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CAPITAL MARKET PREDICTIVE POWER ON THE DEVELOPMENT OF THE NIGERIAN ECONOMY: AN IMPULSE RESPONSE AND VARIANCE DECOMPOSITION APPROACH

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ABSTRACT: *The study is an empirical investigation of the contributions of the Nigeria's capital market to the development of Nigerian economy. Most researchers focused on capital market and growth nexus, where as we deviated by focusing on the role played by capital market in ensuring reduction of unemployment and poverty in Nigeria. Specifically, we investigated the contributions of market capitalization (MCAP), value of share traded (VST) and all share index (ASI) to unemployment rate (UNPR) and poverty (NPI) reductions in Nigeria within the period 1981 to 2017. The data series used were sourced from the annual statistical bulletin of the central bank of Nigeria (CBN) and Nigeria stock exchange (NSE). Preliminary analyses of stationarity and cointegration tests revealed that the series were non stationary at levels; and cointegrated respectively. The result of the impulse response functions (IRF) and variance decompositions from the two models considered revealed that the contributions of the capital market to poverty reduction in Nigeria is highly insignificant, while it contributes fairly to unemployment reductions in Nigeria within the study period. Conclusively, the research reveals that the Nigeria capital market is not contributing optimally to the development of Nigeria's economy as this is evident on its abysmal contributions to poverty and unemployment reductions. In line with the findings of this work, we recommend that the Nigeria capital market should be repositioned in a way that it can optimally contribute to the reduction of unemployment and poverty in Nigeria.*

KEYWORDS: Capital market, sustainable development, impulse response function, variance decomposition.

INTRODUCTION

The importance of the Capital market on the overall development of the Nigerian economy cannot be overemphasized. This is owing to the fact that the capital market in the recent past had been identified as an institution that contributes to the socio-economic growth and development of emerging economies (Bassey, 2009). A growing economy is said to experience development in areas of employment and poverty levels when factors that accelerate growth are recognized. Availability of fund being one of such economic factors for investment is acknowledged. Though commercial banks are expected to provide required funds for private investors, yet it is only for short terms periods. Investors therefore need an institution that will provide funds for long periods for which banks are incapable of undertaking.

Hence, the capital market is a market for long term securities, including the stock and the bonds market. The Capital market provides funds which enables government and firms to raise long-term capital for financing new projects, or expanding and modernizing industrial concern. It is therefore an economic institution which promotes efficiency in capital formation and allocation, since funds are taken from surplus economic units to deficit economic units for investment purposes, (Osaze, 2007). Suffice it to say that if capital is not provided to those productive economic units, the rate of expansion of the economy will lag behind, this is because it is the capital resource gap that leads to external borrowing (Okpara, 2012).

The Capital market in Nigeria is categorized into two aspects; the Primary and the Secondary markets. The Primary market being a market for trading newly issued securities while the Secondary markets trade on old or already existing securities. Major institutions involved in the capital market are; the Securities and Exchange Commission (SEC) as a regulatory body, the Nigerian Stock Exchange, Brokerage houses, Issuing houses, Unit trusts, e.t.c. The development of the Nigerian capital market dates back to the late 1950's when the Federal Government through its ministry of industries set up the Babcock Committee to advise her on ways and means of setting up a stock market. Prior to independence, financial operators in Nigeria comprised mainly of foreign owned company commercial banks that provided short-term commercial trade credits for the overseas companies with offices in Nigeria, (Nwankwo, 1991).

The Nigerian government in a bid to accelerate economic growth embarked on the development of the Nigeria Capital market. This is to provide local opportunities for borrowing and lending of long-term capital by the public and private sectors as well as opportunity for foreign-based companies to offer their shares to the local investors and provide avenues for the expatriate companies to invest surplus funds (Bassey, Ewah and Essang, 2009). Based on the report of the Babcock Committee, the Lagos Stock Exchange was set up in 1959 with the enactment of the Lagos Stock Exchange Act of 1961. It commenced business in June 1961 and assumed the major activities of the stock market by providing facilities for the public to trade in shares and stocks, maintaining fair prices through stock-jobbing and restricting the business to its members (Nemedia, 1982).

In 1977, the Lagos Stock Exchange was renamed the Nigerian Stock Exchange charged with the objectives of providing facilities to the Nigerian public for the purchase and sale of funds, stocks and shares of any king and for investment of money among others. According to the Memorandum and Articles of Association, the Exchange is incorporated as a private non-profit organisation limited by guarantee to undertake the functions of providing trading facilities for dealing in securities listed on it among others. Initially, trading activities commenced with two federal government development stocks, one preference share and three domestic equities. The market grew slowly during the period with only six equities at the end of 1966 compared with three in 1961. Government stocks comprised the bulk of the listing with 19 of such securities quoted on the Exchange in 1966 compared with six at the end of 1961.

