

IMPACT OF MACROECONOMIC POLICIES ON BALANCE OF PAYMENT IN NIGERIA

By
Nestor COMLA¹
Julius ATAMENWAN²
Doctor of Philosophy

¹⁻²*Department of Economics and Development Studies
Federal University Otuoke, Bayelsa State*

Abstract

The study investigates the impact of macroeconomic policies on the balance of payment in Nigeria from 1981 to 2022. Three specific objectives guide the study; to examine the effects of government spending, government tax revenue, and monetary policy rate on balance of payment. Annual time series data were used for the study source from CBN Statistical Bulletin of 2022 edition. The expos facto research design was employment given the fact that the researcher does not influence the data variables. This was complemented by the Autoregressive and Distributed Lag (ARDL) model to analyzed the data. The result from the bound test shows that there is long run relationship between macroeconomic policies and balance of payment, and that balance of payment is expected to converge to equilibrium from the short run errors of disequilibrium by 106.23 adjustment speed. More so, government spending and tax revenue has negative effects on BOP in both short and long terms. While monetary policy rate has only long term significant and positive effect on BOP. The study conclude that the estimated model has a good fit and stable within the period of study. It is then recommended that government spending should be production motivated to enhance export and investment in portfolios. This will weaken the negative effects of the fiscal policy on BOP.

Keywords: BOP, ARDL, Macroeconomic policies, Balance of Payment and Nigeria.

Introduction

The role of macroeconomic policy is vital in any country; be it developed or developing—a macroeconomic policy gears macroeconomic objectives via its monetary policy. The monetary policy of any country is controlled and regulated by the monetary authorities via the Apex bank of that country (i.e. Federal Reserve Bank (FRB) or Central Bank of Nigeria (CBN) as the case may be in Nigeria). Little wonder the reason why (Nnanna, 2001), described monetary policy as the combination of measures designed to control the value, supply and cost of currency in an economy in conformity with the prospective level of economic activity. To corroborate the aforementioned, Gbosi (2002), pointed that, the monetary policy

aims at controlling money supply in order to counter-check all undesirable trends such as unemployment, inflation, sluggish economic growth or disequilibrium in the balance of payment among others in the economy.

The monetary authorities are vested with the power to regulate the growth of money stock, putting in mind its target of suppressing inflation through stabilization of the price level or correct balance of payment deficits. The implication here is that the monetary authorities expect that an increase in prices will respond to a decrease in the growth of money thereby implying a negative relationship between changes in prices and money stock; on the other hand, the monetary authority responds to a balance of payment deficits with a decrease in the growth of money, meaning that, the relationship is negative according to Ekwe, Ogbonanya, & Omodero (2017).

Not forgetting that, the time-frame it takes to either adjust the price level or the balance of payment in order to affect these policy decisions is a measure of the time lag between the emergence of a problem and the decision of the monetary authorities to take corrective actions. The above implies that a significant policy is a function of the Apex banks' respond to shocks or issues emanating from external factors that affect the economy or on the other hand, attend to issues that crop up internally due to rise in prices of goods and services which in turn results leads to a rise in the inflation rate of the country among others. These two macroeconomic objectives are primary while the other three (growth, distribution of income and employment generation) classified as secondary according to Osisanwo, Tella & Adesoye (2019).

Without mincing words, a stable exchange rate is the one whose balance of payments is fundamentally guaranteed by the quantity of money in each country, in such a way that the differences in the balance of payments may be resolved temporarily by reckoning to the movements of gold or by the changes in the balance of international short-term indebtedness. However, to eliminate the observed discrepancies caused by the home secure real improvement, the domestic supply of money must be adjusted. Surprisingly, the intricacies regarding balance of payment disequilibrium and unfavourable monetary policy actions in developing countries have evolved the economic problem most especially in developing countries. To the extent that it has raised different troubles in the monetary activities which have, in turn, caused disarray in the right monetary instrument to be adopted by the monetary authorities. This has, in turn, made many developing countries' including Nigeria to fashion out various policies and programmes to manage this balance of payment disequilibrium as buttressed (Ajie & Nenbee, 2010).

In Nigeria, to improve the above, monetary authorities have emphasized on the

need to attain both internal and external balance equilibrium in the balance of payment. Little why the theory pointed out a direct relationship between the money supply and the balance of payments. From the theoretical viewpoint, money supply is expected to exhibit a positive relationship with balance of payment all things being equal. Though, the above assertion is evidence from past researches (Onwechu, Chukwegu, Nenbee & Wosu, 2018) have in contrast noted that, the balance of payment position in Nigeria has recorded a consistent colossal deficit. Irrespective of the government efforts to introduce, adopt, expand existing and new policy instruments and programmes in the macroeconomy. Nevertheless, it has failed to yield the expected outcome, which in turn has spurred up curiosity among researchers to ascertain the possible causes of this imbalance.

