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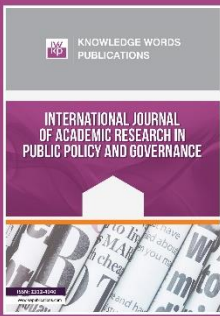
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Stock Market Development and Economic Growth in Emerging Economies of Nigeria, Brazil, Russia, India, China and South Africa: A Comparative Analysis

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Abstract

The study undertake an investigation of the causality and impact of the Stock Market development and economic growth in Nigeria and BRICS (Brazil, Russia, India, China and South Africa) emerging economies using quarterly time series data for the period 1995Q1 to 2015Q4 sourced from World Bank Indicator. The granger causality test, ordinary least squares multivariate regression and panels least squares estimation methods were employed to determine how stock market development granger causes and impacts on economic growth of the emerging countries. Stationarity test was conducted using the Augmented Dickey Fuller test to ensure the regression result was devoid of spuriousness. Findings arising from the empirical estimations indicate that in BRICS, TVSTR Granger causes TR unidirectionally while bi-directional relationship flows between INFR and RGDPGR. In Nigeria, there exists no granger causality from stock market development to economic growth, and vice versa. However, there is causality flowing from TR to TVSTR. It is therefore suggested that the Nigerian government could profit largely by maintaining multi-lateral trade and co-operation to foster more flow of foreign direct investment and tap into the various national resources of each of the BRICS country.

Keywords: Real Gross Domestic Product, Market Capitalization, Turnover Ratio, Total Value of Shares Traded Ratio and Inflation Rate.

Introduction

There are a lot of contentious issues with regard to stock market development and economic growth of any country. One of such contentious issues is direction of causality and impact of variables of interest. Some prior researchers like King and Levine (1993) have opined that stock market may influence long-run growth of an economy while Arestis and Demetriades (1997) state that there is pattern of causality that varies across countries and this tends to reveal the biased result to an extent. Stock market is the engine of economic growth and corollary, a healthy economy positively influences activities in the stock market. The increase in a nations' real gross domestic product (RGDP) has a

spiral effect on both the manufacturing and services industries. The performance of companies engenders the market values. This is why companies which are performing well always have their stock prices appreciating in the stock market. In fundamental analysis, the state of an economy impacts on stock market positively or negatively at a point in time. In emerging economies, researchers have always been keen at analyzing the flow of causality between the stock market and economic growth. Some previous researches have not empirically determined how stock market development impacts on the economic growth of developing nations in aggregate form apart from the recent research by Ogbeide and Akanji (2017) which focused on the Brazil, Russia, India, China and South Africa (BRICS) alone. This study takes a departure from these authors' approach by comparatively investigating the causality existence and impact of stock market development and economic growth of Nigeria and the BRICS countries respectively. The selection of emerging economies like Nigeria and BRICS is driven by the casual empiricism that they are among the important countries among every other emerging country in the world. Moreover it becomes necessary to determine the association existing between equity market and growth of BRICS' economy and how it can be beneficial for policy adjustment in the Nigerian situation. The rest of this paper is divided into section two, the literature review, and section, the methodology, and section four, empirical analysis, conclusion and recommendations.

Literature Review

Empirical Review

Brazil, Russia, India, China and South Africa (BRICS) nations are being recognized to play significant role at influencing the world economy. They have been seen to in the nearest future overtake the G-7 countries given the relationship between their markets on the growth of the economies. Stock market in Brazil is little developed, and has low capitalization, non-significant business volume; few initial offerings; reduced number of public companies; transactions highly concentrated in few shares; and low liquidity (Moura, 2005). Carvalho (2002) emphasizes that the base of the atrophy of the Brazilian national stock market is the low level of protection of the minority stockholders and creditors"; and this is the main agency conflicts in the country. Matos (2003) stresses there are the predominance of favourable arguments that corroborates the hypothesis that the stock market development stimulates the economic growth, but there are contrary proposals and of joint determination. Using quarterly data from the period 1980-2002 and the Granger Causality Test and found significant evidences of the bidirectional effect between financial development and economic growth in Brazil. Russia stock market over the years has been buffeted by certain factors like socio-economic and political factors. These factors have interplayed to impinge on the growth of the economy. Andrezo and Lima (2012) also state there is disagreement if the development of stock market occurs from the economic growth or if it is the opposite in Russia or any other member of the BRICS". Their empirical results showed that the market capitalization and liquidity did not positively influence the growth of the economy, thus serving as a further ground for empirical investigation. Researches on equity markets and growth of India as a member of the BRICS countries has equally been a subject of debate; and this debate primarily revolves around whether one influences the other and vice versa (Sudharshan & Rakesh, 2011). They argue that results which concerned the economy have remained mixed and inconclusive, notwithstanding the stock market proxies used. Kamaiah and Biswal (2000) assess the empirical relationship between stock market development indicators and economic growth in India. They found stock market size was positively associated with economic growth. They further state there was no support for the association between stock market liquidity

