

## **Asymmetric Modelling, Capital Account Liberalization and Size of Productivity in selected WAMZ countries**

Chukwuemeka Amaefule<sup>1</sup>, Ijeoma Emele Kalu<sup>2</sup>, Akeem Shoaga<sup>3</sup>.

*Department of Economics, Faculty of Social Sciences, University of Port Harcourt,  
Nigeria<sup>1,2</sup>*

*1243 66<sup>th</sup> Avenue, Oakland, CA 94621, USA<sup>3</sup>.*

*Corresponding Author: Chukwuemeka Amaefule*

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**Abstract:** *The study examined the impact of Foreign Direct Investment (FDI) and Official Development Assistance (ODA) on the size of productivity in selected West African Monetary Zone (WAMZ) countries such as Gambia, Ghana, Nigeria, and Sierra Leone. FDI and ODA are used to proxy capital account liberalization in WAMZ. The time series data employed were sourced from World Bank from 1970-2017. The study employed Non-Linear Autoregressive Distributed Lag (NARDL). The study found that increase in Foreign Direct Investment (FDI) inflows has positive impact on productivity in WAMZ, and has negative impact on productivity in Nigeria. Decrease in FDI inflows had negative impact on productivity in Nigeria, and positive impact in Gambia, Ghana, and Sierra Leone. Similarly, increase in Official Development Assistance (ODA) inflow had positive impact on productivity in Gambia, Ghana, and Nigeria, and negative impact in Sierra Leone. Decrease in ODA inflows has negative impact on growth across the selected WAMZ countries. Thus, increase in FDI is beneficial for Gambia, Ghana, and Sierra Leone, and distort productivity in Nigeria. And as well as increase in ODA is beneficial for Gambia, Ghana, and Nigeria, and distort productivity in Sierra Leone. Thus, to enhance Macroeconomic Convergence Criteria (MCC) productivity target across WAMZ, necessary to adopt ECO currency, due to the divergent impact of FDI and ODA; appropriate identification, selection and implementation of suitable capital account liberalization policy is required to guarantee the long-run robustness of growth target in MCC.*

**JEL Classification:** *F32 and G15*

**Keyword:** *Asymmetric modelling, Foreign Capital Inflows, Macroeconomic Convergence Criteria, West African Monetary Zone, Real Gross Domestic Product.*

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### **I. Introduction**

Presently, the debates on the impetus of capital account liberalization policy (CALP) to drive growth is fundamentally topical and mixed (Prasad and Rajan, 2008) and most controversial (Eichengreen, 2001). The controversies trailing CALP viz-a-viz capital movement are overwhelming. The study by Kose and Prasad (2018) clearly found weak statistical causality between capital account liberalization and growth. More so, Krugman (2014) report that capital movement from core to periphery largely explains the crisis in Euro; also on the disappointing nature of capital account liberalization (CAL) are viz; Gourinchas and Jeanne (2006) allocation puzzle; Lucas paradox (1990); and Feldstein-Horioka puzzle (1980). Aside being mixed and controversial, scholars have argued that the debate on CAL could be seemingly assessed as a CALP often serve as channel through which volatility enters into recipients economies. Large capital flows and their sudden reversals can lead to inflation, growth, and exchange rate volatility and even crisis (Bicaba, Brixiova, and Ncube, 2015). Notwithstanding the positive complements on CALP expressed in McKinnon and Shaw (1973) financial liberalization hypothesis and Chenery and Strout (1966) two gap postulations and European Commission (2014) reports that CAL causes lower foreign exchange volatility.

CALP is a key element of globalization and measures the degree of financial integration (Henry, 2007). More recently, the policy choices of the world economies to completely integrate with each other through globalization has lots of economic leverages for the global economic performance (Bakardzhieva, Naceur, and Kamar, 2010). CALP is therefore an easing of restriction on capital movement across a country borders and signals a country's commitment to good economic policies (Kose and Prasad, 2018). The impact of CALP on enhancing Economic and Monetary Union (EMU) could be narrowed down to the role such policy has on productivity in recipient countries. Furthermore, Kose, Prasad, and Terrones (2009) hold that liberalization of capital flow connectivity to productivity growth can be assured through financial deepening and better resource allocation. In the face of output shock, countries with liberalized account could switch to use of capital control

(Bicaba, et al. 2015). Thus, more often than not liberalized economies gives less attention to capital controls, these capitals flows could take the form of foreign direct investment, official development assistance, and loans from international bank of reconstruction and development etc.