Prior to 1972, when the indigenization policy took off, activities on the Nigerian Stock Exchange were low, that was true both in terms of the value and volume of transactions. For instance, the

value of transactions grew from ₦1.49 million in 1961 to ₦16.6 million in 1971. Similarly, the volume of transaction grew from 33 to 634 over the same period. Although the bulk of the transactions were in government securities, which were mainly development loan stock through which government raised money for the execution of its development plans (NSE Fact Book, 2002). Accordingly, with the promulgation and implementation of the Nigerian Enterprises promotion Decree of 1972, which its principal objectives includes promoting capital formation, savings and investment in the industrial/commercial activities of the country, the low level of activities in the stock market increased as Nigerians gained the commanding heights of the economy.

However, following criticisms that the Nigerian Stock Exchange was not responsive to the needs of local investors, especially indigenous business men who wished to raise capital for their businesses, the NSE, introduced the Second-tier Securities Market (SSM) in 1985 to provide the framework for the listing of small and medium-sized Nigerian companies on the exchange. Six companies were listed on the segment of the stock market by 1988 and by 2002 over twenty-three companies had availed themselves of the opportunities offered by this market (Odoko, 2004). A fundamental question concerning stock markets is their efficiencies, the three forms of market efficiency described in the financial markets are; allocational, operational and informational efficiencies. However, Mushinov (2004), noted that a stock market with higher informational efficiency is more likely to retain operational and allocation efficiencies.

A market is efficient with respect to a set of information, if it is impossible to make economic profits by trading on the basis of this information set. The term efficiency refers to a wide availability of information on past stock prices to the general public and in turn stock, how price movements respond to the information in a timely and accurate manner. Capital market efficiency therefore suggests that stock prices incorporate all relevant information on past stock prices when that information is readily available and widely disseminated such that there is no systematic way to exploit trading opportunities and acquire excess profit. In other words, no arbitrage opportunities can be tapped using ex-ante information as all the available information has been discounted in the current prices, (Magnus, 2008).

Motivation

The Capital market being a market that provides efficiency in capital formation and allocation is expected to accelerate economic growth and development. Hence, for the capital market to have an impact on the development of the economy, it must operate efficiently. This, no doubt generates confidence in the minds of the public and investors who will be willing to part with their hard earned funds and invest them in securities with the hope that in future, they would recoup their investment (Ewah *et al,* 2009). Where the market is highly and unreasonably speculative, investors will be discouraged from parting with their funds for fear of incurring financial losses. The detrimental effect on the economy is that investors will refuse to invest in financial assets; hence, companies cannot raise additional capital for expansion. This invariably hinders savings and when savings is low, it would result in low investment and by way of cyclical effects, unemployment rate would be on the increase vis-a vis the poverty level.

Suffice it to say that he capital market since its inception in 15th September, 1960 has had it shares of ups and downs. Empirical evidence from Olowe and Oludoni (2002) indicate that the capital market is imperfect as distortions noted in the market ranged from barring foreign investors from entering the market, regulating interest rate, imposing price caps on share price movements, political instability. All these resulted in general low performance of the capital market such that the repercussion effect is low market capitalisation, low turnover, thinness in trading, significant abnormal returns and illiquidity of the market.

Adelegan and Ariyo (2008) noted that information is not instantaneously and simultaneously available to all investors hence, the existence of unequal access of firms to the capital market in Nigeria. Onwumere (2007), observed that limited instruments such as equity and bonds are traded in the Nigerian capital market due to the underdeveloped nature of the market. Okpara (2010), noted that ignorance on the part of most Nigerians coupled with low income and high marginal propensity to consume account for their strong desire to hold cash balances for transactions and precautionary motives rather than speculative motives. This seems not only distorts interactions between information and prices of stock but also limited the mobilisation of fund for development purposes and thus affects the liquidity of the capital market.

These anomalies, imperfections and distortions inferred from the above assertions cast doubt on whether the trend in the Nigerian stock market can predict the economy and possibly lead to reduction in unemployment and poverty level in Nigeria. However, some policy measures have been put in place over the years to checkmate these distortions in the capital market. For instance, the introduction of Structural Adjustment Programme (SAP) in 1986 gave birth to the deregulation policy in 1987. This policy was meant to eliminate stringent laws and policies. It is worthy of note that the policy resulted in a positive response from the capital market as there was a tremendous boom. In fact this boom led to a mad rush by most Nigerians investing in the capital market. Suffice it to say that the national income heightened as the GDP growth rate increased from 5.2% in 1986 to 23.22% in 1987. Though this did not have a commensurate impact on the development of the economy as our indices of study, unemployment rate increased to 7.0% for 5.3% in 1986 and the poverty rate equally increased to 47.3% from 46.3% in 1986 (CBN, 2016).

Meanwhile, it was as a result of the deregulation exercise that the government sold its shares in many firms while privatizing and commercializing many of its parastatals in 1988. This increased private investment and the GDP growth rate responded with an increment from 23.22% to 28.42% in 1988. Suffice it to say that the growth in the national income succeeded in reducing the unemployment rate still to 5.1% from 7.0% in 1986 while the poverty rate only increased by 1%. Moreso, the recapitalization exercise of banking and insurance industries in 2004 increased the number of securities in the stock market and at the same time created a satisfactory public awareness and confidence in the stock market. This exercise no doubt increased market capitalization which resulted in an enormous increase of the GDP growth rate to 30.22% from 17.38% in 2003. Suffice it to say that there was an insignificant impact of this growth on unemployment and poverty rates, as the former reduced by only 3% while the latter recorded 0.2% reduction in rates (CBN, 2016).

