Global Scientific JOURNALS

GSJ: Volume 9, Issue 9, September 2021, Online: ISSN 2320-9186
www.globalscientificjournal.com

INTEREST RATE AND PORTFOLIO INVESTMENT IN NIGERIA (1984-2018)

Kiyentei Benneth GINI
University of Uyo,
Uyo
noblegini@gmail.com

Menoja Nathaniel AKOKAIKE
Centre for Petroleum Energy Economics and Law (CPEEL)
University of Ibadan, Ibadan
menojanathaniel@gmail.com

Abstract: The research explores the effect of interest rate on portfolio investment in Nigeria from 1984 to 2018, using time series data from CBN and WDI. The study was motivated by the fact that portfolio investment has not yield the needed returns in Nigeria despites government's effort at different times to improve the capital market where portfolios are traded, the capital market is still grossly under developed. Also, before and after the deregulation of interest rate which is perceived to be a major determinate of portfolio investment, portfolio investment has not reached its peak in Nigeria. The broad objective of the study therefore was to examine the effect of interest rate on portfolio investment in Nigeria, while the specific objectives included to determine the effect of interest rate on portfolio investment, to investigate the speed of response of portfolio investment to changes in interest rate and exchange rate, and to determine the nature of causal relationship between interest rate and portfolio investment. The study employed the technique of Autoregressive Distributed Lag (ARDL). The Findings showed that interest rate has a positive and significant effect on portfolio investment in the short run but no effect in the long run. It was concluded that apart from interest rate, factors affecting portfolio investment in Nigeria is multi-dimensional. It was recommended that the CBN should consider an interest rate threshold that applies to both lenders and borrowers so that none get worse off, so as to promote positive portfolio investment and growth.

Keywords: *Portfolio Investment, Interest rate, Market Capitalization, Inflation rate, Trade Openness, Exchange rate*

SECTION ONE

1.1) Background to the Study

It is a known fact that investment plays a significant role in any economy's functioning, whether it is developed or underdeveloped. Economic growth of most economies is derived from investment in such economy. Investment is thus seen as a stimulus for economic growth. To this end, the governments of different countries, of which Nigeria is no exception, are taking measures to promote investment in order to improve high productivity, employment opportunities, living standards, reduce poverty and eventually accelerate economic growth (Ayeni,2014). The beneficial effect is that multi-investment raises national income, which in turn increases savings for production, consumption, and aggregate level of demand.

Investment can take the form of portfolios or physical investment. Portfolio investments are financial securities comprising of equity sales such as common stock and shares, and debt instruments, such as banknotes and debentures. Portfolio investments are purely financial investment as opposed to foreign direct investment (FDI), which enables an investor to exercise some degree of managerial control over a business. In international transactions, equity investments where less than 10 per cent of a company's shares are owned by the investor are known as portfolio investments.

Hence, international institutions such as World Bank and International Monetary Fund have supported reforms which are aimed at developing the capital markets in developing countries. Portfolio investing, on the other hand, is a relatively new phenomenon that has only gained importance with the rise of large public corporations in developing countries and the advent of local stock markets.

In the international financial setting, portfolio investments can span a wide range of asset classes such as stocks, government bonds, corporate bonds, treasury bills, bullion, crypto currencies, real estate investment trusts (REITs), exchange-traded funds (ETFs), mutual funds and certificates of deposit. Portfolio investments can also include options, derivatives such as warrants and futures, and physical investments such as commodities, real estate, land, and timber. The composition of individuals' portfolio investments depends on a number of factors. Some of the most important include the investor's risk tolerance, investment horizon and amount invested. Mutual funds or exchange-traded funds may be ideal portfolio investments for a young investor with limited funds. To individuals with a high net worth, portfolio investments could include securities, shares, commodities, and rental properties.

Ekeocha, Malaolu, and Oduh (2012) argued that while Foreign Portfolio Investment is generally regarded as more passive or speculative in nature than direct investment. It is highly sensitive to changes in its determinants and can be withdrawn from the market at short notice. Yet it is still very relevant in the Nigeria's investment environment, giving the savings-investment gap as recorded in the National Economic Empowerment and Development Strategy (NEEDS) and in the vision 20:2020. In addition, developing countries are preferred to developed countries by foreign investors because of the higher rate of return on investment in these countries (Ghose, 2004; Knill, 2005).

This higher investment return rate is in the form of an interest rate, which is a significant economic price. It is known to determine the level of investment in an economy by either affecting the cost of capital or influencing the availability of credit. Interest rates have a major impact on the economy as a whole and one of the best tools at a central bank's disposal is manipulating the rate.

The central bank sets the target interest rate in an effort to influence market rates, making it an important part of monetary policy. Interest rates will have a significant impact on inventories and other investments. Every investor has an appropriate level of risk, and that level includes potential returns against potential losses. Portfolio flows to developing countries are extremely sensitive to disparities of interest. Given the differences between the current interest rates on international markets, money tends to flow to countries with high interest rates. Putting money into shares, savings accounts and deposit certificates makes sense when interest rates are high. However, when interest rates are very low, that money will not earn as much (Patel, 2019).

If the inflation rate is higher than the investment return rate, the real value of the investment will be reduced. As interest rates rise, the stock market tends to fall as capital is taken out of stocks and placed into low-risk investments. The opposite is true on declining interest rates. The effect is transient as fundamental and macroeconomic factors assume responsibility (Patel, 2019

Therefore, given that the positive relationship between investment and economic development is well know n, it becomes expedient for any economy that wishes to expand to pay due attention to interest rate changes. Nigeria being a country in dire need of development cannot overlook the important role interest rate could play in fostering inflow of foreign capital to supplement domestic resources.

It is a known fact that a vibrant socioeconomic and stable political climate is key to attracting investment and making it beneficial to the host economy. It is on this basis that Nigeria liberalized its economy and capital markets, strengthened its capital market infrastructure and returned, among other things, to a stable democratic government. This gave rise to inflows of Portfolio investment in Nigeria. Until the mid 1980s, Nigeria had not registered any portfolio investment (inflow or outflow) figures in its balance of payments account. The zero return on the account's inflow column was due to the absence of foreign private investors within the economy of Nigeria. This was mainly due to the non-internationalization of the money and capital markets in the country as well as the nondisclosure of the information on the portfolio investments in foreign capital/money markets.

The CBN Statistical Bulletin data depicts that foreign capital inflows to Nigeria have surpassed most African countries and has since 2000s become one of the most attractive foreign capital destinations in the world (CBN, 2012).

Data from the Nigerian Stock Exchange (NSE) showed that portfolio investment inflow in 2009 reached N228.986 billion, an increase compared to N153.457 billion in 2008. This rose further in 2010 to N350 billion (Ikazoboh, 2011), and in 2011 to N511.74 billion (Onyema, 2012). But in 2015 and 2016, the inflow dropped sharply by about 31.9 percent and 45.5 percent respectively to N470.83 billion and N256.52 billion. Since portfolio flows to developing countries are highly sensitive to interest rate differentials, it is reasonable to investigate empirically whether interest rates were the cause of those fluctuations. It is due to the foregoing that this study seeks to ascertain the effect/impact of interest rate on portfolio investment in Nigeria within the period of 1984-2018.

1.2) Statement of the Problem

It is worrisome that the inflow of portfolio investment has not yield the desired impact on the Nigerian economy despites government's effort at different times to improve the inflow of portfolio invest. After the deregulation of interest rate which is perceived to be a major determinate of portfolio investment, portfolio investment has not reached yet the desired level. The capital market is still grossly under developed.

Portfolio investors prefer high interest rates to low interest rates but the high interest rates are detrimental to the economy of Nigeria in other ways. As of September 30, 2018, Treasury Bills accounted for 30.23 per cent of Nigeria's domestic debt of $34.62 billion, higher than the planned target of 25 per cent for the debt management office. In addition to individuals such as civil servants and private sector employees, commercial banks and asset management firms are also moving bank deposits and investing in fixed income securities. Also, statistics of the Central Bank of Nigeria from 2011 to 2015 showed that only 0.1 per cent of total bank loans went to SMEs out of a total of $376.4 billion in loans disbursed to the economy during this period only $442.5m was for the SMEs.

As a result, the perceived interest on financial investment and zero tax on deferred income, in particular on fixed income securities, have made it difficult for SMEs and other physical investors to have access to credit facilities. It is disturbing that lenders are simply collecting deposits and channeling them into Treasury Bills and bonds rather than giving credits to SMEs, manufacturers and farmers. This condition was created by the high cost of borrowing from the government–the high yield on Treasury Bills and bonds, resulting in lack of employment and low living standards in the country as a result of lack of physical investment liquidity.

Interest rate in Nigeria is now market driven which makes its value susceptible to fluctuations and could thus be expected to have far reaching effect on portfolio investments. This raises a question of why there was a sharp decrease in portfolio investment in some periods when the fluctuations' in interest rate was relatively minimal within the period. In light of the above mentioned-issues, as well as the trend in the share of government bonds in the aggregate portfolio investment in the country and the corresponding interest rate movement; it becomes an issue of interest to investigate empirically the effect/impact of interest rate on portfolio investment in the country within the period (1984-2018).

1.3) Aim and Objective of the Study

The main objective of this research is to examine the relationship between interest rate and portfolio investment in Nigeria from 1984-2018. The specific objectives are to:

i. examine the effect of interest rate on portfolio investment in Nigeria;
ii. investigate the speed of response of portfolio investment to changes in interest rate and exchange rate; and
iii. examine the nature of causal relationship between interest rate and portfolio investment.

1.4) Research Questions

The research should answer the following questions in accordance with the above aims:

i. What is the effect of interest rate on portfolio investment in Nigeria?
ii. What is the speed of response of portfolio investment to changes in interest rate and exchange rate?
iii. What is the nature of causal relationship between interest rate and portfolio investment?

1.5) Hypotheses of the Study

The null hypotheses to be tested for this study is stated as follows;

i) Ho: Interest rate has no significant impact on portfolio investment in Nigeria
ii) Ho: Portfolio investment does not respond to changes in interest rate and exchange rate
iii) Ho: There is no causal relationship between interest rate and portfolio investment

1.6) Significance of the Study

Economic agents who embark on portfolio investment and policy makers are interested in the factors that affect portfolio investment. The findings of this study give an idea of how portfolio investment and one of its major determinants (interest rate) behave and hence what should be expected in the future. The Central Bank of Nigeria, being a regulator in the financial sector and a major player in the economy could use the findings of this study as an input in mapping out strategies to promote portfolio investment in Nigeria. The CBN will step through its monetary or interest-rate policies to act in a way that will positively influence the capital market and the economy as a whole. The study will also serve as a useful and authentic reference to stimulate further research in this and other related studies.

1.7) Scope of the Study

This research is a macro-level analysis involving time series elements, so the econometric analysis of the effect of interest rate on portfolio investment is based on the Nigerian economy for the period of 34 years (1984-2018). These years are selected due to the availability of time series data for the interest variable and also due to the fact that during the same period the Structural Adjustment Program (SAP) which led to the policy of interest rate liberalization took effect. The main interest variables in this study are portfolio (dependent variable) investment; and interest rate, exchange rate, inflation rate, market capitalization rate, and trade openness as explanatory variables.

