

POST-STOCK MARKET CRASH FOREIGN DIRECT INVESTMENT COMPOSITION AND ECONOMIC GROWTH IN NIGERIA

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ABSTRACT

This study examined the existing relationship between post-stock market crash compositions of FDI inflows and Nigeria's economic growth from 2010-2018. Post-stock market crash FDI compositions in Nigeria from 2010-2018 had an unstable behaviour pattern. Using the Ordinary Least Squares (OLS) model on secondary data on real GDP and compositions of FDI obtained from the Statistical Bulletin, 2018, results show that post-stock market crash FDI inflows in the form of equity capital, equity portfolio investment, portfolio investments in money market instruments, loans and other claims positively influence economic growth in Nigeria while negative relationship exists between FDIs in the form of physical capital, portfolio investments in bonds and trade credits and Nigeria's real GDP (RGDP). This result necessitates the initiation and implementation of fiscal, monetary, investment and trade policies to attract FDIs positively influencing Nigeria's RGDP and minimize the attraction of FDIs in the form of portfolios in bonds, physical capital and trade credits to boost Nigeria's RGDP.

Key Words: Capital flows, Direct investment, Economic growth, FDI, Post-stock market crash,
JEL CODES: E22, E23, E24, F18, F21, F23

Introduction

Migration of capital across borders made feasible by globalization has altered global economic structures, direction of trade, regional economic concentrations, regional and country-by-country economic strength. This movement of capital is predicated on the economic thought of safeguarding economic assets to protect future income flows and seeking favourable destinations to grow investments. With capital importation in the form of FDI comes technological transfers, innovations, provision of new capital to boost existing production capabilities and build new ones, and boost infrastructural development. This drives techno-economic activities with positive effects on production, employment, incomes, consumption and overall economic growth. The stimulating effect of FDI on domestic investment achieves desired results when the host country attains the minimum threshold of human capital. Where human capital is below the threshold, FDI inflows stimulate and develop the needed capital. In addition, FDI inflow increases total investment in the host country. Economic theory posits that the positive effects of FDI inflows outweigh its negative effect. The European Investment Bank (2020) and Kida (2014) argued that exogenous factors existing in the environment help mitigate the negative effects of FDIs.

The benefits of FDIs according to Owusu-Nantwi and Erickson (2019) and Sjöholm (1999) has increased its attraction. Su, Nguyen and Christophe (2019) and Ayanwale (2007) noted the futility of FDI attraction efforts of Asian and African countries. Ayanwale (2007) attributed the meager increase in FDI inflows into Africa to improved business climate in the continent and change in perspectives among investment policy makers from “hostility” to “FDI-inflow-supporting”. These meager inflows of FDI into Africa Kingu (2016) and Ayanwale

(2007) noted, are skewed towards extractive industries. Thus FDI-led economic growth in Africa seems to be attributed to natural resources.

The competition among destinations for FDIs according to Ayanwale (2007) stems from its advantages. According to Trojette (2016) and Borici and Osman (2015), the benefits of FDI include increased technological know-how in the local market, gains in productivity, introduction of modern production processes and managerial skills, technology transfers, access to local markets, employee training and access to international networks. Kida (2014) noted that benefits of FDI inflows include access to capital skills, technological transfers, know-hows and introduction of modern production processes. The production of externalities and technological spillovers are additional advantages (Mamingi and Martin, 2018; Carkovic and Levine, 2002). De Gregorio (2003) noted that transfer of modern technologies through FDI improves domestic productivity. Research results by Makiela and Quattara (2018) show that the growth in technology from FDI is through its contagion effect from the more advanced foreign management practices and technologies introduced by foreign firms.

Kida (2014) argued that FDI is the channel for transfer of foreign technologies into the production sector of the host country. Findings by Ayanwale (2007) showed that African countries thrive on FDI.