Thus, the point of departure of this study is to relate the capital market to economic development knowing that as national income increased, it is expected that development indices such as unemployment and poverty levels change in opposite direction appropriately. It is in the light of the above, that the researchers are spurred into action, to fill this research gap through variance decomposition and impulse response techniques which most researchers have not used in their capital market analysis. We therefore ask the following research questions.

1 To what extent does market capitalization, all share index and value of shares traded influence poverty index in Nigeria?

2 Do market capitalisation, all share index and value of shares traded have impact on the rate of unemployment in Nigeria?

3 What is the direction of causal relationship between stock market indicators and economic development in Nigeria?

The current work will by ways of objectives, x-ray the under listed and consequently give empirical evidence on the following research hypotheses; viz: determine whether market capitalisation, all share index and value of shares traded impact on unemployment level in Nigeria, ascertain if the capital market, all share index and value of shares traded influence the poverty level in Nigeria, and access the direction of causal relationship between the capital market and economic development indices in Nigeria.

Hypotheses:

H_{01}: There is no significant relationship between the capital market indices and the rate of unemployment.

H_{02}: Poverty index is not related to the capitals market

H_{03}: There is no causal relationship between the capital market and economic development.

REVIEW OF RELATED LITERATURE

Theoretical Literature

Random-Walk Hypothesis

The theory behind the capital market efficiency and Economic development was first formalized by a French mathematician and stock analyst Bachelier (1900). He convincingly stated that commodity speculation in France was a “fair game” where neither the buyers nor the sellers could expect to make profit. Hence past returns were independent of present or future returns.

Samuelson and Cootner (19640) modified his work and likened it to a proverbial drunkard who in his inebriated state takes a step forward and a step backwards. They opined that Random Walk Principles suggests that stock prices change randomly making it impossible to be predicted.

Fama (1965) reviewed and presented the assertion formerly by categorizing the principles of efficient market hypothesis with some underlying assumptions.

Efficient Market Hypotheses

The efficient market hypothesis implies that price adjustments are independent and random. Hence, a securities price at any point in time is an unbraided estimate of the true intrinsic value of the security at that point in time. The three basic forms of market efficiencies are:

(A) Weak-Form Efficiency

A market is efficient in the weak form when current security prices reflect all relevant information contained in the record of prices. The fact that the price of stock has risen for the past two or three days will give no useful information as what today or tomorrow's price will be.

(B) Semi-Strong Form Efficiency

Semi-strong contends that the price of any security reflects not only past price of the security but also all available public information (Information about the economy, political issues, news, company's financial statements). It reflects all publicity known information but does not reflect private information or insider dealings.

(C) Strong Form

Strong form contends that current market price instantaneously and fully reflects all pertinent information including everything that is known and knowable, whether public or private. Strong form encompasses both the weak and the strong forms.

Empirical Literature

The link between capital market efficiency and the development of the emerging economies has been empirically investigated by researchers in both Nigeria and other countries.Ewah et al (2009) appraised the impact of capital market efficiency on the growth of the Nigerian economy using a time series data from 1961-2004 analyzed with multiple regression and OLs techniques and found out that Nigerian capital market has the potential of growth inducing but minimal influence on the economic growth.Adan and Sanni (2005) examined the role of stock market on the Nigerian economic growth using granger causality and regression analysis and discovered one way causalty between GDP growth and market capitalization and a two way causality between GDP growth and market turnover ratio.Osinobi and Amaghi (2003) examined the relationship between Nigeria stock market and economic growth using data spanning 1980 to 2000. Applying the OLS method, found out that a positive relationship between the stock market and economic growth.

Kehinde et al (2013) analysed the impact of capital market on economic growth in Nigeria using annual data between 1981 to 2010. Applying OLS and Vector Auto regression techniques found out that there exists a positive and long run relationship between the capital market indicators used and the Real Gross Domestic product.Emenuga (1998) examined and analysed the Nigerian stock market on growth of the economy using a time series data from 1980 to 1995, applying unit root test and autocorrelation found out that the Nigerian capital market is illiquid. Akingugbe (2005) analysed the weak form efficiency of Botswana stock market with data from1990 to 2002, applying autocorrelation and augmented Dickey Fuller test found out that there is evidence of weak and semi-strong form efficiencies.

