



REVIEW ARTICLE

MAINSTREAMING CAPITAL MARKET PERFORMANCE AND FOREIGN PORTFOLIO
INVESTMENT IN NIGERIA

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ABSTRACT

Incessant stock market failures and waning domestic investor's confidence in Nigerian capital market as well as foreign portfolio investors activities have generated contentious views among capital market stakeholders necessitating critical investigations. This study employs descriptive and ex-facto research designs using time series data, judgementally sampled between 1985 and 2015 from various report issues of the NSE, SEC and National Bureau of Statistics respectively examine the connectivity among capital market liquidity, market capitalisation and foreign portfolio investment in Nigeria. Vector Granger Causality and sub VAR tests are applied and the result revealed bi-directional and unidirectional relationship among foreign portfolio investment there by rejecting the null hypotheses test of no interconnection and direction of causality among the series examined. The study therefore concludes that significant level of bilateral connection exist among the series and consequently recommends the establishment of foreign portfolio investment department by all stocking firms operating under Nigerian stock exchange market in order to adequately capture daily update of all levels of over the counter foreign and domestic investment transactions with the reports captured by the daily official list report coupled with an integrated grass root capital market investors education to boost awareness for the market activities, products and their benefits respectively
Keywords: Capital market, foreign portfolio investment, stock market liquidity, capitalisation and Nigeria.

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INTRODUCTION

As the world gradually converge to a global community, the allure of international investment continue to occupy the centre stage in most business and academic for a. This explains the need for cross-border financing of developing economies representing alternative funding source to supplement homemade resources. Omisakin, (2009) posit that emerging African economies are vigorously in search and in need of foreign finance a sourcing options for domestic savings which they believe could narrow the savings – investment gaps associated with rapid economic growth and development. Ngowi, (2001) viewed the nature and components of foreign based capital formation to mainly consist of foreign direct investment (FDI), foreign portfolio investments (FPI), commodity exports and grants. Differentiating the two, Ngowi, (2001) noted that, while foreign direct investment segment of foreign capital formation presents is a more permanent and longer tenured foreign funding winding, directed at the real

sectors and physical assets acquisitions in which the investor assumes outright dominance, control and management of the acquired entity, the foreign portfolio investment window on the other hand, relates to cross border investments transactions on equity or bond securities through the financial markets specifically for profit maximization motives and risk diversification. Foreign portfolio investment channels therefore facilitate foreign transmission by reducing the rigors of moving funds from one country to another thereby allows investors all over the world the opportunity diversifying their investment portfolio and at same time expanding their businesses empires beyond the borders of their countries (IMF, 2000) Through the financial intermediation processes, the needed mandate execution of these cross-border transactions are normally perfected on the platform of capital market. This explains the importance attached to capital market structural and operating performance as well as the peculiarity of foreign portfolio investments in the foreign capital formation process. Owualah, (2010) and Olowe, (2007) respectively note that capital market performs distinct roles in every economy by providing a platform for raising long term funds for domestic production, industrial expansion as well as connecting foreign and local providers and users of funds in the system.. Capital market

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liquidity they have noted enables proper measurement of the activity based status of the financial intermediation process through the market. According to Okereke Onyiuke, (2000), the popularity of capital market investments among Nigerian investors as well as foreign investor participation in the investment market markets are all positive manifestation of the various financial sector liberalization policies, globalization, privatization as well as commercialization of public enterprises which respectively tend to have opened up Nigerian borders to the benefit of foreign investors. In specific terms, stock exchange market report, (2013) indicated a major breakthrough in Nigerian capital market to have been driven by the 2005 banking sector recapitalisation schemes which tend to have also boosted awareness of capital market activities and products by unveiling return potentials of the portfolio investment window strategy under the banking sector index. This development according to pro-shares analyst (2014) assisted in driving Nigerian capital markets operation and performance to such an unprecedented heights that placed her far above most of its peers in the Sub-Saharan states between 2006 and 2013. (StockMarket outlook 2014)

However, the transient and speculative nature of foreign portfolio investment are seen to be posing so much challenges to the development of capital market in most economies including Nigeria that this phenomenon tend eliciting some contentious issues regarding the its desirability for economic growth process needed to accelerate capital market development in Nigeria. This is due to the fact that African capital markets Nigerian stock exchange market are characterized by weak economy, poor liquidity, weak financial System, inefficient market as well as poor corporate governance structures. Hence, Bekaert *et al.*, (2001) noted that African stock markets have rapidly increased in number over the years as a result of privatization and commercialisation efforts of various governments coupled with market segmentation and higher expected returns on investment Prior to 1988 he notes, there were only seven (7) stock markets in the Sub-Saharan Africa regions but this figure has risen to twenty (20) by the end of year 2000 with South Africa and Egypt Capital market topping the list as leaders and oldest in the continent based on their establishment dating back to 1887 and 1888 respectively. In the Nigerian case, the capital market activities commenced in 1961 with 19 securities after its establishment in 1960 as the Lagos Stock Exchange and with capital trading points / branches established in almost all the zone and major commercial cities of the country, the market now houses 198 listed companies with a total market capitalization of about N12. 9 trillion as at 2007.

