Impact of Foreign Direct Investment on Stock Market Growth in Nigeria

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Authors' contributions

The research was jointly done by all the authors. Author OSI developed the structure of the study, wrote the protocol, the initial draft of the manuscript, did the econometric analysis and interpretation. Author ACI managed the typesetting, reviewed theoretical, empirical literature and including the development of the model of the study. Author NJO supervised the research process and while author EAP edited the final manuscript. All authors read and agreed on the final manuscript.

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ABSTRACT

This study examines the impact of foreign direct investment on the growth of the Nigeria stock market from 1984 to 2015 using co integration, vector error correction model and pair wise granger causality econometric process in the estimation of the variables specified in the regression model. The results of the test revealed a long run equilibrium relationship between the dependent and explanatory variables as supported by the existence of four (4) co integration vectors. The findings from the VECM indicated that FDI and EXPT has negative relationship with stock market growth both in the long and short run while IMP and GCF was found to have a positive relationship with stock market growth both in the short and long run periods. The result of the pair wise granger causality indicated no causality between FDI and stock market growth. A unidirectional causality however was found running from MCAP to GCF, IMP to MCAP and FDI to GCF. Based on the above results, the study concludes that foreign direct investment has no significant impact on stock

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market growth in Nigeria within the period of this study and consequently makes the following recommendations. First, government should by conscious policy ensure that foreign investors sourcing for investment funds in Nigeria are encouraged to go through the Nigeria stock market in raising their funds, in addition to the active participation of all multinational companies operating in Nigeria in the activities of the Nigeria stock market. Secondly, domestic investors involved in the production of exportable goods and services should by positive policy initiatives encouraged to access funds through the Nigeria stock market by the central bank of Nigeria in collaboration with the investor's commercial bank standing as guarantor.

1. INTRODUCTION

It has been identified that Nigeria's dependence on oil as the only source of revenue coupled with her persistent negative trade balance due to the import dependent nature of the economy has contributed significantly to the volatile nature of the economy. The Nigeria economy benefited from the oil boom of the seventies in terms of cash flow to the economy but there seems to be little in terms of investment and infrastructural development to support the growth of the economy. Hence, the mono-cultural nature of the Nigeria economy, low per capita income, trade imbalances, persistent fiscal deficits, low productivity, unemployment and the attendant low savings level demands that substantial level of foreign investment either in the form of foreign direct investment or foreign portfolio investment is needed to grow the economy and create employment.

The essence of foreign investment into an economy has generated interest among development experts on its desirability or otherwise. While some stress that though economic activities of a nation is a stimulator of growth and development, they believe that opening an economy to sudden inflow and outflow can destabilize sound economies and compel them to adopt fiscal policy measures capable of creating problems in the operations of their security market. Yet, others believe that foreign investment inflows has helped emerging economies to benefit from research and development from advanced economies which had assisted their industrialization efforts as well as boosting their stock market activities, just as the gains from the development in the stock market has also encouraged the inflow of foreign investment. These issues are important for the efficient management of policy, as one can observe that embedded in any form of foreign investment is the potential gains through R&D

and potential dangers which developing nations most often lack the capacity to manage. Foreign investment can come either as foreign direct investment or foreign portfolio investment.

Foreign direct investment relates to investment which allows the investor to enjoy a perpetual interest in an enterprise in a country other than his own country which takes the form of building a factory, purchase of equipments or establishment of plants etc. It is also seen to include all forms of capital contributions and the reinvestment of earnings by a company incorporated abroad. Foreign direct investment increases investors commitment in the management of the enterprise as selling of such investment interest is usually difficult. Foreign portfolio investment involves passive interest by an investor on securities such as foreign stocks, bonds or other financial assets, none of which entails active management or control of the securities issued by the investor. Unlike foreign direct investment, it is easier to sell securities and pull out foreign portfolio investment, making it more volatile to the economy than foreign direct investment.

Foreign direct investment is believed to have positive relationship with stock market growth through several channels as most of the investment funds coming into the country is usually channeled through the financial market. Over the years, several economic, political and social policies have been initiated in Nigeria aimed at attracting foreign direct investment. In 1972 for instance, the indigenization policy was established but later abolished in 1989 to pave way for the flow of foreign capital into the economy in addition to the creation of the department of international economic relations in all Nigeria embassies abroad to sensitize investors on prevailing business environment in Nigeria coupled with positive government policies aimed at boosting investment [1].

Stock market has been recognized as a body that contributes to the socio-economic growth and development of developing and developed economies. This is made possible through some of the vital function played, such as channeling resources, promoting reforms to modernize the financial sectors, financial intermediation, ability to connect deficit to the surplus sector of the economy as actual means in the mobilization and distribution of savings among competitive uses which are critical to the growth and efficiency of the economy. It helps to direct capital or long-term resources to firms with relatively high and increasing productivity thus enhancing economic development and growth [2].

Odita et al. [3] argues that a nation requires a lot of local and foreign investments to attain sustainable economic growth and development. The capital market provides a means through which this is made possible. However, the dearth of long-term capital has posed the greatest dilemma to economic development in most African countries including Nigeria. Capital market is seen as the driver of any economy to growth and development because it is essential for the long term growth capital formation. It is crucial in the mobilization of savings and channeling of such savings to profitable self-liquidating investment. The Nigerian capital market provides the necessary lubricant that keeps turning the wheel of the economy. It does not only provide the funds required for investment but also efficiently allocates these funds to projects of best returns to fund owners.

