



ANALYSIS OF SOME SELECTED MACROECONOMIC VARIABLES AND BALANCE OF PAYMENT DISEQUILIBRIUM IN NIGERIA

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Abstract

The primary objective of this research was to investigate a few specific macroeconomic issues and the Nigerian payments imbalance. The main aim and objective of this study is to evaluate the short and medium term connection among select macroeconomic parameters and imbalance in Nigerian's balance of payments. The National Bureau of Statistics and the CBN statistics bulletin were used in the compilation of the time series data for the years 1986 to 2021. The ARDL technique to co-integration and error correction mechanism method was used to analyze the data. Our Wald bound test revealed a significant long-term association between Nigeria's FDI, crude oil prices, currency rates, interest rates, and its total debt (NGD). According to results of the Error Correction Model, in the short term Nigeria's balance of payments is expected to be negatively affected by selected macro factors. If the selected macroeconomic factors can be controlled effectively, the research came to the conclusion that the Nigerian economy will continue to produce favorable Balance of Payments yearly. The study's findings suggest that the government should spend more money reviving all faltering industries, assisting indigenous companies, promoting locally produced commodities, and encouraging exports of manufactured or finished goods. Additionally, the country should limit its reliance on non-essential foreign goods and services.

Keywords: Interest rates, the balance of payments, the price of crude oil, Nigeria, debt and foreign direct investments.

INTRODUCTION

A sound balance of payments is a necessity for policy makers in every country, given the direct economic impact it has. The BOP of a nation may be determined by considering a number of factors. A key factor is the volume of commerce that a country's people, businesses, and



government have carried out during a certain time period (typically a year). The phrase "balance of payments" (BoP) refers to both international trade in goods and services as well as shifts in the ownership of national assets. In the BOP, the current account is the most important account. Most countries should rename their capital accounts as financials, according to the IMF Account. Direct through investments, income, debt service payments, and private transfers, the current account may be used to examine various economic strategies, primarily in terms of goods trade. Governments have long since abandoned the idea of autarky, but a nation's BOP remains essential in a number of ways. The BOP keeps an eye on international business dealings (Bakaert and Holdrick, 2018). The balance of payments (BOP), often known as the balance of international payments, keeps track of a nation's net inflows and outflows of cash. The four distinct elements that make up the BOP are the current account balances, capital and financial account balances, reserves, and balancing items (errors/omissions or statistical anomalies).

The current account balance is the most prevalent of these elements, which consists of three components: trade balance, import balance and transfer balance. The worth of imports and exports of goods and services is monitored in the trade balance, which is the focus of the study. For example, last consumer goods, intermediate capital goods and raw materials are examples of commodities and services transactions, as well as transportation, construction, and other services (Investopedia Team). Prior to the 19th century, commerce was conducted in terms of gold, which limited the options available to nations with trade deficits. Since growth was weak, creating a trade surplus was the main strategy for improving a country's financial situation.

Despite a lack of economic cooperation between nations, significant trade imbalances seldom led to catastrophes. The industrial revolution enhanced the interconnectivity of the world's economies and the incidence of balance of payment problems. From the end of World War II until the 1970s, foreign currencies were given fixed exchange rates for the dollar that could be converted to gold under the Bretton Woods System. However, the great depression brought about the end of the gold standard and competitive currency devaluations (Kenton & Boyle, 2021). The ongoing deficit of the services account is one of the most vital features of the imbalance in balance of payments accounts.

For example, it's risen from 16 975 92 million in 2020 to 2 521.83 million in 2019. In the Nigerian economy, the emergence of a service account deficit is a common occurrence. Years of direct control policy management have caused Nigeria's balance of payments (BOP) to start showing signs of unfavorable imbalance. Controls have been tightened in view of a sudden drop in global oil prices in 2014 as well as the resulting fall in foreign exchange earnings. However, the overwhelming reliance on direct controls in the policy framework rendered managing the economy impractical, and the limitations ultimately proved to be unsuccessful (CBNSB, 2021).

Nigeria continually maintained a chronic deficit in its balance of payments due to an overreliance on imported products, and it experienced several challenges when seeking to make monetary remedies. The ideal exchange rate regime is still being debated between policymakers and academics, with a view to meeting the macroeconomic objectives of developing and emerging



economies. The nation's economic performance and balance of payments are being impacted by the option of exchange rates in a number of ways.

