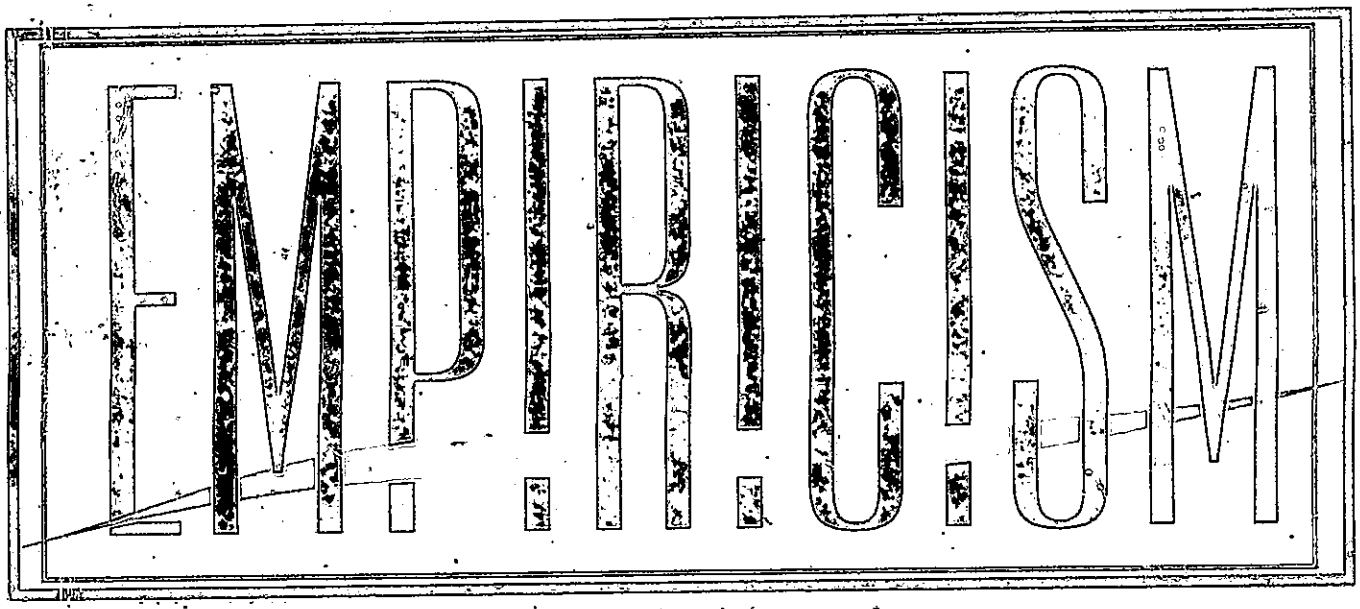

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THE IMPACT OF MONETARY POLICY ON BALANCE OF PAYMENTS IN NIGERIA: AN ERROR CORRECTION SPECIFICATION.

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ABSTRACT

The paper looked at the impact of monetary policy on balance of payment in Nigeria. The study utilized the major indicators of monetary policy namely; money supply (in bond terms), exchange rate, real gross domestic product, credit rate and lending rate as explanatory variables while the dependent variable was balance of payment. It was observed that the efficacy of monetary policy instruments was hampered by the combined influence of fiscal dominance and political interferences. The study recommended that during the period of recession expansionary monetary policy should be applied while a tight monetary policy should be used during the period of stagflation as this will enhance national economic goal of full employment without inflation.

INTRODUCTION

Monetary Policy refers to the attempt to achieve the national economic goals of full employment without inflation, rapid economic growth and balance of payment equilibrium through the control of the economy's supply of money and credit and a satisfactory rate of economic growth. (Iyoha, 2004).

Specifically, it consist of actions by the government aimed at the achievement of a set of economic objectives through the deliberate actions of the government monetary authorities, the Central Bank (CBN) and the Ministry of Finance to control the money supply and general credit availability and the rate of interest. It suffixes to note that commercial banks are absurdly the main medium of monetary control because they constitute an important source of money supply and play a significant role in making credit available.

