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Empirical Analysis of Oil price changes on Inflation in Nigeria

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Abstract

This study empirically analyzed the impact of oil price changes on inflation in Nigeria using monthly time series data for the period of January 1991 to April 2019. The study employed Autoregressive Distributed Lag (ARDL) Model after the result of the unit root tests revealed mixture of integrated order of the stationarity level of the variables. The ARDL results showed that in the long run, oil price exerts positive influence on the rate of inflation in Nigeria over the time which means that as oil price increases, inflation rate does increase. Also the exchange rate as part of the control variables and the lag value of the dependent variable exert positive influences on the target variable. In the short run, oil price also shows a positive relationship with the inflation rate which is in accordance with the long run result. It can therefore be concluded that, oil price changes remain one of the important inflation's influencing variables. Hence, it is recommended that curbing the increasing erratic inflation rate as a cankerworm that eats the fabric of prosperity of an economy could be done by paying good attention to the swinging nature of oil price as well as exchange rate and taking proactive actions in manipulating monetary policy tools to cushion any negative effect as a result of their outcomes in the economy.

Keywords: Oil price, Inflation, Exchange Rate, ARDL

Introduction

The impact of inflation on every economy cannot be overemphasized, it plays vital role in determining the extent of stability in an economy and it is therefore regarded to be one of the paramount factors to be taken into consideration when formulating sound macroeconomic policies. It is economically believed that low inflation impacts the economic growth negatively while high inflation affects the poor severely more than the rich in the society. Inflation rates' trend in Nigeria can be attributed to the monetization of the black gold revenue that was discovered in saleable form in the 1970's, the excess of which was 30 percent. The movement of inflation rate in Nigeria, over the years has been unsteady but empirically observed to be correlated with the pattern of the revenue generated from the black gold monetization. The fluctuating trend of inflation rates in Nigeria has caused the policy makers to always seek solutions to the problem.

Consequently, studying the impact of macroeconomic factors such as the oil price performance on rate of inflation has implications for investors and policy makers (Corrado and Jordan 2002). The persistent increase in the general price of goods and services in the economy is traced to the increasing money supply due to the fact that growth in its real term is less than the money growth. This can be observed from the increase in money supply and some other structural factors such as; supply shocks arising from famine, unfavorable terms of trade and devaluation of currency. Furthermore, Structural Adjustment Program (SAP) introduced by the government in the late 1980's also accounted for the increase in the price level in the economy (Oyinpreye, 2017).

In furtherance, inflation rates in Nigeria have been greatly influenced by the structural changes and these changes, based on the events that occurred and their patterns, can be categorized in to four major periods over the time. Between 1974 and 1976, the first period of skyrocketed general price of goods and services was experienced; inflation rates increased by 30 percent. The pressure in the economy was attributed to the excessive oil revenue monetization coupled with the high cost of agricultural produce which is the product of drought in the Northern Nigeria and increase wage rate as a result of the Udoji commission's recommendation of 1974.

In the second period, the period between 1983 and 1985, the inflationary pressure reached 40 percent, and a very little growth in the economy was observed. The Nigerian government experienced pressure to devalue her domestic currency from the debtor groups, International Monetary Fund given that the Nigerian government's debt had increased above 70 percent and her excess money growth was around 41 and 43 percent. In this period, the economy experienced poor external trade performance (CBN, 2006). The third period was from 1987 to 1989 when the inflation rate hovered around 35 percent. During this period, the economy experienced high inflationary pressure brought about by fiscal expansion noticed in the 1988 budget, the debt for equity swap conversion method adopted by the Government of Nigeria and the drastic contraction in monetary policy, all accounted for this change that span through to the early 1990's. Finally, the fourth period occurred between 1993 and 2000, as a result of fiscal deficit expansion which caused a 70 percent increase in the money supply with a knock-on effect on domestic credit to the private sector of the economy (CBN, 2006).

In Nigeria, a monoculture economy which depends heavily on the earnings from the crude oil exports, the persistent fluctuation of crude oil prices in the global market has been revealed to have adversely affected general performance of the economy. Crude oil price instability has been found to affect production cost of foreign firms and since Nigeria is an import-dependent economy, an increase in crude oil prices makes imported goods to be very expensive which is in turn transmitted to domestic prices by raising the general price level (Mba-Afolabi, 1999; Labys, 2006; Nwosu, 2009; Arinze, 2011; Runl, 2011; Bobai, 2012). More than ten times, the prices of crude oil were reviewed from 1990 to 2011, The adjustment in 2000 under the democratic administration gave the economy a turning point as petroleum price moved up to N30 per litre, diesel to N29 and kerosene to N27 Runl (2011). According to the government, the upward review of domestic prices of petroleum products was necessitated by the high spot market price of crude oil and the need for higher margins for the Nigerian National Petroleum Corporation (NNPC) to meet operational and capital costs. Using Philips curve framework, Hooker (1996, 2002), LeBlanc and Chinn (2004), Blanchard and Gali (2007), Valcarcel and Wohar (2013) posit that in countries such as the US, Japan, UK, Germany, France, Italy, the effect of oil prices on inflation and economic activities have dropped substantially over the time. And their major argument for declining role of oil prices are effective monetary policy responses to unanticipated shocks, less rigid labor markets and lower energy intensity of industries. Additionally, some studies have revealed an asymmetric pattern in oil price fluctuations, which means that although oil price hikes lead to a

rise in domestic inflation even in negligible amount, on the hand, an oil price decline does not yield any conclusive results (Lown and Rich, 1997).

However, it is observed that many have researched on the topic of interest both internationally and locally but very few used advanced and more robust methodology locally hence the gap to be filled in this paper. Therefore, in this study, Autoregressive Distributed Lag Model will be used to determine the relationship between oil price and inflation in Nigeria. The structure of the study is divided into five sections which include; section one which is Introduction, section two which is literature review, section three which is methodology, section four which is analysis and interpretation, and section five which is Summary, conclusion and recommendation.

Literature Review

The relationship between oil price and inflation has caught the attention of many researchers who have employed different approaches to examining the linkages between the two variables.

Anwar, Khan, and Khan (2015) study the impact of oil price increase on persistent increase in price level in Pakistan from a period of 2002:1 to 2011:12. They employed ordinary least square (OLS) method and the result shows that there exist a positive and significant impact of oil price on inflation while exchange rate also shows a significant impact, it is however a negative relationship with inflation. Also, Malik (2016) investigate how oil price affect inflation in Pakistan with data from 1979:1 to 2014:12. He employed Augmented Phillips curve framework and the study revealed that, continuous increase in oil price have a strong relationship with inflation.

Using different methods, Živkov, Đurašković, & Manić (2018) investigate the impact of oil price changes on inflation in Central and Eastern European countries with a monthly time –series data from January 1996 to June 2018. Using wavelet-based Markov switching approach, the study found that exchange rate does not significantly affect inflation in the process of transmission mechanism between oil price and exchange rate unless there is depreciation in the exchange rate. Similarly, Al-Eitana and Al-Zeaudb (2017) investigate the relationship between crude oil prices volatility as well as its impact on inflations in Jordan with data from 2000: to 2013:12. They used Analysis of variance (ANOVA) and the result revealed that crude oil prices account for little impact on inflation in Jordanian economy.

Using granger causality test, Rangasamy (2017) investigate how the movements in the petrol price affects inflation in South African using yearly data from January 1976 to December 2015. The result of Granger causality tests and the autoregressive distributed lag approach (ARDL) results revealed petrol price have significant impact on the level of inflation, while this is not only significant on inflation but oil price also granger causes other prices in South Africa. Also, Subhani, Hasan, Qavi, and Osman (2012) investigate the connection among crude oil price and inflation in Pakistan using annual time series-data from 1980 to 2010. The result reveals that, crude oil price granger causes inflation and inflation does not granger cause crude oil price in Pakistan for the period of study.

In the same vein, from a cross country analysis, Castro, Jiménez-Rodríguez, Poncela and Senra (2017) examine the oil price pass-through into inflation, evidence from disaggregated European data which consist of (France, Germany, Italy and Spain) using monthly time-series data from January 1996 to December 2014. Employing Granger causality tests, the result shows that the inflation responded in different pattern and magnitude with respect to various economies. While, López-Villavicencio and Pourroy (2019) evaluate the pass-through of oil price changes to consumer prices for a large sample of countries comparing countries with and without inflation targeting from 1970 to 2017. They employed State-space models and the results suggest that

countries with inflation targeting (IT) policies have a higher oil price – inflation pass-through than countries without inflation targeting policies.

