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Abstract

This study presents an alternative reconsideration of traditional Optimum Currency Areas (OCA) macroeconomic convergence criteria as options for West African Monetary Zone (WAMZ) commencement, in the light of recent advancements in monetary theory. It presents micro-founded models, rooted in New Keynesian traditions to show that tests confirming widespread divergence from ideal macroeconomic benchmarks with unsustainable independent monetary and exchange rates pursuits and trade gravity models offer a more appropriate evaluating criterion for WAMZ than the current one, if the ultimate objective is a merger with West African Economic and Monetary Union (WAEMU). Using econometrics methods, especially pooled single models applied to national macroeconomic data which span 1991Q1 to 2007Q4, I evaluate the roles of past unsustainable independent national monetary and exchange rates policy pursuits as determinants of macroeconomic stabilizations (reflected by the inflation differential and output gaps/performance vis-à-vis the WAMZ area targets) and inter/intra-regional export performance. This was accompanied by the estimation of a trade gravity model. The strong convergence of aggregate output/demand pattern between WAMZ countries based on trade gravity models thus emerges as a possible positive attribute of countries participating in efficient currency areas.

Key Words: Optimum Currency Area, monetary policy, business cycles costs, exchange rates, WAM Z.

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1. Introduction

The evaluation of WAMZ feasibility has been guided by both the general and “shocking” studies criteria (Ojo 2005; Nnanna 2007). This approach insists on *ex ante* pursuit of macroeconomic policy convergence that leads to similarity of shocks and minimizes the costs of unionization (Mundell 1961, Kenen 1969) as a necessary precondition for the optimal operations of the OCA *ex post*. However, several such convergence reports to the WAMZ authorities by the West African Monetary Institute (WAMI) returned a verdict that WAMZ was unripe for commencement in 2003 but suggested 2005 that was ultimately deferred to 2009. Nnanna (2007) also relied on macroeconomic convergence criteria to ask if a third postponement of the Eco Currency introduction for the WAMZ is unavoidable. A few number of other studies used a VAR model to analyze asymmetric shocks in West Africa following the standard techniques applied in industrialized countries, as pioneered by Blanchard and Quah (1989) and Bayoumi and Eichengreen (1992). Among them are Fielding and Shields (2001 & 2003), Houssa and Leuven (2004), Ogunkola (2005) and Masson and Pattillo (2004) studies based on the optimum currency area literature, which focuses on asymmetries of shocks and fiscal distortions associated with independent monetary policy pursuits in the region. They show that countries that were very different with respect to fiscal distortion would be unattractive partners for a monetary union, because the central bank would produce undesirable outcomes for one or both of them. In most of these studies, Nigeria was identified as an unattractive partner for the WAMZ monetary union, while suggesting selective accession to existing monetary union by intending members of this union to the WAEMU.

Indeed, these traditional evaluation criteria tests provided by several studies on the desirability of the EMU were appropriate as the underlying basic assumptions of the model apply to market economies that are competitive, organized, developed and respond quickly to policy stimuli. However the application of this model to African and ECOWAS countries

characterized by less developed regimented markets tended to produce indeterminate and undesirable results.

There have emerged new literatures which show that real economic convergence which follow stronger trade ties rather than policy convergence may represent better evaluating criteria for the WAMZ. Among them is Frankel and Rose (1998), Rose (2000), Debrun, Masson and Pattillo (2003), Anyanwu (2003), Hausman et al. (2001), Corsetti and Pisentti (2005) and Corsetti (2008) that argues that irrespective of the stage of development and economic structures, membership of a currency union can boost intra-regional trade and could act as a veritable instrument for macroeconomic convergence *ex post*. Their findings show that important beneficial effects follow *ex post* a monetary union through the promotion of trade and central bank credibility induced by unionization, which acts as an ‘agency of restraint’ for otherwise undisciplined independent fiscal impetus and monetary stance. Hence tying the hands of the monetary authorities through a regional constrain on monetary policy in the context of a monetary union would be a good thing.

The problem this study is designed to examine revolves around mainly the failures of traditional evaluating criteria to lead to a determinate date for the commencement of the WAMZ. In particular, there is an urgent need to explore alternative models to macroeconomic convergence criteria. Such alternatives should capitalize on current socio-economic and financial structures of the WAMZ to show that *ex ante* convergence is unnecessary if the ultimate target is unification with WAEMU. In particular there is the need to show that current independent monetary and exchange rates policy pursuits neither served as instruments for macroeconomic stabilization nor global/intra-regional trade stimulation and that trade gravity models may represent a better test for the commencement of WAMZ than macroeconomic convergence criteria. The rest of the paper presents a brief overview of WAMZ performance with macroeconomic convergence criteria in part 2. Part 3 reviews the theoretical and analytical models. Part 4 presents the results while Part 5 the concluding remarks and policy implications.

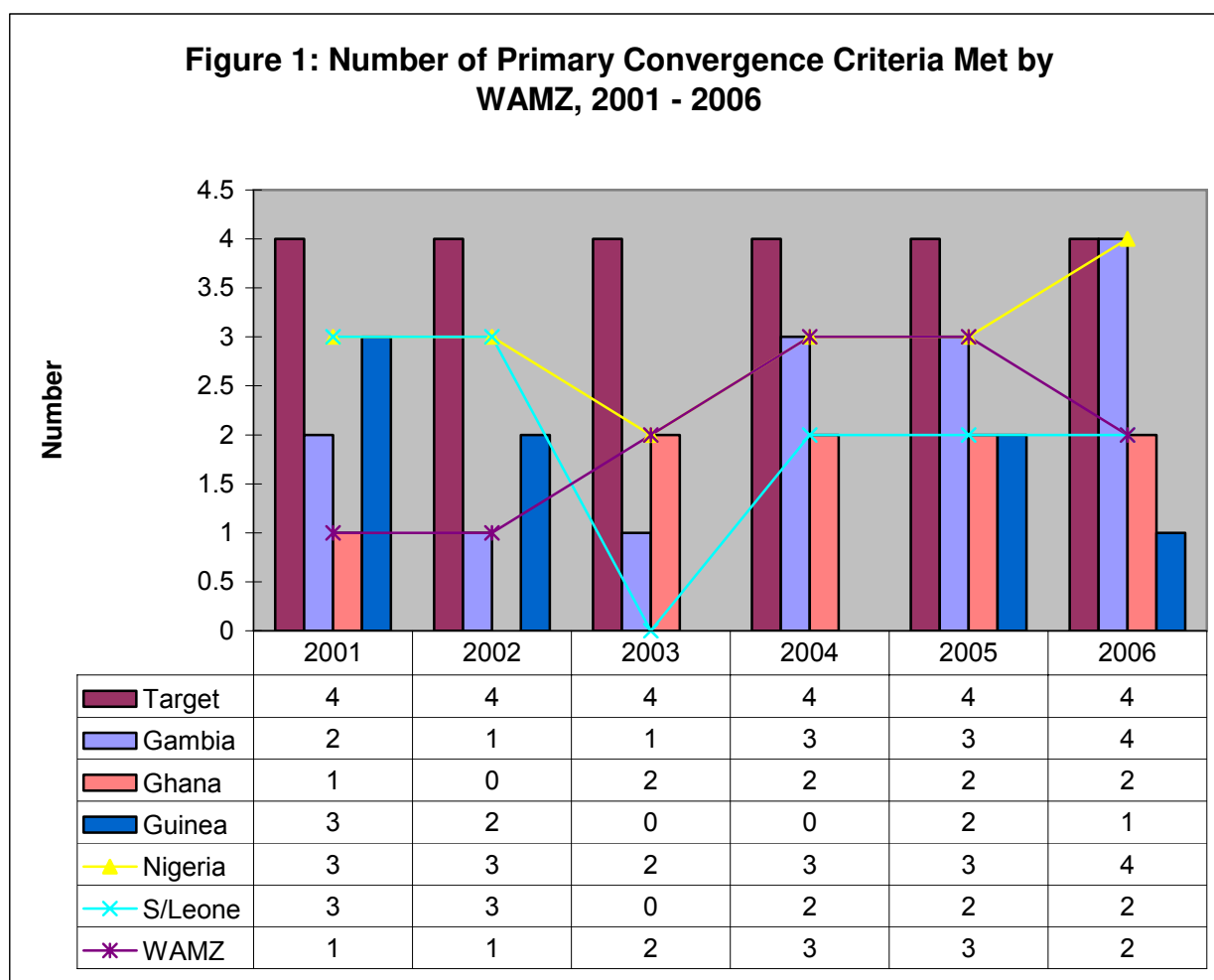
2. A Review of WAMZ Macroeconomic Convergence Criteria Targets and Performance, 2001-2006

These criteria has its origin in traditional OCA theory which believes that countries exposed to similar symmetric shocks and business cycles, or possessing mechanisms for the absorption of similar asymmetric shocks may find it optimal to adopt a common currency. Much of this literature focuses on four inter-relationships between the members of a potential OCA. As observed by Frankel and Rose (1998) these are: the extent of trade; the similarity of the shocks and cycles; the degree of labor mobility; and the system of fiscal transfers (if any). The greater the linkages between the countries using any of the four criteria, the more suitable they are for a common currency. These have been encapsulated in a number of primary and secondary quantitative targets that intending members of WAMZ must comply with prior to the commencement of the project. They include: the attainment of single digit inflation that is less than 10 per cent; a budget deficit (excluding grants) to GDP ratio that must be equal to or less than 4.0 per cent; central bank financing of the budget deficit that should be equal to or less than 10 percent of previous year's tax revenue and maintenance of external reserves to cover at least 3 months of imports. The targets for the secondary convergence criteria specified to compliment the primary ones are: that the level of domestic arrears should be equal to, or less than zero; tax revenue to GDP ratio must be equal to or greater than 20 percent; government wage bill to tax revenue ratio to be equal to or less than 35 percent; public sector investment to tax revenue ratio to be equal to or more than 20 percent; real interest rate to be greater than 0.0 percent, and lastly, the nominal exchange rate movement to be within the band of (± 15 percent)

Tables 1 show the summary of average regional performance of WAMZ participating countries with regard to the primary and secondary convergence criteria. The regional average performance shows that only the fiscal deficit/GDP ratio and maintenance of adequate foreign reserves criteria were met in 2006 on a region wide basis. However, when analyzed from the perspective of the number of participating countries that met the criteria, Figure 1 show that two countries, The Gambia and Nigeria met all the four primary criteria in 2006; Guinea and Sierra Leone

