



FOREIGN DIRECT INVESTMENT, FOREIGN PORTFOLIO INVESTMENT AND CAPITAL MARKET GROWTH: THE NIGERIAN EXPERIENCE

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Abstract

This study focused on the effect of foreign direct investment and foreign portfolio investment on the growth of capital market in Nigeria from 1990 through 2017. Data were collected from the secondary sources; specifically, data were collected from the Central Bank of Nigeria's statistical bulletin for the period under study. Analysis of the collected data was carried out using Autoregressive Distributed Lags Model (ARDL) which can conveniently estimate both short-run and long-run dynamic relationships. The findings of this study revealed that the coefficients of foreign direct investment (FDI), foreign portfolio investment (FPI) and exchange rate were positive but weak in predicting capital market while interest rate (INTR) maintained negative relationship with capital market. The residual diagnostic test carried out revealed that the residuals are serially uncorrelated and homoskedastic. Based on these findings this study concluded that foreign direct investment and foreign portfolio investment have insignificant positive effect on the capital market growth in Nigeria. Subsequent to this conclusion, it was recommended that government should continue to formulate economic policy that would attract foreign investors into the country, introduce investment incentives and stimulus as well as put in place sound rules that guarantee efficient performance of the Nigerian capital market so as to woo more investors into the market.

Keywords: Capital market, Foreign direct investment, Foreign portfolio investment, Nigeria

INTRODUCTION

Foreign Direct Investment (FDI) is an investment flow in the form of equity from one economy to another economy with sole aim of gaining ownership and control by at least 10%. One of the economic realities is that no country in the world can or believe can exist in isolation without economic interrelationship with other countries, especially in the areas of her inadequacies, as no country is self-sufficient. Thus, FDI is one major way by which countries in the world strive to coexist and make up for any inadequacies in their economies. One of the features of Nigerian economy in the globalized world has been the continued dependence on increased inflow of foreign capital, for example foreign direct investment from the developed economies to solve the problem of insufficiency of capital from the developing economies. On the other hand, increased inflow of FDI has not been accompanied by significant improvement in macroeconomic performance. Notwithstanding this impressive trend of FDI inflows the Nigeria economy still faces severe challenges, such as aggravated poverty, low capacity utilization, declining output, burgeoning unemployment rates, epileptic power supply as well as infrastructural decay.

Another way by which a country reacts economically with others is through Foreign Portfolio Investment (FPI). Foreign portfolio investment consists of securities and other fiscal resources inactively held by alien investors. Foreign portfolio investment, unlike FDI, 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. The level of sophistication of the financial system is an important determinant both of the ability of the country to attract international capital and the ability of the country's financial system to withstand shocks to global capital flows (Ndikumana & Boyce, 2002). Capital market is an important component of any country's financial system and its growth often depends on the deepness in the liquidity of the market and investors' confidence in the market. Without a virile and efficient capital market in place, it becomes practically difficult to attract even the indigenous investors to the market not to talk of foreign investors. This is because investors are always looking for a reasonably safe investment by taking calculated risk while making investment decisions. Thus, all the necessary components of a country's financial systems must be in place and functioning at optimum before such country can be seen as a safe haven for foreign investment. A country that is able to attract as much as foreign investments into herself is most likely to witness growth in the economy as this is expected to positively enhance the performance of the capital market.

Many scholars have actually carried out studies on foreign direct investment and foreign portfolio investment, especially in terms of their relationship with capital market, for instance Odo, Anoke, Nwachukwu and Promise (2016), Akinlo (2004), Eniekezimene (2013), Adaramola and Obisesan (2015), Ohiaeri (2017), etc. have all carried out studies on similar areas with this study. However, none of these and other existing studies have combined both foreign direct investment and foreign portfolio investment in the same econometric model in relation to capital market. Thus, this study intends to fill the foregoing gap by answering this question: what is the effect of foreign direct investment and foreign portfolio investment on capital market in Nigeria? Therefore, this study examines the effect of both foreign direct investment and foreign portfolio investment on the growth capital market in Nigeria.

Research Hypotheses

This study conjectured and tested the following null hypotheses:

H0₁: Foreign Direct Investment has no significant effect on capital market growth in Nigeria;

H0₂: Foreign Portfolio Investment has no significant effect on capital market growth in Nigeria;

H0₃: There is no significant relationship between exchange rate and capital market growth in Nigeria;

H0₄: There is no significant relationship between interest rate and capital market in Nigeria growth.