and economic growth in India. Biswal and Veerashekharappa (2002) found that stock market development plays a significant role in the economic growth process in India. Agrawala and Tuteja (2007) confirmed a stable long run equilibrium relationship between stock market developments and economic growth". Chakraborty (2008) reveals that causality runs from growth rate of real GDP to stock market capitalization. Padhan (2007) and Paramati and Gupta (2011) expose the bidirectional relationship between stock market development indicators and economic activity. Recently, for example, a lot of Chinese notable scholars and researchers have examined the link as regard the area of study. The reports obtained reveal development of market for stocks slightly affects economic growth in a positive direction in China. Ruyong (1999) pointed out that during the period 1994 – 1998, China's stock market development has little or no effect on the economic growth. Wang (2002) using China's stock market quarterly data in a regression model disclose that market liquidity has limited effect on economic growth. Mu Qing, Robert and Chang (2001) report that stock market capitalization rate, the stock market turnover and stock market trading rate as indicators with the use of quarterly data have not significantly impacted on the growth of China's economy. Similarly, Zhao (2002) ascertain that there is only a weak negative correlation between Chinese stock market and capitalization rate, while there is a positive relationship between trading value and turnover rate of economic growth.

South Africa is one of the largest economies on the continent of Africa with a diversified productive base and sound macroeconomic reforms which help in boosting competition, creating jobs and promoting economic growth as often being claimed. South African stock market has been ranked 25th in the world by world economic forum first development report ahead of India, Russia and Brazil which ranked 31st 36th and 40th respectively (Chipaumire & Ngirande, 2014). Ndako (2008) examine the casual relationship between stock markets, banks and economic growth in South Africa using quarterly time series data from 1983:q1-2007:q4; the paper used Vector Error Correction model (VECM) based causality tests to establish a link between stock market development and economic growth. The empirical investigation suggests that in the long-run, there is evidence of bidirectional causality between stock market development and economic growth; stock markets variables used include Turnover Ratio (TR) and Value of shares Traded (VT);the results indicate unidirectional causality from economic growth to stock market system; the Impulse response functions (IRFs) and variance decompositions (VDCs) indicate that stock market development have short-run impact on economic growth at the immediate year of initial shocks and VDCs shows that all the indicators for stock market development contain some useful information in predicting the future path of economic growth. Similarly, the stock markets of the BRICS countries no doubt are affected by the influence of global economic challenges, precisely the 2007-2008 melt down and weak corporate governance structures. These should create problem(s) for economies of these emerging countries.

Okey (2012) reports a statistically insignificant relationship between stock market liquidity and size on the growth of the Nigerian Economy. Earlier, Nyong (1997) examines the impact of certain stock market development indicators on economic growth in Nigeria using time series data from 1970 to 1994 where he did a computation on an aggregate index for market capitalization. A critical evaluation of the analysis lucidly indicates that the indicators were not significantly at increasing the rate of the Nigerian economy in the period observed. Osho (2014) examines the role of stock market developments and economic growth in Nigeria through the use of multiple regressions; stock market capitalization ratio, the value of total shares traded ratio and turnover ratio were used as exogenous variables. The results revealed that stock market capitalization and the total value of shares traded ratio are negatively affecting gross domestic product; the total turnover ratio assumes positive effect

on the dependent variable, though was not statistically significant. This gap paves way for investigation in Nigeria as a country specific direction as well as in comparison with BRICS countries aggregately. It should be noted that Nigeria, though is not a member of the BRICS countries, however share a similar characteristics with them in that it is an emerging market. This is the reason for a comparison with the BRICS in this study. Therefore, this study is an attempt in a novelty form to consider the topic in a country specific and cross- country study among emerging countries of the BRICS and Nigeria.