There has been a great need to extend monetary analysis to open economy due to the growing importance of external influences on economies in an increasingly integrated

world economy. To this extent, this study aims at finding out the impact of monetary Policy on Balance of Payment in Nigeria. The study intends to find out the effect of some operational independent variable such as: money supply, exchange rate, lending rate gross domestic product (GDP) and credit rate on the country's balance of payment during the period in order to suggest policy guidelines for sustainable economic development. Consequent upon this, the research hypothesis is based on the tents that the independent variables no not impact meaningfully and significantly on the balance of payments

DEFINITION OF THE BALANCE OF PAYMENT

The balance of Payment is defined as a statement of the exports and imports of commodities and financial capital. (Handa, 2000). It can be presented in an economic or accounting firm, if the economic balance of Payments were arranged in the form of a table. It will specify each of the sources of the inflows and outflow of funds from a country and the difference between them. This we define the economic Balance of payment as:

$$B = (X_c + Z_k + N_R + bN_T) = (Z_c + X_k)$$
$$= X_c - Z_c + N_R + N_T - (X_k - Z_k)$$

Where:

B = balance of payments

X_c = Value of exports of commodities (goods and services)

X_K = Value of capital exports

Z_c = Value of import of commodities (goods and services)

Z_K = Value of capital imports

N_R = Net interest and dividend inflows

N_T = Net unilateral transfers (gifts and donations) to the domestic economy from abroad.

From the equation ($X_c + Z_K + N_R + N_T$) Are the inflows of Foreign exchange with X_c as the inflows against the export of commodities. Z_K as the inflows against the outflows of bonds including stocks and shares and other claims of ownership). N_p as the net inflows of interest and dividends from abroad and N_T as the net inflows of gifts and remittance.

N_R and N_T represent inflows of funds without a corresponding reverse flow of currently produced commodities or banks.

In the equation above, B which is the balance of payment could be positive, negative or zero. If $B > 0$ then there is s surplus in the balance of payment. If $B < 0$, there is a deficit and if $B = 0$, the balance of payment is said to be in equilibrium. Thus, if $B < 0$ or $B > 0$ the balance of payments is said to be in disequilibrium.

APPROACHES TO THE BALANCE OF PAYMENT.

There are three main analytical approaches to the balance of payments.

These are:

- The Elasticity's approach
- The absorption approach
- The monetary approach

THE ELASTICITIES APPROACH:

The Traditional Elasticity's approach was developed in the 1 930s by Robinson (1937) and it concentrates on the elasticity conditions necessary for a devaluation to improve the current account component of the balance of payments. It is a partial equilibrium model which focuses on the response of exports and imports to changes in relative prices and ignores income effects, capital flows and the money market.

This approach assumes that the supply elasticity of exports and imports are infinite so that their prices can be treated as constant. Thus, the Marshal- Lerner condition which states that devaluation will improve the balance of payments on current account if the sum of the price elasticity of demand for exports and imports exceed unity, is prevented in this approach. This approach suggest that if workers succeed in maintaining the purchasing power of their incomes, the rise in domestic prices and wages following depreciation would eventually wipe out any initial competitive gains from depreciation

THE ABSORPTION APPROACH:

This approach represents extension to an open economy of the Keynesian Income- expenditure analysis. It focuses attention on the product market rather than the foreign exchange market and appears to ignore completely the money market. By concentrating its attention upon income and expenditure flows, it omits important explanatory variables, cash balances, other monetary variables and relative prices.

The approach emphasizes the fact that payments imbalances are characterized by 'ex ante' divergences between aggregate income receipts and aggregate domestic expenditure. It has been criticized on the grounds that it is incomplete since it ignores monetary conditions completely and unsatisfactory by postulating highly questionable assumptions about the behaviour of certain strategic monetary variables.

THE MONETARY APPROACH:

This approach focuses on the balance of payments as a whole and defines balance of payments disequilibrium as a change in the level of foreign exchange reserves. These changes in reserves are seen as both reflecting a disparity between actual and desired money balances and at the same time, providing an automatic mechanism by which equilibrium in the money market is restricted.

