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## Article

# Economic growth in oil-exporting countries: Do stock market and banking sector development matter? Evidence from Nigeria

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## FINANCIAL ECONOMICS | LETTER

# Economic growth in oil-exporting countries: Do stock market and banking sector development matter? Evidence from Nigeria

Chinazaekpere Nwani<sup>1\*</sup> and Jacob Bassey Orie<sup>1</sup>

**Abstract:** This study empirically examines the independent effects of stock market and banking sector development on economic growth in Nigeria over the period 1981–2014 using the autoregressive distributed lag (ARDL) approach to co-integration analysis. Controlling for the possible effects of crude oil price and trade openness on economic activities in Nigeria, this study found both stock market and banking sector development insignificant in influencing economic growth in Nigeria. In general, the results highlight the weakness of the Nigerian financial sector in stimulating economic growth through resource mobilisation and allocation and the dominant role of the oil sector in economic activities in Nigeria.

**Subjects:** Development Economics; Economics and Development; Finance

**Keywords:** stock market; banks; economic growth; oil price; oil-exporting countries; Nigeria; ARDL

**JEL Classifications:** G20; G10; O11; Q32

## 1. Introduction

Recent years have witnessed a growing interest among researchers in understanding the interaction between financial sector development and economic growth in oil-exporting countries (see Nili & Rastad, 2007; Beck, 2011; Barajas, Chami, & Yousefi, 2013; Cevik & Rahmati, 2013; Samargandi, Fidrmuc, & Ghosh, 2014). However, only few of these studies considered indicators of stock market

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## PUBLIC INTEREST STATEMENT

Recent years have witnessed a growing interest among researchers and policy-makers in understanding whether financial institutions and markets are able to mobilise savings and allocate resources efficiently in oil-dependent economies. This study considers the case of Nigeria, a major oil-exporting country. The results of this study show that stock market and the banking sector development do not promote economic growth in Nigeria. The weakness of both components of the financial sector in resource mobilisation and allocation could be the missing link and the reason why Nigeria is still struggling in its economic growth process. Given that less diversified economies are more vulnerable to external and fiscal shocks, developing the stock market and the banking sector could strengthen economic activities in the private sector and lessen the exposure of Nigerian economy to oil price shocks.

development. The argument has been that banks dominate financial activities in most countries and stock markets remain just a small component of the overall financial sector (Ben Naceur, Cherif, & Kandil, 2014). Although stock market may constitute a small component of the overall financial sector in most countries, its role in diversification and management of risk, liquidity creation and foreign capital inflow have been identified among factors that can spur long-term economic growth (see Levine, 2004). Also, the composition of the financial sector has been observed to follow the production structure of the economy (Lin, Sun, & Jiang, 2009; Kurronen, 2015). This makes it possible for countries to have different levels of banking sector development and stock market development. Since the allocation of financial resources in the economy could be performed by these institutions through different channels and using different instruments (Levine, 1996), understanding the separate effects of stock market and banking sector development on economic growth could offer better explanation to the role of financial sector development in promoting economic growth.

Barajas et al., 2013 shows that the role of the banking sector in economic growth process of oil-exporting countries become weaker as the degree of oil-dependence increase, but noted that the growth effect of stock market development may be higher in oil-exporting countries than in oil-importing countries. Kurronen (2015) shows that the banking sector tends to be smaller in resource-dependent economies but found evidence that the use of market-based financing is more common in resource-dependent economies using a sample of 128 countries over the period 1995–2009. Naceur and Ghazouani (2007) examined the effects of stock market and banking sector development on economic growth in the Middle East and North Africa (MENA) region over the period 1979–2003 including oil price among the control variables to capture the influence of the oil sector on economic activities in a region dominated by major oil-exporting countries including some OPEC member countries: Saudi Arabia, Kuwait and Iran. The study found the effect of stock market development on economic growth in the region to be negative when liquid liabilities is used to capture banking sector development and positive when banking sector development is captured using domestic credit to private sector. Overall, the results indicate the insignificant effect of stock market and banking sector development on economic growth in MENA region. The effect of oil price on economic growth in the region is found to be significantly positive, suggesting that economic growth in the region is driven by the oil sector.

