



# CENTRAL BANK OF NIGERIA

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### **Output, Real Exchange Rate and Interest Rate Response to Excess Liquidity in Nigeria**

*A. Englama and Toyin Segun Ogunleye*

### **Corporate Governance of Banks in Nigeria: Determinants of Boards of Directors' Effectiveness**

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### **Economic Liberalization and Job Creation in Nigeria**

*Olayinka Idowu Kareem*

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# Output, Real Exchange Rate and Interest Rate Response to Excess Liquidity in Nigeria

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A. Englama and Toyin Segun Ogunleye\*

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*This study investigates the responses of output, real exchange rate and interest rate to shocks to excess liquidity in Nigeria. Following Joao and Andrea (2006), the authors used structural VAR to estimate the model. The results show that GDP responds to shocks to excess liquidity in a relatively quick fashion and assume downward trend right from the first quarter. However, the negative impact on the economy starts from the second quarter lasting throughout the period. This result reveals that excess liquidity is detrimental to real output according to expectation. It also shows that shocks to excess liquidity depreciates the real effective exchange rate and reduces interest rate in the domestic economy. The result implies that speculators immediately react to shocks to excess liquidity taking advantage of excess monetary expansion for speculative activities which further depreciate the exchange rate in Nigeria. The paper recommends contractionary monetary policy and prudent use of monetary instrument to mop-up liquidity that is detrimental to economic growth.*

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**Keywords:** Excess Liquidity, Real Effective Exchange Rate, Interest Rate, Gross Domestic Product, and Impulse Response.

**JEL Classification:** E43, E51, E52, E58

## I. Introduction

Globally, there have been concerns about excessive accumulation of liquidity. Policy-making institutions and independent economic analysts have repeatedly pointed out the possible implications of an increase in monetary aggregate leading to excess liquidity in the domestic economy. Data from the IMF indicated that broad money worldwide in 2004 and 2005 was growing at its fastest rate since the late 1980s. The growth of broad money in

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\* A. Englama is a Deputy Director, while Toyin Segun Ogunleye is an Economist in the External Sector Division of the Research Department, CBN. The views expressed in the paper are those of the authors and do not reflect those of the Bank or its policy. The author thanks colleagues in the Department and anonymous reviewers for helpful comments.

Nigeria has been high and becoming conspicuous. The outcomes in monetary aggregates (M2) in 2001, 2003, and 2007 were 27.0, 24.1 and 30.9 as against the targeted level of 12.2, 15.0, and 24.1, respectively. The reasons for the surge in monetary aggregates include, among others, monetization of the oil receipts and the fiscal dominance of the government (CBN Annual Report, 2005). To control the rapid growth in monetary aggregates, the monetary authorities, the Central Bank of Nigeria (CBN), employs its monetary policy instruments especially open market operations (OMO) to mop-up excess liquidity and to stem its attendant negative effects on the domestic economy. Excess liquidity stimulated by an increase in monetary aggregates in turn induces variations in real exchange rate, interest rate and other variables which could have serious effects on the Central Bank's balance sheet and on its ability to conduct a prudent monetary policy. For instance, changes in real exchange rate would lead to fluctuations in short term capital flows. These fluctuations would then have an effect on the Central Bank's net foreign assets. A change in the volume of net foreign assets would lead to changes in the volume of currency in circulation on the liability side of the balance sheet. Thus, a change in the volume of currency in circulation would necessitate the management of the liquidity fluctuations in the economy through the utilization of monetary policy tools by the Central Bank, whose ultimate objective is price stability.

The problem of excess liquidity caused by an expansion in monetary aggregate goes beyond threat of price instability; several authors have observed that excess liquidity is likely to have adverse consequences on the ability of monetary policy to influence demand conditions and, thus, to stabilize the economy. Nissanke and Aryeetey (1998) argue that in the presence of excess liquidity, it becomes difficult to regulate the money supply using the required reserve ratio and the money multiplier, so that the use of monetary policy for stabilization purposes is undermined. In other words, one would expect excess liquidity to weaken the monetary policy transmission mechanism.

Despite the concerns expressed about the impact of excess liquidity on the effectiveness of monetary policy and economic performance as a whole, there has been no attempt to formally test this hypothesis in Nigeria. The aim of this paper therefore, is to examine the responses of output, real exchange rate and interest rate to monetary disturbances (excess liquidity) in Nigeria. The rest of the paper is

structured as follows. After this brief introduction, section II reviews the relevant theories and the existing literature in order to shed some light on the possible channels through which shocks to excess liquidity could be transmitted. Section III outlines the methodology for the study, section IV presents the empirical results. Section V gives the conclusion and policy recommendations.

## **II. Theoretical and Empirical Literature Review**

### **Active- Passive Money View theory**

According to an active-money view, the quantity of money is subject to the independent influence of the central bank. This influence, among other things can lead to a real quantity of money holdings that is larger (smaller) than desired. In contrast to the passive money view, the attempt to eliminate these excess balances is considered to have an important role in the transmission of monetary policy. The interpretation of a nominal “monetary shock” highlights the distinction between the two views. According to the passive-money view, a monetary shock is the consequence of a change in the demand for money caused by an output shock, for example, that is accommodated by the central bank as it targets short-term interest rates. In contrast, the active-money view interprets a monetary shock as the consequence of a change in the supply of money induced by the central bank that is unanticipated by agents. If there is a positive shock, initially, agents have to hold the additional nominal balances. Over time, individuals perceive that the nominal quantity of money they hold corresponds to a real quantity that is larger than desired at current prices, and that this is not a temporary condition. That is, individuals are “off” their long-run demand for money function. However, all individuals cannot collectively dispose of the aggregate excess nominal balances. Nonetheless, the attempt to do so has economic effects: the increase in expenditure leads to an increase in nominal spending, an increase in economic activity, and ultimately an increase in prices.

### **The Mundell-Fleming framework**

The framework asserts that an expansionary monetary policy shock, which is represented by a central bank-induced increase in the supply of money, leads to a reduction of the domestic interest rate, which, in turn, triggers a depreciation of

the home currency through the resulting capital outflows to other countries of the world. As a result, spending is directed towards domestic goods and output increases. This shows that expansionary monetary policy raises domestic output at the expense of foreign output.

### **Direct Transmission of Price Shocks.**

This channel of transmission affects cost of production directly through a cost-push shock. The argument is that, if prices rise through currency depreciation, the marginal cost of firms increases directly (through trade in intermediate products); changes in marginal costs are then transmitted to inflation (Kollmann 2001). Depending on the extent to which domestic inflationary pressures are accommodated or not by the central bank, an expansionary monetary shock can raise the domestic price level more or less permanently.

### **The Classical Interest Rate Theory**

Under the classical view of the transmission channel, interest rate influence economic activity by affecting various relative prices in the economy. These occur through the relative prices of capital and future consumption in terms of current consumption, and the relative price of domestic goods in terms of foreign goods. The effects of interest rate are divided into three parts. First, movements in the policy rate affect fixed investment through the user cost of capital. Higher interest rates raise the required return from investment projects and reduce the rate of business investment. Inventories are affected in much the same way; higher interest rates increase the 'user cost' of holding inventories and lead firms to economize on them. Second, interest rates also represent the price of future consumption relative to current consumption. Higher interest rates cause households to substitute present for future consumption. Interest rate movements also have an income effect on households. Provided that households are net debtors, higher interest rates reduce the value of lifetime income, further depressing consumption. By affecting the value of financial assets such as stocks and bonds, in which household wealth is held, interest rate movements can have a wealth effect on private sector spending. Third, interest rate movements lead to a change in the exchange rate thereby altering price competitiveness and affecting net exports. Under sticky domestic prices and producer currency pricing, the real



exchange rate appreciation raises the relative price of domestic goods in terms of foreign goods, and induces an 'expenditure switching' from domestic to foreign goods. Under local currency pricing, exchange rate fluctuations are absorbed in firms' margins. This affects the value of firms' equity and, via the wealth effect, aggregate demand.

### **Empirical Literature**

Empirical literature reveals a number of methods for examining the response of real exchange rate and output to shocks in excess liquidity which include the popular vector autoregressive model (VAR), Canneti and Greene (1991), Ndung'u (1999), Lastrapes and Selgin (1995), Hendry (1995), Faik and Douglas (1998), Eichenbaum and Evan (1995), Kim (2001), Olivier and Thepthida (2005), Holman and Neumann (2002), Joao and Andrea (2006) and Canova (2005), employed Structural VAR (SVAR) and VAR models for their estimations, which is a major methodology for measuring the responses of variables to shocks. Other approaches apart from VAR include the ordinary least squares and two stage least squares estimation and general equilibrium model.

VAR findings revealed that money supply growth drives nominal exchange rate movements, and directly explains the movements in the real or nominal exchange rate (Canneti and Greene, 1991). Obadan (1994) found that monetary expansion appreciates the real effective exchange rate (REER), lowers interest rates (nominal and real), and boosts the domestic demand for non-traded goods, thereby causing the real effective exchange rate (REER) to appreciate. Lastrapes and Selgin (1995) found that permanent money supply shock generates a temporary fall in interest rate, while Hendry (1995) found that monetary policy shock disturbs the relationship between money and its long-run demand so as to create a long-lasting monetary disequilibrium; he, however, noted that such monetary gaps are eliminated over time as prices gradually adjust.

Faik and Douglas (1998) indicated that contractionary monetary policy shocks lead to transitory appreciation of the real and the nominal exchange rate. Exchange rate appreciations that are related to a temporary contractionary shock to monetary policy lead to a short-lived improvement in the trade balance which is then followed by a deterioration. Eichenbaum and Evans (1995) found that a

contractionary shock to U.S. monetary policy leads to persistent appreciations in nominal and real U.S. exchange rates. Kim (2001) found that an expansionary US monetary policy shock leads to an increase in activity in the US.

Holman and Neumann (2002) analyzed the transmission of monetary shocks between the US and Canada, and found that a monetary expansion in one country leads to a slight and statistically insignificant monetary contraction in the partner country. Bruggeman et al. (2005) discovered that a positive shock to these liquidity aggregates results in an increase in euro area prices, output and in the monetary aggregate M3. Canova (2005), found that a US monetary shock has a strong impact on macroeconomic developments in US. After a contractionary US monetary policy shock, interest rates are found to rise, which attracts capital inflows and pushes aggregate demand up, not down.

The empirical findings from ordinary least squares, two stage least squares and general equilibrium model include Ndung'u (1999), Omoruyi (1999), Kisukyabo (2000), and Olivier and Thepthida (2005). Ndung'u (1999) showed that excess money supply feed into the cyclical movements of the real exchange rate. In addition, the cyclical movements of the real exchange rate impact on short-term capital flows which in turn affect money supply growth. Omoruyi (1999) also found that real exchange rates respond in the short and medium run to monetary and fiscal disturbances i.e. expansionary monetary policies usually generate real exchange rate movements; and if these movements of the RER from its log-run equilibrium are sustained, it usually results in real exchange rate misalignment. Kisukyabo (2000) investigated the main determinants of real exchange rate in Malawi and South Africa and found a positive relationship between real exchange rate and excess liquidity; it implies that excess liquidity causes the real exchange rate to appreciate. Olivier and Thepthida (2005) discovered that real exchange rate fluctuations arise from two sources: changes in the relative price of traded goods, and movements in the relative price of traded to non-traded goods across countries. In the framework, they shed light on the propagation mechanisms through which monetary shocks affect the real exchange rate and concluded that the two components respond in opposite directions to monetary disturbances. They argued that the introduction of non-traded goods would not alter the predictive power of monetary shocks because the presence of non-traded goods magnifies the response of the deviation from the law of one price.

Joao and Andrea (2006) constructed a global monetary aggregate for the G5 economies (US, Euro area, Japan, UK, and Canada), and analyses its indicator properties for global output and inflation. Using a structural VAR approach they found that after a monetary policy shock output declines temporarily, with the downward effect reaching a peak within the second year, and the global monetary aggregate drops significantly. In addition, the price level rises permanently in response to a positive shock to the global liquidity aggregate. Their results are similar to those found in other studies using a global monetary aggregate as a summary measure of worldwide monetary trends.

### **III. Methodology (A Structural VAR Model Approach) Model Formulation and Sources of Data**

Joao and Andrea (2006) highlighted several advantages in relying on the structural VAR (SVAR) methodology for the analysis of the effects of monetary policy changes. According to the authors “SVAR allows modelling non-recursive structures of the economy with a parsimonious set of variables and it facilitates the interpretation of the contemporaneous correlations among disturbances”. The SVAR methodology suggests imposing restrictions on the contemporaneous structural parameters only, so that reasonable economic structures might be derived. The act that only contemporaneous restrictions are imposed, however, does not imply that there is no feedback among variables. In the SVAR structure the lagged values enter each equation and thus all variables are linked together. Drawing from the works of Joao and Andrea (2006), we conceptualized a modified methodology for Nigeria.

In this section we described the construction of the structural VAR model of the Nigerian economy. The linkage between excess liquidity and economic growth occupied a central place in the economic literature. In examining this relationship using the Nigerian data, we assume a simple model for the Nigeria economy with four endogenous variables namely excess liquidity (ECXL), real effective exchange rate (REER), interest rate (INTT) and real growth rate of output (GDP). We measure excess liquidity as the excess of growth in monetary aggregate to growth in the nominal GDP. We generate the log of all the variables except excess liquidity ECXL and interest rate INTT. The choice of variables is influenced by

insights from prior research. Each variable is explained by a structural equation that has an error term associated with it. The error term for each equation is interpreted as representing a particular innovation or shock. These shocks are labeled according to the structural equation from which they derive. Appropriate specification and estimation of the system of four equations capture the systematic effect of excess liquidity and other relevant variables in the model. The paper uses quarterly data for the period 1980Q1 to 2007Q4. All the data required were obtained from various issues of the CBN Statistical Bulletin and the IMF International Financial Statistics.

### **Model Specification**

We start by specifying a simple unrestricted VAR model. In matrix form, the VAR model is

$$Y_t = AY_{t-1} + et$$

Where  $Y$  is a vector of variables and  $A$  is a matrix of polynomials in the lag operator and  $et$  is a vector of random errors. In order to transform the original VAR into a model in which disturbances are orthogonal, the SVAR approach proposes to start from the “true” structural form model

### **Estimation Procedure**

Our objective therefore is to transform the original VAR into a model in which disturbances are orthogonal; we incorporate restrictions on the interactions and dynamics of the model to produce sensible response. We begin by examining the properties of the data, such as optimum lag length, normality test, autocorrelation test, unit root test, group stationary test and stability test. Then, we proceed to imposed restriction on the error term and generate the SVAR.

### **Optimum Lag Length Test**

To determine the optimum lag length, we started with a lag length of eight since we employed quarterly data for the estimation. The results of all the test statistics which include Sequential Modified LR test, Final Prediction Error (FPE), Akaike Information Criterion (AIC), Schwarz Information Criterion (SIC) and Hannan

Quin Information Criterion (HQ) are diverse. The AIC, SIC and HQ indicate lag length of four, while LR and FPE indicate lag length of three. At lag length of four, the model was unstable, we, therefore, choose lag length of three. See the table 1 below.

**Table 1: VAR Lag Order Selection Criteria**

Lag	Log L	LR	FPE	AIC	SC	HQ
0	-66.95401	NA	0.005620	6.169914	6.367391	6.219579
1	-4.569008	97.64609	0.000102	2.136435	3.123822	2.384760
2	12.08099	20.26957	0.000112	2.079914	3.857209	2.526898
3	54.92318	37.25407*	1.66e-05*	-0.254190	2.313015	0.391455
4	81.27630	13.74945	1.98e-05	-1.154461*	2.202653*	-0.310156*
* indicates lag order selected by the criterion						
LR: sequential modified LR test statistic (each test at 5% level)						
FPE: Final prediction error						
AIC: Akaike information criterion						
SC: Schwarz information criterion						
HQ: Hannan-Quinn information criterion						

### Test for Autocorrelation

At lag 3, the Residual Serial Correlation LM test shows that there is no problem of autocorrelation in the model.

**VAR Residual Serial Correlation LM Tests**

H0: no serial correlation at lag order h

Sample: 1980 2007

Included observations: 24

Lags	LM-Stat	Prob
1	11.15601	0.7998
2	25.90992	0.0553
3	20.42168	0.2018
4	13.78130	0.6150
5	34.37465	0.0048
6	23.04936	0.1124
7	18.22831	0.3107
8	22.68784	0.1223
9	17.54530	0.3512

Probs from chi-square with 16 df.

**Result of Unit Root Test**

In order to check the time series properties of the variables used in the model, we apply the unit root test. It is important to determine the order of integration of the series. The result showed that all the variables were integrated of order one (1) except excess liquidity which is of order zero I (0). Studies have shown that these tests often lack power in small samples, however recent studies now give more credence to the Philips-Perron (PP) test because of its strong validity even if the disturbances are serially correlated and heterogeneous, while the ADF tests require that the error term be serially uncorrelated and homogenous. In spite of these shortcomings of these tests, we cannot overemphasize their importance for empirical modeling because they show the order of integration among variables, having satisfied the McKinnon (1996) condition for integration.

Variables	Levels				First Differences			
	ADF1	PP1	ADF2	PP2	ADF1	PP1	ADF2	PP2
INTT	-1.805108	-1.819610	-3.111394**	-3.188648**	-5.585120*	-5.712785*	-5.436370*	-5.539062*
LREER	-2.901770***	-3.061315**	-3.725753*	-3.768195*	-9.226264*	-8.413689*	-9.924695*	-8.838317*
LGDP	0.880514	0.864852	-2.377789	-1.685742	-3.160623	-3.012201	-5.498322*	-3.153060
EXCL	-5.275408*	-5.294159*	-6.075365*	-6.459142*	-8.150322*	-12.11854*	-7.903020*	-11.73668*

Notes: ADF1 and PP1 = Unit root tests with constant, and ADF2 and PP2 = Unit root tests with constant and trend. \*, \*\*, and \*\*\* indicate statistical significance at the 1%, 5% and 10% level respectively. With constant only: McKinnon (1996) critical values are: -3.699871(1%), -2.976263(5%), and -2.627420(10%). With constant and trend: MacKinnon (1996) critical values are: -4.339330(1%), -3.587527(5%) and -3.229230(10%).

### Group Stationary Test

Since it has been observed from the unit root test that some variables are stationary while some contain unit root, we conducted a group unit root test on the variables to ensure the usage of the data in VAR model. The result of the group unit root indicated that the variables as a group do not contain unit root and that they can be used at their levels.

### Stability Test

To ensure the reliability of the impulse response and variance decomposition coefficients, we employed AR root stability test. The estimated VAR is stable if all roots have modulus less than one and lie inside the unit circle. The result of AR root stability test satisfies the stability condition of the model.

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**Roots of Characteristic Polynomial**


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Endogenous variables: EXCL INTT LREERLGDP.

Exogenous variables: C

Lag specification: 1 3

Root	Modulus
0.998682	0.998682
0.273246 - 0.871922i	0.913735
0.273246 + 0.871922i	0.913735
-0.878274	0.878274
0.572991 - 0.449427i	0.728219
0.572991 + 0.449427i	0.728219
-0.123242 - 0.711485i	0.722080
-0.123242 + 0.711485i	0.722080
0.559738 - 0.377589i	0.675189
0.559738 + 0.377589i	0.675189
-0.598934 - 0.082295i	0.604562
-0.598934 + 0.082295i	0.604562

No root lies outside the unit circle.

VAR satisfies the stability condition.