According to the [4], Nigeria is perceived as a hard place to do business graded 169 out of 189 countries in 2016 overall ease of doing business; 139 out of 169 in ease of starting new business, 182 out of 189 in accessing electricity, 59 out of 189 in getting credit, 143 out of 189 in implementing contract agreements. Based on these realities, affecting growth in investment in the country, the need to review all policies of government restraining the flow of foreign capital into the country becomes crucial. However, it is important to note that there are recent positive government policies in Nigeria aimed at encouraging foreign capital flow into the economy, like the abolition of import licensing system, review of import duties and tariffs, privatization of most state owned enterprises and the deregulation of the exchange rate regime.

According to the [5] Nigeria ranks high in Africa along with South Africa and Egypt as major recipients of foreign direct investment. However, the influence of this receipt on both the growth of Nigeria economy and other economic
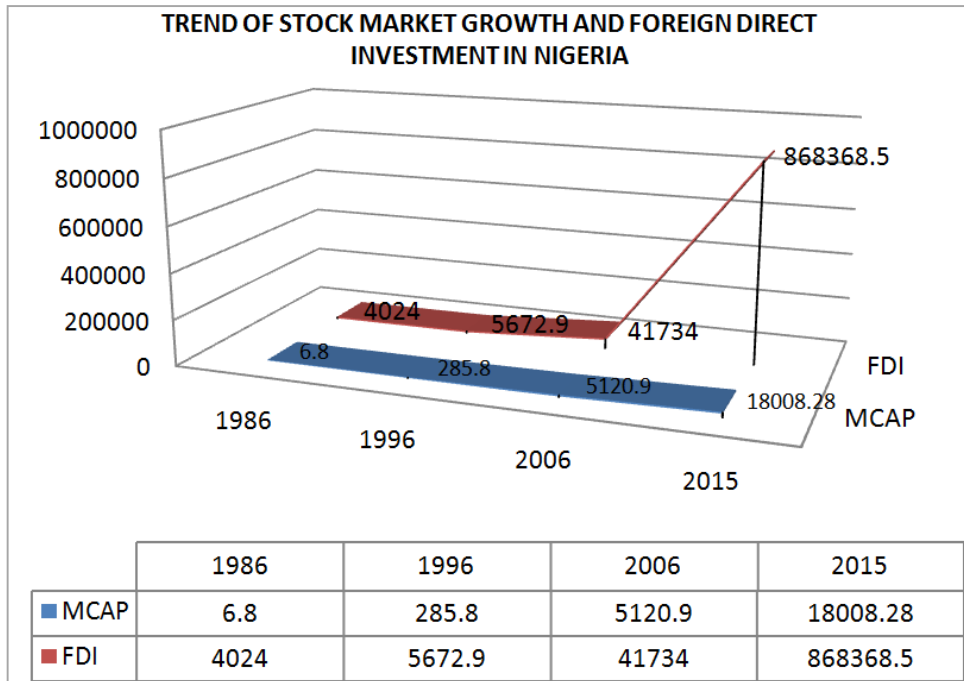

	1986	1996	2006	2015
MCAP	6.8	285.8	5120.9	18008.28
FDI	4024	5672.9	41734	868368.5

Fig. 1. Trend of foreign direct investment and stock market growth in Nigeria

indicators has remained a subject of controversy. Below is a 10 year interval trend of foreign direct investment and market capitalization (measure of stock market growth in this study) in Nigeria as indicated in the Table 1 and line graph (Fig. 1).

Table 1. Trend of stock market growth and foreign direct investment

Year	MCAP (₦M)	FDI(₦M)
1986	6.8	4024
1996	285.8	5672.9
2006	5120.9	41734
2015	18008.28	868368.5

As seen from the above Table 1 and graph (Fig. 1), the increase in foreign direct investment is not reflected in the growth of the stock market as expected, considering that increase in the flow of foreign direct investment is expected to stimulate the activities in the stock market according to economic theory.

2. THEORETICAL REVIEW

Fundamentally, the theories of stock market and portfolio investment formed the basis in explaining the emergence of foreign direct investment, considering that earlier direct investment was seen as international capital transfer alone. Foreign direct investment was initially considered as part of portfolio investment and differences in rates of interest assumed as the main cause of capital inflows. It was believed that by influence of interest rate, capital moves to any economy with expected higher return. However, [6] argued that this view failed to explain the place of control in organizational management. Different theorists have given diverse explanations on reasons of foreign direct investment ranging from market imperfections, oligopolistic and monopolistic considerations, absolute/comparative trade advantage and religious/political reasons. This study will consider FDI theory based on strength of currency, FDI dependency theory and stock market theory of modern portfolio and Marginal Efficiency Hypothesis.

2.1 FDI Theory Based on Strength of Currency

This theory as propounded by [7] attributes the flow of foreign direct investment on the strength or weakness of a country's currency. Aliber claimed that weaker currencies compared with stronger investing country currencies had a higher capacity to attract foreign direct investment so as to enjoy the differences in the market capitalization rate. Most Economists had contended that even if this theory is valid for foreign direct investment from developed to developing economies, the theory failed to establish relevance when dealing with investment between two developed economies that have currencies of equal strength neither do the theory explain the rationale for investor from a developing nation with weaker currency investing in a developed economy with stronger currency. However, the relevance of this theory to a developing economy like Nigeria cannot be over- emphasized.

