Economic Growth and Capital Market Development in Nigeria: A Causal Relationship Analysis

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Abstract: This paper examined the causal relationship between economic growth and capital market development using annual data from 1986-2016. The key techniques of analysis employed are the Johansen cointegration test and the Granger causality test. Our findings showed that a long-run relationship exists between economic growth and market capitalisation. The results further revealed that a unidirectional causal relationship between the variables of interest with causality running from economic growth to capital market development. Furthermore, evidence of a one-way causality was also found to run both from capital market development and economic growth to broad money supply, and also from inflation to money supply. We therefore concluded that economic growth Granger causes market capitalization. We recommend that monetary authorities and the government should champion economic and fiscal policy that will stimulate economic growth as this will ultimately facilitate capital market development.

Keywords: capital market, Economic growth, Granger causality, Johansen Cointegration

1 Introduction

According to Al-Faki (2006), the capital market is 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 socio-economic developmental projects”. The capital market is divided into the primary and the secondary market. The primary market, or the new issues market, provides the avenue through which government and corporate bodies raise fresh funds through the issuance of securities that are subscribed to by the general public or a selected group of investors. The secondary market provides an avenue for the sale and purchase of existing securities.

According to Ezeoha, et al (2009), the liquidity role of the stock market stands out clearly as the most significant, among its numerous functions. Citing Levine (1991, 1997), they concur that without a liquid stock market, many profitable long-term investments would not be undertaken because savers may be reluctant to tie up their investments for long periods of time. The stock market mainly provides liquidity by enabling firms to raise funds through the sale of securities cheaply, easily and speedily. Through this catalyst role, the stock market is also able to influence investment and economic growth in general.

These contentions, and the need to clarify them, prompted Gugliemo, et al. (2004) to assert that the nexus of stock market development and economic growth is not universally clear and, hence, it becomes crucial to investigate this as it reveals the extent of efficiency in capital allocation of an economy and Nurudeen (2009), who, though, finds that stock market development increases economic growth in Nigeria, to posit a resort to empirical investigations to resolve the issue but none of the empirical examinations has been able to resolve the controversy Levine and Zervos (1998) examine, empirically, the issue of whether stock markets are merely burgeoning casinos, as asserted by Keynes (1936), or a key to economic growth, and find a positive and significant correlation between stock market development and long-run growth.

Sarkar (2007), however, criticised their use of cross-sectional approach because it limits the potential robustness of their findings with respect to country-specific effects and time-related effects. Akinlo (2008) adds that they did not address the issue of causality, etc.

Akinlo (2008) investigates the causal relationship between stock market development and economic growth in Nigeria during the period, 1980-2006. The study shows that gross domestic product (GDP) and stock market development are co-integrated, and that there is only one unidirectional Granger causality running from GDP to market capitalization. Nwaogwugwu (2008), however, reveals a strong bi-directional causation between economic growth and stock market development, defined in terms of market capitalization and volume of transactions, in Nigeria from 1989-2007.

Little literature are available on the demand-following hypothesis which claims that it is the growth of the economy that causes increased demand for financial services which, in turn, leads to the development of financial...
markets (see, Robinson, 1952 and Lucas, 1988). In contrast, the supply-leading hypothesis claims a causal relationship from financial development to economic growth such that the intentional creation and development of financial institutions and markets would increase the supply of financial services, which would lead to economic growth (King and Levine, 1993a, b; Levine and Zervos, 1998; and Demirguc-Kunt and Maksimovic, 1996). Following the intense debate and lack of consensus on this subject, attempt to examine the causal relationship between growth and capital market development in Nigeria with expanded data from 1985 to 2016.

II. Literature Review

Theoretical reasons underline economists’ focus on financial intermediaries (Levine 1991 and 1997). Stiglitz and Weiss (1983) argue that banks and other financial intermediaries have important advantages over securities markets in reducing the information asymmetries than adverse selection problem and in ameliorating the inefficiencies created by information differences. For example, information asymmetries may create adverse selection problem in securities market.

The stock market is expected to accelerate economic growth by providing a boost to domestic savings and increasing the quality of investments (Singh, 1997). It encourages savings by providing individuals with additional financial instruments that may increase the savings rate (Levine and Zervos, 1996). Capasso (2003) argues that companies in countries with developed stock markets are less dependent on bank financing, which can reduce the risk of credit crunch. Stock markets, therefore, are able to positively influence economic growth through savings amongst individuals, and providing avenues for firm financing.