1.8) Organization of the study

The rest of the study is organized as follows; chapter two is the literature review. Chapter three is the methodology of the study which includes the research design and analytical techniques. Chapter four is the topical appraisal of the study where key issues and the behavior of the variables of interest over time is presented and discussed. Chapter five is the analysis and discussion of research findings while the summary, conclusions and recommendations of the study is presented in chapter six.

SECTION TWO
REVIEW OF RELATED LITERATURE

This chapter discusses some relevant literature bordering on conceptual clarifications, review of theoretical literature, empirical literature and summary of literature reviewed.

2.2 Theoretical Framework

i. **The Classical Theory of Interest Rate:** The rate of interest according to the classical is determined by the supply and demand for capital. The supply of capital is governed by the time preference while the demand for capital is determined by the expected productivity of capital. Time preference and capital efficiency depend upon waiting or saving. The investors assess the demand for capital because it is profitable, whereas the production of capital is subject to the law of variable proportions. Additional capital units are not as productive as the previous units. That is, the rate of interest is just equal to the marginal productivity of capital and it means that at a higher rate of interest, the demand for capital is low, and it is high at a lower rate of interest.

   The demand for capital is thus inversely related with the interest rate and the demand schedule for capital o r investment curve slope down from left to right. The supply of capital depends on saving, rather than on th e saving will and the saving power of the person or the community. Some individuals save irrespective of the rate of interest. Classical economists are of the view that, the higher the rate of interest, the larger will be the individual saving and the supply of funds.

i. **Portfolio Allocation Model (PAM)**: Fedderke and Liu, (2002) developed Portfolio Allocation Model (PAM), which postulates that capital flows are driven by two classes of determinants which are rates of return and risk factors with positive responses to rates of return and negative to risk. PAM is a dynamic optimization model in which a person seeks to optimize the present value of its utility, derived from expected return on a portfolio of capital assets powered by three components of the equilibrium capital flows, namely; (a) initial divergence effect (b) impetus effect (c) time path effect.

   The initial divergence effect is the ratio of initial divergence between foreign and domestic (the starting level of capital stock) and inter-temporal equilibrium holdings of foreign and domestic assets respectively. The higher difference in international ownership of assets, the greater the inflow of resources. The second effect is crucially dependent on the severity of the time discounting social rate, marginal rate of return, and marginal cost of change and allocation risk factors due to the harsh domestic macroeconomic and policy climate. This serves to enhance or dampen the divergence effect. The time path effect features

the optimal mix of flows of funds to foreign and domestic assets as they approach their inter-temporal equilibrium values. It also reinforces either positively or negatively the first two effects.

2.3 Empirical Literature

Economists generally believe that interest rates play an important role in decision making regarding investment and economic growth. Consequently, economic policy makers in some developing countries have historically emphasized the need to keep interest rates low to promote private sector investment. This has contributed to interest rate liberalization by most developing economies, Nigeria of which is not exempted. The resulting effect of such policy shift which should lead to capital market development as well as attract portfolio investment, and thus lead to economic growth and development; has attracted the interest of various researchers. Below are some of their findings.

Zordan (2005) in his study entitled "Stock Prices, Interest Rates, and Investment Survival" noted that stock prices and interest rates are inversely correlated, with the trend observed well into the 1880s; more applicable to the post-World War II era. From the late 1940's to the mid 1960's, inflation was low, and interest rates were both low and stable. During this time stocks were doing well, both in nominal terms and in real terms. Historically has been recognized for the inverse relationship between interest-sensitive asset classes such as securities, bonds, and real estate and commodity prices. This connection can be seen in the period from 1877 to 1906, the 1906 cycle 1920 cycle, the 1920 to 1929 cycle, the 1929 to 1949 cycle, and the 1949 to 1966 cycle.

Hamrita and Abdelkader (2011) In their work entitled' The Interest Rate Relationship, Exchange Rate and Stock Price: A Wavelet Analysis,' they examined the multi-scale relationship between interest rate, exchange rate and stock price using a wavelet transformation in the US between January 1990 and December 2008. The returns on the exchange rate and the return on stock index were found to have a bidirectional relationship in this period at longer horizons. Findings from other research specifically point out that the interest rate changes affect the stock market in the long run and there is no significant influence in the short run.

Mahmudul and Gazi-Salah (2009) in their research in Jordan entitled "Interest rate Relationship with Stock Price: Empirical Evidence from Developed and Developing Countries", (based on the monthly data from January 1988 to March 2003) shows that interest rates have a significant negative relationship to share prices for Australian markets, Bangladesh, Canada, Chile, Colombia, Germany, Italy, Jamaica, Japan, Malaysia, Mexico, Philippine, South Africa, Spain, and Venezuela. For six countries from this sample, they argued on the availability of significant negative relationship between changes of interest rate and changes of share price.

Hasan, Kabir, and Basher, (1999) Studied interest rate power, calculated by three maturity treasury bill rates; 3,6 and 12 months tracking projected monthly, quarterly and annual returns on the Sri Lankan stock market from 1990 to 1997. The return on stock is determined by monthly continuously compounded returns on the All Share Price Index (ASPI) and Sensitive price index. By applying the OLS method, it was suggested that the short-term interest rates are positively related to future returns and they can track expected return prospects reliably. The authors also concluded that the 12 Month maturity is the most powerful tool among all three maturities to track monthly and quarterly expected returns.

Hsing (2004) in his work entitled "Impacts of interest rate, inflation and Exchange Rate on portfolio investment in Brazil: A VAR Model" adopted a systematic VAR model that allows for the simultaneous of several endogenous variables such as, GDP, real interest rate, exchange rate, inflation, the stock market index and found that interest rate impacted on portfolio investment in the short term, while inflation and exchange rate has a positive effect on portfolio investment in both the short run and long run.

Roux and Ismail (2004) studied the effect of interest rate on portfolio investment in Australia, from 1980 to 2003. The study employed ARDL dynamic regression techniques. From an Austrian school perspective on interest rates, empirical evidence indicated that changes in interest rate have a positive significant effect on portfolio investment in the short run but no impact on the long run.

Yinghan (2015) in his research entitled "the relationship between interest rate and stock prices in China", investigated the relationship between interest rate and stock price in China's stock markets-Shanghai Stock Exchange and Shenzhen Stock Exchange for the duration of 2009-2014, by using high frequency daily data. The empirical study includes event analysis and econometric data. The aim of the event analysis was to determine how the stock price responds to the interest rate changes of 8 times. The econometric evidence was based on the VAR and VECM model; the unit root test, the Johansen co-integration test, and the Granger causality test and the impulse response functions were used in addition. The results indicated that the interest rate and the stock price affect each other greatly, and there exists a negative and long-term equilibrium relationship. In short term, there is little effect relation between interest rate and stock price.

Abramov and Radygin (2015) Studied interest rate and long term portfolio investment in Russia: Effect of the extension of the investment horizon on the comparative advantages of the basic asset classes and on the principles of investment strategy growth. This shows that the traditional approach of the theory of portfolio

management, which notes that stock investments are superior to bonds in terms of long-term risk-return trading, is by no means always compatible. Econometric proof was based on the VAR and SVAR models; additionally, unit root test, Johansen co-integration test, and Granger causality test and impulse response functions are used. The result shows that the interest rate has a significant positive effect on long-term stock investments, arguing in favor of pension fund strategies and other institutional structural bonds. Emphasis is placed on the need for regular adjustments to long-term investors' portfolios.

Yinghan (2016) investigated the speed of response of portfolio investment to changes in interest rate in China Stock market for the period of 2007-2015, by using high frequency daily data. The study observed how stock prices react to interest rate change. The econometric evidence was based on VAR and SVAR model; the unit root test, Johansen co-integration test, and Granger causality test and impulse response functions are additionally used. The result shows rapid response to shifts in portfolio investment as interest rate changes both in the short and in the long term.

Trokon (2014) conducted a study on the relationship between stock prices and interest rates in his research called "The causal connection between stock price and interest rate," trying to determine whether there is any causal link between the two. The interest rate is the weighted average lending rate of commercial banks in Kenya and the NSE 20 share index is the benchmark for stock prices. Secondary data is used for the period January 2004 to December 2013 in the form of weekly observations. Examination of the time series and the Granger causality test is used to analyze the relation. The results indicate that the interest rate and share price have no major causal relationship.

Gazi-Salah and Mahmudul (2010) In their research called "The effect of the interest rate on the stock market: Empirical evidence from the stock exchange of Dhaka," they analyzed the effect of the interest rate on the stock market. The research seeks evidence supporting the existence of market efficiency on the Dhaka Stock Exchange (DSE) based on the general daily price index from 1994 to 2005. Stationary market return is tested and found that a random walk model does not suit the DSE Index, indicating that the DSE is not successful in week form. The linear relation between share price and interest rate, share price and interest rate growth, share price and interest rate growth, share price and interest rate growth, share price and interest rate growth, and share price increase and interest rate growth was determined by ordinary minus square (OLS) regression. It was found that Interest Rate has significant negative relationship with Share Price and Growth of Interest Rate also has significant negative relationship with Growth of Share Price for all situations, including and excluded outlier. So if the interest rate in Bangladesh is considerably regulated then Dhaka Stock Exchange's great benefit will be through demand pulling the way to more investors in share market and supply pull way of more extensional investment of Companies.

Ologunde, Elumilade and Asaolu (2006) in their work entitled "Stock market capitalization and interest rate in Nigeria: A time series analysis," examined the relationships between stock market capitalization rate and interest rate in Nigeria. Using the ordinary less-square (OLS) regression test, they found that the prevailing interest rate had a positive influence on the rate of stock market capitalization. Also part of their results is that government stock growth exerts negative impact on stock market capitalization rate and the prevailing interest rate exerts negative influence on government stock development rate.

Akingunnola, Adekunle and Ojodu (2012), in their work entitled "Impact of interest rate on capital market growth (a case of Nigeria)", analyzed the impact of interest rate on capital market growth in Nigeria, shedding light on how other macro economics variables such as inflation rate, exchange rate also influence capital market growth. The study used multiple regression analysis to determine the impact of interest rate and other macroeconomic variables, while the method of pooled data regression was used to estimate the specified model equation. The study findings revealed that interest rate adversely affects capital-market growth. The study recommended that interest rate must be properly put to check and that this must be done in relation to appropriate monetary policies to ensure macroeconomics stability.

Egwakhide (2012) examined the nature of causal relationship between exchange rate and portfolio investment in Kenya from 1980-2010. The study employed ARDL dynamic regression techniques and the bound test to achieve the objectives. The granger causality test result shows that there is no causality between exchange rate and portfolio investment. However, exchange rate has a positive significant effect on portfolio investment.

Macdonald and Moore (2014) analyzed the positioning of bond portfolios in the sense of rising interest rates in their research entitled "Positioning bond portfolio." We identified four factors that should be taken into account when planning an effective fixed income strategy including the possibility of rising interest rates. In their analysis it was stressed that considerations regarding rising interest rates must be given to diversification of active portfolio management through flexibility. Hence, they concluded that the prospect of higher interest rate is real and that investors who are inclined to reduce their overall fixed income allocation because of interest rate concerns should do so judiciously, positioning their remaining exposure with an emphasis on diversification, active management and a long term perspective.

Maintaining macroeconomic stability has been one of the major challenges for developing countries (Iqbal, 2001). Understanding underlying factors behind volatility of capital flow matters for macroeconomic management and financial stability of an economy. For example, if volatility in international capital flows primarily responds to global factors, the recipient countries are vulnerable to global shocks and exposed to contagion effects from other world economies (as seen in 2007/2008 US financial crisis), even though domestic policy-makers hold cautious macro-policies. The factors underlying the volatility of capital flows have been examined in broad literature.

