IOSR Journal of Economics and Finance (IOSR-JEF)
e-ISSN: 2321-5933, p-ISSN: 2321-5925.Volume 10, Issue 6 Ser. VI (Nov. – Dec 2019), PP 01-09
www.iosrjournals.org

Foreign Portfolio Investment and Stock Market Returns in Nigeria

Agu, Anthony Ogbonna[1], Ogu Calistus[2], Ezeanyeji Clement I[3]
[1]*Department of Economics, Chukwuemeka Odumegwu Ojukwu University, Anambra State, Nigeria.*
[2]*Department of Economics, Imo State University, Imo State, Nigeria*
[3]*Department of Economics Chukwuemeka Odumegwu Ojukwu University, Anambra State, Nigeria.*

Abstract: *Foreign portfolio investment is an investment model where investors seek returns in foreign countries without any control over the firms. The study made use of Ordinary Least Square and Auto Regressive Distributed Lag (ARDL) model which uses a bound test approach based on unrestricted error correction model (UECM) to measure the impact of Foreign Portfolio Investment on Stock Market Returns in Nigeria. The data was from the Central Bank of Nigeria Statistical Bulletin, for the period 986 to 2017. The variables used in the analysis are stock market capitalization used for stock market returns (dependent variable), while foreign portfolio investment, exchange rate, and interest rates were used as independent variables. The coefficients of exchange rate and FPI are positive which implies that any change in the variables will change the stock market returns in Nigeria. The interest rate has negative and as well no significant influence on the stock market return. The results show that there is no long run relationship between foreign portfolio investment and stock market returns in Nigeria. It was recommended that government and private individuals should provide enabling business environment that will encourage foreign portfolio investors' savings to enhance stock market development.*

Key words*: Stock Market Returns, Investment, Foreign Portfolio Investment, Exchange Rate, Interest Rate.*

Date of Submission: 11-12-2019 Date of acceptance: 26-12-2019

I. Introduction

The last quarter of the last century witnessed significant changes in the international financial system such as emergence of new capital markets, adoption of more flexible exchange rate arrangements in emerging and developing countries, gradual abolition of capital inflow barriers and foreign exchange restrictions. These developments have broadened the variety of investment opportunities including foreign portfolio investment by making it an important source of investible funds not only in developed but also in developing countries. Foreign portfolio investment (FPI) consists of transfer of financial assets such as cash, stocks and bonds across international borders with a view of maximizing profit. It means the purchase of shares in a foreign country where the investing party does not seek control over the investment. It could take the form of the purchase of equity (preference share) or government debt in a foreign stock market, or loans made to a foreign company. As trade flows result from individuals, firms and countries by exploiting their own comparative advantage, capitals and accumulated assets also flow to where they are likely to be most productive. Over the past three decades, this type of investment has become an increasing and significant part of the global economy. It has accounted as an important source of fund to support investment not only in developed but also developing countries (ERP, 2006, Baghebo and Apere, 2014).

This issue has attracted considerable debate in emerging and developing countries in recent years and has received the attention of policy makers and researchers on the role of foreign portfolio investments in the development of stock market. This attention was occasioned by the increasing wave of financial liberalization and the consequent substantial movement of capital across economies. Financial liberalization in developing countries started with opening of the capital accounts which was followed by stock market liberalization in the early 1990s (Anyanwu 1993). This resulted into a move towards integration of developing countries' stock markets to the rest of the world. Liberalization led to opening of domestic stock markets to foreign investors as a way of attaining market integration with other markets (Bartram et al 2001). Through liberalization, foreign portfolio flows have been encouraged with the main aim of improving market activities and access to foreign capital. For foreign investors, the drive has been to diversify investments, hedge against risk and to get higher returns in emerging markets given the low correlation of emerging markets with developed ones (Conover et al., 2002; Allen et al., 2011). The change in investor composition, however, affects equity prices and risk pricing in developing countries. This is more so because foreign portfolio is easily reversible and thus may affect the share prices and market stability.

In Nigeria, Portfolio investment is not a recent phenomenon, though up to the middle of 1980's Nigeria had zero return on portfolio investment (inflow or outflow) in her overall statement of economic transactions. According to Obadan, (2004), the zero return of the portfolio inflow into the country is attributed to lack of foreign portfolio investors in Nigerian economy and is largely due to the non-internalization of the country's financial institution as well as the non-disclosure of information on the portfolio investments in foreign capital/money market. The Act was judged inimical to a market driven economy. As equity investment trickled into Nigeria, portfolio investments dried up. Portfolio investment requires an investment climate that guarantees speedy free flow of investment funds into and out of a country.

