

DOES STOCK MARKET PROMOTE ECONOMIC GROWTH IN AN EMERGING MARKET? A CAUSALITY INVESTIGATION

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Abstract

This paper examines the existence of causality relationship between stock market performance and economic growth in Nigeria using Granger causality test. Time series data on economic growth, proxied by Gross Domestic Product (GDP), and stock market performance indicators, such as market capitalization ratio (MCAPR), turnover ratio (TOR) and total number of deals ratio (TNDR) derived from the central bank of Nigeria (CBN) statistical bulletin, Vol. 20, 2009 and National Bureau of Statistics (NBS) official website, were used. The study finds the empirical evidence of long-run co-integration between economic growth and stock market performance. However, with regard to causal relationship between GDP and Stock market performance indicators, uni-directional causality was established from MCAPR and TNAR to GDP only on the long-run. On the short-run, there was no causal relationship between economic growth and stock market performance. Furthermore, the impact of the stock market on economic growth was found to be negative and non-significant at 5% level. This is quite understandable because the unethical practices and the subsequent crash in the stock market have undermined the potentials of the market in enhancing economic growth in Nigeria. The study therefore recommends that the regulatory authorities should initiate policies that would rekindle the dwindling interest and confidence of both domestic and foreign investors in the market, and also be more proactive in their surveillance role in order to checkmate negative practices which undermine market integrity.

Keywords: Stock market, economic growth, causality investigation, stationarity test.

1. Introduction

It is well acknowledged in academic literature that an efficient and well-developed financial system is important for influencing economic growth. The positive effects of financial development on growth are basically credited to the functions it plays particularly in the mobilization and allocation of resources needed to undertake productive investment activities by various economic agents. Theoretical literature argue that the increased availability of financial instruments and institutions greatly reduces transaction and information cost in the economy which in turn influences savings rate, investment decisions and undertaking of technological innovations. A large number of empirical works (e.g King and Levine, 1993; Levine, 1997; Neusser and Kugler, 1998; Beck, Levine and Loayza, 2000; Odedokun, 1996; Abma and Fase, 2003; etc) have also tested the finance-growth relationship employing different methodological techniques and using different indicators of financial development in Cross-Country or time series studies. The empirical findings, mostly in the developed markets, are generally in consensus that a well- functioning and efficient financial system has beneficial impacts on economic growth (Islam) and Osman, 2005).

Most of the existing studies based on the developed countries experiences have used three sub sectors of the financial system in the finance-growth nexus literature as proxy for financial development or growth, namely, the banking sub sector, the capital market and the non-bank financial intermediaries. Most of the studies in particular indicate that the developed economies had explored two particular channels through which resources mobilization affects economic growth and development - money and capital markets (Samuel, 1996; Demirguc - Kunt and Levine, 1996). This is not however the case in developing economies where emphasis was placed on money market with little consideration for capital market (Nyong, 1997; Osinubi, 2000).

Since the introduction of Structural Adjustment Programme (SAP) in Nigeria in 1986, the country's stock market has grown very significantly (Nile, 1996; Soyode, 1990). This is as a result of the deregulation of the financial sector and the privatization exercises, which exposed investors and companies to the relevance of the stock market. Equity financing became one of the cheapest and flexible sources of finance from the capital market and remains a critical element in the sustainable development of the economy (Okereke – Onyiuke, 2000).

Although the liberalization of the capital market led to the growth of the Nigerian stock market, it is said that the growth impact at the macro-economic level was negligible (Ariyo and Adelegan, 2005). The role of the stock market in economic development is primarily to channel capital into businesses. The continuous flow of capital gives businesses the liquidity they need to work and expand thereby stimulating economic growth and development.

If however, the growth of the stock market is not exerting corresponding impact at the macro-economic level, then it calls to question the popular opinion that stock market growth engenders national economic growth. In fact, it has been argued that there exists very little

hard empirical evidence on the impact of stock markets development on long- run economic growth, and even yet fewer for developing countries (Mohtadi and Agarwal, 2004).

A much more pertinent concern is the exploration of the direction of influence or causality between stock market development and economic growth. This has been furiously debated with respect to the developed markets; but on the part of the developing markets some have argued that there is no correlation between these two variables, and any seemingly co-movement is seen as contemporaneous (Lucas, 1998).

