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Impact of Crude Oil Shrinkage on Stock Market Returns in Nigeria

Victor Chukwunweike EHIEDU[1], Anastasia Chi-Chi ONUORAH[2], Josephine Ofure, CHIEJINA[3]

[1,2,3] Banking and Finance Department, Faculty of Management Sciences, Delta State University, Abraka.

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Corresponding Author:
Victor Chukwunweike EHIEDU

ABSTRACT

This study investigated impact of Crude Oil shrinkage (COS) on stock market returns (SMRs) in Nigeria. The study spanned for a period of twenty-one years (2000-2020). The SMRs which was proxy by market capitalization while COS which was proxy with CO price, inflation rate, balance of trade and exchange rate. The specific objectives are: the connection between the CO price and SMRs in Nigeria; the connection between Nigeria's SMRs and inflation rate; the co-existence between the balance of trade and SMRs and the link in Nigeria between the exchange rate and SMRs. The data was sourced from CBN Statistical Bulletin 2020. The study employed time-series data. OLS multiple regression estimation technique was used, normality test, serial correlation test, and Heteroskedasticity test with the aid of E-views 9.0 statistical software. The results revealed that; CO price has a P-value 0.002<0.05; inflation rate has a P-value of 0.000<0.05; balance of trade has a P-value of 0.04<0.05 while exchange rate has a p-value of 0.000<0.05. Considering that all of the independent variables' p-values are significant, are less than 5% significant level, the study concluded that COS has a crucial and positive effect on SMRs in Nigeria. The report proposed that the Nigerian government judiciously use oil revenue to favourably impact the economy, to adapt SMRs shakes it won't hurt the economy so harshly because the resources were used properly when it was thriving.

KEYWORDS: Crude Oil Shrinkage, Stock Market Returns, Market Capitalization, Inflation Rate, Balance Of Trade, Exchange Rate.

1. INTRODUCTION

Crude oil (CO) is a mixture of hydrocarbons that is liquid in subsurface reservoirs and remains liquid at atmospheric pressure. Variable levels are found worldwide. When refined in an oil refinery or petroleum refinery into usable items like (petroleum motor spirit, fuels, etc). CO is variable, deflectable, and capital intensive, according to Ighosewe, Akan, and Agbogun (2021); Obi and Ifelunini (2019). Since Shell's 1956 discovery in Oloibiri, Bayelsa State, its finding has boosted Nigeria's economy.

Furthermore, its discovery has gone a long way in curbing unemployment in the region, reducing to some extent the level of poverty in the region. Ogbonna & Orlu (2017); Obi (2014) claim that the income from natural gas extraction has allowed the nation to experience post-current account surpluses throughout time. According to Okonkwo, Mojekwu, and other researchers (2018), 80% of Nigeria's energy income goes to the Nigerian government, 16% go toward operating expenses, and the remaining 4% are received by investors as returns on their investments. Orji, Nwagu, Ogbuabor, Nwosu, and Anthony-Orji (2019); Obi, Ifelunini and Edeme (2016) say OP changes affect the economy. CO fluctuations are also caused by global oil supply and demand dynamics. Additionally, shrinkage occurs on a regular basis over time and the more frequently (Arezki, and Blanchard 2017). Chen and Hsu (2016), a fluctuation in CO could lead to future uncertainty about the price of oil's trajectory, which could cause people to postpone making investments and permanent purchases of durable goods. Because of this, non-exporting companies' profits tend to drop, due to rising OPs, which causes a decline in their core values.

According to Orji, Nwagu, Ogbuabor, Nwosu, and Anthony-Orji (2019), in the late 19th and early 20th centuries, certain oil tycoons founded the Rise of the Seven Sisters cartel in 1920 to control the price of oil. In response, numerous national oil firms came together to form the Organization of Petroleum Exporting Countries (OPEC). International oil firms managed to keep CO prices constant during the 1920s and 1960s, especially below $40 per barrel until OPEC began its programme to regulate CO prices in the 1970s. The cartel's first attempt to exert control over the price of CO occurred in 1973. In Nigeria, the price of CO rose from $3 to $11.6 a barrel in October 1973 in response to the Grab-Israel war. Nigeria exported 108 million tonnes of CO in 1994, causing a price spike that generated N9.2 billion.