LITERATURE REVIEW

Conceptual Review

Concept of Foreign Direct Investment

Thirlwall and Bergevin (1985) posits that FDI refers to investment by multinational companies with headquarters in developed countries. This investment involves not only a transfer of funds (including the reinvestment of profits) but also a whole package of physical capital, techniques of production, managerial and marketing expertise, products advertising and business practices for the maximization of global profits. The United Nations defined foreign direct investment (FDI) as investment in enterprise located in one country but “effectively controlled” by residents of another country (UNCTAD, 1999). Foreign direct investment is the unique feature of multinational enterprise hence; a theory of foreign direct investment is also a theory of the multinational enterprise as an actor in the world economy (Ekpo, 1997). Based on this theory, foreign direct investment is not simply (or even primarily) an international transfer of capital but rather, the extension of an enterprise from its home country into foreign host country. According to International Monetary Fund (2016), foreign direct investment simply means the

direct investment equity flows in an economy which encompasses equity capital, reinvestment of earnings, and other capital. Direct investment is a category of cross-border investment associated with a resident in one economy having or gaining control or a significant amount of influence on the management of an enterprise that is resident in another economy. Thus, the acquisition of ownership of 10 percent or more of the ordinary shares of voting stock is the criterion for determining the existence of a direct investment relationship. FDI therefore, should be seen as the sum of the following components: New equity from the foreign company in the home country to the company in the host country, Reinvested profits earned from the company and Long-and short –term net loan from the foreign to the host company. Countries all over the world benefits from foreign direct investment in the following ways:

- **Economic development Stimulation:** Foreign direct investment can stimulate the target country's economic development, creating a more conducive environment for as investor and benefit for local industry.
- **Employment and Economic Boost:** foreign direct investment creates new jobs, as investors build new companies in the target country, create new opportunities. This leads to an increase in income and more buying power to the people, which in turn leads to an economic boost.
- **Tax incentives:** Parent enterprises would also provide foreign direct investment to get additional expertise, technology and products.
- **Reduced Disparity between Revenues and Costs:** Foreign direct investment can reduce the disparity between revenues and costs.
- **Increase Productivity:** The facilities and equipment provided by foreign investors can increase a workforce's productivity in the target country.

Concept of Foreign Portfolio Investment

A portfolio investment is a grouping of assets such as stocks, bonds, and cash equivalents. Portfolio investments are held directly by an investor or managed by financial professionals. In economics, foreign portfolio investment is the entry of funds into a country where foreigners deposit money in a country's bank or make purchases in the country's stock and bond markets, sometimes for speculation (Montiel & Reinhart 1999). Foreign portfolio investment can be define as a way in which investors diversify their portfolio with an international advantage (Appleyard & Alfred 2013).

Portfolio Equity

This refers to a situation where the owner holds less than 10% of a company's shares are classified as portfolio investment. These transactions are also referred to as "portfolio flows" and are recorded in the financial account of a country's balance of payments

Debt Security

This refers to a debt instrument, such as a government bond, corporate bond, certificate of deposit (CD), municipal bond or preferred stock, that can be bought or sold between two parties and has basic terms defined, such as notional amount (amount borrowed), interest rate, and maturity and renewal date.(Investopedia.com)

Concept of Risk and Return in Investment

Return on investment is the profit expressed as a percentage of the initial investment. Profit includes income and capital gains. Risk is the possibility that your investment will lose money. With the exception of U.S. Treasury bonds, which are considered risk-free assets, all investments carry some degree of risk. Successful investing is about finding the right balance between risk and return; (Anyanwu & Oaikhenan 1995).

Return on Investment

Historical return on investment is the annual return of an asset over several years. Research analysts and professional investors use historical returns, along with industry and economic data, to estimate future rates of return. You can use actual results and estimated returns to evaluate various assets, such as stocks and bonds, as well as different securities within each asset category. This evaluation process helps you pick the right mix of securities to maximize returns during your investment time horizon. (Chirantan,1995).

Investment Risk

Risk is the likelihood that actual returns will be less than historical and expected returns. Risk factors include market volatility, inflation and deteriorating business fundamentals. Financial market downturns affect asset prices, even if the fundamentals remain sound. Inflation leads to a loss of buying power for your investments and higher expenses and lower profits for companies. Business fundamentals could suffer from increased competitive pressures, higher interest expenses, quality problems and management inability to execute on strategic and operational plans. Weak fundamentals could lead to declining profits, losses and eventually a default on debt obligations. (Eregha, 2010).

