



The nexus between stock exchange market growth and economic performance: evidence from the Nigerian economy

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Abstract

This study was conducted to uncover the nexus between stock exchange market growth and economic performance in Nigeria from 1987 to 2019. The study adopted Johansen co-integration and vector error correction estimation techniques. It was found that stock exchange market growth determines the economic performance of Nigeria in the long run. However, in the short run, it was found and concluded that stock exchange market growth though promotes economic performance, its impact was insignificant. The study thus recommended that ongoing reforms in the Nigerian financial sector should be continued and extended to the capital market. Capital market reforms that will reduce intermediation costs, floating new issues and promoting the invention of modern financial instruments should be pursued in the capital market.

Keywords: Stock Exchange, Economic Performance, Growth, Financial Sector, VECM

JEL Classification: G23, 047, B2

1. Introduction

Nations globally, rely on financial system development to realize higher growth and development in the economy. The stock market which is a subset of the financial system has continued to play a germane role in linking owners of long-term funds to the users of long term funds for investments in long term productive capacity. The intermediation efficiency, modern instruments and institutional frameworks provided by the stock market are pivotal to achieving accelerated and sustainable growth in the long run. Thus, the theoretical foundation of supply leading phenomenon suggested a developed and modernized stock market as the focal point of inclusive growth and development (Mckinnon, 1973; Levine, 1991; Singh, 2010).

Stock market development distributes financial resources through the creation of modern and suitable financial instruments to meet the diverse needs of different internal and external investors (Kajurová & Rozmahel, 2016; Akinwale & Adekunle, 2019). This intermediation process is expected to propel growth and development through the minimization of transaction costs, information asymmetry and risks involved in direction financing (Coskun, Seven, Murat & Ulussever, 2017). The notion that the capital market has the capacity to induce long term growth and the need to meet the long-term financing requirements of the industrial sector led to the establishment of the Lagos Stock Market in 1960. Following its metamorphosis into the Nigerian Stock Exchange in December 1977, the market has continued to experience growth and expansion in terms of financial instruments, sectoral coverage, transparency and attraction of foreign funds. The financial liberalization of 1986 was initiated and aimed at improving the allocation efficiency of the stock exchange market by removing impediment and stringent policies in the financial system coupled with market forces determination of macroeconomic indices (Ubesie, Nwanekpe & Ejilibe, 2020).

However, despite the growth and expansion of the Nigerian Stock Exchange Market, it has experienced a significant period of turbulence and crisis which mostly arises from external sources. The financial crisis of 2009 which affected the global financial system was also transmitted into the Nigerian financial system causing distortion and underperformance in the Nigeria Stock Exchange Market. The stock exchange market of Nigeria during this period was marred with inefficiency, liquidity crisis, low investible securities, the lack of confidence in the



market and information leakages (Faloye & Adekunle, 2016). Reforms and regulations of the monetary authority at different periods in Nigeria were aimed at enhancing efficiency, innovativeness and transparency of the Nigeria Stock Exchange Market and its contribution to economic growth and development. In spite of this, there are still significant challenges such as high unemployment rate, high poverty rate, low standard of living and underfunding of the real sector. Despite the Nigerian Stock Market being expected to play a leading role in the revitalization of the Nigerian economy, the nation has continued to experience underwhelming performance. Among the underlying challenges facing the capital market are poor infrastructural facilities, inadequate advanced financial instruments, the dominance of the financial system by deposit money banks, unstable share prices and macroeconomic variables fluctuation (Araoye, Ajayi & Aruwaji, 2018).

