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Finance-Non Oil Sector Growth Nexus in Nigeria: A Case of Wholesale and Retail Trade Sector in Nigeria

Ndukwe Orji Dibia
Department of Accountancy, Abia State University,P.M.B. 2000, Uturu, Abia State, Nigeria.
Corresponding Author: Ndukwe Orji Dibia

Abstract: *This study examined the impact financial deepening on non-oil sectors to growth in Nigeria over the period 1985 – 2017 using the Johansen approach to co-integration analysis and Vector Error Correction Model. Controlling for the possible effects of exchange rate and trade openness on economic activities in these non-oil sectors, this study found that financial depth exerts impact in the long-term and indicates no relationship in the short run in the non-oil sectors.Therefore, the development of financial sector intermediation could be the right strategy to lessening the dominance of the mono-resources economy called the oil sector in the Nigerian economy.*

Keywords: *financial sector development, granger causality, non-oil sector growth*

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I. Introduction

The contribution of non-oil sectors to economic growth in Nigeria has increased over the years. Data from the Central Bank of Nigeria (CBN) Statistical Bulletin shows that the share of the Wholesale and Retail trade sector to real GDP increased from 14.28% in 1993 to 20.33% in 2013 with an average growth rate of 15.18% between 1993 and 2013 and still on the rise till date. Giving the private sector dominance of these non-oil sectors in Nigeria, it is crucial in understanding the growth-generating abilities of these sectors to identify factors and institutions that stimulate private sector economic activities that promote the contribution of these non-oil sectors to economic growth.

With recent studies highlighting the role of financial intermediaries in promoting economic activities through the private sector (see Levine 2004; Beck and Demirguc-Kunt, 2006; Ang, 2008; Beck et al., 2011), enhancing private sector participation in economic activities in these non-oil sectors in Nigeria through the financial sector could be considered a necessary condition to promoting the growth-generating abilities of these non-oil sectors. Financial deepening plays an important role in determining the growth of an economy. It broadens its resource base, raises the capital needed to stimulate investment through savings and credit, and boosts the overall productivity. The design and implementation of effective interventions and programs in the Nigerian banking sector has led to a continued growth in financial assets, with a direct contribution from financial intermediaries to the country GDP. However, economic growth in Nigeria, whether as a result of financial development or other factors has been fluctuating over the last decade with a low rate in the last decade. Therefore, it is of importance to assess the effects on economic growth of the banking sector deepening in Nigeria.The overall goal of the recent reforms in the Nigerian financial sector embarked upon by the Central Bank of Nigeria (CBN) is to strengthen the intermediary role of banks in the economy especially in the area of promoting private sector participation in economic activities. The experience of most non-oil dependent economies has shown that the role of financial intermediaries in the mobilization of savings and enhancement of economic activities in the private sector is a significant determinant of economic growth (see Ang, 2008; Jalila and Feridun, 2011; Uddin et al., 2013 among others). By attracting deposits from various economic units in the economy and financing investment projects in the private sector, financial intermediaries generate higher levels of economic growth, support firms that depend on external finance and reduce the financing constraints of small- and medium-sized enterprises (Beck et al., 2005; Beck and Demirguc-Kunt, 2006; Beck, et al., 2011). Hence the growth-generating ability of the private sector controlled non-oil sectors in Nigeria could depend significantly on how efficient the financial system could mobilize and allocate savings in the economy.

This study examines the impact of financial deepening on the contribution of non-oil sectors with special interest in Wholesale-Retailsectors to economic growth in Nigeria. This topic therefore has an important role in policy making in Nigeria and other oil-exporting countries seeking for economic diversification. Although Adeniyi et al. (2015) and Nwani and BasseyOrie (2016) suggest that financial sector development is not a significant determinant of the overall economic growth in Nigeria, the development of the domestic financial sector could be influencing economic growth in these sectors of the economy not directly linked to oil

production as in the case of Saudi Arabia (See Samargandi et al., 2014).The remainder of this study is structured as follows: Section 2 presents the data and methodology of the study. Section 3 presents and discusses the empirical results. Finally, section 4 offers some concluding remarks on the findings.

II. Theoretical Review

2.1 Endogenous Growth Theory

Endogenous growth theory or new growth theory was developed in the 1980s as a response to criticism of the neo-classical growth model. The endogenous growth theory holds that policy measures can have an impact on the long-run growth rate of an economy. The growth model is one in which the long-run growth rate is determined by variables within the model, not an exogenous rate of technological progress as in a neoclassical growth model. Jhingan (2006) explained that the endogenous growth model emphasizes technical progress resulting from the rate of investment, the size of the capital stock and the stock of human capital. In an endogenous growth model, Nnanna, Englama, and Odoko (2004) observed that financial development can affect growth in three ways, which are: raising the efficiency of financial intermediation, increasing the social marginal productivity of capital and influencing the private savings rate. This means that a financial institution can effect economic growth by efficiently carrying out its functions, among which is the provision of credit.

