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Banking Consolidation and Economic Growth in Nigeria: Dynamic Chain Transmission Evidence

Yahaya Yakubu
Department of Economics, Faculty of Social and Management Sciences, Bauchi State University, Gadau, Nigeria

Abstract: *The wave of banking consolidation has risen high in recent years under the premise that increase in banks' capital base will increase their capacity to fund entrepreneurial investment opportunity, particularly in developing countries,. Hence, banking consolidation has become synonymous with economic growth. However, some studies have revealed that the general financial reform and sequential capitalization of the Nigeria's banking sector in particular, has only marginal or no impact on the economic growth, which is contrary to its objective. This paper investigates the effect of the Nigerian banking consolidation on the country's Economic Growth. The study uses Modified Wald (MWALD) test of granger causality on variables, Consolidation – Banking Sector's Assets (BAS), Ratio of Loans to Deposits (LD), Loans and Advances (LAD), Lending Rate (LR) and Gross Domestic Products (GDP). Data are from 1980 to 2010. The findings of this study reveal unidirectional causality from LD and LAD to GDP, from BAS to LAD and from LR to LD. This indicates that banking consolidation causes economic growth through loans and advances made by the banks, as expected. However, interest rate does not cause loans and advances, raising the question of whether or not they are channeled into productive investment in the real sector.*

Keywords: *Banking Sector, Banking Reform, Capital Base, Consolidation, Economic Growth.*

I. Introduction

The relevance of banking sector to an economy cannot be overemphasized. Though a subset of the financial system, it forms a major component of the system, particularly in situation where other aspects of the system are undeveloped. [1] categorizes the financial system into three components, these are financial intermediaries (Banks and insurance companies), financial assets market and infrastructural components; which interact for the effective functioning of the system. The banking sector is seen as fund pipe through which funds are channeled from the surplus spending unit to the deficit spending unit. Through this mechanism, funds are made available to investors for productive investment and hence economic growth. [2] in his concept of innovative financing sees the financial sector's functions as mobilizing resources from the traditional sector where they are kept idle to the modern sector where they are being invested productively, and secondly, stimulating the entrepreneurial response in the modern sector.

The Schumpeter's view of financial system is reflected in [3] supply – leading hypothesis which postulates that financial development leads to economic growth, explicit in the supply-leading hypothesis is financial sector reforms. Thus, for financial development to be able to perform the two primary functions in the Schumpeter's concept of innovative financing efficiently, monetary authorities must enshrine into the system, economic policies which not only aimed to promote growth but also capable of instilling confidence into the public concerning the system. Only under this condition the public could save, for example in the banks, and investors could rely upon for funding their entrepreneurial ideas. However, the intervention of the monetary authorities must not be in the form of repression and restrictive measures that could hinder financial development. Repressive measure such as interest rate regulation and credit control impede financial development, thereby retards growths [4]. Interest rate and credit supply should be left to be determined by market mechanism for efficient mobilization and allocation of funds.

The banking sector being a component of the financial system has witnessed reforms in the form of consolidation and interest rate liberalization particularly in developing countries in order to reap the growth benefits of allowing free market mechanism to determine the operation of the system [5]. Nigeria as one of the emerging economy has aimed at financial reform regularly [6]. The reform process in the banking sector recorded a giant stride in 2004 when the last consolidation exercise was lunched, aimed at recapitalizing the capital base of each bank from about $15 million to $192 million. This saw a merger and acquisition exercise among the banks from which the number of the banks plummeted to 25 from 89. The whole exercise was to strengthen the financial sector in order to support domestic credit to investors [7]. The starting point of consolidation and capitalization in the Nigerian banking sector dated back to 1958 when the Central bank of Nigeria (CBN) was established. Then, the banking sector was recapitalized to the tune of $480,000 and

subsequent recapitalizations until the celebrated 2004 stride [8]. The reforms were to solidify and position the banking sector to stir development across the various sectors of the economy [1]. However, some studies have revealed that the reforms have not improved the performance of the sector in promoting economic growth. It is against this background we study the transmissional chain through which the consolidation could impact on economic growth.

