

**THE RELATIONSHIP BETWEEN EXCHANGE RATE VOLATILITY AND STOCK
MARKET PERFORMANCE IN NIGERIA (1980-2014)**

BY

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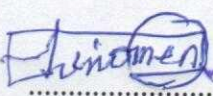
CERTIFICATION

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DEDICATION

This project is dedicated to the Almighty God who has given me the opportunity to complete this project, to my parents who even in times of difficulty made sure I finished my university education and to all those who has contributed in one way or the other to my success up to this stage in life.

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ABSTRACT

This study empirically examined the relationship between exchange rate volatility and stock market performance in Nigeria. The study employed the quarterly data on stock market capitalization, exchange rate, real GDP growth rate, broad money supply, and real interest rate from the Central Bank of Nigeria for the period of 1980-2014; this data frequency was selected to ensure adequate number of observations. Augmented Dickey Fuller Test and Johansen Co-integration test were also carried out to check for the time series properties of the variables, also the standard deviation was used to generate exchange rate volatility series for the period under consideration. The study utilized multiple regression method to know the long run effect of exchange rate volatility on stock market performance. The long run result shows that exchange rate volatility, broad money supply and real GDP growth rate have positive effects on stock market performance, while real interest rate has a negative effect on the stock market performance. Positive although weak relationship was confirmed to be the relationship between exchange rate volatility and stock market performance. The study recommended that since the exchange rate volatility is not negatively related to the stock market performance in Nigeria, government can use the exchange rate as a policy tool to attract investors; and also as a result of the weak relationship between the exchange rate volatility and stock market performance, the Nigeria stock market should ensure some hedge instruments that would shock any negativity that might occur as a result of the unstable exchange rate.

Keyword: exchange rate, exchange rate volatility, stock market, stock market performance

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CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND TO THE STUDY

Stock market is a typical factor of an advanced economy and it is supposed to perform limits that propel the development and improvement of the economy. The stock exchange houses a broad section of the nations' wealth and has continued being the significant discuss of distinctive studies subsequent to the methodology of the overall budgetary crisis. In like manner, since the determination of the Structural Adjustment Program (SAP) in 1986, Nigeria has moved to distinctive sorts of floating administrations of exchange rate from the fixed or pegged administrations somewhere around 1960s and the mid-1980s. Nwankwo (1980), was of the view that floating exchange rate has been shown to be attractive over the fixed arrangement on account of the responsiveness of the rates to the foreign exchange market. Thus as a result of the long term nature of investment in the stock market, any change that could impact the state's soundness or economy when in doubt has real impact on the execution of financial markets. With the late decline saw in the Nigerian securities exchange, different studies have inspected how some macroeconomic variables impact on enhancing the execution of the Nigerian stock market, without abandoning the exchange rate.

It is a known reality that the endeavor that will propel monetary development and improvement obliges long term financing, far longer than the length of time for which most savers are willing to present their stores and now and then past the limit of the council. Capital markets all things considered, are acknowledged to be the economy's nature given their capacity to react quickly to key changes in the economy. It energizes reserve funds and genuine interest in any stable monetary environment. Total reserve funds are directed into genuine speculation that builds the capital stock and in this way monitor the monetary development of the nation. As a result of this attributes the capital business sector makes it feasible for the recognizing personalities to feel the motivation of the economy. The Nigerian Stock Exchange may not be excluded as it is relied upon to be impacted by macroeconomic strengths, which are outside the domain of capital business. These powers are the macroeconomic essentials or pointers that focus the stock costs. Commonly, exchange rate which is one of the key macroeconomic essentials assumes an

inexorably critical part in any economy as it straightforwardly influences household value level, benefit of exchanged products and administrations, designation of assets and venture choice. The solidness of the exchange rate is today an imposing establishment of every single financial activities.

In the 19th century, the economy was basically known for her dependency on agricultural produce which lead to the different local governments then to achieve to a great extent food security. With the foundation of the Nigerian Stock Exchange (NSE) in 1961, the need to energize private capital for advancement was acknowledged sufficiently early to add to the capital business sector. After the rise of the summed up floating system in the mid 1970s, the issue of exchange rate unpredictability turned out to be excessively irritating. The need for different procedures with the perspective of discovering the most proper strategy for accomplishing adequate exchange rate for the Naira arose, as a result of the liberalization of the exchange rate administration in 1986. The recurrence with which these measures were presented and charged is educated by the decided endeavors of the monetary authorities to tirelessly battle the unabating deterioration and insecurity of the Naira exchange rate In a proceeded with push to balanced out the exchange rate, and additionally guarantee a solitary exchange rate for the Naira, various variations of business sector decided rates have been received subsequent to 1986. The Second tier Foreign Exchange Market (SFEM) was introduced in 1986, while the First and Second tier markets were merged into enlarged Foreign Exchange Market (FEM) in 1987, this was later changed to the Inter-Bank Foreign Exchange Market (IFEM) in January 1989. This new framework took into consideration bureau de change to source for their foreign exchange necessity from the IFEM. This was later changed the Autonomous Foreign Exchange Market (AFEM) in 1995 which permit the Central Bank to buy foreign exchange from oil organizations.

1.2 STATEMENT OF PROBLEM

The rate at which the Nigeria Naira is being exchange with other currencies of the world especially the dollar is now very unstable. There is no restriction to its volatility as it changes on week by week, day by day and even on hourly premise, which has lead to the weakness of the naira and making its worth to be diminished to the barest minimum. Between the period 1986 and 2008 six different pricing system were attempted as a result of this fluctuations in the naira. Somewhere around 1986 and 1989, the average pricing system, the marginal pricing system and

the Dutch Auction System were utilized while the Interbank Foreign Exchange Market (IFEM) framework was set up somewhere around 1989 and 1990. This was supplanted by the re-presentation of the Dutch auction system which was tried till March 1992 when another framework in light of the interbank outside stock market was initiated. Finally, the wholesales Dutch Auction System (W-DAS) was introduced in February 20, 2006. The introduction of the W-DAS was also to deepen foreign exchange market in order to evolve a realistic exchange rate for the naira. Despite the fact that the naira solidified toward the end of 1986 in respect to its position toward the second tier market, the change starting with one bidding session then onto the next was vast. The Central Bank of Nigeria really needed to intercede on two events keeping in mind the end goal to direct the abundance of volatility of the exchange rate. The recurrence with which new trade rates were presented and changed and the discontinuous mediation of the Central Bank is informed by the decided exertion of the monetary authorities to un-tenaciously battle the un-lessening deterioration and unsteadiness of the naira exchange rate. Notwithstanding the comprehensive floating exchange rate system, various different elements have added to the diminishing fortune of Naira. These incorporates feeble creation base and undiversified nature of the economy; import subordinate generation structure; lazy remote capital inflows; unguided exchange liberalization strategy; over dependence on the imperfect market system, weak balance of payment position, loss of monetary policy and all the more essentially, poor foreign exchange administration system, as indicated by (Obadan, 2001).

The naira's volatility has been seen as one of the greatest difficulties the Nigerian economy is confronting. The unnecessary unpredictability of the naira is driven to a great extent by the tidal wave of structural movements in the global economy. The naira's volatility has influenced each part of the Nigeria economy including the stock exchange. Understanding the relationship between exchange rate volatility and stock market performance is critical from the perspective of strategic investors, and the venture group in this changing global environment. This has, thusly makes a need to comprehend the connection between exchange rate and stock market to support the portfolio vulnerability. An expansive literature has reviewed the relationship between stock market performance and exchange rate in developed and also developing nations but, there is no settled supposition concerning the relationship between these variables. Contention exists among economists and policy makers as to whether there is a positive or negative relationship between currency volatility and the stock market performance. This controversy

makes the study of exchange rate volatility and the stock market interesting and challenging and thus the essence of this study is to examine if there are any trend between stock market performance and exchange rate? To what extent does the exchange rate volatility affects the performance of the stock market? And also what is the relationship between exchange rate volatility and the Nigeria stock market?

1.3 OBJECTIVES OF THE STUDY

The main objective of this study is to examine the impact of exchange rate volatility on the stock market performance in Nigeria. The study also has the following specific objectives:

- To examine the trends between exchange rate movements and stock market performance.
- To measure and analyze the extent of the relationship between exchange rate volatility and stock market performance.