Erygit (2019) argues that urbanisation and the global economy's transition have raised oil demand. CO consumption has raised demand. Since the world and its market depend on CO, it's constantly changing (Ogundipe, Ojeagaa and Ogundipea, 2016). OP shocks cast uncertainties on oil's future price and cause businesses to postpone expenditures. According to one theory, this uncertainty over OPs causes enterprises to delay irreversible investment decisions as long as the expected value of knowledge outweighs the expected short-term return on current investment. This causes oil price swings, economic instability, and stalled investment.

STATEMENT OF THE PROBLEM

Few studies have investigated COS and SMRs in emerging economies like Nigeria, with inconsistent results. Osei (2016), Eryigit (2016) found a detrimental influence on COS and SMRs. Gisser and Goodwin (2016), Cunnado and Gracia (2016), and Bashar and Sadorsky (2016) have validated the impact of OP shocks on real activity and SMRs in the U.S., Jordan, and Greece.

Asaolu and Ilo (2016) had a small favourable effect on SMRs and OPs. Different assertions say that CO shrinkage is harmful to SMRs, although most research on this topic have not properly focused on COS's impact on SMRs in emerging Nigerian economy. This study focused on COS's influence on Nigeria's SMRs.

Economic Effects of OPs Shrinkage

Oil has practically endless uses. From petroleum, the principal products are petrol, gasoline, heating oil, diesel fuel, etc. These are burned to generate Nigeria electricity and many other countries. Asaolu and Ilo (2016); Ehiedu, (2022); noted wax, bitumen, and gas are in high demand. The impact on the economy, from government revenue to industry output, is growing.

Nigeria's economy is concerned about falling CO prices, and a dramatic surge in prices may reduce stock market activity. No single definition exists. Some scholars have considered both supply and demand. According to Ogiri, Amadi, Uddin, and Dubon (2016), oil-price shrinkage is a shift in the CO supply curve caused by political events that last a day, a week, a month, or a year. Additionally, Agbogun, and Ehiedu, (2022); Bayem, Ehiedu, Agbogun, and Onuorah, (2022); Ehiedu, and Obi, (2022) and Baumeister & Kilian (2016) stressed that variations in OPs are an unanticipated part of a significant alteration in OPs, indicated the discrepancy between the predicted and actual OP. Similarly, (Nwant to & Eyedayi, 2016) view the drop in oil prices as a big unforeseen development in global economic conditions that has an impact on an economy. These changes due to the modification in the trade agreements, a decrease in the expansion of global export demand.

Manasseh, Abada, Ogbuabo, Okoro, Egele, & Ozuzu (2019) defined OP shrinkage as a long-term, continuous OPs fluctuation in either direction, followed by intervals of relatively steady OPs. Such variations are sometimes caused by adjustments to the supply or demand sides. According to CallWriter (2016), the CO market is the world's biggest market for commodities. The USA utilises roughly 25% of the 70–80 million barrels per day that are consumed globally. The price of CO has been rising steadily over the past few years.

CallWriter (2016) blamed these variables:

i. Rising household and industrial oil demand

ii. Middle East terrorism,

iii. Political upheaval Venezuela, the world's fifth-largest oil producer, and the lack of alternative energy.

Hostage-taking in the Niger Delta and pipeline vandalism in Nigeria have also slowed oil output. All of these have led to periodic rises in global OPs. In the 1970s and 1980s, OPs harmed SMRs, and they still do.

OP Shrinkage and Oil-Importing Countries

The relevant of energy in any economies, reducing OPs is crucial; their unpredictability could hurt oil-importing and oil-dependent countries' economic growth. OP rises will hurt oil-importing countries, according to Ikenna-Ononugbo, Penzin, Nkang, Golit, Ajala, and Ibi (2018). A rise in OPs would raise production costs, causing cost-push inflation, slow economic growth, and recession. Oil-importing economies see OPs decline.