II. Literature Review

[9] studied the effect of the financial sector's reforms on Nigeria's economic growth using financial variables such as investment, loans and advances, credit to private sector and lending rate, and reveals negative and significant relationship between investment and GDP, loans and advances and GDP. However, positive relationship was established between credit to private sector, lending rate and GDP, but only significant in the case of credit allocation to private sector. Though, the loans and advances compose the credit allocation to private sector, this outcome could raise the suspicion of whether the loans and advances, and investment are channeled into productive investment. The finding on the insignificance of interest rate on the economic growth was buttress by a related study by [8] which shows that interest rate reform policies in Nigeria have insignificant effect on the banking sector's general performance, thus, its contribution to economic growth was marginal. [8] further identified the banking consolidation in developing and emerging economy to have only impacted on the structure of the banks while its effect on the banks' performance remains indiscernible due to government preference on consolidation over market mechanism – deregulation of interest rate which spurs growth. Financial liberalization in Nigeria has not succeeded in its objective of enshrining the market driven interest rate due systematic regulation of interest rate by the government. The Nigerian Bankers' committee faces pressure from the government to keep the spread between deposit and lending rate at fixed [5].

[10] reveals that the overall banking sector's performance improvement as a result of consolidation was insignificant, hence, resulted in little contribution to economic growth; he therefore concluded that further consolidation is not likely to create financial stability and growth. This finding is in line with [8]. [11] found that financial indicators when given shocks in a Vector Autoregressive (VAR) system present negative or marginal impact on savings, investment and growth, hence resolved that the reform has not really impacted on the performance of the Nigerian economy. In contrast however, [12] reveals that the last consolidation exercise in 2004 has raised the aggregate deposit liabilities of the banks to about 93.5%, capital base from $3 billion to $5.9 billion which led to nearly $3 billion new investment mostly in the non-oil sector of the economy and rose the lending to private sector. This culminated to the non-oil sector's growth of 8.5% in 2005.

The findings on the insignificance of the reform on the banking performance and the economy as a whole could be as a result of the systematic regulation of the lending rate by the government. [5] noted that the reason why financial liberalization has failed to set a market determined interest rate is because of government implicit intervention through pressurizing the Nigerian Bankers' Committee to maintain a fixed spread between deposit and lending rate. The Central Bank of Nigeria sets a maximum lending rate as well as the minimum deposit rate and systematically regulates the spread. [1] reveals that the reforms in the Nigerian banking sector have succeeded in moderating the spread between the lending and deposit rates, from 12.2% at in 2010 to 9.7% at the end of December, 2011. Such interference with the interest rate to keep it at lower level discourages the mobilization and allocation of funds which consequently slow down economic growth [4] & [13]. Hence, the expected positive effect of consolidation can be impeded.

III. Methodology

Data used in this study are annual time series data from 1980 to 2010. Data were sourced from the 2010 Central Bank of Nigeria (CBN) Statistical Bulletin[1]. We selected the banking variables through which we reasonably believe funds interact within and relate to economic growth. Our variables are consolidation variable proxied by Bank Assets (BAS) – because consolidation or recapitalization is funds raised not through deposit but shareholding and tied up to asset -, Ratio of Loans to Deposits (LD), Loans and Advances (LAD), Lending Rate (LR) and Economic Growth proxied by Gross Domestic Products (GDP).

The study employed the Modified Wald test of granger causality developed by [14] to test the dynamic causal relationship between these variables in order to determine the direct or indirect relationship between consolidation (BAS) and economic growth (GDP). The modified Wald test is an improved granger causality test. Causality is one of the methods employed in the interpretation of Vector Autoregression (VAR) model which originated from the work of [15] and pioneered by [16]. The VAR system shows the correlations among variables and analyzes the dynamic relationship between the variables. The choice of MWALD is informed by its ability to circumvent the integration of all the process at first difference order, I (1) and cointegration

[1] http://www.cenbank.org/OUT/2011/publications/statistics/2010/index.html (accessed January, 2015)

properties of the traditional granger causality test which is surrounded by the uncertainty associated with the unit roots test due to lack of power of the tests [17] & [14].