2.2 Dependency Theory of FDI

The dependency theorists contend that foreign direct investment does not contribute positively to the economy of the recipient country, insisting that rather it impacts on such economy negatively and may enhance the sustenance of dependency relationship between the advanced economy and the developing country. Advanced economies usually enter the developing economies with sophisticated and superior equipments and most often compete out local industries by destroying domestic micro businesses with the application of higher technology and greater advertising skills. Foreign direct investment is believed to contribute significantly to the balance of payment problems of most developing nation as earned profits by these multinationals are usually repatriated to the investing economies. According to [8] the negative activities of these foreign investors more often than not create imbalances in the developing economies, affecting their prospects for growth and as a result leading to considerable overturn flows in the form of profits and dividends. The labour saving technologies which comes with these massive investments effects the demand for domestic labour and this also continue in perpetuating poverty and reducing savings making it difficult to alter the foreign dominance in our stock market.

2.3 Modern Portfolio Theory

Portfolio theory is about finding the balance between maximizing your return and minimizing your risk. The objective is to select your investments in such as way as to diversify your risks and not reducing your expected return. While it does not replace the role of an informed investor, it can provide a powerful tool to complement an actively managed portfolio.

A portfolio consists of a number of stocks, bonds and mutual funds. The mix of these assets constitutes portfolio allocation. How a portfolio is allocated determines its performance. During the first quarter of every year, investors typically spend few hours reallocating their retirement accounts. Most allocation decisions are based on past performance, feelings, or some arbitrary selection process.

2.4 Marginal Efficiency Hypothesis

This theory sees investment decisions as being dependent on internal rate of return (IRR) generated by investing in a particular asset called Marginal Efficient of Investment (MEI) and the prevailing market rate of interest rate. [9] traced the theory to John Maynard Keynes; Keynes defined the IRR as the rate of discount which will make the present value of the series of annuities given by the returns expected from the capital asset during its useful life just equal its supply price. Keynes also utilized the concept of marginal efficiency of capital (MEC) in the development of marginal efficiency theory. He defined MEC as the rate of discount that equates the current cash outlay with the present value of future cash receipt. The marginal efficiency hypothesis states that the marginal efficiency of investment will be compared to the market rate of interest and such comparison will generate a set of decision rule for firms. The appropriate rule is: MEI $\geq$ r, accept investment proposal or MEI $<$ r, reject investment proposal. The rule further defined, r, as the market rate of interest and states that where MEI = r, investment is considered to be at its optimum or equilibrium level. Most investment decisions in the stock market are believed to be influenced by marginal efficiency concept.

3. EMPIRICAL REVIEW

Okafor et al. [10] investigated the effects of foreign investment inflows on economic growth in Nigeria. The study disaggregated foreign investment into foreign direct investment and portfolio investment in other to realize the objectives of the study using data spanning from 1987 to 2012 with OLS and granger causality econometric procedures. The findings of the study indicate that FDI and FPI have significant positive impact on economic growth in Nigeria. The study recommended that government should pursue policies that encourage foreign investment.

Uwazie et al. [1] examined the causal relationship between foreign direct investment and economic growth in Nigeria from 1970 to 2013. The authors insist that the study was motivated by the obvious inability of several empirical studies to reach a consensus on the subject. The study employed vector error correction model method of causality to estimate the variables specified in the model. The result of the estimation indicate an equilibrium long run relationship between FDI and economic growth while the causality test indicate that both FDI and economic growth correlate significantly in the short and long run periods in Nigeria. The authors relying on the outcome of the result suggested the pursuance of aggressive policy reforms to boost investor's confidence and promote qualitative human capital development to attract foreign capital inflow into the Nigeria economy.

Emeh et al. [11] examined the impact of capital market on economic growth in Nigeria. The study adopted a time-series research design relying extensively on secondary data covering 1985 - 2012. The study used regression analysis method incorporating multivariate co-integration and error correction to examine the distinctiveness of time series data adopting disaggregate capital market indices approach. Their finding suggests that two of the explanatory variables exhibit positive while two exhibit inverse and statistically significant relationship with economic growth. This could stimulate dialogue on the implication for policy simulation. Recommendation is that relevant regulatory agencies should focus on enhancing efficiency and transparency of market to improve investor's confidence. Therefore the need for effective and favourable macroeconomic environment to facilitate economic growth and ensure that channels of capital market induced growth are built around effective systems; and that policy institution are active in making systemic checks and appropriate policy innovations to ensure capital market led economic growth.

Popoola and Timothy et al. [12] studied whether stock market promotes economic growth and development in Nigeria. The stock market is a common feature of a modem economy and it is reputed to perform some necessary functions, which promote the growth and development of the economy. To achieve this objective, Ordinary Least Squares regression (OLS) was employed using the data from 1984 to 2008. The results indicated that there is a positive relationship

between economic growth and the stock market development variables used. With almost 95.77 percent R-squared and 94.92 percent adjusted R-squared, the result showed that economic growth in Nigeria is adequately explained by the model for the periods of 25 years. The results of the research, established positive links between the stock market development and economic growth and suggests the pursuit of policies geared towards rapid development of the stock market. Moreover, all sectors of the economy should act in a collaborative manner such that the optimum benefits of linkages between stock market and economic growth can be realized in Nigeria.