Interestingly, there have been divers debates among different schools of thought concerning how balance of payment imbalances can be adjusted. For instance, the first school of thought are the ones that believe in the role of the price level and interest to curb the imbalances in the balance of a payment issue. To achieve this, they relied on the classical doctrine whose focus is on the gold standard. The gold standard describes a monetary system where a country's currency or paper money relates to its gold, according to Taylor (2015). This school of thought has some limitations which pinpoint that the flow of gold is inversely related to the supply of money such that a decline in the supply of money will make output and employment to rise instead of price reduction. Furthermore, this, in turn, can lead to the expansion and contraction provided credit operations do not exist (Uford, 2017; Charles & Uford, 2023).

Consequently, guaranteeing adjustment when there is commodity balance as opined by Barrets (1937), the outcome of the above is that it will make full employment to be difficult to achieve which in turn would lead to hike in the price level as money supply skyrocket according to Tijani (2014), and Osisanwo et al. (2019). The keynesian school of thought debunk the classical school of thought by emphasizing that changes in income tend to affect the BOP adjustment, according to Harrods (1978). Particularly, Harrods pinpointed that the classical doctrine ruled out the possible direct effects of a specie movement on account of foreign lending and borrowing.

Accordingly, the classical economists aerated the movements of capital as an item in the current account to adjust themselves. Besides, Harrods believe that they can exercise a considerable influence on the flow of external investment and holds that capital mobility has the potentials to be induced by a gold flow which is possibly the most decisive factor in the automatic mechanism. The drawback of the Keynesian economists in this content was noted with some displeasure since countries with a surplus in income tend to experience increasing national income which in turn leads to rising demand for imports which partially expunge the

excess and vice-versa when it involves deficit nation. The above means that suppose two countries A and B are engaged in a trade; one would experience deficit and the other surplus.

The monetary approach overcame the deficiency of other methods. This approach is different from all other orthodox approaches to external balance. The implication is that it emphasizes on monetary rather than the relative price effects of balance of payments adjustment. Interestingly, the assumption pinpoints that the country's monetary policy directly influences monetary account of the balance of payment of a given country. Besides, the monetary approach believes that the relative prices do play a minor role because they only affect its composition rather than the aggregate expenditure as pointed by Lanciaux (1990). It further noted that excess supply of money encourages imports, which results in foreign exchange flowing overseas and reducing the money supply as buttressed by Carbaugh (2009).

Surprisingly, in spite of enormous studies carried out by researchers, there is no consensus on how efficacious monetary approach is in correcting balance of payment imbalances. However, the reason for the discrepancies above is not far-fetched from the different techniques adopted, the scope of the study, and the objectives of individual research, among others. This study intends to tour the line of the study of Osisanwo et al. (2019) although with an increase in the time frame, i.e. scope and some others modification to ascertain if there would be an improvement in our outcome or not based on several interventions that have emerged from 2015 to date. Beyond the aforementioned, this study also wants to analyze the role of federal external reserves (FER) can play in correcting the imbalances in the BOP of a country especially those from the oil exporting ones. And lastly, to identify the other factors that are responsible for the consistent colossal deficiency of BOP in Nigeria among others. It is based on the above, that this current study intends to revisit the relationship between macroeconomic policy and balance of payment adjustment in Nigeria.

The broad objective of this study to examine the impact of macroeconomic policies on balance of payment adjustment in Nigeria. Specifically, to determine the effect of monetary policy rate on Balance of Payment in Nigeria, to examine the effect of money supply on Nigeria Balance of Payment, to ascertain the effect of government expenditure on Nigeria Balance of Payment and to evaluate the relationship between government tax revenue and Balance of Payment in Nigeria

Related Literature

There are plethora of empirical evidences on the issue of balance of payment adjustment and macroeconomic policies with reference to economies across the globe and Nigeria in particular. Afolabi and Adekunle (2017), employing relevant tools of econometric methodology, corroborated the finding that exchange rate

volatility exerts significant negative impact on the BOP of Nigeria. In attempt to determine the suitability of the Marshall-Lerner condition in Nigeria, which advocates for currency devaluation-led improvement in BOP position, Nwanosike, Uzoechina, Ebenyi and Ishiwu (2017) used annual data from 1970 to 2014 in multivariate regression model framework. The study found that currency devaluation resulted worsens BOP deficit. Hence, the study concluded that the Marshall-Lerner condition is not valid in the short-run in Nigeria.

