Is West Africa Monetary Zone a Common Currency Area?

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Abstract
The integrating units of West Africa Monetary Zone are expected to satisfy nine (9) macroeconomic convergence criteria to kick start the monetary union. This paper examines the possibility of attaining economic growth convergence in the zone over time, because the success of the former rested on the latter. By growth convergence, it implies that the six economies that made up the zone are presumed to be alike in terms of consumption preferences, techniques of production adopted and economic policies thrust. The result shows an evidence of growth convergence within WAMZ, which is an indication that all member states of WAMZ has common features, this further indicates that, there would be a sparkling light at the end of WAMZ tunnel as regards satisfaction of the nine prerequisite convergence criteria. However, the speed of convergence and half-life are 1.5% and 35years respectively, meaning that much is still expected to be done in term of policy development and regulation to enable the much awaited monetary union. In the light of this, this study recommends that the West Africa Monetary Zone Convergence Council in consultation with the ECOWAS Convergence Council should coordinate both fiscal and monetary policies within the zone. This to a large extent, would hopefully, bring about uniformity in policy measures and implementation and, thereby, foster collaborative effort among the member state to achieve their common goal.

Keywords: *West Africa Monetary Zone, growth Convergence, Neoclassical Convergence Theory, Panel Data Analysis*

JEL Classification*: B22; E42*

Introduction

In the study of economics, an Optimum Currency Region (OCR) or an Optimal Currency Region (OCA) is an economic parlance in which economic efficiency would be maximised in a geographical region, if the entire region shares or adopts a stable single currency. It could further be described as the optimal characterisation for the merger of each member state's currency or the creation of a new currency for the zone. The theory of OCR is often used to argue about the readiness of an aspiring zone or region to become a monetary union, it is also one of the final stages of economic integration.

In line with this theory, the proposed West African Monetary Zone (WAMZ) which consists of majorly Anglophone countries within the West Africa subregion that wishes to introduce a new common currency, known as "the Eco". These integrating countries are; the Gambia, Ghana, Guinea, Nigeria, Sierra Leone, and Liberia. The first-five countries commenced preparation of the monetary union in the year 2000 while Liberia joined a decade after (on 16 February 2010), the reason for the ten year gap could be partly attributed to the intermittent war in the country. It is pertinent to note that apart from Guinea, which is a Francophone country, others are English speaking countries in West Africa subregion.

The WAMZ wishes to adopt a strong stable single (common) currency to become the second monetary union in the ECOWAS region after the CFA franc, whose exchange rate is tied to the Euro and guaranteed by the French Treasury. Although the ultimate target of ECOWAS is strong stable common currency for the entire West African subregion. That is, the CFA franc and the proposed 'Eco' should merge, giving a single, stable currency for all of the West and the Central Africa. However, the launch of the new currency is being anchored by the West African Monetary Institute based in Accra, Ghana, in conjunction with ECOWAS heads of states and governments, West African Monetary Authority (WAMA), West Africa Monetary Zone's Convergence Council and the ECOWAS Convergence Council.

Ultimately, for this monetary union to be a reality, nine macroeconomic convergence criteria must be achieved simultaneously by these six countries. These criteria are grouped into two sets, namely the primary and the secondary criteria. The primary criteria consists of the following macroeconomic

conditions which each intending member of WAMZ must attain with the targets in parenthesis: They include the following: Inflation rate (single digit, i.e. < 10); fiscal deficit/GDP excluding grants (≤ 4%); Central Bank financing of fiscal deficit as percentage of previous year tax revenue (< 10%): gross external reserves–month of imports (≥ 3). While the secondary criteria are; Tax revenue/GDP ratio (> 20%); salary mass/total tax revenue (≤ 35%); public investment financed from domestic receipts as percentage of totaltax revenue (≤ 20%); real interest rate (Positive, i.e. > 0); exchange rate against WAMZ exchange rate management (± 15%).

Achievement of these macroeconomic convergence criteria could only be possible if the integrating countries have common features; which is the reason why this study is seeking for possible growth convergence within the proposed WAMZ. However, the existence of economic growth convergence among the integrating units (member states) confirms the commonness in their characterisation such as methods of production, consumption pattern, export and import orientation, economic policy thrust and social characteristics such as population, and education (Maleke, 2008; Balogun, 2014).

On the other hand, it is relevant to this study to unleash the meaning and implication of the term convergence, it imply a propensity to level the rate of income growth or per capita production over a long term in the same or different geographical region (Maleke, 2008). Furthermore, there is existence of convergence when a "rich" country tends to increase slowly but steadily while the "poor" economy (which replicates its production techniques and policy programme) increases more rapidly such that, the "poor" country will in the long run catches up with the level of income or per capita production of the "rich" country. This is equally known in the literature as catch–up effect. More importantly, the catch-up is assumed to be made possible through replication of technology and other method of production and consumption used in the developed (rich) economy in the less developed (poor) country. However, this study is testing the hypothesis that there is absence of growth convergence in the West African Monetary Zone; hence the possibility of achieving the macroeconomic convergence criteria is equally doubtful.

