



## CAPITAL MARKET, FINANCIAL DEEPENING AND NIGERIA'S ECONOMIC GROWTH: COINTEGRATION AND ERROR CORRECTION MODEL APPROACH

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### Abstract

This study investigates the contributions of capital market and financial deepening to economic growth in Nigeria over the period of 1981 to 2012. The analysis involves examining the stochastic characteristics of each time series variable by testing their stationarity using Augmented Dickey Fuller (ADF) test and estimates the error correction mechanism model. Several variables were adopted as proxies for capital market and financial deepening. The study revealed that Stock Market Capitalisation (MCAP), Narrow Money Diversification (NMD; involving credit to private sector) and Interest Rate (INT) significantly impacted the promotion of economic growth of the country during the period of study. Though, other measures of liquidity represented by Financial Development (FID) and Monetisation Ratio (MTR) were not significant in explaining the trend in economic growth, they exhibited very strong coefficients in the process. It was recommended that Government and other stake holders in the economy should take measures to further improve the liquidity of the financial market to enhance overall economic efficiency in the country. The focus of policy targets should be specific in the expansion of credit to the producing sectors of the economy and further monetization of the economy by extending financial services to deficient locations. In addition to proper monetary policy management the study further recommends that concrete steps be taken to improve the performance of the Nigerian Stock Market.

**Keywords:** Capital Market, Financial Deepening, Economic Growth.

### 1.0 Introduction

The objective of economic development constitutes a primal position in the task of Governance around the world. The financial sector plays a crucial role in the process of economic growth of any nation. The depth of a country's financial sector has generally been found to relate with the speed of economic progress. Analysts have observed that well functioning capital markets increase economic efficiency, investment and growth. Capital market development is an important component of the financial sector development and supplements the role of the banking system in terms economic development. Long term capital is deemed crucial for economic development as evidenced by the positive relationship between long term capital and economic growth (Demirguc and Levine, 1996). It is the responsibility of the capital market to attract funds for long term capital for the economy at the right price. Specifically, capital markets assists in price discovery, liquidity provision, reduction in transactions costs, and risk transfer. They reduce information cost through generation and dissemination of information on firms leading to efficient markets in which prices incorporate all available information [Yartey and Adjasi (2007), Garcia and Liu (1999)]. Overall, stock markets provide market liquidity that enables implementation of long term projects with long term payoffs thereby promoting a country's economic growth. Moreover, efficient capital markets not only avail resources to investors, they also facilitate inflow of foreign financial resources into the domestic economy.

Financial deepening has been identified as one of those strategies whose implementation can quicken the pace of development. However, the effect of this strategy needs to be determined and examined from time to time especially for developing economies. Financial deepening focuses more on the process of financial intermediation. Financial markets undertake this vital role of intermediation process, by channeling funds from surplus units (savers) to deficit units (investors). When a country's process of financial intermediation is efficient and devoid of repression, the outcome is usually a well developed and functioning financial sector with capacity to support economic growth. But where the contrary is the case, the result is an economy beset with "financial shallowness" which is a common problem infecting the growth of development economies (Goldsmith, 1969; Ghani, 1992). Developing Countries possess financial assets and instruments that are narrow and this condition is usually akin to shallow financial depth. This partly explains why countries in with shallow financial depth experience low or negative per capita income. Opinionating, Nnanna and Dogo (1998) said that financial deepening often refers to a state of an atomized financial system, meaning a financial system that is largely free from financial repression. Oloyede (1998) remarked thus, financial deepening is the outcome of accepting appropriate real finance policy such as relating real rate of return to real stock of finance. Where then do we place the Nigerian financial system on the barometer of financial repression and subsequently financial deepening?

It is instructive to note that the vibrant and unprecedented economic growth of the emerging markets of the sub-Saharan Africa (average 6.5%), which became more glaring from early 2001, was however called to question in 2008, no thanks to the global economic and financial meltdown. With the near collapse of Nigerian stock market between 2008 and 2009, Nigeria like other sub-Saharan Africa counterparts, had a taste of the contagion of global economic and financial crises. Between 2008 and 2009, the Nigeria stock exchange lost almost 63% of its market capitalization and 67.2% of her all share indexes. The cumulative loss till date (Nov 2012), stands in the neighbourhood N6 trillion. In fact, the performance of Nigerian stock market from 2008 till date has made nonsense of most known fundamental and technical analysis for equity investment. For instance in 2007, the market capitalization skyrocketed from N2900bn in

2005 to N13294.50bn in 2007. While new issues rose from N552.78bn to N2400bn. This phenomenal growth notwithstanding, the market capitalization represents only 28 percent of the GDP, compared with 167.1 per cent for South Africa, 50.7 percent for Zimbabwe and 130 percent for Malaysia. This indicates that the potentials for growth in the Nigerian market is still very enormous. (Ukeje, Kama, Eluemunor, 2007).

