Foreign Portfolio Investment and the Growth of Nigeria’s Capital Market

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Abstract
This study examined foreign portfolio investment (FPI) and growth of Nigeria’s Capital Market using time series data sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin for period of 1990 to 2020. Foreign Portfolio Investment into Nigeria and other control variables as External Reserve, Exchange Rate and Inflation Rate collectively stood as the exogenous variables while Market Capitalization as proxy for capital market growth functioned as endogenous variable. The model of the study followed the Autoregressive Distributive Lag (ARDL) Bound test based on the mixed order of the data in I(0) and I(1) as indicated by the Augmented Dickey Fuller (ADF). The study found a long run positive relationship between foreign portfolio investment and Nigeria’s Capital Market growth. On the long run effect of other explanatory variables, Exchange Rate made insignificant positive contribution; External Reserve had insignificant negative effect; while Inflation Rate was found as a significant negative contributor to the model. The study concludes that foreign portfolio investment shares long run positive relationship with Capital Market Growth in Nigeria. The study therefore recommends that, as part of its stabilization policy, the Nigeria’s capital market regulatory authorities should give boost to the market, most importantly in the area of international competitive coupon rates and improved external reserve so that FPI inflow to Nigeria will experience boost by Foreign Investors who seek higher investment.

Key words: Foreign portfolio investment, Capital market, Nigeria

I. INTRODUCTION
Operations of the capital market as the central domain of a country’s financial market is one of the major focal points as well as the pivots that drive economic growth and its sustainability through attraction and injection of capital funds into an economy. Irrespective of the locally generated funds, substantial portion of the capital market volume is garnered from Foreign Investment (FI) in the form of portfolio participation. Foreign Portfolio Investment (FPI) is the entry of funds into a country where foreigners deposit money in a country’s bank or make purchases in the country’s stock and bond markets, sometimes for speculative purposes in want of profit (Nairametrics, 2018; ERP, 2006). Also given by Ekeocha, Ekeocha, Victor and Onyema (2012), Foreign Portfolio Investment as an international capital flow, comprises of transfers and financial assets.
such as stocks or bonds that occur when investors purchase non-controlling interest in foreign companies or buy foreign Corporate or Government Bonds, short term Securities or Notes. Portfolio Investment in this respect involves debt and equity financial assets.

It is financially believed that the status and operational efficiency of the capital market offer the security and the rate of return which are the motivational factors that inform the decision of the Portfolio Investor(s). It is in this regard that Akinmulegun (2018) added that, the rate of portfolio inflow into a country’s capital market has a functional direct relationship with the extent of development of the market. Adebisi and Arikpo (2017) summarily posited that, international capital inflows into a country more critically are being necessitated by the desire by the government, businesses, and individuals of the recipient country to explore their comparative advantage therefore, foreign investors seeking to maximize their earnings, move their investment funds to countries where they will be more productive in yielding better returns. It is therefore adduced that, it is the productivity of capital that propels international investments.

As articulated in Adebisi and Arikpo (2017), it takes the institution and feasible operation of a well-operated and liquid capital market to attract foreign investors to facilitate the inflows of foreign capital. The high performance of the capital market in terms of increased volume of market capitalization, turnover ratio and all share price index equally serve as factors capable of pulling capital flows into the capital market of an economy (Ötker-Robe, Polański, Top & Vávra, 2007 in Adebisi & Arikpo 2017). More so, Vita and Kyaw (2008) held that developing countries having higher rates of return on investment than the rates available in developed countries are much preferred by foreign investors. To ratify this preference Okonkwo (2016) inferred that, the willingness of the foreign investors in taking advantage of this high rate of return in the face of high production cost and distorted investment incentives is a considerable point of concern in the investment framework. These articulations buttress the connect that, the volume of capital importation in form of portfolio investment is a function of capital market performance.

Ozurumba (2012) noted that transaction on foreign portfolio investment in the Nigerian capital market was low up to mid-1980, till
the liberalization of the Nigeria financial markets in mid-2000, which resulted in the internationalization of the Nigeria Stock Exchange (NSE), and has led to an increase inflow of foreign investment into the nation through the capital market. This opinion though varied in dating gained support in Oghuma, 2017 citing (CBN 2015) which offered that, records available indicate that since mid-80s, the weight of foreign portfolio investment (FPI) in the total transaction on the Nigerian capital market has witnessed improved growth. Addressing issues in this direction, Michael (2015) likened the observed increase in Foreign Portfolio Investment (FPI) in the Nigerian capital market to the spate of development in the market; partial deregulation of the capital market in 1993; the full financial liberalization policy that abrogate the laws which restricted foreign participation in the Nigerian capital market; and internationalize of the market in 1995 that paved way for foreign capital inflows.

Ohiaeri (2017, Pg. 353) drawing inference from Okereke-Onyiuke, (2000), noted that “economic liberalization, deregulation, commercialization and privatization which commenced for many decades ago, have greatly expanded the financing options existing in the Nigerian economy through the capital market, by creating room for international investment and capital flows to supplement to domestic savings”. The idea here is that the capital market cannot record exponential growth relying solely on domestic investment; hence the attraction of the international portfolio patronage through well performing capital market becomes expedient. Since the internationalization of the capital and money market and the return of democracy, cross-border listing and foreign portfolio investment in Nigeria have being growing steadily and while foreign interest in the country has been rekindled, and foreign investors and portfolio managers seeking cheap equities and high-yielding bonds have continued to be attracted to Nigerian capital market (Okonkwo, 2016). Notwithstanding, UNCTAD (2005) recorded that foreign investment in Africa has advanced much further and faster than integration internally, especially in structural, institutional and policy trends, and in some cases at its expense.

