Foreign Portfolio Investment and Stock Market Growth in Nigeria

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Abstract

This study is designed to determine the impact of foreign portfolio investment inflows on stock market growth in Nigeria from 1986 to 2014. The study used co-integration, vector error correction model and Granger Causality econometric tools. The results obtained includes the following: the trace statistics indicates one(1) co-integrating equation at 5% level of significance, the vector error correction model indicates long-run significant impact of foreign portfolio investment on stock market growth in Nigeria, and the Granger Causality shows there is no causality between foreign portfolio investment and stock market growth in the Nigerian economy. The implication of the results is that foreign portfolio investment (FPI) inflows may not contribute positively to the increase in stock market when there is no conducive business environment for foreign investments to thrive in Nigeria. The study recommends that Federal Government of Nigeria should strengthen the Security and Exchange Commission (SEC) to promote constant inflows of foreign portfolio investment to Nigeria. That Nigeria Government should develop capital markets so that domestic trade volume should increase more than foreign portfolio investment (FPI) because of the existence of huge risk premium in Nigeria and that Central Bank of Nigeria (CBN) should be proactive in regulating foreign exchange transactions in Nigeria since the country is import-dependent country.

Keywords: Portfolio investment, Stock market Growth, Co integration, Central Bank of Nigeria

1. Introduction

Foreign portfolio investment consists of securities and other fiscal resources inactively held by alien investors. Foreign portfolio investment does not provide the investor with direct ownership of financial assets, and thus no direct management of a company. This kind of investment is relatively liquid, depending on the volatility of the market invested in as is usually used by investors who do not want to manage a firm abroad. Foreign portfolio investment (FPI) is an important source of investment inflows to an economy. FPI investors usually make short-term investments in domestic security of foreign country with expectation of earning return on it after weighing the expected risk. Nigeria in the last few years had clamored for foreign portfolio investment to the country as this is believed to be a facilitator of economic growth and development, which could lead to industrialization of the economy in the long run (Adeleke et al, 2004). Recent interim statistics from The Nigerian Stock Exchange as presented by Okereke (2010) showed that FPI inflows by foreign investors during 2009 was in excess of N228.986 billion, which was an increase of 67 percents, when compared with the N153.457 billion recorded in 2008. This increased further to N350 billion in 2010 (Ikazoboh, 2011) and furthermore to N511.74 billion in 2011 (Onyema, 2012). Ozurumba(2012) stated that FPI investment is a recent phenomenon in Nigeria as available data depicts that Nigeria did not record any figure on portfolio investment (inflow or outflow) in her balance of payments account up to mid 1980s. That was mainly due to non-internationalization of the country's money and capital markets as well as the non-disclosure of the information on the portfolio investments in foreign capital/money markets discouraged the foreign investors. However, in 1995, ownership limits imposed on foreign participation in the Nigerian economy was lifted and Nigerians could freely invest in other countries (Ozurumba, 2012). Most importantly, in the view of Ozurumba (2012), the internationalization of the NSE, which was part of the financial liberalization policy in Nigeria in the mid-2000, has precipitated to an increase in inflows of foreign portfolio investment into the Nigeria economy through the capital market.

Investopedia, an investment web-dictionary, defines portfolio investment(PI) as wide range of assets classes, such as stocks, government bonds, corporate bonds, treasurer bills, real estate investment trusts, exchange-traded funds, mutual funds, certificates of deposit, etc. According to Investopedia, it also includes options, warrants and other derivatives such as futures, and physical investments like commodities, real estate, land and timber. International Monetary Fund, IMF (1993) defined FPI as equity securities and debt securities including country funds, depository receipts and direct purchases by foreign investors of less than 10% control. Furthermore, IMF (1993) depicted FPI as a cross-border investment in securities with the intention of profit-making rather than management or legal control. The composition of investments in a portfolio depends on number of factors such as investor's risk tolerance, investment horizon, liquidity preference, and efficient portfolio selection. Markowitz (1959) identified four steps involved in portfolio selection as: security valuation, asset allocation, portfolio optimization, and performance measurement. Most often the share of Foreign Direct Investment (FDI) in foreign equity flows is greater than FPI in developing countries when compared to developed countries. Risk factor, also classified in form of risk premium is very important variable in the discussion of foreign portfolio investment. Two important issues in FPI are FPI outflows and inflows. FPI outflows include sales transactions or liquidation

of portfolio investments through the stock market while FPI inflows include purchase transactions on the Nation's Stock Exchange.

The inflows and outflows of FPI take place at stock market exchange. According to Nigerian Stock Exchange (NSE) website, the NSE is a registered company limited by guarantee, founded in 1960 and is licensed under the Investments and Securities Act (ISA) and is regulated by the Securities and Exchange Commission (SEC) of Nigeria. Furthermore, the Exchange offers listing and trading services, licensing services, market data solutions, ancillary technology services and more. In addition, the NSE on a monthly basis, polls trading figures from major custodians and market operators on their foreign portfolio investments (FPI) and market capitalization.

Yartey (2008), stated that market capitalization as a percentage of Gross Domestic Product(GDP) can be used to measure stock market growth in an economy. According to Yartey(2008), political risk and institutional quality are strongly associated with growth in stock market capitalization and that the development of good quality institutions (resolution of political risk) can be an important factor in the development of stock markets. He asserted that stock markets are expected to accelerate economic growth by providing a boost to domestic savings and increasing the quantity and the quality of investment. Demirguc-Kunt and Levine (1996) found that most stock market indicators are highly correlated with banking sector development. In their view, countries with well-developed stock markets tend to have well-developed banking sector. They investigated other indicators of stock market development and growth, such as number of listed companies, changes in the stock market index, and an index of stock market size and liquidity.

