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Articles

Foreign Capital and Macroeconomic Performance in Nigeria: Principal Component Analysis

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Abstract

The study estimated differential impact of components of capital inflows on macroeconomic growth rate in Nigeria using principal component model. Study period span between 1980 to 2018. The study found that foreign investors' equity into Nigeria plus net advances to enterprises together with capital transfers in cash from abroad plus net compensation of employees of non-resident workers are two foremost components of foreign capital that significantly stimulate economic growth in Nigeria. The study recommends amongst others, the need for corporate sector such as banks and other financial institutions to intensify the volume of official flows by reducing transaction cost, streamlining transfer procedures and by encouraging the use of formal financial channels. Also, Nigerian foreign investment policy should be directed towards attracting and boosting more inflows of foreign capital especially in the direction of remittances and foreign direct investment.

Keywords: foreign direct investment, remittances, official development assistances, principal component model.

1. Introduction

Regardless of claim that Nigeria attracts most flows in Sub-Saharan Africa; its impact is yet to be felt in macroeconomic performance of Nigerian economy. Nigeria's economic performance in the two decades prior to economic reforms was generally poor. The boom in oil sector lured labour away from the rural sector to urban centres. The Nigerian economy contracted by -0.67 % in Q1, 2016, -1.49 % in Q2 2016, -2.34 % in Q3 2016, by -1.73 % in Q4 2016 and -0.91 % in Q1 2017 (CBN, 2017). Besides, inception of oil price shocks in mid-2014 confronted the government with challenge of constructing an institutional and policy framework capable of managing volatility of the oil sector and supporting sustained growth of the non-oil economy. With a renewed focus on economic diversification, promoting growth in the private sector and driving job growth, GDP grew by 0.6 % in the second quarter of 2017, driven by recovering oil production and some recovery in non-oil industries, together with modest growth in agriculture.

Economic growth remained positive in second half of 2017, averaging about 1.0 % for 2017; driven by continued recovery of oil production, sustained growth in agriculture and the positive

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impact on investment and other private sector activities from the improved availability of foreign exchange to support imports. By the third quarter of 2017, economic recovery was stabilized with a growth rate of 1.40 % (NBS, 2017). In 2017, real GDP growth rate was 0.8 %, while the growth rate of GDP was 2.7 %. GDP per capita stood at US$5,900 in 2017, US $ 6,000 in 2016 and US$6,300 in 2015. Gross national saving stood at 14.9 % of GDP in 2017, 13.2 % of GDP in 2016 and 12.3 % of GDP in 2015 (CBN, 2018). Growth in the non-oil sector for 2014, 2015, 2016 and 2017 was 8.02, 4.40, 5.79 and 8.21 %, respectively (Table 1 below).

Table 1. Selected Macroeconomic Indicators

Growth Rates	2012	2013	2014	2015	2016	2017	2018
Real GDP (%)	1.8	3.5	10.9	1.4	-0.68	0.82	1.9
Oil GDP (%)	3.42	2.90	26.5	1.54	-0.62	0.84	1.94
Non-oil GDP (%)	2.4	3.85	8.02	4.40	5.79	8.21	2.3

Source: CBN (2017), IMF (2017).

In 2017, external reserves boosted to US$31.22 billion from US$29 billion in 2015. Consequently, savings increased to US$2.29 billion in 2017 and twenty-four States of the federation were given bailout funds by the federal government to pay salaries of workers, repay debts and other contractual obligations. Notwithstanding trading window for portfolio investors at market rates and operation of Nigerian independent foreign exchange rate fixing, which allowed commercial banks to quote forex rates that are close to parallel market rates, policy targets aimed at attracting foreign capital flows have not achieve results owing to the fact that both income levels and domestic savings are very low (Olofin, 2003). A lack of infrastructure and volatile regulation is often blamed for stymying FDI into least developed countries, majority of which are found in SSA, but flows into these countries increased 4 % to US $ 23 billion, helping raise Africa's still-low but improved 4.4 % share of world FDI (Ogbechie, Anetor, 2016).