In conducting the MWALD test for granger causality, though avoids unit roots pre-testing biases, it however requires the determination of the maximum possible order of the integration of the underlying variables (d_{max}). The variables could be a mixture of I (0), I (1) and I (2), in such situation, $d_{max} = 2$. The determination of the optimal lag length (k) for the VAR model is very important because greater or less than the true lag leads to inefficient and biased estimates. It therefore leads to accepting the null hypothesis when it should be rejected or rejecting when it should not [18]. Once d_{max} and k are appropriately identified, a level VAR model of order ($k + d_{max}$) is estimated and zero restrictions test is conducted on lagged coefficients of the regressors up to lag k. This process ensures that the Wald test statistics has an asymptotically chi-square (x^2) distribution whose critical values can be used to draw a valid inference and conclusion [14].

In view of the obviation of the integration and cointegration properties of the granger causality Wald test by the MWALD tests, we choose `to use the [14]'s MWALD test for the zero restrictions test on the coefficients of the lagged values of our regressors. We therefore estimated the following level VAR models up to lag (k+dm):

$$\mathrm{lnGDP_t} = \alpha_1 + \sum_{i=1}^{k+dm} \pi_{1i}\,\mathrm{lnGDP_{t-i}} + \sum_{i=1}^{k+dm} \delta_{1i}\,\mathrm{lnLAD_{t-i}} + \sum_{i=1}^{k+dm} \theta_{1i}\,\mathrm{lnLD_{t-i}} + \sum_{i=1}^{k+dm} \varphi_{1i}\,\mathrm{lnBAS_{t-i}} + \sum_{i=1}^{k+dm} \gamma_{1i}\,\mathrm{lnLR_{t-i}} + \mu_{1t} \quad \ldots\ldots (1)$$

$$\mathrm{lnLAD_t} = \alpha_2 + \sum_{i=1}^{k+dm} \pi_{2i}\,\mathrm{lnLAD_{t-i}} + \sum_{i=1}^{k+dm} \delta_{2i}\,\mathrm{lnGDP_{t-i}} + \sum_{i=1}^{k+dm} \theta_{2i}\,\mathrm{lnLD_{t-i}} + \sum_{i=1}^{k+dm} \varphi_{2i}\,\mathrm{lnBAS_{t-i}} + \sum_{i=1}^{k+dm} \gamma_{2i}\,\mathrm{lnLR_{t-i}} + \mu_{2t} \quad \ldots\ldots (2)$$

$$\mathrm{lnLD_t} = \alpha_3 + \sum_{i=1}^{k+dm} \pi_{3i}\,\mathrm{lnLD_{t-i}} + \sum_{i=1}^{k+dm} \delta_{3i}\,\mathrm{lnGDP_{t-i}} + \sum_{i=1}^{k+dm} \theta_{3i}\,\mathrm{lnLAD_{t-i}} + \sum_{i=1}^{k+dm} \varphi_{3i}\,\mathrm{lnBAS_{t-i}} + \sum_{i=1}^{k+dm} \gamma_{3i}\,\mathrm{lnLR_{t-i}} + \mu_{3t} \quad \ldots\ldots (3)$$

$$\mathrm{lnBAS_t} = \alpha_4 + \sum_{i=1}^{k+dm} \pi_{4i}\,\mathrm{lnBAS_{t-i}} + \sum_{i=1}^{k+dm} \delta_{4i}\,\mathrm{lnGDP_{t-i}} + \sum_{i=1}^{k+dm} \theta_{4i}\,\mathrm{lnLAD_{t-i}} + \sum_{i=1}^{k+dm} \varphi_{4i}\,\mathrm{lnLD_{t-i}} + \sum_{i=1}^{k+dm} \gamma_{4i}\,\mathrm{lnLR_{t-i}} + \mu_{4t} \quad \ldots\ldots (4)$$