A sectoral analysis of the effect of FDI on economic growth in Vietnam and China by Vu, Gangnes and Noy (2008) showed that FDI positively affects economic growth. Comparing the gains from FDI with direct capital financing, Alfaro et. al. (2006) argued that FDI plays an important part in promoting economic growth and modernizing an entire economy. In Vietnam, Anwar and Nguyen (2010) found that the direct effect of foreign direct investment on economic growth is positive. Findings by Seng (2016) showed that a 1% growth in FDI increases economic growth by 1.438% in the long-run. A comparative analysis of the effectiveness of FDI by De Gregorio (2003) showed that FDI growth by 1% increases economic growth 0.6% annually compared to 0.2% per from growth from domestic investment. Tracing the channel of the positive effects of foreign direct investment on economic growth, Sghaier and Abida (2013) identified positive effects of FDI on trade and the stimulation of local production with positive effect on employment, disposable income, consumption and overall economic growth.

Empirical studies on relationship between FDI and economic growth according to Ayanwale (2007), seems unclear. With the availability of data on post-stock market crash composition of FDI inflows into Nigeria from 2010 to 2018, the relationships between this composition of FDI and economic growth need to be examined. As Adams and Opoku (2015) and Ayanwale (2007) contends that FDI relationship with economic growth are country and time-specific, it makes this study exigent. The direction of causality between FDI composition and economic also need to be examined. What are the post-stock market crash behaviours of FDI compositions, and how has these compositions affected economic growth in Nigeria? This study aims to ascertain the post-stock market behaviours of FDI composition from 2010 to 2018, and examine the relationship existing between each of the compositions and economic growth.

Review of literature

Arguments exist in literature on the effects of FDIs on economic growth. Owusu-Nantwi and Erickson (2019) noted that the effect of foreign direct investment on economic growth varies across countries. Findings by Mejia, Urriola Canchari and Deng (2020), Ovat and Amba (2018), Hlavacek and Bal-Domanska (2016), Gudaro, Chhapra and Sheikh (2012); Bezuidenhout (2009), showed evidences that FDI positively affect economic growth. From the study of China, Dees (1998) concluded that FDI positively explains economic growth. Research results by Mejia et. al. (2020) from the study of countries in Latin America shows similar effect. Findings by Sarker and Khan (2020) and Mamingi and Martin (2018) supported these results. In Nigeria, Ovat and Amba (2018) and Adeniyi, Omisakin,

Egwaikhide and Oyinola (2012) concluded that FDI positively influences economic growth. Using the data from Pakistan, Gudaró et. al. (2012) concluded that FDI has a significant impact on economic growth.

Undertaking a theoretical explanation of FDI-economic growth relationship, Mahembe and Odhiambo (2014) showed reasons supporting the positive effect of foreign direct investment on economic growth argument. This they argued is via the adoption of new technologies in production by the host country and the simulation of knowledge transfers through labour training, introduction of alternative and advanced management practices and skills acquisition. Studying the short and long-run relationships between foreign direct investment and economic growth in Vietnam using the ARDL, Nguyen (2017) concluded that FDI positively affect economic growth in the long-run, but results show that it does not in the short-run. Findings by Roy and Mandal (2012) from their study of Thailand, Yao, Wei, Feng and Song (2008) from their study of China, and Rahman and Shahbaz (2013) and Suyanto, Bloch and Salim (2012) from their study of Indonesia showed that a positive relationship exists between FDI and economic growth. From an empirical analysis of data from 1970 to 1999 from 84 countries, Li and Liu (2005) concluded that FDI has a positive effect on economic growth. Research results by Oladipo (2012) showed that FDI positively affects economic growth in 13 of the 16 Latin American countries examined. Findings by Zhang (2001) showed that FDI inflows have a positive spiral effect on all sectors of the economy.