Odita and Oghoghomeh [3] looked at resource mobilization for long term economic development, an insight into the role of the Nigerian capital market. The study modeled the effect and importance of the Nigerian capital market, as a veritable source of medium and long term development. The data collected were from the Central Bank of Nigeria statistical bulletin and the Security and Exchange Commission from the period of 2001 to 2010. The SPSS statistical tool was used to analyze the data. The economic development was proxied by gross domestic product (GDP), while the capital market variables considered included the annual market capitalization (AMC) and the total volume of transactions (TVT). Findings revealed that there was a positive relationship between the capital market activities and gross domestic product, although the relationship was not statistically significant. The study recommended that the more fundamental issue of building investor confidence must be addressed through transparency, fair trading transactions, political stability and social security; stringent requirements for entry into the market should be relaxed and adequate publicity should be given to the activity of the capital market. They believed that when these recommendations are implemented, the impact of the capital market on the economy will become more significant.

Ogboi and Oladi [13] evaluated stock market and economic growth nexus in the Nigerian economy. They specifically investigated the effects and the causal relationship between the two variables in Nigeria; this was with the view to providing empirical evidence for stock market operation to stimulate economic growth to maximize the welfare of the people. The study employed annual time series data from 1981 to 2008

collected from various issues of Central Bank of Nigeria's Statistical Bulletin and Annual Report and statement of Account of Nigeria Stock Exchange 2009 edition. An Error Correction Mechanism (ECM) Model was adopted in the analyses of the interaction between stock market and economic growth. The granger causality pair wise test was conducted in determining the causal relationship among the variables. The empirical results showed that, there was unidirectional causality between stock market and economic growth, which ran from economic growth (GDP) to stock market (MCAP) at 5 percent significant level. Stock market has negative effect on economic growth in the short run but positive effect in the long run, however, the effect was statistically significant at 5% critical value only in the long run. The study concludes that, the Nigerian stock market is no exception to other developing countries which are working towards reforming and deepening their financial systems through the expansion of its stock markets in order to improve their ability to mobilize resources and efficiently allocate them to the most productive sectors of the economy so as to enhance economic growth.

Eriemo [14] empirically investigated the influence of stock prices and capital market development on the level of economic progress in Nigeria. This becomes necessary due to the increasing role played globally by both stock prices and capital market in generating the desired level of economic growth. The study used time series data that covered the period from 1980 to 2012, which includes the pre-Structural Adjustment Programme (SAP) and SAP eras. The co integration test with its implied ECM was applied. The ADF unit root test indicates that all the variables are stationary at 1(1). The Johansen co integration test indicates a long run relationship among the variables. The short run dynamic result indicates that the level of market capitalization, new issues in the capital market, value of equities and government stock rate have positive signs and are statistically significant in explaining economic growth. Results revealed that government's policies on both stock prices and capital market have been beneficial in explaining the level of economic growth in Nigeria. The ECM shows a satisfactory speed of adjustment to equilibrium in the long-run. The author recommended that government should continue with her stock prices policies by further liberalizing the stock market and that the level of market capitalization should be further increased.

4. METHODOLOGY

4.1 Data

The method used in this study is the multivariate regression procedure where more than two variables were considered in estimation of the relationship between stock market growth and foreign direct investment. This data were sourced from central bank of Nigeria bulletin and World Bank data base with the scope of 1984 to 2015.

4.2 Model Specification

The research employed a multiple linear estimation process to investigate the effect of stock market growth on foreign direct investment with regards to the dependent variable (MCAP), a proxy to stock market growth and independent variables (FDI, GCF, EXPT and IMP). These variables are expressed in a functional form as;

$$MCAP = f\ (FDI, GCF, EXPT, IMP) \quad (1)$$

and linearly stated in the following form

$$MCAPt = \alpha 0 + \alpha 1 \Sigma FDIt - 1 \alpha 2 \Sigma GCFt - 1 + \alpha 3 \Sigma EXPTt - 1 + \alpha 4 \Sigma IMPt - 1 + \mathcal{E}t \quad (2)$$

Where,

MCAP = Market capitalization (proxy to stock market growth),

FDI = Foreign direct investment,

EXPT = Export

IMP = Import,

$\mathcal{E}t$ = Error term and $\alpha 0 - \alpha 4$ are the estimation parameters.

4.3 Estimation Methods

4.3.1 Unit root test

This test is a pre test that shows the stationarity or otherwise of the variables specified and a yardstick for chosen further investigation approaches. This can be done through the a simple equation as;

$$\Delta Yt = \lambda 0 + \lambda 1 Yt - 1 + \Sigma \Omega\ \lambda j \Delta Yt - j + \xi t \quad (3)$$

Where,

$\Delta Yt = Yt — Yt-1$, Y is the considered variable, Ω depicts the lag length in the dependent variable

and ξt is the stochastic error term. The null hypothesis of $\mid \lambda 1 \mid = 1$ against the alternative hypothesis of $\mid \lambda 1 \mid < 1$ which test the stationarity of the variables. The Augmented Dickey Fuller and Philip Peron critical value of statistic is the decision rule to either accept or reject a hypothesis and it appears in 1%, 5% and 10% level of significance as the case may be.

4.3.2 Co integration test

This test was developed to estimate variables (Yt and Xt) that has the same order of integration 1(1) and usually conducted after the unit root test when stationarity have been established. It is also used to extract the long run equation which determines the long run relationship among variables. Co integration test indicates its significance through the trace or rank statistical and the probability values of variables under consideration. It is therefore estimated thus;

$$Yt = \mu + \Delta 1 Yt - 1 + \ ……..\Delta PYt - p + \mathcal{E}t \quad (4)$$

In testing the null hypothesis that the number of distinct co integrating vector is less than or equal to q against a general unrestricted alternatives q = r, it is calculated as follows:

$$\lambda\ \text{trace}\ (r) = -T \Sigma \ln (1 - \lambda_t) \quad (5)$$

Where T is the number of usable observations and the λ is the estimated Eigen value from the matrix.