In light of these challenges, studies over the years have been conducted to cross-examine the linkage between Nigerian Stock Exchange Market and economic performance. Some studies have suggested that Nigerian Stock Exchange Market drive economic growth while some studies found that Nigerian Stock Exchange Market do not contribute to economic growth in Nigeria. This dividing part may likely result from the difference in variables of measurement, study periods, and analytical techniques applied. Thus, there is a need to re-visit the linkage and role of the Nigerian Stock Exchange Market in the growth process of the Nigerian economy. The need for this study is more important especially in the post-COVID-19 era where the economy is facing significant economic challenges and the Nigerian Stock Exchange Market is expected to play a leading role to bring the economy back on the path of growth. Thus, by adopting adequate capital market indices, more recent data and advance analytical technique, this study investigated the nexus between Nigerian stock market growth and economic performance in Nigeria. Following the introduction part, other parts of the paper is structured into the literature review, methodology, findings and conclusion.

2. Literature Review

Globally, the stock market has become a central theme for realizing sustainable growth and development. The market has the ability to channel and redirect long term financial resources from the surplus unit for investments and growth purposes. The intermediation innovations offered by the stock market are necessary for mobilizing domestic and international savings towards improving the quality and quantity of investments thereby accelerating economic growth (Singh, 2010). Thus, a well-developed and efficient stock market helps to increase the ease of raising capital for new capital investments and expansion of the existing stock of productive assets by linking owners of funds to users of funds (Demirguc-Kunt & Levine, 1996; Levine & Zervos 1996). Hence, the theories in the area of the financial system and stock market development are of the opinion that stock market development and its instruments should precede the demand for them in order to achieve sustainable growth in the long run (Schumpeter, 1932; McKinnon, 1973; Bencivenga & Smith, 1991; Arestis, Demetriades & Luintel, 2001).

Based on this theoretical innovation, series of studies have been conducted on the linkage between stock market development and economic growth globally. In developed countries, Autonios (2010) found unidirectional causality between stock market development and economic growth for the periods of 1965 to 2007 in Germany. Chen (2015) found that the Chinese market positively and statistically determines the risk of return in SSE stocks. Also, Kajurová and Rozmahel (2016) studied the linkage between stock market development and economic growth in the European Union countries using the vector error correction model and the Granger causality test. It was discovered that stock market development significantly impacts economic growth in European countries.

Also, Coskun, et al., (2017) examined the relationship between the development level of capital market sub-components and economic growth between 2006 and 2016 in Turkey. The study employed ARDL, Markov Switching Regression and Kalman Filter techniques and the results established that capital market development had a negative effect on economic growth. Similarly, the ARDL approach was used to investigate the linkage between the stock market



and the real economy by Pan and Mishra (2018). It was found that the stock market had a positive and significant impact on China's real sector.

In developing countries, Gazdar and Cherif (2015) examined the finance-growth nexus in MENA countries and observed that financial development positively influenced economic growth through a strong institutional framework. In the same vein, Pradhan et al., (2015) focused on the effect of oil prices, stock market development and other macroeconomic variables on the economic growth of twenty ASEAN countries from 1961 to 2012. Using a panel vector autoregressive model for testing the Granger causality, a bidirectional causality relationship was discovered between stock market development and economic growth. Similarly, Magweva and Mashamba (2016) examined the relationship between the stock market and economic growth in Zimbabwe from 1989 to 2014. The Vector Error Correction Model results revealed a negative and significant relationship between stock market development and economic growth.

In Nigeria, Bernard and Austin (2012) found that stock market capitalization and value traded negatively impact economic growth in Nigeria. However, the vector error correction model result of Usman and Alfa (2013) from 1981 to 2012 showed a positive relationship between market capitalization, market size, real gross domestic product. On contrary, Ogunrinola and Motilewa (2015) who investigated the effect of stock market liquidity on the economic growth of Nigeria between the years 1980 to 2012, found that stock market liquidity did not promote economic growth in Nigeria. Okoro (2017) also found that stock prices did not predict macroeconomic variables in Nigeria. Likewise, Araoye, et al., (2018) found that the stock market had a negative and insignificant effect on economic growth between 1995 and 2014 in Nigeria.