Many Nigerian's for numerous reasons are unbanked and lack access to formal financial services. The result of a survey conducted by Efina Access in Nigeria in 2012 revealed that 34.9 million adults representing 39.7% of the adults in the Country did utilize the services of formal financial institutions (Efina, 2012). Only 28.6 million adults in Nigeria access and utilize formal financial services and this represents 32.5% of the adult population. In addition, the survey by Efina also revealed that 23.0 million adults save at home. This means that a huge bulk of the country's currency circulate outside the formal financial sector. This poses real problems to the economy in terms of controlling liquidity and financial deepening process.

The key objectives of this research study therefore are:

- i) To examine the contribution of the Nigerian Capital market to the country's economic growth.
- ii) To establish the impact of financial deepening on the Nigeria's economic growth
- iii) To understand the combined impact of capital market and financial deepening on the Nigerian economic growth process.
- iv) To make policy recommendations on the basis of the research findings.

Based on the objectives to be achieved, the following hypotheses have been formulated for the study:

- i) Developments in the capital market have made impact on the country's economic growth process.
- ii) Financial deepening has made significant impact on the Nigerian growth process
- iii) Developments in the capital market and financial deepening have jointly significantly impacted on the Nigerian economic growth process.

The existing literature in this field of study so far have not separated the contributions of financial deepening variables and capital market variables in the analysis of contributions to the country's economic growth. The existing literature in this field of study have not properly documented the changes in the country's financial deepening process after the most extensive financial reforms experienced in the industry. Taking account of the reforms will guide us in a better analysis of the changes in Nigeria's financial markets and therefore, position us to make improve recommendations on how to better channel the country's growth process.

The paper is divided into five sections; the first section gives a general introduction to the phenomenon of globalization and serves as background of the paper stating its problem and its objectives, hypotheses and justification. Section 2 looks into the review of existing related literature on the topic, while section 3 presents the Analytical Framework. Section 4 discusses the presentation of results. Section 5 is the conclusions and policy recommendations

## 2.0 Review of Literature

The earliest establishment of the link between finance and growth in literature could be traced to the work of Schumpeter (1911) in which he contends that entrepreneurs require credit in order to finance the adoption of new production techniques with banks as key agents to facilitate financial intermediating activities. In this way, it is expected that a well functioning banking system will provide intermediation services to productive entrepreneurial activities which will spur technological, innovative, and productive activities that increase real sector growth. Gurley and Shaw (1955), Goldsmith (1969) and Hicks (1969) have also argued along this line, positing that development of a financial system is crucial in stimulating economic growth and under-developed financial systems retard economic growth hence policies aimed at expanding the financial system should be formulated in order to foster growth. McKinnon (1973) and Shaw (1973) have also emphasized on the role of financial intermediaries and financial markets in the growth process. The McKinnon model assumes that investment in a typical developing economy is mostly self-financed hence given its lumpy nature, investment cannot materialize unless sufficient saving is accumulated in the form of bank deposits (McKinnon, 1973). Also, Shaw (1973) has postulated that financial intermediaries promote investment and raise output growth through borrowing and lending. The result of such financial liberalization, Ang (2007) argues, will lead to increased output growth.

The capital market is no doubt pivotal to the level of development and growth of the economy. Chinwuba & Amos, (2011) note that capital market is one of the major institutions that act in propelling a prostate economy through sustainable investments for growth and development. It is a complex institution imbued with inherent mechanism through which long-term funds of the surplus sectors of the economy are mobilized, harnessed and made available to deficit sectors of the economy (Nyong, 1997). The market deals on medium and long term securities. Activities in the capital market are good indicators of the direction of the national economy. Efficiency and effectiveness in the performance of the market is expected to translate into buoyancy in economic development.

Osaze and Anao, (1999) assert that capital market is the cornerstone of any financial system since it provides the funds needed for financing not only business and other economic institutions but also the programmes of government as a whole. Ilaboya and Ibrahim, (2004) document that capital market functions as an economic barometer for galvanizing economic activities. Al-Faki, (2006) summarizes that the market covers the entire schedule that facilitate the buying and selling of securities.

The studies on stock market development and economic growth in developing countries have shown controversial results. Levine and Zervos (1996) examines whether there is a strong empirical association between stock market development and long-run economic growth. The study used pooled cross-country time-series regression of forty-one countries from 1976 to 1993 to evaluate this association. The study tow the line of Demirguc-Kunt and Levine (1996) by conglomerating measures such as stock market size, liquidity, and integration with world markets, into index of stock market development. The growth rate of Gross Domestic Product (GDP) per capita was regressed on a variety of variables designed to control for initial conditions, political stability, investment in human capital, and macroeconomic

conditions; and then include the conglomerated index of stock market development. The finding was that a strong correlation between overall stock market development and long-run economic growth exist. This means that the result is consistent with the theories that imply a positive relationship between stock market development and economic growth. The study of Mahtadi and Agarwal (2001) covers many emerging markets over 21 years, and finds that this relationship exists both directly and indirectly by boosting private investment behaviour. In a similar study, Caporale and Soliman (2004) observe that an organized and managed stock market stimulate investment opportunities by recognizing and financing productive projects that lead to improved economic activity, mobilize domestic savings, capital allocation proficiency, and help to diversify risks, and facilitate exchange of goods and services. Stock markets are expected to increase economic growth by increasing the liquidity of financial assets, make global and domestic risk diversification possible, promote wiser investment decisions, and positively influence corporate governance practices by increasing shareholders' interest value.