Applying vector error correction model and vector auto-regression, ALsaedi (2015) examine the association between oil prices, inflation, exchange rate and economic activities cases of GCC using monthly data from 2010 to 2014. He employed vector error correction model and the result shows that oil prices and devaluation have strongly significant positive effect on economic activity. Inflation also has positive effect on economic activity. Also, Sibanda, Hove and Murwirapachena (2015) investigate how crude oil prices as well as exchange rate dictates inflation expectations in South Africa with data 2002: to 2013:3. The study employed Vector error-correction model (VECM) and the result shows that crude oil prices and exchange rate have significant impact on inflation expectations in South Africa with high rate of adjustment back to equilibrium in the case of any disequilibrium.

Conflitti and Luciani (2017) examine oil price pass-through into core inflation in the U.S and Euro area using yearly time-series data from 1984 to 2016. Vector Auto-Regression (VAR) model was employed and result shows that the oil price passes through core inflation only via its effect on the whole economy. While, Bhattacharya and Bhattacharyya (2001) examine how increase in oil prices affect inflation and output in India for the period of 1994:4 to 2000:12. The Granger causality result thus seems to be bidirectional, while inflation responded positively to one per cent shocks in oil prices after the period of seven month of the shocks as shown from impulse response result.

In another sets of cross countries analysis, Bala and Chin (2018) investigate the linear relationship and impact between oil price and changes in inflation in Algeria, Angola, Libya, and Nigeria for the period 1995 to 2014. They employed Autoregressive distributed lags (ARDL) dynamic panel and result shows that there is positive and significant relationship between money supply, the exchange rate, gross domestic product (GDP) and inflation, while food production shows a negative and significant impact on inflation. Salisu, Isah, Oyewole and Akanni (2017) investigate the impact of non-linear relationship between oil price and inflation in oil exporting and importing countries with quarterly data for the period of 2000 to 2014. They employed dynamic heterogenous panel data models and the result shows that there is a significant relationship between the variables in the long run, while the short run result produces a mixed result. However, it is shown that, oil price brings to bear a larger impact on inflation of net oil importing countries than their oil exporting equivalents

Similarly, Sangyup, Prakash, Saurabh and Marcos (2018) analyzes how instabilities in the international oil prices affect national inflation by employing an unbalanced panel data covering 72 developed and emerging economies for the period from 1970 to 2015. The result shows that there is a positive and significant impact of international oil prices on national inflation for these countries. This impact lingers for two years and vanished afterwards. The impact is similar for both developed and emerging economies. However, this relationship and impact is non-linear with positive impact having a larger effect than the negative impact. Also, Carola (2018) examine the dynamics of consumers' gas price and inflation expectations using data from the Michigan Survey of Consumers (MSC). Employing Panel Analysis, the findings revealed that, consumers on average view gas price inflation as negatively correlated and they do expect gas price inflation to feed into future core inflation, but this quickly decreases with forecast horizon.

Asghar and Naveed (2015) investigate long-run pass through of world oil prices to domestic inflation in Pakistan from January 2000 to December 2014 using Autoregressive Distributed Lag (ARDL) bounds testing approach and Granger causality. They found that in the long-run international oil prices and exchange rate significantly affect the inflation rate in Pakistan.

Furthermore, oil price (LOILP) has positive relationship with inflation and Nominal Exchange Rate (LER) has negative relationship with inflation rate in Pakistan. The findings of the Granger causality test reveal that there is unidirectional causality that runs from world oil prices to inflation rate, from inflation to exchange rate, and from world oil prices to exchange rate in Pakistan. Also, Husaini, Pua and Lean (2019) investigate the empirical evidence concerning the relationship between the international oil price and energy subsidy, and price behavior. Using time series data covering the period 1981-2015, they employed the autoregressive distribution lag (ARDL) approach which revealed that factors, oil price and energy subsidy, are significant in influencing the pattern of price behavior. The PPI (Producer Price Index) was more sensitive to changes in the oil price than the CPI (Consumer Price Index). The PPI was found to be affected more while the CPI was less affected.

Hammoudeh and Reboredo (2018) examine the link between oil prices and market-based inflation expectations in the United States. Using data for both the 5-year and the 10-year breakeven inflation proxies for medium-term and long-term market-based inflation rates as given by the difference between yields on nominal Treasuries and TIPS for the two maturities for the USA and employing linear ARDL model, the study found that the impact of oil price changes on inflation expectations is more intense when oil prices are above a threshold of 67 USD per barrel and is more pervasive for the intermediate term than for the longer term. Shaari, Yusuf, Abashah and Pei (2018) investigate the effects of retail selling prices of petrol and diesel on inflation in Malaysia using monthly data from 2010 to 2015. An Autoregressive distributed lag approach (ARDL) results shows that there are significant effects of retail selling prices of petrol and diesel in the long run.

Likewise, using linear and non-linear ARDL, Kun (2017) examine the linear and non-linear pass-through impact of oil price variations on four national price directories in Malaysia using Annual data from the years 1980 to 2015. The study employed ARDL and NARDL models and the result shows evidence of linear and non-linear pass-through impact of oil price variations on national prices across sectors. Oil price variations have positive impact on the growth in output which in turn influence increase in commodity prices, while oil price variations have a partial direct impact on consumer prices in the long run. Also, Lacheheb and Sirag (2019) captures asymmetries association among oil price and inflation in Algeria for the period of 1970–2014 using NARDL. The findings show that there is an asymmetric relationship between oil price and inflation as well as a significant impact.

Frédérique and Annabelle (2016) empirically investigate the implication of oil price forecast errors on inflation forecast errors for the United States, France and United Kingdom for the period of 2005q1–2013q. The study employed threshold nonlinear model and found that, oil price forecast contribute positively and significantly the behavior of inflation forecast errors in all the countries. Specifically, the oil price forecast errors has a double impact on the inflation expectation forecast error. Abu-Bakar and Masih (2018) investigate whether the oil price pass-through to domestic inflation symmetric or asymmetric India. Using monthly data from 1994 to 2018. Autoregressive distributed lag approach (ARDL) and Nonlinear autoregressive distributed lag approach (NARDL) results revealed that an increase in oil price have a significant impact on the increase in inflation, while decrease in oil price does not have significant impact on inflation for the period of study. However, the ARDL result produced a contradicting result of no long run relationship between oil price and inflation as compared to NARDL result.

Jiranyakul (2018) examine the effect of oil price shocks on the local inflation rate in Thailand using monthly data from January 1993 to December 2016. The study employed symmetric and asymmetric cointegration tests with structural breaks and the result depicts that, industrial output and oil price have significant and positive impact on inflation in the country both in the

short and long run. Lacheheb and Sirag (2019) examine the association between oil price and inflation in Algeria using annual data from 1970 to 2014. Using a nonlinear autoregressive distributed lags (NARDL) model, the result shows the presence of a non-linear relationship between oil price and inflation both the long run and in the short run. However, the long run impact seems to be greater than the short run impact.

Likewise, Nasir, Naidoo, Shahbaz and Amoo (2018) examines the consequences of oil prices blows on the BRICS economies for the period of 1987QII – 2017QII. Employing a time-varying structural vector autoregressive (TV-SVA) framework, the study reveals that each countries responded differently in terms of direction and magnitude to the shocks in crude oil prices, while such relationship is also non-linear in nature between countries exporting and those importing oil.

Methodology

Theoretical Framework

The monetarists argue that excess money supply is the cause of inflation. According to them, if more money is supplied than what people want, they will have to get rid of the excess and this is the cause of inflation. In countries where there is high money supply, inflation also tends to be high. The monetarists therefore argue that inflation is a monetary phenomenon. Monetarists focus on fiscal deficit, money creation and inflation while the new structuralists emphasize the link between full bottlenecks, income distribution and social conflict over the determination of real wages (Agenor & Montiel, 1996).

Mathematically,

$$Inflation = f(M^s - M^d) \dots \dots \dots (3.1)$$

If the result of equation 3.1 is positive, then there is excess supply of money.

