Evaluating the Effect of Monetary Policy on Current Account in Nigeria

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Abstract: *Despite several empirical investigations on the interaction effect between monetary policy transmissions and the current account balances of countries, evidences have been inconclusive. This study examines the monetary policy transmission effect on current account in Nigeria from 1970 to 2021. Employing the vector error correction model (VECM) procedures, the results of the stationarity test indicate that all the variables are first differenced I(1) at 5% significance level in Augmented Dicky Fuller test procedure. The cointegration test results showed that there are three cointegrating equations at 5% significance level. The long-run results showed that coefficient of interest rate (INTR) indicated a negative sign to the current account of Nigeria and it is statistically significant. The short-run result shows that 2.2% of the disequilibrium in the effect monetary policy on current account of Nigeria is corrected annually. The impulse response function results showed that response of current account to the global monetary policy variable, (USINTR) increased immediately and continued significantly with positive sign in the long run the result showed that response to INTR and rate of exchange (EXCH) declined immediately and continued to decline along the horizon to a negative shock in both the short and long-runs. Therefore, importation of industrial materials should be encouraged to increase the country's export volume.*

Keywords: Monetary policy shocks, current account, Cointegration, VECM, Nigeria

JEL classification: B23, C13, E52, E63, F32, N17

1. Introduction

Understanding how monetary policy transmission shock affect external balances of countries is still a subject of debate and continues to dominate attention in international economics. This is more so following the recent global financial crises which exposed emerging economies to global macroeconomic shocks (Obstfeild and Rogoff, 2009). It is also important to note that recent changes in monetary policy decisions of advanced economies, especially introduction of quantitative easing approach geared towards normalization of monetary policy in the United States (US) has raised concern about macroeconomic stability of emerging economies and how they adjust to shocks (Makanza and Dunne, 2015). The

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continuous recording of huge current account deficit by the developing economies due to volatility of exchange rate is equally of great concern (Claessens, Ghosh and Mihet, 2013). Also, the constant rise in the global rate of interest which possess the risk of altering the flow of capital to emerging economies, thus subjecting countries with large current account deficits at risk of reversal with severe consequences for economic growth (Makanza and Dunne, 2015).

On the interaction effect between monetary policy transmission shocks and the current account balances of countries, there has been inconclusive evidence. For instance, Ferrero, Gertler and Svensson (2008) were of the view that interaction between monetary policy transmission shock and current account balance is best viewed as indirect. According to the authors, monetary policy has no direct responsibility on the current account since it is a difference between saving and investment compares to the global economy. Ferrero et.al (2008) stated that adjustment of exchange rate in a bid to correct the current account imbalances is by far beyond the confine of monetary policy. Obstfeld and Rogoff (1995) argued that the recently recorded current account deficit of the US economy requires about thirty percent devaluation of the dollar for its correction. The authors explained that international relative prices movement causes a short run inflation dynamic. However, in the event where adjustment of current account balances effectively plays out, currency depreciation would induce pressure on inflationary level and that can only be offset by introducing a tightening monetary policy measure which may eventually affect the real activity (Rogoff, 2007).

1.1. Statement of the problem

The Nigerian economy, despite various monetary policy measures either contractionary or expansionary monetary policies, aimed at achieving full output growth, stable rate of exchange, full employment and stability of prices, and the economy is still regarded as one of the poorest countries in the world. Despite recorded growth in the economy between 2000 and 2014, with an average growth of 7%, as the oil price collapsed in 2015 to 2016, the growth rate of the GDP in 2016 contracted from 3.96% to -0.36% in the first quarter of 2016, and in the second quarter it contracted to -1.5%, then, -2.24% and -1.3% in the last two quarters. Since then, the growth has remained stagnant, with growth averaged 1.9% in 2019 and 2% in first half of 2019 (The World Bank, 2019). Equally, the rate of exchange took a nose dive from N197 to one US dollar to N347 to one US dollar in 2017 (Otolorin, 2017). As one the major economic power of the West African region, the Nigeria's current account balance have shown various variations. Between the periods from 1979 and the 1981, the country recorded current account surplus due to a rise in the price of crude oil. However, the country continued to record deficits in its current account balances despite various policy measures of the government (Oshota and Adeleke, 2015). Given the level of openness of the Nigerian economy, understanding the cross –border channels and how global monetary policies affect the external balance of the country becomes very important. Also, monetary policy measures are effective through different cross-border channels, and as such, a specific monetary policy design should be considered while tracing transmission mechanisms (Lane, 2019). The continued increase in the interest rate globally has equally posed as serious risk in the flow of capital to the developing economies especially Nigeria, which has resulted in high current account deficit, with an adverse effect on the growth of the economy. This study therefore asked the following questions: How is the Nigerian current account deficits affected by global monetary policy transmission shocks? To what extent can the domestic

