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# Foreign Portfolio Investment And Human Capital Development In Nigeria 2005-2019

**Ighoroje Ese James**
Department of Banking and Finance
School of Business Studies
Delta State Polytechnic, Ozoro

**Akpokerere Othuke Emmanuel**
Department of Banking and Finance
School of Business Studies
Delta State Polytechnic, Ozoro

**ABSTRACT**

**Following the saving – investment gap resulting from shortfalls of savings suffered by developing economies it has become fashionable to embrace foreign capital inflow as an essential complementing alternative supply of funds for domestic investment. This study investigates the effect of foreign portfolio investment on human capital development in Nigeria covering the period 2005-2019. Foreign portfolio investment, the explanatory variable is disaggregated intoforeign portfolio equity (FPIE) and foreign portfolio bonds (FPIB), while exchange rate is included as the control variable. The Human Capital Development – the dependent variable is represented by the Human Development Index (HDI). Econometric techniques, including Descriptive Statistics, Augmented Dickey Fuller tests for unit roots, Error Correction Model (ECM), and Ordinary Least Square (OLS) Regression analysis were used. The study showed foreign portfolio investment in equity has positive and significant effect on human capital development while foreign portfolio investment in bonds has positive but insignificant effect. The study thus concluded that foreign portfolio investment has positive effect on human capital development and has helped to improve human capacity necessary for economic development in Nigeria. The study reiterated the need for eye-catching polices that will attract greater foreign portfolio investment in both equity and bonds in the stock market which could be achieved by greater openness.**

**Key Words:** Foreign Portfolio Investment, Human Capitals Development and Exchange Rate.

## INTRODUCTION

Foreign portfolio investment (FBI) includes investments by residents of one country in the equity and debt securities of an enterprise in a foreign country which seeks primarily capital gains and do not reflect any lasting interest in the enterprise (Elekwa, Aniebo, & Ogu, 2016). This category

consists of investments in bonds, notes, short term debts otherwise called money market instruments and financial derivatives, but not including those registered under direct investment. In another connotation, they are investments which are not up to the 10% required under FDI qualification and also do not involve affiliated enterprises. In addition to securities issued by enterprises, foreigners can also purchase sovereign bonds issued by governments (Okafor, Hillary & Grace, 2015). There is every necessity to mobilize human capital considering that it is one of the most valuable asset, Awopegba (2003) stated. In economic parlance, Todaro and Smith (2003) posited that Human capital encompasses health, education and other human capacities that contribute to raise productivity (Todaro& Smith, 2003).

Capital and natural resources are passive factors of production while human resources are active factors of production. Human capital constitutes the most valuable resource of a country; in its absence there will be the non performance of physical capital (tools, machinery, and equipment) which will impede economic growth (Ekeocha, Victor & Moses (2012). Portfolio Investments find special relevance in the development of financial markets, whose role in the growth and development of national economies is well recognized in literature. It is also common knowledge and from the perspective of Monetarists, it is clear that money exert pressure on economic outcomes in its own peculiar manner.

In a similar vein, Portfolio Investment via financial markets has brought about remarkable contributions to the growth and development of many economies. Due to the paucity of the much needed capital for human capital development in the less developed economies, there is the need for foreign portfolio to complement domestic resources, in the wake of growing mismatch between domestic capital stock and capital requirements in these countries. This is why Omisakin (2009) stated that following the saving – investment gap resulting from shortfalls of savings suffered by developing economies it has become fashionable to embrace foreign capital inflow as an essential complementing alternative supply of funds for domestic investment.

In another note, Ngowi (2001) argues that if African countries as well as other developing countries must realize a rapid rate of capital accumulation and growth needed to overcome the widespread problems of human capital development in their economies, then a substantial inflow of foreign capital needed to fill the saving and foreign exchange deficits usually experienced by these nations is required.

Although Portfolio Investment has gained popularity, Ajit (2004) stated that it is usually not as favored by receiving economies preferring foreign direct investment, which is generally considered most beneficial to them in terms of meeting up with their needs of filing the savings – investment pitfalls. For Ajit, so long as the flows do not supplant domestic investment, they could supplement domestic savings, in so doing increasing production possibilities and enhancing employment growth. This explains why Nigeria as an import-dependent economy requires foreign investment in order to augment her investment needs.

It equally justifies why from the time when democratic governance emerged in May 1999, Nigeria has taken some concrete measures necessary to encourage cross-border investors to invest in the domestic economy. Some of these enticing measures are viz; the repeal of laws that inhibit increase in foreign portfolio investment, promulgation of investment laws, introduction of favorable

policies which lead to a conducive atmosphere for doing business (ease of doing business), speedy export and import processing methods, fight against advanced fee frauds, institution of economic and financial crimes commission to fight corruption and financial crimes. These definite measures seem to have been making positive impact on Nigeria's foreign portfolio inflows. This is reiterated from the results of a few studies that have been conducted on the subject. For instance, Elekwa, Aniebo and Ogu (2016) found that foreign portfolio investments have a positive effect on employment and human capital development in Nigeria. Mark (2015) examined the relationship between foreign portfolio investments, exchange rate, interest rate and human capital development in Nigeria. The result of the study indicates that foreign portfolio investments, exchange rate, interest rate had negative relationship with human capital development in Nigeria within the period reviewed.