These positive results according to Adams and Opoku (2015), Ashraf, Yong, Afzal and Kun (2019) and the United Nations Conference on Trade and Development, UNCTAD (2018) seems dependent on market size, size of the population, pace of economic growth and per capita income. They argued that these factors create favourable conditions for FDI firms to generate growth in an economy. Kida (2014) noted that attracting FDIs necessitates the promotion of investor protection laws. According to Alfaro, Kalemli-Ozcan and Volosovych (2008), growth from FDI depends on country-specific factors. Kevin and Williams (2010) added that FDIs yield positive growths when investment policies of the host country are favourable. Su, et. al (2019) noted that FDI benefits are hinged on the absorptive capabilities of the destinations of FDI. To benefit from FDI in the long-term, Mejia, et. al (2020) and Kingu (2016) argued that host countries require a minimum level of economic stability, human capital development and liberalized market. For a country to attract FDIs, Sarker and Khan (2020) and the UNCTAD (2018) and opined that it must have a minimal threshold of basic infrastructure, education, political stability, stable financial system and level of capital. The explanation for the threshold requirement according to Ayanwale (2007) stems from the argument that only economies with certain income levels can absorb advanced technologies, gain from technology diffusion from other countries and benefit from the gains of FDI. In addition, an educated population understands, accepts and assimilates new technologies and spread same across the country. The urge for development in human capital, technology transfers and need for increased openness of individual countries has contributed to increased competition for FDI by African countries (Kingu, 2016; Adams and Opoku, 2015; and Adeniyi, et.al., 2012). The findings by Hlavacek et. al (2016) supports the human capital argument. Adeniyi, et.al. (2012) argued that FDI is a potent means for technology transfer. Technological transfers from FDI to the larger economy may be in form of linkages between foreign firms and local affiliates (Hlavacek, et al., 2016; and Borici and Osman, 2015), internationalization of technology and movement of labour from one industry to another within the host country. Alfaro, Chanda, Kalemli-Ozcan and Sayek (2006) noted that FDI only improves economic growth of host economies if the local financial market and educational level are above average. Research result by Alfaro, Chanda, Kalemli-Ozcan and Sayek (2006) support arguments in literature that FDI only improves economic growth of host economies if the local financial market and educational level are above average. From the study of Vietnam, Su, et. al (2019) found a significant direct long-run effect on production. Alfaro et al (2006) emphasized the need for the

development of new variety of intermediate products which itself requires upfront capital investment. Increased volume of variety of intermediate products, Alfaro et. al. (2006) argued results in positive spillovers to the “final goods sector”, which allows financial markets to create “backward linkages between domestic and foreign firms to turn into FDI spillovers”.

Research results by Adeniyi et. al (2012) showed the existence of positive spillovers of FDIs on the productivity of domestic firms in Nigeria. Results by Adams and Opoku (2015), Adeniyi, et. al. (2012) showed that linkage effects are achieved when an industry facilitates growth of another via easing condition to production. This they argued, set the pace for accelerated industrialization. In the absence of linkages, Mejia, et. al (2018) noted that economic growth may be limited or negative. Alfaro et. al. (2006) attributed externalities generated by FDI to the adoption of know-how and foreign technology. This they argued are in employee training, introduction of new processes, creation of linkages between domestic and foreign firms, licensing of agreements and imitation. Alfaro et. al. (2006) proposed a mechanism which emphasizes the role of domestic financial markets in promoting FDI with positive effects on economic growth. This Alfaro et. al (2006) noted is via backward industrial linkages. Alfaro et. al. (2006) observed that FDIs multiplies economic growth in economies with developed financial sector. With multinationals willing to prevent technology transfers to local firms (which benefit from knowledge spillovers), Alfaro et. al. (2006) stressed the necessity to study inter-industry (vertical) externalities instead of intra-industry (horizontal) externalities. Findings by Alfaro et. al. (2006) showed that externalities from FDI do manifest themselves through backward or forward linkages. Mejia, et. al, (2020) and Hlavacek, et. al, (2016) showed evidences of the existence of linkages between suppliers and multinational enterprises in Peru, and Central and Eastern European countries respectively.

The need to attract and benefit from FDI Borici and Osman (2015) and Gudaro, et. al. (2012) noted necessitated the liberalization of trade, tariff and introduction of friendly exchange control policies in Albania and Pakistan respectively. Trade tariff, exchange rate and tax policies according to Asiedu (2002), and Maskus, Markusen and Carr (2001) are determinants of FDI in developing economies. Kingu (2016) argued that FDI significantly improves economic growth in export-promoting economies than import-substituting economies. Trojette (2016) showed evidence that higher benefits accrue to countries with higher level of institutional capability. To sustain FDI-led economic growth, Bezuidenhout (2009) advised that revenue flow from FDI investments should be managed and reinvested.