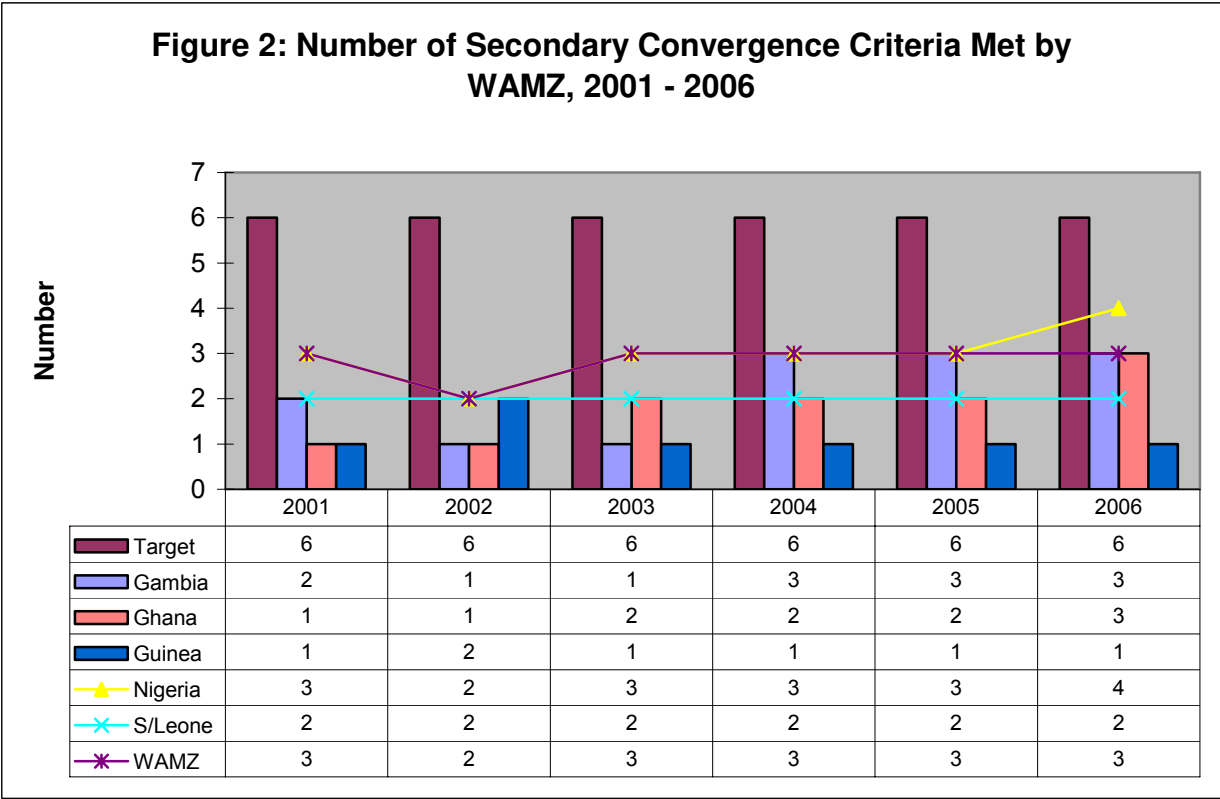
Table 1: Status of WAMZ Region-Wide Primary and Secondary Convergence Criteria Performance								
Primary Convergence Criteria Performance		Target	2001	2002	2003	2004	2005	2006
Inflation Rate (end period)		< 10%	15.2	11.6	22.1	11.5	13.4	11.5
Fiscal Deficit/Surplus/GDP (%) excl. grants		4 - 5%**	-4.2	-4.5	-2.8	-2.0	-1.7	-1.3
Central Bank Finchg. of fiscal deficit as % of prev. yr's tax rev.		< 10%	17.9	12.3	27.7	4.6	0.0	13.5
Gross External Reserves (Months of Imports) (*)		3 months	7.4	5.5	4.8	9.7	13.2	20.3
Number of Criteria Satisfied		4	1	1	2	3	3	2
Secondary Convergence Criteria Performance		Target						
Change in arrears		≤ 0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Tax revenue/GDP ratio		> 20%	14.70	10.70	12.10	15.20	19.40	15
Salary mass/Total tax revenue		≤ 35%	30.8	48.1	30.8	25.6	21.2	23.2
Domestically financed investment/Rev		> 20%	31.0	69.5	48.4	28.4	38.2	39.0
Real interest rate		> 0	-2.4	-1.3	-11.6	-6.3	-6.5	-5.9
Exchange rate Dep/App. (-/+) against WAMZ ERMII		+/- 15%	3.8	11.3	7.1	0.7	7.9	9.2
Number of Criteria Satisfied		6	3	2	3	3	3	3
(*) In months of imports CI; ** 5% in 2001 - 2002 and 4% in 2003-2006								
Source: Derived from data obtained from West African Monetary Institute Website: wami-imao.org								

met 2 out of the 4 primary criteria, while Ghana met 1. The graphical analysis of the extent of compliance with convergence criteria is as shown in Figures 2 and 3. Two inter-twined



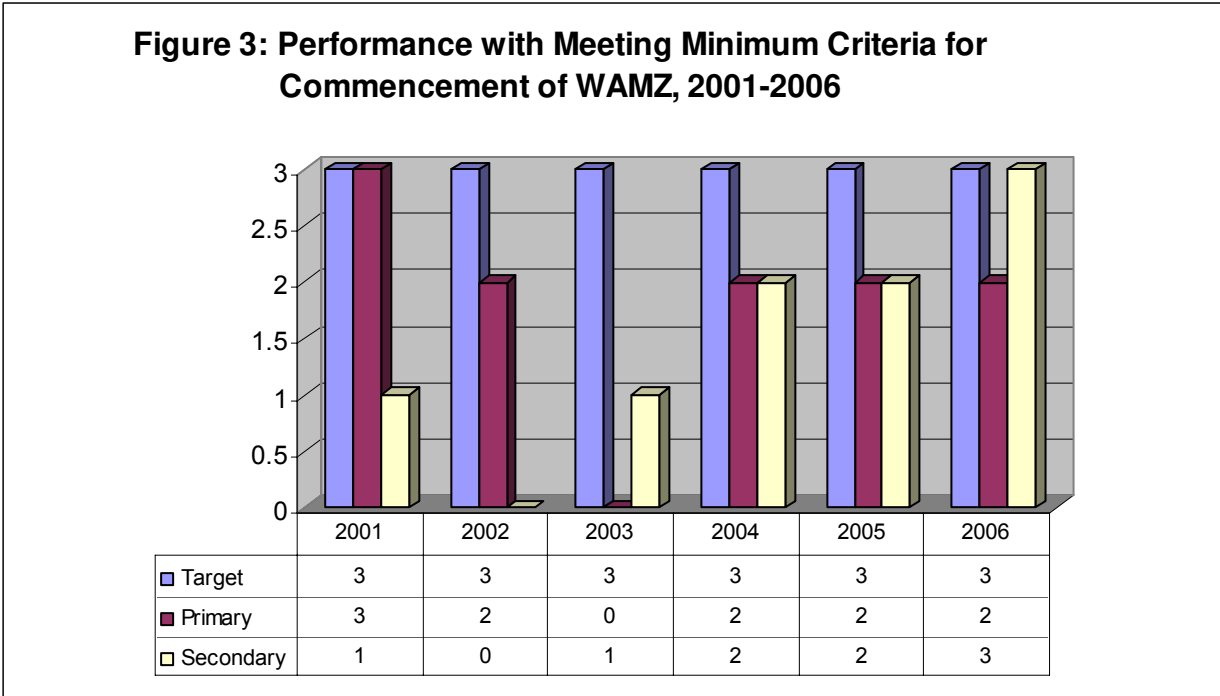
preconditions were set for the commencement of WAMZ. The first relates to participating countries eligibility criteria, which demands that they meet 4 primary and at least 6 secondary convergence criteria. The second relates to the commencement date of the WAMZ which stipulates that an optimal date would be one in which at least 3 countries meet a minimum of 3 primary and 3 secondary criteria immediately prior to the commencement of the union. While the first requires conscious effort of each participating country fiscal and monetary authorities towards adopting sustainable policies, the second requires the need for synchronization of such policies with the regional target set for the collective endeavors.

With regard to the first, the trend reflected in Figure 1 show that in 2004 to 2006, only two countries, the Gambia and Nigeria, progressed towards attaining the primary criteria. Both met the primary criteria in 2006. While Guinea progressively deteriorated in performance, Ghana and Sierra Leone met only two criteria during the period. The situation is most precarious with regard to meeting the secondary convergence criteria. While Nigeria met 4 of the secondary criteria, Gambia and Ghana met 3 out of the recommended 6 convergence criteria. What this translates to is that



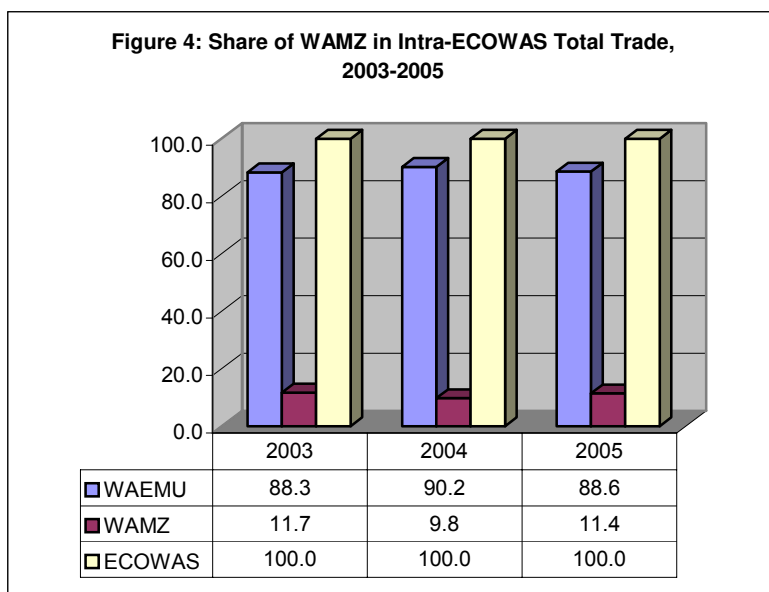
only two countries met the prequalification criteria for the membership of the union as the score card for Guinea and Sierra Leone has not been encouraging enough.

With regard to the second criteria, Figure 2 shows that since inception, the number of countries that met the primary convergence so far were 2, namely Gambia and Nigeria in 2006.



However, the precondition for takeoff requires that a minimum of 3 countries must satisfy at least 3 primary and 3 secondary convergence criteria. The best attainment so far is that while three countries met 3 secondary convergence criteria, only 2 of them met the primary criteria which are considered a *sine qua non* for the commencement of the programme. The most worrisome aspect of this situation is that there is no likelihood that up to 3 countries would meet these criteria given the didactic actions and apparent lack of policy coordination among them. This would therefore tend to suggest the inevitability of another postponement at the end of the terminal period of the third phase of the WAMZ project. It also tends to portend a gloomy prospect for the commencement of WAMZ within the foreseeable future.

The prospect for macroeconomic convergence remain slim, given the fact that trade relations among WAMZ member countries remain very small. Table 2 show the the average share of WAMZ intra-trade in total ECOWAS trade which stood at 2.76 percent in the period



2001 to 2005, with a peak of 3.22 per cent in 2003. Perhaps, the main reasons for this low level of trade relations include the use of multiple inconvertible currencies within the Zone, the narrowness of tradable products in member countries, existence of tariff and non-tariff barriers to trade,

multiple borders among the countries, and poor regional transportation infrastructure. These fundamental reasons had very little to do with macroeconomic convergence as it cannot stimulate trade relations except *ex ante* actions are taken in that direction through regional integration which includes ultimately a monetary union. One of the main objectives of creating the WAMZ is to promote trade among the members. Apart from the single currency agenda, other important elements of the program include the removal of tariff and non-tariff barriers to trade through the implementation of the ECOWAS Trade Liberalization Scheme (ETLS), the adoption of a Common External Tariff (CET), and the implementation of the Interstate Road Transit Convention by the member states. The implementation of the above measures, together with the creation of a single economic space in the Zone through the monetary union and single currency, are expected to significantly increase the volume of intra-trade in the Zone. Table 2

	2001	2002	2003	2004	2005	Avg.
The Gambia	0.41	0.29	0.42	0.37	0.38	0.37
Ghana	10.32	11.87	13.97	7.67	9.73	10.71
Guinea	0.25	0.35	0.40	0.76	0.34	0.42
Nigeria	0.20	0.19	0.30	0.36	0.36	0.28
Sierra Leone	4.16	2.96	1.01	1.07	0.94	2.03
Total: WAMZ intra-trade to total trade	3.07	3.13	3.22	2.05	2.35	2.76

Source: Derived from data compiled from ECOWAS website: ecowas.

show the total value of intra-ECOWAS total trade by all the countries according to sub regional groupings within the region. A comparison of the level

of intra- ECOWAS trade shows that WAMZ countries trade less with other ECOWAS countries

as it accounts for an average of 11% annually of total intra-regional trade in 2003-2005 (Figure 4). While WAEMU has other advantages over WAMZ, including the better contiguity of its states, the single currency of WAEMU is about the most important factor in the higher trade relations among its member states and has been credited as one major factor which fostered relative macroeconomic convergence. It is therefore expected that a successful launch of the Eco would significantly improve intra-trade relations in WAMZ and which could become a veritable instrument for macroeconomic convergence *ex post*.

