

The Impact of Financial Deepening on the contribution of Non-Oil Sectors to Economic Growth in Nigeria: The case of Wholesale-Retail, Service-Producing and Building-Construction Sectors

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Abstract

This study examines the causal effects of financial deepening on the contribution of Wholesale and Retail, Service-Producing and Building and Construction sectors to economic growth in Nigeria over the period 1993Q1 – 2013Q4 using the auto-regressive distributed lag (ARDL) approach to co-integration analysis. Controlling for the possible effects of crude oil price and trade openness on economic activities in these non-oil sectors, this study found indicators of financial deepening statistically significant in driving long-term and short-term economic growth in all the three 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. The development of financial sector intermediation could therefore be the right strategy to lessening the dominance of the oil sector in the Nigerian economy.

Keywords: financial development, economic growth; non-oil sectors; Wholesale and Retail sector; Service-Producing sector; Building and Construction sector; Nigeria

1. 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 Bulletin¹ shows that the share of the Wholesale and Retail trade sector to real GDP² increased from 14.28% in 1993 to 20.33% in 2013 with an average growth rate of 15.18% between 1993 and 2013. The contribution of the Service-producing sector to real GDP increased from 13.02% in 1993 to 21.42% in 2013 with an average growth rate of 15.53% over the period. While the Building and Construction sector which accounted for about 1.22% of the total real GDP in 1993 increased to 2.35% in 2013 with an average growth rate of 1.57% over the period 1995-2013. 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. 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; Seetanah, 2008; [Jalila and Feridun, 2011](#); Uddin et al., 2013 among others). By attracting deposits from various economic units in the economy and financing

¹Central Bank of Nigeria (CBN) 2014 Statistical Bulletin, Section C.

²Real GDP is taken as GDP at constant 1990 local currency

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 Demircu-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 three non-oil sectors: Wholesale-Retail, Service-Producing and Building-Construction sectors to economic growth in Nigeria. Examining the relationship between indicators of financial sector deepening and the contribution of these three non-oil sectors to economic growth in Nigeria is an area of intense interest to policy makers and researchers as a result of the high dependence of the Nigerian economy on crude oil and the need to diversify the economy and lessen the exposure of the economy to shocks in crude oil prices. 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 Bassey Orié (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 growth of these non-oil sectors may be very small relative to the size of the oil sector in Nigeria; but the future development of the economy may rely on their performance.

This study would be the first study to consider the impact of financial sector development on the growth of the three non-oil sector in Nigeria. Examining the impact of financial sector deepening on the contribution of these non-oil sectors to economic growth in Nigeria would allow for a better understanding of the role of financial sector development in an oil-dependent Nigerian economy. The remainder of this study is structured as follows: section 2 provides a review of existing empirical literature. Section 3 presents the data and methodology of the study. Section 4 presents and discusses the empirical results. Finally, section 5 offers some concluding remarks on the findings.

2. Brief Literature Review

Recent years have witnessed a growing interest among researchers in understanding the effect of financial deepening on economic growth. Theoretically, the degree of financial sector deepening is expected to stimulate economic growth by creating economic conditions that enhance efficiency in resource allocation. Levine (2004) identified these desired economic conditions to include reducing information asymmetries and transaction costs, management and diversification of risk, screening and monitoring of firms. By providing the framework that links savers and investors in the economy, savings are mobilized from various surplus units (mainly households) and allocated among deficit units (mainly firms) thereby channelling available resources in the economy into profitable investment opportunities (Sigh, 2008). Building on this theoretical foundation, a number of empirical studies examined the relationship between financial sector development and economic growth (see King and Levine, 1993; De Gregorio and Guidotti, 1995; Levine et al., 2000; Christopoulos and Tsionas, 2004; Rioja and Valev, 2004; McCaig and Stengos, 2005; Habibullah and Eng, 2006; Hassan et al., 2011; Skrabac and Arneric, 2011; Hsueh et al., 2013; Odhiambo, 2013; Nyasha and Odhiambo, 2014; Raheem and Oyinlola, 2015 among others). The results of most of these studies show that the degree of financial sector deepening is a significant driver of economic growth.