The purposeful appreciation of the exchange rate by the monetary authority may be detrimental to the real sector, the overall price level, and commerce in a country with reduced exports. Since the Bretton Woods system broke down in 1973, a large number of industrialized and developing nations have adopted floating exchange rate regimes. Even if the system of floating exchange rates has its benefits, it has also produced several periods of exchange rate volatility that have affected trade, foreign reserves, inflation, the money supply, and economic growth (Abbas, 2017).

One of the primary macroeconomic factors influencing a country's international status and the flow of foreign direct investment is public debt. The total of all national commitments, including debt owed by the federal and local governments, is referred to as the "public debt." indicating the proportion of government spending that is financed by borrowing rather than taxation. Borrowing might be short- or long-term depending on how many years are needed for repayment (Makau, 2018).

In accordance with economic theory, an expansion of the money supply, this results in an increase of overall money supply, which frees up more capital for investment, improves productivity, increases output and hence higher global demand. This is possible if the government chooses to adopt an expansionary monetary policy, which can lead to a healthier balance of payments position, especially when the money supply does not exceed the demand for money in the economy (CBNSB, 2021). Once more, a growth in the money supply frequently leads to a drop in interest rates, which promotes increased investment. Customers have more money accessible to them, which promotes spending. In reaction, companies increase their raw material purchases and output.

Employment needs increase as the economy grows. Conversely, if there is a decrease in the money supply or an acceleration of growth, this could happen. The connection among changes in the money supply and macroeconomic performance and business cycles is known for some time. The importance of money supply is often highlighted by three macroeconomics schools of thought, a Monetary Theory, an Austrian business cycle and the Irving fisher money quantity theory. However, these links have been deteriorating after 2000 and it is therefore less certain that they would serve as an accurate reference for central bank policy. Despite the extensive use of money supply techniques, the Federal Reserve and economists only use them to collect and evaluate a small portion of the economic data available (Investopedia Team, Peter and Ariel, 2021)

The purpose of this study was to determine how the chosen macroeconomic determinants affected Nigeria's balance of payments due to the close relationship between macroeconomic stability and a country's ability to compete economically on a global scale. One of the subobjectives is to determine how exchange rates affect Nigeria's balance of payments. 2. Look at how Nigeria's balance of payments is affected by inflation rates. 3. Determine how interest rates affect Nigeria's balance of payments. 4. Consider how Nigeria's balance of payments is impacted by the money



supply. An evaluation of important literature is offered as an empirical review in the study's final section two portion. The third section discusses concerns with data and technique. The empirical findings and their analysis are presented in section four. The conclusion in Section 5 includes a discussion of the conclusions and related recommendations.

LITERATURE REVIEW

Mungami (2019) examined the impact of currency liberalization on the balance of payments in developing nations using Kenya as an example. He emphasized the standing of the currency rate, one of the macroeconomic fundamentals, in preserving a country's economy's competitiveness on the world stage. It is essential for efficiently allocating economic resources and guaranteeing a country's competitiveness abroad. Currency exchange rates affect how well the balance of payments is doing. As a result, the overall BOP was improved due to exchange rate liberalization, but the current account balance and trade deficit were not improved. Studies have shown that rapid exchange rate variations have a negative influence on companies' export sales by making planning difficult and leading to losses.

Ambuya (2018) looked on the relationship between changing currency exchange rates and stock market performance at the Nairobi Securities Exchange. The study discovered a substantial relationship among the volatility of stock market results and exchange rate variation. The study also shown that exchange rate volatility significantly affects market performance as a result of its domino consequences. A macroeconomic indicator, exchange rate movement shows both the economy's present situation and its anticipated future state.

Mambo (2020) looked at the monetary method's application to Kenya's balance of payments during the years 1969–2002. This study investigates the applicability of fiscal technique to Kenya's balance of payments using annual data. Before estimating the vector error correction model, the data were examined for cointegration among the defined variables and unit root tests. VEC estimates show that Bop is significantly influenced by its own secondary and tertiary lags, as well as the primary, secondary and tertiary lags of exchange rates and prices (Eze et al., 2018; Isichei et al., 2023). The results of the Granger causality test showed that there was no connection among the balance of payments and the other five variables. However, impulse response studies show that the balance of payments responds to innovations over a five-year period. Kenya's balance of payments was greatly influenced by the interest rate and domestic credit. In addition, prices and the currency rate were crucial. The analysis came to the conclusion that Kenya needed a monetary strategy to manage its balance of payments.