In another study, Musa, (2016) that foreign portfolio investment had positive effect on human capital development in Nigeria. The literature reviewed tends to suggest that very few studies were carried out on the effect of foreign portfolio investment on human capital development in Nigeria, the few studies reviewed had mixed results. Following also the need to improve on human development index - the country went from HDI of 0.467 in 2005 to 0.534 in 2018 and ranked 158 out of 189 countries - because of the vital role knowledge, a long and healthy life as well as a decent standard of living play on productivity, growth, and development, this study sought to investigate the effect of disaggregated foreign portfolio investment on human capital development in Nigeria from 2005 to 2019**.**

This objective was achieved by examining the effect of foreign portfolio investment in equity, the effect of foreign portfolio investment in bonds, and the effect of official exchange rate each as an independent variables on human capital development index as the dependent variable in Nigeria. The work is structured as follows; part I is the introduction, part II is Review of related literature, III is the methodology, part IV is data presentation, analysis, and discussion, part V is summary, conclusion and recommendations.

## REVIEW OF RELATED LITERATURE

### Conceptual Review

#### *Foreign Portfolio Investment*

Foreign portfolio investment (FPI) is a cross-border investment in securities with the motivating factor being profit-making and not management nor legal control. It is defined by IMF (1993) as equity and debt issuances which include country funds, depository receipts and direct purchases by foreign investors of less than 10% control. Capital impacts positively on the economy by providing financial resources for investment in key areas like infrastructure, agriculture, solid minerals, manufacturing, banking and other financial services and other real sector areas.

The projects could be promoted by government or private sector institutions. It is conceptualized that foreign portfolio investment could offer the much needed resources to the government and private corporations in Nigeria for infrastructural and industrial productivity. According to Anyanwale (2007) foreign portfolio investment is a component of foreign investment (FI) and involves the commitment of funds on domestic securities by a foreign nation, institutions, and vice versa.

FPI may not involve positive transfers, as in finance, transfers are considered just a change in ownership. It can also be described as the entry of funds into a country when foreigners make purchases in the country's stock, bond, and money markets. The investment is usually short termed, and as foreign direct investment partnership, involving transfer of technology "know how". Some of the factors that influence FPI are high rates of return and the urge to lower risk through geographic diversification. In general, the return on FPI is usually in the form of interest payments or non-voting dividends. This group of investment assets focuses on securities from foreign markets instead of the domestic ones.

It is an opportunity for the investor to be exposed to growth in emerging economies and provides diversification while allowing investors to further diversify their assets by moving away from a domestic-only portfolio (Al Suqaier, & Al Ziyud, 2011). As characteristic of international capital flows, FPI is comprised of the transfer or transmission of financial assets: such as cash; stock or bonds across international borders in order to seek for profit and arises when investors purchase non-controlling interests in foreign companies or buy foreign corporate or government bonds, short term securities or notes.

According to Ekene (2014), just as trade flows emanates from individuals as well as countries seeking to maximize their well being by exploiting their own comparative advantages, so also are capital flows as the consequence of individuals and countries wishing to make themselves better off, by moving accumulated assets to where they are likely to be the most productive.

The past three decade have witnessed a significant increase of this type of investment in the world's economy and as an important source of funds to support investment both in developed and developing countries. A study, Baghebo and Apere (2014) found that FPI has a positive long run relationship with real gross domestic product in Nigeria within 1986 to 2011. Another study in india, Sethi (2013) showed that a long run equilibrium relationship exist between economic growth and foreign portfolio investment within 1995:Q4 to 2011:Q7 employing monthly data. Meanwhile, Ekeocha et al (2012) showed that a positive long-run relationship exists between foreign portfolio investment in Nigeria and market capitalization and trade openness within 1981 -2010. Ogujiuba and Obiechina (2012) indicated that the response of the GDP to shocks from the Foreign Portfolio Investment is not contemporaneous and that this was also applicable to other variables when they analyzed foreign private capital components and foreign portfolio investment, Economic growth and some macroeconomic indicators with data from 1986-2008 in Nigeria using a non-restrictive vector Autoregressive (VAR). The study urged the government not to discourage the flow of foreign private capitals and called instead for more vigilance on the nature as well as sources of the flow as this will forestall the potential adverse impact on major macroeconomic variables while stimulating economic growth.

### *Bonds*

A bond is a debt obligation, just as an I owe you (IOU). For instance an investor who buys corporate bonds is lending money to the company issuing the bond. This implies that the corporation that issues the bonds are in need of funds, and the investors (buyers) have accumulated funds which they invest by buying the bonds. A legal commitment is usually made by the issuer to pay interest on the principal and, in most cases, to pay the principal when the bond is due, or matured (Afolabi, 2015). For more understanding of bonds, it may be helpful to make a comparison with stocks.

When one buys a share of common stock, one owns equity in the company and is entitled to any dividends declared and paid by the company.

On the contrarily, When one buys a corporate bond, one does not own equity in the company, however, he receives interest at stated intervals and principal on the bond at maturity, irrespective of how profitable the company may become or how high its stock price may climb. Should the company run into financial difficulties, it is still legally bound to make timely payments of interest and principal to the investor as at when due.. There is no legal obligation to pay dividends to shareholders in similar circumstances. Furthermore, in a bankruptcy, bond holders usually have priority over shareholders in claims on the company's assets. However, like all investments, there are risks associated with bonds.

For instance there is the risk of the company failing to pay interest or principal as at when due. This will lead to a company defaulting on its bond If a case like this arises. This “default risk” creates distrust and jeopardizes the creditworthiness of the company. Thus, the company’sits ability to pay its debt obligations on time becomes a serious concern to bondholders (Afolabi, 2015).

***Government bonds***

This is issued by a national government, and usually with a promise to make periodic interest payment while the face value is to be repaid on the maturity date. Government bonds are generally denominated in the country's own currency. Sovereign bond is a similar term to government bond. Technically speaking, any bond that is issued by a sovereign entity is a sovereign bond although sometimes the term may refer to bonds issued in a currency.