The stock market is supposed to ensure, through the takeover mechanism, that past investments are also most efficiently used (Ujunwa and Salami, 2010). Theoretically, the threat of takeover is expected to provide management with an incentive to maximize firm value. The presumption is that, if management does not maximize firm value, another economic agent may take control of the firm, replace management and reap the gains from the more efficient form. Thus, the stock market promotes corporate control, by providing financial discipline, which is expected to provide the best guarantee of efficiency in the use of assets (Ageme, 2014).

The debate on the interaction between stock price movements and real economic activities raises two crucial issues, namely: firstly, if stock prices or share price movements are influenced by economic changes or if they are determined on the basis of speculative bubbles and, secondly, the extent to which stock market performance, as a macroeconomic indicator, affect the prospects for economic growth (Oskooe, 2010). Liu and Sinclair (2008) and Shahbaz, et al. (2008) reveal that changes in stock prices reflect real economic situation such that economic growth, through changes in levels of real economic activities, affects profitability and activity of firms. As a result, with changes in profitability prospects, expected earnings and dividends, stock prices fluctuation. Similar studies reveal that share price fluctuations play a role in directing economic activities in the medium and long-term. Stock prices reflect public expectations towards future economic activities. Stock markets, in other words, are forward-looking and stock prices reflect expectations about future economic activity. If a recession is expected, for example, stock prices reflect this by decreasing in value whereas large increase in stock prices may reflect expectations towards future economic growth (Jefferis and Okeahalam, 2000; Nasseh and Strauss, 2000; Mauro, 2000; Shirai, 2004; Adjesi and Biekpe, 2005; Mun, et al., 2008).

Most of the research works on capital market development and economic growth have been based on the ‘supply-leading’ hypothesis and few on the ‘demand-following’ hypothesis, as postulated by Patrick (1966). The supply-leading hypothesis claims a causal relationship from financial development to economic growth such that the intentional creation and development of financial institutions and markets would increase the supply of financial services, which would lead to economic growth (King and Levine, 1993a, b; Levine and Zervos, 1998; and Demirguc-Kunt and Maksimovic, 1996).

The role of financial system in economic growth has been, and remains contentious among economists and financial experts; some see it as minor or insignificant while others see it as major or significant. Robinson (1952) and Akinlo (2008) contend that the financial system responds to development in the real sector rather than spur economic growth. Goldsmith (1969), McKinnon (1973), King and Levine (1993a), De Gregorio and Guidotti (1995), Levine and Zervos (1996), Osaze (2004), Okereke-Onyiuke (2004) and others disagree, stressing that a well-functioning financial system is critical in sustaining economic growth.

McKinnon (1973) and Shaw (1973) propose that, in developing countries, growth of real money balances augurs well for economic growth, and that the growth of an economy depends, in part, on the degree of financial development or financial intermediation. For Goldsmith (1969), Fry(1988) and Bencivenga and Smith (1991), financial development affects real growth of output by raising the volume of investment, and by improving the volume and structure of savings.Greenwood and Jovanovic (1990) and King and Levine (1993b) concur and assert that financial development is likely to affect growth by improving the efficiency of investment through project selection, innovation and entrepreneurship growth.
III. Empirical Review

The debate about the linkage between capital market development primarily revolves around two major issues: Firstly, if there is any relationship between financial sector development and economic growth and, if any, what the nature of the relationship could be and the direction of causality, that is, if it is financial sector development that promotes economic growth or if it is economic growth that fosters financial sector development.

Theoretical and empirical literature attempting to resolve the above issues have generated conflicting findings. King and Levine (1993a,b), Levine and Zervos (1998), Demirguc and Maksimovic (1996), among others, find positive causal effects of financial development on economic growth in line with the ‘supply leading’ hypothesis. These studies claim that countries with better-developed financial systems, in particular, those with large efficient banks and large, well-organized and smoothly-functioning stock markets tend to grow much faster by providing access to much needed funds for financially-constrained economic enterprises. Kletzer and Pardhan (1987) and Beck (2002), argue along similar lines but they also tried to establish that financial development is much more effective in promoting economic growth in more industrialized economies than in agricultural economies.

On the extent or magnitude of this influence and the direction of causality between them, Arestis, et al., (2001) find a favourable role of stock markets along with banks in the economic growth of developed countries, with the favourable role of the stock market exaggerated in different countries, in tandem with Lucas’ (1988) opinion that the role of finance in economic growth has been over-stressed (Caporale, et al, 2009), a position maintained by Donwa and Odia (2010) who find that Nigeria’s capital market has not impacted significantly on her GDP. For instance, Riman, et al., (2008) investigate the actual existence of a link between stock market performance and economic growth in Nigeria or if stock market liquidity is merely highly correlated with some exogenous non-financial factors between 1970-2004, and find a long run unidirectional relationship between stock market and economic growth with a caveat in interpreting the unidirectional causality as other non-financial exogenous variables influence the direction of stock market development.

