RESPONSIVENESS OF NIGERIAN CAPITAL MARKET TO BANK BASE FINANCIAL DEEPENING

Dr. Obiamaka Egbo
Senior Lecturer,
Department of Banking and Finance,
Faculty of Business Administration,
University of Nigeria,
Enugu Campus,
Nigeria.

Nonso Fredrick Okoye
Department of Finance and Banking;
University of Port Harcourt,
Nigeria.

ABSTRACT
This study examined the responsiveness of Nigerian capital market to bank base financial deepening over the years 1986 to 2014. Using market capitalization as a proxy for Nigerian capital market, the study engaged the ex-post facto research design and the required data where sourced from CBN statistical bulletin of 2014. On the short run, the study revealed a positive relationship between capital market and bank base financial deepening, with credit to private sector ratio to GDP exerting more influence on the capital market than deposit to GDP ratio. However, the study using Johansen co-integration analysis, failed to establish the existence of long run relationship between capital market and bank base financial deepening. On the side of directional relationship, the study revealed a demand-following directional relationship between market capitalization and bank base financial deepening (credit to private sector/GDP). The study also shows that the impulse response of MCAP to own shock is positive both at short run and long run at 23.27% and 22.87% respectively for the two periods. However, the impulse response of MCAP to shock emanating from bank base financial deepening does not follow a define design and as such displays a combination of expansion and inconsistencies. On the variance decomposition, the study revealed that own innovation represent the dominant source of variation in the forecast error of the variables (MCAP); and as such the study recommends that: policy makers should strive to foster growth and development in banking sector as this would increase the growth of capital market (market capitalization) and in return cause deepening in bank base financial sector.

KEYWORDS: *capital market, liquidity, savings, exchange, investment.*

1.0   INTRODUCTION

The efficacy of financial sector growth and development in stimulating the growth of an economy has been recognised by scholars such as Schumpeter (1911), McKinnon (1973), Shaw (1973) and host of others. Based on their argument, effective financial sector, through its liquidity creation and expansion, savings mobilization, capital accumulation augmentation, intermediation activities can help to spurn the growth and development of an economy. Therefore, to boost the growth of an economy, there exist the need for policy makers to embark on those policies that is capable of fostering and sustaining financial deepening in the country.

Over the years, there has been an argument among scholars as to the direction of causation between financial deepening and economic growth. While some scholars such as Goldsmith (1969), Levine, (1997), Anthony and Tajudeen (2010) are in support of supply-leading hypothesis which contends that financial deepening motivates the growth of an economy through the existence of efficient markets, others like Onayemi and Sherifat (2013), argued for demand-leading hypothesis by emphasizing that financial deepening is a function of growth of an economy in order to meet up the increased demand for their services as a result of economic growth. Nevertheless, some scholars like Luintel and Khan (1999), Kirkpatrick (2000), and Pradhan (2009) are of the view that there is a bidirectional causality running form the financial deepening and economic growth. However, irrespective of the differences in the side of their argument, most scholars are still of the opinion that financial deepening is one of the major indicators of healthy economy. For instance, Porter (1966) opined that the extent of development in financial sector remains the best indicator of general economic development. Also, Goldsmith (1969) argued that financial institution development is of foremost importance for economic development; buttressing this point, he contends that acceleration of economic growth and improved economic performance can be attained through financial superstructure in the form of primary and secondary securities that will facilitate the relocation of funds from surplus unit to the best user. As a process that comprises the interaction of markets (primary, secondary and retail), instruments (deposits, loans, foreign exchange, bonds and debt securities) and participants (banks, insurance, investment houses, contractual savings institutions, companies etc), financial deepening if achieved, can help the growth of an economy through its potentials of attracting idle funds and or investment.