***Basic Types of Corporate Bonds***

Corporate bonds constitute one of the largest components of the U.S. bond market usually seen as the largest securities market in the world. There are other varieties including U.S. treasury bonds, other US government bonds, as well as municipal bonds.

There is a variety of ways in which companies may employ the proceeds gotten from bond sales viz; purchasing new equipment, investing in research and development, repurchasing their own stock, paying shareholder dividends, refinancing debt, as well as financing mergers and acquisitions. It is a common practice to classify bonds according to their maturity, - the date when the company has to repay the principal to investors. Maturities are classified as short term – which is less than 3 years, medium term – which is 4 to 10 years, or long term which is more than 10 years. Longer-term bonds typically offer higher interest rates, although they may necessitate additional risks.

The companies that issue bonds, how bonds are classified is usually done taking the credit quality of the bonds into consideration. Credit ratings assigned by Credit rating agencies is the basis of the evaluation of the risk that the company may default on its bonds. These agencies review their bond ratings periodically and may revise them if conditions or expectations change.

***Equity***

Equity is a share in the ownership of a company. Equity represents a claim on the company's assets and earnings. As one acquires more equity (shares), his ownership stake in the company becomes

greater. Equity is a part of a company, otherwise known as stock or share. The implication of buying shares of a company is basically that one owns a part of that company. In this regard, a company's stockholders or shareholders have equity in the company, implying that each owns a fractional portion of the whole company. They buy the shares in anticipation to profit from rising share prices when the company profits. There are two basic types of shares that any company issues: equity shares and preference shares (Aiguh, 2013).

***Common Stock***

Common stock is, well, common. When people talk about stocks what they are referring to usually is this type. In most of the cases, stock issued is majorly in this form. Since common shares represent part ownership in a company, holders claim (dividends) on a portion of profits realized by the company. Investors are also entitled to one vote per share during the election of the board members, whose duty is to oversee the major decisions made by management. As a result of capital growth, common stock yields higher returns than nearly every other investment over the long term. However, this is accompanied equally by a high cost because common stocks involve the highest risk.

If a company is declared bankrupt and as such shut down, the common shareholders will be the last to receive money. Priority is usually given to the creditors - bondholders and preferred shareholders who are paid before the common stock holders.

***Preferred Stock***

With Preferred stock, there is some degree of ownership in a company, however, not with the same voting rights although there may be variation depending on the company. Usually, with this form of investment, investors are guaranteed a fixed dividend forever unlike in common stock, which dividends are not only variable, they are never guaranteed. Additionally, in the event of liquidation, preferred shareholders are paid off before the common shareholder but after debt holders.

Preferred stock may also be callable, in which case the company has the right and can decide to purchase the shares from shareholders at anytime for any reason - usually for a premium. Preferred shares can be pictured as being in between bonds and common shares although some people view them to be more like debt than equity.

***Human Capital Development***

Human development can be viewed as the process of acquiring and increasing the number of persons who have the skill, education, and experiences which are critical for the sociopolitical and economic development of a country. Human capital development is thus associated with investment in man and his development as a creative and productive resource (Jhingan 2012). Schultz (1961) categorized and developed human resources into six ways: (i) Facilities and services: - involving all expenditure that affects the life expectancy, strength, stamina, vigor, and vitality of the people,

ii) On - the job training including old type apprenticeship usually organized by firms, (iii) Education formally organized at elementary, secondary school and tertiary level, (iv) Study programmes for adults other than in agriculture, (v) It involves migration of individual and families to adjust

changing job opportunity (factor mobility), (vi) Finally, transfer or importation of technical assistance, expertise and consultants.

Onakoya (2013) described human capital as an important factor used in converting all resources to benefit mankind. According to Galbraith (2015), industrial growth is a function of investment on human capital development rather than physical capital becomes more productive if a country possesses efficient human capital. Therefore, there is a complementary role between physical capital and human capital. With numerous pathways, there is causal system linking education and health as discussed below. Capital stock depends to a considerable extent on human capital formation which is the process of increasing knowledge, the skills, and capacities of all people of the country. One of the reasons for Nigeria's unemployment, high level of poverty, unsustainable growth is that technical know-how and skills usually come with foreign physical capital which is yet insufficient for diverse and varied requirements of Nigeria's growth and development.

Moreover, less developed countries including Nigeria are characterized by economic backwardness usually manifested in low labor efficiency, factor immobility, and limited specialization in occupations, inadequate supply of entrepreneurship, customary values in addition to traditional social institutions that diminish the incentives for economic change.

Additionally, The population will not be well informed about, nor be able to discover the existing natural resources that are available in the country. Even when the population has this knowledge, without adequate human capital development, it will lack the skills and technical know-how as well as the supply of entrepreneurs to spur growth and adequate economic development.

## Theoretical Framework

The study of endogenous growth theory states that economic growth/development is key to result of endogenous and not foreign influences. The theory was developed as a reaction to omissions and efficiencies in Solow-Swan neoclassical growth model. The theory is relatively new and seeks to explain the long-run rate of growth of an economy based on endogenous factors, against exogenous factors of the neoclassical growth theory. The endogenous growth theory states that investment in human capital, economic development and knowledge and skills acquisition are aid to economic growth.

The endogenous growth theory as well maintains that adequate policy regulation can cause a positive impact to the long-run rate of a nation economic status. The theory lay emphasis on policies such as that of research grants, education increment and technological innovativeness increasing the growth rate in most endogenous growth models by increasing the incentive.