Methodology

This study employed the longitudinal research design. The Sample period of the study is 2008 – 2015. Consequently, time series data for the relevant variables which include Real Gross Domestic Product (RGDP), a proxy for economic growth, market capitalization, turnover ratio, total value of stocks traded ratio, inflation rate were used. Data for this study were generated from World Bank indicators various issues, particularly from 2008: q1 to 2015: q4. The study employs the vector error correction mechanism and autoregressive distributed lag to analyze the data. It also employs the Engle and Granger Causality test as well as the Augmented Dickey Fuller test to test the stationarity property of the variables in the construct.

Model Specification

The deterministic form of the regression model employed in this study is:

$$\text{Economic growth} = F(\text{mcap, tvstr, tr and infr}) \dots \dots \dots (1)$$

This is further stated in a stochastic form as follow:

Ordinary Least Square Multivariate Regression Model

$$RGDPGR_t = \beta_0 + \beta_1 MCAP_t + \beta_2 TR_t + \beta_3 TVSTR_t + \beta_4 INFR_t + \mu_t \dots \dots \dots (2)$$

$$RGDPGR_{it} = \beta_0 + \beta_1 MCAP_{it} + \beta_2 TR_{it} + \beta_3 TVSTR_{it} + \beta_4 INFR_{it} + \mu_{it} \dots \dots \dots (3)$$

β_1 to β_4 represents coefficient of the parameters of estimation

i represents cross- section, i.e individual countries of BRICS and t is the period in question.

RGDPGR real GDP growth rate

MCAP represents market capitalization

TR represents turnover ratio

TVSTR represents total value of traded ratio

Inflation represents core inflation rate.

Granger Causality Test

The study of causal relationships among economic variables has been one of the main objectives of empirical econometrics. According to Engle and Granger (1991), co-integrated variables must have an error correction representation; one of the implications of Granger representation theorem is that if stationary series are co-integrated, then one of the series must granger cause the other (Gujarati, 2001). The causality could be unidirectional or bidirectional. A bivariate causality model may be stated as:

$$- X_t = \alpha_0 + \sum_{i=1}^n \alpha_i y_{t-i} + \sum_{j=1}^m \beta_j x_{t-j} + \mu_t \dots \dots \dots (1)$$

$$- Y_t = \alpha_0 + \sum_{i=1}^n \beta_i x_{t-i} + \sum_{j=1}^m \alpha_j y_{t-j} + \varepsilon_t \dots \dots \dots (2)$$

Where the null hypothesis is that y does not Granger causes x in the first regression equation and x does not Granger causes y in the second regression equation. The inferential statistics used in this study include the ordinary least square Johansen co-integration and vector error correction model to determine the response of Real Gross Domestic Product to the principal components of the stock market development indicators as well as the behaviour of these indicators to economic growth in Nigeria and BRICS countries for the purpose of empirical validation and policy prescription.

Empirical Analysis

Summary of the unit root test

Table 1: Unit root test at level

Variables	ADF statistics	T-critical values	Remark
RGDPGR	-1.886346	-3.471693	Not stationary at level
MKTCAP	-2.835876	-3.471693	Not stationary at level
TVSTR	-2.132532	-3.471693	Not stationary at level
TR	--2.408302	-3.468459	Not stationary at level
INFR	-3.953255	-3.465548	Stationary at level

Source: Author's computation from E-views 8.0 Version (2017).

Table 2: Unit root test at first difference

Variables	ADF statistics	T-critical values	Remark
RGDPGR	-3.884754	-3.471693	Stationary at first difference
MKTCAP	-3.631894	-3.471693	Stationary at first difference
TVSTR	-4.716259	-.3.468459	Stationary at first difference
TR	-3.621526	-3.468459	Stationary at first difference

Source: Author's computation from E-views 8.0 Version (2017).

