UNIVERSITY OF CAPE COAST

MACROECONOMIC FACTORS AND FOREIGN DIRECT INVESTMENT IN GHANA

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BY

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DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Name: Alex de-Graft Hanson

Signature…… Date……

Supervisors' Declaration

We hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

Principal Supervisor's Name: Dr. Kenneth Aikins

Signature: …… Date: ……

Co-supervisor's Name: Mr. Patrick Akorsu

Signature…… Date……

ABSTRACT

The thesis examined the effect of macroeconomic factors on foreign direct investment inflows to Ghana. It specifically examines a few selected macroeconomic variables that have either a direct or indirect relationship with foreign direct investment in Ghana. The principal objective of this study was to empirically analyse the effect of macroeconomic variables on foreign direct investment in Ghana between 1993 to 2013**.**

Secondary data are used in this study. Time series data for the period of 1993 to 2013 on macroeconomic variables such as gross domestic product, inflation, exchange rate, interest rate, trade openness, natural resources, foreign debt, and fiscal deficit are sourced from Ghana Statistical Service. All the variables considered were integrated at first order as a result the Johansen's co-integration approach was used and the result showed that the variables were not co-integrated. Therefore the vector autoregressive model was estimated.

The result of the study confirmed that inflation, interest rate, foreign exchange, foreign debt and fiscal deficit were negatively associated with foreign direct investment while GDP, trade openness and natural resource of Ghana are positively related to foreign direct investment. Based on the findings of this study, it is recommended that the Government of Ghana must implement policies that will encourage foreign direct investment, moderate exchange rate depreciation, and increasing trade openness.

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DEDICATION

To my dear wife Mrs. Lucy de-Graft Hanson for her love and support, to my mum, siblings and all my loved ones.

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LIST OF ACRONYMS

CIB Capital Investment Board

CPI	Consumer Price Index
EU	European Union
FD	Fiscal Deficit
FDT	Foreign Debt
FDI	Foreign Direct Investment
FIML	Full Information Maximum Likelihood
GIC	Ghana Investment Centre
GIPC	Ghana Investment Promotion Centre
GSS	Ghana Statistical Service
GDP	Gross Domestic Product
IPPA	Investment Promotion and Protection Agreements
MIGA	Multilateral Investment Guarantee Agency
NR	Natural Resource
ODA	Overseas Development Assistance
R & D	Research & Development
SSNIT	Social Security and National Insurance Trust
UNCTAD	United Nation Conference on Trade and Development
US	United States
VAR	Vector Auto Regression

CHAPTER ONE

INTRODUCTION

Background of the study

This study determines the some selected macroeconomic factors that influence foreign direct investment inflows to Ghana. Foreign direct investment (FDI) is playing an increasing prominent role in the world economy, especially in developing countries where FDI has now become the main source of development capital. Foreign direct investment include inflows from other countries into a country from the rest of the world less retrenchment or downsizing operations realised by foreign investors in that same country.

Foreign direct investment can be understood as a package of resources that complements the financial flows and makes a distinctive contribution to the development process. Foreign direct investment projects typically involve a transfer of technology and managerial skills from the source country to the receipt country. They can also provide greater access to world market for the recipient country's exports. Foreign direct investment can help the economic prospects of Ghana in several ways. First, it serves as a source of development finance. FDI helps to finance investment in the economy. Second, it increases the level of technical progress in the host country and in turn plays an important role in the process of economic development.

Third, apart from being a source of development finance and a channel for technology transfer, FDI has a number of proven attributes. It

improves managerial knowledge and skills and efficiency in productivity. It also provides a wide array of goods and services to the economy. Furthermore, foreign direct investment promotes exports and hence can have a positive impact on the country's balance of payment (Eser, 1995). In addition to these benefits, there are employment and income generating effects of foreign direct investment as well as immediate or long-term balance of payment implications.

There are of course socio-economic costs which foreign direct investments impose and which must therefore be weighed against the benefits. Foreign debt is likely to affect the inflow of foreign direct investment because debt overhang signals the possibility of future economic crisis. Ghana has checked a history of economic and political development which reflects in the erratic inflows of foreign direct investment, changes in political and policy regime as well as uneven growth pattern. Since the early 1980s, Ghana has implemented several economic reforms policies such as the Structural Adjustment Programme (SAP) in 1983. These policies were adopted primarily to reverse the post-independence economic decline, reduce the impact of the 1980 debt crisis and facilitate the attraction of value-added foreign direct investment to Ghana. Several qualitative and quantitative analyses of available evidence reveal that the adoption of SAP has led to an increase in the number of multinationals investing in Ghana. Other studies have also concluded that SAP has been successful in many areas including the lowering of inflation, promotion of an environment of financial stability, elimination of licensing requirements, the opening of previously closed sectors, removal of tariff barriers that prohibit foreign direct investment

inflows, abolishing of exchange controls and reducing opportunities for the foreign exchange black markets (U.S. Library of Congress, 1998).

In spite of these reforms successes, there are still some serious challenges that hamper the massive attraction of foreign direct investment to Ghana as compared to South Africa, Malaysia and Thailand (Ibrahim, 2005).Some of these challenges may be as a result of absence of efficient legislation that should support the process of attracting inward investment and the concentration on the possible relationships that the major macroeconomic variables have on the level of foreign direct investment. For instance, an increase in gross domestic product (GDP), the fluctuations in the level of exchange rate and inflation rate, the gradual increase in unemployment and the consistent surge in the interest rate by source credit have all been proven to have an effect on the level of foreign direct investment. Increased opportunities for profitable arbitrage and speculation consisted of a large quantity and sudden movements in portfolio investments. These sudden movements are threatening the stability of monetary and exchange rate policies and decrease the resistance against financial crisis in many countries (Delice, 2002).

Macroeconomic factors are indicators which signal the economic well-being of a given economy. Since foreign direct investment is part of the growth of economy, previous studies (Barthel, 2008; Green & Villanueva 1990; Kinoshita, 2003) have proven that, the level of foreign direct investment is influenced by the macroeconomic factors. Theories on macroeconomic indicators such as the neoclassical and other investment theories are the bedrock of determining the influence of economic variables

on investment (Nunnenkamp & Spatz, 2002). The neoclassical theory is developed from the perspective that in a perfect competition and the absence of other unusual simplifying assumptions for an economy to attract foreign direct investment, reliance should be based on the macroeconomic variables.

For this to be effective, the ability to accumulate funds which is influenced primarily through interest rate, inflation rate, GDP and the other macroeconomic variables need to be considered. Dunning (2008) found empirical support that stated that change in inflation creates wealth redistribution between creditors and debtors. Hasen and Gianluigi (2007) concluded that the level of foreign direct investment of financially unconstrained countries vary counter cycle with macroeconomic conditions. The findings are supported by Dunning (2008). Moreover, macroeconomic conditions account for 12 percent to 51 percent of the time series variation of individuals and firms investment decisions and reflect the state of the economy. It can be concluded from the studies conducted so far, a relationship does exist between corporate investment and external macroeconomic variables.Understanding this situation requires an understanding of the links between these macroeconomic variables. Hence, the focus of this study is to identify the effects of macroeconomic factors on foreign direct investment in Ghana.

Statement of the problem

During the 2008 global financial crisis, most African countries revealed that financial institutions in Western Europe were unwilling to renew, much less, increase their credits to third world governments in terms of the amount of funds they need to commit into various investment activities (Dausa&Kassim, 2009). The effects of reduced flows of credit from foreign commercial banks were further compounded by a long term decline in the flow of Overseas Development Assistance (ODA) to the least developed countries. In response to the reduced inflows of external resources African Countries, along with other developing countries started to implement economic reforms to boost investment and raise the rates of economic growth.

The response of investment to the economic reforms has been dramatic. The flow of investment to developing countries bloated from US$235 billion in 2000 to US$410 billion in 2013. However, much of the increase in investment went to Asia and Latin America, with Africa accounting only for about 6.2 percent (Asante, 1995), and Ghana 0.04 percent of the total investment flows. From 1997 - 2009, investment inflows to developing countries increased from US$ 549 billion (17% of global inflows) to US$ 834 billion (37% of global inflows) (World Investment Report, 2010). Developing countries account for nearly a third of the global inward investment in 1997, increasing from one-fifth in 1990.

Empirical evidences from Booth, Demirguc-Kunt and Levine (2001), provided that from macroeconomic point of view, the investment in a given country is a function of economic growth rate, inflation rate, interest rate, exchange rate and GDP. Their study was based on the assumption that

countries tend to employ policies to make these macroeconomic variables favorable whenever there is the need to increase the level of investment and further improve upon the unemployment situation in the economy.

The authors further concluded that higher inflation leads to decrease in both local investment and foreign direct investment. Goedhuys (2009) established that macroeconomic variables are significant for the level of investment activities and that Gross Domestic Product (GDP) growth rate was negatively related to investment in the Nepalese economy. He further noted that economic growth tends to cause countries to implement both fiscal and monetary policies to curb the disturbing situation consistent with the findings of Botha, (2002).

Davidson (2010) posits that inflation affects investment and firm value thus higher inflation forces investors to sell bonds in exchange for stocks and hence the aggregate level of investment tends to drop. From the backdrop of the empirical outcomes, macroeconomic variables have important effect on the level of investment. Another relevance of investment is the fact that it brings in the needed resources for the economic development and to finance infrastructural development. Also through the exploitation of natural resources, foreign technology can be transferred into the domestic economy, which is necessary for Ghana's economic development. So one may be interested in knowing why the investment inflow has remained so low in spite of the government's reform programmes, thus, from $23 billion in 2009 to $12.85 billion in 2012 (Ghana Statistical Report, 2013). Therefore, this study develops a dynamic simultaneous equation model for investment in Ghana.

The reason is that the single equation models for investment as developed by Bajurubia and Sosvilla-Restmentera (1994), Enu,Havi and Attah- Obeng (2013), Mulenga (1997), Wang and Swain (1995) was liable to simultaneous equations and omitted variables bias. Also the single equation studies tend to limit the number of variables considered. Developing an appropriate simultaneous equation model of investment for Ghana would therefore enable more explanatory variables to be considered and reduce the problem of simultaneous equations and omitted variables bias.

Objectives of the study

The main objective of this study is to empirically analyse the effect of some selected macroeconomic variables on foreign direct investment (FDI) in Ghana. The specific objectives are:

1. Examine the effect of inflation on the level of foreign direct investment in Ghana.
2. Examine the effect of interest rate on the level of foreign direct investment in Ghana.
3. Determine the effect of GDP and exchange rate on the level of foreign direct investment.

Hypotheses for the study

The following hypotheses will be tested:

1. H_1: There is a relationship between inflation and the level of foreign investment in Ghana

2. H_1: There is a relationship between interest rate and the level of foreign direct investment in Ghana
3. H_1: There is a relationship between GDP, exchange rate and the level of foreign direct investment in Ghana

Scope of the study

Investment is broad but the scope for the purpose of the current studies was restricted to foreign direct investment because most researchers in the field of finance postulate that the measurement of foreign direct investment as a proxy of investment is more appropriate. The reason for this scope is derived from studies such as Enu, Havi and Attah-Obeng (2013); Gumus, Duru, and Gungor (2013); Antwi, Poku and Owusu-Antwi (2013) which indicated that the above listed scope fully explains the issues of investment. In relation to macroeconomic variables, the study places emphasis on the data of inflation, interest rate, gross domestic product (GDP) and exchange rate statistics which were found with the Ghana Statistical Service from 1993 to 2013. The reason for twenty year period is that it gives a reliable estimation of the effect of one variable over the other.

Significance of the study

The level of investment in any developed economy as stated by Gumus, Duru, and Gungor (2013) does not only play the role of increasing the wealth of its citizen but it impacts significantly on the growth of the whole economy. Consequently this influences the overall prosperity of the economy. Conducting research on the investment was of importance in the corporate finance literature because as a driver of the economic growth, savings and investment do not only provide the mechanism of risk transfer

but also they help to channel the funds in what may be regarded as an appropriate way to support the business activities in the economy.

It was in this regard that Antwi, Poku and Owusu-Antwi (2013) made mention of the fact that, macroeconomic variables are important factors that need to be considered in estimating any relationship of investment as they are the bed rock of investment decision by an active investor. It was therefore, the need to establish a relationship between macroeconomic variables and the level of investment. This will help policy makers to come out with relevant economic policies that would help to improve on the level of savings and investment in a developing economy like Ghana. For the field of finance, this study sheds more light on the issue of macroeconomic variable and investment which has much been discussed since the publication of the prepositions by Arthur, (1999). The study further adds to existing literature on investment and serves as an impetus for further research.

Furthermore, every economy operates with the anticipation of generating higher returns from their accumulated investment income. These investment returns are cumulatively generated when the citizens of the economy are motivated through the mechanism of the financial market and the extent to which their gross incomes are affected by the systematic risk through the interplay of macroeconomic variables. With the current study, the effect of macroeconomic can be clearly outlined in other to effectively estimate the effect these variables have on the performance of investment activities in Ghana. When this is done, policy makers in Ghana can draft policies which can increase the influence of investment in Ghana so as to increase the gross domestic product of the country.

For practitioners, the study is relevant and of much interest to financial controllers, finance managers and managing directors particularly those working in the investment firms as it provides insight into how to make effective returns on investment activities. In addition, the study may be useful to practitioners who would want to obtain an idea as to whether macroeconomic has an effect on investment. As such, the researcher believes that there is the need to fill an important gap in understanding macroeconomic dynamisms on return on investment. Considering these points, this study is of immerse significance.

Organisation of the study

The thesis has been organised into five chapters. The first chapter highlights the background of the research, the statement of the problem, objectives of the study, hypotheses tested by the researcher, the significance of the study and organisation of the study. Literature related to the study is reviewed in the second chapter. The review considers empirical studies, surveys and views of other authors. The time series methodology and procedures adopted in carrying out the study are discussed in chapter three. Chapter four presents the findings and discussion of the data. The secondary data are presented, discussed and analysed. The final chapter recapitulates the results and draw conclusions. Recommendations are made for efficient and effective financing decisions. Further research is also recommended in the chapter.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

Introduction

The review of related literature is in four main parts: the overview of the Ghanaian economy with consideration to the trend in the level of

investment and other relevant macroeconomic variable, theoretical review, empirical review and conceptual framework. The theoretical review presents perspectives on propositions and ideas of some earlier researchers, authors and educators on the theories of investment and macroeconomic factors. Among the main theories reviewed for the current study were the neoclassical and other FDI theories on investment. Under the empirical review, the research methodology, findings and recommendations of some researchers in relation to macroeconomic variable and investment were reviewed.

Overview of the Ghanaian economy

At independence in 1957, Ghana had an appreciably high level of real per capita income compared to other Sub-Saharan African countries. Ghana was then considered a middle income country. The growth of real GDP continued at the rate of about 3 percent until the mid 1960's, stimulated by high exports of cocoa. In the 1970's economic performance started to decline as revenue from cocoa exports declined and as world energy prices and interest rates rose sharply. The average growth rate of GDP in 1967 to 1971 declined from 4.3percent to 0.3 percent in 1972 to 1977. Also real per capita GDP growth rate within the same year periods declined from 2.0percent to -2.3percent

The situation aggravated in the early 1980's as primary commodity prices collapsed. Internally, economic management weakened substantially and political instability increased. For the first time in post-independence history of Ghana, the economy recorded a negative average GDP growth rate (-1.6%) from 1978 to 1983.The macroeconomic policy environment was increasingly characteristic by large imbalances. There were large budget deficits, averaging 10 percent of GDP from 1972 to 1977. During the 1972 to 1977 periods, the

ratio of public saving to GDP was 3.9 percent. The ratio fell further to 2.2 percent between 1978 and 1983. To finance the large budget deficits, the government borrowed from the Central Bank, which led to increased money supply. Within the period of 1970's through to 1982, the monetary bases expanded by 40 percent on the average. Inflation rose sharply despite price controls.

From 1978 to 1982, the rate of inflation coupled with price controls discouraged private savings and investment in productive sectors. The average ratio of investment to GDP from 1961 through to 1971 was 8.4 percent, 5.5 percent from 1972 through to 1977, and 2.5 percent from 1978 through to 1983. The official exchange rate which was pegged from 1960 through 1982 became overvalued. By 1982 the overvaluation exceeded 1000 percent. This situation led to an acute scarcity of foreign exchange which crippled the industrial and agricultural sectors. The development of a parallel foreign exchange market was, therefore, inevitable, contributing to further macroeconomic instability.

From the period 1961 through to 1966, foreign direct investment (FDI) was only 8.01 percent of GDP and from 1967 through to 1971, it increased to 31.4 percent. From 1972 through to 1977, FDI declined to 18.3 percent of GDP probably, because of the military regime or political instabilities that prevailed in the country at that time. Also from 1978 through to 1983, it declined further to 9.58 percent of GDP. Contribution of natural resource to GDP was not encouraging as it formed about 0.39 percent of GDP in 1961 through to 1966 and 0.57 percent of GDP in 1967 through to 1971. However, in 1972 through to 1977 the exploitation of natura1 resources

formed about 1.59 percent of GDP and this increased further to 7.74percent in 1978 through to 1983. In a nutshell, the economy of Ghana before the Economic Reform Programme (ERP) was characterised by large budget deficits, and pervasive controls. By early 1983, the economy virtually collapsed.