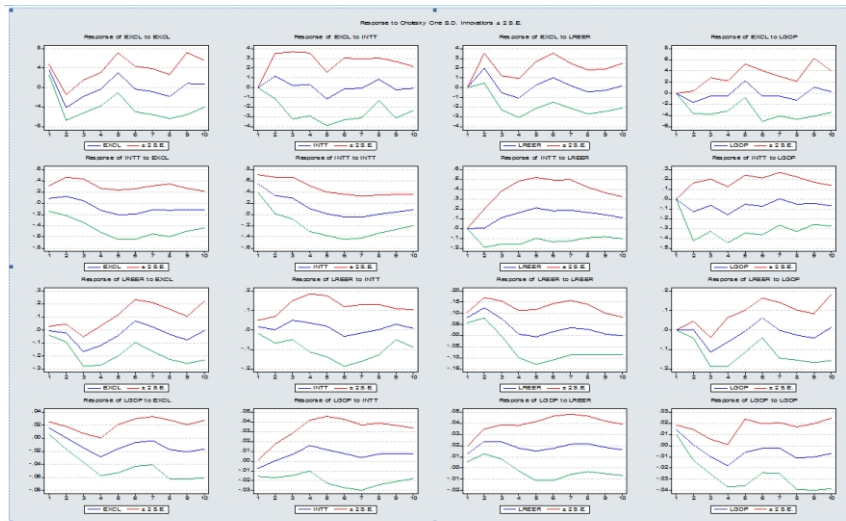
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**Imposing Short-run Restrictions to Generate the Structural VAR**

We impose the Choleski decomposition which assumes that shocks or innovations are propagated in the order of EXCL, INTT, LREER, and LGDP. The identifying restrictions are imposed in terms of the e's which are the residuals from the VAR estimates, and the u's, which are the fundamental or "primitive" random (stochastic) errors in the structural system.



Figure 1: Impulse Response



#### IV. Interpretation of Results

##### Impulse Responses Findings

The impulse responses of the SVAR model, which includes the real effective exchange rate (REER), interest rate, real GDP (LGDP), and excess liquidity (ECXL), are presented. The result indicates the responses of real effective exchange rate, interest rate and real output to shocks in excess liquidity in the domestic economy.

The response of real GDP to shock in excess liquidity can be observed from the graph above (column 1, row 4). The Gross Domestic Product (GDP) responds in relatively quick fashion to the shock in the excess liquidity, the direction of the GDP immediately assume downward trend right from the first quarter. The negative impact on the economy starts from the second quarter lasting throughout the tenth quarter. The speed of adjustment after the disturbance seem to be reached in the seventh quarter but later diverge and become more negative for the rest of the period. This result implies that excess liquidity is totally detrimental to the Nigerian economic growth.

Response of real effective exchange rate to shocks in excess liquidity begins from

the first quarter (column 1, row 3). Excess liquidity depreciates the real exchange rate right from the first quarter to the fifth quarter. The effect was reversed between the fifth and seventh quarter, as it appreciates the real exchange rate during the period. However, from the seventh quarter, appreciation reverts to depreciation of the rate. The result shows that speculators immediately react to shocks in excess liquidity and take the advantage of excess monetary expansion for speculative activities which further depreciates the exchange rate in the foreign exchange market.

The result shows that the response of interest rate to excess liquidity in Nigeria is sluggish (column 1, row 2). Though the response of interest rate was according to expectation, the fall in interest rate was gradual from the first quarter to the third and became noticeable after the third quarter and lasted throughout the period. The result indicates that the monetary transmission mechanism in Nigeria is slow.

## **V. Summary and Policy Recommendations**

This paper measures the response of real output, real effective exchange rate and interest rate to shocks in excess liquidity in Nigeria. SVAR model was estimated, and impulse responses were obtained from the model. The findings from the study reveal that excess liquidity in the domestic economy is detrimental to the performance of the economy according to expectations. Increase in excess liquidity decreases output. The conclusion confirms the earlier findings that excess liquidity is detrimental to the economy and offer significant challenges to policy formulation in Nigeria.

Monetary policy directions must, therefore, focus on achieving sustainable economic growth in both short to medium term to engender confidence in the economy. This paper, therefore, calls for the following: contractionary monetary policy and prudent use of monetary instrument especially open market operation (OMO) to mop-up excess liquidity in the domestic economy.

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# Corporate Governance of Banks in Nigeria: Determinants of Board of Directors' Effectiveness

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*Ukpai Kama and Chuku Chuku\**

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*In the corporate governance of banks, board of directors play a significant role by monitoring and advising management in the formulation and implementation of strategies. Our hypothesis is that certain characteristics of banks' board (size, composition and proactiveness) determine the effectiveness of the boards in carrying out its monitoring and advisory roles. After controlling for heterogeneity and endogeneity using the two-step system estimator, we find that admitting new members into the board improves bank performance up to a certain point, 'efficient limit', where continuous increase of the board size begins to destroy value. We observed an inverse relationship between board meetings and bank performance which suggest to us that bank boards that meet more often are only reacting to bank's poor performance. This challenges the widespread belief that frequent board meetings play a role that is more proactive than reactive. We agree that bank boards strategically alleviate the problems of governance in banks and reduce the weakness of other corporate governance mechanisms, especially regulatory and external governance mechanisms. Hence, empowering boards through incentive packages and enlarged responsibilities with authority to monitor, sanction, reprimand and advise management will be the way forward for the Nigerian banking sector.*

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**Keywords:** Corporate governance, Board of directors, Banks in Nigeria, System estimator

**JEL Classification:** G32, G21, G28, K22

## I. Introduction

The obvious lesson to be learnt from the collapse of high profile banks like Lehman Brothers, Barings Bank, Merrill Lynch, Washington Mutual, All States Trust Bank etc., is that no bank is too big (capital base or otherwise) to fail. In the past decade, series of crises both locally and globally have heightened interest in corporate governance practices. These included the collapse of a number of high profile global firms such as Enron Corporation,

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\* Mr. U. Kama is a staff of Research Department, Central Bank of Nigeria, while Mr. C. Chuku is a NYSC member with the Procurement and Support Services Department, Central Bank of Nigeria, Abuja. The author thanks colleagues in the Department and anonymous reviewers for helpful comments. The views expressed in this paper are those of the authors and do not represent the views of the institution to which they are affiliated or its policy.

WorldCom and Arthur Andersen. Here in Nigeria, weak corporate governance was highly implicated in the travails of Unilever, Spring Bank, Cadbury and many others. A closer examination of the circumstances that ran through these monumental corporate failures reveals that their weak corporate governance mechanism was the culprit (visit [www.vogon-international.com](http://www.vogon-international.com) for details). Effective corporate governance practice would have ensured proper asset and liability management, prevented insider abuse and fraud by management and ensured the realization of the ultimate objective of a firm, which is to maximize the shareholders value. The implication for banks in emerging markets and, Nigeria, in particular, is that none of the twenty-four (24) recapitalized banks is immuned to failure, especially if they have poor corporate governance culture. Good corporate governance in banks focuses on building strong and effective boards, protecting shareholders and customers' rights, improving the bank's control environment, increasing financial and non-financial transparency and disclosure and ultimately contributing to the development of a sound financial system which guarantees sustainable economic growth.

Thus, to avoid systemic risk, moral hazard, adverse selection and financial panic in the system, the continuous compliance of banks with the principles laid out in the 'Code of Corporate Governance for Banks in Nigeria Post Consolidation' issued by the Central Bank of Nigeria (CBN) will have to be sustained.

The purpose of this paper is to show the role that banks board of directors play in the internal corporate governance of banks, and to investigate the determinants of board of directors' effectiveness. We posit that certain characteristics of bank board (size, composition and proactiveness) determine the effectiveness of the board in carrying out its corporate governance roles, including monitoring, supervising and advising management on mission and strategies.

The paper proceeds as follows: Section 2, presents the literature review and the theoretical and empirical underpinnings of corporate governance research. Section 3 presents an overview of corporate governance in the Nigerian banking sub-sector, while section 4 describes the methodology adopted. Section 5, contains the results of our estimation and finally, section 6 presents the policy options, directions for future research as well as the concluding remarks.

## II. Review of Literature

The fundamental insight from which corporate governance research originated is the realization of the potential problems associated with the separation of ownership from control that is inherent in the contemporary corporate form of a firm. These problems have come to be known as 'agency problems'. This insight dates as far back as 1776 when Adam Smith writing about professional managers in his *Wealth of Nations* stated that:

'The Directors of Joint Stock Companies (Banks)... being the managers rather of other people's money (and not their own)... cannot be well expected that they should watch over it with the same anxious vigilance (as owners)... Negligence and profusion, therefore, must always prevail more or less, in the management of the affairs of such a company" (Smith, 1776: 700).

Following the realization of the potential for negligence and profusion by managers, several authors have come to define corporate governance from different viewpoints. For example, Sanda et al. (2005) defined corporate governance as ways in which all parties (stakeholders) interested in the well-being of the firm attempt to ensure that managers and other insiders take measures that safeguard the interest of the stakeholders. Zingales (1998), views corporate governance systems as the complex set of constraints that shape the ex-post bargaining over the quasi-rents generated by the firm. In their work, Shleifer and Vishny (1997) defined corporate governance as the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment. Taking a universal perspective on the issue, Gillian and Starks (1998) defined corporate governance as the system of laws, rules and factors that control operations at a company. Here, we present a dynamic definition of corporate governance as the moderating instrument through which an organization ensures the optimum allocation of commercial pay-offs among the stakeholders.

Some institutions have defined corporate governance in similar ways. For example, the Code of Corporate Governance issued by the Central Bank of Nigeria (CBN) defines the subject as "a system by which corporations are governed and controlled with a view to increasing shareholder value and meeting the expectations of the other stakeholders." Also, corporate governance is the

system by which business corporations are directed and controlled. The corporate governance structure specifies the distribution of rights and responsibilities among different participants in the corporation, such as the board, managers, shareholders and other stakeholders, and spells out the rules and procedures for making decisions on corporate affairs. By doing so, it also provides the structure through which the company's objectives are set and the means of attaining those objectives and monitoring performance (OECD, 1999).

Generally, corporate governance is regarded as the set of structures, processes, principles and policies that guide the way an institution is directed, administered and controlled. It includes the relationships amongst the many stakeholders involved in pursuing the goals for which the institution was established. The principal stakeholders are the shareholders, board of directors, and management. Others include employees, suppliers, customers, regulators, government and the community at large.

Though the basic tenets of corporate governance can be applied to banks, the relevance of banks in the financial system and the special attributes of opacity, complexity and heavy regulation inherent in banking business makes the problems and practice of corporate governance highly specific as are the mechanisms available to deal with such problems. (Ciancanelli & Reyes, 2001; Levine, 2004; Macey & O'Hara, 2003; Prowse, 1997)

Levine (2004) distinguishes two related characteristics of banks that make their governance distinctive. First, banks are more opaque than non-financial firms. In other words, informational asymmetries are larger in banks than all other sectors (Furfine, 2001; Macey & O'Hara, 2003 and Morgan, 2002). Bank opacity and complexity reflects the idiosyncratic nature of banking business and the difficulties outside stakeholders (for example, equity holders, debt holders, regulators and customers) face when trying to acquire reliable information about a bank's health status and operations. This opacity can take the form of loan quality not being easily observable, financial engineering not being transparent, risk composition of assets being altered and financial statements proving fictitious and complicated (Andres & Vallelado, 2008).



The second specific feature identified by Levine (2004), is that banks are frequently heavily regulated. The multiple regulation of banks by regulators most often distorts the behaviour of bankers and inhibits standard corporate governance practices. The main aim of the regulator is to reduce systemic risk in the system, and this often conflicts with the main goal of other stakeholders especially the shareholders, who are interested in the maximization of their share values (Jensen, 2001; Andres & Vallelado, 2008; Caprio et al., 2007).

Although it is true that monitoring by regulators represents an additional governance mechanism, their presence may further complicate governance problems in banks. For example, regulators might suppress competition in favor of some banks and discipline banks by imposing restrictions on ownership structures (Prowse, 1997; Macey & O'Hara, 2003). They can also intervene to limit the power of markets to control the banks (Ciancanelli & Reyes, 2001). In extreme cases, the regulators may even pursue their own interest as regulators (Santomero, 1997)

On the other hand, regulation can be viewed as an external corporate governance mechanism that acts macroeconomically at the banking industry level and macroeconomically at the individual banks' level to build confidence in the entire financial system.

Thus, the presence of heavy regulations, informational asymmetries, opaqueness and conflicts of stakeholder interests in banking business puts a special relevance on the internal corporate governance mechanisms which has the board of directors at its apex.

## **II.1 Theoretical Issues**

Adam Smith (1776) appears to be the first economist to address the theoretical issue of the role of board of directors in the governance of a firm. He observed that because managers controlled people's money rather than theirs, it cannot be expected that they should watch over it with anxious vigilance as negligence and profusion will prevail.

Negligence and profusion in the management of a firm are the consequences of

the separation of stakeholder (ownership) from management (control) which is inherent in a modern corporation (John & Senbet, 1998; Hermalin & Weisbach, 2003; Gillan, 2006; Sanda et al., 2005). The separation of ownership from management in a typical Nigerian bank necessitates a Principal-Agent relationship. Here, the board of directors, professional managers, employees and corporate insiders are the agents on the one hand and the equity holders, creditors, clients and regulators are the principal on the other hand.

The agency theory states that in the presence of information asymmetry, the agent is likely to pursue interests that may be detrimental to the principal (Sanda et al., 2005). The reason for this is because the pay-off structure of the claims of different classes of stakeholders (including board of directors) is fundamentally different. The process of aligning these interests and claims gives rise to potential conflicts among the stakeholders. Left alone, each class of stakeholder will pursue its own interest which may be at the expense of other stakeholders and, hence, the need for a moderating instrument-corporate governance-in a modern firm.

Agency relationships in a firm can be classified on the basis of the interactions among particular parties in a firm. For example interactions between stockholders (principal) and management (agent) is referred to as managerial agency or Managerialism. Interactions between the agents of the public sector (e.g., CBN) and the rest of the society is termed political agency, whereas, interactions between the private sector and the public sector is known as social agency<sup>1</sup>. Our focus here is, however, on managerial agency.

In recent times, the agency theory has been augmented to include analysis of the multiplicity of the agency relationships that exist among all stakeholders of a firm and this has come to be known as the stakeholder theory (Sanda et al., 2005). Jensen (2001) recognizes the implicit weakness of the stakeholder theory which requires that managers optimize a multiplex (i.e. multiple and complex) objective function. This condition violates the proposition that a single-value objective is a prerequisite for rational behaviour by any firm. In search of a solution, Jensen (2001) proposed the “enlightened stakeholder theory”, which specifies only one objective that managers should pursue: the maximization of the long-run value of the firm.

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<sup>1</sup> See John & Senbet (1996, 1998) for a detailed classification of agency interactions.

We have overlooked the theory of the Fisherian Separation Principle as presented by John and Senbet (1998), because it idealizes the economy and firm and fails to recognize the special features of opaqueness, heavy regulations and informational asymmetries which are inherent in banking business.

Following the enlightened stakeholder theory as presented by Jensen (2001), we hypothesize the following:

1. In the presence of opacity, information asymmetry and heavy regulation in banks, larger bank boards lead to increased bank performance since large boards facilitates monitoring and brings more human capital to advise management.
2. Given the multiplicity of stakeholder interest, the admittance of more non-executive directors who are endowed with the prerequisite knowledge, incentives and abilities to monitor and advise management will alleviate the conflict of interest among stakeholders and improve bank value.
3. Finally, we posit that there is a positive link between the frequency of board meetings and bank performance.

## **II.2 Empirical Issues**

A plethora of empirical works have examined the link between board structure and firm value (Gillian, 2006). Specifically, researchers have attempted to provide answers to the following questions: How effective is the board in performing its monitoring function (Adams & Ferreria, 2003; Andres & Vallelado, 2008; John & Senbet, 1998)? Does board composition matter (Sanda et al., 2005; Shleifer & Vishny, 1997; Andres & Vallelado, 2008; Bhagat & Bolton, 2008)? What is the structure and activity of board sub-committees (Klein, 1998; Klein, 2002; Deli & Gillian, 2000)? What is the role of CEO duality? That is, where the CEO doubles as chairperson of board (Baliga et al., 1996; Brickley et al., 1997; Goyal & Park, 2002; Raheja, 2005).

The two major characteristics of boards that stand out in the literature as having the greatest impact on board effectiveness and performance are: board size and board composition and the ratio of non-executive to total directors (Sanda et al., 2005; John & Senbet, 1998; Denis, 2001). With respect to board size, the hypothesis tested has generally been that smaller boards are more effective because they can hold more coordinated discussions, make decisions quickly and are less easily controlled by management (Denis, 2001). On the other hand, some authors have tested the hypothesis that larger boards are more effective because the large size facilitates intensive management supervision and brings more human capital to advise management (Caprio et al., 2007).

The inherent weakness in large boards is that too many members lead to problems of coordination, rigidity in decision making and excessive control of CEO, thereby harming efficiency (Yermack, 1996; Eisenberg et al., 1998). Thus the effect of board size (small or large) on bank value is a trade-off between advantages (effective monitoring and advising) and disadvantages (weak coordination, excessive control and rigidity in decision making). This trade-off shows up as a non-linear relationship between board size and bank value (Andres & Vallelado, 2008).

With respect to board composition, the generally tested hypothesis is that directors who are members of bank management or who are affiliated with those managers (commonly termed executive directors) are less effective as monitors and advisers of management than those directors who have no family or business ties with the bank management, that is, the non-executive directors

The literature emphasizes that it is not enough to skew the boards towards a concentration of non-executive (outside) members. Rather, it is important that the members be endowed with the prerequisite knowledge, incentives and abilities required to monitor, discipline and advise the managers (Harris & Raviv, In press). On the other hand, disproportionate concentration of non-executive directors may undermine the advisory and diffusion roles of the board since it limits the number of insider executives on the board; and insiders (executive directors) facilitate the diffusion of information and advice from the board to

management and members of staff (Coles et al., 2008).

Although the empirical evidence regarding the relationship between relative concentration of non-executive directors on boards and board performance is not conclusive, virtually all codes of good corporate governance practice recommends increasing their presence (Bhagat & Black, 2002; Coles et al., 2008).

The review of the literature on the determinants of bank board's effectiveness will be incomplete if we do not examine the internal functioning and characteristics of the boards. Larcker et al. (2005) conducted a study on board interlocks and concluded that 'cozy' (friendly) board relationships limit effective monitoring. In the same light, Fich & Shivdasani (2006), suggest that the board's ability to monitor is compromised in firms with several busy directors. In a similar manner, Vafeas (1999) examined the frequency of board meetings and found explanations both for and against a positive relationship between the frequency of board meetings and firm performance. Meetings provide an avenue for board members to converge and map out strategies on how to monitor managers and operations of the bank. Hence, the more frequent the meetings, the more proactive the board is, setting standards and providing participatory leadership. On the other hand, fewer meetings will suggest an anticipatory board only responding to issues and events (reactive).

Another important variable that influences the effectiveness of boards is the compensation structure operational in the banks. Brick et al. (2006) analyzed the link between board and CEO pay. After controlling for CEO age, tenure, ownership, board size, among others, the authors concluded that excess compensation for directors compromises their independence and leads to overpayment of CEO; a situation which they refer to as 'cronyism,' that is, mutual back-scratching. Also, committee structure and the expertise of board members prove to be an explanatory variable in determining the effectiveness of boards. The presence of financial expertise on boards limits the likelihood of accounting scams and builds market credibility to earnings and profit announcements of banks (Anderson et al., 2005; Agrawal & Chadha, 2006; Gillan, 2006).