There are two key elements to the automatic adjustment mechanism between the balance of payments and the money market. The first of these is the direct relationship which exists for an open economy with a fixed exchange rate between its domestic money supply and its balance of payment. The second element is the demand for money which emphasizes that the demand for money is a stock demand and not a flow demand making it a stable function of a small member of variables. The distinctive feature of the monetary approach is its emphasis on the importance of money factors in the determination of the balance of payments. There can only be long-run equilibrium in the balance of payments, if there is full stock equilibrium in the money market. Excess money balances arising from a balance of payments surplus would be absorbed into idle

money balances and the automatic balance of payments adjustment mechanism would not operate.

MODEL SPECIFICATION

We specify our Model as follows:

$BOP = a_0 + a_1 MS_t + + a_2 EXR_t + + a_3 RGDP + a_4 CRR_t + + a_5 LR + + U_t$

Where:

BOP = Balance of Payments

MS = Money Supply

EXR = Exchange Rate

RGDP= Real Gross Domestic Product

CRR Credit Rate

LR = Lending Rate

U = Error term or Stochastic term

On the apriori

We write down a general dynamic relationship between the dependent and independent variables as follows shown below and include lagged values to allow for a wide variety of dynamic patterns in the data.

$= a_0 + a_1, ms_t + a_2 ms_t \quad -1 + a_3 EXR_t + A_4 EXR_t - 1 + a_5 RGDP_4 + a_6 RGDP_t - 1 + a_7 CRR_t + a_8 CRR_t - 1 + a_9 LR + a_{10} LRt - 1 + U_t .$

Thus, the change in one variable is related to the change in another variable as well as the gap between the variable in the previous period.

PRESENTATION AND ANALYSIS OF REGRESSION RESULTS

In this section we present and analyze the model that was specified in the previous section. The Error Correction Representation for the selected ARDL. The estimation was done for the period 1981 to 2009 Quarterly being 113 observations.

From the result, R- Square is .64482 while the adjusted R-Bar Square is .61378 which means that 61% variation is the dependent variable is being accounted for by the change in the explanatory variables. Considering the overall significance of the model using the F-Statistics, the model has F = (C7, 105) 26.71331 is significant, thus we

cannot reject the hypothesis stating the existence of a significant linear relationship between BOP and the other explanatory variables.

The individual coefficients of the variables also performed well in the test of significance each of the coefficient passed the significance test at the 1 percent level which shows that the each of the highlighted coefficients had a form of significant impact or the other on the balance of payments during the period The DW statistics value of 1.7887 does not suggest that autocorrelation is a problem. This gives the impact for the usefulness of the parameters for predictive as well as explanatory purposes and the model is free from biasedness either on 'the coefficients or the standard error.

CONCLUSION

Monetary Policy in Nigeria is relatively successful during the period of financial sector reform where indirect monetary policy instruments are used than under the control regime. The efficiency of monetary policy in Nigeria has been hampered by the combined influence of fiscal dominance and political interference. The efficient use of monetary policy instrument will equilibrate balance of payments problem.

POLICY IMPLICATION OF RESULT

Policy issues arises from the discussion in the previous section. These issues are concerned with monetary policy interaction with BOP and eventually macroeconomic interactions with the external sector. The result revealed that money supply has a significant positive impact on balance of payments. Indeed, rising money supply has the capacity of stimulating not only consumption but also Gross domestic (and foreign investment).

The result also indicate that lending rate has a negative and significant impact on BOP while exchange rate depreciates as the BOP also deteriorates. The depreciations of the naira will eventually improve the nations external balance. The ability to import becomes difficult because more naira is need to purchase less imports, which discourages importation and thus boost the current account.

Finally, the result shows a significant positive impact of GDP on BOP. This implies that as income grows, balance of Payments improves. when income grows, the nation's

absorptive capacity increases ands reflected on the foreign investors as a rise in the market for their investment. Thus if the Nigerian economy grows, there is every tendency that the external sector will find a balance to equilibrium.

REFERENCE

Andrew Stevesonson, Vitantonie Muscatalli (1988) *Macroeconomic Theory and Stabilization Policy* Bamess and noble books. Totowa, New Jersey.

Gujarati N. Damoda (2006) *Basic Econometrics*. New Delhi Tata McGraw-Hill Publishing company Limited.

Jagdish Handa (2004) *Monetary Economics*. Routledge New Fetter lane, London.