### *Models in Endogenous Growth*

In the Mid-1980's, a group of growth theorist became not very satisfied in regards to the general accounts of exogenous factors determining long-run growth. A model that replaced the exogenous growth variable (unexplained technical progress) developed and in it were explicit key determinants of growth.

Romer (1986), Lucas (1988) and Rebel (1991) omitted technological changes. Suffice to say that in their opinion, growth in these models mentioned were done due to indefinite investment in human

capital which had spillover effect on economy and however the diminishing advent of capital accumulation, the endogenous growth rate model emphasizes on technical progress protruding from the rate of investment, the size of the capital stocks and the stock of human capital.

***The Arrow Model***

Arrow Model of (1962) appears to be the first economist to introduce the concept of learning by doing in 1962 regarding the process as endogenous in the growth process. Arrow hypotheses was that at any moment of time, new capital goods incorporate all the knowledge than available based on accumulated experience, but once built, their productive deficiencies cannot be changed by subsequent learning.

Arrow's Model is easily simplified as

$$Yi = A (K) F (KiLi)$$

Where,

Yi denote output of firm i

Ki denotes its stock of capital

Li denotes its stock of Labour

K without a subscript denotes the aggregated stock of capital and

A is the technological factor. probably

Arrow model showed that if the stock of labor is maintained and remain constant, growth ultimately comes to a halt because socially, very little is invested and produced. Therefore, Arrow did not explain that his model could lead to sustainable endogenous growth.

**Empirical Reviews**

Ikenna and Frank (2017) studied the effect of foreign investments (disaggregated into foreign direct investment and foreign portfolio investment) inflows on human capital development in Nigeria, time series data spanning 1986-2016 were used. The Ordinary Least Square Regression techniques and Granger Causality procedures were adopted in testing the data. The result reveals that both foreign direct investment and foreign portfolio investment have positive and significant effect on human capital development while the partial correlation coefficients indicated that foreign portfolio investment is the better option. The paper therefore recommended that the government foreign investments policy should be geared towards human capital development.

Nwabuobi and Usman (2017) examined the effect of foreign portfolio investment on human capital development in Nigeria. The paper indicates that foreign portfolio investment has positive and significant effect on human capital development in Nigeria

Felix, and Amuche, (2017) investigated the relationship between foreign portfolio investment and human capital development in Nigeria in a view to explore the nexus between foreign portfolio investment and human capital development in Nigeria. Annual time-series data spanning 1986 to 2015 were regressed.

Augmented Dickey Fuller and Phillip Peron unit root tests and Cointegration properties of the variables were equally examined. Vector Auto-Regressive technique supported by Variance Decomposition and Impulse Response analysis were employed to empirically determine the relationship linking foreign portfolio investment and human capital development in Nigeria. The

results showed that the correlation between foreign portfolio investment and human capital development in Nigeria is positive and very significant. A comprehensive study on foreign portfolio investments in Nigeria was done by Ugwuegbe et al (2013).

Their research attempted to ascertain the long run determinants of foreign portfolio investment (FPI) in Nigeria – such that appropriate policies will be pursued to attract same in long run. The study recommended that government should provide an enabling environment that will encourage foreign investors in Nigeria by addressing the security predicament in the Nigerian economy.

Okafor, et al, (2015). Studied the nexus between foreign direct investment and human capital development covering 1970 – 2015, the study used Growth, Inflation rate, Real exchange rate and Institution as independent variables while human capital, foreign direct investment and development market as independent variables. The study adopted the autoregressive distributed lagged model techniques for the analysis of the data. The study revealed that FDI has a positive and a significant relationship with human capital development in Nigeria.

Olatunji et al. (2014) investigated human capital investment and economic development in Nigeria. The study spanned 1970 – 2011. The authors compiled physical capital, GDP and human capital as variables. Adopting OLS and ADF, Johanson Co-integration and Error Correlation Model. The Study availed that all variables are non-mean reverting at level do not converge to their long-run relationship between development and human capital investment in Nigeria. The study recommended that Nigeria should consider education beyond secondary school enrolment, if enrolment in human capital is to produce meaning macroeconomic changes.

The economic growth imperative of foreign portfolio investment in Nigeria was researched on by Acha and Essien (2018). Real Gross Domestic Product was applied as dependent variable while market capitalization, exchange rate and foreign portfolio investment was adopted covering between 2005 – 2014. The study used OLS multiple regression to analysed the data. The result showed that there is absence of auto correction. The paper recommended that government should work towards the mobilization of the capital and money markets putting in place appropriate investor friendly policies to sustain their internationalization and attractiveness to investors.

Hussaini and Kabuga (2016) studied foreign direct investment and Human capita development focusing on the Nigeria economic growth using annual times series data spanning the period of 1980 to 2016. The study adopted foreign direct investment, human capital and Gross Capital formation as variables using both Gregory Human (1996) and Johanson et al. (2000) co-integration test, the paper recommended that it is of essence to attract more inflows of FDI into the country while employing policies that would not only increase foreign investor's confidence but enhance competitiveness of the business circle, contribute to international trade integration and ensure improvement of entrepreneurial development.

Onyeisi et al. (2016) did a study on Foreign Portfolio investment and stock market growth in Nigeria spanning 1996 to 2014 using stock market growth as dependent variable and foreign direct investment, exchange rate and trade openness as independent variables. The Granger Casualty test was used to estimate the variables. The study indicated that foreign portfolio investment (FPI) inflows may not contribute positively to the increase in stock market when there is no conducive

business environment for foreign investors to excel in Nigeria, The paper recommended that Federal Government of Nigeria should strengthen the security and exchange commission (SEC) to promote consistent inflows of foreign portfolio investment to Nigeria.

