EXCHANGE RATE AND FOREIGN CAPITAL INFLOWS IN NIGERIA

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CERTIFICATION

The undersigned certify that this project was carried out by **EMUOBO JOSEPHINE ANENE** and was approved as adequate in scope and content in partial fulfillment of the requirements for the award of Master of Science (M.Sc.) degree in Economics, University of Benin, Benin City.

Prof. R. I. Udegbunam (Supervisor)	**Date**
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Dr. S. O. Igbinedion (Head of Department)	**Date**

DEDICATION

I dedicate this work to God Almighty who in his infinite mercies has made this possible, also to my dear loving husband Sir Ofili Jude Anene and also to my loving and understanding daughter Princess Zoe Onyinye Anene who helped me with all my other responsibilities during the course of this program, I will not fail to mention my very understanding boss, Rev. Fr. Paschal Omono, may God who knows how to bless, bless you all immensely

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Abstract

This study sought to examine the effect of exchange rate on foreign private capital inflows in Nigeria. The specific objectives were to analyse the effect of exchange rate on foreign private capital inflows in Nigeria; examine influence of exchange rate volatility on foreign private capital inflows in Nigeria; and investigate the effect of domestic interest rate on foreign private capital inflows in Nigeria. The study used secondary time series data covering the period 1981 to 2019. The study adopted the Augmented Dickey-fuller unit root test, Bounds Cointegration test, Granger causality test and Autoregressive Distributed Lag Modeling technique. The findings of this study showed that there exists a unidirectional relationship between exchange rate and foreign private capital inflow. It was discovered that a bi-causal relationship exists between foreign private capital inflow and exchange rate volatility. It was revealed that causality runs from foreign private capital inflow to financial deepening and not vice versa. It was discovered that the effect of exchange rate on foreign capital inflow is mixed. It was revealed that exchange rate volatility has a positive significant influence on foreign private capital inflows. Thus, the study recommended that the Nigerian monetary authority should come up with policy strategy to curb the volatility of the exchange rate so as to encourage foreign private capital flows into the country. Also, appropriate macroeconomic policies should be put in place to boost the size of the domestic market. An increase the real gross domestic product will stimulate foreign capital inflow into the economy. Finally, a sound financial sector is a basic pre-requisite for assessing the absorptive capacity of the domestic economy to inflow of foreign capital. Therefore, the Nigerian government through the various financial sector regulatory agencies should step up their supervisory role in the sector in order to boost the soundness of the financial sector of the economy.

CHAPTER ONE

INTRODUCTION

1.2 Background to the Study

The importance of foreign capital inflows in the economic life of the host country cannot be over emphasized. Foreign capital plays a pivotal role in the economies of both developed and developing countries. Foreign capital inflows played a major role in the development of current industrialized countries in their course of economic advancement. In the developing countries, foreign capital inflow can contribute significantly to the advancement of the host country by helping to fill the savings - investment gap (Obadan, 2004).

In most countries of Sub-Sahara Africa including Nigeria, the domestic savings fall short of the required investment level needed to launch the economies to the path of sustainable development. This creates the problem of savings – investment gap. Also, there is the problem of foreign exchange shortage resulting from excessive demand for foreign goods occasioned by the weak productive base of these Sub-Sahara Africa countries. In order to close this dual gap of savings and foreign exchange, foreign capital inflow becomes very crucial. Hence, the governments of most developing countries in their policy formulation have accorded stimulation of foreign capital inflow top priority.

According to Obadan (2004), external capital flows can be categorized into official development finance, export credit and foreign private capital flows. Foreign private investment is a component of the foreign private capital flows. It provides a greater proportion of the needed finance to boost the use of existing capacity and stimulate new investment in the host countries. The inflow of foreign private investment helps to boost the stamina of the host country towards achieving its economic potentials.

Giving the important role of foreign private capital inflows in developing countries, numerous studies have attempted to investigate the key determinants of foreign private capital inflow into these countries. From both theoretical perspective (Bailey & Tavles, 2007; Goldberg & Kolstad, 1995; Obadan 2004) and empirical studies (Abboth, Cushman & Vila, 2012; Busse, Hofeker & Nelgen, 2010; Schmidt & Broll, 2009) numerous factors were identified as key determinants of foreign private capital inflow. However, one recurring factor that was identified in economics literature as a primary determinant of foreign private capital flow is exchange rate. However, there is no consensus on the impact of exchange rate on foreign private capital flow. The lack of consensus among experts on this subject matter has created an unending debate. This study is therefore an attempt to look closely at the Nigerian case and establish an empirical relationship between exchange rate volatility of the naira and foreign private capital inflow.

1.3 Statement of the Problem

Since the 1980's, there has been increased private capital flows across international borders globally. However, despite this increased global flow of capital, especially into developing economies, sub-Sahara Africa countries still lag behind other regions in attracting foreign private capital (Osinubi & Amaghionyeodiwe, 2009). According to Obadan (2004), the distribution of private capital flow to regions and countries has been highly skewed against sub-Sahara Africa countries. From World Bank (1996), East Asia, Latin America and the Caribbean dominated the inflow of the private capital flow in the 1990's. East Asia and the Pacific accounted for 43.1% of the total private capital inflow, Latin America and the Caribbean 35.6%, Europe and Central Asia 13.2%, while Sub-Sahara Africa accounted for just 2.4%. Middle East and North Africa accounted for 1.9%.

This disparity in the geographical distribution of foreign private capital inflow has become a source of worry to the authorities of sub-Sahara Africa countries. This is based on the general assumption that foreign private investment is very crucial in stimulating growth in developing economies where domestic capital are grossly inadequate. Foreign private investment particularly foreign direct investment is not just a source of capital formation it also serves as a source of technological development. Technological development results from transfer of productive technology, innovative capacity, skills development and improvement in organizational and managerial capacities.

Given the importance of foreign private investment in developing countries, several studies have been conducted on the key determinants of foreign private capital inflow in developing countries. From both theoretical and empirical studies, several determinants of foreign private capital inflow into a host country have been identified (see (ailey & Tavles, 2007; Goldberg & Kolstad, 1995; Obadan 2004; (Abboth, Cushman & Vila, 2012; Busse, Hofeker & Nelgen, 2010; Schmidt & Broll, 2009). However, one of the key determinants that have been a source of prolong controversy is exchange rate. From available international economics literature, some empirical findings shows that exchange rate volatility impact positively on foreign private capital inflow, while others discover a negative impact.

However, a close study of available literature in this direction shows that majority of the study employed annual time series date which may not adequately capture the volatility of the exchange rate compared to high frequency data such a quarterly or monthly data. Most importantly, majority of the studies only focused their attentions on Foreign Direct Investment (FDI) which is just a component of foreign private investment. Foreign portfolio investment which is an important part of foreign private investment is often left out in their analysis. The

non-inclusion of portfolio investment in these studies amounts to telling only a part of the story. Although, FDI is a key source of technological transfer, however, portfolio investment plays a key role in the economy via the capital and money market. Moreover, portfolio investment is more volatile than FDI due to easy of transfer. The reaction of FDI and portfolio investment to exchange rate volatility may differ significantly. Therefore, to assess the effect of exchange rate on foreign private capital inflow, an all-embracing analysis covering FDI and foreign portfolio investment is necessary. This is the gap this study intends to fill.

1.4 Research Questions

Based on the stated problem, the following questions raised:

i. Does exchange rate behaviour significantly influence foreign private capital inflow in Nigeria?

ii. Specially, does exchange rate volatility significantly affect foreign private capital inflow in Nigeria?

iii. Does domestic interest rate affect foreign private capital inflow in Nigeria?

1.5 Objective of the Study

The broad objective of this study is to examine the relationship between exchange rate and private capital inflows in Nigeria. Specifically, the study sought to:

i. analyse the effect of exchange rate on foreign private capital inflows in Nigeria.

ii. examine influence of exchange rate volatility on foreign private capital inflows in Nigeria.

iii. investigate the effect of domestic interest rate on foreign private capital inflows in Nigeria.

1.5 Statement of Research Hypotheses

The following hypotheses are tested in this study:

i. Exchange rate has no significant impact on foreign private capital inflow in Nigeria.
ii. Exchange rate volatility has no significant impact on foreign private capital inflow in Nigeria.
iii. Domestic interest rate has no significant impact on foreign private capital inflow in Nigeria.

1.8 Significance of the Study

Foreign private capital inflow and its spillover benefits are essential for rapid economic growth in the less developed countries which most often operates under sub-optimal investment ratio. Hence, efforts geared towards attracting foreign private capital have become one of the core policy directions of the developing countries. No wonder, one of the primary goals of the New Partnership for Africa's Development (NEPAD) was to accelerate foreign capital inflow into the region. This goal to a large extent has not been achieved in sub-Sahara Africa.

Nigeria with its huge population size and vast natural resource has the largest market in sub-Sahara Africa. This places her in the vantage position to attract foreign private investment. However, foreign private capital inflow in Nigeria has not been very impressive relative to some other developing countries within and outside the continent of Africa. This is a reflection of the sub-optimal operating environment resulting largely from inappropriate policy initiative (Osinubi & Amaghionyeodive, 2009).

Instability in the exchange rate of the naira has been identified as a potential source of this sub-optimal investment ratio in Nigeria. The naira exchange rate overtime has witnessed continuous slide against the dollar and other major currencies in the foreign exchange market. This is further compounded by the widening gap between the official rate and the parallel market

rates. Hence, many have argued that the inability of Nigeria with its vast investment potential to attract much foreign investment capital relative to other developing countries and regions competing for global investment capital could be traced to the instability of the exchange rate of the naira.

Therefore, on the basis of the above, this study seeks to investigate the nature and magnitude of the relationship between exchange rate and foreign private capital inflow becomes relevant. The result from the study will be significant to both the policy makers and researchers. For the policy makers, the result from this study will help to enhance the policy direction. It will provide the empirical basis for policy formulation. For researchers, the study will serve as a springboard for further study in the area of foreign private capital inflow in developing countries.

1.9 Scope of the Study

The study examines the impact of exchange rate on foreign private capital inflow in Nigeria using quarterly time series data for the period 2000 to 2019. This adds up to eighty observations which are considerably large enough for a study of this nature. The study will employed the high frequency data to capture the volatility in selected variables which maybe smoothen away using annual time series data. The study would have preferred monthly or daily data, however, this is not available for some of the selected data. Although, the study will focus on Nigeria for the empirical analysis, the literature will cover studies outside Nigeria.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents the review of relevant literature. The chapter is organized as follows: conceptual literature, theoretical literature and empirical literature. The conceptual literature covers explanations of key concepts such as exchange rate, foreign direct investment, foreign portfolio investment and foreign private investment. The theoretical review deals with the review of existing theories on the relationship between exchange rate and foreign private capital inflow. The last section of this chapter is the empirical review which focused on the review of past empirical studies of the relationship between exchange rate and foreign private capital inflow.