Exchange rate

According to Ekeocha (2008), an exchange is the price of a nation's currency in terms of another currency. Thus, an exchange rate has two components, the domestic currency and a foreign currency, and can be quoted either directly or indirectly. In a direct quotation, the price of a unit of foreign currency is expressed in terms of the domestic currency. In an indirect quotation the price of a unit of domestic currency is expressed in terms of the foreign currency.

Theoretical Review

Theoretically, this study is anchored on the 'The Push and Pull factors theory' which as proposed by Lee (1966) synthesizes conditions that affect capital flow among nations into two 'worlds' of the poor and the rich nations. The theory is used to explain why foreign portfolio investors migrate one investment environment to another in search of favourable investment climate that would meet their investment objectives. Furthermore the capital flow oriented theory as postulated and validated by Fisher (1980) also provides relevant base for this work as it captures exchange rate depreciation as pull and push factor that determines international competitiveness, balance of trade, real output of countries, which in turn affects the current and future expected cash flows of the firms and their stock prices as incremental savings flow from capital rich country (capital exporter) to replace other foreign sources of capital in capital deficient nations (capital importer). The liquidity preference theory as postulated by Keynes (1936) and popularized by Tobin (1967) is also applied here to draw attention to interest rate movement as a push or pull factor that drive geographical portfolio diversification. Accordingly, the theory aligns with Keynesian Transmission mechanism which is used to explain different motives for which individuals would opt to hold or invest cash locally or at international levels respectively.

Institutional FDI Fitness Theory

This theory was developed by Wilhems and Witter (1998). According to them, the term FDI fitness focuses on a country's ability to attract, absorb and retain FDI. It is this country ability to adapt, or to fit to the internal and external expectations of its investors, which gives countries the upper-hand in harnessing FDI inflows. The theory itself attempts to explain the uneven distribution of FDI flows between countries. Wilhem's institutional FDI fitness theory rests on four fundamental pillars – Government, market, educational and socio-cultural fitness. At the base of the pyramid are socio-cultural factors which according to Wilhelms and Witter (1998), are the oldest and most complex of all institutions. Above that is education, which the authors affirm to being necessary in ensuring an attractive environment for

FDI as educated human capital enhances R&D creativity and information processing ability. The actual level of education does not seem to matter much for FDI as the requirements are dependent on the various skills needs of projects to be undertaken. However what is certain is that basic education may impact on the productivity and efficiency of FDI operations, making formative education such as the ability to speak, hear, understand, interpret and implement instructions key for attracting FDI.

Portfolio Investment Theory

Markowitz (1959) 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.

Empirical Review

Baghebo and Apere (2014) investigated the impact of foreign portfolio investment (FPI) on economic growth as well as the long run determinants of FPI in Nigeria, such that appropriate policies will be pursued to attract same in the long run. FPI has grown recently in proportion relative to other types of capital inflows to Nigeria before the wake of global financial crisis. A three stage methodological process was adopted; one was to check the stationary status of the variables using Augmented Dickey Fuller Unit Root test, which confirmed that the variables had unit root problems, the second was to check for the possibility of a long run relationship using Johansen co-integration test; the third was the parsimonious error correction result. The variables considered are foreign portfolio investment, inflation rate, market capitalization, trade openness. It discovers that foreign portfolio investment; market capitalization and trade openness has a positive long-run relationship with real gross domestic product in Nigeria. It recommended that authorities should look for ways of strengthening the workings of the capital market against fraudulence to ensure the free flow of foreign capital into the economy as this would boost domestic investment.

Eniekezimene (2013) studied 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. 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, his 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 finally 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.

Adaramola and Obisesan (2015) investigated the impact of foreign direct investment on Nigerian capital market development given the role of the later in stimulating the development of the nation's economy. The study employed ADF unit root test and Johansen co-integration test to analyze the secondary data obtained from Central Bank of Nigeria statistical bulletin from 1970-2010. The absence of co-integration between foreign direct investment and market capitalization informed the resort to OLS regression result which shows that foreign direct investment impact positively and significantly on market capitalization. The study recommended that efforts should be made by government and monetary authority to encourage foreign direct investment into Nigeria.

Ohiaeri (2017) investigated the nature and direction of causality existing among foreign portfolio investments, capital flight and capital market performance in Nigeria using ex-post-facto and descriptive research designs. Data generated were analyzed using Vector Error Correction models and co-integration test subject to the outcome of the preliminary tests for conformity with econometric assumptions. Study findings disclosed a unidirectional causality between capital market performance in one hand and also between foreign portfolio investment and capital flight on the other hand at 5% and 10% levels of significance respectively. The study concluded that there was significant symbiotic connectivity among the examined variables in Nigeria and consequently, recommended an urgent review of capital importation policy, a robust regulatory framework and a re-investment incentive to discourage indiscriminate repatriation of investment proceeds outside Nigeria.