Statement of the Problem

Foreign portfolio investors participation in Nigerian capital market since its inception in 1961 has been on the increase for some times with growth trend of 2,314% between 1985 and 2008 (NSE outlook report 2014). Recent capital market surveys reveal a patronage ratio between local and foreign portfolio investors of 33% against 67% of total transactions in the Nigerian stock exchange market for the 2014 activity year. The achievement level is relatively higher than other markets in Ghana, Kenya and Egypt with 44 %: 56%, 49%: 51% and 26%: 72% respectively as at 2013 activity year. In yield terms, Nigerian stock market relatively outperformed most African stock exchanges, achieving 36% average return thereby ranking 2nd after Kenya with 38% and also topping Zimbabwe with 24. 66 %, Botswana with 15.4%, Kenya with 6.1%, Egypt

with 13.7% and South Africa with 13.4%. The performance trend considerably aligns with growth recorded in stock market capitalisation and All Share Index within the same period which rose from N5.6billion, and 127 points in 1985 to N15.6 Trillion and 66,371 points in 2008 and subsequently to N13.93Trillion by the second quarter of 2014. It is suspected that the perceived foreign portfolio investors' activities in Nigeria coupled with weak regulatory structures, uncertainties as well as challenges of fiscal and monetary policy inconsistencies which seem to create room for unwarranted market participation imbalances with adverse economic implications deserves government and regulators' attention. Similarly a perceived gap posed by scanty study scopes prevalent in previous studies necessitates an in depth and detailed investigation such as this paper. This study therefore attempts to bridge a perceived awareness gap in studies in terms of activity based market performance induced by the participation imbalance between foreign portfolio investor and their local counterparts in the Nigerian capital market.

Aim and Objectives of the study

This paper broadly investigates the interconnectivity between foreign portfolio investment and capital market performance in Nigeria by specifically;

- Examining the direction of causation flowing between foreign portfolio investment capital market liquidity in Nigeria.
- Evaluating the magnitude of interactive response or shocks generated between market capitalisation and foreign portfolio investment in Nigeria.

Research Questions

What is the level of connection existing among capital market liquidity, market capitalisation and foreign portfolio investment in Nigeria?. What is the nature and direction of causality existing among capital market liquidity, market capitalisation and foreign portfolio investment in Nigeria.

Research Hypothesis

In line with these objectives, the under listed hypotheses are formulated:

H₀₁: There is no significant interactive impacts among foreign portfolio investment and stock market liquidity and market capitalisation in Nigeria.

H₀₂: There is no direction of causality existing among foreign portfolio investment, capital market liquidity and stock market capitalisation in Nigeria.

Significance of the Study

This study focuses on the interconnectivity between foreign portfolio investments and the performance of capital markets in Nigeria with emphasis on the need to protect investment asset deterioration due to the activities of foreign portfolio investors in the market. The outcome of this investigation could present working policy guidelines for capital market authorities and regulator respectively. Ministry of trade and investment as well as Ministry of Finance could adopt findings in designing policies aimed at promoting investors participation in the Nigerian capital markets, boosting investor s' confidence, deepening and stimulating market vibrancy. Research institutes, consultants, students, investment advisers,

local and foreign investors as well as listed companies on the Nigerian stock exchange market will find the study highly resourceful. The remaining sections of this paper cover the review of literature, conceptual, theoretical and empirical frame works, research methodology, data analysis and presentation as well as discussion of findings, conclusion and recommendations respectively.

Literature Review

Theoretical Review

The study theoretically builds its foundation on a number of theories including the Portfolio Diversification Theory and liquidity preference respectively.

PORTFOLIO DIVERSIFICATION THEORY

In line with the Push and Pull factor theory which is used to explain investors tendency to migrate when the investment climate becomes risky and hostile. Tobin (1958) and Markowitz (1959) used the portfolio diversification theory to explain investors' attitude to investment risks. It is the attitude to risks that motivate them to migrate from home countries to other regions through portfolio diversification strategy. The theory is used to guide risk averse investors to achieve greater returns while hedging their portfolio investment through regional or geographical diversification.

Buttressing the importance of this foreign portfolio diversification channel, Markowitz (1959) and Tobin (1958) explained that portfolio investment diversification is a risk management measure that emphasizes on Risk-Return profile of portfolio of assets acquired across the borders of an investors community. They recommended foreign portfolio diversification as a potent means for reducing investments risks by isolating portfolio risks under systematic and unsystematic risks. Under this theory, an investor can migrate from one investment destination to another, as a result of push or pull factors affecting him in his current investment environment which could be managed by adopting tactful portfolio diversification to a global market portfolio. Levy (1970), Bekaert, (2002), Grubel (1968) and Solnik (2003) findings respectively aligned with Markowitz theory. Gibson (1998) re-examining the link between high return and investment diversification, noted that modern portfolio theorists have reemphasized and supported the need for international portfolio investment diversification based on the assumptions that emerging markets equities are the most sought after portfolio investment due to their high economic growth rate investment returns potentials.