The clear point of concern is the impact of the foreign capital on the growth of the domestic capital market. It becomes point of worry where the huge volume of Foreign Portfolio Investment remains a nullity and does not boost the market performance. The debate on whether foreign investment
promote or impede growth of the host country’s market generated diverse assertions. In the opinion of (Fosu & Magnus, 2006; Ghose, 2004; Dauda, 2007) Foreign Portfolio Investment supports growth in the host country by increasing domestic investment through production chain, positive externalities, generating stream of real income which consequently expands employment, raises wages and salaries, lower commodity prices, increase tax revenue accruable to the government especially in countries with well-developed financial markets. On the contrary, some other authors as seen in Hefeker and Busse (2005) contended that portfolio investments run the risk of sudden reversal if the economic environment or the perception of investors change, giving rise to financial and economic crises. The work of Alfaro, Chanda, Ozcan, and Sayekd (2004) also was of the view that the potentials of foreign capital investment could be severely impeded if there is absence of well-developed financial markets, which is widely the case in less developed countries including Nigeria. More so, Adam (2002) argued that foreign investment that displays market seeking motivations might create distortions in the host economy through monopolies and high barriers of entry. Looking at the Nigeria profile in particular, the work of Babatunde and Ekperiware (2015) articulated that in tune with real assessment, Foreign Portfolio Investment typically in bond and equity over the last twenty years witnessed significant astronomical boost such that by the end of 2005 the total volume outweighed every other type of capital flows into Nigeria financial market. on the other hand, Baghebo and Apere (2014, Pg. 108) were of the opinion that “the capital flows into the Nigeria economy has not really been tremendous when compared with flows into some developing economies as South Africa and Brazil, giving an instance that from 2001 to 2007, the average annual Capital Inflows into Nigeria in terms of FDI and FPI were $33,006 million and $60,172 million, respectively”. Irrespective of the volume of foreign portfolio investment in Nigeria, the common debate lies on its influence on the performance of the capital market. Available records notwithstanding ranks the Nigerian capital market performance below optimal level. Since FPI constitutes quantifiable volume of funds in the Nigerian capital market, it becomes pertinent to examine the long run impact of the FPI on the Nigerian capital market to ascertain whether it contributes to the market growth in line with
the argument of (Fosu & Magnus, 2006; Ghose, 2004; Dauda, 2007) or whether it impedes the growth according to (Chanda, Ozcan, & Sayekd, 2004; Hefeker & Busse, 2005). On these bases, the objective of this study is to evaluate on the long run impacts of Foreign Portfolio Investment on the Nigeria’s Capital Market.

This study concentrates on foreign portfolio investment (FPI) and the Nigerian Capital Market performance for the period of 1990 to 2020. The data for the study were mainly sourced from Index Mundi (2019) and the Central Bank of Nigeria 2020 Statistical Bulletin. The market-capitalization of the Nigerian capital market for the period was used as the dependent variable and the total foreign portfolio investment into Nigeria along with other control variables as Exchange Rate, Inflation Rate and External Reserve was used as the explanatory variables.

II. LITERATURE REVIEW

Conceptual Review

International Monetary Fund defined foreign portfolio investment (FPI) as equity and debt issues including country funds depository receipts and direct purchases by foreign investors of less than 10 per cent control. That is the totality of fund flows from these sources into an economy.

In their conception, Babatunde and Ekperiware (2015); Ekeocha, Ekeocha, Victor and Onyema, (2012) posited that Foreign portfolio investment (FPI) is an aspect of international capital flows that consists of transfer of financial assets: such as cash, stock or bonds across international borders in want of profit, which occurs when investors purchase non-controlling interests in foreign companies or buy foreign corporate or government bonds, short-term securities or notes.

Foreign portfolio investment has been defined as import of funds from one country to another for the purposes of purchasing securities in the recipient country’s bond and capital market(s) with the intention of getting high rates of return on investment rather than gaining management control of company in the host country (IMF, 2014 in Oghuma, 2017).

Okonkwo (2016) in his definition stated, “Foreign portfolio investment is a cross-border investment in securities with the intention of profit-making rather than management or legal control”. This description presents foreign portfolio investment (FPI) as a fraction of the total foreign inflows into a country that is not
concentrated on holding management stake in a company. Foreign Portfolio Investment on the other hand, involves owning financial assets or securities of companies by alien investors in a country other than their own country. Foreign portfolio investment comes with huge capital into the recipient country through the financial market. Depending on the development and volatility of the capital market of recipient economy, portfolio investment offers liquidity to foreign investors (Akinmulegun, 2018).

From the foregoing therefore, Foreign Portfolio Investment (FPI) may be coined as the operation of foreigners that involve channeling of funds into businesses or government properties across other nation(s) for the purpose of making benefits from them without participating in the operations of the business. While the receiving nations enjoy the availability of the foreign investment (funds), they are equally exposed to the risk of sudden sell-offs and capital flight which directly retards market performances.