Osoro (2018) investigates the main elements influencing Kenya's trade balance using annual data from 1963 to 2012. He used Johansen Co.'s integrated approach and error correction models to investigate the short- and long-term causes of trade imbalances. The results showed a positive relationship among the trade balance coefficients and FDI, exchange rates, and budget deficits. Since Kenya's trade balance is negative, the outcomes showed that FDI has a positive influence on it. The estimation results also shown how dramatically and in fact, the trade balance has improved



significantly due to the decline in the exchange rate. This was attributed to either a very large net foreign direct investment position or a very large trade deficit, this illustrates how much less sensitive the trade imbalance is to fluctuations in the actual rate of exchange. The outcomes also confirmed the empirical cogency of the Marshall-Lerner condition under VECM and showed that devaluation advances the trade balance.

Oloye (2018) used the granger causality approach to study Nigeria's budget deficit and current account balance from 1970 to 2010. According to the Granger causality hypothesis, there is only one link between budget deficit and current account deficit. To encourage non-oil exports, import substitution and export promotion measures were implemented, reduce imports, and correct overvaluation of the official Naira exchange rate.

Ajayi (2017) used a partial adjustment method to examine Nigeria's balance of payments. Data from 1970 to 2010 were examined using cointegration and error correction methods. Increasing fiscal deficits, rising exchange rates, and falling benchmark interest rates are all associated with a decline in a country's trade openness. The research asserts that balance of payments stability and more global economic engagement are required. Imoisi (2019) examined Nigeria's balance of payments between 1970 and 2010 using a multiple regression technique. Slow agriculture and inadequate non-oil exports. Due to high import costs for goods and services, inflationary pressures, underperforming industrial sectors and poor management of the oil boom, the nation's balance of payments worsened. To reduce the current account deficit and restore the BOP, the Nigerian government is recommended to increase non-oil exports and diversify the nation's industrial base.

According to Nwanosike, Ugochina, Ebenyi, and Ishiwu (2017), currency depreciation has a negative impact on Nigeria's balance of payments when seen from the Marshall-Lerner perspective. In addition to other factors, this study looked at exchange rates and foreign investment inflows. A nation's balance of payments typically decreases by 2.2813 percent once its currency depreciates. Marshall learner standards are not being encountered in the short term. Based on research using data from Nigeria.

METHODOLOGY

The study used annual time series data. The target period is from 1986 to 2021. The Central Bank of Nigeria's National Bureau of Statistics, annual reports, bank statements and other documents were some of the secondary sources from which large amounts of data were collected. This book is based on the Keynesian International Reserves Theory. This theory holds that countries would employ currency depreciation as a tool to balance their trade, but they would seldom end up improving their own terms of trade or the opportunities offered by a vibrant and expanding trade network. Since the adoption of balance of payments accounting, many western nations have come to believe that unilateral currency devaluation will improve trading conditions in the absence of reciprocal action. It would increase import costs while lowering the value of the nation's own



exports in terms of foreign exchange. But it wasn't unusual to see import prices rise as a result of such a program, to the point where the overall price of imported goods remained to be greater than the price of the higher, more recent level of exports. In line with this notion, we use the model proposed by Adelegan and Abraham (2022) with a few modifications. As a result, the model for the investigation is described as follows:

$$BOP = f (EXR, INR, COP, NGD, FDI) \dots\dots\dots(3.1)$$

$$BOP = \alpha_0 + \alpha_1 EXR + \alpha_2 INTR + \alpha_3 COP + \alpha_4 NGD + \alpha_5 FDI + \Sigma t \dots\dots(3.2)$$

Where BOP = Balance of payments

EXR = Exchange rate

INR = Interest rate

COP = Crude oil price

NGD = Nigeria Debt

FDI = Foreign direct investments.

α_6 = Parameters to be estimated.