Kilian (2016) claims exogenous CO imports are a trade blow for oil importers. Hamilton (2016) linked OP volatility to US growth. OP shocks damage consumer and business spending in oil-importing nations like the US, he said. On the demand side, oil's inelasticity could harm the economy. If customers want to keep buying energy despite growing prices, savings, or spending must fall (Hamilton, 2016). Thus, it is believed that increasing OPs will reduce consumer spending and delay economic growth (Bernanke, 2016). Kilian (2016) cites several explanations for declining consumer expenditure. First, increased energy prices lower consumer discretionary income since they cost more. Second, volatile energy costs could generate price uncertainty, forcing customers to delay durable goods purchases. Finally, energy price shocks from customers' precautionary reserves may reduce demand. Last, households may delay or skip energy-intensive durable purchases, limiting consumption. Roubini and Setser (2016) say OP volatility slows growth and causes recession in oil-importing countries.

OPs spikes are analogous to consumption taxes for oil importers. OP volatility affects GDP and prices based on shock size, durability of fluctuation, economy's reliance on oil and energy, and monetary and fiscal response.

OP Shrinkage and Oil-Exporting Countries

Oil-exporting countries rely on oil for revenue and foreign exchange, hence OPs stability is crucial. This makes Nigeria vulnerable to OP declines. High OPs boost government

spending and imports. Declining OPs endanger fiscal viability.

Moshiri and Banihashem (2016) say oil-exporting nations like Nigeria rely substantially on oil exports. So, when OPs decline, their economies suffer, and when they rise, economic activity explodes. Increased OP equals better earnings for oil-exporting countries, which might aid with new projects and investments. When OP lowers unexpectedly, most government projects and investments are abandoned or the government must borrow to finance the gap. Some administrations in oil-exporting countries have used the extra cash from rising OPs to diversify their economies to protect against OP shrinkage (SWFs).

The SWFs enable low-OP countries maintain capital and channel excess reserves to development. Diversify revenue to safeguard the economy against OP shocks. By stabilising state spending, SWFs support productive investments and smooth consumption. Many oil exporters have SWFs. The Norway Government Pension Fund Global has $882 billion, the UAE's Abu Dhabi Investment Authority has $773 billion, and Saudi Arabia's SAMA Foreign Holdings has $757.2 billion (SWFI, 2016).

OP volatility has good and negative implications on oil-exporting countries. Some have Dutch Disease Syndrome (DDS), which renders other areas of their economies less competitive, especially in export markets, due to neglect during the oil boom.

The Dutch Disease Theory (DDT)

This theory was developed to provide an explanation for the Netherlands' subpar economic expansion after North Sea oil was discovered. When a country's natural resources boom, its currency rate rises, making industrial exports less competitive. Ismail understands the Dutch disease idea (2021) as a shrinking natural resource sector.

In a broader sense, the idea contends that rising OPs can alter the industrial makeup of a nation that exports oil. Additionally, rising oil revenues boost the value of the national currency, boost imports of consumer products, but tend to make local producers less competitive (Ighosewe, Akan and Agbogun 2021).

Rent-Seeking Theory (RST)

RST, Arnason, (2008) as cited in (Ighosewe, Akan, and Agbogun (2021), is the process of disbursing money, beyond the creation of actual products and services, there is a period when lobbying for the government's policies to change in order to increase profit is necessary. These adjustments might involve mandating the use of specific specialized services, providing subsidies for particular outputs, etc. Hence, this theory promotes the idea that politicians utilize rent-seeking to profit themselves (Ross, 2016).

2. EMPIRICAL REVIEW

From 1981's first quarter through 2015's fourth quarter, Orji, Nwagu, Ogbuabor, Nwosu, and Anthony-Orji (2019); Ehiedu and Imoagwu (2022); Ehiedu, (2022); Ehiedu, Onuorah, and Mbagwu (2022) investigated how Nigeria's transportation, agricultural, and manufacturing sectors were affected by the volatility of CO prices. The empirical result using the exponential generalized autoregressive heteroskedasticity (EGARCH) model reveals that a particular low volatility phase is followed by another low volatility period. An interval of high volatility is followed by an additional interval of high volatility. The transportation industry, manufacturing production, and the agriculture sector are all negatively impacted by the price of CO and statistically significant. The study's conclusions include that in order to reduce reliance on CO and petroleum products, the government should diversify its export revenue sources and modernize the economy. These measures would further insulate the economy from the effects of changes in OPs. Some of these reforms include fiscal conservatism, reform of budgetary procedures, export diversification, and the recovery of non-oil sectors. The report also suggests that policymakers in net oil exporting nations like Nigeria assist economic restructuring in these nations so that their local economies will benefit from their lack of exports.