In the table above, we present summary results of the unit root test at 5% using Nigerian data. The Augmented Dickey Fuller statistic result is compared against the Mckinnon critical values at 5%. The result shows that at level, only INFR was stationary while at first difference all the variables, RGDPGR, MKTCAP, TVSTR and TR were all stationary. This portends that there is absence of unit root effects in the variables, thus removing possible spuriousness. Given that the time series used are stationary, it then affords the study to conduct the preliminary analyses, diagnostics tests and apply the appropriate econometric estimation.

Ordinary Least Square Regression Results

Dependent variable: RGDPGR

Sample: 1995Q1 – 2015Q4

Variables

C	- 1.609034***** (0.419722) [3.833570]
MKTCAP	0.047156***** (0.028154) [1.674900]

TR 0.001341*****
 (0.046532)
 [0.028816]
 TVSTR -0.193580*****
 (0.143165)
 [-1.351865]
 INFR -0.003277*****
 (0.016639)
 [-0.196939]
 R – Square 0.924464
 Adjusted-R-squared 0.919560
 F-statistic 188.4775
 Prob. (F-statistic) 0.000000
 Durbin-Watson stat. 1.136896

Source: Author’s computation from E-views 8.0 Version (2017).

*****Coefficient values

() *standard error in bracket

[] * T- statistic value in parenthesis

The estimated OLS equation for Nigeria is quite good after correcting for auto-correlation among error terms using the auto-regressive scheme of order one. The F-statistic value of 188.48 was highly significant at 1% level indicating overall significance of the model. It means that independent jointly impact the dependent variable and thus any hypothesis of significant relationship between the dependent variable and the regressors taken together cannot be rejected. Estimated R-square value of 0.92 implies that the model has a commendable goodness-of-fit and that about 92% of the systematic fluctuations in real GDP growth rate explained by changes in the explanatory variables over the period. All estimated coefficients have the appropriate sign except TVSTR: However, only MKTCAP coefficient was significant at 1% level. This indicates that market capitalization is a significant driver of economic growth in the country. Its value of 0.05 further shows that a unit raises in market capitalization would cause economic growth rate to rise by 5% in real terms. Other regressors considered – TR, TVSTR, and INFR-were not sufficient enough to significantly influence growth over the period.

Table 3: Granger Causality Tests Result

Pairwise Granger Causality Tests			
Date: 04/5/17 Time: 08:18			
Sample: 1995Q1 2015Q4			
Lags: 2			
Null Hypothesis:	Obs	F-Statistic	Prob.
MKTCAP does not Granger Cause RGDPGR	82	1.72798	0.1845
RGDPGR does not Granger Cause MKTCAP		0.18812	0.8289
TR does not Granger Cause RGDPGR	82	0.26297	0.7695
RGDPGR does not Granger Cause TR		0.50685	0.6044

TVSTR does not Granger Cause RGDPGR	82	0.13823	0.8711
RGDPGR does not Granger Cause TVSTR		0.25680	0.7742
INFR does not Granger Cause RGDPGR	82	0.10869	0.8971
RGDPGR does not Granger Cause INFR		0.28075	0.7560
TR does not Granger Cause MKTCAP	82	0.04917	0.9521
MKTCAP does not Granger Cause TR		1.12062	0.3313
TVSTR does not Granger Cause MKTCAP	82	0.72783	0.4863
MKTCAP does not Granger Cause TVSTR		0.17340	0.8411
INFR does not Granger Cause MKTCAP	82	1.55991	0.2167
MKTCAP does not Granger Cause INFR		0.28712	0.7512
TVSTR does not Granger Cause TR	82	2.01531	0.1402
TR does not Granger Cause TVSTR		6.61759	0.0022
INFR does not Granger Cause TR	82	0.21937	0.8035
TR does not Granger Cause INFR		0.05164	0.9497
INFR does not Granger Cause TVSTR	82	0.28431	0.7533
TVSTR does not Granger Cause INFR		0.00339	0.9966