The remaining parts of this study present a brief review of related empirical literature and theoretical underpinning in section II. While section III presents

the methodology and the fourth section presents the empirical results. The last section presents the concluding remarks and policy implications.

Literature Review

Empirical Literature Review

Amaefule (2019) empirically investigates the existence of symmetric or asymmetric behaviour in the proposed West Africa Monetary Zone (WAMZ) to common shocks. It was found that symmetric shock exists under pooled study but both symmetric and asymmetric exist under country-specific study. The implication of this according to the author was that WAMZ is a quasi-optimum currency area (OCA), and that, a lot must be done to avert future volatile 'eco' currency. In a seemingly related study by Maiyaki (2016) who examines the rationale and prospect for economic and monetary integration in West Africa subregion in view of the recent happening in the Euro Zone. The study establishes that the imperative of economic and monetary integration is realisable and can never be overemphasized because West African countries have common history.

To establish the authenticity of WAMZ has a common currency area or not, a research study was conducted, this study adopts structural vector autoregressive modelling. The study considered the linear dependence of the structural shocks of the integrating units in the zone vis- a-vis the variance decomposition, impulse responses of key economic variables within the zone. However, the results of the variance decomposition indicates that the zone does not have a common source of shocks and that the integrating units respond asymmetrically to common demand, supply and monetary shocks which further imply different response to a common monetary policy. Thereafter, the study advice that, in the interest of the integrating countries, the proposed zone was not ripe for monetary integration (Adam, Agyapong, & Gyamfi 2012). A closely related study was later carried out by Simon and Mathew (2016) who also tested the potency of the proposed second monetary zone in West Africa subregion (i.e. WAMZ) as a common currency area through same method adopted by the trio (Adam, Agyapong, & Gyamfi 2012) i.e. structural vector autoregressive model. Their result suggest that the variance decomposition of the model indicates that the zone does not have common source of shocks, and that the composite units

respond differently or asymmetrically to common shocks and would therefore respond differently to common monetary policy.

In seemingly related study by Taylor (2013), who evaluates the willingness of the five Anglophones countries and Guinea to form the proposed West Africa Monetary Zone as a monetary union which was based on the theoretical foundation of optimum currency region. The study focuses on macroeconomic environment of the countries within the club, while it adopts correlation matrix and a gravity equation. However, in contradiction to the initial hypothesis that states that the club is not adequately prepared, the results shows that overtime, WAMZ would be a reality with ex ante policy integration by starting with the most similar countries (in terms of performance). In another study, Peterson, Anokye and George (2017) examine the possibility of attaining the convergence level of real exchange rate within the WAMZ, using three ways of lead-lag causal relationship, namely, the covariance, correlation and coherence, via the wavelet analysis. Their results indicates that lead-lag association at different periodicities vary across the countries and that no one country comes off as leading conveniently for both real and absolute returns of the exchange rates.

The study by Adamgbe and Agu (2012) evaluate the preference of monetary policy thrust within the WAMZ area through DGE (Dynamic General Equilibrium Model) and BET (Bayesian Estimation Technique) This estimation outcome reveals that despite the concerted efforts of regional leaders towards attainment of the much expected single digit inflation convergence objective, the objective was still not achievable, the result rather shows some preference for output stabilisation instead of stable inflation which imply a passive use of monetary policy as the demand management tool in the zone In a related study, Latif (2010) observed the possibility of macroeconomic convergence among CFA franc and UAEMOA countries, using panel data set that cut across different regime shifts while applying the neoclassical convergence theory and methodology. The findings show the presence of growth convergence in CFA franc area with 1.5 convergence speed and forty eight years as half-life, and suggest that a number of other convergence variables could converge consistently if spatial issues are taken seriously.

Balogun (2014) examines the monetary policy preference on inflation convergence criteria in WAMZ. The study covers the period between 1986 and

2012, while the method of analysis adopted was the pooled regression method which was used to unleash the total effect of aggregate monetary policies on inflationary convergence efforts. The study concludes that, except ex ante monetary policy coordination is put forth in WAMZ, inflation convergence may not be achieved. In a seemingly related study, Egwaikhide and Ogunleye (2011) examine the effects of globalisation on selected macroeconomic convergence criteria in the West Africa Monetary Zone (WAMZ), using ordinary least square method and shows that globalisation affects all the convergence criteria selected, though in varying degrees, conditioned by size and level of integration. Specifically, the authors noted the prominent effect on exchange rate depreciation and inflation rate.