Fry (1995) disagrees, arguing that countries at their early stages of development benefit more from financial sector development than their older and mature counterparts. Empirical analysis of most of these works, being cross-country regression-based studies, suffered such inherent weaknesses and criticisms as omitted variable bias or misspecification (Levine and Renelt,1992), the effect of heterogeneity of slope coefficients across countries (Evans, 1995 and Pesaran and Smith, 1995) and the problems of causality and endogeneity (Demetriades and Hussein, 1996 and Harris, 1997).

Levine, et al (2000), in order to address these criticisms, examine, empirically, the same issue by incorporating adequate corrections for the effects of simultaneity bias and country-specific effects, effects of other determinants of growth and biases arising from model-specific errors like omitted variables. They find a causal relationship from financial development indicators to economic growth. The ‘demand-following’ argument also finds support in previous and current research works. Robinson (1952) argues that financial development primarily follows growth in the real sector of the economy, as a result of increased demand for financial services, asserting that it seems to be the case that where enterprise leads, finance follows.

Oskooe (2010) examine the causality between stock price fluctuations and economic growth in Iran. In his study of the short-run dynamics and long-term equilibrium relationship between changes of real GDP, as an economic growth indicator, and stock price fluctuations, he finds a causal link between economic growth and stock price fluctuations in the long run, and bidirectional causality between share prices and economic growth in the short run. He concludes that the level of real economic activity is the main factor in the movement of stock prices in the long run while the stock market plays a role as a leading economic indicator of future economic growth in Iran in the short run. His study shows that the Iranian stock market is ‘demand-following’ in the long run and ‘supply-leading’ in the short run.

Arestis and Demetriades (1997) posit a bi-directional relationship between financial system development and economic growth in the process of development such that the financial sector and real sector of the economy interact with each other during all stages of development, and that there is no stage in the development of an economy when a one-way relationship exists between financial development and economic growth. Luintel and Khan (1999) find a bi-directional causality between financial development and economic growth in a study of 10 developing countries.

A prominent line of research suggests that financial development has a causal influence on economic growth, that is, the creation and strengthening of financial institutions and markets could increase the supply of financial services. The financial sector mobilises savings and allocates them to more productive investments. This way, financial development can stimulate economic growth (Schumpeter, 1912).
These controversies triggered further empirical studies on this causality relationship along three lines, namely: (1) Financial deepening stimulates economic growth; (2) Economic growth promotes the development of the financial system; (3) A circular relationship that financial development and economic growth stimulate each other, that is, a bi-directional relationship between them (Arestis and Demetriades, 1993).Nwaogwugwu (2008) also posits a strong bi-directional relationship between stock market development and economic growth in Nigeria. Concurring on this bi-directional relationship, Ujunwa and Ekumankama (2011) assert that economic growth makes the development of financial intermediation profitable while the establishment of an efficient financial system permits faster economic growth such that by specializing in pooling of funds, diversification of risks, management of liquidity as well as the evaluation and monitoring of projects, the financial system improves the efficiency of capital allocation and increases the productive capacity of the real sector while, at the same time, the technological efficiency of the financial sector increases with its size (Schumpeter, 1912), because economies of scale and learning-by-doing (or on-the-job training) effects are present in financial intermediation activities. Consequently, the real sector can exert a positive externality on the financial sector through the volume of savings such that both the financial sector and the real sector seem to have a positive influence on each other.Bhole (2004) stresses the difficulty in establishing, with precision, the sequence of economic development and financial development, as well as the difficulty in disentangling their cause and effect relationship, and maintains that while the financial system accelerates economic growth, it (the financial system) grows with economic advancement. He concludes that “it was more realistic and accurate to say that the relationship between economic development and financial development is symbiotic, mutually reinforcing and intertwined” (Bhole, 2004).

IV. DATA AND METHODOLOGY

The annualised time series data over the period, 1986-2016 is collated from the Central Bank of Nigeria (CBN) Statistical Bulletin to analyse the causal link between capital market development and economic growth in Nigeria. Our proxy for capital market development is market capitalization of listed companies as a ratio of gross domestic product (GDP). We selected economic growth is proxied by GDP growth rate, while annual inflation rate and broad money supply (ratio of broad money supply to GDP) are included in the model as variables of control. The Phillip-Perron unit root test is applied in this study to test for stationarity of the series while Johansen cointegration test is used to check for long-run association among the variables. The Granger causality test is employed to ascertain the direction of causality between economic growth and capital market development within the period covered by this paper.

