Global Commodity Prices and Stock Market Nexus: Sub-Sahara African Perspective

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Abstract: Many SSA countries are exports dependent and rely heavily on global price of their primary commodities to make rational economic decisions. It is against this background this study investigates the level of interdependence between global commodities prices and stock market returns in selected SSA countries. For the purpose of this empirical investigation, two largest stock markets were selected based on market capitalization namely Johannesburg Stock Exchange (JSE) and Nigerian Stock Exchange (NSE). Specifically; we examined the relationship between global commodities prices and Stock market returns and the direction of causality between the variables following Eagle Granger causality procedures. In addition, we determined the effect of global commodities' prices movement on stock market returns using ARDL estimation technique. The results of our analyses show that there is significant long-run relationship between global commodities prices and stock market returns. Also, there exist a bi-directional causal relationship between global commodities prices and Stock market returns in the two markets. Furthermore, the results of ARDL estimation reveal that global commodities prices have short-run and long-run effects on stock market returns in the two markets.

Keywords: Market Capitalization; Causality; ARDL

JEL Classification: G1; C2; C5

1. Introduction

Almost half of sub-Saharan countries are net exporters of commodities. To these set of countries, commodities, raw or partially processed, have been considered as the most important exports (Page & Hewitt, 2001). More importantly, global commodity prices change and fluctuation has been regarded as crucial element of external macroeconomic environment they have to constantly contend with. The global commodity prices dictate the revenue generated from the export of commodities and possibly, the macroeconomic environment in these countries. Based on this, it is convenient to argue that rational economic decisions including decision to invest in

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stocks maybe meaningfully influenced by the movement in global commodities price.

The entire world has become a global village and this influences the rate at which information moves from one market to another including Sub-Saharan stock markets. Globally, there is increasing attention on the nexus between global commodity prices and stocks performances. However, the preponderance of these studies had their focus on stocks from developed countries (Sadorsky, 1999; Hamilton, 2003; Choi & Hammoudeh; 2010; Killian & Vigfusson, 2011). In recent time, studies with focus on emerging stock markets are also springing up (Iscan, 2015; Chebbi & Derbali, 2015; Arfaoui & Ben Rejeb, 2016). Similarly, in sub-Saharan Africa, country specific studies also exist (Mongale & Hinaunye Eita, 2014; Musawa & Mwaanga, 2017).

Generally, many of these studies mostly determine the co-movement or otherwise between the global commodities price and stocks performances without examining the issue of causality. Supposedly, if relationship exists between commodity prices and stocks performances, is it a short-term relationship or long-term relationship. More importantly, various types of commodities exist in the market namely hard commodities and soft commodities. The nature of commodity price index includes in the study may influence the outcomes of the empirical investigation.

To ensure the uniqueness of this study in particular and enrichment of literature in this direction in general, we investigated the causal relationship between global commodity prices using different commodities indices and stocks performances in two selected sub-Sahara African countries. We also determined if the relationship exists either in short-run or long-run. While doing this, we also investigated the effect of global commodity prices index on stocks market returns in the sub-region. This is very crucial as more information will be provided to potential investors and market analysts as regard the two variables. Apart from this introductory section, the study is basically divided in four sections. Section two focuses on global commodity prices and financial variables in the two selected countries and section three presents extant literature review. Methods and empirical analyses are presented in section four and section five which the last section focuses on results and its discussion.

2. Global Commodity Prices and Stock Market Performances in Nigeria and South Africa

According to World Bank 2018 reports, growth in Sub-Saharan Africa is estimated to have rebounded to 2.4 percent in 2017, after slowing sharply to 1.3 percent in 2016. The rise is anchored on recovery in Angola, Nigeria, and South Africa the region's largest economies supported by an improvement in commodity prices.

Based on this, we casually observe the dynamics of global commodity prices and stock market performances in the selected countries.