In addition, the institutional framework within which bank boards operate has attracted much attention. The interaction of the boards with the laws, regulations,

capital markets, labor markets, product market and the socio-political environment shapes the likelihood of failure or success of the boards. Caprio et al. (2007) show in their study, the importance of legal and institutional rather than regulatory mechanisms in banking governance. In the same vein, Beck et al. (2006) showed that empowering private monitoring of banks yields the greatest benefits in developed countries that have in place legal and institutional systems that work well. However, the case may be different in a developing country like Nigeria with weak institutions.

### **III. Corporate Governance in the Nigerian Banking Sub-Sector**

Corporate governance of banks in Nigeria is principally shaped by the interaction of the following factors: the legal framework, the regulatory institutions, the financial system and the banking environment. Generally, the legal underpinnings for enforcing the practice of corporate governance in banks is stipulated in the following permissible frameworks: the Central Bank of Nigeria (CBN) Act, 2007; Banks and Other Financial Institutions Act (BOFIA), 1991 (As amended); the Nigerian Deposit Insurance Corporation (NDIC) Act, 2006; the Companies and Allied Matters Act (CAMA), 1990; and the Economic and Financial Crimes Commission (EFCC) Act, 2004. These legal documents and other internally generated codes by the banks provide the framework for identifying best practice codes and enforcing the compliance with such codes.

Before the banking sector consolidation, quite a number of banks examined had revealed severe weaknesses in their corporate governance standards. For instance; many banks were family owned, so much so that the chairpersons doubled as Chief Executive Officers (CEOs). These weaknesses in corporate governance practice were evidenced in the high turnover of board and management staff, gross insider abuses which resulted in huge non-performing insider related credits, financial engineering, non-compliance with regulatory requirements, falling ethics, and de-marketing other banks (Kama, 2006). In particular, free, unrestrictive equity holding led to serious abuses by individuals, family members and governments. Generally, there was public call for changes in the structure and organization of bank boards in the industry, particularly after the consolidation exercise.

In order to encourage private sector led economy as well as imbibe a good corporate governance culture, “Code of Corporate Governance for Banks in Post Consolidation” was issued in 2006 and banks were obligated to comply with the tenets of the Code, including the “Code of Corporate Governance for Nigeria,” issued by SEC.

The following are highlights of the codes of corporate governance for banks in post consolidation, issued by the CBN:

### **Equity Ownership**

- Government's direct and indirect equity holding in any bank shall be limited to 10%.
- Any equity holding of above 10% by any investor is subject to CBN's prior approval.
- Directors or significant shareholders should not borrow more than 10% of the bank's paid-up capital without the prior approval of the CBN. The maximum credit to all insiders should not exceed 60% of the bank's paid up capital.

### **Organizational Structure**

- The responsibilities of the head of Board, that is, the Chairman, should be clearly separated from that of the head of Management, i.e. MD/CEO.
- There should be, as a minimum, the following board committees: Risk Management Committee, Audit Committee, and Credit Committee.
- The number of non-executive directors should be more than that of executive directors, subject to a maximum board size of 20 directors.
- At least (2) non-executive board members should be independent directors (who do not represent any particular shareholder interest and hold no special business interest with the bank) appointed by the bank on merit.

### **Board Performance and Appraisal:**

- Each board should identify and adopt, in the light of the company's future

strategy, its critical success factors or key strategic objectives.

- There should be annual Board and Directors' review/appraisal covering all aspects of the Board's structure and composition, responsibilities, processes and relationships, as well as individual member's competencies and respective roles in the Board's performance.

### **Quality of Management:**

- Appointment to top management positions should be based on merit rather than some other considerations.
- Track record of appointees should be an additional eligibility requirement. Such records should cover both integrity ('fit and proper' as revealed by the CBN 'blackbook', CRMS etc) and past performance (visible achievements in previous place(s) of work).

### **Reporting Relationship**

- Officers should be held accountable for duties and responsibilities attached to their respective offices.
- The structure of any bank should clearly define acceptable lines of responsibility and hierarchy; and
- All insider credit applications pertaining to directors and top management staff (AGM and above) and parties related to them, irrespective of size, should be sent for consideration and approval to the Board Credit Committee (BCC), among others.

Recently, the compliance rating of deposit money banks to the laid down codes of corporate governance in Nigerian had received a triple 'A' rating, following the adoption of the new code (Phillips, 2007). Many banks are now responding by carrying out board reforms which are typically in the forms of increasing the relative proportion of non-executive directors, separating the position of Chief Executive from Chairperson, increasing board size and requiring board members to have block holdings, among others (Inam, 2006). These internally engineered board reforms have proved to be beneficial as banks now enjoy ease of raising capital, improved business performance, increased customer satisfaction,



strategic business alliances and improved financial reporting systems (Phillips, 2007; Kama, 2006).

Despite the above positive developments, corporate governance in Nigerian banks is still confronted by a myriad of challenges. Ibrama (2007) views the technical incompetency of boards and management, acrimonious relationships among directors, increased levels of risk, rendition of false returns, poor integration and development of ICT, accounts and records systems, resurgence of high level malpractices and ineffective integration of entities as the major challenges facing Nigerian banks in their bid to comply with 'best practices' of corporate governance. Also, Alo (2007), highlighted some of the challenges faced by Nigerian banks including: the challenge of: enlightening stakeholders, putting in place the appropriate institutional framework, achieving value reorientation, breaking the poverty trap and bridging the inefficiencies of governance bureaucracies. It is envisaged that tackling these challenges will create an enabling environment for Nigerian banks to maintain full compliance with the laid down tenets of good corporate governance in Nigeria.

As basic prerequisites for the successful practice of good corporate governance in Nigerian banks, the societal norms and standards relating to accountability, democratic values, the rule of law, attitudes towards the generation and acquisition of wealth and the effectiveness of the supervisory and judicial system will have to be improved upon to ensure zero tolerance for defaulters.

#### **IV Sample, Variables and Econometric Model**

In this section, we describe the sample and variables used in the model. We also describe the measurement techniques adopted as well as the econometric model used. We have kept the presentation simple and concise to facilitate understanding.

##### **IV.1 Data and Sample:**

We selected 19 banks out of the total of 24 banks in Nigeria; representing about 79.2 per cent of the entire bank population. Our selection is not based on any probabilistic technique but on the consistency and availability of the required

data. The analysis covers the period between 2000 and 2008. Incidentally, this period coincides with the banking sector consolidation exercise which was conducted between July 2004 and December 2005. We recognize that this may have structural effects on our model and have adequately controlled for same.

All the data used for the analysis were extracted from the annual and financial reports of the respective banks and the Annual Fact Books of the Nigerian Stock Exchange (NSE).

#### **IV.2 Variables and Measurement:**

We proxy board effectiveness by using bank performance, hence we adopted the Tobin's Q ratio as our prime indicator of bank performance. Following Coles et al. (2008), we approximate Tobin's Q as book assets minus book equity plus market value of equity all divided by the book value of assets. Many other studies on board effectiveness have used this variable as the dependent variable (Sanda et al., 2005; Caprio et al., 2007; Bhagat & Black, 2002; Andres & Vallelado, 2008).

We measure the size, composition and functioning of boards with the variables *BOARDSIZE*, *OUTSIDER* and *MEETYR*, respectively. *BOARDSIZE* is the board size. That is, the number of persons sitting on the boards. *OUTSIDER* represents board composition. That is, the balance between executive and non-executive directors. We measure it by finding the proportion of non-executive (outside) directors in total number of directors. Whereas we used *MEETYR* to measure board proactiveness (functioning). *MEETYR* simply represents the number of meetings held by the board each year as indicated in their annual reports.

We further construct a set of control variables to account for the following: bank size, whether or not the bank merged during the consolidation, whether or not the CEO was the promoter of the bank, the nature of the banks' business and period dummies.

The first group of control variable checks for relative bank size, we denote this by *BNKSIZE* and we measure it by taking the natural logarithm of the total assets of the respective banks. Another group of control variable which accounts for business fusion is *BNKMERGE*. This distinguishes between banks that

exclusively merged and those that did not merge during the consolidation era. We assign a value one (1) to those banks that are the outcome of merger arrangements and zero (0) to those that stood alone.

A third group of control variables that checks for bank business structure is LONASS. It is constructed as the ratio of loans and advances to total assets at book value. To account for differences in bank ownership structure, we introduce the control variable CEOP. This accounts for whether or not the CEO started the bank. We assign the value one (1) to banks with CEO as promoter and zero (0) to others.

To check for robustness of results, we employ another alternative measure of bank performance as dependent variable: the Return on Assets (ROA). We calculate the Return on Assets by finding the percentage of net profit in total assets<sup>2</sup>.

### IV.3 Econometric Model and Estimation Technique:

Building on Andres and Vallelado (2008) and Sanda et al. (2005), we specify a model establishing the link between board 'effectiveness' and bank performance with a non-linear relation on board size thus:

$$\begin{aligned} \text{PERFORMANCE}_{i,t} = & \beta_0 \pm \beta_1 \text{BOARDSIZE}_{i,t} \pm \beta_2 \text{BOARDSIZE2}_{i,t} \pm \beta_3 \text{OUTSIDER}_{i,t} \\ & \pm \beta_4 \text{MEETYR}_{i,t} \pm \beta_5 \text{BNKSIZE}_{i,t} \pm \beta_6 \text{BNKMERGE}_{i,t} \\ & \pm \beta_7 \text{LONASS}_{i,t} \pm \beta_8 \text{CEOP}_{i,t} \pm \beta_9 \text{YEAR}_{i,t} \pm \delta_t \pm \gamma_t \pm \mu_{i,t} \end{aligned} \quad (1)$$

All the variables in equation (1) are as already defined and the  $i$ 's represent banks 1 through 19. The  $t$  takes values of the years from 2000 to 2008. The  $\beta$  parameters represent the constant term and the estimated coefficient for their respective variables. We split the error term into three components:  $\delta_t$  is the time effect which controls for macroeconomic shocks,  $\gamma_t$  is the individual effect which controls for unobservable heterogeneity and  $\mu_{i,t}$  is the stochastic disturbance.

We adopted the panel data analysis technique because of the pooled nature of the data set (mixture of time series and cross section) and its ability to take into account the unobservable and constant heterogeneity effects inherent in the data

<sup>2</sup> In most cases, these variables are directly reported in the Annual Reports.

set. Given that some of our explanatory variables such as board size, composition and functioning may be determined simultaneously with bank performance (Hermalin & Weisbach, 2003), it simply implies that we are likely to have problems of endogeneity.

The general approach to estimating models that do not strictly satisfy the exogeneity condition is to use a transformation to eliminate the unobserved effects and introduce instrumental variables to deal with endogeneity (Wooldridge, 2002). Thus, we adopted Arellano & Bond's (1998) proposal to use the two-step system estimator with adjusted standard errors for potential heteroskedasticity. The itinerary of this method considers the unobservable effects, transforming the variables into first differences and uses the generalized method of moments (GMM) with instrumental variables to deal with endogeneity problems.

We used the lags of *BOARDSIZE*, *OUTSIDER* and *MEETYR*, *PERIOD* dummies and Tobin's *Q* as our instrumental variables. To test for model specification, we employ the J-statistic to test for overidentification of restrictions and to examine the correlation between the instruments and the error term. Before proceeding to estimate the model using the Generalized Method of Moments (GMM) we used Windmeijer (2000) adjustment for small samples to avoid any potential downward bias in the estimated asymptotic standard errors and to improve the robustness of our results.

## **V. Results and Its Implications**

In this section we present descriptive statistics of the data used for the analyses. This is to aid the reader better appreciate the prevailing board design and performance indices in Nigerian banks. We also present the results of the Dynamic Panel Data (DPD) analyses using the Generalized Method of Moments (GMM) with the two-step system estimator which improves on previous empirical researches by accounting for the unobserved heterogeneity, and chiefly the endogenous nature of our explanatory variables.

## V.1 Descriptive Synopsis:

Table 1 depicts a summary of the descriptive statistics of our variables. Each variable has 171 observations which represent data for 19 out of 24 Nigerian banks between the years 2000 and 2008.

Table 1. Summary Statistics

Variable	Mean	Median	Std. Dev	Skwn.	Max.	Min.	Obs.
<i>Board Structure</i>							
BOARD SIZE	13.07	12.00	3.26	0.62	20.00	8.00	171.00
OUTSIDERS	0.51	0.58	0.09	0.44	0.60	0.37	171.00
MEETYR	6.72	7.00	1.97	0.60	12.00	3.00	171.00
BOARD SIZE SQ.	180.43	144.00	92.32	1.07	400.00	64.00	171.00
<i>Bank Characteristics</i>							
BNKSIZE	27.03	27.55	1.65	-1.75	29.51	20.06	171.00
LONASS	0.35	0.33	0.11	0.00	0.55	0.10	171.00
<i>Bank Performance</i>							
Tobin's Q	1.21	1.14	0.20	2.09	1.90	-0.04	171.00
ROA	2.22	1.90	0.82	0.78	4.00	1.00	171.00

From the Table, we observe that the mean and median sizes of bank boards in Nigeria are 13.07 and 12, respectively. This is significantly higher than the average and median sizes of 8.45 and 6 reported for non-financial firms in Nigeria (Sanda et al., 2005). Our measure of board composition (OUTSIDER) reveals that on average, 51 per cent of board members in Nigerian banks are non-executive directors. Since the median board size consists of 12 members, it implies that a typical Nigerian bank has about six non-executive and six executive directors. The number of meetings held by boards in a year which is our proxy for board proactiveness indicates that on average, bank boards hold meetings 6.72 times a year. With a positive skew of 0.6, we conclude that most banks boards, hold meetings more than six times a year.

Our measure of the structure of bank business (BNKSIZE) which we constructed as the natural log of a bank's total assets (a control variable) indicates a mean and median of 27.03 and 27.55 with a negative skew of -1.75 and 1.65 standard

deviation, suggesting that there are more banks with relatively smaller total assets than a few with relatively very large assets.

A second control variable (LONASS) which is constructed as the ratio of loans and advances to total assets indicates an average of 0.35, implying that an average Nigerian bank has about 35 per cent of its total assets in loans and advances. This is less than the average of 49 per cent reported for selected OECD countries by Andres & Vallelado (2008).

Our measures of performance (TOBIN'Q and ROA) reveal averages of 1.21 and 2.22 per cent, respectively. Both averages are significantly higher than 1.15 and 1 per cent reported for banks in selected developed countries (Andres & Vallelado, 2008).

## **V.2 Two-Step System Estimation Results**

In Table 2, we report the results of our estimation. We indicate the estimated coefficients of the variables with their corresponding probability values. We show the J-statistic which we used to test for the validity of over-identifying restrictions, we also presented the first and second order autocorrelation test and the F test of overall model statistical significance.

The results of our estimation do not reject the rationality of our model and confirms the absence of first and second-order serial correlation. The suitability of our instrument list which takes care of endogeneity is confirmed by the J-statistic.

We observed a positive and significant relation between BOARDSIZE and both measures of bank performance. The implication is that the admittance of additional members into the board improves bank performance though with a diminishing marginal growth. This result is consistent with the hypothesized inverted U-shaped relation between board size (BOARDSIZE) and bank performance (TOBIN'Q or ROA) as presented in Andres & Vallelado (2008).

**Table 2. Estimated Relationship between Board Structure and Bank Performance in Nigeria.**

Independent and Control Variables	TOBIN's Q		ROA	
	Coef.	P>  t	Coef.	P>  t
BOARDSIZE	0.0894	0.014**	0.6250	0.0413**
BOARDSIZE SQ.	-0.0037	0.0457**	-0.0266	0.0298**
OUTSIDER	0.0177	0.0454**	0.2224	0.0173**
MEETYR	-0.0555	0.0565*	-0.0395	0.0902*
BNKSIZE	0.0104	0.0919*	-0.3269	0.5852
LONASS	-0.1878	0.0894*	-7.6045	0.0185**
BNKMERGE	-0.2467	0.8337	-10.2176	0.3602
PERIOD 02	0.0805	0.3440	0.2791	0.6104
PERIOD 03	0.0312	0.0824*	-0.5822	0.0308**
PERIOD 04	0.0629	0.0003***	-0.1014	0.0779**
PERIOD 05	-0.0801	0.0492**	1.2504	0.0366**
PERIOD 06	0.0591	0.3152	-0.4572	0.2943
PERIOD 07	0.0387	0.5233	0.0130	0.9744
PERIOD 08	-0.0369	0.0741*	0.5375	0.2108
OPT. BOARDSIZE	14.0000		13.0000	
<i>F</i> test	19.7601	0.0000***	23.9204	0.0000***
J-Statistic	5.2857	0.6163	5.3561	0.0000***
$AR_t$	-0.9305	0.3060	-0.9841	0.3082
$AR_2$	-0.6803	0.4869	-0.7106	0.5106

\* (\*\*) and (\*\*\*) denotes rejection of the hypotheses at 10%, 5% and 1% significance level respectively

The negative and significant coefficient for the square of board size (BOARDSIZE SQ) suggests that there is an optimum point at which admitting a new director reduces bank performance. For Nigerian banks, the optimum number is between thirteen and fourteen members. We note that this is the board size that maximizes the objective function.

We observed a positive and significant relationship between the proportion of non-executive directors (OUTSIDER) and bank performance. This result is consistent with the theory and validates the argument that admitting non-executive directors into the board improves its monitoring and advisory role to management and helps to align the interests of various classes of stakeholders.

Unlike the traditional results in previous empirical researches, we observed a negative and significant relationship between bank board meeting and bank performance. This result suggests to us that frequent meetings by bank boards are a response to bank's poor performance, implying that the boards rather than being proactive are reactive to poor performance, thereby meeting often to design, monitor and advise management on strategies to adopt.

Precisely, our results point to the relevance of corporate governance variables in determining bank performance in Nigeria. Therefore, our results confirm the view that some bank board characteristics (size, composition and proactiveness) may be associated with either effectiveness or ineffectiveness in the discharge of its monitoring and advisory role to management.

## **VI. Policy Implications, Directions for Future Research and Concluding Remarks**

In this section, we present policy options available to stakeholders of the banking industry in Nigeria. We also present directions for future research on corporate governance and its relation to bank performance and end with some concluding remarks.

### **Policy Implications**

To guarantee the maximization of shareholder's value and, hence, economic growth, bank boards should be 'efficiently' sized. Stakeholders should engage researchers to obtain the optimum size of boards that achieves the objective function for their respective industries and size their boards plus or minus two standard deviation of the optimum value. In our case, the optimum size of bank boards in Nigeria is 13. Therefore, for any Nigerian bank to operate anywhere around the optimum the board size should be between 11 and 15.



To ensure that bank boards are efficient and that there is minimal or no conflict between the various classes of stakeholders and management, bank boards should have the optimal mix of directors. From our results, a relatively balanced mix (equal number of executive and non-executive members) as against the prevailing code which states that the number of non-executive directors should be more than that of executive directors subject to a maximum of 20 directors, will be the recommended combination. As a prerequisite, an implementable legal framework must be put in place to govern the contractual agreements between stakeholders and boards of directors. For instance, all board members can be made to sign a bond that specifically stipulates their roles in the agency agreement which includes ensuring the maximization of the objective function of the bank.

Further, stakeholders (including regulators) have the option of motivating board members to be more efficient by providing incentive packages to induce board members to act in desired ways<sup>3</sup>. Also, stakeholders may decide to monitor board members directly or indirectly by engaging consultants to do the monitoring were they do not have the expertise to do so.

### **Directions for Future Research:**

In the course of this study, we observed that there is a relative dearth of theoretical and empirical work on corporate governance and bank performance in underdeveloped and emerging economies. The fragility of emerging and underdeveloped economies put a special relevance on the applicability of good corporate governance mechanisms, especially in banks. There is need for researchers to beam their search light on the impact of socio-political shocks on the corporate governance of banks and non-financial firms.