Most of the previous studies focused on the determinants of the level of capital flows. For instance, Agarwal (2006) in his work entitled "Foreign Portfolio Investment in Some Developing Countries: A Study of Determinants and Macroeconomic Impact", Examines the determinants of foreign portfolio investment (FPI) and its effect on the national economy of six developing countries in Asia. The regression estimate showed that inflation rate had a statistically significant negative influence on FPI while real exchange rate, index of economic activity and the position of domestic capital market in the world stock market capitalization were observed as positive determinants of FPI. Reinhart and Reinhart (2008) in their work entitled "Capital Flow Bonanzas: An Encompassing View of the Past and Present", examined the macroeconomic implications of capital flows between the period 1980 and 2007. The study observed that global factors such as changes in commodities prices, international interest rates, and growth in developed countries are the underlying forces of international capital flows.

Magali (2014) In his dissertation entitled "Effectiveness of the management of the loan portfolio in rural areas SACCOS: facts from Tanzania," he explored the effectiveness of the management of the loan portfolio in rural areas. The research utilized 496 loans from ABC rural SACCOS located in Tanzania's northern zone to explain the efficacy of portfolio management of loans. The data was analyzed using quantitative methods. Data for the study was collected at the end of May 2013; the findings revealed that women constituted 52% of the loan portfolio, that loans were divided into 4 classes and the loans ranges was not very effective because loan given to different ages were classified in a single class. The outcome of the regression also showed that the quality of loan portfolio was positively influenced by the loan size while the influence of gender and location of the borrowers were not significant and finally the study revealed that fluctuation of the prices of agricultural produce threatened the quality of loan portfolio. Hence it was recommended that ABC rural SACCOS should seek the effective insurance services, use the effective software for loan portfolio management, search the market for agriculture produce and write off non repaid loans.

Aydemir and Demirhan (2009) examined the causal relationship between stock prices and exchange rates, using data concerning Turkey from 23 February 2001 to 11 January 2008. Their empirical research found the causal bidirectional relationship between the currencies and all stock market indices. Although the exchange rates from national 100 infrastructures, financial and industrial indices are negative causal; there is a positive causal relationship to exchange rates from indices in the technology sector to. Negative causal relationship, on the other hand, from the exchange rate to all stock market indices was calculated.

Doong, Wang and Yang (2005) in their work entitled "The dynamic relationship between exchange rates and portfolio investment: empirical evidence from emerging Asian markets, "examined the dynamic relationship between exchange rates and portfolio investment for six Asian countries (Indonesia, Malaysia, Philippines, South Korea, Thailand, and Taiwan) over the period 1989-2003. According to their analysis such financial variables are not co-integrated. The results of Granger causality tests show that bidirectional causality can be observed in Indonesia, Korea, Malaysia and Thailand. There is also a significantly positive relationship for all countries except Thailand.

Gazi-Salah and Mahmudul (2009) Search for evidence to support the existence of market efficiency on the basis of monthly data from January 1988 to March 2003 and also reveal the empirical relationship between the stock index and the interest rate for 15 developed and developing countries. Interest rate is found to have a significant negative relation with the share price for all countries and for six countries, and it is found that interest rate changes have a significant negative relationship to share price changes for six countries.

Similarly, Shanab (2017) examined the effect of Foreign Portfolio Investment (FPI) on capital market indices for the period 2005-2016. For the analysis, the report used the Ordinary Least Square (OLS). The study revealed that the impact on market capitalization of both foreign investors ' purchases and sales is statistically significant. The study also found no statistically significant effect between market capitalisation and inflation. Using quarterly data in series from 2007Q1 to 2015Q4, Haider, Khan, and Abdulahi (2016) studied the effect of stock market performance and inflation on foreign investment portfolio (FPI) in China. For the research the report used descriptive statistics. The results showed that stock-market performance had a significant positive effect on the FPI, although inflation was found to be negatively correlated with the FPI.

Shedding more light on the empirical ambiguity on the impact of foreign portfolio investment on economic growth in Nigeria, Akinmulegun (2018) explored the effect of capital market development on portfolio investment in Nigeria from 1985 to 2016. The research employed secondary data from the Statistical Bulletin of the Central Bank of Nigeria and Nigeria Stock Exchange publications. To achieve the study objective, the researcher used descriptive statistics for the analysis, Augmented Dickey Fuller (ADF) unit root test, Granger causality, and Vector

Error Correction Mechanism (VECM). The Granger causality check showed no causality between Nigeria's capital market growth and foreign portfolio investment. The outcome of the vector error correction model showed that market capitalization has a significant negative impact on Nigeria's portfolio investment while All Share Index has a positive relationship with portfolio investment. Consequently, the study concluded that capital market growth has a significant effect on Nigeria's portfolio investment. On the basis of the results, the study recommended that government and capital market regulators establish and enforce policies that will further promote capital market growth in such a way as to sustain its positive effect on attracting portfolio investment into the Nigerian economy as well as stimulate improved interest of foreign investors in subscribing to portfolio investment in Nigerian enterprises.

Balogun (2013) in his work entitled "Portfolio management: An appraisal of insurance industries investment profile under interest rate deregulation in Nigeria" examined portfolio management viz insurance industry's investment profile in Nigeria between 1985 and 2007. The study focused on life assurance on the basis that they have relatively stable idle fund at hand. Specifically the study examined the direction that investment moves in a deregulation interest rate regime on government securities in comparison with others. The study made use of deceptive and trend analysis and from the result of the analyses, it was discovered that the presence of flexible interest rate do channel investment and compulsory laws will only lead to disincentives as investors are interested in ventures with high yield.

Osundina and Osundina (2014) Using the Multiple Linear Regression model, investigated the correlation between interest rate and portfolio investment decision in Nigeria. A updated Mundel–Flemming model was used where the interest rate was the dependent variable and other variables such as; independent variables were Gross domestic product, expenditure rates, government spending, debt and exchange rate. The results of the study showed that there is strong empirical evidence that there is a link between interest rate and portfolio investment decision in Nigeria. Also, the analysis of granger causality test result shows that interest rate granger cause portfolio investment in Nigeria.

Ekeocha (2014) in his work entitled "Modeling the long run determinants of FPI in an emerging market. Evidence from Nigeria", conducted an investigation on the long run determinants of foreign portfolio investment in an emerging market, drawing evidence from Nigeria over the period of 1986-2006. Use variables such as market capitalization, sovereign risk premium, real exchange rate, level of financial openness and trade openness and using empirical time series techniques, including calculation of the co-integration and error correction model (ECM). The study found that investment in international portfolios was negatively related to real exchange rates, market capitalisation, trade openness and institutional quality in Nigeria.

Mohammad (2018) investigates the determinants of foreign portfolio investment in Jordan using series of data covering the period from 2000 to 2016. It employed eight independent variables. These are: aggregate economic activity, inflation, difference in interest rates, performance of the stock market, diversification of risk, creditworthiness of countries, governance and corruption. The results of the regression showed that good and stable macroeconomic conditions attract foreign investors. Therefore, foreign investors prefer to invest in the capital market which provides a risk diversification opportunity. A nation with ample liquidity to fulfill its commitments, and a well-governed climate, draws more investment in portfolios. The study results provide empirical evidence of the factors that impact significantly on the flow of foreign portfolio investment to Jordan. These factors can be utilized when formulating polices by the specialized authorities who are seeking to attract more portfolio investment.

Ibrahim and Akinbobola (2017) using Augmented Dickey Fuller, Phillip Peron tests, Co-integration test, Vector Auto-Regressive technique, Variance Decomposition and Impulse Response analysis, Examined the relationship between investment in international portfolios, democracy and economic growth in Nigeria between 1986 and 2013; The results revealed that foreign portfolio investment inflows in democratic periods between 1999 and 2013 were more stable than the military periods between 1986 and 1998, and that the link between economic growth and foreign portfolio investment was positive and very positive. In addition, the result showed that investment in the long-run foreign portfolio has had a positive and significant effect on Nigerian economic growth. It has also shown that democracy has a positive and significant effect on economic growth, while having a positive but not significant effect on the relationship between investment in foreign portfolios and economic growth. Also, Oladejo (2016) investigated the impact of foreign portfolio investment on Nigerian economic growth for the period of 1991 to 2014. The ordinary least square estimation method was employed for the data analysis. The findings revealed, among others, that there were increase in the foreign portfolio investment for a given period, followed by decline, as a result of massive capital outflow and divestment by the investors, caused by the global recession.

Okafor, Ugwuegbe and Ezeaku (2016) investigated the relationship between foreign capital inflows and economic growth in Nigeria for the period of 1981 to 2014. The Augmented Dickey-Fuller test, the Co-integration test and the Toda Yamamoto Causality Test were used for the analysis. The result revealed that there is bi-directional causality that runs from GDP to foreign direct investment and from foreign direct investment to GDP. It also shows that there is a unidirectional causality between international private investment and GDP with a root

cause. In addition, the result showed a unidirectional causality between GDP and foreign aid with correlation from foreign aid to GDP. Ultimately, the common cause of all foreign capital inflow elements, i.e. foreign direct investment, foreign private investment, foreign aid and GDP, suggests that the rise in foreign capital inflow causes GDP to increase positively.

Ogujiuba and Obiechina (2012) examined the relationship between interest rate, inflation and portfolio investment, interest rate and inflation rate as well as policy implications, there from, using time series data from 1986-2008. A non restrictive vector Autoregressive (VAR) model was created while restriction was imposed to identify the orthogonal (structural) components of the error terms – structural vector Autoregressive (SVAR). The study indicates that the GDP reaction to portfolio investment shocks is not contemporary, and that this extends to other variables. It is a bit sluggish but it returns to equilibrium faster compared to the Net Portfolio Investment response. Restructuring the recursive Cholesky structural breakdown of the impulse response function, both in the short run and long-run, the result indicates that inflation impacted positively on Net Portfolio Investment. In the short run, the interest has also been shown to impact on the Net Portfolio Investment. Chukwuemeka, Stella, Victor and Oduh, (2012) also worked on long-term influencing factors in Nigeria's foreign portfolio investments. They discovered the appropriate policies to attract long-run investment from foreign portfolios. They used data from the quarterly time series over the 1981-2010 Period. Variables were known to be market capitalisation, real exchange rate, real interest rate, real gross domestic product and open trade. Net portfolio investment was known as variable dependent. They applied a finite distributed time series analysis model of the lag. The study found that investment flows from international portfolios into Nigeria had a favorable long-term relationship with market capitalization and degree of openness. They suggested that it was good to make Nigeria's trade policy as investment welcoming policy for attracting portfolio investment flows.

Finally, Tokunbo and Lloyd (2010) in their research entitled "Foreign Private Investment and Economic Growth in Nigeria" He stressed that despite the increased flow of foreign portfolio investment to developing countries, especially in sub-Saharan African countries, including Nigeria, low per capita income, high unemployment, low GDP and declining GDP continue to predominate. The government of Nigeria has recently introduced policies to attract investment from international portfolios, but this has not had a positive impact on the growth rate of GDP. The analysis therefore examined the course and importance of the effect of foreign portfolio investment on Nigerian economic growth covering the 1990-2005 periods. The study revealed that investment in foreign portfolios, domestic investment growth, and net export growth had a positive impact on economic growth and significance for Nigeria.