Granger causality test of the variables show that there is no causal relationship between the variables pair-wise save for causality running from TR to TVSTR which was significant at the 5% level. This different result obtained concerning the relationship between market capitalization and the weak relationship earlier revealed by the estimated OLS model. The nexus between stock market development and economic growth in Nigeria has been extensively examined. The findings thus far made vary significantly but are mixed and inconclusive. This study ascertained that stock market development proxied by TR, MKTCAP and TVSTR significantly impact on the economic growth of Nigeria in the long-run. The finding is in consonance with Poppola (2014); Osinubi (2007); Oke and Makudu (2004); Ezoeha, Ebele and Ndi-okereke (2009); Ujunwa and Salami (2010); Okodua and Ewetan (2013); Onwumere, Ibe, Okafor and Uche (2012); Oke and Adeusi (2012); Chizea (2012). There exists no granger causality from stock market development to economic growth, and vice versa. However, there is causality flowing from TR to TVSTR. The cause of this no causality relationship found may not be unconnected with the measurement of and variables employed, the nature of data (quarterly) used, estimation methods sample size (period); weakness in corporate governance and institutional framework in addition with unhealthy influence of macroeconomic factors and the adverse effect of the global financial crisis that largely have affected the Nigeria stock market and consequently the overall economy. The empirical findings quite agree with the study of Ogunmuyiwa (2010); Osamwonyi; and Kasimu (2013), Okey (2013), Bakare et al (2014). It however disagrees with the finding of Kolapo and Adawomola (2012). Specifically, market capitalization was found to have positive long run impact on economic growth of Nigeria. this clearly underscores the fact that the size of the Nigerian stock market in addition with the government attempts to reform it has not yielded long – run impact; and this calls for urgent concern by regulators and participants to come up with policies that could revive and engender investments as well as strengthen the functionality of the Nigeria stock market. The study finding is consistent with Nwaolisa, Kagie and Egbunleke (2013),

Bernard and Austin (2012), and is however not consistent with Oke (2013); Osho (2014); Yادiri, Chukwu and Chigbu (2014), stock market capitalization has a positive association with stock turnover. The finding agrees with Alajekwu and Achagbu (2012). It however, fails to agree with Ihendiniha and Onwuchukwa (2012). A positive but weak association exists between stock market development indicators and economic growth in Nigeria. This supports the endogenous growth theory and is in line with prior study finding and like Osho (2014), Mwtak, Suranya and Zunaidah (2015); Alajekwu and Achugbu (2012).

Brazil, Russia, India, China and South Africa (BRICS) Nations Results

Summary of unit root

Table 4: Unit root at level and first difference

Variables	ADF test at level	Critical statistic value at 5%	Meaning
RGDPGR	-3.409733	-2.867066	Stationary at level
MKT CAP	-17.40610	-2.867112	Stationary at first difference
TR	-3.090406	-2.867078	Stationary at level
TVSTR	-4.678361	-2.867089	Stationary at level
INFR	-5.826216	-2.867066	Stationary at level

Source: Computed from E-view 8.0

The unit root test of the time series for BRICS shows that some of the variables were stationary at levels while others were stationary at first difference. For example, the table above reveals that RGDPGR, TR and INFR were stationary at level; while MKTCAP and TVSTR are stationary at first difference at 5% significant level. This explains that the existence of unit root among the variables cannot be accepted.

Table 5: Pair wise Granger Causality tests result

Pairwise Granger Causality Tests			
Date: 04/5/17 Time: 07:48			
Sample: 1 504			
Lags: 2			
Null Hypothesis:	Obs	F-Statistic	Prob.
INFR does not Granger Cause RGDPGR	502	4.99555	0.0071
RGDPGR does not Granger Cause INFR		8.96920	0.0001
TVSTR does not Granger Cause TR	502	5.66827	0.0037
TR does not Granger Cause TVSTR		1.90774	0.1495

Source: Computed from E-view 8.0

The pair wise granger causality test table reveals that TVSTR Granger causes TR unidirectionally, while bi-directional relationship flows between INFR and RGDPGR. This suggests that there is macro-economic stability in the BRICS; and thus influence the performance of the BRICS economy in the period observed. Similarly, causality only flows from the stock market to the economic; thus affirming the a priori expectation of the study.