It is also of relevance that we focus on understanding the interaction among multiple governance mechanisms. That is, incorporating traditional means of governance such as social, cultural, family and religious dimensions to the governance of banks (firms). This will greatly improve our knowledge of corporate governance, especially in emerging markets that have strong ties with social systems.

Importantly, from a fundamental viewpoint, there is a strong need to further

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<sup>3</sup> See Denis (2001) for details of possible incentive packages for board members

develop structural models and quantitative theories of the firm to guide future empirical work.

Lastly, there is a strong requirement for a unified corporate body saddled with the responsibility of collecting and collating corporate governance related data in emerging markets and constructing the relevant indices to facilitate corporate governance research in emerging markets like Nigeria.

### **Concluding Remarks**

In the corporate governance of banks, banks' board of directors play a significant role by monitoring and advising management on the formulation and implementation of strategies. Our hypothesis was that certain characteristics of bank boards (size, composition and proactiveness) determine the effectiveness of the board in carrying out its monitoring and advisory roles.

After controlling for heterogeneity and endogeneity using the two-step system estimator, we found that admitting new board members improves bank performance up to a certain point, 'efficient limit', where continuous increase of the board size begins to destroy value. We also obtained empirical evidence which agreed with popular codes of good corporate governance practice, that is, increasing the proportion of non-executive directors in the board improves bank value.

Our third finding challenges the widespread belief that frequent board meetings play a role that was more proactive than reactive. We observed an inverse relationship between board meetings and bank performance which suggests to us that bank boards that meet more often are only reacting to the bank's poor performance. All our findings were consistent after controlling for ownership structure (CEOP), bank size (BNKSIZE), and the effect of the 2004 regulatory shock (BNKMERGE).

Finally, bank boards strategically alleviate the problems of governance in banks and reduce the weakness of other corporate governance mechanisms (especially the regulatory and external governance mechanisms). Hence, empowering boards through incentives packages and an enlarged purview of authority and responsibility to monitor, sanction, reprimand and advise management will be the way forward for the growth and development of the banking sub-sector in Nigeria.

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# The Dominant Channels of Monetary Policy Transmission in Nigeria: An Empirical Investigation

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Mbutor O. Mbutor\*

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*The paper aims at identifying the dominant channel of monetary policy transmission in Nigeria. The standard vector autoregressive methodology is adopted. The data set for the study spans 1998:Q1 and 2006:Q4. ADF tests confirm stationarity. The impulse response function shows that an unexpected shock of the monetary policy rate does not have a contemporaneous effect on gross domestic product and Consumer price index. In the quarter after the policy shock, output and price shrink marginally. Variance decomposition shows that the change in the policy rate contributes 22 per cent to total variation in GDP in the third quarter. However, the highest dip in prices as a result of the policy shock is observed in the fourth quarter. Variance decomposition shows that the change in the CPI was mainly caused by GDP and lags of CPI itself. The inferences from the study show that the lending rate provides the strongest nexus for the propagation of monetary policy impulses in Nigeria*

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**Keywords:** Dominant Channel, Transmission Mechanism, Monetary Policy

**JEL Classification:** E52, E58, E65

## 1. Introduction

The literature on transmission mechanism of monetary policy the conduit through which monetary policy actions impact on the economy is so vast and varied that citations in the Google website on the subject amounted to over 1.6 million as of mid-February 2008. But what was regarded as the final spot on a subject has been disproved subsequently both in social and physical sciences. It is because of human curiosity, the subject of monetary policy transmission has grown sharply particularly since the mid-1980s. New theoretical insights have emerged thereby indicating that there could be no one transmission channel that could be regarded as universally applicable. Besides, in a world that is increasingly moving towards market orientation, it has become necessary that

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\* Mbutor is a Senior Economist in the Research Department of the Central Bank of Nigeria. The views in the paper are those of the author and do not in any way reflect the thinking of the management of the Central Bank of Nigeria. I owe nonpareil gratitude to Dr. Asuri Vasudevan for his advice.

knowledge of the relevance of a particular transmission channel to the particular circumstances of the economy informs monetary policy formulation. In most exercises of monetary policy making, it is the dominant transmission channel that would be the center of attention. The remaining transmission channels, however, would still need to be monitored because their influence on the domestic economy would be largely determined by the changing institutional set up and the international economic and financial developments.

The main purpose of this paper is to present an empirical study of the transmission mechanism that would be relevant at the present time to poor but important producers and exporters of crude oil that have undertaken extensive macroeconomic and structural reforms in recent years. The substantive empirical studies on the subject that focus on this category of countries have many limitations of methodology including the use of data for years that were characterized by different policy regimes. This paper takes Nigeria as an illustrative example of such a category of countries. The paper also makes use of high frequency data from quarter 1 1998 to quarter 4 2006 the initial year providing the base for analyzing the progress of reforms from 1999. The data sources are drawn from public and published: the IMF International Financial Statistics, the Central Bank of Nigeria, the Nigerian Stock Exchange and the National Bureau of Statistics.

The paper is organized thus: In Section I we present a brief introduction to the recent economic developments in Nigeria essentially to highlight the reasons why Nigeria has been chosen as a test case. Section II gives an overview of the main strands of the theoretical insights on the subject. We follow it up in Section III with a discussion on the methodology and data that are used for our study. Section IV deals with an econometric examination of the different transmission channels of monetary policy. In the final Section, the implications for policy are brought out.

### **Background on Nigeria**

Nigeria has a population of over 140 million and a huge amount of as yet not fully tapped resource base, both human and material. One out of every 6 Africans is said to be a Nigerian. The common language for communication throughout the country is English, a language of the international financial market. It has rich

mineral wealth and is a major crude oil producer in sub-Saharan Africa. It is a member of the OPEC. Its crude oil product, the Bonny Light, is sweet and commands a slight premium over the international price of the British Brent crude. Crude oil exports form on the average about 90 per cent of total merchandise receipts of Nigeria. When prices of crude go up, the US dollar receipts obtained from the sale of crude increase correspondingly. The dollar receipts bolster the revenue position of the Federation. The receipts obtained from crude sales at a benchmark crude price that is mentioned in the Federal Government budget together with the revenues obtained from other sources are allocated among the Federal Government, State and Local Governments according to an agreed formula. In general, the Federal Government gets a little over one half of the total amount for allocation while the remaining two tiers of government get the residual. The expenditures incurred by the three tiers of the Government tip up the circulation of the domestic currency, the Naira, contributing thereby to increase in money supply.

Since crude revenue forms a major chunk of total revenue at almost 87 per cent on the average in recent years, liquidity in the economy is determined to a substantial extent by the monetization of the petrodollar receipts from the sale of crude oil. Nigeria is the second largest economy in Africa, next to South Africa. This was facilitated by the extensive economic reforms since 1999. Reforms helped to propel growth and diversify economic activities. It also helped to bring about a deceleration in inflation. Annual real growth of GDP between 2000 and 2007 averaged about 6.1 per cent per annum. Between 1991 and 2000, the real GDP grew on the average by little less than 3 per cent a year. The annual average inflation rate in the eight years between 2000 and 2007 was about 12 per cent whereas it was 30.6 per cent in the period, 1991-2000. In the last two years, the inflation rate has been in single digit.

The barometer of business confidence and investment climate is often the stock market. The Nigerian stock market capitalization has been phenomenal during the reform period. It has been particularly so since 2004. From about N1.9 trillion in 2004, it went up to N5.1 trillion by 2006 and further to N10 trillion by end 2007. Banking sector's share in the stock exchange has been high in terms of the value of shares issued and traded and in terms of market capitalization. This has to do mainly with the bank consolidation that was carried out during 2004/2005 and the

confidence it has created in the financial system. Banks mobilized large amounts as a result from the primary market.

The large capital inflows facilitated mainly by the increase in the international prices of crude helped the country to pay off its debts to the Paris Club creditors. The external debt is low at a little over US \$ 3 billion as at end of December 2007. Partly owing to this, the country's sovereign and credit ratings have been high. The foreign exchange market has been liberalized with the introduction of wholesale Dutch auctioning system in early 2006 together with two-way quotes on the inter-bank dealings and direct sales of foreign exchange by the Central Bank to the licensed bureaux de change operators. These measures helped to bring about the unification of the exchange rates. Also, the gross official reserves stood high at over US\$51 billion as at end-2007 as against US\$7.7 billion at the end of 2002. The total foreign exchange assets held by commercial banks have also gone up during the same period. The inflow of foreign direct investment has been high. Foreign investment, both direct and portfolio is presently around US\$6 billion compared with little over US\$2 billion in 2002. There is a move to bring about complete current account convertibility by accepting the obligations under Article VIII of the International Monetary Fund (IMF). The country has unveiled a Financial System Strategy 2020 whereby the country aims to set up a modern financial sector that is diversified, deep and integrated and to be one of 20 largest economies by 2020.

Monetary policy formulation is in the hands of the Monetary Policy Committee (MPC) in the Central Bank of Nigeria (CBN). The MPC was formally constituted in 1999 but it has become a part of the Statute in May 2007. The objectives of monetary policy are essentially to secure monetary and price stability. In this connection, two objectives of the CBN may be mentioned here. The CBN has to secure financial stability and safeguard the external value of the Naira. As liquidity has been in abundance mainly owing to the large accretion of foreign exchange assets with the banking system as a whole, the CBN uses open market operations as a regular tool of policy. It also issues its own short-term paper along with the Federal Government which issues both treasury bills and treasury bonds. The two-way quotes are allowed. Repo market exists. The exchange rate of the Naira is market-determined with the CBN fast becoming a relatively small player in the foreign exchange market. CBN sales/purchases of foreign exchange

influence market liquidity. The CBN announces the Monetary Policy Rate (MPR) as required by law: it is essentially to signal its intention about the rate of interest and to influence the term structure of interest rates. The inter-bank call rate has, thus, become the focal point of attention. The inter-bank call market and the Government securities market have been growing since the reforms have been unveiled though the secondary market transactions have not acquired adequate depth.

It is against this background, the CBN has revealed its intention to move from the current policy framework that is a hybrid of monetary targeting and a loose form of interest rate targeting to inflation targeting framework by a period that is yet to be firmly established. There is, therefore, a more urgent need to understand as to which of the channels of monetary policy transmission is dominant and which of the others need to be kept in view in the short-to-medium term. Such an understanding would be based on the premise that oil-exporting countries face structural liquidity problems: excess liquidity in periods of rising crude oil prices and large capital inflows and severe liquidity crunch when crude oil prices collapse and other capital inflows stop. Since 1999, the excess liquidity in the economy is caused as much by rise in crude oil prices as by the signals that the macroeconomic and structural reforms have provided to investors, both domestic and international.

Peculiar factors which might have influences on the transmission process in Nigeria include underdeveloped financial system with very shallow scope, in terms of instruments and operational depth. Most transactions in Nigeria are cash based, implying that interest rate and other intermediate variables have little role to play in guiding general merchandise, a factor which obstructs the efficacy of monetary policy transmission, and oil revenue as the mainstay of foreign earnings imposes, sometimes, large volatilities in the interbank interest rates, thereby rendering the effect of monetary policy less predictable.

## **II Theoretical Review on Transmission Channels**

In the literature, the channels through which monetary policy impacts on the economy are essentially three. They are: the interest rate channel, the exchange rate channel and the credit channel. Our aim here is to highlight only the main

elements of each of the channels rather than to go through the entire literature. The interest rate channel is by far the most widely discussed in the macroeconomic literature. It posits that the action of monetary authorities can easily be conveyed to the real sectors of the economy through the dynamics of interest rates. The original followers of this approach considered only the real rates and not the nominal ones. However, most central banks can aim at nominal interest rates, since the real rates would be unknown at any point in time. The real rates, given the expected inflation rate, would generally move in the same direction as the nominal rates. When money supply (MS) increases, interest rate would be expected to fall, assuming that rates are determined by the relative forces of demand for and supply of funds. The fall in interest rate would push up investment and aggregate demand. Consequently, the total output rises. The reverse will be expected to play out when money supply shrinks. However, the speed of adjustments may not necessarily be the same because of the impact of sticky prices.

The earlier writers on this channel linked investment to production only. However, in credit-oriented societies, consumption particularly for durable goods also accounts for changes in interest rates. Taylor (1995) has shown convincing evidence on the impact of this view. The effect of interest rate changes are traced through the reaction of agents in the system. Usually, when a policy change causes interest rates to increase, consumers' propensity to save increases as current consumptions are deferred in order to take advantage of higher returns on interest bearing investments. Current consumption also declines, though only to the extent that it is interest elastic. Also, the rise in interest rates induces investors to prefer fixed income portfolios to equities and this causes equity prices to dip. The decline in equity prices in turn leads to net loss in household wealth and consumption is consequently depressed. For business entities, the rise in interest rate will reduce current profits, and cause a depression in Tobin's 'q' deflating the ability to source funds for current investment.

In a world where economies are being increasingly integrated, monetary policy decisions tend to take into account developments outside the domestic economic jurisdictions. Basically, earnings from international trade have become some of the highest sources of high-powered money for most economies in the world. International trade here may relate to the current and/or capital account

components of the balance of payments. Therefore, there is the need to consider the effects of changes in the exchange rate on the domestic monetary policy. If the domestic currency depreciates vis-à-vis other currencies, the net foreign assets (when monetized) will grow disproportionately relative to other components of the monetary base, thereby causing the supply of money to rise.

Traditionally, the exchange rate channel works through the net export medium. When the supply of money increases, domestic interest rates fall, as a result of expenditure switching. Consequently, net export and total output are expected to be enhanced. An enhanced net export will lead to increased total output so long as the value is positive. If net export is negative, signalling a net outflow of domestic resources, aggregate output is depleted and the general level of prices will be expected to rise. Exchange rate appreciation causes prices of imports to fall and expenditure tilts to imported products at the expense of domestic import substitutes. Appreciated currency also depresses the production of exports and consequently reducing the income from the export sector and dampening aggregate demand.

More recently, the credit channel has come to the frontline of discussions of transmission mechanism. Changes in money supply are expected to affect the lending behaviour of banks, thereby altering the volume and direction of loan-related investments in the economy. The credit channel has two broad components, namely; lending and balance sheet views.

The lending view asserts that in regimes of tight monetary policy, banks are not able to substitute their traditional sources of funds (reserves with the central bank) with other sources, so there are forced to reduce the quantum of loans which they make, even when there are genuine demands from investors. The decline in the quantity of loans leads to a fall in investment and to subsequent decrease in aggregate output. The basic assumption is that the financial market is fraught with imperfections, arising mainly, from information asymmetry. A basic prediction from this view is that smaller firms or households who depend more on banks, are likely to be worse off in times of tight money. (Bernanke and Blinder (1993), Suzuki (2004), Mbutor (2005), for evidence of the lending view)

The balance sheet approach is similar to the lending view. The only difference with the lending view is that the fall in the quantity of loans occurs due to fall in the

net worth of firms which arises in turn from the rise in the policy rate hindering them from demanding loans from banks. Following the schematic presentation of Mishkin (1996), the balance sheet approach works thus: when money supply increases, the price of assets increases, adverse selection and moral hazard in making loans by deposit money banks decrease, bank lending increases, investment increases, and aggregate output similarly rises.

### **III. Methodology and Data Properties**

Monetary policy actions are propagated through series of intricate connections among macroeconomic variables in time and space. To effectively capture the complex interlinkages, vector autoregression (VAR) method is often used since it is a dynamic system that permits simultaneity of activities among included variables. In other words, the variables in the system freely express themselves at the same time and the impulse response function serves to trace out the impact of actions due to each variable in the entire system. VAR also provides the additional advantage of using reduced form equations as distinct from large scale models with numerous variables.

The appeal of this methodology for evaluating the transmission mechanism of monetary policy is that monetary policy impacts on the economy when other developments also play out -such that the interdependences of the parameters of the variables can be estimated without holding any one constant. For instance, the effect of exports on GDP would not be held constant while a monetary policy action is being contemplated. The method also captures the contemporaneous and lagged responses of the variables simultaneously (Mbutor 2005).

The method adopted in this paper is the vector autoregressive methodology and draws mainly from the benchmark specification for the euro area as presented by Peersman and Smet (2003). The VAR takes the form:

$$Y_t = A(L)Y_{t-1} + B(L)X_t + U_t \quad (1)$$

$Y$  is a vector of endogenous variables while  $X$  is a vector containing the exogenous variables. The inclusion of exogenous variables will capture developments in the world that could help capture the impact on domestic



variables. The assumption underlying the exogeneity of factors is that there is no feedback from the domestic variables to the foreign variables.

The benchmark specification for the vector of exogenous variables  $X$  contains world commodity price index ( $w_p$ ), the United States real GDP ( $y_t^{US}$ ) and the US short term real interest rate ( $s_t^{US}$ ).

$$X_t = (w_p, y_t^{US}, s_t^{US}) \quad (2)$$

The vector of endogenous variables  $Y$  includes domestic GDP ( $y_t$ ), domestic prices ( $p_t$ ), domestic short term nominal interest rate ( $s_t$ ), broad monetary aggregate ( $m3_t$ ), and the real effective exchange rate ( $x_t$ ).

$$Y_t = (y_t, p_t, s_t, m3_t, x_t) \quad (3)$$

This study focuses on the vector of endogenous variables for two reasons: first, the economy is small and yet not fully open and secondly, foreign investors generally rank macroeconomic stability as more important than interest rate differentials in decisions about their portfolio investments in developing countries. In applying the specification for this paper the merit of including the variables in the system of equations will be evaluated taking cognizance of the peculiarities of the Nigerian economy. This would imply that there could be modifications to the array of variables. In other words, the traditional explanations may undergo changes if policy framework shifts. To elaborate this point, let us assume, as is often the case that monetary policy actions aim to nurture growth through policy rate decisions. Thus, a reduction in policy rates energizes aggregate demand, catalyzing production and depressing the aggregate price level. Gross domestic product, in the traditional explanation, provides a gauge for the success of monetary policy.

In the case of Nigeria, in the current evolving situation, this explanation may need to be given a nuance. The aggregate price level is measured in Nigeria by the consumer price indices and the Central Bank of Nigeria Act 2007 explicitly ranks monetary and price stability as the prime objective of monetary policy. However, the CBN is keen to move as mentioned already to a policy framework such as the inflation targeting in the near future, in which event the variant that would be

targeting would require to be announced before hand. In case the Bank settles for flexible inflation targeting, the parameters for output and any other variables to be included will be greater than zero in the CBN's reaction function. In other words, the CBN will not only focus on price but also, implicitly, on other macroeconomic variables. In the case of Nigeria, exchange rate consideration is nearly indispensable for monetary policy making for two major reasons. One, the economy is largely a mono-product exporter, relying mainly on oil related revenue. In 2006, total government's revenue to GDP ratio stood at 32.7 per cent, out of which the revenue from the oil sector accounted for 29 per cent of GDP (i.e., 89 per cent of total revenue). As a result, the largest asset on the balance sheet of the central bank is the net foreign assets and predominantly drives money supply. Two, the economy is largely import dependent.

The money supply M3 in the specification given by Peersman and Smet (2003) will be substituted by M2 which is the broad money supply in Nigeria, defined as M1 plus quasi money. The rationale for including M2 is that until December 11, 2006 broad money was used as the sole intermediate target of policy. More so, there is quantitative evidence that money supply impacts inversely on interbank rates in Nigeria. Usually, between the 15th and 22nd of every month the Federation Account Allocation Committee meets and allocates accrued revenues to the three tiers of government. With a very short lag usually of about one week, the interbank call rates falls in response to the liquidity surge in the system every month. However, since the introduction of the MPR and the two-way quote at the Open Market Operations, the volatility of interbank rates after the allocations by the FAAC are made, has been dampened.

