



BUDGET DEFICIT, CONSUMPTION PRICE, AND MACROECONOMIC PERFORMANCE IN WEST AFRICA MONETARY ZONE

Sayuti Abdullahi Shafii

Federal University, Birnin Kebbi

Danladi Jonathan

Afe Babalola University, Ado Ekiti²

Abstract

The paper analyzed relations between Budget Deficit, Consumption Price and Macroeconomic Performance in West Africa Monetary Zone; using Autoregressive Distributive Lag (ARDL) Bounds testing approach for long run relationship and Error-Correction Model (ECM) for short run dynamics. The bound tests of ARDL revealed the presence of co-integration among the variables. The estimated ARDL showed that budget deficit is positive and statistically significant in Ghana while Nigeria has the opposite and real effective exchange rate was negative in both countries but significant in Nigeria. The consumption price in both countries was positive and statistically significant. Likewise, in the short run budget deficit were not significant in both countries though real effective exchange rate and consumption price were statistically significant.

Keywords: Budget deficit, Consumption price, Macroeconomic performance, WAMZ.

1. Introduction

The West African Monetary Zone (WAMZ) is a Sub-region (Gambia, Ghana, Guinea, Nigeria, Liberia and Sierra-Leone) within Economic Community of West African States (ECOWAS) aim of introducing a single currency called ECO. This single currency will protect individual country's currencies from speculative attacks, promotion regional solidarity, removal of exchange rate uncertainties and the creation of large common market that will attract foreign direct investment. This can only be achieved under certain conditions (primary and secondary convergence criteria) (Agabi, 2018; Godwin, 2018) which known of these countries have made sufficient effort to meet the macroeconomic convergence criteria (Ujah, 2018). Though some countries have met the single digit inflation rate (Gambia averaged 5.39%) and the external reserves (Guinea) criteria (Adedokun, Olumide, & Iwegbu, 2019), but, none have met the budget deficit regulation; for instance, Ghana budget deficit stood at 12%, 10.94%, 5.37%, 8.85%, and 5.09% from 2013, 2014, 2015, 2016 and 2017. While, Nigeria

stood at 2.33%, 2.13%, 3.48%, 3.93%, and 5.29% at the same year respectively (AFDB, 2018).

This Macroeconomic performance of WAMZ have call the attention of Scholars (Balogun, 2007; Adam, Agyapong, & Gyamfi, 2012; Orji, Uche, & Ilori, 2014; Keho, 2016; Eregba, 2017; Mogaji, 2017; Ekpo, 2018; Mesagan & Yusuf, 2019; IMF, 2019; Adu, Litsios, & Baimbridge 2019; Adedokun, Olumide, & Iwegbu, 2019; Adedokun, Yameogo, & Osode, 2020) which led to studies and most of these WAMZ studies do not take Budget deficit and consumption price into consideration; except the work of Keho (2016) that study the Economic and Monetary Union (WAEMU) with a dataset 1970 to 2013. Other studies on budget deficit and economic performance (Mayanja & Mawejje, 2014; Okoye, Omankhanlen, Okorie, Okoh, & Ahmed, 2019; Fagbohun, 2017; Khurshid, 2019; Gyasi, 2020) focused on individual economy.

It is against this background that this study will examine the relationship between Budget Deficit, Consumption

Price, and Macroeconomic Performance in West Africa Monetary Zone with reference to Nigeria and Ghana; these countries were chosen based on their language (francophone and Anglophone) and also prominent members of the zone. Annually data from 1990 to 2020 will be used. This period were chosen in order to meet the minimum sample. To achieve the aforementioned objective, the paper is structure into five section; section one present the introduction, next section review of related literature, section three present the methodology while section four discusses the empirical result and final section give conclusion and policy implications.

2. Literature Review

There are a number of theories that explain the relationship between budget deficits, consumption price, and other major macroeconomic variables; these include the neoclassical theory, the Keynesian, and the Ricardian theory. The neoclassical model believed that increased in consumption expenditure has no effect on interest rates in the world markets but may lead to increased foreign borrowing resulting into the appreciation of the local currency and thus a reduction in export and an increase in imports. They view budget deficits have adverse effects on the economy and hence advocates for a balanced budget at all times. While Keynes believed that government under spending would lower economic performance and worsen the rate of unemployment. He argues that to reduced unemployment, government should intentionally make fiscal deficits to stimulate demand for goods and services; in addition to process it would drive output and create employment. Their idea contend that deficit financing lowers domestic interest rate, promotes productive investments and aggregate demand, leading to higher levels of output, income and employment.