2.4 Summary of the Literature Reviewed

From the various studies reviewed, most studies on the impact/effect of interest rate on portfolio investment are cross sectional or panel studies rather than country specific studies. The results obtained by such cross country or panel studies have been brought into serious doubt due to the implicit assumption of a common economic structure and similar production technology across different countries, which is unlikely to be true. Also, Levine and Revelt (1992) stressed that a lot of conceptual and statistical problems plague cross-country investigations. Study of cross-country regression assumes results are taken from a distinct population, which undermines the basic principle that very different countries may not be comparable. So, the question can be asked whether highly heterogeneous countries should be included in the same regression. Furthermore, Levine and Revelt (1992) noted that there are conceptual difficulties in interpreting the coefficients on regressions that involve averaged data for a various country, thereby casting serious doubt on the robustness of results from cross-country regressions.

Studies by Olugunde (2006); Akingunnola (2012), Hsing (2004), Ogujiuba and Obiechina (2012) that focused on the impact/effect of interest rate on portfolio investment; ended their study period in 2012. Other studies by Ekeocha (2014), Mohammad (2018) rather focus on the determinants of foreign portfolio investment, of which interest rate is a key determinant. That will blur the true nature of the research on hand. Lastly, studies by Akinbobola (2017), Oladejo (2016), Tokunbo and Lloyd (2010), Okafor et al., (2016); focuses on the effect of FPI on economic growth of Nigeria.

This study intends to fill the above gap in literature by carrying out a country specific analysis on the effect/impact of interest rate on portfolio investment in Nigeria for the period 1984 to 2018. The above issue has not been explored by previous empirical studies in Nigeria.

This study commenced from 1984 rather than earlier years owing to the availability of time series data for the variable of interest indicator (portfolio investment), as well as owing to the fact that the structural adjustment program (SAP) which led to interest rate liberalization policy went into effect in the year 1986. Thus, this study will assist in improving the frontiers of knowledge as it relates to interest rate liberalization; showing if it has impacted positively on portfolio investment opportunities or otherwise, and then proffer the way forward.

SECTION THREE
RESEARCH METHODOLOGY

This chapter presents the methodology of this research that is considered suitable for the purpose of achieving the set objectives of this study. The type and sources of data used in the work, the variables and their expected behaviour are discussed in this chapter. This chapter therefore contains: the research design, nature and sources of data, model specification, method of estimation, analytical technique, limitations of the method and ethical issues.

3.1 Research Design

Baridam (2001) sees research design as a framework or plan that is used as a guide in collecting and analyzing data for a study. In this regard, the framework that was adopted in this study are descriptive and quantitative designs. The quantitative analysis relied on econometric technique in estimating the model. Econometrics concerns itself with the estimation and testing of economic relationship as well as assessing the performance of the estimated relationship. It is a science that deals with the measurement of economic relationships by integrating economics, mathematics and statistical principles for the purpose of providing numerical values to parameters of economic relationship and verifying economic theories. The Auto Regressive-Distributive Lag (ARDL) technique was adopted for data analysis and the long run relationship of these variables were explored using Johansen co-integration technique and the granger causality test, after which Cholesky impulse response analysis test was carried out. This study covered 34 years period ranging 1984-2018, and it was carried out within the confines of the Nigerian economy.

3.2 Nature and Sources of Data

The data used is secondary data which include time series data spanning from 1984 -2018, and the data comprise of portfolio investment as dependent variable, as well as other variables like; interest rate, exchange rate, market capitalization rate, and trade openness as explanatory variables. Data used was sourced from various issues of Central Bank of Nigeria (CBN) statistical bulletin, and World Development Indicators (WDI) 2018.

3.3 Model Specification

The model for this study is anchored on the Marginal Efficiency Hypothesis developed by John Maynard Keynes in his general theory. This hypothesis considers investors investment decisions as a function of the Marginal Efficiency of Investment (MEI) which is the expected rate of return generated by undertaking additional units of investment in a particular asset and the prevailing market rate of interest. Precisely, this study adapted the works of Ekeocha (2014) and Muhammad (2017), which studied the determinants of portfolio investment in Nigeria and Jordan respectively with little modifications made. Thus, the generalized ARDL model is given as follows;

$$\emptyset(L,P)y_t = \sum_{i=1}^{k} \beta_i\,(L,q_i)\,x_{it} + \delta w_t + u_t \qquad \text{Equation 3.1}$$

Where

$$\emptyset(L,P) = 1 - \emptyset_1 L - \emptyset_2 L^2 - \cdots - \emptyset_p L^p$$
$$\beta(L,q) = 1 - \beta_1 L - \beta_2 L^2 - \cdots - \beta_q L^q$$

For i=1,2,3…k, $u_t \sim iid(0;\delta^2)$.

L is a lag operator such that L0yt =Xt, L1yt=yt-1, and wt is a set of vector of deterministic variables such as the intercept term, time trends, seasonal dummies, or exogenous variables with the fixed lags. P=0,1,2...,m, q=0,1,2....,m, i=1,2....,k:namely a total of (m+1)k+1 different ARDL models. The maximum lag order, m, is chosen by the user. Sample period, t = m+1, m+2....,n.

For this study, the model is expressed in its functional form as follows;

PI = F (INTR, MCAP, INFL, TOP, EXR) Equation 3.2

Econometrically, this can be stated thus;

$$PI_t = \alpha_0 + \beta_1 INTR_t + \beta_2 MCAP_t + \beta_3 INFL_t + \beta_4 TOP_t + \beta_5 EXR_t + \mu_t \qquad \text{Equation 3.3}$$

Where;

PI = Portfolio Investment (billions in naira)
INTR = Interest rate (Lending rate)
MCAP = Market Capitalization (billions in naira)
INFL = Inflation rate
TOP = Trade Openness
EXR = Exchange rate (Nominal)
α_0 = the intercept of the model;
α_1-α_5 = the slope coefficient of explanatory variable;
μ = error term;

3.4 Apriori Expectation

The signs in the parenthesis represent apriori expectations of each of the variables used in this study:

INTR(+), MCAP(+), INFL(-/+), TOP(+), EXR(+) Equation 3.4

Method of Estimation

To this end, the Autoregressive Distributed Lag (ARDL) bounds test procedure introduced by Pesaran, Shin and Smith (2001) is used to check the relationship between interest rate and investment in Nigeria on a long-term basis.

The ARDL procedure therefore involves the estimation of equation (3.3) as shown below. The specifications are presented thus:

$$\Delta InPI_t = a_0 + \beta_1 \mathrm{InPI}_{t-1} + \beta_2 \mathrm{INTR}_{t-1} + \beta_3 \mathrm{MCAP}_{t-1} + \beta_4 \mathrm{INFL}_{t-1} + \beta_5 TOP_{t-1} + \beta_6 EXR_{t-1} + \sum_{i=1}^{p} \beta_i \Delta InPI_{t-i} + \sum_{j=1}^{q} \beta_j \Delta INTR_{t-j} + \sum_{k=1}^{r} \beta_k \Delta InMCAP_{t-k} + \sum_{l=1}^{s} \beta_q \Delta INFL_{t-l} + \sum_{n=1}^{t} \beta_g \Delta TOP_{t-e} + \sum_{f=1}^{z} \beta_j \Delta EXR_{t-c}$$

Where α_i are the drift components, ϵ_t captures the white noise in period t and Δ is the differenced operator. The terms with summation signs describe the dynamics of error correction, whereas the first sections of the equations refer to the long run relationship. The first step in the ARDL bounds test approach is to use F-tests to track the existing long-run relationship between variables. In the second step, as soon as it is ascertained that cointegration exists between investment, interest rate, savings, exchange rate, trade openness and total government expenditure, then we should examine the causal relation between the series over the period 1986–2018.

The analytical techniques employed in this study are based on the specific objectives of the study:

Objective 1

To determine the effect of interest rate on investment in Nigeria, the Autoregressive Distributed Lag (ARDL) was employed,

Objective 2

To investigate the speed of response of investment to changes in interest rate an exchange rate, the Impulse-Response Analysis were employed.

Given the above objectives exchange rate response to interest rate and exchange rate will be specified and examined

Δ INTR → Δ EXR → Δ LNINVT

Objective 3

To determine the nature of causal relationship between interest rate and investment in Nigeria using granger causality test.

The general form of the model for the test is specified thus;

$PI_t = \sum_{i=1}^{n} \alpha_i PI_{t-1} + \sum_{j=1}^{n} \beta_j INTR_{t-j} + \mu 1_t$ Equation 3.6

$INTR_t = \sum_{i=1}^{n} \delta_i PI_{t-1} + \sum_{j=1}^{n} \theta_j INTR_{t-j} + \mu 2_t$ Equation 3.7

3.4.1 Variables in the Model

(1) Portfolio Investment: A portfolio investment is an investment made by an investor who is not involved in the management of a company. Portfolio investment data covers transactions in equity securities and debt securities.

(2) Interest Rate: The interest rate used in the study is the lending rate, which is the bank rate that normally meets the short-and medium-term funding needs of the private sector. This rate is usually determined by lenders ' creditworthiness and funding targets. Prime and Maximum Lending Rates values are summed up and divided by two to use the average lending rate.

(3) Market Capitalization: Market capitalisation (also known as market value) is the share price times the number of outstanding shares (including their multiple classes) for domestic listed companies. This excludes investment funds, unit trusts and firms whose primary business purpose is to hold shares of other listed companies. Data are values converted at year-end into US dollars using the same foreign exchange year-end

(4) Inflation rate: Inflation rate as calculated by the consumer price index represents the annual percentage change in the cost to the average consumer who acquires a basket of goods and services that can be set or adjusted at prescribed intervals. It's the rate at which the costs of an economy increase over time, leading to a fall in the value of money of the economy.

(5) Trade Openness: The index of openness is an economic metric calculated as the ratio of total world trade, the sum of exports plus imports to Gross Domestic Product (GDP) of the nation (i.e.$\frac{impo\ rts + exports}{GDP}$). It is believed that higher degree of trade openness ensures better flow of foreign investment from developed countries to developing

countries, which will increase the production base and translate into production of exportable goods and increase in gross domestic product. Trade openness will be used to represent trade intensity and this shows the extent in which goods and services are allowed to go in and out of a particular economy.

(6) Exchange Rate: Exchange rate is the price of a countries currency to other foreign currencies. It can be expressed in one or two ways: as units of domestic currency per unit of foreign currency; or units of foreign currency per unit of domestic currency. It is usually determined by the demand for and supply of foreign exchange. The exchange rate as used here is the naira-dollar exchange rates in the formal market.

Diagnostic Tests

The unit root test will be performed to ensure that the variables used in this study are stationary. Normality test will also be carried out to check if the residuals are normally distributed; serial correlation test will also be done to check if the error terms associated with the model result are uncorrelated, the heteroskedasticity test will be carried out and the stability test will be carried out to know if the regressors are stable at 5% in the long run.