Ted Arzarmi et al (2005) examined the empirical association between stock market development and economic growth in India. The authors found no evidence of association between the Indian stock market development and economic growth in the entire period they studied. Whereas the authors found support for the relevance of stock market development in economic development during pre-liberalization, they discovered a negative relationship between stock market development and economic development for the post liberalization period.

Enisan and Olufisayo (2009) through autoregressive distributed lag (ARDL), evaluate the long-run relationship between stock market development and economic growth in seven of the Sub-Saharan African countries. The results indicate that stock market has a positive and significant impact on growth. Causality results indicate unidirectional causality from stock market development to economic growth for both South Africa and Egypt. While Cote D'Ivoire, Kenya, Morocco and Zimbabwe indicate bidirectional causality, Nigeria on the other hand shows weak evidence that growth causes finance.

Osinubi (1998) examines whether stock market promotes economic growth in Nigeria between the period 1980 and 2000. The study employed the Ordinary Least Squares (OLS) regression technique as the method of data estimation. The regression results, confirms that there exist positive relationship between the economic growth and the measures statistically insignificant. This in essence means that the effect of stock market on economic growth is weak and insignificant considering the stock market development used. However, these relationships are statistically insignificant. This in essence means that the effect of stock market on economic growth is weak and insignificant.

### 3.0 Analytical Framework

In investigating the relationship between stock market performance and economic growth, we made use of the Neo-Classical Growth model, where rate of economic growth depends on the growth rate of: (i) Capital Stock, K; (ii) Labour Supply, L; and (iii) Technological Progress Over Time, (Dwivedi, 2008). The relationship between the national output and these variables are expressed in the form of a production function, thus:

$$Y = f(K, L, T) \dots\dots\dots (1)$$

The application of this model is however modified to represent the variables in our study and is accordingly specified as follows:

$$EG f(SMP, TVS, TLE, FID, MTR, NMD, INT) = 0 \dots\dots\dots (2)$$

The acronyms in Equation (2) represent:

EG (Economic Growth) is Gross Domestic Product = GDP

Stock Market Performance = SMP

Total Value of Shares Traded = TVS

Total Listing on the Exchange = TLE

Financial Development = FID

Monetisation Ratio = MTR

Narrow Money Diversification = NMD

Interest Rate = INT

We can categorise: i) Capital Market Variables as - SMP, TVS and TLE; ii) Financial Deepening Variables as - FID, MTR, NMD and INT

Rearranging equation 2 in line with the model, we have:

$$GDP = \beta_0 + \beta_1 MCAP + \beta_2 TVS + \beta_3 TLE + \beta_4 FID + \beta_5 MTR + \beta_6 NMD + \beta_7 INT + \mu \dots\dots (3)$$

Equation (3) is designed to measure the relationship that exists between Gross Domestic Product and other independent variables. This is to see how those explanatory variables influence Economic Growth in the economy. In line with apriori expectations, the expected signs of the coefficients are:  $\beta_1 > 0$ ;  $\beta_2 > 0$ ;  $\beta_3 > 0$ ;  $\beta_4 > 0$ ;  $\beta_5 > 0$ ;  $\beta_6 > 0$ ;  $\beta_7 < 0$ . The above sign ( $> 0$ ) implies a positive relationship between GDP and the coefficients of the independent variable while ( $< 0$ ) connotes a negative relationship.

### 3.1 Methodology

**Our Model for analysis is derived from equation (3) above;**

$$GDP = \beta_0 + \beta_1 MCAP + \beta_2 TVS + \beta_3 TLE + \beta_4 FID + \beta_5 MTR + \beta_6 NMD + \beta_7 INT + \mu$$

The Model contains GDP, Capital Market variables (MCAP, TVS and TLE) and Financial Deepening variables (FID, MTR, NMD and INT)

Note that capital market variables are clear as specified since the figures for them can be obtained directly over the years. The Financial deepening variables require further definitional analysis as follows:

#### Financial Development (FID)

It is a measure of the increase in the volume of financial services of the banks, financial intermediaries, financial institutions and financial market, as demonstrated by credit to the private sector of the economy.

Augusto de la Torre, Juan Carlos Gozzi and Sergiv Schumukler (2006), “stock market development under globalization; whether the gain from reforms?” The trio used F.D as one of the independent variables that determines G.D.P growth in an economy. They found that financial development leads to growth.

$$\text{FID} = \text{Credit to Private Sector}/\text{GDP} \dots \dots \dots (4)$$

where

FID = Financial Development

GDP = Gross Domestic Product

### Monetisation Ratio (MTR)

This ratio is computed as M2 divided by nominal GDP. It is sometimes referred to as the Broad Money Velocity was used by King and Levine (1993). It reflects the depth of the financial market relative to the overall economy. Increases in this ratio indicate further expansion in the financial sector relative to the rest of the economy. Thus:-

$$\text{MTR} = \text{M2}/\text{GDP} \dots \dots \dots (5)$$

where

MTR = Monetisation Ratio

M2 = Total Monetary Liability (Broad Money)

GDP = Gross Domestic Product

### Narrow Money Diversification (NMD)

This is the ratio of demand deposits to the narrow money stock. Vogel and Buser (1976) argue that this measure represents the complexity, or sophistication of the financial market (primarily banks). An increase in this ratio implies a higher degree of diversification of financial institutions and a greater availability or use of non-currency balances (bank deposits) in the transaction process. In this paper, we adopted narrow money stock denoted as M1.