2.2 The Concept of Foreign Private Investment

Foreign capital has played a fundamental role in the economies of both the advanced and less developed countries. However, capital flow into developing countries has elicited more concern compared to the capital inflow into the developed economies. Foreign capital flows refers to movement of financial resources from one country to another. Foreign capital flows according to Obadan (2004) can be sub-divided into official development finance, export credits and foreign private capital flows. Foreign private capital flows is further categorized into international bank loans and bond issues, private export credit, foreign private direct investment, and foreign portfolio investment.

Foreign private investment which is a major component of foreign private capital flow refers to transfer of capital in the form of direct investment and portfolio from one country to another, particularly from the developed countries to the developing countries for the purpose of

filling savings and foreign exchange gaps in the developing countries (Obadan, 2004). Mobilization of Foreign private investment in the developing countries has become imperative given the prevailing weak domestic savings mobilizations in the developing countries.

Foreign private investments are capital originating from private sector of the donor country motivated by profit motive to the investor. It is an investment undertaking by private individual or private entity in another country. They therefore do not constitute economic aid to the recipient country. Hence, they are undertaking by the foreign investor only if they expect good returns.

Foreign private investment comprises of foreign direct investment (FDI) which involves foreign investment in real assets and foreign indirect investment which involves foreign investment in financial assets. The indirect investment is popularly known as foreign portfolio investment.

2.2.1 Foreign Direct Investment

Foreign direct investment is a major component of the foreign private investment. According to Bilawal et al (2014), foreign direct investment refers to investment of foreign assets into domestic economy (structure, equipment and organization). Foreign direct investment (FDI) is often regarded as the most important form of foreign private investment in an economy. This has been based on the fact that the portfolio investment is hot money whereas FDI is durable with its spillover benefits in the host economy. Lipsey (1999) earlier noted that foreign direct investment surpasses any other sources of foreign capital in developing countries as it transfer advanced technology from the technologically developed world to the third world countries. He added that FDI generate greater positive externalities in the host country relative to foreign portfolio investment. Hence, Huchet and Korinek (2011) opined that the importance of

FDI to the growth of the less developed countries cannot be overemphasized, as FDI not only play a pivotal role in capital formulation in the developing countries, where domestic capital are grossly inadequate, but also a principal source of technological transfer.

According to Obadan (2004), foreign direct investment has various forms which include:

i. Wholly foreign-owned enterprises
ii. Joint ventures
iii. Special contract arrangements
iv. Technology, management and marketing agreement
v. Subcontract, co-production and specialization contract agreement

From the above classification, wholly foreign-owned enterprises and joint ventures are regarded as equity form of foreign direct investment. Special contract arrangements, technology, management and marketing agreements, and subcontract, co-production and specialization contract agreement are refers to as non-equity form of Foreign direct investment. It is important to note that the non-equity form of FDI has been on the increase in many of the developing countries since the 1980's. Obadan (2004) advanced three basic reasons for this development. These reasons are:

i. The need to reduce foreign ownership of productive assets and resource to the minimum.
ii. Development of industrial priority programmes and priority schedules in which capital requirements and required technology from foreign investors has been precisely pinpointed and the guidelines for acquiring them duly specified.
iii. Advancement on the part of the host countries in foreign investment analysis and negotiation with a better appreciation of cost and benefits of alternative forms of foreign investment.

2.2.2 Foreign Portfolio Investment

Foreign portfolio investment is another major component of foreign investment. It is defined as the investment by individuals or corporate entities of one country in the equities and debt securities of enterprises in another country with the primary aim of capital gain and not necessarily having a significant or lasting interest in the enterprise. It is therefore the investment made by individuals or entities who are not directly involved in the management of the enterprises they invested in. According to Obadan (2004) foreign portfolio investment consist of the acquisition of asset by a foreign national or company in a domestic stock / money market.

Portfolio investment is motivated by capital gains, risk diversification and potential for providing risk sharing capital financing to expand the private sector. Individuals or business entities in seeking higher returns at lower risk, diversify their portfolio across countries. A larger proportion of foreign portfolio investment in less developed countries takes place through the medium investment fund or country fund.

There has been a sharp increase in foreign portfolio investment among developed and developing countries in recent years. Gumus and Duru (2013) identify two broad factors responsible for the upswing in portfolio investment. According to them, low interest rates in the developed countries service as a push factor, while financial liberalization program in the in the less developed countries is a pull factor for stimulating portfolio investment in the less developed countries.

Obadan (2004) also identified factors responsible for the increase in portfolio investment in Less Developed countries. These factors include:

i. Fund available to investment pension fund, insurance companies and other foreign investors have grown than faster than the domestic capital markets capitalization

ii. Cross border information on foreign firm has improved greatly.

iii. Theories of risk diversification have become much more accepted.

Portfolio investment has some distinctive characteristics that distinguish it from other form of foreign capital inflow. One of these features is that portfolio investment is highly volatile. Hence, it is popularly referred to as hot money. It is hot money because it can be easily reversed in a short period of time. The high volatility of portfolio investment may have some harmful effects on the exchange rate, stock prices and interest rate. The volatility of portfolio investment may be caused by negative domestic and external shocks which may induce investors to reverse investment in a country. Secondly, portfolio investment helps in endogenous smoothing of the macroeconomic fluctuations or business cycles. The behaviour of Portfolio investment during different phases of the business cycles is different from bank borrowing. Unlike the bank borrowings which reinforce the various swings of the cycle, portfolio investment smoothing the cycle.

2.2.3 Benefit and Cost of Foreign Private Investment

Foreign private investment has its costs and benefits. In promoting foreign private investment, the host country anticipates numerous benefits to be derived. However, these costs do not come without cost. According to Obadan (2004), the benefits of foreign private investment to the host country include the following

i. It is growth enhancing. It helps to expand economic activities thereby increasing the Gross Domestic Product (GDP) and generate a stream of real income flow.

ii. It helps in employment generation. The inflow of foreign capital lead to expansion in productive activities in the economy through forward and backward linkages. This expansion leads to more job creation.

iii. It helps in the transfer of modern technology and organizational knowledge from the advanced economies to the host country. It also help in disseminating information available for the modern input for the production good and services.

iv. It helps in the enhancement of balance of payments position of the host country. The production activities of import substitution and export producing investment can help to boost the balance of payment of the host country.

v. It helps in stimulating additional domestic investment. If the foreign capital in employed in the development of infrastructure in the country, it may help in promoting more investment in the country.

vi. One of the most significant benefit derived for foreign private capital inflow is the external economies that accompany such capital inflow. This external economies comes in the form of provision of managerial skills, technical personal, technological knowledge and administrative organization.

vii. Foreign private capital help in stimulating aggregate supply which is needed in order to achieve the objectives of the structural adjustment programme which most developing countries has embarked upon.

The flow of foreign private capital into a country is not without cost. Some of the cost of foreign private capital as enumerated by Obadan (2004) is highlighted as followings:

i. The concessions offered by the government to encourage foreign investment such tax concessions constitute cost on the host country.

ii. If foreign investment may compete with domestic enterprises and reduce the profit of the domestic enterprises, it may lead to redistribution of income away from domestic capital thereby adversely affecting domestic savings.

iii. It may lead to discouragement of domestic entrepreneurship due to unequal competition from foreign enterprises.

iv. It may lead depletion of domestic resources through repatriation of profit, dividends and interest to source countries.

v. It may lead to erosion of domestic economy autonomy

vi. Foreign investment may create negative externalities such as pollution and environmental degradation.

vii. In some cases, foreign enterprises adopt inappropriate capital intensive technology as against labour intensive technology suitable for developing Africa countries. This has a detrimental effect on employment in surplus labour host countries.

2.3 The Concept of Exchange Rate

Exchange rate refers to the price of currency in terms of another country's currency. It is usually expressed as a unit of domestic currency required to purchase one unit of foreign currency. Hence, in Nigeria, it can be expressed as (₦/$). The system of exchange rate determination is referred to as exchange rate regimes (Mishkin, 2004; Chamberlin & Yueh, 2006). According to CBN (2011), there are basically two extreme cases of exchange rate regimes, these are the fixed exchange rate regime and the floating exchange rate regime. But generally, according to Wang (2009), the International Monetary Fund (IMF) broadly classified exchange rate regimes into eight namely:

i. Exchange arrangement with no separate legal tender

ii. Currency board arrangement

iii. Conventional fixed peg arrangements

iv. Pegged exchange rate within horizontal bands

v. Crawling pegs

vi. Exchange rates within crawling pegs

vii. Managed floating with no predetermined path for the exchange rate

viii. Independent floating

This IMF classification is based on degree of flexibility to a given exchange rate path (see Wang, 2009). According to Chamberlin and Yueh (2006), exchange rate can be interpreted through different perspectives. The two most common means of describing exchange rate are nominal exchange rate and real exchange rate.

Nominal Exchange Rate: Nominal exchange rate is an economic value expressed in monetary terms. It is expressed in terms of units of a country's currency. It is not determined by the change in worth of the goods and services that currency can purchase. It is 'nominal' because it measures only the numerical exchange value and is not affected by the purchasing power of that currency. Thus, changes in nominal value of a currency overtime happen due to a movement in the worth of the currency. According to Chamberlin and Yueh (2006), nominal exchange rate is expressed as a ratio of one currency to another showing how much of one currency can be converted for a unit of another.

Real Exchange Rate: According to Bhalla (2008), there are two closely related definitions of real exchange rate. They are the primary definition which can also be called the external sector definition and the secondary definition which is called internal sector. The external sector is the ratio of the wholesale price levels between two countries. The most commonly used ratio of wholesale price levels is the 'Penn World Data'. These data use the periodic International Comparison of Price (ICP) surveys of different countries compare an intertemporal price levels for individual country. The ratio of price levels is presented in a common purchasing power

parity (PPP) currency with respect to trading partner (for example the US) price level defined to be 100 in each year. This ratio is identically equal to the ratio of the exchange rates between each country and the trading partner; it is the ratio of the current PPP exchange rate.

The secondary definition is the ratio of prices of non-tradable goods to tradable goods. According to Chamberlin and Yueh (2006), real exchange rate compares the price of foreign goods and services to domestic goods and services. It is the product of nominal exchange rate and the ratio of prices.

2.3.1 Exchange Rate Management in Nigeria

The exchange rate management refers to the strategies adopted by the monetary authorities to ensure that the exchange rate objectives are met. According to CBN (2009), the primary objectives of the exchange rate management in Nigeria are:

i. To ensure price stability in the economy;

ii. To preserve external reserve in order to be able to defend the value of the naira;

iii. To narrow the premium between the official and the parallel market.