In the money market,

$$\frac{M}{P} = f(i, y) \dots \dots \dots (3.2)$$

$$p = \frac{M}{f(i, y)} \dots \dots \dots (3.3)$$

But $\frac{1}{f(i, y)} = k \dots \dots \dots (3.4)$

Where k is a constant

$$P = kM \dots \dots \dots (3.5)$$

Where P is price and M is money supply.

According to the monetarists, in the long-run inflation is explained solely by monetary supply as shown in equation 4.5.

Fisher examined the link between the total quantity of money (money supply) and the total amount of spending in final goods and services produced in an economy ($P \times Y$), where P is the price level and Y is the aggregate output or income). Accordingly, the concept that provides the link between money supply (M) and ($P \times Y$), is velocity of money (V). Mishkin (2007).

$$v = \frac{P \times Y}{M} \dots \dots \dots (3.6a)$$

He obtained the equation of exchange by multiplying both sides of the equation 3.6a by M.

$$M \times V = P \times Y \dots \dots \dots (3.6b)$$

The conventional linear ARDL(p,q) model is as constructed by Pesaran et al. (1999) which can be written in the following way:

$$y_t = \sum_{i=1}^p \lambda_i y_{t-i} + \sum_{i=0}^q \delta'_i x_{t-i} + \varepsilon_t \dots \dots \dots 3.9$$

where y_t is the dependent variable; x_t is a $k \times 1$ coefficient vectors for exogenous variables; exogenous variables; λ_i is the vector of scalars and ε_t is a disturbance term with mean zero and a finite variance. This equation can be written in an error correction format:

$$\Delta y = \phi y_{t-1} + \beta'_i x_t + \sum_{i=1}^{p-1} \lambda_i^* \Delta y_{t-i} + \sum_{i=0}^{q-1} \delta_i^* \Delta x_{t-i} + \varepsilon_t \dots \dots \dots 3.10$$

$$\Delta inf_t^s = con + \sum_{i=1}^p a_i \Delta inf_{t-i}^s + \sum_{i=0}^{q_1} b_i \Delta oilp_{t-i}^s + \sum_{i=0}^{q_2} c_i \Delta intr_{t-i}^s + \sum_{i=0}^{q_3} d_i \Delta exr_{t-i}^s + \alpha_1 inf_{t-i}^s + \alpha_2 oilp_{t-i}^s + \alpha_3 intr_{t-i}^s + \alpha_4 exr_{t-i}^s + e_t \dots \dots \dots 3.11$$

Where

$$\phi = -1 \left(1 - \sum_{j=1}^p \lambda_j \right); \beta_i = \sum_{i=0}^q \delta_i; \lambda_i^* = \sum_{m=i+1}^q \lambda_m; i = 1, 2, \dots, p-1; \delta_i^* = \sum_{m=i+1}^q \delta_m, i = 1, 2, \dots, q-1 \dots \dots \dots 3.12$$

The error correction of equation 3.12 can be regrouped and summarized as;

$$\Delta y_t = \phi (y_{t-1} - \theta'_i x_t) + \sum_{i=1}^{p-1} \lambda_i \Delta y_{t-i} + \sum_{i=0}^{q-1} \delta_i^* \Delta x_{t-i} + \varepsilon_t \dots \dots \dots 3.13$$

$\theta = -\left(\frac{\beta}{\phi}\right)$ indicates the long-run or equilibrium relationship among y_t and x_t . λ_i^* and δ_i^* are the short-run coefficients for lagged terms of changes in y_t and x_t respectively. ϕ is the error-correction coefficient indicating the speed of adjustment of y_t in converging to its long-run equilibrium as x_t changes. This parameter always takes the negative value to ensure convergence in the long-run relationship.

Analysis and Interpretation of Result

Data Presentation

The monthly data on Inflation Rate, Oil Price, Exchange Rate and Interest Rate from 1990 to 2019:1 are presented in table 1 in the appendix.

Descriptive Analysis

Table 1: Descriptive Analysis Result

	INF	OILP	EXR	INTR
Mean	97.62264	55.96045	167.5381	9.975616
Median	75.18500	50.48500	140.8450	9.360000
Maximum	283.4600	138.7400	494.7000	18.09000

Minimum	14.36000	10.22000	77.15000	3.490000
Std. Dev.	71.65392	34.06748	90.07823	2.947520
Skewness	0.917561	0.544596	1.749683	0.188588
Kurtosis	2.850093	2.112977	5.198923	2.983056
Jarque-Bera	41.24674	24.00662	207.8168	1.734340
Probability	0.000000	0.000006	0.000000	0.420139
Sum	28505.81	16340.45	48921.13	2912.880
Sum Sq. Dev.	1494077.	337732.6	2361200.	2528.172
Observations	292	292	292	292

Table 4.1.1 shows the descriptive statistics of INFR, OILP, EXR and INTR. It is shown that all the variables under consideration contained 292 observations. EXR has the highest mean value followed by INFR, OILP and INTR respectively. The table also revealed that only EXR is mesokurtic as its value is greater than three, while others are platykurtic given that their kurtosis values are less than three. The probability of the Jarque-Bera shows that all the variables except INTR are not normally distributed as their probability values do not pass normality test at 1%, 5% and 10%.

Unit Root Test

Following the descriptive statistics is the unit root test to examine stationarity properties of the variables used in the model. We applied Philip Peron (PP) and ADF tests and the results are presented in table 1:

Table 2: Unit Root Test Result

Phillip-Perron Unit-Root Test Statistics (At Level)									
Variables	With Constant			With Constant & Trend			Without Constant & Trend		
	t-statistic	Prob.	Level	t-statistic	Prob.	Level	t-statistic	Prob.	Level
INF	10.1453	1.0000	NS	-2.9258	0.1659	NS	-1.0752	0.2943	NS
OILP	-1.8296	0.3657	NS	-1.7907	0.6900	NS	-0.9624	0.2943	NS

EXR	-0.3185	0.9190	NS	-1.7690	0.7004	NS	-0.2401	0.5933	NS
INTR	-2.9872	0.0373	I(1)	-3.3437	0.0614	I(1)	-1.0243	0.2748	NS
Phillip-Perron Unit-Root Test Statistics (At First Difference)									
	t- statistic	Prob.	Level	t- statistic	Prob.	Level	t- statistic	Prob.	Level
INF	-9.5904	0.0000	I(1)	-11.1383	0.0000	I(1)	-6.5203	0.0000	I(1)
OILP	-12.0669	0.0000	I(1)	-12.0497	0.0000	I(1)	-12.0745	0.0000	I(1)
EXR	-12.7344	0.0000	I(1)	-12.7339	0.0000	I(1)	-12.7012	0.0000	I(1)
INTR	-21.0443	0.0000	I(1)	-21.0443	0.0000	I(1)	-21.0998	0.0000	I(1)
Augmented Dickely Fuller (ADF) Unit-Root Test Statistics (At Level)									
Variables	With Constant			With Constant & Trend			Without Constant & Trend		
	t- statistic	Prob.	Level	t- statistic	Prob.	Level	t- statistic	Prob.	Level
INF	-7.0138	1.0000	NS	-4.9973	0.7116	NS	-1.1282	0.2312	NS
OILP	-1.9565	0.3622	NS	-1.7103	0.7276	NS	-0.9624	0.2943	NS
EXR	-0.4920	0.8893	NS	-1.7367	0.7156	NS	-0.2401	0.5933	NS
INTR	-2.3769	0.1492	NS	-2.5582	0.3000	NS	-0.9633	0.2993	NS
Augmented Dickely Fuller (ADF) Unit-Root Test Statistics (At First Difference)									
	t- statistic	Prob.	Level	t- statistic	Prob.	Level	t- statistic	Prob.	Level
INF	-0.6941	0.8451	NS	-11.0867	0.0000	I(1)	-0.2569	0.7599	I(1)
OILP	-12.0669	0.0000	I(1)	-12.0497	0.0000	I(1)	-12.0745	0.0000	I(1)
EXR	-4.7426	0.0001	I(1)	-4.8169	0.0005	I(1)	-4.5931	0.0000	I(1)
INTR	-21.4877	0.0000	I(1)	-21.4532	0.0000	I(1)	-21.5189	0.0000	I(1)

Source: Author's Computation from E-Views 10.0, 2019.

The test result indicates that all variables are not stationary at levels but stationary at first differences (results are reported in Table 1). It shows that the hypotheses of unit root are rejected for individual variables at 1% level of significance in their first difference. Hence, all the variables

are said to be integrated of same I(1) order except the interest rate that is stationary at level under Phillip-Peron test in the cases of with constant and with trend. Therefore, the next step is to investigate short-run and long-run relationship among the variables using the autoregressive distributed lag model method.