The motivation and rationale for this study could be detailed to the extent that Nigeria is suffering from shortage of investible capital required for economic growth. But, the country has enormous economic growth potentiality in light of human and non-human capital resources which are the preconditions for economic growth. Unfortunately, the favourable economic growth in Nigeria has not been accomplished over the past years due to some extent poor capital supply. Moreover, empirical evidence regarding the favourable contribution of capital inflows on economic growth has been mixed.

The widely held FDI has been directed at developed countries (Bhavan, 2003). Country specific studies are desirable given the heterogeneous relationship between some components of foreign capital such as FDI and growth. This study thus seek to evaluate the contribution of four different components by disaggregating foreign capital inflows into foreign direct investment, foreign portfolio investment, oversee development assistance and remittances. The effect of each of these variables would be estimated on economic output as measured by gross domestic output in Nigeria.

Nigeria's target of a favourable balance of payments and that of stimulating economic growth makes it imperative to identify positive spill over effects from foreign capital inflow. Thus, the study serves as an addition to the stock of country-specific studies on foreign capital inflows. However, since foreign portfolio investments are made with a view of making profits, which would eventually be repatriated to investors home country, the more dominant the foreign portfolio in the capital structure of quoted companies, the greater the tendency of financial distress or insolvency after repatriation.

In this study, we analysed differential impact of various components of capital inflows on economic growth rate in a principal component model taking into consideration role of dynamics of the variables for effective policy making. We reviewed selected theoretical and empirical literatures as our next. Section three describes the theoretical framework, research methodology

and the data sources. Empirical results are reported and analysed in section four, while section five is devoted to concluding remarks.

2. Discussion

Economic theory advocates the flow of capital from richer countries to poorer countries. Various theories have been put forward in analysing and explaining the flows of foreign capital. According to location-specific theory, firms with absolute low cost technology move to the LDC's with low wages due to inconsistency of real cost amongst countries coupled with the fact that trade restriction are implemented to restrict importation in some countries. The location-specific theory maintains that the location advantage of low wage, rates, availability and cheap raw materials and the trade restriction sometimes put in place by developing countries, attracts MNCs to invest in developing countries with the aim reaping these advantages to make profit (Aizenman et al., 2004). Operations of the multinational firm through production and manufacturing originate in such countries in order to collapse trade restriction.

To Hood & Young, (1979), while the firm-specific advantage at the firm level manifests itself in a higher productivity of comparable assets (tangible and intangible) than competitors (Caves, 1996), the location-advantage is basically the country-specific advantage which is immobile and is of a public-good nature as firms have access on equal terms. As location-advantage is bound to regions, it may lead to geographical fragmentation of value-added activities. Thus, the Figure 1 describes the relationship between Firm and Country Specific Advantage.

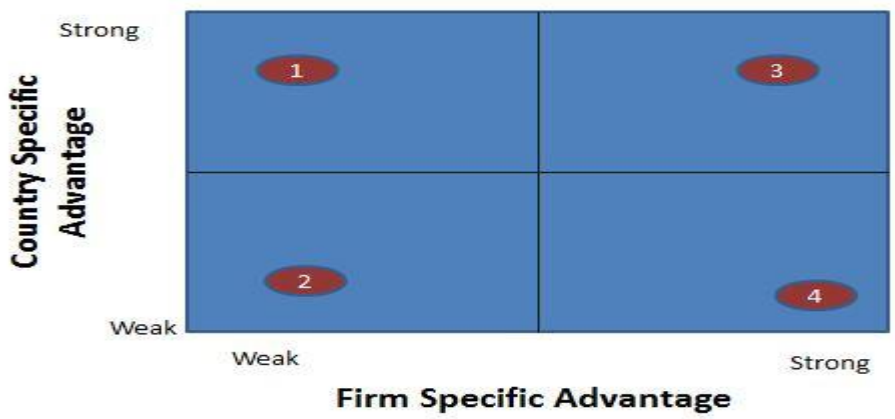

Fig. 1. Country/Firm Specific Advantage Matrix
Source: Caves (1996) Multinational Enterprise and Economic Analysis

In Quadrant 1 firms rely on strong low factor costs and energy costs. Cost leadership would be the typical strategy Quadrant 4 firms have specialisms such as marketing, intellectual capital, R&D etc. that would drive a differentiated strategy. Where they are located is largely irrelevant as these skills are mobile. In Quadrant 3 benefit from both low costs and differentiation, which may be attributable to good infrastructure and good supply of skilled employees. Instance could be financial services in London or New York. Quadrant 2 firms would have no advantages and exit the market while Q4 firms attempt to move to Q3. It has been argued that Free Trade Zones can affect firms' position in the quadrants over time. For instance oil rich Canada has benefited from access to a larger US market. The Single European Market may have had similar benefits for firms.