Exchange rate management in Nigeria can be reviewed under three periods, these are

1. Exchange rate system in Nigeria before 1958;
2. Exchange rate regime in Nigeria between 1959 – June 1986
3. Exchange rate regime in Nigeria between June 1986 to date

1. **Exchange rate system in Nigeria before 1958**

The Central Bank of Nigeria (CBN) was established in 1958. Before its establishment, there was no well-defined exchange regime in Nigeria. During this period, Agriculture was

Nigeria's chief foreign exchange earner. Hence, foreign exchange was earned by private firms and foreign exchange balances were held in foreign Banks.

2. **Exchange rate system in Nigeria between 1959 – June 1986:**

This was the period following the establishment of the Central Bank of Nigeria (CBN) to the introduction of the Structural Adjustment Programme (SAP). During the period Nigeria operated various forms of the fixed exchange rate system. The exchange rate was controlled by the monetary authority with no room for the market forces in the determination of exchange rate. Nigeria in this era adopted various ad hoc measures in the determination of its exchange rate. These include:

i. Between 1959 – 1967: the Nigeria pound was fixed at par with the British pound sterling

ii. November 1967 – 1984: Following the devaluation of the British pound sterling by 10% in November 1967, Nigeria fixed her currency to a basket of seven international currencies. These are the US dollars, the French franc, the Swiss franc, the Dutch guilder, the Dutch mark, the Canadian dollar and the Japanese yen. In this system, each of the currency was assigned different weight based on their relative trade volume with Nigeria.

iii. 1985: Nigeria returned to one currency intervention system. In this system, the Nigeria currency was tired to the US dollar.

3. **Exchange rate regime in Nigeria between June 1986 – date**

In June 1986, Nigeria adopted the Structural Adjustment Programme (SAP) which led to the liberalization policy. Hence, the flexible exchange rate system was adopted. The forces of demand and supply were allowed to play significant role in the determination of exchange rate of the naira. The management of the flexible exchange rate went through several phases. These can be summarized as followed:

i. September 1986: the dual exchange rate system was introduced. This involves the introduction of the first tier exchange market and the second tier exchange market. The first tier exchange market operated the fixed exchange rate system and used for government transactions only. The second tier exchange market depends on the market forces for the determination of exchange rate and it's for private sector business activities.

ii. July 1987: Both first tier and second tier foreign exchange markets were merged to a single foreign exchange market following the complexity involved in managing the dual exchange rate system. In this period, the retail Dutch Auction System (DAS) was introduced.

iii. In 1988: the Foreign Exchange Market (FEM) was transformed into the Autonomous Foreign Exchange Market (AFEM). This was aimed at reversing the structural distortions in the economy following the introduction of the flexible exchange rate system.

iv. January 1989: the Inter-Bank Foreign Exchange Market (IFEM) was introduced. During this period the government monitor exchange rate movement of major international currency as a guild to determining the exchange rate of the naira. In this year, Bureau de change was introduced.

v. December 1990: the retail Dutch Auction System was re-introduced. However, during this period, the exchange rate was very volatile and the gap between the official market rate and the parallel market rate wider than 5% which is the internationally acceptable level.

In October 1990, the Foreign exchange market was liberalized again and the Interbank Foreign Exchange market was introduced (IFEM). They used weighted average to determine the exchange rate at different times. In December 1990, the Dutch Auction System was introduced,

although it was first used in April 1987 but was scrapped due to instability in the FOREX market. In 1994, the Federal Government fixed the official exchange rate at N21.1960 to a dollar, in order to secure the illegalities of the parallel market and to prevent bureau the change from selling foreign exchange. In 1995, the dual exchange rate policy was introduced with the aim of reducing the depreciation of naira in the parallel market and for efficient allocation and utilization of resources. The foreign exchange provision decree17 of 195 was enacted which established the autonomous foreign exchange for trading for privately sourced foreign exchange. During the period 1996, 1US dollar=N80.00. In 1997, liberalization of some payments increased the pressure on the foreign exchange which depreciated it to 1USdollar=N85.00 In 2000, the dual exchange rate system was repealed by the Federal Government and the autonomous foreign exchange rate was merged with the government official rate. The official rate of N22.00 to 1 US dollar was also scrapped. The exchange rate in 2001 was N111.20 to 1 US dollar in the foreign exchange market and N128 in the parallel market. During 2002, the Dutch Auction System was reintroduced and the Retail Dutch System was implemented with the CBN selling to end-users through the banks. By January 2003, the naira further depreciated to N131, (Olokoyo, Isibor, Oladeji, and Edosomwan, 2016). In 2006, the market was deregulated with the adoption of Wholesale Dutch Auction System (CBN Bullion, 2007). This was meant to deepen the foreign exchange market on their accounts for onward sale to their customers, (Ogochukwu, Ikpefan, Okafor, and Isibor, 2016).

Exchange rate in Nigeria has witnessed different regimes, the era of control/regulation, where the naira was pegged at N1 to $1 and the era of deregulation/ liberalization, an off shoot of the Structural Adjustment Programme (SAP) in 1986. The deregulation of the exchange rate

brought about the continual fall (depreciation) in the value of the naira to the present day situation where the naira exchanges to the dollar at N360 to $1 officially.

2.4 Review of Theoretical Literature

2.4.1 Theory of Capital Mobility

There are two main strands of thought that provide explanations on the mechanism governing capital mobility across national boundaries. These are summed in the Resource Gap Theory and the Interest Rate Parity Theory. Whereas the resource gap theory argued that it is the deficits in domestic resources in meeting investment and consumption needs that drive economies to seek capital elsewhere, the interest rate parity theory maintained that it is the difference between asset yields (interest differential) and exchange rate forward premium that determines the direction of international capital flow. The resource gap theory is attributed to Chenery and Stout (1966) and expanded by Thirlwall (1976). Chenery and Stout (1966) argued that domestic savings do not always equal investment. When savings fall short of investment, a savings-investment gap emerges. To bridge this gap, the government would either borrow from the home economy or from overseas thereby creating a foreign exchange gap. This is the amount by which the investment requirement falls short of the foreign exchange earnings. The difference between these two gaps determines the source of funding the deficit. The gap may be financed through domestic sources if the saving-investment gap is larger relative to the foreign exchange gap otherwise financing will be from international sources. A key assumption of the resource gap theory is that, in a world where there are no barriers to capital mobility there would be zero correlation between changes in domestic investment and national savings (Feldstein & Horioka, 1980; Feldstein, 1983; Obstfeld, 1981). The resource gap theory is not explicit about the role of interest rate differential and exchange rate movement, which this study examines.

The interest rate parity theory was formalized and popularized by Keynes (1923). In his "A tract on monetary reform" Keynes (1923) described the idea of parity between interest rate differentials and forward premium and provides reasons why the interest rate parity might not hold (see Georgoutsos & Kouretas 2016; Lothian, 2016; Ames, Bagnarosa, & Peters, 2017; Park & Park, 2017; Vasilyev, Busygin, & Busygin, 2017; Ismailov, & Rossi, 2018; Adewuyi & Ogebe, 2019). The interest rate parity theory assumes identical yields on assets, for instance, treasury bills of different countries with similar quality (in terms of maturity, liquidity, and other macroeconomic conditions like capital control exposure and default risk) but differ only in the underlying currency. In its simplest form the interest rate parity theory holds when the interest rate differential between any two countries equals the difference between the exchange rate futures and spot rate. In which case there is no arbitrage for investors to take advantage of and the yield from investing in any of the country's assets is equal. Therefore, there is no economic incentive to seek investment outside one's domestic economy. Any deviation from parity creates arbitrage opportunities. To take advantage of the opportunity, international investors borrow from countries with lower interest rate and invest in countries with higher rates (Teall, 2018). The result is capital outflow for the lower interest rate economy and inflow for the higher interest rate economy. Thus, interest rate differentials and movements in exchange rates are thought of as the main drivers of international private capital flows (Keynes, 1923; Levich, 2011).

2.4.2 Exchange Rate Theories

A number of theoretical explanations abound in literature for exchange rate management. Some of the prominent theories of exchange rate management or determination include: mint parity theory, purchasing power parity theory, balance of payments theory, monetary approach to foreign exchange and portfolio balance approach.

One of the earliest theories of exchange rate (Cassel, 1918) is the mint parity theory. The theory was relevant for exchange rate determination for countries with the same gold or silver standard. Under the gold standard, countries had their standard currency unit either of gold or it was freely convertible into gold of a given purity. The value of currency unit under gold standard was defined in terms of weight of gold of a specified purity contained in it. The central bank of the country was always willing to buy and sell gold up to an unlimited extent at the given price. The price at which the standard currency unit of the country was convertible into gold was called the mint price.

Under this exchange rate management system, the balance of payments adjustments were made through the free international flows of gold. The export and import of gold involved costs of packing, freight, insurance, interest etc. Consequently, the actual rate of exchange between two currencies could vary above and below the mint parity by the extent of cost of gold export or import (Obadan, 2012).

The purchasing power parity (PPP) relationship is a relevant concept under flexible and fixed exchange rates system. It has been used as an explanation of inflation and of movements in a freely floating exchange rate. Most recently, the absolute explanation of the purchasing-power parity doctrine has been raised by Balassa (1964) who has expressed the opinion that the relative price levels of consumer goods provide an indication of the over or undervaluation of individual currencies (Genberg, 1978). In an effort to retort to call for a substitute exchange rate determination system following the fall of the fixed exchange rate system, the purchasing power parity theory was advanced.

The theory states that the exchange rate between two currencies is solely determined by the movement of demand and supply forces. The foundation of the theory is that, if any pair of

currency is set at par, then, the exchange rate differential should reflect variations arising from the purchasing powers of the relative currency in relation to the Base Exchange rate (Anyanwu *et al*., 2017). The purchasing power parity theory has undergone reforms over time and general acceptance by international financial market operators in determining the exchange rate between two currencies (Anyanwu *et al.*, 2017).

According to the purchasing power parity theory, the equilibrium exchange rate is determined by the equality of the purchasing power of two inconvertible currencies. This indicates that the exchange rate between two inconvertible currencies is determined by the domestic price levels in two countries. There are two variants of this theory: absolute purchasing power parity theory and relative purchasing power parity theory.

The absolute purchasing power parity theory stipulates that exchange rate should reflect the relation between the domestic purchasing power of the different national currency units. Put differently, exchange rate should be equal to the ratio of amount required to buy a particular basket of goods in a home country as compared with what it would buy in a foreign country. On the other hand, the relative purchasing power parity theory attempts to explain the changes in the equilibrium exchange rate between any two countries' currencies. It relates the changes in the equilibrium exchange rate to changes in the purchasing power parities of currencies. Specifically, the relative changes in the price levels in two countries between some base period and current period have vital implications on the exchange rates of the currencies in the two periods (Obadan, 2012).