In attempt to achieve Macroeconomic Convergence Criteria (MCC), WAMZ's Banjul Action Plan implemented CALP to improve financial intermediation frontier of WAMZ economies which would in turn be leveraged for the adoption of ECO currency. The significance of CAL can be mirrored from its capacity to improve the economic space and financial climate necessary to drive MCC *ceteris paribus* (as in Fwangkwai, 2014). Also, the transmission of CAL into the host economies could therefore create multiplier effect on firms and sectors that engages into production. And these produced goods could be offered for sale at the international market to earn foreign exchange (as in Nteegah and Okpoi, 2017).

Macroeconomic Convergence Criteria (MCC) was developed to accelerate the adoption of single currency in WAMZ (WAMI, 2016). Primarily, the study would focus on the secondary targets which is the achievement of Real Gross Domestic Product (RGDP) growth of more than 7 percent e.g.  $RGDP \geq 7$  percent. It is on achieving this target that this work is built. Thus, the size of productivity matter, it is inevitable to establish EMU which implies that growth capacity within the country's seeking to adopt EMU has to be robust and domestically guaranteed. Thus, the target to achieve  $RGDP \geq 7$  percent explains the focus of this paper on RGDP.

Thus the general question becomes can capital account liberalized environment guarantee a robust size of productivity needed for the adoption of WAMZ currency union? Based on these perceived seemingly unsettled impact of CALP on developing countries, our key interest becomes to study the asymmetric impact of foreign direct investment (FDI) and official development assistance (ODA) on size of productivity (proxy by RGDP) in West African Monetary Zones (WAMZ) which is obviously silent in the literature. This study would enable us have a robust understanding on the impact of easing of control on capital movement across WAMZ. Fundamentally the specific questions therefore becomes, do FDI and ODA (proxy for capital account liberalization) improve the size of productivity in selected WAMZ countries such as Gambia the, Ghana, Nigeria, and Sierra Leone? Thus, what is the impact of FDI and ODA on RGDP in selected WAMZ countries?

## **II. Aims and Objectives**

The aim of this study is to investigate the long-run impact of capital account liberalization policy (proxy by FDI inflows and ODA inflows) on the size of productivity (proxy by RGDP) in WAMZ from 1970 to 2017. Specifically, this study seeks to;

- i) Identify the trend of capital movement and size of productivity in selected WAMZ countries;
- ii) Determine the long-run impact of FDI on the size of productivity in selected WAMZ countries;
- iii) Examine the long-run role of ODA on the size of productivity in selected WAMZ countries;
- iv) Compare the impact of FDI and ODA on the size of productivity in selected WAMZ countries.

### **Significance of the Study**

The apriori ambiguous impact of CALP on domestic output is a heated debated in economic and finance literature. In this study we try to situate the asymmetric impact of FDI and ODA inflows on the size of productivity in WAMZ. This study would help WAMZ in developing country specific policy on capital account liberalization. Studies exploring the nexus between FDI-growth (Borenztein, De Gregorio and Lee, 1998), FDI causality with domestic growth (Tang, Selvanathan, and Selvanathan, 2008), FDI-growth in China (Zhang, 2006) and studies on ODA include, Rajan and Subramanian (2005); Levy (1988); and Fayissa and El-Kaissy (1999) provide nexus for this paper etc. Factoring WAMZ's productivity into the sustainability and inclusiveness of capital inflows would be significant for its ECO currency agenda. Can capital account liberalization provide the leverage for WAMZ convergence along productivity in the long-run? This is therefore the motivation of this study.

## **III. Literature Review**

### **Theoretical Literature**

Convergence study is traced to Solow-Swam conditional convergence hypothesis with a property of long-run economic growth within the framework of neoclassical economics. Solow (1956) theoretically states that GDP per capita of developing countries can converge with the developed countries based on their capacity to attract capital, generate the right technology, build capital stock and invest in depreciation of capital and increase capital-labour ratio which are stimulants to long-run economic growth. The production function under Solow is a mixed of labour, capital, and technology change within a continuous constant return to scale production function. Thus, Solow derived an improved Harrod (1939)-Domar (1946) fixed proportion economic growth that postulate knife edge dual investment process, which creates income and augment productivity. Solow using a Cobb-Douglas says that the marginal productivity of factors of capital, exponential labour growth, and technological changes substitutable generates a long-run economic growth. Hence, Solow model

predicts that in the long-run, economies converge to their steady state equilibrium and that stable economic growth is achievable via technological changes. Also, McKinnon and Shaw (1973) financial liberalization advocates that strict conditions on capital movement cause financial repression which in turn distort growth. Hence they contended the positive side of capital liberalization on growth.

