



REAL EXCHANGE RATE AND ECONOMIC GROWTH IN ECOWAS SUB-REGION: A PANEL COINTEGRATION APPROACH

BY

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Abstract

The paper investigates RER and economic growth among ECOWAS countries. This has become necessary given the continuous decline in the level of competitiveness of ECOWAS countries. The study covered the 15 ECOWAS countries between the period of 1981 to 2019. Panel regression framework was adopted for the study. The panel unit root test result indicates that the variables are $I(1)$. The result of the panel cointegration indicates the existence of a long run relationship among the variables. The Hausman's test validated the alternative hypothesis that the Fixed Effect is appropriate. The result suggests that the RER has a positive and significant impact on the RGDP. The result showed further that the FDI and CED have significant and positive impact on the RGDP. The result revealed that openness has a positive but insignificant on the RGDP. The result of the panel VECM shows that the one period lagged RER has a significant and positive impact on the RGDP. The two period-lagged FDI and two-period lagged CED has positive and significant impact on the RER. The openness was not statistically significant. The study concludes that policies be put in place by ECOWAS countries to improve the production of tradable goods which will increase the benefit for depreciation and even a devaluation of currency. This will improve the competitiveness of ECOWAS countries.

Keywords: RER, openness, ECOWAS, FDI, panel cointegration, customs and excise duties

1. Introduction

The Real Exchange Rate (RER) depicts the relative price or value of one currency when compared to another. It is an important price and purchasing power indicator for the countries, eg Nigeria and the US involved since it takes into account the inflation differentials. Exchange rate changes affect the domestic economy through the interaction with foreign markets. It thus affects the prices of traded and non-traded goods. This affects resource

mobilization, both in the short and medium term (Ojo and Alege, 2014).

RER has the potentials of positively or negatively altering the level of economic growth in any nation, including those of the ECOWAS sub-region (Ehigiamusoe and Lean, 2019). RER policies have vital roles in the economic prosperity of developing economies like those in the ECOWAS sub-region. These policies have however faced lots of controversies (Akpan and Atan, 2011). Factors responsible for this include amongst others, import substitution or reduction

policies and export expansion policies which could lead to a depreciation of the RER. Instantaneous or short term adjustments could have detrimental effect on prices and demand management which has hindered the level of macroeconomic performance in the ECOWAS region. Although, RER devaluation or depreciation could result in the improvement in macroeconomic performance, this has not been the case in countries in the ECOWAS sub-region due to poor production base characterized by the production of primary agricultural produce. ECOWAS countries mostly export raw materials which attract low foreign exchange and imports finished products at exorbitant costs. This has hindered the level of macroeconomic performance by countries in the ECOWAS region.

Various exchange rate regimes which ranged from fixed to floating and managed float were adopted by countries in the ECOWAS sub-region. The floating exchange rate entails flexibility of exchange rate in line with market forces of demand and supply of foreign exchange. This policy cuts across most ECOWAS members states, particularly since the 1980s when economic reforms were introduced (Micheal, Olaronke and Abayomi, 2017). Countries in the ECOWAS region just like their counterparts in the rest of the world have made efforts to make the economies of the sub-region to be more competitive in the global world. This has been facilitated through RER management policies (Sani, Hassan and Azam, 2016). Many countries in the ECOWAS sub-region opted for the floating exchange rate system at the introduction of economic reform programmes such as the Structural Adjustment Programme) in 1986. Currently, countries in the ECOWAS sub region practice of variant of managed float or the other without choosing any parity. It has been observed that high inflation rate as is common in most ECOWAS countries is associated with volatility of the RER. For example, in Nigeria, when inflation increased from 7.5 percent in 1990 to 57.2 percent and 72.8 percent in 1993 and 1995 the naira exchange rate to the dollar fluctuated from N8.04 in 1990 to N22.05 and N81.65 in 1993

and 1995 (Akpan and Atan, 2011). While some authors like Frankel and Rose (2002), Hanke and Schuler (1994), argued that fixed exchange rate reduces trade uncertainties, increases openness, others include Calvo (2001) argued that flexible exchange rate brings about fiscal discipline. RER stability is vital for the development of the countries in the ECOWAS sub-region (Adjei, 2019). This is because a predictable RER ensures the stability of both domestic prices and international transaction since economies in the ECOWAS sub-region strongly depends on the export of raw materials and imports of finished goods.