Using monthly time-series data from 2000 to 2015, Ikenna-Ononugbo, Penzin, Nkang, Golit, Ajala, and Ibi (2018); Ehiedu and Imoagwu (2022); Ehiedu, (2022); studied the effects of OP volatility affects Nigeria's GDP, interest rate inflation and exchange rate. Impact size was evaluated using ARCH, GARCH, and ARDL-ECM. The findings demonstrated how considerably exchange rate depreciation was exacerbated by OP volatility. However, it was also intriguing to see that OP volatility significantly boosted actual GDP. The uncertainties brought on by variable OPs, this might be explained by a potential change in efforts to enhance economic activity in sectors that do not promote oil-based growth.

Asaolu and Ilo (2016); Ehiedu, Odita, and Kifordu, (2020) conducted a cointegration research on the Nigerian SMRs and OP. From 1984 to 2007, it was examined utilising the VECM methodology. In spite of this, Nigeria, an oil exporting nation, continues to adhere to the adage "oil up, stock down," which only applies to oil importing nations.

Erygit (2016); Ehiedu, Onuorah, and Owonye, (2022); Ehiedu and Olannye, (2014); Ehiedu and Brume-Ezewu, (2022) and Ehiedu, Odita, and Kifordu, (2020) looked into how changes in OPs altered sector indices of the Jordanian Stock Exchange (ISE) from 2000 to 2008. To study the effects of shifting OPs on sectoral indices, he updated the market model to incorporate OPs (in Turkish Lira), OPs (in dollars), and the dollar-Turkish Lira exchange rate. He discovered that rising OPs (in US dollars or Turkish lira) lead some sector indices to rise but others to fall.

Jimenez-Rodriguez and Sanchez (2016); Ehiedu, (2020) used quarterly data from 1972Q3 to 2001Q4 and a VAR with linear and non-linear models to assess the effects of OP shocks on the real economic activity of key OECD nations.

They discovered that OP increases were worse than GDP declines. OPs rises hurt economic activity in oil-importing nations, except Japan. Inconsistent evidence showed how volatile OPs harmed oil exporting nations.

Aparna (2016); Ehiedu, (2021); Ehiedu, (2020) studied CO's impact on India's GDP using quarterly data from 1995 to 2008. Rising CO costs hurt GDP and IIP but help wholesale prices (WPI).

3. METHODOLOGY

Following the objectives of the paper, as set to investigate CO shrinkage and SMRs in Nigeria. The 21-year study uses ex-post facto research design (2000-2020). CBN Statistical Bulletin 2020 provided the statistics. The study used E-views 9.0 statistical software to estimate OLS multiple regression, test for normality, serial correlation, heteroskedasticity, and stability. The study used time-series data on CO price, inflation rate, balance of trade, and exchange rate to measure SMRs.

3.1 Model Specification:

$$Y = \alpha_0 + \beta_x + \varepsilon_t \quad \textbf{(i)}$$

With equation 1 defined as;

$$\textbf{SMR} = f\,\textbf{(COS)} + \varepsilon_t \quad \textbf{(ii)}$$

Given that SMR represents stock market return and is measured by market capitalization, while COS represents CO shrinkage. When all variables are finally entered, the equation becomes;

Market capitalization = f (***CO price, inflation rate, balance of trade, exchange rate***) + ε_t **(iii)**

Then main regression model as shown below;

$$\textbf{MCAPy} = \alpha_0 + \beta_1\textbf{COP} + \beta_2\textbf{INFL} + \beta_3\textbf{BOT} + \beta_4\textbf{EXCR} + \varepsilon_t \quad \textbf{...(iv)}$$