Lag selection criteria

The information criterion presented in table 4.4 showed that ARDL (1,1,0 0) is appropriate for the model in this study. This explains the advantage of ARDL methodology as it is not necessary for all the variables to have the same lag(s) contrary to that of VAR which all variables are given the same lag(s). The optimal lag selection must be considered as this may result to the problem of misspecification and autocorrelation if ignored.

Akaike Information Criteria (top 20 models)

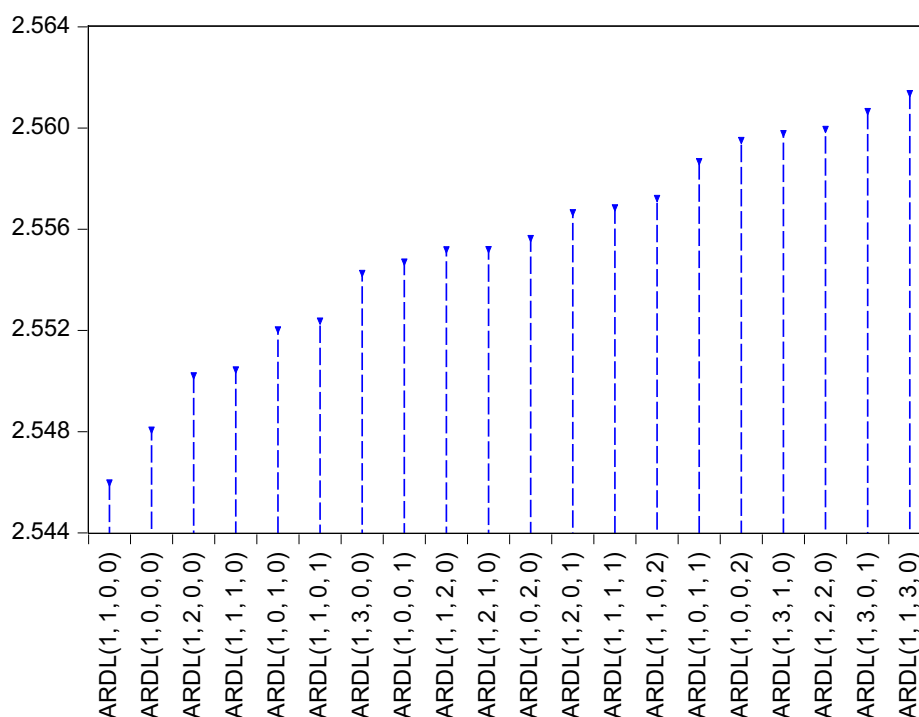


Figure 4.2.1: Lag selection criteria

4.2.2 Estimated Long Run Model

Here, the model on impact of oil price on inflation rate in Nigeria is estimated using ARDL model and the result is presented in the table 4.2.2;

Table 4.2.2 Estimated Long Run Coefficients Using the ARDL Approach

Estimated Long Run Coefficients Using the ARDL Approach ARDL (1,0,1,0,0,0) Selected based on Akaike info criterion (AIC)				
Dependent variable is INFR				
Regressor	Coefficient	Std. Error	t-Statistic	Prob.*
INF(-1)	1.000606	0.002603	384.3754	0.0000
OILP	0.018341	0.009775	1.876374	0.0616
OILP(-1)	-0.016159	0.010025	-1.611809	0.1081
EXR	0.006982	0.001763	3.959690	0.0001
INTR	-0.016658	0.020274	-0.821652	0.4120
C	-0.265476	0.296308	-0.895946	0.3710
R Squared = 0.999860		Adjusted R-Squared = 0.999858		
S.E. of Regression = 0.853253		F-statistic (Prob.) = 408469.5 (0.000000)		
Diagnostic Tests				
Test Statistics	LM Version			
A. Serial Correlation	$X^2_{\text{auto}} = 12.95877 (0.4620)$			
B. Functional Form (Ramsey Reset)	$X^2_{\text{RESET}} = 0.095186 (0.7579)$			
C. Normality	$X^2_{\text{Norm}} = 128.8209 (0.00000)$			
D. Heteroscedasticity	$X^2_{\text{Het}} = 3.468712 (0.1146)$			

Source: Author's computation Obtained from E-views 10)

Note: ** and * indicate significance at 1% and 5% level of significances. Figures in parenthesis are probability values. A is Breusch-Godfrey Serial Correlation LM Test, B is Ramsey's RESET test, C is Normality Test, D is Heteroscedasticity test.

The result presented in table 4.2.2 shows the estimated long run model of the impact of oil price on inflation rate in Nigeria. The one period lag of dependent variable shows a positive and significant relationship with its current value, while oil price and exchange rate also show positive and negative relationships with the dependent variable respectively. A unit increase in the one lag period of inflation rate leads to 1.000606 units increase in its current value. A unit increase in oil price leads to 0.018341 units decrease in the inflation rate, while a unit increase exchange rate is associated with 0.006982 units increase in the target variable.

In the same vein, the coefficient of determination (R^2) shows that 99% of the variations in the economic growth is explained by the explanatory variables which is above 50% and even after

taking into consideration the degree of freedom, the adjusted coefficient of determination (adjusted R^2) still shows that, 99% variation in the economic growth is explained by the explanatory variables. The F-statistic 408469.5 (0.00000) confirmed the fitness of the coefficient of determination and shows an overall significant level of the explanatory variables jointly in explaining economic growth.

Also, the outcome of this result can be tested using some diagnostic tests such Breusch-Godfrey Serial Correlation LM Test, Ramsey's RESET test, Normality Test and Heteroscedasticity test. The result of these tests as presented in table 4.2.2 shows that, the model passes all the diagnostic tests. The diagnostic tests applied to the model point out that there is no evidence of serial correlation and heteroscedasticity. Besides, the RESET test implies the correctly specified ARDL model and the skewness and kurtosis of residuals, but the normality test shows that the residuals are not normally distributed.

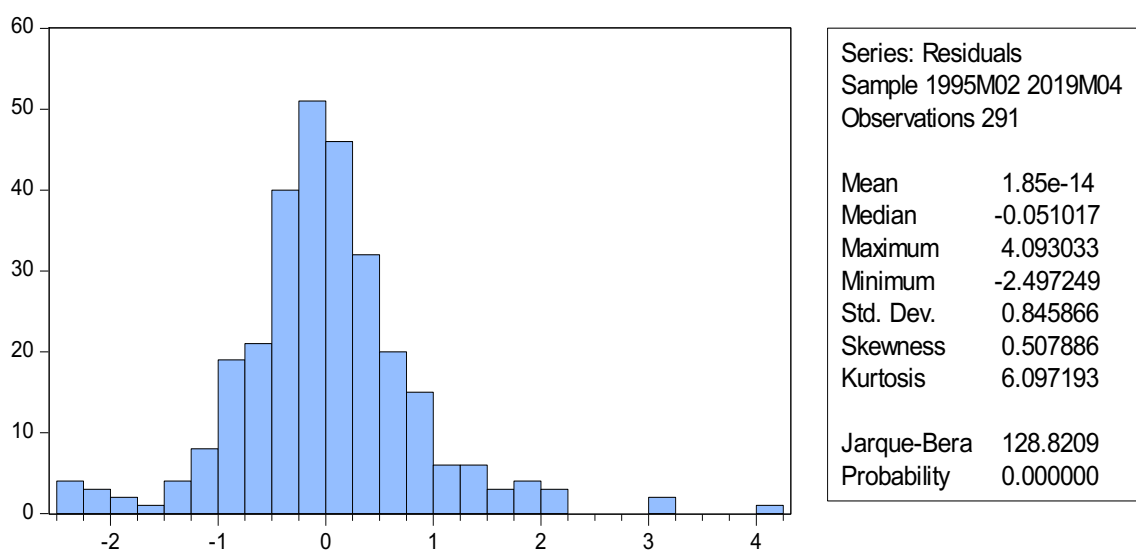


Figure 4.2.1(A): Normality Test

The stability of the regression coefficients is tested using the cumulative sum (CUSUM) of the recursive residual test for structural stability. Plots of the CUSUM shows that the regression equation seems stable given that the CUSUM test statistics does not go beyond the bounds of the 5% level of significance.