4.3.3 Vector error correction mechanism

The error correction mechanism is introduced in estimation if variables are co integrated of the same order and it is used to check the existence of short and long run relationship among variables. This test also indicates the speed of adjustment of an economy from disequilibrium to equilibrium point and the higher the coefficient of the R^2, the better the model adjustment from short run to long run equilibrium. The ECM is stated as;

$$\Delta y_t = \delta + \delta y_{t-1} + \Sigma \Phi_i^{*}\ \Delta y_{t-1} + \varepsilon_t \quad (6)$$

Where Δ is the differencing operator, such that $\Delta y_{t-1} = y_t - y_{t-1}$, $\delta t-1$ are the error correction terms.

Introducing the variables in consideration in the model, we have,

$$\Delta MCAP_t = \delta + \rho y_{t-1} + \Sigma \Phi_i^{*} \Delta MCAP_{t-1} + \Sigma \Phi_i^{*} \Delta FDI_{t-1} + \Sigma \Phi_i^{*}\ \Delta GCF_{t-1} + \Sigma \Phi_i^{*}\ \Delta EXPT_{t-1} + \Sigma \Phi_i^{*}\ \Delta IMP_{t-1} + \xi t \quad (7)$$

4.3.4 Granger causality test

Granger causality test determines direction of influence of a variable on another; this is statistically indicated by the significance of the variables under review, usually decided on the basis of the probability values that are less than 0.05 (5% level of significance).

5. PRESENTATION AND DISCUSSION OF RESULTS

5.1 Unit Root Test

In the Table 2, it was found that all variables in the model were non stationary at levels which is not statistically qualified for further estimation because it might bring spurious estimates. However, the ADF test carried out a differential test on the variable and found all the variables stationary at first difference, showing the existence of no unit root. This indication is made through the values of T-statistics against that of 5% and 10% level of significance as shown.

5.2 Co integration Test

The existence of unit root in the model as explained by the ADF test above prompted the investigation of long run influence of the independent variables on the dependent variable. The Johansen co integration Table 3 reveals four (4) co integrating vectors, which depict a long term equilibrium relationship between stock market growth and other explanatory variables. This also means that the

pre test (unit root test) is not spurious. Also, the trace statistics max. Eigen and P-values of this result validate this long run relationship, we therefore present the long run equation from the normalized co integrating coefficients as;

$$MCAP = -321.7051 - 0.003968FDI + 0.182765GCF - 0.000946EXPT - 0.000256IMP \quad (8)$$

5.3 Vector Error Correction Mechanism

The rule of ECM holds in the Tables 4 and 5 stating a negatively signed and statistical significant error correction coefficient of -0.112490 and p value of 0.0001. The borne sign and the significance of the coefficient are the necessary conditions for any disequilibrium to be corrected. This means that the identified economic variables add 11.25% per year to stock market growth for equilibrium to be restored in the long run.

The computed coefficient of multiple determination (R^2) value of 0.947747 indicated that the model satisfied the requirements for goodness of fit. The computed statistics showed that 94.8% of the total variation in stock market growth (MCAP) is accounted for by the explanatory variables: foreign direct investment (FDI), gross capital formation (GCF), export (EXPT) and import (IMP) while 5.2% of the changes in stock market growth are attributable to the influence of other factors not included in the regression equation.

Table 2. ADF test

Variables	T statistics at levels	5% Crt. val	10% Crt. val	Remarks
MCAP	-1.650122	-3.574244	-3.221728	Not stationary
FDI	-1.481886	-3.562882	-3.215267	Not stationary
GCF	-2.167630	-3.562882	-3.215267	Not stationary
EXPT	-1.569693	-3.562882	-3.215267	Not stationary
IMP	-1.353279	-3.562882	-3.215267	Not stationary
At 1st difference				
MCAP	-5.687241	-3.580623	-3.225334	Stationary
FDI	-5.298201	-3.568379	-3.218382	Stationary
GCF	-5.422771	-3.568379	-3.218382	Stationary
EXPT	-5.324501	-3.568379	-3.218382	Stationary
IMP	-5.466666	-3.568379	-3.218382	Stationary

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

Table 3. Johansson co integration test

Date: 07/20/16   Time: 15:48
Sample (adjusted): 5 32
Included observations: 28 after adjustments
Trend assumption: Linear deterministic trend
Series: MCAP FDI GCF EXPT IMP
Lags interval (in first differences): 1 to 1
Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical value	Prob.**
None *	0.906974	171.6568	69.81889	0.0000
At most 1 *	0.856371	105.1603	47.85613	0.0000
At most 2 *	0.645483	50.82571	29.79707	0.0001
At most 3 *	0.538215	21.78974	15.49471	0.0049
At most 4	0.005535	0.155399	3.841466	0.6934

 Trace test indicates 4 cointegrating eqn(s) at the 0.05 level
 * denotes rejection of the hypothesis at the 0.05 level
 **MacKinnon-Haug-Michelis (1999) p-values
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical value	Prob.**
None *	0.906974	66.49649	33.87687	0.0000
At most 1 *	0.856371	54.33462	27.58434	0.0000
At most 2 *	0.645483	29.03598	21.13162	0.0031
At most 3 *	0.538215	21.63434	14.26460	0.0029
At most 4	0.005535	0.155399	3.841466	0.6934