The balance of payments theory of exchange rate asserts that exchange rate of a country's currency in relation to another is determined by the factors independent of domestic price level and money supply. It maintains that exchange rate is determined by the balance of payments

position of a country. When the demand for foreign exchange exceeds its supply, it signifies a balance of payments deficit. As a result, the exchange rate of a country's currency to the foreign currency depreciates. On the other hand, when the supply of foreign exchange exceeds its demand, it indicates a balance of payments surplus. Hence, the exchange rate of a country's currency to the foreign currency appreciates. Therefore, equilibrium exchange rate is determined, when there is neither a balance of payments deficit nor a surplus. In other words, the equilibrium exchange rate corresponds with the balance of payments equilibrium of a country.

In contrast to the balance of payments theory of exchange rate, in which exchange rate is determined by the flow of money in the foreign exchange market, the monetary approach to exchange rate assumes that exchange rates are determined through the interplay of demand and supply of the national currencies in the money market. According to this approach, the demand for money is directly related to the level of real income and the general price level but inversely related to interest rate while the supply of money is exogenously determined by the monetary authorities (Jimoh, 2004; Palok, 1957; Johnson, 1972). Suppose the foreign exchange market is at equilibrium or interest parity and that the monetary authority in the home country expands money supply. This will result in a proportionate increase in price level in the home country and cause depreciation in the home currency as explained by the purchasing power parity theory.

The portfolio balance approach (Frenkel, 1976; Dornbusch, 1976) on the other hand incorporates trade explicitly into the analysis for determining the exchange rate. The theory assumes that domestic and foreign financial assets, such as bonds, are imperfect substitutes. The justification for this assumption is that the exchange rate is determined in the process of balancing the supply of and demand for financial assets. Thus, this theory stipulates that a rise in the supply of money by the home country will result in a fall in interest rate. This will cause a

shift in the asset portfolio from domestic bonds to home currency and foreign bonds. The substitution of foreign bonds for domestic bonds leads to a depreciation of the home currency.

2.4.3 Effect of Exchange Rate Level on Foreign Investment

Theoretically, there are divergences of opinions on the effect of exchange rate on foreign private investment inflow. The effect of exchange rate level on foreign investment has been examined by the wealth creation theory and the Compa's model.

i. **The Wealth Creation Theory**

The wealth creation theory was advanced by Froot and Stein (1991). This approach claimed that depreciation (devaluation) of a host country's exchange rate attracts foreign investment. This is based on the fact that depreciation (devaluation) of a host country's currency relative to the investors home country's currency increases relative wealth of the foreign investor. This increases the attractiveness of the host country to foreign investment as the foreign investors are able to acquire assets relatively cheaper in the host country. On the basis of this theory, a fall in the value of a country's currency relative to the home country's country currency of the investor, all things being equal will increase foreign investment in the host country, while an appreciation of the host country's currency will reduce investment.

ii. **The Compa's Model**

This model was advanced by Compa (1993). The model states that a firm decision to invest in foreign country depends on the expected future profitability of such a venture. In such a case, the more the exchange rate of the host country appreciates, the higher will be the expected future profit from investment in that country. Therefore, the model predicts that an appreciation of the host country currency will lead to an increase in the inflow of foreign investment. This is contrary to the prediction of the wealth crease theory.

2.4.4 Effect of Exchange Rate Volatility on Foreign Investment

There are two broad views on the link between exchange rate volatility and foreign investment. These are the real options approach and the risk aversion approach.

i. **The Real Option Theory**

This approach was popularized by Dixit and Pindyck (1994). It considered the effect of exchange rate uncertainty on investment, particularly when such investment is irreversibly. This theory states that under exchange rate uncertainty, a firm has an option to invest oversea or not. This is based on the fact that changes in exchange rate affect the price of the options. Another definition of the option is where a firm have plants in different countries which create the options to shift production among facilities in responds to exchange rate movement. This is called production flexibility.

The theory, therefore, suggests that investment will change in favour of the lowest cost location after an exchange rate movement. This means that it is profitable for a multinational enterprise to open plants at home and abroad, postponing production decision until after an exchange rate shock. All things being equal, investing in a country with high degree of exchange rate volatility will have a higher risk in terms of stream of profit. Hence, as long as investment is partially irreversible, there are some benefits of holding back investment to acquire more information about the direction of the exchange rate movement. This theory therefore provides the argument of a negative effect of exchange rate uncertainty on foreign investment.

ii. **Risk Aversion Theory**

This theory was popularized by Goldberg and Kolstad (1995). According to the theory, exchange rate volatility lead to decrease in foreign direct investment. Higher exchange rate volatility reduces the certainty equivalent expected exchange rate. Certainty equivalent level are

employed in the firm's expected profit function to determine investment decision of today in order to realize profit in a future period. Since firms are more concerned about their future expected profits, they will postpone their investment decision as exchange rate becomes more volatile.

2.5 Review of Empirical Literature

There is a robust literature on the relationship between foreign capital inflow and exchange rate movement. However, there is no consensus among writers on the effect of exchange rate on foreign capital inflow. Some studies found a positive impact, while others discovered a negative impact. Particularly, the relationship between capital inflows and exchange rate has been studied more extensively in industrialised countries and emerging markets economies while little attention has been paid to it in Nigerian. Ellahi (2011) observed that exchange rate volatility negatively influenced foreign direct inflow in short run while in the long run exchange rate volatility positively influenced foreign direct investment in Pakistan for the period 1980 to 2010.

Combes et al. (2010) revealed that both public and private inflows resulted in the appreciation of real effective exchange rate. Among private inflows, portfolio investment has the biggest impact on appreciation, almost seven times that of foreign direct investment or bank loans while private inflows have the smallest effect. Further, the study used a *de facto* measure of exchange rate flexibility and observed that a more flexible exchange rate helps to dampen appreciation of the real effective exchange rate caused by capital inflows. Dhakal et al. (2010) and Del and Chiara (2009) observed a significant positive relationship between exchange rate volatility and foreign direct investment while Chege (2009) and Barrell et al. (2004) observed a negative relationship between exchange rate volatility and inward foreign direct investment.

Osinubi and Amaghionyeodiwe (2009) examined the effect of exchange rate volatility on foreign direct investment (FDI) in Nigeria for the period 1970 to 2004. Utilizing the Ordinary Least Square (OLS) and the error correction model (ECM) estimation techniques the study revealed a significant positive relationship between real inward FDI and exchange rate. The study also suggested that exchange rate volatility need not be a source of worry for foreign investors in Nigeria. Ogunleye (2008) examined the relationship between exchange rate volatility and foreign direct investment in Nigeria and South Africa. The study observed that exchange rate volatility negatively influenced FDI inflows while FDI inflows aggravated exchange rate volatility in both countries. Abdul (2009) examined the effects of capital inflows on nominal and real effective exchange rate volatilities in Pakistan for the period 1991:1 to 2007:12. Using granger causality test, the study observed a significant causal relationship between foreign capital inflows and exchange rate volatility. The study recommended the need to manage capital inflows in such a way that they should not fuel the exchange rate volatility.

Udoh and Egwaikhide (2008) examined the effect of exchange rate volatility and inflation uncertainty on foreign direct investment in Nigeria for the period 1970 to 2005. Exchange rate volatility and inflation uncertainty were estimated using the GARCH model and the result showed that exchange rate volatility and inflation uncertainty exerted significant negative influence on foreign direct investment. The study further revealed that infrastructural development, appropriate size of the government sector and international competitiveness are crucial determinants of FDI inflow to the country.

Due and Sen (2006) examined the nexus among real exchange rate, capital flows (level and volatility), fiscal and monetary policy indicators and the current account surplus in India. Using a quarterly data spanning 1993:2 to 2004:1, the study observed the existence of co-

integration among the variables while each of the variables was observed to granger cause the real exchange rate. Further evidence from the Generalized Variance Decomposition (GVD) analysis revealed that net capital flows (level and volatility) are the most significant determinant of real exchange rate, and this was followed by government expenditure, current account surplus and money supply respectively. Earlier study by Chakraborty (2003) in India using quarterly data for the period 1993:2 to 2001:1 revealed that real effective exchange rate is influenced by foreign capital inflows. Froot and Stein (1989) analysing the relationship between exchange rates and FDI observed that a depreciated currency can boost foreign direct investment while studies by Elbadawi et al. (2008), Lartey (2007), Prati et al. (2003), Bulir and Lane (2002) and Kasekende and Atingi-Ego (1999) reported that official flows are associated with exchange rate appreciation.

Brozozoneski (2003) conducted a study on the impact of exchange rate risk on foreign direct investment using a panel of 32 countries. A combination of fixed effect ordinary least square, the Generalized Method of moment (GMM) and Arellano-Bond model were employed. The result from the estimation revealed that exchange rate volatility negatively affects foreign direct investment.

Osinubi and Amaghionyeodiwe (2009) employed the co-integration and error correction modeling technique examine the impact of exchange rate volatility on foreign direct investment in Nigeria using annual time series data for the period 1970 – 2004. Their empirical results shows that exchange rate volatility has no significant effect on FDI inflow in Nigeria. Furthermore, the empirical result suggests that depreciation of the naira increase increases FDI inflow.

Tokunbo and Lioyd (2009) examine the impact of exchange rate volatility on inflow of foreign direct investment in Nigeria using annual time series data for the period 1981 – 2007.

The co-integration and error correction modeling technique was employed. From the empirical results, exchange rate depreciation positively influence foreign direct investment in Nigeria. Furthermore, exchange rate volatility does not significantly affect foreign direct investment in Nigeria. Rashid and Fazal (2010) examined the nature of relationship between exchange rate volatility and capital inflow in Pakistan using monthly data for the period 1990 – 2007. The linear and non-linear co-integration analysis was employed. From the empirical results, the causality runs from capital inflow to exchange rate. According to the results, monetary expansion emanating from capital inflow fuels exchange rate volatility.

Busse, Hefeker and Nelgen (2010) examined the impact of exchange rate on FDI inflow in developed and developing countries for the period 1980 – 2014. The fixed effect model was specified for the study and estimated using the ordinary least square technique. The maximum likelihood estimator was also employed to check for the robustness of the estimates. From the empirical results, exchange rate level was found to have a negative effect on FDI inflow in developing countries. In the developed countries, exchange rate has a positive but insignificant effect on FDI inflow. The result from the study shows that fixed exchange rate regimes have positive and significant effect on FDI inflow in developed countries, while in the developing countries the impact was not statistically significant.