Figure one shows the graphs of annual percentage change in NSE index and global prices indices of fuel and non-fuel commodities between years 2000-2017 in Nigeria. Majorly, there is evidence of cyclical movement and it is common to the three variables. It is also noticeable that the expansion phase of NSE index predates that of fuel commodity price index but it coincides with non-fuel commodity index in years 2002-2007. However, 2008 financial crisis seems to exert so much pressure that the three variables experienced contraction simultaneously. Subsequently, the three variables display higher level of co-movement. In summary, Nigeria being an oil producing economy, stocks performance seems to move together with fuel commodity price index than non-fuel commodity price index.

In figure two, the graphs show annual percentage change in JSE index and global prices indices of fuel and non-fuel commodities between years 2000-2017 in South Africa. Just like situation in Nigeria, there is discernible evidence of cyclical movement in JSE stock index and global commodity prices for fuel and non-fuel. By expectation, South Africa being a net importer of fuel, should not ordinarily has its stock price index moving together with price of fuel commodity index but this seems to be the case in years 2002 -2007. In year 2008, Fuel and non-fuel commodity prices index experienced simultaneous contraction with JSE stock price index and they face expansion in the year 2009. This co-movement seems to be persistent till 2012 when there is a bit of divergence in their movements. However, there is still evidence of shocks and reactions among the three variables in the figure. Expectedly, non-fuel price index and JSE stock prices index show better evidence of co-movement than fuel price index.