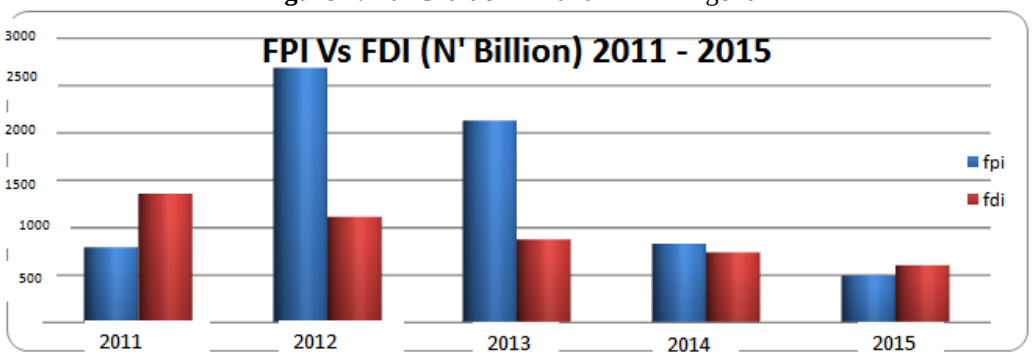
The Exchange Control Act of 1962 was identified as one of the major constraints on the growth of the Nigerian capital market (Onoh 2002). Accordingly the Act was blown away with gale force in 1995, by the strong wind of deregulation, which swept across the Nigerian macro-economic policy arena, from the beginning of the last quarter of 1986 (Tumola, Ajibola, Omotosho and Baruwa. 2011).

Following the abolition of the Exchange Control Act and the deregulation of security pricing by SEC, the Nigerian stock exchange was reorganized to make it more dynamic and mobile in the provision of adequate liquidity to investors. It was positioned to deal with the domestic and international capital market and to attract foreign portfolio investors (Onoh, 2002; Tumola et al, 2011).

1.2 Research issues

The impact of Foreign Portfolio Investment on stosck market returns has attracted considerable debate in recent years (Ozurumba, 2012; Koskei, 2017) and this cannot be overemphasized. The Nigerian capital market was completely deregulated in 1993, but the foreign portfolio inflow continued to be negative up to 1998 and reversed in 1999 with a record of N1,815.7 million (SEC, 2008). In 2000, the FPI inflow into the market stood at N51.1 billion compared to N1.82 billion in 1999. Since then the market has witnessed a tremendous increase in the inflow of funds from over high records of N311.1 billion in 2006 and N703.6 billion in 2007 respectively. The N391.1 billion increase in FPI inflows in 2007 over 2006 figure represented 125% increase. There was a sharp increase in FPI inflow between 2005 and 2006, rising from a low inflow of N23.5 billion in 2004 to stand at N116.0 billion in 2005 and N311.7 billion in 2006. The inflow of FPI dropped after the 2000's figure to N26.0 billion in 2001, slightly dropped again in 2002 to N24.8 billion and stagnated between 2003 and 2004 recording N23.5 billion for the two years. Between 2007 and 2008 there was a drastic fall in FPI inflow from a high of N703.6 billion in 2007 to N350.9 billion in 2008 (Oluba, 2008). Despite this fluctuation or sharp fall in the inflow of FPI, the inflow of foreign portfolio investment rose significantly in 2009 to the tune of N2.15 trillion approximately and further rose in 2010 to N2.73 trillion approximately (CBN. 2013).

Figure 1: Bar Chart of FPI and FDI in Nigeria



Source: Aurthor's plot using data from CBN (2015)

The bar chart above shows that in 2011 FPI was almost half of FDI but rose rapidly as it leapfrogged from N792.4b in 2011 to N2687.2b in 2012, representing about 238% increase. Between 2012 and 2013 FPI doubled FDI showing a tremendous increase between 2011 and 2013 and thereafter droped sharply between 2014 and 2015. In the case of FDI, it continued to nosedive from 2011 to 2015. Similarly, FPI consistently outnumbered Foreign Direct Investment (FDI) throughout the four quarters in 2016. In the first quarter, while FDI was N490.69m, FPI was N2869.12 representing more than 5 times of FDI. In 2012 and 2013 FPI was almost more than 10 times greater than FDI. Thereafter, FPI fell sharply from N5127.75m in the third quarter to N2003.1m in the fourth quarter of 2016.