Controlling for the possible influence of oil price and trade openness on economic growth in Nigeria, this study seeks to examine empirically the independent effects of stock market and banking sector development on economic growth in Nigeria using the autoregressive distributed lag (ARDL) approach to cointegration analysis. Although few studies based exclusively on Nigeria data exist, none has considered stock market development indicators in the interaction between financial sector development and economic growth in Nigeria (see for instance Adeniyi, Oyinlola, Omisakin, & Egwaikhide, 2015). This study therefore aims to fill this gap in the literature. The results of this study would be of importance to researchers and policy-makers in Nigeria and other developing oil-exporting countries seeking to understand the independent effects of banking sector and stock market development on economic growth.

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.

## 2. Data and methodology

### 2.1. Data description

This study uses annual data covering the period from 1981 to 2014, which provides the longest available and reliable data-set for stock market development in Nigeria. Economic growth is defined as the real GDP per capita. Two control variables are included: the international crude oil price measured as the Brent spot price (in US dollars per barrel) and the degree of openness of the Nigerian

**Table 1. List of variables**

Variable	Definition	Source
<i>RGDPC</i>	GDP per capita (in constant local currency)	World Development Indicators database, World Bank (Online)
<i>MCapgdp</i>	Market capitalisation over GDP	Central Bank of Nigeria (CBN)
<i>VTRgdp</i>	Value traded over GDP	Statistical Bulletin
<i>Turn</i>	Value of trades over Market capitalisation	
<i>CPSgdp</i>	Domestic credit to private sector over GDP.	
<i>M2gdp</i>	Liquid Liabilities over GDP.	
<i>BAGdp</i>	Deposit money bank assets to GDP	
<i>Oilp</i>	Annual average of international oil prices (US\$).	BP Statistical Review of World Energy (June 2015)
<i>trdopen</i>	Trade openness: Total trade (exports plus imports) over GDP.	World Development Indicators database, World Bank (Online)

economy to trade captured using the ratio of total trade (exports plus imports) to GDP. The details of all the variables are provided in Table 1.

Each of the three stock market development indicators captures various components of the stock market development in Nigeria. Stock market capitalisation to GDP ratio (*MCapgdp*) captures the size of the Nigerian stock market; value of trades of domestic stocks over GDP (*VTRgdp*) measures the liquidity of the stock market while turnover ratio (*Turn*) captures the efficiency of the stock market in resource allocation. Given that none of the indicators could be regarded as the best or overall measure of stock market development and the high correlation between the development indicators (see Table 2), a composite index is constructed from these indicators using principal component analysis (PCA). Principal component analysis (PCA) has commonly been used to address the problem of multicollinearity by reducing a large set of correlated variables into a smaller set of uncorrelated variables (see Stock & Watson, 2002), and has been widely employed in the construction of financial development indices in recent studies (see for instance Samargandi et al., 2014). Table 3 shows that the first principal component accounts for about 85% of the total variation in the three stock market indicators. *STMindex* is calculated as a linear combination of the three stock market indicators with weights given as the first eigenvector.

**Table 2. The correlation matrix**

Stock Market Development Indicators			
	<i>MCapgdp</i>	<i>VTRgdp</i>	<i>Turn</i>
<i>MCapgdp</i>	1.0000		
<i>VTRgdp</i>	0.9147	1.0000	
<i>Turn</i>	0.6262	0.7951	1.0000
Banking Sector Development Indicators			
	<i>CPSgdp</i>	<i>M2gdp</i>	<i>BAGdp</i>
<i>CPSgdp</i>	1.0000		
<i>M2gdp</i>	0.9290	1.0000	
<i>BAGdp</i>	0.8840	0.9743	1.0000

**Table 3. Eigenvalues, proportion and eigenvectors of each first principal component**

	STMindex	Bnkindex
Eigenvalues	2.5632	2.8587
Proportion	0.8544	0.9529
<b>Eigenvectors (Loadings)</b>		
<i>MCapgdp</i>	0.5755	
<i>VTRgdp</i>	0.6124	
<i>Turn</i>	0.5420	
<i>CPSgdp</i>		0.5678
<i>M2gdp</i>		0.5865
<i>BAGdp</i>		0.5775

Three indicators are used to measure banking sector development in Nigeria. The ratio of private credit to GDP (CPSgdp) captures the role of the banking sector in private sector activities; broad money (M2) over GDP (M2gdp) explains the ability of the banking sector to withstand unexpected demand for withdraw of deposits by customers (Ben Naceur et al., 2014), while the ratio of bank assets to GDP (BAGdp) measures the size of the banking sector. Table 2 shows that the three banking sector development indicators are highly correlated. Using principal component analysis (PCA), the banking sector development index (Bnkindex) is calculated as a linear combination of the three banking sector development indicators (CPSgdp, M2gdp and BAGdp) with weights given as the first eigenvector, capturing about 95% of the total variation in the three indicators (see Table 3).