In another study, Adam, Agyapong and Gyamfi (2012) investigate the issues of macroeconomic convergence in the West African Monetary Zone. They distinctively examine exchange and inflation rates convergence and found that there exists no evidence of convergence for inflation rate in the WAMZ, but a little support for exchange rate. A study by the trio, Asongu, Nwadukwu and Tchainyou (2016) developed a sound literature on the issue of proposed Africa monetary union. The study explored extensive review covering four main strands, which include the proposed West Africa Monetary Zone (WAMZ), East Africa Monetary Union (EAMU) Southern Africa Monetary Union (SAMU) and the African Monetary Union (AMU).The study noted that there are issues with choosing a feasible and desirable potential monetary union, because of difference in choice of variables, strategies. Also, in a seemingly related study by Ernest (2005) who examines regional currency area in West Africa subregion and uncovered that major potential cost of economic integration is the uneven sharing of gains overtime.

According to Akande, Adewuyi and Adeoye (2005), they examine the progress being made by Nigeria in achieving the nine macroeconomic convergence criteria of the West Africa Monetary Zone, as stipulated for merging of WAMZ and UEMOA, it was found that all the four primary criteria had not been fully met and that for the secondary convergence criteria a lot still needed to be put in place in term of fine-tuning policies that would assist in achieving the convergence criteria. A review of development in the world economy and its implication for southern African was carried out by Goeiemann (2007), with primary focus on the SADC integrating units' achievement of their individual

macroeconomic convergence (MEC) goals. Furthermore, the study compared individual unit performance against the agreed targets, and thereafter presents prospects for the years yet to come.

The study by Maleke (2008) investigates the evidence for convergence in macroeconomic variables of Southern African Custom Union (SACU), using panel data unit root tests, the results showed significant evidence that the SACU countries had reached a reasonable threshold of convergence on some specific macroeconomic convergence variables which he attributed to common economic policies and institutional characterisations.

Similarly, Bakare-Aremu (2016) considers among other, the possibility of achieving macroeconomic convergence by testing the macroeconomic convergence model on WAMZ economic growth, and discovered the existence of growth convergence with 1.5% speed of convergence. In another but related study, Bakare-Aremu, (2018) examines the influence of financial liberalisation policy on macroeconomic convergence variables in West African Monetary Zone (WAMZ) and found that the response of macroeconomic convergence variables to financial liberalisation policy differs from country to country, therefore symmetric fiscal stimulus or monetary policy discretion may not have common effect(s) on the dovetailing units, which is not common to many monetary union.

Elliot, (2020) wrote on the conclusion of the Anglophone nations in the West Africa subregion that constitute the integrating unit of WAMZ. He however released a communiqué condemning the CFA WAEMU opinion to unilaterally rename the CFA franc as the 'Eco'. Also the hastened launch of the new union has brokered division among the member of WAMZ countries within the ECOWAS group. This is so, because the original plan was to unveiled and adopt the new currency on a slower pace. Also, Theo *et al.* (2011) examined financial liberalisation, openness and convergence, using Organisation of Economic Corporation and Development (OECD) dataset. They found that financial liberalisation was highly related reversals of capital flow. The study that the initial inflows of capital at the beginning were consequently compensated by capital outflows, which gives way to mammoth debt accumulation in the capital account resulting to a number of experiences ranging from low output volatility to lingering transition.

The reviewed experience beyond Africa shows that most other studies on macroeconomic convergence in relation to monetary union are based on selected convergence variables, mainly inflation rate which was analysed using inflation differentials to validate ***ex post*** the doctrine of the "law of one price" which had been analysed with several models especially in the Euro zone {Hofmann & Remsperger, 2015; Angeloni & Ehrmann, 2007; Honohan & Lane, 2003, Horvath & Koprnicka, 2008 and Mara & André, 2011}. The empirical approach of these studies was econometric differing in terms of model specification, scope and span of data only.

In an attempt to analyse inflation differentials within the Euro zone, two seemingly related studies were conducted individually by Hofmann and Remsperger (2005) and Angeloni and Ehrmann (2007). The former employed panel-generalised method of moments over the period 1999Q1-2004Q2 to analyse inflation differentials and found existence of inflation gap among the new members, while the later used aggregate demand and supply equations to evaluate both output and inflation differentials that was observed across the Euro zone over the period 1998Q1-2003Q2. Their findings suggest that the observed inflation differentials are mainly determined by differences in cyclical positions and fluctuations of the effective exchange rate. A closely related study by Honohan and Lane (2003) assess the motivating factors of inflation differentials in the Euro zone using the date-set that spanned the period 1999-2001. This was achieved through the estimation of panel data model, and the findings thereafter indicated that determinant of inflation differential are external exposure of individual integrating unit, their cyclical position, and fiscal policy interference.

