

## **Current Account Balance and External Shocks in Nigeria**

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### **Abstract**

As a small open economy, Nigeria is highly vulnerable to adverse effect of external shocks since independence. These shocks manifest in form of oil price shocks, exchange rate volatility, global financial crisis and terms of trade shocks. This paper however investigated the impact of external shocks to oil price, exchange rate and terms of trade on the fluctuations in current account balance being an important macroeconomic variable. Multivariate Vector error correction model (VECM) was employed on quarterly data of current account, terms of trade, exchange rate and oil price. Data on current account, terms of trade and exchange rate were drawn from world development indicator and oil price was sourced from the OPEC database. The result of the impulse response function showed a negative and significant impact of external shocks on the current account fluctuations in Nigeria in the long run. The data analysis confirmed that a positive shock to the variables produce a positive response of the current account which improves it while a negative shocks deteriorates current account. The variance decomposition results showed that a significant portion of fluctuations in current account can be explained by the terms of trade shocks. The results also showed that a shock to the oil price produces term of trade shock. However, the study suggests a robust and forward-looking policy to cushion the adverse effect of external shocks in Nigeria. Also, there is need for the country to diversify her export base to reduce total reliance on oil export.

**Keywords:** Oil price, terms of trade, exchange rate, current account, Nigeria

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## **1. INTRODUCTION**

Analysis of current account determination has gained a significant attention of researchers especially with the recent persistent current account deficit witnessed in most of the developed and developing countries since the last two decades. For proper policy framework, it is crucial to understand the source of fluctuation in current account considering the fact that the behaviour of current account balance provides a signal on the level of country's international competitiveness and also, the health of a country is indicated by, among other variables, the balance in the current account.

Small open developing economy (SODE) largely depends on the large economy and this exposes them to external shocks due to their limited ability to influence external variables thus making them more vulnerable to shocks. Nigeria as an example of SODE remains vulnerable to external shocks ever since its independence originated from either dwindling crude oil price, terms of trade deterioration, global financial crisis, or exchange rate volatility shock.

The recent global oil price crisis and exchange rate volatility shocks represented a wave of external shocks with the attended multiplier effects on the economy under the form of terms of trade shocks, and deteriorated current account balance. The effect of these shocks on the economy and current account balance are a major concern for the economists and policy makers. As a small open economy that is endowed with crude oil, highly dependent and opened to international trade, Nigeria is highly vulnerable to adverse effect of oil price fluctuations (since crude oil is the mainstay of the country), exchange rate volatility, terms of trade deterioration and shocks in the world market. However, a cursory look at the current account balance (figure 1, ) shows there have been significant movement in current account balance any time there is unanticipated shocks in any variables related to external control in the country. Understanding the source of shocks to current account movement is a key interest in international economics.

Several studies have documented the determinant of current account behaviour in developing countries focusing on some set of macroeconomic variables, fiscal policy deficits, financial liberalisation policy, adjustment policy, fiscal policy etc (Uneze & Ekor, 2012; Oshota & Adeleke, 2015; Ibrahim, 2015; etc). Also, most studies have shown the impact of oil price shocks, exchange rate and terms of trade on current account balance using a bivariate analysis. This study combine these exogenous variables (oil price shocks, exchange rate and terms of trade) to test their combined impact on the current account behaviour especially in a small open country such as Nigeria. This is because the effect of shocks due to exchange rate variations, oil price fluctuations and terms of trade movements on the current account produced different conclusion in the literature.

This paper is motivated by the recent economic downturn due to oil price shocks and exchange rate volatility. Also, empirical research effort to broaden the understanding about the fluctuations in current account balance due to shock to external variables can provide policy-makers better insights for policy actions especially on how to guide against pass-through effect of unpredictable shocks to the economy. The major objective of this study is to provide analysis on the response of current account to external shocks.

The rest of the paper is organised in six sections. Section two provides stylised facts on the current account and the external shocks variables; section three is the literature review; section four presents the methodology used in the study; section five provides the results of the empirical analysis and lastly section six brings out the conclusion from the empirical results and suggested recommendation.

## **2. STYLISTED FACTS**

Nigeria economy recorded mild level of current account surplus due to high export revenues especially in oil, high saving (in terms of foreign reserves) before the economy recession which started in the mid-2014. Nigeria current account during 1981-1983, was consistently negative standing at an annual average of 12 per cent and ranging from approximately US\$4 billion to US\$7 billion. The year's 1984 to 1986 marked the improvement in the current account and later turned negative during the period 1987-1988. The period 1989 to 1992 was a danger point in the current account balance. However, all these periods of fluctuations in current account reflected the response of the account to the internal and external shocks. Also, a cursory look at the oil price data and exchange rate can explain the oscillation and behaviour of current account which inform the vulnerability of the country to external shocks.