Pooled Least Squares

Table 6: Pooled Least Square Result

Dependent Variable: RGDPGR_?				
Method: Pooled Least Squares				
Date: 04/5/17 Time: 16:40				
Sample: 1995Q1 2015Q4				
Included observations: 420				
Cross-sections included: 5				
Total pool (balanced) observations: 2100				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.470759	0.059501	7.911794	0.0000
MKTCAP_?	-0.030602	0.007474	-4.094555	0.0000
TR_?	-0.111087	0.010911	-10.18139	0.0000
TRVSTR_?	0.368051	0.022715	16.20324	0.0000
INFR_?	0.042163	0.013468	3.130705	0.0018
R-squared	0.161211	Mean dependent var	0.733388	
Adjusted R-squared	0.159610	S.D. dependent var	2.723074	
S.E. of regression	2.496319	Akaike info criterion	4.669890	
Sum squared resid	13055.22	Schwarz criterion	4.683341	
Log likelihood	-4898.384	Hannan-Quinn criter.	4.674817	
F-statistic	100.6621	Durbin-Watson stat	0.050811	
Prob(F-statistic)	0.000000			

Source: Computed from E-view 8.0

Cross country analysis of BRICS was quite commendable judging with the F-statistic value of 100.66 of the pooled least square model with a common constant across sections. Overall, the model is significant at the parsimonious 1% level indicating that the regression jointly explained fluctuation in the regressand. All estimated coefficients were significant at 1% level and wrongly signed except TRVSTR. Particularly, MKTCAP and TR reduce real GDP growth rate among the group (BRICS) while TRVSTR and INFR promote unit increases in MKTCAP and TR will reduce real GDP growth rate by 0.03% and 0.11% respectively whereas unit increases in TRVSTR and INFR will raise real GDP growth rate by 0.36% and 0.04% respectively ceteris puribus. This result shows that capital market activities operation were not adequate to boost or enhance growth rate of real GDP. From this development, other estimating techniques were considered for robustness and to ascertain the adequacy and influence of the capital market on growth rate of real GDP among member nations of BRICS other power data estimation techniques that can come in handy are the fixed- effect and random –effect models, however, Hausman test need to be conducted to inform a choice of a more appropriate technique to adopt between the fixed or random earlier mentioned.

Presentation of Hausman Test Result

The Hausman test statistic is employed to test for the endogeneity of the unobserved error component (Igbinosa and Ogbeide, 2015). The test is necessary become the random effect needs to

be uncorrelated with the explanatory variables; otherwise there is endogeneity problem and the random problem effect estimator will be inconsistent. The null hypothesis for the Hausman test is: $H_0\beta_{RE} = \beta_{FE}$. Where β_{RE} and β_{FE} are coefficient vectors of the time-varying explanatory variables excluding the time variables. Thus, if null hypothesis is rejected, the conclusion simply that can be drawn is that random effect (RE) model is inconsistent; and the fixed effects (EF) model will be preferred. Therefore, the Hausman test result of our model is presented below:

Table 7: Hausman Test Result

Correlated Random Effects - Hausman Test				
Pool: Untitled				
Test period random effects				
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.	
Period random	3206.93509	0	4	0.0000
Period random effects test comparisons:				
Variable	Fixed	Random	Var(Diff.)	Prob.
MKTCAP_?	-0.229067	-0.030602	0.000015	0.0000
TR_?	-0.341229	-0.111087	0.000029	0.0000
TRVSTR_?	0.288395	0.368051	0.000216	0.0000
INFR_?	-0.092233	0.042163	0.000026	0.0000

Source: Computed from E-view 8.0

An observation of the conducted Hausman's test for this study suggests that the fixed effect model is preferable. This decision is based on the significance of the estimated very large chi-square statistic value of 3206935090 which is highly significant at the 1% level implying a rejection of the null hypothesis in favour of the fixed effect model.

Fixed Effect Estimation**Table 8: Pooled Least Squares (Fixed Effect) Result**

Dependent Variable: RGDPGR_?				
Method: Pooled Least Squares				
Date: 04/5/17 Time: 17:08				
Sample: 1995Q1 2017Q4				
Included observations: 420				
Cross-sections included: 5				
Total pool (balanced) observations: 2100				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.408270	0.055679	7.332593	0.0000
MKTCAP_?	-0.009552	0.007346	-1.300243	0.1937