Estimation Technique

This research made use of the ARDL model. The two-step test technique suggested by Engle and Granger (1987) to address the uncertainty problem differs from other well-known co integration models in that it does not need the time series to be integrated at first order. In other words, the Pesaran & Pesaran et al. also short time eries has advantages over other widely used methods. Due to small sample sizes and non-stationary variables, the stationarity of time series becomes distorted and leads to absurd regression parameters. As specified in (Kremers et al., 1992). ARDL models allow you to distinguish among short-term and long-term effects of variables by calculating the cointegration between dependent and independent variables. Accurate short- and long-term estimate of independent variable parameters is made possible by these strategies. Calculate the F-statistic using the Wald test under the null hypothesis that there is no cointegration connection among the dependent variable and the variables listed in the equation. In contrast, the alternative hypothesis, represented by $b_1 \ b_2 \ 0$, asserts that the values of the model variables have a cointegration connection. The cointegration relationship null hypothesis is rejected if the calculated F statistic value surpasses the upper bound of the important value.

RESULTS AND DISCUSSION OF FINDINGS



Unit Roots Outputs

The first stage was to establish whether or not the variables were stationary because the study used time series data. A unit root test was run utilizing the ADF technique to do this. Table:

4.1 Unit Root Test Using Augmented Dickey Fuller ADF Test

Variables	ADF Statistics at Level	ADF Statistics at 1 st Difference	5% Critical Value	1% Critical Value	Conclusion
LRBOP	0.60	-3.66	-2.84	-2.36	I(1)
L EXR	-0.71	-5.73	-2.84	-2.36	I(1)
L INR	-0.97	-3.39	-2.84	-2.36	I(1)
L COP	-1.69	-20.83	-2.84	-2.36	I(1)
LNGD	-4.58	-1.22	-2.84	-2.36	I(0)
LFDI	-1.82	-8.17	-2.84	-2.36	I(1)

Source; Computed by the authors

The variables used in the study including Nigeria's balance of payments (BOP), exchange rate (EXR), interest rate (INR), crude oil price (COP) and foreign direct investment (FDI) do not have unit roots. Unit root test results for this task are listed in Table 4.1 above. Because the variables are not all integrated in the same order, we use the Autoregressive Distributed Lag (ARDL) method to integrate the variables. This indicates that the variable is integrated at the first level I(1), while the unit root of Nigerian debt (NGD) is integrated at the I(0) level..

Lag length requirements

The method for choosing the necessary lag duration for this investigation is covered in this section. From table 4.2 presented below.

Table 4.2: Lag Length Selection Criteria for the Model

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-681.734	N/A	29102.95	31.14121	20.3277	31.24736
1	-397.769	322.6514	0.18395	22.24377	13.52217	23.11162
2	-385.14	64.6738	22.0034	22.14744	15.42615	23.6654
3*	32.113	78.3758	1.100003	21.1168	8.23572	9.32367
4	-36.2118	61.12995	1.110204	15.05551	22.72567	21.27342

Source; Computed by the authors

Each test was run at a 5% level. * Indicates the lag order chosen by the criteria.

Final Prediction is indicated by FPE. Error

AIC suggests Information Criteria by Akaike

SC stands for HQ Schwartz Information Criterion for Hannan-Quinn information standards.

Choosing the lag time that produced the poorest outcome across the majority of operations is the



common rule of thumb in statistics. Lag time 3 was chosen since it produced the lowest value of the majority of the techniques in table 4.2 above.

Table 4.3: Critical Lower and Upper Bounds Values

	5%		1%	
	Lower	Upper	Lower	Upper
No trend, restricted intercept	2.88	4.46	3.41	4.61
No trend, unrestricted intercept	3.06	4.24	3.54	4.86

Source; Computed by the authors

Table 4.4: Wald Bound Test of Presence of Co-integration in ARDL for the Model

Equation: ARDL (3,3,3,3,3,3,3).			
Test Statistic	Value	Probability	Decision
F-Statistic	24.6311	0.0023	Cointegration
Chi-square	11.4701	0.0000	Cointegration

Source; Computed by the authors

The rules are as follows: If the calculated F-statistic is less than the lower bound, the null hypothesis (no cointegration) cannot be rejected. Balance of payments (BOP), exchange rate (EXR), interest rate (INR), crude oil price (COP), Nigeria Debt (NGD), and Foreign Direct Investments (FDI) in Nigeria, on the other hand, may be seen as being connected over the long run if measured F. The upper bound is outperformed by statistics. Since the calculated F-statistics of 24.6311 are greater than the upper bound critical value of 4.46 at a 5% error level, Table 4.4 demonstrates that there is evidence of long-term correlations among the Balance of Payments, Exchange Rate (EXR), Interest Rate (INR), Crude Oil Price, Nigeria Debt (NGD), and Foreign Direct Investments (FDI) in Nigeria.