Okpara (2011) analysed the efficiency and predictive power of the Nigerian stock exchange with data from 1984 to 2009 applying GARCH model and found out that there is evidence that the Nigerian stock market is efficient and follows a random walk.Nwaolisa, Kasie and Egbunike (2013) examined the impact of capital market on the growth of the Nigerian economy under the Democratic Rule. Applying multivariate regression method observed that MCAP and ASI positively influence GDP while VST has a negative effect. Chinweuba and Amos (2011) examined

the impact of the Nigerian Capital Market performance on the economic development using OLS model and observed that capital market impacts positively on the economic growth of Nigeria.Smith and Ryoo (2003) examined stock market efficiency in emerging market in Greece, applying Variance Ratio test found out that there is no evidence of efficient market hypothesis.Ariyo and Adelegan (2005) contend that the liberalization of capital contributes to the growth of the Nigerian capital market though its impact on the macro-economy is quite negligible. Appiah (2003) employed the E-GARCH-model and a logistic map to test efficiency of African Stock market, results particularly recognized the Nigerian stock market as not weak form efficient.

METHODOLOGY

The study adopts the Random walk theory propounded by Samuelson (1964) and reviewed by Fama (1970) Efficient Market Hypothesis (EMH). The theory emphasized that stock market leads economic activities since it ensures that past and available current information is fully reflected in current stock prices. The operational methodology adopted is Unit Root test, co integration tests, Vector Error Correction Model, variance decomposition, Impulse Response, Stability and Autocorrelation test. The scores of tests is to avoid spurosity of result which could lead to a wrong conclusion. A time series data from 1985 to 2017 were obtained from the CBN Statistical Bulletin.

Model Specification

For capital market to contribute to the development of the economy, it must operate efficiently. Most often, where the capital market operate efficiently, confidence would be generated in the minds of the public and investors would be willing to part with their hard earned fund and invest in securities with the hope that in future, they would recoup their investment. The increase in investors' confidence would motivate them to re-invest in securities which invariably maximizes shareholders' wealth and cause a reduction in poverty level. Secondly, the capital in its numerous roles enable companies raise extra finance that is essential for expansion, thus, this expansion of industrial activities results in an increase in the marginal product of labour which would cause employment rate to equally be on the increase and invariably reduce unemployment rate. By way of cyclical effect, more people would be gainfully employed and then move out of the poverty level. Hence, the functional forms on which our econometric model is based are given as follows;

Model One

$Y=F(X_1\ X_2\ X_3)$------egn(1)

Where Y is economic development index and is the dependent variable

X_1 to X_3 represent capital market indices and are the independent variables. F represents the functional notation specifically stated;

NPI = F(MCAP, ASI, VST)---------egn (2)

$Y=\alpha_0 + \alpha_1X_1+\alpha_2X_2+\alpha_3X_3+u$---------- -(3)

$NPI=\alpha_0+\alpha_1$ MCAPR$+\alpha_2$ ASI $+\alpha_3$ VST+21------(4)

Where

NPI = National Poverty Index
MCAPR = Market Capitalization Ratio
ASI = All Share Index
VST = Value of Shares Traded
α_0 = Constant term
U = Stochastic Variable

Transforming equations 4 to the national logarithm

PI= α0 + α1 log MCAPR+α2 logASI + α3 logVST + u……..(5)

Model Two

UNPR = F(MCAPR, ASI, VST)----------egn (1)

Y = $\alpha_0+\alpha_1X_1+\alpha_2X_2+\alpha_3X_3+u$……(2)

UNPR = $\alpha_0+\alpha_1$ MCAPR+α_2 ASI + α_3 VST + u…….(3)

Where

UNPR = Unemployment Rate
MCAPR = Market Capitalization Ratio
ASI = All Shares Index
VST = Value of Shares Traded
A_0 = Constant term
U = Stochastic Variable

Transforming equations 3 to natural logarithm.

UNPR = α_0 + α_1 Log MCAPR + α_2 Log ASI + α_3 log VST + u

To give a clearer explanation for the understanding of the interactions of the variable, the VECM variance decomposition was opted for both models. The VAR and VECM was developed by Sims in 1980 and it considers all the variables in the system as endogenous. The variance decomposition was adopted in order to trace the relative contributions of each variable in explaining the variability that occurs in each of the endogenous factors.

Method of Data Analysis

In line with the aforementioned operational methodology proposed in the previous chapter, the time series data used for empirical probation were first subjected to stationarity test to ensure that the results thereafter are appropriate for policy moderations. Subsequent upon that, the series were subjected to cointegration test in order to ascertain the possible long run trend among them.

The outcome of the above mentioned preliminary analysis informed the choice of adoption of the Vector Error Correction Model (VECM) and by extension, the Variance Decomposition and Impulse Response Function which shows the extent (percentage to which the variations in the dependent variable was brought about by the independent variables. As a follow up to the Variance Decomposition test, the VEC Granger Casuality/Block Exogeneity Wald test was applied to check the cause and effect dynamics of the series.