Given that the stock market provides some services as earlier mentioned, that ginger economic growth, this study aims at:

1. Empirically investigating whether the stock market really promotes economic growth in Nigeria using Ordinary Least Square (OLS) method on secondary data covering the period 1990-2010, and
2. Determining the direction of causality between stock market development and economic growth.

The remaining part of the study is organized as follows. Section two reviews the literature. Section three provides the methodology while section four deals with empirical analysis. Section five concludes the study with summary and recommendations.

2. Literature Review

2.1 Correlation between the stock market and economic growth: The theoretical Nexus

There has been a growing interest and studies on the impact of stock market development on economic growth. This growing concern according to Rouseau and Wachtel (2000) is due chiefly for four reasons. First, an equity market provides investors and entrepreneurs with a potential exit mechanism. This opinion or argument is hinged on the fact that venture capital investments will be more attractive in countries where an equity market exists than one without an adequately functioning public equity market. And when the market exists, the venture capital investor knows that it is possible to realize the gains from a successful project when the company values an initial public offering. The option to exit through a liquid market mechanism makes venture capital investments more attractive and might well increase entrepreneurial activity generally. The impact of the market will be felt then well beyond the firms that actually do use the market for raising capital and this will positively impact on the growth of the national economy. (Riman, *et al*, 2008; Benschivenga and Smith, 1991).

Secondly, capital inflows - both foreign direct investment and portfolio investments, are potentially important sources of investment funds for emerging market and transition economies. The existence of equity markets facilitates capital inflows and the ability to finance

current account deficits and to give domestic businesses the liquidity they need to work with and expand.

Thirdly, the provision of liquidity through organized exchanges encourage both international and domestic investors to transfer their surpluses from short-term assets to the long-term capital market, where the funds can provide access to permanent capital for firms to finance large, indivisible projects that enjoy substantive scale economies, and this will ultimately have implication on national economic development.

Finally, the existence of a stock market provides important information that improves the efficiency of financial intermediation generally. This has the effect of lowering transaction cost, increasing savings and investments, and thereby engendering economic growth.

According to Nieuwerburgh et al (2005), financial markets facilitate pooling and trading of risk. In the absence of this service, investors facing liquidity shocks are forced to withdraw funds invested in long-term investment projects. Such early withdrawal reduces economic growth. The stock market makes it easy for liquidity risk that individual investors face at the aggregate level to be perfectly diversified. By facilitating diversification, the market allows the economy to invest relatively more in productive technology. This spurs economic growth (Diamond and Dybvig, 1983; Greenwood and Smith, 1997; Obstfeld, 1994).

2.2 Cross-Country Econometric Evidence of Stock Market Impact on Economic Growth

There is substantial Cross-Country evidence that tend to suggest that countries with a better developed stock market and banking system witness higher subsequent growth. The idea that financial development matters for growth in the early stages of economic development goes back to Patrick (1966), Cameron (1967) and Goldsmith (1969). In his study, Goldsmith (1969) establishes the important fact that periods of above average rates of economic growth tend to be accompanied by faster financial development. King and Levine (1993) document a robust relationship between initial levels of financial development and subsequent economic growth across 80 countries, after controlling for other growth –inducing factors. Rousseau and Sylla (2001) also employ a Cross-Country regression framework to make the case for finance-led growth. In their study, they employ a long data set covering the period: 1850 – 1997, for the Netherlands, and affirm that financial development leads to economic growth, especially at the early stage of development. Levine and Zervos (1998) conducted a similar analysis for 48 countries and for the period: 1976 – 1993, but focused primarily on the role played by the stock market. They measured stock market development along various dimensions: size, liquidity, international integration and volatility. More precisely, their measures were aggregate stock market capitalization to GDP and number of listed firms (size), domestic turnover and value traded (liquidity), with world capital markets, and the standard deviation of monthly stock returns (Volatility). The results of the study suggest a strong and statistically significant relationship between initial stock market development and subsequent economic growth. In fact in emphasizing the strong impact of the stock market development on national economic

growth, Atje and Jovanovic (1993) reported that in their study where both stock market development and bank development were introduced as regressors in the regression model, stock market development was found to have a greater effect than bank development on subsequent growth rate.

Rousseau and Wachtel (2000) added a time dimension, and studied the link between equity markets and growth for 47 countries between 1980 –1995 in a dynamic panel setting. They emphasized the importance of liquidity of stock markets for economic growth.