### Empirical Literature

Blanchard, Ostry, Ghosh, and Chamon (2016) reports that capital movement could be either be contractionary e.g. bond flows or expansionary e.g. non-bond flows on output. Owusu and Odhiambo (2014) developed an ARDL bound testing approach on Nigerian economy between 1968 and 2008. The study found that financial liberalization has a positive and significant impact on economic growth. Egbuna, Oniwoduokit, mansaray, Umo, and Adenekan (2013) developed a neoclassical growth model for WAMZ from 1980-2012. The study employed and ARDL system and observed a mix relationship across countries in WAMZ. The study found that no long-run relationship in Gambia, Guinea, Liberia, and Nigeria, and found long-run relationship for Ghana and Sierra Leone. Mansaray and Swaray (2010) adopted long-run money demand theory in an ARDL in a financial liberalization regimeto study Sierra Leone economy from 1981-2010. The study found that RGDP, inflation, real exchange rate have significant effect with real money balances. Mckinnon and Huw (1996) in a study titled credible liberalization and international capital flow into developing economies employed a Fisherian two-period framework. The study showed a significant negative relationship and signalled the presence of over borrowing syndrome in developing countries. The guided behaviour of relationship between capital account liberalization and growth is therefore mixed.

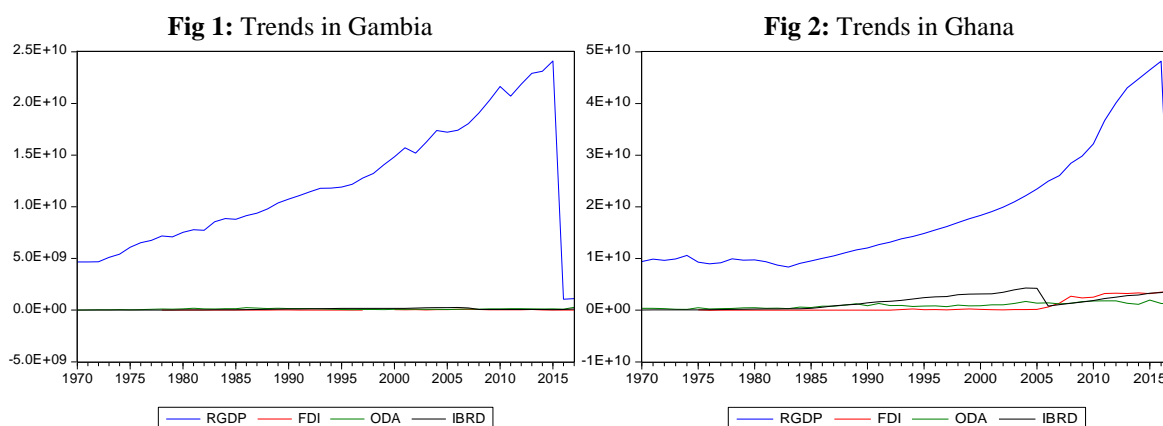
### IV. Material and Methods

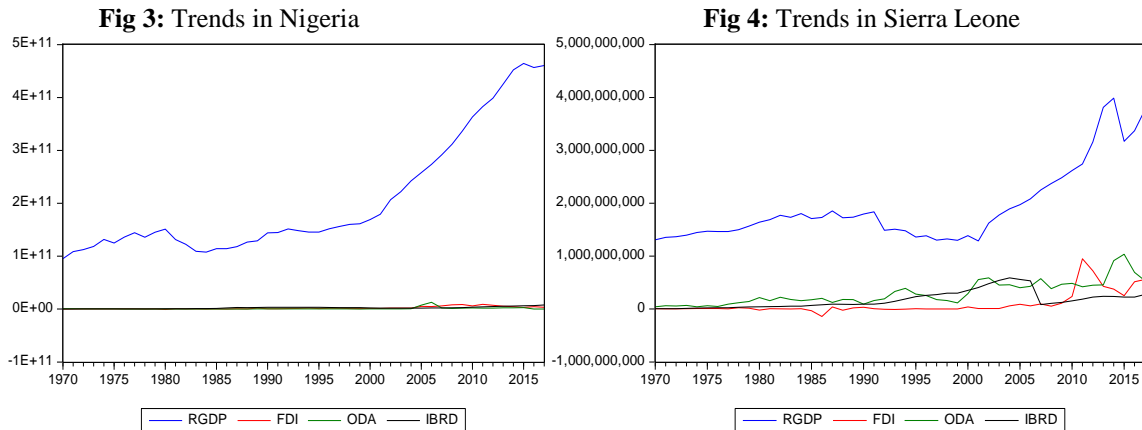
**Study Design:** The study adopted ex post facto research design.