Following the structural adjustment programme of 1986, Nigerian financial sector has witnessed series of reforms such as 2005 bank consolidation, 2007 insurance consolidation etc aimed at achieving growth and financial deepening. However, the extent to which these reforms have deepened the Nigerian financial sector and impacted on the economic growth remains an empirical question. While most of the previous studies examined financial deepening and Nigerian economy, in this study, we tried to look at bank base financial deepening and capital market performance in Nigeria over the years 1986 to 2014. In line with our main objective, this study will be structured in five sections: Section one introduces the background to the study, section two reviews the related literature, section three reveals the model specification and data presentation; it also includes sources of the data, method of collection, and method of analysis, section four and five deals with discussion of findings and policy recommendations respectively.

2.0   LITERATURE REVIEW

According to Shaw (1973:8) financial deepening is a process that involves specialization in financial roles and institutions through which organized domestic institution and markets relate to foreign markets. "It can be defined as a process in which institutions and financial markets: i) facilitate goods and services exchange (e.g. payment services), ii) mobilize and pool savings of a large number of investors iii) acquire and process information about the companies and the potential investment projects and therefore allocating public savings to the most productive uses, iv) follow investments and exert corporate governance, and v) diversify and reduce liquidity risk and inter-temporal risk" (Levine, 2005; King and Levine, 1993). The important of financial deepening in growth and development of an economy has been well established both theoretically and empirically. However, effective bank base financial deepening which is rooted on financial intermediation is crucial in the growth of an economy. Supporting this view, Shaw (1973) revealed that financial intermediation stimulates the level of investment and productivity by means of channelling funds from savings unit to investment unit.

In establishing the indicators of financial deepening, Popiel (1990) states that a country's financial markets is said to be deep when: "1. They offer savers and investors a broad range of financial instruments which differ in terms of liquidity, yields, maturities and degree of risk including debt instruments, equity instruments and in between quasi-equity instruments. 2. They encompass a diversity of sub-markets, trading in different financial instruments. 3. Mature, domestic financial markets are integrated into the international financial markets. 4. Are linked together through financial instruments. 5. Finally, the markets are linked together through various financial institutions which function as market makers and financial intermediaries." Based on this, it is obvious that Nigerian financial sector despite undergoing various kinds of reforms over the years, is yet to attain deepening and as such, this study becomes of a paramount importance.

2.1 Theoretical Framework
Financial Intermediation theory

The Financial Intermediation theory stresses that financial intermediary through its liquidity creation and expansion, savings mobilization, capital accumulation augmentation; intermediation activities play a vital role in the growth of an economy and in return in performance of capital market. Buttressing this point, the theory opined that through intermediation process of channelling funds away from surplus economic unit to the deficit unit (investors), it influences the level of investment in an economic and thus, stimulates the growth of an economy. Early economist like Schumpeter (1911), Goldsmith (1969) argued that financial institution development is of foremost importance for economic development; buttressing this point, they contends that acceleration of economic growth and development cannot be attained without financial framework that will facilitate the relocation of funds from surplus unit to the best user. By assembling and distributing funds, financial intermediation encourages entrepreneurial and innovation spirit which are necessary components for performance of capital market.

Reinforcing the view of the theory, Gurley and Shaw (1960) opined that financial intermediation is of a paramount important to the enhancement of borrower's financial capability in the savings and investment process. Therefore, all things being equal, the higher the level of intermediation in an economy, the higher the investment level and the better the performance of capital market.

Financial Liberalization or McKinnon-Shaw theory

As pioneered by MacKinnon (1973) and Shaw (1973), this theory emphasises the need for the liberalization of a nation's financial sector with the aim of creating favourable environment that will encourage global investment and thus, increases the money demand in the economy. They advocates for the liberalization of the financial sector as an effective means of fostering the growth of an economy which is assumed to attain in two dimensions: (i) By increasing the financial resources to lead the supply-induced demand for money (ii) By creating suitable environment to encourage investments in the economy. The McKinnon-Shaw theory of financial liberalization proposes a complementarity association between the accumulation of money balances (financial assets) and physical capital accumulation in developing countries, leading to economic growth. The theory thereby opined that through financial liberalization, financial deepening will be achieved in an economy and as such will lead to growth and development of an economy. In other words, the theory believed that restrictions by government on the activities of the financial system can adversely affect the level of investment in an economy and thus negatively affect economic and financial growth and development and capital market.

