

Foreign Portfolio Investment and Capital Market in Nigeria

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ABSTRACT

This is an investigation into the relationship between foreign portfolio investment and capital market in Nigeria for the period 1986-2022. The method adopted for the study is quantitative research method using the vector error correction mechanism (VECM) estimation technique approach where Market Capitalization is specified as dependent variable with foreign portfolio investment (FPI), exchange rate (EXR), Investment in Information and Communication Technology (IICT), and trade openness (TOP) as independent variables. The adoption of VECM for the analysis of the variable is based on all the variables being integrated at order one, 1(1). The empirical result indicates that all the variables are free of autocorrelation, heteroscedasticity and are normally distributed; both the Trace and Max-eigen statistics indicate that there exist a stable long run equilibrium relationship; Furthermore, that foreign portfolio investment has a positive and highly significant impact on the capital market capitalization in Nigeria with a positive value of 0.0885 and p value of 0.0005. The information and communication technology was also shown to have a positive relationship, exerting a highly significant impact on market capitalization. This is seen by its positive coefficient of 0.4726 showing a 47% increase in market capitalization as a result of 1% increase in government investment in ICT. The p-value stood at 0.0042 which is less than 0.05 level of significant, meaning there is a significant relationship between investment in ICT and market capitalization. It is therefore recommended that Nigeria's capital market regulatory authorities give boost to the international competitive interest rates as part of her stabilization measures so that foreign portfolio inflow to Nigeria will significantly increase. Also, government as well as capital market operators should invest in more sophisticated technology to give them competitive edge over other capital markets.

Keywords: Foreign portfolio investment, capital market, market capitalization, financial sector

1. Introduction

Capital market is believed to be a facilitator of economic growth and development, which leads to industrialization of the economy in the long run (Anayochukwu, 2012). Capital market provides the means through which savings are mobilized from the surplus units and channeled to the deficit units for investment purposes through the sale or issue of equities, bonds, exchange traded funds and government stocks (NSE, 2020). It provides veritable avenue for private enterprises to raise investible funds for expansion and other long-term purposes. The rate at which a nation records economic progress is dependent on how well its stock market can mobilize savings for investment (Sohail and Hussain, 2009). On market capitiation, America capital market dominates with \$52.6T, China (\$11.5T), India (\$4.4T)(UK (\$3.1T) Marcus, (2024), thereby making most of the pivotal projects that transformed countries like Europe and United States of America financed through the capital market (PwC, 2023). No African stock market Nigeria inclusive is of at least \$1 trillion in capitalization.

Developed capital markets have sometimes been analogized to be the engine of a growing economy (Raymond, 2014). Today, there are roughly 80 major stock exchanges worth a combined **\$110.2 trillion** in

value (Statista, 2024). The U.S. base capital markets (New York Stock Exchange (NYSE) and Nasdaq) continues to lead capital markets with total capitalization of \$28.42T and \$25.43T respectively. Two markets from China Shanghai Stock Exchange and Shenzhen Stock Exchange have market capitalization of \$6.55T and \$4.1T respectively. Johannesburg Stock Exchange of South Africa stood at \$0.99T while Nigeria Exchange (NGX) stood at \$49.56billion, (Statista, 2024).

Nigerian capital market has been bedeviled with series of challenges since the date of establishment, ranging from macroeconomic instability, frequent exchange rate volatility which often forces investors to back out from the capital market, the buy and hold attitude of Nigerians, massive ignorance of a large population of the Nigerian public of the nature and benefits of the capital market, few investment outlets in the market, lack of capital market friendly economic policies and political instability, private sector led economy and less than full operation of recent developments like the Automated Trading System (ATS), Central Securities Clearing System (CSC), On-line and Remote Trading, Trade Alerts and Capital Trade points of the Nigerian Stock Exchange, thereby witnessing inconsistent growth (Edame & Okoro, 2013).

The Foreign Portfolio Investment (FPI) as at 2019 was \$16.3billion, \$5.2billion in 2020, \$3.4billion in 2021 and 27.9% decrease to \$2.45billion in 2022. On capital importation, the total of \$1.5billion in 2021 fell to \$1.1billion in 2022 (PWC, 2023). The security and exchange commission by Decree No.71 of 1979 has been established, to oversee the activities of the Capital Issues Commission and government has continued through this commission and its policies to make effort to grow the capital market. These effort include ; introduction of the Second-Tier Securities Market(SSM) in 1985, Foreign Exchange Decree of 1995, Nigeria Capital Market Institute(NCMI) established in 2004, Nigeria Capital Market Master Plan(CMMP) 2015, establishment of the Corporate Governance Rating System in 2015, establishment of Growth Board market segment 2020 and registration of two Central Clearing Parties(CCPs).