 Max-eigenvalue test indicates 4 cointegrating eqn(s) at the 0.05 level
 * denotes rejection of the hypothesis at the 0.05 level
 **MacKinnon-Haug-Michelis (1999) p-values
1 Cointegrating Equation(s):   Log likelihood   -1643.069
Normalized cointegrating coefficients (standard error in parentheses)

MCAP	FDI	GCF	EXPT	IMP
1.000000	-0.003968	0.182765	-0.000946	-0.000256
	(0.00143)	(0.09709)	(0.00013)	(0.00026)

Table 4. VECM 1

Vector Error Correction Estimates
Date: 07/20/16   Time: 15:39
Sample (adjusted): 6 32
Included observations: 27 after adjustments
Standard errors in ( ) & t-statistics in [ ]

Cointegrating Eq:	CointEq1
MCAP(-1)	1.000000
FDI(-1)	-0.014834
	(0.01649)
	[-0.89954]
GCF(-1)	0.001184
	(1.19576)
	[0.00099]
IMP(-1)	0.026556
	(0.00309)
	[8.60064]
EXPT(-1)	-0.015975
	(0.00159)

	[-10.0171]				
C	-321.7051				
Error correction:	**D(MCAP)**	**D(FDI)**	**D(GCF)**	**D(IMP)**	**D(EXPT)**
CointEq1	-0.112490	-11.78867	-0.070087	-4.956916	16.09079
	(0.02045)	(1.26151)	(0.03318)	(15.1249)	(24.3778)
	[-5.50126]	[-9.34489]	[-2.11242]	[-0.32773]	[0.66006]
D(MCAP(-1))	0.402371	58.86084	-0.217354	58.36220	3.711083
	(0.13819)	(8.52520)	(0.22422)	(102.213)	(164.743)
	[2.91181]	[6.90434]	[-0.96939]	[0.57099]	[0.02253]
D(MCAP(-2))	0.489518	53.08808	0.406394	-228.8127	-343.8587
	(0.12607)	(7.77796)	(0.20456)	(93.2539)	(150.304)
	[3.88279]	[6.82545]	[1.98663]	[-2.45365]	[-2.28776]
D(FDI(-1))	-0.022146	-1.748072	0.001799	-0.367333	1.542009
	(0.00313)	(0.19327)	(0.00508)	(2.31726)	(3.73489)
	[-7.06916]	[-9.04452]	[0.35397]	[-0.15852]	[0.41287]
D(FDI(-2))	-0.017808	-0.972430	0.001253	1.838365	-0.746201
	(0.00234)	(0.14436)	(0.00380)	(1.73080)	(2.78965)
	[-7.61026]	[-6.73617]	[0.32995]	[1.06215]	[-0.26749]
D(GCF(-1))	0.241239	11.65654	-0.118482	180.4306	168.3497
	(0.08827)	(5.44574)	(0.14323)	(65.2918)	(105.235)
	[2.73295]	[2.14049]	[-0.82724]	[2.76345]	[1.59975]
D(GCF(-2))	-0.061268	10.87422	-0.648435	109.3616	287.2220
	(0.09922)	(6.12094)	(0.16098)	(73.3871)	(118.283)
	[-0.61753]	[1.77656]	[-4.02794]	[1.49020]	[2.42826]
D(IMP(-1))	0.002967	0.280076	0.002081	-0.057344	-0.371124
	(0.00054)	(0.03303)	(0.00087)	(0.39604)	(0.63832)
	[5.54089]	[8.47888]	[2.39576]	[-0.14479]	[-0.58140]
D(IMP(-2))	0.003884	0.257232	0.000159	0.235563	-0.108774
	(0.00055)	(0.03384)	(0.00089)	(0.40567)	(0.65384)
	[7.08111]	[7.60251]	[0.17838]	[0.58068]	[-0.16636]
D(EXPT(-1))	-0.001339	-0.182226	-0.001559	0.052584	0.313795
	(0.00037)	(0.02291)	(0.00060)	(0.27465)	(0.44268)
	[-3.60570]	[-7.95472]	[-2.58783]	[0.19146]	[0.70886]
D(EXPT(-2))	-0.000588	-0.100041	0.000454	-0.021291	0.439636
	(0.00036)	(0.02238)	(0.00059)	(0.26831)	(0.43245)
	[-1.62019]	[-4.47045]	[0.77183]	[-0.07935]	[1.01663]
C	-127.1372	-1694.859	453.0754	204194.1	302543.8
	(191.685)	(11825.8)	(311.024)	(141785.)	(228524.)
	[-0.66326]	[-0.14332]	[1.45672]	[1.44017]	[1.32390]
R-squared	0.947747	0.924312	0.861567	0.757448	0.680181
Adj. R-squared	0.909428	0.868808	0.760049	0.579577	0.445647
Sum sq. resids	6897965.	2.63E+10	18160679	3.77E+12	9.80E+12
S.E. equation	678.1330	41836.53	1100.324	501599.3	808461.2
F-statistic	24.73319	16.65301	8.486867	4.258411	2.900136
Log likelihood	-206.3985	-317.6974	-219.4669	-384.7663	-397.6542
Akaike AIC	16.17767	24.42203	17.14570	29.39009	30.34476
Schwarz SC	16.75359	24.99796	17.72163	29.96602	30.92068
Mean dependent	666.6030	31930.81	532.7700	352254.3	543792.4
S.D. dependent	2253.297	115505.4	2246.256	773595.2	1085840.
Determinant resid covariance (dof adj.)	3.62E+43				
Determinant resid covariance	1.92E+42				
Log likelihood	-1505.915				
Akaike information criterion	116.3641				
Schwarz criterion	119.4837				