monetary policy measures be utilized to insulate the effects of exogenous monetary policy shocks for a stable current account balance in Nigeria?

2. Literature review

A theoretical basis on the monetary policy implications on macro economy and on measures to reduce a country's current account was provided by a study conducted by Marshal (1923) and Lerner (1944) employing a J-curve approach. The approach states that if a country's trade balance tends to zero, and there exists an infinite supply elasticity, then the elasticity of demand for both import and export have to be large in order to bring about balance of payment surplus. Damilola and Olateju (2013) highlighted on the J-curve hypothesis, stating that it shows how a country's net export reacts to the currency devaluation. A currency depreciation in an economy in the short run leads to current account deficit, thus leading to an increase in import. Since there is an access to international trade by the economy, and also able to compete favorably with foreign competitors, the implication is that there will be a reduction in the cost of production after a time period. This would also boost export volume for the local economy, thus leading to an increase in the import price which translate to a positive shock; and the economies would record currency appreciation (Damilola and Olateju, 2013).

Studies on monetary policy transmission to macroeconomic environment had theoretically focused on some macroeconomic variables which include, consumption, investment and net export (international trade). Boivin, Kiley and Mishkin (2010) were of the view that these traditional monetary policy transmission channels involve interest rates effect on investment spending of the households, and on the cost of capital. Jorgenson (1963) stated that the major demand for investment in capital goods, consumer durables or residential buildings is always influenced by the cost of capital. Thus, household consumption expenditure is a function of life time assets and wealth either from stocks, real estate or others holdings. Thus, a lower interest rate reduces demand for local assets and the cost of local assets falls in comparison to foreign assets; and this results to local currency depreciation, lowering the prices of locally produced goods and services and an increase in the cost of imported items (Jorgenson, 1963).

2.1. Empirical literature

Akinlo and Apanisile (2019) examine the effectiveness monetary policy transmission, evaluating anticipated and unanticipated effects using quarterly data from 1986 to 2013.The study employed a sticky price DSGE technique for evaluation. The study results indicate a short run effect of unanticipated monetary policy shocks on channels of monetary policy transmission, while anticipated effect showed a long run effect on monetary policy in Nigeria. Adekunle, Baba, Stephen, Ogbuehi, Idris, and Zivoshiya (2018) evaluate monetary policy transmission shocks on asset prices in Nigeria from 1985 to 2017. Utilizing a multi models which include Autoregressive Distributed Lag (ARDL) and Johansen cointegration test procedures, the result show that exchange rate channel of monetary policy dominates asset prices in Nigeria.Also, Cristiano-Botia, Gonzalez-Molano and Huertas-Campos (2018) examine the monetary policy transmission of interest rate to market interest. They show that when interest rate is fixed, financial entities take into consideration their policy rate expectation. The study also finds that there are changes in deposit rates in anticipation of announcement by the monetary authorities and no significance changes on the day and a day after announcement. Adler and Buitron (2017) examine monetary policy effect on trade

balance in the US. The study utilizes a sign restriction structural VAR model procedures for estimation. The study results show that monetary policy has a significant impact on trade balance. The result also indicate that monetary policy comes with spillover through trade. Adofu and Salami (2017) evaluate monetary policy shocks on macroeconomic variables in Nigeria from 1983 to 2015. The study employs the Structural VAR Modeling technique for evaluation. The results show s negative interest rate shock on real GDP and money supply. The study also note that inflation respond positively to rate of interest and supply of money in Nigeria.