However, the effect of financial sector deepening on economic growth could be strongly influenced by country characteristics including institutional, political, geographical and economic conditions (Hondroyannis et al., 2005; Beck, 2011). This could be observed from the considerable variation in results of recent time series studies on financial sector development and economic growth nexus. While most empirical studies from non-oil dependent countries show strong indication of positive long-run interaction between financial sector development and economic growth (see for instance Chang and Caudill, 2005; Seetanah, 2008; Anwar and Nguyen, 2009; [Jalila and Feridun, 2011](#); Uddin et al., 2013), evidence from oil-dependent countries suggest weak or even negative relationship. Most oil-dependent countries depend significantly on oil revenue and are unable to develop other competitive sectors that could stimulate economic activities in the private sector, leaving resource allocation to be dominantly determined by the public sector and economic activities significantly influenced by movements in oil

price (see Mehrara and Oskoui, 2007; Farzanegan, 2014). Not surprisingly, the role of financial intermediary development in enhancing economic growth in these economies has received very limited attention, even though the overall significance of the financial intermediary development on economic growth has widely been considered (Kurronen, 2015).

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. Using data covering the period from 1960 to 2010, Adeniyi et al. (2015) shows that a negative relationship exists between financial sector deepening and economic growth in Nigeria but however, noted a sign reversal on the inclusion of squared terms, indicating a turning point in the finance-growth nexus in Nigeria. Nwani and Bassey Orié (2016) examined the independent effects of stock market and banking sector development on economic growth in Nigerian using the Autoregressive Distributed Lag (ARDL) approach to cointegration analysis over the period 1981 to 2014. The results of the study suggest that both stock market and banking sector development are not significant drivers of economic growth in Nigeria.

With most empirical studies from oil-exporting countries suggesting weak or even negative relationship between financial sector development and economic growth in oil-dependent economies as a result of the dominant role of the oil sector in these economies (other studies include Nili and Rastad, 2007; Barajas et al., 2013), attention is beginning to shift from the general assessment of the effect of financial sector deepening on the overall economic growth to understanding the effect of financial sector deepening on non-oil sectors contribution to economic growth. The argument is that the degree of financial deepening could be influencing economic activities in sectors of the economy not directly linked to oil production (Quixina and Almeida, 2014). Even though the growth-generating ability of these sectors may be very small relative to the size of the oil sector, it is considered very crucial to oil-exporting countries seeking for diversification. Following this argument, Samargandi et al. (2014) considered the role of financial sector development on economic growth in Saudi Arabia over the period 1968 - 2010. Distinguishing between the effects of financial sector development on the oil and non-oil sectors of the Saudi Arabian economy, the study shows that financial sector development has a positive impact on economic growth in the non-oil sector. In contrast, its impact on the overall economic growth and the oil-sector growth in Saudi Arabia is either negative or insignificant. The results of the study thus suggest that financial sector development may be driving economic growth in the private sector dominated non-oil sectors in oil-dependent economies.

From the foregoing, the impact of financial sector deepening on the contribution of the non-oil sectors to economic growth in Nigeria has received no research attention. This study seeks to fill this gap in the literature by examining empirically the dynamic effects of indicators of financial sector deepening on the contribution of three non-oil sectors: Wholesale Retail, Service-Producing and Building and Construction sectors to economic growth in Nigeria.

3. Data and Methodology

3.1 Data Description

This study uses quarterly data covering the period from 1993 to 2013 (84 observations) to examine the impact of financial sector deepening on the contribution of Wholesale-Retail, Service-Producing and Building-Construction sectors to economic growth in Nigeria. The choice of the sample period is based on data availability. 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
<i>WRrgdp</i>	Wholesale and Retail sector contribution to GDP
<i>SPrghp</i>	Service-Producing sector contribution to GDP
<i>BCrgdp</i>	Building and Construction sector contribution to GDP
<i>CPSgdp</i>	The ratio of Credit to the private sector to nominal GDP.
<i>M2gdp</i>	The ratio of broad money (M2) to nominal GDP.
<i>Oilp</i>	Annual average of international crude oil prices (US\$).
<i>Trdghp</i>	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 1990 local currency)

3.2. Results of Unit Root Test

The order of integration of the variables is investigated first. The stationarity tests are performed first in levels and then in first difference to establish the presence of unit roots and the order of integration in all the variables. The results of the ADF and PP stationarity tests show that the variables are integrated of order one I(1).