**Method:** From the literature reviewed the asymmetric modelling of capital movement inflow into WAMZ seems silent in the literature. Thus, this study attempt to fill the method of analysis gap observed in the study by using Non-Linear Autoregressive Distributed Lag (NARDL). The theoretical foundation for applying NARDL to study the impact of capital account liberalization on WAMZ productivity is to squarely capture the impact of increase and decrease of FDI and ODA on RGDP. Little is done to examine the dynamical nature of FDI and ODA on growth in WAMZ in economics literature. To empirically, justify the impact of CALP, it is imperative to apply econometric tool that helps measure the dynamical nature of FDI and ODA. Hence, in this study, NARDL offers researchers tools to measure the impact of fluctuating nature of FDI and ODA on target variable in this case RGDP. Thus, Shin, Yu, and Greenwood-Nimmo (2011) is therefore employed as the baseline model which is modified in Dhaoui and Bacha (2017, p.5).

**Study Duration:** Data employed in this paper were sourced from World Bank within the period covering from 1970 to 2017.

**Trend Analysis:** The figure 1, 2, 3, and 4 are trend graphs for selected countries in WAMZ. The graph contains the trend lines for RGDP, FDI, ODA and IBRD loans and IDA credits (used as check variable). Thus graphs presented below shows the presence of trends in WAMZ. Hence we applied the unit root test.





**Model Specification:** According to Solow's  $Q_t = f(K, L_{oe}^t, TA_t)$ , where Q is output over time, K capital stock over time, exponential labour growth, TA is exogenous technological acquisition growth over time. FDI is a source of exogenous technological spillover (Solow, 1956). Hence, expanded the K variables in Solo to include FDI, ODA, IBRD, we develop the following equations;

$$RGDP = f(FDI, ODA, IBRD \text{ loan}) \tag{1}$$

$$RGDP = \beta_0 + \beta_1 FDI + \beta_2 ODA + \beta_3 IBRD + \mu_t \tag{2}$$

Following Pesaran *et al* (2001) ARDL in equation; Shin, Yu, Greenwood-Nimmo (2011) developed an NARDL, using dynamic autoregressive. Given as

$$\Delta \delta_t = \rho \delta_{t-1} + \theta^+ \tau_{t-1}^+ + \theta^- x_{t-1}^- + \sum_{j=1}^{\rho-1} \gamma_j \Delta \delta_{t-j} + \sum_{j=0}^{q-1} (\upsilon_{j=0}^+ \Delta \tau_{t-j}^+ + \upsilon_j^{-1} \Delta \tau_{t-1}^-) + \varepsilon_t$$

$$= \rho \xi_{t-1} + \sum_{j=1}^{\rho-1} \gamma_j \Delta \delta_{t-j} + \sum_{j=0}^{q-1} (\upsilon_{j=0}^+ \Delta \tau_{t-j}^+ + \upsilon_j^{-1} \Delta \tau_{t-1}^-) + \varepsilon_t \tag{3}$$

Equation is rewritten as in (4) to reflect the asymmetric modelling effect in Solow (1956) which built on Cobb-Douglas relationship. Hence, the model for this study is therefore given as

$$\Delta \text{Ln}RGDP_{mt} = A + \beta_0 \text{Ln}RGDP_{mt-1} + \beta_1 \text{Ln}FDI_{mt-1}^+ + \beta_2 \text{Ln}FDI_{mt-1}^- + \beta_3 \text{Ln}ODA_{mt-1}^+ + \beta_4 \text{Ln}ODA_{mt-1}^- + \beta_5 \text{Ln}IBRD_{mt-1} + \mu_{mt} \tag{4}$$

