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Capital Market Development and Economic Growth - The Case of Nigeria.

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Abstract -- This paper investigates the relationship between capital market development and economic growth using Nigerian data on GDP (proxy for economic growth), market capitalization ratio, value traded ratio and stock market turnover ratio (proxies for capital market development) over the period 1981-2014.Employing the econometric methodology of the vector error correction model, the study shows that in the short-run, market capitalization ratio and turnover ratio have significant negative effect on aggregate national output (GDP). The study also shows positive effect of value traded ratio as well as negative effect of inflation rate on GDP though not significant. The long-run estimate shows that all the exogenous variables have significant negative impact on GDP and that changes in market capitalization ratio, value traded ratio and turnover ratio produce more than proportionate changes in GDP. With an adjustment speed of about 91.12 per cent, the model presents an inherent capacity to overcome short-run disequilibrium. The Granger causality test shows evidence of causal impact of market capitalization ratio, value traded ratio and turnover ratio on aggregate national output. The study further shows uni-directional causality from GDP to inflation. The paper established therefore that stock market development constitutes a significant determinant of economic growth in Nigeria.

I. INTRODUCTION

The capital market refers to a network of specialized financial institutions, series of mechanisms, processes and infrastructure that, in various ways, facilitate the bringing together of suppliers and users of medium to long-term capital for investment in economic development projects (Al-Faki, 2006). It is simply an institutional platform or arrangement for raising medium to long-term funds needed to support real sector operations through the sale and purchase of medium to long tenured financial instruments. By offering a wide range of such instruments, economic agents are enabled to pool, price and exchange risks. Nwankwo (1991) posits that through assets with attractive yields, liquidity and risk characteristics, which are essential for government and other financial institutions in need of long-term funds, the capital market promotes savings in financial form. Basic economic theory postulates a direct and proportionate relationship between realized savings and realized investments. Higher rates of investments, all things being equal, lead higher rates of real growth.

The link between capital market operations and economic growth and development derives from the works of Adam Smith (1776), Bagehot (1873), Schumpeter (1912), etc. who argue that a developed and efficient financial market is a condition precedent to growth in the real economy. Though there have been pockets of opposing views on the role of financial development in

study shows that developed stock markets promote economic growth by identifying and financing profitable investment opportunities.

Agarwal (2001) and Mahtadi and Agarwal (2001) examined the relationship between stock market development and economic growth. Both studies show evidence of strong positive impact of stock market development on economic growth. Studies by Luinkel and Khan (1999), Levine and Zervos (1996) Bencivenga et al (1996), Atje amd Jovanovic (1993) also show that the stock market promotes growth in an economy. Abu (2009) investigated the effect of stock market development on economic growth in Nigeria using the analytical technique of the vector error correction method. He finds that stock market development promotes economic growth. Also, Osinubi and Amaghionyeodiwe (2003) find a positive impact of stock market development on economic growth in Nigeria, using data over the period 1980-2000 and employing the technique of the ordinary least squares (OLS).

Studies by Obamiro (2005), Ezeoha et al (2009) show strong evidence of positive impact of the capital market on economic growth in Nigeria. However, Ezeoha et al (2009) reveal that while the stock market promotes economic growth through growth in domestic private investment flows, it has not been able to promote foreign private investment flows required for growth. However, Nyong (1997) shows that capital market development is negatively and significantly correlated with economic growth in Nigeria. Ewah et al (2009) examined the effect of capital market efficiency on the growth of the Nigerian economy using data from 1961-2004. They did not find evidence of significant effect of the capital market on economic growth in Nigeria. The study by Adamu and Sanni (2005) shows that (i) The stock market has a significant positive effect on economic growth (ii) There is bi-directional causality between stock market turnover and economic growth. Kolapo and Adaramola (2012) examined the impact of Nigerian capital market on economic growth using data over the period 1990-2010. They find that the Nigerian capital market impacts positively on the Nigerian economy. Ogunmuyiwa (2010) examined the causal link between stock market and economic growth in Nigeria using data over the period 1984-2005, he finds that changes in investors' confidence and stock market liquidity cause change in economic growth in Nigeria.