Technology transfer theory upholds that developing countries do not have large and efficient institution dedicated to generate technological change, only the affluence countries have been able to organise such entity both private and public (Alfaro et al., 2008). To the LDC's, importation of technology is consider as superior to the local available technology. Importation of foreign technology is a sub-optimal decision which will downsize and relegate the existence of the local technology. The dual gap theory espouses that investment is a key to economic growth and development. Nevertheless, such investment cannot be uninterruptedly attained without huge domestic savings (Lucas, 1990).

MacDougall-Kemp theory considers two country model: host country and the investing country while marginal productivity and cost of capital are presumed equal, hence there is a free movement of capital from capital surplus country to capital deficit country which tend to equalise the marginal productivity of capital between the two countries (MacDonald, 2015). The abundant flow of capital from the surplus country to the deficit country ease productivity and efficient employment of resources which in turn stimulate economic prosperity. The organization theory according to Gourinchas & Jeanne (2013) was founded on an oligopolistic market whereby investing firm operates.

The eclectic theory of Dunning (1980) espouses that stock of international assets retained by a multinational firm is ascertained on basis of firm ownership benefit, (O) location endowments, (L) and firm's unit.

For empirical review, Basu & Krishna (2002) reported that international portfolio financial flows has failed to promote economic growth due to high incidence of uncontrolled capital outflows. Remittance increase saving and asset accumulation and improve access to health services and better nutrition (Bodo, Meissner, 2007). In Malaysia, Duasa (2007) evaluated FDI – growth relation and found absence of strong underlying association between FDI and economic growth. Hence, Malaysia FDI does not cause economic growth but it does provide stability to economic growth.

Ekeocha et al. (2012) argues that portfolio investment is significantly germane in the investment environment of Nigeria considering the saving-investment gap. Mohamed & Sidiropoulos (2010) evaluated effect of workers remittance on GDP utilizing both fixed effect and random effect models were used for empirical analysis. Their results showed support for fixed effect models, and revealed that remittances have a positive impact on economic growth both directly and indirectly via their interaction with financial and institutional channels. Kherfi & Soliman (2005) study the effect of FDI on economic growth of twenty three countries from two regions, six countries from Middle East and North Africa (MENA) while seventeen countries from Central and Eastern Europe (CEE). The key findings suggest that FDI on growth is detrimental. In a study of one hundred and forty countries in Central, Eastern Europe and former Soviet Union transition economies between sample period of 1990-1998, Chowdhury & Mavrotas (2005) based on simultaneous equation estimates reported positive effect of FDI on economic growth.

Ekeocha, Malaolu & Oduh, (2012) ascertained that FDI positively related with market capitalization, and trade openness in the long-run. Kolawole (2013) evaluated the impact of ODA and FDI on real GDP in Nigeria between 1980 and 2011 uing the two-gap model and discovered ODA impacted negatively on real GDP in Nigeria. Obiechina & Ukeje (2013) reports that FDI does not promote economic growth in short-run while in the long run, a unilateral causality link between FDI and economic growth with causality flowing from GDP to FDI which suggest that foreign direct investment is having a parasitic effect on the growth of the economy. Driffiield & Jones (2013) adopting three stage least squares panel system estimation found that ODA had a positive and significant impact on economic growth in developing countries taking into cognizance the role of institutions.

Theoretical Framework

The requirement for inflow of foreign capital is entrenched on theory of two-gap model of growth and development developed to Chenery & Stout (1966). These two gaps are savings gap and foreign exchange gap and when anyone of the two gaps is binding, restrain the amount of investment and capital formation which can be undertaken.

