the co-integration relationships of which Engel-Grangers Two Estimation approach cannot(Johansen & Juselius, 1990).

3.5.2.1 Johansen and Juselius (JJ) Co-integration test

Having established that the properties of the time series data are not stationary with the presence of unit root problem, the study conducts Johansen and Juselius (JJ) co-integration test. The aim of (JJ) co-integration test is to ascertain the long run equilibrium relationship that may exist among the variables of the study. However, a series is said to be integrated of order d if one can get a stationary series by differencing the series for d times. Hence, if time series data are stationary, we can test for a long run relationship among variables of interest using Johansen (1988) and Johansen and Juselius (JJ) (1990) methods. This involves the test of co-integration vectors.

$$\mathbf{Y_t} = \mathbf{\Pi_1 Y_{t-1} + \Pi_2 Y_{t-2} + \ldots + \Pi_k Y_{t-k} + \varepsilon_t} \quad t = 1, 2\ldots, n \text{--- (3.7)}$$

Where $\mathbf{Y_t}$ is N × 1 vector of stochastic variable, $\mathbf{\Pi_1}$, $\mathbf{\Pi_2}$, **….,** $\mathbf{\Pi_k}$ is the n × n parameter and $\boldsymbol{\varepsilon_t}$ is the random error. Therefore, we can write the above equation, if $\mathbf{Y_t}$ is not stationary as follows:

$$\Delta\mathbf{Y_t} = \mathbf{\Gamma_1 \Delta Y_{t-1} + \Gamma_2 \Delta Y_{t-2} + .. + \Gamma_{k-1} \Delta Y_{t-k+1} + \Pi Y_{t-k} + \varepsilon_t} \textbf{ - (3.8)}$$

Where $\mathbf{\Gamma_i} = -[1 - \mathbf{\Pi_1} - \mathbf{\Pi_2} \ldots\ldots \mathbf{\Pi_i}]$ ---------- **(3.9)**

$i = 1, 2, \ldots\ldots, k\text{-}1$ and

$\mathbf{\Pi} = -[1 - \mathbf{\Pi_1} - \mathbf{\Pi_2} - \ldots\ldots \mathbf{\Pi_k}]$ ---------- **(3.10)**

The matrix $\mathbf{\Pi}$ indicates the long run equilibrium relationship between ρ variables which can further be break down into two matrices, i.e. A and B, such that $\mathbf{\Pi}$ = AB.A is referred to as vector error correction parameter while B is the co-integrating vector. Therefore, the process can be used to test the existence of a long run equilibrium relationship among GDP, FDI, T.OPEN, GFCF and HK variables in equation (3.3).

However, this study will employ Trace (Tr) Eigen value statistic and Maximum (L-max) Eigen value statistic for the trace is written as follows:

$$Tr = -T \sum_{i=r+1}^{p-2} \ln(1-\lambda) \text{ ---------- (3.11)}$$

Where $\lambda_{r+1} \ldots \lambda_p$ are the smallest Eigen values of estimated p – r. The H_o hypothesis for the Trace Eigen value test is that there are at most r co-integrating vectors (Johansen & Juselius, 1990).

On the other hand, the L-max could be calculated as:

$$\text{L-max} = -T\ln(1-\lambda_{r+1}). \quad \textbf{(3.12)}$$

The H_o hypothesis for the maximum Eigen value test is that r co-integrating vectors are tested against the H_1 hypothesis of r + 1 co-integrating vectors. If Trace Eigen value test and maximum Eigen value test yield different results, the results of the maximum Eigen value test should be used because the power of the maximum Eigen value test is considered greater than the power of the Trace Eigen value test (Johansen & Juselius, 1990).

3.5.3 Granger causality test

The expectation of the FDI-Led growth estimated coefficients can either be positive or negative based on the previous literature. Yet, the causality direction between FDI and economic growth is not clear due to the past conflicting results. To this effect, this study will adapt the investigation that can describe the causality of the experience of Ghana and Nigeria.

However, Granger causality test is used to test the direction of the relationship between variables. If for example, economic growth is affected by the FDI inflow, or vice versa, or there is bi-directional effect between FDI and economic growth. Therefore, if two variables are co-integrated it follows that one of them is caused by the other variable.

Granger causality test can also be used to assess whether time series is essential in forecasting another. However, Granger formulated a test statistic in order to ascertain the influence of one variable on the other. Thus, the Granger technique begins with the question that if one variable say 'X' causes the other variable 'Y'. The test will therefore try to answer the magnitude of the change in present value of 'Y' that can be said by the past values of 'X' which then follows the performance of 'Y' by bringing in the lag value of 'X'. Thus, we can simply say that 'X' granger causes 'Y' if 'X' affects 'Y' significantly. In addition, 'X' is said to have played a vital role in forecasting 'Y'.

However, the hypothesis of Granger causality test for this study will be as follows:

$H_{o:}$ FDI does not granger cause economic growth

$H_{1:}$ FDI granger causes economic growth.

We can reject the null hypothesis if the F test statistic is greater than the critical value of the estimate. This implies that FDI causes economic growth. However, the same test applies to the other three macroeconomic variables in this study.

3.5.4 Vector Error Correction Model (VECM)

A Vector Error Correction Model is a dynamical system with the characteristics that the deviation of the present state will be fed into its short run dynamics from its long run relationship. Therefore, VECM is said to be a peculiar instance of the Vector Auto-regression for the variables (VAR) for the variables that have been integrated of order one I(1) which are said to be stationary when taken their first differences. Hence, VECM considers variables that have co-integrating relationships.