2.2 Empirical literature

Onwumere et al (2012) studied the effect of financial deepening on growth of Nigerian economy over the years 1992 to 2008. With an adoption of the supply-leading hypothesis, they revealed that broad money velocity and market liquidity promote economic growth in Nigeria. Dehesa et al. (2007) examined the determinants of financial deepening and found firstly that a high ratio of credit / GDP is related with stronger borrower right and low inflation, and secondly that the marginal effect of improving borrower rights is decreasing gradually as inflation rate increases. Ang (2008) analysed the effect of financial sector policies on development of financial system over the years 1959 to 2005. Using the experience of Malaysia, the study revealed that control of interest rates, economic development, and liquid capital requirements demonstrated a positive effect on financial development.

Moboladji and Ndako (2008) examined the effect of globalization on the development of Nigerian financial sector over the years 1960 to 2005. Their findings revealed that there is a positive relationship between globalization and Nigeria financial sector development. Onuonga (2014) studied the association between financial development and economic growth in Kenya covering the period 1980 to 2011. Using autoregressive distributed lag framework and Granger causality method of analysis, the study found a firm long-run relationship between trade openness, financial development, and growth of an economy. Similarly, Bwire and Musiime (2006) examined the links between financial development and economic growth in Uganda over the years 1970 to 2005. Engaging modern multivariate and Granger causality techniques of analysis, they reveal that financial development is necessary, although insufficient in stimulating the growth of an economy.

3.0 METHODOLOGY

Relying on historical data, this study employed the ex-post facto research design; and the required time series data were sourced from statistical bulletin of central bank of Nigeria 2014. Engaging the use of multiple regression technique of analysis, we model capital market performance (market capitalization) as a function of bank base financial deepening, and the functional form in which the model is based on is thus presented:

MCAP = f(CPS/GDP, DMD/GDP) …………… (1)

Where:

MCAP = market capitalization which we use as a proxy for capital market performance

CPS/GDP = credit to private sector ratio to GDP which reflects the magnitude to which financial services are made available to the private sector. This was adopted as one of the proxies of bank base financial deepening following the works of Ang, (2007), Onwumere et al (2012) etc.

DMD/GDP = deposit money banks' deposit ratio to GDP which reflects the extent to which idle funds are being attracted by banks and channel into productive economic sector. This is also employed as one of the proxies for bank base financial deepening following the works of Gries et al. (2011).

Representing the above equation 1 in its econometric form, we obtain equation 2 which is presented thus:

$$MCAP = \beta_0 + \beta_1\ CPS/GDP + \beta_2\ DMD/GDP + \mu_t \dots\dots\dots\dots\dots\dots\ (2)$$

Where:

$\beta 0$ = Constant.

$\beta_1 - \beta_2$ = Regression coefficients.

μ_t = Error Term.

Aprioi expectations

Following the theoretical positions, we expect all our explanatory variables to relate positively with gross domestic product as represented mathematically below:

b1, b2, > 0

For the purpose of stationarity test, we consider a variance of y that has a unit root which is hypothesized by Markov first-order autoregressive scheme, usually denoted as AR(1) as follows:

$$Yt = \alpha\ Yt\text{-}1 + \mu t$$

Where:

Yt   =   market capitalization (MCAP) at time t.

α =   Coefficient of one period lagged value of real MCAP.

Yt-1 =   One period lagged value of real MCAP.

μt =   White noise error term assumed statistically independent and randomly distributed with zero mean, constant variance and serially not correlated.

Therefore, the model for testing the existence or otherwise of unit root of a time series data is specified as follows:

$$\Delta Yt = \beta 1 + \beta_{2t} + \square Y_{t\text{-}1} + \sum_{i=1}^{m} \alpha i\ \Delta Y_{t\text{-}i} + \mu t$$

Where:

Y = variable of choice

$\beta 1$ = intercept

Δ = first difference operator

$\beta 2$ = constant parameter

$\square$ = coefficient of lagged Yt-1

μt = white noise error term

Following this, the hypothesis to be tested will be represented thus:

Ho: $\square = 0$, the time series data is non-stationary.