This continued upward trend and swings necessitate the need to study the impact of FPI on stock market returns in Nigeria. Given the above, researchers have sought to provide answers to such questions as: what impact has foreign portfolio investment on stock market returns in Nigeria? Has exchange rate and interest

rate any impact on stock market returns in Nigeria? What is the direction of causality between foreign portfolio investment and stock market returns in Nigeria. Investigating these issues between 1986 and 2017 is therefore the base of this study.

II. Theory and Related Literature

Tobin's Portfolio Selection theory

Tobin (1967) in his famous article "liquidity preference as behavior towards risk" formulated the risk aversion theory of liquidity preference based on portfolio selection.. This theory took off two main drawback of the Keynesian theory of liquidity preference. Keynes's liquidity preference function depend on the inelasticity of expectation of future interest rate; and that, individuals hold either money or bonds. His theory does not depend on elasticity of expectation of future interest rate but on the assumption that expected value of capital gain or loss from holding interest . Moreover, it explains that an individual's portfolio hold could be in money and bonds rather than one at a time. Money neither brings any return nor imposes any risk on the individual, but bonds yield interest and also bring income. However, income from bonds is uncertain because it involves risks, capital gains or losses. The greater the investment in bonds, the greater the risk of capital from them and an investor can bear the risk if he is compensated by an adequate return from bonds (Jhingan, 2002).

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. 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 to 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 to accept investment proposal if MEI is less or equal to market rate or reject investment proposal if MEI is less than market rate. 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.

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. They stated that it is not clear whether or not capital account openness and/or liberalization lead to economic growth. In addition, 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 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. Gross investment flows 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 Investigation

The work of Loncan and Caldeira (2015) analyzed the effect of foreign portfolio capital flows on stock returns in Brazil. The Brazilian listed firms through a 6-factors APT model in which an additional risk factor for foreign portfolio capital flows was used. First, an aggregate analysis was conducted. The partial effect of foreign portfolio capital flows on the IBOVESPA index's returns was statistically significant and positive. Next, a disaggregate analysis was also implemented, in which portfolios of stocks were sorted by sector of economic

activity, level of risk and level of corporate governance. The result showed that foreign portfolio capitals caused increases in returns especially for sectors related to commodities, industry and cyclical consumption. For the portfolios sorted by risk (in which the stocks' betas were used as a risk parameter for sorting), foreign capitals increased the returns of mid-high and high beta portfolios, but decreased the returns of low and low-mid beta portfolios. For corporate governance portfolios, the firms listed on the Novo Mercado segment (according to BMF&Bovespa criteria) experienced a statistically significant revaluation effect. Overall, the results of the study provide support to the revaluation effect hypothesis.

Koskel, Kibet and Nyan'au (2016), examined the effect of foreign portfolio equity and exchange rate risk on stock market returns on commercial banks in Kenya. They argued that uncertainties in the flow of foreign portfolio investments result in unpredictable behaviour of stock returns in Kenya's economy and also at the firm level. Thus they studied the effect of foreign portfolio equity and exchange rate risk on stock returns of listed commercial banks in Kenya. The target population of the study was 11 commercial banks listed on the Nairobi Securities Exchange. The study used purposive sampling technique and concentrated on 10 commercial banks. This study employed a panel data regression using the Ordinary Least Squares (OLS) method where the data included time series and cross-sectional. Hausman test was carried out and findings indicated that random effects model was preferable for this study. Results from panel estimation showed that exchange rate risk affect stock returns of listed financial institutions in Kenya. They recommended that policies that would attract foreign portfolio investment should be pursued.

In a comparative analytical approach, Aigheyisi and Ovuefeyen (2013) studied the effects of the inflows of foreign financial resources into Nigeria's and Ghana's economies and on the development of the countries' stock exchange from the period 1981 to 2011 for Nigeria and 1991 to 2011 for Ghana. They employed multiple regression technique and found out that official development assistant and aid has positive relationship with stock market returns in Nigeria while FDI and the ratio of external debt to GDP have negative and significant effect on the stock market returns in Ghana. Onyeisi, Odo and Anoke (2016) examined the impact of foreign portfolio investment inflows on stock market growth in Nigeria from 1986 to 2014. They employed VECM and Granger Causality tests and their results showed a long run significant impact of foreign portfolio investment on stock market growth in Nigeria. The Granger causality test showed no direction of causality between foreign portfolio investment and stock market growth. The study recommended that the government should strengthen the security and exchange commission to promote constant inflows of foreign portfolio investment in Nigeria and that capital market be developed so that domestic trade volume increase more than FPI.