1.4 HYPOTHESES TESTING

This is as follow:

- H_0 : no trends between exchange rate movements and stock market performance
 H_1 : there is a trend between exchange rate movements and stock market performance
- H_0 : exchange rate volatility has no significant impact on stock market performance.
 H_1 : exchange rate volatility has significant impact on stock market performance.

1.5 SIGNIFICANCE OF THE STUDY

This research work is aimed at showing the impact of exchange rate volatility on stock market performance in Nigeria from 1980-2014. This research work is of great importance, as it will help the monetary authorities to see how the fluctuations in exchange rate affects the stock market and also help them make accurate decisions in exchange rate policy formulations so as to have an exchange rate which is relatively stable and be able to enhance economic growth effectively through viable or productive exchange rate performances.

1.6 SCOPE OF THE STUDY

This study will cover the period of 1980-2014 with relations to how this fluctuation has had direct or indirect impact on the stock market performance. This period is chosen due to available data.

1.7 DEFINITION OF TERMS

EXCHANGE RATE: is the price of one country's currency expressed in terms of some other currency. It determines the relative prices of domestic and foreign goods, as well as the strength of external sector participation in the international trade is the home currency per unit of foreign currency. (Obansa, Okoroafor, Aluko and Millicent, 2013).

VOLATILITY: it is a statistical measure of the dispersion of returns for a given security or market index. It can be measured for variation of price of financial instrument overtime. (investopedia.com, 2012)

STOCK MARKET: it is a market where short, medium and long term securities (bonds, shares, etc.) are bought and sold. (investopedia.com, 2012)

CAPITAL MARKET: is a market where both government and companies raise long term funds to trade securities on the bond and the stock market. (Okafor, 1983).

1.8 ORGANIZATION OF THE STUDY

Following this introduction, Chapter two will review both the theoretical and empirical literature pertaining to the relationship between exchange rates and the stock market. Chapter three shall discuss the methodology and the sources of the data to be used in this study. Chapter four shall estimate the regression model and interpret the results. The research's key findings, conclusion, and policy recommendations are contained in chapter five.

CHAPTER TWO

LITERATURE REVIEW

2.0 INTRODUCTION

This section examines the relevant interaction to explain the relationship between exchange rate volatility and stock market performance. This chapter shall include the conceptual issues, theoretical framework and the empirical literature in different countries as reviewed by different scholars.

2.1 CONCEPTUAL ISSUES

2.1.1 EXCHANGE RATE: is the price of one country's currency expressed in terms of some other currency. It determines the relative prices of domestic and foreign goods, as well as the strength of external sector participation in the international trade. It is the home currency per unit of foreign currency. Concepts of exchange rate:

2.1.1.a The nominal exchange rate

The nominal exchange rate (NER) is the derivation of the nominal exchange rate index differential ratio relationship to the base exchange rate where the value of the trade weight index of the country under consideration is of importance in computing the indices of all countries (Hinkle and Monties, 1999). The basis of computation of the nominal effective exchange rate index is the average of trade volume of a country (i.e. the value of important export) over a given period of time expressed as a ratio of the average total of the trade volume currencies which are included in the basket. (NER) is a monetary concept which measures the relative price of two moneys or currencies, e.g., naira in relation to the U.S dollar

2.1.1.b The real exchange rate (RER)

as the name implies, is a real concept that measures the relative price of two goods-tradable goods (exports and imports) in relation to non-tradable good(goods and services produced and consumed locally). Real exchange rate is that which measures the relative price indicators we have in terms of economic international competitiveness, that is to know the extent of international competitiveness. The real exchange rate measures both changes in nominal exchange rate and change relative inflation rate (Obadan, 1994). It is the rate of the

price level. It is also a relative price between you as domestic partner abroad, therefore, it is the rate of the price indicator between the tradable and non-tradable goods.

2.1.1.1 Exchange Rate policy in Nigeria

Under the structural adjustment programme which was actualized from July 1986, the exchange rate method was to float the naira and setup an institutional system for its trading in a market determined environment. In view of that, a market determined exchange rate was established and exchange rate policy objectives pursued within the institutional framework of the second - tier foreign exchange market (SFEM). (SFEM) was relied upon to advance a powerful component for exchange rate determination and allocation of foreign exchange so as to ensure short-term stability and long-term balance of payments equilibrium. (SFEM) began as a dual exchange rate system which produced the official first tier exchange rate and the S(FEM) or 'free' market exchange rate. The previous was administratively determined and gradually depreciated. It connected to a few official international transactions, such as debt servicing and obligations to international organization The 'free' market rate which is connected to the rest transactions was dictated by the market forces of demand and supply within the framework of a foreign exchange market auction system. Essence of the dual exchange rate system was to dodge a purposeful uniform and sizable devaluation of the naira however to permit it to deteriorate in the SFEM while at the same time the monetary authorities would proceed with a downward modification of the first-tier rate until the two rates merged to produce a reasonable exchange rate. This convergence was achieved on July 2, 1987 at the rate of N3.74: \$1.00. Be that as it may, a few experts portrayed it as constrained (Ojameruaye, 1991). The objectives of exchange rate administration under SAP can, to some degree, be said to have reflected the needs of medium / long-term BOP equilibrium. Hence, SFEM was required to accomplish a realistic exchange rate of the naira, which would decrease excess demand for foreign exchange to import finished goods and services, as well as stimulate non-oil export earnings.

2.1.1.2 Exchange-rate regime

It is the way an authority manages its currency in relation to other currencies and the foreign exchange market. Exchange rate policy in Nigeria has gone through many changes but spanning between two major regimes. These are the fixed and flexible exchange rate system remains in

use from 1986, while the flexible exchange rate system remains in use from 1986 till date having undergone series of modifications.

2.1.1.a Pegged exchange rate regime: A pegged, or fixed system, is one in which the exchange rate is set and artificially maintained by the government. It is also referred to as an exchange rate for a currency where the government has decided to link the value to another currency or to some valuable commodity like gold.

2.1.1.b Floating exchange rate regime: A floating exchange rate or fluctuating exchange rate is a type of exchange-rate regime in which a currency's value is allowed to fluctuate in response to foreign-exchange market mechanisms. A currency that uses a floating exchange rate is known as a floating currency.

2.1.2 Exchange Rate Volatility

Exchange rate volatility refers to the swings or fluctuations in the exchange rates over a stretch of time or the deviations from a benchmark or equilibrium exchange rate. The latter which also reflects the misalignment of the exchange rate could occur where there is multiplicity of markets parallel with the official market. The monitoring of these markets is essential because they tend to provide a signal (though not normally acknowledged in official circles) on exchange rate misalignment, particularly when official exchange rate deviates widely from what obtains in the free market. Empirically, volatility is measured in terms of the 'coefficient of variation' which is the standard deviation divided by the mean for a series. Fluctuations and price volatility may be measured on any time-scale, from year-by-year to day-by-day. Volatility over any time interval tends to be higher when supply, demand or both are liable to large random shocks and when the elasticity of both supply and demand is low.

2.1.3 Stock Market

This refers to the market in which shares are issued and traded either through exchange or over-the-counter. It is also known as equity market economy as it provides companies with access to capital and investors with a slice of ownership in the company and the potential of gains with access to capital and investors with a slice of ownership in the company and the potential of gains based on the company's future performance. The term in the overall market in which shares are issued and traded on exchanges or in over the counter markets. The stock market is

made up of the primary and secondary markets. The primary market is where new issues are first offered, with any subsequent going on in the secondary market.

2.1.4 Stock Market Performance

Stock market performance is the indicator of the stock market as a whole or of a specific stock. It gives signs to the investors about future moves. The movement in the price of a stock and the indexes gives the idea of the near future trend of the stock, sector or the economy as a whole. As financial domain is the most important one of an economy, also the stock market performance is an indicator of the overall health of the economy. Stock market performance is affected by a wide array of factor such as economic, political, and international and company specific issues. When it comes to the overall index performance then the domestic economy's National Income, GNP (Gross National Product) growth, PPP (Purchasing Power Parity), Monetary issues, Political stability, International Relations, Balance-of-payment situation, etc. comes into consideration. But it zeros down the specific stocks then the company specific information (profitability, sales, profit margin, growth, etc.) play important role in the price determination of the stock.