Iyoha, M.A and Ekanemn, O.T (2002) *An Introduction to Econometrics*. Marreh Publishers, Benin City, Nigeria.

Nnanna, O.J (2001) *Monetary Policy Framework in Africa* The Nigeria Experience. Nigeria: CBN.

Okojie, E.I. and Umoru David (2004). *An Empirical test of the effectiveness of monetary policy in macroeconomic stabilization of the Nigerian economy* Nigerian journal of business administrator vol no. 2.

Pierce D.G. and Tysonne, P.T. (2002). *Monetary Economics: Theory, Evidence and Policy*. Butter worth's Publishers, London.

Plot of Actual and Fitted Values - Impact of monetary policy on the BOP

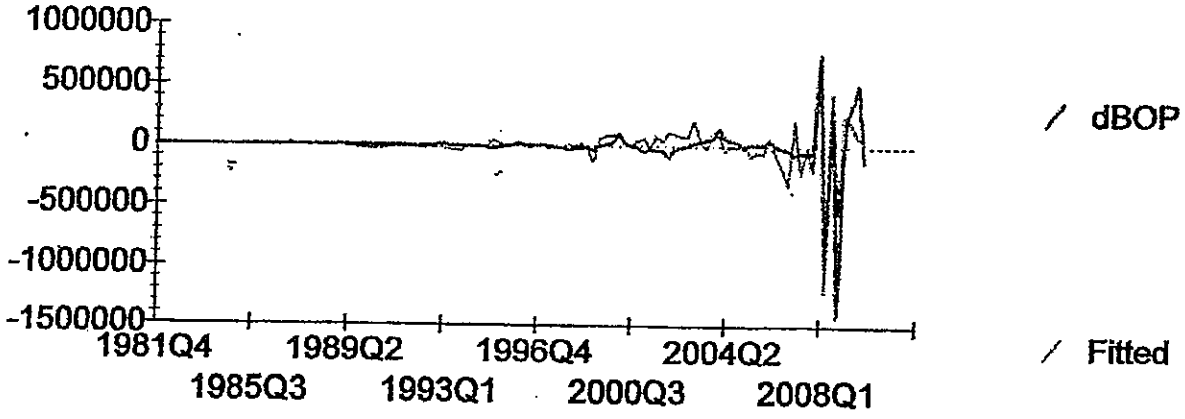

Table 1

Error Correction Representation for the Selected ARDL Model
ARDL(2,2,1,0,0) selected based on R-BAR Squared Criterion

Dependent variable is dBOP
113 observations used for estimation from 1981Q4 to 2009Q4

Regressor	Coefficient	Standard Error	T-Ratio[Prob]
dBOP1	-.19432	.069042	-2.8145[.006]
dM2	.29551	.056677	5.2140[.000]
dM21	-.30194	.082753	-3.6487[.000]
dEXRT	-2850.9	1854.7	-1.5371[.127]
dGNGDP	407.5117	805.2464	.50607[.614]
dLINTR	-2706.2	2391.5	-1.1316[.260]
dINPT	30514.4	42732.7	.71408[.477]
ecm(-1)	-.28845	.087979	-3.2786[.001]

List of additional temporary variables created:
dBOP = BOP-BOP(-1)
dBOP1 = BOP(-1)-BOP(-2)
dM2 = M2-M2(-1)
dM21 = M2(-1)-M2(-2)
dEXRT = EXRT-EXRT(-1)
dGNGDP = GNGDP-GNGDP(-1)
dLINTR = LINTR-LINTR(-1)
dINPT = INPT-INPT(-1)
ecm = BOP + .097681*M2 -4056.2*EXRT -1412.8*GNGDP + 9382.0*LINTR -1057
88.7*INPT

R-Squared	.64482	R-Bar-Squared	.61378
S.E. of Regression	123220.8	F-stat. F(7, 105)	26.7133[.000]
Mean of Dependent Variable	-1264.8	S.D. of Dependent Variable	198275.5
Residual Sum of Squares	1.56E+12	Equation Log-likelihood	-1479.7
Akaike Info. Criterion	-1489.7	Schwarz Bayesian Criterion	-1503.3
DW-statistic	1.7887		

R-Squared and R-Bar-Squared measures refer to the dependent variable dBOP and in cases where the error correction model is highly restricted, these measures could become negative.