**Brief Review of Foreign Portfolio Investment in Nigeria**

Records on Foreign Portfolio Investment (FPI) in Nigeria indicate that there has been inflow of Portfolio investment into the Nigerian financial market from 1986 till date, but the volume and consistency level has taken turn on the political development and economic response in the country. While the detailed record on the magnitude and trend could be read from the CBN statistical bulletin and Several Issues, the following throws a little insight on the development on foreign portfolio investment in Nigeria over the years.

According to Ibrahim and Akinbobola (2017) period of 1987 to 1998 had no significant improvement in the flow of foreign portfolio investment in Nigeria. There was improvement in the flow within the period of 1999 to 2004 with slump in 2005, which however reverted in 2006 through 2007. Ibrahim and Akinbobola (2017) recorded that “foreign portfolio investment in Nigeria crashed to below zero between 2008 and 2009 and the years between 2010 and 2013 witnessed a tremendous increase in the flow of foreign portfolio investment into the economy”.

Remarkably, Onyeisi, Odo and Anoke (2016) avowed that “factors that have inhibited the constant inflows of foreign portfolio investment and the growth of capital market in Nigeria during the early years of SAP were somewhat, the indigenization policy through Nigeria Enterprise Promotion Decree (NEPD), other
factors are undeveloped financial system, inconsistent government policies, and weak institutional and legal frameworks”.

In the record presented by the *Guardian* (2021, online), “the value of Foreign Portfolio participation in equity trading in the Nigerian Stock Exchange totaled ₦851 billion as at October, 2017, a whopping 60.8 per cent higher than ₦517.55 billion recorded for the full year ended December, 2016. Year 2017 has seen an average FPI per month of ₦85 billion as against ₦43 billion recorded in 2016. August, March and June recorded the most impressive inflows at ₦208, ₦132 and ₦101 billion respectively, with the lowest being ₦22.4 billion in April. This renewed confidence has resulted in a rebound in foreign investments with Foreign Direct Investment (FDI) and Foreign Portfolio Investment (FPI) up 49% and 128% respectively in Q2’2017 as compared to the same period the preceding year”. In the same direction, Nairametrics (2018) reported that “FPI has been increasing since the first quarter of 2017 and has particularly been rising swiftly since Nigeria exited recession in Q2 2017 while FDI fell since the first quarter of the same 2017 and has been fluctuating since then”.

On the contrary however, (2018) giving the report of the Nigerian Stock Exchange observed that there is increasing outflow of foreign portfolio investment (FPI) from the Nigerian market, as he succinctly wrote, “outflow from the market spiked by 125 per cent in May, and 3.4 per cent decrease in foreign inflows to ₦62.06 billion ($172.3 million) in May”. Part of the reasons for the outflow was reported to be the increased rise in the global bond yields especially in the United State where the Federal Reserve increased the rates twice in 2018. Olaseni (2018) avowed that “with the outflow in mind, FPIs into the Nigerian market will remain muted as investors seek higher risk-adjusted yields elsewhere”.

**Theoretical Review**

The relevant theories considered to support this study are discussed thus:

**The Modern Portfolio Theory**

In 1952, Harry Markowitz put up the Modern Portfolio Theory (MPT) published in his paper, “Portfolio Selection”. The theory emphasized that risk is an inherent part of higher reward. MPT is one of the most important and influential financial theories that deal with finance and investment. Modern portfolio theory (MPT) is a mathematical framework for assembling
a portfolio of assets such that the expected return is maximized for a given level of risk, defined as variance. Variance is the market measure of risk that is weighed against the return on a given set of securities pulled under one investment option. There is dependency of the performance of the securities. Its key insight is that an asset’s risk and return should not be assessed by itself, but by how much it contributes to portfolio’s overall risk and return. There is the assumption of the investors being risk averse by this theory. This means that given two portfolios that offer equal expected return, investors will prefer the less risky one. Thus, an investor will take on increased risk only if compensated by higher expected returns. Conversely, an investor who wants higher expected return must assume more risk. This theory submits that the exact trade-off will be the same for investors, but different investors will evaluate the trade-off differently based on individual risk behaviour. MPT explained that by investing in more than one asset, an investor can reap the benefits of diversification, particularly a reduction in the riskiness of the portfolio, (not putting all of ones eggs in one basket). Markowitz showed that investment is not just about picking assets, but about choosing the right combination of assets among which to spread one’s risk. The expected return of portfolio (ERp) is given as the summation of the weighted assets of a given portfolio, mathematically expressed as \( \Sigma wiE(Ri) \). Where: \( Ri \) = return on asset \( i \) and \( Wi \) = weight of component asset \( i \) in the portfolio.

Cheap Financial Capital Hypothesis

The cheap financial capital hypothesis was propounded by Barker, Foley and Wurgler (2009). Theory considers foreign capital inflows as an opportunistic use of the temporarily low-cost financial capital (relative to the theoretical world benchmark cost of capital) available to overvalued firms in the source country. Here the cost of capital is the underlying factor that pushes foreign capital into a target country; hence, acquirers with relatively easy access to financial capital seek to invest their capital in target countries with relatively higher domestic cost of capital. The theory assumes market imperfections in the host and source countries.

Empirical Review

Baghebo and Apere (2014) studied the impact of foreign portfolio investment and economic growth in Nigeria within the period of 1986 to 2011. It made use of Johansson co-integration and parsimonious error correction method and found that
foreign portfolio investment; market capitalization and trade openness has positive long-run relationship with real gross domestic product in Nigeria.

