

Foreign Portfolio Investments and Economic Performance of Nigeria

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Abstract

The study verifies the theoretical literature of Osaze (2011) that opined that foreign portfolio investments (FPI) destabilize Nigeria economy. It specifically employed time series data for the period 1986-2015 sourced from Central Bank of Nigeria (C.B.N) bulletin and World Bank analyzed with Error Correction Model (ECM), Ordinary least square and correlation techniques to determine whether FPI stimulate or destabilize economic performance of Nigeria. Based on the results generated by the analyses, at short run, FPI with t-statistics of -4.225760 significantly and negatively impact the economic performance of Nigeria unlike stock Market Development with t- statistics of 3.947143 and Capital formation 10.97692 with t- statistics of 2.389578 that significantly and positively impact economic performance of Nigeria at the short run. The results of long run Ordinary Least squares (OLS) also confirm that, FPI with t-statistics -0.726212 negatively impact economic performance of Nigeria though not significant unlike the stock market development with t- statistics of 3.815102 and capital formation with t- statistics of 3.823441 that significantly and positively impact on economic performance of Nigeria at the long run. On this basis of these findings, the study concluded that FPI poses threat to Nigeria economy, partly because it more amenable to sudden withdrawing. Against this high negative volatility associated with it, policy makers must devise strategies to reap the benefits of financial integration while managing the capital risks posed by FPI on the domestic economy. This can be done by develop strong institutions to attract other components of foreign resources increase the dwelling foreign services and augments capital formations imperative to resuscitate the declining performance of the economics.

Keywords: Portfolio Investment, Economic performance, Gross Domestic Product, Capital formation, Error Correction Model

1. Introduction

Foreign participation and the value of foreign portfolio investments (FPI) in the Nigerian capital markets have been on increase in spite of the fact that FPI is recent phenomenon in Nigeria compared to foreign direct investment, international loans, official development assistance (ODA) (Baghebo & Apere, 2014). It is on the record that foreign portfolio investment to total transactions on the Nigerian capital market has witness a sporadic growth since the mid-80s (CBN, 2015). The increase in FPI has been attributed to the development of Nigerian capital market, partial deregulation of the capital market in 1993, the full financial liberalization policy that abrogate the laws that constrained foreign participation in the Nigeria capital market and internationalize of the market in 1995 (Meristem, 2015).

Judging from Owo (2013) thought, FPI increases capital formation and stock market performance crucial for investment in the recipient country. It increases capital market liquidity with resultant effect on a better access to financing at lower cost (Olotu & Jegbefume, 2011). Increase in FPI also plays important role in economic growth as they supplement foreign currency availability in the recipient country, resuscitate dwelling foreign reserve, reduce scarcity of foreign currency and bring down the cost of accessing dollars. It minimizes the adverse effect of deteriorating foreign earnings on the Nigeria economy which has increased the burden most SMEs in manufacturing sectors which heavily relied on foreign technologies and equipment faced in accessing dollars to buy high tech equipments to sustain and increase their production capacity, diversify their investments and promote competitions (Michael, 2015).

Despite the potential benefits of FPI, studies have opined that FPI is highly volatile as it is more amenable to sudden withdrawal than other components of foreign capital flows like FDI (Osaze, 2011). Osaze (2011) opined that while countries, in particular emerging economies, have benefited from foreign portfolio investment, they have also severely affected by the episodes of disruption in cross-border capital flows especially during 2007-2008 which distort market efficient of the receiving countries. Strong FPI outflows during economic crisis of 2007-2008 lead to exchange rate misalignments, foster credit booms and currency mismatches in developing countries (Obiechina, 2010). It triggers strong exchange rate depreciations and banking crises (Michael, 2015). The increase in FPI outflows, accompanied by a series of economic crisis in the past three decades may have given rise to concerns about the impact of the flows on stock market and domestic economies (Osaze, 2011).

Empirical studies have been conducted FPI inflows and economic performance of Nigeria (Baghebo & Apere, 2014; Olotu & Jegbefume, 2011; Oni, Imolehin, Adelowo & Adejumo, 2014). Most of these studies employed data on aggregated FPI inflows into the country thereby neglecting the net flows of FPI, hence it volatility. In this regards, it was not surprise that all these empirical studies found consistent positive

relationship between FPI and economic performance in Nigeria. With the knowledge gathered from the theoretical literature of Osaze (2011) that strong FPI outflow especially during economic crisis have given rise to concerns about the impact FPI on domestic economies, there is a need to verify these assertions using data on net inflows of FPI. In addition to this, the study use of current data to verifies the findings of previous studies on FPI and economic performance in Nigeria.