2.1.5 THE NIGERIA STOCK EXCHANGE

The mechanism of stock exchange came into existence to enable investments which were inherently illiquid to become liquid through re-conversion into cash at the decision of the investor without inconveniencing the company (Olowe, 1997). According to Okodua and Ewetan (2013) the stock market provides equity and a direct form of finance to potential investors for economic purposes. According to them, this role enables it to function as a critical long-term lubricant in the economic growth. The Nigerian Stock Exchange, like its counterparts such as the New York Stock Exchange and the London Stock Exchange, is essentially the trading floor of the Nigerian Capital Market. It is fundamentally an institution which makes it possible to collect capital for the purpose of launching new enterprises and those who own shares to sell them through organized machinery without having to seek for buyers through the market capitalization process. Such securities traded openly at the Stock Exchange refer to documentary evidence of entitlement to claim upon the assets of the issuing organization, which may be a government, quasi government institution or agency, or a business firm (Anyanwu 1997). The development of

the capital market in Nigeria dates back to 1946, when the first government securities was floated; the institutional facilities for the operation was however absent and did not commence until fifteen years later, when the Lagos Stock Exchange (now The Nigeria Stock Exchange) was established in 1961 (Alile and Anao, 1990; Adeusi, et al, 2013).

The Nigeria capital market was established for the following reasons below:

- to overcome difficulties of selling stock
- to provide local opportunities and lending for long term purpose
- to enable authorities mobilize long term capital for economic growth and development
- to enable the foreign business the chance of offering their shares to interested Nigerians to invest and participate in the ownership of these foreign business.

2.2 THEORETICAL FRAMEWORK

The issues of theoretical approaches explaining the behavior of exchange rates which covers the influence of stock market performance are highlighted below. There are several schools of thought that offer theoretical explanations for the behavior of stock prices. Theories concerning exchange rate and the stock market have been given by different scholars such as Dornsburch and Fischer (1980), Fama (1965), Ross (1976), Branson (1977) and numerous other scholars. There is no hypothetical agreement neither on the presence of relationship between stock market and exchange rates or on the direction of the relationship. This theoretical section shall considered asset pricing model, arbitrage pricing model and the efficient market hypothesis.

2.2.1 Efficient Market Hypothesis

The hypothesis states that prices of securities fully reflect available information about securities. The hypothesis states that the capital market is efficient in processing information. Market efficient hypothesis according to Fama (1991) "is the simple statement that security prices fully reflect all available information". An efficient capital market is one in which security prices equal their intrinsic values all times, and where most securities are correctly priced. Kevin (2005) proposes that when someone refers to efficient capital markets,

they mean that security prices fully reflect all available information. Evaluation of all information available at anytime leads to the observed prices of the securities at the time. Kevin (2005) opined that the speed with which information is incorporated into security prices is the major concern of the efficient market model. The technicians believe that past price sequence contains information about the future price movements because they believe that information is slowly incorporated in security prices. The efficient market theory holds the view that in an efficient market, new information is processed and evaluated as it arrives and prices instantaneously adjust to new and correct levels. The efficient market hypothesis assumes that prices reflect the awareness and the anticipations of all investors. EMH proponents believe that it is not possible to beat the market consistently i.e., it is not possible to generate returns above the average market rate of return without inside information. The EMH has been expressed at three different levels, each testable to some degree. Kasper (1997) also proposed that how widely available information needs to be there to be efficient depends upon the form of the hypothesis.

2.2.2 Capital Asset Pricing Model

In the mid 1960's, The Capital Asset Pricing Model (CAPM) was developed and it uses various assumptions about markets and investor behavior to give a set of equilibrium conditions that allows for the prediction of the return of an asset for its level of systematic (or non-diversifiable) risk. CAPM defines the market as the universe of all assets in the world. CAPM was based on the work of Harry Markowitz is the portfolio theory, This theory models the uncertainty in the price of an asset by the variance of the returns of the asset [σ^2] where σ is the standard deviation of the returns of the asset (Herekar, 2006). Herekar (2006) proposes that there are two risks which investors' faces while investing on assets. One is the risk which one faces when one holds a certain stock this is referred to as the asset specific risk. While the other risk is the risk which is common to all securities it is referred to as the market risk. For example, during the period of recession all stocks might get a defeat, in this case the recession is a type of market risk. Herekar (2006), referred to this market risk as systemic risk. The only risk that can be faced from this portfolio theory, if diversification is employed, will be the market risk and not the asset specific risk. In other words, Herekar (2006), suggests that CAPM suggests is that asset specific risk is diversifiable and can be eliminated and hence CAPM allows for

diversibility of the asset specific risk and can also be eliminated, does not need to be compensated for.

2.2.3 Arbitrage Pricing Theory (APT)

APT model asserts that there is a linear relationship between asset returns and factors and that return on an asset is linearly related to H factors. The APT does not specify what these factors are. Specifically, the APT model asserts that the rate of return on asset, i , is given by the following relationship (Drake and Fabozzi, 2009). Drake and Fabozzi (2009) were of the view that the APT model postulates that an asset's expected return is influenced by a variety of risk factors, as opposed to just market risk of the CAPM. That is, the Forcadi, Kolm and Fabozzi (2004) argue that the APT postulates that an asset's expected return is influenced by a variety of risk factors as opposed to just market risk as assumed by the CAPM. The APT model states that the return on a security is linearly related to H systematic risk factors. However, the APT model does not specify what the systematic risk factors, but it is assumed that the relationship between asset returns and the risk factors is linear. The APT model as given asserts that investors want to be compensated for all the risk factors that systematically affect the return of a security. The compensation is the sum of the product of each risk factor's systematic and the risk premium assigned to it by the capital market. This study utilizes arbitrage pricing theory because of the aforementioned assumption.

2.3 EMPIRICAL LITERATURE

Wide studies have been done on the impact of exchange rate volatility on the stock market performance. From the various literatures stock prices are used in relation to stock market performance and how the exchange rate volatility has impacted on it. The behavior of volatility of stock market has been broadly studied using the standard deviation and ARCHGARCH framework pioneered by Engel (1982) and further developed by Bollerslev (1986), and others.

Olugbenga (2012) investigated the long-run and short-run impacts of exchange rate on stock market improvement in Nigeria more than 1985:1–2009:4 using the Johansen co integration tests. A bivariate model was indicated and exacts results demonstrated a significant positive stock market performance to exchange rate in the short -run and a significant negative stock market performance to exchange rate in the long-run. The

Granger causality test demonstrated solid confirmation that the causation keeps running from exchange rate to stock market performance. This inferred that variations in the Nigerian stock market are explained by exchange rate volatility. The study presumed that the negative impact of exchange rate on Nigerian stock market performance could have been the outcome of substantial depreciation of the currency subsequent to the introduction of the structural adjustment programme in 1986.

The study of Adjasi and Biekpe (2007) in Ghana, South Africa, Egypt, Kenya, Mauritius and Nigeria examined the relationship between stock prices and exchange rate movement. Vector autoregressive (VAR) cointegration and impulse response analysis was employed to verify the short-run and long-run linkages between stock prices and exchange rates. Their findings demonstrated a long-run relationship between stock prices and the exchange rate in Tunisia, where exchange rate depreciation drove down stock prices. A short-run error-correction model also indicated similar results. Impulse response analyses for other countries showed that stock returns in Ghana, Kenya, Mauritius and Nigeria lessened when affected by exchange rate shocks but expanded in Egypt and South Africa.

It was discovered that in Ghana, Kenya, Mauritius and Nigeria than in South Africa and Egypt Shocks induced are more extended by either stock prices or the exchange rate. Results from findings in Egypt, Ghana, Kenya, Mauritius, Nigeria and South Africa, On the other hand, showed that, there was no long-run stable relationship between stock market prices and exchange rates.