However, we can simply say that there is existence of long run equilibrium relationship between series, if we can discover the co-integration relationship between them and therefore we can assess the short run properties by employing VECM. In addition, rank of co-integration expresses the number of co-integrating vectors in VECM. For example, we can say a rank of two suggests that stationary will exist in the two linearly independent combinations between the non-stationary variables. Therefore, a significant coefficient with a negative value of the ECM shows that any fluctuation in the short term between the dependent variable and the explanatory variables will establish a long run equilibrium relationship that will be stable between the variables.

Moreover, ECM can be estimated by applying VAR approach. In other words, we can establish VECM by showing changes in the dependent variables which function as the level of disequilibrium in the co-integrating relationship and the independent variables

through error correction term. Therefore, we can develop our vector error correction model as follows:

$$\Delta \mathbf{lnGDP_t} = \boldsymbol{\lambda_0} + \boldsymbol{\lambda_1}\Delta \mathbf{lnFDI_t} + \boldsymbol{\lambda_2}\Delta \mathbf{T.OPEN_t} + \boldsymbol{\lambda_3}\Delta \mathbf{GFCF_t} + \boldsymbol{\lambda_4}\Delta \mathbf{HK_t} + \boldsymbol{\lambda_5}\mathrm{ECM}_{-1} + v_t \quad \textbf{--- (3.13)}$$

From the above equation, ECM_{-1} is the error correction component which is also the estimation of the lagged error series and v_t is the random error term. However, the adjustment speed of the model of this study will be expressed by this method.

3.6 Sources of Data

Annual time series data will be used in this study to cover the period of 1971 – 2013. However, the study will employ yearly data on GDP growth, FDI, Trade openness, Gross Fixed Capital Formation and Human capital. Thus, the data that will be utilized for this study are source from Central Bank of Nigeria, Ghana Statistical Service and World Development Indicators from World Bank Data, IMF and UNCTAD.

CHAPTER FOUR

RESULT AND ANALYSIS

4.1 Introduction

The chapter will present and discuss the empirical findings for the analysis of this study. However, the Johansen and Juselius co-integration technique is used to obtain the long run relationship between GDP as dependent variable and the independent variables. Hence, the short run adjustment will be derived from Vector Error Correction Model (VECM). Prior to co-integration bound test, an Augment Dickey Fuller (ADF) technique is used to test the unit root in order to obtain stationarity for all the variables.

4.2 Unit root test Result

Prior to any other estimation procedures, it is essential to obtain a valid t-statistics which show the stationary time series data. Thus, unit root test is a first step or condition followed by any other estimation analysis. Therefore, Table 4.1 shows the unit root test results.

The result on all the variables of this study for the period of 1971 to 2013 for unit root test is shown in Table 4.1. However, an ADF method is employed in Table 4.1 to identify the unit root result. Thus, the results of ADF show at level with both constant and constant with trend. Similarly, first differentiation is also shown with both constant and constant with trend. In order to obtain best result, different lag specifications were utilized.

Table 4.1: Unit Root Test Results

Country	Variables	Augmented Dickey Fuller (ADF) Test			
		Level		First Difference	
		Constant	Constant and Trend	Constant	Constant and Trend
Ghana	**GDP**	1.1280 [9] (0.9971)	-0.6610[9] (0.9695)	-5.3300[9] (0.0000)***	-5.4298[9] (0.0003)***
	FDI	-0.7547[5] (0.8209)	-3.3514[5] (0.0724)	-11.4681[5] (0.0000)***	-11.4670[5] (0.0000)***
	T.OPEN	-0.8624[9] (0.7903)	-2.0536[9] (0.0558)	-5.3537[9] (0.0001)***	-5.3031[9] (0.0000)***
	GFCF	-1.4492[9] (0.5491)	-3.3846[9] (0.0672)	-7.7013[9] (0.0000)***	-7.5460[9] (0.0000)***
	HK	1.9114[9] (0.9997)	-0.7314[9] (0.9639)	-4.3816[9] (0.0000)***	-5.6227[9] (0.0002)***
NIGERIA	**GDP**	0.1625[9] (0.9668)	-0.64139[] (0.9710)	-5.7638[9] (0.0000)***	-5.8343[9] (0.0001)***
	FDI	-1.4498[9] (0.5480)	-1.8712[9] (0.6501)	-7.8253[9] (0.0000)***	-10.1094[9] (0.0000)**
	T.OPEN	-2.6374[9] (0.0937)	-2.4728[9] (0.3393)	-8.6436[9] (0.0000)***	-8.8739[9] (0.0000)***
	GFCF	-2.8893[1] (0.0553)	-1.0853[9] (0.9190)	-3.5741[1] (0.0107)**	-5.5782[9] (0.0002)***
	HK	-2.3701[9] (0.1570)	-0.0019[9] (0.9947)	-3.3428[9] (0.0199)**	-4.2507[9] (0.0096)***

Notes: *** and ** indicate the rejection of the null hypothesis of non-stationary at 1% and 5% level of significance respectively.

[] indicates the lag specification

() indicates the t-statistic

The t-statistics for all variables in Table 4.1 show that they are statistically not significant which indicate that null hypothesis cannot be rejected. Hence, at level all the variables are non-stationary. In addition, unit root is said to be found in all the variables in this study. On the other hand, at first difference ADF test is used and the result show that all the variables show that all the variables are statistically significant. Therefore, null

hypothesis in this case can be rejected. This result confirms that all the series in this study are integrated of order one I(1) and can therefore conclude to have no unit root.