Table 2. ADF and PP Unit root tests

Variable	In level I(0)		First difference I(1)	
	ADF	PP	ADF	PP
<i>lnWRrgdp</i>	-0.9452	-1.4412	-13.1680***	-27.9030***
<i>lnSPrghp</i>	-0.8817	-1.9216	-9.3004***	-13.8171***
<i>lnBCrgdp</i>	-0.3584	-1.7942	-34.0507***	-17.7357***
<i>lnCPSgdp</i>	-0.5698	-0.4402	-10.7140***	-10.7402**
<i>lnM2gdp</i>	-0.9398	-0.8209	-10.4402***	-10.8209***
<i>lnOilp</i>	-0.6166	-0.6303	-7.2580***	-6.5121***
<i>lnTrdghp</i>	-2.0346	-1.8917	-7.7546***	-8.4721***

* Significance at 10%. ** Significance at 5%. *** Significance at 1%. The asterisks indicate the rejection of the null hypothesis of unit root. All the variables are in the natural log form.

3.3 Empirical Methodology

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.

$$\ln SecRgdp = \alpha_0 + \alpha_1 \ln FD + \alpha_2 \ln OilP + \alpha_3 \ln Trdgdgdp + e_t \quad (1)$$

$\ln SecRgdp$ represents the contribution of each of the three non-oil sectors to real GDP ($\ln WRrgdp$, $\ln SPrgdp$, and $\ln BCRgdp$) as defined in Table 1. $\ln FD$ represents the degree of financial deepening captured in this study using credit to private sector over GDP ($\ln CPSgdgdp$) and broad money (M2) over GDP ($M2gdgdp$). $\ln Oilp$ and $\ln Trdgdgdp$ are two control variables representing the international crude oil price and trade openness respectively while e_t is the error term. This study employs the autoregressive distributed lag or Bounds testing approach to co-integration (ARDL) proposed by Pesaran et al. (2001). Studies have shown that the ARDL approach offers some desirable statistical advantages over other co-integration techniques (Samargandi et al., 2014) and has become increasingly popular among researchers in recent years (Jayaraman and Choong, 2009). While other co-integration techniques require all the variables to be integrated of the same order, ARDL test procedure provides valid results whether the variables are I(0) or I(1) or mutually co-integrated, allows for simultaneous testing of the long and short-run relationships between the variables in a time series model and provides very efficient and consistent test results in small and large sample sizes (see Pesaran et al., 2001). It also offers unbiased estimates of the long-run relationship along with valid t-statistics even when some of the regressors are endogenous (see Harris and Sollis, 2003). The different order of integration of variables used in this study (see Table 2) makes ARDL the preferred approach for this empirical analysis. The ARDL model can be specified as:

$$\begin{aligned} \Delta \ln SecRgdp_t = & \beta_0 + \sum_{i=1}^n \beta_{1i} \Delta \ln SecRgdp_{t-i} + \sum_{i=0}^n \beta_{2i} \Delta \ln FD_{1t-i} + \sum_{i=0}^n \beta_{3i} \Delta \ln Oilp_{2t-i} \\ & + \sum_{i=0}^n \beta_{4i} \Delta \ln Trdgdgdp_{t-i} + \beta_5 \ln SecRgdp_{t-1} + \beta_6 \ln FD_{t-1} + \beta_7 \ln OilP_{t-1} \\ & + \beta_8 \ln Trdgdgdp_{t-1} + \varepsilon_{1t} \quad (2) \end{aligned}$$

Where Δ is the difference operator while ε_t is white noise error term. The test involves conducting F-test for joint significance of the coefficients of lagged variables for the purpose of examining the existence of a long-run relationship among the variables. The following hypotheses are tested to investigate the existence of co-integration among the variables. The null hypothesis of no cointegration among the variables in Eq. (1) is ($H_0: \beta_5 = \beta_6 = \beta_7 = \beta_8 = 0$) against the alternative hypothesis ($H_1: \beta_5 \neq \beta_6 \neq \beta_7 \neq \beta_8 \neq 0$). The decision to reject or accept H_0 (no co-integration among the variables) is based on the following conditions: if the calculated F-statistics is greater than the upper critical bound, then H_0 is rejected and the variables are co-integrated, if the calculated F-statistics is less than the lower bound, then H_0 is accepted and the variables are not co-integrated, but if the calculated F-statistics remains between the lower and upper critical bounds then the decision is inconclusive (Pesaran et al., 2001). The critical values for the evaluation of the null hypothesis are taken from Pesaran et al. (2001) and Narayan (2005). While Pesaran et al. (2001) argues that the critical values for the ARDL-bounds test depend on the number of regressors in the model, Narayan, (2005) shows that the critical values are influenced by the sample size. With 84 observations and 3 regressors in the specified model, the calculated F-statistics is compared to critical values taken from both Pesaran et al. (2001) and Narayan (2005).