Horvath and Koprnicka (2008) explored the factors that are responsible for inflation differential in the Euro zone taking into consideration both the new and old member states of the zone in panel data frame. The panel data spanned through the year 1997 to 2007, while the study reveal that higher price level and exchange rate appreciation in the new EU members are attributed to higher narrower inflation differential when compared with the existing Euro area. Also, the positive growth gap and the fiscal deficit equally attributed to higher inflation differential. However, it is pertinent to note that rather than cyclical variation, real convergence factors are more important for inflation differential in the new EU members, when compared to the old member states of Euro zone.

Still on the Euro zone, a similar study by Mara and André (2011) Adopt both descriptive and econometrics methods to showcase new evidence on their empirical sojourn on inflation differentials in the Euro zone, using the dataset that spanned through the year 1999 to 2010, which equally include the era of global financial crisis. The authors analysed the evolution of inflation dispersion and differentials since the beginning of the European Monetary Union (EMU); the study found that there was existence of inflation differentials throughout the period under study which was not the case before crises. Furthermore, the outcome of their trade gravity model estimation confirms that price level equalisation; differences in cyclical positions; productivity differentials, product and labour market rigidities are vital factors that influence differences in inflation level. However, they conclude that differences in inflation level are the results of persistence structural and country-specific factors. From the entire review it is evidence that none of the earlier studies within and outside Africa really looked at the growth convergence, except Latif (2010) that considered the CFA franc zone.

Theoretical Background

This study is anchored on the theoretical foundation of Neoclassical school on convergence as elaborated as follows;

Theoretical Foundation of Convergence

The production function in the West Africa Monetary Zone is considered to be that of Cobb-Douglas type (in this study that the production in the West (see equation 1) this is in consonance with Neoclassical (Solow and Swan (1956)) also adopted by Latif (2010)),

$$Y_t = K(t)^{\alpha} (A(t)L(t)^{1-\alpha} \qquad (1)$$

where Y(t) is the output level; K(t) is the production capital, A(t) is the level of technological advancement, and L(t) represent the labour of country considered at time (t), while A(L) stands for the country's labour input as an efficient unit. Also, the parameters α and $1 - \alpha$ are the inputs (mainly capital and labour) elasticities of production. In a competitive market, factor inputs are valued at their respective marginal costs. Therefore labour (L) and the level of technology (A) are assumed to increase at exogenous growth rates n and g. But

the rate of growth in population (n), generally varies from one country to another.

The accumulation of the factor is described by the following equation:

$$K(t) = S_K * Y(t) - k * K \qquad (2)$$

Where S_k is the capital- investment ratio and K the rate of depreciation of the stock of physical capital, also level of technology (A) and labour (L) change at given exogenous growth rates *g* and *n.* The resolution of the per capital stationery state

$$(y^* = Y/L) \qquad (3)$$

This implying that it is under a logarithmic form:

$$y^* = \ln A_0 + g_t + \frac{\alpha}{1-\alpha} \ln S_k + \frac{\alpha}{1-\alpha} \ln(n+g+k) \qquad (4)$$

The standard convergence specification is obtained by an approximation of the Taylor series around the stationery state, which leads to:

$$\ln y_t = \left(1 - e^{-\lambda\theta}\right) \frac{\alpha}{1-\alpha} \ln s_k - (1 - e^{\lambda\theta} \frac{\alpha}{1-\alpha} \ln(n + g + k) - \left(1 - e^{\lambda\theta}\right) \ln y_{t-\theta} +$$
$$(1-e^{\lambda\theta})A_0 + g\,(1- e^{\lambda\theta}(t - O) \qquad (5)$$

Where θ is the period in which equation (5) applies, while λ is the convergence rate or speed of convergence. This cross-sectional specification was an extension of the case of panels by Islam (1995); which is assumed to have several advantages over time series. Also, it makes it possible to control the differences in the initial stages of technology *AO*, which are reflected on the countries' specific fixed effects. Thus, the assumptions that *n* and *sK* are constant during the period θ are more realistic when they are applied to shorter periods. Finally, a panel approach makes it possible to have a greater number of observations.