Odo, Anoke, Nwachukwu and Promise (2016) designed a study 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 showed that 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 study recommended that Federal Government of Nigeria should strengthen the Security and Exchange Commission (SEC) to promote constant inflows of foreign portfolio investment to Nigeria.

Mika'ilu and Yunusa (2018) examined the impact of foreign direct investment (FDI) on stock market development in Nigeria using annual data from 1981 to 2016. Using Auto Regressive Distributed Lags, the study found that foreign direct investment has positive and statistically insignificant effect on stock market development. Exchange rate and gross domestic savings exert positive and statistically significant impact on stock market development, while inflation rate has insignificant negative influence on stock market development in Nigeria throughout the study period. From the foregoing, the study recommended that there was need for the government to device several means that will motivate the foreign investors to diversify their investment from oil sector to other sectors of the economy with special reference to stock exchange market.

Sameh (2017) studied the effect of foreign portfolio investment (FPI), both in buying of shares or sale of shares by foreign investors, inflation and gross domestic product on the market capitalization in the Amman Stock Exchange for the period 2005-2016. The financial data were collected through the official website of the Amman Stock Exchange and the reports

issued by the Central Bank of Jordan and estimated by Ordinary Least Square regression method. The study concluded that there was a statistically significant effect on both the purchases and sales by foreign investors on market capitalization. The study also found no statistically significant effect between inflation and market capitalization.

Okonkwo (2016) investigated the effect of foreign portfolio investment on industrial growth in Nigeria with the view to establish empirical relationship among foreign portfolio investment and industrial productivity in Nigeria. Secondary data were employed in the study and were sourced from the Central Bank of Nigeria statistical bulletin 2013 edition and the International financial statistics (IFS). The ordinary least square (OLS) estimation technique was appropriately employed in the study. The findings of the study revealed that there was statistically significant positive relationship existing among foreign portfolio investment, gross fixed capital formation, market capitalization and industrial growth proxied by industrial production index (IPI) in Nigeria. The study recommended among others that proactive steps must be taken to expand market capitalization which was the major driver of foreign portfolio investment in order to keep stimulating industrial productivity in the economy.

Awolusi (2012) investigated the effect of foreign direct investment on economic growth from 1970 – 2010. A multivariate cointegration technique developed by Johansen and Juselius was employed to investigate the long-run equilibrium relationships. The results of the analysis affirmed the existence of cointegrating vectors in the systems of this country. The variables in Nigeria models have a long-run equilibrium relationship with one another and were adjusting in the short-run via three identified channels. However, since the existence of cointegrating vectors (cointegration) in the system of a country only presumed the presence or absence of Granger-causality, which does not indicate the direction of causality between the variables, hence, the short-term impact of inward FDI, trade and domestic investment on economic growth in Nigeria was also tested via Granger Causality test. Based on Vector Error-Correction Model, the results of the test revealed a short-run causal effect either running unidirectionally or bidirectionally among the variables for the country.

Isiaq and Oluwafemi (2011) examined the impact of Foreign Direct Investment (FDI) and stock market development on growth in Nigeria, for the period 1980-2009 by employing econometric techniques such as Unit Root test, Cointegration and Error Correction Mechanism. The results showed that both foreign direct investment, its lagged and lagged stock market development had small, and a statistically significant effect on economic growth. But the trends results show that both FDI and stock market development have cyclical movement. Finally, the results show that lagged exchange rate had positive effect on growth. These findings suggested

that exchange rate appreciation enhance growth in Nigeria and there was need for more investment in these markets.

METHODOLOGY

Sources of Data

Data for this study were obtained from the secondary sources. Specifically, data were extracted from the Statistical Bulletin of various editions issued by the Central Bank of Nigeria from 1990 and up to 2017.

Model Specification

In order to examine the effect of foreign direct investment and foreign portfolio investment on the capital market in Nigeria, the model specified by Sameh (2017) when he examined the effect of foreign portfolio investment on stock market indices in Amman was adapted. The model as specified by Sameh (2017) is as follows:

$$MCAP=f(PFIB, PFIS, GDP, INFL) \dots\dots\dots(i)$$

Where; MC is the dependent variable and PFIB, PFIS, GDP, INFL are independent variables.