Osisanwo, Tella, & Adesoye, (2018) investigated the impact of fiscal policy on balance of payments adjustment in Nigeria between 1981 and 2015, using the bound testing approach. They established that there exists a long run relationship among fiscal policy instruments (tax and government expenditure), investment, output and balance of payments adjustment in Nigeria. They further revealed that in the long-run, government spending, investment and outputs have positive impact on balance of payments adjustment in Nigeria. However, tax revenue had negative impact on balance of payments in Nigeria. The high deficit finance by the Nigerian government where government spending is greater than tax revenue in most of the years considered had sustained the current account surplus in the country. Therefore, they concluded that an expansionary fiscal policy measure should be encouraged as they play vital role for the enhancement of balance of payments in Nigeria. In a more encompassing study, Adegoke and Olatunji (2018) examined the effect of macroeconomic variables on the balance of payment of Nigeria from during the period of 1986 to 2016. Adopting the ARDL estimation technique, they found that exchange and inflation rates exert positive and significant effect on the balance of payments, while the effect of interest rate and money supply is negative and significant. The relationship between floating exchange rate and Nigeria's balance of payment during the period of 1986 to 2016 was investigated by Gatawa (2018), using the VECM estimation technique. The findings showed statistically significant positive effect of floating exchange rate on balance of payment in Nigeria in the short-run and long-run.

A related study by Oghenebrume (2018) deployed the GARCH estimation method in studying the relationship between exchange rate volatility and BOP in Nigeria over the 1980 to 2016 period. The results showed positive and significant relationship between exchange rate volatility and BOP. Also, Nwanekezie & Onyiro (2018) found long-run relationship between exchange rate volatility and BOP, using the ECM approach. Based on ARDL and data from 1986 to 2018, a recent study by David and Elijah (2020) found that in the short- and long-run, the effect of exchange rate exerted on BOP of Nigeria is positive and significant, which implies that stability in exchange rate is crucial for maintaining a stable BOP in Nigeria.

In the year 2019, Benjamin and Olufemi examined the roles of Monetary Policy on Balance of Payment in Nigeria, using CBN quarterly data ranging from 1981 to

2019. they employed the ARDL co-integration analysis due to the mixed order of integration of the data. The study established that there is no long-run relationship between monetary policy and the balance of payment. And the short-run ARDL Error Correction Model, revealed MPR, INT, and M2 exhibit insignificant negative relationship with the balance of payment while there is an insignificant positive relationship between exchange rate, openness, and balance of payment. They concluded their study that monetary policy is ineffective in promoting the balance of payment in Nigeria. In same period, Osisanwo, Tella, & Adesoye (2019) investigated the impact of monetary policy on balance of payments (BOP) adjustment in Nigeria from 1980 to 2015. They also used the bound testing approach to show the relationship that exists among monetary policy variables (money supply, domestic credit, inflation and exchange rate), output growth, and trade balance and BOP adjustment in Nigeria. From their findings it was discovered that there is a long-run relationship between monetary policy variables and balance of payment adjustment. The findings further revealed that in the long-run, money supply and trade balance have positive impact on balance of payments adjustment in Nigeria. On the other hand, domestic credit, exchange rate, inflation rate and gross domestic product suggest a negative impact on balance of payments in Nigeria.

Again David and Elijah (2020) explored the policy effect and implication of exchange rate on balance of payments in Nigeria using CBN annual data from 1986 to 2018. The Augmented Dickey Fuller (ADF) and Bound Test were conducted to test for stationarity and long run relationship among exchange rate, money supply, trade openness, inflation and balance of payments. Pairwise casualty test was also conducted to ascertain the direction of causality between exchange rate and balance of payments. The ARDL result revealed that exchange rate and trade openness stimulate overall balance payments performance in Nigeria while the causality result showed independent relationship between exchange rate and balance of payments in Nigeria. The implication of these findings is that exchange rate stability is germane for enhancing balance of payments performance through the promotion of trade activities. Additionally, Amassoma, Ogbuagu, & Olaosebikan (2020), investigated the effect of monetary approach to balance of payments adjustment as a result of the persistent imbalances in the country's balance of payments and to find out its inherent causes using autoregressive distributed lag approach. They also used ARDL and CBN annual data from 1980 to 2019 for the study. Evidences from their findings revealed that, monetary approach (broad money supply and exchange rate) impacts on balance of payment, hence supports the monetary approach to BOP adjustment. Also, the results showed that trade-balances affects BOP adjustment but ineffective in correcting the longed experienced BOP deficits due to the country's over-reliance in imported goods and oil revenue. They concluded that the monetary variables significantly impacted BOP adjustment but ineffective in correcting Nigeria's BOP deficits.

In 2023, Khan attempted to re-explore the impact of domestic credit provided by the financial sector, real interest rate, real GDP growth, inflation rate, and exchange rate on the balance of payments by net foreign assets (NFA) in 17 developing countries from 1982 to 2019. The results indicate that domestic credit, interest rate, inflation and exchange rate have a significantly negative, while real GDP growth has a significantly positive impact on NFA. The results of Granger causality test reveals a bidirectional causality between domestic credit and NFA, between exchange rate and NFA. Furthermore, in the case of individual country analysis, overall empirical estimates of three estimators are acceptable for 17 individual countries although some dissimilarities are found between the countries in the magnitude of estimated coefficients of variables and level of significance.