On the contrary, Carkovic and Levine (2002) showed evidences that FDIs does not positively influence economic growth. This they added, is achieved through the stifling of indigenous firms by FDIs with negative effects on production, employment, income, consumption and economic growth. The crowding out of local firms by FDI according to Cobham (2001) negatively affects economic growth with attendant job losses and decline in production of domestic firms. Using data from the pre-market-crash period, Ayanwale (2007) showed evidences that the effect of FDI on Nigeria's economic growth was insignificant. Oyinola (1995) found a negative relationship between foreign direct investment and economic growth in Nigeria. Akinlo (2004) showed evidence that a small and insignificant relationship exists between economic growth and FDI in Nigeria. An assessment of the activities of FDIs in Africa by Ayanwale (2007) showed that FDIs were parasitic and retarded the growth of domestic firms. Shahbaz, Samia and Talat (2014) observed that fast industrialization from FDI inflows has environmental consequences. Determining environmental cost from rapid industrialization from FDI inflows using the Environmental Kuznet 'U' shaped curve, Shahbaz, et. al. (2014) concluded that with increased industrialization comes environmental degradation and increased attendant environment costs. The increase in cost of doing

business to local firms from increase in FDI according to Mutafoğlu (2012), and Mohammed, Singh and Liew (2013) has a resultant negative effect on economic growth.

Methodology

Theoretical Framework

This study is hinged on the Solow (1956) model and the neoclassical economic theory of free movement of capital. This model proposes that production is determined by capital and labour stock. The neoclassical model is an endogenous growth model which shows the positive relationship existing between FDI and economic growth. The theory asserts that FDI is akin to domestic investment which positively influences economic growth in the short-run. Neoclassical proponents of endogenous growth (Grossman and Helpman, 1991; and Rebelo, 1991) argue that FDI-led growths are more productive than local investment-led growths as it encourages the transfer of new technologies into the production function to the host country. Demello (1999) added that the contribution of foreign direct investment to economic growth via technological transfer, capital formation and increased knowledge of workers through training of workers and purchase of know-hows are more significant. Using the Solow and the New Endogenous models to examine the interaction between economic growth and FDI, Kida (2014) noted that FDI influences economic growth across countries but argued with evidences that economic growth influences FDI inflows in developed economies in the long-run.

Model Specification

Decomposing the Solow model, Nguyen (2017), Kida (2014) and Chughtai (2014) posited that capital inflows may be in the form of equity investments in local firms by foreign firms (foreign direct investment equity, FDIE), transfer of physical capital into the country (foreign direct investment in capital, FDIC), acquisition of equity investments in more than two or more firms (portfolio investment equity, PIE), acquisition of debt instruments issued by local firms (portfolio investment bond, PIB), acquisition of money market instruments in many firms (portfolio investment in money market instruments, PIMMI), provision of credit to local firms (total credit, TCD), loans to local firms (other investment loans, OIL) and consolidated miscellaneous liabilities (other investment claims, OIC). Each of these and combined forms of FDI flows affect a country's ability to increase production capacity, establishment of new industries, increase of productivity, exports, employment, disposable income, consumption and overall economic growth. The decomposed Solow model assumed linear by Nguyen (2017), Kida (2014) and Chughtai (2014) gives the function:

$$RGDP = f(FDIE, FDIC, PIE, PIB, PIMMI, TCD, OIL, OIC)$$

Where RGDP= Real gross domestic product

Estimation technique

Using the decomposed Solow model by Nguyen (2017), Kida (2014) and Chughtai (2014) which is assumed linear, we thus employ the Ordinary Linear Square (OLS) model:

$$RGDP_t = \beta_0 + \beta_1 FDIE_t + \beta_2 FDIC_t + \beta_3 PIE_t + \beta_4 PIB_t + \beta_5 PIMMI_t + \beta_6 TCD_t + \beta_7 OIL_t + \beta_8 OIC_t + \mu_t$$