Table 5. VECM 2

Dependent Variable: D(MCAP)
Method: Least Squares
Date: 07/20/16   Time: 15:40
Sample (adjusted): 6 32
Included observations: 27 after adjustments
D(MCAP) = C(1)*(MCAP(-1) - 0.0148336562052*FDI(-1) + 0.001184185718
18*GCF(-1)+ 0.026556217429*IMP(-1) - 0.0159749817979*EXPT(-1) -
    321.705051447) + C(2)*D(MCAP(-1)) + C(3)*D(MCAP(-2)) + C(4)
    *D(FDI(-1)) + C(5)*D(FDI(-2)) + C(6)*D(GCF(-1)) + C(7)*D(GCF(-2)) +
    C(8)*D(IMP(-1)) + C(9)*D(IMP(-2)) + C(10)*D(EXPT(-1)) + C(11)
    *D(EXPT(-2)) + C(12)

	Coefficient	Std. error	t-Statistic	Prob.
C(1)	-0.112490	0.020448	-5.501265	0.0001
C(2)	0.402371	0.138186	2.911808	0.0107
C(3)	0.489518	0.126074	3.882788	0.0015
C(4)	-0.022146	0.003133	-7.069161	0.0000
C(5)	-0.017808	0.002340	-7.610257	0.0000
C(6)	0.241239	0.088271	2.732946	0.0154
C(7)	-0.061268	0.099215	-0.617532	0.5461
C(8)	0.002967	0.000535	5.540890	0.0001
C(9)	0.003884	0.000548	7.081110	0.0000
C(10)	-0.001339	0.000371	-3.605698	0.0026
C(11)	-0.000588	0.000363	-1.620191	0.1260
C(12)	-127.1372	191.6851	-0.663261	0.5172
R-squared	0.947747	Mean dependent var		666.6030
Adjusted R-squared	0.909428	S.D. dependent var		2253.297
S.E. of regression	678.1330	Akaike info criterion		16.17767
Sum squared resid	6897965.	Schwarz criterion		16.75359
Log likelihood	-206.3985	Hannan-Quinn criter.		16.34892
F-statistic	24.73319	Durbin-Watson stat		2.100271
Prob (F-statistic)	0.000000			

The F – statistics of 24.73319 with p value of 0.00000 which is less than 0.05 shows that the influence of explanatory variables on the dependent variables is statistically significant. This implies that all the independent variables have a joint influence on the dependent variable as explained by R^2 coefficient of 0.947747. The DW has the value of 2.100271 which indicates the absence of auto correlation among the residuals.

5.4 Granger Causality

The causality result in the above Table 6 indicated no causal relationship between stock market growth and foreign direct investment. This is validated by the p values of 0.2005 and 0.2978 that are greater than 0.05 level of significance as the decision rule suggests. This implies that foreign direct investment has no influence on the growth of stock market in Nigeria within the period under review. However, unidirectional causality was found to run from MCAP to GCF, IMP to MCAP, FDI to GCF, EXPT to FDI and a bidirectional relationship from EXPT to GCF.

5.5 CUSUM Test

The stability diagnostic test of the model was conducted using the Cumulative Sum of recursive residuals (CUSUM) test. This is necessary in view of the fact that stability of model will explain the extent to which we can make forecast concerning behavior of the variables in the model.

The stability diagnostic test reveals the stability of the variables through the test above plotted against break points in the data. This test is significantly determined in such a way that the stability of short run dynamics and the long run parameters of the variables must be within the 5 percent critical bound lines, represented by two red straight lines. Parameters are unstable if the CUSUM go outside the area between the two critical lines. To this end, Fig. 2 indicates stable variables of estimation in this research.

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Table 6. Pair wise granger causality test

Pairwise Granger Causality Tests
Date: 07/20/16   Time: 15:56
Sample: 1 32
Lags: 2