Critics of the stock market, however, argued that the actual operation of the pricing and takeover mechanism even in well functioning stock markets lead to short termism and lower rates of long term investment particularly in firm specific human capital. These critics argued that, it also generates perverse incentives, rewarding managers for their success in financial engineering rather than creating new wealth through organic growth (Singh, 1997). Critics further argued that stock market liquidity may negatively influence corporate governance because very liquid stock market may encourage investor myopia. Since investors can easily sell their shares, more liquid stock markets may weaken investors' commitment and incentive to exert corporate control (Bhide, 1994). These problems further magnified the volatility nature of stock market which it has in common with foreign portfolio investment as a source of foreign capital.

Both developed and developing economies need foreign capital, however, developing economies need more to supplement domestic resources, in view of growing gap between their domestic capital stock and capital requirements (Fosu and Magnus, 2006). Fosu and Magnus (2006) and Omisakin et al. (2009) pointed out rightly that foreign capital inflow is an important vehicle for augmenting the supply of funds for domestic investment. For instance, Busse and Hefeker (2005) argued that portfolio investments run the risk of sudden reversal if the economic environment or the perception of investors change, giving rise to financial and economic crises. Alfaro and Chanda (2003) opined that the potentials of foreign capital investment could be severely impeded if there is absence of well-developed financial markets, such as African markets. Adam (2002) hinted that foreign investment that exhibits market seeking motivations might create distortions in the host economy through monopolies and high barriers of entry.

Despite some short-comings of foreign capital inflows, a developing economy, such as Nigeria needs constant capital inflows, especially the foreign portfolio investments to maintain liquidity and capitalization in the stock market. Foreign exchange market plays important role between foreign portfolio investment and stock market. Since 1986 after the introduction of Structural Adjustment Programme (SAP) by Nigerian Government, subsequent regimes have made efforts towards initiating policies that can attract foreign portfolio investors to the economy through stock market. Prior to the introduction of SAP, Nigerian Governments was using regulatory control mechanism in macroeconomic policy framework. The policy objectives of SAP was to empower the Central Bank of Nigeria (CBN) and other institutions such as Nigerian Stock Exchange to carry out reforms necessary to allow international best practices in financial markets to flourish in the country. Some policy contents of SAP, according to CBN statistical bulletin 2012 are to remove the controls of exchange rate, interest rate, to increase the level of savings and investment inflows, to enhance institutional structure and supervision, to spur economic growth through reduction of unemployment, and to strengthen the money and capital markets. The reforms of institutional structure, the increase in the level of savings and investment inflows and the growth of stock market are some most important components of SAP. Nigeria's economy has experienced many levels of transformation since the introduction of SAP in 1986.

As a result of the introduction of SAP, the internationalization of the capital and money market and enthronement of democracy, cross-border listing and foreign private investment opportunities, Nigeria have encouraged foreign investor's interest into the country. That also positioned the country as major destination of foreign capital inflow, especially, the FPI. However, the major problem is that the ratio of foreign investors' equities in comparison to domestic investment equities in Nigeria's capital market has been very high which is not sustainable due to the volatility of FPI inflows. Also, Nigeria's economy has not been able to attract bonded foreign portfolio investment. Bonded foreign portfolio investment is investment which is invested more than one year.

This study will look at the trend of FPI inflows, stock market growth, exchange depreciation, interest rate, trade openness in Nigeria and what the country must do to encourage more domestic participation and increased bonded foreign portfolio investments in Nigerian stock market as a way to expand the market size relative to Nigerian economy which is the largest in Africa.

CURRENT TRENDS IN FOREIGN PORTFOLIO INVESTMENT IN NIGERIA

Nigerian economy has experienced a seemly exponential growth since the introduction of SAP as almost all the macroeconomic variables, especially Gross Domestic Product (GDP) component, posted positive indication when compared with the figures before 1986, according to CBN Statistical Bulletin (2013). 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. However, factors that have inhibited the constant inflows of foreign portfolio investment and the growth of stock market in Nigeria during the early years of SAP were somewhat, the indigenization policy through Nigeria Enterprise Promotion Decree (NEPD). Other factors are undeveloped financial system, inconsistent government policies, and weak institutional and legal frameworks. Presumably, as a result of technological innovation and globalization and economic reforms, Nigerian capital and money market have experienced considerable growth and development in recent years since 1986. As part of the Nigerian monetary reforms, CBN liberalized operation in the banking sector, leading to the rise of number of commercial banks from 40 banks in 1986 to 120 banks in 1992. Also, the reforms led to the emergence of other financial institutions such as discount houses and bureau de change which were nonexistent prior to 1986. Importantly, CBN has been increasing the capital base of banks since the introduction of reforms, for instance, capital base of all bank financial institutions was raised in 1998 from 10 million to 500 million. Presently, after recapitalization in 2005, the capital base rose to 25 Billion Naira. Alile(1999) argued that the deregulation of interest rates in 1987 and the implementation of privatization and commercialization program between 1988 and 1993 have worked to promote portfolio investment in Nigeria by expanding the choice of investment instruments, deepening the market and improving, generally, the liquidity of the market, apart from attracting more participants in the market process. He stated that between 1988 and 1993, the number of listed security rose from 188 to 272, and market capitalization grew by 326% to N46.9 billions, while turnover appreciated from 259.9 million shares to worth N250.3 million to 430 million shares valued at N662 million. According to the report released by the Nigerian Stock Exchange, NSE (2006), the market registered a total trading value of 262.937 billion. This performance contrasts with N265.5 million total trading volumes registered in 1990, N1.8 billion in 1995 and N11.1 billion in 1997. Thus between 1990 and 2005, the value of trading had risen astronomically and the growth in the value of equities is also remarkable during the period (NSE, 2006).