Table 4.5: Long Run ARDL Estimate for the Model

Variable	Coefficient	Std. Error	t statistics	Probability
C	0.570100	0.500000	0.830000	0.0000
LEXR	- 0.560000	0.080000	0.730000	0.0100
LINR	-0.500000	0.200000	0,170000	0.0300
LCOP	-0.730000	0.010000	0.580000	0.0010
LNGD	-0.630862	0.610600	0.110701	0.0000
LFDI	1.210000	0.110012	0.005493	0.0030

Source; Computed by the authors

The model's long-term findings are compiled in Table 4.5, which demonstrates that FDI positively influences BOP whereas EXR, INR, COP, and NGD all negatively effect BOP. This demonstrates that every explanatory factor is compatible with the a priori prediction, with the exception of COP. The statistical significance of the EXR, INR, COP NGD, and FDI is also shown.



Table 4.6: Model Error Correction Representation of ARDL
Dependent Variable DBOP

Variable	Coefficient	Std.Error	t.statistics	Prob.
Constant	0.028812	0.050009	0.464506	0.4818
D(EXR(-1))	-0.000937	0.005907	-0.047324	0.7763
D(EXR(-2))	-0.004894	0.005596	-0.874607	0.2953
D(EXR(-3))	-0.006841	0.565600	-0.211360	0.0334
D(INR(-1))	-0.000546	0.007935	0.106304	0.0274
D(INR(-2))	0.002619	0.009901	0.322851	0.0110
D(INR(-3))	0.002212	0.009001	0.341365	0.0001
D(COP(-1))	0.007312	0.007933	0.706140	0.0155
D(COP(-2))	-0.009630	0.064721	-0.148007	0.0880
D(COP(-3))	-0.006753	0.073152	-0.070235	0.2060
D(NGD(-1))	0.047338	0.050518	0.840004	0.3160
D(NGD(-2))	-0.260445	0.064155	-1.010565	0.0401
D(NGD(-3))	0.083477	0.350113	-1.260275	0.0204
D(FDI(-1))	2.735685	0.487101	6.556602	0.0000
D(FDI(-2))	-0.003667	0.066785	-0.070830	0.9317
DFDI(-3))	0.508350	0.040050	3.237487	0.0005
ECMA(-1)	-0.293960	0.053941	-2.860487	0.0062***

Note: *** indicates significance at 5% level

Source; Computed by the authors

The economic outcomes are shown in Table 4.6 from before. The negative values of the ECMs in Table 4.6 show they are adequately signed and statistically significant at 0.05%. It shows the causal relationship among previous BOP levels and current and previous EXR, INR, COP, NGD and FDI levels. It is calculated that from the last time when BOP was at its equilibrium value, 0.29 had a feedback factor of around 29 per cent.

CONCLUSION AND POLICY RECOMMENDATIONS

The major objective of this paper has been to investigate a few selected macroeconomic determinants and the Nigerian payments imbalance. The National Bureau of Statistics and the CBN statistics bulletin were used in the compilation of the time series data for the years 1986 to 2021. The ARDL methodology to co-integration and error correction mechanism method was used



to examine the data. Our Wald bound test results indicate a long-term relationship between Nigeria's foreign direct investments (FDI), crude oil prices, currency rates, interest rates, and the nation's debt (NGD). Results from the Error Correction Model show that the selected macroeconomic factors have an important negative influence on Nigeria's balance of payments in the near term. If the selected macroeconomic factors can be controlled effectively, the research came to the conclusion that the Nigerian economy will continue to produce favorable Balance of Payments yearly. The statistics from the study indicate that:

1. To ensure that foreign exchange expenditures and usage are consistent with economic objectives and within the annual foreign exchange budget, managers of Nigeria's foreign exchange reserves must assist in monitoring the use of valuable foreign exchange resources. This will go a long way in maintaining foreign exchange reserves balance by ensuring regular and comfortable balance of payments availability and stability of the Naira.
2. All suffering industries should be given extra funding from the government, which should also encourage domestic companies, locally made products, and exports of manufactured or finished goods. Additionally, the country should limit its reliance on non-essential foreign goods and services.
3. The government and monetary authorities should concentrate on boosting net domestic credits and this is due to the fact that if domestic production targets are set, a rise in net domestic credit has a positive influence on net foreign assets. If an import ban is enacted as a result, exports will progressively increase and the BOP situation will improve.

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