Spears (1991), Pardy, (1992) and Pandel (2005) are all of the opinion that there exist long-run positive correlation between stock market development and economic growth, even in developing countries.

However, the traditional growth theorist such as Singh (1997), Singh and Weis (1999) believed that stock market development does not have any beneficial effect on economic growth. Singh (1997) in particular argued that stock markets are not necessary institutions for achieving high levels of economic development.

Stiglitz (1985), for example, questioned the role of stock markets in improving informational asymmetries, and argued that stock market reveal information through price changes rapidly, thereby creating a free-rider problem that reduces investor incentive to conduct costly search.

On the argument regarding the contribution of stock market liquidity to long-run economic growth, Demirguc –Kunt and Levine (1996) posit that increased liquidity may deter growth via three channels. First, it may reduce saving rates through income and substitution effects. Second, by reducing the uncertainty associated with investments, greater stock market liquidity may reduce saving rates because of the ambiguous effects of uncertainty on savings. Third, stock market liquidity encourages investors' myopia, adversely affecting corporate governance and thereby reducing economic growth.

Our position in this stock market – economic development controversy is to take a middle of the road stand and then empirically investigate this suggested relationship for evidence either in support of, or against this purported correlation.

2.3 Stock Market and Economic Growth – The Causal Test

Lately, there has been a paradigm shift from whether stock market development engenders economic growth to the direction of causality between stock markets and economic growth. Furthermore, questions have been rift about the long-term effect of stock market on growth.

In Belgium, Nieuwerburgh *et al* (2005) investigated the long-term relationship between economic growth and stock market development and found that the growth in stock market capitalization granger causes GDP growth in the pre-1914 and the entire sample while GDP growth granger causes stock market development in the post-second World War era.

Chee, et al, (2003), indicated that stock market development has a significant positive impact on economic growth in Malaysia. The authors also reported that stock market development granger causes economic growth.

The study by Muhammed et al (2008) suggests that there is a long-run relationship between stock market development and economic growth. Liu and Hsu (2006) reported a positive impact on economic growth of stock market development in Taiwan, Korea and Japan.

In Pakistan, Shahbaz et al, (2008) suggest that there is a very strong relationship between stock market development and economic growth. Employing Granger- Causality estimation, they found a Bi-directional causality between stock market development and economic growth in the long-run. However, in the short-run they found that there exists only one-way causality i.e. from stock market development to economic growth.

In Ghana, a study by Osei (2005) based on the Ghana Stock Exchange revealed that stock market performance granger –causes economic growth. Interestingly, the study did not find a reverse causality, and this development was attributed to the low level of income as evidenced in most developing economies.

Nzue (2006), using data from the Ivorian stock market attempted to investigate the causal relationship between the development of the Ivorian economy and the nation's stock market development. His empirical results suggest that Gross Domestic Product (GDP) and stock market performance were co-integrated when the control variables were included in the analysis, and the results also indicated a Uni-directional causality running from stock market development to economic growth.

In Nigeria, some authors have also attempted to examine the relationship between stock market development and economic growth.

For instance, Adam and Sanni (2005) investigated the impact of the stock market on Nigeria's economic growth using Granger-Causality test. They found a one-way causality between economic growth proxied by the GDP growth, and market capitalization, and a two-way causality between GDP growth and market turnover. They also observed a positive and significant relationship between GDP growth and turnover ratios which informed their recommendation that government should encourage the development of the stock market since it has a positive impact on economic growth. Riman et al, (2008), examined if there's link between the stock market performance and economic growth in Nigeria using annual data from 1970-2004. Their empirical results suggest the existence of a long-run relationship between stock market and economic growth as indicated by their error correction model (ECM). The paper further established a Uni-directional causality that runs from stock market to economic growth. The paper therefore revealed that the stock market is significant in determining economic growth in Nigeria.

Abu (2009) investigated whether stock market raises economic growth in Nigeria employing the error correlation approach. The result of his study seems to suggest that stock market development increases economic growth in the country. Osinubi and Amaghionyeodiwe (2003) also examined the relationship existing between the Nigerian stock market and the nation's economic development, and found that there is a positive relationship between the stock market and economic growth during the period: 1980 -2000.

Kolapo and Adaramola (2012) examined the impact of the Nigerian capital market on its economic growth from the [period 1990-2010. They found the existence of a long-run relationship between capital market and economic growth in Nigeria. The causality test results suggest bidirectional causality between GDP economic growth proxy, and value of transaction on one hand, and on the other hand, a unidirectional causality from market capitalization to the GDP. They argued that their finding is a clear indication of the relative positive role the capital market plays in the Nigerian economy.