The policy of making foreign exchange available to the private sector for the importation of inputs and thereby enhance investment has also seen some successes. The comprehensive expenditure, from programmes aimed at reducing government involvement in activities that can be carried out by the private sector in a cost effective manner has also been successfully implemented with the introduction of the privatisation programme. Monetary policy in Ghana has not worked because it has been less successful in restoring positive real interest rates. There is the need for more attractive locational incentives to attract foreign investment to the deprive areas. Also, difficulties in gaining access to land and permits for expatriate workers, combined with other requirements for permits and approvals, together constitute a formidable set of barriers to investment.

When the number of approvals, are combined with complicated processes and inefficient or even antagonistic officials, the magnitude of the problem becomes evident. There is the need to liberalise the treatment of expatriate staff. One approach adopted by Malaysia a number of years ago, was to allow a reasonable number of expatriate personnel (five in the case) for each investment, with the number increasing with the size of the investment.

Measures to improve the investment climate

Investment incentives have been provided under investment codes. The first was the Pioneer and Companies Act of 1959. This was followed by the Capital Investment Act of 1963 (Act 172) which sought to encourage foreign investment. The 1973 investment decree, National Redemption Council Decree (NRCD 141), investment policy decree (NRCD 329) of 1975 unlike the 1963 Act was to encourage both local and foreign investors. The 1981 investment Code (Act 437) sought to centralise investment promotion functions at the Capita1 Investment Board (CIB) and consolidated all investment legislation. The 1985 investment Code, Provisional National Defence Council (PNDC Law 116) established the Ghana Investment Centre (GIC) as the central investment promotion agency.

All these investment codes have attempted to provide a favourable investment climate by offering incentives to boost investment. The incentives generally provided include tax holidays, accelerated depreciation allowance, exemption for import duties on machinery and equipment, investment allowance and arrangements for profit repatriation. The need to constantly review the code reflects the lack of appropriate response to the various codes. Measures that have been taken since 1994 when the investment code was revised to improve the investment climate include (a) gradual removal of administrative and other bottlenecks, (b) review of the tax structure as it relates to investment, (c) establishment of retention accounts for individual companies for retention of portion of revenues earned from exports to finance imports of essential spare parts and raw materia1s or machinery, and credit

expansion in 1987 and 1988 to ensure adequate financial support for the priority sectors of the economy, and (d) liberalisation of the financial system.

On April 29, 1988, Ghana ratified the convention establishing the Multilateral Investment Guarantee Agency (MIGA) of the World Bank. MIGA aims at encouraging equity investment and other forms of foreign direct investment (FDI) in developing countries, by reducing non-commercial risk. This is done through investment guarantee operations and the provision of advice and technical assistance to government of developing countries on investment and programmes. In effect, the MIGA convention seeks to provide an insurance cover for foreign investors, who participate in eligible investments in the productive sectors of the economy of developing countries. Despite this assurance of Ghana's investment guarantee under the investment code and the MIGA convention, some countries still insist on bilateral Investment Promotion and Protection on Agreements (IPPA) with Ghana. A number of such IPPA's have been signed with countries like the United Kingdom, the Netherlands, Rumania, and China (Ghana Investments Centre, 1991).

Tax rates remain high in Ghana. A number of initiatives have also been taken by the government in the last few years to reduce the tax burden on companies and investors to leave more resources in their hands for reinvestment. In the 1988 budget, the corporate tax payable by the manufacturing, farming, and export sectors was reduced from 55percent to 45 percent. In the 1989 budget, the corporate tax was reduced from 55 percent to 50percent for all other corporate bodies except companies operating on banking, insurance, commerce and printing. In the 1990 budget, the tax on

companies in construction was lowered from 50percent to 45percent. In the 1991 budget, corporate income tax was lowered from 45percent to 35percent for all sectors, except for mining which has its special tax regime. The dividend withholding tax was lowered across board to fivepercent, except for minor exceptions designed to discourage speculations.

In the case of publicly traded shares, mergers and acquisition, there was a complete waiver of the capital gains tax. The 1992 budget statement, the corporate tax for commerce, printing, and publishing was reduced from 50 percent to 35 percent. Among the taxes abolished were import and sales taxes on building materials. A bill, "The Ghana Investment Promotion Centre Act, 1993" has been established for the encouragement and promotion of investment. The objective of the bill was to revise the 1985 investment code to place more emphasis on private sector investments as an important segment for accelerated economic growth and to consolidate recent amendments to the code. According to the bill, the existing code is regulatory oriented and does not encourage the investment centre to engage in promotional activities.

Theoretical approaches to foreign direct investment

This section discusses the views of authorities on macroeconomics and investment, theories of investment and capital structure. Overviews of theoretical approaches to investment are given in Dunning (1993) and Vos (1994). A distinction can be made into the following main approaches: (i) neoclassical, (ii) FDI theories on international trade.

Neoclassical approach

Early neoclassical approaches to international capital movements were based on the premise that capital flows between countries in response to rate of return differs. This approach is linked to the pure theory of international trade and is associated with the MacDougall model, which is based on perfect competition, absence of risk and other usual simplifying assumptions'. MacDougall's contribution essentially focuses on the welfare effects of foreign investment, rather than on the determinants of investment. Under unconstrained capital mobility, positive welfare effects for both capital exporting and capital importing countries are associated with a movement of capital between countries. MacDougall analyses the effects for welfare if, in comparison to the basic model, one or more assumptions are relaxed. The main elements on which the model is built are factor endowment, expected profit/rates of information asymmetries, taxation and government incentives.

One of the first theoretical approaches to understanding investment is the neoclassical growth theory. Tasi (1994) attempted to express a growth model into a simple production function and to explore key variables that could provide steady growth rates. In his model, he captures variables determining investment in growth rates. On the other hand, within the endogenous growth theory, investment flows may contribute either directly or indirectly to the economic growth of an economy. Wang and Swin (1994) discern the effects of investment activity into direct positive home-country effects, by stepping up production and transferring knowledge to local suppliers and indirect effects by upgrading the quality of their workforce.

Investment is considered to be the major source of economic growth for the less developed countries (Balasubramanyam et al., 1996) while relative similarities are also observed in European Union (EU). Indeed, investment inflows have contributed to the EU economic growth since foreign affiliate's exhibit relative greater propensity to undertake research and development (R&D) expenditures and the relative higher productivity while undertaking investment in EU than in their domestic market (Barrell & Pain, 1997).

The advent of endogenous growth theory (Barro & Sala-Martin, 1996; Romer, 1990) has enabled research into channels through which investment can be expected to promote growth in the long run. Furthermore, the neoclassical theory was originally used to explain bilateral trade flows between countries in an analogy to Newton's law of motion (Breuss & Egger, 1997). This theory further postulates that trade between two countries is a function of the size of their economies as measured by the gross domestic product and population, the geographical distance between the two countries, and some preferential trade considerations.

Zang and Chin (1996) stated that investment should originate in the investing country which has comparatively disadvantaged industry, to the host country. The neoclassical assumptions of absence of market failure and given resource endowments cannot explain trade in intermediate products based on product differentiation and the need for exploiting economies of scale. Neither can it explain other manifestations of market failure. Largely, neoclassical approach is the flexible-accelerator type of investment theory (Lucas, 1993).

The theoretical approach of Lucas is set out by outlining a simple model of capital requirements of a profit-maximising, multiple product monopolists. Given some degree of monopoly in its product markets, the multinational firm is assumed to determine the profit-maximising level of production and, hence, the capital requirement, in each hosts country. The basic model is extended by incorporating elements of risk, expectations and interdependence of locations paradigm resorts to the modality of economic organisation, rather than to the distribution of factor endowments. Given line-specific and location advantages, foreign firms internalise activities in other countries in their operations, in order to benefit from advantages such as scale economies and transfer pricing and to overcome market imperfections related to informational deficiencies.

Other theories of FDI

The expansion of FDI in the past two decades and the continuous growth in output of multinational firms has changed the structure of international trade to a large extent. Foreign direct investment has, by some measures, become even more important than international trade (Graham, 1996; Helpman, 2003). In fact, about one third of total international trade occurs between the intra-firms, United Nations Conference on Trade and Development (UNTAD, 2004). Smith (1776) and Ricardo (1817) pioneered the theory that provided explanations of trade flows between nations. Smith developed his theory based on absolute difference in costs. Trade will emerge if one country has an absolute advantage in the production of one commodity and disadvantage in the production of another commodity.

However his theory failed to explain trade between countries where one country had no line of production in which it was clearly superior. It was Ricardo who elaborated Smith's theory to fit in more general framework by formulating a theory based on comparative advantage. He asserted that a country will specialise and export that commodity in the production of which it has comparative cost advantage and import that commodity in which its cost advantage is the least. This theory was based on using one factor of production-labour and thus it is the difference in production technology that explains the different costs that provide incentive for trade. However, over and above such a general insight into international trade, the classical theories by assuming immobility of labour across the borders were not helpful in providing explanations for the international movements of capital (Morgan & Katsikeas, 1997).

In contrast to this theory, the factor proportion theory propounded by Ohlin (1933) explained the differences in advantages by relative endowments of factors of production. He stated that countries would export goods and services that utilised greater quantities of their relatively abundant factors, and import other goods and services. However, these theories do not explicitly answer the question concerning production outside national borders as they also based their theories on the assumption of international immobility of factors of production. Vernon (1966) assimilated international trade with international investment.

The 1960s saw significant technological change, which coincided with the rise of multinational corporations. The existing theories of international trade were found to be inadequate for explaining the changing

pattern of trade. This resulted in a call for an alternative explanation of trade flows (Leontief, 1966). It was in response to this need that Vernon (1966) explained the cycle of their expansion in the post-second world war period using United State multinationals data. He contended that FDI was the reaction to the threat of losing markets as products matured as well as the need for cheaper factor costs in the face of competition. This theory, popularly referred to as the "Product Life Cycle Theory", provides an explanation of how factors such as the availability of larger and cheaper capital, superior management, discovery of new processes, product differentiation etc. interact over time to determine production, export and foreign investment patterns of oligopolistic enterprises (Lall, 1976).

The theory attempts to integrate three stages of production in order to explain the life cycle of a product. The first stage of this model deals with the introduction of innovation. It is argued that new products will be invented, produced and sold in countries with the highest incomes and skills. If the product meets with success in a wealthy market, production increases, new markets are explored and export develops. This marks the beginning of the second stage – maturity. In this stage the price elasticity of demand for the product is comparatively low. The demand for the product rises in the foreign market and competitors emerge. The original producer establishes a production unit in the foreign country to cater to the increased foreign demand as well as to compete with rivals. It is in the second stage that the firm goes international.

The final stage is characterised by product standardisation. The production technique becomes well-known and reaches its zenith. As a result,

investment moves on further to any location in the world where costs are at the lowest possible level. Thereafter, the product is exported to the original country of innovation where the product is phased out in order to favour innovation of yet another product. Thus, the exporter becomes an importer at this stage of production. Production of personal computers (PCs) can be cited as a prime example of the production life cycle. They were first introduced in the United States followed by Japan and, ultimately, China, which has now become one of the world's largest exporters of PCs.

Nevertheless, this theory fails to explain why it is profitable for an economy to undertake FDI rather than continuing to export from the home country or by licensing a foreign firm to produce its products. It simply argues that once a foreign market is large enough to support local production, FDI will take place. However, it fails to identify when it is profitable to invest internationally. Despite this, the product-cycle theory has provided a framework under which other authors such as Hirsch (1976) and Helpman and others (1984 and 2004) have dealt with the question of whether to go the FDI route or to export.

Hirsch (1976) developed an international trade and investment theory by focusing on two aspects: (a) when a profit-maximising firm chooses to serve a foreign market, and (b) the conditions under which foreign market servicing is carried out either through exporting or local manufacture as a result of direct investment. Hirsch asserted that FDI could be analysed within the framework of industrial organisation and location theory models. However, it is not consistent with trade models that assume perfect markets, factor immobility, zero transportation costs, international identical

production functions and constant returns to scale. FDI will also not take place even if it is assumed that international factor mobility is possible.

In the absence of transportation and marketing costs, an optimum sized plant will be less costly to operate in countries enjoying comparative advantage. Economies of scale are not associated with the size of the domestic market, thus, they enhance rather than counteract comparative advantage. International direct investment takes place only in a world that admits revenue-producing factors that are firm-specific on the one hand, and information, communications and transaction costs, which increase with economic distance, on the other. He concluded his theory by noting that international investment facilitates specialisation according to comparative advantage to a greater extent than trade, since firms that are purely exporters will incur differential export-marketing costs. In the case of multinational companies, some exemptions from such costs are granted. Furthermore, multinationals have an incentive to enhance the gains from trade by expanding output or setting up new units in least-cost locations and by supplying to all markets from that location.

Read (2007) also integrated trade theories with direct investment theories. He strongly recommended that FDI was required in order to make factor markets more competitive and efficient internationally as well as to improve production processes in a country that is well-endowed with the given resource. Kojima (2009) identified resource, labour and market orientation as the three major motives behind international investment by a firm. Kojima's theory mainly focused on Japanese investment. The other major Asian economies, such as China, India, the Republic of Korea and

Taiwan, were not dealt with in his theory. Those countries have proven their potential in the international investment market in recent decades. Even though there are some examples of international investment that verify Kojima's assumption of inability of firms to compete domestically, which leads them to invest abroad, it is still not satisfactory to generalise this proposition.

One of the main limitations of the works cited above is that they have not taken into account the modes of FDI vertical and horizontal. It was Helpman (1984) and Helpman et al (2003) among others, who related international trade to vertical as well as horizontal FDI. Helpman (1984) developed a general equilibrium model of international trade in which multinational companies play an important role. He combined elements of ownership and locations in this model, and extended his earlier work that dealt with the firms producing a single product. He constructed his theory based on firms having a single production facility, which could be in a country other than where the headquarters were located. However, given the absence of tariffs and transportation costs means the firm will never open more than one production facility, so his model is really one of a vertically integrated firm.

Helpman's model is based on the differences in the factor endowments of different locations where a vertical MNC chooses to start its production centre. The model argues that firms like to choose cost-minimising locations to maximise their profits. The differences in the factor endowments are associated with the relative size of the country. The theory explains the simultaneous existence of' inter-sectoral trade, intra-industry

trade and intra-firm trade. The theory also explains cross-country penetration by MNCs as a result of impediments to trade such as transportation cost and tariff.

In another article, Helpman et al (2004) focused on a firm's choice between exports and horizontal FDI. They developed a model of international trade in which firms choose to serve the domestic market, to export or to engage in FDI to cater for markets abroad. They contended that every industry was characterised by heterogeneity, therefore, the productivity of firms will differ. The consequence of this is that firms are organised on the basis of their productivity. The least productive firms shut down as they cannot generate a positive operating profit, no matter how they are organised. Other low-productivity firms sell only in the domestic market. The remainder of the heterogeneous firms will serve both domestic and foreign markets.

However, the modes of operating in foreign markets will differ from firm to firm, depending on their productivity levels. The most productive firms will decide to serve the foreign market via FDI while less productive firms will sell in the foreign market through exports. The firms that invest abroad will do so when the gains arising out of transportation costs are greater than the costs of maintaining facilities abroad. This is called the proximity-concentration trade off. Thus, by embodying elements of the proximity-concentration trade off in the theory of horizontal FDI, the model predicts that foreign markets are better served by exports relative to FDI sales when trade frictions are lower or economies of scale are higher. Helpman et al (2004) tested their hypothesis with the help of export and FDI sales by United

States firms in 38 countries and 52 industries, the results supported their theoretical predictions.

It is pertinent at this point to note that both horizontal and vertical FDI can also take two forms: (a) cross-border mergers and acquisitions (b) Greenfield FDI. The former involves firms trading in heterogeneous corporate assets to take advantages of complementarities, while later involves setting up of new plants in the foreign market. This aspect of FDI was examined by Nocke and Yeaple (2004), who developed the "assignment theory of foreign direct investment" to explain a multinational's FDI mode choice.

It is asserted in the business literature that mergers and acquisitions permit firms to exploit complementarities in their firm-specific assets (Maksimovic & Phillips, 2001). Thus, the merger and acquisition market allows heterogeneous firms to buy and sell corporate assets to exploit complementarities. In contrast, Greenfield FDI comprises the construction of production capacity abroad to permit a firm to deploy its assets in a foreign country. By assuming that two countries can freely trade with each one another, in their model they predicted that factor price differences between countries would lead to Greenfield FDI and to cross-border acquisitions, while cross-country differences in entrepreneurial abilities would only give rise to mergers and acquisitions. Thus, as per the model, the possibility exists for two-way FDI flows even in the absence of transportation costs and factor price differences between countries.

Furthermore, since Greenfield FDI requires incurring expenditure for building a new facility in a foreign country, such an expense will be worthwhile only if the gains from reassigning production are large enough. Following on from this, the model also predicts that firms engaging in Greenfield FDI are, on average, more efficient than those engaging in cross-border acquisitions. Their empirical testing supported the predictions of their model. Nevertheless, the theory fails to explain the recent phenomenon of the dramatic growth of Indian FDI in developed regions. In addition to Greenfield investment, Indian outward FDI has taken the form of acquisition.

Macroeconomic determinants of foreign direct investment

Macroeconomic policies may affect economic growth either directly through their effect on the accumulation of factors of production or indirectly through their impact on efficiency with which factors of production are used (Milner & Pentecost, 1996). Macroeconomic stability is important signals to the private sector about the direction of economic policies and the credibility of the authorities' commitment to manage the economy efficiently. Such stability, by facilitating long-term planning and investment decisions encourages savings and private capital accumulation (Ghura, Michael, Martin, Roger &Ucer, 1995).