LIQUIDITY PREFERENCE THEORY

This theory was postulated by Keynes (1936) and popularized by Tobin (1967). The liquidity preference theory is applied here to explain the investors reactions to movement in interest rate which is viewed as a major driving force for geographical portfolio diversification and investors migration from one investment location to another in search of investment heavens.

Under this theory investors' expectations for future interest rate could motivate them to invest or hold cash for future consumptions. Accordingly, the theory aligns with Keynesian

Transmission mechanism which explains the speculative motives for which individuals for holding cash. The theory confirms the fact that the motivation for funds movement in and out of the system is usually driven by many macroeconomic factors including push and pull elements as postulated by Lee (1966). Keynes transmission Mechanism describes how policies that induced changes in the nominal money stock or short run interest rate could impact on real macroeconomic variables as well as capital market performance in general. Under the Liquidity preference theory, various macroeconomic policies energise savings and investment or preference for holding cash instead of investing it for future expected returns on investment which in turn seem to support foreign portfolio investment diversification as well as the push and pull system elements respectively. According to this theory when interest rates are high the propensity to hold money declines as investors tend to move their funds to more viable investment assets that would maximize their wealth and expected returns offered by the alternative investment market.

Demiurge, Kunze and Levine, (1996) however have contradicted this assumption pointing out that increased liquidity inclination can deter growth through three channels as greater stock market liquidity may reduce savings rate through income substitution effects. They held that if savings fall, and externally attached capital accumulation rises, greater market liquidity may slow down economic growth. Similarly, by reducing uncertainty associated with investment, rate of savings could be reduced due to ambiguous effect of uncertainty on savings as stock market liquidity encourages investor's myopia, and adversely affects corporate governance and economic growth.

Empirical Review

Symbiotic connection between foreign portfolio investment and capital market performance has elicited controversial debates over the years in both financial and economic literature. To this end, the study empirically reviewed relevant literature under the following areas: (i) Foreign Portfolio investment and capital market performance in Nigeria, (ii) Economic growth and development and capital market performance in Nigeria (iii) Sub-Sahara regions, capital market and foreign portfolio investment (iv) drivers of foreign portfolio investment in Nigeria, (v) Benefits and Challenges to foreign portfolio investment diversification and capital market performance in Nigeria as summarised below.

Conceptual Framework

Conceptual model explaining the interface between capital market performance and foreign portfolio is depicted in figure 2.2 demonstrating the systematic flow of influences between capital market performance and foreign portfolio investments with complimentary impacts from the macroeconomic variables. The contextual illustration depicting the perceived interconnection direction of flow of influences between the capital market performance indicators and foreign portfolio investment in an economy. Which is usually triggered off by the macroeconomic performance index. Economic performance as push factors energises some levels of influences translating to either a boost in the market liquidity and capital performance respectively. This in turn could also attract investors to the market as a result of bullish trend induced by enhanced market performance present.