Methodology

There exist different types of research designs in social sciences research, but for the purpose of this study we employ the ex-post facto research design. The relevant concepts in the choice of research design are dependent and independent variables, extraneous variables, confounded relationship, and hypothesis testing (Oluleye, 2017). The essence is to extract the true nature of relationship that exists among the variables under consideration bearing in mind the theoretical implication on which the study is anchored on. The variables considered in this study are divided into two groups; the explained and the explanatory variables. Variable's selection in econometric research is either by adoption, adaptation, derivation, intuition, or combination; in this study we select our variables by combination (Oluleye, 2017). The explained variable is the balance of payment of the country. On the other hand, the explanatory variables comprise of the instruments of fiscal policies; government spending, government tax revenue as percentage of GDP; and Monetary policy instruments; monetary policy rate, Money supply, inflation rate proxy for price level, while exchange rate and the external reserve serves as control variables.

Model Specification

A model is an abstraction of reality, and the relationship between macroeconomic policies and Balance of Payment Adjustment is presented in a model form as given below following modern monetary theory of Dhliwayo (1996) and fiscal policy implication of Alexander (1952) with little modification as;

$$\text{BOP} = F(\text{MPR}, \text{MS}, \text{INFR}, \text{GS}, \text{GTR}, \text{ER}, \text{FR}) \dots\dots\dots 1$$

Eqn. 1 is translated into econometric form as

$$\text{BOP} = \rho_0 + \rho_1\text{MPR} + \rho_2\text{ER} + \rho_3\text{INFR} + \rho_4\text{GS} + \rho_5\text{GTR} + \rho_6\text{FR} + \rho_7\text{MS} + \varepsilon \quad 2$$

With $\rho_{2-7} > 0$, and $\rho_1 < 0$

Where BOP is Nigeria annual Balance of Payment, MPR is monetary policy rate proxy for interest rate, MS is money supply in billions of naira, ER is exchange rate, INFR is inflation rate proxy for price level, GS is government spending in billions of naira, FR is foreign/external reserve in billions of naira, GTR is government tax revenue as percentage of GDP, ε is the error term

Empirical Results

Table 4.1 Correlation Matrix of Explanatory Variables

	LMS	MPR	LGTREV	LGS	LFOREV	ER	INF
LMS	1.00	0.02	0.95	0.99	0.89	0.95	-0.23
LMPR	0.02	1.00	0.11	0.10	-0.06	0.24	0.28
LGTREV	0.95	0.11	1.00	0.96	0.88	0.96	-0.23
LGS	0.99	0.10	0.96	1.00	0.88	0.97	-0.22
LFOREV	0.89	-0.06	0.88	0.88	1.00	0.86	-0.35
LER	0.95	0.24	0.96	0.97	0.86	1.00	-0.16
LINF	-0.23	0.28	-0.23	-0.22	-0.35	-0.16	1.00

Source: Authors computation using Eviews 10.0

The correlation matrix analysis focuses on the existence of strong correlation between independent or explanatory variables used in the model. This matrix gives a guide on the relationship between the variables of interest. The golden rule is that if the correlation between any of the explanatory variables is 0.80 and above then there is likelihood that the model will suffer from a multicollinearity problem. The correlation matrix result above does reveals a case of such high correlation between the explanatory variables. For instance, money supply has a high correlation with government tax revenue (0.95), with government spending (0.99), with foreign reserve (0.89), and with exchange rate (0.95). the correlation coefficient between foreign reserve and government spending is also high at 0.88, exchange rate and government spending (0.97), tax revenue and foreign reserve is 0.88, exchange rate and foreign reserve is 0.86. hence, there is need to drop some of these variables with high correlation to correct multicollinearity problem. We therefore, drop money supply, foreign reserve, and exchange rate in the model and rerun the correlation matrix as shown in table 4.1A below.

Table 4.1A: Correlation matrix continuation

	MPR	INF	GS	GTREV
MPR	1.00	0.36	-0.03	-0.22
INF	0.36	1.00	-0.19	-0.38
GS	-0.03	-0.19	1.00	0.52
GTREV	-0.22	-0.38	0.52	1.00

Here, the correlation coefficients between explanatory variables are now normal without high correlation coefficients. Hence, the inclusion of these variables in the model will not result to multicollinearity, and there is no need of dropping any variable in the model again as revealed by the test result, and as such all the four variables are taken in the model. We therefore proceed with the stationarity test of these variables in table 4.2

Table 4.2: Stationarity Test Results

Variables	ADF Level	CV 5%	ADF 1st diff	CV 5%	Order of Integration
BOP	-1.7878	-2.9290	-2.1383	-1.9504	I(1)
INF	-2.6934	-2.9390	-7.1775	-2.9390	I(1)
GTREV	-1.6920	-2.9350	-6.2639	-2.9369	I(1)
GS	-0.8754	-2.9369	-7.7996	-2.9369	I(1)