Table 2

Unit root tests for residuals

Based on OLS regression of BOP on:
INPT M2 EXRT GNGDP LINTR
115 observations used for estimation from 1981Q2 to 2009Q4

	Test Statistic	LL	AIC	SBC	HQC
DF	-5.8566	-1525.1	-1526.1	-1527.4	-1526.6
ADF(1)	-3.8775	-1520.9	-1522.9	-1525.6	-1524.0

95% critical value for the Dickey-Fuller statistic = -4.5409
LL = Maximized log-likelihood AIC = Akaike Information Criterion
SBC = Schwarz Bayesian Criterion HQC = Hannan-Quinn Criterion

Table 3

Unit root tests for variable DLINTR
The Dickey-Fuller regressions include an intercept but not a trend

112 observations used in the estimation of all ADF regressions.
Sample period from 1982Q1 to 2009Q4

	Test Statistic	LL	AIC	SBC	HQC
DF	-10.0205	-228.2739	-230.2739	-232.9924	-231.3768
ADF(1)	-7.1559	-228.2715	-231.2715	-235.3493	-232.9260
ADF(2)	-6.1607	-228.1474	-232.1474	-237.5844	-234.3533

95% critical value for the augmented Dickey-Fuller statistic = -2.8872
LL = Maximized log-likelihood AIC = Akaike Information Criterion
SBC = Schwarz Bayesian Criterion HQC = Hannan-Quinn Criterion

Unit root tests for variable DLINTR
The Dickey-Fuller regressions include an intercept and a linear trend

112 observations used in the estimation of all ADF regressions.
Sample period from 1982Q1 to 2009Q4

	Test Statistic	LL	AIC	SBC	HQC
DF	-10.0254	-228.0026	-231.0026	-235.0803	-232.6571
ADF(1)	-7.1864	-228.0024	-232.0024	-237.4394	-234.2084
ADF(2)	-6.1954	-227.8460	-232.8460	-239.6422	-235.6034

95% critical value for the augmented Dickey-Fuller statistic = -3.4501
LL = Maximized log-likelihood AIC = Akaike Information Criterion
SBC = Schwarz Bayesian Criterion HQC = Hannan-Quinn Criterion

Table 4

Unit root tests for variable DGNGDP

The Dickey-Fuller regressions include an intercept but not a trend

111 observations used in the estimation of all ADF regressions.

Sample period from 1982Q2 to 2009Q4

	Test Statistic	LL	AIC	SBC	HQC
DF	-17.3328	-485.8774	-487.8774	-490.5870	-488.9766
ADF(1)	-13.5133	-476.4780	-479.4780	-483.5423	-481.1268
ADF(2)	-16.2552	-452.2431	-456.2431	-461.6622	-458.4415

95% critical value for the augmented Dickey-Fuller statistic = -2.8874

LL = Maximized log-likelihood AIC = Akaike Information Criterion

SBC = Schwarz Bayesian Criterion HQC = Hannan-Quinn Criterion

Unit root tests for variable DGNGDP

The Dickey-Fuller regressions include an intercept and a linear trend

111 observations used in the estimation of all ADF regressions.

Sample period from 1982Q2 to 2009Q4

	Test Statistic	LL	AIC	SBC	HQC
DF	-17.2537	-485.8652	-488.8652	-492.9295	-490.5140
ADF(1)	-13.4522	-476.4622	-480.4622	-485.8813	-482.6606
ADF(2)	-16.1948	-452.1646	-457.1646	-463.9385	-459.9126

95% critical value for the augmented Dickey-Fuller statistic = -3.4504

LL = Maximized log-likelihood AIC = Akaike Information Criterion

SBC = Schwarz Bayesian Criterion HQC = Hannan-Quinn Criterion

Table 5

Unit root tests for variable DEXRT

The Dickey-Fuller regressions include an intercept but not a trend

112 observations used in the estimation of all ADF regressions.