During 1992 to early 1995, due to decline in crude oil price in the world market and a corresponding devaluation of exchange rate and terms of trade deterioration, the country's current account deteriorated further. This implies that the current account is sensitive to the dwindling crude oil price and devaluation of currency. In 1996 and 1997, current account balance picked up again though there was a down slope of oil price but an improvement in terms of trade. This suggests that non-oil sector, foreign income, saving and investment were used to mitigate the fall in oil price and so there was little effect of oil price shock on the current account. As oil price peaked again in the last quarter of 1995, there was an improvement in the terms of trade with currency appreciation. Albeit, current account decline to deficit between last quarter of 1997 and first quarter of 1999. The period 1999 to 2003 marked a new turn in the evolution of Nigerian current account balance.

In 2003, current account reached its peak, remains steady in 2005 and turns downward. This prominent movement in the current account can be attributed to increase in the oil price in the global oil market, improvement in terms of trade and stability exchange rate in the country. After these periods, current account trended down; this is reflected in the recent oil price shock, terms of trade and exchange rate volatility shock figures. As oil price started downward trending from below US\$100/pbl in 2014 and US\$50/pbl in 2015 respectively current account became deficits. In 2016, current account balance became level down at 0.2% of GDP from previous -3.2% because during these periods oil price was US\$52.51/pbl also the terms of trade decline to US\$158.71bn current account surplus peak up again amounted to US\$688 (0.7% of GDP).

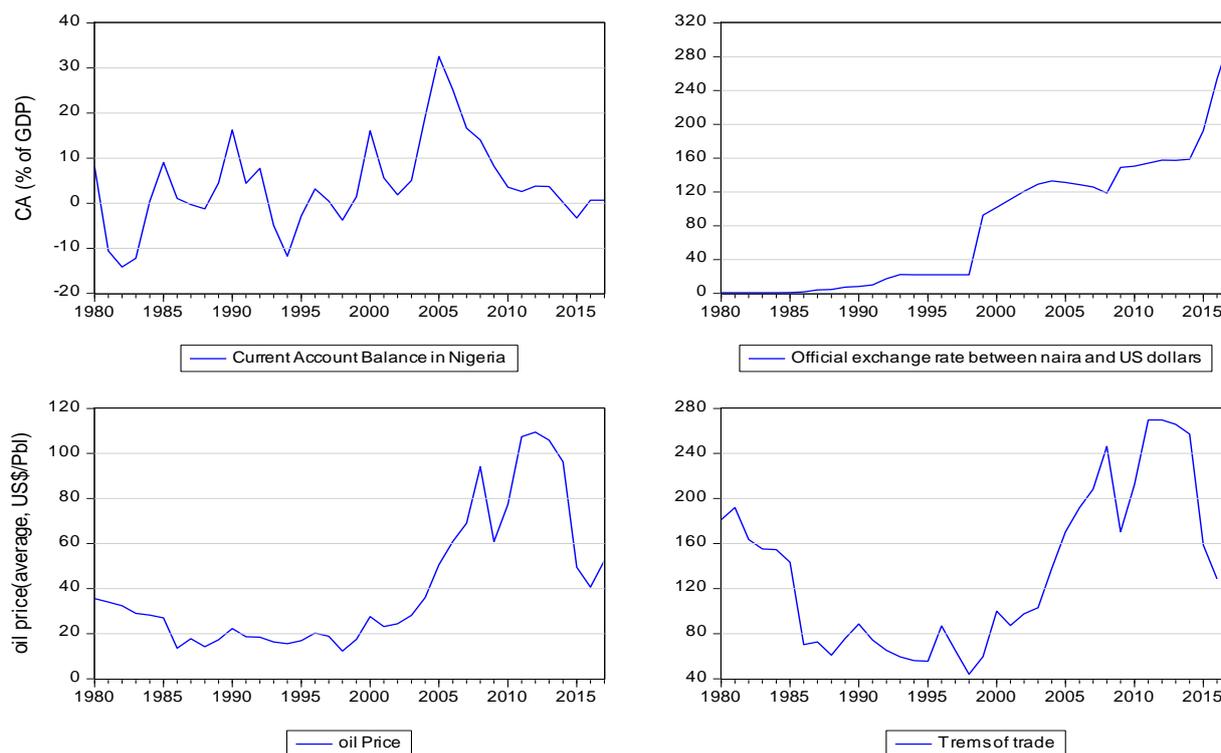


Figure 1: Current account balance and external shocks in Nigeria (% of GDP)