The Stationality/Unit Root Test Results

Table 1: ADF UNIT ROOT TEST

Variable	Deterministic trend	Lag	t-statistic	Critical Value 5%	Remarks
NPI	C	1	-6.252223	-2.945842	Stationary
UNPR	C	1	-5797366	-2.945842	Stationary
LoG MCAP	C	1	-4.574041	-2.945842	Stationary
LoG ASI	C	1	-4.128281	-2.957110	Stationary
LoG VST	C	1	-5.358556	-2.945842	Stationary

Table 2: Kwiatkowski – Philips – Schmidt – Shin (KPSS) Unit Root Test

Variable					
NPI	C	1	0.163538	0.463000	Stationary
UNPR	C	1	0.179573	0.463000	Stationary
Log MCAP	C	1	0.174069	0.463000	Stationary
Log ASI	C	1	0.415168	0.463000	Stationary
Log VST	C	1	0.172026	0.463000	Stationary

A look at the results in tables one and two (1and2) above shows that the series were non stationary in their level forms, rather after differencing once, stationarity was achieved thereby they are all integrated of order-one I(1), and this bang the case, we proceeded to test the possibility of the existence of a long run relationship among the variables. Having ascertained that our data series were all integrated of order-one I(1), we applied the Johansen method of cointegration test as such is amenable to time series data that exhibited such characteristics.

The Longrun/Cointegration Test

Table 3A: The Johansen Cointegration Test (model) (1)

Cointegration Test: Unrestricted Cointegration Rank Tests: Trace-Test & Maximum Eigenvalue
Series: UNPR LOG(MCAP) LOG(VST) LOG(ASI)

Hypothesized No. of CE(s)	**Eigenvalues**	**Trace Statistic**	**5% Crit.**	**Prob.**	**Max-Eigen Statistic**	**5% Crit.**	**Prob.**
None*	0.530216	45.84602	40.17493	0.0121	24.17545	24.15921	0.0498
At most 1	0.335945	21.67057	24.27596	0.1029	13.10051	17.79730	0.2214
At most 2	0.171798	8.570064	12.32090	0.1958	6.031960	11.22480	0.3461
At most 3	0.076252	2.538104	4.129906	0.1313	2.538104	4.129906	0.1313

* denotes rejection of null hypotheses of no cointegration at 5% significance level.

Table 3b: The Johansen Cointegration Test (model 2)

Cointegration Test: Unrestricted Cointegration Rank Tests: Trace-Test & Maximum Eigenvalue

Series: NPI LOG(MCAP) LOG(VST) LOG(ASI)

Hypothesized No. of CE(s)	Eigenvalues	Trace Statistic	5% Crit.	Prob.	Max-Eigen Statistic	5% Crit.	Prob.
None*	0.600888	48.41207	47.85613	0.0443	29.39245	27.58434	0.0290
At most 1	0.250908	19.01963	29.79707	0.4915	9.244580	21.13162	0.8122
At most 2	0.191987	9.775048	15.49471	0.2984	6.821673	14.26460	0.5104
At most 3	0.088162	2.953375	3.841466	0.0857	2.953375	3.841466	0.0857

* denotes rejection of null hypotheses of no cointegration at 5% significance level.

The empirical evidence emanating from Johansen Cointegration tests in tables 3a and 3b for models one and two respectively reveal that the data series share a common trend among them in the long run. That is, the variables in both models are cointegrated. More technically, both the trace test statistic and the max-eigen value test show the prevalence of one Cointegration vector among the series in the two models as adopted and based on the 0.05(5%) level of significance critical value.

The VECM and Variance Decomposition Results

The results of the long run test above indicate that our data series are cointegrated. The prevalence of such conditions informed our choice for the adoption of Vector Error Correction Model and by extension, the Variance Decomposition Analysis to check the predictive power of the capital market variance on some chosen developmental variables in Nigeria.

Lag Order Selection Criteria

Before delving into much deeper analysis, the models were subjected to lag order selection with different information criteria. The Final Prediction Error (EPE), Schwarz information (SC), the Hannan-Quinn Information (HQ) lag order selection criteria indicate the most preferred lag length of 1. The Akaike information indicates lag length of 4.

Table 4: Optimal Lag Test Output

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-198.8314	NA	8.764305	13.52210	13.70892	13.58186
		242.8072	0.001561		5.810607	5.175312
1	-53.14713	*	*	4.876475	*	*
2	-43.57092	13.40668	0.002553	5.304728	6.986165	5.842634
3	-31.23307	13.98290	0.003859	5.548872	7.977614	6.325847
				4.690163		
4	-2.352440	25.02988	0.002349	*	7.866210	5.706208

***** indicates lag order selected by the criterion

Based on the fact that out of four criteria adopted, three out of it chose lag length order of 1 while only one indicate 4 as the appropriate lag length, we therefore accept lag length of 1 as the most preferred. The chosen lag length and its outcomes is applicable to models one and two as their various information criteria chose lag order 1 as the appropriate lag length.