Jongwanich (2010) examined the nexus between capital flows and real exchange rate (RER) in emerging Asian countries using a dynamic panel-data model for 2000–2009. In contrast to previous studies, capital flows are separated into foreign direct investment (FDI), portfolio investment, and other investment (bank loans) flows. Inflows and outflows were also treated separately in the model. The estimation results showed that compositions of capital flows matter in determining impacts of the flows on the RER. Portfolio investment and other

investment (including bank loans) bring in a faster RER appreciation than FDI. However, the magnitudes of appreciation among capital flows are close to each other. The increasing importance of merger and acquisition activities in FDI makes the flows behave closer to other forms of capital flows, especially portfolio investment. The estimation results also showed that capital outflows bring about a greater degree of exchange rate adjustment than capital inflows. All in all, the results revealed that the swift rebound of capital flows in the region could result in excessive appreciation of the (real) currencies, especially when capital flows are in a form of portfolio investment and bank loans.

Abbott, Cushman and Villa (2012) employed the Generalized Method of moment (GMM) to examine the effect of exchange rate policy on FDI inflow in seventy developing countries for the period 1985 – 2004. From the empirical results of their study, it was found that fixed and intermediate policy regimes positively influence FDI inflow compared with the floating policy regime.

Russ (2012) examined the effect of exchange rate volatility on FDI inflow using a panel of twenty eight OECD countries for the period 1980 – 2005. A combination of Ordinary Least Square (OLS), Generalized Least Square (GLS) and Generalizes Method of Moment (GMM) were employed in the study to estimate the specialized model. The result from the study revealed that fixed exchange rate regime has positive impact on FDI inflow.

Rochester (2012) utilized a VAR framework to assess the impact of the components of net private capital (NPC) flows on foreign exchange market pressure in Jamaica. Exchange market pressure (EMP) is assessed using the Eichengreen (1995) EMP index which consists of a weighted average of normalized changes in the exchange rate, the ratio of international reserves to the money stock and the nominal interest rate differential. Net private capital flows, both from

a BOP accrued accounting and a cash accounting framework, were examined. The results indicate that there is a significant negative causal relationship between NPC flows and volatility. FDI-related flows, however, were insignificant in determining EMP.

Choi, Chung and Kim (2013) examined the impact of exchange rate volatility on FDI in Korea using monthly data for the period 1990 – 2011. A combination of Markov switching model estimation technique and multivariate GARCH-in-mean model and the impulse responds function were employed in studying the nature of relationship between exchange rate volatility and capital inflow. From the empirical result, all kinds of capital inflows increases under low volatile exchange rate regimes. On the other hand, all capital inflow except FDI decreases under high volatile exchange rate regimes. The study thus concluded that medium level exchange rate volatility is most favorable for economic stability and growth.

Onuorah and Akinjobi (2013) examined the impact which macroeconomic variables had on FPI in Nigeria for the years 1980–2010 in order to examine the impact of macroeconomic variables and tended to also investigate long-run and short-run macroeconomic variables influencing Foreign Portfolio using the OLS model of estimation. It was shown that foreign investment in the country are driven primary by the size of the country's interest and exchange rates. It was also shown from the results that the interest, inflation and exchange rates directly impact FPI, while GDP and money supply negatively affect the FPI in the country. In order to examine the direction of causality between FDI, FPI and exchange rate using Granger causality, it was revealed that there was no causal link between the two phenomena. Also, based on the Error Correction Model, the short-run regression estimate indicated no impact of exchange rate on capital flows in Nigeria for the period 1986–2011. However, the long-run regression estimates that exchange rate significantly influences FDI (Ifeakachukwu & Ditimi, 2014).

Omorokunwa and Ikponmwsa (2014) using theories drawn from Duning (1993) and employing the Error Correction Model for the period between 1980 to 2011 discovered that, though, the effect of exchange rate volatility on FPI is weak in the short run but in the long run, the effect is positive and strong. In the model used, emphasis was placed on the internal determinants of foreign investments, but the results showed that external factors have a more profound effect on FPI, especially in the long run. This study was targeted towards foreign private investment as a whole and so was more focused on the FDI aspect of foreign investments. This study, therefore, is aimed at filling the aforementioned gaps in literature by econometrically analyzing the relationship between exchange rate volatility and foreign portfolio investment in Nigeria with a focus on it as a part of foreign private flows.

Bilawal, Ibrahim, Abbas, Shuaid, Ahmed, Hussain and Fatima (2014) studied the impact of exchange rate on FDI in Pakistan for the period 1982 – 2013. The study employed the ordinary least square regression method to estimate the specified model. From their results, exchange rate has a direct and significant impact on FDI in Pakistan. This implied that depreciation of the domestic currency encourage FDI inflow in Pakistan.

Jaratin, Mori, Dullah, Lim and Rozilee (2014) investigated the effect of exchange rate on FDI in selected Asian countries for the period 1970 – 2011. The study covers Philippines, Singapore, Malaysia and Thailand. A combination of Autoregressive Distributed Lagged (ARDL) bounds test and ECM based autoregressive distributed lag approach for causality test were employed to ascertain the nature of relationship between exchange rate and FDI. The empirical results from the study showed that there exists a significant long term relationship between exchange rate and FDI in Malaysia, Singapore and Philippines with negative coefficient. This implies that appreciation of the countries' currencies will lead to an increase in FDI inflow. The

causality test result shows that there exist a bidirectional causality between exchange rate and FDI in Philippines and Singapore, while a long run unidirectional causality running from exchange rate to FDI exist for Malaysia.

Nwosa and Amassoma (2014) examined the nexus between exchange rate and capital inflow in Nigeria using annual time series data for the period 1986 – 2011. A combination of granger causality test and error correction modeling technique was employed for the study. From the empirical results, there was no evidence that FDI, portfolio investment and exchange rate influence each other in the short run at 5% level. However, the long run regression estimates shows that FDI has a negative effect on exchange rate. Also, the result revealed that portfolio investment has a positive impact on exchange rate. The study concluded that the relationship between exchange rate and capital inflow is not a short run affairs but rather a long run phenomenon.

Amasoma, Nwosa and Fasoranti (2015) examined the nature of relationship between exchange rate volatility and foreign capital inflow using annual time series data from Nigeria for the period 1981 to 2010. The co-integration and error correction modeling technique was employed in estimating the model. From the empirical result obtained, exchange rate volatility had a negative impact on foreign direct investment in the short run. However, the impact was no statistically significant. In the long run, the impact of exchange rate on foreign direct investment was positive and statistically significant. The study therefore concluded that the impact of exchange rate on foreign direct investment is a long run phenomenon.

Eregha (2017) examined the impact of exchange rate polices and inflation expectations on foreign direct investment (FDI) flow in the West Africa Monetary Zone (WAMZ) using annual time series data for the period 1980 – 2014. The Arellano panel correction for serial

correlation and heteroscedasticity option of within estimate for the selected WAMZ countries was employed. From the empirical results, exchange rate uncertainty was found to hinder foreign direct investment inflow. Furthermore, the fixed exchange rate policy regime was found to adversely affect foreign direct investment inflow. On the other hand, intermediate policy regime was found to have a positive impact on FDI inflow during the periods of current account imbalance with changes in foreign exchange rate reserve as the channel. During this period, the study observed that the negative effect of fixed exchange rate policy on FDI increased. Hence, the study concluded that fixed exchange rate regime is not a good policy in period of current account imbalance.

Ali, Mohammed and Zahir (2017) examined the impact of exchange rate on Foreign Direct Investment (FDI) in Somalia using annual time series data for the period 1980 – 2010. The Ordinary Least Square (OLS) estimation technique was adopted by the study. From the empirical result, exchange rate has a significant and negative impact on foreign direct investment in Somalia.

Aisien (2018) examined the impact of exchange rate on foreign private investment using quarterly time series date from Nigeria for the period 2007 to 2017. Foreign private investment in the study was disaggregated into foreign direct investment and foreign portfolio investment in order to ascertain their separate reactions to changes in the exchange rate of the naira against the US dollars. The empirical analysis was based on the VAR estimation procedure using three lagged periods adopted on the basis of various lag order selection criteria. The empirical result revealed that devaluation/depreciation of the naira adversely affects foreign direct investment and foreign portfolio investment in Nigeria. Increased in the size of the domestic market and development of the financial sector were found to stimulate foreign private investment while

high inflation rate in the domestic economy discourages foreign private investment in Nigeria. The study, therefore, recommended among others that the Central Bank of Nigeria should continue to initiate more proactive policy intervention policies to stabilize the exchange rate of the naira in order to stimulate more foreign private investment in Nigeria.

Ogundipe, Alabi, Asaleye and Ogundipe (2019) examined the link between exchange rate volatility and foreign portfolio in Nigeria using data that covers the period 1996Q1 to 2016Q4. The theoretical framework used is the return and creditworthiness model, which is based on the push and pull factors theory. In achieving the objective, the study adopted the vector autoregressive model in ascertaining the dynamics between exchange rate volatility and foreign portfolio investment in Nigeria. Also, the study examined the impact of exchange rate innovations (shocks) on foreign portfolio investment and equally assesses how induced variations in foreign portfolio investment are decomposed among the variables in the model. It was also found that exchange rate volatility and market capitalization significantly and largely explain the variations in foreign portfolio investment. The impulse response analysis shows that foreign portfolio investment was more responsive to standard deviation shocks in market capitalization and exchange rate, implying that these variables were more responsible for the dynamism in FPI. As the horizons expand, shocks to market capitalization and exchange rate increase foreign portfolio investment, whereas shocks to GDP and inflation made foreign portfolio investment dwindle. In the same manner, in decomposing the induced variation in foreign portfolio investment, forecast error shocks in market capitalization, exchange rate and GDP explain more of the variation in foreign portfolio investment.

Karimo (2020) examined the impact of interest rate differential and exchange rate movement on the dynamics of Nigeria's international private capital flows from 2010Q1to

2019Q4. It used the interest rate parity theory and the Markov Switching Time Varying Transition Probability Modelling approach. Findings showed that interest rate differential does not explain the dynamics of aggregate capital and Foreign Direct Investment (FDI) flows, but significantly explains Foreign Portfolio Investment (FPI) flows. Also, movement in real exchange rate is significant in explaining outflows and inflows in FPI, and inflows in FDI, but neutral to aggregate capital flows. The study concluded that deviations from interest rate parity provides opportunities for interest rate and currency arbitrage in Nigeria but using aggregate capital flows mask this evidence. The study therefore recommends that the CBN should focus on exchange rate stabilization policies, so as not only to discourage FPI reversal but to also enhance FDI inflow. This can be done by putting in place foreign reserve accretion measures to boost the ability of the CBN to defend the Naira. The new policy initiative on remittances is a right step in the right direction as it could boost external reserve.