2. Literature Review

Economic performance has been conceptualized in different ways by different authorities in the field. Many economists saw it as increase in the economy’s real income including gross domestic product over a long period of time (Meier, 2000), increase in aggregate output over time (Lewis, 1954) quantitative increase in capital stock, natural resources, resource allocation and production capabilities of a country regardless of its population size (Solow, 1956), and increase in total employment, total outputs, personal income/earnings/prosperity/wealth of a nations (Kuznets, 1971). In this regard, it can be measured with, gross domestic products, per capita income which is usually calculated by GDP/population, employment, which in some cases complement income change, which has implication for economic welfare.

Foreign portfolio investment has been defined as import of funds from one country to another for the purposes of purchasing securities in the recipient country’s bond and stock market(s) with the intention of getting high rates of return on investment rather than gaining management control of company in the host country (IMF, 2014). It is a cross-border investment in equity securities, debt securities in the form of bonds, notes and money market instruments and financial derivatives such as options in order to make profits (World Bank, 2015). Debt security is instruments issued with a fixed rate of interest for a period of more than one year. Inflow of FPI into the stock market helps to alleviate financial constraints of firms and boast investment effect (Baghebo & Apere, 2014). Similarly, competition and performance of stock market increase with consistent increase in FPI inflows (Duasa, & Kassim, 2009). On this basis, Owo (2013) concluded that FPI leads to better efficiency and growth of the financial markets. It engenders higher level of liquidity in stock markets, increase price earnings ratios and subsequently decrease cost of capital for investments. With increased FPI, capital formation and investment triggers. These have effect on industrializations and economy growth trajectory (Oni, Imolehin, Adelowo & Adejumo, 2014).

Empirically, Olotu and Jegbefume (2011) have showed positive relationship between FPI inflows and economic growth of Nigeria using parsimonious error correction mechanism having subjected the data obtained from 1980-2009 on unit root test. Baghebo and Apere (2014) found significant impact of FPI inflows on economic growth performance using parsimonious error correction mechanism and data spanned from 1986-2011. Similarly, Olotu and Jegbefume (2011) used Error Correction Model (ECM) and showed significant relationship between foreign capital flows with emphasis on foreign portfolio investment and the Nigeria’s economic growth using time series data spanned from 1980-2009. Oni, Imolehin, Adelowo and Adejumo (2014) used multiple regression technique on a data spanned of 1980 and 2010 and showed foreign private investment; gross fixed capital formation and net export are positively related with economic growth while inflation rate has a negative relationship with economic growth. Duasa and Kassim (2009) however also explored and found that economic growth causes changes in the FPI and its volatility and not vice versa, thus indicating that economic performance is the major pull factor in attracting FPI into the country.

3. Methodology

This paper adopted ex-post facto research design. The population of study is Nigeria. The study relied on secondary data obtained from World Bank Data on net FPI flows, stock market and GDP within a span period of 1985 – 2015 which sum up to 29 observations which long enough to cater for the loss of degree of freedom.

3.1 Model Specification

The paper employed the following model to address the objective of the study

$$ECOPER = f (FPI, STCMKTD, LERATE, CAPFORM U) \dots \dots \dots (1)$$

In this study, the long-run equation is specified as follow:

$$ECOPER_t = \beta_0 + \beta_1 FPI_t + \beta_2 STCMKTD_t + \beta_3 LERATE + \beta_4 CAPFORM + U_t \dots \dots \dots (2)$$

Hence the error correction model used in this study as short run equation is specified as:

$$\Delta ECOPER_t = \alpha_0 + \beta_1 \sum_{t=1}^n \Delta ECOPER_{t-1} + \beta_2 \sum_{t=1}^n \Delta FPI_{t-1} + \beta_3 \sum_{t=1}^n \Delta STCMKTD_{t-1} + \beta_4 \sum_{t=1}^n \Delta LERATE_{t-1} + \beta_5 \sum_{t=1}^n \Delta CAPFORM_{t-1} + \rho_1 Ecm(-1) + \epsilon_t \quad (3)$$

Where

ECOPER	=	Economic Performance proxy by GDP
FPI	=	Foreign Portfolio Investment
STCMKTD	=	Stock Market Development
LERATE	=	Commercial bank Lending Rate
CAPFORM	=	Capital formation

α_0	=	Constant (Intercept)
ϵ_t	=	Error term
$Ecm(-1)$	=	Error correction term
t	=	respective variables at time t

The coefficients $\beta_0, \beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ are the parameters of the model, and they describe the directions and strengths of the relationship between dependent variable and explanatory variables while the t represents stochastic error term or random residual term which captures other factors that may cause variations in the dependent variable but not included in the model. The apriori expectations for our variables are that all the FPI to be positive in relation to economic performance.