4.3 Co-integration

The Johansen procedure is employed to conduct the integration test of all the variables in this study via Vector Autoregressive (VAR) estimates. Therefore, the existence of long run equilibrium relationship between two or more variables can be achieved through the application of co-integration. It is assumed that all the variables in this study are non-stationary in estimating co-integration analysis. Also, all the variables are expected to be of the same order of co-integration. However, the co-integration analysis can still be proceeded in a situation where the variables are not of the same order of co-integration. In this case, Multi co-integration is said to be applied.

For the optimal lag length for the co-integration analysis in this study employing the Johansen-Juselius test, the Shwarz Information Criterion (SIC) is used. Shrestha and Chowdury (2005) in Rahman (2011) pointed out that SIC is known for selecting the maximum relevant lag length for co-integration analysis. Hence, a long run relationship is said to be exist, if a model has one or more than co-integrated vector.

Table 4.2: The Johansen-Juselius Co-integration Test Results

Country	H_o	H_1	Max-Eigen Statistic	Critical Value (Eigen) at 5%	Trace Statistic	Critical Value (Trace) at 5%
GHANA	r = 0	r = 0	35.71150**	30.43961	65.62618**	60.06141
	r ≤ 1	r > 1	18.14305	24.15921	29.91468	40.17493
	r ≤ 2	r > 2	6.218340	17.79730	11.77163	24.27596
	r ≤ 3	r > 3	5.344918	11.22480	5.55329	12.32090
	r ≤ 4	r > 4	0.208374	4.12991	0.20837	4.12991
NIGERIA	r = 0	r = 0	31.14321***	30.43961	74.57450***	60.06141
	r ≤ 1	r > 1	17.8858	24.15921	43.43129**	40.17493
	r ≤ 2	r > 2	14.85344	17.79730	25.54540***	24.27596
	r ≤ 3	r > 3	7.06984	11.22480	10.69196	12.32090
	r ≤ 4	r > 4	3.62212	4.12991	3.62212	4.12991

Note: *** and ** indicate the rejection of the null hypothesis of non-stationary at 1% and 5% level of significance respectively.

The Johansen and Juselius Co-integration test for the period 1971 to 2013 is shown in Table 4.2. The lag length of order 1 is selected in both Ghana and Nigeria on the basis of the minimum value of Shwartz Information Criterion (SIC). Both Trace test and Max-Eigen value test show one co-integrating equation in Ghana at 5% level of significance. However, Trace test shows 3 co-integrating equations in Nigeria at 1% and 5% level of significance, while Max-Eigen value test shows 1 co-integrating equation at 5% level of significance. Therefore, Max-Eigen value test will be considered, as it has more power than Trace test as suggested earlier in the methodology. Thus, it will be concluded that there is one co-integrating equation in Nigeria at 5% level of significance. To put it further, there exist long run relationship among FDI, T.OPEN, GFCF AND HK and economic growth in both the countries.

4.4 Pairwise Granger Causality Test

The causality between two variables can be analyzed through the Pairwise Granger Causality. Therefore, analysis would be conducted to ascertain whether one variable is being caused by another variable through the causality direction. However, the causality test results are reported in Table 4.3 for GDP, FDI, T.OPEN, GFCF and HK respectively.

The Granger causality between FDI, T.OPEN, GFCF and HK in both Ghana and Nigeria is shown in Table 4.3. The results in Ghana show that we reject null hypothesis for GDP does not granger cause FDI at 1% level of significance. Therefore, there is unidirectional causal relationship running from GDP to FDI. This result is in line with the studies by Bashir (2011), Adam (2009) and Parvis (2011). But, the result for FDI does not granger cause GDP in Ghana was not significant. Therefore, we do not reject null hypothesis which implies that GDP is not caused by FDI in Ghana.

Similarly, the result for GDP does not granger cause HK is significant at 5% level of significance. This indicates that we do reject null hypothesis and therefore GDP causes HK. This is in line with the work of De Mello (1999) and Akinlo (2004). In addition, the results for T.OPEN does not granger cause both GFCF and HK are statistically significant at 5% level of significance. Thus, the null hypothesis can be rejected and concluded that T.OPEN causes both GFCF and HK.