Inflation rate

The inflation rate means that the general level of price for goods and services is rising and subsequently purchasing power is falling. The inflation rate is frequently used as an indicator of macroeconomic instability reflecting

the presence of internal economic tension of the inability or unwillingness of government. Therefore, Central banks attempt to stop severe inflation, along with severe deflation, in an attempt to keep the excessive growth of prices to a minimum (Mankiw, 2007). Rammal and Zurbruegg (2006) examine the determinants of FDI for five Asian economies namely: Indonesia, Malaysia, Philippines, Singapore and Thailand, by using a panel data set containing information on FDI flows from home to host countries. As a result, the negative relationship shows that an increase in the inflation rate lessens FDI in that country. However, Trevino et al (2008) investigated the process of institutionalisation and legitimisation in countries in Latin America and its impact on organisational decision-making regarding inward foreign direct investment (FDI).They highlighted that lower inflation leads to greater levels of FDI.

Beside the factor derived from the neoclassical investment model, the inflation rate affects investment growth rate. Macroeconomic stability such as low and predicable inflation is a signal to ensure a strong response of investment to economic investors. The direction of the effects of inflation on savings, investment and growth is ambiguous in the theoretical literature. According to Blonigen (2005) a higher inflation leads to lower interest rate and cause portfolio adjustments away from real money balance towards real capitals, hence a higher inflation would be expected to lead to higher real investment and faster growth.

However, in the case of developing countries with under developing domestic capital and financial markets, the portfolio adjustment would most likely be from real money balance to real assets. Thus higher anticipated

inflation in developing countries would be expected to lower investment. Also in the context of developing countries, inflation may serve as an indicator to the credibility of the authorities' commitment to stable macroeconomic environment. The presence of high and variable inflation rate would be expected to lower the credibility of the authorities' and also the private sector and reduces the return on private savings and investment. Thus, high rates of inflation would be expected to lower investment.

Furthermore, when the rate of inflation, is highly variable, the extraction of the correct signals from relative price movements are rather difficult task and can lead to an inefficient allocation of economic resources, including capital. There is a number of transmission mechanism of the effects of inflation on investment and hence growth. Empirical studies suggest that an increase in inflation induces firms to economise in real money balances, thus raising transaction costs and the value of capital.

The resulting increase in the price of capital goods, leads to a reduction in the rate of investment, which in turn reduces capital accumulation and growth. Another effect of increasing inflation raises inflation tax and hence lowers the incentive to work. Since the productivity is supposed to depend on the employment, a fall in employment leads to a reduction in growth. Also Fischer (1993) has noted that the inflation rate serves as an indicator of the overall ability of the government to manage the economy.

Foreign exchange constraint

Foreign exchange constraint is where an economy is experiencing a lack of foreign exchange to finance its foreign component of investment. Foreign exchange availability is a key factor in determining the level of investment. As developing countries' investments have been under taken by importing capital goods, it is supposed that most developing countries are subjected to foreign exchange constraints. Indeed, this was the origin of debt crisis and again the central focus of the adjustment policies. In consequence, there is a real limit on import capacity, resulting from foreign exchange shortfalls which are in turn caused by inelastic export supply, exogenous fluctuations in export prices, external credit rationing by international financial institutions and exogenous rise in interest rates on the outstanding debt (Fitzgerad, Jansen &Vos, 1992). This is the likely that for most developing countries, investment will be highly responsive to import capacity.

Credit availability and interest rate

Credit is defined as a means of facilitating the temporary transfer of purchasing power from one individual organisation to the other, Bernanke and Gertler, (1990).Many private enterprises in developing countries depend on credit to carry out their investment projects. The user cost of capital is an important factor in investment decisions by the private sector. When the user cost is generally raised by increasing the cost of bank credit through raising interest rate or by increasing the opportunity cost of retained earnings, which is the other main source of investment financing, investment declines (Jayaraman, 1996). Findings of various empirical studies are not, however, consistent. The negative influence of interest rates on investment is

confirmed by certain studies in developing countries (Greene &Villaneuva, 1991; Solimano1992).

However, studies by others (Serven&Solimano, 1985) have shown that, in the repressed financial markets in developing countries, credit policy affects investment directly through the stock of credit available to firms with the access to preferential interest rates, rather than through the interest channel. Thus institutional set up of the financial markets is an important factor for the transmission mechanism of the impact of monetary policy and credit policies on investment.

However, a clear consensus has emerged in recent years that, in contrast to developing countries, one of the principal constraints on investment in developing countries are the quantity, rather than the cost of credit. The rates of return on investment in developing countries are assumed to be quite high, whereas real interest rates in these countries deliberately repressed for the variety of reasons. In such imperfect financial markets, the investor is not expected to equate the current marginal product of capital to its service cost (Serven & Solimano, 1985). Indeed, because the total amount of financing is limited and the price mechanism is not allowed to operate freely, it is logical to argue that the level of available bank credit generally restricts the investment in developing countries.

An increase in real credit to the private sector encourages real investment as is confirmed by several empirical studies (Soderstein, 1992). Thus, institutional set-up of the financial markets is an important factor for monetary and credit policies to have significant effect on investment.

Public sector investment and private sector

Fiscal policy affects investment through budgetary imbalances (Matin & Wasow, 1992). Persistent physical deficits either push interest rates higher or reduce the stock of credit available to the investment. According to the empirical studies of Jayaraman (1996) cross-country analysis of six South Pacific Island countries, a reduction of budgetary deficits or running surplus has found to be encouraging investment. Another empirical works on developing countries by Khan and Reinhart (1989) has shown that, at the best, public sector investment in developing countries has no significant effect on investment. Findings of various empirical studies on the relationship between public and investment have, however, been conflicting.

While some say, for instance, Balassa's cross-sectional study (Sachs & Larrain, 1993) has shown that there exists a negative relationship between the two, Greene and Villanueva (1990) have found a positive association between public and private investments in their cross sectional study of 23 countries. Many empirical researchers have discovered that public investment that is related to the development of infrastructure and the provision of public goods is complementary to private investment. Public investment of this type can enhance the profitability of investment and therefore, raise the productivity of capital.

It also increases the demand for private output and augments over all resource availability by expanding aggregate output and savings (Stevens, 1997). In their empirical analysis of Kenyan economy, Matin and Wasow (1992) also found the positive relationship between public investment on infrastructure and private investment. In addition, they found that the failure

of controlling current expenditures adversely affected the resources that could have gone to public investment in infrastructure, which would have enhanced investment productivity.

Exchange rate

Exchange rate is the rate at which domestic currency can be converted into foreign currency. Exchange rate management has clear implications for investment. To correct the external imbalances from time to time, a real depreciation of domestic currency has been restored by developing countries under adjustment programmes. The empirical researches by Serven, (1990), Serven and Solimano, (1993) have identified three main channels through which a real depreciation can affect investment. They are the real cost of capital goods, real interest rate and real output.

A real depreciation leads to a rise in the import cost of capital, and thus, leads to contraction of non-tradable activities. The higher an economy relies on imported capital and intermediate goods, the greater will be the adverse impact of real depreciation on the level of the investment (Jayaraman, 1996). In the case of unanticipated devaluation as well as in the case of interest rates being determined by market forces, a devaluation of the currency raises the price level through a rise in the cost of imported capital and intermediate goods and put wage indexation under pressure (Krugman, 1997).

In these circumstances given the amount of money supply, real money balance will fall leading to an increase in interest rates. An increase in interest rates will decrease investment, the extent of the decrease being determined

by the interest elasticity of demand for investment (Dornbush, Fischer &Startz, 1998). Devaluation affects the output level by influencing the aggregate demand. Theoretical literatures and empirical studies tell us that the impact of real depreciation in the short-run will result in the contraction of demand. Accordingly, aggregate demand will be reduced. Chibber and Shafik (1992) made empirical analyses of the impact of devaluation on Indonesian economy.

They have found that devaluation in the short-run has adverse supply-side effect that leads to an output contraction through increased real costs. As a result, they found the effects of devaluation in Indonesia are contractionary and investment fell in the short-run. However, most of the literatures on both theoretical and empirical studies agree that, in the mid and long-term, if devaluation significantly increases the profitability of exports and thus, the volume of net export, is likely to increase output and investment as well. The supporting measures, needed to sustain for the positive medium and long effects of devaluation, are strong commitment to end uncertainties.

The effect of exchange rates on FDI has been examined with respect to changes in the bilateral level of the exchange rate between countries and also in the volatility of exchange rates (Blonigen, 2005). Froot and Stein(1991) present an imperfect capital markets story for why a currency appreciation may actually increase foreign investment by a firm. Imperfect capital markets mean that the internal cost of capital is lower than borrowing from external sources. Thus, an appreciation of the currency leads to increased firms in the foreign country that experiences the devaluation of their currency.

Froot and Stein (1991) provide empirical evidence of increased inward FDI with currency depreciation through simple regressions using a small number of annual US aggregate FDI observations which Stevens (1997) findings are quite fragile to specification. Klein and Rosengren (1994) however, confirm that exchange rate depreciation increases United State Foreign Direct Investment (USFDI) using various samples of USFDI disaggregated by country source and type of FDI. Blonigen (2005) implicitly assumes that exchange rate effects on FDI are symmetric and proportional to the size of the exchange rate movement. Using a dynamic panel data of 26 transition economies between 1990 and 1999, Garibaldi et al (2001) analysed a large set of variables which were divided into macroeconomic factors, structural reforms, institutional and legal frameworks. Their results show a significant relation between macroeconomic variables, such as inflation and exchange rate regime.

Loree and Guisinger (1995) studied the determinants of foreign direct investment in the United States between 1997 and 2002. Their results show infrastructure to be the most significant factor in determining FDI flows. They concluded that variables related to the host country policy were significant only when infrastructure was an important determinant factor. Generally, the larger the market size of the host country, the more attractive it is to FDI. A large market size is conducive to an increase in demand for products and services, allowing the achievement of economies of scale (Cleeve, 2004). Most of the studies in the literature suggest that the market size, proxies by real GDP or real GDP per capita, is found mostly to have a significant positive impact on FDI (Billington, 1999).

Holland et al (2000) reviewed several studies for eastern and central Europe, producing evidence of the importance of market size and growth potential as determinants of FDI. Tsai (1994) analysed the decades of 1970 and 1980 and addressed the endogeneity problem between FDI and growth by developing a system of simultaneous equations. Also, FDI was alternately measured as a flow and as a stock. Market size turned out to be more important for FDI flows than growth. Campos and Kinoshita (2003) use panel data to analyse 25 transition economies between 1990 and 1998.

They found FDI to be influenced by the low cost of labor and market size. Using panel data for 24 developing countries between the year of 1971 and 1985, Nair-Reichert and Weinhold (2001) found a positive relationship between FDI efficiency and a country's degree of trade openness. Interest rate is a measure of the cost of capital. A higher interest rate implies more costly investment and, therefore, the higher the interest rate, the more it is likely to defer FDI, and the relationship between FDI and the interest rate is expected to be negative. Love and Lage-Hidalgo (2000) and Erdaland Tatoğlu (2002), amongst others, found that an increase in the interest rate leads to a decrease in FDI.

Gross domestic product

GDP is the market value of all final goods and services produced within an economy in a given period of time. Several studies have shown that the importance of GDP in attracting FDI. Bitzenis et al (2009) indicated that, the economic variable such as GDP is considered as first order in determining FDI. In addition, Asiedu (2006) points out that the size of a country's market as measured by GDP is a key determinant of FDI inflows (2006). Blonigen

et al (2007) conduct a general examination of spatial interaction in empirical FDI models using data on US outbound FDI activity. As a result, they state that the traditional determinant of FDI such a host country's GDP has a strong positive and significant coefficient FDI (2007).

Rivoliand Salorio, (1996) examined the impact of government economic policy on investment in some 24 developing countries. The study found that the level of investment activity was related positively to change in expected real GDP, the availability of fund to investment (measured by change in bank credit in private sector and the level of private capital inflow and public investment). In addition, the empirical results also showed that investment was negatively related to excess productive capacity. The finding on the relation between gross domestic product and investment suggests that there is a long run complementary of private and public investment, but there is a sign of substitutability in the short-run. This is to mean in the short-run, public investment increase tends to crowd-out investment activity.

Greane and Villanuera (1991) also conducted empirical study of factors determining investment on 23 countries. The hypothesized factors to determine investment and included in the empirical analysis are real GDP, real interest rates, domestic inflation, the debt services ratio and the ratio of debt to GDP. The study has found that except real GDP, the remaining factors were negatively related with investment. O'sullivan (1993) studied determinants of investment in developing countries using modified version of flexible accelerator theory of investment with particular reference to developing countries, which are five in number. Separate equations for each country using the ordinary least square were estimated. The results show that

the coefficient of government intervention, change in bank credit to private sector, private sector output and net capital inflow to private sector are statistically significant and have the expected sign.

Interest rate

An interest rate is the rate at which interest is paid by a borrower for the use of money that they borrow from a lender. The relationship between interest rates and investment as portrayed by theory are varied and ambiguous when looked at as a whole. The marginal propensity of capital is determined by productivity and thrift, thus for any given profitability level, investment expenditure varied negatively with interest rate, implying investment projects are rated in order of the expected profitability, net of the cost of borrowing the funds to finance these projects. Matin and Wasow (1992) stated that high cost of interest rate contributed to low level of investment in Kenya, particularly after the coffee export boom in 1970s and the breakup of East African Common Market. The study also found out that other factors such as declining availability of credit to private sector, falling stock of infrastructure capital and the relatively low level of foreign reserve allocation to import relative to 1970s were behind the decline in the rate of investment in the 1980s in Kenya.

At a higher interest rate potential investors are discouraged from investing. Symmetrically, at a lower interest rate level, the economy becomes more attractive thereby, encouraging investors to invest more. Empirical tests have been less successful in establishing a robust negative relationship between interest rate and investment. Neoclassical theory suggests that high interest rates raise the cost of capital, which reduces the investment rate.

However, McKinnon (1973) and Shaw (1973) suggest that there could be positive relationship between investment and real interest rate, because higher rate of interest would increase savings, volume of domestic credit will increase as a result, and equilibrium investment will be higher. This hypothesis, known as McKinnon and Shaw hypothesis, is based on assumption that quantity of financial resources is main constraint on investment rather than cost of funds. In most African countries, nominal interest rates are high but real rates are often negative due to high inflation rates. In such a context, the interest rate can have a negative effect on investment only through the saving channel. Low or negative real interest rates discourage saving, which reduce the amount of funds available for investment.

Natural resources

A natural resource can be described as an asset or material that constitutes the natural capital of a nation. Asiedu (2013) in her study on natural resources, FDI and institutions established a negative relationship between natural resources and FDI. Satomi et al (2007) in their study on macro determinants of investment inflows to Japan found a positive relationship between source country size and investment because, larger economies imply greater availability of capital resources and intangible assets (technical knowledge and marketing expertise) that can be used to establish foreign production to meet consumer demand in a target country. Therefore, they suggest that countries with a large number of competitive multinational firms should be able to make larger investment in the international market.

Dunning (1970) also wrote on the determinants of US direct investment in Europe and found market size to be the most influential factor. Loree and Guisinger (1995) studied the determinants of investment in the United States and concluded that variables related to host country were significant in developed countries and that only infrastructure was an important determinant in all regions. A causality test between investment and product growth was proposed by Nair-Reichert and Weinhold (2001) based on panel data for 24 developing countries between the years of 1971 and 1985. The main conclusion here was that the relation between investments, whether foreign or domestic and product growth was strongly heterogeneous, and that investment efficiency was influenced by a country's degree of its natural resources.

Cheng and Kwan (2000) in their empirical evidence on governmental capabilities and resources found that governments are major source for economic restructuring and location attraction of inward foreign direct investment. For example, when the Chinese government launched an open door policy in 1993, it influenced positively on China to become the largest recipient of investment in the world followed by US. However, empirical literature concerning the impact of educational level on investment inflow is not yet conclusive. Cheng and Kwan (2000) argued that none of the education variables have a positive and significant effect on foreign direct investment. This argument was also supported by Cheng and Zhao (1995).

Foreign debt

Foreign debt means the money that one country owes to another country as a result of loans and or negative balance of trade. The presence of

large foreign debt burdens constitutes another source of uncertainty in the macroeconomic environment. A high foreign debt signifies that, part of the future returns on any investment must be used to service the existing stock of debt. A higher external debt level could be an indicator of over-indebtedness of external credit for investment financing, signalling the lack of viability and sustainability of macroeconomic policies in the long term, and most likely negatively impacting investors' expectations due to the increase in the degree of uncertainty on future policies.

Foreign debt may affect foreign direct investment in several ways; first, the size and timing of external transfers to the country's creditors may be uncertain as it depends on future levels of world interest rate, terms of trade, the purchasing power of exports, and the ability to reschedule debt. Thus, the level of the real exchange rate may deter investors from investing in the economy. Second, funds available for investment will be used to service the debt payment. This has the tendency to increase interest rates in the local markets as the government may resort to domestic borrowing to fund other activities.