Until December 2006, the CBN used the MRR (Minimum Rediscount Rate) as the policy rate. However, it was not a transactions rate as it only signalled the direction of policy stance. The monetary policy rate, therefore, replaced the MRR and has since become the effective repo rate. For this study, MRR and the MPR will be used interchangeably. Recently, the stock market has become vibrant with the consolidation of banks and the successes in mobilizing funds in public offers. Therefore, asset prices (the All Share Index) are introduced in this paper to ascertain what impact they might have had or begin to have on monetary policy. The interbank rate is also included to capture the intermediate objective of CBN's monetary policy which is to keep the inter-bank rate less volatile.

The ordering of the variables in the model will follow the standard Cholesky decomposition which is based on the length of time it will take for each variable to respond to extraneous shocks. Theoretically, output takes a longer time to change in the face of policy changes than prices, while exchange rate reacts faster than prices. So technically speaking, this involves identifying monetary policy by taking the residual from the reduced-form interest rate equation and regressing it on the residuals from the output and price equations (Alam and Waheed, 2004) with the aim of recovering the underlying structural shocks by recursive orthogonalization.

The data set for the study spans 1998: Q1 and 2006: Q4. Usually, the temporal properties of time series data inform the specification of the VAR model and the approach to be adopted. A common consideration is whether the data should be differenced before application or applied in terms of levels. Generally, if the variables in the model are non-stationary, then the data should be differenced to avoid spurious results. However, while differencing improves the statistical efficiency of the parameter estimates, it could lead to substantial loss of economic interpretations of data.

Contemporary monetary policy is predominantly implemented in free market environment the quality of the data used for policy simulation must be firm. Accordingly, this study has attempted to scrutinize the data by examining as to whether there exist unit root among the variables. The Augmented Dickey-Fuller (ADF) tests are adopted to check for unit roots. The result of the Unit Root tests are presented in the table below

Table 1: Unit Root Test at Levels

Statistics	GDP	CPI	M2	LR	IB	SI	XR	MRR
ADF	-1.134154	-0.254820	2.072816	-0.940575	-2.030828	0.165603	-2.937269	-1.301419
<b>Critical Values</b>								
1 %	-3.632900	-3.632900	-3.646342	-3.632900	-3.632900	-3.632900	-3.632900	-3.632900
5%	-2.948404	-2.948404	-2.954021	-2.948404	-2.948404	-2.948404	-2.948404	-2.948404
10%	-2.612874	-2.612874	-2.615817	-2.612874	-2.612874	-2.612874	-2.612874	-2.612874

GDP is real gross domestic product, CPI the consumer price index, M2 the broad money, LR the average lending rate, IB the interbank call rate, SI the All Share Price Index, XR the exchange rate expressed as Naira per US Dollar, and MRR the minimum rediscount rate now replaced by the MPR. Analysis of the table above shows that all the included variables (at levels) are non-stationary at all the three levels of significance except the exchange rate which is stationary at the 10 per cent level of significance. Consequently, the unit root test results for the variables in their first differences have been worked out and reported in Table 2.

Table 2: Unit Root Tests at First Difference

Statistics	IPI	CPI	M2	LR	IB	SI	XR	MRR
ADF	-5.2373	-5.170995	-6.046133	-4.75953	-7.065264	-5.904077	-5.133315	-4.689281
Critical Value								
1%	-3.6463	-3.646342	-3.64634	-3.63940	-3.639407	-3.639407	-3.639407	-3.639407
5%	-2.9540	-2.954021	-2.954021	-2.951125	-2.951125	-2.951125	-2.951125	-2.951125
10%	-2.6158	-2.615817	-2.615817	-2.614300	-2.614300	-2.614300	-2.614300	-2.614300

Evidently, all the variables do not contain unit roots even at the 99 per cent confidence level. For technical efficiency in measuring the parameter estimates, the variables should be applied in their first differences. However, differencing comes with loss of economic relevance. And so since the VAR analysis is to identify the reaction of variables in a model to some stimuli, and not the measurement of parameter estimates, it could be considered adequate to apply the VAR approach to the data in their levels.

#### IV Econometric Estimates

The estimation results are presented in two stages. The first shows the traditional response of the variables to one standard deviation innovation on the policy variable. The second stage attempts to identify the weight of the effect of the proxy variable for the different channels of monetary transmission. To achieve the latter objective, lending rate or broad money or exchange rate (which are proxies for the interest rate channel, traditional channel and exchange rate channel,

respectively) will be exogenized at a time, so that the others are endogenized to isolate the effect of the former. Exogenizing any one variable will block off its effect on the system. The isolated effects will then be amenable for comparison to identify as to which of the variables has the strongest impact on output and/or prices.

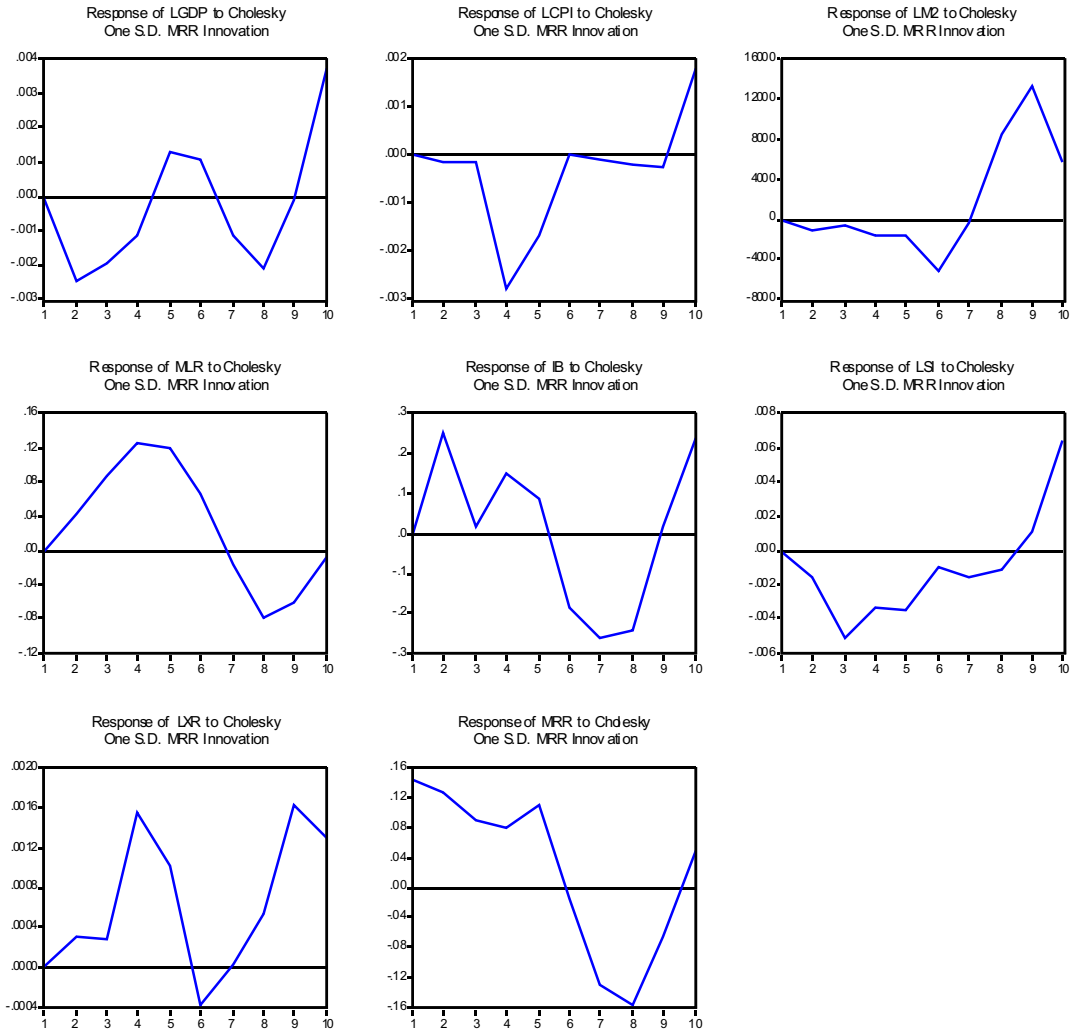
### **The Reference Model (Baseline System)**

Figure 1 below shows the impulse response function of the gross domestic product (GDP), consumer price index (CPI), broad money (M2), lending rate (MLR), weighted interbank call rates (IB), the all share price index (SI) at the Nigeria Stock Exchange, and exchange rate (XR) to innovations on the policy rate. The standard innovation is equivalent to 0.25 per cent positive innovation on policy rate. The results obtained are robust and do not change with alternative ordering of the variables.

### **Impulse Response of GDP**

From the result an unexpected shock on the MRR will not cause any change in the gross domestic product in the same quarter in which the shock occurs. However, in the second quarter, GDP falls by 0.2 percent. Until the fourth quarter the fall in output is sustained though at a decreasing rate.

**Fig.1: Impulse Responses in the Baseline System**



This inference is in line with the findings of Nnanna (2001) and Mbutor (2005) that changes in the policy rate had little effect on the GDP. One plausible reason for this development is the fact that the GDP is dominated by the agricultural sector which received only one per cent of total domestic credit in 2006. Therefore, it is inferred that agricultural activity is interest rate inelastic. Moreover, consumer loans formed an infinitesimal part of total loans and advances of banks. Had the conclusions been otherwise, households would have altered their consumption by the extent to which policy rates affect their borrowing for consumption.

### **Impulse Response of CPI**

The consumer price index does not react to the shock on the MRR in the first period. However, in the following two quarters, it fell marginally by an average of 0.02 per cent. The highest fall in the CPI came in the fourth quarter when it dipped by 0.3 per cent. Of the 0.3 per cent fall in prices, the variance decomposition of CPI shows that the change in MRR accounted for 0.31 per cent while money supply contributed 3.72 per cent. CPI and GDP accounted for 43 per cent and 27 per cent, respectively.

Changes in the policy rate have insignificant impact on prices because it operates at the short end of the market and do not have a significant effect on production activity. Moreover, price formation in Nigeria is also a structural phenomenon, mainly driven by speculation and announcement effects.

### **Impulse Response of Lending Rate**

Until recently, commercial banks (known as deposit money banks in Nigeria) lent short. So the moving average of central lending rates was adopted in the study to align the lending rate with the frequency of loan contracts. The lending rate does not react contemporaneously to changes in the MRR/MPR. However, in the second quarter it rose by 4 per cent. In the fourth and fifth periods, it rose by an average of 12 per cent, while the trend was reversed in the seventh period. The increase in the lending rate as a result of the policy shock is not surprising because until recently banks primarily depended on government deposits and facilities

from the Central Bank of Nigeria for their reserves. However, the surprising conclusion is that the rise in the lending rate did not depress output significantly. In the fifth quarter when the lending rate grew by the highest amount, output fell marginally. However, a priori, output should respond to lending rates with a lag. Assuming a lag of two quarters, the rise in the rate depressed output by 0.01 per cent. Such a weak effect could be attributed to the short term nature of DMBs' loans. In 2004 and 2006, the long term loans to total asset ratios of DMBs were, respectively, 0.0009 and 0.01, hardly an improvement. The variance decomposition of CPI shows that the lending rate has a visible impact on CPI in the fourth quarter when it contributed 8.40 per cent to the total forecast variance. For GDP, the variance decomposition shows that the lending rate contributes an average of below 14 per cent all through the ten quarters.

### **Impulse Response of Interbank Rate**

The transmission mechanism in Nigeria has two phases. The first is the transmission of monetary impulses to the interbank call market. The interbank rates fluctuate when liquidity is injected through the sharing of the federation revenue- which, as already indicated, is done monthly. So, the CBN's intermediate objective is to curtail large volatilities in the interbank rate. The other phase of the transmission process is the permeation of policy shocks through the financial system to the real sectors. However, the two phases are not mutually exclusive. Rather the first should facilitate the second in the sense that stable interbank rates over time provide an anchor for long rates, since long term rates can be derived as an envelope of short term rates.

In the first period, the interbank rate does not react to the innovation on the MRR/MPR. This is unexpected since the interbank rates included in this study are overnight and not tenored. However, in the second quarter it turns with the expected sign growing by 25.3 percent.

### **Impulse Response of Exchange Rate**

Exchange rate is expressed in units of US dollars per naira. Thus, an increase in the exchange rate implies depreciation of the Naira. From the Cholesky ordering, the expectation is that exchange rate should react contemporaneously to the innovation in the policy rate. The expectation is based on the fact that the increase



in MRR/MPR should cause the yield on treasury bills and other fixed income instruments to rise, necessitating divestment from the foreign exchange market in favour of the domestic currency denominated assets, thereby causing the naira to appreciate.

From the results, it is evident that the exchange rate does not react in the first period. In the second and third periods the naira depreciates by an average of 0.03 per cent.

The weak reaction of the exchange rate, in terms of speed and magnitude, can be explained by three factors. First, until February 2006 the Central Bank of Nigeria was the main supplier of foreign exchange. Foreign exchange was supplied to end users through the retail Dutch Action System (RDAS) and applicants had to fill out forms (A and M) indicating the purpose of the request. Consequently, most foreign exchange sourced through this medium were used for transactions purposes. Therefore, demand would not react to changes in the policy rate. The second factor is the fact that since retail dutch auction system was conducted weekly and later twice a week (on Mondays and Wednesdays) it was largely an inactive market. The third factor is that the sheer dominance of the CBN in the market before now, might not have allowed the true market based exchange rate to evolve. Studies by Masha (2001) showed that prices adjusted to the black market rate in Nigeria. When the foreign exchange market was liberalized from February 2006, the position has been reversed.

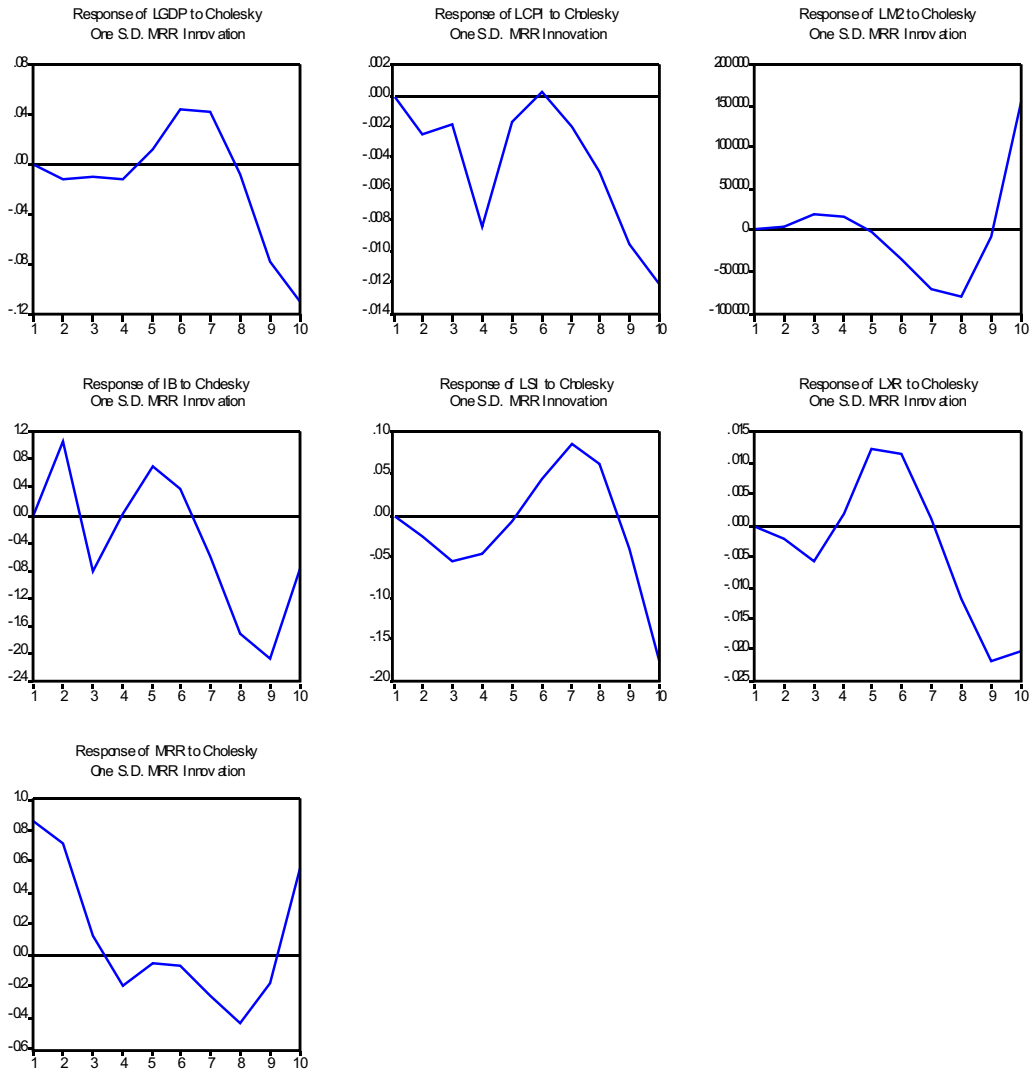
### **Impulse Response of the All Share Index**

Orthodox literature posits that the positive innovation in the policy rate should cause divestment from equities. Analysis of the results shows that the all share index did not react to the innovation on MRR in the first period. However, in the second and third periods the index fell by 0.02 and 0.05 per cent, respectively. The outcome is not surprising because the capital market has not been an active substitute for investments in Nigeria. However, the banking consolidation which was concluded in December, 2005 has caused a revolutionary interest in the capital market and made it more visible in investment considerations.

### Determining the Relative Strength of the Channels of Transmission

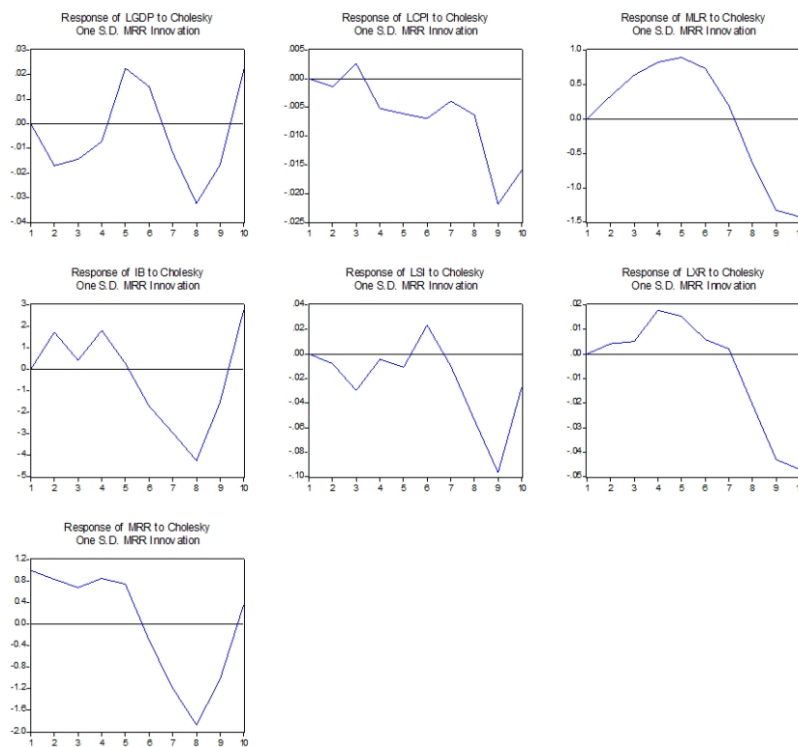
The essence of this section is to determine the relative impacts of the broad money, lending rate and exchange rate in the transmission process in Nigeria. Figures 2, 3, and 4 show the isolated effects of lending rate, broad money and exchange rate, respectively, in the transmission process.