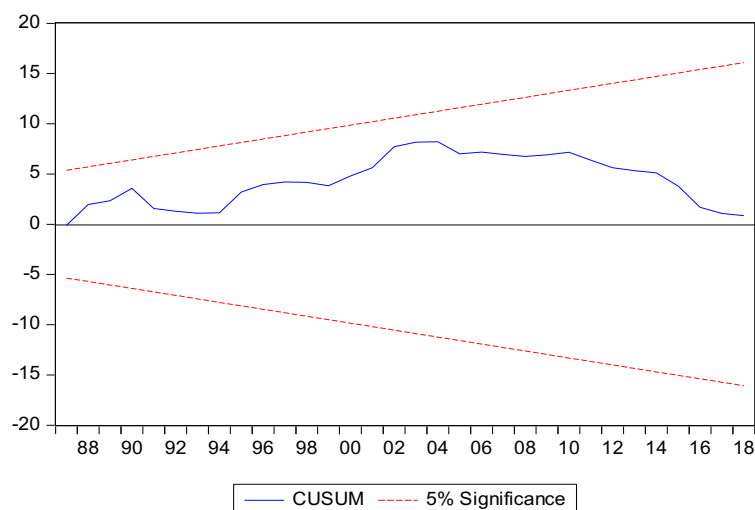


Figure 4.2.1(B): Stability (CUSUM) Test

ARDL Bound Test Approach to Cointegration

The bound test approach to cointegration seeks to confirm if there is long run relationship among the variables in the model. This is done by testing if their coefficients are equal to zero in our estimated model or not. The F-Statistic value from the bound test and the critical value bounds as revealed by the result given by E-views 10 is presented in the table 4.2.3;

Table 4.2.3: ARDL Bounds Test Result

Null Hypothesis: No long-run relationships exist				
Test Statistic	Value	K		
F-statistic	5.541898	5		
Critical Value Bounds				
Significance	I0 Bound	I1 Bound		
10%	2.08	3		
5%	2.39	3.38		
2.5%	2.70	3.73		
1%	3.06	4.15		

Source: Author’s computation Obtained from E-views 10)

ARDL bounds F test results as reported in Table 4.2.3 shows that the result confirms the presence of a long run relationship between inflation rate and the independent variables in the model for the period under consideration in Nigeria. This is because the calculated F statistic is 5.541898 greater than upper critical values at 1%, 5% and 10% significance level, and thus, inferring that there exists a co-integrating relationship among the time series in the level form, without considering whether they are I(0) or I(1). In other words, the Null hypothesis of no cointegration can be rejected at the 1%, 5% and 10% significance levels because F test statistic is greater than the critical upper bounds value I(1).

Short Run Dynamics and Error Correction Representation of ARDL Cointegrating

After confirming the existence of a long-run relationship among the and foreign aid variables in the study, it is pertinent to estimate both the error correction mechanism form of the model together with its long run form. Error correction model was first used by Sargan (1964) and after this popularized by Engle and Granger (1987).

Also, the diagnostic tests were examined from the unrestricted error correction (bounds test) model. These include Lagrange multiplier test of residual serial correlation, Ramsey's RESET test using the square of the fitted values for correct functional form (no mis-specification), Jarque-Bera normality test based on the skewness and kurtosis measures of the residuals and Breusch-

Godfrey heteroscedasticity test based on the regression of squared residuals on the original regressors of the model. The results are presented in the table 4.2.4;

Table 4.2.4 Estimated Short Run Dynamics and Error Correction				
Representation of ARDL (1,1,0,0) Selected based on Akaike info criterion (AIC)				
Dependent variable is INFR				
Regressor	Coefficient	Std. Error	t-Statistic	Prob.*
D(OILP)	0.018341	0.009603	1.910059	0.0571*
CointEq(-1)*	-0.441904	0.095069	-4.648240	0.0000***
Diagnostic Tests				
Test Statistics	LM Version			
A. Serial Correlation	$X^2_{\text{auto}} = 12.95877 (0.4620)$			
B. Functional Form (Ramsey Reset)	$X^2_{\text{RESET}} = 0.095186 (0.0.7579)$			
C. Normality	$X^2_{\text{Norm}} = 128.8209 (0.00000)$			
D. Heteroscedasticity	$X^2_{\text{Het}} = 3.468712 (0.1146)$			

Source: Author’s computation Obtained from E-views 10)

Note: ** and * indicate significance at 1% and 5% level of significances. Figures in parenthesis are probability values. A is Breusch-Godfrey Serial Correlation LM Test, B is Ramsey’s RESET test, C is Normality Test, D is Heteroscedasticity test.

The result presented in table 4.2.4 suggests that the effect of first difference of oil price on inflation rate is positive and significant. The variables have the lags of 1,1 except exchange rate and interest rate that assume the lag 0,0 respectively from the selected model: ARDL (1, 1, 0, 0), this means the effect of interest rate and exchange rate are instantaneous, while that of oil price and dependent variable are not i.e the dynamic responses are being controlled by the lag dependent variable. In other words, the dynamic response of dependent variable to these variables’ shock, are being controlled by their contemporaneous values. Hence, the short run parameter is equivalent to the instantaneous parameter in the original ARDL result. Furthermore, the magnitude of the estimated coefficient of the error correction term suggests a relatively moderate speed of adjustment to any disequilibrium in the short run. In other words, the estimated ECM_{t-1} is equal to 0.441904 which states that the departure from the equilibrium is adjusted by 44% per year. It is also negative, significant and less than one which means that information from this can be relied upon for policy decisions.

Conclusion and Recommendation

The study has attempted an examination of the relationship between oil price and inflation rate in Nigeria both in the long-run and short run. The results presented evidently suggest that in the long run, oil price exerts positive influence on the rate of inflation in Nigeria over the time; as oil price increases, inflation rate does increase. Also the exchange rate as part of the control variables and the lag value of the dependent variable exert positive influences on the target variable. In the

short run, oil price also shows a positive relationship with the inflation rate which is in accordance with the long run result. It is therefore recommended that, curbing the increasing erratic inflation rate as a cankerworm that eats the fabric of prosperity of an economy could be done by paying good attention to the swinging nature of oil price as well as exchange rate and taking proactive actions in manipulating monetary policy tools to cushion any negative effect as a result of their outcomes in the economy.

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Customer Relationship Marketing and The Challenge of System Trust in the Nigerian Retail Banking Context

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Abstract

Purpose – This study explores how system trust affects customer relationships management in the Nigerian retail-banking context, a country with weak institutions and infrastructure. **Design/methodology/approach** – this is an exploratory study based on qualitative research using semi-structured interviews with 27 managers, and a review of documents on the Nigerian retail banking system. **Findings** – The major findings of the study is that weak system trust - due to the weak legal framework, low literacy level and ineffective policing, has an influence on technology-dominated relationship marketing and reinforces interpersonal trust in the Nigerian retail banking context. **Practical implication**- the findings are significant to research and practice concerning how system trust affects the relationship management strategy of retail banks in the Sub-Saharan African market, and how banks mitigate the effect of system trust through staffs' interpersonal trust-building effort. **Originality/value** – This study is among the very few studies that link CRM implementation and system trust in the retail banking context that operate in the Sub-Saharan African market.

Keywords: Customer relationship management, system trust, Sub-Saharan Africa market, Nigeria

Introduction

This study aims to explore the impact of institutional/system trust - a trust that arises from the regulatory agencies and legal framework's ability to enforce rules and trust in the business context (Barbara, Ojijo, and Alemu, 2016). On customer relationship management in retail banking context of Sub-Saharan African (SSA) market. Beck, Chapman, and Palmatier, (2015) identified the need to understand the influence of system trust on selling organisations. In doing so, this research sought to explain and provide deeper insight into how the business context (external factors) of the organisation influence the trusting behaviour of customers. While some of these studies have examined how institutions and infrastructure within the business context influence brand trust, customer satisfaction and loyalty to the organisation (Beck, and Cull, 2013), others have examined how system trust influence banking relationship during a period of uncertainty (Breidbach, Kolb and Srinivasan, 2013), and the extent of such influence on banks and their representative (Carson, Gilmore, Perry, and Gronhaug, 2001). Creswell (2012), believe trust in a company and its representative is a necessary mediator of system trust. Although in another proposition. Creswell (2012) argue that both narrow trust – trust on the organisation and its representative that they can be trusted to deliver on their promises- and system trust is interwoven and one mediates the other, overall system trust moderates the effectiveness of narrow trust on the organisation. Crotty (2014) trust not only relates to customer trust in individual companies but also relates to the broader business context (system trust) in which consumers may plan and carry out their financial behaviour. In an environment with declining system trust during and after the 2008 financial crisis) customers may cease to trust the company and its representative (Dalziel, Harris, and Laing, 2011).