3. The Theoretical and Analytical Framework

The reconsideration of WAMZ convergence criteria is designed to show that the inability to use monetary policy as instrument of independent macroeconomic stabilization is in itself a sufficient test to confirm the need for subscribing to a monetary union. The model adopted for this study draws from various New Keynesian models that have been used in part to analyze the inflation differentials in the euro area (i.e. the degree of non-convergence of prices {Hofmann and Remsperger (2005), Angeloni and Ehrmann (2007), Altissimo *et al.* (2005), and Honohan and Lane (2003)}, and partly on new micro-founded model of the costs of adopting common currency, relative to an ideal benchmark in which domestic monetary authorities pursue country specific efficient stabilizations (Corsetti 2008). In particular the empirical methodology specified for this study draws from Honohan and Lane (2003) and Horvath and Koprnicka (2008) who focus their attention to finding the relationship between inflation differentials and the role of exchange rate channel, output gap, fiscal policy, and the countries' relative price level in a panel of euro area countries using annual data over 1999-2001. Honohan and Lane (2003) postulated a fairly general specification for inflation differentials as:

$$\pi_{it} - \pi_t^E = \beta(z_{it} - z_t^E) + \delta([P_{it-1} - P_{it-1}^*] - [P_{t-1}^E - P_{t-1}^{E*}]) + \varepsilon_{it} \quad \dots \quad (Eq.1)$$

Where π_{it} and π_t^E are the annual national and euro zone inflation rates, respectively; z_{it} and z_t^E denote national and euro area variables that exercise short-term influence on the inflation rate; P_{it} and P_t^E denote the national and euro area price levels, P_{it}^* and P_t^{E*} represent the national and euro zone long-run equilibrium price levels. In order to account for long run convergence, in the face of tight trade and institutional linkages, Honohan and Lane (2003) assume a common long-run national and euro area price level, simplifying Eq. 1 as:

$$\pi_{it} - \pi_t^E = \beta(z_{it} - z_t^E) + \delta(P_{it-1} - P_{t-1}^E) + \varepsilon_{it} \dots \dots \dots \dots \quad (Eq.2)$$

Horvath and Koprnicka (2008) noted that it is easy to realize that a combination of euro area variables results in a time dummy, and as such re-wrote Eq. 2 as:

$$\pi_{it} = \phi_t + \beta z_{it} + \delta P_{it-1} + \varepsilon_{it} \dots \dots \dots \dots \quad (Eq.3)$$

Where they define the z in line with Honohan and Lane (2003) as:

$$z = [\Delta NEER_{it-1}, GAP_{it}, FISC_{it}] \dots \dots \dots \dots \quad (Eq.4)$$

Where $\Delta NEER_{it-1}$ is the lagged change of nominal effective exchange rate; GAP_{it} denotes the output gap, $FISC_{it}$ represent the fiscal deficit and P_{it} is the lagged price level. Horvath and Koprnicka (2008) estimated the following empirical specification:

$$\pi_{it} = \phi_t + \beta_1 \Delta NEER_{it-1} + \beta_2 GAP_{it} + \beta_3 FISC_{it} + \delta P_{it-1} + \varepsilon_{it} \dots \quad (Eq.5)$$

They noted that the time dummies (ϕ_t) in Eq. 5 capture the common movements in inflation, so that the regression explains the inflation differentials in terms of idiosyncratic national movements. Horvath and Koprnicka (2008) expectations of the coefficient on effective exchange rate β_1 is negative, as exchange rate appreciation is expected to decrease inflation rate. On the other hand, β_2 is expected to be positive, as higher output gap results in more inflationary environment. β_3 is likely to be negative, as fiscal surplus reduces aggregate demand and therefore contributes to lower inflation. The sign of δ is expected to be negative as lower price level is likely to be associated with higher inflation rate. They further posit that for

obvious reasons, output gap and fiscal balance can be endogenous to inflation and therefore estimated Eq. 5 by the generalized method of moments (GMM), where endogenous variables were instrumented by lagged values.

This model appears adequate for analyzing EU Euro areas, especially so since inflation targeting is a central objective of monetary policy. For the purpose of this study, I lean further towards Corsetti (2008) that analyzed monetary stabilization policies from a Neo-Keynesian perspective. Corsetti (2008) uses a new micro-founded model of the costs of adopting common currency, relative to an ideal benchmark in which domestic monetary authorities pursue country specific efficient stabilizations that encompass both demand and supply stabilization. The analytical framework is premised on the assumption of a closed economy populated by identical households, who derive utility from consumption of goods and leisure, i.e. their utility is decreasing in labour effort. In the tradition of macroeconomic models, especially as in many modern contributions to monetary theory, he posits that aggregate demand coincides with consumption expenditure, i.e. abstract from investment and government spending. From the demand side, Corsetti (2008) argues that if C denote aggregate consumption, and P its price (or CPI), then nominal aggregate demand is thus given by PC, and real domestic output Y_H coincides with real consumption expenditure, i.e. $C = Y_H$. Corsetti (2008) therefore related aggregate demand PC to a variable μ , which indexes the stance of monetary policy: a higher μ means that monetary authorities pursue expansionary policies, raising aggregate demand and thus nominal consumption. Corsetti (2008) therefore hypothesize that the dynamic aggregate demand in nominal terms which reflects optimal consumption and savings decisions by households can be written as follows:

$$\mu_t = \frac{1}{\beta(1+i)} \frac{1}{E\left(\frac{1}{\mu_t + 1}\right)} \dots \dots \dots \quad (Eq.6)$$

Where β is the discount factor reflecting consumers' impatience, E denotes expectations of future variables and the equation makes it clear that, for given expectations of future prices and future real demand, current spending (corresponding to the current monetary stance) μ is decreasing in the nominal interest.

From the supply side, Corsetti (2008) assumes that output is produced in many varieties by specialized small firms with monopoly power and characterized by production function such that: $Y_H = Z_H \ell$, where Z_H denotes the level of productivity, identical across firms, ℓ denotes employment under the assumption that Z_H vary randomly at business cycle frequency. He further assumes that if firms face demand for output that is constant price elastic and preset prices which maximizes their market value, such that it results from charging the equilibrium markup over expected marginal costs, the following equilibrium conditions obtains:

$$P_H = mkp * E[MC_H] = mkp * E\left[\frac{wage}{Z_H}\right] \quad \dots \quad (Eq.7)$$

Where the marginal costs MC_H , the nominal wage divide by productivity and the equilibrium markup mkp is a decreasing function of the elasticity of substitution. As the price is fixed over the production period, the (ex-post) realized markup will vary inversely with marginal costs. Corsetti (2008) assumes that labour market is competitive and varies proportionally with the monetary stance μ and linking both

$$MC_H = \left[\frac{wage}{Z_H}\right] = \left(\frac{\overbrace{\mu}^{\text{monetar policy stance}}}{\underbrace{Z_H}_{\text{productivity}}}\right) \quad \dots \quad (Eq.8)$$

Abstracting from Eq. 7, Corsetti (2008) characterized the natural rate of employment (output) if all prices were flexible (i.e. in the absence of nominal rigidities) by assuming that each firm would maximize current profit by charging the equilibrium markup over current marginal costs:

$$P_H^{flex} = mkp.MC_H = mkp.\frac{\mu}{Z_H} \dots \dots \dots (Eq.9)$$

Substituting the definition of μ , the production function $Y_H = Z_H \ell$, and re-arranging, yields the result that the natural level of employment (output), ℓ^{nr} , is constant:

$$\ell^{nr} = \frac{1}{mkp} \dots \dots \dots (Eq.10)$$

In the long run, ℓ^{nr} is a decreasing function given the monopoly of domestic firms and as goods become better substitutes, or regulation and competition policy reduces the average markups in the economy, the natural rate of employment and output rise. At business cycle frequencies, the natural rate of output fluctuates with productivity, i. e. $Y_H^{nr} = Z_H \ell^{nr}$.

For an efficient monetary stabilization, Corsetti (2008) examined the macroeconomic implications of random fluctuations in current and future productivity, and optimal policy response to stabilize the economy (demand shocks). . He therefore argued that holding monetary stance μ (hence nominal wages) fixed, a positive productivity shock (an increase in Z_H) lowers marginal cost *ex post*. But if prices are preset, firms cannot take advantage of higher productivity to lower prices and raise output: a fixed μ implies that aggregate demand is also fixed in nominal and real terms. As a result firms satisfy current demand using less productive inputs, while the positive productivity shocks opens a positive output gap: employment and output fall short of their natural rate, i.e., their equilibrium value in a flexible price allocation.

In response to an unexpected increase in productivity, monetary authorities can improve welfare by expanding aggregate demand via expansionary stance (in the case of positive shocks (and contracting it in response to a negative shock, as to rule out over-heating and excess employment). This it can do by setting monetary policy such that nominal marginal costs are constant during the period:

$$MC = \frac{\mu}{Z_H} = \tau \quad \dots \quad \dots \quad \dots \quad \dots \quad (Eq.11)$$

If the above holds, i.e. if private agents expect the central bank to credibly pursue rules such that $\mu = Z_H \tau$, optimal prices would remain constant in nominal terms also in the absence of nominal rigidities as there would be no difference between the Eq. 7 and Eq. 9. Thus, a monetary rule that satisfies this condition make nominal rigidities inconsequential, in that the sticky price allocation coincides with the flex-price allocation and the economy operates at a natural rate. Corsetti (2008) observed that Eq. 11 requires a central bank to commit to (a) align aggregate demand and (b) keep the price level along the predetermined path, indexed by τ .

With regard to interest rates and demand stabilization, Corsetti (2008) noted that traditional models of stabilization would require central banks to pursue interest rates policy corresponding to the optimal stabilization policy by substituting Eq. 11 into the dynamic demand equation, that is:

$$\frac{1}{\tau Z_H} = \beta (1 + i) E \left(\frac{1}{\tau_{+1} Z_{H+1}} \right) \quad \dots \quad \dots \quad \dots \quad \dots \quad (Eq.12)$$

He then derived the interest rate corresponding to the implementation of the optimal stabilization policy as:

$$i = -\ln \beta + \ln \frac{\tau_{+1}}{\tau} + \ln \frac{1}{Z_H} - \ln E \left(\frac{1}{Z_{H+1}} \right) \quad \dots \quad \dots \quad \dots \quad \dots \quad (13)$$

Corsetti (2008) concludes from this expression that given the path of price levels τ to which a central bank commits when it defines inflation targets at different horizon, and holding expectation of future productivity constant, the natural rate of interest falls with current productivity gains – which, in the absence of a contingent optimal reaction by monetary authorities, would open a positive output gap that rises with anticipated productivity growth. He further maintains that the need to promote a non-inflationary growth as in the condition in Eq.

11 would require that monetary authorities not only respond to current productivity shocks, but also to current aggregate demand disturbances.

Against this framework, Corsetti (2008) analyzed and compared the costs of losing monetary autonomy when it translates into insufficient stabilization of national business cycles to the apparent noise generated by subscribing to a common monetary policy rules. He characterized the main inefficiencies from insufficient stabilization in terms of relative price distortions, which translates into suboptimal level of output and consumption. He therefore argued that if the central bank does not stabilize marginal costs completely, demand does not fall optimally when productivity is low. With preset prices, these turn out to be too high relative to factor costs, and firms supply too much relative to the flex-price level of output, and vice versa. He therefore concludes that a highly unstable monetary policy could potentially produce large welfare losses, up to dwarfing the costs of insufficient stabilization.

Corsetti (2008) introduced trade and international interdependence into the model via nominal exchange rates under the assumption that growth rates of marginal utilities are equalized across countries in Purchasing Power Parity. He argues that if the two countries involved in trade are perfectly symmetric *ex ante*, it means that wealth and consumption are always equalized in nominal terms across countries. This implies that exchange rate depends on both home and foreign monetary stance. He concludes that a commitment to a monetary union (in which the two countries adopt a common currency or irrevocably pegged exchange rates offer a least cost than two national monetary authorities acting independently or even under an international monetary policy coordination but which yields undesirable results.