**Fig 2: Impulse Response Results with the Lending Rate Exogenized**

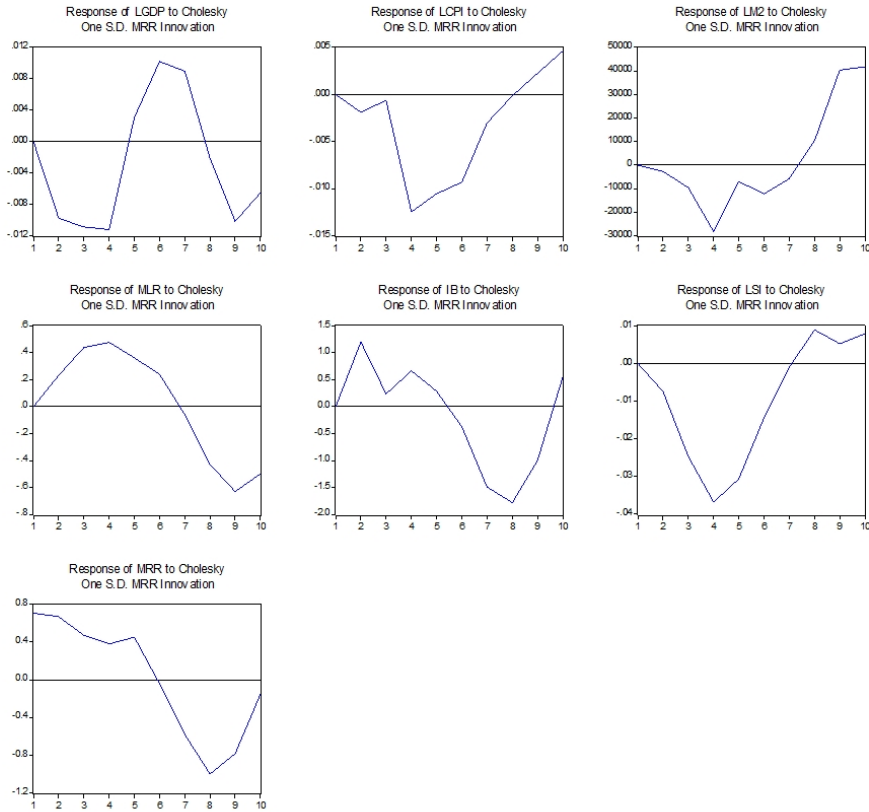


The figure shows the effect of a positive innovation on MRR without the lending rate in the system. There is no effect on the GDP in the first period. In the second and third periods, it falls by 1.3 per cent and 1.1 per cent, respectively. The highest impact was felt in the tenth quarter when it fell by 11.1 per cent. On the other hand, consumer prices did not respond to the policy innovation in the first period. It fell marginally by 0.3 and 0.2 per cent respectively in the second and third periods. The highest change in CPI as a result of the innovation on the MRR was in the tenth period when it fell by 1.2 per cent.

Fig 3: Impulse Response Result with Broad Money Exogenized



Without the effects of broad money, GDP is unaffected by the innovation on MRR/MPR in the first period. In the second and third periods it fell by 1.7 and 1.4 per cent, respectively. Although with a wrong sign, the highest impact was felt in the fifth quarter when it rose by 2.2 per cent. On the other hand, price fell by 1.3 per cent in the second quarter and felt the highest impact in the ninth period with a fall of 2.2 per cent.

**Fig.4: Impulse Response Results without the Exchange Rate**

Blocking off the exchange rate effect from the system, GDP begins to respond to innovations on the policy rate in the second period with a decline of 1 per cent. The magnitude of impact is sustained until the fourth quarter. On the other hand, consumer prices also decline by 1.8 and 1.2 per cent in the second and fourth quarters. The decline continues until the ninth period when the sign is reversed.

In order to ascertain which variable has the most effect, Table 4 shows the baseline effects of the innovation on MRR/MPR with the contribution of the proxy variables for the different channels of monetary policy transmission in Nigeria, while Table 6 shows the impulse responses of the variables with the lending rate, money supply, and exchange rate exogenized in turns. Thus, the isolated effect of each of the exogenized variables will be measured by the difference in impulse response rate and or impulse response time of the goal variables (GDP and CPI)

between the baseline system and the systems which have the variables exogenized. The differences in response rate and response time are measured in absolute terms. Table 6 shows these differences.

**Table 4: Baseline Effect with all the Variables**

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Change in GDP Per cent	0	-0.3	-0.2	-0.11	0.1	0.11	-0.11	-0.2	-0.01	0.04
Contributions										
Lending rate	0	11.64	12.6	10.97	17	17.4	15.37	18.17	16.9	14
Broad Money	0	1.64	1.64	1.42	0.9	0.93	0.68	0.95	0.94	0.55
Exchange Rate	0	0.6	1.97	1.63	1.2	1.19	1.12	0.8	1	1.29
Change in Price per cent	0	-0.02	-0.02	-0.3	-0	0	0	-0.02	-0.02	0.02
Contributions										
Lending rate	0	0.05	0.6	8.38	6	5.15	4.88	6.6	8.5	5.5
Broad Money	0	6.5	5.9	3.7	2.6	2.64	5.2	6.3	5.3	3.8
Exchange Rate	0	0.11	1.35	1.19	6.8	7.8	7.7	6.16	4.9	3.2

**Table 5: Impulse Response Results with Variables Exogenized**

		Broad money Exogenized									
		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Change in GDP Per cent		0	-1.7	-1.4	-0.7	2.2	1.5	-1.2	-3.2	-1.7	2.2
Change in Price per cent		0	0.13	0.26	-0.1	-0.5	-0.7	-0.4	-0.6	-2.2	-1.6
		Exogenized Exchange Rate									
		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Change in GDP Per cent		0	-0.97	-1.1	-1.2	0.3	1	0.1	-0.2	-1	-0.7
Change in Price per cent		0	-0.2	-0.06	-1.2	-1.1	-0.9	-0.3	-0	0.2	0.4
		Lending Rate Exogenized									
		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Change in GDP Per cent		0	-1.3	-1.1	-1.2	1.2	4.3	4.2	-0.9	-7.9	-11.1
Change in Price per cent		0	-0.3	-0.2	-0.8	-0.17	0.02	-0.2	-0.5	-1	-1.2

**Table 6: Comparable Effects of Lending Rate, Broad Money and Exchange Rate**

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
(1) Change in GDP due to MLR	0	1	0.9	1.09	-1	-4.19	-4.31	0.7	7.89	11.1
(2) Change in CPI due to MLR	0	0.28	0.18	0.54	-0	-0.02	0.2	0.48	0.98	1.22
(3) Change in GDP due to M2	0	1.4	1.2	0.59	-2	-1.39	1.09	3	1.69	-2.16
(4) Change in CPI due to M2	0	-0.15	-0.28	-0.25	0.3	0.7	0.4	0.58	2.18	1.62
(5) Change in GDP due to XR	0	0.67	0.9	1.09	-0	-0.89	-0.21	0	0.99	0.74
(6) Change in CPI due to XR	0	0.18	0.04	0.9	0.9	0.9	0.3	-0.01	-0.22	-0.38

1 Is the difference between the baseline effect of a change in MRR on GDP and effect without the lending rate

2 Is the difference between the baseline effect of a change in MRR on CPI and effect without the lending rate

3 Is the difference between the baseline effect of a change in MRR on GDP and effect without the broad money

4 Is the difference between the baseline effect of a change in MRR on CPI and effect without the broad money

5 Is the difference between the baseline effect of a change in MRR on GDP and effect without the exchange rate

6 Is the difference between the baseline effect of a change in MRR on CPI and effect without the exchange rate

To determine the variable with the most impact on GDP, compare rows 1, 3 and 5. The effects are compared in absolute terms such that between -10 and +9, -10 should have a higher effect.

**In terms of size of impact on GDP**, the lending rate has the highest impact with the magnitude of its effect at 11.1 percentage points in the tenth quarter. Money Supply has the second highest effect on GDP with a magnitude of 1.4 percentage points in the second quarter. The exchange rate's impact on GDP seems to be comparatively low.

**In terms of speed of impact**, money supply impacts earliest on GDP in the short term and this occurs in the second quarter.

**In terms of size of Impact on CPI**, compare rows (2, 4 and 6). Broad money has the highest impact on prices at 2.18 percentage point's change in the ninth quarter.

**In terms of speed of impact**, the lending rate has the fastest impact in the second quarter with a 0.28 percentage points change.

## **V Conclusion**

This study has identified the dominant channel of monetary policy transmission mechanism in Nigeria, after it was clear that various channels of transmission are present but in varying degrees. Lending rate, broad money supply and the exchange rate have been identified as representing the credit channel, the traditional channel and the exchange rate channel, respectively. The response of GDP and the consumer price index has been used to gauge the impact of monetary policy in the study.

From the analysis of the results, the lending rate has the highest impact on GDP though only in the tenth quarter. However, in terms of the time of impact, broad money supply has the fastest impact on GDP, causing it to change by 1.4 percentage points in the second period. Exchange rate is less visible than either lending rate or money supply. As regards aggregate prices, broad money has the highest impact of 2.8 percentage points in the ninth quarter, while the lending rate has the fastest impact, causing a change of 0.28 percentage points in the CPI in the second period.

The results show that the quantity of money supply still remains relevant and has to be, therefore, reckoned with in policy making. Our study also suggests that the role of the banking system in propagating monetary impulses to the real sector should be recognized as critical.

The following are the policy implications: First, the Central Bank should evolve policies which have pronounced effects on the lending rate since it is a very potent medium for transmitting monetary policy signals; Second, money supply should remain a major consideration in the choice of any monetary policy framework for Nigeria; and finally, efforts must be made to keep the banking system stable since it is the major conveyor of monetary policy impulses.

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# Economic Liberalization and Job Creation in Nigeria

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Olayinka Idowu Kareem\*

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*This study examines the effects of economic liberalization on job creation in Nigeria. Liberalization in the economy is a multidimensional concept that encompasses finance, telecommunication, trade etc. This study narrows globalization to economic liberalization and looks at its effect on job opportunities in Nigeria. Unemployment has been seen as a great problem to global economic development, and in particular, Nigeria's unemployment has been on a spiral increase, which culminated into a reduction in household income and standard of living, thus, increasing the level of poverty. We discovered that openness of the economy and liberalization of custom and excise duties tend to enhance job creation. However, the liberalization of exchange rate and import duties enhance the level of unemployment through high cost of exports.*

*Thus, the present economic liberalization is not employment enhancing. The implication of this is that there will be productivity loss to the domestic industries due to economic liberalization, thereby, raising unemployment and aggravating the level of poverty in the country. This study, therefore, recommends that the government should undertake regulated/guided liberalization policies such that the dictate of the economy will not be left in the hands of oligopolists.*

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**Keywords:** Liberalization, Job Creation, Error correction Model, Causality.

**JEL Classification:** C32, E24, F15

**Author's Email:** [olayinkaidowuus@yahoo.com](mailto:olayinkaidowuus@yahoo.com); [olayinkaidowuus@gmail.com](mailto:olayinkaidowuus@gmail.com)

## I. Introduction

Economic liberalization is a subset of globalization, which is widely acknowledged to be multi-faceted phenomenon. Each facet of globalization is said to have different effects on employment or job creation, which vary by country, time, industry, policies and the like. According to O'Rourke and Williamson (2000), globalization in the general sense of closer integration of national markets is not new. Lall (2002) believed that globalization comes as part of large array of economic, technical, social, legal and policy changes, each with interactions and feedbacks, thus, making it difficult to separate the effects of globalization. Economic liberalization, which is often taken to mean globalization in its narrow or limited sense, is the economic

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\*Kareem is of the Department of Economics, University of Ibadan. The views in the paper are those of the author and do not in any way reflect the thinking of the Institution to which he is affiliated or its policy. The author thanks colleagues in the Department and anonymous reviewers for helpful comments.

integration of countries. Bhalotra (2002) takes economic liberalization to mean both macroeconomic stabilization and micro-structural change.

The issue of the effects of economic liberalization on job creation is topical, which demands adequate search and research in order to really show to what extent economic liberalization has been able to promote or hinder job creation. In spite of the importance of this subject, there has been relatively limited study. The reason for this according to Ghose (2000) is because it is surprisingly difficult to define and measure the relationship due to various dimension of economic liberalization. Even if economic liberalization is taken to mean trade flows, it is still clearly difficult theoretically to give its employment effects.

This suggests that a generalization relationship between economic liberalization and job creation in developing countries as a whole may not exist. Rather, this relationship is context specific, dynamic and changeable, which reflects certain interactions in each economy between the external factors of economic liberalization that apply to the economy and internal factors that affect its employment response.

In view of the above, most of the studies in this area often look at the effects of globalization on various economies of the world (see Bordo, Eichengreen and Irwin, 1999; Craft and Venables, 2001; Eichengreen, 2002; Streeten, 2001; etc). In Nigeria, some related studies are Ajayi (2001), Adewuyi (2001), Asobie (2001), Iyayi (2003), Igudia (2003), Musa (2000), Kareem (2007), among others. Furthermore, studies like Fitzgerald and Perosino (1995), Ghose (2000), Greenaway, Morgan and Wright (2002), Rodriguez and Rodrik (1999), Spiezia (2002) and Bhasin (2008) take globalization to mean trade liberalization and looked at its effects on macroeconomic variables like poverty, inequality, employment, economic growth etc. Most studies that exist on the effects of globalization or its component on employment were done in the developed countries and some developing countries that are not in Africa (see Lee, 1996; Spiezia, 2002; Wood, 1994; Ghose, 2000). However, studies on the effects of economic liberalization on job creation are few in Africa, specifically in Nigeria, some of them are Faggio and Konings (2001), Iyayi (2003), Adewuyi (2005), Kareem (2007 and 2009). This might be due to the dearth of reliable data on employment in Nigeria. As a result of the dearth of empirical studies in this area, this paper is going to add to the frontier of knowledge by empirically studying the

jobs creation effects of economic liberalization in Nigeria. As pointed earlier, most of the studies in this area have not been looking at this area; especially in Nigeria (see Ajayi, 2001; Iyayi (2003); Adewuyi, 2005; Kareem, 2007).

To this end, it is worthwhile investigating the effects of economic liberalization on job creation in Nigeria. This is on the basis of several economic reforms that have been put in place in the country, which has propelled the country's enhanced interaction and integration with the rest of the world. Therefore, the question that arises is that: does economic liberalization reduce or accelerate the level of job creation in Nigeria? This question leads us to the objective of the study, which is to determine the effect of economic liberalization on jobs creation using Nigerian data. In addition to this section, the conceptual issues and review of literature are discussed in the second section. Section three presents the theoretical framework, while the fourth section focuses on unemployment/employment in Nigeria. Section five deals with the model and the empirical findings are given in section six. The last section concludes and provides policy implications.

## **II. Conceptual Issues and Literature Review**

There is no consensus on the definition of globalization in the development literature (see Kareem, 2009). The concept of globalization means different things to different people. Most economists take globalization to mean the closer integration of economies through trade and the flow of factors. This allows a lot of interpretations on how it could be measured. Some economic analysts believed that globalization is indicated by the relative commodity prices between trading nations. According to O'Rourke and Williamson (2000), it is the convergence of relative prices that is known as the central manifestation of globalization. While some used growth rate of trade and factor (but capital rather than labour) flows to measure globalization, others take it to be economic liberalization, which enhances closer economic interactions and even some analysts gave a narrower definition to globalization, as being the organisation and governance of global production systems (Lall, 2002). Adewuyi (2001) takes globalization to mean the process of both vertical and horizontal integration that involved an increased volume and variety of transnational transactions. Omar (1996) conceived globalization to mean the integration of the domestic economies via financial and trade interactions, leading to the collapse of barriers to trade that makes the

domestic economy to be influenced by the policies of another country through trade and investments. Igudia (2003) defined globalization as the union of countries of the world where the national economies are opened and the economic activities are integrated with those of the international community, thus, representing a global village. Globalization could also be taken to mean the economic revolution of the new millennium which the world is shrinking into a global village (Lall, 2002).

However, economic geographers take globalization as the shifts in the location of economic activity subsequent upon shrinking economic distance. Outside the discipline of economics, globalization has been defined in variety of ways, while some take it to be synonymous with capitalism, multinational corporations and big business.

The term economic liberalization is a subset of globalization that is multidimensional, as it encompasses trade, financial, services, telecommunication etc. A lot of meanings have been ascribed to the concept, depending on the perception of the individual author. However, the most consensus term in these definitions is the freedom or non-barrier to everything across the border. This is also known as liberalization. Liberalization is the breaking of barriers to the exchange of things, be it economic, cultural, political or social. The economic liberalization of globalization that this study shall deal with entails freedom in the movement of goods and services across the border of the trading countries. This means that the wall of barriers has been broken to allow for the exchange of trade among trading parties.

However, this issue of globalization has generated three schools of thoughts. The first, being those that believe that globalization is the best thing that could happen to this world. They believe it has brought about a lot of benefits to the entire globe. These benefits include access to modern technologies that are not available domestically, exchange of fruitful ideas, access to goods and services at relatively cheaper rate to the domestic economy, increased specialization and competitiveness, enhanced modernization, access to latest information and frontier of knowledge. They argued that all these put together would enhance economic activities in any country and, thereby, accelerate economic growth and development. However, another school believes that the advent of globalization

has really brought a lot of havoc than good to any economy. They argued that globalization encourages dumping of goods and services to countries that are not competitive, especially those in the developing world. Also, it erodes one's copyright privilege as people can use one's work without giving adequate credence or acknowledgement to the property right owners. It is also seen as encouraging the oppressor over the oppressed. The oppressors in this case are the developed countries while the developing countries are the oppressed. It is also observed that it discourages local production of goods and services, given that most developing countries' goods cannot compete favourably with those of the advanced nations. Then, the domestic industries would be forced to go out of business, thereby leading to massive retrenchment and, thus, increase unemployment level in the country. Due to these facts, some policy makers and analysts in developing countries have been going against the globalization of their economies based on the facts that it has the potential of increasing the level of unemployment and, then, aggravating poverty.

Furthermore, the last school of thought opined that globalization can have positive or negative effects, depending on the way each country introduces or accepts it. Their argument is based on the fact that while some countries have gained others have not. For instance, the Asian Tigers gained due to their own way of introducing globalization, which involved adequate transfer of knowledge and technology that then made their products to compete favourably in global market. However, in other developing countries, the reverse is the case as most of their domestic industries were not protected and, thereby, winding up due to international competition which then lead to reduction in employment level.

In addition, globalization simply entails the liberalization of the political, social and economic aspects of life in any country. The economic liberalization aspect of globalization would be focused in this study as it has a significant impact on the domestic economy. It is agreed that export-oriented economies have performed better than the import-oriented economies in terms of standard of living, wages and employment. However, this does not say much whether globalization has been good for growth and job creation in developing countries. The secret behind the Asian Tigers' exports success did not rest on the passive liberalization, but that of building domestic capacities and leveraging international markets and resources (Mathews and Cho, 1999). There is a sharp contrast in their experience

to many other countries that liberalized their economies but eventually failed to have comparable growth in exports, incomes or employment. In other words, there is an important missing link in the conventional approach to globalization and job creation. The forces of globalization that are external, i.e., shrinking economic distance, mobile resources and the like, only provide opportunities for employment generation. The level at which poor countries utilize these opportunities or not depend largely on their ability to mount policies geared toward competitiveness; these policies are often at variance with the liberalization associated with globalization, that is, the removal of government from investment, technology flow as well as international trade.