Odhiambo (2009) examined the causal link between stock market development and economic growth in South Africa using the Autoregressive Distributed Lag (ARDL) Bounds testing technique. He finds evidence of causal impact of stock market development on economic growth. A similar South African study by Ndako (2009) based on the econometric technique of the vector error correction mechanism (VECM), however, shows evidence of causal impact economic growth on stock market development thereby raising some fundamental questions as to whether research outcome is a function of the nature of data and the method adopted in its analysis. Odhiambo (2009) employed annual data and ADRL technique while Ndako (2009) employed quarterly data for the same period on the same set of variables but adopted the analytical technique of the VECM. Riman et al (2008) investigated the causal link between stock market development and economic growth in Nigeria. They find evidence of uni-directional causality from stock market to economic growth. Vazakidis and Adamopoulos (2009) examined the causal link between economic growth and stock market development in France using the technique of VECM. The study shows that economic growth granger-causes stock market development.

Udegbunam (2002) examined the impact of trade openness and stock market development on economic growth in Nigeria. He finds evidence of strong positive impact of trade openness and sock market development on economic growth in Nigeria. Adjasi and Biekpe (2005) investigated the link between stock market development and economic growth using data from selected African countries. They find significant positive impact of stock market development on economic growth in the selected countries.

economic growth and development (see for example Robinson, 1952) and some refinements of the basic hypothesis on the finance-growth nexus (see Patrick, 1966, Calderon and Liu, 2003), there is a near consensus that a well-functioning financial sector is a pre-condition for the efficient allocation of resources and the exploitation of an economy's growth potential (Odeniran and Udeaja, 2010).

There is substantial evidence that the stock market plays a vital role in the economic health of most developed economies while developing economies rely extensively on the operations of the money market to drive their economic activities. This study seeks examine the effect of the capital market on the growth and development of the Nigerian economy. Specifically, it examines the effect of key stock market performance indicators like stock market capitalization ratio, value traded ratio and turnover ratio on output growth in Nigeria. Majority of earlier studies have either approached this issue through regression analysis or causality analysis. Both methods are employed to enhance the robustness of this study.

II. REVIEW OF RELATED LITERATURE

The relationship between capital market development and economic growth derives from the supply-led theory of finance. As the long-term market for financial resources, the capital market offers long tenured financial assets with attractive yields, liquidity and risk characteristics to attract savings required by government and other investors in need of long-term funds. The capital market helps the government and corporate entities to raise long-term funds for financing new projects, expanding and modernizing industrial/ commercial concerns (Nwankwo, 1991). A developed capital market, according to Levine (1991) reduces liquidity shocks of investors thereby enhancing the productive capacity of the economy and hence productivity growth through provision of capital used in production and by ensuring that capital is productively employed. The importance of the capital market to economic growth and development has also been emphasized by Ogwumike & Omole (1996), Adamu and Sanni (2005), Agarwal (2001), etc.

An active stock market, according to Demirguc-Kunt & Maksimovic (1998) is an indication of a well developed financial system. According to Tharawanji (2007) countries with deeper capital markets face less severe business cycle output contraction and lower chances of economic down turn compared to those with less developed capital markets. Tachiwou (2010) examined the effect of capital market development on economic growth in the West African sub-region. He finds a positive impact of stock market development on economic growth in the long and short-term. Nowbutsing (2009) investigated the relationship between stock market development and economic growth in Mauritius. The study shows that in the short and long-run, stock market development positively impacts economic growth. Bolbo et al (2005) studied the impact of financial development on economic growth in Egypt using data over the period 1974-2002. They find that capital market development contributes significantly to economic growth in Egypt. Similar study by Beckaert et al (2005) also lends support to the growth-propelling impact of the stock market.