Empirical Models

The empirical models to be estimated rely very strongly on the theoretical foundations of these New Keynesian models. Two fundamental equations would be estimated in line with neo-

Keynesian framework that independent monetary policies target both inflation and output as the central theme of macroeconomic stabilization.

With regard to aggregate price stabilization around a preset target or benchmark, I adopt Horvath and Koprnicka (2008), i.e. Eq. 3:

$$\pi_{it} = \phi_t + \beta z_{it} + \delta P_{it-1} + \varepsilon_{it} \dots \dots \dots \dots \quad (Eq.3)$$

but with significant modifications. Whereas they define the vector z of Eq. 3 as:

$z = [\Delta NEER_{it-1}, GAP_{it}, FISC_{it}]$ where $\Delta NEER_{it-1}$ is the lagged change of nominal effective

exchange rate; GAP_{it} denotes the output gap, $FISC_{it}$ represent the fiscal deficit and P_{it} is the

lagged price level, I redefine the vector z as: $z = [\Delta NER_{it-1}, y_{it}, M_2, CP_{it}, CG_{it}, i_{it}]$ where

ΔNER_{it-1} is the lagged change in nominal exchange rate of the national currencies to the US \$,

their dominant reserve currency; y_{it} denotes the real output while M_2 is money supply,

which is an important component of independent monetary policy targets of WAMZ countries,

in the light of pursuits of multiple objectives of macroeconomic stabilization policy; CP_{it} and

CG_{it} represents banking sector credit to private and government sectors respectively, to capture

the loose stand of monetary policy with regard to government borrowing and the extent of bias it

implies for private sector credit; and finally, i_{it} denotes the overall interest rate policy stance of

the monetary authorities, represented in this model by the monetary policy rate or minimum

rediscount rates. This gives us the following empirical specification:

$$\pi_{it} = \phi_t + \beta_1 \Delta NER_{it-1} + \beta_2 y_{it} + \beta_3 CP_{it} + \beta_4 CG_{it} + \beta_5 M_2 + \beta_6 i_{it} + \delta P_{it-1} + \varepsilon_{it} \dots \quad (Eq13)$$

Whereby π_{it} is the net inflation differential of each participating country from optimal targets;

ϕ_t represents cross-sectional fixed effects constants of independent movements in inflation

differentials within the panel; β_s are regression coefficients of the included explanatory

variables, δ the regression coefficient of past trends in aggregate price level.

The expectation of the coefficient of nominal exchange rate β_1 is negative, as exchange rate appreciation is expected to decrease inflation rate. On the other hand, β_2 is expected to be positive, as higher output gap results in more inflationary environment. β_3 is likely to be negative, as expansion in credit to the private sector is expected to lead to output expansion (a positive shock) and therefore contributes to lower inflation. β_4 is likely to be positive, as expansion in credit to government is expected to lead to expansion in aggregate demand and therefore contributes to higher inflation. β_5 is likely to be positive, as expansion in in aggregate money supply is expected to lead to expansion in aggregate demand and therefore contributes to higher inflation. β_6 is likely to be negative, as lower interest rates is expected to lead to output expansion (a positive shock) and therefore contributes to lower inflation. The sign of δ is expected to be negative as lower price level is likely to be associated with higher inflation rate.

This specification presupposes that the only ultimate objective of independent monetary policy is the need to stabilize local currency prices via interest rates operating procedures that supports low inflation and an exchange rates management (via expenditure switching transmission mechanisms) that minimizes demand for foreign goods.

However, price stabilization around the optimal path is not the only objective of monetary policy of the WAMZ countries as a number of rigidities exist which inhibits the capacity of factor prices such as interest and exchange rates from performing effectively expenditure switching transmission mechanism. Indeed, these economies are characterized by large non-tradable sector which tends to compromise efforts at domestic and foreign price stabilization. In line with Corsetti (2008), monetary policy stance can also give rise to welfare losses due to insufficient stabilization derived from the case in which domestic productivity shocks are purely idiosyncratic. This suggests a reformulation of Eq. 13 to reflect the effect of monetary policy stance on productivity shocks or output gaps:

$$y_{it} = \vartheta_t + \alpha_1 \Delta NER_{it-1} + \alpha_2 \pi_{it} + \alpha_3 CP_{it} + \alpha_4 CG_{it} + \alpha_5 M_2 + \alpha_6 i_{it} + \lambda y_{it-1} + \varepsilon_{it} \quad (Eq.14)$$

Where both the dependent and explanatory variables are as defined earlier, while \mathcal{G}_i refers to the fixed effects constants of the pooled regression equation. All the α s are the coefficients of the explanatory variables of the model, while λ represents the coefficient of the lagged value of output gap.

The expectation of the coefficient of nominal exchange rate in Eq. 14 α_1 is neutral since a home nominal depreciation following a home monetary expansion has no expenditure switching effects, but can potentially worsens terms of trade in favour of the foreign partner in trade. It can be potentially harmful if the foreign exchange content of domestic production is very high. On the other hand, α_2 is expected to be negative, since higher widening gap of inflation from desired level could lead to higher costs of production and consequently lower output. α_3 is likely to be positive, as expansion in credit to the private sector is expected to lead to output expansion (a positive shock) and therefore contributes to higher growth in output. α_4 is likely to be negative, if the potential goal of macroeconomic stabilization is to reduce the gap between consumption and its efficient level, which may vary with time depending on the state of the economy. Credit to government and especially monetary authorities borrowing from the public through public debt instruments as part of monetary control measures can critically stifle credit to the private sector, with a crowding out effect and adverse effect on output. α_5 is likely to be negative if an expansionary monetary stance originates from fiscal indiscipline, weak monetary authorities that lacks autonomy to restrain fiscal authorities or from inability of the monetary authority to adopt an appropriate monetary framework in the face of deep internal economic distortions. This would generally have adverse effects on output. α_6 is expected to be negative, in line with Corsetti's (2008) argument that given the path which monetary authorities commit when it defines inflation targets at different horizon, and holding expectation of future productivity constant, the natural rate of interest falls with current productivity gains. This could potentially open a positive output gap in the absence of a contingent optimal reaction by

the monetary authorities, which rises with anticipated productivity growth. The sign of λ is expected to be negative as lower past values of output level is likely to be associated with higher output gap.

A combination of the two equations shows that a highly unstable monetary policy could produce simultaneously larger welfare losses which could be far more destabilizing than the costs of insufficient stabilization that is associated with loss of monetary autonomy. These losses arise firstly through destabilizing impact on prices, and secondly through supply shocks effects and it is higher than the costs of losing monetary autonomy when it translates into insufficient stabilization of national business cycles.

Alternative Trade Gravity Model Test

The analytical model estimated in this section is rooted in the trade gravity models as propounded by Frankel and Rose (1997), Rose (2000) and Masson and Pattillo (2004). These authors maintained that a typical gravity model is usually specified to include as explanatory variables the product of the two countries' real GDP, both in levels and per capita, the distance between them, and the land areas of the two countries. In addition, a number of dummy variables are included to capture the possible effects of common features of the countries: membership in a free trade area or currency union, a common language, border, or colonizer, etc. The gravity equation is typically specified in logarithms, so that:

$$\ln(X_{ij}) = \beta_0 + \beta_1 \ln(Y_i Y_j) + \beta_2 \ln\left(\frac{Y_i}{Pop_i} \frac{Y_j}{Pop_j}\right) + \beta_3 \ln(Area_i Area_j) + \sum_{k=1}^n \beta_{3+k} D_k \dots \quad (Eq.15)$$

Whereby X_{ij} is the bilateral trade between the two countries, Y is the real output, Pop is the population, Area denotes the land mass, D the various dummy variables. This specification is consistent with Rose (2000) and a number of others. It was also observed that the other variant of the endogeneity of OCA model as estimated by Frankel and Rose (1997) can be rendered as:

$$Corr(Q_i, Q_j) = \alpha + \beta \log(TI_{ij}^T) + \lambda B + \theta |Y_i - Y_j| \dots \dots \dots \quad (Eq.16)$$

This was however modified by Fidrmuc (2001) to include intra-industry trade intensity as one of the explanatory variables as follows:

$$Corr(Q_i, Q_j) = \alpha + \beta \log(TI_{ij}^T) + \gamma IIT_{ij} + \lambda B + \theta |Y_i - Y_j| \quad \dots \quad (Eq.17)$$

Whereby:

Bilateral Trade Intensity is defined as:

$$TI_{ij}^T = \frac{T_{ij}}{T_i + T_j} \quad \dots \quad (Eq.18)$$

Whereby Co-mov(Qi,Qj) stands for the co-movement of real gross domestic product , Q of country i and j.; TI_{ij}^T denotes the natural logarithm of bilateral trade intensity between country i and j defined in relation to export, import or total trade; IIT_{ij} is a measure of intra-industry trade intensity; B is defined as the log of distance between a country or region and the nearest member; Y denotes the national incomes of the countries.

Abstracting from the above models the explicit form of the trade gravity model that is estimated in this section can be rendered as:

$$\ln(BETI_{ij}^E) = \beta_0 + \beta_1 \ln(Y_{Ri} Y_{Rj}) + \beta_2 \ln\left(\frac{Y_{Ni}}{Pop_i} \frac{Y_{Nj}}{Pop_j}\right) + \beta_3 \ln(IITE_{ij}^{AG}) + \beta_4 \ln(IITE_{ij}^{AGMI}) + \sum_{k=1}^n \beta_{4+k} \ln(D_k) \quad \dots \quad (Eq.19)$$

And

$$\ln(BMETI_{ij}^{ME}) = \beta_0 + \beta_1 \ln(Y_{Ri} Y_{Rj}) + \beta_2 \ln\left(\frac{Y_{Ni}}{Pop_i} \frac{Y_{Nj}}{Pop_j}\right) + \beta_3 \ln(IITME_{ij}^{AG}) + \beta_4 \ln(IITME_{ij}^{AGMI}) + \sum_{k=1}^n \beta_{4+k} \ln(D_k) \quad \dots \quad (Eq.20)$$

Whereby the

variables are defined as follows:

$$BETI_{ij}^E = \frac{BTE_i + BTE_j}{TME_i + TME_j} \quad \dots \quad (Eq.21)$$

$$BMETI_{ij}^{ME} = \frac{BTME_i + BTME_j}{TTME_i + TTME_j} \quad \dots \quad (Eq.22)$$

And BET_{ij}^E , $BMET_{ij}^{ME}$, BTE_i and BTE_j $BTME_i$ and $BTME_j$ $TTME_i$ and $TTME_j$ denotes the bilateral export and total trade; Y_{Ri} Y_{Rj} , Y_{Ni} and Y_{Nj} are the real and nominal GDP of countries i and j. IIT_{ij}^{AG} is the ratio of the agricultural (intra-industry) trade intensity of both countries; IIT_{ij}^{AGMI} is the ratio of the agricultural and mining (intra-industry) trade intensity of both countries; D_1 is a dummy for adjacency or common border; D_2 is a dummy for common language; D_3 is a dummy for common currency and D_4 is a dummy for common colonial ties

4. **Empirical Results**

The specific models estimated in this section are Eq. 13 , 14, 19 and 20.

$$\pi_{it} = \phi_t + \beta_1 \Delta NER_{it-1} + \beta_2 y_{it} + \beta_3 CP_{it} + \beta_4 CG_{it} + \beta_5 M_2 + \beta_6 i_{it} + \delta P_{it-1} + \varepsilon_{it} \quad \dots \quad (Eq.13)$$

$$y_{it} = \vartheta_t + \alpha_1 \Delta NER_{it-1} + \alpha_2 \pi_{it} + \alpha_3 CP_{it} + \alpha_4 CG_{it} + \alpha_5 M_2 + \alpha_6 i_{it} + \lambda y_{it-1} + \varepsilon_{it} \quad (Eq.14)$$

The estimate of Eq. 13 is reported in Table 3 and it provides the pooled regression estimation of the monetary policy instruments determinant of inflation divergence in the WAMZ region. The regression results of Eq. 14 is reported in Table 4 which show firstly, the implication of independent monetary policy pursuits on business cycles divergence or shocks (output gaps); and secondly the determinants of aggregate output performance given the national monetary policy stance of WAMZ participants. These results would be discussed and inferences drawn under two sub headings: (i) “Partial Effects of National Monetary and Exchange Rate Policy on Inflation Divergence” which analyses the single pooled equation estimate for Eq. 13 and (ii) “Partial Effects of National Monetary and Exchange Rate Policy on Output Performance” which analyses the pooled single equation estimate for Eq. 14.