Model two

The Variance Decomposition and IRF of model 2:

Table 5: Variance Decomposition and Impulse Responses of National Poverty Index (NPI) to Capital Market Variables

Variance Decomposition of NPI:					
Period	S.E.	NPI	LOG(MCAP)	LOG(VST)	LOG(ASI)
1	3.205698	100.0000	0.000000	0.000000	0.000000
2	4.368898	96.58939	1.324529	1.493477	0.592599
3	5.294328	93.26117	1.898704	2.760425	2.079697
4	6.050832	90.37080	2.484654	3.665481	3.479066
5	6.714574	87.99038	3.046748	4.343920	4.618955

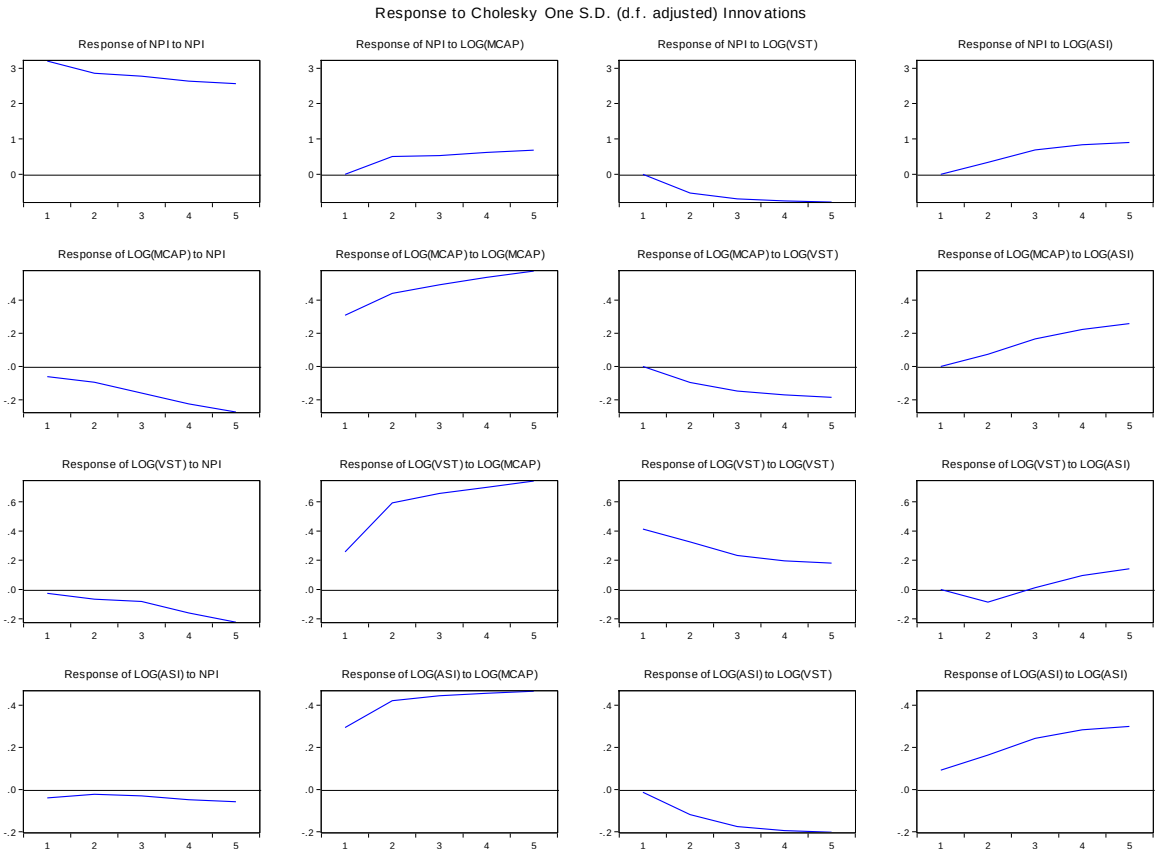

Fig. 1: Impulse Response Function of NPI and Capital market instruments

The variance decomposition of NPI presented in table 5 above reveals that 100 percent NPI variance can be explained by itself in the first period and continued in that same direction till the tenth period with marginal difference as it stood at 94%. The capital market instruments collectively do not explain any variation of the NPI in the first period, however; they collectively explained only 5.2% of variations in the NPI. This demonstrates that contributions of the capital market to poverty reduction in Nigeria are highly insignificant.

To give further explanations to the results of the variance decomposition, the Impulse Response Function (IRF) was employed. Figure 1 above depicts the results of the IRF of NPI and capital market variables. The IRF clearly demonstrates and further proof that response of NPI to capital market in Nigeria is highly insignificant and this gives further justification to the VD results. The response of NPI to MCAP is positive from the first period till the third period, however, it turns negative from the fourth period till the tenth period. The response of NPI to both VST and ASI remained negative from the first period to the tenth period.

The results from the Variance Decomposition and the IRF clearly demonstrate that the contributions of the capital market in Nigeria to poverty reduction is highly insignificant, thus funds are in tandem with the revelations of Ewah, Bassey and Esang (2009), Emenuga (1998),

Nwaolisa (2013), Ariyo and Adelegan (2015), Appiah (2003). Conversely, the revelations contradict the works of Chinweuba and Amos (2011), Kehinde (2013).