3. Research Methodology

3.1. The VAR model approach

In line with the study by Sim (1980), one of the most important procedures for evaluating dynamic interaction between monetary policy and other macroeconomic variables is the Vector auto regression (VAR) procedure. We therefore specify an order k model of VAR as follows:

$$Y_t = C_0 + \sum_{i=1}^{k} \phi_i Y_{t-1} + \varepsilon_t$$

……...…(3)

$where \;\; Y_i : (Y_{1t}, Y_{2t}, Y_{3t} ..... Y_{nt})$; Yt: is an order I, the lag term ; C is intercept vector, while $\varepsilon_t : (\varepsilon_{1t}, \varepsilon_{2t}, \varepsilon_{3t} ..... \varepsilon_{nt})$. The model is therefore specified as:

$$Y_t = m + A_1 Y_{t-1} + A_2 Y_{t-2} + A_3 Y_{t-3} ..... A_k Y_{t-k} + \varepsilon_t$$

..……..……..……..……...(4)

From equation (4), the (P) process are specified where Y is (n+1) vectors, m is an intercept vector, Ai is autoregressive coefficients of i[th] matrix ,while ε_t is a zero-mean white noise process or the error term. Assuming k=6 and p=1, this gives:

$$\begin{bmatrix} Y_{1t} \\ Y_{2t} \\ Y_{3t} \\ Y_{4t} \\ Y_{5t} \\ Y_{6t} \end{bmatrix} = \begin{bmatrix} m_1 \\ m_2 \\ m_3 \\ m_4 \\ m_5 \\ m_6 \end{bmatrix} + \begin{bmatrix} a_{11} & a_{12} & a_{13} & a_{14} & a_{15} & a_{16} \\ a_{21} & a_{22} & a_{23} & a_{24} & a_{25} & a_{26} \\ a_{31} & a_{32} & a_{33} & a_{34} & a_{35} & a_{36} \\ a_{41} & a_{42} & a_{43} & a_{44} & a_{45} & a_{46} \\ a_{51} & a_{52} & a_{53} & a_{54} & a_{55} & a_{56} \\ a_{61} & a_{62} & a_{63} & a_{64} & a_{65} & a_{66} \end{bmatrix} \begin{bmatrix} Y_{1,t-1} \\ Y_{2,t-1} \\ Y_{3,t-1} \\ Y_{4,t-1} \\ Y_{5,t-1} \\ Y_{6,t-1} \end{bmatrix} + \begin{bmatrix} \varepsilon_{1t} \\ \varepsilon_{2t} \\ \varepsilon_{3t} \\ \varepsilon_{4t} \\ \varepsilon_{5t} \\ \varepsilon_{6t} \end{bmatrix}$$

……..…(5)

3.2. The Vector Error Correction (VECM) Model

Since all the variables in the model are not stationary at level, we incorporate the Vector Error Correction (VECM) Model and the equation is stated as follows:

$$\Delta Y_t = \Gamma_1 \Delta Y_{t-1} + \Gamma_2 Y_{t-1} + ... + \Gamma_{p-1} \Delta Y_{t-p+1} + \Phi Y_{t-1} + \varepsilon_i; \qquad t = 1.....T$$

……...(6)

$where \;\; \Gamma_i = -(1 - \Pi_1 - ... - \Pi_i) \quad (i = 1..., p-1), \;\; \Phi_i = -(1 - \Pi_1 - ... - \Pi p) . \Phi_i = \alpha \beta'.$

α represent disequilibrium adjustment and the β is the coefficient matrix in the long-run.