Ejaz, Shahzad and Khan (2021) investigated the extent that capital inflows influence exchange rate and volatility in exchange rate in the developing economies. Generalized Method of Moment was applied on panel data-set of 34 developing countries for the years 1978-2015. The GARCH model was employed to measure volatility in exchange rate while capital inflows are captured by net foreign direct investment (FDI) and foreign portfolio investment (FPI). The findings showed that when the capital inflows are measured by FDI it is positively affected by exchange rate and negatively by volatility in exchange rate. The GDP growth had positive while terms of trade and interest rate had negative effect on capital inflows. The inflation had negative but negligible effect on FDI inflow. When the capital inflows are measured by FPI the results depicted that exchange rate, volatility in exchange rate and terms of trade have negative effect on FPI. The economic growth, interest rate and industrialization had positive effect on capital

inflows captured by FPI. The volatility in exchange rate had negative effect on capital inflows (measured by FDI as well as FPI). Hence, exchange rate fluctuations should be minimized in order to enhance the capital inflows in developing economies.

2.6 Gaps in the Reviewed Literature

A close observation of the reviewed literature shows that there is no consensus on the possible effect of exchange rate on foreign private investment. While some found a positive relationship between both variables, others found a negative relationship, even a third variant concluded that there is no significant relationship between exchange rate and foreign private investment.

Also, with the exception of Choi, Chung and Kim (2013) which employed monthly data in their study on Korea and Rashid and Fazal (2010) which employed monthly data in their study on Paskistan, other empirical studies employed the annual time series data. Specifically, virtually all the studies in Nigeria were based on annual time series data. The annual time series data is normally the annual average of the data which may smoothen the data thereby omitting some actual fluctuations which would have been captured by higher frequency data.

Finally, majority of the studies captured foreign private investment using FDI. It is important to note that foreign private investment is made up of both FDI and foreign portfolio investment. Each of these components of foreign investment may react differently to changes in exchange rate. The non-inclusion of foreign portfolio investment in most of the studies amounts to telling a part of the story.

CHAPTER THREE

THEORETICAL FRAMEWORK

3.1 Introduction

This chapter presents the theoretical framework. The theoretical framework is based on the portfolio balance model.

3.2 Theoretical Framework

Fernandez-Arias and Montiel (1995) developed the portfolio balance model. It was popularized by Taylor & Sarno (1997) and Moody, Taylor & Kim (2001). Their framework is based on the fact that a foreign investor will exploit all the possibility of arbitrage across his home and host country. Factors influencing capital flows can be grouped into domestic or pull factors and global or push factors. The pull factors represent country's specific investment risk and returns which attract foreign investors to invest in a country. On the other hand, the push factors represent external factor which push investment towards the host country. The pull or domestic factors can further be categorized into those which operate at the country level and those that operate at the project or asset level.

Assuming capital inflows are represented by transactions in different types of assets in the host country, the expected returns on investment can be said to be a function the domestic business environment. Therefore, for a foreign investor to consider investing in a country, he will consider the domestic business environment of the host country, the credit worthiness of the country and the financial and economic opportunities in his own (source) country. From the group of factors, domestic business environment and credit worthiness of the host country represent the pull factors, while the financial and economic opportunities in the source country represent the push factors.

The domestic business environment can be influenced according to Fernandze-Arias & Montiel (1996) by numerous factors. This include among others exchange rate, exchange rate volatility, interest rate, inflation rate, foreign investment policy, cost of doing business, institutional factors, output growth rate and macroeconomic policy. The link between exchange rate and foreign capital inflow can be seen from the argument advanced by Froot and Stein (1991). Using the imperfect capital market framework, they argued that exchange rate operates on foreign private capital inflow through the wealth effect. As the host country currency depreciates, it automatically increases the wealth of foreigners, allowing them to make higher bids for domestic assets in the host country. In this case, host country currency depreciation stimulates inflow of foreign private capital.

However, there may be exchange rate risk associated with the timing between investment and profit. If the exchange rate depreciates to a lower level to source country currency at the time of profit repatriation relative time of investment, it will lower the return of the foreign investor. This exchange rate risk is factored into cost of investment. Firms will invest abroad when the expected returns equal the cost of operation and payment for the degree of risk introduced by exchange rate volatility. The greater the exchange rate volatility, the higher the exchange rate risk. Hence, exchange rate volatility has an inverse relationship with foreign private capital inflow.

CHAPTER FOUR

EMPIRICAL METHODOLOGY, MODEL AND DATA

4.1 Introduction

The empirical model of this study is based on the portfolio balance framework provided in chapter three. The study adopts the Autoregressive Distributed Lag (ARDL) approach to regression analysis. The other methods of data analysis include: unit root and co-integration tests.

4.2 Model Specification

On the basis of the theoretical framework in chapter three, foreign private capital inflow is a function of exchange rate, exchange rate volatility and other control variables (see Eregha, 2017; Alobari, Paago, Igbara, Felix & Emmah, 2016; Bilawal, Ibrahim, Abbas, Shuaib, Ahmed, Hussain & Fatima, 2014; Osinubi & Amaghionyeodiwe, 2009).

This can be specified as

$$FPCI = f(EXCH, EXCHV, RGDP, INF, FD, OPEN) \quad (1)$$

Where:

FPCI = Foreign private capital inflow

EXCH = Exchange rate

EXCHV = Exchange rate volatility

INT = Interest rate

RGDP = Real gross domestic product

INF = Inflation rate

FD = Financial deepening

OPEN = Degree of economic openness

Equation (1) can be specified explicitly in econometric form as follows:

$$FPCI_t = \beta_0 + \beta_1 t + \beta_2 FPCI_{t-1} + \beta_3 EXCH_t + \beta_4 EXCHV_t + \beta_5 RGDP_t + \beta_6 INF_t + \beta_7 FD_t + \beta_8 OPEN_t + \mu_t \quad (2)$$

Where, t is a trend variable, β_0 is the intercept term, μ_t is the stochastic term. β_2, β_3, and β_4 are the slope coefficients. The description of variable and their sign expectations are contained in the Table 4.1:

Table 4.1: Description of Selected Variables

Variables	Description	Measurement	Sign expectation
FPCI	Foreign private capital inflow		
EXCH	Exchange rate	Naira to one US dollar(₦ / US$1)	+
EXCHV	Exchange rate volatility	Mean deviation of exchange rate	-
INT	Interest rate	Prime rate	+
RGDP	Real gross domestic product	GDP at constant market price	+
INF	Inflation rate	12 months moving average inflation. (To control to level of economic stability of the economy)	-
FD	Financial Development	Ratio of money supply to GDP (M2/GDP) (To control for financial sector development)	+
OPEN	Degree of openness	Ratio of total trade to GDP $\left(\frac{IMPORT+EXPORT}{GDP}\right)$	+

4.3 Estimation Techniques

The empirical analysis adopts the unit root test for stationarity of the variables. The properties of the variables will be tested using the Augmented Dickey-Fuller (ADF) unit root test. Each variable will be tested at 5% level. This will help to ascertain the order of integration of each variable in the model. The study will adopt the Autoregressive Distributed Lag (ARDL) estimation technique. The ARDL approach can be applied irrespective of whether the regressors are I(1) and I(0) or mutually cointegrated, in which the dependent variable must be I(1).

The bounds test co-integration technique will be employed to test the level relationship among the variables. Pesaran, Shin and Smith (2001) developed a new approach to testing the relationship between a dependent variable and a set of regressors when it is not known with certainty whether the variables are I(0), I(1) or mutually cointegrated. They proposed the Wald/F and t-statistics to test the significance of lagged levels of the variables in a univariate equilibrium correction mechanism. If the proposed Wald/F and t-statistics fall outside the asymptotic critical value bounds, a conclusive inference can be drawn. However, if they fall within the bounds, an inconclusive inference is drawn and knowledge of integration/cointegration status of the variables is required before a conclusive inference can be drawn.

4.4 Sources of Data

The study will employ quarterly time series data. The data will be sourced from the Central Bank of Nigeria (CBN) statistical bulletin and annual report of the National Bureau of Statistics (NBS).

CHAPTER FIVE

EMPIRICAL ANALYSIS

5.1 Introduction

This chapter presents the empirical results and the analysis. The analysis of results starts with the presentation of descriptive statistics. Also, the correlation analysis of the variables is reported. These are followed by the presentation of the unit root tests results using the Augmented Dickey Fuller (ADF) test and the co-integration test result using the bounds test. The autoregressive distributed lag (ARDL) regression results were reported. Finally, the hypotheses of the study were tested.

5.2 Descriptive Statistics

The results of the descriptive statistics are reported in Table 5.1.

Table 5.1: Descriptive Statistics

	FPCI	EXCH	FD	INF	INT	OPEN	RGDP
Mean	440.6309	94.21005	15.18513	19.67615	13.38923	0.168774	30559.51
Maximum	2351.340	306.1000	25.16000	76.76000	26.00000	0.651440	144210.5
Minimum	0.264300	0.610000	9.150000	0.220000	6.000000	0.000978	144.8300
Std. Dev.	553.3250	92.75106	5.227466	18.06722	4.277554	0.168507	41655.36
Skewness	1.358940	0.802568	0.692682	1.689254	0.496678	0.774486	1.292604
Kurtosis	4.677993	2.835622	1.837703	4.912395	3.487461	2.819945	3.429122
Jarque-Bera	16.57911	4.230658	5.314021	24.49131	1.989609	3.951567	11.15960
Probability	0.000251	0.120594	0.070158	0.000005	0.369796	0.138653	0.003773

Source: Author's computation using EViews 11.0

In Table 5.1, foreign private capital inflow (FPCI) has a mean of N440.63 billion over the period 1981 to 2019 with a standard deviation of 553.33. The maximum and minimum amounts of foreign private capital inflow for the period are N2,351.34 and N0.26 billion respectively. The value of skewness for foreign private capital inflow is 1.35. This means that the distribution of

foreign private capital inflow is skewed slightly to the right. Its kurtosis value of 4.68 indicates that the distribution of foreign private capital inflow is peaked. The Jarque-Bera value is 16.58 with probability value of 0.025%. It indicates that foreign private capital inflow is not normally distributed at the 5% significance level.

The average value of exchange rate (EXCH) for the period under review is N94.21 to $1. The maximum and minimum values are N306.10 and N0.61 to $1 respectively. The skewness value (0.80) shows that exchange rate is positively skewed. Its Kurtosis (2.84) indicates that the distribution of exchange rate is normal. The Jarque-Bera value of 4.23 with probability value of 0.12 suggests that exchange rate is normally distributed.