H1: $\square \neq 0$, the time series data is stationary.

Granger causality test:

$$Y_t = \alpha_1 + \sum_{i=1}^{m} \alpha_{2i} Y_{t\text{-}i} + \sum_{i=1}^{m} \alpha_{3i} X_{t\text{-}i} + \mu$$

$$X_t = \beta_1 + \sum_{i=1}^{m} \beta_{2i} Y_{t\text{-}I} + \sum_{i=1}^{m} \alpha_{3i} X_{t\text{-}i} + \mu$$

Based on the model above, X_t is said to granger cause Y_t as far as α_{3i} is not zero; so also in the second model, Y_t is said to granger cause X_t provided β_{2i} is $\neq 0$. However, if both significant occur, the variables are said to have a bidirectional relationship, whereas in a situation of only one being significant, a unidirectional relationship is said to have occurred.

Result presentation and Discussion

ADF Result

Variables	ADF-statistics	Critical value	Order of integration
MCAP	-5.215204 (0.0017)	-3.612199	*I*(I)
CPS_GDP	-5.123898 (0.0018)	-3.595026	*I*(I)
DMD_GDP	-2.162433 (0.0320)	-1.955681	*I*(I)

Source: author's computation

The summary of the above result denotes that all our employed variables are stationary at first differencing; therefore following the assertion of Engel and Granger (1987) and Granger and Newbold (1974), it reduces the possibility of obtaining spurious regression.

Dependent Variable: MCAP
Method: Least Squares
Date: 03/07/18 Time: 18:27
Sample: 1986 2014
Included observations: 29

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-5499.726	1936.645	-2.839821	0.0087
CPS_GDP	577.6125	112.0829	5.153441	0.0000
DMD_GDP	331.6342	170.6578	1.943270	0.0629

R-squared	0.537622	Mean dependent var	3987.855
Adjusted R-squared	0.502055	S.D. dependent var	5878.964
S.E. of regression	4148.504	Akaike info criterion	19.59658
Sum squared resid	4.47E+08	Schwarz criterion	19.73802
Log likelihood	-281.1504	Hannan-Quinn criter.	19.64088
F-statistic	15.11555	Durbin-Watson stat	1.002163
Prob(F-statistic)	0.000044		

Source: author's computation

Analysis:

The above OLS result is an estimate of short run relationship between banks' base financial deepening and Nigerian capital market. From the regression analysis, our coefficient of determination measured by R^2 stood at 0.537622 which denotes that bank base financial deepening captured by private sector credit to GDP ratio and deposit to GDP ratio explains over 54% variations in capital market performance in Nigeria over the years of our study. However, our F-statistics which measures the overall significance of the model shows that the model demonstrated a good fit at 5% critical level and as such can sufficiently address the main aim of the study.

Coefficients:

Confirming the apriori expectation, the study revealed a positive relationship between bank base financial deepening and market capitalization in Nigeria. This implies that growth and development of banking sector (deepening) stimulates the growth and performance of capital market in Nigeria. In other words, it indicates that the extents to which bank base financial services are provided in an economy especially to the private sector is paramount for the growth and development of capital market. Based on their respective coefficient value of 577.6125, and 331.6342, credit to private sector ratio to GDP exerts more influence than deposit to GDP ratio on market capitalization, and the relationship was found to be significant, while the latter is insignificant.

Meanwhile, holding bank base financial deepening constant, the result indicates that market capitalization will be decreasing significantly; therefore, it implies that for the purpose of growth and development of capital market (market capitalization), bank base financial deepening is of a paramount significant.

Johansen co-integration result

Date: 03/07/18 Time: 18:28
Sample (adjusted): 1988 2014
Included observations: 27 after adjustments
Trend assumption: Linear deterministic trend
Series: MCAP CPS_GDP DMD_GDP
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.524438	25.33037	29.79707	0.1500
At most 1	0.175671	5.262427	15.49471	0.7803
At most 2	0.001718	0.046415	3.841466	0.8294

Trace test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values
Source: author's computation

The Johansen co-integration test above indicates that at 5% critical level, there is no co-integrating equation among the employed variables; by implication, it means that there is no long run or equilibrium relationship among our selected variables.