Granger Causality Test:

Granger (1969) explains that between two variables Y and X, Y causes X if Y influences the predictability of X and vice versa. The direction of causality can be unidirectional or bidirectional causality effect. In some cases however, there may be no evidence of causality. A general granger causality model for variables, X and Y can be expressed as follows,

\[ X(t) = b_1 + \sum_{j=1}^{\hat{\epsilon}} b_{11,j}X(t - j) + \sum_{j=1}^{\hat{\epsilon}} b_{12,j}Y(t - j) + \epsilon_1 \]

\[ Y(t) = b_2 + \sum_{j=1}^{\hat{\epsilon}} b_{21,j}X(t - j) + \sum_{j=1}^{\hat{\epsilon}} b_{22,j}Y(t - j) + \epsilon_2 \]

The modified causality model which includes our specific variables, GDPgr and CAP, is represented thus,

\[ \Delta CAP_{it} = \theta_{1j} + \sum_{k=1}^{p} \alpha_{1ik}\Delta CAP_{it-k} + \sum_{k=1}^{q} \beta_{1ik}\Delta GDP_{gr_{it-k}} + \sum_{k=1}^{r} \gamma_{1ik}\Delta INF_{it-k} + \sum_{k=1}^{s} \delta_{1ik}\Delta MS_{it-k} + \epsilon_{1it} \]

\[ \Delta GDP_{gr_{it}} = \theta_{2j} + \sum_{k=1}^{p} \alpha_{2ik}\Delta GDP_{gr_{it-k}} + \sum_{k=1}^{q} \beta_{2ik}\Delta CAP_{it-k} + \sum_{k=1}^{r} \gamma_{2ik}\Delta INF_{it-k} + \sum_{k=1}^{s} \delta_{2ik}\Delta MS_{it-k} + \epsilon_{2it} \]

Where \( t \) is time, and GDPgr is GDP growth, CAP is ratio of market capitalization to GDP, INF is inflation, MS is broad money supply and \( \epsilon \) is error term.
V. RESULTS AND DISCUSSIONS

A. Descriptive Statistics

Table 1. Results of Descriptive Statistics

<table>
<thead>
<tr>
<th></th>
<th>CAP</th>
<th>GDPGR</th>
<th>MS</th>
<th>INF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>11.2946</td>
<td>23.0970</td>
<td>14.4861</td>
<td>20.6992</td>
</tr>
<tr>
<td>Maximum</td>
<td>39.9501</td>
<td>64.2376</td>
<td>21.2906</td>
<td>76.7589</td>
</tr>
<tr>
<td>Minimum</td>
<td>3.0535</td>
<td>5.2857</td>
<td>9.1517</td>
<td>0.2236</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>8.6299</td>
<td>13.6462</td>
<td>3.9306</td>
<td>19.4426</td>
</tr>
<tr>
<td>Skewness</td>
<td>1.3205</td>
<td>1.1249</td>
<td>0.5732</td>
<td>1.5745</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>4.8817</td>
<td>4.1914</td>
<td>1.8072</td>
<td>4.2481</td>
</tr>
<tr>
<td>Jarque-Bera</td>
<td>13.5821</td>
<td>8.3709</td>
<td>3.5350</td>
<td>14.8205</td>
</tr>
</tbody>
</table>

Table 1 provides statistical analysis of our individual series. Market capitalization relative to GDP averaged 11.29 percent while the mean value economic growth within the period was 23.10 percent. Broad money and inflation averaged 14.49 percent and 20.70 percent respectively over the 31 year period.

B. Unit Root Test

Table 1. Phillip-Perron Unit root Test.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Phillip-Perron Test Statistic</th>
<th>Critical Value at 5%</th>
<th>Order of Integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDPGr</td>
<td>-8.738924</td>
<td>-3.196752</td>
<td>1(1)</td>
</tr>
<tr>
<td>CAP</td>
<td>-5.635678</td>
<td>-3.196752</td>
<td>1(1)</td>
</tr>
<tr>
<td>MS</td>
<td>-7.538761</td>
<td>-3.196752</td>
<td>1(1)</td>
</tr>
<tr>
<td>INF</td>
<td>-6.001256</td>
<td>-3.196752</td>
<td>1(1)</td>
</tr>
</tbody>
</table>