After testing for cointegration among the variables, the long-run coefficients of the variables are then estimated. This study uses Akaike Information Criterion (AIC) for selecting the optimal lag length. The existence of cointegration between the variables implies that causality exist in at least one direction. The error correction model for the estimation of the short run relationships is specified as:

$$\begin{aligned} \Delta \ln SecRgdp_t = & \beta_0 + \sum_{i=1}^n \beta_{1i} \Delta \ln SecRgdp_{t-i} + \sum_{i=0}^n \beta_{2i} \Delta \ln FD_{1t-i} + \sum_{i=0}^n \beta_{3i} \Delta \ln OilP_{2t-i} \\ & + \sum_{i=0}^n \beta_{4i} \Delta \ln Trdgd p_{t-i} + \lambda_1 ECM_{t-1} + u_{1t} \end{aligned} \quad (3)$$

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 following diagnostic tests are conducted to ensure the acceptability of the empirical models: Breusch–Godfrey serial correlation LM test, ARCH test for heteroscedasticity, and Ramsey RESET test for functional form. The stability of the long-run coefficients together with the short-run dynamics are tested using the cumulative sum of recursive residuals (CUSUM) and the cumulative sum of squares of recursive residuals (CUSUMSQ) tests of Brown, Durbin, and Evans (1975). If the plot of CUSUM and CUSUMSQ statistics stays within the 5% range of the significance level, then all the coefficients in the error correction model are assumed to be stable, but if the plot of CUSUM and CUSUMSQ statistics crossed the 5% range of the significance level, the coefficients in the error correction model are considered unstable (Bekhet and Matar, 2013).

4. Empirical Results

4.1. Results of Co-integration Test

This study tested for co-integration on two alternative specifications employing one measure of financial deepening at a time. The results of the co-integration test based on the ARDL-bounds testing method are presented in Table 3. The results indicate that in all the specifications, the F-statistic is greater than the upper critical bound from both Pesaran et al. (2001) and Narayan (2005) at 1% significance level using restricted intercept and no trend. This study therefore rejects the null hypothesis of no co-integration among the variables. This shows that there is a long-run causal relationship among the variables in all the specifications.

4.2. Long-run and Short-run Estimates

The estimated long-run coefficients of all the ARDL specifications are presented in Table 4. Specifications 1 and 2 in Table 4 show the long-term causal effect of financial sector development on economic growth in the Wholesale and Retail sector. Financial sector development is captured using the ratio of credit to the private sector to GDP and the ratio of broad money (M2) to GDP. The results of the two specifications are statistically consistent: financial sector intermediary development is found to be positive and statistically significant at 1% level. The results of the two specifications show that a 1% increase in financial sector development would cause the real GDP of the Wholesale and Retail sector to increase by about 0.17% in the long-run. Crude oil price is found to be positive and statistically significant at 1% and 10% level in specifications 1 and 2 respectively. Surprisingly, the coefficient of trade openness is found negative and statistically significant in the two specifications.

The long-term causal effect of financial sector intermediary development on real GDP of the Service-Producing sector is examined in specifications 3 and 4 in Table 4. The results show that financial sector intermediary development is a highly significant driver of long-term economic growth in this non-oil sector. The long-run coefficients of the two indicators of financial intermediary development are found to be positive and statistically significant at 1% level in both specifications. A 1% increase in financial sector development causes real GDP of this non-oil sector to increase by about 0.17% in the long-run. While the coefficient of crude oil price is positive and significant at 10% and 5% level in specifications 3 and 4 respectively, the coefficient of trade openness is negative and statistically insignificant in both specifications.

Specifications 5 and 6 in Table 4 consider the case of Building and Construction sector. As in the case of Wholesale-Retail and Service-Producing sectors, financial sector intermediary development indicators are found to be strongly explaining economic growth in the Building and Construction sector. The coefficients of the two

financial sector intermediary development indicators are statistically significant at 1% level in both specifications. The coefficients of the two indicators show that a 1% increase in financial sector intermediary development would cause real GDP of the Building and Construction sector to increase by about 0.24% in the long-run. Crude oil price is found to be positive and statistically insignificant in specification 5 and statistically significant at 5% level in specification 6. The coefficient of trade openness is negative and statistically insignificant in both specifications.