Granger causality test

Pairwise Granger Causality Tests
Date: 03/07/18 Time: 18:29
Sample: 1986 2014
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
CPS_GDP does not Granger Cause MCAP	27	0.33740	0.7172
MCAP does not Granger Cause CPS_GDP		6.27380	0.0070
DMD_GDP does not Granger Cause MCAP	27	0.28495	0.7548
MCAP does not Granger Cause DMD_GDP		0.75865	0.4802

Source: author's computation

Based on the result above, there is a demand-following directional relationship between market capitalization and bank base financial deepening (credit to private sector/GDP). This implies that bank base financial deepening captured by credit to private sector ratio to GDP is being granger caused by growth and development of capital market (market capitalization). In other words, it grows in order to meet up the increased demand for their services as a result of growth in capital market.

Impulse response to one S.D innovation

Response of MCAP: Period	MCAP	CPS_GDP	DMD_GDP
1	2496.157	0.000000	0.000000
	(339.684)	(0.00000)	(0.00000)
2	2327.156	-89.19462	222.0189
	(664.678)	(561.712)	(507.785)
3	2145.952	183.1907	60.30372
	(714.047)	(750.994)	(671.560)
4	2133.705	438.6952	-125.5920
	(826.255)	(814.856)	(768.410)
5	2209.136	549.9543	-284.8613
	(899.942)	(833.533)	(884.877)
6	2288.256	597.1123	-426.9793
	(1054.80)	(904.021)	(991.238)
7	2312.563	655.1426	-535.5843
	(1291.35)	(996.034)	(1085.74)
8	2287.335	722.9422	-605.9276
	(1558.20)	(1058.00)	(1161.53)
9	2248.302	771.0274	-652.2854
	(1831.75)	(1081.61)	(1212.64)
10	2213.192	791.1896	-687.8415
	(2112.68)	(1084.75)	(1240.77)

Source: author's computation

In the above table, we represent the impulse response estimate to one standard deviation innovation in each of the variables in VAR system for ten years into the future. The result shows that the impulse response of MCAP to own shock is positive both at short run and long run at 23.27% and 22.87% respectively for the two periods. However, the impulse response of MCAP to shock emanating from CPS_GDP, and DMD_GDP is mixed; for instance, at short run, its response to shock from CPS_GDP is negative at 8.9% and positive for shock from DMD_GDP at 22.2%. However, at long run, response of MCAP to shocks from other variables is positive for CPS_GDP and negative for DMD_GDP at 72.2% and 60.5% respectively. This denotes that response of MCAP to innovations emanating from bank base financial deepening does not follow a define design and as such displays a combination of expansion and inconsistencies.

Variance Decomposition of MCAP

Period	S.E.	MCAP	CPS_GDP	DMD_GDP
1	2496.157	100.0000	0.000000	0.000000
2	3421.067	99.51086	0.067976	0.421169
3	4043.019	99.42222	0.253974	0.323803
4	4594.228	98.56601	1.108489	0.325496
5	5135.251	97.39763	2.034135	0.568235
6	5669.725	96.18886	2.777848	1.033291
7	6181.407	94.91967	3.460298	1.620030
8	6658.189	93.61407	4.161418	2.224510
9	7099.740	92.36021	4.839278	2.800512
10	7510.235	91.22389	5.434548	3.341559

Source: author's computation

Based on the result of variance decomposition of the three variables in the VAR system of the model for ten years into the future, it is obvious that own innovation represent the dominant source of variation in the forecast error of the variables (MCAP). For instance, in the variance of MCAP, own shock explains about 99.51% variations in the short run while other variables explain about 0.07% and 0.42% variations respectively at the same period. However, at long run, own shock still dominate the highest source of variations in the forecast error. Meanwhile, within the ten years into the future, own shock maintained the same trend in explaining the variations in forecast error with over 90% in all the years, while the other variables revealed that the variance explained in the MCAP fluctuate consistently into the future without a define trend.

