EXTERNAL SHOCKS, CONSUMPTION AND INVESTMENT IN RISKY ASSETS IN NIGERIA: IS THERE A NEXUS?

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ABSTRACT

Nigeria is susceptible to external shocks as a result of its integration with the world market. The purpose of this study thus is to examine the extent to these external shocks influences consumption and investment in risky assets in pre and post financial crisis period using monthly data from 1999 to 2014. This study using vector autoregression (VAR) found that the integration of the Nigerian stock market into the world market makes the market vulnerable to up and downs. External shocks (measured with the oil price and interest rate) harmed the growth of consumption and investment in the pre-crises period. External shocks had a positive as well as a negative effect on consumption and investment respectively in post crises. Thus, Nigeria felt the full brunt of the fall in the oil price, which reduced the value of the commodity and consequently consumption and investment thus, marginalizing the real sector. This implies that the effect of the shock in oil price is transmitted to both consumption and investment. Also, shocks in interest rate did not directly affect consumption but through its effect on income. Therefore, policies meant to regulate the domestic economy to mitigate the interference of external shocks should be put in place.

Keywords: Consumption, Investment, Risky Assets, External Shocks, VAR, Financial Market.

JEL Class: E21, E22, D53, F36.

INTRODUCTION

External shocks are the effect observed in a national economy that is caused by significant unforeseen variations in economic situations of the world. It can either be positive (export prices increases and import prices decreases) or negative (export prices decrease and import prices increase) (Ekesiobi et al., 2016). A vital role in the examination of macroeconomic instabilities is to determine from the global economy the role of external shocks. Most developing countries have been exposed to the phenomenon of external shocks, and Nigeria cannot be excluded. The Nigerian economy is thus vulnerable to external shocks, but the extent to which these shocks affect consumption growth and hence investment in risky assets has not been adequately explored in the literature (Ekesiobi et al. 2016; Joëts & Razafindrabe, 2014; Madueme & Nwosu, 2010; Raut & Virmani, 1990), hence, the study.

The integration of the world market- real and financial sectors makes emerging economies like Nigeria susceptible to fluctuation in the market. The exposure of world economies to variations in commodity prices and variations in both real terms of trade and real exchange rates as a result of the volatility in stock markets has been a major concern to economists. There has been a wide fluctuation in stock markets which has affected consumers' behavior. An overview of the Nigerian stock exchange equity market capitalization during the global financial crises in 2008 showed that there was a 35% decrease in market capitalization during the year (SEC, 2008). The bullish run in the capital market that began in the second half of 2012 continued with greater impetus during the first quarter

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of 2013 and was sustained through most of the year except in the third quarter. This made the Nigerian Stock Market rated as the worst-performing in the world for January 2009 (SEC, 2014). The financial market has been dominated by the U.S. economy due to having the largest financial market. Thus making other economies vulnerable to shocks originating from the U.S.

Furthermore, oil price shock is one of the most important external shocks that affect the most economy. It is of utmost concern to most economies because it was discovered that global output falls as a result of shocks in the oil price (Gershon et al. 2019; Ogundipe & Ogundipe, 2012). From a theoretical point of view, oil price affects the performance of macroeconomic variables through the supply-side effects (these have an effect on output directly due to changes in the marginal cost of production) and demand-side effect (on consumption and investment). From this perspective, an increase (decrease) in oil price leads to a decrease (increase) in real disposable income and further brings about a reduction (increase) in consumption and investment in the economy (Nguyen et al., 2014). This effect harms economic activity and growth depending on the direction of change.

Studies have examined the effect of the oil price shock on the economy like Omolade, et al. (2019) for 8 Africa oil-producing countries; Marco & Luca (2015) for the U.K.; Matthew & Adegboye (2014) for Nigeria, Khuram & Liu (2014) in Russia; Ojapinwa and Ejumedia (2011)-Nigeria; Zhang & Broadstock (2014) in Asia examined oil price shock on consumption expenditure, Ekesiobi et al. (2016) examined the effect of an external shock on government spending. However, this study examined the nexus between external shocks, consumption and investment in risky assets in Nigeria which differs from existing studies that have either examined the effect of the external shock on the economy or gross investment as a whole. Also, the study differs from existing studies by examining pre-financial crises, post-financial crises, and a combination of both periods.

LITERATURE REVIEW

World economies' real and financial sectors have become globally integrated. Stock markets all over the world financial market over some years ago have experienced a wide fluctuation which tremendously affected consumers' behavior. The liberalization of trade and capital flows due to the development in the financial sector have increased the effects of external shocks on the economy which have caused the possibility of aggregate risk influencing the consumption and investment pattern at the macroeconomic level.