Despite the effort of government, the Nigeria capital market is still under performing vis a vis what is obtain in the emerging countries and developed countries. This study therefore seeks to examine the effect of the foreign portfolio investment together with some macroeconomics variables and technological development on the Nigeria capital market development via capital market capitalization. The work leverage on the following questions; What is the effect of Foreign Portfolio Investment on capital market in Nigeria? In what way does Trade Openness affect the Nigeria capital market? Is there any relationship between capital market and Investment in Information and Communication Technology?, to fulfill the following objectives; (1) to determine the extent of the effect of Foreign Portfolio Investment on Nigeria capital market development (2) investigate the level of the impact of Trade Openness on the capital market development in Nigeria and (3) examine how Investment in Information and Communication Technology has engendered capital market development in Nigeria.

The study covers the period of 37 years from 1986-2022. The study used secondary data, sourced from CBN Statistical Bulletins, National Bureau of Statistics (NBS) report, International Monetary Fund (IMF) report annual data, Securities and Exchange Commission database, while variables such as Market capitalization, foreign portfolio investment, exchange rate, trade openness and investment in information and communication technology would be considered.

2.1 Review of related literature

On the effect of foreign portfolio investment on the performance of Nigerian capital market, Nwonodi (2018) with specific objective of investigating the impact of Net Foreign Portfolio Investment, Foreign Portfolio Investment in Equity, Foreign Portfolio Investment in Bonds, Foreign Portfolio in Government Securities and Nigerian Exchange Rate per US Dollar on the performance of Nigerian Capital Market, revealed that Net Foreign Portfolio Investment, Portfolio Investments in Bonds and Government securities has negative relationship with market capitalization while equity investment and exchange rate have positive relationship with market capitalization. The Ordinary Least Square multiple regressions with econometric view were used as data analysis techniques. Co integration test, Granger Causality Test, Augmented Dickey Fuller Test and Error Correction Model were used to examine the variables and its relationship to the dependent variable. The study concludes that foreign portfolio investment have a significant relationship with Nigerian capital market performance.

Also, Adumekwe (2023) investigated impact of foreign portfolio investment on capital market performance in Nigeria. Using a regression analysis, he noted a significant positive effects of equity, bond, and money market investments on market capitalization in the long term. Okolie and Ehiedu (2023) using regression analysis, found that that Equity Foreign Portfolio Investment has positive insignificant effect on Total Market Capitalization while Bond Foreign Portfolio Investment and Money Market Instrument Foreign Portfolio Investment have positive considerable consequence on Total Market Capitalization.

Osuka (2022) also found a long run positive relationship between foreign portfolio investment and Nigeria's Capital Market growth using Autoregressive Distributive Lag (ARDL) Bound test for analysis. Trade openness is found to have positive and statistically significant impact on Nigeria's capital market growth in the long run by Oyeinbrakemi, et al (2020). The study used ordinary least square regression analysis to draw the conclusion.

Obayagbona and Igbिनovia (2021) using Vector Error Correction techniques (VECM) found financial openness as not being significant in affecting the capital market in Nigeria.

Law, (2009) supported trade openness as being a significant determinant of capital market capitalization, using dynamic panel GMM estimation technique for the analysis.

Information Technology was reported to have contributed to growth of the Indian capital market, which is seen mainly in the availability of information to investors and the improvements in the trading patterns of the Indian Stock Exchange. The work of Gardner, (2017), using a country-fixed effect model for estimation, supported expansion of information and communication technology as having a positive relationship with capital market capitalization.

2.2 Theoretical framework

The efficient market hypothesis (EMH), which was developed by Fama (1965) but put forward in 1970. The theory says that the financial markets are efficient, so no one can gain an edge in them. According to him an 'efficient' market for securities is a market where, given the available information, actual prices at every point in time represent very good estimates of intrinsic values i.e. stocks always trade at their fair market value. There is no benefit for financial analysis as stock prices contains all information. That is, the prices of securities observed at any point in time are based on a correct evaluation of all information available at that given time period.