$$\mathrm{lnLR_t} = \alpha_5 + \sum_{i=1}^{k+dm} \pi_{5i}\,\mathrm{lnLR_{t-i}} + \sum_{i=1}^{k+dm} \delta_{5i}\,\mathrm{lnGDP_{t-i}} + \sum_{i=1}^{k+dm} \theta_{5i}\,\mathrm{lnLAD_{t-i}} + \sum_{i=1}^{k+dm} \varphi_{5i}\,\mathrm{lnLD_{t-i}} + \sum_{i=1}^{k+dm} \gamma_{4i}\,\mathrm{lnBAS_{t-i}} + \mu_{4t} \quad \ldots\ldots (5)$$

For each of the equations, we test the following hypothesis

$H_0: \pi_i = 0, \delta_i = 0, \theta_i = 0, \varphi_i = 0, \gamma_i = 0$ and $\pi_i = \delta_i = \theta_i = \varphi_i = \gamma_i = 0$ (no causality)

$H_1: \pi_i \neq 0, \delta_i \neq 0, \theta_i \neq 0, \varphi_i \neq 0, \gamma_i \neq 0$ and $\pi_i \neq \delta_i \neq \theta_i \neq \varphi_i \neq \gamma_i \neq 0$ (causality exists)

Where;

$i = 1 \ldots\ldots\ldots k$

IV. Empirical Results And Analysis

Table 1 presents the stationarity test. We use the Augmented Dickey-Fuller (ADF) to determine the possible maximum order of integration of the process. The result identified I (1) as the maximum order of integration.

Table 1: Stationarity Test

Augmented Dickey – Fuller

Series	Intercept	Intercept and Trend
LGDP	-4.690***	-13.532***
LLAD	0.879	-2.093
LLD	-2.846*	-2.819
LBAS	1.178	-2.447
LLR	-2.801*	-2.587
ΔLGDP	-3.988***	-4.146**
ΔLLAD	-3.623**	-4.107**
ΔLLD	-5.091***	-5.127***
ΔLBAS	-3.183**	-3.239*
ΔLLR	-4.834***	-5.174***

Note: The critical values for intercept (and trend) at 1%, 5% and 10% are -3.69 (-4.32), -2.97 (-3.58) and -2.63 (-3.23) respectively. Figures in parenthesis are the respective probability values. *, ** and *** represent 10%, 5% and 1% level of significance respectively. Δ denotes at first difference.

To determine the optimal lag length for the VAR system, we use the Akaike Information Criterion (AIC), Schwarz Information Criterion (SIC), Hannan – Quinn Information Criterion (HQC) and Sequential Modified LR test statistics (at 5% level) (LR) selection criteria and from the results in Table 2, we reliably conclude on lag 1 to be the optimal lag length for the system.

Table 2: VAR Lag Order Selection Criteria

Lag	LR	AIC	SIC	HQC
1	**216.149***	-7.873	**-6.446***	**-7.437***
2	26.026	-7.618	-5.001	-6.818
3	28.259	**-8.188***	-4.381	-7.024

Note: * indicates optimal lag order selected by the respective criteria. AIC: Akaike Information Criterion, SIC: Schwarz Information Criterion, HQC: Hannan – Quinn Information Criterion, LR: Sequential Modified LR test statistics (at 5% level)

Our VAR system to be estimated is therefore VAR (k+dm), where k=1 and d_{max}=1. However, for the reliability of our VAR system we undertook various diagnostic tests in order to avoid gross violation of the classical regression model assumptions. Table 3 shows that our VAR system is not far from the true model and dynamically stable as depicted in Fig. 1 where all the inverse roots of the AR polynomial lies inside the unit circle. A true model is that which satisfies all the assumptions of the classical regression model [19].