According to Stiglitz (1996) and Lall (2001), it is a well acknowledged fact that many successful so-called Asian Tiger economies did not liberalize their trade and FDI policies, but rather used widespread interventions in capital, technology and trade flows to enhance and promote competitiveness. Their trade interventions provided a domestic base for building proficiency in export activities and in reaping scale economies; while FDI interventions were used to strengthen the local technological base. Their export orientation was critical to the success of these interventions, as it provided the competitive spur needed to force the development of capabilities in protected industries (see Lall, 2002).

Thus, examining the dynamics relationship between growth, participation in global market and policy requires one understand the technological capacity approach to industrial development. As most trade theories, including that of new trade theory assume that technology can be imported and used by the developing countries without further effort, cost or uncertainty. This means that there is no learning process, and if there is, it is passive and automatic learning-by-doing. As such it is highly predictable and economically trivial; since it does not generate market failure (efficient capital markets can anticipate and finance such learning). This approach contrasts with the evolutionary approach to technology, which firms do not operate on a neoclassical production function but in a “fuzzy” world where they have imperfect knowledge of a few technologies and need to expand effort in mastering, adapting and improving upon that technology. The possibility of localized technological progress with imperfect information and missing markets raises completely differently considerations.

Christev, Kupets and Lehmann (2005) studied the effects of trade liberalization on employment in Ukraine. They used disaggregated data on manufacturing industries and custom data on trade flows taking account of shifting trade patterns after the disintegration of the CMEA trade regime. The study provides first evidence that three digit NACE sector job flows are predominantly driven by idiosyncratic factors within industries. They found that there is increased labour shedding as larger non-state share in industry relates to less job creation and more job destruction. Trade openness does affect job flows in Ukrainian manufacturing disproportionately according to trade orientation. They concluded that while trade with Commonwealth of Independent States (CIS) decreases job destruction, trade with the EU increases excess reallocation mainly through job creation.

Another study by Lall (2002) examined the employment impact of globalization in developing countries. According to him, the relationship between globalization and employment is of growing significance to policy makers in developing countries, but it is surprisingly difficult to analyse theoretically and empirically. Globalization means different things to different analysts and it is so multi-faceted that its effects are difficult to isolate and evaluate. The study found that the received trade theory does not provide a clear guide to its employment effects and in its most commonly used version, it assumes away many factors that affect employment during globalization. Thus, it depends on the ability of each country to cope with the liberalized trade, investment and technology flows that globalization implies. As this ability varies widely across the developing world (and is continuing to diverge between countries), it appears that no generalization about globalization is possible.

Heckman (2002) studied flexibility, job creation and globalization in Italy. In analysing these problems, he stressed the importance of distinguishing long-run from short-run problems and long-run from short-run solutions. The Italian unemployment is a structural problem. A substantial portion of Italian unemployment is a symptom of the deeper problem that incentives to innovate, to acquire skills, and to take risks have been thwarted by the welfare state and regulation. The costs of preserving the status quo have increased in the new world economy that is characterized by many new opportunities in technology and trade. The winners in world trade in the next generation will be those countries that can respond flexibly with educated work forces. The study concluded that in

pursuit of social justice (which in actuality is a defense of a protected enclave of workers and firms) Italy has muted incentives to invest in ideas, skills, and new technology. These muted incentives portend a second-rate Italian economy of the future.

Bhalotra (2002) examined the impact of economic liberalization on employment and wages in India. He argued that it is inherently difficult to evaluate the effects of economic liberalization for a number of reasons, suggesting at the same time, how best one may use insights from economic theory and appropriate econometric techniques to make progress in that direction. Thus, a strong usage of sound data analysis can get much further than alternative speculations. He discovered that both growth and productivity have accelerated in the economy as a whole and also in organised manufacturing. Capital stocks have been upgraded and investment in manufacturing has increased. Organised sector employment suffered a severe collapse in the early years of the adjustment process but has recovered to a pace similar to that in the pre-reform era. The study concluded that economic liberalization in India appears to have been better than in many other countries.

Klein, Schuh and Triest (2002) reviewed extensively the literature on job creation, job destruction and international competition. According to the study, hitherto, the literature has focused on the effects of international factors on net employment at aggregate levels or in selected imported-competing industries. In the long run, aggregate net employment is largely unaffected by international factors, between and within detailed industries. Thus, the study found it appropriate to study the components of net employment when measuring the impact of international factors on labour markets. They found that examining the gross job and worker turnover that is associated with changes in international factors raises questions about the accuracy of prior estimates of adjustment costs associated with international factors because gross flows are in order of magnitude larger than net employment flows.

Adewuyi and Adeoye (2008) examined the potential impact of trade policy reform arising from the economic partnership agreement (EPA) on wage and employment in the Nigerian manufacturing sub-sectors. Their simulated results revealed that both wage and employment will rise in Textile, Wearing Apparels,



Clothing and Leather Products (TWCL), Wood and Wood Products and Furniture (WWPF), Basic Metal Iron and Steel (BMIS) and Electrical and Electronics (ELECA) sub-sectors while Food, Beverages and Tobacco (FBT), Chemicals and Pharmaceuticals (CHEMPHA) and Non-Metallic Mineral Products (NMMP) sub-sectors will witness a fall in both wage and employment as a result of the policy reform induced by the common external tariffs (CET) in the context of EPA. This study recommended that with significant trade liberalization occasioned by the regional and multilateral trade negotiations, there will be a need to provide adjustment assistance to the manufacturers.

Bhasin (2008) looked at the effects of agricultural trade liberalization on poverty in Ghana using the computed general equilibrium model (CGE) for the year 1999. Specifically, the study examined the impact of unilateral partial agricultural trade liberalization in isolation, combined with foreign capital flows and value-added tax on the poverty of various categories of households, public and private sectors' employees, non-farm self-employed and non-working. He found that the elimination of trade-related import and export tariffs on agricultural goods in isolation, combined with foreign capital inflows and value-added tax, reduced the incidence, depth and severity of poverty of all categories of households. Furthermore, it was also discovered that financing of unilateral partial agricultural trade liberalization through domestic resources could have greater effects on poverty alleviation than foreign resources.

### **III. Unemployment/Employment Trend in Nigeria**

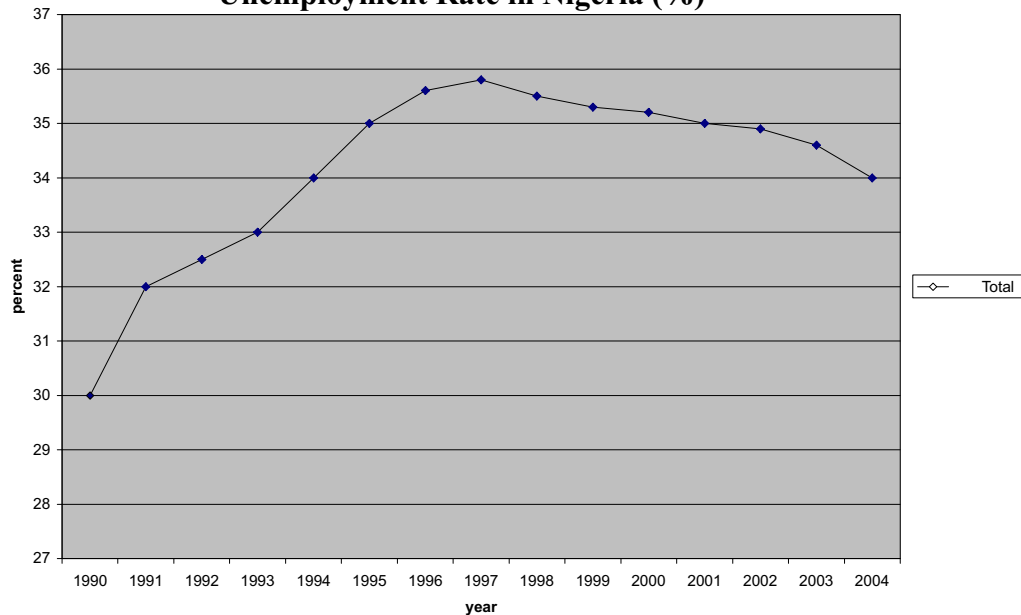
Unemployment has been seen as a great problem to global economic development. In recent years, both developed and developing countries have witnessed the problem, though the developed countries have been curtailing the rate of their unemployment (Kareem, 2009). However, in developing countries, especially those of Africa, and Nigeria in particular, unemployment has been on a spiral increase which has culminated into a reduction in household income and standard of living, thus, increasing the of level of poverty.

Employment generation has been seen as a means of alleviating poverty, increasing the level of economic activities and, thereby, translating into economic growth. According to Kareem (2007), the situation of employment in Africa has

become critical and labor absorption problematic. Employment can be defined as a situation where someone within the labor force bracket, willing and able to work is engaged in a satisfactory economic activity, or would otherwise be unemployed. There are many types of unemployment in the literature ranging from frictional, seasonal and cyclical, to structural unemployment. ILO (2001) agreed that the problem of unemployment among the youths in Africa and Nigeria, in particular has been identified as a major current socio-economic problem.

Furthermore, according to Ariyo (2006), the level of employment is the avenue for any human being to make a decent living. The statistics of unemployment in Nigeria is given in Figure 1 below between 1990 and 2004. The statistics show that unemployment in Nigeria has been on the high side, ranging between 30 percent in 1990 to 35.8 percent in 1997, and has been revolving around 34 percent up to 2004. It could also be seen that there were increasing trends in the level of the unemployment rate in Nigeria, which is worrisome despite the inflow of foreign capital into the country.

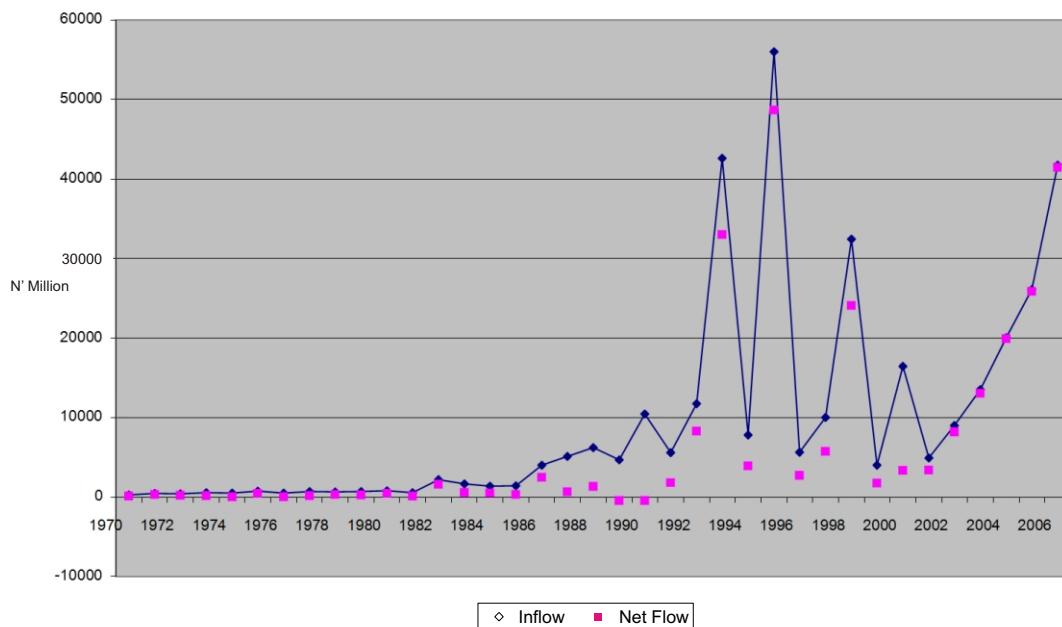
**Figure 1**  
**Unemployment Rate in Nigeria (%)**



Source: World Development Indicator (2005)

On the contrary, the inflow of foreign private capital to Nigeria in 1990 was about N10.5 million and by 2000, it has gotten to over N16 million. In 2004, inflow of foreign capital has increased to over N20 million (see Figure 2 below). These statistics show that Nigeria has been experiencing increases in the inflow of foreign capital into the economy; however, this has not been translating into an increase in employment to the generality of the people. Given this, we are tempted to ask what kind of foreign capitals are brought into Nigeria?

**Figure 2**  
The Flow of Foreign Private Investment in Nigeria



Source: Central Bank of Nigeria Statistical Bulletin (2006)

The simplest answer to this question is that most of these foreign investments or capital that were brought to Nigeria came with their manpower and technical expertise, which gives little opportunity for the majority of Nigerians to be gainfully employed and at the same time, did not allow the transfer of technology to the domestic economy. For instance, in the extractive industry, especially the oil and gas sector of the Nigerian economy, most of the technical expertise that are used in the operations are provided by foreigners. The issue of domestic content that has the potentials of creating many employments are not considered.

#### **IV. Theoretical Framework**

It is appropriate to apply trade theory to globalization and job creation given the fact that many analysts take globalization to be the rise in exports and imports consequent upon trade liberalization. This narrow definition allows them to test with standard trade theories the impact of greater trade on the labour intensity of production in the static comparative setting that characterizes most such theories. The relevant theory is the Heckscher-Ohlin (H-O) model that was put forward by Heckscher and Ohlin (1933). The model deals with two factors of production, labour and capital, under the assumptions of perfectly competitive markets and identical production functions with freely available technologies across countries.

This model shows that a rise in trade raises the demand for labour intensive products in poor, labour surplus countries. This is commonly taken to mean that in the H-O framework, all markets are cleared with macroeconomic equilibrium and full employment throughout, thus, a rise in trade can only cause an inter-sectoral shift towards labour-intensive activities (so, higher wages), not greater employment. Fitzgerald and Perosino (1995) note that the H-O model unambiguously predicts the direction of change of aggregate and sectoral employment and factors prices: output increases in the exportable sector and decreases in the importable sector as instantaneous adjustment takes place along the production possibilities frontier. As the exportable sector is more labour intensive than importable, the change in the composition of employment increases the aggregate demand for labour and reduces for capital. Consequently, the equilibrium real wage rises and capital rental falls. Aggregate employment does not increase because labour supply is rigid, but the increase in wages

encourages producers to adopt more capital intensive techniques in both sectors.

According to Ghose (2000), many analysts interpret the H-O model more realistically to include labour market rigidities and unemployment. This means that an increase in manufactured trade between developing (labour surplus) and developed (labour scare) countries is likely to result in an increase in employment in the former. Globalization implies greater trade (that is through trade liberalization), the prediction is clear for manufactures. One should be careful here because the prediction may not apply to trade in primary products, which are often capital intensive. Nor does it apply to South-South trade, where the outcome depends on relative factor endowments in trading partners (i.e. some developing countries are more capital endowed than others). It is purely comparative static predictions the time period is irrelevant since adjustment is instantaneous and it depends solely on the shift of resources between activities using given technologies, not on the use of different or new technologies. In this model, there are no factor movements and so second order effects on other sectors.

Furthermore, export activity in developing countries does tend to be labour-intensive and a shift of activity to export activity, consequent upon liberalization, is thus, likely to raise the employment intensity of manufacturing. The experience of export-oriented countries in the developing world supports this. They all launched export in highly labour-intensive activities and generated considerable employment as they expanded output. There are also second order effects on employment in import-competing industries; by relieving the foreign exchange constraint or by attracting greater foreign direct investment (FDI), export growth rises employment in these industries and, more importantly, raises the growth rate of the economy as a whole. This is in line with the general finding that export-oriented economies grow faster than inward-oriented economies and that economies shifting from the latter to the former strategies enjoy increases in exports and growth.

New trade theory, which was exemplified by Grossman and Helpman (1990), takes technological differences, scale economies and externalities into account. This theory makes use of more realistic assumptions than the HO; it does not produce unambiguous predictions for employment. To a large extent, the specific pattern of comparative advantage is indeterminate and opening up to trade does

not show how factor use will change. Once scale, agglomeration, externalities and the like are introduced into the trade model, there arises the possibility of multiple equilibrium. Thus, market might clear at a low level or low growth equilibrium where developing countries specialize under free trade in low technology, slow-growing activities. If, however, they can mount a concerted strategy to develop the skill and technology base necessary, they could arrive at a higher-level equilibrium. In such conditions, the impact of liberalization on employment depends on which equilibrium is reached, which depends in turn on government policy.

## V. Methodology

This study sets up an econometric model to test the long run relationship between globalization and employment. We used import duty (IMPD), custom and excise duty (CED), exchange rate (EXC) and level of openness (OPN)<sup>4</sup> to measure globalization while the labour force participation rate was used as an index of job creation. We used annual time series from 1970 to 2007. The sources of these data are from the National Bureau for Statistics (NBS), CBN Statistical Bulletin and World Development Indicator (WDI) of the World Bank. Majority of the macroeconomic time series are characterized by a unit root so that their first differences are stationary (Engel and Granger, 1987; Nelson and Plosser, 1982). Wadud (2000) opined that if a statistical test like cointegration establishes co-movements in these time series, then the residuals from the regression can be used as an error correction terms in the dynamic first difference equation. Thus, given two time series that are integrated of order 1, i.e.  $I(1)$ , and co-integrated, then there exists Granger Causality in at least one direction in the  $I(0)$  variables (Engel and Granger, 1987) and, hence, a VAR model can be set up with an error correction term in the two cointegrated  $I(0)$  time series to cover the short-run dynamics and to decrease the chance of observing 'spurious regression' in terms of the level of data or their first difference. Therefore, after estimating the multiple regression models, the study shall test for the stationary, cointegration and error correction model so as to know the long run reliability of the model. Granger causality test will also be carried out to determine the direction of causality between globalization and employment.

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<sup>4</sup>Openness is measured by the addition of export and import and dividing it by the GDP.

What we shall first do under the methodology is to specify the multiple regression model that shows the effects of economic liberalization on job creation. This model was adapted from the study of Bhalotra (2002) who did a similar work for India. Thus, this study specifies the following multiple regression equation using annual data for the natural logarithm of the variables.

$$\ln LFPR = \alpha_0 + \alpha_1 \ln CED_t + \alpha_2 \ln IMPD_t + \alpha_3 \ln OPN_t + \alpha_4 \ln EXC_t + \mu_t \quad (1)$$

Where LFPR is the labour force participation rate, CED is the custom and excise duty, IMPD is import duty, OPN is the level of openness of the economy while EXC is the exchange rate.  $\alpha_0$  is the constant and  $\alpha_1, \alpha_2, \alpha_3, \alpha_4$  are the coefficients, while  $\mu_t$  is the stochastic or error term.

Theoretically, there is no exact consensus on the relationship that might exist when an economy is liberalized (economic globalization) and employment rate. While some policymakers argue that liberalization would bring about reduction in the level of employment especially when the domestic firms products cannot compete favourably with the imported ones. Others believe it will enhance the level of employment in the domestic economy as the producers of the imported products would be encouraged to start producing the imported products locally, which will generate employment.

Prior to testing for the direction of causality between the time series, the first step is to check the stationarity of the variables used in the models. The purpose of this test is to establish whether the time series have a stationary trend, and, if non-stationary, to show the order of integration. The Augmented Dickey Fuller (ADF) unit root test is used to test the stationarity of all the time series that was used in this study. ADF equation goes thus:

$$Dy_t = \mu y_{t-1} + \alpha_t d + b_1 Dy_{t-1} + b_2 Dy_{t-2} + \dots + b_p Dy_{t-p} + V_t \quad (2)$$

Where  $x_t$  is the exogenous regressor, such as intercept and time trend, while  $\alpha, \beta$  and are the parameters to be estimated and  $V_t$  is the error term that is assumed to be the white noise. The null hypothesis for the unit root test is that  $H_0: \alpha = 1$  and the alternative hypothesis is  $H_1: \alpha < 1$ .