The coefficients of the Short-run error correction estimates for all the specifications are presented in Table 5. The coefficient of ECT (-1) are all negative and significant at 1% level, suggesting that short-run disequilibrium is corrected in the long-run equilibrium. The short-run coefficient of financial sector intermediary development in specification 1 is positive but insignificant. However, the use of broad money supply (% of GDP) in specification 2 shows a strong positive causal relationship between financial sector intermediary development and real GDP of the Wholesale-Retail sector in the short-run. The positive coefficient which is statistically significant at 1% level indicates that a 1% increase in financial sector development would cause economic growth in the Wholesale-Retail sector to increase by about 0.36% in the short-run. Not surprisingly, the causal effect of crude oil price on the real GDP of the Wholesale-Retail sector is found to be negatively insignificant while trade openness causal effect is positive in the short-run but however insignificant.

In specifications 3 and 4, the coefficient of the two indicators of financial sector intermediary development is found to be positive and statistically significant at 1% level. The coefficients show that a 1% increase in financial sector intermediary development would cause the real GDP of the Service-Producing sector to increase by about 0.14% in the short-run. The coefficient of crude oil price is positive but highly insignificant. The results show that the short-run causal effect of trade openness on financial sector intermediary development is positive and highly significant at 1% level.

Specifications 5 and 6 presents the short-run causal effect of financial sector intermediary development on the real GDP of the Building and Construction sector, controlling for the influence of crude oil price and trade openness. The results highlight the significance of the financial sector development for economic growth in the non-oil sectors. The short-run coefficients of financial intermediary development indicators are statistically significant at 5% and 1% level in specifications 5 and 6 respectively. The coefficients show that a 1% increase in financial sector intermediary development would cause real GDP of this non-oil sector to increase by about 0.27% in the short-run.

Table 3. Results of Cointegration test

Models			F-statistic	Result
1	$F_{WRrgdp}(WRrgdp CPSgdp, Oilp, Trdgdgdp)$	ARDL(1, 0, 1, 1)	18.4536***	Cointegration
2	$F_{SPrgdp}(SPrgdp CPSgdp, Oilp, Trdgdgdp)$	ARDL(1, 0, 0, 1)	9.1110***	Cointegration
3	$F_{BCrgdp}(BCrgdp CPSgdp, Oilp, Trdgdgdp)$	ARDL(1, 0, 0, 1)	15.8708***	Cointegration
4	$F_{WRrgdp}(WRrgdp M2gdp, Oilp, Trdgdgdp)$	ARDL(1, 1, 1, 1)	17.0486***	Cointegration
5	$F_{SPrgdp}(SPrgdp M2gdp, Oilp, Trdgdgdp)$	ARDL(1, 0, 0, 1)	8.3659***	Cointegration
6	$F_{BCrgdp}(BCrgdp M2gdp, Oilp, Trdgdgdp)$	ARDL(1, 1, 1, 1)	13.9297***	Cointegration
Critical Value Bounds Pesaran et al. (2001)(k = 3)		1%	5%	10%
I0 Bound		3.65	2.79	2.37
I1 Bound		4.66	3.67	3.20
Critical Value Bounds Narayan (2005) Appendix: Case II (k = 3, n=80)		1%	5%	10%
I0 Bound		3.908	2.920	2.474
I1 Bound		5.004	3.838	3.312
ARDL Models selected on Akaike info criterion (AIC), Restricted intercept and no trend				
Notes: *, **, and *** indicate significance at 10%, 5% and 1%, respectively				