| Null hypothesis:	Obs	F-statistic	Prob.
FDI does not granger cause MCAP	28	1.72445	0.2005
MCAP does not granger cause FDI		1.27759	0.2978
GCF does not granger cause MCAP	28	0.86061	0.4361
MCAP does not granger cause GCF		5.23609	0.0134
EXPT does not granger cause MCAP	28	36.0633	8.E-08
MCAP does not granger cause EXPT		2.29322	0.1236
IMP does not granger cause MCAP	28	10.8655	0.0005
MCAP does not granger cause IMP		0.45500	0.6400
GCF does not granger cause FDI	30	3.00321	0.0678
FDI does not granger cause GCF		3.63251	0.0412
EXPT does not granger cause FDI	30	6.58760	0.0050
FDI does not granger cause EXPT		0.93552	0.4057
IMP does not granger cause FDI	30	1.98150	0.1589
FDI does not granger cause IMP		2.18905	0.1330
EXPT does not granger cause GCF	30	10.0616	0.0006
GCF does not granger cause EXPT		4.34707	0.0240
IMP does not granger cause GCF	30	3.03119	0.0663
GCF does not granger cause IMP		19.8673	7.E-06
IMP does not granger cause EXPT	30	0.71371	0.4995
EXPT does not granger cause IMP		2.27616	0.1236
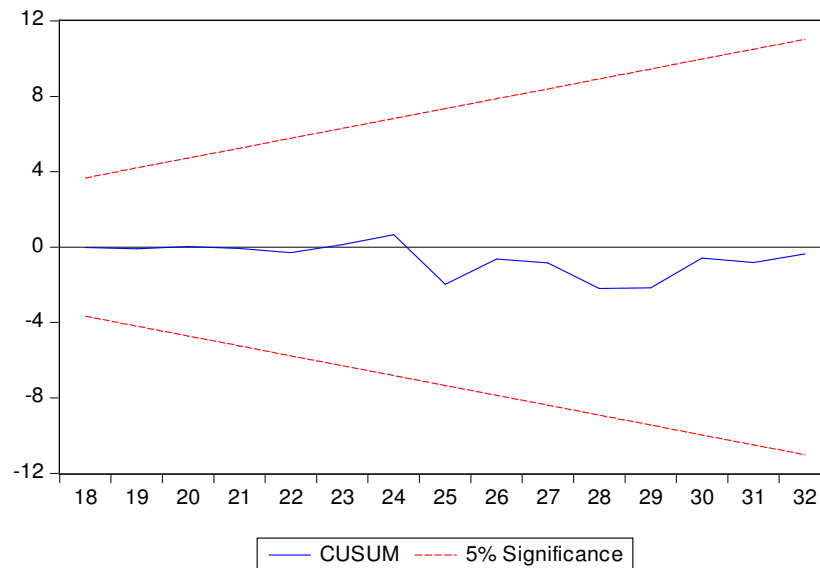
Fig. 2. CUSUM test

5.6 Implications of Result

From the following co integration equation (Equ. 8),

$$MCAP = -321.7051 - 0.003968FDI + 0.182765GCF - 0.000946EXPT - 0.000256IMP$$

a long run equilibrium relationship was found to exist between the dependent and independent variables. The nature of the long run relationship indicates that FDI has negative insignificant relationship with stock market growth in the long run. This is however contrary to the appriori expectation which assumes that increase in

foreign direct investment will lead to growth in the stock market. This means that rising foreign investment in the country has not contributed to the growth of the economy through the stock market, though most of these funds are channeled through various means of financial activities including the stock market. Export was found to have a negative significant relationship with stock market growth within the period of the study, implying that Nigeria export trade activities has not contributed positively to the growth of the Nigeria stock market. Import on the other hand showed a positive significant relationship with stock market growth in the long run; indicating that import trade activities as expected contributes positively to the growth of the stock market.

GCF was found to have a positive although insignificant relationship with stock market growth in the long run. This means that the growth of domestic investment in the country has contributed positively to the activities in the Nigeria stock market even though the influence is not substantial.

In the short run as shown in the lower chamber of the VECM result, FDI maintained a negative relationship with stock market growth as supported by the negative coefficient of -0.022146 and a p value of 0.0000, GCF showed a positive significant correlation with stock market growth as supported by the coefficient of 0.241239 and a p value 0.0154. The value of import showed a significant positive relationship with stock market growth as supported by 0.002967 and p value of 0.0000. This means that import policy initiative concerning the growth of the stock market is beneficial both in the short and long run. However, export sustained a negative relationship with stock market growth as indicated by its coefficient of -0.001339 and p value of 0.0026 meaning that export proceeds in Nigeria has not contributed positively to the growth of the stock market. The result agrees with our low export volume as compared with our increasing import bills due to our dependence on foreign manufactured products even in the oil sector where our inefficiency and corruption has made us a major importer of petroleum products.

The result of the pair wise granger causality indicated no causality between FDI and stock market growth, reinforcing the negative relationship earlier stated in the ECM estimation. This implies that foreign direct investment has not contributed to the growth of the stock market

in Nigeria within the period of this research. A unidirectional causality however was found running from MCAP to GCF corroborating the positive relationship reported earlier in the ECM. This means that growth in stock market activities supports growth in capital formation.

A unidirectional causality was also found moving from IMP to MCAP indicating that import activities contributes to the growth of the stock market a further confirmation of the significant positive relationship reported in the VECM. Another unidirectional causality was found running from FDI to GCF implying that foreign direct investment encourages capital formation in the Nigeria economy.

6. CONCLUSION

This study examined the impact of foreign direct investment on the growth of the Nigeria stock market from 1984 to 2015 using co integration, vector error correction model and pair wise granger causality econometric process in the estimation of the variables specified in the regression model. The results of the test revealed a long run equilibrium relationship between the dependent and explanatory variables as supported by the existence of four co integration vectors. The findings from the VECM indicated that FDI and EXPT has negative relationship with stock market growth both in the long and short run while IMP and GCF was found to have a positive relationship with stock market growth both in the short and long run periods. The result of the pair wise granger causality indicated no causality between FDI and stock market growth. A unidirectional causality however was found running from MCAP to GCF, IMP to MCAP and FDI to GCF. Based on the above result, the study concludes that foreign direct investment has no significant impact on stock market growth in Nigeria within the period of this study and consequently makes the following recommendations. First, government should by conscious policy ensure that foreign investors sourcing for investment funds in Nigeria are encouraged to go through the Nigeria stock market in raising their funds, in addition to the active participation of all multinational companies operating in Nigeria in the activities of the Nigeria stock market. Secondly, domestic investors involved in the production of exportable goods and services should by positive policy initiatives encouraged to access funds through the Nigeria stock market by the central bank of Nigeria in collaboration with the investor's commercial bank standing as a guarantor.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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