CHAPTER FOUR
STYLIZED FACT ON PORTFOLIO INVESTMENT AND INTEREST RATE IN NIGERIA

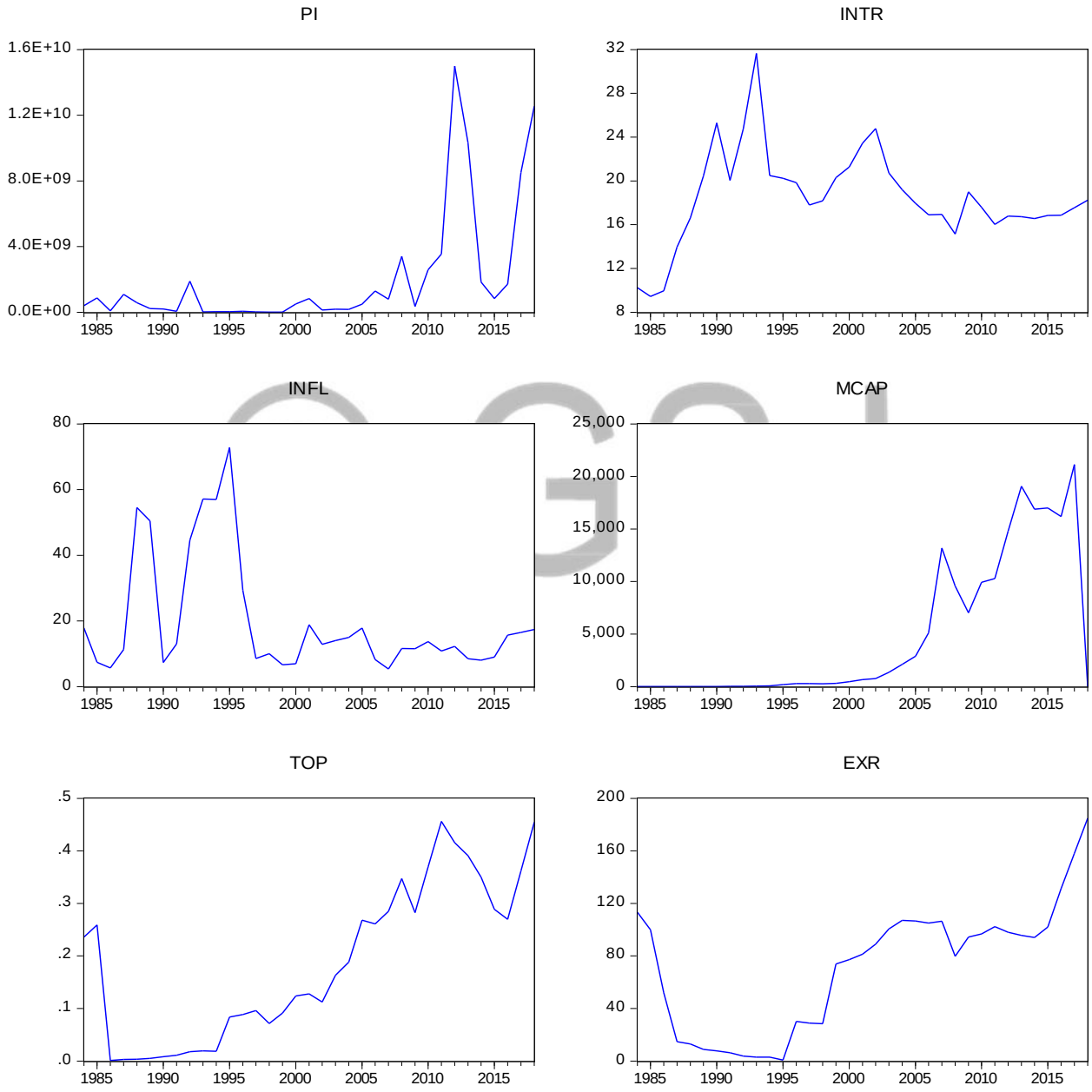
4.4 Stylised Facts for all Variables

Table 4.1: Portfolio Investment, Interest Rate, Inflation, Market Capitalization, Trade Openness and Exchange Rate

YEAR	PI(US$)	INTR	INFL	MCAP	TOP	EXR
1984	401812094.7	10.24167	17.82053	5.5	0.236089	113.2
1985	876060309.4	9.433333	7.435345	6.6	0.259001	99.9
1986	86633232.88	9.959167	5.717151	6.8	0.000978	51.89
1987	1084153265	13.96167	11.29032	8.2	0.003159	14.72
1988	575715051.9	16.61667	54.51122	10	0.003246	12.97
1989	219831399.2	20.44167	50.46669	12.8	0.005136	8.88
1990	197148078.8	25.3	7.3644	16.3	0.00806	7.72
1991	61109599.48	20.04167	13.00697	23.1	0.010991	6.34
1992	1884268077	24.75833	44.58884	31.2	0.017776	3.74
1993	17780308.07	31.65	57.16525	47.5	0.019289	2.97
1994	27141298.42	20.48333	57.03171	66.3	0.018462	2.96
1995	25583636.3	20.23333	72.8355	180.4	0.083809	0.74
1996	54088507.95	19.83667	29.26829	285.8	0.088402	30.17
1997	20321016.1	17.795	8.529874	281.9	0.095799	28.83
1998	2363115.767	18.18417	9.996378	262.6	0.071163	28.32
1999	11013871.85	20.29	6.618373	300	0.091383	73.91
2000	502264890.6	21.27417	6.933292	472.3	0.123721	77.21
2001	831771646.9	23.43833	18.87365	662.5	0.127679	81.3
2002	133938021.8	24.77083	12.87658	764.9	0.11247	88.95
2003	182894058.2	20.71417	14.03178	1359.3	0.162984	100.63
2004	177818881.7	19.18083	14.99803	2112.5	0.18817	107.07
2005	487949764.2	17.94833	17.86349	2900.06	0.26811	106.58
2006	1288018525	16.89333	8.239527	5120.9	0.260859	128.65
2007	799672941.1	16.93917	5.382224	13181.69	0.28474	125.80
2008	3402403483	15.13583	11.57798	9562.97	0.347316	118.54
2009	345254658.7	18.99083	11.53767	7030.84	0.282553	148.90
2010	2586443769	17.585	13.7202	9918.21	0.369431	150.29
2011	3540338827	16.02	10.84003	10275.34	0.45613	153.86

2012	14992464492	16.79167	12.21778	14800.94	0.415584	98.08
2013	10320959890	16.7225	8.475827	19077.42	0.39073	95.64
2014	1835787665	16.54833	8.062486	16875.1	0.349937	158.5
2015	830514460.4	16.84917	9.009387	17003.39	0.288613	192.4
2016	1709746689	16.86802	15.67534	16185.73	0.269625	253.4
2017	8509290906	17.55333	16.52354	21128.9	0.361989	305.7
2018	12547826907	18.23864	17.37174	7.9342669	0.454353	306.08

SOURCE: World Development Indicators (2019)



4.4.1 Portfolio Investment trend

The figure above shows the trend of portfolio investment (PI) in Nigeria from 1984 to 2018. The trend shows that portfolio investment inflows have been fluctuating over the years especially between 1986 and 2011. The trend experienced a relative increase from 2011 and got to its peak in the year 2012, and drastically reduced in the year 2015.

These fluctuations allude to the flexible nature of the variable (portfolio investment) as investors are alert to changes in market prices (interest rate) that affect investment, and readily move investment to more profitable ventures when the outlook seems less profitable.

4.4.2 Interest Rate trend

Interest rate has exhibited fluctuating trends over the years. It reached its peak in the year 1994. This is not surprising due to the power-play between the forces of demand and supply. Since liberalizing interest rates, demand and supply of loanable funds determines the movement and that is reflected in the trend illustrated.

4.4.3 Inflation trend

Inflation rate has been fluctuating in the country for the period studied. It kept increasing and reducing on a yearly basis and reached its peak in the year 1995. It, however, slowed down in 1997 and remained rather low from that point. Since then the country has been struggling to curb the inflationary pressures it has faced.

4.4.4 Market capitalization rate

From the figure above, Market capitalization has been increasing over the years although it was relatively flat from 1984 to 1999. It started rising significantly in the year 2000 and got to its peak in the year 2016 and fell drastically in the year 2018. This shows that liberalization of interest rates has led to increased development of the capital market.

4.4.5 Trade openness trend

From the figure above, Trade openness has been increasing over the years, although it was relatively low from 1986 to 1994. It started rising significantly in 1995 and reached its maximum point in 2011. These recorded increases can be attributed to the internationalization of the capital market and removal of international trade barriers as a result of the Structural Adjustment Program (SAP).

4.4.6 Exchange rate trend

From the figure above, Exchange rate has been on an increasing trend over the years, although it was relatively low from 1987 to 1999. It started rising significantly in 1995 and has been on the increase since then. This is primarily due to the weak nature of the Nigerian currency (Naira) compared to other currencies (Dollars, Euro, Pounds) in the international market, as well as the import dependent nature of Nigeria.

SECTION FIVE
DATA PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

In this chapter, empirical data is analyzed based on the stipulated analytical techniques and the findings are also discussed.

5.1) Descriptive Statistics

The descriptive statistics for all the variables used in the study is presented below;

Table 5.1: Summary of Descriptive Statistics

	PI	INTR	INFL	MCAP	TOP	EXR
Mean	2.02E+09	18.50540	19.65307	4856.741	0.186507	93.85257
Median	5.02E+08	17.94833	12.87658	472.3000	0.162984	95.64000
Maximum	1.50E+10	31.65000	72.83550	21128.90	0.456130	306.0800
Minimum	2363116.	9.433333	5.382224	5.500000	0.000978	0.740000
Std. Dev.	3.70E+09	4.343267	17.83228	6861.824	0.149271	81.59186
Skewness	2.395163	0.412594	1.673469	1.107411	0.253994	0.995950
Kurtosis	7.631022	4.528708	4.491769	2.686314	1.724839	3.702370
Jarque-Bera	4.04064	4.401078	1.58159	2.972577	2.747628	1.505607
Probability	0.14000	0.110743	0.40056	0.279027	0.253140	0.438666
Sum	7.06E+10	647.6892	687.8574	169985.9	6.527737	3284.840
Sum Sq. Dev.	4.66E+20	641.3749	10811.67	1.60E+09	0.757586	226345.9
Observations	35	35	35	35	35	35

SOURCE: Author's Computation

Table 5.1 among other thing, shows that all the variables used for the study was normally distributed. This is indicated from the probability values of the JB statistics which are all less than 5% level of significance.

5.2) Unit Root Test Result

The production of statistical estimates from time series data necessarily requires conducting unit root test to understand the behaviour of each series as to whether they are stationary or not. The Philip Peron (PP) and Augmented Dickey Fuller (ADF) unit root test was applied to all variables and the result is presented as follows;

Table 5.2a: Philip Perron (PP) Test

variables	PP stat	Critical values (5%)	Order of cointegration
PI	-5.876613	-2.954021	I(1)
INTR	-6.497438	-2.954021	I(0)
MCAP	-4.887638	-2.954021	I(1)
INF	-6.937920	-2.954021	I(0)
EXR	-3.365397	-2.954021	I(1)
TOP	-5.270309	-2.954021	I(1)

Table 5.2b: ADF Unit Root Test

Variables	ADF Stat	Critical Values	Order of integration
PI	-5.424583	-2.963972	I(1)
INTR	-3.486825	-2.960411	I(0)
MCAP	-4.931515	-2.954021	I(1)
INF	-4.735714	-2.986225	I(0)
EXR	-3.526337	-2.954021	I(1)
TOP	-5.270309	-2.954021	I(1)

The PP and ADF unit root test result in table 5.1 and 5.2 respectively, shows that PI, MCAP, EXR, TOP are stationary at first difference while INTR and INFL are stationary at levels. This provides justification for adopting Autoregressive Distributed Lag (ARDL) Model.