Most recently, Adebisi and Arikpo (2017) examined the relationship between financial market performance and foreign portfolio investment in Nigeria. They sought to study whether there is a long run and short run causal relationship running from financial market performance to foreign portfolio investment in Nigeria. The data for the study were sourced from the CBN statistical bulletin for the period 1984 to 2015 and they employed Autoregressive Distributive Lag (ARDL) technique for data analysis. Findings from the analyses showed that financial market performance has no long run causal relationship with foreign portfolio investment in Nigeria. Also, stock market performance and stock market liquidity have no short run causal relationship with foreign portfolio investment in Nigeria. Ohiaeri (2017) investigated the nature and direction of causality existing among foreign portfolio investments, capital flight and capital market performance in Nigeria using expost-facto and descriptive research designs. He employed Vector Error Correction models and co- integration test subject to the outcome of the preliminary tests for conformity with econometric assumptions. The Study showed a unidirectional causality between capital market performance on one hand and foreign portfolio investment and capital flight on the other hand at 5% and 10% levels of significance respectively.

III. Methodology

The ordinary least square method of research was adopted in this study. The theoretical framework for this study is a variant of flow theory of capital movement as shown by Sachs et al (1996). The authors used returns to foreign investors to look at why some emerging markets were affected by the financial crises of 1994/1995 while others were not affected. Foreign portfolio investment is an investment model where investors seek returns in foreign countries without any control over firms in which they invest. Their investments are through the purchase of equity and government debt in a foreign stock market. Given this background, this paper analyzes the effects based on the following representation of the total stocks in an open economy:

$$SK = f(i, i^f, \mathrm{e}) \qquad (3.1)$$

Where SK is stock of capital, i = domestic interest rate, i^f = foreign interest rate and e is the exchange rate. Taking the total differentiation of equation 1 we have:

$$dSK = \frac{\partial f}{\partial i} di + \frac{\partial f}{\partial i^f} di^f + \frac{\partial f}{\partial e} de \qquad (3.2)$$

We observe that:

$$\frac{\partial f}{\partial i} > 0; \frac{\partial f}{\partial i^f} < 0; \frac{\partial f}{\partial e} < 0 \text{.....}(3.3)$$

From equation 3.3, an increase in the domestic interest rate attracts more foreign investors into the country, and that a decline in the foreign interest rate encourages foreign investors to look for alternative investment opportunities.

In this work therefore, the study set out to present the functional relationship of foreign portfolio investment and stock market returns in Nigeria.

SMR = f(FPI, EXR, INT) ……..(3.4)

Where:

SMR = Stock market capitalization used as proxy for stock market returns

FPI = Foreign portfolio investment

EXR = Exchange Rate

INT = Interest rate

The above model is transformed into the form below for easy estimation

$$SMR_t = \alpha_0 + \alpha_1 FPI_t + \alpha_2 EXR_t + \alpha_3 INT + \mu_t \text{.....}(3.5)$$

Further, the work set out to present an Autoregressive Distributed Lag (ARDL) model of the impact of foreign portfolio investment on stock market returns in Nigeria. The ARDL model is stated as:

$$SMR_t = \alpha_0 + \sum_{i=1}^{p} \gamma_i SMR_{t-i} + \sum_{i=0}^{p} \beta_i FPI_{t-i} + \sum_{i=0}^{p} \beta_i EXR_{t-i} + \sum_{i=0}^{p} \beta_i INT_{t-i} + \mu_{it} \text{.....}(3.6)$$

In order to obtain the cointegrating equation, equation 3.6 is transformed into 3.7 as follows:

$$\Delta SMR_t = \alpha_0 + \sum_{i=1}^{p} \gamma_i \Delta SMR_{t-i} + \sum_{i=0}^{p} \beta_i \Delta FPI_{t-i} + \sum_{i=0}^{p} \beta_i \Delta EXR_{t-i} + \sum_{i=0}^{p} \beta_i \Delta INT_{t-i} + \phi ECT + \mu_{it} \text{..}(3.7)$$

Where $ECT_t = Y_t - \alpha_0 - \sum_{i=1}^{p} \gamma_1 \Delta Y_{t-i} - \sum_{i=0}^{p} \beta_i \Delta X_{t-i}$ and $\phi = 1 - \sum_{i=1}^{p} \gamma_1 \Delta Y_{t-i}$.....(3.8)

The Bound test procedure used equations 3.7 and 3.8 into 3.9 as:

$$\Delta Y_t = -\sum_{i=1}^{p-1} \gamma_1 Y * \Delta Y_{t-i} + \sum_{i=0}^{p} \beta_i \Delta X_{t-i} - \rho Y_{t-1} - \alpha - \sum_{i=0}^{p} \delta X_{t-i} + \mu_{it} \text{.....}(3.9)$$

Then we test the existence of level relationship as $\rho = 0$ and $\delta_1 = \delta_2 = ... = \delta_k = 0$

Where: Δ = difference operator, μ = white noise error term.