Tharawanji (2007) studied the capital market with regard to severity of business cycles and probability of economic downturn. The study reveals that countries with greater capital market depth face less severe business cycle output contraction and have lower chances of experiencing a downturn compared to those with less developed markets. Nieuwerbugh et al (2005) examined the relationship between economic growth and stock market development in Belgium. They find strong support of positive impact of capital development on economic growth. A similar study by Chee et al (2003) also reveals strong positive effect of the capital market on economic growth in Malaysia. They also find evidence that the stock market leads economic growth (supply-leading hypothesis) in Malaysia. Studies by Muhammed et al (2008) for Pakistan, and Liu and Hsu (2006) for Taiwan, Korea and Japan, produce evidence of positive impact of the stock market. Coporale and Soliman (2004) investigated the causal link between stock market development and economic growth. The

METHODOLOGY

Quantitative research technique based on ex-post facto design was adopted for the study. The study employed time series data,for the period 1981-2014, on GDP (proxy for economic growth), stock market capitalization, stock value traded, stock market turnover (proxies for stock market performance) and inflation (control variable).Research parameters were estimated using econometric methodology based on vector error correction (VECM) analytical technique at 5 per cent level of significance. The Granger causality test was conducted to determine the direction of causation, if any, between the dependent and independent variables.

IV. EMPIRICAL RESULT AND DISCUSSIONS

Results of the Phillip-Perron unit root test in table 1 below shows that GDP, market capitalization ratio, value traded ratio and turnover ratio are not stationary at their levels. This is evidenced by higher values of these variables relative to their calculated values. Only inflation rate showed evidence of stationary at level. However, all the variables became stationary at first difference.

Table I: Phillip Perron (PP) unit root test at levels and first difference

Variable	PP Test @Levels	PP Critical values	Test @ First Difference	PP Critical values	Remark
LGDPR	-2.657817	-2.957110	-6.169787	-2.960411	Integrated of order 1
LMCR	-0.881553	-2.957110	-5.868830	-2.960411	Integrated of order 1
LVTR	-0.809721	-2.957110	-5.355607	-2.960411	Integrated of order 1
LTOR	-1.579855	-2.957110	-5.605725	-2.960411	Integrated of order 1
LINFL	-3.123005**	-2.957110	-9.493971	-2.960411	Integrated of order 1

*, ** Represents stationary trend at 1% and 5% level of significance

Having established evidence of stationary for the study observations, we proceeded to test for the existence of co-integrated series among the variables captured in the economic growth model using the Johansen and Jusulius (1990) co-integration procedure. Computed values for both the trace and max-Eigen statistic were compared with their respective critical values at 5 percent level of significance. In table 2, the trace statistics revealed evidence of a co-integrated series at 5 percent significance level. The existence of a co-integrated series suggests a tendency of the series not to drift apart over a long period of time.

In table 3, the estimated long-run relationship between economic growth and capital market development shows significant effects of market capitalization, value traded ratio, turnover ratio and inflation rate on rate of economic growth. Further analysis of the evidence at lag1 shows a significant inverse effect of market capitalization ratio, turnover ratio and inflation rate on economic growth. The study also shows evidence of significant positive effect value traded ratio on economic growth at lag 2.

Table 2: Co-integration result

Hypothesized No. of CE(s)	Eigen Value	Trace Statistics	0.05 Critical Value	Prob.**	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.626487	72.18706	69.81889	0.0320	30.52892	33.87687	0.1192
At most 1	0.492391	41.65814	47.85613	0.1685	21.01934	27.58434	0.2751
At most 2	0.385154	20.63880	29.79707	0.3805	15.07788	21.13162	0.2835
At most 3	0.152650	5.560921	15.49471	0.7467	5.134872	14.26460	0.7247
At most 4	0.013650	0.426049	3.841466	0.5139	0.426049	3.841466	0.5139

Source; Author's computation, 2015

Table 3: Estimated long run co-efficients

Co integrating Eq: C					
CointEq1	22.18028	LMCR(-1)	LVTR(-2)	LTOR(-1)	LINFL(-1)
Coefficients		-4.820982	4.748874	-5.404209	-0.154940
Standard Error		(2.97787)	(2.98487)	(3.02268)	(0.08467)
T-Statistic		[-1.61894]	[1.59098]	[-1.78788]	[-1.82984]