Where:

MCAP:	Market capitalization
COP:	CO price
INFL:	Inflation rate
BOT:	Balance of trade
EXCR:	Exchange rate
α_0:	a constant, equals the value of Y when the value of X = 0
β:	coefficient of the independent variables
ε:	the error term

4.0 RESULTS AND DISCUSSIONS

Table 4.4.1: Augmented Dickey Fuller (ADF) Test

Variable	Order	ADF	Critical value	Conclusion
MCAP	I(1)	-4.8908	-3.0403	Stationary
COP	I(1)	-4.4027	-3.0299	Stationary
INFL	I(0)	-3.7112	-3.0403	Stationary
BOT	I(0)	-3.1535	-3.0206	Stationary
EXCR	I(0)	-3.5981	-3.0521	Stationary

Source: E-view 9.0 Output, 2022.

A unit root test's outcome in table 4.4.1 above summarizes the variables to understand the stationarity and behavioural pattern over time and the ADF results confirmed that MCAP and COP are stationary at order I(1). However, INFL, BOT and EXCR are stationary at level I(0) respectively. Since ADF values are above 5%, there is stationarity. The cointegration test depends on the variables' stationarity.

Table 4.4.2: Johansen Co-integration Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.953450	142.0244	69.81889	0.0000
At most 1 *	0.924552	83.74720	47.85613	0.0000
At most 2 *	0.693745	34.64522	29.79707	0.0128
At most 3	0.424834	12.16179	15.49471	0.1493
At most 4	0.083321	1.652952	3.841466	0.1986

Source: E-view 9.0 Output, 2022.

Since the trace statistic (83.7472) and (34.6452) is more than the critical value (47.8561) (29.7970) at 5%, there is enough evidence to accept Ho and conclude that the variables are co integrated at most1* and at most2*. The probability associated with the trace statistic is 0.0000<0.05 at 5% and 0.0128<0.05 at 5%. The variables have long run equilibrium that is the variables move together in the long run. We therefore move to perform Vector Error Correction model (VECM) estimation which is performed for strictly stationary variables at order 1, I(1).

Table 4.4.3: VECM Estimate

Cointegrating Eq:	CointEq1	
MCAP(-1)	1.000000	
COP(-1)	1.78E+21	
C	-1.22E+23	
Error Correction:	**D(MCAP)**	**D(COP)**
CointEq1	-1.50E-17	-5.61E-22
	(1.6E-17)	(NA)
	[-0.91923]	[NA]
D(MCAP(-1))	0.094964	-4.32E-21
	(0.25806)	(2.2E-21)
	[0.36799]	[-1.98191]
D(MCAP(-2))	-0.678950	3.12E-21
	(0.36694)	(3.1E-21)
	[-1.85030]	[1.00865]
D(COP(-1))	-11255.83	-1.44E-16
	(24177.3)	(2.0E-16)
	[-0.46555]	[-0.70443]
D(COP(-2))	51469.02	-4.09E-16
	(26982.4)	(2.3E-16)
	[1.90750]	[-1.79483]
C	-210246.3	-68.49722
	(2501822)	(2.1E-14)
	[-0.08404]	[-3.2e+15]
COP	19917.57	1.000000
	(32854.5)	(2.8E-16)
	[0.60624]	[3.6e+15]

Source: E-view 9.0 Output, 2022.

Long run test results of SMRs model based on Nigerian CO pricing show that the speed of adjustment towards equilibrium (CointEqu (1)) is negative (-0.91923) and the t-statistic is 2.1974. The analysis reveals a long-term causal link between CO price and Nigerian market cap.

4.4.4: Variables Diagnostic Check

Variables	Test	P-value	P>0.05	Conclusion
Normality Test	JB Statistic	0.5077	0.5076>0.05	Normally Distributed
Serial Correlation Test	Godfrey Breuch	0.1243	0.1243>0.05	No Presence of Serial Correlation
ARCH Test	LM Test	0.0781	0.0781>0.05	No Presence of Heteroskedasticity
Stability Test	Ransom Reset	0.0020	0.0020<0.05	Functional Form

Source: E-view 9.0 Output, 2022.