On portfolio investment, according to Indexmundi (2012), the latest value for portfolio investment, net LCFAR (BOP), current US$) which is investment excluding liabilities constituting foreign authorities' reserves covers transactions in equity securities and debt securities in Nigeria was $2,596,027,000.00 as of 2010. Over the past 25 years, the value for this indicator has fluctuated between $2,596,027,000.00 in 2010 and ($3,402,863,000.00) in 2008 Indexmundi (2012). Also, Indexmundi data depicted that the latest value for Portfolio investment, bonds (PPG + PNG) (NFL, current US$) which are securities issued with a fixed rate of interest for a period of more than one year which include net flows through cross-border public and publicly guaranteed and private nonguaranteed bond issues in Nigeria was $0.00 as of 2010 and over the past 25 years, the value for this indicator has fluctuated between $0.00 since 1986 and ($1,441,793,000.00) in only 2006. According to data reeled out by the Nigerian Stock Exchange, FPI flow, which stood at 15% in 2007, consistently increased and decreased over the years to stand at 67% in 2011 but dropped to 61.4% in 2012 (Akanbi, 2013). Reiterating further, Akanbi(2013) stated that the declining trend of FPI flow continued in 2013. According to Akanbi, the nominal figure of FPI flow in 2008 was N787.4 billion while the total transactions on the NSE were N4, 758.27 trillion. In 2009, it was slightly lower but its contribution to the activities in the stock market was ironically higher than the two previous years at N424 billion. For the year 2010, Akanbi put FPI inflow at N577.3 billion out of N1.6 trillion transactions and in 2011, the FPI inflow was N847.9 billion out of N1.3 trillion transactions for the year. More so, in 2012, N808.4 billion worth of FPI inflow was made by foreign investors in a year when the total transaction was put at N1.3 trillion. The above data trends depict the inconsistence of FPI as a reliable source of capitalization for Nigerian stock market growth expectation.

The SAP and subsequent reforms affected the exchange dynamics in Nigeria. In view of Yaqub(2010), it was following the adoption of the Structural Adjustment Programme (SAP) and the subsequent improvement in the management of the foreign exchange market, that the persistent downward pressure on the domestic currency was stemmed for a while. According to him, some improvements were recorded in the growth of GDP between 1988 and 1990. The main drivers of growth during this time were manufacturing, trading and services. He stated, however, that in 2004 and 2007, an average GDP growth rate of 6.4% was associated with appreciation of exchange rate. He asserted that at other sub periods, when the exchange rate depreciated, it was associated with a reduced average growth rate of GDP, meaning that higher growth rate is associated with exchange rate appreciation within

a period while the periods of depreciation of exchange rate are associated with lower growth rates as witnessed in 2004 to 2007. According to Indexmundi (2012) data from IMF, the value for Official exchange rate (LCU per US$, period average) in Nigeria was 153.90 as of 2011. The data showed that, over the past 25 years, this indicator reached a maximum value of 153.90 in 2011 and a minimum value of 1.75 in 1986. However, the value for Real effective exchange rate index (2005 = 100), which is the nominal effective exchange rate (a measure of the value of a currency against a weighted average of several foreign currencies) divided by a price deflator or index of costs in Nigeria was 117.93 as of 2010. The data showed that, over the past 25 years this indicator reached a maximum value of 312.51 in 1986 and a minimum value of 58.15 in 1992.

Even though, there are some positive outcomes of financial reform as GDP has been growing upward since two decades ago. Other indicators such as stock market capitalization, number of listed companies, stock market index in term of volume, market size and foreign portfolio investment have posted some years of positive and negative trends. Exchange rate has been fluctuating as result of constant devaluation of the Naira. However, Nigeria's economy in terms of stock market growth are still not yet vibrant and sophisticated as its counterparts in the industrialized nations and other emerging markets and as such, cannot compete favorably in international markets in regards to volume of foreign investment inflows and number of foreign listing in NSE, especially, the absence of bonded foreign portfolio investment which is securities issued with a fixed rate of interest for a period of more than one year. Most importantly, the level of foreign participation which has constantly surpassed domestic participation in the Nigerian capital market is not sustainable and not good for the country's economic development due to FPI volatility. In concurring with the following statement, Johnson Chukwu of Cowry Asset Management Limited during interview with Akanbi (2013), stated that the challenge with the huge presence of foreign portfolio investors in the country's capital market is the heightened risk of market reversal and possible market crash should these portfolio investors have any reason to exit the market. Furthermore, in his view, beyond a capital market crash, their exit would also lead to a sharp depletion of the country's foreign reserve and possibly exchange rate devaluation with the attendant inflationary impact. In essence, Nigeria business environment should encourage foreign portfolio investors but should grow more of domestic investors through investment friendly policies and legal system. According to Alile (1999), capital market can only fulfill its role of bringing more private capital flows to Nigeria by mobilizing domestic and foreign savings and by channeling them into productive investments.