The principal assumption of the model is that savings gap and foreign exchange gap are unequal and independent. Hence, they are binding for growth and development of countries. The model states that growth depends on capital formation which will lead to investment productivity. Though, from the national income analysis, saving is equal to investment and a saving gap will exist when domestic savings cannot be equated to the needed investment for growth. If there is savings gap, growth will be constrained by lack of investment pointing out need for foreign savings in form of capital inflow.

Also, there is a trade-gap since needed investment can be produced domestically. Given the role of investment and trade for growth, it becomes necessary that these two-gaps be bridged and as such there is a call for capital to cover these gaps from the relatively high capital based countries. When foreign exchange gap is fastened to saving, the excess productive resources (labour) in the developing countries and the available foreign exchange for the importation of new capital goods

and technical assistance will bring about increase in growth. Algebraically, given the sum of capital inflows (difference between imports and exports) and investible resources (domestic savings), the savings-investment restriction can be written as:

$$I \leq CF + sY \quad (3.1)$$

Where CF is amount of capital inflows, I is domestic investment, s is domestic savings. Thus, if capital flows plus domestic saving, sY, exceeds domestic investment, I, and the economy is at full capacity, a foreign-exchange constraint or gap is said to exist. Given that m_1 is the marginal import share of investment in a developing country and m_2 is the marginal propensity to import out of a unit of non-investment GNI (typically around 10% to 15%), the foreign exchange constraint or gap can be written as:

$$(m_1 = m_2)I + M_2 y - E \leq CF \quad (3.2)$$

Where E is the exogenous level of export, CF in the two equations is the critical factor. Countries can therefore be classified as weather deficient in savings or foreign exchange or in both. It is important to note here that from the above analysis, the impact of capital inflow will be greater where there is foreign exchange gap. Although E and CF are substitutable in equation (3.2), they can have quite indirect effects, especially in the case where CF represents interest bearing loans that needs to be repaid.

Consequently, variation of import and export parameters through government policy in both developed and developing countries can have a deep impact on whether the savings or foreign-exchange constraint is restricting the further growth of national output (Todaro, Smith, 2011). Following H-D model, output growth depends on stock of capital which counts as investment:

$$Y = f(\Delta k) = f(I) \quad (3.3)$$

where Y is growth rate, K is capital stock and I is investment. In nationwide income identity, we have that:

$$E = C + I + G + (X - M) \quad (3.4)$$

$$Y = C + S + T \quad (3.5)$$

where E is total spending, Y is total income, S is private saving, G is government expenses, T is tax, X is exports and M is imports. Therefore, two-gap becomes:

$$E - Y = (I - S) + (G - T) + (X - M) \quad (3.6)$$

For sake of equilibrium in (3.4), we have:

$$(I - S) + (G - T) = (M - X) = CF \quad (3.7)$$

where CF is inflows of capital. If we omit the fiscal balance (G-T) in (3.7) above, then:

$$I = CF + S = CF + sCF \quad (3.8)$$

where s is the economy's propensity to save. Substituting the obtained fact in (3.8) into (3.3):

$$Y = f(I) = F(CF, S) \quad (3.9)$$

Y is growth rate of the Nigerian economy that is impacted on by capital inflow into the economy.

Principal Component Model

The principal component model was specified such that each component of foreign capital flows to Nigeria is represented as a linear combination of the factors plus an uncorrelated noise as shown:

$$GDP = \sum_{i=1}^{P} \delta_{j,i} F_i + \sum_{i=P+1}^{n} \delta_{j,i} P_i = \sum_{i=P+1}^{n} \delta_{i,j} P_i + e_{1t} \quad (3.9)$$

$$FDI = \sum_{i=1}^{P} \alpha_{j,i} F_i + \sum_{i=P+1}^{n} \alpha_{j,i} P_i = \sum_{i=P+1}^{n} \alpha_{i,j} P_i + e_{2t} \quad (3.10)$$

$$RMT = \sum_{i=1}^{P} \beta_{j,i} F_i + \sum_{i=P+1}^{n} \beta_{j,i} P_i = \sum_{i=P+1}^{n} \beta_{i,j} P_i + e_{3t} \quad (3.11)$$

$$ODA = \sum_{i=1}^{P} \phi_{j,i} F_i + \sum_{i=P+1}^{n} \phi_{j,i} P_i = \sum_{i=P+1}^{n} \phi_{i,j} P_i + e_{4t} \quad (3.12)$$

$$ORV = \sum_{i=1}^{P} d_{j,i}\ F_i + \sum_{i=P+1}^{n} d_{j,i}\ P_i = \sum_{i=P+1}^{n} d_{i,j}\ P_i + e_{5t} \qquad (3.13)$$