$\beta' Y_{t-1}$ is the single equation model of the error term, the $\beta' Y_{t-1}$ contains (n — 1) multivariate approach vectors. The advantage of the VECM model is that it determines both long run and short causality if α is significant statistically and different from zero, thus implying an evidence of long run causality. This study therefore specifies a tri-variate model of the VECM as follows:

$$\Delta y_{1t} = c_1 + \sum_{i=1}^{p} \pi^{j}_{11} \Delta y_{1t-1} + \sum_{j=1}^{p} \pi^{j}_{12} \Delta y_{2t-j} + \sum_{j=1}^{p} \pi^{k}_{13} \Delta y_{3t-k} + \phi_1 ECM_{1t-1} + \varepsilon_{1t}$$

……...(7)

$$\Delta y_{2t} = c_1 + \sum_{i=1}^{p} \pi^{j}_{21} \Delta y_{1t-1} + \sum_{j=1}^{p} \pi^{j}_{22} \Delta y_{2t-j} + \sum_{j=1}^{p} \pi^{k}_{23} \Delta y_{3t-k} + \phi_2 ECM_{2t-1} + \varepsilon_{2t}$$

……..….(8)

$$\Delta y_{3t} = c_1 + \sum_{i=1}^{p} \pi^{j}_{31} \Delta y_{1t-1} + \sum_{j=1}^{p} \pi^{j}_{32} \Delta y_{2t-j} + \sum_{j=1}^{p} \pi^{k}_{33} \Delta y_{3t-k} + \phi_2 ECM_{3t-1} + \varepsilon_{3t}$$

…….....(9)

3.3. Model Specification

In this study, Vector Y comprises of six variables. The vector of endogenous variables is specified as follows: $Y_t = f(USINTR, GDP, CAB, INTR, EXCH, OPEN)$

……..(10)

Where USINTR is the US interest rate which is a proxy for foreign monetary policy, GDP represent the Gross Domestic Product, CAB is the current account balance , INTR is the Interest rate which is a proxy for the domestic monetary policy; EXCH denotes the exchange rate, while OPEN is the degree of trade openness. The linear model is stated as follows:

$$Y_t = \alpha_0 + \alpha_1 USINTR + \alpha_2 GDP + \alpha_3 CAB + \alpha_4 INTR + \alpha_5 EXCH + \alpha_6 OPEN + \nu_t$$

……...……..(11)

Where ν_t denotes the error term, α_0 is the constant term, while α's are the parameters to be estimated. The logarithms form is specified as follows:

$$Y_t = \beta_0 + \beta_1 USINTR_t + \beta_2 LOG(GDP)_t + \beta_3 CAB_t + \beta_4 INTR_t + \beta_5 LOG(EXCH)_t + \beta_6 LOG(OPEN)_t + \varepsilon_t$$

……..……..…(12)

Where ε_t is the error term , β_0 the constant term and β'_S the parameters to be estimated. The vector error correction model is specified if there is a rejection of the hypothesis of no cointegration. Thus, VECM equation is stated as follows:

$$\Delta USINTR_t = \alpha_0 + \sum_{i=1}^{n} \alpha_{1i} USINTR_{t-1} + \sum_{i=0}^{n} \alpha_{2i} \Delta LOG(GDP)_{1t-1} + \sum_{i=0}^{n} \alpha_{3i} \Delta CAB_{2t-1} + \sum_{i=0}^{n} \alpha_{4i} \Delta INTR_{3t-1} + \sum_{i=0}^{n} \alpha_{5i} \Delta LOG(EXCH)_{4t-1} + \sum_{i=0}^{n} \alpha_{4i} \Delta LOG(OPEN)_{5t-1} + \lambda ECM(-1) + \mu_t$$

……..……(13)

where ECM(-1) = error correction term and λ =error coefficient

3.4. Estimation Procedures

Since time series data are prone to unit root problems, a unit root test is conducted using the ADF test procedures. It is specified as follows:

$\Delta\mu_t = \beta\mu_{t-1} + \sum_{i=1}^{k} \Delta\mu_{t-1} + \varepsilon_t$ ……(14)

The stationarity test will be followed by a cointegration test to check if a long-run relation exists between the variables.

3.2. Sources of data

The data for this study was generated from the Central Bank of Nigeria statistical bulletin 2022

4. Data results and analysis

4.1. Data description

In order to focus on the main objective of evaluating the relationship between monetary policy variables and the current account in Nigeria, and effect of foreign monetary policy transmission on current account in Nigeria, the variables under consideration are therefore described in table 1 as follows.