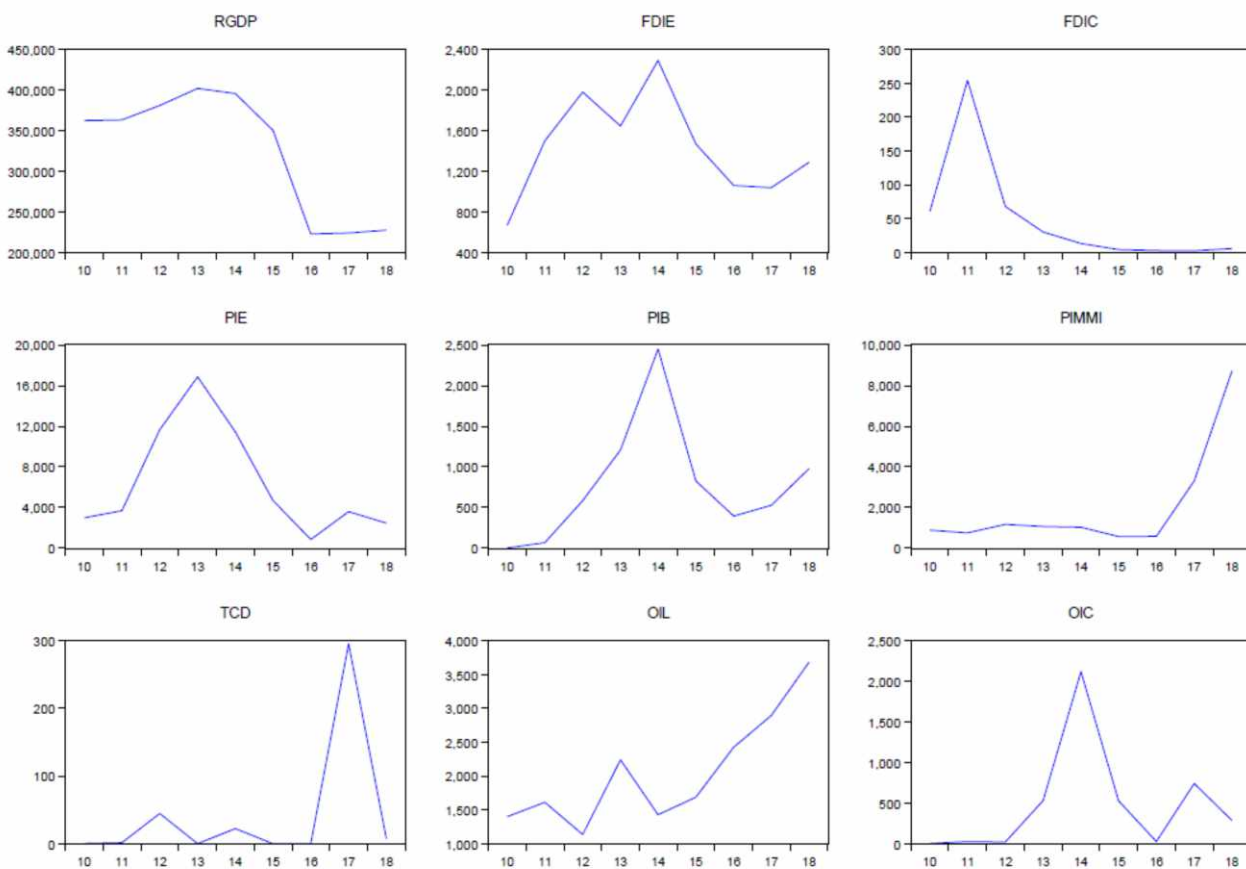
to examine the long-run relationship between the post-stock market crash RGDP and the composition of FDI inflows into Nigeria. Previous studies on FDI and economic growth relationships (Mejia, et. al, 2020; Sarker and Khan, 2020; Ashraf, et. al, 2019; Nguyen, 2017; Kida, 2014; Chughtai, 2014; and Ayanwale, 2007) used the linear model making its use in this study appropriate.

The stability of the variables were tested using the Augmented Dickey-Fuller (ADF) test. The existence of cointegration was ascertained using the Johansen cointegration test. The short-run relationship between the dependent and independent variables were examined using the Vector Error Correction Model (VECM). The direction of causality between study variables were determined using the Granger Causality test.