### 3. LITERATURE REVIEW

There are several studies on the determinants of current account e.g. , and its sustainability while some have analysed the impact of fiscal policy, adjustment policies and structural changes on the current account imbalance (e.g. Oseni & Onakoya, 2013; Udah, 2011; Egwaikhide, 1997; Egwaikhide, Oyeranti, Ayodele & Tchokote, 2002;). All these studies have produced mixed results on the factors influencing the behaviour of current account. However, there are limited studies on the effects of external variables' shocks on the current account in both developed and developing countries.

In a group of selected oil exporting, high-income oil importing and middle-income oil-importing countries from OPEC, Canada, UK; United States, Euro area and Japan; Latin America and Emerging Asia respectively, Kilian, Rebcci and Spatafora (2007) analysed the effects of crude oil demand and supply shock in the global oil market as external shocks on the external balance of oil importing and oil exporting countries covering the period 1975-2004. They used six different variables to proxy external balance in the analysis which includes: change in net foreign assets, current account, merchandise trade balance, oil trade balance, non-oil merchandise trade balance and capital gains on gross foreign assets and liabilities. The empirical results provided some interesting reports: (i) a significant effect of oil price shocks on the merchandise trade balance and the current account in US and other oil-importing countries; (ii) there is a valuation effects of oil price shock for US and other high- and middle-income importing and oil-exporting countries and that a non-oil trade balance is crucial in ameliorating the negative effects of oil price on external balance; and (iii) financial integration played provides some insurance against increase in oil prices and diversify risks associated with oil shock by allowing risk-sharing between oil-exporting and oil-importing countries as it

In a study of small open economy, Chia and Alba (2005) investigated both temporary and permanent adverse effects of terms of trade shocks on current account in a small open economy. The estimated results showed that temporary terms of trade shock causes current account surplus due to increase in consumption of traded goods while the effect of permanent shock to terms of trade depends on the elasticities of substitution in consumption. Perfectly flexible permanent term of trade cause no significant effect on the current account.

In US study, Barnett and Straub (2008) explored the driving forces of the current account balance. Along with the internal shocks, external disturbances were modelled in the form of oil price shock, given its exogenous nature. The results showed that a positive shock of oil prices results in GDP growth and decrease in inflation. Polbin (2013) investigated an open economy that depends on oil and gas exports (energy commodities) that are used in domestic production and are exported. Polbin focused on the impact of world oil prices shock on the economy, while disregarding other shocks, such as, the exchange rate shocks. The author also examined the impact of a 10-percent increase in world oil prices on macroeconomic indicators. It is shown that this shock leads to real GDP growth in the short run at 0.5%, total exports – by 6% and the current account in the initial period – by 1.8%. However, there is a decline of production and exports in the sector of traded goods production.

Idrees and Tufail (2012) tested the predictive power of Harberger-Laursen-Metzler in Pakistan and the response of current account balance to shocks in terms of trade using a dataset ranging from 1980-2009. Applying VAR model, the results revealed that current account deteriorate due to temporary shock in terms of trade while real income deteriorate with an improvement in terms of trade. However, the study concluded that HLM does not hold in Pakistan.

The study of developing eight countries (D8) covering the period 1981-2011 by Quratul-Ain and Tufail (2013) on the effect of oil price shocks on the dynamic relationship between current account and exchange rate volatility in D8 countries using unrestricted VAR model came with a number of conclusion. The results revealed that for all the oil importing countries in the region, increase in oil prices improves current account in the short-run and deteriorates it in the long-run except for Bangladesh. Also, in Indonesia, Pakistan and Turkey, increase in oil prices depreciates exchange rate which leads to deterioration of current account both in the short- and long-run while Bangladesh witnessed appreciation in exchange rate in the short run and others in the long-run. Contrariwise, all oil exporting countries within the region both in the short run and long-run experienced deteriorating current account balance except Malaysia whose recorded improvement in their current account balance. To further buttress the empirical results, the authors tested the effect of J-curve and Marshal-Lerner condition in the region and concluded that J-curve effects holds for all oil importing countries such as Egypt and Nigeria Marshal-Lerner condition holds in Iran both in the short- and the long-run

In a study of selected 13 small island developing states (SIDS) from Africa, Caribbean, East Asia and the Pacific, using a panel VAR, Santos-Paulino (2010) investigated the effects of both internal shocks (real GDP shocks) and external shocks (terms of trade shock) on the behaviour of current account during the period 1980-2005. The author reported that terms of trade shocks deteriorate current account balances and real GDP of the states in the short-run and in the long run current account response reflect a J-curve.