From the above trend, stock market has been growing astronomically while the foreign portfolio investment has fluctuated, not maintaining any consistent growth pattern. In essence, the major problems are inconsistency in the FPI inflows to Nigerian capital market which increases volatility and macroeconomic instability and lack of bonded foreign portfolio investment. Also, the low domestic participation in stock market trade in Nigeria might be as a result of low awareness by many Nigeria about this arm of the financial market. Furthermore, the existence of volatility in foreign portfolio investment tends to affect stock market growth as result of uncertain and risk. In essence, the trend of FPI to the capital market over the period under study (1986-2014) represents somewhat, an unstable and fluctuating inflows.

Therefore, this study will investigate the relationship between foreign portfolio investment and stock market growth between 1986 and 2014 and how other macroeconomic variables, such as interest rates, exchange rates depreciation, and trade openness affect stock market growth. The period of interest for this study is 1986-2014 because it embraced the period of structural reforms, institutional transformation, democratic governance, and era of constant economic growth and fluctuating foreign investment inflows to Nigeria. Some annualized time series data to be employed are variables, such as foreign portfolio investment, market capitalization, interest rates, exchange rates, and trade openness.

2. Theoretical Review
Marginal Efficiency Hypothesis
This theory sees investment decisions as being dependent on internal rate of return (IRR) generated by investing in a particular asset called Marginal Efficient of Investment (MEI) and the prevailing market rate of interest rate. Anyanwu and Oaikhenan (1995) traced the theory to John Maynard Keynes. Keynes defined the IRR as the rate of discount which will make the present value of the series of annuities given by the returns expected from the capital asset during its useful life just equal its supply price. Keynes also utilized the concept of marginal efficiency of capital(MEC) in the development of marginal efficiency theory. He defined MEC as the rate of discount that equates the current cash outlay with the present value of future cash receipt. The marginal efficiency hypothesis states that the marginal efficiency of investment will be compared to the market rate of interest and such comparison will generate a set of decision rule for firms. The appropriate rule is: MEI $\geq$ r, accept investment proposal or MEI $<$ r, reject investment proposal. The rule further defined, r, as the market rate of interest and states that where MEI = r, investment is considered to be at its optimum or equilibrium level.

The Markowitz Efficient Frontier Model
Markowitz (1952, 1958) conveyed two significant insights with regard to Modern Portfolio Theory. Firstly, he

realized that the mathematics could not pick out a single optimal portfolio but rather could only identify a set of efficient portfolios. Secondly, he recognized that the appropriate risk facing an investor was portfolio risk which led to a fundamental point that the riskiness of a stock should not be measured just by the variance of the stock but also by their covariances. Markowitz discovered that it was the covariance that determined the risk of a portfolio and not the variance of individual assets in the portfolio. The best portfolio would consist of assets which are perfectly negatively (inversely) correlated. However, according to Markowitz, the benefits of diversification need not only exist if the assets are perfectly negatively correlated. In fact, as long as the correlation coefficient between two assets was less than 1.0, there will be a reduction in risk by combining both assets in a portfolio. Markowitz proposed that investors should instead consider variances of return along with expected returns, and choose portfolios that offered the highest expected return for a given level of variance. He called this rule the E-V maxim (Markowitz, 1959). In Modern Portfolio Theory, the Markowitz stock portfolio model is optimized by minimizing the risk of the portfolio as measure by the variance of stock prices, subject to a given portfolio return. In reality, Modern Portfolio Theory is a way to determine just how many eggs to put in each of several specified baskets. Markowitz also demonstrated that for a given level of risk, an investor can identify particular combinations of securities that maximize expected return. Markowitz referred to a continuum of such portfolios in dimensions of expected return and standard deviation as the 'efficient frontier'. According to Markowitz's E-V maxim, investors should restrict their choice of portfolio to those that are located along the efficient frontier. The efficient frontier considers a universe of risky investments and explores what might be an optimal portfolio based upon those possible investments. The notion of 'optimal' portfolio can be defined in one of two ways: for instance, for any level of risk (standard deviation), consider all the portfolios which have that level of risk. From among them all, select the one which has the highest expected return; and also for any expected return, consider all the portfolios which have that expected return. From among them all, select the one which has the lowest risk standard deviation). Markowitz opined that the first definition produces an optimal portfolio for each possible level of risk while the second definition produces an optimal portfolio for each expected return. However, the two definitions are equivalent as the set of optimal portfolios obtained using one definition is exactly the same set which is obtained from the other. The efficient frontier comprises a series of points, each of which represents a particular allocation of assets across the clusters. Each allocation produces a specific return at a specific level of risk. In 1956, Harry Markowitz published the 'critical line algorithm' for tracing out the efficient frontier given estimates of expected returns, variances and covariances, for any number of securities subject to various kinds of constraints. There are two restrictions in solving the efficient frontier. Firstly, the sum of the proportions of each assets represented in the portfolio must equal one and secondly, all assets must have positive or zero representation in the portfolio. Returns are varied between the minimum-risk portfolio and the maximum-return portfolio to sketch the portfolio. The Markowitz formula is given as:

$$\sum_{i=1}^{n} X_i^2 \sigma_i^2 + \sum_{i=1}^{n} X_i^2 \sigma_i^a ij \quad (2.12)$$

Subject to:

$$\sum Xi = 1$$

$$Rp = \sum Xi = Ri$$

$$Xi \geq 0, I = 1, \dots, N, \quad (2.13)$$

Where as Rp = total return to the portfolio, $x\,i$ = fraction of portfolio represented by asset I, Ri = return to asset i, $i = 1, ..., N$, σ_i^2 = variance of asset I, σij = covariance of assets i and j, $i = 1, ..., N, j = 1, ..., N, i \neq j$.