Source: Author Computation using Eviews 10.0

The decision rule here is that if the value of the ADF statistics is greater than the 5 percent critical value in absolute terms then we accept the null hypothesis that the variable data is stationary otherwise not. Also, the nature of the variable data from the stationarity test result will guide the research on the method of analysis to employ for the study. If the all the variables are stationary at level, then the classical least square will be use otherwise Johanson cointegration is use when the all the variable are stationary at level. However, a situation where there is mixed order of integration wherein some integrated in order zero and order one then the ARDL is expected to be use, also a situation where all the variable integrated in order one with none in order two, the ARDL is still more preferable to the Johansen cointegration. The comparative advantage the ARDL has over other empirical models is that it explores long-term relationships in levels between the variables of interest. Similarly, it has advantage over the previous methods introduced by Engel and Granger (1987), Phillips and Oularis (1990), Johansen (1995), Park (1990), Shin (1994), and Stock and Watson (1988) which were based on ways where variables are integrated of order one, I(1). However, this technique can be used for testing the cointegration between variables regardless of their order of integration; I(0), I(1) or both, but not I(2) because in this case, the ARDL model produces varying results (Ouattara, 2004).

The table 4.2 above, shows the computed Augmented Dickey Fuller (ADF) statistics and their corresponding 5 percent critical values of the variable data. The result for the level test shows none of the variable is stationary; their computed ADF statistics value is less than the corresponding 5 percent critical value in absolute terms. Taking their first difference, they turn stationary as their respective ADF statistics is now greater than their corresponding critical values in absolute terms. Hence, the series have unit root problem which reveals the true feature of time series data.

The variables contain an integration of order one, conventionally; it calls for the application of the Johansen cointegration method of analysis. However, given the advantages of Autoregressive Distributed Lag (ARDL) in terms of sample size and the aforementioned comparative features, we employ the ARDL to analyze the relationship between the variables. This model is solely developed to address stationarity/nonstationary with some degree of dynamism (Pesaran, Shin & Smith,

2001). This approach is also known as the Bound testing method of long run relationship analysis. According to Pesaran et al (2001) the ARDL model is superior to the Johansen and Juselius (1990), in terms of efficiency and consistency in both large and small sample data analysis of cointegration test.

Model Estimation

Table 4.3: Optimal Var Lag Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1618.24	NA	9.76	83.24	83.46	83.32
1	-1504.36	192.71*	1.04*	78.68*	79.96*	79.14*
2	-1482.07	32.01	1.27	78.82	81.17	79.67
3	-1460.13	25.87	1.78	78.98	82.39	80.20

Source: Author Computation

From the optimal lag test result base on the Akaike Information Criterion (AIC), the least value is (78.68) and the choice lag is lag one (1). We therefore estimate the ARDL precondition estimate with respect to the optimal lag choice of the model as shown in table 4.4 below.

Table 4.4: ARDL Precondition Result for Bound test

Dependent variable		BOP		
Method selection		ARDL(1,1,0,0,0)		
Variable	Coefficient	Std. Error	t-Statistic	Prob.*
BOP(-1)	-0.0623	0.173562	-0.3589	0.7219
GS	483.8497	195.6312	2.4733	0.0185
GS(-1)	-484.6492	237.2573	-2.0427	0.0489
GTREV	-283.1370	112.6669	-2.5130	0.0169
INF	-6976.832	14028.45	-0.4973	0.6222
MPR	66919.95	61224.67	1.0930	0.2821
C	-811154.5	878947.0	-0.9229	0.3626
R2 = 0.3376		F-stat = 2.8879 (0.0220)		DW = 2.0415

Source: Author's Computation

The above table shows the estimated precondition ARDL model of BOP and macroeconomic policies indicators (GS, GTREV, INF, and MPR), with BOP and GS having a single lag each while the rest variables has zero lag. The model estimate shows that GTREV(government tax revenue), INF, and the Lags of BOP and GS (government spending) has a negative effects on the current state of the country balance of payment (BOP). The negative effects of GTREV, and INF confirm our apriori expectation as posited by scholars that tax discourage productivity which in turn reduces export level and overall balance of payment system if not properly manage by the macroeconomic administrator. The tax increase induce inflation and economic productivity of the country. On the other hand, government lag negative sign also affirm theory as most government fiscal decision are mor of short term than long term. While current government spending

and monetary policy rate has positive effects on balance of payment.

The estimated model presents the true relationship between the macroeconomic policies and balance of payment in the Nigerian economy with a negative intercept of -811154.5. the intercept measures the average level of BOP in the economy without effects of macroeconomic policies but very insignificant which implies that there are limited factors aside the one in the model that drives the economy BOP. The above estimated model shows the true nature of the Nigeria BOP as determined by government spending, government tax revenue, monetary policy rate, and inflation rate. The lags in the model have a uniform effect on the explain variable.

A unit change in GS, GTREV, INF and MPR induces the average level of economy BOP to change by 483.85, -283.14, -6976.83, and 66919.95 respectively in billions of naira. While a unit change in the first lag of GS, will reduce the average level of the economy BOP by -484.65 billion of naira.