Trend Analysis

From Fig1, RGDP was stable between 2010 and 2011, experiencing a marginal growth between 2012 and 2014 with a sharp decline in 2015-2016 (period of recession), stabilizing from 2016 to 2018. FDI inflows in the form equity financing (FDIE) increased sharply from 2010 to 2012, declined marginally in 2013, increased marginally in 2014 with a sharp decline from 2015-2017. It increased marginally to \$1,288.28 million in 2018 (Fig 1).

Figure 1: Values of variables from 2010-2018



Source: Central Bank of Nigeria Statistical Bulletin, 2018.

FDI inflows in the form of physical capital (FDIC) increased from \$60.59 million in 2010 to \$254.45 million in 2011 with a steady decline to \$2.32 million in 2017. It increased marginally to \$5.63 million in 2018. FDI inflows in form of equity portfolio investments (PIE) increased steadily from \$2983 in 2010 to \$11,865.73 million in 2013. This was followed by a steady decline to \$859.06 million in 2016, an increase to \$3593.99 million in 2017 and decline to \$2456.41 million in 2018. FDI portfolio investments in bonds (PIB) increased sharply from \$0.07 million in 2010 to \$2451.6 million in 2014 with a sharp decline to \$827.14 million in 2015 and \$526.8 million in 2017. This was followed by a marginal growth to \$980.24

million in 2018 (Fig 1). FDI inflows in the form of portfolio investments in money market instruments (PIMMI) experienced a growth-decline-growth pattern between 2010 and 2016. This was followed by a sharp increase to \$8731.71 in 2018. Trade credits (TCD) increased from \$0.15 million in 2010 to \$6.92 million in 2018. FDI investments in the form of loans (OIL) increased from \$1397.48 million in 2010 to \$3684.66 million in 2018. FDI investments in other claims (OIC) increased from \$2.22 million in 2010 to \$284.75 million in 2018 (Fig 1).

Empirical Results

Unit Root Test Result

The Augmented Dickey-Fuller (ADF) unit root test results for the time series variables are presented in Table 1.

Table 1: Augmented Dickey-Fuller Test

Variable	ADF Test Statistic	5% Critical ADF Value	Remark	Order of Integration
RGDP	-0.377481	0.8692	Stationary	I(0)
FDIE	-2.353369	0.1796	Stationary	I(0)
FDIC	-4.694036	0.0000	Stationary	I(1)
PIE	-2.323283	0.0808	Stationary	I(0)
PIB	-1.894644	0.1070	Stationary	I(0)
PIMMI	-1.662871	0.0693	Stationary	I(0)
TCD	-3.014060	0.0236	Stationary	I(0)
OIL	-0.875669	0.9845	Stationary	I(1)
OIC	-2.286631	0.0627	Stationary	I(0)

Since the Augmented Dickey-Fuller result (Table 1) shows that variables are stationary at I(0) and I(1), we conduct the Johansen cointegration test.

Johansen Cointegration test:

Table 2: Johansen Cointegration result

Sample (adjusted): 2010 2018

Trend assumption: Linear deterministic trend

Series: RGDP FDIE FDIC PIE PIB PIMMI TCD OIL

OIC

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 *	0.903718	230.4322	95.75366	0.0000
At most 1 *	0.834019	148.5157	69.81889	0.0000
At most 2 *	0.740037	85.65978	47.85613	0.0000
At most 3 *	0.531441	38.50720	29.79707	0.0039
At most 4	0.262797	11.97391	15.49471	0.1582
At most 5	0.036536	1.302692	3.841466	0.2537

Trace test indicates 4 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

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

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.903718	81.91648	40.07757	0.0000
At most 1 *	0.834019	62.85592	33.87687	0.0000
At most 2 *	0.740037	47.15258	27.58434	0.0001
At most 3 *	0.531441	26.53329	21.13162	0.0079
At most 4	0.262797	10.67122	14.26460	0.1715
At most 5	0.036536	1.302692	3.841466	0.2537

Max-eigenvalue test indicates 4 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

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

Source: Author’s computation, 2020

The Johansen cointegration result in Table 2 shows a Trace statistic of 230.4322 which is higher than the 0.05 critical value of 95.75366. The Max-Eigen statistic of 81.91648 is also found to be higher than the 0.05 critical value of 40.07757. These results indicate that a long-run relationship exists between the dependent and independent variables. The short-run relationship between identified variables are examined using the Vector Error Correction Model (VECM).