## 2.2. Empirical methodology

To examine the independent effects of stock market and banking sector development on economic growth in Nigeria, this study considers the log-linear empirical model specified below:

$$\ln \text{RGDPC} = \alpha_0 + \alpha_1 \ln \text{SMD} + \alpha_2 \ln \text{BSD} + \alpha_3 \ln \text{OilP} + \alpha_4 \ln \text{trdopen} + e_t \quad (1)$$

where RGDPC is the real GDP per capita, SMD is the stock market indicators (STMindex, MCapgdp, VTRgdp and Turn), BSD is the banking sector development indicators (Bnkindex, CPSgdp, M2gdp, and BAGdp), Oilp is the international crude oil price, trdopen is the trade openness and  $e_t$  is the error term. The Autoregressive Distributed Lag or Bounds testing approach to cointegration (ARDL) proposed by Pesaran, Shin, and Smith (2001) is employed to investigate the cointegration relationship. The ARDL test provides valid results whether the variables are I(0) or I(1) or integrated of different order (I(0) and I(1)), and consistent test results in small and large sample sizes (see Pesaran et al., 2001). The use of annual data over the period 1981–2014 which gives small number of observations makes ARDL the preferred approach in this study. The ARDL model can be specified as:

$$\begin{aligned} \Delta \ln \text{RGDPC}_t = & \beta_0 + \sum_{i=1}^n \beta_{1i} \Delta \ln \text{RGDPC}_{t-i} + \sum_{i=0}^n \beta_{2i} \Delta \ln \text{STMD}_{1t-i} + \sum_{i=0}^n \beta_{3i} \Delta \ln \text{BSD}_{2t-i} + \sum_{i=0}^n \beta_{4i} \Delta \ln \text{Oilp}_{3t-i} \\ & + \sum_{i=0}^n \beta_{5i} \Delta \ln \text{trdopen}_{3t-i} + \beta_6 \ln \text{RGDPC}_{t-1} + \beta_7 \ln \text{STMD}_{1t-1} + \beta_8 \ln \text{BSD}_{2t-1} + \beta_9 \ln \text{Oilp}_{t-1} \\ & + \beta_9 \ln \text{trdopen}_{t-1} + \varepsilon_t \end{aligned} \quad (2)$$

where  $\Delta$  is the difference operator and  $\varepsilon_t$  the 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.

$H_0$ : no long-run relationship	$H_1$ : a long-run relationship
$\beta_6 = \beta_7 = \beta_8 = \beta_9 = \beta_{10} = 0$	$\beta_6 \neq \beta_7 \neq \beta_8 \neq \beta_9 \neq \beta_{10} \neq 0$

Given the relatively small sample size (34 observations) used in this study, the critical values for the evaluation of the null hypothesis are taken from Narayan (2005). Narayan (2005) computed two sets of critical values: lower bounds  $I(0)$  and upper bounds critical  $I(1)$  for sample sizes ranging from  $T = 30$  to 80. The decision to reject or accept  $H_0$  is based on the following conditions: If  $F$ -value  $>$  upper bound, then reject  $H_0$  and the variables are co-integrated, if  $F$ -value  $<$  lower bound, then accept  $H_0$  and the variables are not co-integrated, but if  $F$ -value  $\geq$  lower bound and  $\leq$  upper bound, then the decision is inconclusive.

The error correction model for the estimation of the short-run relationships is specified as:

$$\Delta \ln \text{RGDPC}_t = \beta_0 + \sum_{i=1}^n \beta_{1i} \Delta \ln \text{RGDPC}_{t-i} + \sum_{i=0}^n \beta_{2i} \Delta \ln \text{STMD}_{1t-i} + \sum_{i=0}^n \beta_{3i} \Delta \ln \text{BSD}_{2t-i} + \sum_{i=0}^n \beta_{4i} \Delta \ln \text{Oilp}_{3t-i} + \sum_{i=0}^n \beta_{5i} \Delta \ln \text{trdopen}_{3t-i} + \lambda_1 \text{ECM}_{t-1} + u_{1t} \quad (3)$$

A negative and significant  $\text{ECM}_{t-1}$  coefficient ( $\lambda_1$ ) implies that any short-term disequilibrium between the dependent and explanatory variables will converge back to the long-run equilibrium relationship.