Omolade et al. (2019) using a panel structural VAR model examined the effects of the crude oil price shock and macroeconomic performance on the largest 8 Africa's oil-producing countries (Angola, Algeria, Congo Republic, Equatorial Guinea, Egypt, Gabon, Libya, and Nigeria). The result showed that there is considerable variation in the reaction of output to fluctuations in oil prices. The study also established that structural rigidities may be the determinant of inflation as a result of macroeconomic variables to the shock.

Gershon et al. (2019) using four African countries Cape Verde, Liberia, Sierra Leone, and the Gambia examined the impact of oil price shocks on oil-importing countries. The result showed that a rise in oil price will increase gross domestic product per capita temporarily. Chileshe et al. (2018) using quarterly data from 2000 to 2016 for Zambia examined the effect of external shocks on domestic macroeconomic variables and monetary policy. The result of the structural VAR shows that external shocks significantly affect macroeconomic variables in Zambia (Abugri, 2006).

Furthermore, Arnold et al. (2018) using time and frequency analysis examined the co-movement between oil prices and stock markets in African. The result shows that there is relatively low co-movement between OPEC oil prices and the stock market in Africa except

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for Egypt and South Africa with large-scale co-movements for all stocks. The result also signifies that there are weak co-movements between oil prices and stock markets in the short and medium run but a stronger relationship exists in the long run for the majority of the stock markets.

Heli (2019) carried out an empirical review on the effect of foreign shocks on the Russian economy. The review shows that oil price shocks, foreign output shocks, and interest rate shocks significantly affect the GDP in Russian. This implies that the review shows that external shocks are important to fluctuations in the Russian economy. Marco & Luca (2015) using VAR investigated the impact of oil price shock on the U.K. economy using monthly data covering a period of 1976 to 2014. They found that oil movements were associated with oil demand shocks rather than oil supply. Their result also showed that the government deficit decreased as oil prices increased. However, very scant literature has considered the demand-side effects of oil shocks. The study was based on aggregate gross domestic product growth, inflation, interest rate, and government deficit which does not depict the extent of the effect of oil price shock on the financial sector.

Similarly et al. (2004) examined the effect of macroeconomic shocks on the households and non-financial firms' preferences in asset allocation using bank clients' security data set for all German banks. Their analyses were based particularly on preference for two macroeconomic shocks; wealth shocks represented by the sovereign debt crisis in the Euro area and credit supply shocks which arose from reductions in borrowing abilities during banks' distress. They employed difference-in-difference for the first shock and instrumental variable techniques for the second shock. The result showed that households with large holdings of securities from stressed Euro area countries decreased the degree of concentration in their security portfolio as a result of the crisis while the non-financial firms with the same holding from the same area did not. This implies that wealth shock increased the level of risk aversion of households with a large share of securities. Credit supply shocks resulted in the reduction of the concentration for both households and non-financial firms and only corporate credit shocks affected the portfolio of bank clients'. Their study focused only on security data of bank clients' which does not encompass all the investment in risky assets is however limited as a result of their focus on household and non-financial firms.

Zhang & Broadstock (2014) examined the effect of international oil price shocks on consumption in nine ASEAN and East Asia economies using quarterly data from 1988 to 2012. Using Error Correction Model, the result showed that oil shocks affected consumption in the economies during the period. They also modeled the wealth effect into the consumption equation of four countries and the result was statistically insignificant which implies that changes in wealth did not generate an immediate short-run change in the level of consumption. However, income on consumption in the nine regions produced a mixed result. While China, Hong Kong, and Japan as well as some of the smaller economies (Taiwan and Thailand) have no short-run reaction to changes in income, Indonesia, Malaysia, and South Korea attributed the short-run increase in consumption to changes in the level of income. The study concentrated on the effect of the oil shock on consumption and does not give consideration for investment particularly investment in risky assets. Likewise, the study was based on a large number of years, thus not the aggregate period when there was no shock with when there was. This implies that the study was not disaggregated into pre-crises and post-crises periods.

Sally (2011), Isenmila & Dominic (2012), among others, have examined share prices and macroeconomic factors in Nigeria, they concentrated majorly on domestic macroeconomic variables that can affect share prices. None of these studies have examined oil price shock and investment in risky assets in Nigeria. Thus, this study must examine the external factors or shocks three connection with consumption and investment in risky assets.

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Many variables have been used by many authors to examine external shock, for example, oil price, U.S. exchange rate, interest rate but this study will take into consideration oil price and U.S. interest rate shocks.

METHODOLOGY

It has been observed that macroeconomic factors may affect investors' expected returns. Several variables have been used by many authors to examine external shock, for example, oil price, U.S. exchange rate, interest rate. However, one of the most important external shocks especially for developing countries like Nigeria is the oil price shock. Also, macroeconomic indicators of the large developed economy like the U.S. tends to cause a great effect on the world through the trade channel. U.S. financial markets have been the largest which make U.S. economy important in both the real and financial sector of the world (Nguyen et al., 2014). Bernanke & Kuttner (2004) rightly said that the effects of the actions of monetary policy such as the Federal fund rate are on financial markets (through asset prices and returns). Thus, oil price and U.S. monetary policy shocks are more important when examining external shocks (Nguyen, et. al., 2014). Therefore, this study made use of oil price and U.S. interest rate variables to derive shock and later incorporated them into the model.