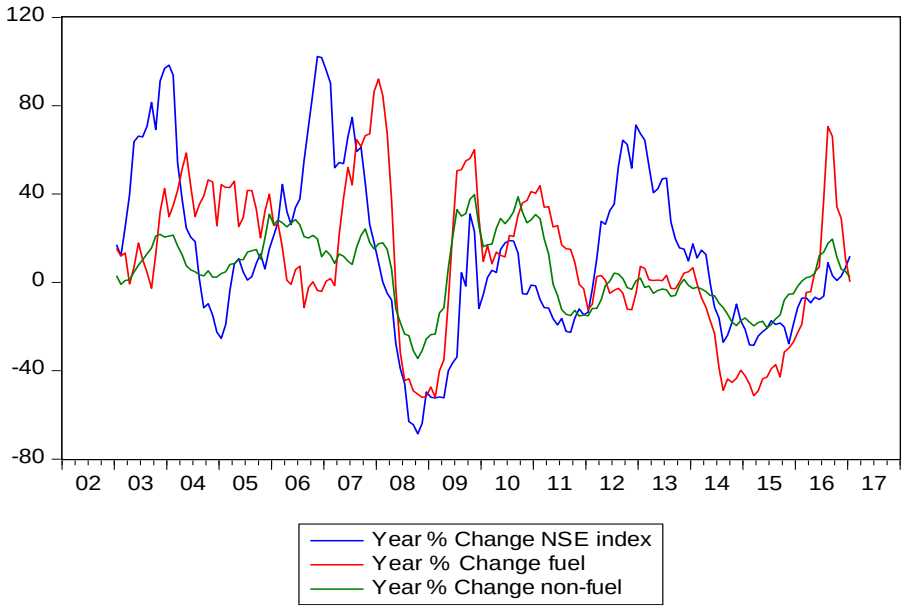

Figure one. NSE Index and Global Commodity Prices

Sources: Author's computation based on IMF data

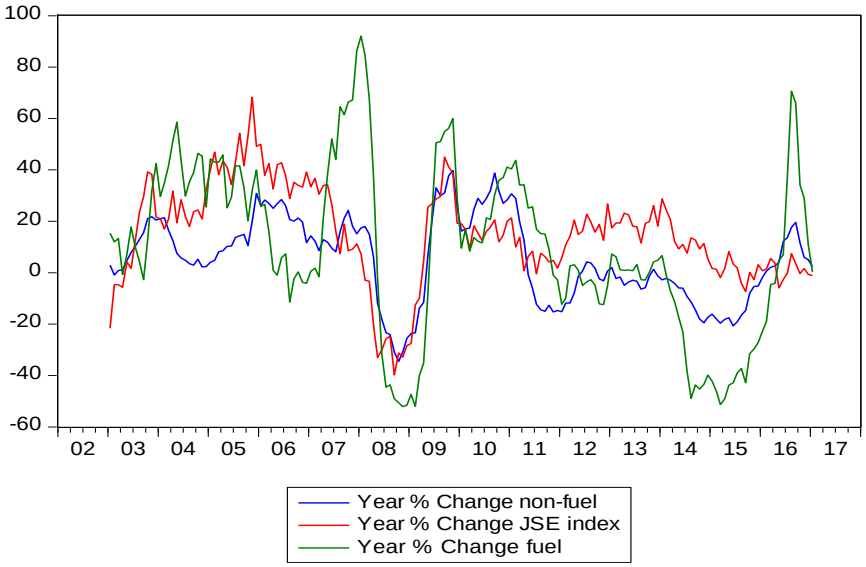

Figure two. JSE Index and Global Commodity Prices

Sources: Author's computation based on IMF data

Table one shows selected key indicators of NSE and JSE market. Looking at the first column, the two markets have considerable number of listed companies. However, the number of listed companies has been declining continuously this may be due to increasing in transparency and stringent conditions attached to listing in these two markets. In the second and third column, the total value of stocks traded and market capitalization as a percentage of GDP are reported. The figures as reported show that there are remarkable differences between NSE and JSE based on these two indicators. JSE total value of stocks traded as percentage of GDP of 136.2% in 2016 indicate high level of liquidity within the economy compared to 0.37 in NSE. JSE market capitalization as a percentage of GDP in 2016 is 321.98%. This shows high financial Deeping within South African economy unlike Nigeria that posts 7.36% during the same period.

Table 1. Stock Market Indicators

Listed domestic companies, total					Stocks traded, total value (% of GDP)			Market capitalization of listed domestic companies (% of GDP)		
Year	**2004**	**2008**	**2016**	**2017**	**2004**	**2008**	**2016**	**2004**	**2008**	**2016**
NSE	206	212	169	166	1.91	8.03	0.37	18.06	23.09	7.36
JSE	369	367	303	294	36.59	70.58	136.2	193.29	168.12	321.98

2. Literature Review

The issue of relationship between global commodity prices and stocks performance has been given serious attention in the literature. However, the important positions these variables occupy in any economy and lack of consensus in the literature have necessitated the need to continuously revisit the link between these variables. Several authors have examined this link using different methods and markets both in developed and developing economies.

Starting with developed countries, Sadorsky (1999) examined the effect of oil price shocks on stock returns in OECD countries using vector autoregression. After rigorous analysis, the study concluded that oil price movement contributes a huge fraction of the forecast error variance in real stock returns. The study further argued that oil price shocks are more important to stock returns than interest rate in OECD countries. Papapetrou (2001) adopting similar technique on monthly data for Greece concluded that oil prices drive stock price dynamics. These finding downplays the assertion of Adelman (1993, p. 537*)*. However, most of these studies only singled out the oil price from the available commodity prices without examining what the impact of other commodity prices could be on stock returns.

Another study by Park and Ratti (2008), using multivariate VAR analysis, reported that oil prices shocks have significant effect on real stock returns for US and 13

European countries over the period of 1986 to 2005 using monthly data. In separately study by Malik and Ewing (2009) employing bivariate GARCH models to investigate the volatility transmission between weekly WTI oil prices and equity sector returns from 1992 to 2008 reported evidence of spillover effect. Moving away from oil price, study by Choi and Hammoudeh (2010) examined the relationship between commodity prices comprises of Brent oil, WTI oil, copper, gold and silver, and the S&P 500 index with the conclusion that global commodity prices has effect on portfolios in stock markets.