Table 1: The descriptive statistics

	CAB	USINTR	GDP	INTR	EXCH	OPEN
Mean	4073.793	3.778536	780467.4	11.00976	78.17225	46.24118
Median	2013.459	3.063741	76110.38	12.00000	21.89065	43.59662
Maximum	44731.20	8.594585	6232244.	26.90000	306.0837	81.81285
Minimum	-19488.70	-1.281427	5205.100	2.500000	0.546781	19.62060
Std. Dev.	11134.89	2.420693	1612764.	5.599665	93.88689	15.88476
Skewness	1.444665	0.225772	2.314879	0.308552	1.134626	0.289019
Kurtosis	7.347094	1.930370	7.209656	2.629259	3.310338	2.137011
Jarque-Bera	59.03181	2.920667	84.83770	1.122910	11.36594	2.337569
Probability	0.000000	0.232159	0.000000	0.570379	0.003403	0.310744
Sum	211837.2	196.4839	40584302	572.5075	4064.957	2404.541
Sum Sq. Dev.	6.32E+09	298.8476	1.33E+14	1599.168	449552.2	12868.61
Observations	52	52	52	52	52	52

Source: Authors' results computation from the E-views 9

From the table above, the descriptive statistics of the monetary policy transmission shock variables indicate that six of the variables, CAB, USINTR, GDP, INTR, EXCH and OPEN showed mean values that are positive with 52 observations. From the results, a minimum current account value of -19488.70 and a maximum value of 44731.20 are recorded. The GDP recorded highest standard deviation while the foreign monetary policy variable, USINTR indicated a least standard deviation.

4.2. Correlation

The correlation matrix results are presented below:

Table2 : the correlation results

	CAB	USINTR	GDP	INTR	EXCH	OPEN
CAB	1.000000	0.363882	-0.132517	0.005095	-0.377993	0.061086
USINTR	0.363882	1.000000	0.222106	0.068683	-0.447261	0.275186
GDP	-0.132517	0.222106	1.000000	0.314745	-0.021963	0.630132
INTR	0.005095	0.068683	0.314745	1.000000	0.364764	0.272430
EXCH	-0.377993	-0.447261	-0.021963	0.364764	1.000000	-0.078318
OPEN	0.061086	0.275186	0.630132	0.272430	-0.078318	1.000000

Source: Authors' results computation from the E-views 9

The correlation result shows that there is positive relationship correlation between the global interest rate (USINTR) and the current account balance. The results showed a positive relation between domestic real interest rate and the CAB, this indicated negative balance in the country current account. Equally, a negative correlation exists between GDP and the CAB. The exchange rate and the CAB are negatively correlated, while there is positive correlation between trade openness and the CAB.

4.3. Stationarity test

The results of the ADF are presented in table 3 below:

Table 3: The ADF Unit root test procedures

Variable	Order zero I(0)	Probability	Order one I(1)	Probability	Order of integration
CAB	-2.296771	0.1770	-15.20150	0.0000	I(1)**
USINTR	-1.856347	0.3498	-6.381777	0.0000	I(1)**
GDP	-2.054720	0.2634	-6.298540	0.0000	I(1)**
INTR	-2.659940	0.0881	-7.429611	0.0000	I(1)**
EXCH	1.729124	0.9996	-4.854356	0.0002	I(1)**
OPEN	-2.695939	0.0817	-9.733834	0.0000	I(1)**
Note: ** shows stationarity at 5% respectively					

Source: Authors' results computation from the E-views 9

The stationarity test results indicated that the variables are all integrated at order one I(1) at 0.05 level of significance. A Johansen cointegration procedure is conducted

4.4. Cointegration

The Johansen test results is presented in the table 4 below:

Table 4: Cointegration results

TRACE TEST

Null Hypothesis	Alternative Hypothesis	Eigenvalue	Stat.	95% Critical Value	Prob.**
None *	r≤1	0.680891	159.8581	117.7082	0.0000
At most 1 *	r≤2	0.568709	105.0315	88.80380	0.0021
At most 2*	r≤3	0.455919	64.66481	63.87610	0.0429
At most 3	r≤4	0.307621	35.44925	42.91525	0.2270
At most 4	r≤5	0.229752	17.80343	25.87211	0.3573
At most 5 *	r≤6	0.104042	5.273372	12.51798	0.5576
* indicates rejection of the hypothesis at 5% level					

Source: Authors' results computation from the E-views 9

The results showed at least, three cointegration equations at 0.05 level of significance.