Okoli and Agu (2015) examines foreign direct investment flow and manufacturing sector performance in Nigeria. The paper applied Manufacturing value added (MVA) as its variable. The study adopted the Ordinary Least Square estimate with Foreign Direct Investment Model as a quadratic function to account for its turning point and the VECM to ascertain both the long and short run causalities from an explanative variable. The study recommended that government should focus more on domestic investment and also improve capital skill to boost the Nigerian economy.

Bagbebo and Apere (2014) studied foreign portfolio investment and economic growth in Nigeria spanning 1986 – 2011 applying Augmented Dickey Fuller (ADF) and Johansen co-integration test. The paper revealed that foreign portfolio investment, market capitalization and trade openness have a positive long-run relationship with real gross domestic product in Nigeria. It recommended that government should fine tune a method of strengthening the working of the capital against fraudulences to ensure the free flow of foreign capital in the economy as this would boost domestic investment. Government policies should be business driven and inflation should actively be controlled in the economy.

Nwafor (2020) studied foreign portfolio investment and human capital development. Evidence from Nigeria spanning 1987 to 2019. The study adopted human capital development as equity, real interest rate and exchange rate as independent variables. Adopting the descriptive statistics Augmented Dickey Fuller (ADF) and Philip Perron test for unit root while OLS regression analysis in testing the hypothesis.

The paper concludes that foreign portfolio investment has positive effect on human capital development and has helped to improve standard of living of Nigeria. The paper recommended that it is needful to expand foreign portfolio investment on bond in Nigeria stock market through greater openness.

Fashina, et al. (2018) study foreign aid, human capital and economic nexus in Nigeria. The study used secondary school enrolment, total government health expenditure, real investment to GDP, FDI and trade openness to GDP as variables. Engle-Granger and Vector Error Correction Model (VECM) was used to estimate the data respectively.

The paper suggests that persistent increase in foreign and flow beyond a particular point (The optimal point) and may adversely affect growth, thus confirming the proposition of the medicine model. The study revealed that there is also an indication that attainment of economic growth might be challenging for this aid-dependent country.

**Summary of Review Literature**

Different empirical studies have being conducted on the effect of foreign portfolio investment on human capital development in Nigeria with conflicting result and conclusion in respect of positive and negative effect in both developing and developed countries. This tends to suggest that there

are still inconsistencies in empirical findings with regards to developing and developed countries on this topic. These conflicting findings can be partly attributed to different sets of econometrics methodologies adopted in such empirical studies (such as unit root test, descriptive statistics, regression analysis, cointgration, error correction model, Granger Causality test, Correlate Analysis, Panel Data Analysis among others). This study tends to incorporate bond, equity, commercial paper and treasury bills all in one model with the aim to reveal the true effect of foreign portfolio investment on human capital development in Nigeria.

## DATA AND METHODOLOGY

This study employed ex-post facto research design which according to kerlinger (1973) is a systematic empirical inquiry in which the investigator does not have direct control over the value of the variables included in the study. The study used secondary time series data from 2005 – 2019 gathered from the united Nations development Program (UNDP) 2019 report, National Bureau of Statistics Nigeria various Reports, Annual Nigerian Stock Exchange (NSE) Fact Book, and the Central Bank of Nigeria (CBN) Annual Statistical Bulletin, 2019. Some preliminary tests were conducted on the variables in the study to ascertain their suitability and the econometric tool to be used for analysis. In this regard, stationarity of the data was determined by utilizing Augmented Dickey Fuller (ADF) unit root test.

It is customary to conduct cointegration test to find out if a long run relationship exists between the dependent and the independent variables. Engel –Granger cointegration and Johansen cointegration tests where employed for this purpose. Ordinary Least square (OLS) multivariate regression and Error Correction model were used for the analysis.

### Model Specification

The study adopted and modified the portfolio theory of international capital flows model which depicts human capital development as a direct function of foreign portfolio investment and Captured by James, and Johnson (2016) who examined the effect of foreign portfolio investment on human capital development in Nigeria and stated as:

$$HCDI = f(BND,) \text{ ----- } 1$$

Where,
HCDI = Human Capital Development Index (proxy for human capital development)
BND = Bond

The model is modified to

$$HDI = f(FPEI, FPBI, EXCR) \text{ -------- } 2$$

Where HDI is the Human Capital Development Index and represents the dependent variable, while FPEI = Foreign Portfolio Equity Investment, FPBI = Foreign Portfolio Bonds Investment, and EXCR= the official Exchange Rate are the explanatory variables in the model. Exchange is actually a control variable as the exchange rate at a particular time affects the value of FPI funds.

Equation two is transformed to an econometric format thus:

$$HDI = \beta_0 + \beta_1 FPEI + \beta_2 FPBI + \beta_3 EXCR + \mu$$

Where,

$\beta_0$ = intercept,
$\beta_1$ - $\beta$3 = Coefficients of the independent variables
$\mu$ = Error term of the equation

## EMPIRICAL RESULTS

### Data Presentation And Analysis

#### *Descriptive Analysis*

This section presents the descriptive statistics on portfolio investment and human capital development in Nigeria. The aim of the analysis is to examine the central tendency including the mean and the median as well as measure of dispersion for instance, minimum, maximum, and standard deviation, for variables in the model. The Jarque-Bera and its probability values give an idea of normal distribution of each of the variables while the value of the skewness gives an idea of asymmetry of the distribution of each of the series around its mean and kutosis measures the peakedness or flatness of the distribution of ach of the series.