IV. Results And Discussion

Unit Root Test

A unit root test (ADF) was conducted to ascertain whether the variables in the model are stationary. This is necessary as it helps to avoid spurious regression results that would make estimates biased and inconsistent. The time series data for all the variables in the study were tested within the period 1986-2017, to determine their stationarity status.

The summary of Unit Root Tests (ADF) results using E-views software is detailed in the table below:

Table 1 Summary of ADF test results at 1%, 5% and 10% critical value

Variable	Order of Integration	ADF Test Statistics	ADF Critical Value			Lag Length	Decision
			1%	**5%**	**10%**		
FPI	I ~ (0)	-3.933821	-3.6793	-2.9677	-2.6229	1	Reject H_0
SMR	I~ (1)	-4.005276	-3.7114	-2.9810	-2.6210	3	Reject H_0
EXR	I ~ (1)	-3.753593	-3.6891	-2.9718	-2.6251	0	Reject H_0
INR	I ~ (0)	-4.506396	-3.6701	-2.9639	-2.6210	0	Reject H_0

Source: research output 2019

From table 1 above, observe that the variables SMR, and EXR are not stationary at level form but became stationary after first difference which implies that the variables (SMR, and EXR) are integrated of order one (I ~ (1)) whereas the remaining variables (FPI and INR) are integrated of order zero (I ~ (0)) as they are stationary at level form. The decision is based on the fact the ADF statistics that is greater than the ADF critical

values at 5% and 10% level. Thus, we reject H_0 and conclude that the variable is stationary. Since the variables are integrated of order one and zero and none of the variables is integrated of order two. We therefore, apply the ARDL bound cointegration test.

ARDL Bound Cointegration Test

There is need to investigate the existence or otherwise of long run relationship among variables. This is important because variables that fail to converge in the long run may be hazardous for policy making. A necessary condition for testing for ARDL bound co-integration test is that each of the variables be integrated of either order one or zero or both (Pesaran, Shin and Smith, 2001). Since all the variables are integrated of order one and zero, we proceeded to estimate the ARDL bound test. The null hypothesis of ARDL bound cointegration is that the variables are not cointegrated. The decision rule is to reject the null hypothesis if the F-statistics is greater than the upper bound critical values at chosen level of significance. The result of the ARDL cointegration test for the first and second objectives is shown in table 2 below.

Table 2 ARDL Bound Cointegration Test Result

Model	F-Statistics	K	Significance level	Critical Bound Value	
				10 (Lower Bound)	11 (Upper Bound)
1	1.924118	3	5%	3.23	4.35
			1%	4.29	5.61

Source: research output 2019

From table 2 the F-statistics for model 1 is 1.924 and is less than the lower (I0) bound of 3.23 at 5% level of significance. Thus, we accept the null hypothesis and conclude that there is no cointegration in the model. This implies that there is no long run relationship between foreign portfolio investment and stock market returns in Nigeria. This result is in line with the works of Adebisi and Arikpo (2017). Since the ARDL bound cointegration result shows no long run relationship between foreign portfolio investment and stock market returns, we therefore estimate the ARDL result at their order of integration. The summary of the result is presented in table 3, below:

Table 3 Summary of ARDL

	Dependent Variable SMR			
Variables	**Coefficient**	**Std. Error**	**t-statistics**	**Probability**
Constant	1043.749	2701.906	0.386301	0.7038
SMR(-1)	0.475387**	0.211618	2.246439	0.0375
SMR(-3)	0.526683**	0.223728	2.354229	0.0301
FPI	0.013611***	0.054742	3.902145	0.0024
EXR(-1)	4.302091	28.62818	0.150275	0.8822
EXR(-3)	38.26900	24.28850	1.575602	0.1325
INR	-52.09520	125,9387	-0.413655	0.6840
	R-squared = 0.905761. Adj R-squared = 0.858642. F-Statistics = 19.22267 F-prob = 0.000000			