The modern portfolio theory (MPT) as propounded by Markowitz (1952) is an investment theory that allows investors to assemble an asset portfolio that maximizes expected return for a given level of risk. The theory assumes that investors are risk-averse; for a given level of expected return, investors will always prefer the less risky portfolio, meaning that given two portfolios that offer the same expected return, investors will prefer the less risky one.

3. Methodology

Exploratory and ex-post facto research design was used for the study. Vector Error Correction Model was employed in estimating the effect of the independent variables on the dependent variable because it assists in adjusting the short run disequilibrium among the variables while Augmented Dickey Fuller (ADF) and Phillip-Perron unit root test will be used to test the stationarity or otherwise of the time series data

Model Specification

Based on the efficient market hypothesis which attempts to explain the relationship between foreign portfolio investment and capital market development, the study adopts the model of Nwonodi (2018).

$$MC = f(FPI, EXR, ICT, TOP) \quad 1$$

expressed econometrically

$$MC_t = \beta_0 + \beta_1 FPI_t + \beta_2 EXR_t + \beta_3 IICT_t + \beta_4 TOP_t + \mu_t \quad 2$$

expressed as logarithm

$$\ln MC_t = \beta_0 + \beta_1 \ln FPI_t + \beta_2 \ln EXR_t + \beta_3 \ln IICT_t + \beta_4 \ln TOP_t + \mu_t \quad 3$$

Where:

MC = Market Capitalization;

FPI = Foreign Portfolio Investment;

EXR = Exchange Rate;

IICT = Investment in Information and Communication Technology;

TOP = Trade Openness;

β_0 = Intercept;

$\beta_1 - \beta_5$ = Coefficient of the explanatory variable;

μ = Error term.

The vector error correction model arises from the long-run co-integration relationship. To check for the speed of adjustment of the model from the short run to the long run equilibrium state, then we will also consider the error correcting term (ECT). The greater the coefficient of the error correction term, the faster the speed of adjustment of the model from the short run to the long run. The VEC Model can be written as in equations 3.4.

$$\Delta MC_t = \beta_0 + \sum_{i=1}^{k-1} \beta_1 \Delta MC_{t-1} + \sum_{i=1}^{k-1} \beta_2 \Delta FPI_{t-1} + \sum_{i=1}^{k-1} \beta_3 \Delta EXR_{t-1} + \sum_{i=1}^{k-1} \beta_4 \Delta IICT_{t-1} + \sum_{i=1}^{k-1} \beta_5 \Delta TOP_{t-1} + \beta_6 ECT_{t-1} + \mu_{t1} \quad 4$$

Where, ECT_{t-1} express the error correction term of equation

4. Results

Table 1: Descriptive Statistics Result

	CMC	FPI	EXR	IICT	TOP
Mean	9448.462	75898.24	99.55054	10139.17	33.96324
Median	2112.500	43451.01	106.4100	9588.580	34.02000
Maximum	51188.87	560498.5	158.5500	27965.74	53.28000
Minimum	6.800000	-12056.60	12.97000	1325.700	9.140000
Std. Dev.	13071.88	108492.9	38.99570	6341.371	10.58708
Skewness	1.608555	2.601769	-0.707937	0.788458	-0.171494
Kurtosis	5.040287	11.75046	2.928190	3.319188	2.448398
Jarque-Bera	22.37355	159.7896	3.098524	3.990672	0.650438
Probability	0.000014	0.000000	0.212405	0.135968	0.722369
Sum	349593.1	2808235.	3683.370	375149.4	1256.640
Sum Sq. Dev.	6.15E+09	4.24E+11	54743.91	1.45E+09	4035.108
Observations	37	37	37	37	37

Source: EViews Output

From the table, both market capitalization and all the explanatory variables display positive mean with FPI having highest mean value of 75898.24 while TOP has the least mean value 33.96324. standard deviation shows the extent of dispersion of the variables from the mean which is high in all the variables except for TOP and this explains that the variability is high. The probability values of Jarque-Bera revealed that EXR, IICT and TOP have their p values higher than 5% while CMC and FPI are lower than 5%, meaning that while EXR, IICT and TOP are normal distribution series CMC and FPI are not, rather they are both skewed to the right, showing that most the values are greater than the mean value.