The descriptive statistics is presented in Table 4.1 while a general **Jarque-Bera** test statistic for testing whether the entire series in the model under study is normally distributed. is presented in Figure 4.1

**Table 4.1 Descriptive Statistics**

| | HDI | FPIE | FPIB | OEXR |
|---|---|---|---|---|
| **Mean** | 0.505333 | 791.8120 | 137.1527 | 190.5540 |
| **Median** | 0.502000 | 578.4600 | 123.5800 | 155.7600 |
| **Maximum** | 0.539000 | 2354.220 | 410.5900 | 306.9600 |
| **Minimum** | 0.467000 | 98.56000 | 0.010000 | 116.8000 |
| **Std. Dev.** | 0.024769 | 709.9151 | 122.8277 | 74.54442 |
| **Skewness** | -0.070667 | 1.094881 | 0.823416 | 0.852807 |
| **Kurtosis** | 1.466900 | 2.856592 | 2.828113 | 1.970394 |
| **Jarque-Bera** | 1.481482 | 3.009764 | 1.713500 | 2.480753 |
| **Probability** | 0.476760 | 0.222044 | 0.424540 | 0.289275 |
| **Sum** | 7.580000 | 11877.18 | 2057.290 | 2858.310 |
| **Sum Sq. Dev.** | 0.008589 | 7055713. | 211213.0 | 77796.20 |
| **Observations** | 15 | 15 | 15 | 15 |

**Source:** Computed from E- view 10.0

Table 4.1 presents the summary of statistics used in the analysis. The mean of human capital development index stood at 0.505333, while those of FPEI sand FPBI stood at 791.8120 B'N and 137.1527 B'N respectively. The median which is a robust measure of the centre of the distribution that is less sensitive to outliers than the mean shows that human capital development index, bond and equity have median series of 0.502000, 578.4600 and 123.5800, respectively. HDI registered a very low standard deviation showing less perturbation within the period of the study, this is confirmed by the slim difference between the maximum HDI of 0.539000 and its minimum of 0.467000 However, the standard deviations of FPEI and FPBI were high, reaffirmed by the gaps between their maximu and minimum values show high volatility of these values within the period. It could also imply that these variables recorded higher improvement within the period under review.

Another important statistics is skewness which measures the asymmetry of the distribution of series around its mean, the result of the descriptive statistics shows that all the variables except HDI are positively skewed. The positive values for the skewness reveals that the data are skewed right this means that the right tail is long relative to the left tail except HDI whose left tail is longer relative to the right. The Kurtosis statistic is stood at 1.466900, 2.856592 and6. 2.828113 respectively for human capital development index, FPEI and FPBI. The Jarque-Bera statistics measures the difference between skewness and kurtosis of the series to determine whether the series is normally distributed. The Jarque-Bera statistics shows that human capital development index, bond and equity have the values of 1.481482, 3.009764and 1.713500respectively. All the variables have Jarque-Bera probability that is each greater than 0.05%. This implies that null hypothesis that data follow a normal distribution cannot be rejected for each series.. This implies that each of the series is normally distributed.

***Jarque – Bera Normality Test***

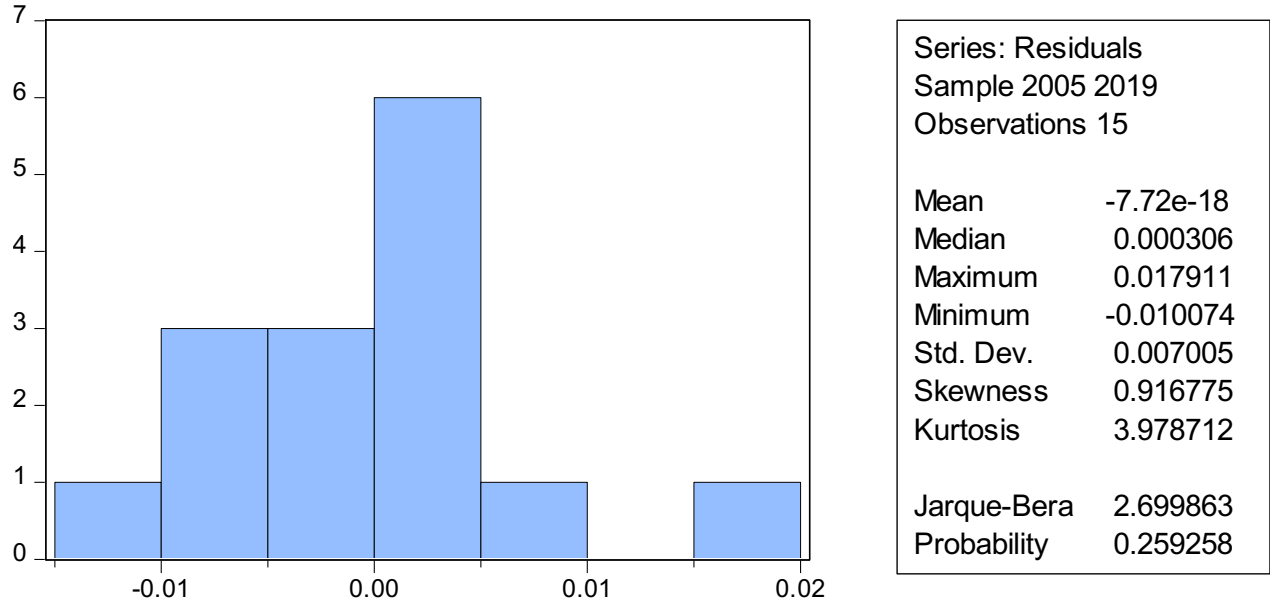


**Figure 4.1 Jarque – Bera Normality Test**

From the figure it can be seen that the data distribution follows a bell shape as required. The null hypothesis for Jarque- Bera test is $H_0$: Data follow a normal distribution at .05 level of significance. From Figure 4.1, it can be seen that the P-value is 0.259258, which is greater than .05. The Null hypothesis of normal distribution can therefore not be rejected. Thus, the data for the study is normally distributed.