Table 4. Long-run Coefficients

Independent Variables	Dependent Variables					
	<i>lnWRrgdp</i>	<i>lnWRrgdp</i>	<i>lnSPrgdp</i>	<i>LnSPrgdp</i>	<i>lnBCrgdp</i>	<i>lnBCrgdp</i>
	1	2	3	4	5	6
C	-2.7420*** [-9.2747]	-3.1865*** [-10.2547]	-2.0838*** [-8.5690]	2.2675*** [-9.1399]	-4.4977*** [-12.1347]	-4.9607*** [12.8002]
lnCPSgdp	0.1768*** [3.5157]		0.1768*** [4.2691]		0.2460*** [3.9468]	
lnM2gdp		0.2297*** [4.1799]		0.2156*** [3.6360]		0.2551*** [2.8568]
lnOilp	0.1529*** [2.9429]	0.1335* [1.8647]	0.0735* [1.7362]	0.0967** [2.2004]	0.1057 [1.6447]	0.1780** [2.6060]
lnTrdgdgdp	-0.1967*** [-3.2054]	-0.2460*** [-3.5301]	-0.0228 [-0.4471]	-0.0494 [-0.8720]	-0.0371 [-0.4722]	-0.1010 [-1.1517]

Note: *, **, and *** indicate significance at 10 %, 5 % and 1%, respectively t-statistics in []

Table 5. Short-run Error Correction Estimates

Variables	Dependent Variables					
	<i>lnWRrgdp</i>	<i>lnWRrgdp</i>	<i>lnSPrgdp</i>	<i>LnSPrgdp</i>	<i>lnBCrgdp</i>	<i>lnBCrgdp</i>
	1	2	3	4	5	6
ECM(-1)	-1.0428*** [-10.0318]	-0.9517*** [-9.4757]	-0.7444*** [-7.0482]	-0.6561*** [-6.3772]	-0.9660*** [-8.9124]	-0.8924*** [-8.5652]
$\Delta \ln \text{CPSgdp}$	0.1711 [1.5666]		0.1469** [2.2564]		0.2733** [2.0671]	
$\Delta \ln \text{M2gdp}$		0.3602*** [2.7844]		0.1900** [2.4406]		0.4892*** [3.2286]
$\Delta \ln \text{Oilp}$	-0.0636 [-0.5738]	-0.0203 [-0.1792]	0.0656 [0.9585]	0.0572 [0.8293]	-0.0693 [0.5085]	-0.0378 [-0.2818]
$\Delta \ln \text{Trdgdp}$	0.1025 [1.2397]	0.0631 [0.7492]	0.1521*** [3.0359]	0.1415*** [2.7808]	0.3309*** [3.2991]	0.2816*** [-2.8582]
<i>Diagnostic tests</i>						
Adj. R ²	0.5622	0.5429	0.7649	0.7581	0.6068	0.6197
D-W stat	1.9891	1.9681	1.7049	1.6794	1.8655	1.9114
SC	0.0007(0.9777)	0.0653(0.7868)	2.1591(0.1324)	2.3012(0.1160)	2.1400(0.1316)	0.8174(0.3410)
Het	0.1932(0.6567)	0.0338(0.8524)	0.0299(0.8610)	0.2357(0.6236)	1.5113(0.2176)	1.7549(0.1846)
JB	4.5722(0.1017)	2.1790(0.3364)	2.9855(0.2248)	2.9020(0.2343)	2.2710(0.3213)	1.7477(0.4173)
RESET	0.2194(0.6408)	2.4375(0.1226)	2.5507(0.1144)	1.2312(0.2607)	1.1771(0.2813)	1.7167(0.1940)
Note: Adj R ² means Adjusted R-squared; SC means Breusch–Godfrey serial correlation LM test; Het is the ARCH test for heteroscedasticity; JB is the Jarque-Bera Normality test; RESET is the Ramsey RESET test. *, **, and *** indicate significance at 10%, 5% and 1%, respectively; t-statistics in [] p-values in ()						

4.3. Diagnostic and Stability tests

From the diagnostic test results (see results in Table 5), there is no evidence of serial correlation, heteroscedasticity and functional form misspecification in each of the ARDL models specified. Figures 1 - 6 show the cumulative sum of recursive residuals (CUSUM) and the cumulative sum of squares (CUSUMSQ) stability test results. The CUSUM and CUSUMSQ are within the critical boundaries for the 5% significance level indicating that the coefficients of the ARDL model in each of the specifications are stable.