4.0   CONCLUSION/POLICY RECOMMENDATION

The importance of financial services availability in an economy especially in the areas of channelling funds from surplus to deficit economic unit cannot be over emphasised. However, focusing on the bank base financial deepening, the study revealed that there exist a positive relationship between bank base financial deepening and growth of Nigeria economy. The result indicates no long run relationship among our variables, but notwithstanding, the outcome confirms at least a unidirectional causality (From market capitalization to credit to GDP ratio aspect of bank base financial deepening). Conclusively we can affirm that bank base financial deepening promotes the growth and performance of capital market (market capitalization). Hence government should as a matter of policy strive to foster growth and development in banking sector as this would increase the growth of capital market (market capitalization) and in return cause deepening in bank base financial sector.

REFERENCES

1. Ang, J. B., (2008), "Are Financial Sector Policies Effective in Deepening the Malaysian Financial System", Applied Economics.
2. Anthony, E.N. and R.G. Tajudeen, 2010. Financial sector development and economic growth: The experience of 10 Sub-Saharan African countries revisited. The Review of Finance and Banking, 2(1): 17–28.
3. Dehesa, M. et al. (2007), "Relative Price Stability, Creditor Rights, and Financial Deepening", IMF Working paper, WP/07/139.
4. Goldsmith, R.W., 1969. Financial structure and development. New Haven, Conn: Yale University Press.
5. Gries, T., Kraft, M., and Meierrieks, D., (2011), "Financial Deepening, Trade Openness and Economic Growth in Latin America and the Caribbean", Applied Economics, 43(30), pp. 4729-4739.
6. Gurley J.G and E.S Shaw, (1955), "Financial Aspects of Economic Development", American Economic Review,
7. King, R.G. and Levine, R., (1993), "Finance and Growth, Journal of Economics", Vol. 108, PP. 717-737.
8. Kirkpatrick, 2000. Financial development, economic growth and poverty reduction. Pakistan Development Review, 3(4): 363-388.
9. Levine, R., (2005), "Finance and Growth: Theory and Evidence". In P. Aghion & S. Durlauf (Ed.), Handbook of economic growth (Chapter 12). New York: Elsevier.
10. Levine, R., 1997. Financial development and economic growth: Views and Agenda. Journal of Economic Literature, 35(2): 688-726.
11. Luintel, K.B. and M. Khan, 1999. A quantitative reassessment of the finance—growth nexus: Evidence from a multivariate VAR. Journal of Development Economics, 60(2): 381-405.
12. Mc Kinnon, R., (1973), "Money and Capital in Economic Development", Washington, The Brooking Institutions.
13. Moboladji, H. I. and Ndako, U. B., (2008), « Financial Development and Globalization in Nigeria", The Icfai University Press.
14. Onayemi Sherifat, O., 2013. Output growth, economic openness and financial deepening in Nigeria: A structural differential and causality analyses. European Journal of Humanities and Social Sciences, 26(1): 1381-1395.
15. Onwumere J.U.J, Imo G. I, Ozoh, F.O and Mounanu, O. (2012),The Impact of Financial Deepening on Economic Growth: Evidence from Nigeria: Research Journal of Finance and Accounting ISSN 2222-1697 (Paper) ISSN 2222-2847 (Online) Vol 3, No 10.
16. Popiel, P.A. (1990) Developing Financial Markets International Finance Corporation, Washington.
17. Porter, R. (1966) The Promotion of Banking Habit and Economic Development, Journal of Development Studies Vol. 1. No. 4 August.
18. Pradhan, R.P., 2009. Nexus between financial development and economic growth in India: Evidence from multivariate VAR model. International Journal of Research and Reviews in Applied Sciences, 1(2): 141-151.
19. Schumpeter, J.A (1911), The Theory of Economic Development. Oxford: Oxford University Press.
20. Shaw E. S., (1973), "Financial Deepening in Economic Development", New York, Oxford University Press.