Introducing foreign direct investment and foreign portfolio investment in to equation (i) above, the adapted model becomes:

$$MCAP=f(FDI, FPI, EXCR, INTR) \dots\dots\dots(ii)$$

In econometric form, equation (ii) becomes:

$$MCAP= b_0 + b_1FDI + b_2FPI + b_3EXCR + b_4INTR + U_t \dots\dots\dots(iii)$$

Taking the natural logarithm of equation (ii), the adapted model becomes:

$$\log MCAP= b_0 + b_1\log FDI + b_2\log FPI + b_3EXCR + b_4INTR + U_t \dots\dots\dots(iv)$$

Where:

LogMCAP = Natural logarithm of stock market capitalization in Nigeria which is a key barometer for measuring capital market performance globally;

LogFDI = Natural logarithm of foreign direct investment which is expected to be positively related to market capitalization;

logFPI = Natural logarithm of foreign portfolio investment which is also expected to be positively related to stock market capitalization;

EXCR = Average exchange of naira to other currencies which is expected to be positively related to market capitalization;

INTR = Lending Interest Rate which is expected to be positively related to market capitalization.

Thus, the *a priori* expectation is that $b_1, b_2, b_3, b_4 > 0$.

ANALYSIS AND DISCUSSION OF FINDINGS

The analysis of data collected in this study commenced with unit root test in order to determine the order of integration of each of the variables of interest. This was followed by the Johansen co-integration test to determine the number of co-integrating relations. Finally, the specified model in equation (iv) was estimated by Autoregressive Distributed Lags (ARDL).

Table 1: Philips Perron Unit Root Test Results

Unit root test at logarithmic levels

H0: $b = 0$; Ha: $b > 0$

Variables	Critical value @5%	Philips Perron test statistics	Order of Integration
MCAP	-2.981038	-2.248155	-
FDI	-2.981038	-3.173007*	I(0)
FPI	-3.052169	-3.250657*	I(0)
EXCR	-2.981038	0.516289	-
INTR	-2.981038	-4.303930*	I(0)

Unit root test at first differences

Variables	Critical value @5%	Philips Perron test statistics	Order of Integration
MCAP	-2.986225	-3.635102*	I(1)
FDI	-	-	I(0)
FPI	-	-	I(0)
EXCR	-2.986225	-3.31209*	I(1)
INTR	-	-	I(0)

Notes: *Denotes significance at the 5% level and the rejection of the null hypothesis of non-stationarity.

From table 1 above, the stationary test revealed that all the variables were not stationary at levels. To this end, only Foreign Direct Investment (FDI), Foreign Portfolio Investment (FPI) and interest rate (INTR) were stationary at levels i.e integrated of order I(0). Due to non-stationarity of some of the variables at levels, the variables were subjected to first order differencing; and consequently, market capitalization (MC) and Exchange rate (EXCR) were found to be stationary after first differencing i.e integrated of order I(1). Therefore, because the variables are mixture of integration of levels I(0) and first order I(1), without I(2), Autoregressive Distributed Lags model was the appropriate model to be estimated in carrying out the data analysis in this study.

Autoregressive Distributed Lags Model (Specification and Estimation)

The ARDL model for this study is stated thus:

model used to examine the long run and the short run relationships among the variables of interest are:

$$\Delta \log \text{MCAP} = \beta_0 + \beta_1 \log \text{FDI}_{t-1} + \beta_2 \log \text{FPI}_{t-1} + \beta_3 \text{EXCR}_{t-1} + \beta_4 \text{INTR}_{t-1} + \sum \pi_i \Delta \log \text{MCAP}_{t-1} + \sum \theta_i \Delta \log \text{FDI}_{t-1} + \sum \gamma_i \Delta \log \text{FPI}_{t-1} + \sum \mu_i \Delta \text{EXCR}_{t-1} + \sum \lambda_i \Delta \text{INTR}_{t-1} \text{ Ut} \dots \dots \dots (v)$$

The variables FDI, FPI, EXCR and INTR are as earlier defined in equation iv. $\beta_1, \beta_2, \beta_3$ and β_4 , refer to the long run coefficients or multipliers while $\pi_i, \theta_i, \gamma_i, \mu_i$ and λ_i are the short run coefficients.