Table 3: Diagnostic Tests

Dep. Var.	LM [2]	LM [4]	HET	RR	JB
LGDP	0.836	6.978	14.693	0.343	0.536
	[0.656]	[0.137]	[0.144]	[0.736]	[0.765]
LLAD	0.683	0.888	6.208	1.608	98.630***
	[0.711]	[0.926]	[0.798]	[0.126]	[0.000]
LLD	2.451	16.971***	8.096	2.423***	1.099
	[0.294]	[0.002]	[0.619]	[0.027]	[0.577]
LBAS	1.589	15.006***	8.766	2.332**	0.500
	[0.452]	[0.005]	[0.554]	[0.032]	[0.779]
LLR	6.205**	6.289	10.179	2.025*	0.166
	[0.045]	[0.179]	[0.425]	[0.059]	[0.920]

Note: Figures in parenthesis are the probability values of the respective tests. *, ** and *** denote significance at 10%, 5% and 1% level. LM[2] and LM[4] are Breusch – Godfrey Residual Serial Correlation Test of order 2 and 4 respectively. HET: Breusch – Pagan – Godfrey Heteroskedasticity test. RR: Ramsey RESET Test of misspecification. JB: Jarque – Bera normality test

In addition, the residual of the overall system is free from autocorrelation up to lag 5 as revealed in Table 4. This shows that we could choose the lag length for the VAR system up to lag 5, however, when we increase the lag more than the presently chosen lag, the individual models deviate more from the true model. Hence, lag 1 remains more reliable.

Table 4: VAR Residual Serial Correlation LM test

Lags	LM – Stat	P – value
1	26.36402	0.3884
2	22.53801	0.6045
3	25.19866	0.4513
4	23.92227	0.5239
5	28.53510	0.2838

Note: LM is the langrage multiplier test for autocorrelation

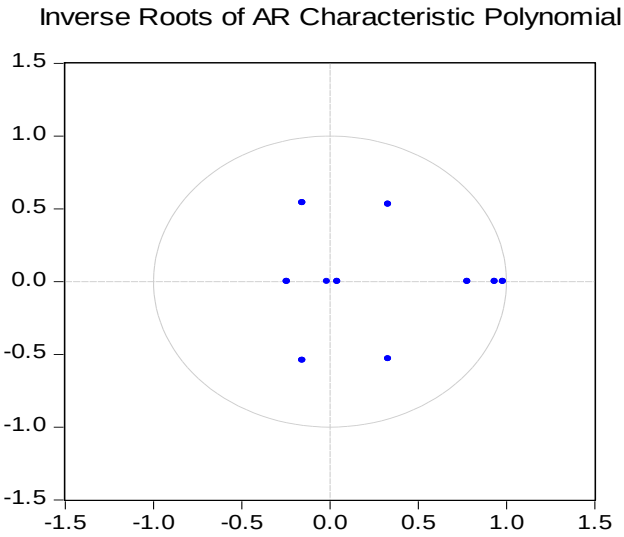

Figure 1: inverse roots of AR characteristics polynomial

Table 5 presents the MWALD test for granger causality for all the equations. The results show that unidirectional causality run from loans and advances (LAD) and ratio of loans to deposits (LD) to GDP in (1). Though consolidation variable (BAS) do not cause GDP, however, all the lagged coefficients of the regressors are jointly significant in influencing GDP. It is therefore necessary that for any reforms in the banking sector to promote economic growth, reforms policies must be completed on all the regressors in (1). Our result in (2) shows an interesting outcome where the consolidation variable (BAS) is found to cause loans and advances. This reveals that consolidation indirectly leads to economic growth through LAD, thus, studies on impact of consolidation on economic growth should consider the effect of LAD.