Stuns affected by either stock prices or the exchange rate are more extended in Ghana, Officer (1973) demonstrated that aggregate stock volatility, volatility of money growth and industrial production expanded during the period of depression. Before the depression it was discovered that stock volatility was at the same levels. Black (1976) and Christie (1982) On the other hand, found that financial leverage can be used to clarify stock market volatility, which contradicts the study of Officer. Also, it was discovered by French et al. (1987) and Schwert (1989) that the market volatility changes after some time, when they measured market volatility as the variance of monthly returns of market index. They were likewise of the perspective that value of corporate equity depends of the health of the economy, so an adjustment in the level of uncertainty about future macroeconomic conditions would bring about a corresponding change in stock return volatility. Nevertheless, neglection of French et al. to find a direct positive relation

between expected return and volatility, lead to neglecting of Schwert to clarify a significant part of the adjustment in market volatility over time using macroeconomic variables. In a related study, stock return volatility around stock market crashes was analyzed by Schwert (1990) to know its behavior and his findings showed that stock market volatility bounces significantly during the crash and returns to low pre-crash levels quickly. In related studies, Officer (1973) explained the drop in stock market volatility in the 1960s with a reduced variability in industrial production. Schwert (1989) and Hamilton and Lin (1996) found that stock market volatility increases in times of recession and Glosten et al. (1993) find interest rates to be an important factor in explaining stock market volatility.

Mao and Kao (1990) also investigated the link between stock prices and macroeconomic variables. They found out that exporting firms' stock values were more responsive to changes in foreign exchange rates. Contrary to economic theories, existing researches posited a weak link between stock prices and exchange rates, Mao and Kao reported an inverse relationship between currency appreciation and domestic stock market for exporting countries and a positive effect on domestic stock market for import dependent countries. Thus, this assertion confirmed with the goods market theory.

The economic exposures of mining companies was investigated by Khoo (1994) using exchange rates, interest rates, and price of oil and Khoo concluded that exchange rate movement has a small impact on stock returns, in which Domely and Sheehy (1996) found a similar result in their study.

The research work on the relationship between stock markets return and exchange rate movements in seven African countries by Adjasi and Biekpe (2005) employing the cointegration tests to ascertain the long run relationship between them. Their work revealed that exchange rate depreciation increases stock market prices in some countries in the long run. However, exchange rate depreciation causes a reduction in stock market returns in the short run. Interestingly, Mishra (2004) found no Granger causality between the exchange rate and stock returns. Mishra (2004) findings showed that stock return, the demand for money and interest rate are related to each other but no consistent relationship exists between them. In addition to this, forecast error variance decomposition showed that stock market return influences the demand for money; interest rate causes changes in exchange rate; exchange rate affects the stock return;

demand for money affects stock return; interest rate affects the stock return, and demand for money affects the interest rate.

Engle and Rangel (2005) also investigated the relationship between the unconditional volatility and a number of macroeconomic variables while Bercker and Clement (2005) built on the SPLINE GARCH model proposed by Engle and Rangel (2005) when they modeled stock market volatility conditional on macroeconomic conditions whereby macroeconomic information was added directly into the estimation of such GARCH models.

This study made easy the incorporation of the forecasts of macroeconomic variables into volatility forecasts for share index returns. Thus their model can lead to significantly different forecasts than traditional GARCH type volatility models. Other studies on developing economy include the findings of Mishra (2004), Chortareas et al (2000); and Koutmoa et al (1993).

A significant positive relationship between stock prices and exchange rates was found by: Smith (1992), Solnik (1987), Aggarwal (1981), Frank and Young (1972), Phylaktis and Ravazzolo (2000), Granger et al. (2000), Abdalla and Murinde (1997), and Apte (2001) on the other hand, a significant negative relationship between the two variables were reported by; Soenen and Hennigar (1998), Ajayi and Mougoue (1996), Mao and Kao (1990) . However, Bartov and Bodnar (1994), Frank and Young (1972), found very weak or no relationship between stock prices and exchange rates.

On the issue of causation, most of the studies had mixed results (Morley and Pentecost (2000); Bahmani-Oskooee and Sohrabian (1992); Ibrahim (2000); Kanas (2000). Dimitrova (2005) pinpointed the essence of ascertaining the relationship between stock prices and exchange rates. First, many researchers are of the view that it influences decisions about monetary and fiscal policy. As quoted by Dimitrova, Gavin (1989) in his study demonstrates that a booming stock market has a positive effect on aggregate demand. According to him, policy makers should be aware whether such a policy might depress the stock market via exchange rate movement. Second, the relationship between the two markets may be used to forecast exchange rate movement. This will enhance multinational corporations' earnings. Third, under investment funds' portfolios, currency is always incorporated as it advantage. For the performance of the fund, it is important to have an insight about the relationship between currency rates and other assets. The variance of the portfolio gives the expected return as

suggested by the mean-variance approach to portfolio analysis. Therefore, an accurate estimate of the variability of a given portfolio is needed. This requires an estimate of the correlation between stock prices and exchange rates. Is the magnitude of this correlation different when the stock prices are the trigger variable or when the exchange rates are the trigger variable? Last, the understanding of the stock price-exchange rate relationship may prove helpful to foresee a crisis. Aggarwal (1981) found a significant positive correlation between the US dollar and US stock prices while Soenen and Hennigan (1988) reported a significant negative relationship.

Ajayi and Mougoue (1996) investigate the short-and long- run relationship between stock prices and exchange rates in eight advanced economies. Of interest to them are the results on short-run effects in the U.S. and U.K. markets. They find that an increase in stock prices causes the currency to depreciate for both the U.S. and the U.K. Ajayi and Mougoue explain this as follows: a rising stock market is an indicator of an expanding economy, which goes together with higher inflation expectations. Foreign investors perceive higher inflation negatively. Their demand for the currency drops and it depreciates.

As revealed by Bhattacharya and Mukherjee (2001), Bahmani-Oskooee and Sohrabian (1992) were among the first to use cointegration and Granger causality to explain the direction of movement between exchange rates and stock prices. Since then various other papers analyzing these aspects and using this technique have appeared covering both industrial and developing countries (for example, Granger et. al.(2000); Ajayi et. al. (1998); Ibrahim (2000). The direction of causality, similar to earlier correlation studies, appears mixed. For Hong Kong, Mok (1993) found that the relationship between stock returns and exchange rates are bidirectional in nature. For the United States, Bahmani-Oskooee and Sohrabian (1992) point out that there is a two-way relationship between the U.S. stock market and the exchange rates. Ma and Kao (1990) in his study attributed the differences in results to the nature of the countries i.e. whether countries are export or import dominant. In their study on Istanbul Stock Exchange (ISE), Acikalinet.et.al. (2008) using cointegration test and vector error correction model submit that exchange rate provides a direct long run equilibrium relationship with stock market index. Findings from the study reveal two ways of causalities between the two variables; implying that prediction of ISE is possible using the past information on the moves of exchange rate. The study of Ali et.al. (2010) on Pakistan Stock Exchange reveals that exchange

rate has no cointegration with stock exchange price index. The authors went further to establish that there is no granger causality between exchange rate and stock market performance.

A GARCH model was used by Karoui (2006) used to estimate the stock return and the exchange rate volatility. Karoui's investigation was with the instinct that the volatility of the stock returns could be partially explained by the volatility of the currency rates. The study focused on the following 18 emerging countries: Argentina, Brazil, Chile, Colombia, Hungary, India, Indonesia, Malaysia, Mexico, Peru, Poland, Philippines, Russia, South Africa, South Korea, Taiwan, Thailand and Turkey. The study found a significant relationship between currency rate volatility and stocks returns volatility for a large part of the indexes studied. Moreover, a positive relationship between the foreign exchange rate volatility and the stock return volatility in a large part of the sector indexes studied was found.

Morales (2008) investigated the extent of volatility spillovers between stock returns and exchange rate changes for six Latin American financial markets namely: Argentina, Brazil, Chile, Colombia, Mexico, and Venezuela and one European financial market, and Spain in the 1998-2006 period. The study divided the sample into sub periods, prior to and after the introduction of the Euro and it applied the EGARCH methodology to model volatility. The results showed that the volatility of stock returns affects the volatility of exchange rates; however, no evidence of volatility transmission in the opposite direction was found. The results of the study are consistent with those of Kanas (2000) and Yang and Doong (2004) who both found evidence of volatility spillovers from stock returns to exchange rates. However the results differ on the evidence of spillovers in the opposite direction from exchange rates to stock markets. Morales's (2008) study found that although volatility spillovers are much less prevalent from the various bilateral exchange rates to the stock markets in the countries examined, as well as less consistent across countries and over time than the spillovers from stock markets to exchange rates.