The estimated ARDL model is as depicted in the table 2 below:

Table 2: ARDL Estimated Results

Selected Model: ARDL(3, 0, 0, 3, 2)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LMC(-1)	0.377425	0.270636	1.394587	0.1884
LMC(-2)	-0.564134	0.290438	-1.942360	0.0759
LMC(-3)	0.413714	0.207715	1.991735	0.0697
LFDI	0.210273	0.174606	1.204275	0.2517
LFPI	0.033699	0.033704	0.999849	0.3371
EXCR	-0.002218	0.003543	-0.626103	0.5430
EXCR(-1)	0.002853	0.005591	0.510341	0.6191
EXCR(-2)	0.002156	0.005182	0.416000	0.6848
EXCR(-3)	0.012166	0.005060	2.404355	0.0333
INTR	-0.072388	0.038798	-1.865749	0.0867
INTR(-1)	-0.052662	0.029669	-1.774950	0.1013
INTR(-2)	-0.040824	0.027593	-1.479506	0.1648
C	6.438802	2.325783	2.768445	0.0170
R-squared	0.992057	Mean dependent var		7.641294
Adjusted R-squared	0.984114	S.D. dependent var		1.969218
S.E. of regression	0.248197	Akaike info criterion		0.356841
Sum squared resid	0.739220	Schwarz criterion		0.990656
Log likelihood	8.539488	Hannan-Quinn criter.		0.532634
F-statistic	124.8999	Durbin-Watson stat		2.476499
Prob(F-statistic)	0.000000			

From the estimated result in Table 2 above, market capitalization (MC) is positive and insignificant with itself in both lag1 and lag 3. The lag 2 of market capitalization is however negative and significant with itself, which translates that in at both lag 1 and lag 3, MC is positively responsible for its own increase by 38% and 41% respectively; while at lag 2, it is responsible for its own mean value decline by about 56%. Looking at foreign direct investment (FDI), its coefficient shows that it is positive but weak in predicting MC such that 1% increase or decrease in FDI is associated with about 21% increase or decrease in the average value of MC. This is in line with a priori expectation that inflows of FDI into the Nigerian capital market are expected to improve the overall capitalization of the market and vice versa. Apropos foreign portfolio investment (FPI), it also align with theoretical expectation of positive relationship with MC. Thus, from the above result, is glaring that a 1% rise in FPI is associated with about 3.4% rise in MC and vice versa, although the relationship is found insignificant as indicated by the probability of the coefficient. The behavior of exchange rate (EXCR) also confirms theoretical expectation in that at lag 1 through 3, exchange rate is found to be positively related to MC and predicting MC at 0.2%, 0.2% and 0.12% at lag 1, 2, and 3 respectively. This is because as rate at which naira exchanges for other currencies increases, foreign investors are attracted into the country as they are certain to make more naira gains on their foreign capital investment in the capital market. EXCR is however negatively related to MC at present or current year, such that a unit decrease in exchange rate is associated with about 0.002 units increase in MC and vice versa. Concerning interest rate, the relationship displayed as reported on Table 2 above defies a priori expectation. This is because increase in interest rate is expected to encourage investment locally and internationally, as foreign investors are expected to be attracted into the country because of prospect of higher returns on their capital investments. By virtue of the estimated result however, interest rate is found in its current year as well as lag 1 through 3 to be negatively related to MC.

Error Correction Model (ECM)

We proceed to estimate the error correction model of equation (vi), with a view to capturing the short-run dynamics of the model such as the speed of adjustment to equilibrium or convergence in the case of any shock. The major essence of ECM is to estimate the short run dynamics of a model; however, in estimating the short run dynamics, ECM equally give a long run dynamics of a model and this is a landmark advantage of ECM over other methods. In order to estimate an error correction model, it requires taking the residuals from the co-integrating equation and includes them as an error correction term with one period lag.

For proper estimation therefore, the variables of interest in this study are represented in the ECM model as follows :

$$\Delta \log MC = \beta_0 + \beta_1 \log MC + \beta_2 \log FDI_{t-1} + \beta_3 \log FPI_{t-1} + \beta_4 EXCR_{t-1} + \beta_5 INTR_{t-1} + \sum \pi_i \Delta \log MC_{t-1} + \sum \theta_i \Delta \log FDI_{t-1} + \sum \gamma_i \Delta \log FPI_{t-1} + \sum \mu_i \Delta EXCR_{t-1} + \sum z_i \Delta INTR_{t-1} + \Psi ECM_{t-1} + U_t \dots \dots \dots (vi)$$

Where ΨECM_{t-1} is the coefficient that measure the speed of convergence of $\Delta \log MC$ to the long run equilibrium in case there is deviation; the ECM must be less than 1, negatively signed and statistically significant in order to conclude that it is in order.