2.2 Empirical Study

The relationship between financial development (deepening) and economic growth has been recently tested empirically in a number of studies for many specific country or country groups. So far, there is no general consensus on the relationship between financial development and economic growth in terms of the role and importance of finance on growth and the direction of causality. Notable one is Jalil and Feridun (2011) who examined the effects of financial sector development on economic growth in the case of Pakistan from 1975 to 2008. A composite financial depth indicator is built using principal component analysis (PCA) and is used in the Autoregressive Distributed Lag (ARDL) bounds testing approach to cointegration. The results suggest the presence of a positive and significant relationship between financial development and economic growth. A similar work by Uddin, Sjö and Shahbaz (2013) who reexamine the relationship between financial development and economic growth in Kenya over the period of 1971-2011. Using ARDL bounds testing and Gregory and Hansen's structural break cointegration approaches. The result suggests that in presence of a structural break financial sector has positive impact on economic growth in the long run. Furthermore, Ibrahim and Shuaibu (2013) examined the finance–growth nexus for Nigeria using the bounds testing approach to cointegration within an ARDL framework proposed by Pesaran et al. and the augmented Granger causality test developed by Toda and Yamamoto for the period 1970–2010. The variables of interest for the study are ratio of broad money to GDP (MG), which captures financial development, population growth (POP), and gross fixed capital formation (GFCF), which were included as explanatory variables in the empirical specification and growth rate of real gross domestic product (EG) as a measure of economic growth. Empirical evidence reveals that financial development significantly affects economic growth in the short and long run. This result is reinforced by the Toda–Yamamoto causality test, which showed that financial development leads to growth.

Kar, Nazlıoğlu and Ağır (2011) investigated the direction of causality between financial development and economic growth in the Middle East and North African (MENA) countries using panel causality testing approach, for the period 1980–2007. In order to capture the different aspects of financial development, six different indicators are used, the result of the study show that there is no clear consensus on the direction of causality between financial development and economic growth for all measurements of financial development and it is also observed that the findings are country specific.

Some studies document evidence of negative relationship between finance and economic growth. Building on this line of argument, Cevik and Rahmati (2013) examined the case of Libya over the period 1970 to 2010 using the ratio of private sector credit to the size of the Libyan economy as a measure of financial intermediary development. Controlling for the possible influence of crude oil price, government spending per capita, trade openness and international sanctions on economic growth, the results of the study show the effect of financial sector intermediation on economic growth over the period to be negative across different model specifications and estimation methods.

Quixina and Almeida (2014) examined the relationship between financial sector development and economic growth in Angola over the period 1995 to 2012 using the ratio of broad money (M2) to GDP to capture financial development in Angola. The results of the study show causal relationships running from oil sector to both financial sector development and economic growth in Angola, with financial sector development showing insignificant role in the economic growth of the country.

III. Sources of Data and Methods of Data Collection

To carry out this empirical analysis, the study employed secondary data. The relevant data for this study were sourced from central bank statistical bulletin covering the period from 1986 to 2017. This study uses annual data to examine the impact of financial sector deepening on the contribution of Wholesale-Retail sectors to economic growth in Nigeria. The choice of the sample period is based on data availability. To avoid perfect collinearity, these variables were transformed in its natural logarithm and excel, E-View10 were applications (software) used for data estimation and analysis.

3.3 Model Formulation and Specification

Koutyannis (2003) articulated that model specification is the formulation of a maintained hypothesis. This involves expressing the model to explore the economic phenomenon empirically. The relationship between economic growth and financial sector development can be modeled in different forms

To examine the impact of financial deepening on the contribution of each of the three non-oil sectors to economic growth in Nigeria, this study implements a log-linear empirical model (see eq.1) similar to the one implemented by Samargandi et al. (2014) for Saudi Arabia.

$$lnSecRgdp = \alpha_0 + \alpha_1 lnFD + \alpha_2 lnEXTR + \alpha_3 lnTrdgdp + e_t \quad (1)$$

*lnSecRgdp*represents the contribution of each of the three non-oil sectorsto real GDP(*lnWRrgdp,*) as defined in Table 1. *lnFD*represents the degree of financial deepening captured in this study using credit to private sector over GDP (*lnCPSgdp*) and broad money (M2) over GDP (*M2gdp*).*ln*Extr and *ln*Trdgdp are two control variables representing the international crude oil price and trade openness respectively while e_t is the error term.