In developing countries, study by Johnson and Soenen (2009) investigated the interaction between global commodity market and stock markets of South and North American countries adopting Geweke feedback measures. They reported the exist of contemporaneous relations between the commodity prices and stock markets after controlling for changes in exchange rates and interest rates. According to them, there is no indication of a lead or lag relationship. Similarly, Chebbi and Derbali (2015) using Dynamic Conditional Correlation established high correlation between commodity returns and QE Al Rayan Islamic index. To the contrary, study by Ildırar and Iscan (2016) using panel data from 10 countries for the period 2012 to 2015 examined the interaction between stock prices and commodity prices of East Europe and Central Asian countries. They argued that no relationship exists between commodity prices and stock markets. Another study by Iscan (2015) also provided evidence of no relationship having employed multivariate Johansen test to investigate the relation between commodity prices and the stock market in Turkey.

In SSA, study by Mensah and Owusu-Antwi (2016) employing Bi-variate VAR-GARCH-BEKK model analyzed the effect of prices of oil and gold on stock market performance in Ghana and the study found evidence of a bi-directional linkage between the Ghana equity market, gold and oil prices. Similar study in South Africa by MONGALE and Eita (2014) used quarterly data cover the period 1994 to 2013. With the aid of Engle-Granger two steps econometric technique, the study reaffirmed that increase in commodity prices is associated with improved stock market performances in South Africa. Recent study by Musawa &Mwaanga (2017) for Zambia arrived at similar conclusion. This study is adding value to the existing studies fundamentally by investigating the issue of causality between global commodity prices and stocks performances and also determine nature of interdependence that exist between these variables. Is it a long-run relationship or short-run relationship?

4. Data and Methodology

4.1. Data

To carry out empirical investigation required for this study, we obtained monthly data for global commodity prices index for fuel and non-fuel from IMF global commodity price index. Also, data on stocks specifically market all share indices were sourced from Security and Exchange Commission in the case of Nigerian Stock Market (NSE) and Bloomberg in the case of Johannesburg Stock Exchange (JSE). Per capita Income data used as control variables for the two markets were obtained from WDI database. All the data were obtained on monthly basis except Per Capita Income which was converted to monthly series using quadratic polynomial.

4.2. Model Specification

To empirically estimate the relationship between Global Commodity Price and stock performances in JSE and NSE, we estimated the following models within the framework of ARDL using monthly data between 2002 and 2017.

$$\Delta \ln NINDEX_t = \lambda_0 + \sum_{j=1}^{n1} a_{j_i} NINDEX_{i,t-j} + \sum_{j=1}^{n2} b_{j_i} \Delta FUEL_{t-j} + \sum_{j=1}^{n3} c_{j_i} \Delta NFUEL_{t-j} + \sum_{j=1}^{n4} d_{j_i} \Delta PNGDP_{t-j}$$

$$\phi_1 NINDEX_{i,t-j} + \theta_1 FUEL_{t=1} + \theta_2 NFUEL_{t=1} + \theta_3 PGDP_{t=1} + \varepsilon_t$$

…..(1)

$$\Delta \ln JINDEX_t = \lambda_0 + \sum_{j=1}^{n1} g_{j_i} JINDEX_{i,t-j} + \sum_{j=1}^{n2} h_{j_i} \Delta FUEL_{t-j} + \sum_{j=1}^{n3} i_{j_i} \Delta NFUEL_{t-j} + \sum_{j=1}^{n4} j_{j_i} \Delta PGDP_{t-j}$$

$$\phi_1 JINDEX_{i,t-j} + \varphi_1 FUEL_{t=1} + \varphi_2 NFUE_{t=1} + \varphi_3 PGDP_{t=1} + \varepsilon_t$$

….(2)

Each equation includes both short-run (first-differenced) and long-run (one-period-lagged level) variables. For the short-run coefficients, each lag length n is chosen by minimizing the Akaike Information Criterion (AIC), and each model is estimated at the optimum lags. In the equation one, $NINDEX$ stands for returns on equity and it is a proxy for stock market performances in NSE. It serves as the dependent variable in the model. Also, *FUEL* and *NFUEL* represent Fuel and non-Fuel global commodity price index which are the independent variables in the model. Similarly, PNGDP represents Per Capita Income which is introduced as control variable in the model also serves as one of the independent variable in the model.