Table 3: Estimated Short Run Coefficients with ARDL (ECM Form)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LMC(-1))	0.150420	0.204079	0.737069	0.4752
D(LMC(-2))	-0.413714	0.207715	-1.991735	0.0697
D(LFDI)	0.210273	0.174606	1.204275	0.2517
D(LFPI)	0.033699	0.033704	0.999849	0.3371
D(EXCR)	-0.002218	0.003543	-0.626103	0.5430
D(EXCR(-1))	-0.002156	0.005182	-0.416000	0.6848
D(EXCR(-2))	-0.012166	0.005060	-2.404355	0.0333
D(INTR)	-0.072388	0.038798	-1.865749	0.0867
D(INTR(-1))	0.040824	0.027593	1.479506	0.1648
CointEq(-1)	-0.772995	0.202466	-3.817909	0.0024

The VECM predicting the relationship between capital market and foreign portfolio investment and foreign direct investment can be stated as follows:

$$\Delta \log MC_{t-1} = 8.3297 + 0.2103 \Delta \log FDI_{t-1} + 0.0337 \Delta \log FPI_{t-1} - 0.0022 \Delta EXCR_{t-1} - 0.0408 \Delta INTR_{t-1} - 0.77 ECM_{t-1} \dots \dots \dots (vii)$$

The result of the lagged variables in their first difference form (error correction) is presented in Table 3 above. The result of the estimate shows that the coefficient of the error correction term, which measures the speed of adjustment towards long-run equilibrium, has the expected negative sign, less than one (-0.77) and is statistically significant at 0.002 confidence interval. This implies that there exist a mean-reverting process of the variables to their long-term targets and that approximately 77% of the disequilibrium in the previous year is corrected in the current year. It also shows that the coefficients of error correction of market capitalization, foreign direct investment, foreign portfolio investment, exchange rate and interest rate are insignificant which

suggests they cannot potentially return to the long-run equilibrium, should there be a shock in the economy in the short-run. Also, from equation (vii) above, FDI exhibits positive but insignificant relationship with MC in the short-run. Similarly, FPI behavior shows that it is positively but insignificantly related to MC in the short-run. On the contrary, EXCR and INTR maintain negative and insignificant relationships with MC in the short-run. Hence, while the relationships exhibited by FDI and FPI are consistent with theoretical expectation, those of EXCR and INTR defied theoretical expectation.

Table 4: Estimated Long Run Coefficients with ARDL

Cointeq = LMC - (0.2720*LFDI + 0.0436*LFPI + 0.0193*EXCR -0.2146 *INTR + 8.3297)				
Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LFDI	0.272024	0.209836	1.296365	0.2192
LFPI	0.043595	0.041833	1.042137	0.3179
EXCR	0.019350	0.004180	4.629605	0.0006
INTR	-0.214585	0.062505	-3.433098	0.0050
C	8.329679	1.863491	4.469933	0.0008

Table 4 shows the cointegrating vector or long-run equation indicating that in the long-run, market capitalization in Nigeria is significantly cointegrated with exchange rate and interest rate but not with foreign direct investment and foreign portfolio investment. The statistical significance of the constant term of market capitalization suggests the impact of other variables in the determination of real output in the long-run.

Test of Hypothesis

The decision rule for testing hypothesis is that Null Hypothesis (H₀) should be rejected and Alternate Hypothesis (H₁) accepted if P-value is less than 0.05 and vice versa.

H₀: Foreign direct investment and foreign portfolio investment have no significant effect on the capital market growth in Nigeria;

H₁: Foreign direct investment and foreign portfolio investment have significant effect on the capital market growth in Nigeria;

Looking at the p-values of the foreign direct investment (0.2517) and foreign portfolio investment (0.3371) in the short-run which are all greater than the critical value of 0.05; and

their p-values in the long-run of 0.2192 and 3179 respectively which are also greater than the critical value, null hypothesis is accepted and alternative hypothesis rejected. The implication of the forgoing is that foreign direct investment and foreign portfolio investment have no significant effect on the capital market growth in Nigeria both in the short-run and in the long-run

Residuals Diagnostic Test

Autocorrelation test

To test whether the residuals from the estimated model are free from autocorrelation or are serially uncorrelated, Breusch-Godfrey serial correlation test was conducted and the results are depicted in the table 5 below:

Table 5: Breusch-Godfrey Serial Correlation LM Test

F-statistic	2.940864	Prob. F(9,3)	0.2029
Obs*R-squared	22.45485	Prob. Chi-Square(9)	0.0075

The null hypothesis (H₀) for this type of test is that the residuals are serially uncorrelated. From the table 5, the F-statistic p-value of 0.2029 is actually more than 0.01 and 0.05; it shows that we fail to reject the null hypothesis at both 1% and 5% significance levels. Hence, we conclude that the residuals are serially uncorrelated and the residuals are free from bias.