3.4 Justification of Variables

Economic growth is defined as the real gross domestic product in each of the four non-oil sectors (sector real GDP) over the period. Two widely used measures of financial deepening are used: the ratio of credit to the private sector to GDP and the ratio of broad money (M2) to GDP. The ratio of credit to the private sector to GDP captures the role of financial intermediaries in enhancing economic activities in the private sector. It is widely believed that credit provided to the private sector generates higher levels of investment and productivity in the economy to a much larger extent than do credits to the public sector (Kar et al., 2011). The ratio of broad money (M2) to GDP is associated with the liquidity and depth of the financial system, which determines the ability of financial intermediaries to provide financial transaction services (Kar et al., 2011) and the degree of risk they could face in response to unexpected demand to withdraw deposits (Ben Naceur et al., 2014). Two control variables are included to capture other components of the Nigerian macroeconomic environment that could influence the growth of the Nigerian economy. The variables include: the international crude oil price (in US dollars per barrel) and the ratio of total trade (exports plus imports) to GDP which explains the degree of openness of the Nigerian economy to trade. The inclusion of crude oil price among the control variables in this study captures the influence of the oil sector on economic activities in the non-oil sectors in Nigeria. The list of variables is summarised in Table 2:

Table 1. List of Variables

Variable	Definition
WRrgdp	Wholesale and Retail sector contribution to GDP
CPSgdp	The ratio of Credit to the private sector to nominal GDP.
M2gdp	The ratio of broad money (M2) to nominal GDP.
Extr	The market exchange rate of U.S Dollar to Nigerian Naira, expressed in naira.
Trdgdp	Trade openness: Total trade (exports plus imports) to nominal GDP.

Source: Central Bank of Nigeria (CBN) Statistical Bulletin
Sector contributions are calculated as % of total GDP (constant 1990local currency)

Sources: Author's compilation

3.4.1 Expected Signs of the Variables (A Priori Expectations)

Based on economic theory, we expect the sign of the coefficient of money supply, credit to private sector and trade openness ($\alpha_2\ \alpha_3\ and\ \alpha_4$respectively), to be positive. This is because, economic theory has established that an increase in the supply of money will stimulate economic activities, raise profit and lowers interest rate thereby making capital more accessible to manufacturing firms and hence, increase in manufacturing output. Increase credit to the private sector means more credit (capital) to the manufacturing sub sector, hence positive relationship.

On the other hand, the sign of the coefficient of exchange rate is expected to be negative (i.e.α_4), as there is an inverse relationship between output and exchange rate. Conventional economic theory shows that

devaluation can generally leads to an increase in the level of output, since it can enhance production particularly in export and import competing sectors.

3.5 Technique of Analysis

The study estimated time series unit root test for stationarity state of the variables using different unit roots tests such as The ADF (Augmented Dickey Fuller) test. Based on the unit root test, we conducted Johansen cointegration test to ascertain the long run relationships among the variables and subsequently vector error correction model (VECM) and granger causality test were estimated based on the cointegration test outcome to find out the short run and long run relationships.

3.5.1 Stationarity test (Unit Root Test)

The first step is to investigate the order of integration of the variables used in the empirical study. The ADF (Augmented Dickey Fuller) test will be used in which the null hypothesis is $H_o: \beta = 0$ i.e β has a unit root, and the alternative hypothesis is $H_o: \beta < 0$. If the unit roots tests confirm that the variables are I(1), i.e integrated at first difference, the next step would be to test if they are co-integrated, i.e. if they are bound by long run relationship. The main reason is to determine whether the data is stationary i.e. whether it has unit roots and also the order of integration. It ex expected that the variables be integrated at first difference, I(1). If the variables I(1), we proceed with the Johansen co-integration analysis. This can be achieved through Unit root test.

3.5.2 Testing for lag Structure

In the assertion of Ender (1995) the section of an appropriate lag length is as significant as determining the variables to be included in any system of equations. Based on that, the study employs that Akaike Information Criterion (AIC) to choose the appropriate optimal lag length of the variables for this study.

3.5.3 Johansen co integration test

The test of the presence of long run equilibrium relationship among the variables using Johansen Co integration test involves the identification of the rank of the n by n matrix Π in the specification given by.

$$\Delta Y_t = \beta + \sum_{i=1}^{k-1} \Gamma_i \Delta Y_{t-1} + \prod Y_{t-k} + \varepsilon_t \quad (1)$$