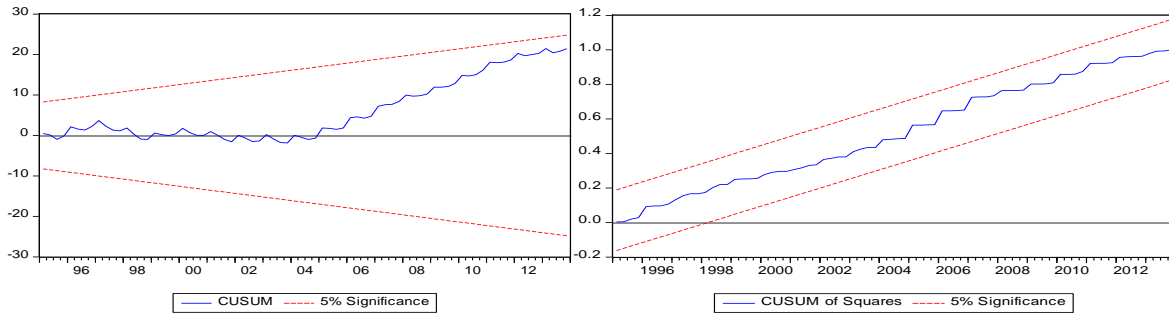


Figure 1. Plot of CUSUM and CUSUMSQ for coefficient stability for ECM Specification 1.

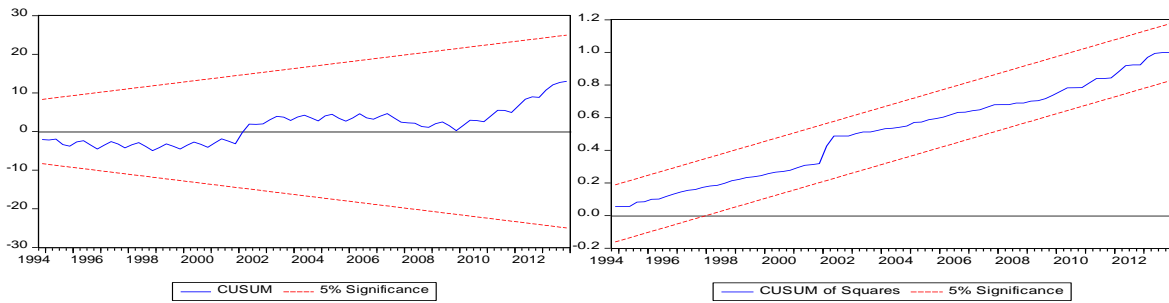


Figure 2. Plot of CUSUM and CUSUMSQ for coefficient stability for ECM Specification 2.

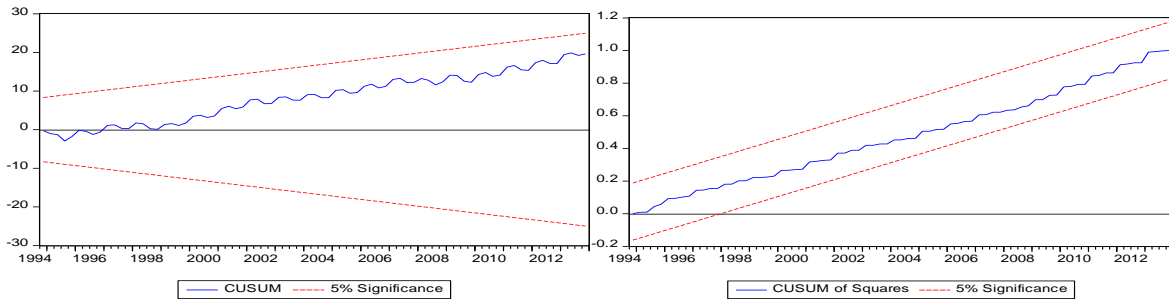


Figure 3. Plot of CUSUM and CUSUMSQ for coefficient stability for ECM Specification 3.

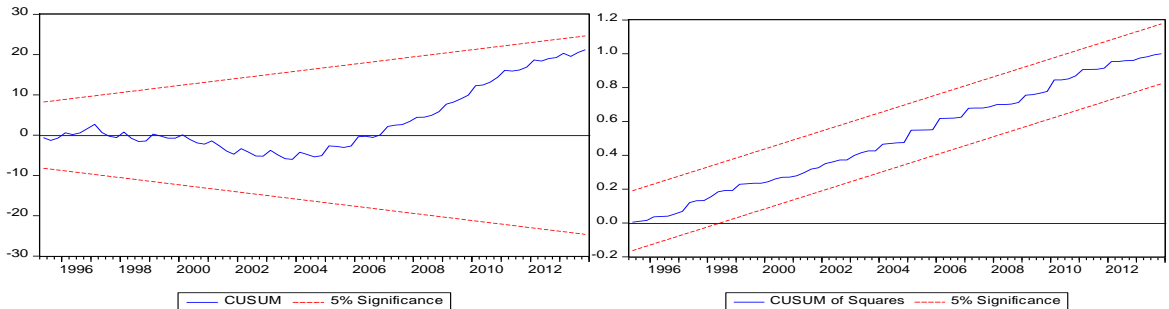


Figure 4. Plot of CUSUM and CUSUMSQ for coefficient stability for ECM Specification 4.