To estimate oil price shock and interest rate shock on consumption and investment in risky assets, the GARCH model was adopted. Engel introduces the Autoregressive Conditional Heteroscedasticity (ARCH) model which treats heteroscedasticity as a variance to be modeled. The ARCH (1) model first developed by Engle (1982) was.

$$\sigma_t{}^2 = \alpha_0 + \alpha_1 a_{t-1}^2$$

With a non-negative condition that $\alpha_0 > 0$ and $\alpha_1 \geq 0$ and $\alpha_1 < 1$ for stationarity where a is the residual. The theory postulates that the conditional variance is a function of the residual error. Bollerslev (1986) however developed the Generalised ARCH model which was an extension of the ARCH model and similar to an ARMA model. In a GARCH (1, 1) model.

$$\sigma_t{}^2 = \alpha_0 + \alpha_1 a_{t-1}^2 + \beta_1 \sigma_{t-1}^2$$

Where $\alpha_0 > 0$, $\alpha_1 > 0$, $\beta_1 > 0$ and $\alpha_1 + \beta_1 < 1$ in such a way that the prediction of the variation in the last period is a combination of the last period prediction and the squared of the variable in the last period.

The Vector Autoregressive (VAR) model analysed are:

$$CONS_t = \alpha + \sum_{j=1}^{n} \beta_t \, CONS_{t-j} + \sum_{j=1}^{n} \theta_t \, GVOLT_{t-j} + \sum_{j=1}^{n} \gamma_t \, OPS_{t-j} + \sum_{j=1}^{n} \alpha_t \, IRS_{t-j} \quad (1)$$

$$GVOLT_t = \alpha + \sum_{j=1}^{n} \beta_t \, CONS_{t-j} + \sum_{j=1}^{n} \theta_t \, GVOLT_{t-j} + \sum_{j=1}^{n} \gamma_t \, OPS_{t-j} + \sum_{j=1}^{n} \alpha_t \, IRS_{t-j} \quad (2)$$

$$OPS_t = \alpha + \sum_{j=1}^{n} \beta_t \, CONS_{t-j} + \sum_{j=1}^{n} \theta_t \, GVOLT_{t-j} + \sum_{j=1}^{n} \gamma_t \, OPS_{t-j} + \sum_{j=1}^{n} \alpha_t \, IRS_{t-j} \quad (3)$$

$$IRS_t = \alpha + \sum_{j=1}^{n} \beta_t \, CONS_{t-j} + \sum_{j=1}^{n} \theta_t \, GVOLT_{t-j} + \sum_{j=1}^{n} \gamma_t \, OPS_{t-j} + \sum_{j=1}^{n} \alpha_t \, IRS_{t-j} \quad (4)$$

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Where

$CONS_t$ = private consumption. Household final consumption expenditure (formerly private consumption) is the market value of all goods and services, including durable pro ducts (such as cars, washing machines, and home computers), purchased by households (World Development Indicator, 2014).

$GVOLT_t$ = investment in risky assets. Investment in risky assets can be termed to mean investment in publicly traded stock and a high yielding return risky assets contributes significantly to the future well-being of economic household (Wang, 2008).

OPS_t = oil price shock

IRS_t = interest rate shock

The shocks in the selected variables (Oil price and U.S. interest rate) were captured using ARCH and GARCH analysis before carrying out any analysis on this model. The result was then incorporated into the model for estimation. A VAR model explains the endogenous variable solely by their history. VAR model, therefore, is a linear function of a set of k variables (called endogenous variables) with their past values only over the same sample period (t = 1, ..., T). Upon the determination of unit root, the Johansen cointegration test was applied to the variables to check for the existence of cointegration among them. This process however helps in determining the type of VAR model that the study will employ.

The study covered the period between 1999 and 2014. The choice of the period was informed by the fact that the data covered the period before and after the global financial meltdown/crisis of 2007 that is the pre-crisis and post-crisis periods. Also, since this study made use of monthly data, the period covered must be limited to avoid unnecessary noise considering the nature of the data in question in capturing events in the Nigerian Stock Exchange market.

FINDINGS

The estimated model presented the magnitude of individual effects of the independent variable on the dependent variable by a unit change in the independent variable. The effects were examined by considering the pre-crises, post crises period, and aggregate period. Before carrying out a VAR analysis, it is expedient to examine the lag length selection criterion since the study established through the unit root test that the variables of concern are stationary at levels.