******[**] denotes significant of variable at 1% [5%] significance level respectively. Variables were based on their order of integration***

Table 3 shows the ARDL result of the effect of foreign portfolio investment on stock market returns in Nigeria. Expectedly, present stock market returns situation depends positively on the past stock market development suggesting that if there is no sound policy to enhance stock market development in a particular period, the situation will worsen in the next period and vice versa. The coefficient of foreign portfolio investment (FPI) is both positive and significant implying that increase in FPI will increase stock market returns in the country. This conforms to the theoretical expectation. Specifically, a naira value increase in FPI will increase stock market return in Nigeria by 0.2 naira. This result is in line with the findings of Loncan and Caldeira (2015), Aigheyisi and Ovuefeyen (2013). The coefficients of exchange rate both at lag one and three are positive but insignificant suggesting that although exchange rate depreciation may increase stock market returns, it does not significantly influence it. This runs contrary to the findings of Koskel, Kibet and Nyan'an (2016). Similarly interest rate has no significantly influence on the stock market returns in Nigeria. In the same vein, it has negative relationship with the stock market returns.

The coefficients of multiple determinations and its adjusted are 0.906 and 0.859 respectively, suggesting that about 90.6% of the variations in stock market returns are explained by the variables included in the model which suggests that variations in stock market returns accounted for 90.6% of the variations in FPI in Nigeria. This further shows a good explanatory power of the model. The result of F-statistics is 19.2 which show that the overall regression is highly significant. Table 3 above (ARDL result), also shows that the probability

values for exchange rate is greater than 0.05 for both lags. We accept Ho and conclude that exchange rate under the period of study has no significant impact on stock market returns in Nigeria. The table also shows that the probability values for interest rate is greater than 0.05. We accept Ho and conclude that interest rate under the period of study has no significant impact on stock market returns in Nigeria.

Breusch-Godfrey LM Test for Auto- Correlation

The underlying assumption of autocorrelation is that the successive values of the random μ_I are temporally independent. The Breusch-Godfrey Series Correlation statistics is used to test for the presence of autocorrelation of order q in the models.

Table 4 Breusch-Godfrey tests

	F-Statistics	Probability
Breusch-Godfrey LM test for autocorrelation	0.118689	0.8891

From table 4 above, the probability value of B-Q statistics is greater than 0.05. Since the B-Q statistics is greater than 0.05, we therefore conclude that there exists no q order serial auto-correlation of stochastic errors terms in the model.

Test for Hetroscedasticity

The primary reason to test for hetroscedasticity after running for OLS is to detect violation of assumption OLS, which is one of the assumptions needed for the usual statistics accompanying OLS regression to be valid. The F – statistics can be used to verify this assumption, and the hypothesis is formulated as follow:

Hypothesis

H_o: (There is no hetroscedasticity, i.e. homoscedasticity)

H_1: (There is hetroscedasticity)

Decision Rule; Reject H_o if the calculated F value is greater than the tabulated F value, otherwise accept Ho. The hetroscedasticity result is presented as;

Table 5 Breusch-Pagan-Godfrey Heteroskedasticity Test

F-statistic	1.092723	Probability	0.4338
Obs*R-squared	14.10195	Probability	0.3667

Following the above result, calculated F value = 1.092723 and the F probability value = 0.4338. Therefore, since the calculated value of 1.092723 and F probability is not significant we then accept H_o of homoscedasticity and conclude that the conditional variances of the error terms are equal.