Abakah and Abakah (2016) assessed the impact of foreign exchange reserves on stock market growth in Ghana by employing monthly data for the period of December 2001 to December, 2015 using a multivariate framework model that fitted market capitalization been proxy for stock market growth as the dependent variable while foreign exchange and interest rate as control variable stood as the explanatory inputs. The result shows that foreign exchange reserve has a significant positive impact on stock market capitalization and that all the three variables employed in this study are cointegrated. Unidirectional relationship exists between foreign exchange reserve and stock market capitalization.

Okonkwo (2016) studied foreign portfolio investment and the growth of the industrial sector in Nigeria for the period of 1986 to 2013 using secondary data sourced through Central Bank of Nigeria Statistical Bulletin (2013) and International Financial Statistics. Using the ordinary least square method, the study found significant positive relationship existing among foreign portfolio investment, gross fixed capital formation, market capitalization and industrial growth.

Onyeisi, Odo, and Anoke (2016) studied the impact of foreign portfolio investment inflows on stock market growth in Nigeria from 1986 to 2014. Data for the study was collected from the statistical Bulletin of Central Bank of Nigeria (CBN), annual reports and Statement of Account of various issues and online service from World Bank Indicators. The study used Augmented Dickey Fuller (ADF) Unit Root Test, vector error correction model and Granger Causality econometric tools. The findings of the trace statistics indicates one (1) cointegrating equation at 5% level of significance, the vector error correction model indicates long-run significant impact of foreign portfolio investment on stock market growth in Nigeria, and the Granger Causality shows there is no causality between foreign portfolio investment and stock market growth in the Nigerian economy. It found a negative relationship between FPI and the Nigerian capital market. The study inferred that foreign portfolio investment (FPI) inflows might not contribute positively to the increase in stock market when there is no conducive business environment for foreign investments to thrive in Nigeria.
In their investigative review, Odo, Anoke, Nwachukwu and Promise (2016) examined the impact of foreign direct investment on capital market growth in Nigeria within the period of 1984 to 2015 using time series data; the study revealed that there is no causality between foreign direct investment and capital market growth in Nigeria. Their findings also showed that foreign direct investment (FDI) and export have negative relationship with capital market growth both in the long and short run periods, thus, concluded that foreign direct investment has no significant impact on capital market growth within the period of study.

Oghuma (2017) examined foreign portfolio investment and economic performance of Nigeria employing secondary data from Central Bank of Nigeria Statistical Bulletin and World Bank Data on net FPI flows, capital market and GDP within the period of 1986 – 2015. Adopting the Ordinary Least Square (OLS) method and Error Correction Model (ECM) the study found that foreign portfolio investment both on the short run and long run negatively impacted the economy unlike capital market development and capital formation that had positive impact.

Ohaeri (2017) examined the nature and direction of causality existing among foreign portfolio investments, capital flight and capital market performance in Nigeria using expost-facto and descriptive research designs. Data were collected from National Bureau of statistics, International Monitory fund, World Bank direction of trade websites, Security Exchange Commission reports and Nigerian Stock Exchange reports between 1970 and 2014. Data generated are analyzed using Vector Error Correction models and co-integration test subject to the outcome of the preliminary tests for conformity with econometric assumptions. The study found a unidirectional causality between capital market performance in one hand and also between foreign portfolio investment and capital flight on the other hand at 5% and 10% levels of significance respectively.

Adebisi and Arikpo (2017) evaluated the financial market performance and foreign portfolio inflow to Nigeria covering 1984 to 2015 data was sourced from the CBN statistical bulletin within the period of study. Financial market performance was measured using capital market performance, capital market liquidity and total new issues. The exploratory design was combined with the ex-post facto research design; the data collection method was desk survey. Making use of Autoregressive Distributive Lag
(ARDL) technique, findings from the analyses showed that financial market performance has no long run causal relationship with foreign portfolio investment in Nigeria. Also, capital market performance and capital market liquidity have no short run causal relationship with foreign portfolio investment in Nigeria. Equally, total new issue has a short run causal relationship with foreign portfolio investment in Nigeria.

Akinmulegun (2018) examined the effect of capital market development on foreign portfolio investment in Nigeria over the period 1985 to 2016. The study employed secondary data sourced from Central Bank of Nigeria Statistical Bulletin and publications of Nigeria Stock Exchange. The research adopted Vector Error Correction Mechanism (VECM) to analyze the short run and long run dynamism of the variables while also focusing on the direction of causality between capital market development and foreign portfolio investment in Nigeria, using granger causality test. The Granger causality test revealed that there is no causality between capital market development and foreign portfolio investment in Nigeria. Result from the vector error correction model indicated that Market Capitalization (MCAP) has negative significant effect on foreign portfolio investment in Nigeria while All Share Index (ASI) has positive relationship with foreign portfolio investment.