In a study of G-6 economies, Bussiere, Karadimitropoulou and León-Ledesma (2017) developed an inter-temporary to study the main shocks driving the behaviour of current account over the period 1980-2015. The authors employed structural VAR. the results showed that temporary excess sensitivity of current account to domestic shocks. Dibooglu and Aleisa (2004) examined the effects of oil prices, terms of trade shocks on macroeconomics fluctuation in Saudi Arabians during 1980-2000. Employing structural VAR (SVAR), the authors observed that oil prices shock contributed to the fluctuations in macroeconomics especially in the short run and that real exchange rate, price level and output were made vulnerable due to terms of trade shocks.

In Nigeria, Chuku et al (2011) investigated the effect of oil price shocks in Nigeria during the period 1970-2008. The authors used a quarterly data of oil price and current account balance. Employing structural VAR (AVAR), the results showed that oil price shocks deteriorate current account in the short run and the long-run effect was insignificant.

Wanjau (2014) investigated relationship among real exchange rate, current account balance and real income in Kenya using a dataset over the period 1980-2011. Employing ARDL, the results showed that real exchange rate significant influence current account behaviour in Kenya. The author also tested whether Marshal-Lerner conditions hold in the case of Kenya. The findings showed existence of Marshal-Lerner condition and J-curve effects in Kenya.

In a study of South African Development countries, Matos, Monteiro and Soma (2011) provided an analytical study on the efficacy of various SADC economic policies in alleviating the impact of exogenous shocks on the current account balance during the period 1990-2009. The authors observed that exogeneous shocks during the period of study had no significant impact on the current account because the there was polices put in place to mitigate the impact except during the period 2001/05 and 2009 when the country witnessed an intense shocks.

Huntington (2015) explored the relationship between crude oil price and current account for 91 oil importing and exporting countries during the period 1984-2009. The estimated results report that net oil exports significantly determined the surplus in the current account and net oil imports cannot explain variation in current account. Also, in a relatively rich oil economy, increase in oil imports deteriorates their current account balance but improves current account in an oil exports economies.

#### **4. METHODOLOGY**

This section discusses the theoretical framework of the study, model estimation and sources of data for analysis.

##### **4.1 Theoretical Framework**

The theoretical framework is adapted from intertemporal approach developed by Obstfeld and Rogoff (1995). Before this period, Sachs (1981) explained the movement in current account to be explained by the external shocks in price of oil and variation in exchange rate. However, intertemporal approach to current account provided the theoretical foundation for this paper. Its choice is based on the fact that current account of a small open developing countries in independent of global shocks and that it only responds to temporary country-specific shocks and not to permanent shocks (Bussiere etal, 2017). However, unpredictable change whether positive, negative, large or small in global oil price, exchange rate volatility

and terms of trade shocks can induce disturbance in the country's current account in the short run and even in the long run if it is permanent. Bergin and Sheffrin (2000); Sachs (1981); Obstfeld and Glick (1996) tested the intertemporal theory using the sample of dataset from small open economy and concluded that external shocks had significant effect on the economy and deteriorate current account balance

#### 4.2 The model

$$ca_t = \partial_0 + \partial_1 opr_t + \partial_2 tot_t + \partial_3 er_t + \varepsilon_t \quad (1)$$

**Table 1: Definition of the variable in the model**

Variable (s)	Definition/Description
ca	Current account, measured as a percent of GDP
opr	Oil Price shock, measured in US\$
excr	Official exchange rate, measured in average
tot	barter terms of trade, measured by the log difference of tot

#### 4.2 Estimation Techniques

Since the study involved the use of time series data, stationarity test of the variables is important and was carried out to ascertain the order of integration. Augmented Dickey-Fuller and Phillips-Perron test were employed. Johansen cointegration test was also carried out to examine the long-run relationship of the variables. To examine the response of current account balance to external shocks, the study employed multivariate vector error correction model (VECM) as against the unrestricted VAR. The use of VECM to examine the dynamic effects of innovations or shocks to oil price, exchange rate, terms of trade on the current account was due to the results of the stationarity and cointegration test. Once the variables are cointegrated for the long-run relation, the long-run and short-run causality can be investigated. The long-run and short-run direction of causality among the variables was investigated by the VECM (vector error correction method).