Ali, Ajibola and Omotosho (2015) noted that the economic policies of countries, including those in the ECOWAS sub-region have influence on price incentives via the RER and hence plays a key role in generating the desired level of economic activities. The macroeconomic component of RER management is also connected to the issue of financial stability because the RER serves as both an explicit and reliable anchor for the stability of domestic price. Misaligned RER which is a situation when the RER deviates from the equilibrium RER has been a common phenomenon among ECOWAS countries since misaligned RER affects the tradable sector and the competitiveness of ECOWAS countries.

One major economic predicament facing ECOWAS countries is that the nations have small economies which are mono-product in nature with a low production base and are exposed to both internal and external shocks such as those from unstable RER (Agu and Nnamani, 2019). ECOWAS countries like Gambia, Guinea and Liberia are small with economies that are fragmented coupled with a very high debt profile. The debt burden in Nigeria is thrice the size of its Gross Domestic Product (GDP), partly due to the long civil war (Agu and Nnamani, 2019), and the instability of the RER. The current account statistics has been mostly negative for ECOWAS member countries who also experience double digit inflation rate as a result of perturbation of the RER.

Despite the adoption of various economic reforms such as Structural Adjustment Programme (SAP), RER depreciated in most of the study period indicating low level of competitiveness of countries in the ECOWAS sub-region. Sub-Saharan African countries only recorded a growth rate of 5.4 percent in 2008 when compared to 7.2 percent in 2004 and 6.9 percent in 2009. It is even more worrisome, that Nigeria that hosts the largest population in the ECOWAS sub-region still depends heavily on crude oil exports (Agu & Nnamani, 2019). Oil exports accounts for over 80 percent of Nigeria's foreign earnings and this has created numerous economic challenges with spill-over effects of ECOWAS countries. Unlike in the ECOWAS region, other countries place high emphasis on not just managing the RER, but also an aggressive output expansion policy. The inadequate attention given to output expansion in the ECOWAS sub-region has negatively affected the profits of the productivity sector and economic well-being of the citizens (Choudhri and Schembri, 2014). The global financial crisis between 2008 and 2009 brought about major fluctuations in exchange rate which resulted in series of misalignment and realignment of RER among countries.

The integration of financial market around the World made the fluctuation during this period to negatively affect almost all countries, including those in ECOWAS. The current COVID 19 pandemic also caused fluctuations in the RER in the ECOWAS sub-region.

Although, most studies such as Akpan and Atan, (2011), Omojimite and Oriavwote (2012) investigated the link between exchange rate and macroeconomic provenance in individual countries, the ECOWAS sub-region has been grossly neglected. In addition, the study used the RER instead of the nominal exchange rate to reflect the true competitiveness of ECOWAS countries. In addition, as noted by Cakrani, (2014), there has been no consensus on the transmission channel of RER and growth. These form a points of departure from previous studies. The main objective of the study is thus to empirically establish the link between RER

and economic growth in the ECOWAS sub-region. This is important since the ECOWAS region is badly in need of improved productivity.

Other than this introduction, the second part of the paper contains the theoretical underpinnings and the third part contains empirical literature. The fourth section is on the results and discussion of findings while the fifth section, which is the last, is on the conclusion and recommendations.

2. Review OF Related Literature

2.1 Theoretical Underpinnings

The Purchasing Power Parity Theory (PPP)

The PPP theory was developed in 1981 by Guster Cassel. It was primarily meant to foster an alternative framework for the determination of exchange rate. PPP states that the exchange rate between two or more currencies is totally a function of market forces of demand and supply. A main issue in the PPP is the "law of one price" which posits that in the absence of costs like those of transportation and transaction, competition will equalize the prices on identical good in two countries or regions such as between countries in ECOWAS and the rest of the World (CBN, 2016). A major focus of the theory is that if any pair of currencies like those of ECOWAS countries and the US dollar is set at par, the differential of the exchange rate should show changes arising from the purchasing powers of the relative currency in nation to the base year's rate (Ibanta, 2012, Anyanwu, 2017). Thus, the PPP indicates that a favourable appreciation of the exchange rate of currencies for example of ECOWAS member countries will increase the level of economic activities since the ensuing high demand for goods and services will lead to an increase in productivity which will increase the Real Gross Domestic Product (RGDP).