Table 3: Short-run Dynamic (VECM) Results
Dependent Variable: D(RGDP)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	93.09032	73.51120	1.266342	0.2145
D(FDIE)	0.103771	0.046402	2.236348	0.0324
D(FDIC)	1.007673	0.287945	3.499536	0.0014
D(PIE)	-0.015215	0.036099	-0.421473	0.6762
D(PIB)	-0.091114	0.091754	-0.993027	0.3292
D(PIMMI)	0.646138	0.378630	1.706517	0.0990
D(TCD)	0.133143	0.074323	1.791417	0.0840
D(OIL)	-0.012215	0.026099	-0.344473	0.6662
D(OIC)	-0.021114	0.011754	-0.883027	0.3332
VECM(-1)	-0.613835	0.211732	-2.851883	0.0056

Source: Author's computation, 2020

The Vector Error Correction Model, VECM in Table 3 shows the short-run relationship existing between study variables. The VECM statistic of -0.613835 indicates that 61.38% of disequilibrium experienced in the short-run are corrected in the next period.

Using the OLS to examine the long-run relationship between study variables, we have the result on Table 4.

Table 4: Regression coefficients of variables

Dependent Variable: RGDP

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	134076.0	16509.34	4.832455	0.0001
FDIE	225.5580	413.3329	-0.161559	0.0730
FDIC	-885.1636	110.9928	-1.346999	0.0101
PIE	22.21617	94.27732	-4.517344	0.0001
PIB	-694.6286	24632.34	4.096097	0.0003
PIMMI	18.44991	250.5944	3.528773	0.0013
TCD	-1434.301	564.8539	-2.693600	0.0113
OIL	34.17285	231.4934	-1.827071	0.0773
OIC	551.2251	216.4205	-2.707518	0.0109
R-squared	0.663651	Mean dependent var		325429.0
Adjusted R -squared	0.611289	Akaike info criterion		-34.66172
S.E. of regression	10351.45	Schwarz criterion		-34.46449
Log likelihood	164.9777	Hannan -Quinn criterion		-35.08733
Durbin -Watson stat	1.916251			

The resultant regression equation from Table 4 is:

$$RGDP = 134076.0 + 225.5580FDIE - 885.1636FDIC + 22.21617PIE - 694.6286PIB + 18.44991PIMMI - 1434.301TCD + 34.17285OIL + 551.2251OIC + \mu_1$$

Regression result:

Research results from Table 4 shows that FDIs in the form of equity investments (FDIE), equity portfolio investments (PIE), portfolio investments in the money market (PIMMI) investments in loans (OIL) and investments in other claims (OIC) positively influences Nigeria's RGDP with the coefficients 225.5580, 22.21617, 18.44991, 34.17225 and 551.2251 respectively (Table 4). From Table 4, FDIs in the form of physical capital, portfolio investment in bonds and trade credits negatively influences RGDP in Nigeria with coefficients of -885.1636, -694.6286 and -1434.301 respectively. These results are significant at 5%. This result implies that efforts at improving Nigeria's RGDP should be channeled to attract FDIs in the form of equity financing, equity portfolio investments, portfolio investments in money market instruments, loans and other investments in the form of claims. These brings advanced managerial know-how as FDI owners are made full or part owners of the firm or portfolio investments in combined entities invested in with long-term investments objectives. The positive spiral effects of these on increased employment, disposable income and consumption positively affects RGDP. FDIs into the money and capital markets increases trading activities in the market, boost money market and equity prices with positive effects on RGDP. FDIs in the form of loans and other claims provides funds for capacity and production modernization and expansion which increases production volume and employment with positive effects on disposable income, consumption and RGDP. FDI investment in bonds (mostly government bonds), physical capital and trade credits should be minimized or discouraged by the Nigerian government as funds received from bond sales seems to be lost in the “wave” of corrupt practices in the government with no or negative effects on RGDP. The poor standing of Nigeria in the ease of doing business ranking caused by delays in equipment and other imports clearing at the ports and importation of disused plants and equipment from other countries for industrial production in Nigeria, and decline in suppliers' credit caused by the poor ranking of Nigeria coupled with distrust of Nigerian businesses might contribute to the negative results and relationships existing between these variables and RGDP. The imported disused plants and machineries from other countries enjoy accelerated capital allowances and import duty rebates but malfunction after installation, resulting in disruptions in production, termination of employment with negative effects on composite disposable income, consumption and RGDP. This result necessitates a decline in the attraction of FDIs in the forms of investment in physical capital, bonds and trade credits.