In equation two, all the variables in equation one are repeated except JINDEX and PSGDP. While equation one focuses on NSE variables and global commodity prices index, equation two focuses on JSE variables and global commodity prices index. This implies that the only difference is the introduction of JINDEX and PSGDP as

dependent variable and control variable respectively. JINDEX has introduced represents returns on equity and it is a proxy for stock market performances in JSE.

4.3. Econometric Properties of Data

In an attempt to base this study on sound econometric foundation, an investigation into econometric properties of data was carried out to ascertain their suitability for ARDL method of analysis. To this effect, unit root and co-integration tests were performed and results are reported in table 2 and 3.

The results of Phillips-Peron (PP) unit root test are presented in table 2 both at level and first difference. From the results, the hypotheses of unit root presence can be accepted for all the variables. However, all the variables are stationary at first difference indicating that they are integrated of order one I (1). Based on criticism offered by schwert (1989) on traditional unit root tests Phillips-Peron (PP) inclusive, we performed a robustness check on these results obtained from Phillips-Peron (PP) unit root tests using one of the modified unit root tests. Specifically, Dickey-Fully GLS (ERS) proposed by Elliot et al. (1996) was employed and the results are presented in table 3. The results show that the hypotheses of unit root presence can be accepted for all the variables. As obtained in Phillips-Peron (PP) unit root test, all other variables are stationary at first difference. This basically confirms the results obtained in the earlier tests.

Table 2. Phillips-Peron (PP) unit root test

	Level			**First Difference**			
Variables	**constant**	**Constant and Trend**	**None**	**Constant**	**Constant and Trend**	**none**	
JSE-Index	-0.177	-2.521	2.362	-14.87***	-14.84***	-14.34***	
NSE-Index	-2.232	-2.120	-0.406	-10.89***	-10.90***	-10.95***	
Fuel	-2.094	-1.772	-0.534	-8.173***	-8.236***	-8.192***	
Non-Fuel	-1.964	-1.627	0.199	-8.137***	-8.195***	-8.128***	
PNGDP	-2.105	-0.961	2.041	-9.330***	-9.632***	-8.812***	
PSGDP	-2.401	-0.391	2.704	-8.161***	-8.933***	-6.851***	
CV 1%	**-3.4907**	**-4.0436**	**-2.5861**	**-3.4907**	**-4.0436**	**-2.586**	
CV 5%	**-2.88790**	**-3.45118**	**-1.9437**	**-2.8879**	**-3.4511**	**-1.943**	
CV 10%	**-2.58090**	**-3.15098**	**-1.6148**	**-2.5809**	**-3.1509**	**-1.614**	

Table 3. Dickey-Fully GLS (ERS)

	Level		First Difference	
Variables	**Constant**	**Constant and Trend**	**Constant**	**Constant and Trend**
JSE-Index	1.428	-2.021	-2.295**	-4.677***
NSE-Index	-1.119	-2.021	-2.295**	-4.677***
Fuel	-1.274	-1.767	-8.033***	-8.232***
Non-fuel	-0.673	-1.575	-7.662***	-8.229***
PNGDP	0.396	-1.493	-2.354**	-3.110**
PSGDP	0.371	-1.040	-3.096**	-3.276**
CV 1%	**2.577**	**-3.484**	**2.577**	**-3.484**
CV 5%	**-1.942**	**-2.950**	**-1.942**	**-2.950**
CV 10%	**-1.615**	**-2.660**	**-1.615**	**-2.660**

4.3.1. Bound tests Co-integration

Sequel to non-stationary of our data at level, it is imperative to carry out co-integration tests to determine their long term equilibrium behaviour. To this end, we employed a bound co-integration test. Basically, bounds test can be considered as test that is based on the joint F-statistic with the null hypothesis of no co-integration. According to Pesaran et al. (2001), two sets of critical values for a given significance level can be established in bounds test. The first level is estimated with the assumption that all variables in ARDL model are integrated of order zero, while the second one is estimated with the assumption that the variables in ARDL model are integrated of order one. The rule of tomb is that, null hypothesis of no co-integration is rejected when the value of the test statistic is greater than the upper critical bounds value, while it is accepted if the F-statistic is lower than the lower bounds value.