3.2 Method of Data Analysis

Error Correction Model (ECM) and Ordinary Least Square (OLS) were adopted in this paper to explore the relationships between the variables. ECM has over the years been theoretically-driven approach useful for estimating both short-term and long-term effects of one time series on another. The ECM relates to the fact that last-periods deviation from a long-run equilibrium, the error, influences its short-run dynamics. It directly estimates the speed at which a dependent variable returns to equilibrium after a change in other variables. Beside this the fact that ECM frameworks would enable us to combines both the short-run and long-run properties of the variables under consideration, the study also adopted OLS to verify the results of long run relationship derived from ECM and data sourced on variables were subjected to unit root test based on the assumptions of the classical regression model require both the stationarity of variables and that errors have a zero mean and finite variance (Engle & Granger, 1987). The unit root test will be evaluated using the Augmented Dickey-Fuller (ADF) to check for stationary of the time series variable. In the event that the data set is stationary and integrated of the same order, Engle and Granger (1987) two stage co-integration techniques will be employed to check if there exist a relationship (long-run) between the dependent variable and all the independent variables. This is to ensure that the variables converge in the long run, as variable that do not converge may be detrimental to policy making. Also Breusch-Godfrey serial correlation tests were carried out to verify the authentic of our findings. All the analyses were conducted with econometric software (E-view 8.0).

4. Presentation and Discussion of Results

In this section, the paper covers report of preliminary data analyses, model estimation, post estimation analyses and discussion of findings.

4.1 Preliminary Data Analyses

The preliminary analyses such as unit root test and co-integration tests conducted to ensure that the variables under consideration are properly screened are presented below.

Stationarity Results

Table 1 Unit root test result

Augmented Dicky-Fuller Test				
Variable	Adf Stat	5% ADF Critical Values	Order	Remark
ECOPER	2.379543	-2.991878	1(0)	Non-Stationary
	0.253103		1(1)	Non-Stationary
	-4.057905		1(2)	Stationary
FPI	-5.099531	-2.976263	1(0)	Stationary
	-5.849281		1(1)	Stationary
	-5.784433		1(2)	Stationary
STCMKTD	-1.484441	-2.963972	1(0)	Non-Stationary
	-3.984377		1(1)	Stationary
	-4.693034		1(2)	Stationary
LERATE	-2.957368	-2.963972	1(0)	Non-Stationary
	-3.252318		1(1)	Stationary
	-9.610776		1(2)	Stationary
CAPFORM	-9.948753	-2.981038	1(0)	Stationary
	0.259162		1(1)	Non-Stationary
	-4.793765		1(2)	Stationary

Extracted from E-view 8.0 Output (Author's Computation, 2016)

When compared the results of the ADF tests against 5% significance levels of the critical values we observed that ECOPER was not stationary at a level and first order differences. But it was stationary at second order differences. FPI was found stationary at a level, first and second order differences. STCMKTD and

LERATE were stationary in first and second order except at a level. CAPFORM was found non-stationary at first order difference except at a level and second order difference.

Co-Integration Results

Table 2: Engle and Granger Co-integration test

Variable	Level	5% ADF critical Values	Integration	Remark
RESID (ECM)	-7.916352	-2.981038	1(0)	Co-integrated

*stationary at 1% level of significance

Extracted from E-view 8.0 Output (Author's Computation, 2016)

The Engle and Granger (1987) two stage co-integration techniques result depicts that the residuals (ECM) from the regression result are stationary at 5% level of significance. This means that all the explanatory variables are co-integrated with economic performance in Nigeria over periods under consideration (1985 – 2015). In order words there exists a long run stable relationship between the dependent and independent variables. This finding also reveals that any short run deviation in their relationships would return to equilibrium in the long run. As a result, the error correction model is estimated.

4.2 Model Estimation and Interpretation

This section shows the presentations and interpretation of the results of the model specified.