Traditional Flow Theory

The flow theory centers around trade accounts between two countries or regions, like between ECOWAS countries and the rest of Europe or the rest of the World. The volume of trade is a key determinant of the exchange. The current

account balance determines the connection between RER and the flow of goods and services. If exchange rate follows market forces, countries with trade surplus will gain more of the foreign exchange. This will result in an appreciation of the RER of the country or region with surplus trade and a depreciation of the country or region with deficit. This has been the case with the ECOWAS country when compared to their trading partners. ECOWAS countries have been experiencing RER depreciation over the years. In the flow model, relative income is key in the determination of exchange rate (Onyekachi, 2012).

2.2 Empirical Literature

Jibrin, Jelilov and Gayypov (2017) examined exchange rate exchange rate and economic growth in ECOWAS. The study covered the period of 1990 to 2014. The Classical linear regression technique was adopted and the result revealed that exchange rate is proved to be an important determinant of economic growth among ECOWAS countries.

Omojimate and Oriavwote (2012) investigated RER and macroeconomic performance in Nigeria with a test of the Balasa-Samuelson hypothesis. The study found evidence of the Balasa-Samuelson hypothesis for Nigeria. Ehigiamusoe and Lean (2019) investigated the influence of RER on the relationship between finance and growth in West Africa. The Seemingly Unrelated Regression (SUR) and two stage least squares were used. The result showed that financial development has a positive impact on economic growth, but the impact was weakened by the RER and its volatility. Nathaniel, Oladiran and Oladiran (2019) studied the links between exchange rate regimes and economic integration in the ECOWAS sub-region between the 1980 to 2017 period. Using the panel least squares technique, the study found a positive and significant relationship between exchange rate and economic integration. Akpan and Atan (2019) examined the effects of exchange rate movements on the level of economic growth in Nigeria. The study covered the 1986 to 2010 period. Using the Generalized Method of Moments (GMM)

technique, the result found no relationship between exchange rate economic growth. Ojo and Alege (2014) assessed exchange rate fluctuations and macroeconomic performance in Sub-Saharan Africa using a dynamic panel cointegration and the granger causality test. The result revealed that exchange rate fluctuation hinders economic growth and a long run relationship among the variables. The impact of exchange rate volatility on output in selected West African countries formed the basis of the study by Sani, Hassan and Azam (2016). Using data covering 1991 to 2014, and the cointegration and error correction modeling framework, the study found that exchange rate volatility has a significant impact on output in all the countries. Agu and Nnamani (2019) studied RER distortions and options for the second monetary zone in West Africa. The study found that misalignment of RER affect macroeconomic policies of ECOWAS countries. Adjei (2019) evaluated the effect of exchange rate volatility on economic growth in Ghana. The study covered the period between 1983 and 2010. The Autoregressive Conditional Heteroskedasticity (ARCH) and the Generalized Autoregressive Conditional Heteroskedasticity (GARCH) were used to analyze the data. The result showed that exchange rate volatility exerted significant negative impact on economic growth in Ghana. Aligedede and Ibrahim (2016) assessed the causes and effect of exchange rate volatility on economic growth in Ghana. The result showed that about three quarters of shocks to RER are own shocks and the rests are due to factors such as government expenditure, growth in money supply and terms of trade. Olanrewaju (2013) assessed RER misalignment and economic performance in the WAMZ. The findings revealed asymmetric correlation between RER and economic growth. Ali, Ajibola and Omotosho 2015 assessed RER misalignment and growth in Nigeria. The result shows that RER misalignment has a negative impact on economic growth. Most of the study focused on individual ECOWAS member states and not the entire bloc. This study focused the 17 member ECOWAS countries. Most of the study reviewed didn't are either linked to

exchange rate volatility or misalignment. This study thus add to the existing literature by not only covering the 15 member ECOWAS countries, but also used the RER.