The effect of foreign debt on FDI has been examined with respect to changes in the bilateral level of the foreign debt between countries and also in the volatility of foreign debt (Blonigen, 2005). Froot and Stein (1991) present an imperfect capital markets story for why a currency appreciation may actually increase foreign debt by a country. Imperfect capital markets mean that the internal cost of capital is lower than borrowing from external sources. Froot and Stein (1991) provide empirical evidence of increased

inward investment with foreign debt through simple regressions using a small number of annual US aggregate.

Klein and Rosengren (1994) however, confirmed that foreign debt decreases a country's ability to attract FDI.Blonigen (2005) implicitly assumes that foreign debt effects on investment are symmetric and proportional to the size of the exchange rate movement. Using a dynamic panel data of 26 transition economies between 1990 and 1999, Garibaldi et al (2001) analysed a large set of variables which were divided into macroeconomic factors, structural reforms, institutional and legal frameworks. Their results show a significant relation between macroeconomic variables, such as inflation and exchange rate regime. Loree and Guisinger (1995) studied the determinants of foreign direct investment by the United States between 1977 and 1982. Their results show infrastructure to be the most significant factor in determining FDI flows. They concluded that variables related to the host country policy were significant only when infrastructure was an important determinant factor. Generally, the larger the market size of the host country, the more attractive it is to FDI.

Trade openness

Trade openness is the ease with which cross-boarder trading activities takes place among countries. Campos and Kinoshita (2003) use panel data to analyse 25 transition economies between 1990 and 1998. They found investment especially foreign direct investment to be influenced by the low trade openness and market size. Using panel data for 24 developing countries

between the years of 1971 and 1985, Nair-Reichert and Weinhold (2001) found a positive relationship between FDI efficiency and a country's degree of trade openness. Interest rate is a measure of the cost of capital. A higher interest rate implies more costly investment and, therefore, the higher the interest rate, the more it is likely to defer FDI, and the relationship between FDI and the interest rate is expected to be negative. Love and Lage-Hidalgo (2000) and ErdalandTatoğlu (2002) amongst others, found that an increase in the interest rate leads to a decrease in FDI.

According to Benassy-Quere et al (2001) on the study of the impacts of trade openness on investment flows, the impact of trade openness on investment flows depends on the type of investment thus direct investment or vertical foreign direct investment. In the case of horizontal foreign direct investment, trade openness of the host country's exchange rate will have a positive impact on the flows it receives through reduced cost of capital and the appreciation of the local currency will also increase the flows because the local consumers will have a higher purchasing power. In the case of vertical foreign direct investment, an appreciation of a local currency has a negative effect on investment inflows because items produced locally are becoming expensive abroad.

The reduction in the trade openness, on the other hand, has a positive effect on investment inflows because the products are less expensive. Other authors such as Aliber (1993) also support this argument. The researcher stated that an increase in the trade openness of an economy will increase investment while a reduction in the trade openness through the restriction of the amount of importation will reduce foreign direct investment.

Nunnenkamp and Spatz (2002) examined a sample of 28 developing countries during the 1987 to 2000 period and found significant spearman correlations between investment flows and per capita GDP, risk factors, years of schooling, foreign trade restrictions, complementary production factors, administrative bottlenecks and cost factors. Population, GDP growth, firm entry restrictions, post-entry restrictions, and technology regulation all proved to be non-significant. However, when regressions were performed separately for the non-traditional factors, in which traditional factors were controlled for, only factor costs produced significant results and, even so, only for the 1997 to 2000 period.

Fiscal deficit

Fiscal deficit is an economic phenomenon where the government's total expenditure surpasses the revenue generated. Anyanwus's (1998) study of the economic determinant of investment in Nigeria shows the positive role of fiscal deficit in determining investment inflows into the country. This study noted that the abrogation of the indigenisation policy in 1995 significantly encouraged the flow of investment into the country and that more effort is required in raising the nation's economic growth so as to attract more foreign direct investment. Iyoha (2001) examined the effects of fiscal deficit on foreign investment inflows. The researcher showed that fiscal deficit attracts investment to Nigeria whereas inflation discourages it. The study confirms that unsuitable fiscal deficit discourage foreign investment inflows into the country.

Barthel et al (2008) in their study of the characteristics and determinants of investment in Ghana came out with factors influencing

foreign firm destination. They particularly based their studies on data retrieved from the World Bank 2007 enterprise service (616 firms were surveyed) and partly on their own survey of 54 multinational enterprises operating in Ghana. From their findings, the most important factors influencing the choice of Ghana as an investment destination is the macroeconomic and political environment and the most important macroeconomic and political factors influencing investment today are political stability with 33percent of the responses, followed by economic growth performance and exchange rate regime. The potential for growth of the Ghanaian market was the most important variable regarding the extent to which the market acts as a pull for foreign investment.

Conceptual framework

To achieve the objectives of the research, it is essential to provide a conceptual framework for the study. Figure 1 shows the conceptual framework for the study.The independent variables in this study are the gross domestic product, inflation, exchange rate, interest rate, natural resources, fiscal deficit, foreign debt and trade openness and the dependent variable is foreign direct investment.

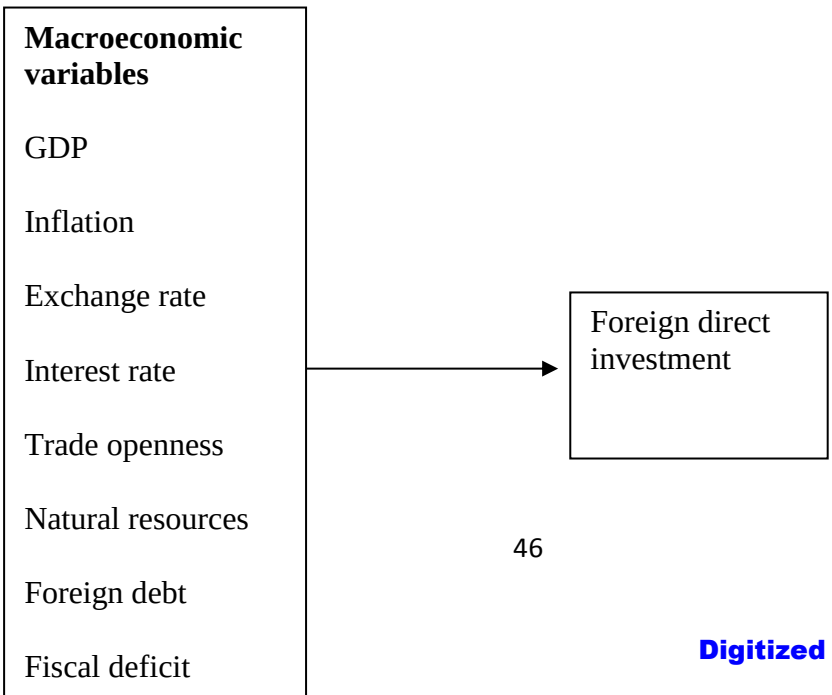

Figure 1: Conceptual framework

Source: Adapted from Shahzad and Al-Swidi, (2013)

The relationship between macroeconomic variable and foreign direct investment is such that they are inversely related as was noted by scholars like Nunnenkamp and Spatz (2002), Love and Lage-Hidalgo (2000) and Erdal and Tatoglu (2002). The relationship between the independent variables and the dependent is such that there is an inverse relationship between foreign direct investment and inflation and a positive relationship between foreign direct investment and exchange rate as indicated by Dornbush, Fischer and Startz, (1998).

In this study, the researcher expects inflation to affect foreign direct investment adversely with the relationship being statistically significant. This relationship is expected so as to meet the dictates of neoclassical and other FDI theories to investment in other to prove that whenever there is severe inflation in a given country, the level of investment can be grossly affected irrespective of the country in which the investment took place. Also, in this study the researcher rather expect a positive relationship between exchange rate, fiscal deficit, trade openness and the level of foreign direct investment.

Finally, Erdal and Tatoglu (2002) posit that, some researchers have found a direct relationship between natural resource, foreign debt and foreign direct investment. It is therefore clear from the empirical literature that earlier studies to determine the association between these variables have been

inconclusive. In this study, the researcher also expects a positive relationship between natural resources and foreign direct investment. Gross domestic product (GDP) and foreign direct investment (FDI) are expected to have a positive relationship. A statistical negative and significant association with the dependent variables will imply the existence of the scale inefficiency in Ghana's ability to generate more resources and products can send signals to those in foreign countries as to how financially viable Ghana can be and hence will be enticed to invest in the economy of Ghana .

Summary

This chapter produced an overview of the Ghanaian economy and also two theories of macroeconomics and investments. It was followed by the empirical review and the conceptual framework in which the implications of the empirical review were drawn.

CHAPTER THREE

METHODOLOGY

Introduction

This section presents the methods that the researcher used in executing the study by discussing the research design. It also discusses the sources of data collection, variables used, the time series regression model and the data analyses plan.

Research design

This study can be classified as causal in nature as it sought to explain the cause - and - effect relationships between macroeconomic variables and foreign direct investment. Due to the nature of the data, the time series model was adapted for the study. According to Park (2009) time series models examine group and individual-specific effects, time effects, or both. In addition, Akoto and Gatsi (2010) posit that, time series involves the pooling of observations several time periods. Therefore, since this study involves pooling of observation of units over a period of twenty years, it lends its self to time series form. This research involves the use of time series macroeconomic data, the vast majority of which are non-stationary at their levels.

The regression of non-stationary series on other non-stationary series is most likely to generate spurious regression results. There are two

techniques that can be employed to avoid spurious regression results: Co-integrating technique and transforming data to make it stationary before applying the classical regression techniques. All the variables in the model will be tested for their stationarity. Therefore issues such as co-integration which helps to examine the long run relationship between economic variables and short-run relationships are carried out. Besides, the model effectively addresses the objectives of the study. From this backdrop, almost all data used in this study were quantitative hence it becomes appropriate to classify the study as a quantitative research.

Data collection

This study uses quarterly data from 1993 to 2013 and involved only secondary data, specifically the macroeconomic variables and foreign direct investment. Two reasons informed the choice for secondary data for the study. Firstly the data required for the study could not be procured through primary source because the holders of the data were not willing to release the data. Secondly, the macroeconomic variables can be obtained from the Ghana Statistical Service. The data set for the study are classified into two categories; foreign direct investment from the National Investment Promotion Council (NIPC) and the macroeconomic data which was accessed from the data file of the Ghana Statistical Service (GSS).

Measurement of variables

Foreign direct investment (FDI) measured as FDI as a percentage of GDP.In other to ascertain the effect of macroeconomic variables on foreign direct investment, the variables used in this study are explained below:

Similar to most studies in this area, the inflation rate for Ghana is included, and is calculated as the percentage change in the consumer price index (CPI). This variable inflation (INF) is an indicator of the cost of doing business in an economy, and it is expected to be positively correlated with investment (Chirwa & Mlachila, 2004).

Macroeconomic instability is proxied by the variable exchange rate. This variable reflects the changes in interest and inflation rates in countries with freely-floating exchange rates. Exchange rate for each year was measured as the absolute monetary amount in the United State Dollars. Because increased macroeconomic instability increases the risk faced by an economy, exchange rate level is expected to be positively correlated with investment, as the individual in the economy increases their level of investment to protect against the increased risk.

The first macro-policy indicator, the interest rate (IR), is defined as the cost faced by commercial banks when borrowing from the central bank. Although declining in popularity, the interest rate is still used as a monetary policy instrument. Even more importantly, it is expected to be positively correlated with investment, as it increases the banks' cost of funds, which may be passed on to customers through higher investment.

According to Demirguc-Kunt and Levine (1998) the GDP ratio is estimated as the current GDP. This ratio reflects the overall level of development of the Ghanaian economy, and the level of inter-industry competition in a well-developed economy. This ratio is expected to have a negative correlation with the dependent variable investment, as an

improvement in the level of savings and investment in the development in Ghana.

Trade openness of the economy to foreign trade (X/M) was measured by the ratio of exports to imports (Erdal &Tataloglu, 2002). Additionally, the ease with which investors can move capital in and out of a country is also an important determinant of investment flows (Chakrabarti, 2001). That is, countries with capital controls and restrictive trade policies discourage inflows of investment, compared to countries with liberal policies. Most of the literature on investment in developing countries has identified a positive relationship between trade openness and the level of investment (Morisset, 2000). Openness considers the relation of host economies with the rest of the world.

The empirical literature has ascertained that open economies attract more flows than heavily protected economies (Amaya & Rowland, 2004). The authors use exports plus imports to GDP and exports plus imports as variables. Blocks to entry are anything that gets in the way of starting a business or entering a capital markets. For some capital markets, barriers to entry can become somewhat more complicated because of a natural process and government mandate. If investors come across many barriers to entry, they won't be willing to make investment. From these reviews, trade openness was measured by the total export divided by imports.

Previous studies show that the natural resource of a host country positively affects investment and that total income from the export of natural resource is used as a measure of natural resource. Jenkins and Thomas (2002)

observe resource-seeking investors will locate subsidiaries abroad to secure a more stable or cheaper supply of inputs, generally raw materials and energy sources. Morisset (2000) also shows that natural resource availability is very significant for the flow of investment to developing countries. In this study, a total export is used as a proxy for natural resources (NR) since about 90 percent of Ghana's exports consist of natural resources. A positive sign is expected for the estimated coefficient.

The effect of fiscal policy on investment can be analysed by looking at how fiscal deficits are financed, the composition of Public investment, and the level of government extremely debt. High government fiscal deficit, financed through domestic borrowing affect the amount of credit available to the private sector in two ways: first, government domestic borrowing raises the real interest rates and hence the cost of borrowing, and second, it reduces the amount of credit available to the private sector.

These two effects often lead to the crowding out of the private sector. As this occurs, joint ventures with foreign firms that largely depend on domestic borrowing will fall. Fiscal deficits may also signal high future taxation, thereby reducing the expected future rates of return on foreign investment and therefore the amount of repatriated profit. Also restrictive fiscal policy that leads to cuts in public sector investment in infrastructure which is an important determinant of foreign investment would adversely affect FDI flows (Jenkins & Thomas, 2002). Therefore, high government deficit is expected to negatively affect the inflow of FDI in Ghana. From this backdrop, fiscal deficit is measured as the annual total amount of fiscal deficit.

Foreign debt and its associated resource transfer to creditors is an important source of instability and uncertainty (Serven & Solimano, 1992).Large foreign and domestic debt stocks are likely to adversely affect the inflow of investment. This is because debt overhang signals the possibility of a fiscal crisis and future econometric policy reversals. Whether the debt service is financed by increased taxes or printing money. The ultimate impact is to reduce investment returns in this case; external debt is expected to take a negative sign. It was also measured as the total additional debt of the government of Ghana.

Testing for co-integration

This test examines whether some linear combination of the non-stationary series in the regression produces a white noise process or not co-integration can be tested in two ways. The lint is to run a regression and investigate the residual is integrated of a lower order than the other variables Thus in this respect the test is limited, and testing must be done by creating logical chains of bi-variate co integration hypothesis.

Other residual based tests try to solve at least the lint problem by adjusting the test statistics in the second step, so that it always fulfils the criteria for testing the null correctly. A better alternative to test for co-integration among more than to variables is offered by Johansen's test. We shall concentrate on the Johansen multivariate (VAR) approach because the model to be used in this study is a multivariate one.

Johansen's test for co-integration

This test is an error correction representation of the standard sector autoregressive (VAR) model. The Johansen (1988) and Johansen and Juselius (1990 & 1992) tests provide a procedure to examine the question of - ID a multivariate setting a two-step procedure is formulated and the standard Vector -VAR. model is of the form.

$$X_t = A_1X_{t-1} + \ldots\ldots\ldots\ldots..+A_tX_{t-1} + \mu + \Theta D_t + \varepsilon\ldots\ldots\ldots\ldots\ldots\ldots \quad (1)$$

Where we define X_t as a N*1 vector of the macro-variables of interest, μ is a vector of constants, D is a vector of dummies while e_t, is a vector of iid $(0, \Omega)$ error terms.

$$X_t = \Gamma_1\Delta X_{t-1} + \Gamma_{k-1}\Delta X_{t-k+1} + \prod X_{t-k} + \mu + \Theta D_t + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Where $\Gamma_{1 =} - (I - II_1\ldots\ldots\ldots\ldots\ldots\ldots\text{-}II_i)$; $I = 1\ldots k\text{-}1$;

$$\prod = - (I\text{-}II_1\ldots\ldots\ldots\text{-}II_k),$$

Where I is an identity matrix. The main task here is to investigate whether the coefficients contained in the $\prod$ matrix contain long run information. Taking the number of variables in the vector X_t to be N, and hence the number of equations in the VAR, and the rank of $\prod$ matrix to be r, three cases can be distinguished:

a) Rank $(\prod) = N = r$; this implies that the matrix has full rank and that the process X_t is stationary.

b) Rank $(\prod) = r = 0$; this implies that the $\prod$ matrix is null and hence equation (2) corresponds to the traditional differenced vector of time series variables, hence the variables are not co-integrated.

c) Rank (∏) = r < N but not zero, this is the interesting case where the ∏ matrix is less than the full rank. In this case the rank, r, is equal to the number of distinct co-integrated vectors linking the variables in, as such r is known as the co-integration rank.

The Johansen's test is better than the two-step procedure in almost all aspects. The practical problems originate from choosing a correct combination of lags and dummy variables to make the residual come out as white noise. In limited sample this can be difficult and the results might change among different specifications of the system, just as it does in the two-step procedure

The Johansen approach yield maximum likelihood estimation of the co-integrating, and also allows one to explicitly test for the number of co-integrating vectors without relying on an arbitrary The number of significant co-integrating vectors will help in determining the number of error correction terms which will appear in the error correction model.