The Ricardian view asserts that budget deficits have no impact on economic growth and development. His argument is that lower taxes and a budget deficit require (in the absence of any change in government purchases) higher taxes in the future. Thus, an increase in government debt as a result of the deficit will imply future taxes with a present value equal to the value of the debt; for that reason, government should recognize this equivalence and proceed as if the debt did not exist,

resulting in the debt having no effects on economic activity (Seater, 1993; Bernheim, 1989).

Empirical studies on macroeconomics performance in West Africa Monetary Zone (WAMZ) include the work of Orji, Uche and Ilori (2014) examine the implications of foreign capital inflows on output growth of the West Africa Monetary Zone (WAMZ) economies over the period 1981-2010. The results shows difference growth impact on various forms of foreign capital inflows in the WAMZ countries. It also reveals that more than one form of capital inflow contributed positively to output growth in Nigeria. Yet again, ODA positively contributes more to output growth in Sierra Leone and Ghana, while, FDI foster more output growth in Nigeria and Gambia. Remittances have the highest contribution in Liberia and none of the inflows has positively impacted on Guinea's economic growth.

While Keho (2016) studied effect of budget deficit and money supply on inflation. The results demonstrate that there is a long run relation among the variables in all countries except Mali and also price and budget deficit are positively related in Niger and Togo, and negatively related in Benin and Senegal. Further, money supply and price are positively related in Burkina Faso, Cote d'Ivoire and Senegal. Results from the Granger causality tests indicate that deficits cause money growth in Cote d'Ivoire, Mali and Togo, and cause the price level in Senegal. There is no causality from money supply to inflation in the short-run.

Also, Mogaji (2017) investigated the uniformity of some relevant macroeconomic indicators as well as the homogeneity of the economic performances of the West African Monetary Zone (WAMZ) countries. The study span between 1980 and 2014; Used ANOVA tests to determine if the economic variables assessed are similar among the monetary union members. The result revealed that almost all these macroeconomic and financial indicators have not similar features across the WAMZ. In terms the whole WAMZ, Ghana has same feature in a WAMZ aggregate economy, while Nigeria was excluded from the analyses. Nigeria is only country that share

similarities with the entire WAMZ when the six WAMZ economies were aggregated.

In addition Mesagan and Yusuf (2019) examined the impact of fiscal and monetary policy on economic performance and stabilization in Nigeria, Gambia, and Ghana between 1980 and 2017. In the study, the real gross domestic product and the exchange rate are used to proxy economic performance and economic stabilization respectively while fiscal policy is captured with deficit finance and government expenditure. Also, the broad money supply and monetary policy rate are used as proxies of monetary policy. The finding shows that monetary policy has insignificant effect on economic performance in Nigeria and the Gambia, but has significant impact in Ghana while fiscal policy significantly enhances economic performance in Nigeria and Gambia, but is insignificant in Ghana. Also, the result revealed that monetary policy significantly drives economic stabilization in Nigeria and the Gambia, but insignificantly in Ghana while fiscal policy has insignificant impact on economic stabilization in Ghana and Gambia, but significant in Nigeria.

Furthermore, Adedokun, Yameogo and Osode (2020) investigated the effects of financial integration on macroeconomic performance and poverty reduction in West Africa Monetary Zone (WAMZ). The study employs time series data spanning 1980 to 2017 on WAMZ countries and used System of Generalized method of moments (SYS-GMM) for the methodology. The results confirm that foreign direct investment (FDI) and commodity terms of trade significantly impact macroeconomic performance by improving the level of economic growth in the sub-region. Likewise, FDI, terms of trade, inflation and institutional quality all significantly reduce poverty level in the zone. But, the interactive effects of financial integration and macroeconomic performance reveal negative effects on poverty level.

Also, Adu, Litsios, and Baimbridge (2019) looked at real effective exchange rate (REER) responses to shocks in exchange rate determinants for the West African Monetary Zone (WAMZ) between 1980 and 2015; using a country by country VECM. The oil price, supply and

demand shocks are identified using long run restrictions in a structural VAR model. The results are significant differences in the response of REER to real oil price, supply and demand preference shocks across these economies. Moreover, the relative contribution of these shocks to REER movements in the short and long run appears to be different across economies. Still, Adedokun, Olumide, and Iwegbu (2019) interrogated the relevance of governance for macroeconomic convergence criteria and development in West African Monetary Zone (WAMZ). The study used the Fully Modified Ordinary Least Square Regression and time series data (1996 – 2015) from the five countries. The findings show that government effectiveness and political stability did not enhance economic development and also that rule of law and government effectiveness have enhanced economic development but control of corruption, political stability and investment attraction have not.