Granger causality result:

The Granger causality results (Table 5) shows mixed directions of causality between variables. With the calculated F-statistic for RGDP-FDIE at 2.31166 and 0.78160, we accept that RGDP does not Granger cause changes in FDIE, an FDIE does not Granger cause changes in FDIE. With F-statistic of 4.48283, RGDP Granger causes changes in FDIC while FDIC does not cause changes in RGDP with F-statistic at 0.855568. From Table 5, RGDP also Granger causes changes in PIE, PIMMI, TCD with F-statistics at 6.34607, 58.9831 and 8.40865 respectively while FDI in the form of portfolio investments in bonds (PIB) Granger causes changes in RGDP. Research result (Table 5) shows that FDIs in the form of portfolio investment in money market instruments (PIMMI), trade credits and loans does not cause changes in

RGDP with F-statistics at 0.81992, 1.91404 and 0.11004 respectively. FDIs in the form of claims Granger causes changes in RGDP with a F-statistic of 62.5774. Further results show that RGDP does not cause changes PIB, OIL and OIC with F-statistics at 0.18733, 0.93411 and 0.16316 respectively.

Table 5: Pairwise Granger Causality Test results

Sample: 2010 2018

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
RGDP does not Granger Cause FDIE FDIE does not Granger Cause RGDP	7	2.31166 0.78160	0.3020 0.5613
Null Hypothesis:	Obs	F-Statistic	Prob.
RGDP does not Granger Cause FDIC FDIC does not Granger Cause RGDP	7	4.48283 0.85568	0.1824 0.5389
Null Hypothesis:	Obs	F-Statistic	Prob.
RGDP does not Granger Cause PIE PIE does not Granger Cause RGDP	7	6.34607 1.22919	0.1361 0.4486
Null Hypothesis:	Obs	F-Statistic	Prob.
RGDP does not Granger Cause PIB PIB does not Granger Cause RGDP	7	0.18733 119.029	0.8422 0.0083
Null Hypothesis:	Obs	F-Statistic	Prob.
RGDP does not Granger Cause PIMMI PIMMI does not Granger Cause RGDP	7	58.9831 0.81992	0.0167 0.5495
Null Hypothesis:	Obs	F-Statistic	Prob.
RGDP does not Granger Cause TCD TCD does not Granger Cause RGDP	7	8.40865 1.91404	0.1063 0.3432
Null Hypothesis:	Obs	F-Statistic	Prob.
RGDP does not Granger Cause OIL OIL does not Granger Cause RGDP	7	0.93411 0.11004	0.5170 0.9009
Null Hypothesis:	Obs	F-Statistic	Prob.
RGDP does not Granger Cause OIC OIC does not Granger Cause RGDP	7	0.16316 62.5774	0.8597 0.0157

Conclusions

From this study, we conclude that foreign direct investments in the form of equity financing, equity portfolio investments, portfolio investments in money market instruments, loan and other claims positively influence RGDP in Nigeria. In addition, FDIs in the form of physical capital, portfolio investments in loans and trade credits negatively affects RGDP. Post-market crash FDI compositions in Nigeria from 2010-2018 showed a growth-decline-growth behaviour pattern. The direction of causality between RGDP and post-market crash compositions of FDIs were mixed.

Recommendations

From the research results, the Nigerian government should develop and implement fiscal, monetary, investment and trade policies to attract FDIs in the form of equity financing, equity portfolio investments, portfolio investments in money market instruments, loans and other claims and other claims to substantially and positively boost RGDP from FDI inflows. FDIs in the form of physical capital inflows, portfolio investments in bonds and trade credits should be minimized or discouraged to eliminate the negative effects of these inflows on Nigeria's RGDP.

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