***Unit Root Test***

The unit root test is conducted using the Augmented Dickey Fuller (ADF) test proposed by Dickey and Fuller (1979). The result of ADF statistics is presented in Table 4.2 below.

**Table 4.2 Augmented Dickey Fuller Test**

| Variable | Test Conducted | Mackinonnon Critical Value at 5% probability level | Level Test Stat | Mackinonnon Critical Value at 5% probability level | 1st Difference Test Stat | Order of Integration |
|---|---|---|---|---|---|---|
| **HDI** | ADF | -3.098896 | -0.785397 | -3.119910 | -3.665573 | I(1) |
| **FPEI** | ADF | -3.119910 | -2.163450 | -1.970978 | --3.768326 | I(1) |
| **FPBI** | ADF | -3.098896 | -1.680202 | -3.119910 | -3.679634 | I(1) |
| **EXCR** | ADF | -3.098896 | -0.039320 | -1.970978 | -2.600028 | I(1) |

Source: Computed from E- views 10.0

The result confirmed that human capital development index, Foreign portfolio equity investment, Foreign portfolio bond investment, and Exchange rate attained stationarity at !st difference I(1). This results from the fact that the Augmented Dickey-Fuller test statistic is in each case more negative than the Mackinnon test critical value at 5% level of significance only at first difference.
The above results showed that the variables do not have equilibrium in the short run implying the need to test for a long run equilibrium relationship. This was done by employing both the Engle-Granger as wel as the Johansen cointegration tests to ascertain the long run equilibrium relationship between the variables in the model.

**Table 4.3 Engle-Granger Cointegration Test**

| **Null Hypothesis: RESID01 has a unit root** | | | |
|---|---|---|---|
| **Exogenous: Constant** | | | |
| **Lag Length: 2 (Automatic - based on SIC, maxlag=3)** | | | |
| **Augmented Dickey-Fuller test statistic** | | **t-Statistic** | **Prob.*** |
| | | -4.166392 | 0.0093 |
| **Test critical values** | 1% level | -4.121990 | |
| | 5% level | -3.144920 | |
| | 10% level | -2.713751 | |

Source: Computed from E- views 10.0

In the Engle-Granger test, unit root test was conducted on the residuals after running an OLS test at levels. Procedure demands that the residual should cointegrate at level for there to be a long run relationship between the variables in the model. The result showed that at level, the Augmented Dickey-Fuller test statistic is more negative than the Mackinnon test critical value at 5% level of significance. This signifies there is cointegration – a long run equilibrium relationship exist between the variables in the model. This result was confirmed by running the Johansen cointegration test – Table 4.4

In the Johansen tests, Table 4.4, the phrase that Trace test indicates 2 cointegrating eqn(s) at the 0.05 level denotes cointegration – implying a long run equilibrium exists between the variable in the model under study thereby confirming the Engle Granger test.

**Table 4.4 Johansen Cointegratin Test**

| Date: 09/24/20 Time: 17:20 | | | | |
|---|---|---|---|---|
| Sample (adjusted): 2007 2019 | | | | |
| Included observations: 13 after adjustments | | | | |
| Trend assumption: Linear deterministic trend | | | | |
| Series: HDI FPIE FPIB OEXR | | | | |
| Lags interval (in first differences): 1 to 1 | | | | |
| Unrestricted Cointegration Rank Test (Trace) | | | | |
| **Hypothesized No. of CE(s)** | **Eigenvalue** | **Trace Statistic** | **0.05 Critical Value** | **Prob.**** |
| None * | 0.999986 | 203.2071 | 47.85613 | 0.0000 |
| At most 1 * | 0.966483 | 57.48123 | 29.79707 | 0.0000 |
| At most 2 | 0.561808 | 13.33692 | 15.49471 | 0.1030 |
| At most 3 | 0.181938 | 2.610628 | 3.841466 | 0.1061 |
| Trace test indicates 2 cointegrating eqn(s) at the 0.05 level | | | | |
| * denotes rejection of the hypothesis at the 0.05 level | | | | |

Source: Computed from E- views 10.0

### *The Error Correction Model (ECM)*

The fact that the series is I(1) implies that there is no equilibrium relationship in the short run. This shows that in the short run, there is error. The error correction model is conducted to determine the speed of adjustment of the errors (fluctuations) i the short run as they are being corrected to reach equilibrium in the long run. The ECM test Table 4.5 shows that the speed of adjustment is high, 94.9% and the ECM coefficient has the right sign and is significant. This implies that about 95% of the errors in the short run are adjusted in each period of one year.