For ratio of broad money supply to gross domestic product (FD) proxy for financial deepening, the mean value for the period under review is 15.19% with a standard deviation of 5.23. Its maximum and minimum values for the period are 25.16% and 9.15% respectively. Its skewness (0.69) shows that the distribution of financial deepening is slightly positively skewed. Its Kurtosis (1.84) indicates that the distribution is relatively flat. The Jarque-Bera statistic (5.31) with a p-value of 0.08 indicates that the variable is normally distributed at the 5% level of significance.

The average value of inflation rate (INF) for the period under review is 19.68% with a standard deviation of 18.07. Its maximum and minimum values for the period are 76.76% and 0.22% respectively. Its skewness (1.69) shows that the distribution of inflation rate is positively skewed. Its Kurtosis (4.91) indicates that the distribution of inflation rate is peaked. The Jarque-Bera statistic (24.49) with a p-value (0.01) indicates that the variable is not normally distributed.

The mean value of interest rate (INT) is 13.39%. The maximum and minimum values are 26% and 6% respectively. The skewness value (0.5) shows that interest rate is positively skewed.

Its Kurtosis (3.49) indicates that the distribution is peaked. The Jarque-Bera value of 1.99 with probability value of 0.37 suggests that the variable is normally distributed.

Trade openness (OPEN) has a mean of 0.17 over the period of review. The maximum and minimum values of trade openness are 0.65 and 0.00098 respectively. Its skewness value is 0.77 indicating that the distribution of trade openness is slightly skewed to the right about its mean. Its Kurtosis (2.82) shows that the distribution is normal. The Jarque-Bera value of 3.95 with probability value of 0.14 suggests that trade openness is normally distributed about its mean at the 5% level of significance.

Real gross domestic product (RGDP) has a mean of N30, 559.51 billion over the period 1981 to 2019. The maximum and minimum values of real gross domestic product are N144, 210.5 billion and N144.83 billion respectively. Its skewness value is 1.29 indicating that the distribution of RGDP is skewed to the right about its mean. Its Kurtosis (3.43) shows that the distribution is relatively peaked. The Jarque-Bera value of 11.16 with probability value of 0.004 suggests that real gross domestic product is not normally distributed about its mean at the 5% level of significance.

5.3 Correlation Analysis

The results of the correlation coefficients among the variables are reported in Table 5.2.

Table 5.2 Correlation Matrix

Correlation Probability	*FPCI*	*EXCH*	*EXCHV*	*FD*	*INF*	*INT*	*OPEN*	*RGDP*
FPCI	1.0000							

EXCH	0.8610	1.0000						
	0.0000	-----						
EXCHV	0.8330	0.9059	1.0000					
	0.0000	0.0000	-----					
FD	0.8553	0.8677	0.7626	1.0000				
	0.0000	0.0000	0.0000	-----				
INF	-0.3274	-0.3573	-0.2623	-0.2442	1.0000			
	0.0419	0.0256	0.1066	0.1341	-----			
INT	-0.1739	-0.0072	0.0104	-0.1633	0.2444	1.0000		
	0.2897	0.9651	0.9499	0.3207	0.1337	-----		
OPEN	0.8536	0.8752	0.7868	0.8508	-0.3910	-0.1854	1.0000	
	0.0000	0.0000	0.0000	0.0000	0.0138	0.2585	-----	
RGDP	0.8884	0.9221	0.9127	0.9166	-0.3080	-0.0991	0.8557	1.0000
	0.0000	0.0000	0.0000	0.0000	0.0564	0.5485	0.0000	-----

Source: Author's computation using EViews 11.0

As revealed in Table 5.2, the correlation coefficient between exchange rate and foreign private capital inflows is positive ($r = 0.86, p < 0.01$). It shows that there a strong positive relationship between exchange rate and foreign private capital inflows in Nigeria. Similarly, the correlation coefficient between exchange rate volatility and foreign private capital inflows is positive ($r = 0.83, p < 0.01$). It shows that there a strong positive association between exchange rate volatility and foreign private capital inflows in Nigeria. Also, the correlation coefficient between financial deepening and foreign private capital inflows is positive ($r =$

$0.86, p < 0.01)$. It shows that there a strong positive relationship between financial deepening and foreign private capital inflows in Nigeria. However, the correlation coefficient between inflation rate and foreign private capital inflows is negative $(r = -0.33, p = 0.04)$. It shows that there a weak negative relationship between inflation rate and foreign private capital inflows in Nigeria. The correlation coefficient between interest rate and foreign private capital inflows is negative but insignificant at the 5% level $(r = -0.17, p = 0.29)$. The correlation coefficient between trade openness and foreign private capital inflows is positive $(r = 0.85, p < 0.01)$. It shows that there a strong positive relationship between trade openness and foreign private capital inflows in Nigeria. Lastly, the correlation coefficient between real gross domestic product and foreign private capital inflows is positive $(r = 0.89, p < 0.01)$. It shows that there a strong positive association between real gross domestic product and foreign private capital inflows in Nigeria.

5.4 Unit Root Tests

The results of the Augmented Dickey-Fuller (ADF) unit root tests of the variables at levels and first differences are presented in Table 5.3 and Table 5.4 below respectively. The ADF regressions included an intercept and a trend.

Table 5.3: Results of Augmented Dickey-Fuller Unit Root Tests at Levels

(Augmented Dickey-Fuller Least Squares Regressions include an intercept and a trend)

Variable	*Lag*	*ADF Test Statistic*	*5% Critical Value*	*Remarks*
FPCI	7	3.278032	-2.960411	Non-Stationary
EXCH	1	-2.144376	-3.536601	Non-Stationary
EXCHV	1	-2.585451	-3.536601	Non-Stationary
FD	0	-2.164351	-3.533083	Non-Stationary
INF	6	-3.108697	-3.557759	Non-Stationary
INT	1	-2.991725	-3.533083	Non-Stationary
OPEN	0	-4.146358	-3.533083	Stationary
RGDP	0	-1.714876	-3.536601	Non-Stationary

Source: Author's Results using Eviews 11.0

Table 5.4: Results of Augmented Dickey-Fuller Unit Root Tests at First Difference

(Augmented Dickey-Fuller Least Squares Regressions include an intercept and a trend)

Variable	*Lag*	*ADF Test Statistic*	*5% Critical Value*	*Order of Integration*	*Remarks*
D(FPCI)	9	-4.236686	-3.580622	I(1)	Stationary
D(EXCH)	0	-4.476691	-3.536601	I(1)	Stationary
D(EXCHV)	2	-5.008935	-3.544284	I(1)	Stationary
D(FD)	0	-5.856023	-3.536601	I(1)	Stationary
D(INF)	3	-5.773300	-3.548490	I(1)	Stationary
D(INT)	1	-6.476663	-3.540328	I(1)	Stationary
D(RGDP)	0	-7.640006	-3.540328	I(1)	Stationary

Source: Author's Results using Eviews 11.0

Note: "D" denotes first difference.

From Table 5.3, it was found that foreign private capital inflow (FPCI), exchange rate (EXCH), financial deepening (PD), inflation rate (INF), interest rate (INT), and real gross domestic product (RGDP) are all non-stationary at the 5 percent significance level. That is, all

the variables are not stable at their levels. This is because the ADF statistics for these variables are greater than their critical values in absolute terms at 5 percent level of significance. Thus, they are all non-stationary at levels except trade openness (OPEN) which was found to be stationary at the level. From Table 5.4, the unit root tests of the variables at their first differences show that they are all stationary after their first differencing. In other words, all the variables are stable at their first differences. Thus, the variables are integrated of different orders, that is integrated of order one and zero, symbolically denoted as: I(1) and I(0).

5.5 Bounds Cointegration Test

Having established the time series properties of the data, the study proceeded to conduct the cointegration tests using the autoregressive distributed lag (ARDL) bounds test. The results are reported in Table 5.5.

Table 5.5: ARDL Bounds Cointegration Test

Null Hypothesis: No long run relationships exist		
Test Statistic	Value	Number of Parameters
F-statistic	6.33	7
Critical Value Bounds		
Significance	I(0) Bound	I(1) Bound
10%	1.92	2.89
5%	2.17	3.21
1%	2.73	3.90

Source: Results extract from EViews 11.0

The F-statistic of the ARDL bounds test is 6.33. It lies above the lower, I(0) and upper, I(1) critical value bounds at the 5% level. This indicates that the null hypothesis of no long run relationships among the variables cannot be accepted at the 5% level. This implies that the dependent variable and the set of independent variables in the model are co-integrated, that is, a long-run equilibrium relationship exists among the series in the model.

5.6 Analysis of Granger Causality Test

The results of the Granger causality test are reported in Table 5.6.

Table 5.6: Pairwise Granger Causality Tests

Null Hypothesis:	Obs	F-Statistic	Prob.
EXCH does not Granger Cause FPCI	37	10.2842	0.0004
FPCI does not Granger Cause EXCH		0.00057	0.9994
EXCHV does not Granger Cause FPCI	37	18.2398	5.E-06
FPCI does not Granger Cause EXCHV		3.28864	0.0502
FD does not Granger Cause FPCI	37	0.92147	0.4082
FPCI does not Granger Cause FD		4.45526	0.0196
INF does not Granger Cause FPCI	37	0.01587	0.9843
FPCI does not Granger Cause INF		1.65565	0.2069
OPEN does not Granger Cause FPCI	37	20.4087	2.E-06
FPCI does not Granger Cause OPEN		6.93944	0.0031
RGDP does not Granger Cause FPCI		379.0973	0.0007
FPCI does not Granger Cause RGDP		8.836840	0.0009

Source: Results extract from EViews 9.0

In Table 5.6, the pair-wise Granger causality tests revealed that the exchange rate (EXCH) does Granger cause foreign private capital inflow (FPCI) while foreign private capital inflow does not Granger cause exchange rate. This, therefore, implies that there exists a unidirectional relationship between exchange rate and foreign private capital inflow. Also, exchange rate volatility (EXCHV) Granger causes foreign private capital inflow and foreign private capital inflow Granger causes exchange rate volatility. This shows that a bi-causal relationship exists between foreign private capital inflow and exchange rate volatility. Financial deepening (FD) was found not to Granger cause foreign private capital inflow but foreign private capital inflow does Granger cause financial deepening. Hence, causality runs from foreign private capital inflow to financial deepening and not vice versa. However, inflation rate (INF) does not Granger cause foreign private capital inflow neither does foreign private capital inflow Granger cause inflation rate. Hence, the results suggest that no causal relationship exists between inflation rate and foreign private capital inflow base on the statistical evidence. On the other hand, trade

openness (OPEN) Granger causes foreign private capital inflow and foreign private capital inflow Granger causes trade openness. Hence, a bidirectional causality exists between foreign private capital inflow and trade openness. Similarly, real gross domestic product (RGDP) Granger causes foreign private capital inflow and foreign private capital inflow. Thus, causality runs from real gross domestic product to foreign private capital inflow and vice versa.