Table 2: Correlation Matrix Result

Covariance Analysis: Ordinary					
Date: 02/04/25 Time: 19:54					
Sample: 1986 2022					
Included observations: 37					
Correlation	CMC	FPI	EXR	ICT	OPEN
CMC	1.000000				
FPI	0.173861	1.000000			
EXR	0.723542	0.258654	1.000000		
IICT	0.685605	0.149982	0.472327	1.000000	
OPEN	-0.305437	0.233333	-0.285191	-0.029360	1.000000

Source: EViews Output

The correlation matrix shows that the coefficient values are below the threshold of 0.80 for all the variables. This clearly suggests that there is no multicollinearity in the model.

Table 3: Summary of ADF Test at level

Variables	ADF Statistics	Critical value @5%	Order of Integration	Remarks
CMC	1.2727	-3.5403	I(0)	Not Stationary
FPI	-3.4797	-3.5403	I(0)	Not Stationary
EXR	-0.4016	-3.5403	I(0)	Not Stationary
IICT	1.4272	-3.5403	I(0)	Not Stationary
TOP	-3.5079	-3.5403	I(0)	Not Stationary

Table 4 : Summary of ADF Test at first difference

Variables	ADF Statistics	Critical Value @5%	Order of Integration	Remarks
CMC	-4.9208	-3.5443	I(1)	Stationary
FPI	-6.9243	-3.6220	I(1)	Stationary
EXR	-6.2044	-3.5530	I(1)	Stationary
IICT	-6.8261	-3.5443	I(1)	Stationary
TOP	-4.8175	-3.5578	I(1)	Stationary

Source: EViews Output

Table 5: Summary of Phillips-Perron at level

Variables	ADF Statistics	Critical value @5%	Order of Integration	Remarks
CMC	1.5388	-3.5403	I(0)	Not Stationary
FPI	-3.5677	-3.5403	I(0)	Not Stationary
EXR	-0.4908	-3.5403	I(0)	Not Stationary
IICT	2.2241	-3.5403	I(0)	Not Stationary
TOP	-3.4074	-3.5403	I(0)	Not Stationary

Table 6: Summary of Phillips-Perron at first difference

Variables	Phillips-Perron statistic	Critical Value @5%	Order of Integration	Remarks
CMC	-4.286071	-2.9484	I(1)	Stationary
FPI	-4.2578	-2.9484	I(1)	Stationary
EXR	-10.0872	-2.9484	I(1)	Stationary
IICT	-5.6892	-2.9484	I(1)	Stationary
TOP	-8.9063	-2.9484	I(1)	Stationary

Source: EViews Output

The result of both ADF and Philip-Perron unit root tests shows that all the variables are stationary at first difference as the statistics test values in absolute terms are greater than the critical values at 5 percent level.

Table 7: Summary of Johansen Cointegration Test

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Hypothesized		Trace	0.05	Max-Eigen	0.05
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Statistic	Critical Value
None *	0.8213	97.3024	69.81889	33.87687	33.87687
At most 1	0.4140	37.0211	47.85613	27.58434	27.58434
At most 2	0.3044	18.3137	29.79707	21.13162	21.13162
At most 3	0.1448	5.6077	15.49471	14.26460	14.26460
At most 4	0.0037	0.1330	3.841466	3.841466	3.841466

Source: EViews Output

The result shows that both the trace statistic and Max-Eigen statistic has one cointegrating equations and are found to be greater than the corresponding critical values at 5 percent.

Table 8: Summary of Vector Error Correction Result

	Coefficient	Std. Error	t-Statistic	Prob.
CointEq1	-0.392091	0.219943	-5.418705	0.0005
D(CMC(-1))	0.054749	0.313743	2.174502	0.0119
D(FPI(-1))	0.088501	0.079792	4.109146	0.0005
D(EXR(-1))	0.131825	0.404449	0.325938	0.7453
D(IICT(-1))	0.472656	0.385985	3.224545	0.0042
D(TOP(-1))	0.357044	0.298114	1.197674	0.2344
C	0.045555	0.045416	1.003060	0.3187
R-squared	0.754606	Mean dependent var		0.092848
Adjusted R-squared	0.608475	S.D. dependent var		0.122141
S.E. of regression	0.122657	Sum squared resid		0.255761
Durbin-Watson stat	1.936167	F-statistic		9.921230

Source: EViews 10 Output.

All the variables have positive relationship with the market capitalisation but only the lag of market capitalization, foreign direct investment and investment in information and communication has significant impact.

Note: With 33 degrees of freedom, the study has: $T_{0.025(33)} = 2.035$ as Tabulated t-statistic.