Table 5: MWALD Test of Granger Causality

Origin of Causality	**X^2 [MWALD]**	**P – Value**
Dependent Variable: LGDP		
LLAD	4.114	0.043**
LLD	3.653	0.056*
LBAS	0.615	0.433
LLR	0.184	0.668
ALL	7.996	0.092*

Dependent Variable: LLAD		
LGDP	0.073	0.787
LLD	0.100	0.752
LBAS	5.855	0.016**
LLR	0.970	0.325
ALL	9.139	0.058*

Dependent Variable: LLD		
LGDP	0.093	0.761
LLAD	0.085	0.771
LBAS	0.133	0.715
LLR	10.869	0.001***
ALL	19.293	0.000***

Dependent Variable: LBAS		
LGDP	1.453	0.228
LLAD	0.098	0.755
LLD	1.788	0.181
LLR	0.911	0.340
ALL	4.073	0.396

Dependent Variable: LLR		
LGDP	0.021	0.884
LLAD	0.172	0.679
LLD	1.107	0.293
LBAS	0.743	0.389
ALL	1.421	0.841

Note: ALL refers to combine causality of all the variables. ***, ** and * denote significance at 1%, 5% and 10% level respectively.

Additionally, (2) reveals that all the regressors are jointly significant in influencing LAD. Thus, for loans and advances to be available and demanded for investment funding, not only consolidation is required, economic growth must provide the favorable environment for investment to flourish and interest rate must be allowed to be determined by the market forces. A critical result in this equation is the non-influential of lending rate on loans and advances. Though jointly, lending rate and other variables in the equation are significant in influencing LAD, however, it raises theoretical question. The fact that capitalization in the consolidation variable comes from shareholding, it could be possible that the banks engage in other trading activities due to the indirect regulation of lending rate. The monetary authorities in Nigeria set interest rate ceiling and other policies to achieve specific aims [9]. With such regulation by the monetary authorities, the banks could opt to engage in foreign exchange and proprietary trading.

The lending rate is a causal factor to the ratio of loans to deposits as shown in the result for (3). This indicates that the proportion of deposits received, which the banks are ready to lend out depends on their profit margin – spread between the lending rate and deposits rate. A systematic regulation of interest rate through fixing the maximum lending rate is therefore detrimental to the economy because funds will not be made available by the banks [4]. But if market mechanism is allowed to determine the rates when the economy is made investment friendly, funds will be mobilized and allocated efficiently based on the market forces of supply of and demand for funds. Similar to (2), all the regressors are jointly significant for the increase in the ratio of loans to deposits.

In (4) and (5) where consolidation variable and lending rate are made dependent variable respectively, no causality exists from the regressors. However these variables are found to be significantly necessary in a reform process that is meant to promote economic growth as can be seen in the results for (1) to (3).

V. Conclusion

As an improvement on previous studies that reveal insignificant and negative impact of the banking sector's reforms in Nigeria, in the form of recapitalization or consolidation, on economic growth, this study shows the dynamism through which consolidation affect economic growth. However, for sustainable and real growth, interest rate must be freed from interventionism as noted by [4], [13] & [20]. The study proxied consolidation with banking sector's asset (BAS) and uses the Modified Wald (MWALD) test of granger causality to identify its relationship with other banking sector's transmissionary variables such as the ratio of loans to deposits (LD), loans and advances (LAD), lending rate (LR) and how they all relate to economic growth (GDP). Data used in this study are from 1980 to 2010.

The findings of this study reveal unidirectional causality from LD and LAD to GDP, from BAS to LAD and from LR to LD. This indicates that banking consolidation causes economic growth through loans and advances made by the banks, as expected. The policy implication of this study is that, though consolidation indirectly leads to growth, banking reform must not be restricted to only consolidation but complete deregulation of interest rate. For the stimulation of LD and LAD, interest rate should not be systematically regulated as obtainable in Nigeria.