Gerolamo (2001) identifies the impact of inflation on interest rate as a channel through which it affects the stock market and ultimately economic growth. In studying the impact of Real Gross Domestic Product (RGDP), inflation and interest rates on stock prices of quoted companies in Nigeria, Daferighe and Aje (2009) conclude that inflation and interest rates are negatively correlated with stock prices.

Rahman and Uddin (2009) investigated the interactions between stock prices and exchange rates in three emerging countries of South Asia namely Bangladesh, India and Pakistan. Their study considered average monthly nominal exchange rates of US dollar in terms of Bangladeshi Taka, Indian Rupee and Pakistani Rupee and monthly values of Dhaka Stock Exchange General Index, Bombay Stock Exchange Index and Karachi Stock Exchange All Share Price Index for period of January 2003 to June 2008 to conduct the study. Empirical result showed that exchange rates and stock prices data series are non-stationary and integrated of order one. They also applied the Johansen procedure to test for the possibility of a cointegrating relationship. Result showed that there was no cointegrating relationship between stock prices and exchange rates. Finally they applied Granger causality test to find out any causal relationship between stock prices and exchange rates. Outcome showed there was no causal relationship between stock prices and exchange rates in the countries.

Agrawal and Srivastav (2010) empirically examined the dynamics between the volatility of stock returns and movement of Rupee-Dollar exchange rates, in terms of the extent of interdependency and causality. Absolute values of data were converted to log normal forms and checked for normality. Application of Jarque-Bera test yielded statistics that affirmed non-normal distribution of both the variables. This posed questions on the stationarity of the two series. Stationarity of the two series was checked with ADF test and the results showed stationary at level forms for both the series. The coefficient of correlation between the two variables was computed, which indicated slight negative correlation between them. This made way for determining the direction of influence between the two variables. Granger Causality test was applied to the two variables and it proved unidirectional causality running from stock returns to exchange rates, that is, an increase in the returns of Nifty caused a decline in the exchange rates but the converse was not found to be true.

Nonetheless, it is a known fact that the market liquidity is an important attribute of stock market development. Liquid markets essentially improve the mobilization and allocation of capital and thereby enhance the prospects of facility long-term growth. Indeed since liquidity enables investors to adjust quickly and with minimal costs, it makes investments less risky (Omole, 1999.) The recent financial crisis has made the Nigerian capital market illiquid and this has caused the downward trend in the market. In turn, the capital is becoming less attractive to long-term investors and very risky to invest. The perceived risks associated with investing in Nigeria

market are high. As a result of the risk, foreign investors are patronizing other emerging markets even before the recent global financial meltdown. Nigeria is the most hit market among other capital markets in Africa like Johannesburg Stock Exchange (JSE) and Ghana Stock Exchange (GSE) because of its lost in market capitalization during this global financial crises that have engulfed many economies of the world. The NSE capitalization has dropped by over N8.1 trillion from its peak of N13 trillion in 2008 when the financial turmoil started spreading to emerging economies in the world, to the figure of N4.9trillion, which it closed at the end of 2009 (Business Day, 2009). In the last three decades, interactions between capital macroeconomic variables have been an issue among financial economists and practitioners (Omole, 1999; Christopher Minsoo, Huahwa and Jun, 2006; Ikoku, 2007 and Maku and Atanda, 2009). They argued that stock prices are determined by some fundamental variables such as the interest rate, gross domestic product (GDP), exchange rate, inflation and money supply.

Study of Abdalla and Murinde (1997) employed the bivariate vector autoregressive model and their findings shows that there is a unidirectional causality from exchange rates to stock prices.

The findings of Morales (2007), on effect of exchange rate on stock market of Czech Republic, Hungary, Poland and Slovakia shows no evidence of stock prices and exchange rates moving together either in the long run or in the short run. He employed Johansen cointegration technique, vector error correction modeling and the standard granger causality test to check this effect.

Mlambo (2013), employed the GARCH model to know the impact of the RAND volatility on the stock market in South Africa. His findings show a very weak but positive relationship between currency volatility and stock market.

However, due to the different methodologies that were used by different studies and also the fact that studies were conducted in different countries, different results could be obtained. In another study, Dube (2008) investigated the empirical validity of the monetary model of the exchange rate (Rand/Dollar) using a technique (ARDL Bounds test) capable of testing for the existence of a long-run relationship regardless of whether the underlying time series are individually I(1) or I(0). Monetary fundamental variables (money supply, income, interest rate) were augmented by the stock market prices. The study found evidence supporting the existence of a long-run relationship between the ZAR/\$ exchange rate and fundamental variables, including stock prices.

An analysis of studies from developing countries was conducted and it was observed that there is no general consensus with regard to the link between exchange rate and the stock market. Whilst some studies (Subair and Salihu, 2010 and Olugbenga, 2012) found that exchange rate volatility exerts a stronger negative impact on the stock markets, others (Muhammad and Rasheed (2011) found that there is no relationship between these two variables. It was also observed that different studies applied different approaches to achieve their objectives. Evidence of notable links between exchange rates and the stock market has been observed in a number of African countries. Different studies variously found positive correlation, negative correlation, and existence or nonexistence of causality. Hence, it can be deduced that there are mixed views on the link between the two variables.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 INTRODUCTION

This chapter provides the methodology employed to show the relationship between exchange rate volatility and stock market performance in Nigeria. This chapter would equally consider the General Autoregressive Conditional Heteroscedasticity (GARCH) model that connects the naira volatility and the stock market. Furthermore, the research would also define the variables that are used and the expected a priori expectations, stipulate the estimation techniques utilized by the study.

3.1 Model specification

The standard deviation of the first difference of logarithms of the exchange rate shall be utilized in this study to estimate the time series volatility which was adopted by Meese and Rogoff (1983). They are of the view that there are inherent difficulties in predicting exchange rates whenever the ARCH-GARCH model was adopted. The most widely used measure of exchange rate volatility is the standard deviation of the first difference of logarithms of the exchange rate. This measure has the property that it will equal zero if the exchange rate follows a constant trend, which presumably could be anticipated and therefore would not be a source of uncertainty. Following the practice in most other studies, the change in the exchange rate is computed over one month, using end of month data. The standard deviation is calculated over a one-year period, as an indicator of short-run volatility, as well as over a five-year period to capture long-run variability. The time series data to be used in this study consists of quarterly data from the Central Bank of Nigeria statistical bulletin. The model is therefore derived as follows:

$$SD_{t+m} = \left[\frac{1}{m} \sum_{i=1}^m ((\ln EX_{t+i-1} - \ln EX_{t+i-2}))^2 \right]^{\frac{1}{2}}$$

Where m is the order of moving average

In order to capture the impact of exchange rate volatility on the stock market performance in Nigeria, the study incorporate the model adopted by Subair (2009) and Mlambo (2013) as shown below:

$$SMC = f(\text{EXRVOL}, M2, \text{INTR}, \text{RGDP}) \dots \dots \dots (1)$$

Where:

SMC = stock market capitalization

EXR = exchange rate

M2 = Money supply

INTR = interest rate

RGDP = Real Gross domestic product

Expressing equation 1 in econometrics model, we have:

$$\dots \dots \dots (2)$$

Where; ε_t is an error term and the L in the above model stands for natural logs.

3.1.1 Expected apriori

The expected apriori is as follows

- **Exchange rate:** The sign of the exchange rate is expected to be negative. When there is increased volatility, investors will not invest much on the stock market. It would be risky to invest and they will take their investment elsewhere. This will cause stock prices to decrease. Thus a negative relationship is noticed on the stock prices. Adjasi (2008) and Subair (2009) (also found a negative relationship between exchange rate fluctuations and the Nigerian stock market returns.
- **Interest rate:** The sign of the interest rates is expected to be negative, although the relationship between interest rates and the stock prices might move in opposite directions. When the interest rate falls, businesses tend to invest more. Their cost of borrowing will decrease and this will make them to invest more and their profitability will increase. This will in turn lead to higher stock prices. This shows that a negative relationship might exist between interest rates and stock prices. Dimitrios (1998) and Kadir, Selamat, Masuga, and Taudi (2011) also indicated that there is a negative relationship between interest rates and stock prices.