VECM is a restricted VAR with cointegration restrictions built in the specification. Unlike the Engle-Granger approach (ECM), this approach developed by Johansen and extended by Johansen and Juselius provides a multivariate maximum likelihood procedure that allows the determination of the numbers of cointegration vectors in a whole system of equations in one step, and without necessarily requiring a specific variable to be normalised. Specifically, the VECM is suitable for examining the dynamic co-movement among variables and the adjustment process toward long-run equilibrium. Thus, with built in maximum likelihood estimates, the ECM is a full information estimation approach which avoids varying over the errors from the first step into the second, unlike the Engle-Granger's ECM.

Starting from a simple VAR model:

$$AZ_t = B_1 Z_{t-1} + B_2 Z_{t-2} + \dots + B_p Z_{t-p} + \mu_t \quad (2)$$

A VAR lag length p (VAR(P) can be written as:

$$Z_t = A^{-1} B_1 Z_{t-1} + A^{-1} B_2 Z_{t-2} + \dots + A^{-1} B_p Z_{t-p} + u_t \quad (3)$$

Where A, B are the coefficient of the supposed parameter Z and  $u$  is the error term. In a reduced form equation (1) can be written as:

$$\begin{bmatrix} CA_t \\ OPR \\ EXCR_{b,t} \\ TOT_{n,t} \end{bmatrix} = \alpha_0 + \alpha_1 \begin{bmatrix} CA_{t-1} \\ OPR_{t-1} \\ EXCR_{b,t-1} \\ TOT_{n,t-1} \end{bmatrix} + \alpha_2 \begin{bmatrix} CA_{t-2} \\ OPR_{t-2} \\ EXCR_{b,t-2} \\ TOT_{n,t-2} \end{bmatrix} + \dots + \alpha_4 \begin{bmatrix} CA_{t-4} \\ OPR_{t-4} \\ EXCR_{b,t-4} \\ TOT_{n,t-4} \end{bmatrix} + \begin{bmatrix} \varepsilon_{1,t} \\ \varepsilon_{2,t} \\ \varepsilon_{3,t} \\ \varepsilon_{4,t} \end{bmatrix} \quad (4)$$

To obtain interactive effect among the estimated variables, impulse response function is used to evaluate the response of current account to one standard exogeneous shock to the external variables. Also, variance decomposition helps to determine the contribution of each variable shock to fluctuation in others using ten periods horizon.

### **4.3 Data Sources and Description**

This study considers three important variables which are external forces and beyond the host countries control that directly or indirectly have effect on the economy. They include: oil price, terms of trade and exchange rate. Secondary data was used for the analysis. Data for current account balance, official exchange rate, and terms of trade were sourced from the World Bank, World Development Indicators (WDI) database, 2017. The data for crude oil price, measured in US dollars, average annual per barrel, was collected from the official OPEC website, *The Statistica*. The study used quarterly data covering the period 1980Q1-2017Q4. Availability of data informed the scope of the study.

## **5. EMPIRICAL RESULTS AND DISCUSSION**

### **5.1. Stationarity Test**

In order to test for the stationarity of series, the study used Augmented Dickey-Fuller and Phillips-Perron unit root test. The result of the unit root test is presented in Table 2. From the Table, all the variables are integrated of order one, that is, I(1), meaning they are stationary after their first differenced.

**Table 2: Unit root test results**

Variables	ADF				PP				Decision
	Levels		First Difference		Levels		First Difference		
	Constant	Constant & trend	Constant	Constant & trend	Constant	Constant & trend	Constant	Constant & trend	
CA	-3.875**	-3.947**	-5.063**	-5.129**	-2.487	-2.681	-4.583**	-4.547**	I(1)
EXCR	1.218	-1.270	-2.887	-3.369	2.200	-0.339	-2.850	-3.334	I(1)
OPR	-1.176	-2.911	-3.772**	-3.758**	-1.277	-1.957	-3.984**	-3.976**	I(1)
TOT	-2.049	-2.564	-4.815**	-4.813	-1.421	-1.881	-3.886**	-3.866**	I(1)
<b>Test critical value</b>									
1%	-3.475	-4.022	-3.477	-4.024	-3.475	-4.021	-3.475	-4.022	
5%	-2.882	-3.441	-2.882	-3.442	-2.881	-3.440	-2.881	-3.441	
10%	-2.577	-3.145	-2.578	-3.146	-2.577	-3.145	-2.577	-3.145	