Still, other research extends this view and attempted to highlight how trust in the business context affect the marketing capabilities of a firm and their influence on the marketing approach of the organisation (EFInA. 2014). The underlying idea these studies tend to promote is that customer's trust in the business context, based on the perception that there is a strong regulatory oversight by government agencies and institutions to protect his investment, has a strong influence on narrow trust. EFInA. (2016) argued that institutions that regulate trustworthy behaviour and define acceptable and unacceptable acts affect trust in a firm and its representative.

While understanding the influence of system trust on narrow trust provides deep insight on customer relationship management in the banking context, with a few exceptions (Grayson, Johnson, and Chen, 2008). Consumer trust in the broader business context (i.e., system trust) has received very little attention (Hansen, 2012). However, all the above-mentioned research is Western-centric in origin and application (an environment with strong and relative development in infrastructure and institutions that generate trusting behaviour (Hansen, 2017). Specifically, they are focused mainly on how the financial crisis of 2008 generated weak system trust in the banking relationship. In particular, there is a paucity of research that examined this concept from SSA market perspectives. The fact that institutions and infrastructure that generate system trust in SSA are weak and provide weak confidence for people toward the business context that formal financial institutions operate. Hasan, Hasan, Lowe, Rahman, and Rahman, (2017) reflects the need for such research. Likewise, the fact that Nigeria, the context of the study, has high uncertainty avoidance that signifies low system trust. Lauckner, Paterson, and Krupa, (2012) signifies the gap of the study.

Sub-Saharan Africa, a marginalised continent with less economic attention from corporations and nations, is emerging and attracting the attention of large corporations and foreign direct investment (Mark, Philip and Adrian, 2016). This development is in tandem with the increased level of economic growth being registered by SSA countries (Marshall, and Rossman, 2011). For instance, Nigeria, the largest country in the region, recorded steady economic growth in recent

times. Between 2009 and 2014, the Nigerian economy grew between 5% and 6.2% per annum. Although Nigerian economic growth fell below 3.0% in 2015 and 3.8 in 2016, as the Nigerian economy is expected to grow by 5.0% in 2017. This projection is reinforced by Marshall, and Rossman, (2014) who argues that despite challenges, emerging Sub-Saharan African countries stand a better chance of economic recovery and growth than many developed countries.

Despite growing economic activity (The Economists, 2015), the Sub-Saharan African market is substantially different from the Western, high-income market because of weak external variables - infrastructural challenges, weak legal framework, low level of literacy and low level of technological capital (Mauro, Daniela, and Rodolfo, 2015). Marketing strategies of the firms that focus on the SSA market should therefore be made to suit the SSA own market and its surroundings because this market is also collectivist in nature. It is significantly different from Western-developed nations based on uncertainty avoidance. Informal cues that define acceptable and unacceptable behaviour reduce the level of uncertainty and complexities of economic life. These infrastructural/institutional challenges of SSA countries raise interesting points on how Sub-Saharan African external variables influence 'system trust', and trusting measures of customers towards banks in the SSA market. To address this gap in the literature, this paper aims to explore how weak institutions that generate system trust can affect customer relationship management in the retail-banking context of SSA, in the context of Nigeria. The study makes a significant contribution to the literature. First, based on empirical data, the paper extends marketing literature to cover the role of system trust in Nigeria, a non-Western context where no related research has been published (Merriam, 2014). Almost all institutions that generate system trust are weak in this context, and customers were reluctant about the ability of these institutions to protect their investment, which affects trust in the formal banks. However, staff Interpersonal trust-building effort reinforced by informal links that exist between customer and staff created a source of trust and confidence, and thus moderate the effect of system trust on banks. From a managerial perspective, an understanding of the impact of system trust, in this case, weak system trust is likely to provide banks with an opportunity to develop other measures (e.g., strong satisfaction measures) that will reduce the impact of weak system trust on the narrow trust. This is significant because most of the literature on system trust sought to examine system trust from a Western-based context. This paper seeks to understand the role of system trust in a context where high uncertainty avoidance exists, impersonal structures are weak and provide weak support for building narrow scope trust. Thus, institutions that generate system trust remain an important antecedent to effective CRM implementation in the SSA market. The remainder of this paper is organised into five sections. The second section discusses the research context; section three reviews the literature; Section four describes the data collection and analysis methods; section five reports the study findings and; section six discusses findings and conclusions from the study.

Literature review

As marketing scholars argued relationship marketing is not restricted to the exchange of service and money but rather how banks and customers can sustain ongoing and even trusting relationships over a long period of time. Trust is the central element in relationship marketing, and it is determined by not only narrow trust- trust on the bank, but also how business context is able to reduce business complexities and uncertainties in the economic life of a business. Consequently, effective management of the relationship is not restricted to internal processes that generate satisfaction, trust and loyalty alone. Scholars believe effective system trust in the business context influence effective management of the relationship between customer and the bank. Several theories have been advanced to describe the relationship between system trust and relationship marketing, and these theories focus on how customer trust in the broader business

context that moderate market exchanges influence trust on firm and its representative. System trust literature found variables within the external environment to be the main drivers of system trust. Scholars that share this view believe the external environment –institutions, infrastructure that serves as guidance of trust - provides effective reasons for people to trust a firm and initiate a relationship with the organization (PwC, 2015). Institutions represent regulative agencies, legal framework and infrastructural development that create a climate of trust within the business context. Researchers describe the role of institutions in generating trusting behaviour from two perspectives. Some studies describe how a strong legal framework and regulative agency influence relationship marketing and create trusting relationships with the bank by inculcating a feeling of security, positive political atmosphere and certainty within the broader business context organisations operate. One of the issues considered is the strength of institutions in identifying untrustworthy behaviour and punishment; and how such an act influences customer decision to trust formal institutions and engage in a business relationship. In line with Burgess and Steenkamp. Wallace, (2014), argued that in an environment with weak institutions and low-level technological development relationship marketing implementation may yield a different result. They argue that trust in those institutions increases firm performance and a reduction in their operation and customer management cost. Thus, in an environment with weak institutions – legal framework, policing and low public trust, uncertainty exists and customers’ belief informal institutions are reduced which eventually may affect the development of the effective customer-buyer relationship.

In addition, some of these studies on system trust specifically focus on the perception of security and confidence customers have in the regulative agencies during a time of uncertainty. Laukkanen, (2015) believe in the most developed nation due to strong institutions, the relevance of system trust is highly acknowledged in times of crisis only. System trust creates a climate of certainty in the business context during uncertainty, when a customer’s narrow trust in a bank disappeared. Although the impact of system trust is contextual, Grayson et al. believe in a time of uncertainty, the customer may expect system trust to be more relevant in mediating buyer-seller relationship. Customers rely more on regulatory bodies and institutions that identify untrustworthy to act and create confidence in the market. However, institutions and infrastructure that drive system trust are weak in Nigeria, and uncertainty avoidance that encourages acceptance of formal business is high in Nigeria, a typical sub-Saharan African country. Therefore, their impact in building confidence and system trust is perpetually weak. Consequently, system trust or the ability of regulatory bodies and intuitions that identify untrustworthy behaviour to act and create confidence is likely to be essential in sustaining narrow trust and profitable relationships between organisations and customers. Though this observation was suggested in prior research. Yin, (2010) research on system trust and banking relationships in a country with high uncertainty avoidance is very scant. Prior research in system trust literature explore this concept mostly after the 2008 financial crisis, their study is limited to Western-developed nations that have low uncertainty avoidance, strong institutions and infrastructure that support broad context trust (system trust) generation.