Table 4.4.4 is the variables diagnostic check. The Jarque-Bera statistics test was used and it indicated that the variables (market capitalization, CO price, inflation rate and balance of trade) were normally distributed at 5% level, therefore the H_0 is

accepted.

In the serial correlation test, the p-value is over 5%, which is ideal. Accepting H0 that there is no serial correlation means variables are independently distributed. For heteroskedasticity test, the observed R-squared p-value is greater than 5%, Thus, we accept H0, that residuals are homoscedastic.

0.00200.05 indicates that the model variables are in functional form. Table 1 shows that the model meets OLS estimate assumptions.

4.4.5 Regression Result Model (OLS Regression)

Dependent Variable: MCAP
Method: Least Squares
Date: 10/01/21 Time: 23:16
Sample: 2000 2020
Included observations: 21

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3357818.	1182586.	-2.839385	0.0113
COP	51947.75	14409.22	3.605173	0.0022
INFR	50635.96	4736.747	10.69003	0.0000
BOT	83.76125	38.76677	2.160646	0.0453
EXCR	81.83727	0.307230	5.968576	0.0000

R-squared	0.890533	Mean dependent var	7141933.
Adjusted R-squared	0.871215	S.D. dependent var	4786145.
S.E. of regression	1717586.	Akaike info criterion	31.72038
Sum squared resid	5.02E+13	Schwarz criterion	31.91934
Log likelihood	-329.0640	Hannan-Quinn criter.	31.76356
F-statistic	46.09920	Durbin-Watson stat	2.283916
Prob(F-statistic)	0.000000		

MCAP = -3357817.91967 + 51947.7483806*COP + 50635.9635155*INFR + 83.7612499772*BOT + 1.83372799451*EXCR

Source: E-view 9.0 Output, 2022**.**

5. DISCUSSION OF RESULT

The above regression result indicates an R-squared value of 89%, which means the COP, IFR, BOT & EXCR can explain for 89% of the systematic fluctuations in the MCAP, while the error term accounts for 11%. Adjusted R-squared of 87% shows the model has good predictive power, as COP, IFR, BOT & EXCR can predict 87% of MCAP changes. The total result, which has a P-value of 0.000, shows that there is no autocorrelation between COP, IFR, BOT, and EXCR and MCAP. This summary verifies the statistical reliability of the model, revealing a relationship between COS and SMRs in Nigeria.

COP and MCAP

Table 2 shows that COP's regression coefficient is 51947.75. In Nigeria, COPs like SMRs proxy with MCAP. An rise in SMRs manipulation through COP will result in a 51% increase in SMRs in Nigeria, all other variables held equal. The p-value of 0.00022 reveals that COP manipulation affects SMRs at the 5% level, rejecting the null hypothesis that COP have no impact on SMRs. Ighosewe, Akan, and Agbogun (2021) say OPs per Barrel fluctuations harmed Nigeria's SMRs.

INFR and MCAP

Table 2 shows INFR's regression coefficient is 50635.96. INFR positively affects Nigerian SMRs using MCAP as a proxy. An rise in SMRs manipulation through INFR will result in a 51% increase in SMRs in Nigeria, all other variables held equal. The p-value of 0.000 reveals that inflation rate has a considerable influence on SMRs at the 5% level of significance, rejecting the null hypothesis that inflation rate harms SMRs. This finding agrees with Ikenna-Ononugbo, Penzin, Nkang, Golit, Ajala, and Ibi (2018), Obaro Onuorah, Evesi and Ehiedu (2022);Obi, and Ehiedu, (2020); Odita, Ehiedu and Kifordu, (2020); Odita, and Ehiedu, (2015); Ehiedu, Onuorah, and Owonye, (2022); Ehiedu and Okorie, (2022); Ehiedu, (2021); Ehiedu, (2020) and Onuorah, Ehiedu and Okoh, (2021) who found that OP variations affect Nigeria's economy and SMRs through the INFR channel.