Nwonodi (2018) studied the effect of foreign portfolio investment on the performance of Nigerian capital market. The study used time series data sourced from the publications of Central Bank of Nigeria Statistical Bulletins, and Stock Exchange Annual Report. The model had All Share Price Index and Market Capitalization as proxy for Capital market performance while Net Foreign Portfolio Investment (NFPI), Equity Investment (PIE), Bond Investment (PIB), Portfolio Investment in Government Securities (PIGS) and Exchange Rate as predictors variables. The Ordinary Least Square multiple regressions, Cointegration test, Granger Causality Test, Augmented Dickey Fuller Test and Error Correction Model were used to examine the variables and its relationship to the dependent variables. In the findings, model one revealed that foreign portfolio investment in bonds and foreign portfolio investment in government securities have negative relationship with All Share Price Index while Net Foreign Portfolio investment, foreign portfolio investment in equities and exchange rate have positive relationship.
with All Share Price Index. Model two 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 study concluded that foreign portfolio investment have significant relationship with Nigerian capital market performance, and recommended that policies be devised to enhance the operational efficiency of the Nigerian capital market, to attract foreign investors.

Adefu and Adegoriola (2020) assessed the relationship between Foreign Portfolio Investment (FPI) and Nigerian economic growth from 1986 to 2018 using annual secondary data sourced from the Central Bank of Nigeria and National Bureau of Statistics. The model of the research had Foreign Portfolio Investment (FPI) as the independent variable regressed on Gross Domestic Product (GDP) as a proxy for economic growth being the dependent variable. The study adopted the Autoregressive Distributed Lag (ARDL) analytical method. The findings of the study revealed that current value and one period lag of Foreign Portfolio Investment (FPI) showed negative and insignificant impacts on the Gross Domestic Product (GDP). The Granger causality indicated unidirectional causality between GDP and FPI. The conclusion of the study held that the level of fluctuation of FPI into Nigeria at the moment signifies that the economy needs total reform in order to gain the confidence of the foreign investors. It therefore, recommended that government should double its effort at improving the investment and support the prevailing investors through improvement in infrastructural development; provision of services and changes within the regulatory framework by relaxing laws on profit repatriation among others.

The evidence from the position of most of these empirical studies reviewed on the test of the relationship between foreign portfolio investment and the Nigerian capital market show that there is no consensus among the findings; while studies as Okonkwo (2016) ascertain that FPI supports Nigeria capital market growth, other findings as (Onyeisi, Odo, & Anoke, 2016; Odo, Anoke, Nwachukwu, & Promise, 2016; Nwonodi, 2018) ran to the contrary thereby sustaining the ongoing debate on the impact of Foreign Portfolio Investment on the Nigeria’s capital market hence, creating gap for further investigations. On the basis of this controversy, this study specifically designed
a unique model involving market capitalization, foreign portfolio investment, inflation rate, exchange rate and external reserve to be analysed using Autoregressive Distributive Lag (ARDL) Model as a more sophisticated analytical tool to contribute to the debate.

III. METHODOLOGY

The research design adopted in this work was the ex-post facto research design in which case it made use of available data on foreign portfolio investment and the Nigerian capital market for the period of 1990 to 2020. The study as well employed the casual research design done through systematic observations. The data used in this study were secondary type meticulously sieved from the Statistical Bulletin of the Central Bank of Nigeria (CBN), 2020 edition. Other publications of the CBN such as the CBN Economic and Financial and Bullion publications were also consulted, also Central Bank of Nigeria website, the website of IndexMundi a registered participant in the Nigerian Stock Exchange. The data were gathered for the period of thirty years, covering 1990 to 2020.

The model for this study was specified in line with the portfolio theory of international capital flows that x-rays the connectivity between Foreign Portfolio Investment and capital market growth. This model is in line with Adebisi and Arikpo (2017). It incorporates other variables that are involved in the interplay as presented as;

\[ NSM = f(FPI, INFR, EXR, ETR) \quad \ldots\ldots\ldots(1) \]

The endogenous variable as specified in the model is the Nigerian Capital Market using the market capitalization as a proxy. The study therefore intends to examine the nature of interaction that the Nigerian Capital Market shares with foreign portfolio investment and other explanatory variables captured in the model. The exogenous variables as accommodated in the model consist of foreign portfolio investment, inflation rate, exchange rate, external reserve. As theoretically reviewed, these variables among others are the operative fundamentals that direct the flow of capital in the Nigerian Capital Market.

The data on these variables were in different units and as a result were logged as a measure of standardization. Hence, the log form of the ARDL model estimate is presented thus;

\[ \text{LogNSM}_t = \alpha_0 + \alpha_1 \text{LogFPI}_t + \alpha_1 \text{LogFPI}_{t-1} + \alpha_2 \text{LogINFR}_t + \alpha_2 \text{LogINFR}_{t-1} + \alpha_3 \text{LogEXR}_t + \alpha_3 \text{LogEXR}_{t-1} + \alpha_4 \text{LogETR}_t + \alpha_4 \text{LogETR}_{t-1} + \text{ECM}_{t-1} \ldots(2) \]
Where, NSM = Nigerian Capital Market using market capitalization as a proxy, FPI = Foreign Portfolio Investment, INFR = Inflation Rate, EXR = Exchange Rate, EXTR = External Reserve, $\varepsilon$ = Error Term, and $\alpha_0$ – $\alpha_4$ = Parameter Estimates

**A priori Expectation of the Study**

Capital Market and Foreign Portfolio: Okonkwo (2016) found significant positive relationship existing among foreign portfolio investment, gross fixed capital formation, market capitalization and industrial growth. It is expected that capital market growth will share a positive relationship with foreign portfolio investment.