Normality Test

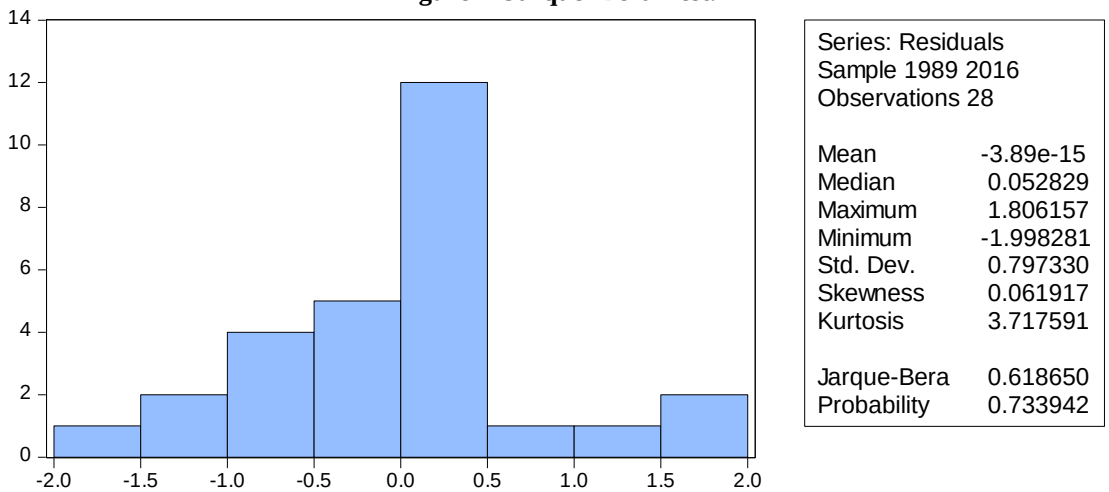
This test is to enable us determine whether the residual follow the normal distribution as postulated by classical OLS assumption. This is tested using the Jarque-Bera test. The hypothesis is formulated as follows:

Ho: $\mu = 0$ (Residual follow normal distribution)

H_1: $\mu \neq 0$ (Residual does not follow normal distribution)

The Jarque- Bera test result is presented in Table 7 below:

Figure 2 Jarque- Bera Test.



Evidently, the null hypothesis cannot be rejected since the Jarque- Bera probability is 0.73 (> 0.05). Thus we accept Ho and conclude that the residual follows normal distribution and that the assumption of normal distribution is hereby satisfied.

V. Conclusion and Policy Recommendations

In the light of the findings, foreign portfolio investment has positive and significant impact on stock market returns in Nigeria. The study recommends that government should provide enabling business environment that will encourage foreign portfolio investment which will enhance stock market development. Interest rate policy should be pursued to attract foreign portfolio investors. There is also the need to address the decay in the critical infrastructures like power, transport, water, etc as this will reduce the cost of funds, operating cost, and increase firms' profits and stabilize stock prices. This will in turn attract foreign portfolio investors and subsequent increase in stock market returns. .

References

[1]. Adebisi, A. W. & Arikpo, O. F. (2017). "Financial market performance and foreign portfolio inflow to Nigeria: Autoregressive distributive lag approach." International Journal of Research-Granthaalayah, 5 (6) 678-688

[2]. Aigheyisi, O. S. & Ovuefeyan, E.J. (2013). "Foreign financial resources inflow and stock market development: Evidence from Nigeria and Ghana." Research Journal of Finance and Accounting, 4 (9) 43-49.

[3]. Allen, F., Isaac O. & Lemma W. S (2011), "African Financial Systems: A Review," Review of Development Finance, 1:79-113.

[4]. Anyanwu, J. C. & Oaikhanan, H. E. (1995).Moden macroeconomics: theory and applications in Nigeria. Onitsha: Joanee Educational Publishers Ltd.

[5]. Anyanwu, J.C. (1993); "Monetary Economics: theory, Policy and Institutions" Hybrid Publishers Ltd", Onitsha Nig.

[6]. Baghebo, M. & Apere, T. O.(2014). Foreign portfolio investment and economic growth in Nigeria (1986-2011). International Journal of Business and Social Sciences, 5 (11); 108-115.

[7]. Baier, S., Dwyer, G. & Tamura, R. (2004). Does opening a stock exchange increase economic growth? Journal of International Money and Finance, 23, 311-331

[8]. Banerjee, A., Dolado, J. & Mestre, R. (1998). Error-correction mechanism tests for cointegration in a single equation framework, Journal of Time Series Analysis, 19: 267–283

[9]. Bartram, S.M & Dufey, G. (2001): International Portfolio Investment "Theory, Evidence and Institutional Framework. Version May 15, 2001".

[10]. Bekaert, G., Harvey, C. & Lundolad, C. (2002). Does financial liberation spur growth? Journal of Financial Economics, 77, 3-55.

[11]. Conover, C. M., Gerald R. J. & Robert R. J. (2002). "Emerging Markets: When Are They Worth It?" Financial Analysts Journal, 58(2):86-95.

[12]. Dickey D.W & Fuller, W.A (1981), Distribution of the Estimator for Autoregressive Time Series with a Unit Root, Journal of the American Statistical Association.

[13]. Engle, R. F. & Granger, C. W. J. (1987).Cointegration and error correction representation: estimation and testing, Econometrica, 55: 251–276.