Nonetheless, Manasseh, Ogbuabor, Anumudu, Abada, Okolie and Okoro (2018) adopted Vector Autoregressive to investigate the effect of stock market development and financial sector reforms on economic growth in Nigeria and found bidirectional causality of stock market development and financial sector reforms on economic growth. The study of Ubesie, et al., (2020) on the effect of the capital market on economic growth using the OLS technique, showed that capital market promotes economic growth in Nigeria. Similarly, the error correction model of Ugboogbo and Aisien (2019) showed that the capital market stimulates economic growth both in the short and long run in Nigeria.

In summary, while some findings showed a lack of connection between the stock exchange market and economy, quite a number of empirical results suggested that the stock exchange market stimulate economic growth. The current study is a consolidation of the previous literature through the adoption of appropriate stock exchange market indices and recent data for Nigeria.

3. Data and Methods

This study relied on ex-post facto research to investigate the relationship between stock exchange market and economic growth in Nigeria. Time series data were sourced from different issues of Central Bank of Nigeria Statistical Bulletin from 1987 to 2019. These periods reflect the period of different reforms and regulation aimed at enhancing the performance and efficiency of the stock exchange market.

3.1 Specification of Model

The model for this study was built on the stock market development model of McKinnon (1973). Theoretically, stock exchange market is expected to create avenue for accessing long term funds for investments thereby enhancing economic growth. Variables adopted in this followed the empirical works of Demircug-Kunt and Levine (1996); Levine and Zervos (1996); Levine (1991). However, the model for the study was adapted from Ugboogbo and Aisien (2019) which is given as:



$$RGDP = f(MCAP, INT, M2, INVT) \quad (1)$$

Where; RGDP = Real GDP growth rate (Proxy for economic growth) MCAP = Market capitalization (proxy for capital market development) INT = Interest rate M2 = Money supply INVT = Gross fixed capital formation (a Proxy for Investment level). Thus, by re-modifying the model of Ugbogbo and Aisien (2019), the model for this study is given as:

$$GDP = f(MCR, TR, INFR, VTR) \quad (2)$$

$$\text{LogGDP} = a_0 + a_1 \log MCR + a_2 \log TOR + a_3 \log INFR + a_4 \log VTR + U \quad (3)$$

Where: GDP is Gross Domestic Product. MCR is Market Capitalization Ratio. TOR is Turnover Ratio. INFR is the Inflation Rate. VTR is the Total Share Value Ratio. a_0 is a constant parameter. a_1 , a_2 , a_3 and a_4 are estimated parameters.

3.2 Methods of Data Analysis

Investigating the relationship among time series financial data requires a preliminary testing of the data for unit root. This is appropriate in order to avoid irrelevant results and ensure that the regression result does not go against OLS assumptions. Also, long run relationship between the stock exchange market and economic growth was ascertained with Johansen Co-integration technique. Following the outcome of the integration of order one among the data series, the study employed Vector Error Correction Model (VECM) to evaluate the effect of stock exchange market on economic growth.

The Vector Error Correction Model

$$RGDP_t = \alpha_0 + \alpha_1 Z_t - (\alpha_2 ECM_{t-1} + v_t) \quad (4)$$

α_2 ECM is the error correction mechanism, α_2 is the magnitude of error corrected each period specified in its a priori form so as to restore the dependent variable to equilibrium, Z_t are set of the independent variables (market capitalization ratio, turnover ratio, inflation rate and total share value ratio). The optimum lag length for the estimation of the VECM equation is based on Akaike's Information Criteria (AIC) and Schwarz's Bayesian Information Criteria (SBIC).