Capital Market and External Reserve: Abakah and Abakah (2016) noted external reserve as a useful variable in the determining the development of capital market. They found positive impact of foreign exchange reserves on capital market growth using capital market capitalization. Ray (2012) carried out a study to evaluate the relationship between foreign reserves of India and BSE capital market capitalization, the results revealed that foreign reserves has a positive impact on capital market capitalization and that foreign reserves Granger cause capital market capitalization. Again Akinlo (2015) investigated the relationship between foreign exchange reserves and capital market development in Nigeria over the period 1981-2011 and found a positive relationship. It is expected in this study that the both variables will share positive relationship.

Capital Market and Inflation Rate: In Nishat (2004), inflation was found as the largest negative determinant of stock prices in Pakistan. With this, a negative relationship is expected between capital market growth and inflation.

Capital Market and Exchange Rate: The work of Zubair and Aladejare (2017) gave an inverse relationship between exchange rate volatility and capital market performance in Nigeria. Sekmen (2011) found negative impact of exchange rate fluctuation on the stock returns of the United States. Olugbenga (2012) found a significant positive impact of capital market performance on the exchange rate in the short-run a significant inverse effect of stock market performance on the exchange rate in the long-run. Considering the result of these studies, the expectation of this study is an inverse relationship between exchange rate and capital market growth.
IV. RESULTS AND DISCUSSION

Data Presentation and Analyses

The data as gathered from secondary sources for this study in their basic natural values were transformed into logarithm forms as a measure of standardization. They were analysed as well as interpreted based on the outcome of the results.

Descriptive Statistics

<table>
<thead>
<tr>
<th>Table 1: Descriptive Result</th>
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<tr>
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<tr>
<td>Mean</td>
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<tr>
<td>Median</td>
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<tr>
<td>Maximum</td>
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<tr>
<td>Minimum</td>
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<tr>
<td>Std. Dev.</td>
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<tr>
<td>Skewness</td>
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<td>Kurtosis</td>
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<td>Jarque-Bera</td>
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<tr>
<td>Probability</td>
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<td>Sum</td>
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</table>

Source: Authors’ Computation (2021)

Table 1 presents the descriptive statistic of the variables of the study. The result reveals that all the variables display positive mean with FPI having highest mean value 14.92520 while INFR has the least mean value 2.427315. EXTR has the highest maximum value 16.38723 while INFR has the least maximum value 2.920470. The extent of dispersion of the variables from the mean as shown by the standard deviation reveal that all the variables have low standard deviations indicating that they do not deviate widely from their mean values. The associated probability value of the Jarque-Bera and the respective skewness and kurtosis of the estimate indicate that the variables are normality distributed at 5% level of significance except INFR with P-value of 0.787544.

Unit Root Test (URT)

In conducting this test, the Augmented Dickey Fuller (ADF) Unit Root test was carried out using econometric software (E-Views 10). The result of the Augmented Dickey Fuller Unit Root test is summarized in Table 2.
Table 2: Stationarity Test

<table>
<thead>
<tr>
<th>Variables</th>
<th>ADF statistics at Level</th>
<th>ADF statistics at First Difference</th>
<th>Critical Values at 5%</th>
<th>P Value at order of integration</th>
<th>Order of integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>MKTCAP</td>
<td>2.167686</td>
<td>-3.279373</td>
<td>-2.967767</td>
<td>0.0254</td>
<td>1(1)</td>
</tr>
<tr>
<td>EXTR</td>
<td>1.315716</td>
<td>-4.848951</td>
<td>-2.971853</td>
<td>0.0006</td>
<td>1(1)</td>
</tr>
<tr>
<td>EXR</td>
<td>1.344731</td>
<td>-3.792848</td>
<td>-2.967767</td>
<td>0.0076</td>
<td>1(1)</td>
</tr>
<tr>
<td>FPI</td>
<td>0.500821</td>
<td>-4.764065</td>
<td>-2.967767</td>
<td>0.0007</td>
<td>1(1)</td>
</tr>
<tr>
<td>INFR</td>
<td>-3.778657</td>
<td>-3.636990</td>
<td>-2.976263</td>
<td>0.0083</td>
<td>1(0)</td>
</tr>
</tbody>
</table>

Source: Authors’ Computation (2021)

The Table 2 above is the unit root table that presents the stationarity status of the endogenous and exogenous variables used in the study using the Augmented Dickey Fuller (ADF-Test) in the E-view 10 output. The table as displayed summarizes the unit root test of the variables to evaluate the stationarity of the variables. The unit root test on the variables where carried out at levels and first differencing to ascertain the suitability of the data collected in the estimation and analysis. The result shows inflation rate (INFR) to be stationary at level I(0) while the variables of market capitalization (MKTCAP), external reserve (EXTR), exchange rate (EXR) and Foreign Portfolio Investment (FPI) are stationary at first difference I(1). The results of the unit root test of these variables indicate that there is no presence of unit root with the ADF values being greater than the critical value at 5%. With this, the variables are certified stationary and therefore considered suitable for the study. Since the variables have mixed order of integration, the study adopts Auto-regressive Distributed Lagged Model, which is considered more appropriate for data with mixed order of integration.