[14]. ERP (2006).Economic Report of the President.Governement printing press United State of America.

[15]. Ghatak, S., & Siddiki, J. (2001).The use of ARDL approach in estimating virtual exchange rates in India. Journal of Applied Statistics, 11, 573–583.

[16]. Granger C & Newbold (1974), Spurious Regression in Econometrics, Journal of Econometrics 2.

[17]. Granger C.W.J., (1988).Causality, Cointegration and Control. Journal of Economic Dynamic and Control, 12: 551-559

[18]. Henry, P. B. (2000). "Do Stock Market Liberalizations Cause Investment Booms?" Journal of Financial Economics, 58:301-334

[19]. Jhingan M.L. (2002): Macro Economic Theory: Tenth Revised and Enlarge Edition: Vinda publication (p) LTD.

[20]. Johansen, S, & Juselius, K. (1990).Maximum likehood estimation and inference on cointegration –with application to demand for money. Oxford bulletin of economics and statistics, 52: 169 – 210.

[21]. Koskei, L. (2017). "The effect of foreign portfolio equity sales on stock returns in Kenya: Evidence from NSE listed financial institutions." International Journal of Economics and Finance, 9 (4), 185-190

[22]. Koskei, L., Kibet, L. & Nyang'au, A. (2016). "The effect of foreign portfolio equity and exchange rate risk on stock returns of commercial banks in Kenya." African Journal of Business Management, 10 (22); 563-568.

[23]. Kwaitowski, D., Phillips, P.C.B, Schmidt, P., & Y. Shin (1992), Testing the null hypothesis of stationarity against the alternative of a unit root: How sure are we that economic time series have a unit root? Journal of Econometrics 44, 159-78

[24]. Loncan. T. R. & Caldeira, J. F. (2015). Foreign portfolio capital flows and stock returns: A study of Brazilian listed firms. Estud. Econ, Sao Paulo, 45 (4), 859-895.

[25]. Miguel, A. F. & Paul, A. L. (2009). Portfolio flows, volatility and growth. Journal of International Money and Finance, 28 (2009), 271-292.

[26]. Montiel, P. & Reinhart, C. (1999). Do capital controls and macroeconomic policies influence the volume and composition of capital flow? Evidence from the 1990s.Journal of International Money and Finance, 18, 619-635.

[27]. Obadan M.I. (2004): Foreign Capital flow and External Debt perspectives on Nigeria and the LDCS Groups, Ibadan University Printer, Nigeria.

[28]. Ohiaeri, N. V. (2017). Foreign portfolio investment, capital flight and capital performance in Nigeria.International Journal of Economics, Commerce and Management, 5 (9) 352-369.

[29]. Onoh, J.K. (2002) "Dynamics of money, Banking and finance in Nigeria An Emerging market. Astra meridian Publishers, Aba, Nigeria

[30]. Onyeisi, O. S., Odo, I. S. & Anoke, C. I. (2016). "Foreign portfolio investment and stock market growth in Nigeria." Developing Country Studies, 6 (11), 64-76

[31]. Ozurumba, B. A. (2012). The impact of stock market returns on foreign portfolio investment in Nigeria. LOSR Journal of Economics and Management (LOSRJEM), 2 (4); 10-19.

[32]. Pesaran, B. & Pesaran, M.H. (2009).Time Series Econometrics, Using Microfit 5.0. Oxford: Oxford University Press.

[33]. Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bound testing approaches to the analysis of level relationships. Journal of Applied Econometrics, 16, 289–326.

[34]. Phillips, P.C.B., & Perron, P. (1988).Testing for a unit root in time series regression.Biometrika, 75: 335–46.
[35]. Sachs, Jeffrey D. & Andrew Warner.(1995). "Economic Reform and the Process of Global Integration." Brookings Papers on Economic Activity 1995:1.
[36]. Taylor, A. M, (1996). International capital mobility in history: the saving-investment relationship. Working paper NBER
[37]. Tumola, M. A., Ajibola, O. I., Omotosho, B. S. & Baruwa, O. A. (2011)."Survey of Foreign Assets and Liabilities in Nigeria 2011 Report."CBN Journal of Applied Statistics, 3(2); 143-165.
[38]. Wallener D. (2009): Modern portfolio Theory.

Agu, Anthony Ogbonna. "Foreign Portfolio Investment and Stock Market Returns in Nigeria". IOSR Journal of Economics and Finance (IOSR-JEF) , vol. 10, no. 6, 2019, pp. 01-09.