5.7 VAR Lag Order Selection Criteria Tests

The results of the VAR lag order selection criteria tests are presented in Table 5.7.

Table 5.7: VAR Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	92.12612	NA	6.83e-11	-6.379713	-6.091749	-6.294086
1	221.0276	190.9651*	7.54e-14*	-13.26130	-11.24556*	-12.66191*
2	262.8938	43.41683	7.65e-14	-13.69584*	-9.952308	-12.58269

Note. * indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion
Source: Results Extract from EViews 11.0

From Table 5.7, the lag order selection criteria indicate that the optimum lag order for the endogenous variables in the model is one (1). Thus, in estimating the ARDL model, the highest lag order introduced in the independent variables is 1.

5.8 Results of the ARDL Model

The results of the autoregressive distributed lag model are presented in Table 5.8.

Table 5.8: Estimated Coefficients of the ARDL Model

Dependent Variable: Foreign Private Capital Inflow (FPCI)				
Regressor	**Coefficient**	**Standard Error**	**T-Ratio**	**Probability**
FPCI(-1)	-0.360489	0.281038	-1.282708	0.2114
EXCH	5.067865	1.839982	2.754301	0.0108
EXCH(-1)	-7.506108	2.684754	-2.795827	0.0098
EXCHV	0.008697	0.002866	3.034218	0.0056
FD	26.36697	17.01296	1.549817	0.1338
INF	2.997923	1.680815	1.783613	0.0866
INT	-7.304531	8.206026	-0.890142	0.3819
INT(-1)	-16.93479	8.305269	-2.039041	0.0522
OPEN	-80.04359	466.1402	-0.171716	0.8650
OPEN(-1)	3591.722	551.0834	6.517566	0.0000
RGDP	0.055481	0.034470	1.609570	0.1200
RGDP(-1)	-0.065833	0.034982	-1.881917	0.0715
C	-94.31119	207.1413	-0.455299	0.6528
R-Squared 0.9565			R-Bar-Squared 0.9357	
F-Statistic 45.8358 [< 0.01]			DW-Statistic 1.9851	
Post Estimation Tests				
Breusch-Godfrey Serial Correlation LM Test				
Obs*R-squared 0.000613 [0.9997]				
Heteroskedasticity Test: Breusch-Pagan-Godfrey				
Obs*R-squared 12.02633 [0.4436]		Scaled explained sum of squares 5.1289 [0.9535]		

Note. P-values are reported in square brackets; LM = Lagrange multiplier
Source: Author's computation using EViews 11.0

The coefficient of determination of the ARDL model, R-squared (R^2) is about 0.96 and the adjusted R-squared ($\overline{R}^2$) is 0.94. The R-squared implies that about 96% of the systematic variations in foreign private capital inflow (FPCI) are explained by the independent variables in the equation. The adjusted R-squared indicates that about 94% of the systematic changes in the dependent variable are attributable to the explanatory variables. Hence, the explanatory power of the model is high. The F-statistic ($F(12, 25) = 45.84, p < 0.01$) is significant at the 1% level. It implies that the model as a whole is significant. A cursory look at the Durbin Watson statistic of approximately 1.99 depicts absence of autocorrelation in the ARDL model though it could be

misleading. However, using the Breusch-Godfrey serial correlation test, the results revealed that the residuals are not serially correlated up to order two. The heteroskedasticity test using the Breusch-Pagan-Godfrey technique indicates that the residuals are homoskedastic. Therefore, the ARDL model is adequate.

The signs of all the estimated coefficients of the explanatory variables in the model conformed to their a priori expectations except inflation rate and interest rate. The coefficient of one year lagged value of foreign private capital inflow is negative and insignificant ($t = -1.28, p = 0.21$). Therefore, the previous value of foreign private capital inflow does not significantly influence its current value. The coefficients of the current and previous values of exchange rate are positive and negative respectively. They are significant at the 1% level ($t = 3.03, p = 0.01$); ($t = -2.80, p = 0.01$). The results show that a depreciation in the current value of the exchange will lead to inflows of foreign private capital whereas a depreciation in the previous value of the exchange will lead to outflows of foreign private capital. Thus, the effect of exchange rate on foreign capital inflow is mixed. However, the coefficient of exchange rate volatility was found to be positive and significant at the 1% level ($t = 2.75, p = 0.01$). This reveals that one standard unit increase in the mean of exchange rate will lead to about N8.70 million inflows of foreign private capital to Nigeria. Thus, exchange rate volatility has a positive significant influence on foreign private capital inflows.

The estimated coefficient of financial deepening is positive though insignificant at 5% level ($t = 1.55, p = 0.13$). Hence, financial deepening has no significant effect on foreign private capital inflows in Nigeria. The coefficient of inflation rate is positive and significant at the 10% level ($t = 1.78, p = 0.09$). Therefore, inflation rate has a positive significant impact on foreign private capital inflows in Nigeria. Though the coefficient of current value of interest

rate is negative, it is insignificant even at the 10% level ($t = -0.89, p = 0.38$). This indicates current interest rate has a positive insignificant effect of foreign private capital inflows. However, the coefficient of the lagged value of interest rate is negative and significant at the 5% level ($t = -2.04, p = 0.05$). This implies that a rise in the lagged value of interest rate led to a decrease in foreign private capital inflows. The coefficient of current value of trade openness is negative but insignificant at the 10% level ($t = -0.17, p = 0.87$). It implies that current trade openness has no significant effect on foreign private capital inflows. However, estimated coefficient of the lagged value of trade openness is positive and significant at the 1% level ($t = 6.52, p < 0.01$). This shows that the more open is the Nigerian economy the higher the inflows of foreign private capital. Thus, trade openness has a positive significant effect on foreign private capital inflows in Nigeria. The current value of real gross domestic product has a positive insignificant impact on foreign private capital inflows in Nigeria ($t = 1.61, p = 0.12$). Surprisingly, the lagged value of real gross domestic product was found to have a negative significant effect on foreign private capital inflows in Nigeria ($t = -1.88, p = 0.07$).

5.9 Test of Hypotheses

On the basis of the ARDL run regression results, we can test the validity of the hypotheses presented in chapter one of this research.

Hypothesis 1: Exchange rate has no significant impact on foreign private capital inflow in Nigeria. As revealed in the regression results, the coefficients of current and lagged exchange rate are significant at the 1% level. Hence, we cannot accept the null hypothesis that exchange rate has no significant effect on foreign private capital inflow in Nigeria. The implication is that exchange rate significantly affects foreign private capital inflow in Nigeria.

Hypothesis 2: Exchange rate volatility has no significant effect on foreign private capital inflow in Nigeria. From the long run regression results, the coefficient of exchange rate volatility is significant at the 5% level $(t = 3.03, p = 0.05)$. Accordingly, we fail to accept the null hypothesis that exchange rate volatility has no significant effect on foreign private capital inflow in Nigeria. This implies that exchange rate volatility significantly affects foreign private capital inflow in Nigeria.

Hypothesis 3: Domestic interest rate has no significant impact on foreign private capital inflow in Nigeria. As shown in the regression results, the coefficient of the current value of interest rate is negative but insignificant at the 10% level $(t = -0.89, p = 0.38)$. Thus, we cannot reject the null hypothesis that domestic interest rate has no significant impact on foreign private capital inflow in Nigeria.

CHAPTER SIX

SUMMARY OF FINDINGS, RECOMMENDATIONS AND CONCLUSION

In this chapter, the main findings of the study are summarized. Next, the recommendations of the study are provided. Lastly, the conclusion is stated.

6.1 Summary of Findings

The major findings of this study are stated as follows:

1. It was found that there exists a unidirectional relationship between exchange rate and foreign private capital inflow.
2. It was discovered that a bi-causal relationship exists between foreign private capital inflow and exchange rate volatility.
3. It was revealed that causality runs from foreign private capital inflow to financial deepening and not vice versa.
4. It was revealed that no causal relationship exists between inflation rate and foreign private capital inflow base on the statistical evidence.
5. The study found that a bidirectional causality exists between foreign private capital inflow and trade openness.
6. It was found that causality runs from real gross domestic product to foreign private capital inflow and vice versa.
7. It was discovered that the effect of exchange rate on foreign capital inflow is mixed.
8. It was revealed that exchange rate volatility has a positive significant influence on foreign private capital inflows.
9. It was discovered that inflation rate has a positive significant impact on foreign private capital inflows in Nigeria.

10. It was established that trade openness has a positive significant effect on foreign private capital inflows in Nigeria.

6.2 Recommendations

Based on the empirical findings of this research, the following recommendations have been proffered:

1. The Nigerian monetary authority should come up with policy strategy to curb the volatility of the exchange rate so as to encourage foreign private capital flows into the country. This can be done through regular Central Bank intervention in the foreign exchange market. A more stable exchange rate will promote foreign capital inflow into the economy.
2. Appropriate macroeconomic policies should be put in place to boost the size of the domestic market. An increase the real gross domestic product will stimulate foreign capital inflow into the economy. Increasing in the size of the domestic economy will also strengthen the stability of the naira so as to encourage foreign private capital inflow.
3. The government through the central bank should employ appropriate macroeconomic policies to control the inflationary pressure in the economy. This will reduce loss of capital gains due to inflationary pressure and encourage foreign private capital inflows in Nigeria.
4. A sound financial sector is a basic pre-requisite for assessing the absorptive capacity of the domestic economy to inflow of foreign capital. Therefore, the Nigerian government through the various financial sector regulatory agencies should step up their supervisory role in the sector in order to boost the soundness of the financial sector of the economy.

6.3 Conclusion

This study sought to examine the effect of exchange rate on foreign private capital inflow in Nigeria. The study showed that exchange rate volatility has a positive significant effect on foreign private capital inflow in Nigeria. This finding implies that deviations in exchange rate positively affect capital flows in Nigeria. Similarly, current exchange rate was found to have a positive significant effect on foreign private capital inflows. However, the previous value of exchange rate was found to have an adverse effect on foreign private capital inflows. These findings suggest that exchange rate has mixed effects on foreign private capital inflows in Nigeria. The implication is that exchange rate could either enhance foreign private capital inflows or encourage foreign private capital outflows. Therefore, exchange rate changes do not ensure stable flows of foreign private capital into Nigeria. As a result of the uncertainty associated with exchange rate, foreign private capital inflows are discouraged into the country. Instability of exchange rate fuels exchange rate risk. High exchange rate risk discourages foreign investment owing to the increased chances of capital loss. Hence, a stable exchange rate will ensure foreign private capital inflow in Nigeria. Therefore, appropriate exchange rate policy aimed at stabilizing the exchange rate of the naira is needed. In order to achieve this, the recommendations above would be helpful.

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