3. Methodology

The data sourced from World Bank Development Indicator for the period 1990 to 2020, a country by country estimation was carried out to determine both short-run and long-run relationships between Budget deficit, Consumption price and Macroeconomic Performance, the study use Autoregressive Distributive Lag (ARDL) Bounds testing approach for long run relationship and Error-Correction Model (ECM) for short run dynamics.

3.1 Model Specification

$$GDP_t = \beta_0 BDF_t + \beta_1 CPI_t + \beta_2 REER_t + \varepsilon_t \quad (1)$$

Where t stands for time periods, GDP stands for the proxy of macroeconomic performance, BDF is the Budget deficit; CPI is consumption price proxy; while REER is the real effective exchange rate and ε is the error term

Taking logarithms equation (1) becomes

$$\ln GDP_t = \beta_0 \ln BDF_t + \beta_1 \ln CPI_t + \beta_2 \ln REER_t + \varepsilon_t \quad (2)$$

4. Results and Discussion

4.1 Unit Root Test

The requirement of bounds test is that no variables are integrated at order two $I(2)$, for that reason we subjected each series to the ADF and PP Tests. The results reported in Table 1 agreed that all the variables in the study are

integrated at level $I(0)$ and order one $I(1)$ which include constant and trend terms and also employed SIC for the optimum lag order

Table 1: ADP and PP unit root tests

Variable	LEVEL		FIRST DIFF	
	ADP	PP	ADP	PP
Nigeria				
LGDP	-0.500433	0.079758	-2.669073*	-2.625911*
BDF	-2.740140*	-2.657683*	-8.578286***	-12.72440***
LCPI	-4.232895***	-3.527336**		
LREER	-2.285883	-2.477032	-4.564408***	-4.534784***
Ghana				
GDP	-2.844251	-2.695957	-5.343273***	-5.484474***
BDF	-2.807817	-2.807817	-6.631280***	-6.635977***
LCPI				
REER	-2.886977	-2.506566	-4.608153***	-4.896978***

Source: Authors' Computation from Eviews 9 Output

4.2 Co integration Test

The results of the bound test are given in Table 2. The calculated F-statistics for each individual country (Nigeria 11.10 and Ghana 8.11) reported in Table 2 are greater than the upper bound critical value at the 5% levels. This implies that the null hypothesis of no co-integration is rejected in all cases. There is a long run

relationship among the variables (Budget deficit, Consumption price, real effective exchange rate and macroeconomic performances). The existence of co-integration between the variables of interest in each country implies that there is an error correction mechanism and therefore there is need to obtain long-run and short-run coefficients

Table 2: Bounds test for linear cointegration

Critical Value	
95% lower bound	95% upper bound
3.23	4.35
F-Statistics	
Nigeria	11.10
Ghana	8.11

Notes: the critical values are from Narayan (2005), given the small sample size.

Source: Authors' Computation from Eviews 9 Output

4.3 Long Run ARDL Estimation

The Nigeria

Table 3 Long Run ARDL Estimation Results

Variable	Coefficient	P-value
LCPI	0.2988	0.0000
LREER	-0.4467	0.0128
BDF	-0.00003	0.3394
C	27.7997	0.0000

Source: Authors' Computation from Eviews 9 Output

The results in Table 3 revealed that variables are significant in the long run except Budget deficit that is not significant in Nigeria. A percentage increase in consumption price will raise Macroeconomic performance by 0.2988 per cent; while real effective exchange rate is negatively related to macroeconomic performance that is a rise in REER will lead to increase in macroeconomic performance by -0.4467 per cent and the Budget deficit have indirect relationship with macroeconomic performance but report to be statistical insignificant.

GHANA

Table 4 shows that there is a statistically significant relationship between consumption price, Budget Deficit and Macroeconomic performance in the study area. There is positive and significant relationship between consumption price and macroeconomic performances as well as between Budget Deficit and macroeconomic performances. The real effective exchange rate has a negative impact on macroeconomic performances and is statistically not significant. The result indicates that a unit increase in consumption price will increase macroeconomic performances by 13.03 per cent, while 1 percent increase in Budget Deficit will raise growth by 0.006 per cent.

Table 4: Long Run ARDL estimation results

Variable	Coefficient	P-value
LCPI	13.0831	0.0000
LREER	-5.1637	0.5822
BDF	0.0061	0.0000
C	27.7997	0.0000

Source: Authors' Computation from Eviews 9 Output

4.4 Short Run ARDL Estimation

Nigeria

The table below shows the consumption price and it lagged by one and two respectively have negative significant effect on GDP and lagged by one is positive significant effect on macroeconomic performance whereas real effective exchange rate have positive relationship with the macroeconomic performance.