Statistically, current government spending, first lag of government spending, and government tax revenue are statistically significant at 5 percent level, and as policy variables of macroeconomic policies are true determinants of the Nigeria BOB in the short term, with a p-values of 0.0185, 0.0489, and 0.0169 less than 0.05 respectively. While monetary policy rate, and inflation rate are not statistically significance at 5% level, with p-values greater than 0.05 as indicated in the table above. The coefficient of determination estimate shows that the regression line has a fair fit, and that selected indicators of macroeconomic policies predicts only about 33.76 percent of the total variability of the Nigerian BOP level. The computed Durbin Watson statistics is a clear indication that the estimated regression line satisfies the classical least square assumption and there is no autocorrelation. The F-statistics reveals that the estimated model is generally significant and different from zero with long term effects implication of macroeconomic policies on BOP.

To further buttress our analysis we proceed with the Bound test to examine the existence of long run relationship between the variables as indicated in the table below;

Table 4.5: Bound Test Result

Null Hypothesis: No long-run relationships exist		
Test Statistic	Value	K
F-statistic	7.33	4
Significance	I0 Bound	I1 Bound
5%	2.56	3.49

Source: Author's Computation

In this test, the decision rule is that if the computed f-statistics value is higher than

the I1 bound critical value then we reject the null of no long run relationship, and conclude that there is long run relationship. However, if the f-statistics is less than the I0 bound critical value then we cannot reject the null hypothesis of no long run relationship. However, if f-statistics falls in between the I0 and I1 bound critical values then we are indecisive on the existence of long run relationship. The bound test result in table 4.6 above shows that there is long run relationship between the variables, given the fact that the computed f-statistics value (7.33) is greater than the I1 (3.49) bound of 5 percent critical level. Hence, the model above has met the necessary condition of cointegration, and we can now proceed in examining if it will satisfy the second condition of cointegration by estimating the short run and long run effects of macroeconomic policies on balance of payment in Nigeria. Table 4.6 below shows the cointegration/long run equations.

Table 4.6: Cointegration/Short run Equation (ECM)

Dependent Variable		D(LBOP)		
ARDL		(1,1,0,0,0)		
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GS)	483.8497	130.6190	3.7043	0.0007
CointEq(-1)*	-1.0623	0.1496	-7.1017	0.0000
R2 = 0.5844		DW= 2.0415		

Source: Author's Computation using Eviews 10

Table 4.6 above shows the estimated short run equation with government spending having a positive and significant effects on BOP level. That a unit change in government spending induces BOP by 483.85 billion naira. Furthermore, government spending is statistically significant at 5 percent level with a p-value of 0.0007. The computed coefficient of determination has improve R2 (0.5844), implying that macroeconomic policies predict about 58.44 percent of the total variability of Nigerian BOP in the short run. Hence, estimated short run equation has a good fit and that macroeconomic policies effects on BOP will be more felt in the long run than short run.

The computed adjustment coefficient assumes the right sign (-1.0623) and statistically significant at 5 per cent level of significance with a p-value of 0.0000. Hence, the estimated model met both the necessary and sufficient condition of cointegration or long run relationship which validity the bound test result on the existence of long run relationship. More so, it provides enough/sufficient evidences for BOP and macroeconomic policies to cointegrate in the long run. That Nigerian BOP will adjust to equilibrium from the error of disequilibrium generated by macroeconomic policies in the short run by 106.23 percent within a business cycle.

Table 4.7: Long run coefficients

Dependent variable		LGDP		
Model selected		ARDL(1,1,0,0,0)		
Variable	Coefficient	Std. Error	t-Statistic	Prob.
GS	-0.7526	59.6586	-0.0126	0.9900
GTREV	-266.5361	92.4759	-2.8822	0.0068
INF	-6567.765	13185.98	-0.4981	0.6216
MPR	62996.29	55867.72	1.1276	0.2674
C	-763594.7	809546.3	-0.9432	0.3522

Source: Author's Computation using Eview 10.0

The long run equation has a negative and insignificant intercept of -763594.7 which define the BOP level at zero policy in the economy with GS, GTREV, and INF having a negative effects on BOP, while MPR having a positive effect on BOP. In the long run a unit change in these variables will induce the level of BOP by -0.75, -266.54, -6567.76 and 62996.29 Billions for GS, GTREV, INF, and MPR respectively. It worth mention that in the long run after all adjustment from the errors, only GTREV significantly predict BOP in Nigeria with a p-value of 0.0068. Hence, Nigerian macroeconomic policies have negative effects on BOP in the long run.

Post Estimation Analysis

Table 4.9: Serial Correlation Test Result

F-statistic	1.6953	Prob. F(2,33)	0.1991
Obs*R-squared	3.8200	Prob. Chi-Square (2)	0.1481

Source: Author's Computation

Table 4.9 shows the result of the serial correlation test of the model residual. From the insignificance status of the computed f-statistics and chi-square, we conclude that there is no serial correlation and multicollinearity. And this result validated the null hypothesis that the regression line is efficient and consistent without multicollinearity.