By using the conventional notation in the literature on panel data, Equation 5 can be rewritten as:

$$\text{In}y_{it} = \gamma\ \text{In}y_{is-i} + \beta_1 \text{In}\ s_{it} + \beta_2 \text{In}(n + g + k) + \mu_i + \eta_t + \varpi_{it} \qquad (6)$$

With $\gamma = e^{-\lambda\theta};\ \beta_1 = \frac{a}{1-a}\left(1 - e^{\lambda\theta}\right) = \beta;\ \beta_2 = -\beta$

$\mu_i = (1\text{-}e^{-\lambda\theta})\text{In}\ A_0 =$ specific effect region(invariant time)

$\eta_t = g\left(t_2 - e^{-\lambda\theta t1}\right)$ = specific effect "time" (invariant region)

ω_{it} = the term of error is habitually assumed to be $(0, \delta^2)$

Imposing restrictions on β_2 in Equation 57 gives the final empirical model:

$$\ln Y_{it} = \gamma \ln Y_{it-1} + \beta \ln x_{it} + \mu_t + \eta_t \qquad (7)$$

Methodology

To exploit the cross section and time series dimension of the study data, the static panel data estimation techniques are adopted. The study estimated the three methods known in the literature, namely Pooled OLS, Fixed Effect Model (FEM), and the Random Effect Model (REM)) where applicable for the model, and the optimal result would be ultimately presented and fully discussed after diagnostic test. However, other results were equally presented but not fully discussed. The fixed effects estimates is used to correct problems such as omitted variable bias that may arise from pure cross section regressions (Islam 1995; Caselli et a1. 1997; Baltagi 2001). The fixed effects model also takes account of the unobservable country specific effects which are assumed to be fixed parameters to be estimated.

The Techniques of Analysis

As discussed earlier, the panel data analysis was employed, this is because of the nature of data involved in this study, that is, cross sectional and time series and it allowed for correction of those problems that are associated with pure time series analysis, such as problem of autocorrelation and heteroscedasticity. Furthermore, the methods used are either of the three variant of static panel analysis which include pooled ordinary least square, fixed or (and) random

effect models, the choice of which depend on the diagnostic tests such as Wald redundant test and the Haussmann test.

The Model Specification

To test for this study objective, the growth convergence model in equation (8) is estimated in accordance with Solow (1956); Swan (1956); and Latif (2010)).

$$(1/T)LN\left(Y_{i,t}/Y_{i,0}\right)=\alpha+\beta LN\left(Y_{i,0}\right)+\varepsilon_t \qquad (8)$$

Where Y represent rate of GDP growth rate, T is the time within the scope of study, β and α are the parameters to be estimated, β must be negative and statistically significant for convergence of the variable of intent to occur and LN imply natural logarithm, while ε is the error term. Equation (8) could be more explicitly rewritten as;

$$(1/)LN\ (GDPGR_{it}/GDPGR_{i,0}) = \propto + \beta\ LN\ (GDPGR_{i,0}) \qquad (9)$$

Results and Discussion

This section presents the various statistical results and their analyses and discussion. Starting with the descriptive statistics in Table 4.1, that consider averages and deviation of the economic growth rate of the integrating states, followed by the results of the three models of statics panel data in Table 4.2. The descriptive statistics gives an oversight analyses of various averages and dispersion of the dataset for individual integrating unit in WAMZ, while the panel data results and analysis gives an in-depth view of the Neoclassical convergence theory as discussed in the theoretical underpinning and methodology.

The Descriptive Statistics of Economic Growth in the WAMZ Area

Table 4.1: Descriptive Statistics of WAMZ Economic Growth Rate

	GAMGR	GHAGR	GUIGR	LIBGR	NIGGR	SLNGR
Mean	6.084615	7.423077	2.907692	9.061538	6.735385	9.346154
Median	6.800000	6.200000	3.000000	6.700000	6.600000	6.900000
Maximum	7.700000	14.00000	4.900000	23.20000	9.600000	21.60000
Minimum	1.300000	4.000000	-0.300000	4.600000	4.600000	4.300000
Std. Dev.	1.695507	3.298018	1.530502	6.016303	1.317805	6.023235

Skewness	-1.858448	0.876432	-0.510523	1.697817	0.282388	1.148987
Kurtosis	5.930014	2.422587	2.488801	4.278394	3.243733	2.660784
Jarque-Bera	12.13350	1.844884	0.706257	7.130834	0.204955	2.922698
Probability	0.002319	0.397547	0.702487	0.028285	0.902599	0.231923
Sum	79.10000	96.50000	37.80000	117.8000	87.56000	121.5000
Sum Sq. Dev.	34.49692	130.5231	28.10923	434.3508	20.83932	435.3523
Observations	18	18	18	18	18	18
Source: Author's Computation (2019).						

The average growth rates of all member states within the scope of the study are single digit which shows a fairly normal distribution in each country's growth rate. Also the median is more or less like mean and are closely related, this is apparent in the distribution of the skewness and kurtosis on average, for all member states The fair distribution is further confirmed by the results of the Jarque- Bera statistics that indicates that the individual's country growth rate are normally distributed, but may not guarantee the growth convergence. However, from the minimum (4.3) and maximum (21.6) values within the scope, the range (17.3) indicates a sort of dispersion within the scope but could be further be verified with standard deviation for individual country.