- **Money supply:** The sign of M2 is expected to be positive. Higher M2 also imparts extra liquidity to the stock markets since the excess money is channelized into the stock markets, thus pushing up the market capitalization. Hence, stock valuations move up as an immediate reaction to an increase in M2. The efficient market hypothesis (EMH), as formalized by Fama (1970), suggests that changes in macroeconomic variables such as money supply can influence the behavior of stock market activities. In an efficient market, current as well as past information on the growth of these important macro - variables are fully reflected in asset prices (Bhattacharya and Mukherjee, 2002).
- **Real GDP growth rate:** the real growth rate (RGDP) sign is expected to be positive as increase in the economic growth will influence every sector of the economy, with the stock market not left behind.

3.2 Data Analysis

The data shall first test for the time series properties the series utilize with the aim of ascertaining whether the variables are stationary or not. This shall be done using the E-views.

3.2.1 STATISTICAL CRITERIA

Under the statistical (first-order) test we will test for the goodness of fit, the individual significance of each regressor using the t-test and finally significance of the regression model using the test.

3.2.2 ECONOMETRIC CRITERIA

i. Unit Root Test

Stationary tests are run to assess whether or not the underlying stochastic process of the time series can be assumed to be invariant over time. If the mean and variance of a time series are constant over time, then the time series is said to be stationary. Time series data is said to be non-stationary if the variance and or the mean is not constant over time. This study applies the most basic test which is the Dickey Fuller test.

Augmented Dickey-Fuller Test

ADF test was developed by Dickey-Fuller (1976) to test for the existence of unit root in a given time series data. The basis for this test is when the assumption of non-autocorrelation between

the disturbance terms is violated. Mernard (2008) held that the Dickey Fuller tests calculate an autoregressive model and test whether the coefficient is statistically different from one. If it is not, it will be necessary to difference the series to achieve stationarity. The Dickey Fuller test is of the model:

Where: $\gamma =$ And the null hypothesis are

$H_0: \gamma = 0$

$H_1: \gamma > 1$

The ADF approach controls for higher-order correlation by adding lagged differences terms of the dependent variables to the right hand side of the regression (Sarkar, 2012). Mishra and Sethi (2008) held that the Augmented Dickey Fuller will, then, take the form:

.....

$H_0: \gamma = 0$

$H_1: \gamma > 1$

ii. Normality Test

Jarque-Bera is a test statistic for testing whether the series is normally distributed. The test statistic measures the difference of the skewness and kurtosis of the series with those from the normal distribution. The Jarque-Bera test is based on the fact that skewness and kurtosis of normal distribution equal zero. Therefore, the absolute value of these parameters could be a measure of deviation of the distribution from normal. Jarque and Bera proposed a normality test using classical skewness and kurtosis coefficients. The JarqueBera test is a goodness of fit measure to departure from normality, based on the sample kurtosis and skewness. This test first computes the skewness and kurtosis measures of the ordinary least square residuals and uses the chi-square distribution {Gujarati, 2004}.

The hypothesis is:

$H_0: X_1 = 0$ normally distributed.

$H_1: X_1 \neq 0$ not normally distributed.

At 5% significance level with 2 degree of freedom.

iii. Serial Correlation Test

Serial correlation occurs when there is dependence between error terms. Error terms of the equation estimate must be distributed independently of each other and hence the covariance between any pair of error or residual terms must be zero (Lhabitant, 2004). Serial correlation occurs when the covariance is not zero. The use of time series data often leads to the problem of autocorrelation, which means, in this study that after a positive stock return for one month there follows a positive stock return for the subsequent month. Serial correlation is a problem because standard errors (even heteroscedastic robust) are not consistent, affecting statistical inferences (hypothesis testing).

3.3 Estimating Techniques

Econometric models wishing to estimate relevant parameters for volatility of financial time series data are increasingly relying on the ARCH and GARCH models. Studies dealing with financial time series have often been estimated through these approaches. For this reason, the ARCH model by Bollerslev (1986) has been chosen to determine the impact of exchange rate volatility on the stock market performance.

3.4 Data sources

Data for the study shall be obtained from secondary sources such as the Central Bank of Nigeria statistical bulletin. The study employs quarterly Nigeria data for the period 1980– 2014. The data frequency selected shall be quarterly so as to ensure an adequate number of observations.

CHAPTER FOUR.
DATA ANALYSIS AND DISCUSSION

4.0 INTRODUCTION

This chapter presents the main result of regression on quarterly data for the period of January 1980 to December 2014. This chapter makes the main objective of the study to be achieved which is to investigate the relationship between exchange rate volatility and stock market performance in Nigeria.

4.1 EMPIRICAL RESULTS

4.1.1 UNIT ROOT TEST

This unit analysis of the variables is presented in table 1 below. The unit root analysis is carried out using Augmented Dickey-Fuller (ADF). The Augmented Dickey Fuller (ADF) test showed that all the variables were integrated of order one; that is, the variables became stationary after first difference.

Table 1: Unit Root Test Result

Augmented Dickey-Fuller (ADF) Test			
Variables	Level	1 st Diff	Status
LMC	-1.7704	-7.9423*	I(1)
EXRVOL	-1.3123	-4.3123*	I(1)
LM2	-2.5193	-11.4619*	I(1)
INT	0.6081	-8.0861*	I(1)
LRGDP	3.5654	-11.6187*	I(1)

Note: *=1% and **=5% significance level.

Source: Author's Computation (2015)

4.1.2 CO-INTEGRATION ESTIMATE

The co-integration estimate was carried out using the Johansen (1991) co-integration technique and the result presented in table 2 below. From table 2, it was observed that the null hypothesis of no co-integration, for none, at most 1* and at most 2* were rejected by both the trace statistic.

The statistical values of the test were greater than their critical values. However, the null hypothesis of no co-integration at most 3* was not rejected by the trace statistics because their statistical values were less than their critical values. Thus the trace statistics estimate concludes that there are three co-integrating equations at five per cent in the model. However, the maxi-engen statistics result presented on table 3 revealed the absence of co-integration among the variables, because the maxi-engen statistic values were lower than their critical values. Thus base on the trace statistics, this study concludes that there exist long-run relationships (co-integrating equation) among the variables.

Table 2: Co-integration Test Result

Trace Value test				Maxi Eigen Value Test			
Null	Alternative	Statistics	95% critical value	Null	Alternative	Statistics	95% critical value
$r = 0$	$r \geq 1$	85.22114	69.81889	$r = 0$	$r = 1$	29.72497	33.87687
$r \leq 1$	$r \geq 2$	55.49617	47.85613	$r \leq 1$	$r = 2$	24.91294	27.58434
$r \leq 2$	$r \geq 3$	30.58322	29.79707	$r \leq 2$	$r = 3$	15.26595	21.13162
$r \leq 3$	$r \geq 4$	15.31727	15.49471	$r \leq 3$	$r = 4$	10.21794	14.26460
$r \leq 4$	$r \geq 5$	5.099331	3.841466	$r \leq 4$	$r = 5$	5.099331	3.841466

Source: author's computation (2015)

4.1.3 Impact of Exchange Rate Volatility on Stock Market Performance in Nigeria

The table below presents the regression estimate on the impact of exchange rate volatility on stock market performance in Nigeria using quarterly data from 1980:1 to 2014:4. The F-statistics (4.03; $p=0.004$) showed that the model estimated is appropriate while the coefficient of determination (that is R-Squared) showed that the explanatory variables jointly explained about 70 per cent of variations in stock market performance in Nigeria during the study period. The remaining 30% of variations in stock market performance is explained by factors aside the model. Furthermore, the Durbin Watson statistics is 1.6 approximately 2.0, indicating the absence of serial auto-correlation in the estimate.