In summary, the studies reviewed and the available literature did not dwell particularly on RER and growth in the ECOWAS sub-region. In addition, the available studies have not been conclusive on the issue of the RER and growth. Some of the studies reviewed eg Jibrin, Jelilov and Gayypov (2017), Nathaniel, Oladiran and Oladiran, (2019) and Akpan and Atah (2019) used nominal exchange rate and economic growth. In addition, previous studies have been mostly on individual region and not on the ECOWAS sub-region. These make this study to be timely.

3. Methods and Procedure

The data used for the study covered the period between 1981 and 2019. The data covered the 15 ECOWAS member countries which include Nigeria, Niger, Senegal, Benin, Ghana, Cote d Ivoire, Gambia, Guinea, Guinea-Bissau, Liberia, Mauritania, Mali, Cabo Verde, Sierra Leone and Togo.

The model was drawn from Omojimitte and Oriavwote, (2012). However, unlike Omojimitte and Oriavwote, the study used Customs and Excise Duties and FDI as additional independent variables. It must also be pointed out that the study by Oriavwote and Omojimitte (2012) was on the Nigerian economy and not the ECOWAS sub-region. The model used for this study thus has the Real Gross Domestic Product as the dependent variable. The independent variables are RER, Openness of the economies of ECOWAS countries through international trade, Foreign Direct Investment and customs and excise duties. The model is stated linearly below:

$$RGDP_{i,t} = b_0 + b_1RER_{i,t} + b_2FDI_{i,t} + b_3OPEN_{i,t} + b_4CED_{i,t} + u_{i,t}$$

RGDP = Real Gross Domestic Product which is the Gross Domestic Product (GDP) denominated by inflation rate. The source is World Bank (2019).

RER= Real Exchange Rate which is the nominal exchange rate that takes

inflation differentials among countries into account. It is an important relative price indicator that reflects the true competitiveness of economies.

The source is World Bank (2019).

FDI = Foreign Direct in Investment. This is an investment in the form of controlling ownership in a business entity in one country by an entity based in another country. The source is World Bank (2019).

OPEN = Openness of the economy to the outside World. It is computed as the ratio of import to GDP. Source is World Bank (2019).

CED = Customs and Excise Duties. It represents taxes on imports and exports.

The source is World Bank (2019).

i,t = cross sectional an time series components

Since the study covered the 15 ECOWAS member states and between a time period from 1981 to 2019, the panel regression method becomes appropriate. This is because the study includes both the cross-sectional component which is the 15 ECOWAS member countries in this case and the time series component which is the 1981 to 2019 period covered by the study. The conventional Ordinary Least Squares technique cannot be applied in this case. The panel regression will be used to analyze the data. The analysis will commence with the panel descriptive statistics and the panel correlation analysis. The fixed effect, random effect, common constant tests as well as the Hausman's test will form the next step. The Hausman's test will enable us to determine whether the fixed effect model or the random effect model is more appropriate. The null hypostasis in this regards is that the random effect is appropriate which is in contrast with the alternative hypothesis which states that the fixed effect is appropriate. A probability of 5 percent and below will indicate a rejection of the null hypothesis and an acceptance of the alternative hypothesis. This will be followed by the panel unit root test. Four statistics will be used for this purpose. This will

be followed by the panel cointegration test. The panel cointegration test will enable us to ascertain the existence or not of a long run equilibrium relationship among the variables. This will be followed by the panel Fully

Modified Ordinary Least Squares (FMOLS) and the panel Vector Error Correction Model.

4. Results and Discussion of Findings

The result of the panel descriptive statistics is shown in the table below:

Table1: Panel Descriptive statistics Result

	LRGDP	LRER	LFDI	LCED	OPEN
Mean	1.674821	4.781795	10.16495	10.74878	607.9014
Median	1.535576	4.610387	16.03441	8.643297	43.32100
Maximum	2.352137	6.294273	20.61417	20.46686	34458.00
Minimum	1.230809	3.915377	0.004988	0.062035	9.136000
Std. Dev.	0.376332	0.518534	8.876332	6.595273	4406.334
Skewness	0.656377	1.111189	-0.069682	0.260410	7.616662