Where Y_t is a column vector of the n variables Δ is the difference operator, Γ and Π are the coefficient matrices, k denotes the lag length and β is a constant. In the absence of cointegrating vector, Π is a singular matrix, indicating that the cointegrating vector rank is equal to zero. Johansen co integration test will involve two different likelihood ratio tests: the trace test (λtrace) and maximum eigen value test (λmax) shown in equations below:

$$J_{trace} = -T \sum_{i=r+1}^{n} \ln(1 - \hat{\lambda_i}) \quad (2)$$

$$J_{max} = -T ln(1 - \hat{\lambda}_{r+1}) \quad (3)$$

Where r the number of individual series, T is the number of sample observations and and λ is the estimated eigen values. The trace test tests thenull hypothesis of *r* cointegrating vectors against the alternative hypothesis of *n* cointegrating vectors. The maximum eigen value test (λmax), on the other hand, tests the null hypothesis of *r* cointegrating vectors against the alternative hypothesis of *r* +1 cointegrating vectors. If the two series are found to be co-integrated, then vector error correction model (VECM) is appropriate to investigate causality relationship.

3.5.4. Vector Error-Correction Modelling (VECM)

The Short run equilibrium relationship is tested using Vector Error-Correction Model (VECM). VECM is a restricted VAR that has cointegration restriction built into the specification. The VECM analysis in this study is based on the function: y_t = f(financial deepening, Exchange rates, and trade openness). The VECM involving three co-integrated time series is set as:

$$\Delta lnSecRgdp_t = \beta_0 + \sum_{i=1}^{n} \beta_{1i} \Delta lnSecRgdp_{t-i} + \sum_{i=0}^{n} \beta_{2i} \Delta lnFD_{1t-i} + \sum_{i=0}^{n} \beta_{3i} \Delta lnEXTR_{2t-i} + \sum_{i=0}^{n} \beta_{4i} \Delta lnTrdgdp_{t-i} + \lambda_1 ECM_{t-1} + u_{1t} \quad (3)$$

A negative and significant ECM_{t-1}coefficient (λ_1) implies that any short term disequilibrium between the dependent and explanatory variables will converge back to the long-run equilibrium relationship.

The error correction coefficientsλ_1, indicates the rate at which it corrects its previous period disequilibrium or speed of adjustment to restore the long-run equilibrium relationship. Hence, it is expected to capture the adjustment in $\Delta lnSecRgdp_t \Delta lnFD_{1t-i}$towards the long-run equilibrium whereas coefficients of $\Delta lnSecRgdp_t \Delta lnFD_{1t-i}$are expected to capture the short-run dynamics of the model. This method of analysis permits us to test for the direction of causality, if it exists,. Moreover, it captures the dynamics of the interrelationships between the variables. It is essential to appropriately specify the lag length k for the VECM model; if k is too small the model is misspecified and the missing variables create an omitted variables bias, while overparameterizing involves a loss of degrees of freedom and introduces the possibility of multicollinearity (Gujarati and Porter, 2009). The study uses Akaike information criterion (AIC) to determine the optimum lag length.

3.6 Econometric Diagnosis Tests

Econometrics diagnosis test will be done to detect whether the research model consists of econometric problems. Such test include as follows: multicollinearity, autocorrelation and heteroscedasticity.

***3.6.1*Autocorrelation**

The assumption of no autocorrelation between the error terms is one of the classical linear regression model assumptions. If the errors are not uncorrelated with one another, it would be stated that they are "auto correlated" or that they are "serially correlated". A test of this assumption is therefore required.

To test the presence of autocorrelation, the popular Breush-Godfrey serial correlation LM test and Durbin-Watson Test will be employed.

Ho: The model does not have autocorrelation problem.

Hi: The model has autocorrelation problem.

Decision rule: Reject Ho if the p-value of the test is less than significance level of 0.05. Otherwise, do not reject Ho.

3.6.2 Heteroscedasticity

Heteroscedasticity refers to the circumstance in which the variability of a variable is unequal across the range of values of a second variable that predicts it which means that the variances of error terms are not constant. The assumption of homoscedasticity is one of the classical linear regression model assumptions. The presence of heteroscedasticity will cause the variance or standard errors to be underestimated, eventually leading to higher T-statistic or F-statistic value and causes the null hypothesis to be rejected too often (Gujarati & Porter, 2009). The statistical test that establishes whether the residual variance of a variable in a regression model is constant will be adopted.

Ho: The model does not have heteroscedasticity problem.

Ho: The model has heteroscedasticity problem.

Decision rule: Reject Ho if the p-value of the test is less than significance level of 0.05. Otherwise, do not reject Ho.

IV. Presentation and Analysis of Data

4.1: Unit Root Test (ADF Tests)

The results presented in Table 1 below clearly indicate that all series exhibit unit root property using both ADF test statistics. Thus, according to the ADF test, all the seven variables of LWNRGDP, LM2GDP, LCPSGDP, LEXTR, LTRADE were non-stationary at their levels but became stationary after the first differencing. Hence the series are all integrated series of order I (1) and therefore showed that all the variables are stationary (no unit root) at first difference using 5 per cent level of significance ($\alpha = 0.05$). This is because their respective ADF test statistics value is greater than Mckinnon critical value at 5% and at absolute term. The results implied that all series has to be differenced once in our models in order to avoid spurious results.