Table 1 shows that our have no unit root and thus are stationary. All the series are integrated at order one (i.e. after first differencing). This fulfills the assumption for running a Granger causality test, and we can also estimate the Johansen cointegration test.
C. Test for Long-Run Relationship

Table 3. Johansen Cointegration Test Results
Series: CAP GDPGR MS INF

<table>
<thead>
<tr>
<th>Hypothesized No. of CE(s)</th>
<th>Eigenvalue</th>
<th>Trace Statistic</th>
<th>0.05 Critical Value</th>
<th>Prob.**</th>
</tr>
</thead>
<tbody>
<tr>
<td>None *</td>
<td>0.467986</td>
<td>52.53664</td>
<td>47.85613</td>
<td>0.0170</td>
</tr>
<tr>
<td>At most 1 *</td>
<td>0.450941</td>
<td>34.23518</td>
<td>29.79707</td>
<td>0.0144</td>
</tr>
<tr>
<td>At most 2 *</td>
<td>0.419446</td>
<td>16.84826</td>
<td>15.49471</td>
<td>0.0311</td>
</tr>
<tr>
<td>At most 3</td>
<td>0.036519</td>
<td>1.078867</td>
<td>3.841466</td>
<td>0.2990</td>
</tr>
</tbody>
</table>

Source: Eviews Results.

Table 3 reveals that our variables are cointegrated. This entails that the series have long-run association hence move along in the long run. The test shows that there exist three cointegrating equations.

D. Granger Causality

Table 4. Pairwise Granger Causality Tests
Date: 01/26/18   Time: 16:18
Sample: 1986 2016
Lags: 2

<table>
<thead>
<tr>
<th>Null Hypothesis:</th>
<th>Obs</th>
<th>F-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDPgr does not Granger Cause CAP</td>
<td>29</td>
<td>13.8812</td>
<td>0.0001</td>
</tr>
<tr>
<td>CAP does not Granger Cause RGDP</td>
<td></td>
<td>0.41319</td>
<td>0.6662</td>
</tr>
<tr>
<td>MS does not Granger Cause CAP</td>
<td>29</td>
<td>1.21024</td>
<td>0.3157</td>
</tr>
<tr>
<td>CAP does not Granger Cause MS</td>
<td></td>
<td>6.60688</td>
<td>0.0052</td>
</tr>
<tr>
<td>INF does not Granger Cause CAP</td>
<td>29</td>
<td>0.25017</td>
<td>0.7807</td>
</tr>
<tr>
<td>CAP does not Granger Cause INF</td>
<td></td>
<td>0.73806</td>
<td>0.4886</td>
</tr>
<tr>
<td>MS does not Granger Cause GDPgr</td>
<td>29</td>
<td>3.14450</td>
<td>0.0613</td>
</tr>
<tr>
<td>GDPgr does not Granger Cause MS</td>
<td></td>
<td>4.12893</td>
<td>0.0288</td>
</tr>
<tr>
<td>INF does not Granger Cause GDPgr</td>
<td>29</td>
<td>0.21253</td>
<td>0.8100</td>
</tr>
<tr>
<td>GDPgr does not Granger Cause INF</td>
<td></td>
<td>1.78206</td>
<td>0.1898</td>
</tr>
<tr>
<td>INF does not Granger Cause MS</td>
<td>29</td>
<td>5.60549</td>
<td>0.0101</td>
</tr>
<tr>
<td>MS does not Granger Cause INF</td>
<td></td>
<td>0.64633</td>
<td>0.5328</td>
</tr>
</tbody>
</table>

Source: Eviews Results

Results in Table 4 indicate provide evidence of a unidirectional relationship running from economic growth to capital market development. This means that past information on economic growth is essential in forecasting capital market development. There is also a one-way causality running from CAP and GDP to MS; and inflation to money supply within the period covered by this study.

VI. CONCLUSION

This paper examined the causal relationship between economic growth and capital market development. Studies on the subject have produced differing findings, and the lack of consensus motivated this study which used updated data to reexamine the nature of causality between the two variables. Our findings showed that a long-run relationship exists between economic growth and market capitalisation. The results further revealed that a unidirectional causal relationship between the variables of interest with causality running from economic growth to capital market development. Furthermore, evidence of a one-way causality was also found to run both from capital market development and economic growth to broad money supply, and also from inflation to money supply. We therefore concluded that economic growth Granger causes market capitalization. We recommend that monetary authorities and the government should champion economic and fiscal policy that will stimulate economic growth as this will ultimately facilitate capital market development.
References