Model specification

In order to find out the relationship between foreign direct investment and macroeconomic variables in Ghana, the researcher estimates the impact of gross domestic product growth, exchange rate, inflation and interest rate on foreign direct investment using the Vector Autoregressive model (VAR) model. This is specified as:

$$FDI=\beta_0+\sum_{i=1}^{P}\beta 1GDP_t+\sum_{i=1}^{P}\beta 2INF_t+\sum_{i=1}^{P}\beta 3EX_t+\sum_{i=1}^{P}\beta 4IR_t+\sum_{i=1}^{P}\beta 5FD_t+\sum_{i=1}^{P}\beta 6TO_t+\sum_{i=1}^{P}\beta 7FDT_t+\sum_{i=1}^{P}\beta 8NR_t+\varepsilon$$

where FDI is foreign direct investment and measured as a percentage of GDP, GDP is the gross domestic product growth, EX is exchange rate, INF is inflation, IR is interest rate, FD represents fiscal deficit, TO represents trade openness, FDT represents foreign debt, NR represents natural resources (NR), t is time, p is the optimal lagged length and ε is the error term assumed to be normally and independently distributed with zero mean and constant variance, which captures all other explanatory variables which influence economic growth but are not captured in this model.

THE VECTOR ERROR CORRECTION MODEL (VECM)

In a bid to avoid spurious regression results, some researchers run their regression on the first difference of non-stationary series. This is not advisable because all the information about the long run relationship among the variables at their levels is lost. The best solution therefore is to use an error correction mechanism which can help to capture both the long run and short run relationship among the variables According to the Granger representation theorem, "if a set of variables are co-integrated then there exists a valid error correction representation of the data". The ECM can either be constructed from the co-integrating equation or one can impose long run homogenerity directly and construct the ECM directly without estimating the parameters. These two scenarios yield the same and consistent parametric estimates. The error- correction model (ECM) is specified as follows;

$$LFDI=\sum_{i=1}^{4}\beta 0LFDI+\sum_{i=1}^{4}\beta 1\,LGDP_t+\sum_{i=1}^{4}\beta 2INF_t+\sum_{i=1}^{4}\beta 3\,LEX_t+\sum_{i=1}^{4}\beta 4\,LIR_t+\sum_{i=1}^{4}\beta 5\,LFD_t+\sum_{i=1}^{4}\beta 6LTO_t+\sum_{i=1}^{4}\beta 7\,LFDT_t+\sum_{i=1}^{4}\beta 8LNR_t+\mu_1+\delta ETl_{it}+\delta ET2_{it}+\Omega_{11}PIDD_1+\varepsilon \quad (3)$$

$$LGDP=\sum_{i=1}^{4}\beta 1LGDP_t+\sum_{i=1}^{4}\beta 0LFDI+\sum_{i=1}^{4}\beta 2\,LINF_t+\sum_{i=1}^{4}\beta 3\,LEX_t+\sum_{i=1}^{4}\beta 4LIR_t+\sum_{i=1}^{4}\beta 5LFD_t+\sum_{i=1}^{4}\beta 6\,LTO_t+\sum_{i=1}^{4}\beta 7\,LFDT_t+\sum_{i=1}^{4}\beta 8LNR_t+\mu_2+\delta ETl_{it}+\delta ET2_{it}+\Omega_{12}PIDD_1+\varepsilon \quad (4)$$

$$LINF=\sum_{i=1}^{4}\beta 2\,LINF_t+\sum_{i=1}^{4}\beta 1LGDP_t+\sum_{i=1}^{4}\beta 0LFDI+\sum_{i=1}^{4}\beta 3\,LEX_t+\sum_{i=1}^{4}\beta 4LIR_t+\sum_{i=1}^{4}\beta 5LFD_t+\sum_{i=1}^{4}\beta 6\,LTO_t+\sum_{i=1}^{4}\beta 7\,LFDT_t+\sum_{i=1}^{4}\beta 8LNR_t+\mu_2+\delta ETl_{it}+\delta ET2_{it}+\Omega_{13}PIDD_1+\varepsilon \quad (5)$$

$$LEX=\sum_{i=1}^{4}\beta 3\,LEX_t+\sum_{i=1}^{4}\beta 2\,LINF_t+\sum_{i=1}^{4}\beta 1LGDP_t+\sum_{i=1}^{4}\beta 0LFDI+\sum_{i=1}^{4}\beta 4LIR_t+\sum_{i=1}^{4}\beta 5LFD_t+\sum_{i=1}^{4}\beta 6\,LTO_t+\sum_{i=1}^{4}\beta 7\,LFDT_t+\sum_{i=1}^{4}\beta 8LNR_t+\mu_3+\delta ETl_{it}+\delta ET2_{it}+\Omega_{14}PIDD_1+\varepsilon \quad (6)$$

$$LIR=\sum_{i=1}^{4}\beta 4LIR_t+\sum_{i=1}^{4}\beta 3\,LEX_t+\sum_{i=1}^{4}\beta 2\,LINF_t+\sum_{i=1}^{4}\beta 1LGDP_t+\sum_{i=1}^{4}\beta 0LFDI+\sum_{i=1}^{4}\beta 5LFD_t+\sum_{i=1}^{4}\beta 6\,LTO_t+\sum_{i=1}^{4}\beta 7\,LFDT_t+\sum_{i=1}^{4}\beta 8LNR_t+\mu_4+\delta ETl_{it}+\delta ET2_{it}+\Omega_{15}PIDD_1+\varepsilon \quad (7)$$

$$LFD=\sum_{i=1}^{4}\beta 5LFD_t+\sum_{i=1}^{4}\beta 4LIR_t+\sum_{i=1}^{4}\beta 3\,LEX_t+\sum_{i=1}^{4}\beta 2\,LINF_t+\sum_{i=1}^{4}\beta 1LGDP_t+\sum_{i=1}^{4}\beta 0LFDI+\sum_{i=1}^{4}\beta 6\,LTO_t+\sum_{i=1}^{4}\beta 7\,LFDT_t+\sum_{i=1}^{4}\beta 8LNR_t+\mu_5+\delta ETl_{i-t}+\delta ET2_{i-t}+\Omega_{16}PIDD_1+\varepsilon \quad (8)$$

$$LTO=\sum_{i=1}^{4}\beta 6\,LTO_t+\sum_{i=1}^{4}\beta 5LFD_t+\sum_{i=1}^{4}\beta 4LIR_t+\sum_{i=1}^{4}\beta 3\,LEX_t+\sum_{i=1}^{4}\beta 2\,LINF_t+\sum_{i=1}^{4}\beta 1LGDP_t+\sum_{i=1}^{4}\beta 0LFDI+\sum_{i=1}^{4}\beta 7\,LFDT_t+\sum_{i=1}^{4}\beta 8LNR_t+\mu_6+\delta ETl_{i-t}+\delta ET2_{i-t}+\Omega_{17}\,PIDD_1+\varepsilon \quad (9)$$

$$LFDT=\sum_{i=1}^{4}\beta 7\,LFDT_t+\sum_{i=1}^{4}\beta 6\,LTO_t+\sum_{i=1}^{4}\beta 5LFD_t+\sum_{i=1}^{4}\beta 4LIR_t+\sum_{i=1}^{4}\beta 3\,LEX_t+\sum_{i=1}^{4}\beta 2\,LINF_t+\sum_{i=1}^{4}\beta 1LGDP_t+\sum_{i=1}^{4}\beta 0LFDI+\sum_{i=1}^{4}\beta 8LNR_t+\mu_7+\delta ETl_{i-t}+\delta ET2_{i-t}+\Omega_{18}\,PIDD_1+\varepsilon \quad (10)$$

$$LNR=\sum_{i=1}^{4}\beta 8LNR_t+\sum_{i=1}^{4}\beta 7\ LFDT_t+\sum_{i=1}^{4}\beta 6\ LTO_t+\sum_{i=1}^{4}\beta 5LFD_t+\sum_{i=1}^{4}\beta 4LIR_t+\sum_{i=1}^{4}\beta 3\ LEX_t+\sum_{i=1}^{4}\beta 2\ LINF_t+\sum_{i=1}^{4}\beta 1LGDP_t+\sum_{i=1}^{4}\beta 0LFDI+\mu_8+\delta ETl_{i-t}+\delta ET2_{i-t}+\Omega_{19}\ PIDD_1+\varepsilon \ldots\ldots\ldots\ldots\ldots\ldots..(11)$$

The advantage of the error correction model is that it does not put a priori restrictions on the model and that it separates long-run and short-run effects. One problem that can be encountered in estimating ECM is the choice of the appropriate lag structure of the variables in the model if different combinations of the lag produce white noise residual then the test for rival models will be used to select zero. If they are, we, reject the null hypothesis that "X" does not drive "Y" Secondly, we test the null hypothesis "Y" does not drive "X" by running the same regression as above, but switching X and Y. and testing whether the lagged values of Y are significantly different from zero to conclude that X drives Y, we must reject the hypothesis that "X" does not drive "Y", and accept the hypothesis that "Y" does not drive "X" By incorporating the error term in the Granger Non-Causality test we hope that attention will be paid to the long run information in the data in order to get more efficient estimates. Thus, the significant co-integrating vectors together with the lagged values of the variables will be used in a multivariate GNC test to determine which variables predict each other

In the next section, we determine the relative importance of each variable accounting for its own behaviour and that of the other variables in the system by performing the Forecast Error Variance Decomposition Analysis.

Forecast error variance decomposition

One method of assessing the predictive power of variables is the application of the Granger Non-Causality test. There is at least one serious drawback to this approach which arises because the right-band-side variables are not orthogonal. For this reason Sims (1972) focused on a different measure of predictive power, one that is constructed from a VAR with orthogonal residuals the percentage of the variance of the forecasted variable attributable to alternative right-band-side variables at different horizons. This is often referred to as the forecast error variance decomposition. The variance decomposition of a VAR give information about the relative importance of the endogenous variables.

Data preparation and analysis plan

The quantitative data from the data base of Ghana Statistical Service from 1993 to 2013 was used for the study. Data regarding the various macroeconomic variables were extracted from the Ghana Statistical Service database. These data were analysed and inference made about the study. Since the study is quantitative in nature, four main sections were considered for discussion under the analysis column. First, the descriptive statistics of the variables, co-integration, the multi-collinearity matrix and the results of the regression estimate of foreign direct investment and other factors nexus conclude the discussion.

CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

This chapter presents the discussion of findings of the study. The chapter is divided into three main sections. The first section deals with the descriptive statistics of the dependent and independent variables. The second section deals with the unit root test and the Johansen's Multivariate co-integration test. The model diagnostic test, the correlation matrix and the regression matrix of the data are dealt with in the third section.

Overview of the variables

The descriptive analysis of the current study and the selected macroeconomic determinants are illustrated in Table 1 below. In other for uniform figures to be presented, the coefficients for the descriptive statistic were reduced to one decimal place. For the purpose of the study, investment represented by foreign direct investment (FDI) was considered as the dependent variable while gross domestic product (GDP), inflation (INF), exchange rate (EX), fiscal deficit (FD), foreign debt (FDT), natural resource (NR), trade openness (TO) and interest rate (IR) were the independent variables. The measures of central tendencies of the macroeconomic indicators were estimated using mean and median along with the minimum and maximum while the measure of dispersion of the respective variables were estimated by standard deviation which reflects the variation of the observations from their average values. The normality of the variables was examined using, skewness, kurtosis and the corresponding Jarque-Bera test.

Table 1: Descriptive statistics for the variables

	FDI	FD	FDT	NR	TO	GDP	IR	INF	EX
Mean	2.1	16.3	11.2	3.9	3.89	5.6	26.3	14.9	1.68
Median	2.6	14.0	10.3	2.9	3.6	6.9	24.2	16.8	1.67
Maximum	3.3	18.0	21.1	5.2	4.8	7.5	34.3	28.4	2.35
Minimum	1.8	9.1	10.2	3.1	2.9	3.9	22.2	9.4	0.91
Std. Dev.	4.2	3.1	2.5	2.3	1.2	2.8	2.9	4.9	0.33
Skewness	-0.5	1.9	1.5	0.9	0.5	-0.0	0.9	0.8	0.34
Kurtosis	3.1	3.5	4.3	3.9	2.5	1.8	3.5	2.8	1.96
Jarque	4.5	5.6	2.2	0.1	4.2	3.2	4.8	3.0	5.16
Prob	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.08
Obs	80	80	80	80	80	80	80	80	80

Source: Field data, 2014

From Table 1, it is revealed that the average using the mean and the median value for the foreign direct investment (FDI) is 2.1 percent and 2.6 percent respectively. But since the skewness of FDI is negative, it means that the average is better measured with the median hence the average foreign direct investment (FDI) in Ghana is 2.6 percent of GDP. Again, the minimum and maximum statistics of FDI were 1.8 and 3.3 respectively. The high maximum value for FDI flows was due to extremely high FDI flows in the early 1990's, which marked a significant change in FDI flows in Ghana. A credible reason to this significant change in FDI flows in 1994 is the establishment of the Ghana Investment Promotion Council to develop and promote investment in the country.

As a regulatory body, the Ghana Investment Promotion Council promulgated laws to make the nation conducive to investment. Again, it was obvious that within this dispensation, the nation had reached an advanced stage in her exchange rate liberalisation process. If the situation is not controlled by the government of Ghana the level of financial deepening would decrease and might lead to the contraction of the general economy. The standard deviation measures how far or wide the data is from the average. The coefficients recorded for the foreign direct investment (FDI) variable was 4.2. This value is low so it implies that the recorded average is not wide from the respective values recorded for each period.

The average values for the natural resource (NR) showed that the variables make economic meaning and also indicates that the stability of Ghana in terms of the possession of sufficient resources is bright. The mean values for the natural resource (NR) indicate an average figure of 3.9 percent. This presupposes that Ghana's total values of natural resources are about 3.9percent of the total GDP. The sufficient natural resources make Ghana an attractive avenue for any investment. The reported standard deviation of 2.3 shows the data is not dispersed. This is in line with empirical studies which suggested that a country with a high level of natural resources is an attractive economy for investment and for that matter will attract a lot of foreign direct investment (Randall, 1998; Robinson, 2002).

The size of trade openness which is a direct measure of the ability of the country to attract foreign direct investment indicates an average of 3.89 meaning that Ghana allows foreign investors to enter its market to aid or better still boost the level of investment in Ghana. This implies that the

government of Ghana is more focused on their stability of the economy in terms of the ability of the country to increase the level of goods and services produced in the economy over a given period of time through the activities of investment.

From this backdrop, any investor willing to invest in the activities of Ghana can be confident of the openness of the country to export and import ventures. From the average values it can be said that, the trade openness in Ghana are large in size. The implication of these findings however is that, the level of trade openness has no deviations from their respective realities. The respective standard deviations clearly indicate that they are not dispersed because it recorded a standard deviation of 1.2.

The descriptive statistics for the macroeconomic variables suggest that, the interest rate, GDP and inflation of Ghana for the past year has been on the high side with an average of 26.3 percent, 5.6 percent and 14.9 percent respectively. The standard deviation of these variables indicates that they are not dispersed. This implies that any investment activity in Ghana is largely affected by the interest rate, GDP and inflation in such a manner that the level of investment in the economy will increase. This will intend increase the GDP and to some extent influence the foreign direct investment in Ghana.

With respect to the rate of inflation, the high average indicates a persistent increase in the cost of the goods and services. This is due to the volatility of the exchange rate because most of the consumed products used in the country are import driven. It is therefore not surprising that the average exchange rate for the twenty year period is around 1.68 thus the Ghana cedi

has depreciated grossly against the USA dollars which was used as a bench mark.

The skewness and the kurtosis were used to measure the normality of the data. The skewness measures whether the sample distribution is symmetrical or not. The kurtosis gives an indication on the tails of the sample distribution. It helps determine whether the data is normally, negatively or positively distributed. From Table 1 above, majority of the coefficient of skewness of the data are positively skewed. This implies that the distribution of the data has a long tail to the right meaning that most of the distributions are of positive values which can be validated from the values of the minimum and the maximum values.

But for the data to be considered as symmetrical the coefficients should be equal to zero or nearer to zero and as can be deduced from the table most of the coefficient of the variables are closer to zero with the exception of the natural resource and interest rate. In addition, the data is considered to be normal when the kurtosis of the distribution is equal to 3. Based on this, most of the data were not too remote from 3 therefore the distribution can be said to be normal. The Jarque-Bera compares the kurtosis and the skewness to know how normal the final output with a probability value. It has a null hypothesis that the data is normally distributed and this is rejected if its p-value is less than 0.05. From Table 1 all the variables used in the study have their probability values more than 0.05 therefore the null hypothesis is not rejected implying that the data are normally distributed.

Co-integration of macroeconomic factors with foreign direct investment.

Tables 2 and 3 show the results of the ADF tests for the stationarity of the variables at both their log levels and first differences respectively.