Table 4.3: Pairwise Granger Causality Results

Country	Null Hypothesis:	Obs	F-Statistic	Prob.
GHANA	LFDI does not Granger Cause LGDP	38	0.36538	0.8677
	LGDP does not Granger Cause LFDI		3.98014	0.0078***
	T_OPEN does not Granger Cause LGDP	38	1.77135	0.1526
	LGDP does not Granger Cause T_OPEN		1.85044	0.1366
	GFCF does not Granger Cause LGDP	38	1.35436	0.2723
	LGDP does not Granger Cause GFCF		2.10542	0.0956
	HK does not Granger Cause LGDP	38	0.72851	0.6082
	LGDP does not Granger Cause HK		3.09386	0.0246**
	T_OPEN does not Granger Cause LFDI	38	0.95177	0.4642
	LFDI does not Granger Cause T_OPEN		1.41616	0.2502
	GFCF does not Granger Cause LFDI	38	2.16611	0.0878
	LFDI does not Granger Cause GFCF		0.45387	0.8067
	HK does not Granger Cause LFDI	38	3.19155	0.0216
	LFDI does not Granger Cause HK		0.47313	0.7929
	GFCF does not Granger Cause T_OPEN	38	1.71112	0.166
	T_OPEN does not Granger Cause GFCF		3.04746	0.0262**
	HK does not Granger Cause T_OPEN	38	1.11635	0.3752
	T_OPEN does not Granger Cause HK		3.55482	0.0134**
	HK does not Granger Cause GFCF	38	0.79168	0.565
	GFCF does not Granger Cause HK		1.63257	0.1853
NIGERIA	LFDI does not Granger Cause LGDP	33	0.67549	0.7288
	LGDP does not Granger Cause LFDI		3.38522	0.0247**
	T_OPEN does not Granger Cause LGDP	33	1.32487	0.3178
	LGDP does not Granger Cause T_OPEN		3.26630	0.028**
	HK does not Granger Cause LGDP	33	2.89286	0.0425
	LGDP does not Granger Cause HK		3.23197	0.0291**
	GFCF does not Granger Cause LGDP	33	1.67961	0.1956
	LGDP does not Granger Cause GFCF		0.74091	0.6781
	T_OPEN does not Granger Cause LFDI	33	3.35979	0.0254**
	LFDI does not Granger Cause T_OPEN		1.80555	0.165
	HK does not Granger Cause LFDI	33	1.97295	0.1321
	LFDI does not Granger Cause HK		1.00030	0.4924
	GFCF does not Granger Cause LFDI	33	2.31688	0.0849
	LFDI does not Granger Cause GFCF		2.84596	0.0449**
	HK does not Granger Cause T_OPEN	33	2.65563	0.0561
	T_OPEN does not Granger Cause HK		1.22587	0.3639
	GFCF does not Granger Cause T_OPEN	33	1.24754	0.3533
	T_OPEN does not Granger Cause GFCF		0.82301	0.6159
	GFCF does not Granger Cause HK	33	1.57455	0.2256
	HK does not Granger Cause GFCF		0.39923	0.9223

Note: *** and ** indicate 1% and 5% level of significance respectively.

In Nigeria on the other hand, there is also unidirectional causal relationship between GDP and FDI running from GDP to FDI. The null hypothesis that GDP does not granger cause FDI can be rejected as the p-value is statistically significant at 5% level of significance. In this case, Nigeria shares similar case with that of Ghana. Similarly, the result for GDP does not granger cause T.OPEN can be rejected at 5% level of significance. Therefore, T.OPEN is said to be caused by GDP. This shows that as the economy of Nigeria is growing, more trade will be open to the economy.

However, there is also uni-directional causal relationship running from GDP to HK as the null hypothesis can be rejected at 5% level of significance. This further confirms the findings of Roy and Berg (2006), Baris (2012), De Mello (1999), AKinlo (2004) and Hassen and Anis (2012). This implies that the level of education in Nigeria improves with the increase in GDP. In addition, the null hypothesis for T.OPEN does not granger cause FDI can be rejected at 5% level of significance and can therefore be concluded that there is one way directional causal relationship running from T.OPEN to FDI. This simply means that there will be more FDI inflows into the Nigerian economy as it participate more greatly in trade openness. This finding is similar to the works of Liargovas and Skandalis (2011), Martin (2008) and Mitra (2012) in Saidin (2012). Thus, the economy will gain from the FDI inflow significantly by promoting greater freedom of economic activities.

In the same vain, there is one way directional causal relationship from FDI to GFCF as null hypothesis can be rejected at 5% level of significance. This implies that FDI is fundamental determinant in GFCF, as increase can generate more capital formation.

4.5 The Impact of FDI on GDP in Ghana and Nigeria

This section will analyze the impact of FDI on GDP in Ghana and Nigeria by regressing the model of this study based on equation 3.4. Basically, the Johansen and Juselius co-integration test will be used to investigate the long run impact of the FDI on economic growth in Ghana and Nigeria. However, the short run adjustment will be analyzed through Vector Error Correction Model (VECM).

4.5.1 Co-integration Analysis

Table 4.4 shows the Johansen and Juselius co-integration result for the analysis of this study. In addition, longer term forecasting over an unconstrained model can be improved and the understanding of the natural of any non-stationarity among the different component series is said to be better through the application of (VECM). Therefore, Table 4.5 summarizes the result for VECM.

In Ghana, the co-integration result shown in Table 4.4 reveals that all the explanatory variables are statistically significant which show that they are vital in determining the long run effects on economic growth. Although FDI is statistically significant but, it shows a negative effect on economic growth of Ghana. Therefore, if FDI is to increase by

1% Ghana's economic growth will fall by 0.83% and vice versa. However, the negative effect of FDI in Ghana is due to the domestic interest rate that is lower than the world interest rate. It may also be attributed to inappropriate consumption pattern and crowds out in the domestic investments. Similarly, it may also be due to improper coordination in arriving at the figure that is carried out by many agencies in the country. To put it further, poor electricity supply and high tax pay can also be the effect. This can also be confirmed by the falling of FDI inflows in 2013 as compared to the previous year. Similarly, in the economy of Ghana, private sectors are not performing efficiently, as such can also be the factor. Moreover, the property rights in Ghana are not properly protected as that will not allow the economy to benefit from the spillovers of R&D by MNCs. Meanwhile, the property rights protection by the economy motivates successive R&D activities by the MNCs in such an economy. This scenario is in line with the works of Nabi and Malarvizhi (2014), Baharumsha and Law (2010), Saqib, Masnoon and Rafique (2013) and Bashir, Mansha, Zulfiqar and Riaz (2014) found negative in Bangladesh, India and Pakistan during the period under study.