Table 1: ADF Unit Root Test Results for Annual Series (1986-2017)

1St diff		Augmented Dickey-Fuller test				
Variables	lag	t-statistic	Critical values			Remark
			0.01	0.05	0.1	
LWNRGDP	0	-4.004784	-4.296729	-3.568379	-3.218382	I(1)
LM2GDP	0	-4.989962	-4.296729	-3.568379	-3.218382	I(1)
LCPSGDP	0	-5.37515	-4.296729	-3.568379	-3.218382	I(1)
LEXTR	0	-5.679395	-4.296729	-3.568379	-3.218382	I(1)
LTRADE	6	-4.479273	-4.394309	-3.612199	-3.243079	I(1)

Source: Author's estimation using E-view 10

Table 1 above reports the result of ADF unit root test. The test indicates that, all the variables are found to be stationary in their first difference at 1% level of significance. Thus, the variables are not stationary at level but are all stationary (do not have unit root) in their first difference. As such the variables are integrated of the same order i.e*I (1) integrated of orders one.*

4.2VAR Lag Order Selection Criteria

Table 2VAR Lag Order Selection Criteria

VAR Lag Order Selection Criteria						
Endogenous variables: LSERVGDP LM2GDP LCPSGDP LEXTR LTRADE						
Lag	LogL	LR	FPE	AIC	SC	HQ
0	37.4208	NA	7.36E-08	-2.235917	-2.000177	-2.162086
1	129.48	146.0249*	7.43e-10*	-6.860689	-5.446245*	-6.417702*
2	156.335	33.33721	7.75E-10	-6.988618	-4.39547	-6.176476
3	185.3841	26.04407	9.58E-10	-7.267870*	-3.496019	-6.086573

* indicates lag order selected by the criterion LR: sequential modified LR test statistic (each test at 5% level) , FPE: Final prediction error, AIC: Akaike information criterion, SC: Schwarz information criterion , HQ: Hannan-Quinn information criterion

Table 3.*Johansen Cointegration Test Results*

Series: LWNRGDP LM2GDP LCPSGDP LEXTR LTRADE				
Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.862245	122.853	69.81889	0
At most 1 *	0.645328	65.36698	47.85613	0.0005
At most 2 *	0.5972	35.30667	29.79707	0.0105
At most 3	0.163665	8.936529	15.49471	0.3713
At most 4	0.121404	3.753461	3.841466	0.0527
Trace test indicates 3 cointegratingeqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.862245	57.48597	33.87687	0
At most 1 *	0.645328	30.06031	27.58434	0.0235
At most 2 *	0.5972	26.37014	21.13162	0.0083
At most 3	0.163665	5.183068	14.2646	0.7186
At most 4	0.121404	3.753461	3.841466	0.0527
Max-eigenvalue test indicates 3 cointegratingeqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

Source: *Extraction from estimation output using E-views 10*

Note: * shows the rejection of null hypothesis at 5%

Table 3above, reports the result of Cointegration based on Johansen's procedure. The test indicates the existence of one (3) cointegrating equation based on Trace Statistic and Max-Eigen Statistics at 5% level of significance. Thus, the null hypothesis that there is no cointegration can therefore be rejected at 5% level as both trace test and maximum eigenvalue statistics are greater than their critical values. The result therefore indicates the existence of long run relationship among the included variables.

4.3.*Long Run Estimates*

The long run relationship of the variables from the normalized cointegration result with respect to Wholesale and Retail sector contribution to GDP (WRrgdp) output provides the evidence regarding the long-run dynamic adjustment among Wholesale and Retail sector contribution to GDP (WRrgdp) output as a proxy of the performance of the sector, on ratio of money supply to GDP (MS/GDP), the ratio credit to private sector to GDP (CPS/GDP), foreign exchange rate (FXR),Trade openness: Total trade (exports plus imports) to nominal GDP (Trdgdp) as presented below:

Table 4. Long run Estimates

LWNRGDP(-1)	LM2GDP(-1)	LCPSGDP(-1)	LEXTR(-1)	LTRADE(-1)	C
1	4.966655	-5.663408	-2.734064	2.458189	4.08438
	(1.1712)	(0.9850)	(0.3121)	(0.3332)	
	[4.24084]	[-5.74965]	[-8.75963]	[7.37713]	

Source: *Extraction from estimation output using E-views 10*

The normalized cointegration equation as presented in the table above shows the long run coefficients of our independent variables as they affect the dependent variable. The sign of the variables are reversed due to the normalization. It specifically shows the effect of each individual variable on the dependent variable. The result of each individual variable is explained below:

1. **Ratio of money supply to GDP (MS/GDP):**The estimate for the long run coefficient of money supply indicates a positive relationship between output in the Wholesale and Retail sector contribution to GDP (WRrgdp) and money supply in the long run.The result specifically implies that a one unit increase in the ratio of money supply to GDP (MS/GDP) holding the effect of other variables constant, will lead to a corresponding increase in Wholesale and Retail sector contribution to GDP (WRrgdp) output by 4.9666% and vice versa. Indeed, this comfort with theoretical postulations, (see: discussion of findings)

2. ***Credit to Private Sector (CPS):*** the coefficient of the credit to private sector shows that there exist a negative relationship between credit and Wholesale and Retail sector contribution to GDP (WRrgdp) output. The result specifically implies that a one unit decrease in the rate of credits to the private sector holding the effect of other variables constant, will lead to a corresponding increase in Wholesale and Retail sector contribution to GDP (WRrgdp) output by -5.6634% and vice versa. This is however in conformity with theoretical postulations and confirms the result of previous studies such as that of Ernest (2013).

3. **Exchange Rate (EXR):** The long run coefficient of the rate of exchange of the Nigerian naira against dollar as presented in the table above shows a negative relationship between exchange rate and Wholesale and Retail sector contribution to GDP (WRrgdp) output. The result specifically implies that a one unit increase in the exchange rate holding the effect of other variables constant, will lead to a corresponding decrease in Wholesale and Retail sector contribution to GDP (WRrgdp) output by -2.7340% and vice versa.

4. **Trade Openness to GDP (trade):** the coefficient of the trade openness to GDP shows that there exist a positive relationship between Trade Openness to GDP and Wholesale and Retail sector contribution to GDP (WRrgdp) output. The result specifically implies that a one unit increase in the Trade Openness to GDP holding the effect of other variables constant, will lead to a corresponding increase in Wholesale and Retail sector contribution to GDP (WRrgdp) output by 2.4581% and vice versa

4.3.1 Result of Vector Error Correction Model (VECM)

The estimates of the VECM provides the short run elasticities of the variables and how output in the Service-Producing sector contribution to GDPresponds to changes in its own lagged value and the lagged value of the other variables in the short run. It therefore indicates the short run causality between ratio of money supply, exchange rate, credit to private and the Wholesale and Retail sector contribution to GDP (WRrgdp) output respectively. The table below presents the detail result regarding the short run causalities:

Table 4. Estimates of Error Correction Model (short run estimates)

Error Correction:	D(LWNRGDP)	D(LM2GDP)	D(LCPSGDP)	D(LEXTR)	D(LTRADE)
CointEq1	-0.054935	-0.163526	-0.247854	-0.203998	0.054758
	(0.02186)	(0.04030)	(0.05196)	(0.13406)	(0.09742)
	[-2.51319]	[-4.05775]	[-4.76976]	[-1.52166]	[0.56209]
D(LWNRGDP(-1))	0.200672	-0.344439	0.092221	-0.2843	0.412552
	(0.2148)	(0.3961)	(0.5107)	(1.3177)	(0.9575)
	[0.93404]	[-0.86958]	[0.18056]	[-0.21576]	[0.43086]
D(LWNRGDP(-2))	0.040755	1.119937	1.387882	-0.066063	1.774383
	(0.2188)	(0.4034)	(0.5202)	(1.3420)	(0.9752)
	[0.18626]	[2.77615]	[2.66811]	[-0.04923]	[1.81951]
D(LM2GDP(-1))	-0.056774	-0.707888	-0.722379	0.63116	0.448366
	(0.1857)	(0.3423)	(0.4414)	(1.1387)	(0.8274)
	[-0.30581]	[-2.06815]	[-1.63676]	[0.55430]	[0.54189]
D(LM2GDP(-2))	-0.219648	0.053413	0.361577	0.071948	-0.098364
	(0.1464)	(0.2698)	(0.3479)	(0.8976)	(0.6522)
	[-1.50085]	[0.19796]	[1.03928]	[0.08016]	[-0.15081]
D(LCPSGDP(-1))	0.096091	0.577704	0.397026	0.001068	-0.677721