Table 2: Results of unit root test on lag levels

Variable	Statistic	lag	Order
LFDI	-2.7255	4	I(1)
LGDP	-9.3221	4	I(1)
LIR	1.0901	4	I(1)
LIF	-1.2431	4	I(1)
LTD	-1.9911	4	I(1)
LFTD	1.8827	4	I(1)
LNR	-2.8514	4	I(1)
LFDET	-1.3781	4	I(1)
LEX	-2.7312	4	I(1)

Source: Field data, 2014

To effectively access the co-integration of a data there is the need to estimate the order of integration of the individual time series. Test for unit roots were performed on all of the data using the Augmented Dickey-Fuller test with four lags in order to determine the stationarity of the variables that were considered for the analysis.

The null hypotheses is that the variable under investigation has a unit root, against the alternative that it does not.. The results of the ADF tests with constant and trend show that foreign direct investment (LFDI) was considered as the dependent variables while gross domestic product (LGDP)

inflation (LINF), exchange rate (LEX), fiscal deficit (LFD), foreign debt (LFDT), natural resource (LNR), trade openness (LTO) and interest rate (LIR) were all integrated of order one.

Table 3: Unit root test on 1st difference

Variable	Statistic	Prob.**	Order
D(FDI)	-4.1905	0.0000	I(0)
D(GDP)	-5.7466	0.0000	I(0)
D(IR)	3.0144	0.0000	I(0)
D(IF)	-2.7321	0.0000	I(0)
D(FD)	-4.8729	0.0000	I(0)
D(FDT)	-5.2244	0.0000	I(0)
D(TO)	-3.1306	0.0000	I(0)
D(NR)	-3.3781	0.0000	I(0)
D(EX)	-6.9022	0.0000	I(0)

Source: Field data, 2014

The reason is that the calculated values are less than the tabulated values, and therefore the researchers accept the null hypothesis of unit root in all cases. This implies that all the variables are non-stationary in levels. The variables therefore have to be differenced once to ensure stationary. Table 3 above reports the results for the ADF test on first difference of all the variables and from the results all the variable are stationary. The null hypothesis of a unit root is rejected for all of the time-series since the calculated value is more than the tabulated value in all cases. The researchers

therefore accept the alternative of no unit root in all cases. It is therefore clear that all the series are stationary after first differencing.

Estimation of co-integration between the variables and foreign direct investment

In this section, the researcher considered the results of the co-integration test and also analysed the error correction model. This aided the researcher to determine both the short and the long run relationships that may exist among the variables. Multi-variate co-integration test was performed using the Johansen approach to determine the number of significant co-integrating vectors. The co-integration test was conducted by assuming five endogenous variables in the model and also 3 lag lengths. The lag length of three was where the error terms produced a white noise process. This was arrived at after the VAR models was estimated with increasing lag lengths, saved the estimated residual, and performed both normality and serial correlation tests on these estimated residuals.

Table 4: Johansen co integration test results

Sample: 1993 to 2013

Series: L(FDI), L(GDP), L(EX),L(INF), L(IR)

Lag interval: 1 to 3

Eigenvalue	Likelihood Ratio	5 percent critical value	1 percent critical value	Hypothesized No. of CE(S)
0.31109	116.3114	86.67	96.58	None
0.25122	74.67211	62.57	70.05	At most 1*·
0.15497	32.12789	42.63	46.26	At most 2
0.09130	19.59465	23.32	30.45	At most 3
0.05531	8.345771	12.31	16.26	At most 4

Source: Field data, 2014 (*) denote the rejection of the hypothesis at 5 percent and 1 percent significance level.

Long run test indicates 2 co-integrating equations at 5 percent significance level. For the co-integration test, the null hypothesis suggests there are at most two co-integrating vectors and the alternative hypothesis also gives an indication that there are no co-integrating vectors. From Table 4 above, the null hypothesis of at most two co-integrating vectors is accepted in favour of no co-integrating vectors at the 1 percent significance level, since the calculated value of 32.12789 is less than the tabulated value of 46.26 (32.12<46.26). The study therefore accepts the null hypothesis against the alternative.

The estimated un-normalized co-integrating coefficients for the two co-integrating vectors are also shown in Table 5.

Table 5: Un-normalised co-integration coefficients

L(FDI)	L(GDP)	L(EX)	L(INF)	L(IR)
0.30	-5.91	-0.27	-0.46	0.36
0.12	1.41	-0.72	0.26	0.76

Source: Field data, 2014

These two rows of coefficients in the above Table were used to estimate or generate the two error terms. These two error terms were used in the general vector error correction (VEC) model which was reduced economically to obtain the preferred VEC model for each equation.

Correlation between the variables

The correlation matrix in Table 6 examines the possibility of multi-collinearity among the regressors as well as examined whether there was a

positive relationship between dependent variables and the independent variables.

Table 6: Correlations matrix of the variable used in the study

	FDI	FD	FDT	NR	TO	INF	EX	IR	GDP
FDI	1								
FD	-.435**	1							
FDT	-184**	.301**	1						
NR	.141*	-.197*	.284*	1					
TO	-.068*	-.518	-.626	-.038*	1				
INF	-.317*	-.447*	.279*	.362**	.214	1			
EX	-.008*	-.126*	.198*	-.039	-.516	-.311	1		
IR	-.211	-.261	.164	-.317	.078*	-.175	.323	1	
GDP	.372*	.341*	.037*	.152	-.422	.214	-.094*	-.271	1

Source: Fieldwork, 2014

This is important as it showed whether there is any relationship between the determinants of investment in Ghana. From Table 6, the pair-wise correlations are not quite high except that trade openness (TO) and foreign debt (FDT) had an inverse relationship of 62.6 percent suggesting that there is no multi collineariy problem between the two variables. This implies that, the two variables can be used in the analysis because they play important role in determining the level of investment in a given economy. The reason for this assertion is that, trade openness estimates the extent to which an economy allows its citizens to trade with the outside world as well

as how the outside world interact with that economy hence the more an economy opens its boundaries to trade, the more it attracts the rate of investment. The negative relationship with foreign debt implies that as an economy openness it boundaries for trade the more deficit the economy incurs.

From Table 6, it is observed that foreign direct investment has a statistically significant relationship with all the determinants with the exception of interest rate. The negative relationship between foreign direct investment and fiscal deficit implies that when the size of the fiscal deficit increases, their foreign direct investment reduces and when the size of a fiscal deficit is small it tends to increase their foreign direct investment. The reason for this phenomena is that countries with large fiscal deficit imply higher levels of liability responsibility which they have not been able to settle hence it sends a negative signal to the foreign investors that the country is unable to pay its external debt hence any investment of theirs could be in serious problem but would rather prefer to invest when the fiscal deficit reduces.

Foreign direct investment also established a negative relationship with foreign debt and inflation. The foreign debt is a nationwide indicator which measures the development of the country with its international partners. Though a high foreign debt signal's poor performance on the part of the country, it also indicates the level of confidence other developed partners have in the country. With the negative relationship it means that whenever there is an increase in the level of foreign debt, investment decreases to indicate that a high foreign debt discourages other foreigners from investing in the economy of Ghana.

The reduction in the level of investment by the foreigners can also be attributed to the competition which comes with the debt levels of countries. For instance if the debt level of Ghana is higher than that of Nigeria, any investor would like to invest in the Nigerian economy than Ghana due to the sought of confidence it might have in the economy of Nigeria than Ghana. It therefore implies that with low foreign debt, the level of investment will continue to increase because there are no competitions among the developing countries in terms of their foreign debt.

In relation to the level of inflation, when inflation increases it means that there is more money in the system which are causing the prices of goods and services to escalate hence the demand for funds for investment reduces so for the banks in any given economy to increase the demand for loans for investment activities, they would have to reduce the rate of interest. In the same vein, if the inflation reduces it means there is less money in the economy hence current and prospective investors would have to borrow fund leading to an increase in the demand for loans, all things being equal, with a low supply the level of investment would have to increase to bring it to equilibrium. This finding justifies the neoclassical theory which was reviewed in the literature.

From Table 6, foreign direct investment had a positive relationship with natural resource and gross domestic product. The relationship with natural resource implies that as the natural resource of the country increases the level of investment also increases and when the amount of natural resource of a country reduces, the level of investment in that economy also reduces. The reason for this outcome is that as the natural resource of an economy increases, investors spot investment opportunities in those economies and commit

resources into them with the expectation of a higher return in the future. A typical example is the discovery of oil in Ghana in 2007. This discovery has encouraged some foreign oil exploration companies to explore oil discovery activities in Ghana which has led to the discovery of more avenues in the Volta region of Ghana.

Again the positive relationship regarding the gross domestic product is because when gross domestic product which is also another country wide indicator feature increases, it means the citizens of that country are hardworking and for that matter whenever an investment activity is conducted in that economy, the expectation is a higher return. Gross domestic product also signals to prospective investors the viability of the country such that a higher gross domestic product signals high productive capacity of a country hence investment activities are likely to surge or increase.

Finally exchange rate recorded an indirect relationship with foreign direct investment which implies that whenever the exchange rate appreciates the lending rate of the banks in Ghana also reduces and whenever the exchange rate depreciates the level of investment decreases. The possible reason is that when exchange rate depreciates, it means that the country's currency has fallen in value in relation to the foreign currencies hence more of a local currency would have to be acquired to purchase a foreign currency. The import is that, there will be a high demand on the local currency hence any investor who invest in the economy of Ghana will have their return of investment lower if it should be translated into foreign currencies. On the other hand when the exchange rate appreciates it means that less of the local currency will be needed to obtain foreign currency hence the level of investment in the country will increase.

The relationship between the variables and foreign direct investment

Table 7: Regression for foreign direct investment as dependent variable

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.9612	0.9659	2.0405	0.0547
LGDP	1.0094	0.2913	3.4652	0.0024
LIR	-0.6687	0.2395	-2.7921	0.0080
LINF	-0.1771	0.0491	-3.6069	0.0012
LFD	-0.1380	0.5031	-3.6456	0.0125
LFDT	-15.4266	3.4264	-4.5023	0.0006
LNR	9.1620	3.1045	2.9512	0.0536
LTO	-0.0417	0.0118	-3.5348	0.0025
LEX	-0.0149	0.0097	-1.5342	0.1406

R-squared	0.7645	Mean dependent	2.5754
Adjusted R-	0.7413	S.D. dependent	2.9295
S.E. of regression	1.1602	Akaike info	3.4557
Sum squared	26.923	Schwarz criterion	3.5391
Log likelihood	-41.801	F-statistic	17.319
Durbin-Watson	2.1658	Prob(F-statistic)	0.0000

Source: Field data, 2014

The VAR model for examining the determinants of investment was estimated using the Ordinary Least Square (OLS). The OLS problem of heteroskedasticity was taken care of by the White approach. Considering the whole model, it was significant with F-statistics, 17.3 and p-value of zero.

The Durbin-Watson statistics of 2.1658 showed that there was no problem of autocorrelation in the model estimated because the cut off is 2. From the table, the explanatory variables accounted for about 76 percent of the total variation in the foreign direct investment. The constant of the regression is 1.9612 and it is significant at the 5percent. This means that if all the variables are equal to zero, the investment will be 1.96. From the results in the regression above the objectives and the regression of the study were addressed.

Effect of inflation on the level of foreign direct investment

The first objective of the study was to establish the effect that inflation has on the level of foreign direct investment in Ghana. From the results in Table 7, inflation is negatively associated with foreign direct investment and statistically significant at all conventional significant levels. This suggests that inflation affect the levels of investment in Ghana. This means as inflation increases, that is more money in the system which is causing the prices of goods and services to escalate, the demand for funds for investment reduces hence investors with excellent business ideas may not get the opportunity to access funds to start the investment process.

In the same direction, if the inflation reduces it means there is less money in the economy hence current and prospective investors would have to borrow funds leading to an increase in the demand for loans which will eventually translate into an increase in the level of foreign direct investment in Ghana. All things being equal, with a low supply the level of foreign direct investment would have to increase to bring it to equilibrium. This finding justifies the FDI theories of investment which was reviewed in the literature.

This result consistent with the result found by several studies such as Rivoli and Salorio, (1996) and Campa (1993), Pinkyck (1988) and Dixit and Pinkyck (1994), whose studies declared that the rate of inflation deters the entry of multinational firms due to the prospective losses in purchasing power or intrinsic value of their investment.

In addressing the first hypothesis, that "There is a relationship between inflation and the level of foreign direct investment in Ghana" a bench mark alpha of 5 percent is chosen. From the results in Table 7, the p-value was 0.0012 which is below 5 percent hence the hypothesis is rejected because the relationship established was a negative one implying that when the level of inflation increases in the economy, the level of foreign direct investment in the economy of Ghana reduces by 0.1771 decimal point or 17.71 percentage point. The reason for this result comes from the perspective that, as inflation increases the intrinsic value in every currency received reduces so an investor's returns for a given period of time turns to reduce in value.

Aside the reason provided, during inflationary periods, the prices of goods and services increases causing demand in goods and services to fall. This implies that any investor who invests during those periods would experience a downward trend in its performance. To prevent that experience, investors avoid investing during inflationary periods. This result is consistent with the findings of Blonigen (2005) whose work concluded that, a higher inflation leads to lower levels of investment and cause portfolio adjustments away from real money balance towards real capitals, hence a higher inflation would be expected to lead to a lower real investment and faster growth.

However, in the case of developing countries with under developing domestic capital and financial markets, the portfolio adjustment would most likely be from real money balance to real assets. Thus higher anticipated inflation in developing countries would be expected to lower investment. Again, inflation may serve as an indicator to the credibility of the authorities' commitment to stable macroeconomic environment.

Effect of interest rate on the level of foreign direct investment

In relation to interest rate, the coefficient of -0.6687 from Table 7which is statistically significant means that interest rate has a negative relationship with the level of investment through foreign direct investment. This implies that when interest rate increases, the level of investment reduces and when interest rate reduces the level of foreign direct investment tends to increase. The statistical significance means that, interest rate is an important variable which should be of concern if policy is to be developed by policy makers. The reason for this phenomenon is that countries with high interest rates are not able to attract high investment into their economies because the cost of borrowing becomes expensive.

The effect is that only few investors can afford the high cost of capital and would only invest if the expected return on their investment can override the cost of borrowing. Another reason is that, the cost of capital is an important factor in investment decisions worldwide such that when the cost of debt is generally raised through raising interest rate, which is the cost on debt capitals, investors are discouraged from investing (Jayaraman, 1996).

In addressing the hypothesis two that "there is a relationship between interest rate and the level of foreign direct investment in Ghana", the p-value from the regression result is compared to a 5 percent acceptable alpha. From Table 7, the probability of 0.0080 is less that 5 percent hence the hypothesis is rejected because the established relationship is negative. Linking this result to the empirical studies, this outcome is consistent with the findings of Greene and Villaneuva (1991) and Solimano (1992), who stressed that the interest rate inversely affect the investment because as the interest rate decreases the investment increase. The rates of return on investment in developing countries are assumed to be quite high, whereas real interest rates in these countries deliberately repressed for the variety of reasons. The researchers further indicated that foreign direct investment decisions generally are fraught with a great deal of risks, which calls for a great deal of caution and tact in this aspect of investment operations.

Effect of GDP and exchange rate on the level of foreign direct investment

The third objective sought to find the effect of GDP and exchange rate on the level of foreign direct investment in Ghana. The first to be considered was the GDP, the results in Table 7 shows that gross domestic product has a positive relationship with foreign direct investment. This means that as goods and services of a country increases, it translates into the level of investment because, whenever there is a growth in the production of goods and services in an economy there is an increase in the foreign direct investment activities in that economy. Gross domestic product gives signals to prospective investors the viability of an economy such that a higher gross

domestic product means high productive capacity of a country hence investment activities are likely to surge or increase.

The outcome of the study means that, whenever there is a development in the structure of the Ghanaian economy, the level of foreign direct investment decrease by about 1.0094 percent to indicate that there is development in terms of financial deepening and savings and investment. The reduction in the investment by the investors can also be attributed to the competition which comes with development in developing economies. Individual investors can invest in economies that have an increasing GDP in other to be sure of the success of their investment activities.

Juxtaposing these findings of other researchers, the current outcome is consistent with the findings reported by Blejer and khan (1984) who examined the impact of government economic policy on investment in some 24 developing countries. Their study found that the level of foreign direct investment activity was related positively to change in expected real GDP, the availability of fund to investment measured by change in bank credit in private sector and the level of private capital inflow and public investment. In addition, the empirical results also showed that investment was negatively related to excess productive capacity.

The findings of the current are also consistent with the outcome of Greane and Villanuera (1991) who also conducted empirical study of factors determining investment on 23 countries. In satisfying the hypothesis they found that factors that determine foreign direct investment include GDP, real interest rates, domestic inflation, the debt services ratio and the ratio of debt

to GDP. The study has found that except real GDP, the remaining factors were negatively related with investment.

With regards to exchange rate, the results show that the exchange rate is negatively associated with foreign direct investment and it is not statistically significant at all conventional significance levels having recorded a p-value of 0.1406 and a coefficient of -0.0149. This suggests that the exchange rate does not affect the levels of investment in Ghana. The implication of this result is that the exchange rate is not critical determinant of the foreign direct investment in Ghana as commonly perceived. Whilst macroeconomic stability has been long held to be a critical cause of investment levels, the current study has shown that the volatility of the exchange has no significant impact on the level of investment in Ghana.

In relation to the hypothesis for this objective, because GDP recorded a p-value of 0.0024 which is lower than 0.05, the hypothesis is not rejected because GDP has a positive effect on the level of foreign direct investment to the extent that a 1.0094 percent change in GDP will result in a direct change in the level of foreign direct investment. However that of exchange rate is not rejected based on the premises that the established negative relationship is not statistically significant at 5 percent.