Lag Selection Criteria

Of great importance, it is to determine the maximum numbers of lags to adopt for the model using Akaike criterion (AIC), Schwartz Bayesian Criterion (S.C.), and Hannan-Quinn Criterion (HQC). Although AIC remains the most widely used of the above lag selection criterion, S.C. is often preferred to the AIC because it tends to choose a parsimonious model than AIC (Neath &Cavanaugh, 1997). Therefore, this study used lag lengths one (1), three (3), and two (2) for pre-crisis, post-crisis, and aggregate periods respectively as indicated by Schwartz Bayesian Criterion (S.C.) in Table 1.

Table 1
LAG SELECTION CRITERIA

	Pre-crises						**Post crises**	**Aggregate**		
Lag	LogL	AIC	SC	HQC	AIC	SC	HQC	AIC	SC	HQC
1	914.1497	-16.03997	-15.71737*	-15.90961*	-20.17419	-19.54178	-19.92242	-13.14667	-12.93299	-13.06002
2	980.4962	-16.05430	-15.48976	-15.82619	-23.11742	-21.97909	-22.66425	-13.32249	-12.94855*	-13.17086
3	993.8363	-16.05090	-15.24441	-15.72501	-24.10508	-22.46082*	-23.45049*	-13.37617	-12.84197	-13.15955

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4	1000.703	-16.12124	-15.07281	-15.69760	-24.21233	-22.06214	-23.35633	-13.34124	-12.64679	-13.05965
5	1010.658	-16.26484	-14.97446	-15.74343	-24.43257	-21.77646	-23.37516	-13.41663	-12.56191	-13.07005
6	1017.729	-16.15988	-14.62755	-15.54071	-24.38433	-21.22229	-23.12551	-13.36275	-12.34777	-12.95119
7	1026.986	-16.04366	-14.26939	-15.32673	-24.35271	-20.68475	-22.89248	-13.29734	-12.12211	-12.82079
8	1032.320	-16.15333	-14.13711	-15.33863	-24.39965	-20.22576	-22.73801	-13.27546	-11.93997	-12.73393
9	1057.338	-16.09927	-13.84110	-15.18680	-24.19290	-19.51309	-22.32986	-13.78120	-12.28545	-13.17469
10	1075.939	-16.03660	-13.53649	-15.02637	-24.14701	-18.96127	-22.08255	-13.71957	-12.06355	-13.04807
11	1088.581	-15.92500	-13.18295	-14.81701	-24.22272	-18.53105	-21.95685	-13.88165	-12.06538	-13.14517
12	1146.445	-16.40604*	-13.42204	-15.20028	-24.51676*	-18.31916	-22.04948	-14.59598*	-12.61945	-13.79451*

Source: Author's computation (2019)

Note: The asterisks in the table show the best (that is, minimized) values of the respective information criteria. AIC is Akaike criterion, S.C. is Schwartz Bayesian Criterion and HQC is Hannan-Quinn Criterion.

Consumption (CONS), investment in risky assets (GVOLT), the oil price shock (OPS), and interest rate shock (IRS)

Impulse Response of Private Consumption and Investment in Risky Asset: 1999-2007

The impulse response function shows how a variable responds over a while to the standard deviation shock in itself and other variables that constitute the model. Alege (2010) posits that impulse response functions help to identify the response of endogenous variables in a model to the economic shock experienced within a given period. Figure 1 shows the impulse response of the effect of external shocks on consumption and investment in risky assets pre-crisis period.

Figure 1 shows that the response of the growth rate of consumption to investment in risky assets was initially zero with a declining effect which made it negative throughout the period. This implies that shocks from investment in the risky asset will bring about a decline in the growth rate of private consumption. This is as expected as an increase in investment all other things being equal will reduce consumption. On the other hand, the response of the rate investment in the risky assets (GVOLT) to growth in private consumption (CONS) was initially positive at the early period but declined in the second period and became negative which afterward increases and reaches zero lines throughout the period. This means that shocks in consumption will affect the growth rate of investment in risky assets positively at the initial stage. That is when people reduce their consumption, it has a positive effect on investment but a rise in the growth rate of consumption reduces the money available for investment and subsequently affects the growth rate of investment. Also, private consumption growth responded negatively although not statistically significant to shock at the oil price (OPS) throughout the period. This implies that increases (decrease) in oil price per barrel for an oil-exporting country like Nigeria though may increase (decrease) oil proceed and should be beneficial (unfavorable) to oil-producing countries.

In this Figure 1, there is a negative impact of shocks in oil price on Nigerians. An increase in oil price shock during this period was said to be beneficial to the country but as oil price increases things became more expensive and thereby reducing the growth rate of consumption since there was a general rise in the price of goods. The negative relationship may also be because Nigeria still imports oil products, the engine of growth in the country, which is used by all sectors in process of production or rendering services. This makes things more expensive thereby reducing the purchasing power of an individual, hence consumption. The response of private consumption growth (CONS) to interest rate shock (IRS) was negative and almost torching the zero line throughout. This can be linked to the fact that Nigerians may wish to participate in foreign investment against local investment due to a rise in the rate of interest. The heavy repatriation of Naira during the period reduces the gross domestic product which reduces consumption in effect.