Table 4.4: Co-integration result for the growth model

Country	Variable	Coefficient	t-statistic
GHANA	**LFDI**	-0.837062	45.5668***
	T.OPEN	-2.457757	3.9110***
	GFCF	0.194846	7.5056***
	HK	0.143476	14.791***
NIGERIA	**LFDI**	-0.918455	10.3780***
	T.OPEN	-0.857724	0.4837
	GFCF	0.176975	6.84623***
	HK	2.16E-06	6.96774***

Note: *** and ** indicate significant at 1% and 5% level of significance respectively.

Similarly, T.OPEN is statistically significant but has also negative impact on economic growth. This implies that 1% increase in T.OPEN will lead to a fall in GDP by 2.46% and vice versa. This may be attributed to the depreciation of exchange rate that may likely be experienced by the economy. Hence, a negative trade balance position may be established where total export goes below total import in most of the years under study. This study is in line with the previous studies by Saidin (2012), Atoyebi, Adekunjo, Edun and Kadiri (2012), Umoh, Jacob and Chuku (2012), Saqib et al (2013), Hassen and Anis (2012) and Ros (2012).

The result for GFCF is positive and statistically significant. This implies that 1% increase in GFCF will cause GDP to increase by 0.19%. Therefore, increase in GFCF will induce savings to rise and this can lead to a larger investments thereby promoting economic growth. Hence, this finding is in line with the studies of Saidin (2012), Agrawal, Gaurav and Khan (2011), Hooi and Wah (2010), Bakare (2011), Adegboyega and Odusanya (2014), Tiwari and Mutasai (2011), Omankhanlen (2011) and Chia and Ogbaji (2013).

Moreover, the result of HK reveals positive and statistically significant. This shows that 1% increase in HK will induce GDP to rise by 0.14%. This implies that human capital can create external economies and can therefore enhance productivity. This result is in line with the studies of Roy and Berg (2006), Baris (2012), De Mello (1999) Akinlo (2004) and Hassen and Anis (2012).

In Nigeria, the co-integration results reveal that FDI, GFCF and HK are the variables that are statistically significant and therefore have long run relationship with economic growth. As in Ghana, FDI in Nigeria is statistically significant but has negative effect on its economic growth and vice versa. This implies that 1% increase in FDI will lead GDP to reduce by 0.92% and vice versa.

The negative impact of FDI on Nigerian economy may be attributed to inappropriate capital-intensive techniques. Also, the economy is characterized with labor-intensive and the foreign investors are there for the exploitation of raw materials being endowed by the economy for the finished products in their countries. It can also be attributed to fear anticipation of political instability, insecurity couple with corruption. Also, inappropriate indicators of trade liberalization, government policy, high tax and lack of social infrastructures are the attributed to the negative effect. In addition, most of the foreign investments in Nigeria are on oil sectors and communication sectors. Therefore, the returns on investment are usually taken out of the country and re-invest elsewhere.

In addition, conflicting policies and lack of respecting law and order by the authority concern in the economy may lead to the negative effect of FDI on economic growth. Besides, the terrorists attack like Boko Haram, MEND, etc, can be the alpha and omega to the negative effect, as the economy is in tension because of the chaos and the killings of innocent individuals and groups in some areas. To this effect, FDI can be impacted negatively on the economic growth.

On the other hand, the result for GFCF is positive and statistically significant. That is to say 1% increase will cause GDP to rise by 0.18%. Therefore, the increase in GFCF will promote productive capacity of various economic units by raising the number of firms. Thus, cost of production will be minimized and productivity of factor endowments will be enhanced. Also, HK result reveals positive and statistically significant. Therefore, an increase in HK by 1% will cause GDP to rise by 0.2%. As with the study of Akinlo (2004), HK is positive with Nigerian economic growth and made a recommendation that Nigerian economy should promote the stock of human capital through an educational policy which in the long run will enhance the economic growth. It has also been suggested that increase in the stock of knowledge will bridge the technology gap that exists between developed and developing nations.

Table 4.5: VECM Result for the growth model

Country	Variable	Coefficient	t-statistic
Ghana	**D(LFDI)**	0.50334	-1.67998
	D(T.OPEN)	-0.10124	3.01769***
	D(GFCF)	-2.43182	2.09567**
	D(HK)	0.29423	-0.55577
	ECM(-1)	-0.23327	-4.71242***
NIGERIA	**D(LFDI)**	0.07466	-0.49546
	D(T.OPEN)	0.01424	0.96296
	D(GFCF)	0.64216	1.85469
	D(HK)	6.2475	1.33357
	ECM(-1)	-0.10850	-3.25984***

Note: *** and ** indicate 1%, and 5% level of significance respectively.

In Ghana, T.OPEN and GFCF in Table 4.5 are the only variables that affect GDP in the short run based on the VECM method as they are statistically significant. However, the

result of VECM show that in the short run T.OPEN is statistically significant but its coefficient reveals a negative sign. This may be attributed to the depreciation of exchange rate that may likely be experienced by the economy. Hence, a negative trade balance position may be established where total export goes below total import in most of the years under study. Therefore, a 1% increase in T.OPEN will cause GDP to fall in the short run by 0.1% and vice versa. This study however is consistent with the work of Adhikary (2011) and Gries and Redlin (2012) in Ros (2012).

Similarly, the result of GFCF is also statistically significant in the short run but also reveal a negative sign. This implies that 1% in GFCF will cause GDP to fall in the short run by 2.43%. This study is in line with the findings of Hooi and Wah (2012). However, the negative effect of GFCF may be attributed to various techniques employed by the economy in the short run.