Table 3: ECM Short run and Long run regression results

Short run dependent variable: Δ ECOPER									
Variable	Coefficient	Std. Error	t-Statistic	Prob.	R-squared	Adjusted R-squared	F-statistic	Prob(F-statistic)	Durbin-Watson
C	-1.01E+09	7.68E+09	0.131278	0.8968	0.89920	0.87520	37.4685	0.0000	2.2365
D(FPI, 3)	-4.981908	1.178938	-4.225760	0.0004					
D(STCMKTD),3)	1.748497	0.442978	3.947143	0.0007					
D(LERATE.,3)	-1.16E+09	8.42E+08	-1.376099	0.1833					
D(CAPFORM), 3)	2.197167	0.200162	10.97692	0.0000					
ECM(-1)	-0.713302	0.130523	-5.464962	0.0000					
LONG RUN DEPENDENT VARIABLE: Δ ECOPER									
C	3.78E+10	6.57E+10	0.575279	0.5700	0.85335	0.83079	37.8234	2.3490	2.3490
FPI	-4.090633	5.632839	-0.726212	0.4742					
STCMKTD	2.888832	0.757209	3.815102	0.0008					
LERATE	-7.97E+08	3.18E+09	-0.250894	0.8039					
CAPFORM	3.261839	0.853116	3.823441	0.0007					

N.B: The test is significant when t-statistic values are greater than or equal to 2.

Extracted from E-view 8.0 Output (Author's Computation, 2016)

Table 3 above showed results of short run of the Error Correction Model (ECM) and long run Ordinary Least squares (OLS). The results of the short run ECM test, clearly shows a well defined error correction term (Ecm(-1)) with an expected negative coefficient and it is significant when compared to its corresponding t-value -5.464962 and coefficient of -0.713302. The coefficient measures the speed at which economic performance disequilibrium adjusts to long run equilibrium after short run shock. The ECM coefficient of -0.713302 approximately indicates that about 74% of the previous year's disequilibrium in economic performance of Nigeria is corrected in the long run. The statistical significance of the error correction coefficient at 1% level supports our earlier assertion that Nigerian economic performance is indeed co-integrated with the explanatory variables. The coefficient of determination R-squared value of 0.89920 in the ECM revealed that about 90% approximately of total systematic variation in the economic performance in Nigeria is jointly explained by all the explanatory variables taking together using the ECM model. The coefficient of determination when adjusted for the degree of freedom yielded approximately 88% as indicated by the adjusted R² value of 0.87520, implying that the model has a goodness of fit that is above average since about 12% of what happens to the economic performance in Nigeria at the short run is not captured in this model but captured by the stochastic error term. The F-statistic test of 37.4685 and p-value of 0.00000 which is used to determine the overall significance of regression model reveals that there exist statistically significant linear relationships between the dependent and all explanatory variables at 1% levels in the error correction model. This therefore means that all the explanatory variables (Foreign Portfolio Investment, Stock Market Development, Commercial bank Lending Rate and Capital formation) in group have significant relationship with the dependent variable.

The ECM model revealed that at the short run, Foreign Portfolio Investment (FPI) with t-statistics of -4.225760 significantly and negatively impact the economic performance of Nigeria at the short run. Stock Market Development with t- statistics of 3.947143 and Capital formation 10.97692 with t- statistics of 2.389578

significantly and positively impact economic performance of Nigeria at the short run. However, Commercial bank Lending Rate failed to pass the significant test at 1% level of significance since their t-statistics fell below the critical values of two with negative signs indicating that it has insignificantly and negative influence on economic performance in Nigeria at the short run. The Durbin-Watson statistics of 2.270037 showed absence auto correlation.

The results of long run Ordinary Least squares (OLS) which showed F-statistic test of 37.8234 and p-value of 0.00000 also confirm the long run result of the ECM model that there exist statistically significant linear relationships between the dependent and all explanatory variables at 1% levels of significant. They indicate that all the explanatory variables (Foreign Portfolio Investment, Stock Market Development, Commercial bank Lending Rate and Capital formation) in group have significant relationship with the dependent variable. However, at the long run, Foreign Portfolio Investment (FPI) with t-statistics -0.726212 is not significantly though negatively impact performance of economic performance of Nigeria. Stock Market Development with t-statistics of 3.815102 and Capital formation with t-statistics of 3.823441 significantly and positively impact on economic performance of Nigeria at the long run. It was also revealed in the OLS model that Commercial bank Lending Rate with t-statistics of -0.250894 is negative and insignificantly impact economic performance in Nigeria at the long run. The coefficient of determination R-squared value of 0.85335 indicated at the OLS model means that about 85% approximately of total systematic variation in the economic performance of Nigeria is jointly explained by all the explanatory variables taking together at the long run. The coefficient of determination when adjusted for the degree of freedom yielded approximately 83% as indicated by the adjusted R² value of 0.83079, implying that the model has a goodness of fit that is above average since about 17% of what happens to the economic performance in Nigeria at the short run is not captured in this model but captured by the stochastic error term. Durbin-Watson statistics of 2.270037 revealed in the OLS model showed absence auto correlation.