### 3. Empirical results

Even though ARDL-bounds test does not require that all variables be integrated of the same order, it will not be applicable if an  $I(2)$  series exists in the model. It is, therefore, necessary to check the time-series properties of the data. The results of the augmented Dickey–Fuller (ADF) and Phillips–Perron (PP) unit root tests are presented in Table 4. The results in Table 4 show that all the variables are nonstationary in levels but stationary in first difference at 1% level of significance. Table 5 presents the results of the ARDL-bounds cointegration test.

**Table 4. ADF and PP unit root tests**

In level $I(0)$ First difference $I(1)$				
Variable	ADF	PP	ADF	PP
$\ln \text{RGDPC}$	0.5095	0.2298	−4.2629***	−4.2485***
$\ln \text{STMindex}$	−1.0746	−0.9896	−5.1550***	−5.1550***
$\ln \text{Bnkindex}$	−1.6065	−1.6640	−4.9554***	−4.9996***
$\ln \text{MCapgdp}$	−0.7541	−0.7541	−4.5257***	−4.4852***
$\ln \text{VTRgdp}$	−0.9347	−0.9855	−5.1428***	−5.1428***
$\ln \text{Turn}$	−1.7858	−1.7723	−6.1994***	−6.2582***
$\ln \text{CPSgdp}$	−1.4952	−1.4636	−5.6489***	−7.3461***
$\ln \text{M2gdp}$	−1.7727	−1.8605	−5.1454***	−5.3402***
$\ln \text{BAgdp}$	−1.6404	−1.7733	−4.8067***	−4.7525***
$\ln \text{Oilp}$	−0.3816	−0.3328	−4.4782***	−5.9236***
$\ln \text{trdopen}$	−0.8845	−1.9018	−7.4070***	−7.4070***

Notes: All the variables are in the natural log form.

\*\*\*Level of significance at 1%.

**Table 5. ARDL-bounds cointegration test**

Functions	F-statistic	Result
1. $F_{RGDPC}(RGDPC STMindex, Bnkindex, Oilp, trdopen) ARDL(1, 1, 0, 1, 1)$	3.7047*	Cointegration
2. $F_{RGDPC}(RGDPC STMindex, M2gdp, Oilp, trdopen) ARDL(1, 0, 1, 1, 1)$	4.5901**	Cointegration
3. $F_{RGDPC}(RGDPC MCapgdp, Bnkindex, Oilp, trdopen) ARDL(1, 0, 1, 1, 1)$	4.5317**	Cointegration
4. $F_{RGDPC}(RGDPC MCapgdp, CPSgdp, Oilp, trdopen) ARDL(1, 0, 1, 1, 1)$	4.2727**	Cointegration
5. $F_{RGDPC}(RGDPC MCapgdp, M2gdp, Oilp, trdopen) ARDL(1, 0, 1, 1, 1)$	4.4076**	Cointegration
6. $F_{RGDPC}(RGDPC VTRgdp, BAgdp, Oilp, trdopen) ARDL(1, 1, 0, 1, 1)$	4.0453*	Cointegration
7. $F_{RGDPC}(RGDPC Turn, M2gdp, Oilp, trdopen) ARDL(1, 1, 1, 1, 1)$	4.4829**	Cointegration
8. $F_{RGDPC}(RGDPC MCapgdp, BAgdp, Oilp, trdopen) ARDL(1, 0, 1, 1, 1)$	4.5354**	Cointegration
Critical value bounds	1% 5%	10%
I0 Bound	4.280 3.058	2.525
I1 Bound	5.840 4.223	3.560

Notes: Restricted intercept and no trend ( $k = 4$ ).

\*Level of significance at 10%.

\*\*Level of significance at 5%.

Source of critical values: Narayan (2005) Appendix: Case II.