4.5. Lag Length selection

A lag length selection criterion was conducted in table 5 below:

Table 5: lag length results

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-934.4875	NA	4.21e+09	39.18698	39.42088	39.27537
1	-777.8951	267.5120*	27996754*	34.16229*	35.79960*	34.78103*
2	-755.7141	32.34726	53435172	34.73809	37.77879	35.88717
3	-728.5164	32.86392	93359380	35.10485	39.54895	36.78428
4	-690.1974	36.72238	1.27e+08	35.00822	40.85573	37.21800
* Shows lag order selected based on the criterion						

Source: Authors' results computation from the E-views 9

The results indicated a lag order one following the AIC and LR test statistics procedure. Therefore, a VAR lag order one is conducted.

4.6. The long-run VECM estimation procedures

Table 6: The VECM estimated results

VARIABLE	CointEq1	STD ERROR	T-STATISTIC
CAB(-1)	1.000000		
USINTR(-1)	-402.8999	421.198	-0.95656
LOG(GDP(-1))	4935.410	600.014	8.22550
INTR(-1)	-1842.005	177.072	-10.4026
LOG(EXCH(-1))	3794.528	494.483	7.67372
LOG(OPEN(-1))	-18035.62	2522.74	-7.14921
C	-1491.701		

Source: Authors' results computation from the E-views 9

The long-run VECM results showed that LOG(GDP(-1)) indicate a positive sign and significant statistically. This implies that there exists positive feedback between the GDP and the CAB of the Nigerian economy during the period under study. This result indicate that the country tries to achieve growth through internally driven mechanisms for a favorable balance of payment. The result goes in line with the hypothesis which states that export cushions the effect of foreign exchange restrictions, and thus enhances importation of technology and methods of production (Feder, 1982; Sachs and Warner, 1995). The coefficient of the domestic monetary policy variables, INTR showed a negative sign and statistically significant. The results suggest that increase in the rate of interest leads to current account deficit of Nigeria during the period under consideration. The variable LOG(EXCH(-1)) show a positive and statistically significant. This implies that rate of exchange increment leads to an increase in the current account balance. The result also indicate that the trade openness contributed negatively to the current account balance of the country.

4.7. The VECM short-run estimation

Table 7:The short-run results

Error Correction:	D(CAB)	D(USINTR)	D(LOG(GDP))	D(INTR)	D(LOG(EXCH))	D(LOG(OPEN))
CointEq1	-2.208760	-3.250005	-4.420005	0.000368	-1.580005	1.060005
Std error	0.44737	5.60005	4.10005	0.00015	2.80005	9.10006
t-statistic	-4.93725	-0.58427	-1.08563	2.49574	-0.56702	1.15805
R-squared	0.879102	0.243622	0.196750	0.465078	0.189056	0.324241
Adj. R-squared	0.832876	-0.045582	-0.110374	0.260550	-0.121010	0.065863

Source: Authors' results computation from the E-views 9

The short-run estimated result showed that the error correction coefficient of -2.208760 showed a negative sign and statistically significant for the variable D(CAB). Thus, as the current account balance shifts from sits equilibrium state, an adjustment through monetary policy implementation results to about 2.2 percent annually. It can then be concluded that 2.2 percent of current account disequilibrium is corrected annually in the Nigerian economy during the period under study.

4.8 Impulse response functions

The figure 2 below shows impulse response function results of the effect of monetary policy transmission shocks on the current account, as well as the response of other macroeconomic variables to current account shocks.