With respect to the contribution of individual variables to stock market performance, it was observed from the regression estimate that exchange rate volatility (EXRVOL) had a positive and insignificant impact on stock market performance, suggesting that volatility in exchange rate during the study period did not have any significant influence on the performance of stock market. Also, the broad money supply (LM2) had a positive (0.006) and significant impact on stock market performance, suggesting that a one percent increase in broad money supply will increase the performance of the stock market by about 0.6 per cent. In contrast, short term interest rate had negative (-0.0002) and insignificant effect on stock market performance during the study period. This indicates that a decrease in short term interest rates will enhance the performance of the stock market but this effect of the short term interest is insignificant. Finally, the regression estimate on table 1 below revealed that gross domestic product (LRGDP) had a positive (0.007) and significant impact on stock market performance, suggesting that a one percent increase in gross domestic product will enhance the performance of the stock market by about 0.7 per cent.

With respect to the focus of study on the impact of exchange rate volatility on stock market performance in Nigeria, the findings of the study showed, exchange rate fluctuation or volatility has not played any significant role in enhancing the performance of the stock market in Nigeria.

Table 4: Regression Estimate on the Impact of Exchange Rate Volatility on Stock Market Performance in Nigeria

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	26.20748	0.057221	458.0007	0.0000
EXRVOL	6.49E-05	0.000133	0.489054	0.6256
LM2	0.006138	0.001766	3.476023	0.0007
INT	-0.000193	0.000288	-0.671536	0.5030
LRGDP	0.006829	0.002846	2.399473	0.0178
R-squared	0.707553	Mean dependent var		26.22286
Adjusted R-squared	0.680913	S.D. dependent var		0.056243
S.E. of regression	0.053920	Akaike info criterion		-2.967320
Sum squared resid	0.389588	Schwarz criterion		-2.861763
Log likelihood	211.2287	Hannan-Quinn criter.		-2.924424
F-statistic	4.037238	Durbin-Watson stat		1.557341
Prob(F-statistic)	0.004010			

Source: author's computation (2015)

4.2 DISCUSSION OF RESULTS

From the above analysis, it can be observed that exchange rate volatility, broad money supply and Real GDP growth rate have positive impact on the stock market capitalization while the real interest rate has a negative effect on the stock market capitalization. Thus after the hypothesis testing the results showed that;

- There is a positive relationship between exchange rate volatility and stock market performance in Nigeria between the period of 1980 and 2014.
- There is a positive relationship between the broad money supply and stock market performance in Nigeria between the period of 1980 and 2014.

- There is a positive relationship between real GDP growth rate and stock market performance in Nigeria between the period of 1980 and 2014.
- There is a negative relationship between the real interest rate and stock market performance in Nigeria between the period of 1980 and 2014.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATION

5.0 INTRODUCTION

This chapter presents the summary of findings, conclusion and policy recommendation for further studies.

5.1 SUMMARY OF FINDINGS

This study has been able to presents the analysis of data and presents the result from the study which shows that there is an insignificant relationship between exchange rate volatility and stock market performance in Nigeria. From the result the real GDP growth rate and broad money supply was significant and positive which conforms to the apriori expectation that both variables will be positively related to the stock market performance which was proxied with the stock market capitalization, and the interest rate was negative and insignificant as stated in the apriori expectation. However the exchange rate was positively related to the stock market capitalization which is contrary to the apriori expectation of negative relationship, thus establishing the objective of this study which seeks to find the relationship between exchange rate volatility in Nigeria. It was discovered that there exist a positive however weak relationship between exchange rate volatility and stock market performance in Nigeria which conforms to the findings of Karoui (2006), Adjasi and Biekpe (2007) and Mlambo (2013).

5.2 CONCLUSION

This study has been able to establish that there is a positive relationship between exchange rate volatility and stock market performance in Nigeria and this implies good news for the Nigeria stock market as this could attract prospective investors into the market. However, instability of the exchange rate could lead to inflationary situation which could be reasoned to be bad for the economy; hence policy makers are required to make available instruments that would check into inflationary situation in the economy.

5.3 RECOMMENDATIONS

After a critical evaluation of the empirical study, the study therefore proffers the following recommendations:

- Since there is no negative effect of exchange rate volatility on stock market performance policy makers should use exchange rate as a policy tool to attract investors which lead to increase in the growth of the economy.
- As a result of the weak relationship between the exchange rate volatility and stock market performance, the Nigeria stock market should ensure some hedge instruments that would shock any negativity that might occur as a result of the unstable exchange rate.
- Volatility in the exchange rate also implies fluctuation in the prices of goods and services which could result to inflation; Inflation is seen as negative news by the stock market, because it tends to curb consumer spending and therefore company earnings. Hence, policy makers should make provision for instruments that would manage inflationary situation in the economy.

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APPENDIX

TABLE 1. DATA PRESENTATION

YEAR	MC	EXR	M2	INTR	RGDP
1980 Q1	2.56241E+11	0.5464	978.2	-9.3	4219
Q2	2.54975E+11	0.61	1041.8	-11.5	4715.5
Q3	2.54245E+11	0.6729	1214.9	1.3	4892.8
Q4	2.53544E+11	0.7241	1522.5	-0.9	5310
1981 Q1	2.52748E+11	0.7649	2352.3	-8.9	15919.7
Q2	2.51803E+11	0.8938	4241.2	-29.9	27172.02
Q3	2.52595E+11	2.0206	5905.1	-17.7	29146.51
Q4	2.51933E+11	4.0179	7898.8	-11.4	31520.34
1982 Q1	2.50881E+11	4.5367	7985.4	-11.6	29212.35
Q2	2.50713E+11	7.3916	10224.6	-6.8	29947.99
Q3	2.49526E+11	8.0378	15100	-3.9	31546.76
Q4	2.48412E+11	9.9095	16161.7	-1.7	251052.3
1983 Q1	2.48116E+11	17.2984	18093.6	0.3	246726.6
Q2	2.47762E+11	22.0511	20879.1	-15.2	230380.8
Q3	2.47157E+11	21.8861	23370	-29.6	227254.7
Q4	2.47134E+11	21.8861	26277.6	4.5	253013.3
1984 Q1	2.4743E+11	21.8861	27389.8	4.6	257784.4
Q2	2.47646E+11	21.8861	33667.4	2.6	255997
Q3	2.46597E+11	21.8861	45446.9	-25.6	275409.6
Q4	2.46358E+11	92.6934	47055	-22.4	295090.8
1985 Q1	2.45872E+11	102.1052	68662.5	11	328606.1
Q2	2.45049E+11	111.9433	87499.8	1.2	328644.5
Q3	2.44378E+11	120.9702	129085.5	-27	337288.6
Q4	2.43674E+11	129.3565	198479.2	-31.2	342540.5
1986 Q1	2.42515E+11	133.5004	266944.9	-43.5	345228.5
Q2	2.42688E+11	132.147	318763.5	-59.3	352646.2
Q3	2.43672E+11	128.6516	370333.5	-15.8	367218.1
Q4	2.43149E+11	125.8331	429731.3	5	377830.8
1987 Q1	2.42899E+11	118.5669	525637.8	4.3	388468.1
Q2	2.43045E+11	148.9107	699733.7	11.5	393107.2
Q3	2.43298E+11	148.9107	1036080	6.6	412332
Q4	2.43918E+11	148.9107	1315869	-4.6	431783.2
1988 Q1	2.4417E+11	92.6934	1599495	3.3	451785.7
Q2	2.42881E+11	102.1052	1985192	4.4	495007.2
Q3	2.42608E+11	111.9433	2263588	-9.3	527576
Q4	2.43024E+11	120.9702	2814846	-11.5	561931.4
1989 Q1	2.42564E+11	129.3565	4027902	1.3	595821.6