(i) **Partial Effects of Independent National Monetary and Exchange Rate Policy on WAMZ Inflation Divergence**

Table 3 presents the regression results of the effects of independent monetary policy stance on inflation convergence around the less than 10 per cent target set for the commencement of WAMZ. The adjusted R^2 value, which measures the overall goodness of fit of the regression, show that independent monetary policy stance variables could only account for about 45 per

Table 3: Pooled Single Equation Regression Results					
π_{it} for the Partial Effects of Monetary and Exchange					
Rate Policy on WAMZ Inflation Divergence (Equation 3.12)					
Dep. Variable: Inflation Differential:					
Method: Pooled EGLS (Cross-section SUR)					
Sample (adjusted): 1991Q3 2007Q4					
Included observations: 66 after adjustments					
Cross-sections included: 5					
Total pool (balanced) observations: 330					
Linear estimation after one-step weighting matrix					
Variables		Coefficient		Statistics	
Name	Symbol	Name	Value	t-Stat.	Prob.
Constant		ϕ_t	-2.07	-1.2	0.23
Nom.ER App/Dep.	?NER _{it-1}	β_1	0.021	1.6	0.11
Real Output Shock	y_{it}	β_2			
Credit to Pr. Sect.	Cp _{it} (-1)	β_3	-0.000012	-3.7	0.00
Credit to Govt.	CG _{it} (-2)	β_4	-0.000001	-0.8	0.43
Money Supply:	M ₂ (-1)	β_5	0.00001	4.3	0.00
Monetary Policy Rate	Log i_{it}	β_6	2.25	4.0	0.00
Lagged Aggr. Price (CPI)	P _{it-1}		-0.011	-2.5	0.01
Fixed Effects (Cross)					
_GAM-C			-1.40		
_GHA-C			0.90		
_GUI-C			-2.40		
_NIG-C			2.71		
_SLN-C			0.19		
Weighted Statistics					
R-squared	0.47	Mean dependent var		0.96	
Adjusted R-squared	0.45	S.D. dependent var		1.29	
S.E. of regression	0.97	Sum squared resid		298.4	
F-statistic	28.41	Durbin-Watson stat		1.47	
Prob(F-statistic)	0.00				
Source: Estimated using Eviews 6.1					

cent of inflation divergence from set targets. It can be inferred that efforts at macroeconomic (price) stabilization around a desired target was not attained. Over the sample period, the un-weighted average regional inflation rates were most often above a single digit target and vary widely among the countries. The summary of the descriptive statistics associated with the inflationary pattern displayed in Figure 5 is as shown in Table 4. This table shows that except for Gambia, all the WAMZ countries

have had astonishing records of double digit inflation. The country that recorded the minimum inflation rate during the study period is Gambia at an average of 5.6 per cent while Sierra Leone recorded the maximum average inflation rate of 29.3. The table also shows that for more than half the period under review, both Gambia and Guinea recorded single digit inflation with the median statistics estimated at 3.3 and 7.0 per cent, respectively. These two countries can be described as the low inflation group among WAMZ while Nigeria and Ghana are the highly inflation group, with Sierra Leone joining the club after a protracted period of political crisis and instability.

The overall estimate of the fixed effects constant, ϕ_i , show significant variation in its value across the participating countries in WAMZ. Whereas, it exhibited a negative spread from the regional average in the case of the Gambia and Guinea, the countries with low records of inflation, it is positive for Nigeria, Ghana and Sierra Leone that have poor records of inflation control. This finding tends to confirm that there is a wide divergence among the participants with regard to the average outcomes of price stabilization efforts, with very slim hope for attaining convergence with independent monetary policy pursuits. The trends in national consumer prices displayed in Figure 6 shows the divergent growth path of prices in

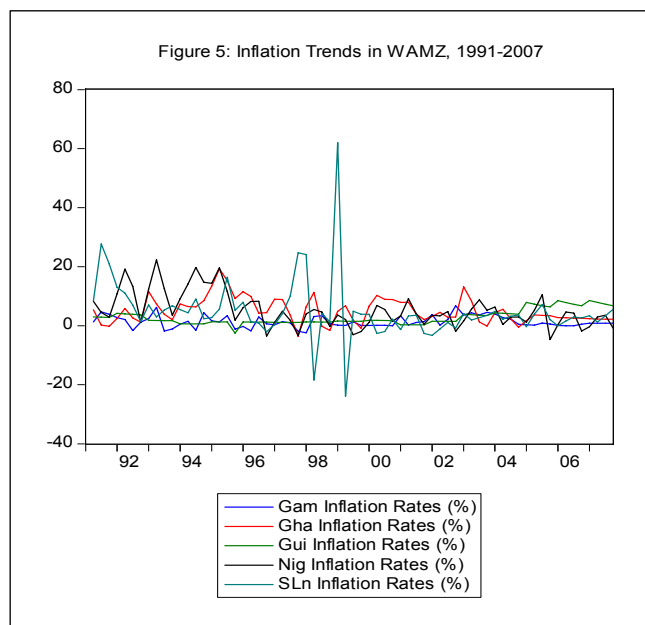


Table 4: WAMZ Inflation Descriptive Statistics, 1991Q1 to 2007Q4

	Gambia	Ghana	Guinea	Nigeria	S/Leone
Mean	5.6	23.1	12.2	25.3	29.3
Median	3.3	16.4	7.0	16.9	14.1
Maximum	29.9	102.3	38.7	123.7	588.2
Minimum	-9.2	-13.8	-9.6	-17.5	-66.3
Std. Dev.	8.3	21.1	11.2	30.2	78.6
Skewness	0.7	1.2	1.0	1.3	5.6
Kurtosis	3.2	4.9	3.0	4.6	39.6
Jarque-Bera	5.4	26.1	11.2	26.8	4083.5
Probability	0.1	0.0	0.0	0.0	0.0
Sum	378.1	1550.4	817.5	1693.5	1966.0
Sum Sq. Dev.	4518.9	29260.6	8280.8	60079.2	408136.0
Observations	67.0	67.0	67.0	67.0	67.0

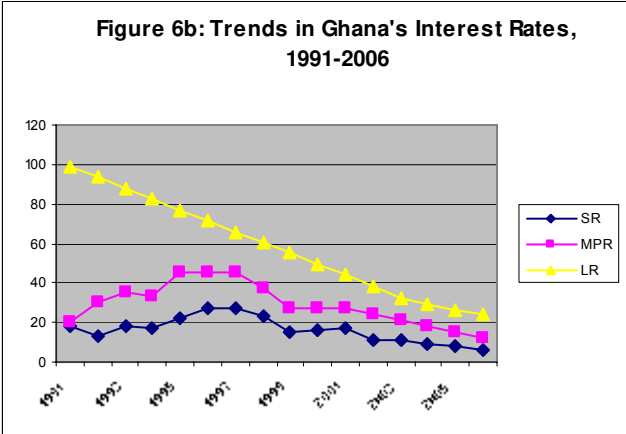
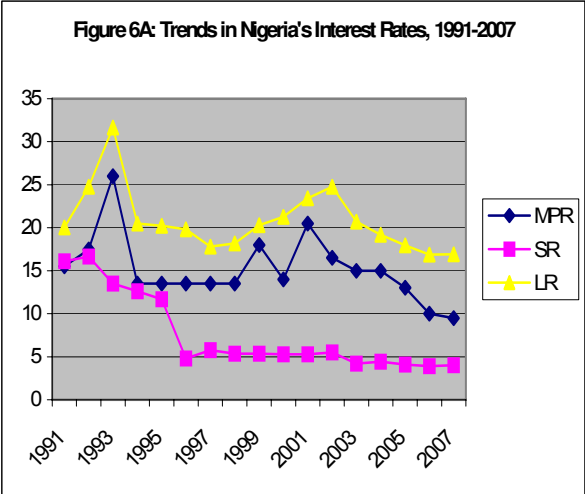
Source: Estimated with Eviews 6.1 from the Regression Data

these countries. The regression result also shows that the major monetary policy instruments determinants of inflationary divergence are the pursuit of distorted interest rates and expansionary monetary policies, which penalized credit and accentuated output supply/demand gaps, and exchange rates overvaluation.

With regard to interest rates policy stance, the result shows that a 1% rise in interest rates generates about 2.25% rise in inflation rates. This means that high monetary policy rates translated into high lending rates in virtually all the countries within the region. Two

fundamental issues belie the independent interest rate policies of WAMZ countries: firstly, is the lack of clear cut policy rules for an objective determination of optimal interest rates. The independent monetary authorities seem to set interest rates arbitrarily, neither following Taylor's rules or the Neo Keynesian framework as the pass-through mechanism to inflationary control. The experience in Ghana and Nigeria is that monetary authorities were more concern with the adverse implication of cheap funds for foreign exchange management. This was with a view to fostering both internal and external balance within a Mundellian framework of balancing the use of monetary policy represented by interest rate/reserve money control and fiscal policy represented by government expenditure. This attempt was a colossal failure because monetary policy rates hike meant for stemming excess national demand could not restrain fiscal borrowing via ways and means, as well as through public debt instruments.

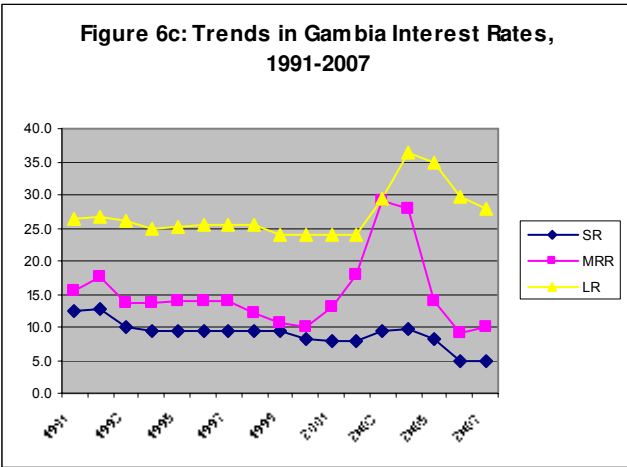
The second is the pervasive internal economic distortion which accompanied the interest rates policy stance, especially the widened divergence between low savings rate which inhibits savings mobilization and high lending rates which resulted in credit apathy by both lenders and borrowers. Financial market operators, especially the banking system capitalized on the distortions to diversify their portfolios from lending to speculations in money markets, in the face of a wide spread margin between savings and treasury bills rates which moved in tandem with the monetary policy rates.



Figures 6a and 6b show that both Nigeria and Ghana kept monetary

policy rates high, even when savings rates suggest lower costs of funds, while the Gambia aligned her monetary policy rates to savings rates which eliminated speculations.

The coefficient of the change in nominal exchange rate variable is not significant, contrary to the expectation that devaluations drive the inflationary pressures of these countries. It is however positively signed implying that it could potentially be a cause of inflation. This result is expected,



since the currencies of these countries are non-traded but pegged to a basket of currencies dominated by the US \$. The availability of the US Dollar quantitatively becomes the issue, while the effects of devaluation translate to imported inflation on a narrow basket of imported consumer and capital goods. The experience, in most of the countries is that consumers resorted to local alternatives, while the significant efforts at foreign exchange controls through restrictive tariffs and quantitative controls accrued as rents to protected industries and traders. This finding re-enforces the assertion that devaluation as an instrument of demand management approach to macroeconomic stabilization is rather ineffective to cope with economies that suffer from deep structural maladjustments.