Correlation Results

Table 4: Pearson Correlations Coefficient Matrix

		Correlations				
		ECOPER	FPI	STCMKTD	LERATE	CAPFORM
ECOPER	Pearson Correlation	1	-.683**	.846**	-.290	.869**
	Sig. (2-tailed)		.000	.000	.114	.000
	N	31	31	31	31	31
FPI	Pearson Correlation	-.683**	1	-.584**	.139	-.710**
	Sig. (2-tailed)	.000		.001	.455	.000
	N	31	31	31	31	31
STCMKTD	Pearson Correlation	.846**	-.584**	1	-.318	.731**
	Sig. (2-tailed)	.000	.001		.082	.000
	N	31	31	31	31	31
LERATE	Pearson Correlation	-.290	.139	-.318	1	-.246
	Sig. (2-tailed)	.114	.455	.082		.182
	N	31	31	31	31	31
CAPFORM	Pearson Correlation	.869**	-.710**	.731**	-.246	1
	Sig. (2-tailed)	.000	.000	.000	.182	
	N	31	31	31	31	31

** . Correlation is significant at the 0.01 level (2-tailed).

Extracted from SPSS Output (Author's Computation, 2016)

Table 2 reveals the correlation matrix of the conceptual variables. As shown in the result above, economic performance is negatively and significantly related to foreign portfolio investment. It negatively related to lending rate though not significant but positively and significantly related to stock market development and capital formation. The correlation matrix also showed FPI negative and significantly related to stock market development and capital formation but positively and insignificantly related to lending rate. Moreover, stock market development has positive and significantly relationship with capital formation but was found to be insignificant and negatively correlated with lending rate. Finally, lending rate has negative relationship with capital formations though not significant.

Serial Correlation Test

Table: 5 Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.04084	Prob. F	0.923
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Source: Extracted from E-view 8.0 Output (Author's Computation, 2016)

The test rejects the serial correlation since the probability value 0.923 > 0.05. This indicates the absence of serial correlation in the model

4.3 Discussion of Findings

Drawing from the above analyses, foreign portfolio investments has over the years significantly destabilized the Nigeria economy as the findings of this study showed negative impact of FPI on economic performance of Nigeria both at the short and run long. Though these findings deviate from previous empirical studies of Olotu and Jegbefume (2011) and Olotu and Jegbefume (2011) that employed parsimonious error correction mechanism to showed positive and significant relationship between FPI inflows and economic growth of Nigeria. The paper further revealed that FPI negative and significantly impact on stock market development and capital formation which were showed by these studies to be critical factors have impacting stimulating economic performance of Nigeria both at the short and long runs. This suggests FPI has over the years made Nigeria capital market to be inefficient bridging the shortage of domestic savings and investments gaps, hence capital formations. FPI has not helped Nigeria developed it stock market rather it has worsen it with profound negative impact on capital formation. On this basis we concluded that FPI has undermined the capacity of domestic's stock market to create more wealth, liquidity and efficient allocation of capital for increased production processes and industrial development. Osaze (2011) support these findings when he theoretically noted that high violability of FPI over the years made Nigeria economy vulnerable. Osaze (2011) remind us FPI inflow to Nigeria is like a one-night stand with no long-term commitments in the country and the moment the investment environment turns sour as currently experienced in Nigeria, the money (FPI) flees electronically with underlying consequences on the performance of stock's and economy as whole. Besides this, Obiechina (2010) indicated that Nigeria has over the years witnessed strong FPI outflows. This has lead to exchange rate misalignments, foster credit booms and currency mismatches, thus given rise to concerns about the impact of the flows on domestic economies (Obiechina, 2010).

5. Conclusions and Recommendations

The study concluded that FPI poises threat to Nigeria economy, partly because of the high negative volatility associated with it. Against this negative effect of FPI, policy makers must devise strategies to reap the benefits of financial integration while managing the capital risks posed by FPI on the domestic economy. Baghebo and Apere (2014) noted that macro-prudential policies and capital controls can be use to manage negative fluctuation of FPI. In addition, foreign reserves can be use to prevent credit booms and financial instability usually caused by FPI in developing countries. Fayyaz, Muhammad and Su-chang, (2014) also suggested that foreign reserve accumulation by Central Banks can be used to prevent excessive exchange rate misalignments and build up buffers against eventual sudden stopped of foreign portfolio investment. However, severe dropped in Nigeria foreign earnings due to oil clash at international market which has significantly dwelling foreign reserves may deter the CBN to use it to defend the naira. In line of this, the paper recommends that government should develop strong institutions to attract other components of foreign resources like FDI and foreign loans since FPI is more amenable to sudden withdrawing. This may help to increase the dwelling foreign services and augments capital formations imperative to resuscitate the declining performance of the economics.

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