Q2	2.42698E+11	133.5004	5809826	-0.9	634251.1
Q3	2.42642E+11	132.147	9166835	-8.9	672202.6
Q4	2.42295E+11	128.6516	10767378	-29.9	718977.3
1990 Q1	2.42949E+11	125.8331	9967107	-17.7	776332.2
Q2	2.42911E+11	118.5669	10367242	-11.4	834000.8
Q3	2.43368E+11	21.8861	10167174	-11.6	888893
Q4	2.43833E+11	21.8861	10267208	-6.8	950114
1991 Q1	2.43909E+11	21.8861	2263588	-3.9	4219
Q2	2.4389E+11	92.6934	2814846	-1.7	4715.5
Q3	2.44308E+11	102.1052	4027902	0.3	4892.8
Q4	2.44587E+11	111.9433	5809826	-15.2	5310
1992 Q1	2.44525E+11	120.9702	9166835	-29.6	15919.7
Q2	2.44861E+11	129.3565	10767378	4.5	27172.02
Q3	2.44316E+11	133.5004	9967107	4.6	29146.51
Q4	2.44997E+11	132.147	10367242	2.6	31520.34
1993 Q1	2.4502E+11	128.6516	7985.4	-25.6	29212.35
Q2	2.44387E+11	125.8331	10224.6	-22.4	29947.99
Q3	2.44559E+11	127.2424	15100	11	31546.76
Q4	2.44227E+11	126.5377	16161.7	1.2	251052.3
1994 Q1	2.43912E+11	126.89	18093.6	-27	246726.6
Q2	2.44634E+11	126.7139	20879.1	-31.2	230380.8
Q3	2.46297E+11	126.802	23370	-43.5	227254.7
Q4	2.45928E+11	126.7579	26277.6	-59.3	253013.3
1995 Q1	2.45702E+11	126.7799	27389.8	-15.8	257784.4
Q2	2.4485E+11	126.7689	33667.4	5	255997
Q3	2.441E+11	126.7744	45446.9	4.3	275409.6
Q4	2.43734E+11	126.7717	47055	11.5	295090.8
1996 Q1	2.43576E+11	126.7731	68662.5	6.6	328606.1
Q2	2.42033E+11	126.7724	87499.8	-4.6	328644.5
Q3	2.41613E+11	126.7727	129085.5	3.3	337288.6
Q4	2.40906E+11	126.7725	198479.2	4.4	342540.5
1997 Q1	2.40645E+11	126.7726	266944.9	-9.3	345228.5
Q2	2.40828E+11	126.7726	318763.5	-11.5	352646.2
Q3	2.39016E+11	21.8861	370333.5	1.3	367218.1
Q4	2.3913E+11	21.8861	429731.3	-0.9	377830.8
1998 Q1	2.40009E+11	21.8861	525637.8	-8.9	388468.1
Q2	2.40932E+11	92.6934	699733.7	-29.9	393107.2
Q3	2.40488E+11	102.1052	1036080	-17.7	412332
Q4	2.39238E+11	111.9433	1315869	-11.4	431783.2
1999 Q1	2.40325E+11	120.9702	1599495	-11.6	451785.7
Q2	2.40137E+11	129.3565	1985192	-6.8	495007.2

Q3	2.40613E+11	133.5004	2263588	-3.9	527576
Q4	2.37284E+11	132.147	2814846	-1.7	561931.4
2000 Q1	2.33737E+11	128.6516	4027902	0.3	595821.6
Q2	2.29561E+11	125.8331	5809826	-15.2	634251.1
Q3	2.27136E+11	102.3619	9166835	-29.6	672202.6
Q4	2.25014E+11	106.7111	10767378	4.5	718977.3
2001 Q1	2.22915E+11	110.655	9967107	4.6	776332.2
Q2	2.23331E+11	112.475	10367242	2.6	834000.8
Q3	2.24208E+11	111.6	10167174	-25.6	888893
Q4	2.24277E+11	112.9861	10267208	-22.4	950114
2002 Q1	2.22466E+11	116.04	2814846	11	4219
Q2	2.22174E+11	118.49	4027902	1.2	4715.5
Q3	2.20253E+11	126.4491	5809826	-27	4892.8
Q4	2.23043E+11	126.8833	9166835	-31.2	5310
2003 Q1	2.24263E+11	127.164	10767378	-43.5	15919.7
Q2	2.2309E+11	127.8317	9967107	-59.3	27172.02
Q3	2.19293E+11	128.575	10367242	-15.8	29146.51
Q4	2.20025E+11	137.2233	10167174	5	31520.34
2004 Q1	2.21141E+11	134.4317	2814846	4.3	29212.35
Q2	2.22239E+11	132.75	4027902	11.5	29947.99
Q3	2.2209E+11	132.8445	5809826	6.6	31546.76
Q4	2.23672E+11	132.86	9166835	-4.6	251052.3
2005 Q1	2.24466E+11	132.85	10767378	3.3	246726.6
Q2	2.25739E+11	132.87	9967107	4.4	230380.8
Q3	2.2835E+11	130.8102	10367242	-9.3	227254.7
Q4	2.31374E+11	130.29	10167174	-11.5	253013.3
2006 Q1	2.35746E+11	128.7043	10267208	1.3	257784.4
Q2	2.2667E+11	128.4543	2814846	-0.9	255997
Q3	2.29533E+11	128.2902	4027902	-8.9	275409.6
Q4	2.48633E+11	128.2919	5809826	-29.9	295090.8
2007 Q1	2.54276E+11	128.1513	9166835	-17.7	328606.1
Q2	2.56577E+11	127.409	10767378	-11.4	328644.5
Q3	2.57813E+11	125.8826	9967107	-11.6	337288.6
Q4	2.64696E+11	118.2097	10367242	-6.8	342540.5
2008 Q1	2.70646E+11	117.9218	266944.9	-3.9	345228.5
Q2	2.757E+11	117.8086	318763.5	-1.7	352646.2
Q3	2.78786E+11	117.7256	370333.5	0.3	367218.1
Q4	2.81226E+11	126.4756	429731.3	-15.2	377830.8
2009 Q1	2.80202E+11	147.7226	525637.8	-29.6	388468.1
Q2	2.84199E+11	148.2018	699733.7	4.5	393107.2
Q3	2.80899E+11	152.3017	1036080	4.6	412332
Q4	2.78721E+11	149.9513	1315869	2.6	431783.2

2010 Q1	2.74462E+11	149.8285	1599495	-25.6	451785.7
Q2	2.73493E+11	150.1915	1985192	-22.4	495007.2
Q3	2.69597E+11	151.0332	2263588	11	527576
Q4	2.6383E+11	150.4799	2814846	1.2	561931.4
2011 Q1	2.58364E+11	152.5074	4027902	-27	595821.6
Q2	2.54065E+11	154.5029	5809826	-31.2	634251.1
Q3	2.53653E+11	155.2636	9166835	-43.5	672202.6
Q4	2.53395E+11	158.2074	10767378	-59.3	718977.3
2012 Q1	2.5714E+11	148.2018	9967107	-15.8	776332.2
Q2	2.59661E+11	152.3017	10367242	5	834000.8
Q3	2.61184E+11	149.9513	10167174	4.3	888893
Q4	2.60923E+11	149.8285	10267208	11.5	950114
2013 Q1	2.56556E+11	150.1915	10767378	6.6	4219
Q2	2.53264E+11	151.0332	9967107	-4.6	4715.5
Q3	2.50769E+11	150.4799	10367242	3.3	4892.8
Q4	2.48394E+11	152.5074	10167174	4.4	5310
2014 Q1	2.48584E+11	154.5029	10267208	11.5	15919.7
Q2	2.48524E+11	155.2636	9967107	6.6	27172.02
Q3	2.43747E+11	158.2074	10367242	-4.6	29146.51
Q4	2.39727E+11	158.2074	10167174	3.3	31520.34

Source: CBN statistical bulletin

Table 2: Trace Statistics Co-integration Result

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.198947	85.22114	69.81889	0.0018
At most 1 *	0.169658	55.49617	47.85613	0.0081
At most 2 *	0.107675	30.58322	29.79707	0.0405
At most 3	0.073419	15.31727	15.49471	0.0532
At most 4	0.037340	5.099331	3.841466	0.0239

Source: author's computation (2015)

Table 3: Maxi-Eigen Statistics Co-integration Result

Hypothesized No. of CE(s)	Eigen value	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.198947	29.72497	33.87687	0.1447
At most 1	0.169658	24.91294	27.58434	0.1059
At most 2	0.107675	15.26595	21.13162	0.2707
At most 3	0.073419	10.21794	14.26460	0.1980
At most 4	0.037340	5.099331	3.841466	0.0239

Source: author's computation (2015)