The speed of adjustment of adjustment can be obtained through the value of ECM. Therefore, the coefficient of error correction is statistically significant at 1% level of significance with the value -0.23327. Thus, 23.3% of the adjustment is achieved due to the correction adjustment speed in a year.

On the other hand, all the variables are not affecting GDP in the short run in Nigerian context. That is, none of the variables are statistically significant. However, the

coefficient of error correction is statistically significant at 1% level of significance with -0.108497. Therefore, 10.8% of the adjustment is achieved due to correction adjustment speed in a year.

4.6: Diagnostic Test

The diagnostic test will be conducted to check for the robustness of the model of this study. In this instance, Heteroskedasticity using Breush-Pagan-Godfrey to see whether there is problem of heteroskedasticity, LM test using Breush-Godfrey test will be performed to see whether there is presence of auto-correlation and check for the distribution of the error terms using Normality test. Below, are the discussions of the entire tests.

4.6.1 Heteroskedasticity Test

This test will use 2 lags in order to see whether there is presence of heteroskedasticity. Table 4.6 summarizes the result of this test.

Table 4.6 Heteroskedasticity Test for the growth model

Country	Breush-Pagan-Godfrey Heteroskedasticity test			
Ghana	F-statistic	0.263998	Probability	0.9846
	Obs. R-squared	3.316152	Probability	0.9730
Nigeria	F-statistic	0.294429	Probability	0.9772
	Obs. R-squared	3.664245	Probability	0.9612

Hypothesis testing:

H_0: Heteroskedasticity (the covariance of u is constant)

H_1: Heteroskedasticity (the covariance of u is unequal)

The Table 4.6 shows that the p-value of the F-test is 0.9846 greater than 1%, 5% and 10% level of significance in Ghana. From the result above we do not reject null hypothesis and it can therefore be concluded that constant variance of residuals exist for this model. Thus, the homoscedasticity assumption is said to be fulfilled. Also, the result in Ghana shows that p-value of F-test is 0.9772 greater than 1%, 5% and 10% level of significance.

4.6.2 LM Test

LM test using Breush-Godfrey test will be conducted to see whether there is presence of auto-correlation for the model of this study using 2 lags. Table 4.7 reports the summary of the results.

Table 4.7 LM Test for the growth model

Country	Breush-Godfrey Serial Correlation LM test			
Ghana	F-statistic	0.263802	Probability	0.7697
	Obs. R-squared	0.150347	Probability	0.9826
Nigeria	F-statistic	0.330485	Probability	0.7209
	Obs. R-squared	0.150347	Probability	0.9924

Hypothesis testing:

H_0: no autocorrelation (no correlation between error term)

H_1: autocorrelation (correlation between error term)

The Table 4.7 shows that the p-value of the F-statistic is 0.7697 in Ghana greater than 1%, 5% and 10% level of significance. From the result above, null hypothesis cannot be rejected and it can therefore be rejected that there is no presence of autocorrelation in the model of this study. Similarly, the result for p-value of the F-statistic is 0.7209 in Nigeria greater than 1%, 5% and 10% level of significance. Also the result above indicates that null hypothesis cannot be rejected and it can therefore be rejected that there is no presence of autocorrelation in the model of this study.

4.6.3 Normality Test

In order to see the normal distribution of the residual, normality test will be performed. Figure 4.1 presents the result of the normality test as follows:

Ghana:

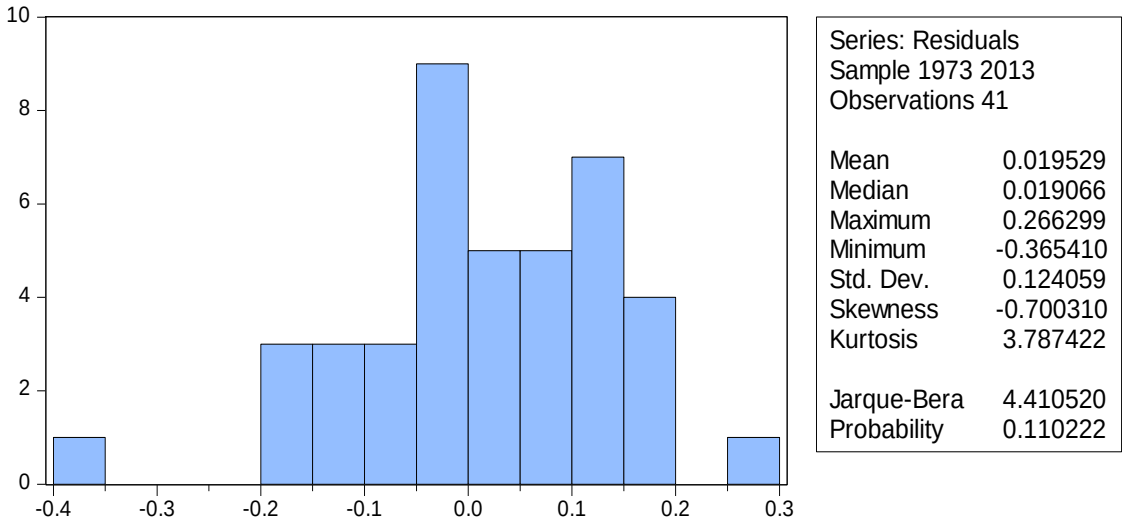


Figure 4.1: Normality Test for the growth model

Nigeria:

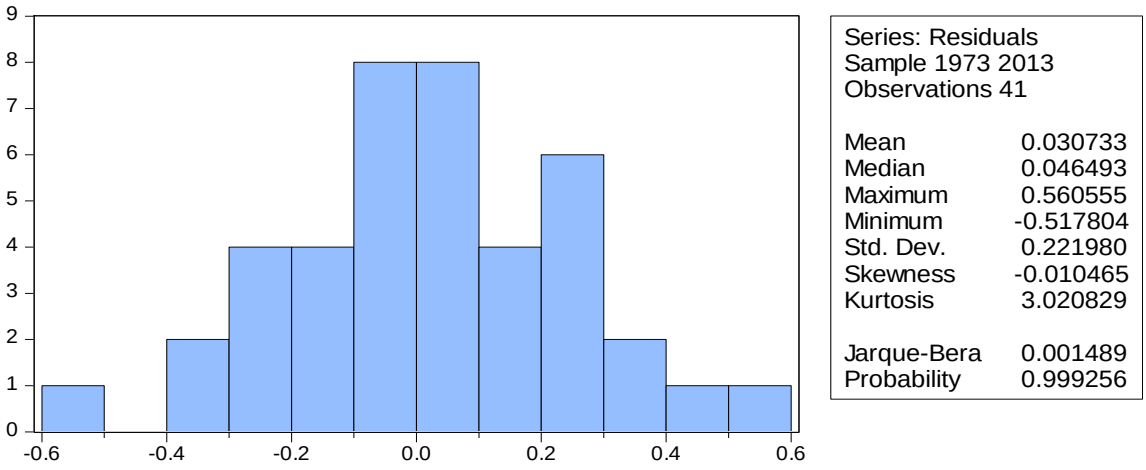


Figure 4.2: Normality Test for the growth mode

Hypothesis testing:

H_0: Residuals (u) are normally distributed

H_1: Not normally distributed.

The bell shape shown on the histogram above, indicate that the residuals are normally distributed both in Ghana and Nigeria. Even though some parts show high residuals, this may be due to a shock in the economy during the period under study. However, the p-value 0.1102 and 0.9993 both in Ghana and Nigeria respectively is greater than 1%, 5% and 10% level of significance. Thus, the residuals from the result can be concluded to have normal distribution.

CHAPTER FIVE

CONCLUSION AND POLICY IMPLICATIONS

5.1 Introduction

The general overview and discussions of the findings are summarized in this chapter. There are four sections in this chapter. Summary of findings are discussed in the first section, policy implications are discussed in the second section followed by the limitation of the study in the third section, discuss the recommendation for future studies in the fourth section and round it up with the conclusion of the study in the fifth section.

5.2 Summary of Findings

The economic development performance can be used to measure the economic growth of a given country. In economic analysis, a country can attain economic growth through the growth in national income measurement. Therefore, it is pertinent to ascertaining country's economic development through healthy and balance economic growth and most importantly the standard of living of the people in a country.

The primary objective of this study is to analyze the impact of FDI on economic growth of Ghana and Nigeria taking trade openness, Gross Fixed Capital Formation and human capital as control variables for the period 1971 to 2013. However, this study adopts New growth theory as a theoretical framework and incorporating previous studies as a guide to analyzing the impact of FDI on economic growth of Ghana and Nigeria.

To analyze the long run equilibrium relationship, Johansen and Juselius co-integration approach is analyzed, as the speed of adjustment in the short run is analyzed through the use of VECM method. In addition to check for the direction between FDI, T.OPEN, GFCF, HK and economic growth, granger causality test is performed for both Ghana and Nigeria.

In Ghana, all the explanatory variables have long run relationship with economic growth. FDI and T.OPEN are found to be statistically significant but have negative effect on the economic growth. However, the results indicate that increase in both FDI and T.OPEN will lead to a fall in GDP and vice versa.

In contrast, GFCF and HK are found to be statistically significant and positive. Therefore, in both GFCF and HK will also lead to a rise in GDP. Thus, GFCF and HK influence the economic growth of Ghana during the period under study.

In Nigeria, FDI, GFCF and HK have long run relationship with economic growth. However, FDI is found to be statistically significant but has negative effect on the economic growth. This implies that increase in FDI will lead GDP to fall and vice versa.

On the contrary, both GFCF and HK are statistically significant and positive. Consequently, both GFCF and HK have positive impact on the Nigerian economy as similar to that of Ghana.

The VECM results in Ghana reveal that only T.OPEN and GFCF are statistically significant and therefore have short run relationship with economic growth. Similarly, the coefficient of ECM is statistically significant at 1% level of significance. Thus, 23.3% of the adjustment is achieved due to the correction of the adjustment speed in a year.

In Nigeria, the VECM results show that none of the variables are statistically significant and can therefore be concluded that no short run relationship exist between the variables and economic growth. Notwithstanding, the coefficient of ECM is statistically significant at 1% level of significance. Thus, 10.8% of the adjustment is achieved due to the correction of the adjustment speed in a year. To this effect, Ghana's correction of the speed of adjustment in a year moves faster than that of Nigeria.

In Ghana, the granger causality result reveals that there is one way directional causal relationship that is running from economic growth to FDI. This implies that there will be increase in the level of FDI as economic growth increases each year. Also, a single causal directional relationship running from T.OPEN to HK exists. This implies that T.OPEN plays a vital role in influencing GFCF and HK in the economy of Ghana.

In Nigeria, there is also unidirectional causal relationship running from economic growth to FDI, to trade openness and human capital exists in Nigerian economy. However, the level of FDI will increase with increase in the level of GDP each year. Also, Nigerian economy will tend to be more open to trade as the economic growth rises. Moreover, the level of education in Nigeria will be enhanced as the economic growth increases. Therefore, FDI, T.OPEN and HK will be influenced more greatly when there is stability and higher economic growth for Nigeria. Thus, the need for sustainable economic growth in Nigeria is essential to get more FDI, trade openness and human capital.