BOT and MCAP

Table 2's regression result for BOT is 83.76125. The trade balance boosts SMR's proxied with MCAP. An rise in SMRs manipulation through BOT will result in an 83% increase in SMRs, all other variables held equal. The p-value of 0.04 reveals that BOT has a considerable influence on SMRs at 5% significance, rejecting the null hypothesis that BOT has no impact on SMRs. This finding confirms (Ehiedu, Onuorah, and Owonye, (2022); Ehiedu and Okorie, (2022); Ehiedu, (2021); Ehiedu, (2020); Meteke, Ehiedu, Ndah, and Onuorah, (2022); Ikenna-Ononugbo, Penzin, Nkang, Golit, Ajala and Ibi 2018).

EXCR and MCAP

Table 2 shows that EXCR's regression coefficient is 81.837. EXCR affects SMR's proxy with MCAP in Nigeria positively. An rise in SMRs manipulation through EXCR will result in an 81% increase in SMRs, all other variables held equal. The p-value of 0.000 reveals that EXCR has a considerable influence on SMRs at 5% significance, rejecting the null hypothesis that EXCR has no impact on SMRs.

4.4.6 Granger Causality Test (GCT)

GCT by Granger and Newbold (1981) was to establish the relationship between variables. It uses F-stat and P-value of F-stat to know which variable granger causes the other.

Pairwise GCT
Date: 05/17/22 Time: 15:17
Sample: 2000 2020
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
COP does not Granger Cause (GC) MCAP	19	0.20814	0.8146
MCAP does not GC COP		0.09884	0.9065
INFR does not GC MCAP	19	2.38288	0.1286
MCAP does not GC INFR		3.18120	0.0726
BOT does not GC MCAP	19	5.22685	0.0202
MCAP does not GC BOT		1.47309	0.2627
EXCR does not GC MCAP	19	1.38053	0.2837
MCAP does not GC EXCR		3.55740	0.0563
INFR does not GC COP	19	0.08336	0.9205
COP does not GC INFR		3.02314	0.0810
BOT does not GC COP	19	3.99754	0.0423
COP does not GC BOT		0.18555	0.8327
EXCR does not GC COP	19	0.17574	0.8407
COP does not GC EXCR		0.85484	0.4464
BOT does not GC INFR	19	0.10507	0.9010
INFR does not GC BOT		1.51808	0.2531
EXCR does not GC INFR	19	2.23655	0.1436
INFR does not GC Cause EXCR		2.83222	0.0927
EXCR does not GC BOT	19	1.28811	0.3065
BOT does not GC EXCR		1.67106	0.2235

Source: E-view 9.0 Output, 2022.

The probability value of BOT, is 0.0202 less than 0.05 at 5% level. There is evidence to conclude that BOT GC MCAP but MCAP does not GC BOT as the probability value is 0,2627 greater than 0.05 at 5% level. There is unidirectional causal

relationship among MCAP and BOT because MCAP does not in return granger cause BOT. This implies that BOT have short run relationship with MCAP.

5. CONCLUSION

According to this study and earlier research, the Nigeria SMRs and OP are related in the long run, therefore CO price influences the SMRs. COP, INFR, BOT, and EXCR affect Nigerian SMRs. Oil prices affect Nigeria's SMR performance. Hence, the research came to the conclusion that COS significantly improve SMRs in Nigeria.

6. RECOMMENDATIONS

The study's findings suggest the following:

1. The Nigerian authority should develop new reform programmes to lessen its reliance on CO and petroleum products. Fiscal responsibility, budgetary reform, export diversification, reviving non-oil sectors, accountability, and corporate governance should be emphasised. This will shield the economy from OPs' collapse.
2. To have a beneficial economic impact, the government must see to it that oil revenue is widely used. That way, when the SMRs is in a slump, the economy won't be hit as hard because the resources were used wisely when business was thriving.
3. It's crucial to refine Nigerian CO domestically to save foreign cash and prevent imports of refined petroleum products and their negative effects. To do so, more local refineries should be repaired and built. Imported inflation, high production costs, foreign exchange pressure, and stock price declines should be avoided.
4. The government should work to diversify and industrialise Nigeria's economy; Strict procedures should be implemented to deal with illegalities associated with CO products in order to make an anomalous profit at the expense of the SMRs.

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