In an effort to get the best out of ARDL model estimation, we investigated optimal lag length for all the models estimated. The optimal lag lengths were selected based on Akaike Information Criterion (AIC). Based on these criteria, optimum lag of two were selected for all the models. Subsequently, co-integration tests were carried using bound test approach with the stock markets variables as dependent variables. The results are reported in table 3. Following the rule of tomb, the hypotheses of no co-integration can be rejected in the two cases. This provides evidences to support the fact that there is long-run equilibrium between stock returns and global commodity prices in the two markets.

Table 3. Bound Tests

Product	F-Statistics	lower critical value5%	Upper critical value 5%	Cointegrated
JSE-Index	85.21	3.79	4.85	Yes
NSE-Index	18.77	3.79	4.85	Yes

4.4.1. Granger Short Run and Long Run Causality Tests

Generally, the establishment of co-integration indicates the existence of at least one long-run equilibrium relationship among the variables. Thus, it is convenient to say that Granger causality exists among these variables in at least one way but it does not show the direction of causality (Engle & Granger, 1987). Similarly, Engle and Granger (1987) argue that if two nonstationary variables are co-integrated, specifying a vector autoregression (VAR) in first differences will amount to misspecification. In line with the work of Narayan and Smyth (2006), we specify the following dynamic error correction representation for NSE and JSE

$$\Delta \ln NINDEX_t = \theta_{1i} + \sum_p \theta_{11ip} \Delta \ln NINDEX_{it-p} + \sum_p \theta_{12ip} \Delta \ln FUEL_{it-p} + \sum_p \theta_{13ip} \Delta \ln NFUEL_{it-p} + \sum_p \theta_{14ip} \Delta \ln NGDP_{it-p} + \sum_p \theta_{15ip} \psi ECT_{t-1} \quad \text{.....(3)}$$

$$\Delta \ln FUEL_t = \theta_{1i} + \sum_p \theta_{11ip} \Delta \ln FUEL_{it-p} + \sum_p \theta_{12ip} \Delta \ln NINDEX_{it-p} + \sum_p \theta_{13ip} \Delta \ln NFUEL_{it-p} + \sum_p \theta_{14ip} \Delta \ln NGDP_{it-p} + \sum_p \theta_{15ip} \psi ECT_{t-1} \quad \text{.....(4)}$$

$$\Delta \ln NFUEL_t = \theta_{1i} + \sum_p \theta_{11ip} \Delta \ln NFUEL_{it-p} + \sum_p \theta_{12ip} \Delta \ln NINDEX_{it-p} + \sum_p \theta_{13ip} \Delta \ln FUEL_{it-p} + \sum_p \theta_{14ip} \Delta \ln NGDP_{it-p} + \sum_p \theta_{15ip} \psi ECT_{t-1} \quad \text{.....(5)}$$

$$\Delta \ln NGDP_t = \theta_{1i} + \sum_p \theta_{11ip} \Delta \ln NGDP_{it-p} + \sum_p \theta_{12ip} \Delta \ln NINDEX_{it-p} + \sum_p \theta_{13ip} \Delta \ln FUEL_{it-p} + \sum_p \theta_{14ip} \Delta \ln FUEL_{it-p} + \sum_p \theta_{15ip} \psi ECT_{t-1} \quad \text{.....(6)}$$

$$\Delta \ln JINDEX_t = \theta_{1i} + \sum_p \theta_{11ip} \Delta \ln JINDEX_{it-p} + \sum_p \theta_{12ip} \Delta \ln FUEL_{it-p} + \sum_p \theta_{13ip} \Delta \ln NFUEL_{it-p} + \sum_p \theta_{14ip} \Delta \ln SGDP_{it-p} + \sum_p \theta_{15ip} \psi ECT_{t-1}$$