Table 2.3. Empirical Framework Schedule

Authors/Date	Title/methodology	study findings
Nyang'oro (2013)	Effect of Foreign portfolio investment on the performance of Nairobi Stock Exchange using Multifactor Models.	Found that Foreign portfolio investors' participation in Nairobi market has impact on domestic stock market returns.
Fiador and Asare (2012)	Impact of currency risk as a major determinant of foreign portfolio diversification and performance of cross border investment using Error correction model on data from African states between 2005-2010	Interest rate and currency risks are big factors to consider when compiling portfolio diversification and also has significant policy implication international investment.
African Security Exchange Fact Book (2013),	Foreign portfolio investors presence in 23 Sub-Saharan African States using comparative ratio approach.	Found that Six States had above 40% foreign portfolio investors' participation while 12 states had none at all. Only Lusaka Stock Exchange had foreign investor's participation ratio of 78.9 against domestic investors' ratio of 21.1%. Only Bourse de Tunis had the least rate of 6.3% (foreign) against 93.7% (local) investors.
Ozurumba (2009)	Evaluated the impact of Stock Market Returns on Foreign portfolio investment in Nigeria using Multi-regression model.	Positive and significant relationship impact with R ² of 77%. Robust and unidirectional causality running from stock market returns to foreign portfolio investment. However, the study lacked wider coverage as it did not extend to 2015 period.
Ezeoha <i>et al.</i> (2009)	Examined the nexus between economic growth and development and foreign Portfolio Investment using Multi-regression Model.	A significant and positive relationship between foreign Portfolio Investment and economic growth indicators. This study however, failed to address the connection of foreign portfolio investment with capital market liquidity.
IMF, (2000)	Examined the growth process of foreign portfolio flow in African markets between 1970-1980 using comparative analytical approach with data from African States.	The study found that foreign capital flow in Africa was minimal during 1970-1980 compared with that of developed countries. Recent developments in the capital markets in sub-Saharan state have been ignored in this study
Maku and Atanda (2009)	Examined the long-run and short-run effects of macroeconomic variables on the Nigerian capital market between 1984 and 2007 using Ordinary Least Square Estimators.	Found that the Nigerian stock exchange tracking index (ASI) is more responsive to changes in exchange rate, money supply and real output and simultaneous significantly impact on the Nigerian capital market both in the short run and long-run.
Jimoh, (1991)	Investigated geometric analysis of the magnitude of capital flight in Nigeria using World Bank and Morgan Trust method to identify its link with portfolio investment	The study found that between 1960 and 1988 total capital flight in Nigeria stood at 53.8 billion dollars averaging 1.9 billion dollar per annum. It also confirmed that exchange rate valuation, foreign-domestic inflation rate differentials and rate of primitive capital accumulation are key determinants of capital flight in Nigeria. Again this study lacked wider scope and coverage which is being addressed by this on going study.
Levine & Servos (1998)	Investigated whether stock market are merely casinos or a determinant of economic growth in Africa using regression analysis methods.	Found positive and significant correlation between stock market development and long run economic growth.
Adenuga (2010)	Examined the role of macroeconomic policy in determining Foreign portfolio investment flow in developing countries ordinary least square method for predictive reports.	Found that highly volatile environment prevents investors from making meaningful predictions concerning their portfolios in the market.
Onuoha, (2013)	Examined impact of macroeconomic indicators on foreign portfolio investment in Nigeria between 1980 and 2010 VECM and Grange Causality approaches.	Found inverse relationship between GDP, Money Supply and FPI. It also found that macro-economic variables do not granger cause FPI in Nigeria.
Erunza, (2000)	Examined Foreign portfolio Investment relationship with stock market performance in Nigeria using Ordinary Least Square estimation method.	Found strong and significant relationship between stock market performance and Foreign portfolio investment. The study failed to extend the scope up to 2015.
Jackson, (2009)	Evaluated the benefits of foreign portfolio investment in China from the investor point of view ratios and percentages analytical reviews.	Found that among other benefits, a significant level of systematic risks could be diversified away through FPI and that international investments through global capital market offers lower cost of capital, greater liquidity and larger pool of investors.
N'angwa, (2009)	Examined the History of foreign portfolio investment in Egypt using comparative analytical reviews and correlation methods.	Found that macroeconomic stability, use of institutional investor incentives to be more benefit maximizing regulation approaches in Egypt.

A responsive action by the foreign portfolio investment could as give rise to capital flight. Shocks generated by the macroeconomic indicators exert positive or negative pressures on the capital market performance indicators which in turn drives foreign portfolio investments flow upwards or downwards giving rise to capital flight.

RESEARCH METHODOLOGY

Research Design: This paper employs descriptive, exploratory and ex post -facto research design methods that comprises basically of the parametric procedure of estimations to validate

the nature, magnitude and possible direction of relationship between the performance of stock market and foreign portfolio investment in Nigeria as well as the causation among foreign portfolio investment, stock market performance and market liquidity, respectively.

Data sources, population and sampling techniques

This study makes use of both primary and secondary data generally sourced from the Nigerian Stock Exchange market, Central Bank of Nigeria Annual reports, Statistical Bulletin, SEC reports, Federal Government Statement of Accounts,

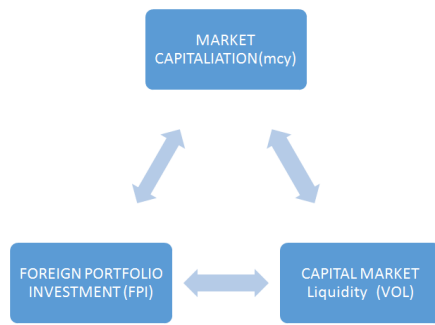


Figure 1. Flow of interconnection between stock market liquidity, stock market capitalisation and foreign portfolio investment in Nigeria

Bureau for Economic and Statistical Research, World Bank and IMF global economic reports of various issues. The scope of this study covers capital market activities driven by both foreign portfolio investors as well as domestic investors on all the listed equities, mutual funds, unit trusts, government and corporate bonds traded on the platform of the Nigeria Stock Exchange as at 2015. Stratified sampling method was adopted to sample stock market data between 1985 and 2015 from various issue of the Central Bank of Nigeria (CBN) statistical bulletins SEC, NSE and the National Bureau of Statistics (NBS). Justification for the selection of this scope of this study stem from the need to achieve a more detailed and wider study which seem to be lacking in most of the reviewed previous studies in Nigeria and also to capture capital market activities in the post global financial meltdown periods respectively.