4. Data Analysis and Discussion of findings

4.1 Correlation Matrix

Table 1 reveals the correlation coefficients of the variables. The correlation between Gross Domestic Product (GDP) and Inflation Rate has a coefficient of -0.536607 which indicates a negative association between Gross Domestic Product and inflation rate while GDP has a very weak negative association with Market Capitalization Ratio. In addition, Gross Domestic Product has a weak positive correlation with Total Share Value Ratio and Turnover Ratio. Inflation rate has a very weak positive correlation with Market Capitalization Ratio and a weak negative correlation with Total Share Value Ratio and Turnover Ratio. Market Capitalization Ratio has a positive correlation with Total Share Value Ratio and Turnover Ratio while Turnover Ratio has a strong positive correlation with Total Share Value Ratio.

Table 1: Summary of Correlation Analysis

| | GDP | INF | MCR | TOR | VTR |
|-----|-----------|-----------|----------|----------|----------|
| GDP | 1.000000 | | | | |
| INF | -0.536607 | 1.000000 | | | |
| MCR | -0.014141 | 0.006622 | 1.000000 | | |
| TOR | 0.364653 | -0.448524 | 0.221693 | 1.000000 | |
| VTR | 0.179458 | -0.363190 | 0.553632 | 0.862704 | 1.000000 |

Source: Author's Computation (2021)

4.2 Unit Root Test

Table 2 displays the summary of the unit root test used to test the stationarity of the variables. This study employed Augmented Dickey-Fuller unit root test to check the stationarity and order of integration of the variables. The result of the ADF reported in Table II shows that gross domestic product, inflation rate, market capitalization ratio, total share value ratio and turnover ratio were not stationary at level. However, they were all stationary when tested at first difference. Since gross domestic product, inflation rate, market capitalization ratio, total share value ratio and turnover ratio are $I(1)$, the study employs a co-integration test of the variables to examine if the series exhibit a long run relationship.

Table 2: Summary of Unit Root Test

| Variables | Test statistics | Critical Values | P-value | Remarks | Stationary / Non-Stationary |
|-----------|-----------------|-----------------|---------|---------|-----------------------------|
| GDP | /-3.493804/ | /-2.960411/ | 0.0150 | 1(1) | Stationary |
| INF | /-4.893818/ | /-2.976263/ | 0.0005 | 1(1) | Stationary |
| MCR | /-5.229689/ | /-2.986225/ | 0.0003 | 1(1) | Stationary |
| TOR | /-5.214893/ | /-2.986225/ | 0.0003 | 1(1) | Stationary |
| VTR | /-5.498354/ | /-2.967767/ | 0.0001 | 1(1) | Stationary |

Source: Author's Computation (2021)

4.3 Co-integration Result

The study employed Johansen Co-integration Test to examine the long run relationship of the variables and the Trace statistic was considered. The result reported in Table 3 shows that the variables are co-integrated on the long run and can be combined in a linear fashion. This means a shock in the short run which may affect movement in the individual series would converge with time (in the long run). Since the variables are found to have one or more co-integrating vector, then a suitable estimation technique is a VECM (Vector Error Correction Model) which adjusts to both short run changes in variables and deviations from equilibrium in the long run.

Table 3: Summary of correlation analysis

| Hypothesized No. of CE(s) | Eigenvalue | Trace Statistic | Critical Value | Prob. |
|---------------------------|------------|-----------------|----------------|---------|
| None | 0.713784 | 78.79068 | 69.81889 | 0.0081* |
| At most 1 | 0.611911 | 47.51546 | 47.85613 | 0.0538 |
| At most 2 | 0.366962 | 23.85247 | 29.79707 | 0.2068 |
| At Most 3 | 0.256543 | 12.42186 | 15.49471 | 0.1378 |

* indicates null hypothesis of no long relationship is rejected

Source: Author's Computation (2021)

4.4 Lag Selection

It is necessary to determine the optimum lag to ensure that enough is selected and to avoid the problem of low degree of freedom. The result of the lag selection criterion which is reported in Table IV shows that the optimum lag for the estimation of VECM estimation is lag 1.