Therefore;

$$\text{NMD} = \text{DD}/\text{M1} \dots \dots \dots (6)$$

Where

NMD = Narrow Money Diversification

DD = Demand Deposit

M1 = Money Supply

### Interest Rate (INT)

The annualized cost of credit or debt-capital and is computed as the percentage ratio of interest to the principal. It is determined by the Monetary Authority. In Nigeria the interest rate which is determined by the Monetary Authority is referred to as the Monetary Policy Rate.

### The Model

The figures for GDP, MCAP, TVS and TLE are obtained in Millions, while figures for FID, MTR, NMD and INT are in rates.

To obtain realistic results for our model of analysis, we would transform the model by taking logarithm of the variables in Millions. Therefore our equation 3 becomes transformed to equation 7 below:

$$\text{LogGDP} = \alpha_0 + \alpha_1 \text{LogMCAP} + \alpha_2 \text{LogTVS} + \alpha_3 \text{LogTLE} + \alpha_4 \text{FID} + \alpha_5 \text{MTR} + \alpha_6 \text{NMD} + \alpha_7 \text{INT} + \mu \dots \dots \dots (7)$$

This is the form of the model to be estimated and analysed.

## 4.0 Estimation Strategy

The estimation technique consists of four steps procedures. The first step is the unit root test which involves the determination of the stationarity property of the time series variables, using the Augmented Dickey-Fuller (ADF) test statistics for unit root (Dickey & Fuller, 1979). The second is impact estimation, using Least Squares multiple regression method (including a constant term) is run over the sample period 1981-2011. The third is cointegration test to establish whether the time series variables have long-run equilibrium relationship. The fourth step involves testing for Error Correction Mechanism. If the cointegration test shows that the variables have long-run equilibrium relationship, then, it is a sufficient condition for an ECM formulation. If variables are non-stationary at level, but cointegrated, their dynamic relationships will be specified correctly by an error correction model (Granger and Engle, 1987).

## 4.1 Analysis of Results

### Unit Root Test

The unit root test is necessary because research has shown that non-stationary data leads to spurious regression, which may affect in determining the cointegration relation in the long run. The summary of the results of the tests are presented in Table 1 below

From the ADF test statistics, the results in Table 1 show that LOGGDP, LOGMCAP, LOGTVS, LOGTLE, FID, MTR, NMD and INT were integrated at order one, that is I(1) or they became stationary at first difference. Comparing the variables levels with their first difference (the ADF unit root test statistic) and various probabilities, the test statistics show that the variables are integrated at order of one. All the variables were statistically significant at 1%, 5% and 10% critical values in first difference.

TABLE 1: ADF FISHER UNIT ROOT TEST

Null Hypothesis: Unit root (individual unit root process)					
Sample: 1981 - 2012					
Automatic selection of lags based on SIC: 0 to 1					
Series: LOGGDP, LOGMCAP, LOGTVS, LOGTLE, FID, MTR, NMD,INT					
Total number of observations: 238					
Method			Statistic	Prob.**	
ADF - Fisher Chi-square			124.797	0.0000	
ADF - Choi Z-stat			-9.084	0.0000	
Intermediate ADF test results D(UNTITLED)					
Series	Prob.	Order of Integration	ADF T-Stat	Max Lag	Obs
D(LOGGDP)	0.0039	I(1)	-4.6970	1	30
D(LOGMCAP)	0.0090	I(1)	-4.3425	1	30
D(LOGTVS)	0.0042	I(1)	-4.6653	1	30
D(LOGTLE)	0.0007	I(1)	-5.3980	1	29
FID	0.0045	I(1)	-4.6578	1	30
MTR	0.0001	I(1)	-6.2583	1	29
NMD	0.0023	I(1)	-4.9140	1	30
INT	0.0000	I(1)	-8.7961	1	30
Test critical values:		1% level	-4.2967		
		5% level	-3.5684		
		10% level	-3.2184		

Source; Author's Computation

**Multiple Regression Result Analysis****Recall our model for analysis:**

$$\text{LogGDP} = \alpha_0 + \alpha_1 \text{LogMCAP} + \alpha_2 \text{LogTVS} + \alpha_3 \text{LogTLE} + \alpha_4 \text{FID} + \alpha_5 \text{MTR} + \alpha_6 \text{NMD} + \alpha_7 \text{INT} + \mu$$

The Regression Equation designed to measure the relationship that exists between Gross Domestic Product and other independent variables. This is to see how those explanatory variables influence Economic Growth in the economy. In line with apriori expectations, the expected signs of the coefficients are: B1 < 0; B2 < 0; B3 > 0; B4 > 0; B5 > 0. The above sign (> 0) implies a positive relationship between GDP and the coefficients of the independent variables.