\*\* denotes 5% significance level

Source: Author's calculation, 2018

## 5.2 Cointegration Analysis

Based on the unit root test, the study applied Johansen test for cointegration relying on the results of the trace and max-eigen value statistics. Table 3 presented the results of the cointegration which show that trace statistics indicate three cointegrating equation while max-eigen statistics show one cointegrating equation at 5% level of significance. The results show a long run relationship among the variables. This is corroborated by the p-value which is less than 0.05, meaning that in the long run, the action of one can determine the behaviour of other.

**Table 3: Johansen Cointegration Test Results**

Hypothesized No. of CE(s)	Eigenvalue	Trace statistics	Critical value (0.05)	Prob**	Max-Eigen statistics	Critical value (5 percent)	Prob**
None	0.2241	58.8061*	47.8561	0.003	35.5259*	27.5843	0.004
At most 1	0.1162	23.2802	29.7970	0.232	17.2996	21.1316	0.158
At most 2	0.0357	5.9806	15.4947	0.698	5.0923	14.2646	0.730
At most 3	0.0063	0.8882	3.8415	0.346	0.8882	3.8415	0.346

\* denotes rejection of the hypothesis at the 0.05 level of significance

Source: Author's calculation, 2018

## 4.3 Lag Order Selection

The lag length of the VAR must be determined aprior before calculating Johansen cointegration test. However, Table 4 presented the results of the lag order selection criteria. The Table shows five different lag selection criterions. Schwartz information criterion (SIC) was used to select appropriate lag length which show optimal lag length of two.

**Table 4: VAR Lag Order Selection Criteria**

Lag	LogL	LR	FPE	AIC	SC	HQ
1	-1294.047	NA	2376.363	19.12477	19.46579	19.26335
2	-1064.587	432.1208	105.3823	16.00857	16.69061*	16.28574*
3	-1060.093	8.201382	124.8145	16.17654	17.19960	16.59228
4	-1052.616	13.20680	141.7041	16.30097	17.66504	16.85529
5	-1039.529	22.35260	148.4712	16.34349	18.04859	17.03641
6	-992.2856	77.93506*	94.67774*	15.88738*	17.93350	16.71887
7	-988.5738	5.906424	114.2759	16.06677	18.45391	17.03684
8	-982.9752	8.581779	134.5919	16.21862	18.94677	17.32727

\* indicates lag order selected by the criterion

Source: Author's computation (2018).

#### **4.4 Impulse Response Analysis**

This section analyses and interprets response each variable to one standard variation of shock in other variable (current account, oil price, exchange rate volatility, and terms of trade shocks).

##### ***4.4.1 Response of CA to Oil Price Shock***

Figure 1 presents the impulse response of current account to exogeneous shock in oil price, exchange rate, and terms of trade. Panel B of figure 1 shows the response of current account balance to one standard deviation of unanticipated shock to oil price. Initially current account response positively to positive shocks to oil price and converges to equilibrium. In response to negative shock to oil price, current account became deficit in the long run. Given the openness of the country and the fact Nigeria is an oil exporting and oil importing country, this shows that the country is vulnerable to exogeneous shock to oil price especially in the long run. This fact can also be buttressed from the fact the recent oil price crisis in the world market causes economic recession in most of the oil exporting country and Nigeria inclusive. This findings contradicts Chuku et al (2011), who found that oil price shock have a short run effect on current account while the long run is insignificant. Also, the findings corroborates Quratul-Ain and Tufail (2013), who found that oil price shock deteriorates current account balance in all oil exporting among D8 countries.

##### ***4.4.2 Response of CA to Exchange Rate***

Panel C of figure 1 shows the impact of one standard deviation shock to exchange rate on the current account balance in Nigeria. The panel shows that initially in the short run, in response to exogeneous shock in exchange rate, current account levelled down and converges to equilibrium. However, in response to unanticipated appreciation of exchange rate, current account starts rising up and became steady at positive in the long run. This shows that the effects of exogeneous shock to exchange rate on current account is insignificant in Nigeria which implies that the appreciation or depreciation of exchange rate does not influence the behaviour of current account in Nigeria as a small open economy.