	(0.1119)	(0.2063)	(0.2660)	(0.6863)	(0.4987)
	[0.85879]	[2.80045]	[1.49260]	[0.00156]	[-1.35904]
D(LCPSGDP(-2))	0.067999	-0.163271	-0.307813	0.023107	-0.314208
	(0.1188)	(0.2191)	(0.2825)	(0.7289)	(0.5296)
	[0.57220]	[-0.74521]	[-1.08958]	[0.03170]	[-0.59326]
D(LEXTR(-1))	0.047714	0.291594	0.361473	0.171703	-0.033244
	(0.0621)	(0.1145)	(0.1476)	(0.3807)	(0.2767)
	[0.76863]	[2.54783]	[2.44945]	[0.45098]	[-0.12016]
D(LEXTR(-2))	0.05129	0.28563	0.335706	0.145806	0.098847
	(0.0488)	(0.0900)	(0.1161)	(0.2994)	(0.2176)
	[1.05061]	[3.17348]	[2.89264]	[0.48697]	[0.45431]
D(LTRADE(-1))	-0.142154	-0.26605	-0.27112	-0.730941	-0.387367
	(0.0793)	(0.1461)	(0.1884)	(0.4861)	(0.3533)
	[-1.79345]	[-1.82060]	[-1.43884]	[-1.50357]	[-1.09656]
D(LTRADE(-2))	-0.075244	0.007188	0.0827	-0.215834	0.095715
	(0.0597)	(0.1101)	(0.1420)	(0.3664)	(0.2662)
	[-1.25960]	[0.06526]	[0.58236]	[-0.58911]	[0.35952]
C	-0.509706	-1.623949	-2.454563	-1.555568	0.604339
	(0.2165)	(0.3992)	(0.5147)	(1.3279)	(0.9649)
	[-2.35428]	[-4.06849]	[-4.76911]	[-1.17150]	[0.62632]
R-squared	0.516223	0.693538	0.765633	0.352899	0.524336
Adj. R-squared	0.15339	0.463692	0.589857	-0.132427	0.167589
Sum sq. resids	0.040699	0.138337	0.230004	1.530939	0.808394
S.E. equation	0.050435	0.092984	0.119897	0.309328	0.224777
F-statistic	1.422758	3.017399	4.355741	0.727138	1.469769
Log likelihood	54.09909	36.35843	28.98662	1.501298	10.7608
Akaike AIC	-2.83442	-1.610927	-1.102525	0.793014	0.154428
Schwarz SC	-2.221494	-0.998001	-0.4896	1.40594	0.767353
Mean dependent	0.009526	0.019746	0.028689	0.145196	-0.008235
S.D. dependent	0.054814	0.12697	0.187215	0.290679	0.246367

Source: Extraction from estimation output using E-views 10

Table 4.3.9 above, shows the result of Error-Correction Model using two lags. From the result, the Error Correction Term which shows the speed of adjustment, is statistically significant and has a negative sign (-0.05493), this confirms the long-run equilibrium relationship between these variables. The result denotes a satisfactory convergence rate to equilibrium point per period that is about 5% of the deviation from long run equilibrium are corrected in the next period.

From the table also, the estimated coefficient CPSGDP has the expected sign and (M2GDP) do not. All the lag are variables are not statistically significant and this shows no short run causality running from these variables to Wholesale and Retail sector contribution to GDP (WRrgdp). In other words, the result implies that in the short run, the value which the Wholesale and Retail sector contribution to GDP (WRrgdp) output takes is not influenced by these (explanatory) variables.

The goodness of fit of the estimated relationship and the significance of the model as indicated by the value of the coefficient of determination (R2 and the adjusted R2) and F-Statistics respectively are good. These all together implies that, the output of the Wholesale and Retail sector contribution to GDP (WRrgdp)output in Nigeria largely depends on the ratio of money supply, and amount of credit awarded to the private sector for the period under study.

4.3.2 Results of Granger Causality Test

Table 5 Result of Granger Causality tests

Pairwise Granger Causality Tests				
Null Hypothesis:	**Obs**	**F-Statistic**	**Prob.**	**Remark**
LM2GDP does not Granger Cause LWNRGDP	29	3.20027	0.0432	Uni-directional
LWNRGDP does not Granger Cause LM2GDP		1.56789	0.2255	
LCPSGDP does not Granger Cause LWNRGDP	29	0.81823	0.4976	No directional
LWNRGDP does not Granger Cause LCPSGDP		1.53631	0.2331	
LEXTR does not Granger Cause LWNRGDP	29	1.99358	0.1444	No directional
LWNRGDP does not Granger Cause LEXTR		0.19692	0.8974	
LTRADE does not Granger Cause LWNRGDP	29	0.30786	0.8194	Uni-directional
LWNRGDP does not Granger Cause LTRADE		3.92137	0.022	
LCPSGDP does not Granger Cause LM2GDP	29	2.00948	0.142	No directional
LM2GDP does not Granger Cause LCPSGDP		1.0439	0.3928	
LEXTR does not Granger Cause LM2GDP	29	1.02999	0.3986	No directional
LM2GDP does not Granger Cause LEXTR		0.91034	0.452	
LTRADE does not Granger Cause LM2GDP	29	0.06203	0.9793	Uni-directional
LM2GDP does not Granger Cause LTRADE		3.62064	0.029	
LEXTR does not Granger Cause LCPSGDP	29	0.94352	0.4366	No directional