TABLE 2: SUMMARY OF MULTIPLE REGRESSION RESULT

Dependent Variable: LOGGDP				
Method: Least Squares				
Date: 04/29/14 Time: 05:08				
Sample: 1981 2012				
Included observations: 32				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.793276	2.538813	2.281884	0.0317
LOGMCAP	0.669687	0.117925	5.678934	0.0000
LOGTVS	0.134092	0.074367	1.803127	0.0839
LOGTLE	-0.132615	0.482164	-0.275041	0.7856
FID	-3.179804	2.010678	-1.581459	0.1269
MTR	3.049845	1.640640	1.858935	0.0753
NMD	-2.398621	0.756495	-3.170703	0.0041
INT	2.462058	0.888145	2.772136	0.0106
R-squared	0.895775	Mean dependent var		14.24601
Adjusted R-squared	0.844543	S.D. dependent var		2.319115
S.E. of regression	0.171312	Akaike info criterion		-0.478337
Sum squared resid	0.704351	Schwarz criterion		-0.111903
Log likelihood	15.65340	F-statistic		808.1493
Durbin-Watson stat	1.947748	Prob(F-statistic)		0.000000

Substituted Coefficients:

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$$\text{LOGGDP} = 5.793276416 + 0.6696874623 \cdot \text{LOGMCAP} + 0.1340924895 \cdot \text{LOGTVS} - 0.1326147752 \cdot \text{LOGTLE} - 3.179804231 \cdot \text{FID} + 3.049844749 \cdot \text{MTR} - 2.398620918 \cdot \text{NMD} + 2.462058429 \cdot \text{INT} \quad (8)$$

The result in table 2 shows that GDP is positively related to LOGMCAP, LOGTVS, MTR AND INT while LOGTLE, FID and NMD are negatively related to LOGGDP. .

The R-squared and Adjusted R-squared indicated good fit. About 89% of the variation in GDP is explained by the variation in the independent variables.

From the estimated result, it is obvious that if Log of Market Capitalisation (LOGMCAP), Log of Total Value of Shares Traded (LOGTVS), Monetisation Ratio (MTR) and Interest Rate (INT) are increased by 1%, GDP will increase by 0.66%, 0.13%, 3.05%, and 2.46% respectively. The result also shows that if Log of Total Listing of Equity (LOGTLE), Financial Development (FID), and Narrow Money Diversification (NMD) are increased by 1%, GDP will decrease by 13%, 3.18% and 2.40% respectively.

To test our hypothesis we used the probability (p-value) of observing the t-statistic given that the coefficient is equal to zero. Only three independent variables are statistically significant in explaining the variation in GDP at 5% and 1% levels of significance. The variables are Log of Market Capitalisation (LOGMCAP), Narrow money Diversification (NMD) and Interest Rate (INT).

The variable with the strongest significant impact on GDP is Interest Rate with positive coefficient of 2.46. This is closely followed by Narrow Money Diversification (NMD) with negative coefficient of 2.40. NMD refers to credit advanced to Private Sector by Banks in the economy. With negative and positive coefficients of 3.17 and 3.05 Financial Development and Monetisation Ratio indicate very strong relationship with GDP while noting that the coefficients are statistically insignificant.

The variable with the weakest and most insignificant impact on GDP is Log of Total number of securities listed on the exchange (TLE).

The value of Durbin-Watson Statistic (1.95) indicates the absence of autocorrelation in the analysed data. The value of F-Statistic is 808.14. An analysis of the probability value for F-Statistic (Prob F-Stat = 0.0000) indicates that entire regression equation is significant at both 1% and 5% levels of significance. The model is a good fit.

To effectively test the joint significance of both financial deepening variables and capital market variables in explaining the variation in GDP we employed Wald Coefficient test statistic referenced in Appendix 1. From the result, we observe that the combined impact of the financial deepening variables showed that F-Statistic of 7.95 and Chi-Square statistic showed 28.84. But the Probability results showed 0.007 indicating that the combined impact of Financial deepening variables (FIN, MTR, NMD and INT) on GDP during the period of analysis are statistically significant (at both 5% and 1%). The Wald test result on capital market variables (LOGMCAP, LOGTVS and LOGTLE) shows that F-statistic is 626.71 and Chi-Square is 1880.13. However, the Probability results showed 0.000 indicating that the combined impact of Capital Market variables LOGGDP during the period of analysis are statistically significant (at both 5% and 1%).

### Cointegration Test

The unit root test earlier conducted showed that the variables are stationary at first difference. Stationarity of the residuals is potent evidence that there is evidence of convergence to long-run equilibrium among the integrated variables. Now we wish to test whether the variables are cointegrated over the sample period and if so, what the cointegrating relation is. To determine the number of significant co integration relationships, we use the Johansen's co-integration test that yields the log likelihood estimates for the unconstrained co-integration vectors.