Principal component analysis was applied as a technique for variable extraction by combining components of capital flows in a specific way that drops the "least significant" components. Thus, the modus operandi entails a calculation of the correlation matrix in order to estimate the eigenvalues and the relevant eigenvectors. Categorizing the eigenvalues λ_1, λ_2, ..., λp from largest to smallest, the matrix of eigenvectors is derived and these independent of one another. By intuition, principal components are statistically independent of one another.

To ascertain number of variables for component exploration, we choosed an arbitrary dimension; computed proportion of variance explained for each variable, choosed a threshold; categorize variables by percentage of variance explained and afterwards generated cumulative proportion of variance explained. The percentage variation is given by ratio of eigenvalues of variables used to totality of eigenvalues of whole sample of variables.

In effect, given $(\ell \times p)$ data matrix, Z, with column zero mean, the k[th] component can be found by subtracting the first k – 1 principal components from Z:

$$Z_k = Z - \sum_{j=1}^{k-1} Z_{\omega(j)\omega_{(j)}^T} \qquad (3.14)$$

where $W_{(k)} = \omega_1, \omega_2, ..., \omega_p)_{(k)}$ are weighted vectors, that is, coefficients that chart all row vectors $Z_{(i)}$ of Z to a new vector of principal component scores $T_{(i)} = t_1, t_2, ..., t_p)_{(i)}$. Accordingly, principal component as defined by weight vector, $\omega(k)$ which removes maximum variance from the data matrix is given by:

$$\begin{aligned} \omega(k) &= \arg\max_{[\omega=1]} \left[\left\| Z_{k\omega} \right\|^2 \right] \\ &= \arg\max \left[\frac{\omega^T Z_j^T Z_{j\omega}}{\omega^T \varpi} \right] \end{aligned} \qquad (3.15)$$

Eqn (3.15) gives outstanding eigenvectors of $Z^T Z$ such that weighted vectors are eigenvectors of $Z^T Z$ and Z^T represents observed sample covariance matrix of the dataset. The complete principal components decomposition of our dataset, Z can then be given as:

$$T = ZW \qquad (3.16)$$

where W is a $(\ell \times \ell)$ matrix of weights whose columns are eigenvectors of $Z^T Z$. The effect is that loadings in PCA are scaled up eigenvectors and sample covariance Q between two different principal components over the dataset were obtained as:

$$\begin{aligned} Q(PC_{(j)}, PC_{(k)}) &\propto (Z_{\omega(j)})^T (Z_{\omega(k)}) \\ &= \omega_{(j)}^T Z^T Z_{\omega(k)} \\ &= \omega_{(j)}^T \lambda_{(k)} \omega_{(k)} \\ &= \lambda_{(k)} \omega_{(j)}^T \omega_{(k)} \end{aligned} \qquad (3.17)$$

In matrix form, observed covariance matrix for the original variables can be transcribed as:

$$Q \propto\sim Z^T Z = \omega \Lambda \omega^T \qquad (3.18)$$

where Λ is the diagonal matrix of eigenvalues $\lambda_{(k)}$ of $Z^T Z$ such that $\lambda_{(k)}$ is sum of squares over the dataset linked with each component *k*.

Table 2. Definition of Variables

Variable	Definition
lnFDI	log value of foreign investors' equity into Nigeria plus net advances to enterprises
lnRMT	log value of capital transfers in cash from abroad plus net compensation of employees of non-resident workers.
lnODA	log value of foreigns government aid
lnORV	log of oil proceeds
lnGDP	log of real GDPproxy for Nigeria's economic growth

Method of Estimation & Data Sources

The study adopts principal component estimations techniques on basis of covariance/correlation matrix, eigenvectors, and eigenvalues. Estimating principal component model is equivalent to determining the eigenvalues and eigenvectors of the variance-covariance matrix or of the correlation matrix. Known that the variance-covariance matrix is sensitive to the units of measurement, in this study, the matrix of factors were not be obtained by diagonalizing the variance-covariance matrix since capital flows do not observe strict factor flows. Overall, we opted to choose the largest eigenvalues for our analysis by applying the principal component analysis on the correlation matrix. The resultant eigenvectors are the weights of capital flows that form the flow factors. The study used annual time-series data extracted from the World Bank and CBN data bases.