Model Specification

In an order to validate the objectives of the study the multivariate Vector Auto Regression (VAR) tool is used. The multivariate VAR model in this study follows a 3-variable case of this form presented below:

$$\left. \begin{aligned} FPI_t &= \gamma_0 + \sum_{j=0}^m \gamma_{1j} \Delta MCY_{t-j} + \sum_{j=0}^n \gamma_{2j} \Delta Vol_{t-j} + E_t \\ MCY_t &= \psi_0 + \sum_{j=0}^m \psi_{1j} \Delta FPI_{t-j} + \sum_{j=0}^n \psi_{2j} \Delta Vol_{t-j} + \Theta_t \\ Vol_t &= \mu_0 + \sum_{j=0}^m \mu_{1j} \Delta FPI_{t-j} + \sum_{j=0}^n \mu_{2j} \Delta MCY_{t-j} + \Xi_t \end{aligned} \right\}$$

Where:

FPI_t is the measure of foreign portfolio investments representing total value of foreign portfolio investors stake in the Nigerian equities and bonds over the period in the capital market. Vol_t is the volume and value traded referred to as market liquidity variable Market Liquidity represents total value of units of equities and bonds of listed companies transactions executed between 1985 and 2015 through the Nigerian capital market. Stock market liquidity captures by the volume of transactions executed by the exchange multiplied by their daily stock prices which is used to define the market tempo. MCY is the stock market capitalisation representing the total value of outstanding shares of listed companies on the exchange. It is derived by multiplying the volume of equity and bonds outstanding multiplied by their respective daily stock prices. Market capitalisation also measures the overall performance of the economy as driven by the various government policies.

The '(m)' and '(n)' are the lag length, E, Θ, Ξ are the residuals which are assumed to be uncorrelated with zero mean and

finite variance and covariance matrix. The F- test statistics is adopted to accept or reject the null hypothesis of strong bidirectional, unidirectional or zero causation among the variables after several lag selection measures which include Akaike Information Criterion (AIC), Schwarz Information Criterion (SIC) and likelihood ratio.

Model Estimation Techniques

The Multivariate VAR process avoids all problems associated with structural equation modelling. For instance, identification and endogeneity problems are insignificant. The unrestricted VAR framework (Sims, 1980) is employed with auxiliary estimations such as impulse response trends, variance decomposition and VAR causality. Given the associated problems of VAR models, the study employs the Akaike Information Criterion (AIC) and Schwarz Information criterion (SIC) for the lag length selection process. These tend to reduce the number of variables used, resolve endogeneity and model specification problems by using unrestricted VAR framework.

Data Presentation, Analysis and Interpretation

The analysis of data in this section is through impulse response functions, variance decomposition and vector autoregressive (VAR) causality test. Before these estimations are interpreted to give valuable conclusions regarding the relationship among market liquidity, stock market capitalisation and foreign portfolio investments in the Nigerian capital market, the following pre-estimation statistical test such as vector autoregressive (VAR) lag length selection criteria, VAR normality of residual test and VAR model results are first discussed.

Unit Root Test Analysis

Table presents the results of unit root tests using Augmented Dickey Fuller test and Philips and Perron approaches applied on annual data series.

Table 4. 1 Unit Root Test Result Summary

SERIES	Logmcy	Logfpi	LogVol
LEVELS	-0.2	0.16	-0.84
1 ST DIFF	-5.02	-3.11	-4.77
REMARKS	1(1)	1(1)	1(1)

Source: Author's Computation

Unit root tests are important in exploring the stationarity of time series. A series is said to be stationary if the mean, variance and covariance are invariant with respect to time, otherwise, the series is non-stationary. For this purpose the Augmented Dickey Fuller (ADF) and Phillip-Perron (PP) tests for unit root are applied on selected series at levels and first difference of series, with null hypothesis that there is a unit root in the data series and an alternate hypothesis with no unit root. The result confirmed non stationarity of the series at levels while stationarity was achieved after the first difference. Hence further test for long run interactions among the series is investigated using co integration test

COINTEGRATION TEST

The Trace and Eigen Value co integration tests respectively confirm that at least two co integrating variables at 5% level of significance implying both short and long run interactions existing among the variables and the possibility of errors corrections and convergence in the long run.

Table 4.2 Cointegration test result Unrestricted Co-integration Rank Test (Trace)

Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.979899	197.8803	95.75366	0.0000
At most 1 *	0.866042	96.29866	69.81889	0.0001
At most 2	0.628636	44.03278	47.85613	0.1093
At most 3	0.393976	18.27786	29.79707	0.5456
At most 4	0.164716	5.256150	15.49471	0.7810
At most 5	0.021932	0.576580	3.841466	0.4477

Trace test indicates 2 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		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	
None *	0.979899	101.5817	40.07757	
At most 1 *	0.866042	52.26588	33.87687	
At most 2	0.628636	25.75491	27.58434	
At most 3	0.393976	13.02171	21.13162	
At most 4	0.164716	4.679570	14.26460	
At most 5	0.021932	0.576580	3.841466	

Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Table 4.3. Var Lag Order Selection Results

Criterion	Lag Length						
	0	1	2	3	4	5	6
Log Likelihood (LogL)	-841.47	-733.65	-697.48	-674.36	-646.67	-621.86	-574.74
LR Test Statistics (LR)	NA	176.42	49.33	25.22	22.65*	13.53	12.85
Final Prediction Error (FPE)	4.4	5.59	5	1.61	4.01	1.82	2.52*
Akaike Information Criterion (AIC)	76.77	67.78	65.31	64.03	62.33	60.89	57.43*
Schwarz Information Criterion (SIC)	76.91	68.38	66.35	65.52	64.26	63.27	60.25*
Hannan-Quinn Information Criterion (HQ)	76.81	67.92	65.56	64.38	62.78	61.45	58.09*

Source: Computed by the Authors.