However, there has been a number of authors who found either a negative relationships between the stock market and economic growth in Nigeria or in-significant impact of the stock market on the economy. Among these are Nyong (1997), who used time series data for the period 1970-1994, and found a negative relationship between market capitalization and economic growth; Ezeoha et al (2009), and Eweh et al (2009) who documented non-significant impact of the stock market on economic growth in Nigeria.

3. Methodological Frame and Data Source

The linkage between stock market and economic growth has occupied a central position in the development literature especially in the last three decades. Different methodological approaches have been employed by different authors. However, this study adopts the methodology used by Suya and Neupane (2006), Rimah et al (2008) and Kolapo and Adaamola (2001) but with little modifications, to test for the causal relationship between stock market performance and economic growth in the context of Nigeria.

3.1 Model Specification and Operational Definition of Variables

As a measure of economic performance the real Gross Domestic Product (GDP) was used over the period indicated while stock market performance was measured using the Market Capitalization ratio (MCAPR), Turnover Ratio (TOR) and Total number of deals (TND). Financial structure (FSTR) is a variable included as a control variable, and it is measured by the ratio of total asset of all commercial banks to GDP. FSTR is employed as a control variable to X-ray the soundness of the Nigerian financial system. Other control variables included are minimum rediscount rate (MRR) and trade openness (TOP). This we did following Chee, et al, (2003). The authors argued that government's intervention (through the use of discount rate) affects the relationship between financial development and economic growth. Moreover, the central bank can adjust the liquidity level in the equity market and influence the ability of banking

institutions in the supply of funds. With respect to openness of the economy, it is believed that trade openness (proxied by the sum of imports and exports divided by the GDP) helps to attract foreign investment when it is favourable. This in turn increases the activities on the stock market as firms would attempt to raise investment funds from the stock market.

Explicitly, the model is stated as:

$$GDP_t = \beta_0 + \beta_1 MCAPR_t + \beta_2 TOR_t + \beta_3 TND_t + \beta_4 TOP_t + \beta_5 FSTR_t + \beta_6 MRR_t + U_t \quad (1)$$

Log-linearizing the above model, we obtain equation 2 as shown below:

$$\text{Log}(GDP_t) = \beta_0 + \beta_1 \log(MCAPR_t) + \beta_2 \log(TOR_t) + \beta_3 \log(TND_t) + \beta_4 \log(FSTR_t) + \beta_5 \log(TOP_t) + \beta_6 \log(MRR_t) + U_t, \dots \quad (2)$$

In order to examine the long-run and casual relationship between economic growth and stock market performance, the study uses the Augmented Dickey Fuller (ADF) and Granger causality tests. This requires a pretest for stationarity of variables to avoid spurious regression (Osuala, 2010). The stationarity or unit root test is done also using Augement Dickey Fuller test. The following equation was used to check the stationarity of time series data used in the study.

$$\Delta Y_t = \beta_0 + \beta_1 t + \delta Y_{t-1} + \alpha \sum_{i=1}^m \Delta Y_{t-i} + \varepsilon_t \quad (3)$$

where ε_t is white noise error term and

$$\Delta Y_{t-1} = Y_{t-1} - Y_{t-2} ; \text{ and } \Delta Y_{t-2} = Y_{t-2} - Y_{t-3}$$

These tests determine whether the estimates of ‘ δ ’ are equal to zero or not. Fuller (1976) provided cumulative distribution of the ADF statistics by showing that if the cumulative ratio (value) of the coefficient, δ is less than the tau (τ) critical value from Fuller table, then Y is said to be stationary. Although Dejong, et al, (1992), Harris (2003) and Shahbaz, et al, (2008) argue that this test is not reliable for small sample data set due to its size and power properties, we think this poses no problem in our study since our sample size is quite large, covering a period of more than twenty five years (1985 – 2011).

The long run equilibrium solution to equation (1) above was conducted by estimating an error correction version of the said equation after carrying out Johansen Test of Co-integration on the time series data. More generally, the error correction model (ECM) is given as

$$\Delta Y_t = \alpha_0 + \sum_{i=1}^n \alpha_{yi} \Delta Y_{t-i} + \sum_{i=1}^n \alpha_{xi} \Delta X_{t-i} + \beta(Y_{t-1} - \theta X_{t-1}) + e_t \quad (4)$$

where Δ denotes the first difference operator and the quantity $\beta(Y_{t-1} - \theta X_{t-1})$ represents the error correction factor.