3. Results

Correlation Analysis

This section examines the degree of association between the variables of the model Table below presents the estimated partial correlation coefficient. Decisively, it bids an earliest glimpse at data and provides guidance in assessing presence and severity of multicollinearity among independent variables. In terms of sign, positive values indicate that any two variables under analysis move in same direction and so are positively correlated. In contrast, negative correlation coefficients suggests that the variables move in the opposite direction. An absolute value of one indicates a perfect linear relationship while a correlation coefficient equal to zero designates absence of a linear relationship between the variables.

Implementing the above for Table 3 below, the partial correlation coefficients of economic growth as measured by GDP, foreign direct investment, remittances, official development assistance, imports and foreign portfolio investment are reported for the study. The apparent high correlation coefficient between GDP and foreign direct investment which is 0.763616 implies that both variables tend to move together strongly. Similarly, the correlation coefficient between economic growth and remittances is 0.925152; between economic growth and official development assistance is 0.778033; between economic growth and domestic savings is 0.618479; and between economic growth and foreign portfolio investment is 0.864103.

Table 3. Correlation Matrix of Variables

Variable	lnGDP	lnFDI	lnRMT	lnODA	lnORV
lnGDP	1.000000	0.763616	0.925152	0.778033	0.618479
lnFDI	0.763616	1.000000	0.420462	0.346455	0.004380
lnRMT	0.778033	0.346455	0.835138	1.000000	0.530695
lnODA	0.618479	0.004380	0.633234	0.530695	1.000000
lnORV	0.864103	0.508383	0.873301	0.716322	1.000000

Source: Author's estimation using Eviews 9 Results

It is easily seen that all things being equal, economic growth is positively related to all the variables. These results reveal strong positive relationship between the economic growth and other variables except development assistance whose relationship with economic growth seems to be moderate on the basis of the correlation coefficient which is 0.618479. Nonetheless, we cannot conclude that changes in all the variables (foreign direct investment, remittances, official development assistance, and oil revenue) cause changes in economic growth on correlation basis. The reason being that correlation analysis does not establish cause-effect type of relationship. This is addition to the fact

that a correlation coefficient could at times be very sensitive to extreme data values (outliers) as the case may be. Relatively, a low correlation coefficient in this study does not imply absence of relationship between variables. The variables may be having some nonlinear association.

Principal Components Analysis

Extracting 6 of 6 possible components, the key output results as shown in Table 4 includes the eigenvalues, and the proportion of variance that the principal component explains. We thereafter determine the minimum number of principal components that account for most of the variation in our data using the proportion of variance that the components explained. Hence, we utilized cumulative proportion to score amount of variance that principal components explain. In this study therefore, we utilized size of the eigenvalue to retain the number of principal components with the largest eigenvalues that indeed accounted for an appreciable level of variance that exceeded 60 %.

Table 4. Principal Components Results (Eigenvalues)

Eigenvalues: (Sum = 6, Average = 1)					
Number	Value	Difference	Proportion	Cumulative Value	Cumulative Proportion
1	4.186396*	3.185306	0.6977	4.186396*	0.6977
2	1.001090*	0.586504	0.1668	5.187486*	0.8646
3	0.414587*	0.178615	0.0691	5.602073*	0.9337
4	0.235972*	0.138330	0.0393	5.838044*	0.9730
5	0.097642*	0.033328	0.0163	5.935686*	0.9893
6	0.064314	---	0.0107	6.000000*	1.0000

Source: Author's estimation using Eviews 9 Results
Notes: *Significant at 1 % level of significance

Table 5 reports eigenanalysis of correlation matrix. According to the results, first two principal components have eigenvalues that exceeded one. These two components explained about 55.6 % of the variation in the data. Consequently, since the variance proportion accounted for by the two principal components is not adequate amount of variation in the data, not up to 60 %, we choose to base our analysis on all the six principal components.