Model Selection

Table 3: VAR Lag Order Selection Criteria

<table>
<thead>
<tr>
<th>Lag</th>
<th>LogL</th>
<th>LR</th>
<th>FPE</th>
<th>AIC</th>
<th>SC</th>
<th>HQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.441534</td>
<td>NA</td>
<td>1.26e-06</td>
<td>0.607795</td>
<td>0.843812</td>
<td>0.605281</td>
</tr>
<tr>
<td>1</td>
<td>55.08127</td>
<td>65.56768*</td>
<td>3.08e-08*</td>
<td>3.344169*</td>
<td>1.928069*</td>
<td>3.359254*</td>
</tr>
</tbody>
</table>

Source: Authors’ Computation (2021)

Table 3 is the presentation of the VAR lag order selection criterion. The result offers maximum lag length of “1”. This is the proper lag length that is used in estimating the bounce test.
Test of Model Stability

Table 4: Goodness of Fit and Joint Test Statistic Result

<table>
<thead>
<tr>
<th>Goodness of Fit</th>
<th>Joint Test Statistic</th>
<th>Autocorrelation</th>
</tr>
</thead>
<tbody>
<tr>
<td>R. Squared</td>
<td>Adjusted R. Squared</td>
<td>F-Statistic</td>
</tr>
<tr>
<td>0.939847</td>
<td>0.927316</td>
<td>74.99714</td>
</tr>
</tbody>
</table>

Source: Authors’ Computation (2021)

The goodness of fit and joint test statistic of the model as presented in table 4 reflects the state of the model. The R-squared (R²) of 0.939847 and Adjusted R-squared of 0.927316 confirm that the model is a preferred one for economic forecast; 93.98 percent of the changes in the growth of the Nigerian capital market are explained by the explanatory variables while the remaining 6.02 percent is explained by other variables not included in the model and these are accounted for by the error term. The test of Autocorrelation involved the use of the Durbin Watson Statistics. The Durbin Watson value of 1.7 being closer to the benchmark of “2” than the value “1” implies that there is no autocorrelation problem in the data used in the model formulation.

Bounds Test

Table 5: ARDL Bounds Test Result

<table>
<thead>
<tr>
<th>Test Statistic</th>
<th>Value</th>
<th>Signif.</th>
<th>I(0)</th>
<th>I(1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-statistic</td>
<td>4.000361</td>
<td>10%</td>
<td>2.2</td>
<td>3.09</td>
</tr>
<tr>
<td>K</td>
<td>4</td>
<td>5%</td>
<td>2.56</td>
<td>3.49</td>
</tr>
<tr>
<td></td>
<td>2.5%</td>
<td>2.88</td>
<td>3.87</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1%</td>
<td>3.29</td>
<td>4.37</td>
<td></td>
</tr>
</tbody>
</table>

Short Run ARDL Regression Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>2.002945</td>
<td>4.427068</td>
<td>0.452431</td>
<td>0.6646</td>
</tr>
<tr>
<td>MKTCAP(-1)</td>
<td>-0.954956</td>
<td>0.255898</td>
<td>-3.731782</td>
<td>0.0073</td>
</tr>
<tr>
<td>FPI</td>
<td>0.854142</td>
<td>0.478147</td>
<td>1.786359</td>
<td>0.1172</td>
</tr>
<tr>
<td>EXR(-1)</td>
<td>0.058707</td>
<td>0.555151</td>
<td>0.105750</td>
<td>0.9187</td>
</tr>
<tr>
<td>EXTR</td>
<td>-0.181734</td>
<td>0.467493</td>
<td>-0.388742</td>
<td>0.7090</td>
</tr>
<tr>
<td>INFR(-1)</td>
<td>-1.310726</td>
<td>0.437474</td>
<td>-2.996122</td>
<td>0.0201</td>
</tr>
<tr>
<td>D(EXR)</td>
<td>1.074582</td>
<td>0.707839</td>
<td>1.518117</td>
<td>0.0995</td>
</tr>
<tr>
<td>D(INFR)</td>
<td>-0.477341</td>
<td>0.251464</td>
<td>-1.898246</td>
<td>0.0995</td>
</tr>
<tr>
<td>CointEq(-1)*</td>
<td>-0.954956</td>
<td>0.130176</td>
<td>-7.335875</td>
<td>0.0002</td>
</tr>
</tbody>
</table>

Long Run ARDL Regression Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPI_N_B</td>
<td>0.894431</td>
<td>0.346063</td>
<td>2.584592</td>
<td>0.0362</td>
</tr>
<tr>
<td>EXR</td>
<td>0.061476</td>
<td>0.585837</td>
<td>0.104938</td>
<td>0.9194</td>
</tr>
<tr>
<td>EXTR</td>
<td>-0.190306</td>
<td>0.466131</td>
<td>-0.408268</td>
<td>0.6953</td>
</tr>
<tr>
<td>INF_R</td>
<td>-1.372551</td>
<td>0.377323</td>
<td>-3.637606</td>
<td>0.0083</td>
</tr>
<tr>
<td>C</td>
<td>2.097421</td>
<td>4.433306</td>
<td>0.473106</td>
<td>0.6505</td>
</tr>
</tbody>
</table>

Source: Authors’ Computation (2021)
The bound test result in table 5 is used in testing for a long run relationship between the Nigerian capital market and foreign portfolio investment in Nigeria. The outcome shows that at 5% level of significance, the F-statistic value of 4.000361 is greater than both the lower bound of 2.56 and the upper bound of 3.49. Following the established rule of bound test analysis this result is interpreted to imply that there is a long run relationship between Foreign Portfolio Investment Inflows and the Nigerian Capital Market Performance.