Normality Test:

The test shows that the error is normally distributed across the period under review, and that it disperses against the mean and the distribution of the items is asymmetrical. The Jarque-Bera normality test with value of 55.5571 and

probability value of 0.0000 indicates the validation of the null hypothesis that the residuals are not normally distributed as indicated in figure 1.

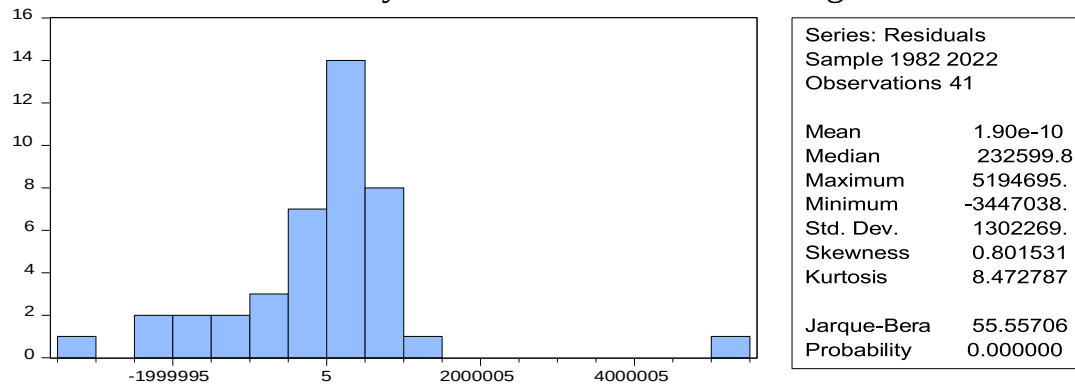


Figure 1: Jarque-Bera Normality test

Cumulative Sum Test

The result of the cumulative sum of recursive residual (CUSUM) test shows that the estimated result is in order and the residual is normal and within the bound, hence it spreads across the period. The (CUSUM) indicates the validation of the null hypothesis that the residuals are stable since the CUSUM square line fall in between the two 5% lines for the three cases as shown in figures below.

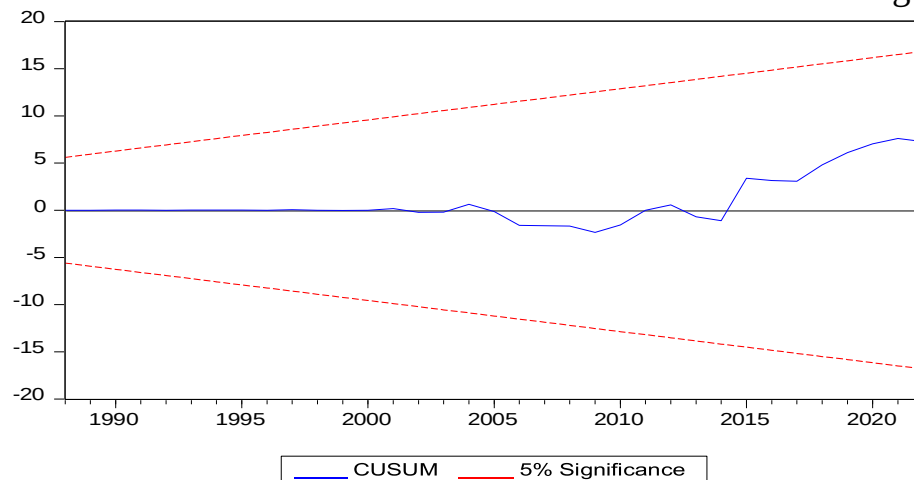


Figure 2: CUSUM and CUSUM Square Tests

Conclusion

From the above findings it is crystal clear that the implications of macroeconomic policies on the variability of BOP are driven by fiscal policy variables in the short run, and monetary policy variables complementing fiscal policy variables in the long run. Although, the fiscal policy effects has been negative in both period due to fiscal illusion, as government spending increase is being swollen by inflation. The monetary policy effects in the long run too have been fairly effective in sustaining favourable balance of payment. We therefore recommend the following:

Government spending should be production motivated to enhance export and investment in portfolios. This will weaken the negative effects of the fiscal policy on BOP. Again, tax as compulsory levy should be more economical in nature and welfare related. This will do more good to the economy than a profit oriented tax system wherein political office holders are more or less unproductive in consuming tax revenue. Finally, there is need to review the policy rate to encourage domestic production and growth. This will enhance local consumption and favourable balances of payment, as individual have access to credit and invest accordingly.