Flow Theory of Capital Movement
Cited in Miguel and Paul (2009), Taylor (2006) argued that early and middle 1990s saw a rough consensus that openness to capital flows has salutary effects on economic growth. According to Miguel and Paul (2009), subsequent to the Asian crisis of 1997 and the Russian crisis of 1998, the consensus unraveled. Strong and opposing views are feasible because hypothesized relationships between financial openness and future growth do not assert themselves strongly in statistics. They stated that at this point, it is not clear whether or not (and under what conditions) capital account openness and/or liberalization lead to economic growth. Also, that openness is a continuous economic concept that has most often been measured with discrete or categorical policy variables with attendant loss of statistical power. Furthermore, they argued that early studies of this issue access financial openness using single indicator variable summarizing government policies. More so, they cited more recent studies,

such as Quinn (1997) and Bekaert, et al(2002) which adopted measures of openness that consider richer information, such as the political environment and information in stock market time series. These measures retained the feature that openness is non-decreasing over time within most of the samples that have been studied. According to Bekaert et al. (2002), the assessments of country liberalization focus on the time of a breakout in capital flows in an upward direction in determining when liberalization occurs. Baier et al. (2004) studied investment and productivity before and after the establishment of a stock exchange. Yet Montiel and Reinhart (1999) showed that the intensity of actual openness to world capital markets varies over time. Taylor (1996) showed that policy openness is only one aspect of actual openness. These findings suggested that a more flexible measure might be useful. Data on cross-border investment flows are one possibility. Though Henry (2000) showed that net investment flows are strongest on average immediately after liberalizations, there was considerable variation in the cross-section. Also, gross investment flows (i.e., inflows and outflows together) also exhibited substantial variation across countries but, on average, tend to grow slowly following liberalization. Finally, gross flows are much larger than net flows, so outflows of funds are a significant consequence of openness.

Empirical Review
A comprehensive studies in foreign portfolio investment in Nigeria was done by Ekeocha (2012). His study tried to ascertain the long run determinants of foreign portfolio investment (FPI) in Nigeria such that appropriate policies will be pursued to attract same in the long run. The study asserted that FPI has grown recently in proportion relative to other types of capital inflows to Nigeria before the wake of global financial crisis. It opined that, there is no empirical regularity regarding the determinants of FPI in Nigeria. Ekeocha's study tried to add to the stock of knowledge by modeling the long-run determinants of FPI in Nigeria over the period of 1981-2010 converted into quarterly series. The variables considered by this study were, market capitalization, real exchange rate, real interest rate, real gross domestic product and trade openness. The study applied time series analysis specifically the finite distributed lag model and discovers that FPI has a positive long-run relationship with market capitalization, and trade openness in Nigeria. Ekeocha recommends that ongoing effort to sanitize the capital market should be vigorously pursued.

Ozurumba(2012) research work was designed to investigate the impact of stock market returns on foreign portfolio investment in Nigerian. The objectives of this research were: to identify the relationship between foreign portfolio investment and stock market return, inflation rate andstock market returns and to determine the direction of causality between foreign portfolio investment and stock market returns in Nigeria. The data were collected from Central Bank of Nigeria (CBN) statistical bulletin. The data were consequentially analyzed using E-views statistical package. The methodology used by the work was multiple linear regression analysis to capture the impact of foreign portfolio investment and inflation rate on stock market returns, as well as Granger causality tests to determine the direction of causality between the variables. The results showed that foreign portfolio investment has a positive and significant impact on stock market returns while inflation rate has positive but insignificant impact on stock market returns. In the case of causality test, evidence of the result showed that there is a unidirectional causality running from stock market returns to foreign portfolio investment in the economy, which in turn will foster stock market returns in Nigeria. Ozurumba(2012), recommended that policies that will attract foreign portfolio investment should be pursued in order to enhance stock market returns

Raymond and Enerst(2013) investigated empirically the impact of globalization on the performance of the Nigerian Stock market. The study seeks the verification of the existence of a linking mechanism between globalization through trade openness, net inflow of capital, participation in international capital market and financial development on Stock Market performance over the period of 1981 to 2011. The methodology adopted examined the stochastic characteristics of each time series by testing their stationarity using the Im, Pesaran and Shin W-stat test. The weighted least squares regression method was employed to ascertain the different level of impacts on the above subject matter. The findings were reinforced by the presence of a long-term equilibrium relationship, as evidenced by the cointegrating equation of the VECM. The Model ascertained that globalization variables actually positively impacted on stock market performance. However, the findings reveal that while net capital inflows and participation in international capital market have greater impact on the Nigerian Stock market performance during the period under review. According to them, it is advised that in formulating foreign policy, policy makers should take strategic views on the international economy and make new creative policies that will foster economic integration between Nigeria and its existing trade allies. They stated that these creative policies will also assist to create avenues for the making new trade agreements with other nations of the world, which hitherto were not trade partners with Nigeria.

Karimo and Tobi(2013) examined the effect of information asymmetries on macroeconomic volatility and FPI volatility in Nigeria using the AR(k)-EGARCH(p,q) model, and the nexus between macroeconomic uncertainty and FPI volatility in Nigeria using the LA-VAR Granger Causality test. The study used Quarterly time series data drawn from the Central Bank of Nigeria Statistical Bulletin, 2011 spanning through 1986Q1 to 2011Q4. The study found that all the included variables were highly volatile and responded asymmetrically to information

shocks. The results also predicted that a stable macroeconomic environment is necessary for steady FPI inflow and steady FPI inflow is also needed for some levels of macroeconomic stability. It was therefore recommended that insiders' activities in the Nigerian capital market be properly monitored and that policy makers should be sensitive to possible policy tradeoffs when the need arises between higher economic growth and rising price levels, and sustained economic growth and stable prices.