The coefficient of the past trends in national aggregate prices on inflationary convergence is significant and rightly signed. The result showed that a 100% decline in aggregate price level would reduce the inflation gap by about 1.1%. This natural growth path suggests that indeed inflation is not a monetary phenomenon and that macroeconomic losses which emanated from inadequate stabilization would be far greater than the noise generated from subscription to a convergence stance rooted in common monetary and exchange rates stance. Also, credit to private sector exhibited the expected right and significant but inelastic relationship to inflation while credit to government variable turned out to be insignificant. This

also confirms that it may not be very correct to blame fiscal indiscipline reflected in public sector borrowing from the banking system for spiraling inflation as the monetary authorities of these countries had often claimed.

(ii) Partial Effects of Independent National Monetary and Exchange Rate Policy on WAMZ Output Performance

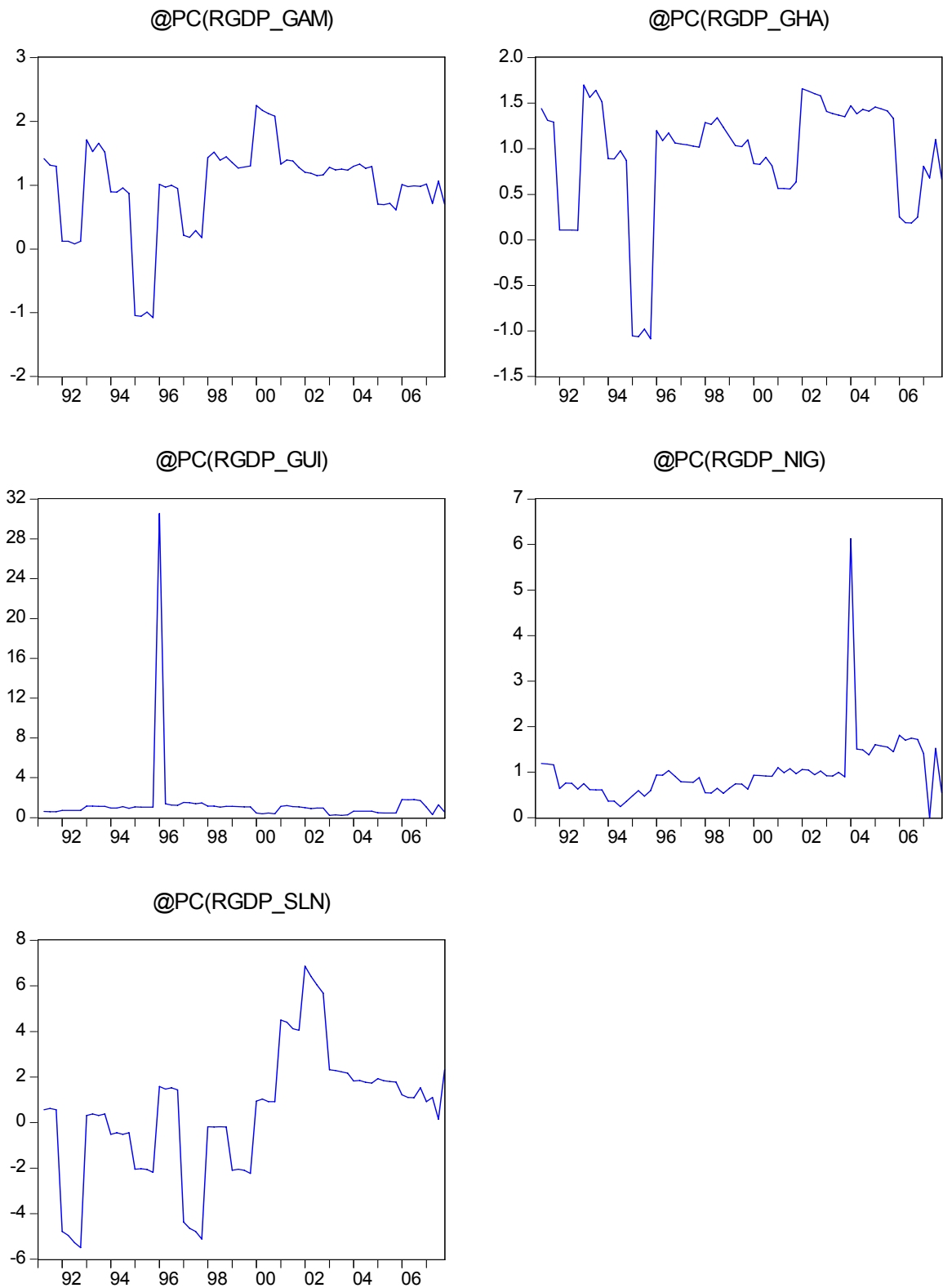
The regression results of the estimates of the partial effects of national monetary and exchange rate policy on production shocks asymmetry among participating countries in WAMZ is presented in Table 5. Two sets of equations were estimated. The first estimated the effect of monetary policy instruments on output gap, measured by the extent of divergence between the

Table 5: Pooled Single Equation Regression Results for the Partial Effects of Monetary and Exchange Rate Policy on WAMZ Output (Equation 3.14)								
Dep. Variable: Real GDP, y_{it}								
Method: Pooled EGLS (Cross-section SUR)								
Sample (adjusted): 1991Q3 2007Q4								
Included observations: 66 after adjustments								
Cross-sections included: 5								
Total pool (balanced) observations: 330								
Linear estimation after one-step weighting matrix								
Dep. Variables			a. Δy_{it}			b. y_{it}		
Independent Variables			Coeff.			Statistics		
Name	Symbol	Coeff.	Value	t-Stat.	Prob.	Value	t-Stat.	Prob.
Constant		β_0	3.47	1.2	0.24	426.8	0.5	0.65
Nom.ER App/Dep.	ΔNER_{it-1}	α_1	-0.00093	-0.4	0.66	-4.7	-1.9	0.06
Inflation Divergence	π_{it}	α_2	-0.0296	-3.3	0.00	-7.6	-1.4	0.16
Credit to Pr. Sect.	$Cp_{it}(-1)$	α_3						
Credit to Govt.	$CG_{it}(-2)$	α_4	6.69E-07	3.8	0.00	-0.0024	-14.8	0.00
Money Supply:	$M_2(-1)$	α_5	5.21E-07	4.7	0.00	0.0030	19.5	0.00
Monetary Policy Rate	$\text{Log } i_{it}$	α_6	-0.268	-2.3	0.02	-268.6	-4.0	0.00
Lagged Aggr. Output (GDP)	$y_{it-1}(-2)$		-0.873	-2.4	0.02	1058.3	9.9	0.00
Fixed Effects (Cross)								
_GAM-C			-1.72			-5471.1		
_GHA-C			0.92			-3244.0		
_GUI-C			-0.09			-6874.4		
_NIG-C			1.96			20942.2		
_SLN-C			-1.08			-5352.6		
Weighted Statistics								
R-squared			0.157			0.988		
Adjusted R-squared			0.131			0.987		
S.E. of regression			0.987			0.803		
F-statistic			5.954			2568.9		
Prob(F-statistic)			0.000			0		
Mean dependent var							-2.6	5.6
S.D. dependent var							3.1	4.5
Sum squared resid							310.5	205.7
Durbin-Watson stat							1.1	0.3
Source: Estimated using Eviews 6.1								

national growth targets and attainment, denoted by Δy_t . The second evaluated the relative effectiveness of independent monetary and exchange rates policy on national economic performance, measured by the real Gross Domestic Product denoted by y_t . The adjusted R-squared of the regression results of Δy_t dependent equation (see table 5a) is very low, suggesting that

independent monetary and exchange rate policy pursuits explained less than 15 per cent of the pervasive output shocks within the WAMZ in the study period. A plot of the growth rates in a

Figure 7: Trends in Real GDP Growth Rate (%) of WAMZ Countries



stacked graph as shown by Figure 7 suggests very strong business cycles asymmetry.

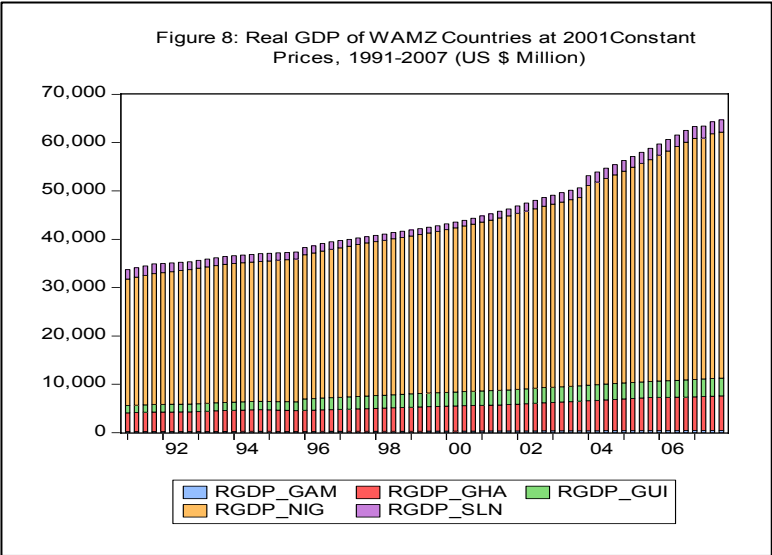
Aggregate economic performance vacillated very widely around stagnation, with a good number

of the countries recording declining growths, while most had never attained up to 5 per cent growth rates. The descriptive statistics associated with this graph is as shown in Table 6. The statistics shows that mean average growth rates ranged from as low as 2.2 per cent for Sierra Leone to about 6.6 per cent for Guinea. Gambia, Ghana and Sierra Leone had records of minimum growth rates that were negative, while Guinea output was most volatile ranging from a minimum of 0.9 per cent to a maximum of 190.4 percent. In general, these countries are

	Gambia	Ghana	Guinea	Nigeria	S/Leone
Mean	4.0	3.8	6.6	4.1	2.2
Median	4.7	4.3	4.2	3.7	3.7
Maximum	9.3	7.0	190.4	26.9	30.4
Minimum	-4.2	-4.3	0.9	0.0	-20.3
Std. Dev.	2.9	2.7	22.8	3.3	11.4
Skewness	-1.2	-1.5	7.9	5.1	0.1
Kurtosis	4.8	5.1	64.4	36.5	3.2
Jarque-Bera	24.9	37.2	11217.4	3435.2	0.2
Probability	0.0	0.0	0.0	0.0	0.9
Sum	266.4	251.4	444.5	275.0	147.6
Sum Sq. Dev.	537.2	473.8	34445.1	702.8	8515.2
Observations	67	67	67	67	67

Source: Estimated with Eviews 6.1 from the Regression Data

characterized by slow growth rates. Another important source of asymmetry is the relative size of participating countries in the real aggregate demand of the region. Figure 8 shows that Nigeria accounts for a significant proportion of the output WAMZ (approximately 80 per cent).



The overall estimate of the fixed effects constant, θ_i , for both equations of Table 5 are not significant, but also reflects very significant variation in its value

across the participating countries in WAMZ. Whereas, it exhibited a negative spread from the regional average in all the other countries, it posted a positive average for Nigeria. This finding tends to confirm that there is a wide divergence among the participants with regard to the

average outcomes of macroeconomic stabilization efforts, with a higher disproportionate weight in favour of Nigeria that is obviously an outlier of the proposed convergence club. This implies that pursuits of a less than optimal macroeconomic stabilization policy could have very negative spillover effects on efforts towards convergence. The trend in National Real GDP displayed in Figure 5.5 shows the divergent growth path which tended to accentuate these asymmetries.

The coefficient, α_1 , of exchange rate devaluation, ΔNER_{it-1} , is not significant as a determinant of demand/output shocks within WAMZ in equation 5a, but exhibited an inverse relationship to aggregate output at about 6% confidence level. This result tends to suggest that the production and asymmetric shocks experienced by these countries is not caused by exchange rate devaluation. This is expected, since as a group of small countries, with non-tradable currencies, both export and import prices are preset in foreign traded currencies. As such, exchange rates movements do not necessarily perform the expenditure switching stabilization roles envisioned by traditional theory. Instead, exchange rate devaluation translates into higher costs of imported inputs and consumer goods. The magnitude of these costs can be very high if the foreign resource content of domestic production and consumption is also very high, and economic activity is dominated by non-tradable and primary commodities export. This assertion is consistent with regression results of Table 5b, which shows that 1% devaluation can potentially lead to about 4.7% decline in output.