Contribution of the control variables

The control variables used in the study were natural resource, fiscal deficit, foreign debt and trade openness. From the result, there is a negative relationship between foreign direct investment and fiscal deficit. The relationship is statistically significant at 5 percent because of the recorded

alpha value of 0.0125. The negative coefficient of -0.1380 imply that when the size of the fiscal deficit increases by that margin, foreign direct investment will reduce and when the size of a fiscal deficit is small it tends to increase foreign direct investment. The outcome of the study is consistent with that of Holland et al (2000) whose study reviewed several studies of Eastern and Central Europe, producing evidence of the importance of fiscal deficit and growth potential as determinants of foreign direct investment.

The reason for this phenomena is that countries with large fiscal deficit imply higher levels of liability responsibility which they have not been able to settle hence it sends a negative signal to the foreign investors that the country is not responsible enough hence any investment engaged in, could be in serious problem but would rather prefer to invest when the fiscal deficit reduces. This reason is not in line with what was provided by Matin and Wasow (1992) whose analysis concluded that, some home studies are limited in coverage, particularly on the recent private sector performance analysing macroeconomic variables. From that backdrop, they explained that two distinct periods which are both in ideology and in their development policy orientation were virtually different. The empirical study covered the period from 1975-1998. The period spanning 1975 to 1991 was the socialist, and the remaining period covering 1992-1998 has been the period with dramatic changes both in ideology and economic development policy orientation.

Furthermore from the analysis, foreign direct investment also established a negative relationship with foreign debt. The relationship was also statistically significant with a p-value of 0.0006, but the coefficient of -15.4266 shows that out of all the variables foreign debt's impact on foreign

direct investment is more than all the variables used in the study because a percentage change in foreign debt will cause the level of investment to reduce by about 15.4266 times. The outcome justifies the analysis provided by Garibaldi et al (2001) who indicated that a large set of variables were divided into macroeconomic factors, foreign debt, institutional and legal frameworks. Their results showed a significant relation between foreign direct investment and foreign debt. Loree and Guisinger (1995) studied the determinants of foreign direct investment by the United States between 1977 and 1982.

Their results showed infrastructure to be the most significant factor in determining FDI flows. They concluded that variables related to the host country policy were significant only when infrastructure was an important determinant factor. Generally, the larger the market size of the host country, the more attractive it is to FDI. In adding a new dimension to empirical studies, Blonigen (2005) who implicitly assumed that foreign debt effects on investment are symmetric and proportional to the size of the exchange rate movement used a dynamic panel data of 26 transition economies between 1990 and 1999.

The possible reasons to be assign to the consensus of the analysis is that, foreign debt is an indicator which measures the development of the country with its international partners. Though a high foreign debt signal poor performance on the part of the country, it also indicates the level of confidence other developed partners have in the country. With the negative relationship it means that whenever there is an increase foreign debt, the level of investment decreases to indicate that a high foreign debt discourages other foreigners from investing in the economy of Ghana.

Finally, foreign direct investment had a statistically insignificant positive relationship with natural resource with a coefficient of 9.1620. Because the relationship is not statistically significant, it needs no discussion but it is relevant to provide an explanation to the empirical findings. For the explanation, the relationship with natural resources implies that as the natural resource of the country increases the level of investment also increases and when the amount of natural resources of a country reduces, the level of investment in that economy also reduces. The reason for this outcome is that as the natural resource of an economy increases, investors spot investment opportunities in those economies and commit resources into them with the expectation of a higher return in the future.

Linking this to the studies by Loree and Guisinger (1995), it is not in line with their assertion that natural resource is a determinant of foreign direct investment because their study concluded that natural resources are not part of the determinants of investment in the United States. A causality test between investment and product growth was proposed by Nair-Reichert and Weinhold (2001) based on panel data for 24 developing countries between the years of 1971 and 1985. The main conclusion was that the relation between investments, whether foreign or domestic and product growth was strongly heterogeneous, and that investment efficiency was influenced by a country's degree of natural resources.

Determination of the causality among the variables

The Granger non-causality test was conducted on the first differences of the logarithm of the variables which were lagged four times. Trend was also introduced in the Granger Non-causality Test. This test helps to

determine the direction of causality among the five endogenous variables or the inter-links among them. The results of the Granger Non-causality test are shown in Table 8. The results indicated there is a unilateral directional causality between investment and gross domestic product growth, exchange rate and gross domestic product growth. Also, there is bidirectional causality between exchange rate and foreign direct investment, inflation and gross domestic product growth, trade openness and gross domestic product growth and trade openness and inflation.

Table 8: Pairwise granger causality tests

Null Hypothesis	**Obs**	**F - Statistic**	**P-Value**
GDP does not Granger cause FDI	80	0.3567	0.5561
FDI does not Granger cause GDP		4.2932	0.0137
INF does not Granger cause FDI	80	5.2384	0.0107
FDI does not Granger cause INF		3.3893	0.0432
IR does not Granger cause FDI	80	1.9048	0.3768
FDI does not Granger cause IR		0.2045	0.7831
EX does not Granger cause FDI	80	0.8974	0.3507
FDI does not Granger cause EX		0.7992	4.2923
FD does not Granger cause FDI	80	6.8921	0.0035

FDI does not Granger cause FD		1.9022	0.2912
TO does not Granger cause FDI	80	5.8921	0.0147
FDI does not Granger cause TO		4.8921	0.0376
NR does not Granger cause FDI	80	0.5783	0.8665
FDI does not Granger cause NR		0.4657	0.9916
FDET does not Granger cause FDI	80	3.9744	0.0533
FDI does not Granger cause FDET		3.9873	0.0345

Source: Field source, 2014

The following conclusions can be drawn from the Granger Non-causality test

1. There is a bi-directional causality between the gross domestic product and foreign direct investment
2. The rate of inflation and foreign direct investment predict each other.
3. The trade openness and foreign direct investments drive each other.
4. The fiscal deficit and foreign direct investment Granger-cause each other.
5. The foreign debt and foreign direct investment predict each other.

From the results in Table 8, policy implication can also be drawn from the macroeconomic variables in terms of their causal relationships identified above. Thus to control inflation in Ghana the government's policy must be directed towards the regulation of foreign exchange rates and the exploration of natural resources. Secondly, if government wants to stabilise the exchange rate market and boost investment in the economy from downward plunge depreciation of the domestic currency, their policies must be directed towards controlling domestic inflation rate through price control.

Also government can embark upon policies which will enhance the exploration of the natural resources and boost exports. This will lead to the appreciation of the domestic currency or improve the values of the domestic currency as more foreign exchange is arrested. Any attempt to control the investment market or the labour market to appreciate the value of the domestic currency may not work. This is because there is no direct relationship between the exchange rate market and the investment or labour market. Moreover for the government to attract more investors, then it should embark upon labour enhancing policies or improve the labour market. Manpower developmentpolicies such as training of more technically-skilled labour will be a step in the right direction. This will help to improve the real income of the people and in turn stimulate more foreign direct investment flow.

The government can also influence the foreign investment market through exchange rate market. Therefore, access to foreign exchange by foreign investors is very important. The liberalisation of the foreign exchange market through the establishment of private forex bureau is therefore a good policy change. The authorisation of foreign investors to operate foreign currency account with banks in Ghana under the Free Zones Act, 1995 (Act 504) will also enhance the possibility of foreign investors gaining access to foreign currency and this will stimulate foreign investment into the Free Zones enclave.

Also the unconditional transferability through any authorized dealer bank in freely convertible currency of dividends or net profits attributable to the investors, and the remittance of proceeds in the event of sale or liquidation

of the enterprise or any interest attributes to the investment as specified under the GlPC Act, 1994 (Act 478) will also boost investor confidence in terms of access to foreign currency. Also to boost the income level of the people, there is the need for policies that will enhance the exploitation of natural resources. Here, the revision of the investment code and the mining and minerals law in Ghana is a step in the right direction.

These will invite more investors into the extractive industry for the harnessing of our natural resources. The revision of the Ghana Land Policy and the Land title registration exercise currently going on will also boost the morale of investors and curb the numerous land litigations which scare and frustrate investors in Ghana. This will also eliminate the difficult accessibility to land for agricultural, industrial, commercial and residential development purposes due to conflicting claims to ownership and varied outmoded land disposal procedures. To enhance the exploitation of natural resources, there is the need to stimulate the inflow of FDI and also improve the income level of the people. Expansion and fiscal policies which will stimulate inflationary expenditures in Ghana will also improve the income level of the people by expanding output and therefore enhance natural resource exploitation. Lastly, for the government to increase the aggregate supply, then it must concentrate on policies that will fuel the rate of inflation such as expansionary fiscal policies.

Result of forecast error vector decomposition

The variance decomposition of VAR gives information about the relative importance of the random innovations. Appendix B reports the results of the Forecast Error Variance Decomposition of the five endogenous

variables at various quarters. From the impulse response results, it was noticed that the response of the growth rate of exchange rate due to any unanticipated changes in the growth of FDI and the rate of inflation were 0.28 percent and -2.06 percent over the five year period. The response of the growth rate of exchange rate to changes in the GDP and natural resources are less than 1 percent (negligible).

It can also be realised from the impulse response in appendix B that the response of growth in foreign direct investment over the period to unanticipated changes in the growth rate of exchange rate, growth of GDP, rate of inflation and natural resources growth are 8.56 percent,-0.021 percent, (0.09%) and (0.15%) respectively. Thus the growth of foreign direct investment responds more to fluctuations in the growth rates of GDP and exchange rate. The impulse response shows that changes in the growth rate of exchange rate and growth rate of natural resources have temporary effect on the growth rate of foreign direct investment in Ghana. However, changes in the growth rate of GDP and the rate of inflation have a permanent effect on foreign direct investment in Ghana.

The response of fiscal deficit over the period to unanticipated changes in the growth rate of exchange rate, rate of growth of FDI and the growth rate of natural resources are (-0.089%), (-1.26%) and (-0.14%) respectively. But the response of GDP growth to unanticipated changes in the rate of inflation is less than 1 percent (negligible). Moreover, the impulse response shows that innovations in the growth rate of foreign direct investment, the rate of inflation and the rate of growth of natural resources all leave a permanent

effect on the growth of real output. However, the innovations in the growth rate of exchange rate have a temporary effect on the rate of growth of GDP.

Similarly, the response of foreign direct investment to the growth rate of exchange rate, growth rate of foreign debt deficit, GDP and rate of growth of natural resources are 5.6 percent, 1.63 percent. 4.3 percent and 0.15 percent respectively. This implies that rate of inflation responds more to the rates of growth of natural resources and exchange rate, the impulse response graph of the rate of inflation to innovations in the growth rate of exchange rate and the growth rate of FD. The growth rate of GDP and the growth rate of natural resources have a permanent effect on the rate of inflation while changes in the growth rates of foreign debt deficit and exchange rate have a temporary effect on foreign direct investment.

Lastly, the response of growth of foreign direct investment growth rate of FD, growth rate of GDP and the rate of inflation are -25.30 percent, 2.15 percent and 1.84 percent respectively. This shows that the natural resource growth responds more to the growth rate of foreign direct investment and the rate of inflation. The effect of an unanticipated change in the growth rate of exchange rate on the growth rate of natural resource is less than 1 percent (negligible). The impulse response shows slight innovations in the growth rate of FDI, growth rate of GDP, and rate of inflation have a permanent effect on the growth rate of natural resources. However, innovations in the growth rate of exchange rate have a temporary effect on the growth rate of natural resources.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

The role that investment activities play in the economic development cannot be overemphasised. Principally, investment helps reduce the mass unemployment in the economy, enhances financial deepening and increases the standard of living and at the same time reducing the cost of living of every economy. Based on this it becomes relevant in studying the effect that the fluctuations in the macroeconomic variables have on the level of investment activities in Ghana. This chapter provides the summary, conclusions and policy implications of the study. The first section summarizes the entire thesis work done which is followed by the research findings. The conclusion of this chapter considers the policy implications and areas of further research.

Summary of the study

The current study investigated the effect of macroeconomic factors on investment in Ghana. The principal objective of this study was to empirically analyse the effect of macroeconomic variables on investment in Ghana. Specifically, the study was to examine the effect of inflation on the level of investment in Ghana; examine the influence of interest rate on the level of investment in Ghana; determine the effect of GDP and exchange rate on the level of investment; establish whether any of the variables used co-integrate with investment and recommend for consideration by policy makers the factors that impacts on investment. The purposive sampling technique was used to purposely select data from Ghana statistical data base from 1993 to 2013 to constitute the sampling frame for the study while the causal research design was adopted with VAR model used in the analysis.

In this study, some elements of the neoclassical and other FDI theories on investment were used to develop a dynamic simultaneous equation model. Multivariate co-integration test was performed using the Johansen approach to determine the number of significant co-integrating vectors and also to estimate the error correction model in order to capture both the short run and long run relationships that may exist among the variables. The system was estimated simultaneously by using the Full Information Maximum Likelihood (FIML) method.

The study revealed that the average value of the foreign direct investment (FDI) as a ratio to GDP was 2.1 percent and 2.6 percent respectively which is compared to the statistics recorded by the country in time past. In addition, the average values for the natural resource (NR) showed that the variables make economic meaning and also indicates that the

stability of Ghana as a nation if the resources are used diligently while the size of trade openness which is a direct measure of the ability of the country to remain in competitive in issues of investment, indicates an average of 3.9 percent meaning that Ghana allows foreign investors to invade their market to aid or better still boost the level of investment in Ghana. The mean values for the natural resource (NR) indicate an average figure of 3.9 percent. Finally for the macroeconomic variables, the interest rate, GDP and inflation of Ghana for the past year has been on the high side with an average of 26.30 percent, 5.6 percent and 14.9 percent respectively.

The unit root test for the levels of the endogenous variables shows that the data were non-stationary and therefore they had to be differenced once to make them stationary because they were all integrated of III order. The results of the co-integration test with trend also show that there are two significant co-integrating vectors at the 5 percent significance level. The co-integrating vectors were used in the error correction model which was estimated in the general form and then reduced parsimoniously to obtain the preferred model. It was also noticed that the exchange rate can disturb the equilibrium condition in the market.

With exchange rate, the determinants are the rate of inflation, natural resource growth and the real output growth. Foreign direct investment equilibrium is determined by the rate of growth of the exchange rate and real output growth. The real output is positively related to the FDI in the long run. Sustained growth in real output will stimulate foreign direct investment in Ghana. Also, real depreciation of the local currency affects foreign direct investment negatively through its effect on the real cost of capital and real

output. The rate of inflation is also determined by the rate of growth of the exchange rate, the rate of growth of foreign direct investment, the natural resource growth and the rate of growth of real output. The rate of growth of the exchange rate, the rate of growth of foreign direct investment and the rate of inflation are also seen as the long run determinants of the rate of growth of real output in the labour market. Lastly, the growth rate of the exchange rate and the rate of inflation were found to be the long run determinants of the natural resources.

The Granger non-causality test was also conducted to determine the direction of causality among the endogenous variables. The conclusions from the results obtained were that there was high-directional causality between the GDP of the exchange rate and the rate of inflation. Also, the rate of inflation and the GDP of real output predict each other. Similarly, there is a bi-directional causality between exchange rate and natural resources, the rate of inflation and natural resources as well as the trade openness and the growth rate of natural resources. There was uni-directional causality between the growth rate of the exchange rate and the growth rate of foreign direct investment. The level of fiscal deficit and the growth rate of foreign direct investment, and lastly, the growth rate of foreign direct investment and natural resources.

The results from the correlation matrix concluded that there was an inverse relationship of 0.62 between openness (TO) and foreign debt (FDT). Because it was the highest coefficient recorded it turns to suggest that there was no multi-collineariy problem. This implies that, the two variables can be used in the analysis because the two variables play important roles in

determining the level of investment in a given economy. In addition it was found that, there was a negative relationship between foreign direct investment and fiscal deficit which implies that when the size of the fiscal deficit increases, their foreign direct investment reduces and when the size of a fiscal deficit is small it tend to increase their foreign direct investment.

The regression results, the Durbin-Watson statistics of 2.1659 showed that there is no problem of autocorrelation in the model estimated because the cut off is 2 while the explanatory variables explained the dependent variable by 76 percent. In answering the first objective, the result showed that inflation was negatively associated with foreign direct investment and statistically significant at all conventional significant levels. But the outcome was not consistent with the result found by several studies such as Rivoli and Salorio, (1996) and Campa, (1993), rooted in the work of Pinkyck (1988) and Dixit and Pinkyck (1994). The hypothesis to that effect was rejected because the p-value of 0.0012 is below 5percentwhile the relationship established was also a negative one implying that when the level of inflation increases in the economy the level of foreign direct investment decreases.

In relation to the second objective, the coefficient between interest rate and foreign direct investment was -0.6687 which is statistically significant meaning that interest rate has a negative relationship with the level of investment through foreign direct investment. Linking this result to the empirical studies, this outcome is consistent with the findings of Greene and Villaneuva (1991) and Solimano (1992). With regards to the hypothesis, the p-value from the regression result was compared to a 5percent acceptable

alpha. From result, the probability of 0.0080 is less that 5 percent hence the hypothesis is rejected because the established relationship is negative and not positive.