However, due to the probability of structural changes that might have occurred during the time period covered by the study, the ADF test might be biased in identifying data as being integrated even if there are structural changes. In order to control for this shortcoming that might arise from the ADF test, we make use of another unit root test called the Phillip-Perron (PP) that is developed by Perron (1997). According to Herzer, et al. (2004), this test evaluates the time series properties in the presence of structural changes at an unknown point in time and, thus, endogenises this structural break. The PP introduced an alternative mechanism of dealing with serial correlation when testing for a unit root. This method estimates the non-augmented Dickey Fuller (DF) test equation, which goes thus:

$$Dy_t = a y_{t-1} + x_t d + e_t \quad (3)$$

And then modifies the t-ratio of the coefficient such that the serial correlation would not affect the asymptotic distribution of the test statistic. Thus, the PP is based on this statistic:

$$\bar{t}_\alpha = t_\alpha \left( \frac{\gamma_0}{f_0} \right)^{\frac{1}{2}} - \frac{T(f_0 - \gamma_0) \left( se(\hat{\alpha}) \right)}{2f_0^{\frac{1}{2}} s} \quad (4)$$

Where  $\hat{\alpha}$  is the estimated coefficient, and  $t_\alpha$  is the t ratio of  $\alpha$ ,  $se(\hat{\alpha})$  is the coefficient standard error, and  $s$  is the standard error of the regression test. Also,  $\gamma_0$  is a consistent estimate of the error variance, while  $f_0$  is the estimate of the residual spectrum at frequency zero.

Thus, after testing for the stationarity or otherwise of the time series, the next step is to test whether these time series can be used together to give meaningful result in the long run and this is derived through the cointegration test. This study shall be using the Johansen cointegration test, which was developed by Johansen (1995) rather than that of Engle-Granger (1987). The reason for this is that, Engle-Granger usually estimates the regression equation and tests the residuals for stationarity, which might be biased. Apart from that it assumes one cointegrating vector in the systems with more than two variables and lastly it assumes arbitrary normalization of the cointegrating vector. Given these shortcomings of the Engle-Granger cointegration test, we adopt the full information maximum likelihood (FIML) cointegration approach developed by Johansen (1995). This approach is based on the vector autoregressive model (VAR (p)) given as follows:



$$y_t = A_1 y_{t-1} + \dots + A_p y_{t-p} + Bx_t + \ell_t \quad (5)$$

Where  $y_t$  is a  $k$  vector of non-stationary I(1) variables,  $x_t$  is the  $d$ -vector of deterministic variables, and  $\ell_t$  is a vector of innovations. The VAR can be re-written letting  $Dy_t = y_t - y_{t-1}$

$$\Delta y_t = \Pi y_{t-1} + \sum_{i=1}^{p-1} \tau_i \Delta y_{t-i} + Bx_t + \ell_t \quad (6)$$

where

$$\Pi = \sum_{i=1}^p A_i - 1, \quad \tau_i = - \sum_{j=i+1}^p A_j$$

This approach asserts that if the coefficient matrix  $\Pi$  has reduced rank  $\tau < \kappa$ , then we can have  $\kappa \times \tau$  matrices  $\alpha$  and  $\beta$  each with rank  $r$  such that  $\Pi = \alpha \beta'$  and  $\beta' y_t$  is I(0). Given this,  $r$  is the number of cointegrating relations, i.e., the cointegrating rank, and each  $\beta$  column is the cointegrating vector. It should be noted that the element of  $\alpha$  are called adjustment parameters in the vector error correction (VEC) model, while the unrestricted VAR is used to estimate the above  $\Pi$  matrix.

Furthermore, another test involved the treatment of the error term in the test above as an equilibrium error, thus it uses this error term to tie the short run behavior of the InLFPR to its long run value. This test is called error correction model (ECM), which was popularized by Engel and Granger (1987). The specification goes thus:

$$DInLFPR_t = a_0 + a_1 DInCED_t + a_2 DInCED_{t-1} + a_3 DInCED_{t-2} + a_4 DInIMPD_t + a_5 DInIMPD_{t-1} + a_6 DInIMPD_{t-2} + a_7 DEXC_t + a_8 DEXC_{t-1} + a_9 DEXC_{t-2} + a_{10} DInOPN_t + a_{11} DInOPN_{t-1} + a_{12} DInOPN_{t-2} + a_5 ECT_{t-1} + \ell_t \quad (7)$$

Where  $D$  is the first difference and  $ECT_{t-1}$  is the error correction term lagged by one period while  $\ell_t$  is the error term.

The Granger causality approach shall be used to test the direction of causality between globalisation and employment in Nigeria. This approach tests whether one variable, say  $x$ , causes another variable, say  $y$ , so as to ascertain to what extent the current value of  $y$  can be explained by its previous values alone and to check whether the inclusion of the lagged values of  $x$  can improve the explanation.

Granger (1969) asserts that y is said to be Granger caused by x if x helps in the prediction of y.

In other words, x Granger causes y if only its lagged values are statistically significant. This approach is preferred to the correlation method that is sometimes used in the literature, given the fact that correlation does not necessarily imply causation in any meaningful sense of the word. There are several magnificent correlations, which are simply spurious or meaningless in econometric analysis.

We specify the Granger causality equation as follows:

$$Y_t = \alpha_i + \sum_{i=1}^n \alpha_i X_{t-i} + \sum_{j=1}^n \beta_j Y_{t-j} + U_t \quad (8)$$

$$X_t = b_i + \sum_{i=1}^n \lambda_i X_{t-i} + \sum_{i=1}^n \delta_i Y_{t-1} + U_{2t} \quad (9)$$

Where the Y and X represent employment and globalization, respectively. It is assumed that the disturbances  $U_{1t}$  and  $U_{2t}$  are uncorrelated. The F-statistic is used for the joint test of the hypothesis that:

In equation (6)  $\alpha_1 = \alpha_2 = \dots = \alpha_n = 0$  and  $\delta_1 = \delta_2 = \dots = \delta_n = 0$  in equation (9).

The null hypothesis is that globalization does not Granger cause employment in the first regression equation and that employment does not Granger cause globalization in the second regression. Thus, the F-statistic is used to either accept or reject the null hypothesis. Equation (6) postulates that the current employment is related to the past values of the employment itself as well as the globalization, and equation (7) indicates a similar behaviour for globalization. The following three outcomes are possible in any Granger causality test:

The first is the unidirectional causality which occurs when we accept one of the null hypotheses and reject the other, meaning that either the causality runs from employment to globalization or globalization to employment;

Second is when we reject both null hypotheses, indicating that the set of employment and globalization coefficients are statistically significant different from zero in both regressions. In this case we say that there is feedback or bilateral causality and, sometimes, it is also called bidirectional causality;

Lastly, when we accept both null hypotheses, it means that there is independence.

This indicates that the set of employment and globalization coefficients are not statistically significant in both regressions (Gujarati, 1995).

## **VI. Empirical Result**

We begin our empirical analysis by showing the degree of association between globalization (as measured by custom and excise duty (CED), level of openness (OPN), import duty (IMPD) and exchange rate (EXC) and employment through the multiple regression analysis. Table 1 depicts the result of the OLS, and it shows that statistically significant positive relationship exist between labour force participation rate (InFPR) and custom and excise duty, as well as level of openness in the economy. This means that the more the level of liberalization of custom and excise duty, the higher would be the level of employment in the country. That is, as government puts its hands off the custom and excise duties, it will allow free flow of goods and services, including technology that would then increase the level of economic activities in the country and, thereby, increase the level of employment and income. Also, if the country throws its borders open, there will be inflow of investments, which will increase the level of domestic productivity and thereby translate to higher employment rate. As it could be seen in Table 1 below, a negative relationship exists between exchange rate, import duties and employment. This means that the depreciation of exchange rate through liberalization policy has made the country's exports cheaper and, this would enhance production of domestic output for export, thereby, increasing job opportunities, especially in export producing sector. However, the increase in import duties discourages importation, which will reduce employment opportunities in the import dependent sectors of the economy, particularly, firms that are largely dependent on raw materials import for production. The autonomous variables shows that if the country does not globalize, that is restrict inflow and outflow of goods and services, there will still be increase in the employment level given the value of the constant, which is 4.4134.

**Table 1: Multiple Regression Result**

Variable	Coefficient	T-statistic	R2 = .8298
C	4.4134	84.2004	Adj R2 = 0.7938
LnLCED	0.0573	4.2272	S.E = 0.0351
LnEXC	-0.0348	-0.7681	F.Stat = 98.1693
LnIMPD	-0.1372	-9.2300	Prob(F-Stat) = 0.0000
LnOPN	0.0327	6.8321	D.Watson = 1.981

From the above table, the degree of responsiveness of employment to custom and excise duties as well as openness is 0.0573 and 0.0327, respectively. This is such that for every 1percent liberalization of CED, there will about 0.06 percent job openings, and also for every 1percent increase in openness of the country's border there will be 0.03percent rise in the level of employment in the country. However, the responsiveness of employment to 1percent exchange rate liberalization is a reduction in the level of job openings by 0.03percent, though it is statistically insignificant. Furthermore, for every 1percent import duty liberalization there will be a statistically significant 0.014percent reduction in the level of employment.

The coefficient of determination (R2) indicates that about 83 percent of the changes in the level of employment in the country are explained by the level of economic liberalization. The joint significance of the model, F-statistic, which is 98.1693, shows that the model is statistically significant and can really explain the reason for the changes in the level of employment in Nigeria.

Given this results, it is necessary to test its reliability, that is, whether it is not a spurious regression. This we have done through the Augmented Dickey-Fuller (ADF) and Phillip-Perron (PP) stationarity test.

**Table 2: ADF Test**

Variable	Level	First Difference	Second Difference	Integration Order
InCED	-3.2957	-7.2322	-	I(1)
InEXC	-2.8872	-5.4385	-	I(1)
InIMPD	-2.6913	-4.9821	-	I(1)
InOPN	-3.1213	-3.8904	-	I(1)
InLRPR	-0.2762	-4.0697	-	I(1)

**Source:** Author's Computation

Note: the 5% critical value for ADF Statistic at level is approximately -3.5530 while -3.557 and -3.6220 are for the first and second difference, respectively.

**Table 3: Phillips - Peron Stationarity Test**

Variable	Level	First Difference	Second Difference	Integration Order
InCED	-2.0939	-7.2695	-	I(1)
InIMPD	-1.9764	-4.6910	-	I(1)
InOPN	-3.0063	-6.5309	-	I(1)
InEXC	-2.5916	-5.2067	-	I(1)
InLRPR	1.8085	-6.9041	-	I(1)

**Source:** Author's Computation

Note: the 5% critical value for ADF Statistic at level is approximately -3.5530 while -3.557 and -3.6220 are for the first and second difference, respectively.

**Table 4: Johansen's Cointegration Test**

Hypothesis	Trace Test Statistic	
	Statistic	critical value 5%
$r = 0$ $r = 1$	98.6778	87.31
$r < 1$ $r = 2$	76.9813	62.99
$r < 2$ $r = 3$	69.2176	42.44
$r < 3$ $r = 4$	20.8421	25.35
$r < 4$ $r = 5$	9.7428	12.25

**Source:** Author's Computation

Table 2 above shows that all the time series that were used in this study are stationary at their first differences, that is they are integrated of order one, i.e.  $I(1)$  variables. We got the same result for the Phillip-Perron stationarity test, which then indicate that there is no influence of structural break in the model. Thus, given the fact that all the variables are  $I(1)$  variables, we need to know whether using them together in the model would yield reliable result through the cointegration test.

Table 4 above shows the result of the Johansen cointegration test. It shows that the value of trace statistic is more than the critical value at 5% in three of the five null hypotheses, which indicates three cointegrating vectors. Since the variables are cointegration, then there would be no loss of information, implying that there exist a long run relationship between economic liberalization and employment.

The result of the over-parameterized and the parsimonious error correction models (ECM) are presented in Table 5 and 6 below. In the over-parameterized regress result, it could be seen that all the variables are statistically insignificant when they are not lagged and second difference except that of exchange rate that is significant at the second difference. The parsimonious model relates the change in  $\ln LFP R$  to changes in  $\ln CED$ ,  $\ln IMPD$ ,  $\ln OPN$  and  $\ln EXC$  as well as the equilibrating error in the previous period. The  $ECT(-1)$  captures the degree of adjustment towards the long-run equilibrium. If the coefficient of the  $ECT_t - 1$  is statistically significant, then the disequilibrium in the  $\ln FPR_t$  in each period is adjusted in the next period.

**Table 5: Over-Parameterised ECM**

Variable	Coefficient	T-Statistics	R2 = .9162
C	3.3401	78.0119	Adj R2 = 0.8965
$\Delta \ln \text{CED}$	-0.0076	-0.4365	S.E. = 0.0093
$\Delta \ln \text{CED} (-1)$	0.0176	15.0795	Akaike = 5.3594
$\Delta \ln \text{CED} (-2)$	0.0623	0.9417	Schwarz = -5.4361
$\Delta \ln \text{IMPD}$	0.0413	1.0241	f.Stat. = 169.9018
$\Delta \ln \text{IMPD} (-1)$	-0.0619	-20.8325	Prob(F-Stat) = 0.0000
$\Delta \ln \text{IMPD} (-2)$	-0.0302	-0.1881	D.Watson = 1.9096
$\Delta \ln \text{OPN}$	-0.0326	0.5431	
$\Delta \ln \text{OPN} (-1)$	0.0352	12.5057	
$\Delta \ln \text{OPN} (-2)$	-0.0311	-1.6506	
$\Delta \ln \text{EXC}$	0.0203	0.2995	
$\Delta \ln \text{EXC} (-1)$	-0.0117	-2.5129	
$\Delta \ln \text{EXC} (-2)$	0.1013	2.4101	
ECT (-1)	-0.8692	-24.7182	

**Source:** Author's Computation

The parsimonious result confirm what we got in the multiple regression that the short run changes in  $\ln \text{CED}$  and  $\ln \text{OPN}$  have statistically significant positive effects on employment as measured by  $\ln \text{FPR}$ , while  $\ln \text{IMPD}$  and  $\ln \text{EXC}$  have significant negative effects on  $\ln \text{LFPR}$ . Thus, the coefficient of  $\text{ECT}(-1)$  that is the degree of adjustment shows that about 80 percent of the differences between the actual and the long run, or equilibrium value of employment ( $\ln \text{LFPR}$ ) is eliminated or adjusted each period. Thus, the speed of adjustment from the short run disequilibrium to equilibrium in the present period is 80 percent and it is statistically significant, which justifies the use of the error correction model in the study.

**Table 6: Parsimonious ECM**

Variable	Coefficient	T-Statistics	Prob	R2 = .8909
C	4.3109	68.0189	0.0000	Adj R2 = 0.8703
$\Delta$ InCED (-1)	0.0169	29.6672	0.0000	S.E. = 0.0032
$\Delta$ InIMPD (-1)	-0.0453	-34.4019	0.0000	Akaike = -0.6311
$\Delta$ INOPN (-1)	0.0226	31.0606	0.0000	Schwarz = 0.7005
$\Delta$ InEXC (-1)	-0.0107	-3.9507	0.0023	F.Stat. = 1233.4600
$\Delta$ InEXC (-2)	0.0112	2.9566	0.033	Prob(F.Stat) = 0.0000
ECM (1)	-0.7963	36.3073	0.0000	

Source: Author's Computation

Furthermore, it is appropriate to know the direction of causality between economic liberalization and employment. The Granger causality test result shed light on this, by using the lag specification as obtained from the EVIEWS.

**Table 7: Pairwise Granger Causality Test**

Null Hypothesis	Obs	F-Statistic	Probability	Decision	Direction
InCED does not Granger cause InLFPR	32	1.1707	0.3254	Accept	No Causality
InLFPR does not Granger cause InCED		4.0301	0.0294	Reject	Causality
InEXC does not Granger cause InLFPR	32	5.0476	0.0137	Reject	Causality
InLFPR does not Granger cause InEXC		2.5067	0.1003	Accept	No Causality
InIMPD does not Granger cause InLFPR	32	0.9230	0.4095	Accept	No Causality
InLFPR does not Granger cause InIMPD		4.7866	0.0166	Reject	Causality
InOPN does not Granger cause InLFPR	32	2.6639	0.0879	Accept	No Causality
InCED does not Granger cause InOPN		1.4148	0.2604	Accept	No Causality

Source: Author's Computation



In Table 7 above, the result shows that for the Granger Causality between InCED and InLFPR, the causality runs from InLFPR to InCED, i.e.  $\text{InLFPR} \rightarrow \text{InCED}$ . That is, custom and excise duty does not Granger cause employment, but it is employment that Granger causes custom and excise duty. The second hypothesis test shows that exchange rate Granger causes employment (InLFPR), while employment does not Granger cause exchange rate, that is,  $\text{InEXC} \rightarrow \text{InLFPR}$ . This means that there is unidirectional causality from InEXC to InLFPR. The Granger causality between InIMPD and InLFPR indicates that there is unidirectional causality from InLFPR to InIMPD, i.e.  $\text{InLFPR} \rightarrow \text{InIMPD}$ . This means that it is employment that Granger cause import duty. While for the causality between InLFPR and InOPN, we found that there is independent causality among them. This indicates that as employment does not Granger cause openness so also openness does not Granger cause employment.

The interesting thing to note from these results is that the two variables, InCED and InOPN, that have positive relationship with employment did not Granger it, while those that have negative relationship, EXC, Granger cause employment. This means that the economic liberalization indices that have more influence on employment in Nigeria are the exchange rate liberalization. Thus, economic liberalization as practiced in Nigeria has adverse effect on the level of employment in the country, given the fact that most of the industrial products cannot compete favourably with their imported counterpart.

**Table 8: Correlation Coefficient Matrix**

	InLFPR	InCED	InEXC	InIMPD	InOPN
InLFPR	1				
InCED	-0.8401	1			
InEXC	-0.8198	0.9313	1		
InIMPD	0.8525	0.9122	0.91404	1	
InOPN	0.7541	0.6694	0.6973	0.6368	1

## **VII. Conclusion and Policy Implications**

This paper examined the effects of economic liberalization on the level of employment in Nigerian. Econometric techniques have been applied in order to determine this relationship. The literature shows that different arguments have been put forward on the impact of economic liberalization on the level of employment. Some believe the relationship is positive while others argued that it is negative. There are also inconclusive findings in some studies.

Based on the econometric analysis used in this study, we found that economic liberalization has been hampering the level of employment in Nigeria. Though, we have a very important variable that gave this direction, which is exchange rate. However, the outcome of our analysis shows that the effect of exchange rate is not significant, while that of import duty liberalization is the most significant that hindered the employment level. This is reasonable, because if there is an increase in the liberalization of the import duty, there would be inflow of all sorts of products into the country, thereby, turning the economy to a dumping ground. This will greatly affect the productivity level of domestic industries, which will in turn affect the level at which the economy can create jobs. This result conforms with Dev (2000) and Lee (1996).

Thus, this study concludes that economic liberalization is not employment enhancing given the current economic situation in the country. Therefore, caution should be exercise with respect to the rate at which the country is going by its economic liberalization policy, if she is to achieve a rise in the level of employment.

The policy implication of our results is that if care is not taken, the productivity of the domestic industries might be falling, which will affect the rate of job openings, income, poverty and the country's gross national product. Therefore, to correct this likely problem(s) of economic liberalization, efforts must be made by the government to regulate the kind of economic liberalization policy it would adopt, especially that of import duty, so as to bring the desired outcome. Thus, we recommend a regulated economic liberalization for the country. This is a form of controlled liberalization, whereby the government still acts as a watchdog in the economy, because there is no country in the world where absolute deregulation is

being practiced. A good example is the various stimulus packages being unfolded/introduced in the developed world to cushion the effects of the global economic meltdown.

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