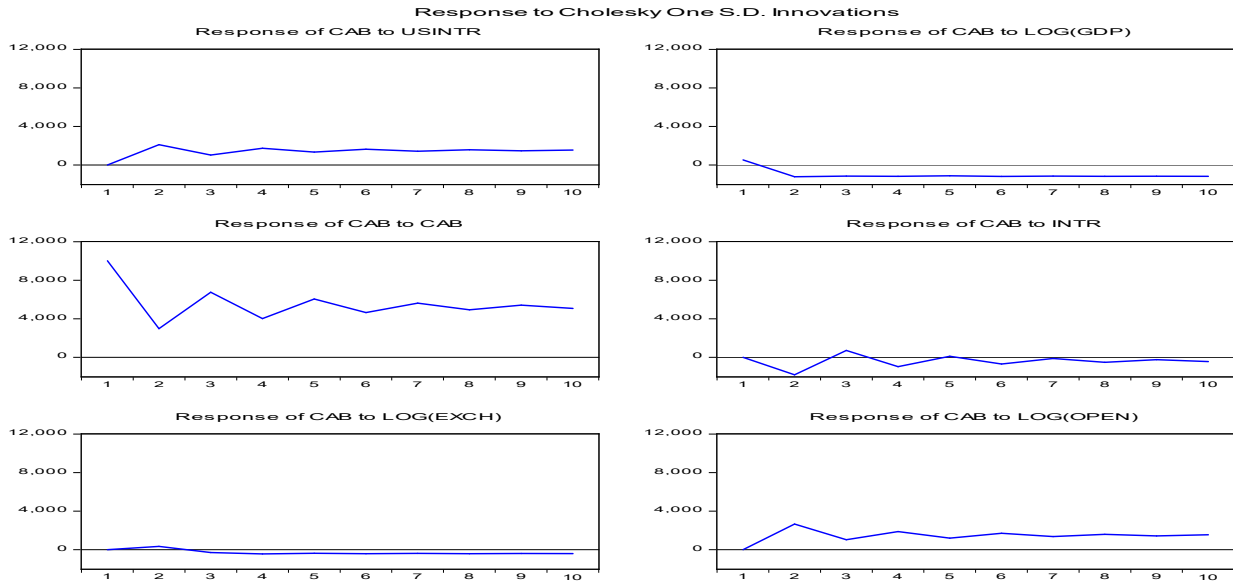

Figure 1 : the results of the impulse response functions

Source: Authors' results computation from the E-views 9

The figure 1 above showed that the impulse response of current account, CAB to the foreign monetary policy variable, USINTR, increases immediately and continues significantly with a positive sign along the horizons in the long-run. The result conforms to the findings of Makanza and Dunne (2015) that positive response of the foreign monetary policy shocks worsens the current account deficit. The response to GDP shock decreases and continues to fluctuate along the line to a negative shock in both short-run and long-run horizons. This result contradicts the theoretical expectations which states that that current account improves domestic output positively. The response of CAB to its own shock increases instantly and significantly and continues with the positive sign along the horizons in the long-run.

The response to the domestic monetary policy INTR and the exchange rate EXCH indicated that it decreased instantly and continues to decline along the horizon in both short and long run to a negative shock. This is line with the findings of Kim and Roubini (2008) who asserted that exchange rate depreciation improves the current account position of countries while appreciation seem to worsen the current account. The negative shock of the CAB to EXCH in the short run conform to the findings of Akonji and Olateju (2013) that there exists a negative interaction between money supply and exchange rate in Nigeria. The response of the CAB to the trade openness showed that it increased instantly and continued on the increase to a positive shock in both short and long run.

4.9. Variance decompositions

The variance decomposition results are therefore presented in the table 8 below:

Table 8: Variance Decomposition of CAB

Period	S.E.	USINTR	LOG(GDP)	CAB	INTR	LOG(EXCH)	LOG(OPEN)

1	10031.16	3.50E-06	0.281966	99.71803	0.000000	0.000000	0.000000
2	11218.81	3.527003	1.401818	86.75854	2.595211	0.093311	5.624113
3	13252.50	3.143536	1.759883	88.19536	2.148922	0.115828	4.636472
4	14173.31	4.262669	2.221074	85.17206	2.334622	0.194855	5.814723
5	15563.30	4.279207	2.354474	85.78656	1.941571	0.218773	5.419416
6	16475.32	4.812949	2.613581	84.50708	1.906492	0.258576	5.901322
7	17564.13	4.903644	2.728564	84.61790	1.681746	0.274799	5.793344
8	18431.77	5.188083	2.881616	84.01499	1.605113	0.298958	6.011244
9	19362.70	5.285398	2.967658	83.97279	1.469219	0.311631	5.993303
10	20180.56	5.456118	3.066352	83.64692	1.398323	0.326957	6.105334