**Table 4.5: The ECM result**

| Dependent Variable: D(HDI) | | | | |
|---|---|---|---|---|
| Method: Least Squares | | | | |
| Date: 09/24/20 Time: 17:12 | | | | |
| Sample (adjusted): 2006 2019 | | | | |
| Included observations: 14 after adjustments | | | | |
| **Variable** | **Coefficient** | **Std. Error** | **t-Statistic** | **Prob.** |
| **D(FPIE)** | 7.22E-06 | 2.56E-06 | 2.817832 | 0.0201 |
| **D(FPIB)** | -6.43E-06 | 1.07E-05 | -0.600960 | 0.5627 |
| **D(OEXR)** | 0.000206 | 7.65E-05 | 2.688086 | 0.0249 |
| **ECM(-1)** | -0.949586 | 0.271051 | -3.503346 | 0.0067 |
| **C** | 0.002298 | 0.001513 | 1.519512 | 0.1630 |
| **R-squared** | 0.629334 | **Mean dependent var** | | 0.005143 |
| **Adjusted R-squared** | 0.464594 | **S.D. dependent var** | | 0.005475 |
| **S.E. of regression** | 0.004006 | **Akaike info criterion** | | -7.929446 |
| **Sum squared resid** | 0.000144 | **Schwarz criterion** | | -7.701212 |
| **Log likelihood** | 60.50612 | **Hannan-Quinn criter.** | | -7.950574 |
| **F-statistic** | 3.820163 | **Durbin-Watson stat** | | 1.313402 |
| **Prob(F-statistic)** | 0.044040 | | | |

Source: Computed from E- views 10.0

### *The Ordinary Least Square Regressions*

In this section, we provide the benchmark test of the significance of the independent variables in explainingthe effect of foreign portfolio investment on human capital development in Nigeria.

**Table 4.6: Regression Result for the Model**

| **Dependent Variable: HDI** | | | | |
|---|---|---|---|---|
| **Method: Least Squares** | | | | |
| **Date: 09/24/20 Time: 17:02** | | | | |
| **Sample: 2005 2019** | | | | |
| **Included observations: 15** | | | | |
| **Variable** | **Coefficient** | **Std. Error** | **t-Statistic** | **Prob.** |
| **FPIE** | 1.32E-05 | 3.53E-06 | 3.725449 | 0.0033 |
| **FPIB** | 2.98E-05 | 2.33E-05 | 1.281649 | 0.2263 |
| **OEXR** | 0.000253 | 3.36E-05 | 7.530789 | 0.0000 |
| **C** | 0.442649 | 0.006424 | 68.90406 | 0.0000 |
| **R-squared** | 0.920024 | **Mean dependent var** | | 0.505333 |
| **Adjusted R-squared** | 0.898213 | **S.D. dependent var** | | 0.024769 |
| **S.E. of regression** | 0.007902 | **Akaike info criterion** | | -6.620106 |
| **Sum squared resid** | 0.000687 | **Schwarz criterion** | | -6.431293 |
| **Log likelihood** | 53.65080 | **Hannan-Quinn criter.** | | -6.622117 |
| **F-statistic** | 42.18058 | **Durbin-Watson stat** | | 1.598777 |
| **Prob(F-statistic)** | 0.000003 | | | |

Source: Computed from E- view 10.0

From the regression result obtained the regression equation can be presented thus:
HDI = 0.442649 + 0.0000132FPEI + 0.0000298FPIB + 0.000253OEXC + μ

## DISCUSSION OF RESULTS

Table 4.6 shows that the coefficient of determinant $R^2$ and adjusted $R^2$ are 0.92 and 0.89 respectively. This shows that the explanatory variables in the model can explain up to 89% of the value of HDI and that 11% of the value are explained by other factors not in the model.The Durbin-Watson stat of 1.59 is close to 2 implying that the variables in the study do not suffer from autocorrelation. The F-statistic of 42 and the probability value of 0.0000 show that the the variables in the model have a joined effect, and the effect is significant.

The value of intercept of 0.442649 shows the value of the Human development index that is not influenced by the variables. It is the value HDI will have if the values of all the explanatory variables are held at zero. The control variable exchange rate also had a positive and significant effect on Human capital development

The result in Table 4.6 also showed that the coefficient of foreign portfolio investment on equity is weakly positive at 0.0000132 with probability of 0.0033 which means that, foreign portfolio investment on equity has positive and significant effect on human capital development. A 100% increase in foreign portfolio investment on equity will lead only to an increase on human development index of 0.00132 unit. The positive and significant result is consistent with the work

of Eniekezimene ((2013), who found that foreign portfolio investment on equity has positive effect on human capital development.

Equally, the coefficient of foreign portfolio investment on bond is positive at 0.0000298 with probability value of 0.2263which means that foreign portfolio investment on bond has positive but insignificant effect on human capital development. A 100% increase unit increase in foreign portfolio investment on bond will cause human capital development to increase by 0.00298 unit. Though not significant, the positive result is the results of our findings are consistent with the work of Ekene, (2014), which posits that foreign portfolio investment on bond has positive relationship with human capital development Nigeria. Bagbebo and Apere (2014); Nwafor (2020) as well as Felix, and Amuche, (2017) showed that Foreign portfolio investment has a positive effect on economic growth and Human capital development respectively.

The control variable exchange rate, a major factor influencing the value of capital inflow though not a subject of investigation in this study, showed a positive and a positive and significant effect on human capital development.

## CONCLUSION AND RECOMMENDATION

### Conclusion

Foreign portfolio investment has grossly enhanced human capital development in Nigeria. About 95% of human capital development variations are explained by foreign portfolio investment. This implies that foreign portfolio investment is one major contributor to human capital development in Nigeria. The study thus concludes that foreign portfolio investment has positive effect on human capital development and has helped to improve the standard of living in Nigeria

### Recommendations

In line with the findings from the empirical analysis, the study makes the following recommendations:

1. There is the need for greater foreign portfolio investment on bond in the stock market which could be achieved by greater openness. An effective policy should be made based on the fiscal and monetary policies which should be aimed at achieving a realistic portfolio investment on bond
2. Government should formulate and implement financial policies that enhance investment interest rate in foreign portfolio investment on equity and take into consideration those other factors which negatively affect investment in the country in order to maintain sustainable human capital development in Nigeria.

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