Similarly, there is one way directional causal relationship running from T.OPEN to FDI in Nigeria. Thus, trade openness plays a vital role in influencing FDI in the Nigerian economy. Furthermore, there is also one way causal relationship that is running from FDI to GFCF. This indicates that GFCF will be enhanced by the increase level of the FDI inflows into Nigerian economy.

5.3 Policy Implications

Basically, economic growth can be increased by studying the findings of this research and proffer for several recommendations that can be considered are executed. However, the negative effects of FDI in developing countries like Ghana and Nigeria on their economic performance and growth was since being anticipated from the contradictory evidence ascertained in the empirical literature. In this case, the dependency theory is

expected to hold. Therefore, the indication that FDI has a negative role to play in both Ghana and Nigeria follows the previous empirical studies.

Ghana and Nigeria as part of developing countries are endowed with natural resources that can be harnessed through capital formation. To this effect, dependency on foreign investment should remain limited and therefore utilize domestic investment that will benefit the country's economy. Therefore, the government of both Ghana and Nigeria should formulate economic policies that will encourage domestic saving and investment and therefore limiting FDI inflows into the countries. Thus, the benefits of foreign investment appear to be taken out to the investor country than re-investing in the host country.

However, the transfer of knowledge and technology that can be utilized by the host country for further development may be attributed to have limited capacity. Hence, the benefits of FDI are dampened or absent with the countries that have low absorptive capacity as pointed out by World Bank (2001). Li and Liu (2005) made an observation to the general low of the technology absorptive capacity in the developing countries. Moreover, the negative impact on economic growth is attributed to a wide technology gap. Therefore, Ghana and Nigeria can attract FDI by suggesting policies and enhancements that can lead to have positive relationship with their economic growth.

Similarly, trade openness affects economic growth negatively in both Ghana and Nigeria. However, trade openness is not statistically significant in influencing economic growth in Nigeria. In Ghana, trade openness is statistically significant and negatively affects its economic growth. The negative effect of trade openness on economic growth can be attributed to sub-factors that may deter it to impact positively. Thus, political instability and lack of social infrastructures can affect trade openness through the distribution of import and export. On the other hand, the economy of Ghana shows that its economic growth relies on the domestic policies limiting trade openness. Therefore, policy makers should establish an environment that will best enhance economic growth in the country. Thus, there should be prevalence in the domestic activities of the country through social, political and economic stability.

However, Ghana can encourage trade openness in the economy by cutting tariff and non-tariff trade barrier to the intermediate inputs that are imported. If such policy could be implemented, local firms will tend to be more competitive at global market as well as penetrating international market. Also, business activities should be regulated by easing the process of business start-ups, government bureaucracy should be reduced and there should be price control. As such, competitive banking environment should be established where private sector will be given opportunity for more credit. However, there will be greater spillover effects from Multi- National Corporations (MNCs), if interest rate control is avoided.

Gross Fixed Capital Formation shows positive effect on the economic growth of both Ghana and Nigeria. In this instance, policy makers should formulate policies that will enhance the economic growth the formation of GFCF. However, capital spending by both private and public sectors is supported through GFCF. To this effect, action should be taken immensely to encourage GFCF in both sectors by the policy makers. Similarly, high GFCF is attributed to higher saving rates. Thus, the key element to capital formation is savings. Investment opportunities which can generate more projects either in the private and public sector in promoting economic growth can be achieved through the acquisition of higher savings. Therefore, policy makers should aim at a target that could generate more savings to expand GFCF.

There is positive effect of human capital on economic growth of both Ghana and Nigeria. Therefore, the need to raise the stock of human capital is highly essential by the policy makers through an educational policy. To this effect, there will be reduction in the capital flight as intermediate and senior staff will no longer be foreigners with the help of faster dissemination of technology. Thus, the profits and incomes in the domestic economy will be retained by the nationals.

5.4 Recommendation for future studies

Policy makers can have some insights in formulating policies in respect to their developing nations by understanding the relationship and the causality direction between economic growth and FDI as well as other macroeconomic determinants. The study

analyzes the impact of FDI on economic growth of Ghana and Nigeria employing time series data for the period 1971 to 2013.

However, GDP is the dependent variable which is assumed to be the economic growth of both Ghana and Nigeria, while the explanatory variables are FDI, trade openness, GFCF and human capital. In addition to these explanatory variables, future studies can include other variables that may well explain better the model of the study; such as inflation, exchange rate, interest rate, political stability, economic freedom domestic investment among other variables.

Moreover, future studies can also adopt the use of panel data or Generalized Method of Moment (GMM) by incorporating other developing countries of Sub-Saharan Africa and extend the scope of this study and make the comparison better. Perhaps, other econometric techniques can be employed to justify the reliability of the model; such as ARDL model and VAR model.

5.5 Limitation of the study

The lack of available data of the actual variables recommended by the theoretical models on the impact of some selected variables on the economic growth is one of the limitations of this study. The variables that are expected to be in the empirical model are either found to be proxies, some found to be missing in some years, or they are not even included. In

some cases, variables that are proxies may not stand for the effect of actual variable correctly which may subsequently lead to conflicting result.

The result obtained from the impact of FDI on economic growth of this study, though goes in line with some previous empirical findings, but is not consistent with the theory. This may be attributed to the aforementioned limitations.

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