Model two

The Variance Decomposition and IRF of model 2:

Table 6: Variance Decomposition and Impulse Responses of Unemployment Rate (UNPR) to Capital Market Variables

Variance Decomposition of UNPR:					
Period	S.E.	UNPR	LOG(MCAP)	LOG(VST)	LOG(ASI)
1	2.520397	100.0000	0.000000	0.000000	0.000000
2	3.705849	80.10207	18.03889	0.956085	0.902951
3	4.439571	71.61123	20.78746	5.409825	2.191487
4	4.871430	70.98496	17.96159	7.630176	3.423280
5	5.159814	71.04959	16.08924	8.464362	4.396807

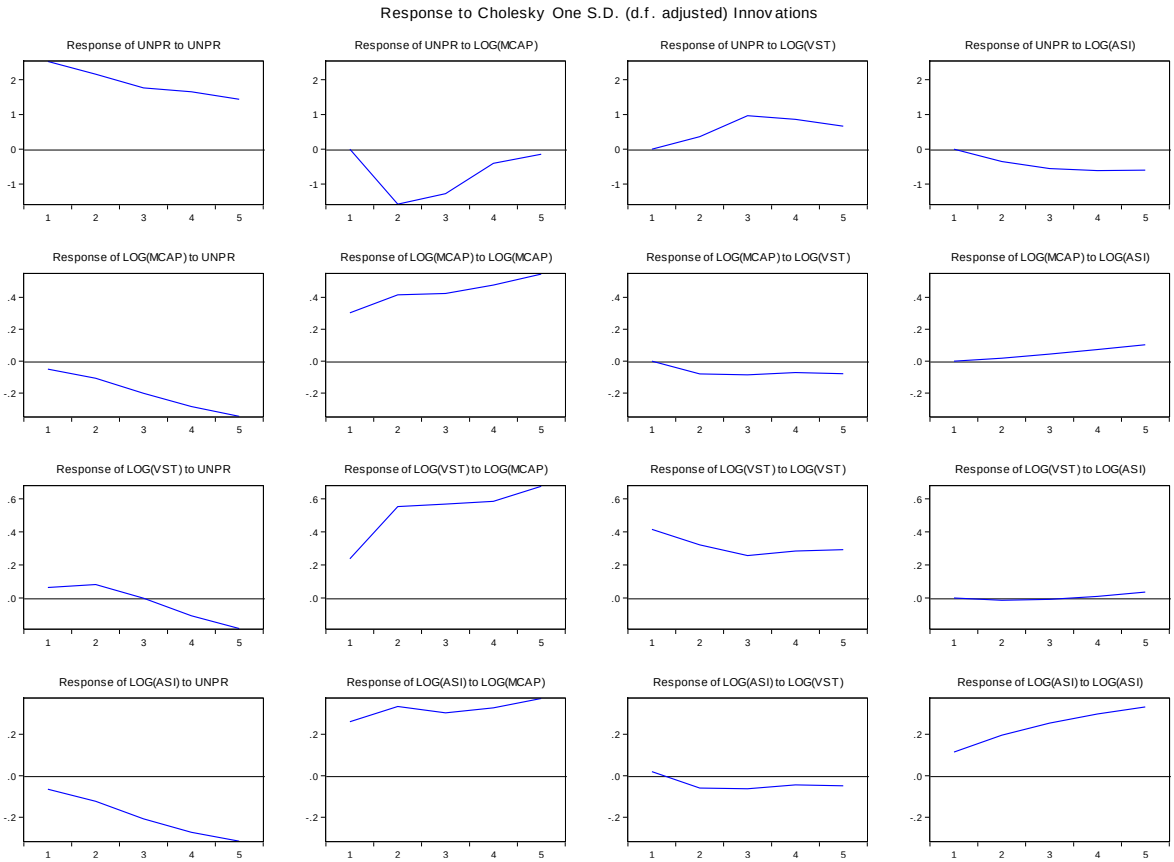

Figure 2: Impulse Responses Function (IRF) of unemployment rates to capital market in Nigeria

The variance decomposition of UNPR as presented in the table above reveals that 100% of the variations in unemployment rate were explained by itself in the first period. The variations in UNPR that was brought by itself reduces gradually at it reduces to 43% in the tenth period. The capital market factors contributed 8% to the variance unemployment rate in the first period; however, with the passage of time, they collectively contributed 56.04% to the variance of unemployment rate.

Individually, value of shares traded (VST) has the highest contribution (31.98%) to the variance of unemployment while value of shares traded (VST) and All Share Index (ASI) contributed 20.41% and 3.65% respectively to the variance of unemployment rate at the tenth period. At the tenth period, the capital market variable contributed significantly to the variations of unemployment rate in Nigeria, that is, they contribute about 56.04% to the reduction of unemployment rate in Nigeria within the period under review.

The Impulse Response Function of unemployment rate and Capital Market Variables presented in figure 2 above to give further explanation to the result obtained from the variance decomposition. The response of UNPR to MCAP is negative in the first and second period, afterwards, it turns positive from the third period till the last period of analysis (tenth period). The

response of UNPR to VST and ASI is positive from the first period to the tenth period. Its response to VST attained its highest point in the 3rd period, then a slight reduction in period four and it remained stable within that range till the tenth period. The Capital Market Variables Contributions to unemployment rate in Nigeria is more significant compared to poverty reductions as this is evidently demonstrated in the results emanating from both the variance decomposition and the Impulse Response function. The findings correspond with the works of Adam and Sanni (2005), Osinubi and Amaghi (2003), Okpara (2011).