**TABLE 3: JOHANSEN COINTEGRATION TEST**

Date: 04/29/14 Time: 05:51				
Sample (adjusted): 1983 2012				
Included observations: 30 after adjustments				
Trend assumption: Linear deterministic trend (restricted)				
Series: LOGGDP LOGMCAP LOGTVS LOGTLE FID MTR NMD INT				
Lags interval (in first differences): 1 to 1				
Unrestricted Cointegration Rank Test (Trace)				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	Critical Value	Prob.**
			0.050000	
None *	0.921738	303.181400	187.470100	0
At most 1 *	0.884479	226.750800	150.558500	0
At most 2 *	0.787925	162.001600	117.708200	0
At most 3 *	0.781527	115.477200	88.803800	0.0002
At most 4 *	0.636789	69.844400	63.876100	0.0145
At most 5	0.433444	39.461220	42.915250	0.1063
At most 6	0.323500	22.415840	25.872110	0.1269
At most 7	0.299788	10.691150	12.517980	0.0991
Trace test indicates 5 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				

**MacKinnon-Haug-Michelis (1999) p-values		
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Source: Author's Computation

The results of the co-integration in table 3 confirmed that there are five co-integration relationships among the variables included in the model. Specifically, the result of the co-integration test suggests that the variables have long-run equilibrium relationship with each other. This evidence of co-integration among the variables rules out spurious correlations and applies that five directions of influence can be established among the variables. It is important to note that the existence of co-integration vectors among a group of variables may not imply that there is causal influence between pairs of variables in the model of co-integration test. The presence of a co-integrating relation forms the basis of the error correction specification. The cointegration term is known as the error correction term since the deviation from long-run equilibrium is corrected gradually through a series of partial short-run adjustments Granger and Engle (1987).

### Error Correction Model and Analysis of Long-run behavior of the Model

A vector error correction (VEC) model is a restricted VAR designed for use with non-stationary series that are known to be cointegrated. The VEC has cointegration relations built into the specification so that it restricts the long-run behavior of the endogenous variables to converge to their cointegrating relationships while allowing for short-run adjustment dynamics. Our analysis of table 1 shows that since the variables are non-stationary at levels but become stationary after first difference, the variables in the model are cointegrated. Given the situation, their dynamic relationships must be specified by an error correction model (ECM) in order to capture both the short-run and long-run relationships. The Error Correction for the long run Economic Growth equation is written below:

$$D(\text{LOGGDP}) = -0.217*(\text{LOGGDP}(-1)) - 8.915 - 0.219*(\text{LOGMCAP}(-1)) + 0.400*(\text{LOGTVS}(-1)) + 0.768*(\text{LOGTLE}(-1)) + 3.615*(\text{FID}(-1)) - 6.605*(\text{MTR}(-1)) + 0.699*(\text{NMD}(-1)) - 5.708*(\text{INT}(-1)) \dots \dots \dots (9)$$

The equation above depicts the Error Correction Mechanism (ECM) of our Model (see Appendix 2). It implies that the long run adjustment coefficient of the dependent variable (LOGGDP) is – 0.22. The value is negative and statistically significant in conformity with an effective error correction model. It indicates that the speed of annual (short-run) adjustments of LOGGDP is 22% to long run deviations from equilibrium. The long-run intercept term for the model is negative with 8.92. The Error Correction Equation also depicts that the coefficients of LOGMCAP, MTR and INT are negative in adjusting to the long run disequilibrium given by the ECM value (-0.58). The coefficients of LOGTVS, LOGTLE, FID and NMD are positive in serving the same purpose. However, the result shows that LOGMCAP, LOGTVS and INT are statistically significant therefore more meaningful in our analysis while trying to determine the growth rate of LOGGDP in the long run.

## 5.0 Findings and Recommendations

This research study attempts to investigate the relationship between capital market, financial deepening and economic growth. The deductions that could be made from the empirical findings are predicted on the sizes and magnitude of the slope coefficient. It was revealed that Market Capitalisation, Narrow Money Diversification (credit to private sector) and Interest Rate significantly impacted the promotion of economic growth of the country during the period of study. Though, other measures of liquidity represented by Financial Development (FID) and Monetisation Ratio (MTR) were not significant in explaining the trend in economic growth, they exhibited very strong coefficients in the process. Overall, the Wald Coefficient Test revealed that jointly, the proxies for both Capital Market and Financial Deepening (separated) are significant in explaining the trend in economic growth.

In the light of the above, the Government and other stakeholders in the economy should put measures that are directed at:

First, improve liquidity of the economy and further expand the financial services sector. Specific measures along this line would involve further monetization of the economy to involve the huge sector that does not utilise the financial services provided by the money and capital markets. The process may require more enlightenment of the middle and lower cadre of the Nigerian people and spread of Branches of financial institutions in the country to areas without access to banking services.