Source: Author's computation

The mean of RGDP is 1.67 which is higher than the median with a value of 1.54, indicating that the RGDP across ECOWAS countries increased during the study period. The maximum value for the RGDP is 2.35 while the minimum value is 1.23. A standard deviation of 0.37 indicates negligible discrepancies. The average value for RER of 4.78 is greater than the median of 4.61 indicating that the RER in the ECOWAS region depreciated during the study period. This seems to be the reality in the sub-region which has lost competitiveness due to depreciation in the RER caused mainly by low productivity. The highest value possible for RER is 6.29 while the lowest value is 3.92. The mean for FDI is 10.16 which is less than the median of 16.03. an indication that the FDI inflow into the ECOWAS sub-region declined in most of the study period. This is not surprising given the low level of economic progress in the country caused by

poor policy and civil strife. The maximum value for FDI is 20.61 and the lowest value is 20.61 and the lowest value is 0.005. The average value for CED is 10.75 which is lower than the median of 8.64 indicating a decline in the revenue that accrued to ECOWAS countries in form of taxes on exports and imports. The highest value for CED is 20.47 while the lowest value is 0.06. The mean of OPEN is 607 which is greater than the median of 43.32 which implies that ECOWAS countries were more open to international trade by adopting more trade liberalization policies. The highest value for openness is 64458.00 while the lowest value is 9.14. The skewness with values greater than zero in most cases indicates that the model is skewed to the right with a long right tail.

The result of the correlation matrix is shown in the second table below:

Table2: Result of correlation matrix

LRGDP	1				
LRER	0.19879118	1			
LFDI	0.191491332	0.265303862	1		
LCED	0.126629772	0.068245999	0.587370662	1	
OPEN	0.097387561	0.1360982	0.14894479	-0.12200023	1

Source: Author's computation

The result shows that the RER has a positive correlation with the RGDP. The correlation coefficient of 0.191 represents a weak correlation. The correlation between FDI and RGDP is positive but weak with a correlation coefficient of 0.127. The correlation between openness and RGDP is also positive but weak with a correlation coefficient 0.097. The

correlation between CED and RGDP is also positive but weak with a coefficient of 0.127. In all, the result of the correlation analysis revealed the absence of multicollinearity among the variables.

The result of the fixed effect, random effect, common constant and Hausman's tests are shown in the table below:

Table3: Summary of Results of common constant, Fixed Effect, random effect and Hausman's tests. Modeling LRGDP:

Variables	Common Constant	Fixed Effect	Random Effect
C	0.965 2.724 (0.0086)	1.147 5.346 (0.0000)	0.965 2.711 (0.0089)
LRER	0.777 0.097 (0.0001)	0.093 2.077 (0.0426)	3.953 9.338 (0.0000)
LFDI	5.864 3.665 (0.0021)	0.009 2.777 (0.0075)	0.013 2.494 (0.0156)
OPEN	0.042 1.304 (0.0982)	0.118 0.432 (0.4038)	0.229 0.0243 (0.8401)
LCED	0.025 3.642 (0.0006)	0.001 3.155 (0.0024)	0.025 3.625 (0.0006)
R ² DW	0.86 2.04	0.82 2.19	0.89 2.25
Hausman's Test	Probability = 0.0302		

Source: Author's Computation

NB: Figures in parenthesis are probabilities

The result of the common constant test indicates that 86 percent in the total variation in the RGDP in the ECOWAS sub-region has been explained by the RER, FDI, OPEN and CED taken together. This is good enough. The result indicates that the RER has a positive relationship with the RGDP. An increase or depreciation in the RER by 1 unit increased the RGDP in the ECOWAS sub-region by 0.093 units. The FDI, OPEN and CED have positive relationship with the RGDP. An increase in the FDI, OPEN and CED by 1 unit each increased the RGDP by 0.009, 0.826 and 0.001 units respectively. The result indicates that the RER, FDI and CED with t values of 3.097, 3.665 and