The statistical outcome of standard deviation for Nigeria (1.32), Guinea(1.53) and the Gambia (1.70) show a relatively lower standard deviation in their GDP growth, which translate to relatively stable growth rates, these was followed by Ghana with standard deviation of 3.30 which is a bit higher than the initial three countries earlier discussed,. Worse still, the standard deviation of the remaining two countries, that is, Sierra-Leone and Liberia was higher than the rest. The implication of this is that there is existence of disparity between and within the countries in the zone, it is an indication of growth divergence among the integrating nations. But whether or not there is convergence cannot be concluded at this point, nonetheless with further investigation through the panel regression model that depicts the Neoclassical convergence theory earlier discussed in the methodology, which is adequately discussed in the result in Table 4.2, reveals the growth convergence status of the integrating unit.

WAMZ Growth Convergence Panel Regression Results

The objective of this study is to examine whether economic growth in WAMZ countries has tendency to converge over time. This is because the hope for the

convergence of other macroeconomic variables rest on it. By growth convergence, is meant that the six economies that are concerned are assumed to be identical in terms of preferences, technologies and economic policies. However, this study employed convergence equation as evaluated in model (9) and the results obtained thereafter are presented in Table 4.2.

Table 2: WAMZ Growth Convergence Status

Dependent variable GYC			
Variables	Pooled LS	Fixed Effect	Random Effect
LOGGDPGR(-1)	-0.01965	-0.003887	0.010993
	0.0148)***	(0.7297)	(0.2774)
LOGGDP	0.001469	-0.002410	-0.001469
	(0.0309)	(0.0024)	(0.0217)
_CONS	0.03581	0.022257	-0.006634
	(0.0208)**	(0.4034)	(0.7306)
Wald F-test	0.4701		
P.V	(0.7977)		
Hausmann Test	12.707514		
Prob.Value	(0.0053)		
Convergence speed (%)	1.5%		
Half Life (Years)	35 Years		

Source: *Author's Computation (2019)*
The values in parenthesis depict probability value of preceding coefficient.
*** represents 1 per cent level of significance and ** stands for 5 per cent level of significance.

Table 2 shows the outcome of the test for growth convergence among the six West Africa Monetary Zone's countries. The existence of growth convergence means that the six countries in WAMZ have similar characterisation. The three models within the sphere of static panel data regression were estimated; however the pooled OLS was optimal, as suggested by the Wald post estimation test. From the result, the coefficient of a year lag of log growth of gross domestic product (LOGGDPGR(-1)) in both the pooled and fixed effect regression were correctly signed, but a cursory look at the Wald F-test suggests the acceptance of the null hypothesis that there is no fixed effect in the model. This implies that the pooled OLS model is optimal as reported in Table 4.2, and the result suggests that there is tendency for growth convergence among the six

economies of the WAMZ. The implication of this is that the characterisations of these countries are similar, in terms of production and consumption preferences, technologies and economic policy adoption and policy thrust. However, it could be predicted that, in the long run, the economies of these countries would be identical in terms of preferences, technologies and economic policies. This is in line with convergence theory, that state that, if poor nations adopt or replicate the technological know-how of the developed nations, that in the long run, the economies of the poor nations and that of the rich nations would converge (i.e. identical in term of production and consumption preference). Therefore, in long run, the level of growth of output or production in sluggish (in term of growth) countries in the WAMZ region will catch up with leading countries.

The result equally indicates a speed of convergence of 1.5% per annum, and the half-life that separate them (integrating units) from stationary state is estimated to be 35years. The implication of these two statistics is that, annually about 1.5% short run drift is corrected, while half-life of converge is given to be thirty-five years implying a seventy-year period of stable adjustment to equilibrium. These results further imply a long term adjustment period which is close to almost impossibility. However, the results obtained are in consonance with that of Latif (2010) who estimates for the Franc zone countries in West Africa, and came up with convergence speed of 1.5% and half-life of 48years that separate them from stationary state. Also, this study is in line with the outcome of study by Maleke (2008) who studied Southern African Custom Union (SACU) and found that the dovetailing units that make the union had reached a significant threshold of convergence, in addition to this, Taylor (2013) who evaluates the readiness of WAMZ countries for the formation of common currency also revealed that over time WAMZ will become a reality. But the study by Adam, Agyapong and Gyamfi (2012) was in contrast with this study's outcome because they found that the integrating units of WAMZ responded differently to common sources of shock.

In summary, it is worth noting that the speed of convergence simply shows the rate at which countries adjust to stable equilibrium on an annual basis or catches up with one another, while the half-life is the average life span to catch up with the leading unit(s) or member state(s).