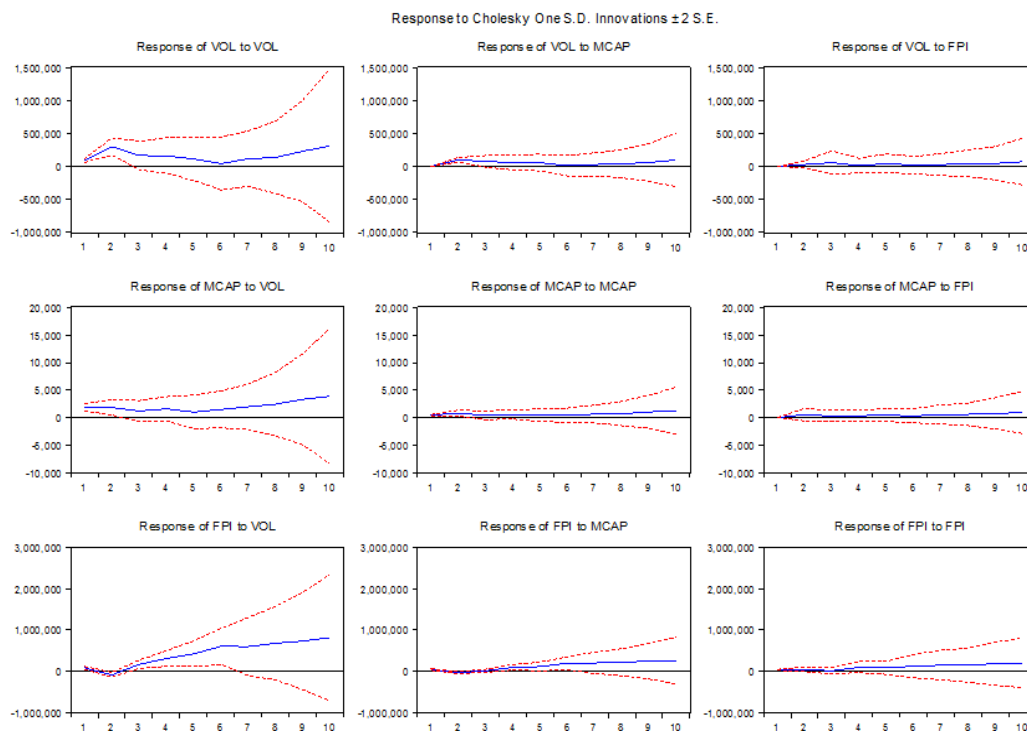


Figure 4.1. Impulse Response Function test chart of the capital market liquidity (Vol) market capitalization (MCY) and foreign portfolio (FPI) displayed in batches A, B and C

Lag Length Selection: The pre-estimation results include the lag length selection criteria. From the lag length selection criteria, the study considers six basic selection criteria. Four out of these six criteria voted for long lag length of 6-time lag, while the LR Test Statistics have a different decision with 4-time lag and the Log-Likelihood criterion makes zero time lag decision. However, going by the acceptable criterion as postulated in the literature, the Schwarz Information Criterion (SIC) and Akaike Information Criterion (AIC) are both considered by the study with their reported 6-time lag decision. Given this decision the study specifies the VAR model with 6-period lag length.

Vector Autoregressive (VAR) Normality of Residual Test

Vector Autoregressive (VAR) normality of residual test results was conducted considering the skewness, kurtosis and Jacque-Bera statistics of individual variable and their joint estimations. The results indicate that only one component is found to be significant, which suggests that based on individual characteristics one component is reliable in terms of volatility pressure and normal distribution of the residual. The Joint estimates present the overview of the three components at a glance. The outcomes show that the combination of the three components will generate vector of residual that is less volatile, slower kurtosis and is normally distributed over the sample period.

IMPULSE RESPONSE FUNCTION TEST

The impulse response of the market liquidity (*Vol*) to market capitalisation (*MCAP*) and foreign portfolio (*FPI*) is displayed in batches A, B and C of figure 4.1. Batch A captures the impact of market liquidity on market capitalisation and foreign portfolio investment, batch B captures market capitalization interaction with market liquidity and foreign portfolio investment while batch C addresses foreign portfolio investment interaction with market capitalisation and market liquidity. Employing pairwise analysis approach, shock from stock market liquidity (*Vol*) increases market capitalisation slightly by 0.15% points in period 1. This effect further increases to 0.17% in period 2 but the impact is short lived and dies out in period 8. Hence the effect of a shock on market capitalisation from market liquidity increases steadily over the period and the patterns of the effect do not fade out even in the long run.

A shock to foreign portfolio investments (*FPI*) has the effect of improving at period 7, which suggests that increasing market liquidity will positively impact on foreign portfolio investment in the long run. This contradicts the episodes of documented effect from period 1 to period 6 as this was meant to be insignificant. The shock from foreign portfolio investment to market liquidity was negative between period 1 and period 3 which indicates that excess foreign portfolio will generate liquidity squeeze within the market.