5.3) ARDL Result

Following the result of the ADF and PP unit root which justifies the use of ARDL model, the ARDL Bond Test and the estimate of the short run and long run coefficients is presented as follows;

Table 5.3a: ARDL Bond Test Result

ARDL Bounds Test		
Null Hypothesis: No long-run relationships exist		
Test Statistic	Value	K
F-statistic	5.813434	5
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.26	3.35
5%	2.62	3.79
2.5%	2.96	4.18
1%	3.41	4.68

The ARDL bond test result in table 5.3 shows that the calculated F-statistics of 5.81 is greater than the upper and lower bound critical values of the bond test procedure. This means the null hypothesis of no co-integration between interest rate and portfolio investment in Nigeria is rejected both at 5% and 10% significance levels; hence there exist co-integration (a long run relationship) among the variables. Thus, the result shows a sufficient condition for fitting the ARDL model.

Table 5.3b ARDL Short Run Coefficients

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
**D(INTR)	0.733419	0.332154	2.208068	0.0474
D(INTR(-1))	0.186221	0.158909	1.171869	0.2640
**D(INTR(-2))	0.421273	0.173917	2.422261	0.0322
**D(INFL)	0.104717	0.046415	2.256101	0.0435
D(INFL(-1))	-0.051565	0.039384	-1.309287	0.2150
D(INFL(-2))	-0.081605	0.048612	-1.678698	0.1190
*DLOG(MCAP)	0.582867	0.297639	1.958301	0.0739
***DLOG(MCAP(-1))	4.310031	1.397202	3.084759	0.0095
D(TOP)	4.890141	7.049666	0.693670	0.5011

*D(TOP(-1))	9.021667	5.036943	1.791100	0.0985
*D(EXR)	0.042630	0.022894	1.862070	0.0873
D(EXR(-1))	0.002667	0.029781	0.089557	0.9301
D(EXR(-2))	-0.036075	0.024624	-1.465043	0.1686
***ECM(-1)	-0.970824	0.509077	-3.871371	0.0022

Table 5.3c ARDL Long Run Coefficients statistical Significant

* indicates 10% statistical significant, ** indicates 5% statistical significant, *** indicates 1%

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INTR	0.081452	0.072952	1.116508	0.2861
***INFL	0.112398	0.036217	3.103495	0.0091
***LOG(MCAP)	-0.804862	0.262274	-3.068787	0.0097
***TOP	22.118453	3.878227	5.703239	0.0001
***EXR	0.059723	0.013001	4.593566	0.0006
***C	12.586668	2.714515	4.636801	0.0006

R-squared	0.895222	Mean dependent var	19.83594
Adjusted R-squared	0.729324	S.D. dependent var	2.215570
S.E. of regression	1.152685	Akaike info criterion	3.391236
Sum squared resid	15.94419	Schwarz criterion	4.307321
Log likelihood	-34.25977	Hannan-Quinn criter.	3.694892
F-statistic	5.396206	Durbin-Watson stat	2.197791
Prob(F-statistic)	0.002334		

The ARDL short run coefficients in table 5.4 shows that interest rate (INTR) which is the key variable of this study has a significant positive effect on portfolio investment (PI) at zero lag and at two lags. The coefficients shows that at zero lag, a 1% increase in interest rate (INTR) leads to a 0.733% increase in portfolio investment (PI) and a two lags, a 1% increase in interest rate (INTR) leads to a 0.42% increase in portfolio investment (PI). Inflation (INFL) has significant positive effect on portfolio investment at zero lag but has negative and insignificant effect at lag one and two. Market capitalization (MCAP) has a significant positive effect on PI at zero and one lag. At zero lag, 1% increase in MCAP leads to 0.58% increase in PI and at lag one, a 1% increase in MCAP leads to a 4.9% increase in PI. Trade openness (TOP) has a significant positive effect on PI at lag one. A 1% increase in TOP leads to 9% increase in PI. Exchange rate (EXR) has significant positive effect on PI at zero lag. A 1% increase in exchange rate (naira depreciation) leads to a 0.04% rise in PI. The ECM term shows that 97% of deviations of PI from its equilibrium value due to changes in the explanatory variables of the estimated model is corrected annually.

The long run coefficients presented above shows that INFL, TOP and EXR has significant positive effect on PI while MCAP has a significant negative effect on PI in the long run. But interest rate which is the key variable of this study has no significant long run effect on PI. The result shows that a 1% increase in INFL leads to a 0.11% increase in PI, a 1% increase in MCAP leads to a 0.8% fall in PI, a 1% increase in TOP leads to 22% increase in PI and a 1% increase in EXR leads to 0.059% rise in PI. The adjusted R square of 0.73 shows that 73% of the changes in PI is explained by all the explanatory variables of the model. The F statistics of the estimated model shows that although some variables in the model are not significant in explaining changes in PI, all the explanatory variables are jointly significant in explaining changes in PI.

Table 5.3d: Summary of Post Estimation Diagnostic Test

Diagnostic Tests			
Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.233713	*P Value*	0.868721
Obs*R-squared	0.665762	*P Value*	0.4145
Heteroskedasticity Test: ARCH			
F-statistic	0.060918	*P Value*	0.8068
Obs*R-squared	0.064983	*P Value*	0.7988
Normality Test			
Jarque-Bera(JB) Stat.	0.281466	*P Value*	0.868721

Source*: Author's computation using E-Views 9*

From the Table 5.6 above, the Breusch-Pagan-Godfrey (LM) test for autocorrelation, ARCH test for heteroscedasticity, and Jarque-Bera normality test indicates that there is absence of autocorrelation, that there is absence of heteroscedasticity and that the error term of the estimated model is normally distributed. This is because the P values are higher than the acceptable levels of statistical significance, hence the null hypothesis of the respective test which states that there is no autocorrelation, no heterescedasticity, and that the error term is normally distributed cannot be rejected.

5.4) Impulse Response Function

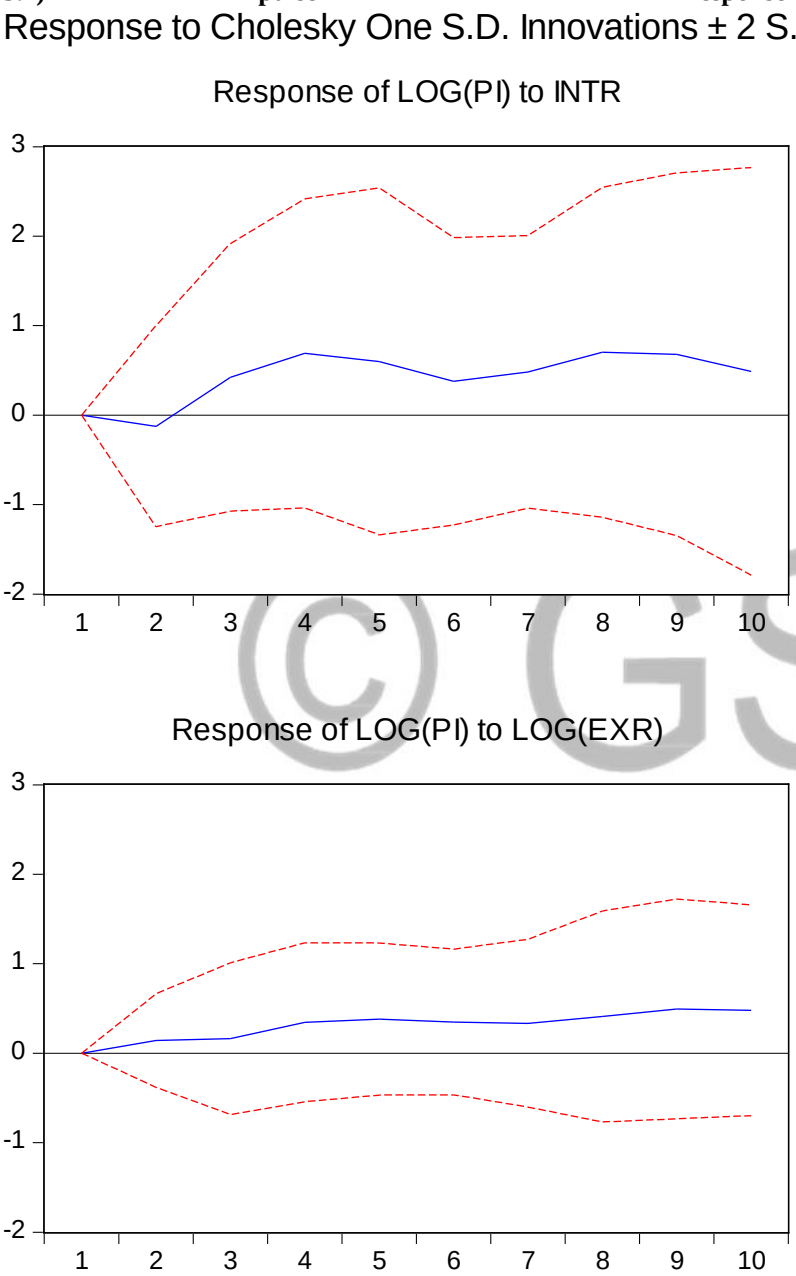


Figure 5.4: Impulse Response Graph

Based on the fact that the model passed important diagnostic tests, the researcher performed impulse response analysis with Cholesky orthogonal shock structure from the estimated baseline model including portfolio investment, interest rate and exchange rate. The impulse response function is a means of tracing the dynamic responses of endogenous variables to policy shocks. The impulse response graph above shows that in the first period, PI respond slightly negative to shocks in INT, but respond significantly positive in the remaining period while PI respond positively to shocks in EXR throughout the specified period of analysis.

5.5) Causality Test Rest

Table 5.5: Pairwise Granger Causality Tests Result

Pairwise Granger Causality Tests			
Null Hypothesis:	Obs	F-Statistic	Prob.
INTR does not Granger Cause LOG(PI)	33	0.91611	0.4117
LOG(PI) does not Granger Cause INTR		3.05372	0.0631

To ascertain the direction of causation between interest rate and portfolio investment; the researcher conducted pairwise granger causality test with a lag of two; which was chosen based on Schwartz Criterion. The causality test result in table 5.7 shows that there is a unidirectional (one way) causality that runs from PI to INTR. The null hypothesis that PI does not granger cause INTR is rejected at 10% level of significance.

5.6) Hypotheses Testing

i) Ho: Interest rate has no significant impact on portfolio investment in Nigeria

Decision: The ARDL estimates shows that interest rate has significant and positive effect on portfolio investment in the short run but in the long run, hence the null hypothesis is rejected

ii) Ho: Portfolio investment does not respond to changes in interest rate and exchange rate

Decision: the impulse response function shows that PI respond slightly negative to shocks in INT, but respond significantly positive in the remaining period while PI respond positively to shocks in EXR throughout the specified period of analysis. Hence the null hypothesis is rejected.

iii) Ho: There is no causal relationship between interest rate (INT) and portfolio investment (PI)

Decision: The Granger Causality test result shows that there is a unidirectional (one way) causality that runs from PI to INTR, hence the null hypothesis is rejected.