On the other hand, the coefficient, α_2 , of inflation divergence variable, π_{it} is negative and significant in the regression results of Table 5a, confirming the expectation that higher widening gap of inflation from desired level could lead to higher costs of production and consequently lower output. Although the t-statistics of 5b results show that inflation is not a significant determinant of aggregate output in WAMZ, it exhibited a negative relationship confirming the earlier assertion.

The performance of credit to the private sector variable, Cp_{it} , in the estimated equations was poor, and had to be eliminated from the regression, while the estimate of the coefficient, α_4 , of the credit to government, CG_{it} , is significant and correctly signed but inelastic in both equations. The positive sign of this coefficient in 5a suggests that credit to government, especially through the issue of public debt instruments as part of monetary control measures can critically stifle credit to private sector via a crowding out effect with adverse consequence on output performance.

The coefficient, α_5 , of the money supply variable, M_2 , is significant, positive but inelastic, in line with New Keynesian stance that expansionary monetary stance can spur limited growth when economies operate at less than full employment capacity. This is most likely the case, given the slow growth rates, and inelastic supply which characterize these countries. However, the inelastic outcome of this coefficient points to the weakness of using reserve control via monetary targets as an instrument for promoting growth.

The coefficient, α_6 , of monetary policy rate, i_{it} , is significant and exhibit the correct sign. This is consistent with the literature (Corsetti, 2008) that given the path which monetary authorities commit when it defines inflation targets at different horizon, and holding expectation of future productivity constant, the natural rate of interest falls with current productivity gains. This could potentially open a positive output gap in the absence of a contingent optimal reaction by the monetary authorities, which rises with anticipated productivity growth.

The coefficient estimate, λ , of lagged aggregate output variable, y_{it-2} is significant and have the right signs in both equations. The negative sign of this coefficient in 5a is consistent with theoretical expectation that lower past values of output level is likely to be associated with higher output gap. The finding that past trends in output is the major determinant of current output performance is remarkable. This implies that monetary policy pursuits, in the face of nominal and structural rigidities play insignificant role in demand/output stimulation. Instead,

trend in business cycles and output tended to follow the natural rate path which fluctuates with productivity along the production possibility frontiers.

(iii) Trade Gravity Models Results

Using pooled equation regression models, equations 19 and 20 are estimated for the WAMZ countries. In general, I adopted the 5 x 2 cross sectional panel data to capture the entire bilateral relationships of Gambia-Ghana, Gambia-Guinea, Gambia-Nigeria, Gambia-Sierra

	a. BILAT. EXPORTS			b. BILAT. TOT. TRADE		
Dep. Variable	LOG(BTEIJ)			LOG(TTMEIJ)		
Independent Variable	Coef.	t-Stat.	Prob.	Coef.	t-Stat.	Prob.
LOG(Y _{RI} *Y _{RJ})	0.172	3.8	0.00	0.632	19.1	0.00
LOG{(Y _i /Pop _i)*(Y _j /Pop _j)}	-0.370	-8.3	0.00	0.082	4.2	0.00
LOG(IIT ^{AG} _i /IIT ^{AG} _j)	0.064	4.1	0.00	-0.007	-3.6	0.00
LOG(IIT ^{AGMI} _i /IIT ^{AGMI} _j)	-0.635	-11.4	0.00	0.019	4.8	0.00
Fixed Effects						
_GAMGHA-C	1.940			0.203		
_GAMGUI-C	0.573			-1.123		
_GAMNIG-C	0.779			1.985		
_GAMSLN-C	-0.115			-1.713		
_GHAGUI-C	0.787			0.202		
_GHANIG-C	7.578			2.151		
_GHASLN-C	-0.661			0.266		
_GUINIG-C	4.098			1.853		
_GUISLN-C	1.705			-1.071		
_NIGSLN-C	2.230			1.978		
R-squared	0.856			0.978		
Adjusted R-squared	0.851			0.977		
S.E. of regression	0.980			0.203		
Durbin-Watson stat	0.274			0.371		
Log Likelihood						502
Mean dependent var		-0.51			7.479	
S.D. dependent var		2.534			1.351	
Sum squared resid		316.8			14.31	
Estimated using Seemingly unrelated regression methods						

Leone, Ghana-Guinea, Ghana-Nigeria, Ghana-Sierra Leone, Guinea-Nigeria, Guinea-Sierra Leone and Nigeria-Sierra Leone. These results are as shown in Table 7. Equation 7a represents the regression results for the bilateral export trade dependent variable, while that of 7b is for the total bilateral trade dependent variable. The independent variables can be grouped into economic or quantitative variables presumed to be the determinants of endogeneity and qualitative variables captured by the dummies. The equations were estimated using seemingly unrelated

regression models from a quarterly sample 1996:1 to 2004:4 amounting to 36 numbers of observations for 10 cross-sections making a balanced panel of 360.

The log linear regression models were estimated and the results are summarized into a table for analytical convenience. A review of the estimated equations shows that their goodness of fit is high with adjusted R² as high as 85% for both equations. It is worthy to mention that

three groups of the relationship of interest in this regression analysis are: (i) the effect of output covariability on trade intensity (which is proxied by the log of the product of the bilateral real as well as per capita GDP of the two countries; (ii) the effect of intra-industry trade on bilateral trade intensity (which is captured in this model by the agricultural and primary commodities intra-industry trade); and (iii) the effects of common features of the countries such as membership in a free trade area or currency union, a common language, border, or colonizer, etc. on bilateral trade.

Bilateral Trade and Real and Per Capita GDP Relatives

As indicated in the theoretical framework, the OCA theory suggests that if there are similarities in the co-variation or correlation of outputs, it is expected to be positively related to the bilateral trade intensity between the two countries. Two measures of output correlations in our model are: (a) log of the product of Real GDP of country i and j in the bilateral trade relations denoted by $LOG(Y_{Ri} * Y_{Rj})$ and (b) the log of the product of their per capita income

respectively which is denoted by $LOG\left(\frac{Y_{Ni}}{Pop_i} * \frac{Y_{Nj}}{Pop_j}\right)$. This specification is consistent with

Rose (2000). These coefficients are significant especially that of the intra-WAMZ total trade model. However, while the sign of the log of the product of real GDP variable is positive, confirming that similarities in business cycles have positive effects on bilateral trade among the countries, the coefficients of the product of the per capita GDP is negative. This is consistent with the results of similar gravity models tests by Masson and Pattillo (2004) which seems to capture well the determinants of bilateral trade between countries. The positive sign of the real GDP variable coefficient estimate agrees with their findings that larger countries exert a greater gravitational pull on imports and push to exports. This is most likely to be true with respect to trade flows intra-WAMZ given the fact that Nigeria accounts for approximately 60 per cent of the GDP, land mass and population of the group. Her pull on imports is very

dominant especially so given her buoyant foreign exchange reserves derived from exports of crude oil. She also seems to serve as a base for re-exports of food and other consumer products via informal trade within the ECOWAS sub region.

The negative sign of the coefficient of the per capita GDP variable is also consistent with Masson and Pattillo's (2003) findings that richer countries (in per capita terms) also tend to have higher trade and by implication poorer countries tend to have lesser trade. This is largely true since *a priori* information on per capita incomes of the countries indicated that they are all classified among low income and somewhat below the poverty lines. One is therefore not surprised that the sign of the coefficient of this variable is negative. The result can therefore be said to be salutary as it portends that improvements in per capita incomes of WAMZ countries could invariably be associated with greater trade in the absence of trade barriers and if supported with common currency. This assertion is consistent with the per capita income *ex post* convergence theorists who maintain that regional integration especially the one advanced by creating a monetary union, may lead to convergence of income levels by stimulating growth in the poorer countries through increased trade (Masson and Pattillo (2004)). They further argue that related initiatives to liberalize factor movements would also favor growth of poorer countries by allowing capital and labor to move to the locations where they are most productive. In general, this is consistent with the assertion by Jenkins and Thomas (1996) that "there is a growing consensus that 'convergence clubs' exist, where countries with a lower GNP per capita grow more rapidly because they are members of a trade group, or because domestic policy gains credibility by being tied to the domestic policy of a country with a better economic reputation". Although for now, there are doubts with regard to fiscal credibility of the intending members of WAMZ, especially Nigeria, she can certainly gain from allowing her domestic monetary and exchange rate policy to be tied to a regional convergence benchmark if for no other reason but fiscal discipline effects.

Bilateral Trade and Intra-Industry Trade Intensity

You would recall that from the point of view of endogeneity of OCA theory, if intra-industry trade accounts for a high share in trade, then, *ceteris paribus*, business cycles are expected to become more similar across countries. By contrast, increased bilateral trade intensity may lead to divergence of business cycles if the increase in trade is due mainly to increased specialization as predicted by the alternative OCA view (the Krugman's specialization theory).

In order to reflect both theories in our model, I included as explanatory variables and determinants of bilateral trade two variants of intra-industry trade variables: the first is defined

as the log of the ratio of intra-industry trade in agriculture of both countries, $LOG\left(\frac{IIT_i^{AG}}{IIT_j^{AG}}\right)$,

designed to capture endogeneity of OCA theory, as *a priori* information suggests very strong similarities in structure of agricultural trade. The second is defined as the log of the ratio of intra-industry trade in primary commodities (agriculture and mineral resources),

$LOG\left(\frac{IIT_i^{AGMI}}{IIT_j^{AGMI}}\right)$, designed to capture Krugman's specialization theory effects, given the sharp

differences in this variable between Nigeria and the rest members of WAMZ. This stems from the fact that Nigeria is a major exporter of crude oil and a member of OPEC, a marketing cartel that was able over time to guarantee better terms of trade for her members, as against the deteriorating terms of trade faced by the other WAMZ members with regard to exports of solid minerals.

From the Table, it can be seen that the coefficient estimates of both variables are significant suggesting that intra-industry trade intensity have significant effects on bilateral trade. However, while the sign of the parameter estimate of intra-industry trade in agricultural commodities is positive, that of bilateral primary commodities trade intensity is negative.

The positive sign of the agricultural trade intensity variables suggest that the positive bilateral co-movements can, *ceteris paribus*, lead to trade creation within the region. This is plausible, given the structure of agricultural trade within the region, which are mostly in staple foods especially grains, tubers, vegetable oils and livestock products (live animals, poultry and eggs). Sufficient pockets of deficit in supply of these products exist within the region, especially in Nigeria, enough to pull imports towards her. This fact is evidenced by the large food imports of these countries from the rest of the world which accounts for a significant proportion of their foreign exchange spending annually. Also, there are strong similarities in agricultural export baskets to the rest of the world, made up of cocoa, coffee, palm produce, groundnut and ginger, and they indeed face the same terms of trade. This similarity is therefore supportive of the fact that opportunities exist to negotiate for better terms of trade as a regional group or trade bloc, an action that could lead to *ex post* convergence of business cycles and ultimately trade creation within the sub region.

The negative sign of the parameter estimate of the coefficient of the intra-industry trade in primary commodities is to be expected given the divergence in the structure of commodities trade basket. While oil exports account for about 95 percent of Nigeria's primary commodity exports, the other member countries of WAMZ relied entirely on agricultural and solid mineral exports. Thus, increased dominance of a specialized product like petroleum in the export basket of Nigeria portends the fact that opportunities exist for trade expansion in the face of other endogenous factors such as proximity, adjacency and common currency. While Nigeria's exports of petroleum products to the other WAMZ member countries is expected to increase, a reciprocal increase in agricultural exports of these countries to Nigeria may also take place. Thus, in the event of the emergence of a monetary union, opportunities exist to internalize *ex post* a greater fraction of the region's trade, given this significant and indeed negative divergence of these variables between Nigeria and the rest others.