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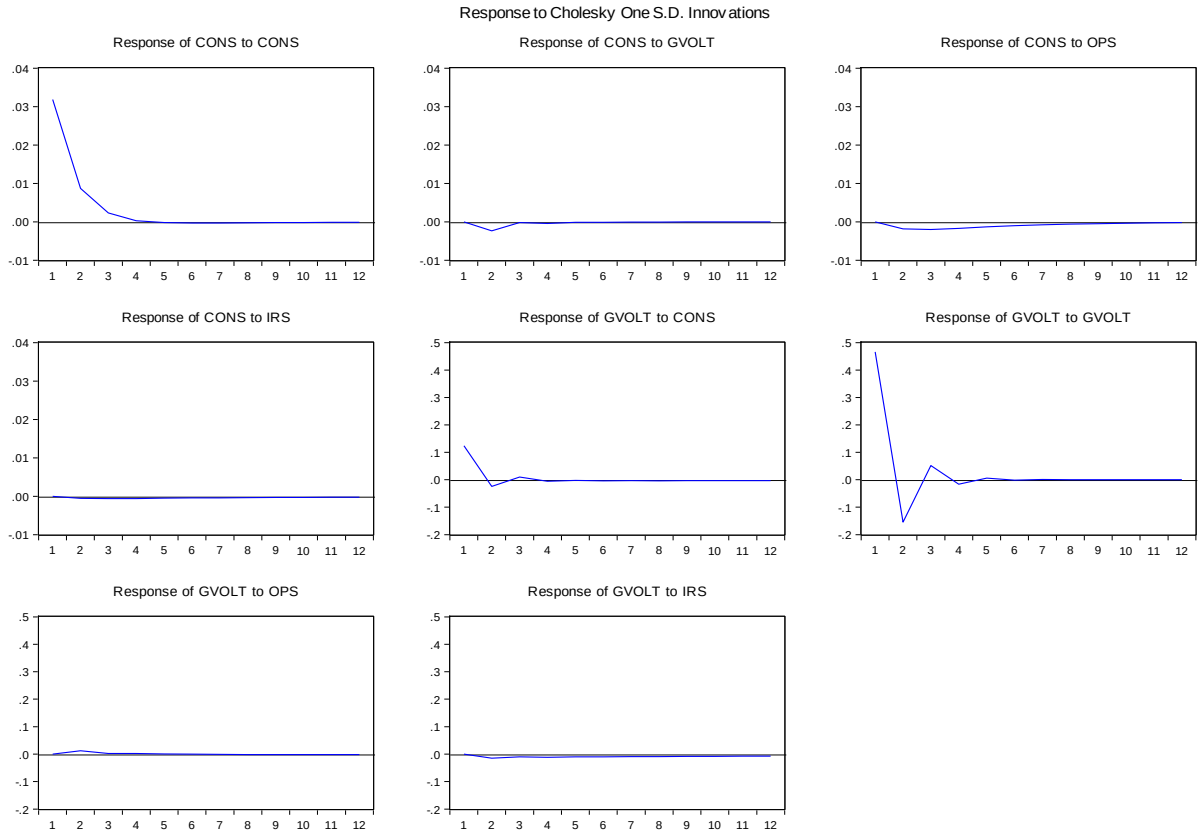

Source: Author's computation (2019)

Figure 1
IMPULSE RESPONSE OF EXTERNAL SHOCKS, PRIVATE CONSUMPTION, AND INVESTMENT IN RISKY ASSET: 1999-2007

In the same vein, the response of growth rate of investment in risky assets (GVOLT) to oil price shock (OPS) was initially slightly positive in the early period, this decline in the third period to zero and this was maintained all through to period twelve. This confirms the traditional knowledge that increases in oil price were beneficial to oil-exporting. This implies that as Nigeria is an oil-producing economy, an increase in the price of oil was initially beneficial to the economy but the subsequent shock adversely affects investment. Literature put it that the oil price shock experienced between 2003 and 2008 was beneficial to Nigeria's economy. The changes in the growth rate of investment in risky assets show the response of investment to shock at oil prices. Finally, the growth rate of investment in risky assets responded negatively to interest rate shock (IRS) all through the period. This can be linked to the fact that a high U.S. interest rate is not favorable to domestic investment in emerging economies like Nigeria. This is because the U.S. market will become more attractive to both local and foreign investors as a result of the increase in the interest rate and investors will prefer to invest in the U.S. than the domestic economy. This also leads to capital flight which is detrimental to domestic investment. Thus, shocks from the U.S. interest rate will negatively affect the growth rate of investment in risky assets.