The contribution of the explanatory variables to the Nigerian capital market performance within the period as presented in Table 5 records the following results as discussed.

The result indicates the Nigerian capital market in the short run has one period lag effect of -0.954956 at probability value of 0.0073. This implies that the previous period performance of the capital market significantly affects the current period performance negatively. Foreign Portfolio Investment (FPI) inflows into Nigeria at the value of 0.854142 and probability of 0.112 had an insignificant positive short run relationship with the Nigerian Capital Market performance. And the long run value of 0.894431 and probability of 0.0362 reveals that FPI has a long run significant relationship with the Nigerian capital market. By implication, a unit change in the Foreign Portfolio Investment (FPI) in the long run will affect the Nigerian Capital Market performance in the same direction 89.44%. This finding aligns with Okonkwo (2016) that found a positive relationship between these variables. It equally meets our expectation.

Exchange rate on the short run result had insignificant positive one period lag effect on the capital market (0.058707, 0.9187). It also had insignificant positive effect in the current period (1.074582, 0.1728). Again in on the long run bases, exchange rate had insignificant positive long run effect on the capital market at 6.15% (0.061476, 0.9194). This result explains that increase in the exchange rate attracted more inflow of external investment into the Nigerian capital market.

The Nigerian external reserve had insignificant negative effect on its capital market performance both in the short run (-0.181734, 0.7090) and in the long run (-0.190306, 0.6953) relationship status. This reflects the fact that substantial proportion of Nigeria’s external reserve quantum is meant to be dedicated to the need for improving the market-depth and other essential
developments to boost the volume of activities of the market.

The inflation rate in the short run had insignificant negative impact on the Nigerian capital market (-0.477341, 0.0995); while on the long run, it exhibited a significant negative impact on the market. The result meets the expectation of the study. This result by implication indicates that inflation rate in the long run deprives the capital market 47.73% performance at each unit that it increases vice versa.

The result of the error correction (ECM) of the model to equilibrium form was found to be correctly signed and significant at (-0.954956, 0.0002). This basically implies that any occurrence of disequilibrium within the model in the short run is corrected to its previous equilibrium period at a speed of approximately 95.50% in the nest circle annually. Therefore any distortion on the short run performance of the variables is reestablished at the speed of 95.50% towards long run equilibrium. The speed of 95.50% means that it will take the model a year and few months or less than two years to correct short run destabilization and realign to equilibrium.

**Diagnostic Test of the Model Variables:**
The following diagnostic tests are to be carried out to ascertain the reliability or robustness of the results that will be obtained in the model formulated for this study.

<table>
<thead>
<tr>
<th>Diagnostic Check</th>
<th>Test</th>
<th>Outcome</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autocorrelation</td>
<td>Durbin-Watson Stat.</td>
<td>1.7</td>
<td></td>
</tr>
<tr>
<td>Normality</td>
<td>Jarque-Bera</td>
<td>0.703983</td>
<td>0.703286</td>
</tr>
<tr>
<td>Heteroskedasticity</td>
<td>Breusch-Pagan LM</td>
<td>0.06</td>
<td></td>
</tr>
<tr>
<td>Stability</td>
<td>Ramsey Reset Prob.</td>
<td>0.15</td>
<td></td>
</tr>
</tbody>
</table>

*Source: Authors’ Computation (2021)*

The Table 6 above is a joint tabular presentation of the residual tests. First on the table among the diagnostic statistics is the test of Autocorrelation in which the study used the Durbin Watson Statistics. The Durbin Watson value of 1.7 being closer to the benchmark of “2” than the value “1” implies that there is no autocorrelation problem in the data used in the model formulation. The Jarque-Bera test of normality having probability value of 0.703286 shows that at 5% level of significance, the time series of the variables are normally distributed. The test again investigated for Heteroskedasticity error through the probability of the F-statistics. The probability of the F-statistics which is 0.06 is found to be higher than 5%
significant level, as such that the null hypothesis cannot be rejected providing that there is no hetroskedasticity problem. Model stability test employing Ramsey reset F-statistic indicates that the P-value for model residua is 0.15. This shows that the capital market model here is in functional form. With this diagnostic affirmation, making predictions based on the empirical findings and the recommendations is considered free of spurious effect.

V. CONCLUSION

While observing the relevant rules, this study was empirically carried out to assess the relationship between Foreign Portfolio Investment (FPI) Inflows and the Nigerian Capital Market for the period of 30 years ranging from 1990 to 2020. Conspicuously, the technique employed in the analyses was the Auto Regressive Distributed Lag (ARDL) model, an advanced form of the ordinary least square estimates. The hypothesis tested in this study proves that within the period covered in this study, the Nigerian capital market performance shared a long run positive relationship with foreign portfolio investment inflows. This finding supports such studies as Okonkwo (2016) which found long run relationship between foreign portfolio investment and the capital market performance in Nigeria. Based on the findings, the study therefore concludes that there is a long run positive relationship between Foreign Portfolio Investment (FPI) and the performance of the Nigerian Capital Market.

Recommendations

The following recommendations are succinctly drawn:

i. As part of its stabilization policy, the Nigeria’s capital market regulatory authorities should give boost to the market, most importantly in the area of 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.

ii. The Central Bank of Nigeria through its monetary policy should make efforts to reduce inflation rate and moderate exchange rate volatility in other to grow the capital market and the economy in general.

References