**Table 6. Long-run coefficients**

	1	2	3	4	5	6	7	8
<b>C</b>	<b>11.2234***</b>	<b>10.8862***</b>	<b>11.1078***</b>	<b>10.9705***</b>	<b>11.0302***</b>	<b>11.3278***</b>	<b>10.8427***</b>	<b>11.1575***</b>
	[39.6138]	[38.9647]	[36.1669]	[39.4446]	[36.4707]	[38.5499]	[43.5084]	[38.1201]
<b>lnSTMindex</b>	<b>0.0794</b>	<b>0.0273</b>						
	[1.5323]	[0.7234]						
<b>lnMCapgdp</b>			<b>0.0535</b>	<b>0.0427</b>	<b>0.0426</b>			<b>0.0598</b>
			[1.3239]	[1.0657]	[1.1191]			[1.4376]
<b>lnVTRgdp</b>						<b>0.0403</b>		
						[1.6790]		
<b>lnTurn</b>							<b>0.0243</b>	
							[0.7862]	
<b>lnBnkindex</b>	<b>-0.1185</b>		<b>-0.0385</b>					
	[-1.4726]		[-0.6202]					
<b>lnCPSgdp</b>				<b>0.0042</b>				
				[0.0620]				
<b>lnM2gdp</b>		<b>-0.0184</b>			<b>-0.0229</b>		<b>-0.0414</b>	
		[0.2424]			[-0.3342]		[-0.5102]	
<b>lnBAgdp</b>						<b>-0.1098*</b>		<b>-0.0460</b>
						[-1.7326]		[-0.8698]
<b>lnOilp</b>	<b>0.3548***</b>	<b>0.3630***</b>	<b>0.3416***</b>	<b>0.3372***</b>	<b>0.3440***</b>	<b>0.3551***</b>	<b>0.3784***</b>	<b>0.3364***</b>
	[9.2868]	[10.0628]	[8.1607]	[6.9976]	[8.4603]	[10.8736]	[12.5679]	[8.0453]
<b>lntrdopen</b>	<b>0.0400</b>	<b>0.0560</b>	<b>0.0240</b>	<b>0.0328</b>	<b>0.0300</b>	<b>0.0520</b>	<b>0.0750</b>	<b>0.0166</b>
	[0.7960]	[1.0805]	[0.4452]	[0.5824]	[0.5592]	[1.0897]	[1.3674]	[0.3081]

Note: t-statistics in [ ].

\*Level of significance at 10%.

\*\*\*Level of significance at 1%.



To establish the robustness of this empirical study, we tested for cointegration on eight alternative specifications, combining various indicators of stock market and banking sector development. Given the relative small sample size (34 observations) used in this study, we use the critical values from Narayan (2005). The results in Table 5 show that the *F*-statistics is greater than the upper critical bounds at 5% level of significance for specifications 2, 3, 4, 5, 7 and 8. For specifications 1 and 6, the *F*-statistics is greater than the upper critical bound at 10% level of significance. We thus reject the null hypothesis of no long-run relationship between the variables and accept that a causal long-run relationship exists between stock market development, banking sector development, crude oil price, trade openness and economic growth in Nigeria.

The estimates of long-run coefficients of the eight ARDL specifications are presented in Table 6. The results show that in all the eight specifications, the long-run coefficient of stock market development is positive but insignificant. On the other hand, the coefficient of banking sector development is negative but however insignificant in seven of the eight specifications. The positive coefficient of

**Table 7. Short-run error correction estimates**

	1	2	3	4	5	6	7	8
ECM(-1)	<b>-0.6622***</b>	<b>-0.6812***</b>	<b>-0.6696***</b>	<b>-0.6461***</b>	<b>-0.6866***</b>	<b>-0.6698***</b>	<b>-0.6634***</b>	<b>-0.6644***</b>
	[-5.7138]	[-5.5366]	[-5.4985]	[-5.3099]	[-5.4008]	[-6.0222]	[-5.7223]	[-5.4880]
$\Delta \ln STIndex$	<b>-0.0031</b>	<b>-0.0063</b>						
	[-0.1049]	[-0.2158]						
$\Delta \ln MCapgdp$			<b>0.0279</b>	<b>0.0254</b>	<b>0.0221</b>			<b>0.0312</b>
			[0.8726]	[0.8007]	[0.7014]			[0.9577]
$\Delta \ln VTRgdp$						<b>-0.0087</b>		
						[-0.5896]		
$\Delta \ln Turn$							<b>-0.0140</b>	
							[-0.8075]	
$\Delta \ln Bnkindex$	<b>-0.1163**</b>		<b>-0.0915**</b>					
	[-2.5339]		[-2.0931]					
$\Delta \ln CPSgdp$				<b>-0.0588</b>				
				[-1.5885]				
$\Delta \ln M2gdp$		<b>-0.0880*</b>			<b>-0.0948*</b>		<b>-0.0949*</b>	
		[-1.7857]			[-1.9292]		[-1.9134]	
$\Delta \ln BAgdp$						<b>-0.0976**</b>		-0.0805**
						[-2.4756]		[-2.0431]
$\Delta \ln Oilp$	<b>0.1243***</b>	<b>0.1372***</b>	<b>0.1321***</b>	<b>0.1337***</b>	<b>0.1328***</b>	<b>0.1338***</b>	<b>0.1366***</b>	<b>0.1369***</b>
	[3.8422]	[4.1217]	[4.0037]	[4.0228]	[3.9616]	[4.2739]	[4.1561]	[4.1776]
$\Delta \ln trdopen$	<b>-0.0782**</b>	<b>-0.0632*</b>	<b>-0.0746**</b>	<b>-0.0709**</b>	<b>-0.0714**</b>	<b>-0.0729**</b>	<b>-0.0645*</b>	<b>-0.0774**</b>
	[-2.5226]	[-1.9942]	[-2.3988]	[-2.2356]	[-2.2755]	[-2.3825]	[-2.0254]	[-2.4891]
<b>Diagnostic tests</b>								
Adj R <sup>2</sup>	0.9662	0.9656	0.9669	0.9659	0.9666	0.9681	0.9658	0.9669
SC x2(1)	1.2753(0.1879)	1.3713(0.1730)	0.8331(0.2828)	1.1388(0.2121)	1.2354(0.1946)	1.6663(0.1354)	1.7541(0.1185)	0.7613(0.3038)
Hetx2(1)	0.4206(0.5059)	0.6938(0.3951)	0.7024(0.3922)	0.4411(0.4959)	0.9474(0.3223)	0.2517(0.6059)	0.2204(0.6290)	0.6911(0.3960)
RESET	0.0384(0.8463)	0.0022(0.9631)	0.0205(0.8873)	0.2135(0.6484)	0.0397(0.8438)	0.0135(0.9084)	0.0381(0.8470)	0.0001(0.9930)