Bilateral Trade and Qualitative Trade Gravity Indicators

You would recall that the third interest of the estimated gravity model is to measure the effects of common features of the countries such as membership in a free trade area or currency union, a common language, border, or colonizer, etc. on bilateral trade. Consequent on this, four dummy variables were included in the regression analysis, viz.: adjacency, $LOG(D_1)_{ADJ}$, common language, $LOG(D_2)_{LANG}$, common currency, $LOG(D_3)_{CUR}$, and common colonizer, $LOG(D_4)_{COL}$.

The regression result is as shown in table 8. In general, the coefficient estimates of these dummies were significant for the bilateral total trade but not significant for the bilateral export trade functions. This result shows that intra-WAMZ total trade was significantly influenced by

Dep. Variable	a. BILAT. EXPORTS			b. BILAT. TOT. TRADE		
	LOG(BTEIJ)			LOG(TTMEIJ)		
Independent Variable	Coef.	t-Stat.	Prob.	Coef.	t-Stat.	Prob.
C	-10.036	-7.9	0.00	-4.702	-14.3	0.00
LOG((GDPI?)*(GDPJ?))	-0.262	-2.3	0.02	0.363	12.2	0.00
LOG((NGDPI?/POPI?)*(N	1.112	11.4	0.00	0.878	31.8	0.00
LOG(XAGI?/XAGJ?)	0.238	15.4	0.00	0.00012	0.1	0.96
LOG(XAGMI?/XAGMIJ?)	-0.819	-14.9	0.00	-0.122	-14.3	0.00
DCUR?	-3.329	-6.9	0.00	-2.746	-34.4	0.00
LOG(DADJ?)	0.184	0.9	0.37	0.095	3.3	0.00
DCOL?	-1.100	-8.0	0.00	-0.481	-13.7	0.00
R-squared	0.376			0.752		
Adjusted R-squared	0.362			0.747		
S.E. of regression	2.153			0.680		
Durbin-Watson stat	0.080			0.032		
Log likelihood				206.7		
Mean dependent var		-1.44			7.479	
S.D. dependent var		2.696			1.351	
Sum squared resid		1502			162.5	

these variables. While adjacency had positive effects, differences in currency and language had significant negative effects. These tended to confirm the Rose effects of currency union dummies on trade expansion and/or contraction for the WAMZ. A widely cited recent paper (Rose,

2000), using a global sample, finds that currency unions increase trade by about a factor of 3 from cross-sectional results while time-series analysis with fixed effects give somewhat lower estimates of around 1.7 (Glike and Rose, 2002). Although a simulation to estimate the effects of trade gravity models on the extent of trade creation has not been carried out, it is most likely that the outcome will compare favorably with these results. This would be subject to particularities

which Masson and Pattillo (2004) pointed out. In particular, they note that “while it is useful to have the widest sample possible if that sample is homogeneous, it may also be the case that there are particularities in a region that make it not comparable to others”. Perhaps the non-significance of these dummies with regard to the bilateral trade coefficients could be attributed to these “particularities” such as lack of common borders and common currency, while the dummies for common language and common colonizer are not strikingly distinguishing enough to make a difference. Lack of common border becomes much more important, in the face of weak transportation links within the ECOWAS sub region and between many African countries. The Rose effect could also have been compromised by poor data on regional trade, as there seems to be a consensus among policy analysts that an appreciable unrecorded trade takes place within the sub region.

5. Summary, Challenges, Policy Recommendations and Conclusions

This study presents an alternative reconsideration of traditional Optimum Currency Areas (OCA) macroeconomic convergence criteria as options for WAMZ commencement, in the light of recent advancements in monetary theory. It presents micro-founded models, rooted in New Keynesian traditions to show that tests confirming widespread divergence from ideal macroeconomic benchmarks with unsustainable independent monetary and exchange rates pursuits and trade gravity models offer a more appropriate evaluating criterion for WAMZ than the current one, if the ultimate objective is a merger with WAEMU.

The results show that: (i) substantial macroeconomic costs have been associated with monetary autonomy reflected in the wide divergence of outcomes from set benchmarks, with very little prospect for moving towards macroeconomic convergence in the absence of internationally binding monetary policy coordination framework; (ii) that exchange rates do not perform the stabilizing role envisioned by traditional OCA theory, as it is an inconsequential determinant of intra-WAMZ exports, but translates into higher domestic inflations; (iii) a common monetary policy given the significance of trade gravity dummies in the regression,

confirms that it can be more efficient than nationally differentiated policies, even when shocks are strongly asymmetric, provided that the composition of aggregate spending tends to be symmetric at union-wide level. The strong convergence of aggregate output/demand pattern between WAMZ countries based on trade gravity models thus emerges as a possible positive attribute of countries participating in efficient currency areas.

Alternative Perspectives on the Challenges and Policy Options for WAMZ

This study presents a new perspective of the challenges which confronts the WAMZ projects by debunking the traditional theories of inevitability of macroeconomic convergence as the sole criteria for determining its commencement. It noted that the pitfall of such arguments is the erroneous assumptions that *ex ante* policy environment is a good mirror of *ex post* outcomes with monetary unionization as has been the case with the EU (characterized by advance economic and financial market structures) experience. However, the review of the background to this study show that participating countries in WAMZ are characterized by weak economic and financial structures and undue fiscal impetus which compromises independent monetary and exchange rates policies that have kept participating countries from attaining macroeconomic convergence in the foreseeable future. The only comparable monetary union to the WAMZ is that of WAEMU (with similar economic and financial structure to WAMZ) whose experience show that their union was not preceded by insistence on attainment of macroeconomic convergence, but that unionization had served as a veritable instrument for the attainment of macroeconomic convergence *ex post*. This further lends support to the findings of the trade gravity models as viable alternative tests to macroeconomic convergence criteria tests, with the conclusion that new perspectives of the real challenge to WAMZ union be identified. In the light of these findings, this study agree with Ojo (2005) and Nnanna (2007) that the real challenge to WAMZ commencement is not macroeconomic non-convergence, but lack of political will and commitment on the part of all stakeholders towards full implementation of the

schemes along the path taken by WAEMU (the first monetary zone with which WAMZ must be merged to obtain the ECOWAS monetary union). Among these challenges are:

- a) Inadequate political commitment on the part of the participating countries that have continued to draw up their independent annual economic programmes without taking into consideration the regionally agreed benchmarks or matching same with adequate financial support.
- b) Political instability characterized by military dictatorships, poor governance practices and civil conflicts which have been part of the history of these participating countries in WAMZ. These not only prevent these countries from pursuing sustainable independent fiscal, monetary and exchange rates policies, but accentuated the degree of non-convergence as well as alienates crisis afflicted members of the Zone from the much needed technical and financial support by external partners and foreign investors.
- c) Poor sustainability of policy actions towards the process of monetary unionization, especially by the major economies of WAMZ (Nigeria and Ghana) and their failure to provide the desired leadership and role similar to that which Germany and France played in the European Union integration programmes.
- d) Poor Communication and sensitization strategy reflected in:
 - ❖ apparent lack of clearly defined communication strategy for winning the support of the government and people of participating countries;
 - ❖ weak dissemination of information on progress made and the relative inability to stimulate and encourage the necessary complimentary technical preparations by all stakeholders;
 - ❖ Doubts, uncertainty and lack of information of what the transition to a single currency would involve
 - ❖ Doubts about the gains and benefits of the projects among influential elites and major stakeholders.

Recommended Policy Options

The lesson to be learned so far from the review of the constraints and challenges to the WAMZ projects is the need to adopt a credible and feasible integration model that is capable of addressing these constraints. In this context, the choice of model should be guided by the overriding need to curtail fiscal impetus and indiscipline that hampered the effectiveness of erstwhile independent monetary and exchange policies. It should also be one which capitalize on and exploit the *ex ante* strong endogenous factors and the results of the trade gravity tests to proceed on establishing the monetary union in anticipation that it could act as instruments for the achievement of macroeconomic convergence of WAMZ *ex post*. The WAEMU can be studied further to identify the optimal policy and institutional framework for the WAMZ. In particular, the core strategic elements of the integration model to be adopted should be compatible with the enabling environment, the existing state of financial infrastructure and human capacities. Above all, it should be a model that can garner support and assure all stakeholders that the gains from the project far outweigh the costs in addition to eliminating implicit doubts and fear associated with the anticipated changes. In the light of these, this study recommends the following policy options:

- a) A vertical integration options similar to that of WAEMU should be adopted for integrating the national central banks, common monetary policy and currency managements so as to make the future merger of WAMZ with it easy to accomplish for the region-wide ECOWAS common currency. This means that WAMZ should consider fusing together their existing central banks into one regional central bank, instead of the proposed maintenance of a system of national central banks (similar to the EU) which requires the need for the attainment of *ex ante* macroeconomic convergence.
- b) A complimentary political and over-sight institutional arrangements similar to that of the WAEMU, meaning that WAMZ would be headed by Conference of Heads of States, while the common central bank would be headed by a Council of Ministers that should

include Finance Minister of member countries. However, unlike WAEMU, this body should be expanded to include the Governor of each of the participating central banks (the promoters of the union) as executive members of the West African Central Bank governing board. It is recommended that they be designated as Vice President and Head of Country Operations of the proposed regional bank as a way of garnering their support instead of relegation to the position of Branch Managers which is the current situation under the WAEMU arrangements.

- c) An adoption of institutional and administrative options for the supra-national central bank that is modeled along the lines of the BCEAO, the common central bank of the WAEMU. This suggests the creation of a single regional monetary authority for managing the internal and external value of the envisaged common currency and guaranteeing its integrity through implementation of credible management strategies.
- d) An adoption of a monetary policy option that is consistent with the integration model chosen. In this wise, the West African Central Bank should possess instruments autonomy to set ultimate objectives, intermediate targets and operating procedures for the implementation of union-wide monetary policies without interference from any participating country's government within or outside the sub-region.
- e) An adoption of a payment systems framework that takes into account the current habit and preference of the people in the region to transact in cash as against cheques, credit cards or other bank instruments. This requires making adequate provisions for cash dispensing machines. This should also be accompanied with the development of region-wide payment systems.
- f) The adoption of an exchange rate mechanism and convertibility arrangements such that the initial parity rate is one that is optimal and socially acceptable by all stakeholders. It is recommended that this should be determined as a weighted average (using either stock of external reserves or any other criteria as weights) of the exchange rates of the existing

national currencies of participating countries to the US Dollar at the time of commencement of the common currency. It is also recommended that the Euro and not the US Dollar should be adopted as the main reserves currency of the WAMZ given the dominance of the EU countries as trading partners.

Concluding Remarks

The overall contribution of this study to knowledge is that it debunked the inevitability of macroeconomic convergence criteria as the most optimal options for the commencement of the WAMZ. Indeed, it was established that given the *ex ante* independent fiscal and monetary policy pursuits of each of the participating country, there is the likelihood that not more than two countries can meet these criteria, suggesting that the commencement date could remain indeterminate. It also shows that there are alternative empirical tests of OCA that offer more credible evaluating criteria for the WAMZ project than the macroeconomic convergence criterion. It further reinforced our conviction that opportunities exist for the stakeholders to advance the common currency project, given the trade gravity model results to commence the programme since their independent monetary and exchange rate policies have had adverse effects on economic growth and inflation in WAMZ countries.

In conclusion, it is desirable to note that the relative ineffectiveness of independent monetary and exchange rates policies stemmed in part from the lack of political autonomy of the national monetary authorities (the central banks, which hitherto led to a compromising stance with respect to its choice of instruments for monetary controls) and partly to inappropriate choice of instruments, with inherent bias against growth, but laying very strong foundation for inflationary spiral. It does appear that under this macroeconomic environment, there is little prospect for improvement except some alternative actions are taken to overcome the overbearing political influence. This study has shown that this can be found in entering into a currency union, with the surrender of monetary and exchange rate policy to a superior body.

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