The third objective sought to find the effect of GDP and exchange rate on the level of investment in Ghana. The first to be considered was the GDP. From the results, gross domestic product had a positive relationship with foreign direct investment with a coefficient of 1.0094. With regards to exchange rate, the results showed that the exchange rate was negatively associated with foreign direct investment and it is not statistically significant at all conventional significance levels having recorded a p-value of 0.1406 and a coefficient of -0.0149.

From the control variables perspective, foreign direct investment also established a negative relationship with foreign debt and trade openness. The negative relationship means that whenever there is an increase in the foreign debt level of Ghana the level of investment decreases to indicate that a high foreign debt discourages other foreigners from investing in the economy of Ghana. Finally, foreign direct investment had a positive relationship with natural resource and fiscal deficit. The relationship with natural resources implies that as the natural resource of the country increases the level of investment increases and when the amount of natural resource of a country reduces, the level of investment in that economy also reduces. The positive relationship regarding the gross domestic product is because when gross domestic product which is also a country's wide indicator feature increases the citizens of that country are perceived to be hardworking and for that

matter investment activity booms in that economy, with the expectation of higher return.

From the result of the variance decomposition test, the rate of inflation is the most important variable in controlling the exchange rate fluctuations. For the foreign direct investment, the real output is the most important variable in explaining its variations. The rate of inflation is also the most important variable in explaining the fluctuations in real output. The compulsion response functions were also used to trace the effect on current and future values of the endogenous variables to one standard deviation shock in one of the innovations of the endogenous variables in the current period. It was realised that innovation to the endogenous variables generally produces a permanent effect in the system.

The results indicated that changes in the growth rate of FDI, the growth rate of real output, the rate of inflation and the growth rate of natural resources all have a permanent effect on the growth rate of the exchange rate. Also, innovations in the growth rate of the exchange rate, the growth rate of real output, the rate of inflation and the growth rate of natural resources have permanent effect on the growth rate of foreign direct investment m Ghana.

The rate of exchange rate, trade openness, the rate of inflation and the growth rate of natural resources all have permanent effect on foreign direct investment. The impulse response of the rate of inflation to growth rate of FDI, the level of fiscal deficit, and the growth rate of natural resources indicated that fluctuations in these variables have permanent effect on the rate of inflation. However, the impulse response of the growth rate of natural

resources showed changes in the rate of FDI, the GDP, and the rate of inflation which have a permanent effect on the natural resources while the growth rate of the exchange rate has a temporary effect on the growth rate of natural resources

The domestic interest rate also had no effect on the growth rate of the exchange rate, the growth rate of real output, the rate of inflation, the growth rate of foreign direct investment as well as the growth rate of natural resources. Foreign debt, however, had a positive significant impact on the growth rate of real output and the rate of inflation and a negative significant impact on the growth rate of foreign direct investment but no effect on the growth rate of the exchange rate. Fiscal deficit had no effect on the growth rate of real output, the growth rate of the exchange rate, the rate of inflation, the growth rate of foreign direct investment as well as the growth rate of natural resources.

Conclusions

The main conclusions of the present study are first, the growth rate of the exchange rate and the growth rate of real output are the main long run determinants of the growth rate of FDI flow in Ghana. Also, the growth rate of the exchange rate and the rate of inflation are the long run determinants of the growth rate of natural resources. Secondly, there is bi-directional causality between the rate of inflation and the GDP, the growth rate of the exchange rate and the growth rate of natural resources, the rate of inflation and the growth rate of natural resources, the growth rate of exchange rate and the rate of inflation as well as the growth rate of real output and the growth rate of natural resources. However, there is uni-directional causality between

the growth rate of the exchange rate and the growth rate of FDI, the growth rate of foreign direct investment and the growth rate of natural resources as well as the growth rate of FDI and the growth rate of real output. But the FDI and the rate of inflation do not predict each other and also the growth rate of the exchange rate and the growth rate of real output do not Granger-cause each other.

Thirdly, disequilibrium in any market affects the equilibrium position in the remaining markets in the system. Fourthly, the result of the variance decomposition test shows that the rate of inflation is the most important variable in controlling the exchange rate fluctuations. For the foreign direct investment, the GDP is the most important variable in explaining its variations. The rate of inflation is also the most important variable in explaining the fluctuations in interest rate. Most of the variations in the rate of inflation are also explained by the interest rate. For the natural resources, the exchange rate is the most important variable controlling its fluctuations.

Finally, the findings are also consistent with the literature suggesting that foreign direct investment depends on real output growth and the exchange rate. For example, the studies by Bajurbio and Sosviua-Rivero (1994), O'Sullivan (1993), Wang and Swain (1995) confirmed that FDI is positively related to GDP while the studies by Blonigen (2005) concluded that foreign direct investment is inversely related to the exchange rate. The study by Amartey (1998) on Ghana has established that the growth rate of exchange rate is positively related to the rate of inflation and the growth rate of real output.

The other main analysis of this study is the estimation results using the regression of the determinants of macroeconomic variables on investment. The results of this study provided some support for the hypothesis that investment rates in Ghana are affected by important macroeconomic variables. The econometric tests under taken support the view that GDP, fiscal deficit, foreign debt, natural resource, exchange rate and to a lesser extent government budget deficit and inflation have all been significant determinants of investment rates in Ghana during the period 1993 to 2013.

Of these variables, the GDP, natural resources and trade openness appeared to have a significant positive impact on investment while exchange rate and inflation to a lesser extent had a negative effect. These results suggested that public sector investment has been substituting the private sector in Ghana as opposed to most of the empirical findings on investment in other developing countries, due to the fact that the majority of the years included in the regression have fallen in the period where investment was used to establish state-owned enterprises. Hence, the twenty year period, which featured by the above, mentioned situation outweighed the possible positive impact of the investment.

The other interesting results from the estimation are the significant negative effect of real exchange rate in Ghana. The period 1993 to 2013 used to be the period of multiple and overvalued exchange rates, while the period 1993-1998 has been the period of devaluation and gradual adjustment of the official rate to parallel market rate.

Both periods tell us most likely possible negative influence of exchange rate, which again confirmed by the regression results. This is because, over valuation act as tax on exports which reduces the return on investment, on the other hand devaluation in short-term have a negative impact on tradable goods through increasing the cost of imported capital goods as the county highly depends on import for raw materials, as well as intermediate goods.

The impact of inflation rate on investment is moderate in Ghana as can be seen from the estimation results. These results have confirmed that the Ghana has a relatively low inflation rate compared to other Sub-Sahara African countries. Lastly, the estimation results has confirmed that resource constraints captured by GDP and foreign exchange reserve availability to private sector highly and significantly influence private investment rate in Ghana. Therefore, developing more effective policy measures that can affect these macroeconomic variables will help promote and strengthen private sector investment activity, thereby raise the long-term rate of economic growth.

The growth rate of GDP positively related to the rate of inflation and the growth rate of the exchange rate. Also, the rate of inflation is positively related to the growth rate of the exchange rate and the growth rate of real output. The growth rate of real output and the rate of inflation were also found to drive each other as well as the growth rate of the exchange rate and the rate of inflation. This study extends the work of other researchers by introducing the FDI and natural resource constraints into the dynamic model and it was realised that GDP is inversely related to the growth rate of the

exchange rate, the growth rate of foreign direct investment and positively related to the rate of inflation. The growth rate of the exchange rate is positively related to the rate of inflation, the growth rate of natural resources and the GDP. The rate of inflation is also negatively related to the growth rate of the exchange rate, the growth rate of FDI, growth rate of natural resources and the growth rate of real output

In this work it has been established that the growth rate of investment is also an important determinant of the GDP of Ghana. Also, the growth rate of natural resources was found to influence the foreign direct investment. The growth rate of FDI and the growth rate of natural resources were also found to influence the growth rate of inflation in Ghana. In addition, the growth rate of the exchange rate, the growth rate of GDP, the rate of inflation are all driven by the growth rate of natural resources in Ghana. The growth rate of foreign direct investment is also driven by the trade openness, fiscal deficit and foreign debt.

Recommendations

In order to control inflation in Ghana, the government's policies must be directed towards the regulation of the fiscal deficit and foreign exchange and the exploitation of natural resources. Increase in productivity will also improve the purchasing power of the people which will stimulate the inflow of foreign investment to exploit more of the natural resources in Ghana. The exploitation of natural resources will boost the export sector and improve the foreign exchange earnings. The increase in foreign exchange earnings will also increase the demand for the domestic currency which will tend to

appreciate the domestic currency and improve the performance of the foreign exchange market.

This is supported by the variance decomposition result which showed that the growth rate of real output was the most important variable in controlling the fluctuations in the rate of inflation, followed by the growth rate of the exchange rate and the growth rate of the natural resources Secondly, if the government wants to stabilise the exchange rate market from downward plunge (depreciation of domestic currency), then policies must be directed towards controlling domestic inflation rate. Also government can embark upon policies which will enhance the exploitation of the natural resources and boost exports. This will lead to the appreciation of the domestic currency or improve the value of the domestic currency as more foreign exchange is attracted.

From the result, foreign direct investment, the exchange rate and trade openness encouraged the current foreign direct investment inflows in Ghana while previous records of gross domestic product growth and inflation, the last two years of foreign direct investment and exchange rate and the last year's trade openness encouraged the current foreign direct investment inflows. However, the foreign debt, exchange rate and trade openness encouraged foreign direct investment inflows which were statistically significant. Therefore, policies that encourage foreign direct investment, moderate exchange rate depreciation, increasing trade openness should be implemented. Also, for the government to attract more investors, then it should embark upon reducing the foreign debt and the fiscal deficit as well as instituting labour enhancing policies or improve the labour market.

Manpower development policies such as training of more technically-skilled labour will be a step in the right direction. This will help to improve the real income of the people and in turn stimulate more foreign direct investment flow.

Fourthly, the government can also influence the foreign direct investment market through the exchange rate market. Therefore, access to foreign exchange by foreign investors is very important. The liberalisation of the foreign exchange market through the establishment of private forex bureau is therefore a good policy change. The authorisation of foreign investors to operate foreign currency account with banks in Ghana under the Free Zones Act, 1995 (Act 504) will also enhance the possibility of foreign investors gaining access to foreign currency and this will stimulate foreign investment into the Free Zones enclave. Also the unconditional transferability through any authorised dealer bank in freely convertible currency of dividends or net profits attributable to the investors, and the remittance of proceeds in the event of sale or liquidation of the enterprise or any interest attributes to the investment as specified under the G.I.P.C Act, 1994 (Act 478) will also boost investor confidence in terms of access to foreign currency.

To boost the income level of the people, there is the need for policies that will enhance the exploitation of natural resources. Here, the revision of the investment code and the Mining and Minerals law in Ghana is a step in the right direction. This will attract more investors into the extractive industry for harnessing of our natural resources. The vision of the Ghana Land Policy and the Land title registration exercise currently going on will also boost the

morale of investors and curb the numerous land litigation which scares and frustrate investors in Ghana. This will also eliminate the difficulty in accessing land for agricultural, industrial, commercial and residential purposes due to conflicting claims to ownership, and varied outmoded land disposal procedures.

To enhance the exploitation of natural resources, there is the need to stimulate the inflow of FDI, and also improve the income level of the people. Expansionary fiscal policies which will stimulate inflationary expenditures in Ghana will also improve the income level of the people by expanding output and therefore enhance natural resource exploitation. Lastly, for the government to increase the aggregate supply, then it must concentrate on policies that will fuel the rate of inflation such as expansionary fiscal policies so that producers are more responsive to price changes. On the issue of foreign direct investment policy in Ghana, the following recommendations are put forward.

There is the need for more locational incentives to attract foreign investment to the deprive areas. There is also the need for strategic structure and regional/district level incentive packages to encourage investment into the non-attractive regions. To correct this regional imbalance in the distribution of investment projects, it is suggested that the Social Security and National Insurance Trust (SSNIT) must be encouraged to extend the type of industrial parks being developed in the Greater Accra Region to the other regional capitals to help spread investments.

There is the need to revise the Land Policy in Ghana to reflect current investment trends and also avoid the number of land litigation pending in courts which tend to scare and frustrate investors in Ghana. In Ghana, land is controlled by communal groups and mechanisms have not been developed to provide secure access to private companies. Also, where land is held privately, lack of clear conveyance and titling mechanisms can impede acquisition by investors. There is the need for policy to convert communal lands to freehold land for foreign investors. The governments need to find ways to give foreign firms secure access to agricultural land.In a nut shell, the Government of Ghana must implement policies that will encourage foreign direct investment, moderate exchange rate depreciation, and increasing trade openness.

Further research

Future research in Ghana could take several directions. First, analysing the effects of macroeconomic factors and non-policy variables on FDI would complement the findings of this study and provide a more complete, view of the determinants of FDI in Ghana. Secondly, future research could look at the effects of FDI on trade balance or could focus on the analysis of the spill-over effects associated with the presence of FDI in Ghana, that is, the cost-benefit analysis of FDI in Ghana. Also future research can consider the sectorial approach to this study-using disaggregated method-to study the determinants of FDI in Ghana. Finally, research on the impact of FDI on capital formation, employment and productivity growth in Ghana would be valuable.

There is also the need for strategic structures and regional/district level incentive packages to encourage investment in the non-attractive regions. In addition, there is the need for locational tax incentives for regional investments and to encourage and promote investments in the northern regions of Ghana.

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APPENDICES

APPENDIX A

DATA ANALYSIS EXPLANATIONS

For the data to be analysed effectively, unit root analysis and stationary. Before estimating any of the regressions proposed in this research, it is necessary to determine whether or not the (continuous) variables in each equation are stationary. Variables that are not stationary must be differenced the appropriate number of times in order to render them stationary. To investigate this issue, the researcher applied the panel Lagrange multiplier (LM) unit root test of investment, Lee & Tieslau (2010), hereafter ILT.

This test is superior to all existing panel unit root tests because it allows for breaks in both the level and trend of a series, under both the null and alternative, and the test statistic is not dependent on the nuisance parameter indicating the break-point location. The choice of the ILT test when checking for unit roots is ideal since Perron (1989) showed that there can be a significant loss of power when testing for a unit root if one ignores existing structural breaks. When compared to other alternative panel unit root tests, the ILT test delivers a significant improvement in power. In addition, the ILT test allows for serially correlated errors and cross-correlation across panel.

The ILT test begins by expressing a time series variable in its unobserved components form, following Schmidt and Phillips (1992), contains deterministic terms such as an intercept and a time trend. ILT extend this model so that can include intercept dummy variables to indicate level

shifts and slope dummy variables to capture trend shifts. The ILT LM unit root test utilizes a two-step procedure. In the first step, the de-trended value is obtained. Denote this value. Note that the de-trending coefficient in this first step is obtained using first-differenced data. If trend breaks are present in the series, it is necessary to transform the de-trended series using the procedure suggested by Park and Sung (1994) in order to ensure that the unit root test statistic does not depend on the nuisance parameter indicating the location of the break.

After the test statistic is obtained, the standardized version of the test is computed in the usual manner by subtracting the mean and dividing by the square root of the variance, using the appropriate values provided by ILT (2010). The resulting panel LM unit root test statistic has an asymptotic distribution that is standard normal. Therefore, when evaluating the test, the critical values can be obtained from a conventional table of the standard normal distribution.

Stationary and non-stationary series

A series is stationary when it has a spectrum which is finite but non zero at all frequencies. Such series are said to be integrated of order zero denoted by 1(0) Regression with stationary series does not pose any serious problem in time series econometrics. A series is non-stationaryif its moments are not time invariant. One typical class of non-stationary series that is usually encountered in macroeconomics is integrated series. According to Granger (1986) " a series with no deterministic component and which has a stationary and invertible autoregressive moving average (ARMA) representation after differencing d times but non-stationary after differencing

(d1) times is said to be integrated of order d, denoted by Xt-l(d)" integrated series have permanent memory and unbounded variance

Test for stationarity

Park (2009) has shown that running regression on non-stationary data using OLS estimation method produces spurious results. It has therefore become imperative to test for the stationarity status of the variables before using co-integration and Vector Error Correction Models. There are many tests that have been developed to test for stationarity. These tests help to identify whether the data is stationary or not stationary. We propose to use the Augmented Dickey-Fuller test in this study because the ADF-test is better than the original OF-test since the augmentation leads to empirical white noise residuals.

Augmented dickey-fuller test

A weakness of the original Dickey-Fuller test is that it does not take account of possible autocorrelation in the error process. A simple solution advocated by Dickey and Fuller (1981) is to use lagged left hand side variables as additional explanatory variables to approximate the autocorrelation. This test called the Augmented Dickey-Fuller test and denoted conventionally as ADF is widely regarded as being the most efficient test from among the simple tests for integration and is at present the most widely used in practice This test requires running the following regression.

APPENDIX B

Impulse Response Result

Period	EXC	GDP	INF	NR	TO	IR	FDT	FD
2	-0.0026	-0.0073	0.0089	-00153	-0.0893	-0.0245	0.0089	-0.153
4	0.0028	-0.0176	-00206	0.0015	0.0028	-0.0136	-0.0126	0.027
8	0.0859	-0.0021	0.0092	0.0015	0.0219	-0.0131	0.0163	0.043
12	0.0567	-0.0050	-0.015	0.0008	0.0177	-0.0160	-0.0145	0.009
16	0.0092	0.0215	0.0184	-0.0253	0.0119	0.0335	0.0114	-0.253
20	0.0450	-0.0124	0.0450	-00154	0.0268	-0.0427	0.0210	-0.214