5. Discussion

5.1 Foreign portfolio investment and market capitalization in Nigeria

The positive value of foreign portfolio investment (0.0885) and p value of 0.0005 with calculated t-statistic value for FPI being 4.1091, which is greater than the tabulated t-stat (2.035) at 5 percent level of significance, means that FPI has statistical significant effect on the market capitalization and 1 per cent increase in FPI will increase market capitalisation by about 0.8%. Though, FPI has a positive and significant effect on market capitalisation, yet the impact is still small (0.8%). The low effect can be attributed to instability in Nigeria capital market, inconsistency government policies, insecurity, which may deter investors. Nigeria as low income country can boost the market capitalization through foreign portfolio investment. Also, Nigeria has diverse and promising business opportunities that can draw in investors if factors like insecurity and market stability is attended to. The finding conforms to the a priori expectation of FPI expected to contribute to the growth of the market capitalisation and also in line with the study of Araoye (2021), Nwonodi (2018) and Elmira et al. (2024).

5.2 Trade openness and market capitalization in Nigeria.

Trade openness (TOP) has no significant impact on the market capitalization in Nigeria. This is seen in a p-value of 0.23 which is greater than the 0.05 level of significant and the t statistics value 1.0030 which is less than the tabulated t-value (2.035) at 5 percent level of significance. This non significant effect can be attributed to weak institutions due to factors like corruption, weak rule of law, or a lack of transparency, which can discourage foreign investors from entering the capital market. Also, it can be attributed to the country's over dependence on natural resources. If a country's trade is primarily focused on specific sectors, like resources or agriculture, the capital market may not be as directly impacted. Also, the low level of income per capita can be another issue as trade openness is more beneficial to countries with higher level of

initial income per capita, FDI and gross fixed capital formation (Gabriel & David, 2021). This finding is in line with the studies of Law (2009), Ogunlowo and Owoade, (2020) and Oyeinbrakemi, etal (2020).

5.3 Investment in Information and Communication Technology and capital market development

Investment in information and communication technology (IICT) has a positive coefficient of 0.4726 showing a 47% increase in market capitalization as a result of 1% increase in government investment in ICT. The p-value stood at 0.0042 which is less than 0.05 level of significant and the computed t-value (3.2245) is greater than the tabulated t-value (2.035) at 5 percent level of significance, meaning that ICT has a significant effect on market capitalization. This significant impact can be attributed to the increase in government leveraging ICT for e-governance. This facilitate faster and more transparent trading, real-time monitoring of market conditions, helping investors access and manage risks more effectively and reducing corruption in the system. Also there has been an increase in the government working on increasing broadband penetration in the country so as to enhance efficiency, reducing costs, increasing accessibility, faster processing of transactions, reducing delays and improving overall market efficiency. Furthermore, there has been increase in fiber optic network making it easier for individuals and businesses to access the capital market from anywhere with an internet connection. Increase in Online trading platforms and mobile apps is evident and provide convenient access for a wider range of investors, including those in remote areas. This is in line with the prior expectation supported by efficient market hypothesis.

6. Conclusion

The capital market plays a vital role in promoting the growth and development of an economy by mobilizing funds from surplus units and channel them to the deficit units for and fundamental in developing a modern economy by creating critical linkages that foster the productive and efficient allocation of resources. Foreign portfolio investment inflows play crucial role in complementing domestic capital to enhance level of investment in developing countries by increasing volume of credit in capital deficient countries, thereby stimulating their capital market to contribute adequately towards attainment of economic growth and development. The study showed foreign portfolio investment has positive impact on Nigerian capital market though low on its impact, which can be explain by low FPI inflows into the country. The low inflows may be connected with foreign exchange market instability, uncertainty in repatriating their capital earnings to their home countries, security challenges, structure and policy problems facing the country. It is thus concluded that foreign portfolio investment if enabling environment is provided will greatly influence the development of capital market.

Based on the findings, the study recommends the following:

1. As part of its stabilization policy, Nigeria's capital market regulatory authorities should give boost to the international competitive coupon rates so that Foreign Portfolio Investment (FPI) inflow to Nigeria will experience boost and not frequently withdrawn by the Foreign Investors who seek higher rate of return.
2. Government as well as capital market operators should invest in more sophisticated technology that would provide more efficiency, confidence and accountability in products' dealings because technology is something capital market cannot do without since it can give them competitive edge over other capital markets.

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