TR_?	-0.080741	0.010644	-7.585293	0.0000
TRVSTR_?	0.311665	0.021518	14.48409	0.0000
INFR_?	0.030912	0.012779	2.418881	0.0157
Fixed Effects (Cross)				
BRA—C	1.796219			
RUS—C	-0.283632			
IND—C	-0.245312			
CHI—C	-0.451039			
SAF—C	-0.816236			
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.270223	Mean dependent var	0.733388	
Adjusted R-squared	0.267430	S.D. dependent var	2.723074	
S.E. of regression	2.330687	Akaike info criterion	4.534480	
Sum squared resid	11358.52	Schwarz criterion	4.558693	
Log likelihood	-4752.204	Hannan-Quinn criter.	4.543348	
F-statistic	96.78211	Durbin-Watson stat	0.059034	
Prob(F-statistic)	0.000000			

Source: Computed from E-view 8.0

Result of the estimated fixed-effect model is quite good and highly significant following the probability value (0.00) of the F-statistic which validates the overall importance of the model. The fixed cross-sectorial constant term, and TVSTR were highly significant at 1% level; INFR was significant at 5%. Again, all estimated coefficient are wrongly signed except that of TRVSTR. Average growth rate of real GDP growth rate among member countries of BRICS stood at approximately 41% per period. Brazil, Russia and India have positive growth rate of real GDP while China and South Africa have a negative growth rate on average over the period. Particularly, Brazil has the highest among the group while South African has the least. Brazil's growth rate of real GDP has above the group's average by 179% and India which is second, has an average of 24.5% less than group's average. Russia (third), China (fourth) and South Africa (fifth) all have average growth rate of real GDP below the group's average by 28.3%, 45% and 81.6% respectively. Basically, this is a reflection of the extent to which capital market operations influence the growth rate of economic activities in these countries. On average, a unit increases in MKTCAP and TR variables will hinder growth rate of real GDP in BRICS by 0.01% and 0.08% respectively. This is a clear indication that members of this group need to further develop their capital markets in order for them to adequately drive economic growth. On the other hand, TRVSTR and INFR both have a positive influence on real GDP growth in BRICS on the average. Specifically, unit rises in TRVSTR and INFR would raise growth of real GDP in BRICS by 0.31% and 0.03% respectively. INFR positive impact on growth rate of real GDP in BRICS may be attributed to investors- domestic and foreign confidence in the economies of the group. In all, we can deduce that capital market operations in BRICS significantly impact on real GDP growth rate or economic expansion.

The Brazil, Russia, India, China and South Africa (BRICS) nations have had fair share at the global financial crisis few years ago. Nonetheless, stock market activities have continued unabated but in different dimension among the BRICS. The need to examine the performance of the BRICS in relation to have the stock market influence and economy is the primary goal of this study. The empirical estimation from the sub-section above shows that stock market development has greatly contributed to the real GDP growth rate of the BRICS. The turnover ratio of the BRICS though in a bit negatively affected the economy, was however increased the economy significantly. The finding is in tandem with the BRICS report (2014). For example, the report was it that the turnover ratio as indicator of the depth of stock market deepened considerably over the years in the BRICS. The indicator pumped from a risen base of 115.9% in China to 229.6%, almost in the past two decades; Brazil and South Africa have also witnessed a significant increase in the ratio from 2009 upward. Except during the global financial crisis where the activities of the stock market were barely leaped frogging, in the BRICS, the stock market did extra-ordinary well. This could be attributed to the integration of the BRICS financial market with world financial markets where there was a combine external financing of stock market from bonds, equities and loans. These have resulted to high proliferation of investment, thus causing increase in BRICS GDP. The study finding further supports the prediction of O'Neil and Stupnytska (2009) that the combined economies of the BRICS group could overtake that of U.S and European Union bodies in the next four decades. The market capitalization of the BRICS was observed to significantly improve the real GDP growth rate. The finding could be adduced to influx of direct and portfolio investment. China's share of global market capitalization has grown astronomically, to the extent that it is being predicted that it is likely to overtake the US in terms of stock market capitalization by 2030. This obvious positive prediction is not farther from the expanding investment and high economic growth in China. Possibly, this has a way of reducing the weakness of other BRICS member and then strengthens their position with regard to GDP. On the overall, it can be summarized that stock market development impact significantly on the economic growth of the BRICS than that of Nigeria and a policy prescription to ensure Nigeria benefits from the positive effect of the BRICS in the global economy is encouraged.