In summary, the response of consumption to external shocks (oil price shock and interest rate shocks) is negative while the response of the growth rate of investment to shock interest rate was negative all through the period its response to oil price shock was both positive and negative.

Impulse Response of Private Consumption and Investment in Risky Asset: 2008-2014

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The impulse response of the effect of external shocks on consumption and investment in risky assets in post crises period is shown in Figure 2. The growth rate of consumption response to investment in risky assets was initially zero with a declining effect which made it negative throughout the period. This means that change in investment in the risky asset will reduce the growth rate of consumption. This is as expected as we know that an increase in investment all other things being equal will reduce consumption. Also, the response of the growth rate investment in risky asset to growth (GVOLT) to private consumption (CONS) shock was initially positive at the early period but declined in the second period and became negative but increased a little and afterward decreases a little below the zero lines throughout the period.

This means that shocks in consumption will affect the growth rate of investment in risky assets positively at the initial stage. That is when people prefer to defer current consumption to the future, it had a positive effect on investment but preference for current consumption will lead to a rise in the growth rate of consumption reduces the money available for investment, and subsequently affects the growth rate of investment. The decline and the negative response can be attributed to economic crises that loom the period. This restrained prospective investors to be active players in the stock market. However, the government tried to put in place various economic policies to motivate the investor to invest after the crises. This might have caused the growth rate of investment in risky assets to become positive but it was not sustained for long as the economic crises hampered the welfare of the people which made them give preference for current rather than future consumption.

The growth rate of private consumption growth (CONS) response to the oil price shock (OPS) was initially positive in the early period reached a peak around period three and began to fall. By period five it has become negative and it continues to decreases till period twelve. However, the response of private consumption growth (CONS) to interest rate shock (IRS) was positive all through the period. It started from point zero in period one increased to a peak in period three, declined a little and this level was sustained throughout the period. After the crisis in 2008, the U.S. interest rate was slashed by 0.25%. This means that the shock in the U.S. interest rate open the avenue for foreign investors to invest in Nigeria due to the fragility of the U.S. which increases the domestic investment, gross domestic product (income) and makes more money available for consumption. Also, it reduces capital flight to a foreign country.

Furthermore, the growth rate of investment in risky assets (GVOLT) responded to shock in the oil price (OPS) negatively in the early period and by period two it started to increase and became zero in the third period. The response effect became slightly negative from period seven and throughout to period twelve afterward. Also, the response of the growth rate of investment in risky assets (GVOLT) to interest rate shock (IRS) was negative and this negative response was maintained all through to period twelve with slight changes. This implies that the integration of the stock market into the world market makes the market vulnerable to ups and downs Figure 2.

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Source: Author's computation (2019)

Figure 2
IMPULSE RESPONSE OF EXTERNAL SHOCKS, PRIVATE CONSUMPTION, AND INVESTMENT IN RISKY ASSET: 2008-2014

In conclusion, consumption and investment here responded to a swing in oil price shock and interest rate shock during this period. Shocks in oil prices can bring about a fast decline in consumption and investment confidence with a negative strong effect on the activities of the real economy. This implies that since Nigeria imports its oil product, an increase in oil price will eventually negatively affect the economy because oil is the engine of growth that is majorly used in production. An increase in oil price will lead to an increase in the cost of production which will make consumables expensive and decrease investment.

Impulse Response of Private Consumption and Investment in Risky Asset: 1999-2014

The impulse response of the effect of external shocks on consumption and investment in the risky asset in the aggregate period is depicted below in Figure 3. The examination of the data covering the entire period of this study, the response of growth rate of consumption to investment in risky assets was initially zero with a declining effect which made it negative throughout the period. This means that change in investment in the risky asset will reduce the growth rate of consumption. This is as expected as we know that an increase in investment all other things remaining constant will reduce consumption.

Also, the response of the growth rate investment in risky asset to growth (GVOLT) in private consumption (CONS) shock was initially positive at the early period but decline a little in the second period which makes it a little above the zero lines throughout the period. This means that shocks in consumption will affect the growth rate of investment in risky assets positively on the aggregate. That is a reduction in the growth rate per capita consumption produces a positive effect on investment in risky assets. The declining response can be attributed to economic crises that loom the economy which restrained prospective investors from being active players in the stock market. However, the government tried to put