Sample period from 1982Q1 to 2009Q4

	Test Statistic	LL	AIC	SBC	HQC
DF	-9.5279	-371.4719	-373.4719	-376.1904	-374.5749
ADF(1)	-7.0081	-371.4716	-374.4716	-378.5494	-376.1261
ADF(2)	-5.8429	-371.4677	-375.4677	-380.9047	-377.6737

95% critical value for the augmented Dickey-Fuller statistic = -2.8872

LL = Maximized log-likelihood AIC = Akaike Information Criterion

SBC = Schwarz Bayesian Criterion HQC = Hannan-Quinn Criterion

Unit root tests for variable DEXRT

The Dickey-Fuller regressions include an intercept and a linear trend

112 observations used in the estimation of all ADF regressions.

Sample period from 1982Q1 to 2009Q4

	Test Statistic	LL	AIC	SBC	HQC
DF	-9.5671	-371.0285	-374.0285	-378.1063	-375.6830
ADF(1)	-7.0646	-371.0261	-375.0261	-380.4631	-377.2321
ADF(2)	-5.9138	-371.0091	-376.0091	-382.8054	-378.7666

95% critical value for the augmented Dickey-Fuller statistic = -3.4501

LL = Maximized log-likelihood AIC = Akaike Information Criterion

SBC = Schwarz Bayesian Criterion HQC = Hannan-Quinn Criterion

Table 6

Unit root tests for variable DM2
The Dickey-Fuller regressions include an intercept but not a trend

112 observations used in the estimation of all ADF regressions.
Sample period from 1982Q1 to 2009Q4

Test Statistic	LL	AIC	SBC	HQC
DF -8.6432	-1564.3	-1565.3	-1569.0	-1567.4
ADF(1) -3.6808	-1554.4	-1557.4	-1561.5	-1559.1
ADF(2) -3.0336	-1554.0	-1558.0	-1563.5	-1560.2

95% critical value for the augmented Dickey-Fuller statistic = -2.8872
LL = Maximized log-likelihood AIC = Akaike Information Criterion
SBC = Schwarz Bayesian Criterion HQC = Hannan-Quinn Criterion

Unit root tests for variable DM2
The Dickey-Fuller regressions include an intercept and a linear trend

112 observations used in the estimation of all ADF regressions.
Sample period from 1982Q1 to 2009Q4

Test Statistic	LL	AIC	SBC	HQC
DF -10.7402	-1552.8	-1555.8	-1559.9	-1557.4
ADF(1) -5.1638	-1548.3	-1552.3	-1557.8	-1554.5
ADF(2) -4.5636	-1548.3	-1553.3	-1560.1	-1556.1

95% critical value for the augmented Dickey-Fuller statistic = -3.4501
LL = Maximized log-likelihood AIC = Akaike Information Criterion
SBC = Schwarz Bayesian Criterion HQC = Hannan-Quinn Criterion

Table 7

Unit root tests for variable DBOP
The Dickey-Fuller regressions include an intercept but not a trend

112 observations used in the estimation of all ADF regressions.
Sample period from 1982Q1 to 2009Q4

Test Statistic	LL	AIC	SBC	HQC
DF -16.7297	-1513.2	-1515.2	-1517.9	-1516.3
ADF(1) -6.9823	-1510.6	-1513.6	-1517.7	-1515.3
ADF(2) -7.6747	-1505.6	-1509.6	-1515.1	-1511.8

95% critical value for the augmented Dickey-Fuller statistic = -2.8872
LL = Maximized log-likelihood AIC = Akaike Information Criterion
SBC = Schwarz Bayesian Criterion HQC = Hannan-Quinn Criterion

Unit root tests for variable DBOP
The Dickey-Fuller regressions include an intercept and a linear trend

112 observations used in the estimation of all ADF regressions.
Sample period from 1982Q1 to 2009Q4

Test Statistic	LL	AIC	SBC	HQC
DF -16.6577	-1513.2	-1516.2	-1520.2	-1517.8
ADF(1) -6.9458	-1510.6	-1514.6	-1520.1	-1516.8
ADF(2) -7.6496	-1505.5	-1510.5	-1517.3	-1513.3

95% critical value for the augmented Dickey-Fuller statistic = -3.4501
LL = Maximized log-likelihood AIC = Akaike Information Criterion
SBC = Schwarz Bayesian Criterion HQC = Hannan-Quinn Criterion