Diagnostic/VAR Stability Tests Model One/Two

The diagnostic test and VAR stability tests were carried out to ensure that the model is a stable one and devoid of Serial Correlation as the availability of such would render the results of the Variance Decomposition and the Impulse Response Function invalid and inappropriate for policy moderations. Secondly, the autocorrelation diagnosis would reveal the efficiency or inefficiency nature of the capital market.

Table 7: The VEC Residual Portmanteau Test for Autocorrelations and VEC Residual Serial Correlation LM Test

Lag	LRE stat	Df	Prob	Rao F-stat	Df	Prob
1	7.926	16	0.9510	0.471652	16,617	0.9517

Lag	Q-stat	Prob*	Adj Qstat	Prob*	Df
1	3.314637	-	3.421560	-	-
2	17.54540	0.9370	18.60104	0.9100	28

The results in table 7 above obtained from VEC Residual Serial Correlation LM test and that of the VEC Residual Portmanteau autocorrelation test nullifies the null hypothesis and proves that the residuals are not serially correlated, that is there is no autocorrelation or there is the absence of serial correlation in the models. However, in an efficient market, the null hypothesis of zero autocorrelation prevails. Therefore the evidence above shows that the Nigerian Capital Market is weak from efficient and follows as random walk.

VAR Stability Test

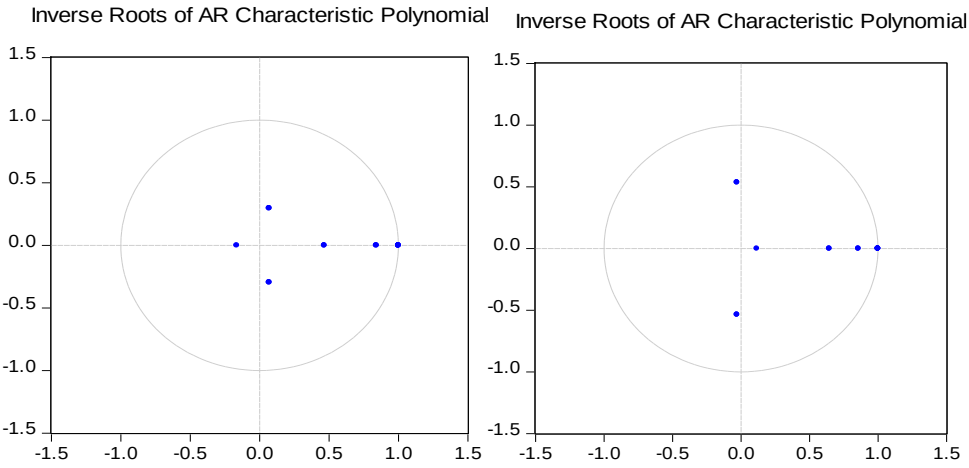

Fig.5. Inverse Roots of AR characteristics Polynomial for models One and Two

To check for stability of the model, we applied the VAR inverse roots AR characteristic polynomial. According to Gujarati (2003), the VAR model is considered stable when all the modulus of its roots are less than one. In line with the VAR system tested for the two models, we can conclude that the VEC estimation for the VD and IRF analysis is stable on its optimal lag length.

CONCLUSION AND POLICY RECOMMENDATION

The study examined the transmission of capital market efficiency on the development of the Nigeria economy. Capital market was proxied by market capitalization ratio, All Share Index and Value of shares traded, while economic development was proxied by the unemployment rate and poverty rate.

The ADF unit root was adopted to test the level of integration of the variables and all the variables attained stationarity. The series were then subjected to cointegration test and long run relationship was ascertained among them. The outcome of this relationship informed our decision to analyse the series with VECM and by extension the Variance Decomposition and Impulse response models. As a follow up to the above test, we employed the VEC Grange Causality/Block Erogeneity Wald test in order to ascertain the cause and effect dynamics of the series.
The results emanating from the above reveal that the capital market variables contributions to unemployment rate in Nigeria is more significant compared to poverty reduction.

Recommendations

(i) Government should intensify efforts that are directed towards efficient capital market development as this would restore confidence in the minds of investors and invariably enhance mobilization of funds for long term investment firms. Definitely this would go a long way in engendering employment through job creation.

(ii) In the quest to reduce poverty rate, the regulators of the capital market should embark on adequate sensitization to the general public by offering services that are affordable to low income earners so as to boost entrepreneurship in small and medium scale.

(iii) The regulatory bodies should ensure that information is disseminated speedily and accurately with utmost transparency. This could be achieved by making sure that firms listed on the stock exchange publish quarterly or even semi-annual reports in addition to the usual annual report with detailed explanations so as to obviate insiders' abuse and ensure efficiency in the market.

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