3.642 with probabilities of 0.0001, 0.0021 and 0.0006 are statistically significant in explaining the changes in the RGDP. The OPEN with a t value of 1.304 is not statistically significant in explaining the changes in the RGDP. The second and third column of table 3 shows the result of the fixed effect and the random effect. The last row shows the result of the Hausman's test. The result of the Hausman's test with a probability of 0.0302 indicates the rejection of the null hypothesis that the random effect is appropriate and hence an acceptance of the alternative hypothesis that the fixed effect is appropriate. The result of the fixed effect indicates that the RER has a positive impact on

the RGDP. A depreciation of the RER by 1 unit increased the RGDP marginally by 0.09 units. The result also indicates that the RER with a t value of 2.072 and probability of 0.0426 is statistically significant in explaining the changes in the RGDP. This findings reflect the reality of the ECOWAS sub-region has experienced depreciation of the RER over the years. This reduced the competitiveness of the sub-region since the supposed benefit of a depreciated RER through increase in productivity could not be attained. This is in contrasts with the findings by Akpan and Atan (2011) that did not find any evidence of a strong direct relationship between exchange rate and output growth. The result indicates that the FDI has a positive impact on the RGDP. An increase in FDI by 1 unit increased the RGDP by 0.009 units. The result indicates further that the FDI with a t value of 2.777 and probability of 0.0073 is statistically significant in explaining the changes in the RGDP.

The result indicates that OPEN has a positive impact on the RGDP. An increase in the OPEN by 1 unit increased the RGDP by 0.118 units. The OPEN with a probability that is greater than 5 percent is however not statistically significant in explaining the changes in the RGDP. This suggests that the openness of the ECOWAS countries through various trade policies have not benefited the sub-region. It shows that the openness is one-sided and has mostly benefited the industrialized country since ECOWAS countries don't have the capacity to favorably compete. The CED has a positive on the RGDP. An increase in the CED by 1 unit increasd the RGDP by 0.0001 units. The CED with t value of 3.155 with probability of 0.0026 is statistically significant in explaining the changes in the RGDP.

The result of the panel unit root test is shown in the table below:

Table 4: Panel Unit root test result

Level Variable	Probability	1 st difference	Probability
CED			
LLC	0.1560		0.0000
IPSW	0.8462		0.0003
AFC	0.8500		0.0000
PFC	0.6880		0.0000
FDI			
LLC	0.4868		0.4300
IPSW	0.7360		0.0000
AFC	0.8615		0.0000
PFC	0.2544		0.0000
RGDP			
LLC	0.6194		0.0021
IPSW	0.6794		0.0000
AFC	0.5224		0.0000
PFC	0.1152		0.0000
RER			
LLC	0.0673		0.0000
IPSW	0.1026		0.0000
AFC	0.0849		0.0000
PFC	0.2703		0.0000
OPEN			
LLC	0.0072		0.0000
IPSW	0.9316		0.0001
AFC	0.1812		0.0000
PFC	0.1481		0.0000

Source: Author's Computation

NB:

LLC = Levin Li and Chu t*
 IPSW= Im Peseran & Shin W. Statistic
 PFC = Fisher Chi square

Majority of indicate that all the variables were not stationary at the levels. They however became stationary after the first difference was taken. This indicates that all the variables are

I(1). The next test as directed by the result is the cointegration test. Two tests and 12 statistics was used for this purpose. The result of the cointegration test are shown in table 5 below:

Table 5: Pedroni Residual and Kao Residual cointegration test

Statistics	Probabilities	Statistic	Probabilities
Panel V	0.4413	Panel ADF weighted	0.4399
Panel Rho	0.0024	Group Rho	0.0033
Panel PP	0.6280	Group PP	0.2841
Panel ADF	0.0824	Group ADF	0.0286
Panel V- Weighted	0.0024	Panel PP- Weighted	0.0148
Panel Rho- Weighted	0.0001		
Kao Residual Cointegration Test			0.0349

Source: Author’s computation

Out of the 11 statistic in the upper part of table5, 6 have probabilities that are significant while the other 5 are insignificant. This result indicates a rejection of the null hypothesis of no cointegration. The result of the Kao residual cointegration test also indicates the rejection of

the null hypothesis of no cointegration. The result thus suggests the existence of a long run equilibrium relationship among the variables. The result of the Panel Fully Modified OLS (FMOLS) is shown in the table below:

Table6: Panel FMOLS: Dependent Variable: LRGDP

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LRER	0.130064	0.051417	2.529572	0.0146
LFDI	0.008265	0.003668	2.253232	0.0286
LCED	1.452572	0.420671	3.452986	0.0008
OPEN	5.216394	2.780535	1.876040	0.0790