In equation (4);  $FDI^+$ ,  $FDI^-$ ,  $ODA^+$ , and  $ODA^-$  are the respective partial sums of positive and negative changes in the regressors. Where m is a subscript represented by m1=Gambia, m2=Ghana, m3=Nigeria, and m4=Sierra Leone.  $\Delta \text{Ln}$  = the variables are differenced and log transformed,  $RGDP$ =Real Gross Domestic Product (proxy by size of productivity).  $\mu_{mt}$  = stochastic variable. They are calculated as follows;

$$\text{Ln} FDI_t^+ = \sum_{i=1}^t \Delta FDI_t^+ = \sum_{i=1}^t \max(\Delta FDI_t, 0) \text{ and} \tag{5}$$

$$\text{Ln} FDI_t^- = \sum_{i=1}^t \Delta FDI_t^- = \sum_{i=1}^t \min(\Delta FDI_t, 0) \tag{6}$$

Equations 3 - 6 are an autoregressive lag system. The long-term impact is also associated with short-run impact. In this study emphasis is based strictly on long-run dynamical state of WAMZ system. The importance of NARDL clearly showed two positions of capital inflows viz-a-viz the increase and the decrease represented by positive and negative capital inflows. The two positions would properly guide WAMZ on the best choice of capital flow to adopt in terms of achieving convergences.

## V. Results

The entire variables are  $I(1)$  stationary at difference, and the variables were used in their log form. From the study conducted, the following results were obtained as presented in table 1 and table 2.

**Table 1: Long Run Coefficients NARDL SYSTEM FOR RGDP**

		<b>GAMBIA</b>	<b>GHANA</b>	<b>NIGERIA</b>	<b>SIERRALEONE</b>
<b>BoundTest</b>	<b>Fstat</b>	5.674	1.463*	7.4056	13.77
%5	<b>I0</b>	2.86	2.86	2.86	2.86
	<b>I1</b>	4.01	4.01	4.01	4.01
<b>CointegEQ</b>	<b>Coeffient</b>	-1.0589	40.290*	-1.62388	-1.3649
<b>LongRunForm</b>	<b>Pvalue</b>	(0.0001)	(0.0761)	(0.000)	(0.0000)
	<b>FDIpos</b>	0.19934 (0.1657*)	0.01815 (0.1212)	-0.00642 (0.7268)	0.02013 (0.0070)
	<b>FDIneg</b>	0.4144 (0.0340)	0.01465 (0.4655*)	-0.04247 (0.0912*)	0.02411 (0.02411)
	<b>ODA</b>	-0.07598 (0.7830*)	-0.04569 (0.5804*)	-0.02322 (0.0676*)	0.00938 (0.7452*)
	<b>IBRD</b>	-0.0532 (0.7956*)	0.017220 (0.4369*)	-0.0828 (0.004)	-0.00462 (0.7937*)
<b>Diagnostics</b>	<b>RamseyRT</b>	0.000*	0.000*	0.0088*	0.1625
<b>Pvalues</b>	<b>Stability</b>				
	<b>HTBPG</b>	0.0581	0.0528	0.9111	0.0042*
	<b>LMT</b>	0.8598	0.4718	0.977	0.0452*
	<b>Normality</b>	0.000*	0.000*	0.53293	0.36217
	<b>CUMSUM</b>	NWB	WB	WB	WB
	<b>CUMSUM</b>	WB	NWB	WB	NWB
	<b>SQUARES</b>				

Source: Eviews 9, NWB=Not Well Behaved; WB= Well Behaved.

Table 1 x-rays the asymmetric impact of positive (increase) and negative (decrease) of FDI on RGDP. First the result obtained showed that FDI and RGDP have long-run relationship in Gambia, Nigeria, and Sierra Leone. However, FDI does not have long-run relationship with RGDP in Ghana. This can be seen from the Bound test at 5 percent result in table 1. The speed of convergence represented by error correction term (ECT) appeared with apriori sign for Gambia, Nigeria and Sierra Leone. They are significant. The positive FDI inflow generated positive impact on RGDP in Gambia, Ghana, and Sierra Leone. The result obtained in table 1 showed that positive FDI inflow declined RGDP in Nigeria. From the impact study, only in Sierra Leone did positive FDI inflow show a significant impact. Similarly, a negative FDI inflow into WAMZ has positive impact on RGDP in Gambia, Ghana, and Sierra Leone. Hence, the decline impact on RGDP on Nigeria is a sign that Nigeria economy would respond negatively with the negative FDI inflows. Thus, to remedy the diagnostic test result we employed structural breaks dummy variables. After which the diagnostic test were well behaved. Furthermore FDI inflows caused: 19 percent and 41 percent increase in growth in Gambia, 1.8 percent and 1.4 percent increase on growth in Ghana, 0.6 percent and 4.2 percent decline on growth in Nigeria, and significant 2.0 percent and 2.4 percent increase on growth in Sierra Leone.