Source: Author's Computation, Standard error and T-statistics are stated in parenthesis as () and [] respectively, 2015

A percentage change in market capitalization results to 4.821 percentage change in economic growth rate holding other variables at constant. The estimated co-efficient for market capitalization indicates a high degree of the sensitivity of economic growth rate to the variations in market capitalization. The result in table 3 above shows that a percentage change in value traded ratio raises economic growth rate by 4.75 percent all things being equal. This implies that a proportionate change in value traded ratio leads a more proportionate change in economic growth in the right direction. At lag1 a percentage change in turnover ratio leads to 5.4 percentage change in economic growth rate. A significant inverse relationship was observed between capital market turnover ratio and economic growth rate. Also, the degree of the responsiveness of economic growth rate to the variations in turnover ratio is highly elastic.

Inflation at lag 1 indicates a significant inverse relationship with economic growth rate. However, a percentage change in inflation rate results in a less than proportionate percentage change in economic growth rate. Specifically, a percentage change in inflation rate leads to 0.155 percentage change in economic growth rate. This indicates that the degree of sensitivity of economic growth rate to the changes in inflation rate is inelastic. Hence it be concluded from this study that market capitalization ratio, value of securities traded, turnover ratio and inflation rate are significant determinants of economic growth rate in the long-run.

Table 4: Vector error correction model

Error Correction:	ECM (-1)	D(LMCR(-1))	D(LVTR(-2))	D(LTOR(-1))	D(LINFL(-1))
Coefficient	-0.911154	-4.324414	1.940394	-4.811092	-0.123985
Standard Error	(0.27173)	(1.34676)	(2.14642)	(1.41139)	(0.10559)
T-Statistic	[-3.35318]	[-3.21097]	[0.90401]	[-3.40876]	[-1.17424]

Source: Author's Computation, Standard error and T-statistics are stated in parenthesis as ()

The result of the vector error correction estimates reveals the short run dynamics associated with the system. As could be observed in table 4 above, it appears that market capitalization and turnover ratios support a significant inverse relationship with economic growth rate while value traded ratio has a positive but not significant relationship with economic growth rate at first difference la_b 2. The error correction term was correctly signed and statistically significant. The error correction model result shows that 91.12 percentage of the disequilibrium in the system could be corrected per time in the event of external forces acting on the system. This shows a relatively high speed of systemic adjustment and possibility of convergence of the system.

Granger Causality Analysis

Table 5: Granger Causality Estimates
Pairwise Granger Causality Tests
Date: 12/10/15   Time: 16:52
Sample: 1981 2013
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
LMCR does not Granger Cause LGDPR	31	3.74781	0.0371
LGDPR does not Granger Cause LMCR		0.43296	0.6532
LVTR does not Granger Cause LGDPR	31	7.86157	0.0021
LGDPR does not Granger Cause LVTR		0.37747	0.6893
LTOR does not Granger Cause LGDPR	31	7.30085	0.0030
LGDPR does not Granger Cause LTOR		1.03155	0.3706
LINFL does not Granger Cause LGDPR	31	0.71653	0.4978
LGDPR does not Granger Cause LINFL		3.82757	0.0349

The Granger causality test shows evidence of unidirectional causality from (i) market capitalization ratio to GDP (ii) value traded ratio to GDP (iii) turnover ratio to GDP. These results imply that changes in these variables cause changes in output growth in Nigeria. There is also evidence of unidirectional causality from GDP to inflation. This is an indication that changes in output growth cause inflation level in the economy to change.

V. CONCLUSION AND RECOMMENDATION

The vector regression estimates show sufficient evidence that the stock market significantly impacts economic growth in Nigeria in the short and long-run. This result is further reinforced by the Granger causality estimates that changes in stock market performance indicators induce change in output growth. It is therefore recommended that government should vigorously pursue the development of the capital market as a veritable source of long-term funds needed to support real sector operations,

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