……..(7)

$$\Delta \ln FUEL_t = \theta_{1i} + \sum_p \theta_{11ip} \Delta \ln FUEL_{it-p} + \sum_p \theta_{12ip} \Delta \ln JINDEX_{it-p} + \sum_p \theta_{13ip} \Delta \ln NFUEL_{it-p} + \sum_p \theta_{14ip} \Delta \ln SGDP_{it-p} + \sum_p \theta_{15ip} \psi ECT_{t-1}$$

……(8)

$$\Delta \ln NFUEL_t = \theta_{1i} + \sum_p \theta_{11ip} \Delta \ln NFUEL_{it-p} + \sum_p \theta_{12ip} \Delta \ln JINDEX_{it-p} + \sum_p \theta_{13ip} \Delta \ln FUEL_{it-p} + \sum_p \theta_{14ip} \Delta \ln JGDP_{it-p} + \sum_p \theta_{15ip} \psi ECT_{t-1}$$

……..(9)

$$\Delta \ln SGDP_t = \theta_{1i} + \sum_p \theta_{11ip} \Delta \ln SGDP_{it-p} + \sum_p \theta_{12ip} \Delta \ln JINDEX_{it-p} + \sum_p \theta_{13ip} \Delta \ln FUEL_{it-p} + \sum_p \theta_{14ip} \Delta \ln FUEL_{it-p} + \sum_p \theta_{15ip} \psi ECT_{t-1}$$

……..(10)

All the variables remained as defined earlier under ARDL specification, Δ represents the difference of the variable while p stands for the lag length selected based on Akaike Information Criterion (AIC). Furthermore, first differenced variables give evidences on direction of short-run Granger causality and the t-statistics on the one-period lagged error correction term gives evidence on long-run Granger causality. The results for JSE and NSE markets are reported in table 4 and table 5.

The results as presented in table 4 show that there is a long-run causality running from global commodity prices of fuel, non-fuel and per capita income to stock market returns in JSE at 10% significant level. However, in the short-run only global commodity prices of non-fuel has a strong causal relationship with stock market returns in JSE. Also, there is evidence of weak causality running from per capita income to stock market returns in the market. As expected, the two global commodities prices of fuel and non-fuel show evidence of bi-directional causality in the short-run at 1% significant level. Similarly, stock market returns and global commodity prices of non-fuel show evidence of bi-directional causal relationship at 5% significant level.

In addition, the results in table 5 show of evidence of causal interaction between stock market returns in NSE and global commodity prices. The results show that there is a long-run causality running from global commodity prices of fuel and non-fuel to stock market returns in NSE at 10% significant level. Also, in the short-run there exists a strong causality running from global commodity prices of fuel and non-fuel to stock market returns in NSE at 5% significant level. There seems to be a stronger causality in the short-run than long-run. Similarly, there is evidence of feedback causality running from stock market returns to global commodity prices. This implies that there is bi-directional causal relationship between Stock market returns and global commodities prices (fuel and non-fuel) in NSE.

Table 4. Granger causality for JSE

Source of causation	**Δ lnJindex**	**Δ lnFuel**	**Δ lnNFuel**	**Δ lnSGDP**	**$ECT_{(t-1)}$**
Δ lnJindex		0.06(0.22)	0.28(0.030)**	2.60(0.09)*	-0.03(0.08)*
Δ lnFuel			1.40(0.00)***		-0.06(0.03)***
Δ lnNFuel	0.08(0.05)*	0.23(0.00)***			-0.03(0.18)
Δ lnSGDP					