**Table 2: Long Run Coefficients NARDL SYSTEM FOR RGDP**

		<b>GAMBIA</b>	<b>GHANA</b>	<b>NIGERIA</b>	<b>SIERRALEONE</b>
<b>BoundTest</b>	<b>Fstat</b>	61.85	3.29*	6.995	3.244*
%5	<b>I0</b>	2.46	2.46	2.46	2.46
	<b>I1</b>	4.01	4.01	4.01	4.01
<b>CointegEQ</b>	<b>Coeffient</b>	-2.18713	55.3131*	-1.33529	-1.20412
<b>LongRunForm</b>	<b>Pvalue</b>	(0.0107)	(0.1867)	(0.0002)	(0.0031)
	<b>FDI</b>	-0.05095 (0.0772*)	-0.04453 (0.269*)	-0.06157 (0.0381)	0.01215 (0.1369*)
	<b>ODAprs</b>	0.3452 (0.0615*)	0.05075 (0.3427*)	0.01415 (0.1442*)	-0.04122 (0.3640*)
	<b>ODAneg</b>	-0.01744 (0.330)	-0.1441 (0.3923*)	-0.03976 (0.0248)	-0.050032 (0.4256*)
	<b>IBRD</b>	0.03112 (0.0374)	-0.04862 (0.3087*)	-0.0435 (0.0015)	-0.01047 (0.6462*)
<b>Diagnostics</b>	<b>RamseyRT</b>	0.3200	0.0000*	0.2565	0.7753
<b>Pvalues</b>	<b>Stability</b>				
	<b>HTBPG</b>	0.3392	0.8022	0.4730	0.1354
	<b>LMT</b>	0.6016	0.6283	0.1572	0.5721
	<b>Normality</b>	0.9827	0.09755	0.7566	0.01292*
	<b>CUMSUM</b>	WB	WB	WB	WB
	<b>CUMSUM</b>	WB	NWB	NWB	NWB
	<b>SQUARES</b>				

Source: Eviews 9, NWB=Not Well Behaved; WB= Well Behaved

Additionally, with the inflow of ODA into WAMZ in table 2 we observed mixed results across WAMZ. ODA inflow showed long-run relationship with RGDP in Gambia and Nigeria at upper and lower bound test approach. The results from Sierra Leone showed that there is no long-run relationship between ODA inflow and RGDP. The speed of convergence to long-run equilibrium appeared with negative and significant value in Gambia 218%, 133% in Nigeria, 120% in Sierra Leone. Increase in ODA inflows had positive impact on RGDP in Gambia by 34 percent, Ghana by 5.0 percent, and Nigeria by 1.4 percent, and negative impact on Sierra Leone by 4.1 percent. And decrease in ODA inflows showed a negative impact on all countries 1.7 percent in Gambia, 14.4 percent in Ghana, 3.9 percent in Nigeria, and 5.0 percent in Sierra Leone. Thus only Nigeria showed significant impact as ODA inflow increases and decreases. Also, we applied structural breaks dummy variable on the set of equation to account for seasonal variations in the capital movement. The diagnostic test improved significantly.

The asymmetric impact of capital movement differs across WAMZ countries. From the results, ODA inflows impacted more significantly in Nigeria than in Gambia, Ghana, and Sierra Leone. Also, FDI inflows (positive and negative) had significant impact on Sierra Leone than in Gambia, Ghana, and Nigeria. The speed of convergence appeared with proper signs (negative sign) except in Ghana. The results general proved that dynamical changes in capital movement are not healthy in Ghana. Also, indicates that except for ODA inflow in Nigeria, and FDI inflow in Sierra Leone, WAMZ countries have not clearly been impacted the impact is generally not significant.

To correct, the nature of CUSUM and CUSUM squares, in some cases appeared not well behaved. We incorporated dummy variables for FDI and ODA for the countries with not well behaved results. The study afterwards found that all results were well-behaved.

**Summary of findings:** Table 3 and table 4 portray the relative impacts of FDI and ODA on WAMZ. The results similarly shows the countries with potentials to improve size of productivity as increase (decrease) FDI and ODA occurs in the domestic economy.