Conclusion and Recommendations

This study, to a large extent showcases the potential success of the impending West Africa Monetary Zone. Among other things, it has laid bare information and expectations on the issue of convergence in the zone. This is done through the assessment of growth convergence among the six integrating countries of WAMZ and its subsequent outcome that show existence of growth convergence in the zone. The existence of growth convergence simply imply that all member states of WAMZ have common or similar characteristics, which further imply that the difficulty of concurrent achievement of both primary and secondary convergence criteria is surmountable. This gives hope about the potential of achieving the convergence criteria as a condition to kick start the much awaited monetary union. However, as much as the outcome of this research study indicates potential to achieving these criteria, some of the statistics should not be misunderstood. It is important to reflect on the fact that the speed of convergence is very low and that the half-life that separate the integrating units from their stable equilibrium state is equally too large (i.e. thirty-five (35) years). The implication of these two statistics is that the present asymmetric policy thrust applicable within the zone may not be able to achieve the expected results at stipulated time frame. Therefore, this study concludes that, to kick start this much awaited monetary union in the proposed zone, drastic economic and political decisions must be considered, this is because the life span for convergence is almost compared to never, but with a coordinated (symmetric) policy thrust, in my opinion, achievement of macroeconomic convergence conditions would be faster than empirically specified.

This study has resolved a number of issues bothering on the convergence of macroeconomic convergence criteria in the West Africa Monetary Zone (WAMZ). Therefore, in the light of the foregoing conclusions and having established the possibility of the six economies that made up WAMZ converging overtime, based on their similarities in preferences, technologies and policies, therefore following recommendations are made;

i. That the West Africa Monetary Zone (WAMZ) Convergence Council in consultation with the ECOWAS Convergence Council should coordinate both fiscal and monetary policies within the zone. This to a large extent, would hopefully, bring about uniformity in policy measures and implementation and, thereby, foster collaboration and development in the zone.

ii. A body of "think tank" should be set up and developed through continuous workshops and training programmes in conjunction with the developed countries that have succeeded in the implementation of monetary integration or union. This human capital would serve as the engine room for the development of the WAMZ. There could also be a rethink on the convergence criteria or adoption of alternative options for the implementation of the monetary union, for WAMZ to be a reality.

iii. The monetary union could start with the member countries that have achieved greater macroeconomic convergence criteria, while those lagging behind could join at future date. This to a large extent would bring about not only seriousness in pursuing achievement of the convergence criteria but also enhance policy discipline among integrating nations.

References

Adam A M., Agyapong D.A. & Gyamfi E. N (2012).Dynamic Macroeconomic Convergence in the West African Monetary Zone (WAMZ).*Journal of International Business and Management 1*(1), 31-40.

Adamgbe E.T. and Agu C.C. (2012). Monetary Policy Preferences in the West African Monetary Zone: Evidence from Dynamic General Equilibrium Models. *Electronic copy available at: http://ssrn.com/abstract=2200319.*

Amaefule, C. (2019) 1s WAMZ an Optimum Currency Area? *International Journal of Research and Scientific Innovation, 6*(12), 263-268.

Angeloni I. & Ehrmann M. (2007). Euro Area Inflation Differentials, *Topics in Macroeconomics, 7(*1), Article 24.

Asongu, S.A, Nwachukwu, J.C, Tchamyou V.S (2016) A literature survey on proposed African Monetary Union. *Working paper No. WP/15/042, African Governance and Development Institute (AGDI)*, Yaoundé.

Bakare-Aremu, T. A. (2016). Financial Liberalisation and Macroeconomic Convergence in West Africa Monetary Zone. An Unpublished PhD Thesis of The Department of Economics, University of Lagos, Nigeria.

Bakare-Aremu, T. A. (2018). Effect of Financial Liberalisation on Macroeconomic Convergence Variables in the West Africa Monetary Zone. *Journal of Social Sciences, (National Open University, Abuja, Nigeria*). *2*(2), 1-56.

Balogun E.D (2014). Can WAMZ Area Inflation Converge without an ex-ante Monetary Policy Coordination in the Zone? *International Journal of Monetary and Economic Integration, 13*(2), 32-65.

Baltagi H.B. (2001). *Economic Analysis of Panel Data*. Delhi. Wiley and Sons, Incorporated.

Calvin M., & Olumide A. (2014). Regional Financial Integration and Monetary Coordination in the West Africa Monetary Zone and the East African Community. *The Economist*.

Caprio G. & Honohan P. (2000). *Banking Crises, the Oxford Handbook of Banking*. Oxford University Press, Oxford.

Caselli F, Esquirel, G. & Femando, L (1997). Reopening the Convergence Debate. A New look at Cross Country Growth Empirics. *Journal of Economics growth, 1*(3), 363– 389.

Easterly, W., Islam, R. & Stiglitz, J. (2001). Shaken and Stirred: Explaining Growth Volatility. Annual World Bank Conference on Development Economics, Washington: World Bank.