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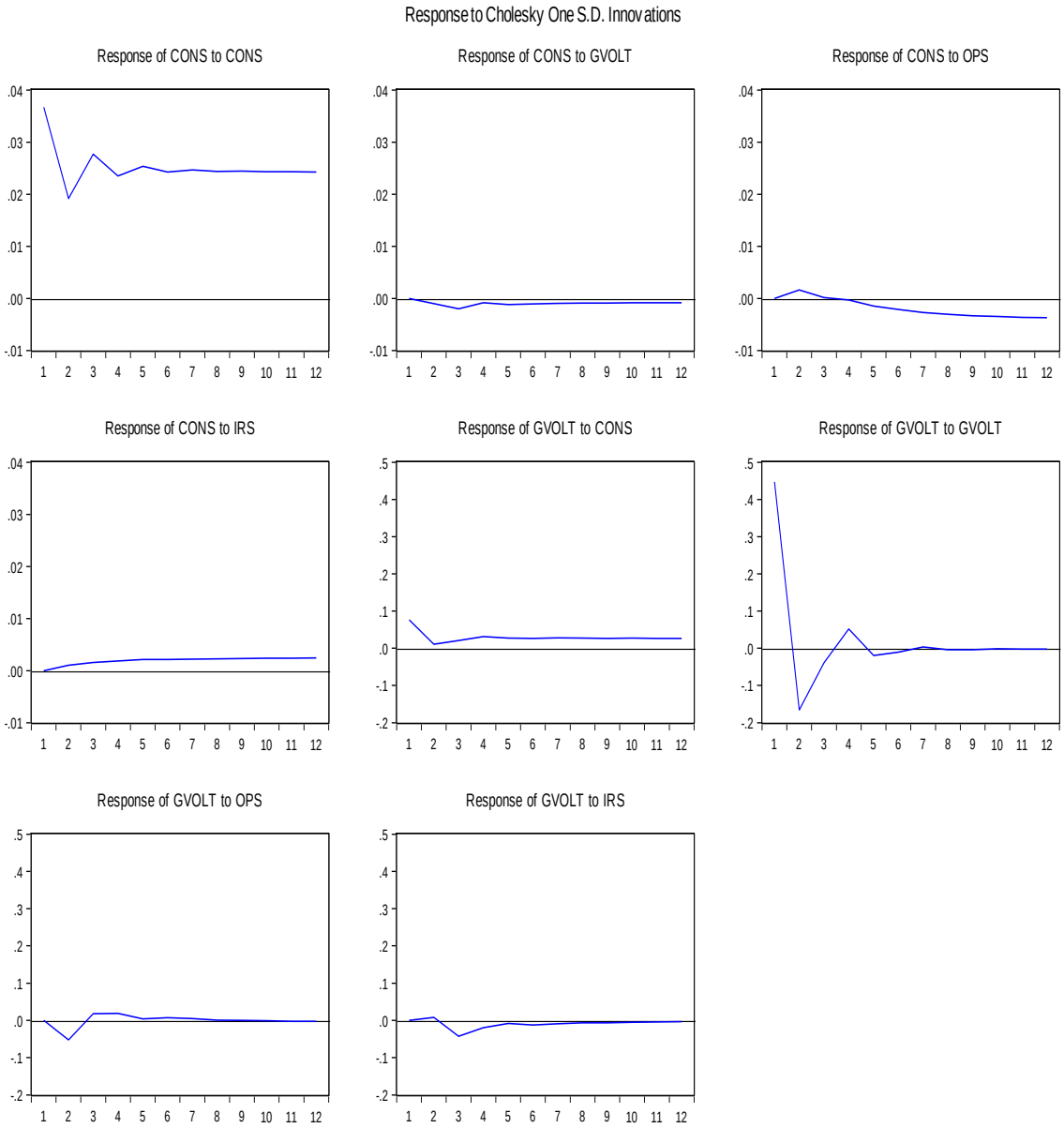
in place various economic policies to motivate the investor to invest after the crises. This might have caused the growth rate of investment in the risky asset to become positive in Figure 3.



Source: Author's computation (2019)

Figure 3
IMPULSE RESPONSE OF EXTERNAL SHOCKS, PRIVATE CONSUMPTION, AND INVESTMENT IN RISKY ASSET: 1999-2014

The response of private consumption growth (CONS) to the oil price shock (OPS) was in the early period on the zero lines it increased a little till the second period but declined around the third period till it became negative (below the zero lines) till period twelve. This implies that higher oil prices triggered a rapid decline in consumption. Shock in oil price may induce greater uncertainty about the future which leads to the delay of purchases by the individual (Ojapinwa & Ejumedia, 2012). The rise in the response of the growth rate of private consumption can be linked to the increase in the oil price per barrel which stimulates the economy by increasing the income and this translates into an increase in consumption. Literature posits that the oil price shock that occurred between 2003 and 2008 benefited the

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country. This might have contributed to the rise in the early stage but the decline can be linked to the fall in oil price per barrel which the country experienced which caused economic hardship since our major product is oil. Private consumption growth rate response to interest rate shock (IRS) was positive all through the period.