5.7) Discussion of Findings

From the findings of this study, interest rate which is the main explanatory variable of this study has a significant positive effect on portfolio investment in the short run. This shows that the rise and fall of portfolio investment in Nigeria is explained by changes in interest rate. Economic agents who embark on portfolio investment are usually attracted to high yield on financial resources, hence the higher the rate of return (interest rate) on portfolio investment, the more economic agents are willing to embark on portfolio investment and expand their portfolio choices. But in the long run, interest rate has no significant effect on portfolio investment, indicating that the decision to vary portfolio investment due to changes in interest rate is largely not based on long run expectation. The result conforms to the findings of Roux and Ismail (2004); Osundina and Osundina (2014); Abramov and Radygin (2015), which discovered that interest rate has a significant effect on portfolio investment in the short run. The findings contradict that of Yinghan (2016), which revealed that portfolio investment respond to changes in interest rate in both short run and long run.

Inflation has a significant positive effect on portfolio investment in both short and long run. This could be through the effect of inflation on interest rate. An increase in inflation usually leads to a rise in interest rate because lenders of financial resources usually take the level of inflation into consideration while setting interest rate. Such increase in interest rate will lead to a rise in portfolio investment, hence the rise in inflation may have led to a rise in interest rate, consequently, exchange rate and portfolio investment moves together in the same direction. The result conforms to the findings of Ogujiuba and Obiechina (2012); Hsing (2004), which pointed out that interest rate impacted on portfolio investment in the short run while inflation impacted positively on portfolio investment in both the short run and long run.

Market capitalization has a significant short run effect on portfolio investment. Market capitalization shows the size of the capital market in terms of the number of transactions at any given point in time. When market capitalization increases, it indicates boom in the financial market due to expected gains. Such increase in capital market activities attracts more portfolio investment into the economy. The findings conform to the findings of Akingunnola, Adekunle and Ojodu (2012); Ologunde, Eluminade and Asaolu (2006), which discovered that interest rate has a positive influence on market capitalisation. However, the findings are in contrast with that of Gazi-Salad and Mahmudul (2010), which revealed that interest rate, has a negative impact on share prices and market capitalisation.

Trade openness has a positive and significant effect on portfolio investment in both short and long run. It also has the highest significant coefficients of 9.02 and 22.11 in both short and long run respectively. This shows that the more the Nigerian economy is open to economic activities with the outside world, the higher the inflow of portfolio investment. The size of the coefficient shows that trade openness has the highest effect on portfolio investment.

Exchange rate has a positive and significant effect on portfolio investment in both long and short run. Although, naira depreciation (increase in exchange rate) usually reduce the returns from foreign portfolio investment when converted to foreign currency, leading to a fall in portfolio investment, the expected returns from investment may have been more than the losses from naira depreciation, hence exchange rate and portfolio investment moves together in the same direction. Also, though the effect of interest on portfolio investment is the centre focus of this study, the findings of this study, also shows that factors affecting portfolio investment in Nigeria is multi-dimensional. The result conforms to the finding of Doong, Wang and Yang (2005); Aydemir and Demirhan (2009), which revealed a significant positive relationship between exchange rate and portfolio investment. However, the finding contradicts that of Egwakhide (2012), which revealed no causality between exchange rate and portfolio investment.

SECTION SIX
SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 Summary

This research empirically examines the effect of interest rate on portfolio investment in Nigeria using annual data spanning the period of 1984 to 2018. Specifically, the study determined the effect of interest rate on portfolio investment in Nigeria, investigated the speed of response of portfolio investment to changes in interest rate and determined the nature of causal relationship between interest rate and portfolio investment. The study employed ARDL regression model to examine the effect of interest rate on investment in Nigeria, and the granger causality test was used to determine the nature of causal relationship among the variables in the model while the impulse response was used to investigate the response of investment to changes in interest rate and exchange rate. The study discovered that;

i) interest rate has significant and positive effect on portfolio investment in the short run but in the long run,
ii) exchange rate have a positive and significant effect on portfolio investment in both the short run and long run,
iii) inflation has a significant and positive effect on portfolio investment in both the short run and long run,
iv) market capitalisation has a significant short run effect on portfolio investment while
v) trade openness had a positive and significant effect on portfolio investment in both short run and long run.
vi) there is a unidirectional (one way) causality that runs from PI to INTR.
vii) PI respond slightly negative to shocks in INT, but respond significantly positive in the remaining period while PI respond positively to shocks in EXR throughout the specified period of analysis

Although, the effect of interest rate on portfolio investment is the centre focus of this study, the findings of this study, also shows that factors affecting portfolio investment in Nigeria is multi-dimensional.

6.2 CONCLUSION

This research has provided reliable evidence of the effect of interest rate on portfolio investment in Nigeria. The conclusion to be drawn from this study is that interest rate exerts significant influence on portfolio investment in Nigeria in the short run, indicating that portfolio investment in Nigeria is largely not based on long term expectations. This could be could be because investors takes into consideration the unstable macroeconomic environment of the Nigerian economy. In addition to interest rate, other control variables used in this study also influenced portfolio investment in Nigeria. They include market capitalization rate, exchange rate, inflation and trade openness. Therefore, an efficient and effective capital market, a good international trade position and the overall state of the economy determine whether or not portfolio investment will produce the desired gains in the economy. Therefore, policies which aim at promoting portfolio investment for sustainable gains in the economy should not just be interest rate specific but multidimensional and dynamic.

6.3 Recommendations

Based on the findings of this study, the following recommendations were made:

i. Since portfolio investment and interest rate are positively related in Nigeria in the short run but negative in the long run. Therefore, the policy authorities should try to ensure macroeconomic stability to induce portfolio investors to feel secure and commit to long term investment objectives in the economy. This will attract and sustain portfolio investment in Nigeria.
ii. The coefficient of Exchange rate was significant and positively related to portfolio investment in both short and long run. Therefore, policy authorities should watch the economy more closely, to intervene in the foreign exchange market when the need arises in other to maximize the gains of portfolio investment.

6.4 Contribution to Knowledge

This study will contribute in providing to decision makers and other key actors in government with insight that will help promote both domestic and foreign portfolio investment that will enhance economic growth. The Central Bank of Nigeria, being a regulator in the financial sector and a major player in the economy could also use the findings of this study. Through her monetary or interest rate policies, the CBN can move to act in a way that will positively influence the capital market and the economy as a whole. Empirically, it will serve as a useful and veritable bibliographical reference which will stimulate further research in this area and for other related studies.

6.5 Suggestions for Further Research

It is worthy to note that this study did not consider all variables that may affect portfolio investment in Nigeria. These variables can be introduced as control variables in subsequent studies that relates to portfolio investment. For instance, the performance of the capital market in the host country could have an impact on foreign investors' decisions. An increase of the market index reflects a rise in the value of shares of listed companies, and thus market becomes attractive to foreign investors who are looking for high returns.

REFERENCES

Abraham, S. A. (2018). Investment Diversification. *Journal of Management, 6(5):13-16*

Abramov, A. and Radygin, A. (2015). Interest rate and long term portfolio investment. *Russian Journal of Economics, 10(2): 54-77*

Acha, I. A. and Acha, C. K. (2011). Interest rates in Nigeria: An analytical perspective. *Research Journal of Finance and Accounting, 2 (3): 71-82.*

Adebiyi, M. A. (2002). Can high interest rate promote economic growth without fuelling inflation in Nigeria? *Journal of Economic and Social Studies,5(2):* 86-100.

Agarwal, R. N. (2006). Foreign Portfolio Investment in Some Developing Countries: A Study of Determinants and Macroeconomic Impact (Institute of Economic Growth), 6(3): 14-16.

Akingunnola, R., Adekunle, O. A. and Ojodu, H. (2012). Impact of interest rate on capital market growth (a case of Nigeria); *University Journal of Management and Social Science, 2(11): 15-35.*

Akingunola, B. (2012). McKinnon's Complementarity Hypothesis: Empirical Evidence for the Arab Maghrebean Countries. *The Romanian Economic Journal, 2(5): 39-46.*

Akinmulegun, S. O. (2018). Capital Market Development and Foreign Portfolio Investment Inflow in Nigeria (1985-2016). Advances in Economics and Business, 6(5): 299-307.

Akinbobola, T. O. (2017). Foreign portfolio investment and economic growth in Nigeria democratic settings. *Journal of Economics and Sustainable Development, 8(5): 33-52.*

Aydemir, O. and Demirhan, E. (2009). The relationship between stock prices and exchange rates: Evidence from Turkey. *International Research Journal of Finance and Economics, 23(2): 207-215.*

Ayeni, R. K. (2014). Macroeconomic Determinants of private Sector Investment - An ARDL Approach: Evidence from Nigeria. *Global Advanced Research Journals, 4(1):23-30*

Bakare, A. S. (2013). Investment Climate and the Performance of Industrial Sector in Nigeria. *International Journal of Academic Research in Business and Social Sciences, 2(6): 12-20.*

Gujarati, D. (2004). Basic Econometrics. (Fourth Edition). McGraw-Hill press, New Delhi, 1032p.

Baridam, D. M. (2001). Research methods in administrative sciences. Sherbrooke Associates, Port Harcourt, 202p.

Balogun, I. O. (2013). Portfolio management: An appraisal of insurance industry's investment profile under interest rate deregulation in Nigeria. International journal of business and social science, 4(11): 10-25.

CBN. (2012). CBN Brief: *Statistical Bulletin.* Abuja, CBN.

Central Bank of Nigeria, (2016). *Interest Rate:* Central Bank of Nigeria Research Department. Education in Economics series (*3)*

Chizea, B. (1993). Interest Rates, Exchange Rates and Inflation. *The Nigerian Banker* Oct-Dec. 6-11.

Cho, Y. J. (1988). The effect of financial liberalization on the efficiency of credit allocation: Some evidence from South Korea. *Journal of Development Economics, 29: 101-110.*

Cukierman, A. and Hercowitz, Z. (1990). Oligopolistic Financial Intermediation, Inflation and Interest Rate Spread. David Horowitz Institute for the Research of Developing Countries. DHIRDC Conference Proceedings, No. 2., Tel Aviv University, Israel, 314p.

Chukwuemeka, E., Stella, E., Victor, M. and Oduh, M.O. (2012). Modelling the long-run Determinants of Foreign Portfolio Investment in Nigeria. *Journal of Economics and Sustainable Development, 3(8): 194-205.*

Doong, S. C., Wang, A. and Yang, S.Y (2005). The dynamic relationship and pricing of stocks and exchange rates: Empirical evidence from Asian emerging markets. *Journal of American Academy of Business, Cambridge*, 7(4): 118-123.

Duruechi, A. H. and Ojiegbe, J. N. (2015). Determinants of Investments in Nigerian Economy: An Empirical approach (1990-2013). *International Journal of Financial Research, 6(4): 217-227*

Ekeocha, P. C. (2014). Determinants of FPI in an emerging market. Evidence from Nigeria. International Conference on Applied Economics. Icoae, 5: 289-296.

Ekeocha, P. C., Malaolu, V. and Oduh, O. M. (2012). Modelling the long run determinants of foreign portfolio investment in Nigeria. *Journal of Economics and Sustainable Development, 3(8): 194-205.*

Essia, U. (2005). Macro Economic Theory. Calabar: Saesprint (Nig) Co. 235p.