Table 5: Optimum Lag Result

| Lag | LogL | LR | FPE | AIC | SC | HQ |
|---|-----------|-----------|-----------|-----------|-----------|-----------|
| 0 | -438.7043 | NA | 1.79e+09 | 35.49634 | 35.74012 | 35.56396 |
| 1 | -330.2173 | 164.9002* | 2363706.* | 28.81739* | 30.28004* | 29.22306* |
| 2 | -306.7540 | 26.27891 | 3517437. | 28.94032 | 31.62185 | 29.68406 |
| * indicates lag order selected by the criterion | | | | | | |

Source: Author's Computation (2021)

4.5 Vector Error Correction Model (VECM) Result

The result of the vector error correction model for GDP is presented in table 5. The result indicated the co-efficient of CointEq(-1) was given as -0.002183 which conformed to the theoretical negative sign but insignificant at 5%. The implication of this is that there is no long run causal effect on GDP. The result also indicated that a change in the previous period of gross domestic product is associated with 0.574798 increase in the current period of gross domestic product on average ceteris paribus in the short run. Also, turnover ratio tends to significantly affect gross domestic product by 4.294069 decrease in the short run, ceteris paribus. Finally, the result reveals that inflation rate, market capitalization ratio, total share value ratio are insignificant in the model at 5% level of significance. Hence, they have no influence on gross domestic product.

Table 5: Summary of VECM for GDP

| Variable | Coefficient | t-Statistic | Prob. |
|-------------|-------------|-------------|--------|
| D(GDP(-1)) | 0.574798 | 3.10013 | 0.0026 |
| D(INF(-1)) | 0.280123 | 0.36415 | 0.7166 |
| D(MCR(-1)) | 1.416583 | 0.78173 | 0.4364 |
| D(TOR(-1)) | -4.294069 | -2.06268 | 0.0420 |
| D(VTR(-1)) | 6.022825 | 0.48742 | 0.6271 |
| C | 6.022825 | 0.487423 | 0.7166 |
| CointEq(-1) | -0.002183 | -0.17753 | 0.8595 |

Source: Author's Computation (2021)

4.2 Discussion of Findings

This study investigated the linkage between stock exchange market growth and economic performance in Nigeria. Based on analysis, it was found that market capitalization ratio had positive but insignificant effect on economic growth. This implies that market capitalization through listing of firms on the stock market has the capacity to induce economic growth through increase in capital for investment. However, turnover ratio was discovered to have negative and significant effect on economic growth suggesting underwhelming level of financial instrument trading in the Nigerian stock exchange market. Total share value ratio was also found to have positive but insignificant effect on economic growth indicating that high level of transaction has the capacity to enhance economic growth. These findings confirmed the empirical results of Demircuc-Kunt and Levine (1996); Levine and Zervos (1996); Levine (1991); Manasseh, *et al.*, (2018); Pan and Mishra (2018); Ugbogbo and Aisien (2019); Ubesie, *et al.*, (2020).

5. Conclusion and Recommendations

The stock market development serves as a benchmark to evaluate the performance of an economy. It is a major performance indicator used in determining the ability of an economy to meet the long term financial needs of investors and economic growth. Thus, this study



investigated the nexus between stock exchange market growth and economic performance of Nigeria and concluded that though stock market capitalization and turnover ratio had positive influence on economic growth as confirmed using the error correction method, their impacts were insignificant.

The study thus suggested that ongoing reforms in the Nigerian financial sector should be continued and pursued to the letter in the capital market. It is apparent that the existence of a well-developed and efficient capital market will contribute to the objective of rapid and sustainable growth. Capital market reforms which will reduce the costs of intermediation, float new issues and promote the invention of modern financial instruments should be pursued in the capital market. Also, there is need to improve financial infrastructure through the development of various financial products and services, which has been a major problem militating against the level of investment in developing country like Nigeria when compared to developed countries. Trading systems of stock market should be improved – since this improves stock market operations, allowing stocks to trade more frequently and speed up the purchase and sale process of stocks, in this way enhancing stock market liquidity and efficiency.





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