Descriptive analysis of the emerging countries: Nigeria an BRICS

Table 9: Descriptive Statistics

	Nig	B	R	I	C	S	BRICS
RGDPR	1.336667	0.791	0.608	1.737	2.433	0.765	3.461
MKTCAP	4.661190	11.133	14.274	15.589	10.546	49.981	18.632
TR	2.381881	12.790	15.587	21.451	30.707	5.981	17.537
TVSTR	0.465321	5.980	6.104	8.808	13.985	11.916	10.130
INFR	4.283214	2.398	10.186	1.875	1.012	1.589	3.012

Where: Nig. represents Nigeria, B represents Brazil, R represents Russia, I stand for India, C for China while S is South Africa.

The above table shows that on individual basis, China has the highest Real GDPGR, followed by India, Nigeria, Brazil, South Africa and Russia. On aggregate, BRICS have the highest RGDPGR. This suggests the prediction of the BRICS overtaking the G-7 is likely. China economy is viable compared to the other members of the BRICS. South Africa has the highest market capitalization, followed by India, Russia, Brazil, China and Nigeria. The high value of market size of South Africa might not necessary mean the market is liquid and devoid of adverse effect of macro -economic factors. The market capitalization of BRICS is quite high and suggests the increase in size is encouraging for investment.

China Stock market is more liquid, followed by India, Russia, Brazil, South Africa and Nigeria. At aggregate level, BRICS has appreciable stock market liquidity, such that investors can readily trade on it and expect instant returns subject to understanding they have about it. China has the lowest effect of inflation on the securities traded on the Stock Market. This could while the liquidity is high and the market capitalization. This is similar to South Africa and India. Russia has the highest inflation followed by Nigeria; and lucidly points out how it has affected the RGDPGR and market capitalization. This connotes that each of these countries needs effective policies to positively influence the stock market and economy in general.

Conclusion and Recommendations

This study has investigated the causality relationship between stock market development and economic growth in Nigeria and BRICS (Brazil, Russia, India, China and South Africa). Empirical estimation on BRICS indicates that TVSTR Granger causes TR unidirectionally while bi-directional relationship flows between INFR and RGDPGR. This suggests that there is macro-economic stability in the BRICS; and thus influence the performance of the BRICS economy in the period observed. Similarly, causality only flows from the stock market to the economic; thus affirming the a priori expectation of the study. In Nigeria, there exists no granger causality from stock market development to economic growth, and vice versa. However, there is causality flowing from TR to TVSTR. Thus, Nigeria as an emerging economy has a lot to profit from the BRICS bloc. The policy makers and government could profit largely by maintaining multi-lateral trade and co-operation to foster more flow of foreign direct investment and tap into the various national resources of each of the BRICS country; enhance the exploration in the home country, thus reducing the employment, adequate management of macro-economic variables with a view to strengthening the economy. The BRICS country member can further evaluate their economic and socio-political policies so as to optimize the benefit of each of the member to strengthen the economy, reduce the fiscal and monetary problems. Rather than be in pursuit of GDP solely, the BRICS nations can equally diversify the economy and invest more in infrastructure, constantly engage in various policy political and economic reform as all these factors have ways of engendering the overall GDP and this enable them achieve the goal of overtaking the G-7 countries come the year 2027 and beyond. Each of the BRICS country member should draft a policy that seeks further co-operation from China that has been maintaining a long-term high economic growth path so they can strengthen their economy thus reduce macro-economy stability, boost stock market activities. Given the infrastructural requirements of the BRICS economics, they need to seek more public-private participation that can help relax some of the downward pressures and constraints that militates take against them. The stock market is seen as the driver of an economy, in this regard, BRICS member country need to constantly provide institutional mechanism that is sound for optimal performance, anchored on good governance and norms. For the stock market of both Nigeria and BRICS to rapidly grow, make policy reforms favouring listed of quoted companies that could foster more trading on equities and other stocks are encouraged. Especially, this policy prescription is peculiar to Brazil and South African more listed companies are encourage in brazil, Russia and South Africa. This is because, of result, these countries have witnessed duration in the number of listed companies. The implication is that it affects the number of ordinarily shares that that are tradable at the floor of the stock market.

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