Second, the role of credit to the growth of the economy is well exhibited by the significant impact of narrow money diversification (NMD) on economic growth (GDP) in our analysis. It means that further advancement of properly structured loans and advances to the key producing sectors of that would improve the size of the country's GDP.

Third, improvements in capital market activities. This can be handled by improving the enabling environment to make the Nigerian stock market globally competitive and improve the architecture to enhance hitch free trading and reporting. Regulatory activities for trading should also be properly supervised while emphasizing professionalism on the part of market operators and stock brokers. Government policies should also be geared towards increasing money supply and improving the liquidity of the capital market as this will enhance overall economic efficiency and increase investor confidence in capital market activities.

## Conclusion

The broad focus of this paper was to identify, within an empirical framework, the proportionality relationship between economic growth, and proxies for capital market and financial deepening of the Nigerian economy. We developed a multiple regression equation model, which focuses explicitly on the impact of capital market and financial deepening proxies on the country's economic growth. The econometric model that is adopted was used to regress the impact of these factors on Nigeria's economic growth that is proxied by GDP. The results and analysis of our research findings are predicated on the values of the different parameters of dependent variables.

This paper provided evidence showing that activities in the Nigeria's Capital Market have impact on the Country's economic growth. Financial deepening variables also have impacted on the Country's GDP. Specifically, GDP is

significantly impacted by Growth in Market Capitalisation (MCAP), Narrow Money Diversification (NMD) and interest rate (INT). The paper recommends that Government and stake holders in the economy should come up with measures to improve liquidity in the economy. Expansion of financial services to deficient locations is emphasized along with the extension of credit facilities to key producing sectors of the economy. The paper also recommends that there should be concrete improvements in the activities of the Nigerian capital market. Laws should be enacted to make the Nigerian stock market more globally competitive and there should be proper regulation of the activities of market operators.

## References

- Al-Faki, M.(2006). "The Nigerian Capital Market and social – Economic Development. Paper
- Ang, J.B., (2007), "Financial Deepening and Economic Development in Malaysia" *Asian Business and Economics Research Unit, Discussion Paper 42*,
- Augusto De la Torre, A. Gozzi, J., Schmukler, S. (2006). "Stock market development under globalization: Whither the gains from reforms"? World Bank Policy Research Working Paper.
- Benin, Benin City. (July, 26<sup>th</sup>)
- Caporale, G. M; P. Howells and A. M. Soliman (2004), "Stock Market Development and Economic Growth: the Causal Linkage", *Journal of Economic Development*, 29, 33-50.
- Chinwuba, O., & Amos, O. A. (2011) Stimulating Economic Development Through the Capital Market: The Nigerian Experience. *Jorind* 9(2)
- Demirgüç Kunt, A. and R. Levine (1996), "Stock Market, Corporate Finance and Economic Growth: An Overview" *The World Bank Review*, 10(2): 223-239
- Dwivedi, D.N (2008). Managerial Economics; New Delhi: Vikas Publishing House
- Efina.org, <http://www.efina.org.ng/about-us/financial-inclusion/>
- Engle, R.F. and C.W.J. Granger (1987) "Cointegration and Error Correction: Representation, Estimation and Testing", *Econometrica*, Vol.55, pp.251-276.
- Enisan, A. A. and A.O Olufisayo (2009), "Stock market development and economic growth: evidence from seven sub- Sahara African countries", *Journal of Economics and Business* 61, 162-171.
- Goldsmith, R.W. (1969), Financial Structure, and Development, Yale University Press: New Haven.
- Gurley J.G and E.S Shaw, (1955), "Financial Aspects of Economic Development", *American Economic Review*, 45:515-538
- Hicks, J.A (1969), A Theory of Economic History, Oxford: Clarendon Press
- Ilaboya, O.J. and Ibrahim, S (2004). Impact of stock market performance on the level of economic activities: Evidence from Nigerian stock market, *Nigerian journal of business administration*, Vol.6 No 1.
- King R.G and R. Levine, (1993), "Finance and Growth: Schumpeter Might Be Right," *Quarterly Journal of Economics*, 108:715-735
- Levine and Zervos (1996). "Stock Market Development and Long-run Growth". *The World Bank Economic Review*, 10(3): 323 – 339.
- Mahtadi, H. and Agarwal, S., (2001), "Stock Market Development and Economic Growth: Evidence from Developing Countries", <http://www.articlesbase.com/finance-articles/stock-market-development-and-economic-growth-evidence-from-underdeveloped-nepal-1096815.html>
- McKinnon, R. (1973), Money and Capital in Economic Development, Washington, D.C.: Brookings Institution
- Nnanna, J. & Dogo, M. (1999), Structural Reform, Monetary Policy and Financial Deepening: The Nigeria Experience: Mimeo
- Nyong, M. O. (1997): "Capital Market Development and Long-run Economic Growth: Theory, Evidence and Analysis" *First Bank Review*, December 1997: Pp 13-38.
- Oloyede, A. (1998) The Financial System's Role in Resource Mobilization and Investment: An Analysis of Financial Deepening in Nigeria's Financial Sector. *In the Dynamics of Managing the Nigerian Financial System in the 21st Century*. A Publication of the Central Bank of Nigeria.
- Osaze, B.E. & Anao, A.R. (1999). Managerial Finance. Benin City: UNIBEN Press.
- Osinubi, Tokunbo S. (1998): Stock Market Development and Long-run Growth in Nigeria". Unpublished M.Sc. Economics Dissertation, University of Ibadan Nigeria. Presented at 3rd Distinguished Faculty of Social Science Public Lecture Series, University of Ibadan
- Schumpeter, J.A (1911), The Theory of Economic Development. Oxford: Oxford University Press
- Shaw, E. (1973), "Financial Deepening in Economic Development", Oxford: *Oxford University Press Journal of Development Economics*, September/October, 1-24
- Ted, A., Lazar, D., & Jeyapaul, J. (2005). Is the Indian Stock Market A Casino?. *Journal of Business and Economic Research*, Vol. 3 No. 4, pp. 63-72.
- Ukeje EU, Kama U, Eluemunor (2007), "A Review of the Nigerian Capital Market In Capital Market Dynamics in Nigeria: Structure, Transaction Cost and Efficiency 1980- 2006". A Publication of the Central Bank of Nigeria.
- Vogel R. and S. Buser (1976), "Inflation, Financial Repression, and Capital Formation in Latin America," in *Money and Finance in Economic Growth and Development*. Ed, R. McKinnon, New York: Marcel Dekker, Inc.
- Yartey C.O. and Adjasi C.K. (2007). Stock Market Development in Sub Saharan Africa: Critical Issues and Challenges. International Monetary Fund working paper No. wp/07/209.