Notes: Adj. R<sup>2</sup> means Adjusted R-squared. SC is the Breusch–Godfrey serial correlation LM test. Het is the ARCH test for heteroscedasticity, RESET is the Ramsey RESET test; t-statistics in [], p-values in ().

\*Level of significance at 10%.

\*\*Level of significance at 5%.

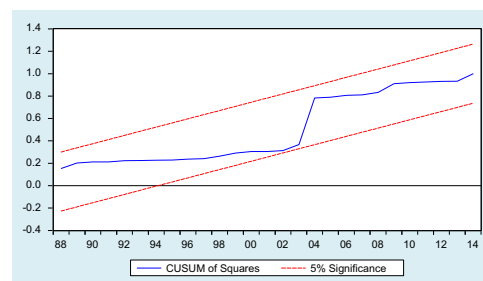
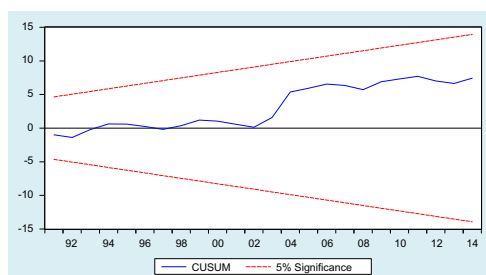
\*\*\*Level of significance at 1%.



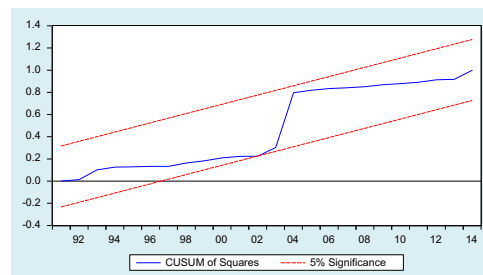
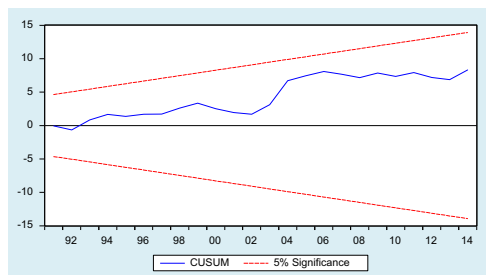
banking sector development in specification 4 is highly insignificant. Among the two control variables, crude oil price is found to be the key driver of long-term economic growth in Nigeria. The coefficient of crude oil price is positive and significant in all the eight specifications at 1% level. From the results, a 1% increase in the international crude oil price will cause the level of economic growth to increase by over 0.33%, while a 1% decrease will cause the level of economic growth to decrease by the same margin (0.33%). In general, the long-run coefficients indicate the dominant role of crude oil in Nigeria and the inability of the Nigerian financial sector in stimulating economic growth through resource mobilisation and allocation.