Ayunku and Etale(2014), study examined the determinants of stock market development for the period of 1977-2010. The study further investigated the long run and short run relationship between the variables, using ex-post facto research design and the utilization of Johansen Co-integration and Error Correction Model (ECM) approach. The empirical result indicated that market capitalization, credit to private sector and exchange rates are all important determinants of stock market development both in the long run and short run in Nigeria as these variables have positive effect and thus stimulate economic growth in Nigeria while inflation and saving rate had negative impact on stock market development in Nigeria. These results as they stand have some policy implications and it therefore follows that to achieve accelerated stock market development and economic growth in Nigeria, monetary authorities should effectively moderate and control the inflation and savings rate so as to sustain macroeconomic stability. This study therefore recommended amongst others that policy makers should be concerned with stock market liquidity, given that market capitalization is a strong indicator of stock market development in Nigeria.

Eniekezimene(2013) examined the impact of foreign portfolio investment (FPI) on capital market growth by x-raying the growth of FPI in the market as well as the transmission channels through which changes in FPI affect growth of the market. The theories dominating the flow of FPI and capital market growth have been the Standard Neoclassical theory of foreign portfolio inflows which predicts that capital should flow from capital-rich countries to capital-scarce countries, and the Lucas Paradox or why private capital doesn't seem to flow from rich to poor countries. This study employed the flow theory of capital movement because unlike the two extreme case theories, the flow theory of capital movement looks at a specific country's characteristics that determine the flow of foreign capital to its capital market. Using Ordinary Least Squares (OLS) methodology with a Parsimonious Error Correction Model Specification, after testing for the stationary status (unit root) and long run relationship (co-integration) of the variables, the result showed that foreign portfolio investment has a positive impact on capital market growth with the speed of adjustment from short run to long run as indicated by the ECM-1 having a relatively high value of 66% in absolute terms. The study thus recommended appropriate and quick measures to reverse the current trend of nationalization in the demand deposit banks, improvement in the market's legal framework to ensure safety of investment and the sincere pursuit of the privatization program for a private sector growth led economy.

Kolapo and Adaramola(2012) study sought to examine the impact of the Nigerian capital market on its economic growth from the period of 1990-2010. The study depicts that economic growth as proxies of Gross Domestic Product (GDP) while the capital market variables considered by the study include; Market Capitalization (MCAP), Total New Issues (TNI), Value of Transactions (VLT), and Total Listed Equities and Government Stocks (LEGS). Applying Johansen co-integration and Granger causality tests, results showed that the Nigerian capital market and economic growth are co-integrated. This implies that a long run relationship exists between capital market and economic growth in Nigeria. The causality test results suggested a bidirectional causation between the GDP and the value of transactions (VLT) and a unidirectional causality from Market capitalization to the GDP and not vice versa. The F statistics is significant at 5 percent using a two-tailed test. On the other hand, there is no "reverse causation" from GDP to market capitalization. Furthermore, there was independence "no causation" between the GDP and total new issues (TNI) as well as GDP and LEGS. That was a clear indication of the relative positive impact the capital market plays on the economic growth of the country. The evidence from this study revealed that the activities in the capital market tend to impact positively on the economy. The study recommended that the regulatory authority should initiate policies that would encourage more companies to access the market and also be more proactive in their surveillance role in order to check sharp practices which undermine market integrity and erode investors' confidence.

Omorokunwa and Ikponmwosa(2014) investigated the dynamic relationship between exchange rate volatility and foreign private investment in Nigeria from 1980 to 2011. The rational for this study is the realization that a viable exchange rate regime that is stable and predictable presents rich vista for inflow of foreign investment. The study employs the Error Correction Model (ECM) after a battery of preliminary investigations which include the Augmented Dickey Fuller (ADF) test for stationarity and the Engle and Granger two-step co integration procedure. Their finding included among other things that; exchange rate volatility has a very weak effect on the inflow of Foreign Direct Investment (FDI) to Nigeria, both in the long run and in the short run and that exchange rate volatility has a weak effect on foreign portfolio investment in the short run but a strong positive effect in the long run. Based on this findings, an array of recommendation were made, which include the need for policy makers to develop sound exchange rate management system in the country, *inter alia*.

3. DATA AND METHOD OF ANALYSIS

The data used for this study are the time series covering 1986 – 2014 period and are obtained from the statistical Bulletin of Central Bank of Nigeria (CBN), annual reports and Statement of Account of various issues and online service from – data.worldbank.org/indicators.

Model Specification

In 1952, Harry Markowitz published the 'critical line algorithm' for tracing out the efficient frontier given estimates of expected returns, variances and covariances, for any number of securities subject to various kinds of constraints. There are two restrictions in solving the efficient frontier. Firstly, the sum of the proportions of each assets represented in the portfolio must equal one and secondly, all assets must have positive or zero representation in the portfolio.

Returns are varied between the minimum-risk portfolio and the maximum-return portfolio to sketch the portfolio. The Markowitz formula is given as:

$$\sum_{i=1}^{n} X_i^2 \sigma_i^2 + \sum_{i=1}^{n} X_i^2 \sigma_i^{\sigma} ij \quad (3.1)$$

Subject to: $\sum Xi = 1$, $Rp = \sum Xi = Ri$, and $Xi \geq 0, I = 1, …, N,$ (3.2)

Where, Rp = total return to the portfolio, x i = fraction of portfolio represented by asset I, Ri = return to asset i, i = 1, ..., N, σ_i^2 = variance of asset I, σij = covariance of assets i and j, i = 1, ..., N, j = 1, ..., N, i $\neq$ j.