Likewise, also generally cited is the role of institutional frame in creating confidence within the business context and hence narrow trust in the banking relationship. In line with institutional theory, Inoue and Hamori. Kendall, Clark, Rhymer, Kuznesof, Hajslova, Tomaniova, and Frewer, (2019) describe the level of education as an important cue in promoting system trust in an environment dominated by uncertainty and weak regulative agency. In the SSA context, it is expected that those with low literacy levels are more likely to have a negative perception of formal banking and its product. Consequently, they tend to avoid and sometimes engage banks through interpersonal means level of education support customer cognitive effort, easy

acquisition of financial knowledge and acceptance of formal banking product. Customers with Western-based education can comprehend banking product attributes easily and behave in a financially responsible manner. As discussed previously, literacy reduces such negative perceptions on banks that dominate the SSA context and encourages trust in the business and banking relationship. To improve banking relationships, acknowledge the need for reducing the barriers to low education in Sub-Saharan Africa. Consequently, a low literacy level is likely to mediate system trust and banking relationships. However, its impact on system trust and relationship marketing in the retail banking context that operates in the SSA market remain sparse. The level of literacy is high in Western developed nations, and its ability to influence cognitive knowledge on financial literacy and hence its influence on system trust has been explored in context with a high level of literacy. One challenge is a low level of literacy may likely influence system trust and banking relationships in Nigeria, given the existence of high uncertainty avoidance and low infrastructure that promote system trust and banking relationships in the SSA context (Lee, Kim, Lee, and Shin, 2015).

In addition, there is a large distance between Western-developed countries, where all the studies on system trust and banking relationship were conducted, and the SSA market. Economically, culturally and technologically, they are different, and these differences could affect the ability of institutions that generate system trust to protect and safeguard customer investment. Given the importance of infrastructure and institutions in the generating system and the role of system trust in mediating narrow trust on bank and relationship marketing, it is surprising that there is very little work that explores how system trust affects banking relationships in Nigeria, a typical SSA market. In the present research, the role of system trust has been explored in an effort to understand its relationship with customer relationship marketing. To explore this concept, the study is guided by the research questions below:

- How do institutions that generate trust affect relationship management implementation in the Nigerian retail banking context
- How do interpersonal trust-building activities of staff influence and negate the impact of weak system trust in a banking relationship?

Methodology

The methodology of this paper is based on qualitative research that seeks to explore the role of system trust on banking relationships in Sub-Saharan Africa. This approach was selected based on a reported paucity of relationship marketing research that focuses on the SSA market. This approach allows authors to undertake in-depth study and uncover how the business context in which banks operate affect the banking effort of relationship marketing by affecting trust formation antecedents. Similarly, it's the viable methods that enable researchers to uncover context-dependent knowledge because the context and the phenomena are interwoven (Nwankpa, and Datta, 2021), and context influences different meanings and perceptions that participants ascribed to trust formation and relationship management. Thus, one of the researchers personally participated in data collection by visiting the setting of the study and interacting with managers in a face-to-face manner. The researcher who acted as a research instrument is fluent in the local language and English and share a similar culture with most of the participants.

Three major banks were selected based on their concerted effort to strengthen their relationship with retail customers because of Government policy that has led to a reduction of public sector investment that many banks rely on. In 2013, CBN introduces a Cash reserve ratio of 75 on public

sector investment. In 2015, another government policy was introduced that moved all public sector account to CBN. For this study three best performing banks with wide coverage, based on The Banker Magazine review of the top twenty banks in Africa in 2013, were selected. Similarly, these banks made a huge investment in building a relationship with customers. The research participants were purposefully drawn from these banks because they are expected to have first-hand experience and understanding of the research problem and phenomena in the study. In each of these banks, potential research respondents with knowledge of the research area were identified (Odusanya, Aluko, and Lal, 2020).

Primary data collection involved the use of semi-structured, face to face interviews with twenty-seven managers (Table 1). The use of semi-structured interviews is to uncover new issues not discovered before. Therefore, the most important thing, in this case, is the selection of managers who are skilful and are willing to offer insight on the issue or subject of discussion. Specifically, mindful of explanation, the interviews assumed informal discussion patterns and used simple language to enable respondents to respond to questions being asked in their words. The discussion with the managers was moderated by the principles of saturation when additional interviews failed to generate additional insight.

Managers view was further triangulated with qualitative data; banks reports, KPMG annual report on banking in sub-Saharan Africa (KPMG, 2014), Nigerian banking industry customer satisfaction survey (KPMG, 2014), financial inclusion studies in the Nigerian context (EFInA, 2014, 2016), and literature on banking sector reforms in Sub-Saharan Africa formed the main sources of secondary data. Further validity measures were enhanced by interviewing a different set of managers, both senior and middle managers in these three banks. In consonance with, managers were chosen based on acquaintance and convenience with the interviewer.

After the collected interview data were transcribed, the disassembling and reassembling method outlined by (Ciampolini, Tozetto, Milan, Camiré, and Milistetd, 2020) was used to analyse the data. At disassembling stage, data is broken down into codes. While at reassembling stage, codes were grouped into subcategories and categories to identify key themes. As potential categories and themes emerged from the early stage of data analyses, a back and forth procedure: within and between categories to confirm and validate emerged themes was conducted. As final themes emerged, further clarification and understanding of collected data were strengthened by revisiting various literature on customer relationships. Emerged themes were presented and discussed as research findings. Pseudonyms are assigned to describe participating managers as a condition for anonymity.

Table 1 Participants Description

Code	Respondents
R1	General Manager
R2	Deputy General Manager
R3	Deputy General Manager
R4	Deputy General Manager
R5	Assistant General Manager
R6	Assistant General Manager

R7	Assistant General Manager
R8	Assistant General Manager
R9	Senior Manager
R10	Senior Manager
R11	Senior Manager
R12	Senior Manager
R13	Senior Manager
R14	Senior Manager
R15	Relationship Managers
R16	Relationship Managers
R17	Relationship Managers
R18	Relationship Managers
R19	Account Managers
R20	Account Managers
R21	Account Managers
R22	Account Managers
R23	Middle Level Manager
R24	Middle Level Manager
R25	Middle Level Manager
R26	Middle Level Manager
R27	Middle Level Manager

Designed by Author

Findings

Weak technological capital and legal framework

A question “how does the external environment affect bank effort in relationship management guided data collection. The findings supported the view that technology penetration is an important prerequisite for effective relationship management in the retail banking sector. The feeling is that when a customer can access technology-enabled channels, access to bank products

is made easy; and banks' ability to relate with customers and offer differentiated service can be facilitated with ease, as customers can engage with the bank in several ways and enable the bank to collect and store customer data for future reference and strategic customer decision formulation and implementation. This can further facilitate the excellent customer-bank relationship and strengthen narrow trust in banks and its representative. Managers felt that an environment that supports multiple channels' use in smooth service delivery is essential, and this is not within the powers of the banks to improve.

"Poor technology penetration is also a challenge. Of course the number of internet users is growing we are still not there yet. So, that is also another challenge, especially in our mass retail segment. You find out that if you have the basic phone that may not be able to deploy some of the applications that we send out to our customers (R11)".

Analysis has further revealed that anxiety and lack of confidence that originate from the weak trust people have in institutions that support trust in the business context weaken customer ability to enter banking relationships. The insecurity of such channels discourages satisfaction and increases costs that banks incur when customers, persistently, use the branch and other interpersonal channels to conduct banking transactions. What is more concerning is the fact that there is a negative perception towards technology-enabled channels given the weak trust in the government ability to protect citizens' investment, and the environment is beyond bank control. Its impact affects customer satisfaction measures of the bank, and the banks' ability to develop and build an excellent brand relationship with the few customers that can afford banking products. This perception increases apprehension of interpersonal channels, as the general public displays low satisfaction and a low level of apprehension in the use of several banking products (e.g., credit card, Internet banking, and call centre) (EFInA, 2014, 2016; KPMG, 2014, 2016) that are vital for brand relationship in the retail banking context. As emphasised by managers, institutions of trust-building, such as police, legal framework and political environment inhibit system trust formation and create an environment of fear and lack of trust in other non-personal means of customer interaction.

"We have a justice system that is not effective and efficient. There are instances where banks need protection from a customer or need redress for the customer. For instance, customers who attempt to make fraud in the system even affect some of your customers. The judicial system does not confer banks in Nigeria the advantage of easily bringing those kinds of characters to justice...There are a lot of tedious processes. You approach a court of law, the case will be adjourned, and the judgement will be delayed for a month if not years and others. So this kind of delay affects customer patronage and respond to customer complaints (R8)".