Table 5. Granger causality for NSE

Source of causation	**Δ lnJindex**	**Δ lnFuel**	**Δ lnNFuel**	**Δ lnNGDP**	**$ECT_{(t-1)}$**
Δ lnNindex		0.19(0.02)***	0.38(0.06)**		-0.03(0.08)*
Δ lnFuel	0.13(0.03)***		1.2(0.00)***		-0.06(0.00)***
Δ lnNFuel	0.05(0.04)*	0.23(0.00)***			-0.03(0.11)
Δ lnSGDP					

4.5. Effect of Global Commodity Prices on Stock Market Returns

The need to investigate the effect of global commodity prices index (fuel and non-fuel) on stock market returns is principally to determine the degree of responsiveness of stock market returns to movement in global commodity prices index. Also, it presents an opportunity to determine the relative importance of global commodity prices index of fuel and global commodity prices of non-fuel on stock market returns. To this effect, table 6 shows the results of estimated ARDL model stated in equation one and two for NSE and JSE markets respectively.

The results in table 6 show that in NSE market; global commodity prices have statistically significant effect on stock market returns at 10% and 5% significant level in the short-run and long-run respectively. This implies that global commodity prices have weak effect on stock market returns in the short-run but the effect is much stronger in the long-run. In the short-run, a unit movement in global commodity prices index of fuel contributes 14% to stock market returns performance while

similar movement in global commodity prices index of non-fuel contributes 35% in NSE. In the long-run, the contributions increase to 30% and 36% for global commodity prices index of fuel and non-fuel respectively. Contrary to expectation in this market, global commodity prices index of non-fuel has more impact on stock market returns in NSE both in the short-run and long-run.

The results in table 6 show that in JSE market; global commodity prices have statistically significant effect on stock market returns at 10% and 5% significant level in the short-run and long-run respectively. This implies that global commodity prices have weak effect on stock market returns in the short-run but the effect is much stronger in the long-run. In the short-run, a unit movement in global commodity prices index of fuel contributes 9% to stock market returns performance while

	dlnFuel	dlnNfuel	dlnNGDP	dlnSGDP	CointEq(-1)	InFuel	InNfuel	InNGDP	InSGDP
Market Variables									
NSE-INDEX	0.14 (0.09)*	0.35(0.08)**	0.43(0.45)		-0.98(0.00)***	0.30(0.00)***	0.36(0.05)**	0.44(0.43)	
JSE-INDEX	0.09(0.06)*	0.37(0.00)***		1.63(0.24)	-1.21(0.00)***	0.07(0.05)**	0.31(0.00)***		1.35(0.24)

similar movement in global commodity prices index of non-fuel contributes 37% in NSE. In the long-run, the contributions increase to 7% and 31% for global commodity prices index of fuel and non-fuel respectively. As expected in this market, global commodity prices index of non-fuel has more impact on stock market returns in JSE both in the short-run and long-run.

5. Conclusion and Policy Implications

Consequence upon thorough econometric investigation of the nexus between global commodity prices and stock market performances in SSA, the following conclusions can be inevitably arrived at. There is a long-run relationship between global commodity prices index (fuel and non-fuel) and stock market returns in SSA. To a large extent, this study is in line with studies by (Chebbi & Derbali, 2015; Arfaoui & Ben Rejeb, 2016) outside SSA and (Gyasi, 2016; Musawa & Mwaanga, 2017a) in SSA. Also, global commodity prices index (fuel and non-fuel) has both short-run and long-run effects on stock market returns in NSE and JSE. Similar study in SSA by Musawa and Mwaanga (2017b) arrived at the same conclusion using Lusaka Stock Market. Thus, it is safe to conclude that global commodity prices index has effect on stock market performance in SSA.

Most important conclusion from this study is that there is bi-directional causal relationship between global commodity prices and stock market returns in NSE and

JSE. This conclusion confirms that SSA stock markets are integrated to global markets and they are part of global interdependencies and the financialization process of commodity markets. Thus, it is important for private investors in the region to take cognizance of this established relationship in their investment decisions especially portfolio diversifications. Government in the region can as well leverage on this relationship to propel growth and design mechanism to absorb global shocks.

6. References

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