Table 4.4 A Variance Decomposition of Market Liquidity

Period	S.E.	Market Liquidity	Market Performance	Foreign Portfolio Investment
1	90563.03	100	0	0
2	331225.6	90.532	8.607	0.859
3	383161.3	86.595	10.532	2.871
4	420264.8	87.082	10.451	2.466
5	440640.8	85.645	11.142	3.212
6	443425.7	85.536	11.078	3.384
7	460343.4	85.796	10.721	3.482
8	484362.4	85.596	10.325	4.077
9	541947.3	86.553	9.477	3.969
10	638360.9	86.66	9.167	4.171

Table 4.4 B Variance Decomposition of Market Capitalisation

Period	S.E.	Market Liquidity	Market Performance	Foreign Portfolio Investment
1	1894.88	94.962	5.037	0
2	2798.82	86.333	10.074	3.591
3	3068.05	86.401	10.045	3.552
4	3497.61	86.231	10.278	3.489
5	3677	85.261	10.349	4.388
6	3985.33	86.018	9.723	4.258
7	4510.11	85.857	9.401	4.741
8	5191.46	86.368	8.861	4.771
9	6286.43	86.798	8.617	4.584
10	7522.02	86.673	8.632	4.693

Table 4.4 C Variance Decomposition of Foreign Portfolio Investment

Period	S.E.	Market Liquidity	Market Performance	Foreign Portfolio Investment
1	96707	72.044	17.796	10.158
2	143201.4	72.622	13.841	13.535
3	219095.6	88.015	6.036	5.948
4	398900	85.615	7.002	7.382
5	595014.3	88.287	6.605	5.106
6	875694.5	87.921	7.867	4.211
7	1088215	86.953	8.533	4.513
8	1307668.1	86.987	8.685	4.326
9	1527959	86.505	8.886	4.608
10	1760775.2	86.506	8.771	4.721

Source: Computed by the Author

Table 4.5. Var Granger Causality Results

Dependent Variable: Market Liquidity			
Excluded	Chi-Square	df	Prob.
Stock Market Performance	28.48	2	0.000
Foreign Portfolio Investment	33.244	2	0.000
All Variables	185.109	4	0.000
Dependent Variable: Stock Market Capitalisation			
Excluded	Chi-Square	df	Prob.
Market Liquidity	6.38	2	0.041
Foreign Portfolio Investment	3.685	2	0.158
All Variables	12.758	4	0.012
Dependent Variable: Foreign Portfolio Investments			
Excluded	Chi-Square	df	Prob.
Market Liquidity	14.748	2	0.0006
Stock Market capitalisation	10.006	2	0.0067
All Variables	300.175	4	0.000

Source: Computed by the Author

However, this is short lived as liquidity becomes “explosive” between period 3 and period 10. This implies that going by the impulse response the relationship between market liquidity and foreign portfolio investment was moderately “explosive” thus increases foreign portfolio investments as it strengthens market liquidity. The impact of the market capitalisation (*MCAP*) on foreign portfolio investment is small in line with past studies results. Thus an increase in market performance shock only has 0.0025% effect on foreign portfolio investments from period 1 to period 7. Periods 8 to 10 showed an increased effect on Foreign portfolio investment from market capitalisation. Market liquidity is mostly affected by own shocks, especially both in the short and long horizon, however, its own shock effect in the medium horizon is short lived. With regards to variance decompositions, the contribution of own innovations to market liquidity movements is high in the shorter horizon, with 90.5% in the first quarter, which falls to 86.59% in the second quarter, and converges at about 86.66% in the long run. Shocks to market capitalisation account for a small proportion of market liquidity movements, with 8.61% and 11.07% in the short run, while declining to 10.72% and converging 9.16% in the long run thus slowing down the variance decomposition trend over the period.

Shocks to foreign portfolio investments account for a very small proportion and seems to be slower than what was documented for market performance. The contribution of market liquidity innovations to foreign portfolio investments movements is low in the short, medium and long run horizons, with 0.85%, 2.87% and 4.07% recorded in short run and subsequently declining to 3.96% and finally converging to 4.17%. Conversely, shocks from foreign portfolio investments seem to affect market liquidity more than market capitalisation shocks, although the impact is still small in the case of market capitalisation but higher than that recorded from market liquidity shock. Although the impact on market capitalisation is still small, with a contribution of 17.79%, 6.60% and 7.86% in the short run and converging to 8.88% and 8.77% in the long run. This small contribution of foreign portfolio investment is not consistent with the results obtained in other studies of Ozurumba (2012) and Onuha (2013) due to narrow study coverage. The innovations from foreign portfolio investment to market liquidity with regards to variance decomposition establish a strong relationship between the two terms over the sample periods. The contribution of foreign portfolio investments innovations to market liquidity movements is very high in the time horizon considered by the

study, with 72.66 % and 88% in the short run, while the impact of innovations decline to 85.61% and 86% in the long run.