LCPSGDP does not Granger Cause LEXTR		0.35803	0.7838	
LTRADE does not Granger Cause LCPSGDP	29	0.70221	0.5608	Uni-directional
LCPSGDP does not Granger Cause LTRADE		4.16615	0.0177	
LTRADE does not Granger Cause LEXTR	29	0.37821	0.7696	No directional
LEXTR does not Granger Cause LTRADE		1.67246	0.2019	

Source: Extraction from estimation output using E-views 10

The result of granger causality as presented by the table above shows that, there is a weak unidirectional causality running from, broad money supply and trade openness to Wholesale and Retail sector contribution to GDP (WRrgdp) Output. There is also a unidirectional causality on the other hand between Money supply and credit to private sector to trade openness. This implies that passed values of broad money supply and trade openness have a predictive ability in determining the present values of Wholesale and Retail sector contribution to GDP (WRrgdp). In the same vein also, past values of Money supply and credit to private sector helps in the prediction of the future value of trade openness. Thus, there is a strong dynamic causal relationship among the variables in our model.

Diagnostic Test and Stability Tests

From the diagnostic test results (see results in Table 5). The essence of these diagnostic tests is to ascertain the authenticity of the model so as to be sure that we are not working with a misleading model that yields inconsistent estimates and spurious results. The test below shows the adequacy of the model indicating no evidence of serial correlation, heteroscedasticity and functional form misspecification in each of the VAR models specified.

Table 6 Diagnostic test

Diagnostic Test	df	Rao F-stat	Chi-sq	Prob	Remark
Serial correlation	25	0.744792		0.7696	Do not reject Ho
VEC Residual Heteroskedasticity Tests	360		384.5652	0.1787	Do not reject Ho

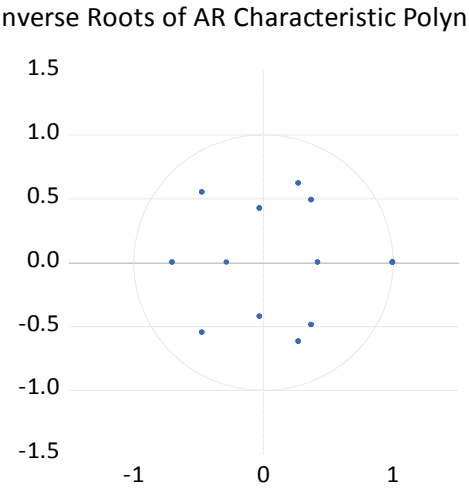

Figure 1: Inverse roots of AR characteristics polynomial model

V. Summary and Conclusion

This paper examined the relationship between financial deepening and non-oil sector growth with special interest in whole and retail sector in Nigeria over the period of 1985 to 2014. Unlike the existing studies, the majority of them have mainly used either real gdp which is the combination of oil and non-oil sector.Using the Johansen approach to co-integration analysis and Vector Error Correction Model, controlling for the possible effects of exchange rate and trade openness on economic activities in these non-oil sectors in Nigeria. The results show that contrary to the conclusion that financial intermediaries are unable to stimulate economic activities in oil-dependent economies through resource mobilisation and allocation as documented by Nili and Rastad (2007), Beck (2011) and Barajas et al. (2013), financial sector intermediary development (from the credit to private sector) remains a major driver of long-term economic growth in these non-oil sectors in Nigeria. The results are significantly similar to what Samargandi et al. (2014) documented for Saudi Arabia. Although financial sector intermediary development may not be the key driver of the overall Nigerian economy as a result of the dominant role of the other macroeconomic factors in Nigeria as documented by Nwani and BasseyOrie (2016), financial sector intermediary development remains the key driver of the private sector dominated non-oil

sectors. In general, the results highlight the importance of the Nigerian financial intermediary sector in resource mobilisation and allocation and in stimulating economic activities through the private sector in the non-oil sectors. We therefore suggest that Since the strong link between the financial deepening and the private sector in the long run suggests that strengthening the intermediary role of the Nigerian financial intermediary sector would stimulate economic activities in the non-oil sectors as documented in the results of this study. To achieve this goal, continuing reforms in the financial sector and building institutional framework that would instil confidence in the financial system and channel financial resources in the economy to productive investment projects is highly needed. The development of the financial system could be the right strategy to solving Nigeria's growth problems: building a diversified economy; one not solely dependent on the oil-sector sector but on a wide range of profitable and growth-generating sectors.

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