However, the growth rate of investment in risky assets (GVOLT) response to oil price shock (OPS) and interest rate shock are negative all through the period with oil price shock causing a little positive change between period three and four. This implies that though Nigeria is an oil-producing country, oil price shock and interest rate shock negatively affect the investment in risky assets. Productive activities became effective in Nigeria with the major use of oil products, therefore a rise or shock in oil price will hamper the productive activities which will eventually lead to a decrease in investment in the risky asset. A rise in the U.S. interest rate causes the withdrawal of money from an emerging economy, like Nigeria because the U.S. economy then became more attractive to both foreign and local investors. This led to capital flight and a reduction in the growth rate of domestic investment which affected stock market investment, investors in particular, and in the general economic growth.

In conclusion, external shocks- oil price has a positive and negative effect on private consumption growth and investment in risky assets. This is because Nigeria is feeling the full brunt of the fall in the oil price which reduced the value of the commodity and consequently consumption and investment (Amadou, 2016). This implies that the magnitude of the oil price shock is transmitted to both consumption and investment. On the other hand, an interest rate shock has a positive effect on consumption but a negative effect on the growth rate of investment in risky assets.

In summary, the results obtained from the effect of external shocks on consumption and investment in the pre-crises, post-crises, and aggregate period showed some interesting outcomes. In the pre-crisis period, the response of consumption to oil price shock and U.S. interest rate shock was negative while the response of the growth rate of investment to interest rate shock was negative all through the period and its response to oil price shock was both positive and negative. In line with the findings of Ojapinwa & Ejumedia (2012), though there was an increase in oil price between 2003 and 2006 which Nigeria benefited greatly from, oil price shock produces a negative effect as Nigeria as the price of unrefined oil was relatively lower than that of the refined one imported.

In the post crises period, consumption and investment here responded to a swing in oil price shock and interest rate shock during this period. Shocks in oil prices can trigger a rapid decline in consumption and investment confidence with a negative strong impact on real economic activity. This implies that since Nigeria imports its oil product, an increase in oil price will eventually negatively affect the economy because oil is the engine of growth that is majorly used in production. An increase in oil price will lead to an increase in the cost of production which will make consumables expensive and decrease investment.

For the aggregate period, external shocks- oil price have a positive and negative effect on private consumption growth and investment in risky assets. This is because Nigeria is feeling the full brunt of the fall in the oil price which reduced the value of the commodity and consequently consumption and investment (Amadou, 2016). This implies that the magnitude of the oil price shock is transmitted to both consumption and investment. On the other hand, an interest rate shock has a positive effect on consumption but a negative effect on the growth rate of investment in risky assets.

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SUMMARY AND CONCLUSION

The analysis of external shocks measured by the oil price shock and interest rate shocks showed that oil price shocks negatively affect private consumption but had both positive and negative effects on investment in risky assets while interest rate shocks negatively affect private consumption and investment in risky assets in pre-crises period.

In the post-crisis period, oil price shock had both positive and negative effects on private consumption (CONS) and negative effect on investment in risky assets (GVOLT) while interest rate shock had a positive effect on consumption and its effect on investment in risky assets is negative. Consumption and investment here responded to a swing in oil price shock during this period. An increase in oil prices triggered a rapid reduction in consumption and investment which negatively affect real economic activities.

The estimate of the entire period (pre and post crises) of the study showed that the integration of the stock market into the world market made the market vulnerable to ups and downs. Although Nigeria is an oil-exporting country, oil price shock significantly affected consumption and investment. The effect of oil price shocks negatively affected private consumption per capita and investment in risky assets this is because oil is the major source of income for Nigeria and a shock negatively impact investment. This implies that Nigeria experienced the full brunt of the fall in the oil price which reduced the value of the commodity and consequently consumption and investment (Amadou, 2016). The response of consumption growth (CONS) to interest rate shock (IRS) was positive all through the period while interest rate shock (IRS) had a negative relationship with the growth rate of investment in risky assets (GVOLT). In conclusion, the result showed that the integration of the stock market into the world market makes the market vulnerable to ups and downs.

Furthermore, the growth rate of investment in risky assets (GVOLT) responded to shock in the oil price (OPS) negatively in the early period and by period two it started to increase and became zero in the third period. The response effect became slightly negative from period seven and throughout to period twelve afterward. Also, the response of the growth rate of investment in risky assets (GVOLT) to interest rate shock (IRS) was negative and this negative response was maintained all through to period twelve with slight changes. This implies that the integration of the stock market into the world market makes the market vulnerable to ups and downs.

CONCLUSION

The study observed that shocks in oil prices triggered a rapid decline in consumption and investment confidence with a negative strong impact on real economic activity. The dependency of Nigeria on crude oil export marginalized the real sector. Therefore, policymakers should embark on policy measures that can shift the current position of the economy away from its reliance on the petroleum sector. Also, because Nigeria is an open economy, shocks from other countries have a high tendency of interfering with her economic environment therefore policies meant to regulate this, such as exchange rate policy, should be put in place.

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