However, real effective exchange rate and lagged two are significant, while one is not significant.

If the CPI and CPI lagged by two increased by ₦1 each, it will reduce macroeconomic performance by -0.2097, 0.2256 per cent as lagged by one increase by 0.2256 per cent respectively. The real effective exchange rate and the lagged two will increase by 0.0425 and 0.0517 per cent as macroeconomic performance increases by 1 per cent..

Cointq (-1) must fulfill three conditions; it must be negative, less than one and must be significant. From the ARDL short run report, the ECM met the three conditions. The speed of adjustment is 15% per year; that is if there is disequilibrium in the short run, it will restore back to equilibrium in long run by 15% per year.

The R-squared in Nigeria and Ghana accounting for only 84% and 81% of the total variations in the Macroeconomic performance which is caused by the independent variables (BDF, CPI and REER) in the model, the remaining 16% and 19% of variations are caused by other factors not examined in this research. More so, the F-statistics value for the both countries is 8.74 and 7.84 which are significant at 1%. This exerts that the models are fit for predict the Macroeconomic

performance in Nigeria and Ghana under time consideration. Also it explains all independent variables that are jointly influence the Macroeconomic performance in Economies. The Durbin-Watson statistics indicate that there is no serial correlation among the variables studied because the values are 1.44 and 2.12.

Null Hypothesis states that there is no short run relationship between the Budget Deficit, Consumption Price and Macroeconomic performance

Alternative Hypothesis state there is short run relationship between the Budget Deficit, Consumption Price and Macroeconomic performance. Based on result in the short run model, so null hypothesis is rejected and alternative hypothesis is accepted in both countries.

Table 5 Short Run Coefficient of ARDL

Variable	Coefficient	P-value
$\Delta(\text{LCPI})$	-0.2097	0.0221
$\Delta(\text{LCPI}(-1))$	0.2256	0.0971
$\Delta(\text{LCPI}(-2))$	-0.2051	0.0149
$\Delta(\text{LREER})$	0.0425	0.0648
$\Delta(\text{LREER}(-1))$	0.0240	0.2226
$\Delta(\text{LREER}(-2))$	0.0517	0.0079
$\Delta(\text{BDF})$	-0.0000	0.3676
ECM (-1)	-0.1556	0.0006
$R^2 = 0.84$, F- stat. = 8.74 (0.000090), D.W = 1.44		

Source: Authors' Computation from Eviews 9 Output

Ghana

Table 6: Short Run Coefficient of ARDL

Variable	Coefficient	P-value
$\Delta(\text{BDF})$	0.0003	0.5408
$\Delta(\text{BDF}(-1))$	-0.0029	0.0036
$\Delta(\text{LCPI})$	9.0377	0.0001
$\Delta(\text{LREER})$	-29.7183	0.0000
$\Delta(\text{LREER}(-1))$	-10.1150	0.1219
$\Delta(\text{LREER}(-2))$	-8.8161	0.1004
ECM (-1)	-0.6908	0.0000
$R^2 = 0.81$, F- stat. = 7.845(0.000211), D.W = 2.12		

Source: Authors' Computation from Eviews 9 Output

The Table 6 shows that Budget Deficit lagged by one, Consumption Price, Real Effective exchange rate and ECM are statistical significant at 1% in the short-run. A percentage rise in BDF leads to a 0.0029 per cent

reduction in Macroeconomic performance while 1 percent rise in CPI will increase Macroeconomic performance by 9.03 percent in the short-run and also N1 raise real effective exchange rate will reduced Macroeconomic performance by 29.71 per cent. However, the speed of adjustment is high since is 69.08 percent of the deviation in long-run equilibrium is corrected annually.

5. Conclusion and Recommendations

Having recognizing the important of WAMZ, this study examined the relationship between Budget Deficit, Consumption price and Macroeconomic performance in WANZ countries; using ARDL model for the analysis to capture both long and short relations between the variables. From the analysis, the long run Budget deficit

in Nigeria is contradict that of Ghana which is positive and statistically significant while real effective exchange rate were negative in both countries but significant in Nigeria. The Consumption Price in both countries was positive and statistically significant. Likewise, in the short run budget Deficit were not significant in both countries though real effective exchange rate and consumption price were statistically significant. Hence, policy attention should be directed towards Real exchange rate as it has direct relationship with Macroeconomic performance in Nigeria although Ghana has indirect relationship with Macroeconomic performance; with regard to consumption price since it has a positive relationship with Microeconomic performance in Ghana, government should embark on measures that will reduce consumption price.

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