Ezeanyeji, C. I. and Ifeako, M. (2019). Foreign Portfolio Investment on Economic Growth of Nigeria: An Impact Analysis. *International Journal of Academic Management Science Research (IJAMSR), 3(3): 24-36.*

Egwakhide, C. I. (2012). The Nature of Causal Relationship between Interest Rate and Portfolio investment in Nigeria, 1986-2015. *International Journal of Business and Social Science, 6(3): 7-12.*

Fedderke, J. W. and Liu, W. (2002). Modeling the Determinants of Capital Flows and Capital Flight: with an Application to South African data from 1960-95. Economic Modeling, 19: 419-444.

Fernandez-Arias, E. and Mortiel, P. J. (1996). The Surge in Capital Inflows to Developing Countries: Prospects and Policy Response, World Bank Policy Research Working Paper, 1473p.

Fosu, O. E. and Magnus, F. J. (2006). Bounds Testing Approach to Cointegration: An Examination of Foreign Direct Investment, Trade and Growth Relationships. *American Journal of Applied Sciences, 3(11): 2072-2085.*

Gazi-Salah, U. and Mahmudul, A. (2009). Relationship between Interest Rate and Stock Price: Empirical Evidence from Developed and Developing Countries. *International Journal of Business and Management, 4(3): 43-51*

Ghose, A. K. (2004). Capital Inflows and Investment in Developing Countries. Employment Strategy, 2: 11-30.
Gujarati, D. (2004). Basic Econometrics. (Fourth Edition). McGraw-Hill press, New Delhi, 1032p.

Haider, M. A., Khan, M. A. and Abdulahi, E. (2016). Determinants of Foreign Portfolio Investment and Its Effects on China. *International Journal of Economics and Finance; 8(12):143- 150*.

Hamrita, M. E. and Abdelkader, T. (2011). The Relationship between Interest Rate, Exchange Rate and Stock Price: A Wavelet Analysis, *International Journal of Economics and Financial Issues, 1*(4): 220-228.

Hasan, M. Kabir, M. A. and Basher, S. A. (1999). Market Efficiency, Time-Varying Volatility and Equity Returns in Bangladesh Stock Market, University Press, New York.

Holsapple, E. J., Ozawa, T. and Olienyk, J. (2006). Foreign direct and portfolio investment in real estate: An Eclectic Paradigm. Journal of Real Estate Portfolio Management, 12(1): 23-36.

Hsing, E. (2004). Risk, the pricing of capital assets, and evaluation of investment portfolios. *Journal of Business, 42(5): 167-247*

Ibrahim, T and Akinbobola T (2017). Foreign Portfolio Investment and Economic Growth in Democratic Settings, *Journal of Economic and Sustainable Development,* 8(5):33-52

Imad, M. (2002). Foreign direct investment Theory, evidence and practice. *A journal of Business Management, 13:10-20*

Ikazoboh, A. (2011). Interest Rates Determinants in Nigeria: An Econometric X-ray. *International Research Journal of Finance and Economics, 4(2): 14-28.*

Cuadros, A., Orts, E. And Alguacil, B. (2011). Determinants of Portfolio Flows to Emerging Markets Economics: The Case of Jordanian Financial Crisis. *Global Journal of Management and Business Research, 14(3): 12-22.*

International Monetary Fund (IMF), (1993). In IMF (Ed.), *Balance of payments manual* (5th edition.).Washington D.C.

Iqbal, Z. (2001). Economic challenges in the Middle East and North Africa: An overview, Macroeconomic Issues and Policies in Jorgenson, D. (1963). Investment Vol. 1: Capital theory and investment behavior, MIT Press, 55 Hayward Street, Cambridge, MA 02142 – 1315 USA.

Jhingan. M. L. (2003). *Macro Economic Theory. (*12th Edition). Vrinda Publication (P) Ltd. India, 456p.

Jorgenson, D. (1963). A Theory of Interest Rate. *The Quaterly Journal of Austrian Economics 5(4): 77-110*

Knill, A. M. (2005). Can Foreign Portfolio Investment Bridge the Small Firm Financing Gap around the World? World Bank Policy Research Working Paper, 37(4): 41-53

Keynes, J. M. (1936). The General Theory of Employment, Interest, and Money, New York: Harcourt, Brace and World, 472p.

Levine, R. And Revelt, A. (1992). Common factors affecting bond returns. *Journal of Finance and Economics, 1(3): 25-31.*

Macdonald, S. and Moore, P. (2014). Positioning bond portfolio for rising interest rates. TIAACREF Asset management, 30: 21-25.

Magali, J. J. (2014). Effectiveness of loan portfolio management in rural SACCOS: Evidence(Evidence from Amman Stock Exchange). International Review of Management and Business Research, 6(4):1469-1477.

Mahmudul, A. and Gazi-Salah, U. (2010). The relationship between interest rate and stock price: Empirical evidence from developed and developing countries, *International journal of business and management, 4(3): 43-51*.

Muhammad, F. (2017). Determinants of portfolio investment in Jordan. *Journal of Business and Economics, 3(1): 12-20.*

Makola, M. (2003). The Attraction of Foreign Direct Investment by the African Countries. Biennial ESSA Conference, September 17th to 19th. Cape Town: ESSA, 7(4): 56-72.

Markowitz, H. M. (1952). Portfolio selection. *Journal of Finance, 7(1): 5-12.*

McKinnon, R. I. (1973). Money and capital market in economic development. Washington, DC; The Brookings Institution, 425p.

Mohammad, O. Al-Smadi, (2018). Determinants of foreign portfolio investment: the case of Jordan. Investment Management and Financial Innovations, 15(1): 328-336.

Ngowi, H. P. (2001). Can Africa Increase it Global Share of Foreign Direct Investment (FDI)? West Africa Review, 2(2): 55-70.

Ngugi, R. W. (2001). An empirical analysis of interest rate spread in Kenya. *African Economic Consortium,* 6(4): 23-28.

Obadan, M. I. (2004). Foreign Capital Flows and External Debt Perspectives on Nigeria and the LDCs Group. Ibadan: University Press, 3(2): 21-34.

Olugunde, T. (2006). The Economic Growth Imperative of Foreign Portfolio Investment for Nigeria. *International Journal of Economics and Financial Research, 3(6): 71-77*

Ogujiuba, K. and Obiechina, E. (2012). Foreign Private Capital, Economic Growth and Macroeconomic Indicators in Nigeria: An Empirical Framework. *International Journal of Economics and Finance, 4(10):7-14.*

Osundina, J. A. and Osundina, C. K. (2014). Interest Rates as a Link to Portfolio investment Decision in Nigeria. *A Journal of Economics and Finance, 4(2): 08-14.*

Okafor, I. G., Ugwuegbe, U. S. and Ezeaku, C. H. (2016). Foreign Capital Infows and Nigerian Economic Growth Nexus: A Toda Yamamoto Approach. *European Journal of Accounting, Auditing and Finance Research, 4(3):16-26.*

Oladejo, T. B. (2016). Empirical Evaluation of the Effect of Foreign Portfolio Investment on Nigerian Economic Growth. *International Journal of Comparative Studies in International Relations and Development, 4(1):161-174.*

Ologunde, A.O., Elumilade, D.O. and Asaolu, T. O. (2006). Stock Market Capitalization and Interest Rate in Nigeria: A Time Series Analysis, *International Research Journal of Finance by and Economics*, 8(4):154-166.

Olugbenga, A. A., and Grace, O. O. (2015). Impact of Foreign Direct Investment on Nigerian Capital Market Development. *International Journal of Academic Research in Accounting, Finance and Management Sciences, 5(1): 103-108*. http://doi.org/10.6007/IJARAFMS/v5-i1/1503

Omisakin, O., Adebiyi, O. and Omojolaibi, A. (2009). Foreign Direct Investment, Trade Openness and Growth in Nigeria. *Journal of Economic Theory, 3(2): 13-18.*

Onyeisi, O. S., Odo, I. S., and Anoke, C. I. (2016). Foreign Portfolio Investment and Stock Market Growth in Nigeria. Developing Country Studies, 6(11): 64-76.

Onyema, O. N. (2012). 2011 Market Review and 2012 Outlook. Lagos: The Nigerian Stock Exchange, 2(1): 43-52

Patel, N. (2019). The Effect of Interest Rates on Investments. Retrieved from https://finance.zacks.com/effect-interest-rates-investment-5809.html

Patterson, B. and Lygnerud, K. (1999). The determination of interest rates. Economic affairs series working paper. Luxembourg: European Parliament, 6: 50-70.

Reinhart, C. and Reinhart, V. (2008). Capital Flow Bonanzas: An Encompassing View of the Past and Present. CEPR Discussion, 6996p.

Ross, S. A. and Walsh, M. M. (1983). A simple approach to the pricing of risky assets with uncertain exchange rates. *Journal of international Business Finance, 3(2): 39-54.*

Roux, P. L. and Ismail, B. (2004). Modelling the Effect of changes in interest rates on Portfolio Investment: An Austrian Perspective. *Journal of Economics, 7(1): 25-40.*

Richard, A. (2012). Impact of interest rate on capital market growth (A case of Nigeria). *Universal Journal of Management and Social Sciences, 2(11): 14-20.*

Schneider, B. (2003). Measuring Capital flight: Estimates and interpretations, Working Paper 194, Overseas Development Institute, London, 5(3): 53-70.

Shanab, S. A. (2017). The Effect of Foreign Portfolio Investment (FPI) on Capital Market Indices, 5(3): 3-15

The Nigerian Stock Exchange (2016). Domestic and Foreign Portfolio Participation in Equity Trading. The Nigerian Stock Exchange's Domestic and Foreign Portfolio Investment Report, 8(4): 23-42.

Tokunbo, S. O. and Lloyd, A. A. (2010). Foreign Private Investment and Economic Growth in Nigeria. Review of Economic and Business Studies, 3(1):105-127.

Trokon, S. W. (2014). The Causal Relationship between Stock Price and Interest Rates. University of Nairobi, Kenya, 3(2): 12-20.

Uchendu, O. (1993). Interest rate Policy, Savings and Investment in Nigeria. *CBN Quaterly Review, 31(1): 34-52.*

Ul-Haque, N., Mathieson, D. and Sharma, S. (1997). Causes of Capital Inflows and Policy Responses to them. Finance Dev., 34(5): 4-7.

United Nations Conference on Trade and Development (UNCTAD), (1999). Comprehensive Study of the Interrelationship between Foreign Direct Investment (FDI) and Foreign Portfolio Investment (FPI). A staff paper prepared by the UNCTAD secretariat UNCTAD/GDS/DFSB/5.

Vaish, M. C. (2007). Macroeconomic theory. (12TH Edition.). New Delhi: Visas publishing house PVT Ltd, 780p.

Yartey, C. A. (2008). The determinants of stock market development in emerging economies: is South Africa different? IMF Working Papers, 131. Retrievedfromhttps://www.imf.org/en/Publications/WP/Issues/2016/12/31/The-Determinants-of-Stock-Market Development-in Emerging Economies-Is-South-Africa-Different-21646.

Yinghan, H. U. (2015). The Relationship between Interest Rate and Stock Prices in Chinese Stock Markets, Tallinu University of Technology, 7(3): 57-84.

Yinghan, H. U. (2016). The speed of response of portfolio investment to change in interest rate in China. *An International Journal Economics and Business Administration, 5(2): 12-25.*

Zordan, D. J. (2005). Stock Prices, Interest Rates, Investment Survival. *Econometrica USA,* Chicago,Illinois.Available at; http://www.econometricausa.com/publications/StockPrices.pdf.