Granger Causality Test

Table 4.5 presents the results of the test of direction of causality among the focused variables. The vector autoregressive (VAR) causality results indicate a bi-directional individual causation and group causation results concurrently. The results show that market performance variable proxied by stock market capitalisation has bi-directional causation with market liquidity with the causation running from market capitalisation to market liquidity and vice-versa. Thus, both variables cause each other within the system ($\chi^2 = 28.48, 6.38$ and $p = 0.000, 0.041$ respectively). Causal direction between foreign portfolio investment and stock market capitalisation runs only from foreign portfolio investment to market capitalisation which validate our initial specification, that is, foreign portfolio investment can explain market capitalisation while the other case does not hold. Hence, uni-directional relationship suffices in the presence of foreign portfolio investment and stock market capitalisation.

The case of foreign portfolio investment and market liquidity takes a different dimension. On one hand, market liquidity is observed to granger cause foreign portfolio investments with $\chi^2 = 33.24$ and $p = 0.000$. and on the other hand, foreign portfolio is seen to granger cause market liquidity with $\chi^2 = 14.74$ and corresponding $p = 0.0006$. This result established that bi-directional relationship exists between foreign portfolio investment and market liquidity and thus, causation runs from both sides considering the study period. The joint causation results indicate that under each component, the three variables are jointly causing each other with significant chi-square values of 185.109, 12.758 and 300.175 and probability values of 0.000, 0.012 and 0.000, respectively. Consequently, the study findings aligns with past empirical findings of bi-directional relationship between foreign portfolio investment and market liquidity, hence we reject the null hypothesis of no relationship between foreign portfolio investment and market liquidity and accept the alternative statement of bi-directional relationship.

Comparatively, these results aligns with previous some recent studies in Nigeria such as (Ozurumba, 2012 and Onuha 2013).

Implication of Findings

The bidirectional and unidirectional granger causality outcome of this study indicating direction of flows of influence among the series examined as well as the possibility of long run

convergence revealed by impulse- response function tests and the level of series impact forecast decomposition applied in this study over the review period discloses far reaching symbiotic connection between foreign portfolio investment and capital market growth and performance in Nigeria. Hence, government economic policies decisions encouraging foreign capital flow into Nigeria unrestricted flow of foreign portfolio investment channel through the capital market platform should be consciously managed, controlled and monitored to avoid negative boomerang to the economy as a whole. This result further aligns with stakeholders concerns about incessant bearish stock market trends and domestic equity investment euphoria caused by unexplained equity portfolio devaluation triggered by the perceived adverse repercussions of the hurried exit of the Nigeria foreign portfolio investors from the capital market during the 2008 global financial crisis on one hand and the 2014/2015 election fevers, insecurity problems as well as various forecasted negative economic and political news roving across Nigeria over those year. The study has contributed to existing knowledge by conceptually designing an interconnectivity diagram to model the flow of impact among foreign portfolio investment, capital market liquidity and market capitalisation in Nigeria which is missing in most review literature. In view of the current economic situations in Nigeria and government anticorruption drive, this study, aptly provides a working tool for the federal government to address capital market infractions that usually occur through the foreign portfolio investment window of the capital market

Conclusion

This paper examined the interrelationship and direction of causality among these variables. The need to address the incessant market failures due to the negative impact of participation imbalance between foreign portfolio investors and the local investor in Nigerian capital market necessitated this study. The Data for this study are sample from various issues of stock exchange report, SEC and CBN statistical bulletin between 1985 and 2015 "Using the Vector Auto – regression Model the study found that a bidirectional flow of responses exist among the sampled variables both in the long run and short run. objectives. The result affirms joint causation outcome thus indicating that under each component, the three variables namely: market liquidity, market capitalisation and foreign investment portfolio – are jointly causing each other with significant chi-square values of 185.109, 12.758 and 300.175 and probability values of 0.000, 0.012 and 0.000, respectively. The study has contributed to existing knowledge by conceptually designing an interconnectivity diagram to model the flow of impact among foreign portfolio investment, capital market liquidity and market capitalisation in Nigeria which is missing in most review literature. In view of the current economic situations in Nigeria and government anticorruption drive, this study aptly provides a working reforming tool for the federal government to address capital market infractions that usually occur through the foreign portfolio investment window of the market.

Recommendations

The study therefore recommends as follows

- Creation of foreign portfolio investment monitoring departments by all dealing members operating in the Nigerian capital market with their reports incorporated in the daily official list clearly disclosing all over the counter

cross-border portfolio investment transactions so as to ensure transparency.

- Urgent restructuring of capital market infrastructure to track down all transactions to forestall market infractions via foreign portfolio investment window.
- The also recommends repackaging rebranding of grass root investors' education programmes for capital market activities and its link with foreign investors at the grass.
- A robust policy to fast track and quicken the demutualization process of the Nigerian stock market is highly imperative to ease out transaction bottlenecks encountered by investors, and to further deepen the market which could boost investors' confidence which is currently lacking in this market.

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