##### ***4.4.3 Response of CA to TOT***

In figure 1, panel D shows presents the effect of one standard deviation shock to terms of trade on the current account balance in Nigeria. The panel shows that current account respond negatively to exogeneous shock to terms of trade. The panel shows that initially current account levelled down and later deteriorate in the long run, implying that innovation in terms of trade can explain the behaviour of current account balance in Nigeria. The response of current account to terms of trade shock can reflect the effect of oil price shock on the terms of trade in which the response was similar to that of current account balance (see figure 1 in appendix)

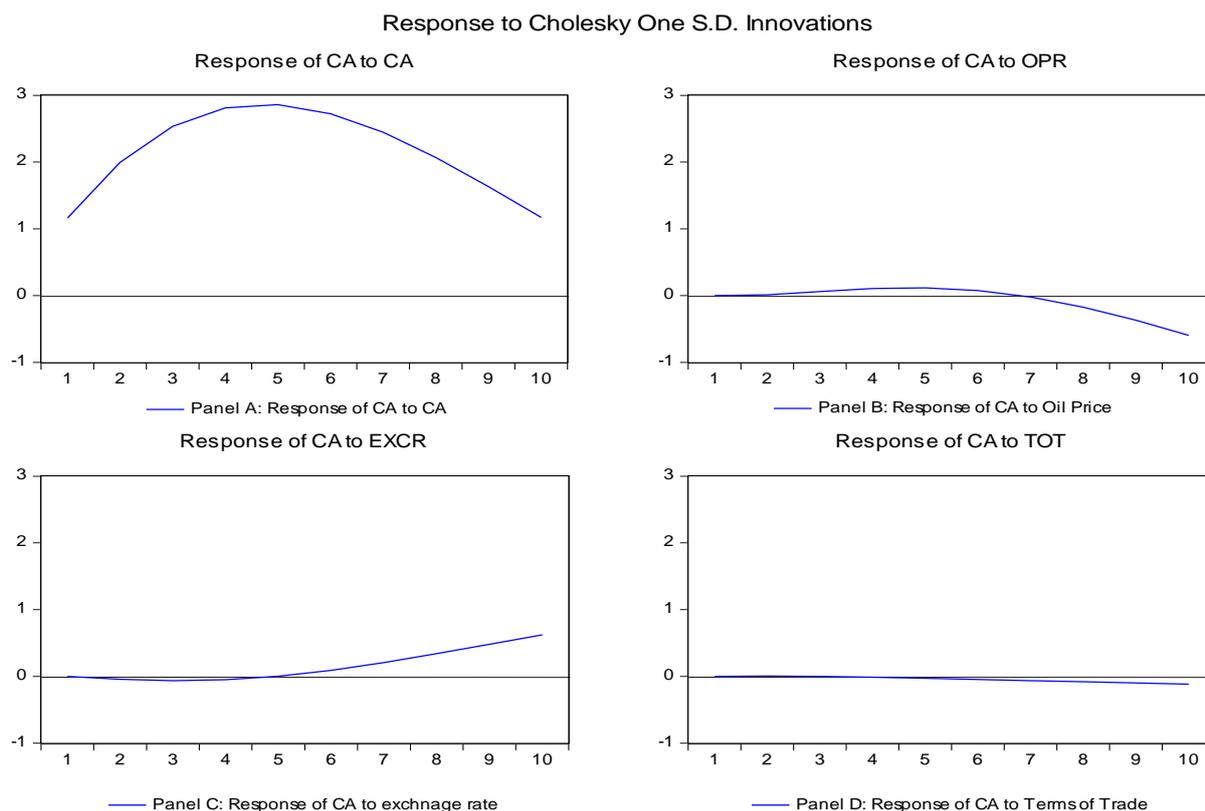


Figure 2: Impulse response function results

#### 4.5 Variance Decomposition

Alongside impulse response, variance decomposition of the variables was estimated to ascertain the contribution of each exogenous variable to variations in current account balance in Nigeria. Table 5 reports the variance decomposition for the oil price, exchange rate, terms of trade and current account balance.