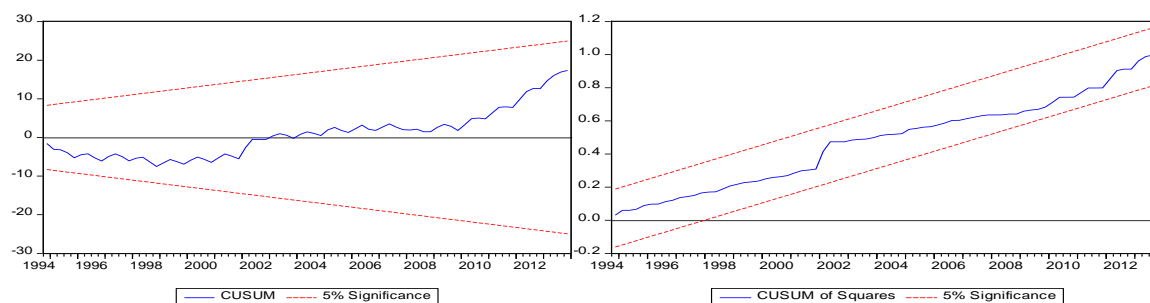


Figure 5. Plot of CUSUM and CUSUMSQ for coefficient stability for ECM Specification 5.

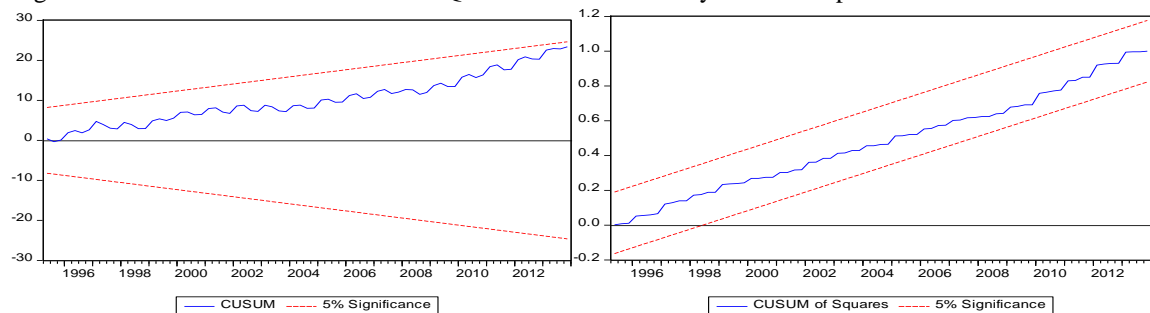


Figure 6. Plot of CUSUM and CUSUMSQ for coefficient stability for ECM Specification 6.

5. Conclusion

Motivated by the growing interest among researchers and policy makers in understanding the causal effects of financial sector intermediary development on economic growth and the limited attention that has been given to the special case of non-oil sectors in oil-dependent economies, this study empirically examines the causal effects of financial intermediary development on economic growth in three non-oil sectors: Wholesale and Retail, Service-Producing and Building and Construction sectors, over the period 1993Q1 – 2013Q4 using the auto-regressive distributed lag (ARDL) approach to co-integration analysis, controlling for the possible effects of crude oil price 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 NiliandRastad (2007), Beck (2011) and Barajas et al. (2013), financial sector intermediary development remains a major driver of long-term and short-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 oil sector in Nigeria as documented by Nwani and BasseyoOri (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.

Given that the poor performance of the Nigerian economy and possibly that of other oil-dependent economies is positively related to the high dependence on oil and the high level of oil price fluctuations observed in the international crude oil market in the last decade there is urgent need to diversify the Nigerian oil-driven economy. Evidence has shown that diversified economies are less exposed to external and fiscal shocks. The strong link between the financial sector and the private sector 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; lessen the burden on the public sector and the dominance of the oil sector in the economy. 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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