The short-run error correction estimates are presented in Table 7. The coefficients of the ECM (−1) is negative and significant at 1% level. The coefficients indicate that a deviation from the long-run equilibrium as a result of a short-run shock is adjusted at a speed of over 60% each year. Specifications 1, 2, 6 and 7 suggest that the short-run effect of stock market development on economic growth is negative and highly insignificant. Specifications 3, 4, 5 and 8 however show highly insignificant positive coefficients using the ratio of stock market size to GDP (MCapgdp) as a measure of stock market development in Nigeria. Overall, the short-run effect of stock market development on economic growth in Nigeria is found to be highly insignificant. The coefficient of banking sector development is found to be negative in all the specifications and significant at 10% level in seven of the eight specifications (1, 2, 3, 5, 6, 7 and 8). The results show that the short-run coefficient of crude oil price is significant at 1% level in all the eight specifications. Surprisingly, the short-run coefficient of trade openness is negative and statistically significant at 5% level in specifications 1, 3, 4, 5, 6 and 8 and at 10% level in specifications 2 and 7. The short-run results in general confirm the dominant

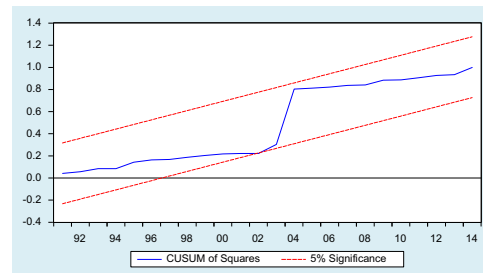
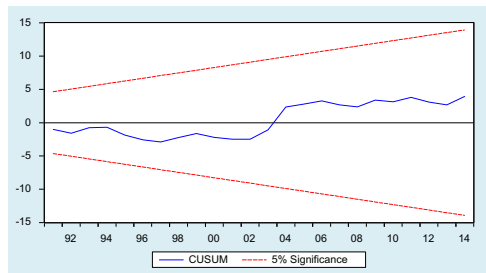
**Figure 1. Plot of CUSUM and CUSUMSQ for coefficient stability of ECM specification 1.**



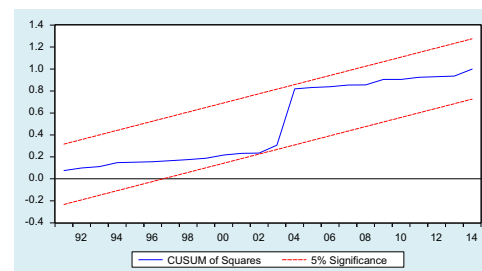
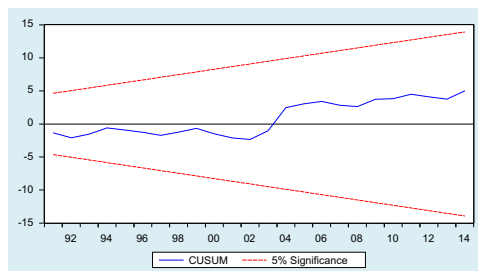
**Figure 2. Plot of CUSUM and CUSUMSQ for coefficient stability of ECM specification 2.**



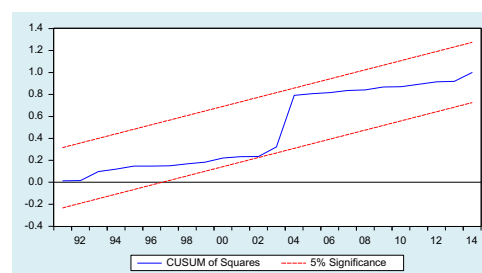
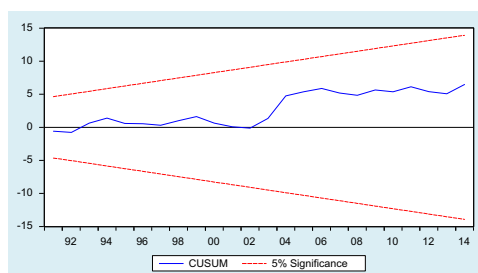
**Figure 3. Plot of CUSUM and CUSUMSQ for coefficient stability of ECM specification 3.**