Source: Authors' results computation from the E-views 9

The generated results showed that shock to the current account balance (CAB) on its own continued to increase from the beginning and maintained the increase in the long run period. It can also be seen from the results that shocks to Log(OPEN), USINTR, LOG(GDP) and INTR accounted for most of the variability in the overall periods.

4.10 Diagnostic test

To evaluate robustness of the estimated VECM results, diagnostic tests were conducted and the results presented in table 9 below:

Table 9: Diagnostic Tests

VEC Residual Serial Correlation LM Tests		
Null Hypothesis: no serial correlation at lag order h		
Lags	LM-Stat	Prob
1	38.36627	0.3627
Probs from chi-square with 36 df.		
VEC Residual Heteroskedasticity Tests: No Cross Terms (only levels and squares)		
Joint test:		
Chi-sq	df	Prob.
318.1286	294	0.1595

Source: Authors' results computation from the E-views 9

The diagnostic test results showed absence of serial correlation in the estimated model, and that the variables residuals are homoscedastic. This can be seen as the null hypothesis of both tests were accepted as the probability values are greater than 0.05.

5. Conclusion

Recent changes in monetary policy decisions of advanced economies, especially introduction of quantitative easing approach geared towards normalization of monetary policy in the United States (US) has raised concern about macroeconomic stability of emerging economies and how they adjust to shocks. Also there has been inconclusive evidence on the interaction effect between monetary policy transmission shocks and the current account balances of countries. This study examines the monetary policy effect on current account balance in Nigeria covering a period from 1970 to 2021. The monetary policy states that a currency depreciation in an economy in the short run leads to current account deficit, thus leading to an increase in import; and since there is an access to international trade by the economy and competes with foreign competitors, there will be a reduction in the cost of production after a time period. The effectiveness of monetary policy instrument depends on the degree or pass-through ratio of interest rate and level of price rigidities as it affects the aggregate demand in the economy.

The long-run VECM results showed that LOG(GDP(-1)) indicate a positive sign and significant statistically. This implies that there exists positive feedback between the GDP and the CAB of the Nigerian economy during the period under study. The coefficient of the domestic monetary policy variables, INTR showed a negative sign and significant statistically. The results suggest that increase in the rate of interest leads to current account deficit of Nigeria during the period under consideration. The variable LOG(EXCH(-1)) indicates a positive sign and is statistically significant. The short-run estimated result showed that 2.2 percent of current account disequilibrium is corrected annually in the Nigerian economy during the period under study. The impulse response of current account, CAB to the foreign monetary policy variable, USINTR, increases immediately and continued immediately and significantly along the horizons in the long-run to a positive shock. The GDP shock results indicated that it decreased and continued to fluctuate along the line to a negative shock in both short-run and long-run horizons. The results showed responses to the domestic monetary policy INTR and the rate of exchange EXCH decreased immediately and continued declining along the horizon to a negative shock. The Variance decomposition test results showed that CAB on its own increased from the beginning and continued and maintained the increase. It can be seen equally from the results table that shocks to LOG(OPEN), USINTR, LOG(GDP) and INTR in the overall periods, accounted for most of the variabilities. The diagnostic test results showed absence of serial correlation in the estimated model, and that the variables residuals are homoscedastic, as the null hypothesis of both tests were accepted as the probability values are greater than 0.05.

Based on study outcome, the following recommendations are therefore made: The foreign monetary policy shocks possess a risk in the current account balance of the country. Therefore, to reduce such risks requires an appropriate monetary policy measure that ensure adjustment of the current account with little effect on the economy. The monetary authority should provide incentives that would encourage importation of industrial materials and manufacturing equipment for an expansion of the country's export volume, thus attracting a current account surplus.

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