R²= 0.82

Source: Author’s Computation

The result indicates that the RER, FDI, CED and OPEN has a positive impact on the RGDP in the long run. The respective long run coefficients are 0.130, 0.008, 1.453 and 5.213. Apart from OPEN, all the other variables were

statistically significant in explaining the changes in the RGDP in the long run. The relevant section of the result of the Panel Vector Error Correction Model is shown in table 7 below:

Table 7: Panel VECM

Error Correction:	D(LRGDP)	D(LRER)	D(LFDI)	D(LCED)	D(OPEN)
CointEq1	0.075067 (0.08287) [0.90589]	-0.424790 (0.17324) [-2.45206]	10.94630 (2.64765) [4.13435]	4.861765 (2.75123) [1.76712]	-889.8041 (3673.61) [-0.24222]
D(LRGDP(-1))	0.070736 (0.18657) [0.37914]				
D(LRGDP(-2))	-0.304277 (0.24926) [-1.22073]				
D(LRER(-1))	0.036602 (0.006294) [5.815439]				
D(LRER(-2))	-0.012555 (0.09739) [-0.12892]				
D(LFDI(-1))	0.002970 (0.00381) [0.77926]				
D(LFDI(-2))	0.980511 (0.383046) [2.559774]				
D(LCED(-1))	-0.003152 (0.00772) [-0.40807]				
D(LCED(-2))	6.471892 (0.489718) [-13.21555]				
D(OPEN(-1))	0.003283 (0.002548) [1.288288]				
D(OPEN(-2))	0.000974 (0.003089) [0.315214]				
C	-0.006130 (0.02125) [-0.28843]				

Source: Author's computation

The result indicates that the RER equation which is significant and negative represents the true cointegration equation. The result indicates that 1 and 2 periods lagged RGDP were not

statistically significant in explaining changes to itself. The one period lagged RER is statistically significant in explaining changes to the RGDP. The two period lagged FDI and the two period lagged CED are statistically significant in

explaining the changes to the RGDP. The OPEN was not statistically significant.

5. Conclusion, Recommendations and Policy Implication

Drawing from the PPP and traditional flow theories, the paper investigates the impact of the RER on economic growth in the ECOWAS sub-region. This has become necessary given the loss of competitiveness in the economies of the ECOWAS sub-region. This lack of competitiveness has seriously hindered the lack of progress in the ECOWAS sub-region. The panel regression framework was adopted for this study. The findings revealed that the RER has a significant and positive impact on the level of economic growth among the countries that make up the ECOWAS sub-region. We thus conclude that the depreciation of the RER has led to the loss of competitiveness among ECOWAS countries since the exports of most ECOWAS states exceed their imports. This deprived them of the supposed benefits from more exports when currency depreciates. The openness of ECOWAS countries was not statistically significant. This enable us conclude that trade liberalization through various agreements with the rest of the World such as the African Growth and Opportunity ACT (AGOA), VISA and tariff concession movement of goods and services among ECOWAS members states has not been beneficial to the region. This has also worsened the inability to properly manage the exchange rate perturbations. This was corroborated by the findings that customs and

excise duties when properly managed could be a good source of foreign exchange earnings. The study also revealed that when appropriate policies are put in place, FDI inflow could provide the necessary support to improve the level of economic progress among ECOWAS countries.

The study recommends formulation of economic policies such as the export promotion strategy developed by countries in East Asia to facilitate improvements in the production of tradable goods among ECOWAS states to enable them benefit from a depreciation of or a devaluation of the RER. This could also be enhanced through the enactment of economic policies VISA free movement and a common currency that will facilitate positive economic integration among the countries that make up the sub-region. ECOWAS countries should also put policies in place to attract FDI into the region. Such policies could be in the form of concessionary credit facilities to would-be foreign and local investors as well as the provision of basic infrastructure such as constant electricity supply etc. further trade openness by ECOWAS countries should be with caution as the production of exportable must improve to benefit from such. The paper's findings thus have important policy implications for policy makers in the ECOWAS sub-region who are concerned about the need for an improvement in the level of completeness of the sub-region with the rest of the World.

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