References

[1]. S. L. Sanusi, Banking Reform and Its Impact on the Nigerian Economy. Paper presented at the University of Warwick's Economic Summit, 2012, Warwick.

[2]. J. A. Schumpeter, The theory of economic development. Transaction Publishers, 1961.http://books.google.com.my/books?id=7p9fwYiDR20C&dq=Schumpeter,+1912+The+Theory+of+Economic+Development&lr

[3]. H. T. Patrick, Financial Development and Economic Growth in Underdeveloped Countries. Economic Development and Cultural Change, Chicago Journals 14 (2), 1966, 174–189.

[4]. R. I. McKinnon, Money and capital in economic development. Washington DC: Brookings Institution Press, 1973. http://books.google.com.my/books?hl=en&lr=&id=erOVlDIY1jEC&oi=fnd&pg=PA1&dq=McKinnon,+1973&ots

[5]. O. F. Ayadi and L. Hyman, Financial Liberalization and Price Rigidity in the Nigerian Banking System. Emerald Group Publishing Limited 32 (7), 2006, 557–568. doi:10.1108/03074350610671557.

[6]. O. I. Imala, Challenges of banking sector reforms and bank consolidation in Nigeria. Central Bank Nigeria Bullion 29(2), 2005, 25-36.

[7]. N. Okonjo-Iweala and P. Osafo-kwaako, Nigeria's Economic Reforms: Progress and Challenges. The Brookings Global Economy and Development Working Paper #6, 2007

[8]. N. Enyioko, Impact of Interest Rate Policy and Performance of DepositMoney Banks in Nigerian. Global Journal of Management and Business Research 12 (21), 2012, 23-30

[9]. A. E. Omankhanlen, The Financial Sector Reforms and Their Effects on the Nigerian Economy. Economy Transdisciplinarity Cognition Journal 15 (2), 2012, 45–57.

[10]. R. C. O. Somoye, The Performances of Commercial Banks in Post-Consolidation Period in Nigeria : An Empirical Review. European Journal of Economics, Finance and Administrative Sciiences 14 (14,2008, 62–73.

[11]. T. P. Ogun and A. E. Akinlo, Financial Sector Reforms and the Performance of the Nigerian Economy. The Review of Finance and Banking 03 (1), 2011, 47–60.

[12]. C. C. Soludo, Beyond Banking Sector Consolidation in Nigeria. Paper presented at the Global banking conference on Nigerian banking Reforms, 2006, Dorchester hotel, London.

[13]. E. S. Shaw, Financial deepening in economic development. Vol. 39. New York: Oxford University Press, 1973 http://www.oup.co.uk/, http://www.getcited.org/pub/101346755

[14]. H. Y. Toda and T. Yamamoto, Statistical Inference in Vector Autoregression with Possible Integrated Processes, Journal of Econometrics 66, 1995, 225–250.

[15]. S. J. Thomas and A. C. Sims, Business Cycle Modelling Without Pretending to Have Too Much A Priori Economic Theory, Federal Reserve Bank of Minneapolis Working Paper #55, 1977.

[16]. A. C. Sims, Comparison Of Interwar And Postwar Cycles : Monetarism Reconsidered, National Bureau of Economic Research (NBER) Working Paper #430, 1980.

[17]. J. Duasa, Determinants of Malaysian Trade Balance: An ARDL Bound Testing Approach, Global Economic Review 36 (1), 2007, 89–102. doi:10.1080/12265080701217405.

[18]. Y. Wolde-Rufael, Bounds Test Approach to Cointegration and Causality Between Nuclear Energy Consumption and Economic Growth in India, Energy Policy 38 (1), 2010, 52–58. doi:10.1016/j.enpol.2009.08.053.

[19]. M. H. Pesaran, On the General Problem of Model Selection, The Review of Economic Studies, Oxford Journals 41 (2), 1974, 153–171.

[20]. B. Balassa, Financial Liberalization in Developing Countries, World Bank's Economic Development Working Paper Series (WPS) 55, 1989.