Egwuikhide F.O. & Ogunleye E, K ((2011).Globalisation and Macroeconomic Convergence in West African Monetary Zone (WAMZ). *Journal of Monetary and Economic Integration 10*(1), 89-130.

Elliot S. (2020) West Africa's new 'eco' currency sparks division over timetable and euro peg A CNBC online news.

Ernest E (2005) Regional Currency Areas: Lesson from the West African sub region and Nigeria's policy stance. BIS working paper no 17.145-150.

Goeiemann W. (2007). Macroeconomic Policy and Institutional Convergence in Member States of Southern African Development Community (SADC). *An Economic Commission for Africa, South Africa office*, 1-42.

Gujarati D.N. (2004). *Basic Econometrics*, Fourth Edition, McGraw-Hill Companies

Harvey S. K. & Cushing M J (2015). Is West African Monetary Zone (WAMZ) a common currency area? *Review of Development Finance 5*(10), 53-63.

Hofmann, B., Remsperger, H. (2005). Inflation Differentials among the Euro Area Countries: Potential Causes and Consequences, *Journal of Asian Economics, 16*(3), 403-419.

Honohan, P. and Lane, P. (2003). Divergent Inflation Rates in EMU. *Journal of Economic Policy*, 358- 394.

Islam Nazirul, (1995).Growth Empirics, a Panel Data Approach. *The quality Journal of Economics, MIT press, 110* (4), 1127 –1147.

Kenen Peter, (1969). *The Theory of Optimum Currency Areas*: An Eclectic View.

Kumo W. L. (2011). Growth and Macroeconomic Convergence in Southern Africa, *Series N0130, African Development Bank*, Tunis, Tunisia.

Lane, P. R. (2000). Asymmetric Shocks and Monetary Policy in the Currency Union. *Scandinavian Journal of Economics, 1(*2), 585-604.

Latif A.G.D (2010). Convergence and Economic Integration in Africa: The Case of the Franc Zone Countries. *Africa Economic Research Consortium*,RP 200,.

Maiyaki, T.B (2016) The imperative for a West African Common Currency in the light of the Euro Zone Experience. *International Journal of Innovative Research and Development 5*(14), 36-40.

Maleke X. N. (2008). Macroeconomic Convergence in the Southern African Custom Union (SACU): A Panel Unit Root Analysis. *Economic Development and Policy Issues, University of Johannesburg, South Africa,* 1-88.

Mara, P. & André, V. P. (2011). Euro zone Inflation Differentials and the ECB. *Research Papers in Economics* - REPEC) D/2011/1169/014.www.repec.org

Mundell, R. B (1973), Uncommon Arguments for Common Currencies. The Economics of Common Currencies. *Proceedings of the Madrid Conference on Optimum Currencies Area,* 114 - 132.

Nnanna, O.J. (2007). Eco Currency: Is a Third Postponement Avoidable? *West African Journal of Monetary and Economic Integration 7*(1), 1-14.

Ojo, M.O. (2005). Towards a Common Currency in West Africa: Progress, Lessons and Prospect. *West African Journal of Monetary and Economic Integration, 5*(2), 47-79.

Peterson O.J, Anokye M.A and George. T (2017) Co -Movement of real exchange rates in the West African Monetary Zone. *Cogent Economics and Finance 5*(1), 1-18.

Popkova, E.G., Egbe, J.O. Akopov S.E & Popovsky S.N. (2012). The Integration of Economic Monetary Policy Systems of West African States; Positive or Negative Implications. .*Business and Entrepreneurship Journal, 1* (1) 1-12.

Simon, K.H and Mathew, J.C. (2018) Is West African Monetary Zone (WAMZ) a Common Currency Area? *Review of Developmental Finance 5*(2015)53-63.

Solow, R.M. (1956). A Contribution to the Theory of Economic Growth. *Quarterly Journal of Economics, 70*, 65-94.

Swan T.W. (1956). Economic Growth and Capital Accumulation. *Economic Record, 32*, 334–361.

Taylor J. A. (2013). Is West Africa Ready for a Common Currency: A study of WAMZ and the Eco, *The UCLA Undergraduate Journal of Economics*, 1-50, Princeton University.

Theo V. & Mogi X. (2013).Acquisition Finance and Market Timing "INSEAD". London School of Economics. *Working Paper Series* w7325, 1-105.

WAMI (2013) West Africa Monetary Institute, Accra, Macroeconomic Convergence Criteria, (Data Bank), www.wami-imao.org.

WAMI (2016) West Africa Monetary Institute, Accra, West Africa Monetary's Zone Strategic plan (2010- 2015) www.wami.org.

World Bank (2013).World Development Indicator, Washington, Washington D.C: World Bank.