The functional form of Markowitz model can be related to Gujaranti and Porter(2009) which stated that:

$$Y=F(X_1, X_2, X_3,) , \quad (3.3).$$

Specifically, this study will use the following model specification:

$$SMG=f(FPI, EXR,TOP) + \mu \quad (3.4)$$

The linear form of the model becomes,

$$SMG = \lambda_0 + \beta \, FPI_1 + \pi_2 EXR + \emptyset_3 \, TOP + \mu \quad (3.5)$$

Where, SMG= Stock market Growth (The Proxy variable is Stock market Capitalization), FPI=Foreign portfolio investment, EXR = Exchange Rate, TOP= Trade openness, λ = Model Constant, β, π, Ψ, ϕ = Model Parameters, and μ = Error term

4. PRESENTATION OF RESULTS

Unit Root Test

The Augmented Dickey-Fuller (ADF) and Philip Perron (PP) formulae were employed to test for the existence of unit roots in the data using trend and intercept. The results are presented in table one below.

Table 1: Augmented Dickey Fuller Unit Root Test

Trend and Intercept @ Levels

Series	ADF Test Statistic	5% critical values	10% critical values	Order	Remarks
LSMG	-1.495334	-3.580623	-3.225334	0	Not Stationary
LFPI	-3.364559	-3.580623	-3.225334	0	Not Stationary
LEXR	-1.876538	-3.580623	-3.225334	0	Not Stationary
TOP	-1.737657	-3.580623	-3.225334	0	Not Stationary

Sources: Researcher's compilation from E-view (version 7.0)

Table 2: Phillips-Perron Unit Root Test

Trend and Intercept @ Levels

Series	ADF Test Statistic	5% critical values	10% critical values	Order	Remarks
LSMG	-1.495334	-3.580623	-3.225334	0	Not Stationary
LFPI	-3.307385	-3.580623	-3.225334	0	Not Stationary
LEXR	-1.869125	-3.580623	-3.225334	0	Not Stationary
TOP	-1.447982	-3.580623	-3.225334	0	Not Stationary

Sources: Researcher's compilation from E-view (version 7.0)

Table 3: Augmented Dickey Fuller Unit Root Test
Trend and Intercept @ 1st Difference

Series	ADF Test Statistic	5% critical values	10% critical values	Order	Remarks
LSMG	-4.155607	-3.587527	-3.229230	1	Stationary
LFPI	-7.345820	-3.587527	-3.229230	1	Stationary
LEXR	-5.644121	-3.587527	-3.229230	1	Stationary
TOP	-7.676344	-3.587527	-3.229230	1	Stationary

Sources: Researcher's compilation from E-view (version 7.0)

Table 4: Phillips-Perron Unit Root Test
Trend and Intercept @ 1st Difference

Series	ADF Test Statistic	5% critical values	10% critical values	Order	Remarks
LSMG	-4.035147	-3.587527	-3.229230	1	Stationary
LFPI	-19.31787	-3.587527	-3.229230	1	Stationary
LEXR	-5.675124	-3.587527	-3.229230	1	Stationary
TOP	-11.52527	-3.587527	-3.229230	1	Stationary

Sources: Researcher's compilation from E-view (version 7.0)

Co-integration Test
This technique is employed to testing for the presence of co integration between the series of the same order of integration through forming a co integration equation. The basic idea behind co integration is that if, in the long-run, two or more series move closely together, it is possible to regard these series as defining a long-run equilibrium relationship, as the difference between them is stationary.
Table 5: Johansen co-integration test for the series; LSMG, LFPI, LEXR and TOP
Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.631083	48.02104	47.85613	0.0482
At most 1	0.326420	22.09424	29.79707	0.2933
At most 2	0.271464	11.82039	15.49471	0.1658
At most 3	0.128824	3.585705	3.841466	0.0583

 Trace test indicates 1 cointegrating eqn(s) at the 0.05 level
Under the Johansen Co-integration Test, there is one co-integrating equations. In Johansen's Method, the trace statistic determines whether co-integrated variables exist.

Vector Error Correction Mechanism (VECM)
The presence of long run equilibrium relationship among the variables as found from the Johansen co integration led to the application of VECM. With this approach, both the long run equilibrium and short run dynamic relationships associated with variables under study is established.
Table 6: VECM SYSTEM EQUATION

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.182413	0.082904	-2.200285	0.0428
C(2)	0.194790	0.216733	0.898755	0.3821
C(3)	-0.357231	0.244690	-1.459935	0.1637
C(4)	0.003279	0.038316	0.085589	0.9329
C(5)	-0.045257	0.036996	-1.223290	0.2389
C(6)	-0.230832	0.251461	-0.917964	0.3723
C(7)	-0.293345	0.246465	-1.190209	0.2513
C(8)	0.173290	0.702635	0.246628	0.8083
C(9)	0.486809	0.672445	0.723939	0.4796
C(10)	0.419035	0.138004	3.036403	0.0079

R-Squared = 0.413550, F-Statistics = 1.25, Prob(F-Statistic) = 0.331787, DW = 2.03

The existence of co integration among the variables as indicated above presents an evidence of long-run economic relationship among the variables. This implies that, vector error correction model is suited for further analysis. It captures both the long run equilibrium and short run dynamic relationships associated with the above results.