**Table 3** FDI impact on RGDP (Size of productivity)

Increase in FDI inflow into WAMZ			Decrease in FDI inflow into WAMZ		
Positive Impact	Negative Impact	Significant	Positive Impact	Negative Impact	Significant
Gambia Ghana Sierra Leone	Nigeria	The impact on Sierra Leone is significant	Gambia Ghana Sierra Leone	Nigeria	The impact on Gambia, Sierra Leone is significant

Source: The Researcher

Table 3 briefly illustrates the responsiveness of WAMZ countries to positive changes and negative changes in FDI inflows into WAMZ. The target variable is RGDP denoting size of productivity. The changes in FDI inflows affect WAMZ differently. The table 3 therefore shows countries that require positive inflows and negative inflows of FDI inflows to accelerate productivity in the long-run in order to guarantee robust productivity to attain convergence, sustain ECO currency, and their improve the propensity to make ECO implementation inclusive.

**Table 4** ODA impact on RGDP (Size of productivity)

Increase in ODA inflow into WAMZ generates:			Decrease in ODA inflow into WAMZ generates:		
Positive Impact	Negative Impact	Significant	Positive Impact	Negative Impact	Significant
Gambia Ghana Nigeria	Sierra Leone	The impact in Nigeria is significant		Gambia Ghana Nigeria Sierra Leone	The impact in Nigeria is significant

Source: The Researcher

ODA impacts across WAMZ are assessed in terms of the size of productivity. The performance of ODA is conducted across Gambia, Ghana, Nigeria, and Sierra Leone. The positive and negative impact of ODA inflows depicted in table 4, shows that ODA inflows affect WAMZ differently. It also shows the countries that explore ODA to guarantee long-term benefit of ODA to stimulate productivity.

## VI. Conclusion

First and foremost, this study concludes that to achieve growth target of more than 7 percent, ODA inflow should be explored and less FDI inflows in Nigeria. Secondly, in Sierra Leone should attract more FDI inflows than ODA inflows, because FDI inflow showed significant long-run impact on growth in the long-run growth. Thirdly in Ghana, capital Liberalisation seems not to be an effective tool to drive growth in the Long-

run as the speed of convergence appeared positive sign against the negative sign required for convergence. Thus, authorities in Ghana in order to drive long-run growth should explore other capital inflows other than FDI and ODA. Fourthly, Gambian economy showed an indifferent reaction as FDI inflow increased or decreased, but ODA inflows affected growth adequately. Thus positive ODA inflow had positive impact on growth and negative ODA inflow had negative impact on growth.

Thirdly, these results are consistent with Egbuna et al. (2013) that posit financial liberalization differs across WAMZ countries. However, this study differs with Egbuna et al (2013) in terms of the existence of long-run relationship in WAMZ. In their study Ghana and Sierra Leone showed long-run relationship, and no long-run relationship in Gambia, Guinea, Liberia, and Nigeria. But in this study we observed long-run relationship in Gambia, Nigeria, Sierra Leone, and no long-run relationship in Ghana.

## VII. Recommendation

It is based on the findings in table 3 and table 4 we make the following possible recommendations to address issues relative effectiveness of FDI and ODA in selected WAMZ countries. Hence, in an attempt to meet the growth target of more than 7 percent by WAMZ countries;

- (i) Gambia should pursue a positive ODA inflows and less of FDI inflows
- (ii) Nigeria should attract more ODA inflows and less FDI inflows
- (iii) Ghana should pursue sound macroeconomic policies to attract other sources of capital inflows because both ODA and FDI do not have long-run relationship, no speed of convergence viz-a-viz speed of adjustment in its error correction term (ECT), and significant impact on growth proxy by RGDP.
- (iv) Sierra Leone should increase FDI inflows and less ODA inflows.
- (v) There is need for structural reforms to improve productivity in WAMZ. The authenticity of this recommendation builds from the dummy variable incorporated for FDI and ODA. Dummy variables were used to account for structural breaks in WAMZ. The application of dummy variables to account for structural breaks improved the post diagnostic test across WAMZ. Also, incorporation of structural breaks dummy of (0,1) speed up convergence in Gambia by 265 percent, 402% and 201% in Ghana, 74% in Nigeria, 775% and 405% in Sierra Leone. Hence, from the result we can affirm the importance of reforms to speed up convergence in the WAMZ.

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