In consonance with the above-mentioned view, lack of system trust creates a lack of structural assurance and lack of situational normalcy of customer-facing channels, which affect customer-bank interaction and put more pressure on the bank's single most patronised channel of communication, that is, the branch. This in turn affects integrity and benevolence created by the organisational processes via customer-facing channels that are technologically enabled and hence the banking relationship, subsequently, increase the cost of interpersonal relationships between customers and banking staff.

"They are always in our branch. Yes! Customers. We don't want it because it costs us money to maintain a branch. But they are not using other channels. We always encourage them to use our call centre for whatever complain they have (R6)".

Linked with this view and inconsonant with EFInA a review of financial inclusion status, "Technology-enabled channels, ATM card, point of sales terminals are not totally trusted in Nigeria given the internet challenges". The significant influence of system trust as an important

antecedent to a brand trust formed a challenge to effective CRM implementation in this context. This further reflects the significant role of the external environment in banking relationships.

Low Literacy level

The acceptance of formal banking service and the willingness of a customer to retain constant business interaction with the bank in an environment with a low level of literacy formed a voice of concern among several managers interviewed. Insight from the interview reveals open viewpoints concerning its impact on a bank's CRM strategy because it delays service delivery and trust in the formal financial institutions. Some customers, especially in mass, tier one and tier two, find it difficult to read or write since they lack formal education, which affects their cognitive ability to analyse financial offers, and thus banks require boundary spanning capability to manage the customer relationship. Employment of staff that are conversant with local language and reflect the acceptable norm and culture in the bank's location prove important in communicating to customers.

"Literacy in terms of the level of education is a major challenge. Because most of our product offerings require that you have that basic literacy level to be able to read and write, to be able to sign to read an account opening package, understand your obligation and what is expected of you from the bank. So that is a challenge to customer engagement effectively. For some customers, you have to interpret every bit of what you do to them. Every corresponds you have to sit down and interpret to them (R10)".

Customers' inability to communicate in formal language limited their trust in the bank, and link their allegiance to staff that understands local language and has some link with them religiously or based on some cultural link. By implication, the low literacy level renders the trust they have in formal institutions weak. They have a negative perception of Western education. Couple with the weak institution of the legal framework and policing, customer ability to a bank is weak, it increases their lack of apprehension on technology-enabled contact channels and distances them from using them. This aligns with Zins and Weill argument that as Western education increases among people in Sub-Saharan African, their level of financial education and confidence/ trust in government increases. Conclusively, views from managers further suggest that low public satisfaction with the performance of the institution in generating trust affects how customers perceive and use technology-enabled channels, thereby reducing the impact of bank information systems on customer data generation, and hence relationship management. At the same time, they inhibit relationship quality by compromising truth and commitment that form major factors in the banking relationship.

Interpersonal trust

The interview data revealed yet another finding that system trust does not affect the general acceptance of the formal banking system but rather weaken the brand relationship that the technology-dominated relationship marketing strategy intends to achieve. It promotes interpersonal trust effort and depicts bank CRM strategy as a relationship marketing strategy that focuses on customer-front line staff relationships. As customers felt unsure about the use of technology-enabled channels that tend to isolate contact with staff, customers tend to favour direct relationships with staff. Given the overwhelming presence of banking staff that are conversant with the local language, and customers that are sensitive to ethnic and religious links, there is genuine trust to staff than the bank as a brand.

"If you are my brother (share of religious and ethnic affiliation) you will feel more relaxed and comfortable than when someone who is not your brother is managing your relationship. As a

customer, you have more trust in someone who is linked to you culturally than someone who is not (R14)".

This perception reflects that many customers have a strong belief in the trust they build with people rather than with financial institutions. The effort of marketing staff and their link with the environment where banks operate suppress weak system trust impact. People need to see people they know promoting financial service, and in return boundary spanning capability remain a source of competitive advantage to the bank. Specifically, banks focus on fronting people that originate from the surroundings as a way of marketing banks and their product because customers link the presence of staff they see a part of them in the bank with a measure of trust, and their lack of confidence in the institution that generates trusting believe is reduced. So what interpersonal trust measure did is to induce and strengthen banking acceptance through a representative of the bank. "There is nothing as important as a person to person interaction in offering bank competitive advantage (R13)".

These views were triangulated by several responses that show how bank staff engages in acts of personal trust-building (e.g., frequent customer visitation) to negate weak system trust and encourage banking acceptance. As part of banks effort to encourage acceptance to negate weak system trust, interpersonal trusting efforts extend to phone calls, visiting small businesses that were owner-managed businesses in nature and engaging with customers personally to build a relationship. Indeed, due to the low confidence people have in the formal banking system, banks developed a marketing strategy that focuses on trust-building efforts to strengthen trust, confidence and customer loyalty. Findings revealed that all commercial banks in the industry engage and promote laundry spanners' capability in interpersonal trust-building and see it as a strategic effort that reduces the challenge of system trust and banking patronage by customers.

Discussion

This qualitative research based on semi-structured interviews explored how weak system trust affects the customer relationship management strategy of the banks in the SSA market. Within the SSA market context, the study explored how the Nigerian external environment affects a generation of institutional trust that significantly mediate the effectiveness of narrow trust on banking relationship. The finding has so far revealed that although customers patronised retail banks, low technological capital, weak legal framework and low literacy level weaken customers' system trust, and his ability to engage into a brand relationship that relationship management effort of the bank intends to achieve.

In consonance with the finding reflected a typical weakness of antecedent to narrow trust – a trust that boosts brand and banking relationship. At the same time, it reflects how the lack of structural assurance and lack of situational normalcy – an environment that creates security while in banking relationship, generated through the effectiveness of legal framework and institutions that strengthen system trust and customer confidence in formal financial institutions, create weak system trust, and hence promote trust at the personal level. This finding was supported by the inability of institutions to create confidence in technology-enabled channels that link customers with a bank and create a brand relationship, importantly in the retail banking context because, in this context, banks deliver essential banking services to customers via such channels. The inability of such institutions to offer confidence in the business context generates a negative perception towards technology-enabled channels and the bank. Thus, as noted by highlighting the weak system based trust, it can be concluded that institutions that create system trust have a significant influence on the relationship management strategy of the bank in the SSA market. This contribution is significant since very few studies identify the link between CRM implementation and system trust in the retail banking context that operates in a SSA market.

Finally, the study findings as reported here believe in an environment with a high level of literacy people have weak trust in the formal system and their anxiety about the bank is high. However, an interpersonal trust-building mechanism based on boundary spanning capability, due to cultural linkages that create trusting measures among people, can reduce the level of anxiety and make people bank. This development reflects the important role of lower-level managers and frontline staff in the relationship management effort of banks that operate the SSA market. Senior managers need to provide training and time for lower-level managers, and the CRM strategy of the banks should adopt a bottom-top approach where input from the low-level managers remain of primary importance.

Managerial implication

As the aim of the study indicated, it explores the significance of system trust on customer relationships management in the context of retail banks. Insight from the interviews explains how institutions that generate trusting measures in the business context affect narrow trust on banks and relationship management. Weak institutions that are prevalent in the SSA market reduce system trust and create anxiety and weaken customer trust informal banking and banking relationships. In this case banks in Nigeria deploy interpersonal trust-building efforts to illuminate boost trust, since customers are receptive to cultural links, and they see them as an important trusting measure in building a relationship. The major implication and more concerning is that this finding is based on retail banking context that is supposed to focus on creating a brand relationship and direct trust to the bank; because most investment in customer relationship management is aimed at reducing the cost of interpersonal trust and building trust on the bank. This suggests that as adoption of interpersonal trust mechanism in banking relationships is reasonably low in a retail context in comparison with key account management (KAM) context, the challenge may even greater in the KAM context. This signifies opportunities for future research.

Table 2 Summarised Analyses based on supported Code

S/N	Observed areas	Supported codes	Position taken
1.	Weak technological capital and legal framework	R6, R11, R8	Thus low technology acceptance affect broad context trust on retail bank and hence relationship management strategies of the bank. However, due to weak broad context trust on retail banks interpersonal relationship continue to dominate banking relationship in SSA context, which shows that the effectiveness of strategies design to build brand trust, is determined by strong technological acceptance and high literacy level
2.	Low Literacy level	R10	The low literacy level renders the trust they have informal institutions weak
3.	Interpersonal trust	R13, R14,	This perception reflects that many customers have a strong belief in the trust they build with people rather than with financial institutions.

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