Granger Causality Test
With this test, the pair-wise relationships between the estimated variables are ascertained. Thus the table is presented below:
Table 7: Granger Causality

Dependent variable: D(LSMG)

Excluded	Chi-sq	df	Prob.
D(LFPI)	1.906488	2	0.3855
D(LEXR)	1.759471	2	0.4149
D(TOP)	0.526732	2	0.7685
All	4.029923	6	0.6726

Dependent variable: D(LFPI)

Excluded	Chi-sq	df	Prob.
D(LSMG)	2.216976	2	0.3301
D(LEXR)	2.462531	2	0.2919
D(TOP)	0.476374	2	0.7881
All	6.895635	6	0.3306

Source: Authors computation using Eviews 7

DISCUSSIONS OF RESULTS
The test on unit root test (table 1-4) shows that LSMG, LFPI, LEXR and TOP are not stationary at levels. However, all the variables are stationary at first difference in both ADF test and PP test. Considering the time series using Augmented-Dickey Fuller and Phillip Perron at Trend & Intercept, all their calculated statistics are greater than the critical values at 5% level of significance. The results showed that the time series are integrated of the same order; I (1), with the application of both ADF and PP test respectively.

The summary of the Johansen Co-integration Test is shown in table five above. The model with lag 2 was chosen with the linear deterministic test assumption. In order to find out if there is long run equilibrium relationship that exists between the LSMG and the explanatory variables; LFPI, LEXR and TOP using the Johansen Co-integration Test, there is one co-integrating equation. As can be seen from the trace statistics, here the absolute values of the variables are [48.02 > 47.86], [22.09 < 29.79] and [11.82 < 15.49]. In other words, the null hypothesis of no co-integration among the variables is rejected since at least one equation in the equations at 5% is statistically significant. The test result shows the existence of a long-run equilibrium relationship among the variables. The nature of the long run equilibrium relationship is found from the normalized co-integrating coefficients. Thus, the equation is stated as follows;
LSMG = 3.69 -0.27 LFPI – 1.46 LEXR + 1.98 TOP

Where LSMG is the dependent variable, 3.69 is the constant term, -0.27 is the coefficient of LFPI, -1.46 is the coefficient of LEXR and 1.98 is the coefficient of TOP. The sign borne by the coefficient estimate of LFPI and LEXR have negative relationship with LSMG while the coefficient estimate of TOP bears positive relationship with LSMG. With the identification of co integrating equations among the variables employed for estimation, vector error correction model VECM estimation presents the only option for predicting the dynamic behaviour of LSMG in response to LFPI, LEXR and TOP.

The Error correction term met the required conditions. Negative sign and statistical significance of the error correction coefficients are necessary conditions for any disequilibrium to be corrected. In light of this, the coefficient of ECM(-1) is -0.1824. The negative sign of the coefficient satisfied one condition while

the fact that its P-value [0.0428] is less than 5% [0.05] level of significance satisfied the second condition of statistical significance. The coefficient indicated that the speed of adjustment between the short run dynamics and the long run equilibrium is 18.24%. Thus, ECM will adequately act to correct any deviations of the short run dynamics to its long-run equilibrium by 18.24% annually.The computed coefficient of multiple determination (R^2) value of 0.41355 indicated that 41.4% of the total variation in Stock Market Growth (LSMG) is accounted for, by the explanatory variables: foreign portfolio investment (LFPI), exchange rate (LEXR) and trade openness (TOP) while 58.6% of the changes in LSMG is attributable to the influence of other factors not included in the regression equation.

Implication of the Result
The result as indicated by the trace statistics of the Johansen co integrating equation shows that there exist a long run equilibrium relationship between foreign portfolio investment and stock market growth in Nigeria within the period under review. It is also estimated from the normalized co integrating coefficient which is also found from the upper chamber of VECM that 1% increase in foreign portfolio investment, on the average will lead to 0.3% decrease in the LFPI. Obviously, the sign borne by the parameter estimate of LFPI did not pass the economic apriori expectation. However, FPI may not contribute positively to the increase in stock market when there is no conducive environment for foreign investment to thrive in Nigeria. More so, a fall in the value of Naira against Dollar will bring about a significant fall in the stock market growth. This is confirmed by the t-statistic for LEXR. Thus, it is estimated that 1% in the exchange rate of Naira against US Dollar, on the average will bring about decrease by 1.5% in the stock market growth (SMG). The result also shows that increase in the openness of the economy will bring about increase in the stock market growth. This is estimated from the result as 1% increase in TOP, on the average, bring about 1.9% increase in LSMG.

5. Conclusion
The broad objective of this study is to determine empirically the impact of foreign portfolio investment on stock market growth in Nigeria from 1986 to 2014. Specifically, the research investigates if Foreign portfolio investment inflows have any long run significant impacts on stock market growth in Nigeria within the period under review. It also, it investigates if there is any significant causality existing between foreign portfolio investment and stock market growth in Nigeria. More also, if the exchange rates depreciation significantly explains the growth of stock market in Nigeria.

The study employed ex-post facto research design using Nigeria's data obtain from CBN and World Bank from 1986 to 2014. The empirical results were Augmented Dickey Fuller test and Philip Peron. Johansen co integration test was conducted in the second step and the presence of long run equilibrium led to the use of Vector Error Correction Mechanism (VECM). It was found that there is long run significant impact of foreign portfolio investment on the growth of stock market in Nigeria within the period under review. Secondly, that there is no significant causal relationship existing between foreign portfolio investment and stock market growth in Nigeria. Finally, that exchange rate depreciation explains the growth of stock market in Nigeria.

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