Homoskedasticity Test

In a bit to test the efficiency of the estimator used in this study, the Breusch-Pagan-Godfrey homoskedasticity test was conducted on the residuals of the ARDL estimates. The results are depicted in the table 6 below:

Table 6: Heteroskedasticity Test: Breusch-Pagan-Godfrey

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	0.668745	Prob. F(12,12)	0.7518
Obs*R-squared	10.01868	Prob. Chi-Square(12)	0.6143
Scaled explained SS	2.044950	Prob. Chi-Square(12)	0.9993

Also, the null hypothesis is that the residuals are homoskedastic, and from the table 6.0 above, the F-statistic p-value of 0.7518 is greater than critical values of 0.01 and 0.05, it shows that we fail to reject this null hypothesis at both 1% and 5% significance levels. We therefore conclude that the residuals are homoskedastic and the estimation is efficient.

Coefficients Diagnostic Tests

Table 7: Co-integration Bound Test

ARDL Bounds Test		
Date: 01/29/19 Time: 18:29		
Sample: 1993 2017		
Included observations: 25		
Null Hypothesis: No long-run relationships exist		
Test Statistic	Value	k
F-statistic	3.926598	4
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.45	3.52
5%	2.86	4.01
2.5%	3.25	4.49
1%	3.74	5.06

The F-statistic value of 3.926598 is evidently above the I(0) and I(1) critical value bound. This indicates that we have no enough reason to accept the null hypothesis that there is no existence of long-run equilibrating relationship among the variables of interest. We therefore conclude that there is existence of co-integrating equilibrium relationship among the variables.

CONCLUSION AND RECOMMENDATIONS

This study investigated the effect of foreign direct investment and foreign portfolio investment on the growth of capital market in Nigeria. This became imperative in view of the pivotal role played by the foreign investors in promoting Nigerian economy via investment in the capital market. The ARDL model sufficiently captured the effect of the variables of interest and demonstrated clearly the response of the endogenous variable to variations in the exogenous variables. This is proven by the overall performance of the ARDL model with F-stat of 124 and Probability value of 0.0000, as well as R-square value of 0.99. Looking at foreign direct investment (FDI), its coefficient shows that it is positive but weak in predicting in predicting MC. This is in line with a priori expectation that inflows of FDI into the Nigerian capital market are expected to improve the overall capitalization of the market and vice versa. Apropos foreign portfolio investment (FPI), it also aligns with theoretical expectation of positive relationship with MC; although the relationship is found insignificant as indicated by the probability of the coefficient.

The behavior of exchange rate (EXCR) also confirmed theoretical expectation in that exchange rate was found to be positively related to MC and predicting MC. This is because as rate at which naira exchanges for other currencies increases, foreign investors are attracted into the country as they are certain to make more naira gains on their foreign capital investment in the capital market. EXCR is however negatively related to MC at present or current year. Interest rate defied the a priori expectation. This is because increase in interest rate is expected to encourage investment locally and internationally, as foreign investors are expected to be attracted into the country because of prospect of higher returns on their capital investments. The speed of adjustment of 77% indicates that the model sufficiently converged at equilibrium on the long-run. In this study however, the coefficients of foreign direct investment and foreign portfolio investment were found to be positive but insignificant and in both short-run and long-run which led to the rejection of null hypothesis and the acceptance of null hypothesis. Hence, it was concluded in this study that foreign direct investment and foreign portfolio investment have insignificant positive effect on the capital market growth in Nigeria between 1990 through 2017. Based on the foregoing conclusion, we recommend as follows:

- i. Government should continue to formulate economic policy that would attract foreign investors into the country having found foreign direct investment to be positively related to capital market growth in this study.
- ii. Given that foreign portfolio investment is also revealed by this study to be positive in predicting capital market growth, it is behooves on the government to introduce investment incentives and stimulus as well as put in place sound rules that guarantee efficient performance of the Nigerian capital market so as to woo in more investors into the market;
- iii. Exchange rate should be kept under the eagle eye of the Central bank of Nigeria and timely intervention should be made where necessary to prevent free fall of local currency in relation to other countries' currencies
- iv. Interest rate on investment should be properly monitored and regulated closely by the monetary policy makers to ensure that it is attractive to both local and foreign investors and must not be allowed to impinge on the growth of the capital market.
- v. Giving temporal scope covered by this study, it is recommended that future studies should update the scope and include degree of trade openness as part of the explanatory variables to predict capital market growth; while other methodologies should also be used to corroborate the robustness of findings in this study.

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