REFERENCES

- Adegoke, A. K., & Olatunji, Y. O. (2018). Macroeconomic forces and balance of payment in Nigeria: The triple helix of elasticity-absorption-monetary approaches. *Asian Journal of Economics, Business and Accounting*, 8(1).
- Afolabi, B., & Adekunle, S. (2017). The analysis of exchange rate fluctuations on Nigeria's balance of payments. *International Research Journal of Finance and Economics*, 163.
- Ajie, A. and Nenbee, R. (2010). Monetary policy and balance of payments in Nigeria, 1970 -2009. *African Journal of Humanities and Society*, 5(2).
- Alexander, S.S. (1952) Effects of a Devaluation on a Trade Balance. *International Monetary Fund Staff Papers*, 2: 263-278.
- Amassoma, D., , Ogbuagu, M.I., & Olaosebikan, B. (2020). Re-investigating the Effect of Monetary Approach to Balance of Payment Adjustment in Nigeria. *Chiang Mai University Journal of Economics*, 24(2).
- Benjamin, O. and Olufemi, O.B. (2019). The Roles of Monetary policy on Balance of Payment in Nigeria. *International Journal of Management Studies and Social Science Research*, 2(3).
- Charles, I. I. & Uford, I. C. (2023). Comparative Analysis and Evaluation of Business and Financial Performance of Amazon.Com: A Three-Year Period Critical Review of Exceptional Success. *European Journal of Business, Economics and Accountancy*, 11(2), 69-92.
- David, D.F. and Elijah, A.O. (2020). Exchange Rate and Balance of Payments in Nigeria. *E u r o E c o n o m i c a*, 39(1).
- Dhliwayo, R. (1996). The Balance of Payments as Monetary Phenomenon: An Econometric Study of Zimbabwe's Experience.
- Ekwe, M. C., Ogbonnaya, A. K. & Omodero, C.O. (2017). Monetary policy and the Nigeria economy: An impact investigation. *International. Journal of Economics and Finance*, 9(11).
- Gbosi, A. N. (2002). *Financial Sector Instability and Challenges to Nigeria's Monetary Authorities*. Port Harcourt: African Heritage Publishers
- Engel, R. and Granger, C. (1987). Co-integration and Error-Correction: Representation, Estimation and Testing, *Econometrica*, 55.
- Johanson, A. and Juselius (1990). Maximum Likelihood Estimation and Inference on Co-integration with Application to the Demand for Money, *Oxford*

Bulletin of Economics and Statistics, 52, 169-209

- Khan, M.A. (2023). Does Monetary Policy Solely Correct Disequilibrium in the Balance of Payment? Evidence From the Developing World. *Journal of Central Banking Theory and Practice*, 2023, 1, pp. 57-85
- Nnanna, O. (2001). Monetary Management Objectives, Tools and the Role of Central Banks in the Region. Regional Forum on Economic and Financial Managements for Parliamentarian. Nigeria: WAIFEM.
- Nwanosoke, D.U., Uzoechina, B., Ebenyi, G.O., & Ishiwu, V. (2017). Analysis of Balance of Payment Trends in Nigeria: A Test of Marshall-Lerner Hypothesis. *Saudi Journal of Business and Management Studies*, 2(5).
- Oghenebrume, A. D. (2018). Exchange Rate Volatility and Balance of Payments Problem in Nigeria, 1980-2016. *Journal of Finance and Economics*, 6(2).
- Oluleye, F.A. (2017). Research Method and Econometric, Lecture Note
- Onuchuku, O., Chukuegu, C., Nenbee, S. G., & Wosu, C. (2018). Monetary policy and Nigeria's Balance of payments. Proceedings of ISER 128th International Conference, New York, USA, 16th-17th May 2018, 72-79.
- Osisanwo, B. G., Tella, S. A. & Adesoye, B. A. (2019). The empirical analysis of monetary policy on balance of payments adjustments in Nigeria: A bound testing approach. *Iran. Economic Review*, 23(1).
- Osisanwo, B., Maku, O., & Ajike, E. &. (2015). Growth effect of balance of payments and monetary policy in Nigeria, 1980 – 2013: A time series analysis. *Global Journal of Management and Business Research. Administration and Management*, 15(8).
- Pesaran, H.M., Shin, Y., & Smith, R. J. (2001). Bounds Testing Approaches to the Analysis of level Relationships. *Journal of Applied Econometrics*, 16, 289-326.
- Stock, J. H. & Watson, M. W. (1993). A simple estimator of cointegrating vectors in higher order integrated system. *Econometrica*, 61, 783-820.
- Taylor, T. (2015). What a return to the Gold standard means for your money? Retrieved from <https://money.com/ted-cruz-gold-standard-federal-reserve/>
- Tijani, J. O. (2014). Empirical analysis of balance of payment adjustment mechanisms: monetary channel in Nigeria. *Mediterranean Journal of Social Sciences*, 5(1).
- Uford, I. C. (2017). *Customer and employee- based brand equity driving United Bank for Africa's market performance*. Ph.D. Thesis, University of the Witwatersrand, Johannesburg, South Africa, 1-227.