Table 5. Eigenanalysis of the Correlation Matrix

Eigenvalue	2.9476**	2.6420**	0.1457	0.5675	0.6382	0.9362
Proportion	0.3625	0.1930	0.1567	0.1529	0.0592	0.0757
Cumulative	0.3625	0.5555	0.7122	0.8651	0.9243	1.0000

Source: Author's estimation using Eviews 9 Results
Notes: **Significant at 5 % level of significance

In what follows, we place interpretation of each principal components on the magnitude and direction of the coefficients for the original variables. The larger the coefficient value in absolute terms, the more substantial matching variable is in calculating component. We established size of coefficient on basis of coefficient above ± 0.5.

As shown in Table 6, first principal component has enormous positive associations with remittances (0.470644), official development assistance (0.422655) and foreign portfolio investment (0.459742). In effect, it implies that first principal component mostly measures history of remittance flows to Nigeria. The second component has large negative associations with domestic savings (-0.542473) but with a strong positive relationship with foreign direct investment (0.836343). Accordingly, the second principal component mostly measures foreign direct investment history. The third component has large positive associations with official development assistance (0.612675) and high positive relationship with domestic savings measured by (0.599021). Consequently, this component primarily measures the Nigeria's foreign aid history.

The fourth principal component has large positive links with development assistance (0.622325). So, the component describes history of foreign aid inflows in Nigeria. The fifth principal component has positive associations with remittances (0.3144). Hence, the component

describes history of portfolio investment inflows in Nigeria. The sixth principal component has large positive correlations with remittances (0.776026). This goes to show that the sixth principal component just like the first component place emphasis on the history of remittances in Nigeria. In all, the eigenvectors loadings show the results for the various principal components.

By intuition, remittances have significant positive loadings on principal component one, foreign direct investment has large significant positive loadings on principal component two, development assistance has significant positive loadings on principal component four (0.622325) but exerted some insignificant negative loadings on component five, (-0.181297) oil revenues have significant negative loadings on principal component two. recognize absence of outliers that can unfavorably influence results of our analysis, our results uphold that foreign investors' equity into Nigeria plus net advances to enterprises as well as cash transfers from abroad are significant sources of foreign capital inflows that heightens macroeconomic growth performance in Nigeria.

Table 6. Principal Components Results (Eigenvectors Loadings)

Eigenvectors (loadings):						
Variable	PC 1	PC 2	PC 3	PC 4	PC 5	PC 6
lnGDP	0.459249	-0.049265	-0.171672	-0.540340	0.327895	0.598088
lnFDI	0.234299	0.836343	0.343931	0.250874	0.239890	0.082835
lnRMT	0.470644	-0.007036	0.183221	-0.209309	0.314400	0.776026
lnODA	0.422655	-0.016959	0.612675	0.622325	-0.181297	0.159835
ljnORV	0.350269	-0.542473	0.599021	0.392434	0.254639	0.073238

Source: Author's estimation using Eviews 9 Results

4. Conclusion

The study examined the impact of foreign capital flows on economic growth in Nigeria by implementing the principal component model. The principal component analysis accounted for significant positive relationship of foreign direct investment flows, and oversea development assistance flows with economic growth performance in Nigeria. More importantly, the study builds multiple indicators of capital inflows in the principal component modelling setting to explore the interactive effects of capital inflow and conditioning variable of oil proceeds on macroeconomic growth performance in Nigeria. FDI and remittance inflows are evidently imperative sources of economic growth prospects for developing countries like Nigeria. Thus, we recommend that Nigerian foreign investment policy should be directed towards attracting and encouraging more inflow of foreign capital especially in the direction of remittances and foreign direct investment inflows in Nigeria do not exert significant influence on the level and growth rate and so such impact is insignificant in stimulating economic performance in Nigeria. Nigeria as a remittance receiving nation needs to provide a friendly economic location through sound macro-economic policies, reliable financial conditions that can lead the economy for development and equip it adequately to benefit from these external impetuses. This could attract remittances as major source of development capital.

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