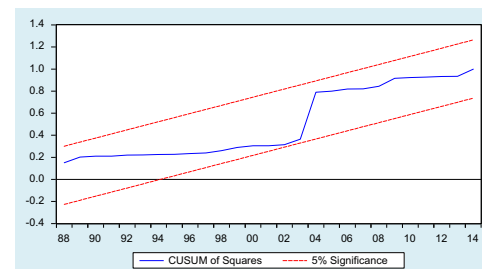
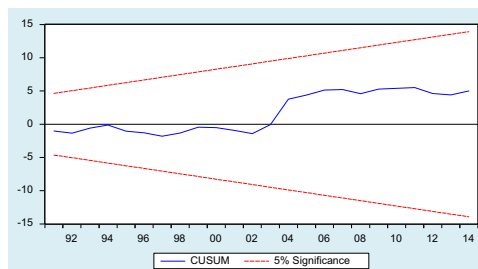
**Figure 4. Plot of CUSUM and CUSUMSQ for coefficient stability of ECM specification 4.**



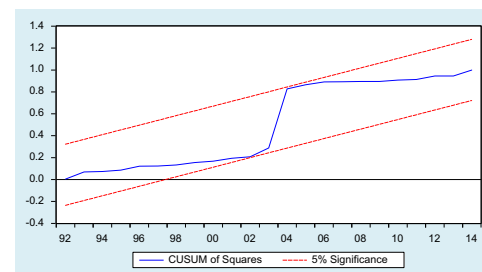
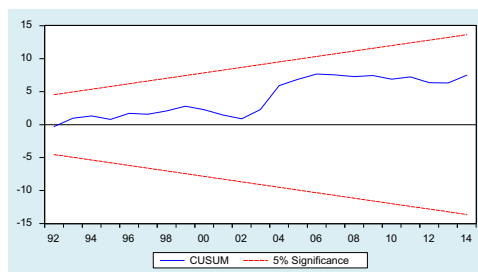
**Figure 5. Plot of CUSUM and CUSUMSQ for coefficient stability of ECM specification 5.**



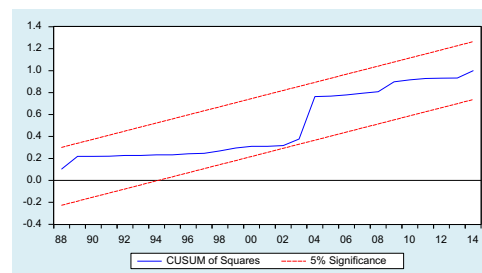
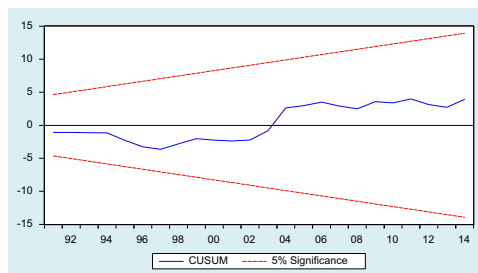
**Figure 6. Plot of CUSUM and CUSUMSQ for coefficient stability of ECM specification 6.**



**Figure 7. Plot of CUSUM and CUSUMSQ for coefficient stability of ECM specification 7.**



**Figure 8. Plot of CUSUM and CUSUMSQ for coefficient stability of ECM specification 8.**



influence of crude oil price on economic activities in Nigeria and the weakness of the Nigerian financial sector in promoting economic growth through resource mobilisation and allocation.

The diagnostic tests results in Table 7 show that there is no evidence of serial correlation, heteroscedasticity and functional form misspecification in each of the ARDL models specified. In Figures 1–8, the cumulative sum of recursive residuals (CUSUM) and the cumulative sum of squares (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.

### 3. Conclusion

Controlling for the influence of crude oil price and trade openness on economic growth in Nigeria, this study examines the independent effects of stock market and banking sector development on economic growth in Nigeria using the autoregressive distributed lag (ARDL) approach to cointegration analysis over the period 1981–2014. The results suggest that both stock market and banking sector development are not significant drivers of economic growth in Nigeria. The results are similar to what Naceur and Ghazouani (2007) documented for the Middle East and North Africa (MENA) region but deviates from what Barajas et al., 2013 and Kurronen (2015) predicted on the role of stock market development on economic performance of oil-exporting countries. The results highlight the special case of developing oil-exporting countries: economic activities are significantly driven by the oil sector.

The results of this study show that there is every need to enhance resource mobilisation and allocation efficiency in the financial sector in Nigeria. Such objective would require putting in place appropriate policy and institutional frameworks including regulatory, supervisory and legal frameworks. The high dependence of the Nigeria economy on crude oil suggests that the economy will be significantly exposed to shocks in crude oil prices in the international crude oil market. Developing the financial sector could stimulate economic activities in other sectors of the economy given the relationship between the private sector and the financial sector and lessen the degree of exposure of the economy to fluctuations in crude oil prices.

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