##### 4.5.1 Variance Decomposition of CA

The first panel of Table 5 reports the variance decomposition of current account balance. In the short run forecasting horizon, Nigeria current account forecast error variance is explained by variation in current account balance itself in which current account balance innovations plays a significant role, contributing 100%. Previous studies shown that variation in exchange rate, oil price shocks and terms of trade have a significant impact on the fluctuations in current account, hence, the results show that momentous portion of current account balance fluctuations cannot be explained by the shocks to the external variables reason being that oil price, exchange rate, and terms of trade contribution was insignificant throughout the period of horizon contrary to the impulse response results. In the middle term horizon (fifth quarter) forecasting error horizon, the contribution of current account significantly contributed to itself innovations upto the tenth quarter (long-run). In the long run, oil price and exchange rate contributed 1.09% and 1.56% to the variations in current account balance during the period of study.

##### 4.5.2 Variance Decomposition of Oil Price

In Table 5, the contribution of other variables to variation in oil price is also presented. From the Table, oil price contributed 89% to the variation in itself in the short run (first horizon) and this increase to 91% in the long run (tenth period horizon). This finding suggest that oil price is independent of the variation in terms of trade and exchange rate as these variable contributed less to the forecasted error in oil price throughout the period of horizon. In the first horizon, current account contributed 10% and decrease to approximately 8% in the long run (tenth period).

#### ***4.5.3 Variance Decomposition of Exchange Rate***

Table 5 shows that most of the forecasted error variance in exchange rate is accounted for by the exchange rate itself throughout the period of horizon. Also, the role of oil price in forecasted error variance of exchange rate is prominent in explaining the variation in exchange rate. According to the Table, oil price account for approximately 10%, 15% and 23% variation in exchange rate over the short run, medium term and longer term respectively in Nigeria. As an open economy and oil exporting and importing countries, this suggest that the falling oil price caused the value of Nigeria currency to collapse

#### ***4.5.4 Variance Decomposition of Terms of Trade***

Table 5 reported the contribution of the variables to the forecasted error variance in terms of trade. From the Table, the variation in terms of trade can be explained by the innovations in oil price. Oil price accounted for 71% forecasted error variance in terms of trade in the short run and this increase to approximately 76% in the longer term. This suggests that terms of trade is more affected by the innovations in oil price rather than innovations in terms of trade itself.

### **Table 5: Variance Decomposition**

<b>Dependent variable</b>	<b>Period</b>	<b>S.E</b>	<b>CA</b>	<b>OPR</b>	<b>EXCR</b>	<b>TOT</b>
Current Account	1	1.1605	100.0000	0.0000	0.0000	0.0000
	5	5.2807	99.8635	0.1019	0.0309	0.0036
	10	7.1383	97.2766	1.0926	1.5590	0.0717
Oil Price	1	2.1492	10.3605	89.6394	0.0000	0.0000
	5	11.7607	8.8554	91.0357	0.0741	0.0348
	10	21.0612	7.8511	91.0602	0.9558	0.1329
Exchange Rate	1	2.3506	0.0415	10.2253	89.7331	0.0000
	5	14.0240	1.1878	15.3394	83.4652	0.4474
	10	28.4359	4.6637	23.1983	72.0857	0.0523
Terms of Trade	1	5.2321	14.2071	71.3073	0.0365	14.4490
	5	28.4523	11.9380	74.4474	0.0973	13.5172
	10	50.1031	9.3867	75.5561	1.5303	13.5266

Source: Author's computation (2018).

## 6. CONCLUSION AND RECOMMENDATIONS

This paper investigates the influence of oil price shocks, terms of trade and exchange rate on the current account behaviour in Nigeria using a quarterly data from 1980-2017. To achieve the objective vector error correction model (VECM) was used. Impulse response function and variance decomposition were also used to determine effects of the exogeneous shocks to oil price, terms of trade and exchange rate on current account balance. Overall, the empirical results revealed that Nigeria current account is vulnerable to shocks especially in oil price and exchange rate. The impulse response results functions reports that one standard deviation shock to oil price and exchange rate causes deterioration in the current account balance. This result contradicts the assumption of intertemporal approach to current account that a country responds to temporary country-specific shocks.

Based on the results of this study, there is need for new-export diversification strategy of non-oil which will help to cushion the effects of shocks in oil and exchange rate on current account balance. Also, since the country is small and open to international trade, there is need for more forward-looking strategic plan on the import of oil. The government should repair the existing refineries and revamp the downstream oil to reduce imports of oil. The results of the variance decomposition show that the terms of trade are affected mainly by the oil price. This is not surprising because almost 60% of the country's export is from the crude oil and the revenue from it takes up to 70% of the government source of revenues.

The futures researchers can factor-in the effect of inter shock such as economic downturn, political crisis and business cycle fluctuation which are part of the scope of this paper.

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