## APPENDIX 1: WALD COEFFICIENT TEST

WALD COEFFICIENT TEST							
CAPITAL MARKET VARIABLES				FINANCIAL DEPEENING VARIABLES			
Wald Test:				Wald Test:			
Equation: Untitled				Equation: Untitled			
Test Statistic	Value	df	Probability	Test Statistic	Value	df	Probability
F-statistic	626.71	(3, 24)	0.0000	F-statistic	7.94811	(3, 24)	0.00700
Chi-square	1880.13	3	0.0000	Chi-square	23.84433	3	0.00000
Null Hypothesis Summary:				Null Hypothesis Summary:			
Normalized Restriction (= 0)		Value	Std. Err.	Normalized Restriction (= 0)		Value	Std. Err.
C(2)	LOGMCAP	0.669687	0.117925	C(5)	FID	-3.17980	2.010678
C(3)	LOGTVS	0.134092	0.074367	C(6)	MTR	3.049845	1.64064
C(4)	LOG TLE	-0.13262	0.482164	C(7)	NMD	-2.39862	0.756495
				C(8)	INT	2.462058	0.888145
Restrictions are linear in coefficients.				Restrictions are linear in coefficients.			

## APPENDIX 2

## VECTOR ERROR CORRECTION ESTIMATES

Dependent Variable: D(LOGGDP)

Method: Least Squares

Sample (adjusted): 1983 2012

Included observations: 30 after adjustments

$$\begin{aligned}
 D(\text{LOGGDP}) = & C(1) * (\text{LOGGDP}(-1) - 0.2191144118 * \text{LOGMCAP}(-1) - \\
 & 0.4003384731 * \text{LOGTRADG}(-1) + 0.7684554124 * \text{LOGTLE}(-1) + \\
 & 3.614986651 * \text{FID}(-1) - 6.604877693 * \text{MTR}(-1) + 0.6994782486 \\
 & * \text{NMD}(-1) - 5.708437143 * \text{INT}(-1) - 8.914839977) + C(2) \\
 & * D(\text{LOGGDP}(-1)) + C(3) * D(\text{LOGMCAP}(-1)) + C(4) \\
 & * D(\text{LOGTVS}(-1)) + C(5) * D(\text{LOGTLE}(-1)) + C(6) * D(\text{FID}(-1)) + \\
 & C(7) * D(\text{MTR}(-1)) + C(8) * D(\text{NMD}(-1)) + C(9) * D(\text{INT}(-1)) + C(10)
 \end{aligned}$$

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.217368	0.120047	1.810690	0.0352
C(2)	0.020220	0.252239	0.080163	0.9369
C(3)	0.537295	0.164253	3.271142	0.0038
C(4)	-0.237335	0.078401	-3.027192	0.0067
C(5)	0.458186	0.479631	0.955289	0.3508
C(6)	2.438575	2.178629	1.119316	0.2763
C(7)	-0.034211	1.957491	-0.017477	0.9862
C(8)	-1.047194	0.638638	-1.639730	0.1167
C(9)	1.888486	0.783177	2.411316	0.0256
C(10)	0.159350	0.056058	2.842604	0.0101
R-squared	0.571499	Mean dependent var		0.223897
Adjusted R-squared	0.378673	S.D. dependent var		0.174152
S.E. of regression	0.137274	Akaike info criterion		-0.872477
Sum squared resid	0.376882	Schwarz criterion		-0.405412
Log likelihood	23.08716	Durbin-Watson stat		2.109284