The model represented in equation 4 shows how change in Y_t (GDP) responds in the short-run to changes in X_t (i.e. vector of stock market performance indicators), and to deviations from long-run equilibrium ($Y_{t-1} - \theta X_{t-1}$). The error correction specification requires that the variables are I(1) and are co-integrated. If in equation 4 above, $\beta = 0$, there is no error correction mechanism (ECM). It is a first difference model. e_t is a white noise.

3.2 Data Source and Measurement

The data for the study was collected from Central Bank of Nigeria statistical bulletin, Volume 21, 2010; Central Bank of Nigeria official website; and National Bureau of statistics website. Data set spanning a period of 26 years (1985 – 2011) was collected on our focus variables and was used to determine the causal relationship between stock market performance and economic growth in Nigeria during the period covered towards adopting a policy option.

4. Analysis and Discussion of Results

As a preliminary step in testing for co-integration and the use of error correction methodology, we employed the Augmented Dickey Fully Unit root test to confirm the stationarity or otherwise of the series. The stationaries test was perform in order to ascertain the assumptions of constant mean, variance and the covariance for the macro-economic time series variable. The results of these tests are presented in table 1 below.

Table 1: Augmented Dickey Fuller (ADF) Unit Root Test

VARIABLE	ADF STATISTICS				
	LEVEL		FIRST DIFFERENCE	LAG LENGTH	ORDER OF INTEGRATION
Log(GDP)	-4.690474*		-36.11679**	5	I(0)
Log(MCAPR)	0.340749		-4.275699**	5	I(1)
Log(TOR)	-1.659985		-5.559587**	5	I(1)
Log(TNDR)	-0.660295		-4.473223**	5	I(1)
Log(TOP)	-0.400162		-7.125426**	5	I(1)
Log(FSTR)	-1.236806		-3.382313*	5	I(1)
Log(MRR)	-1.913027		-6.237706**	5	I(1)

();(**) and (***) indicate significant at 1%, 5% and 10% respectively.*

Since the variables are I(1), any attempt to specify the dynamic function of the variables in the level of the series will be inappropriate and may lead to spurious regression in line with Osuala (2010). Based on the foregoing, it became necessary to test for co-integration.

Co-integration Test

The result of the Johansen co-integration test is presented in Table 2 below.

Table 2: Results of Trace and Max-eigenvalue Statistics

Unrestricted Cointegration Rank Test (Trace)

Hypothesized	Trace	0.05		
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.904772	178.9826	125.6154	0.0000
At most 1 *	0.733849	110.7897	95.75366	0.0031
At most 2 *	0.629497	72.40262	69.81889	0.0307
At most 3	0.490516	43.60874	47.85613	0.1184
At most 4	0.397072	24.05237	29.79707	0.1982
At most 5	0.201723	9.379603	15.49471	0.3314
At most 6	0.093474	2.845921	3.841466	0.0916

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized	Max-Eigen	0.05		
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.904772	68.19287	46.23142	0.0001
At most 1	0.733849	38.38710	40.07757	0.0766
At most 2	0.629497	28.79388	33.87687	0.1792
At most 3	0.490516	19.55637	27.58434	0.3727
At most 4	0.397072	14.67277	21.13162	0.3125
At most 5	0.201723	6.533681	14.26460	0.5457
At most 6	0.093474	2.845921	3.841466	0.0916

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

The Trace test indicates three (3) co-integrating equations at 0.05 significant level while the Max-eigenvalue suggests one co-integrating equation. Since all the variables in the model are co-integrated, it is therefore possible to specify a vector error correction model (VECM). Table 3 shows the result of the VECM estimates for the variables.

Table 3: Vector Error Correction Estimates
The Dependent Variable Is Log(Gdp)

	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.393581	0.096330	-4.085739	0.0006
D(LOG(GDP(-1)))	-0.179286	0.093077	-1.926209	0.0684
D(LOG(MCAPR(-1)))	-0.073227	0.049552	-1.477789	0.1550
D(LOG(TOR(-1)))	-0.010071	0.019469	-0.517294	0.6106
D(LOG(TNDR(-1)))	-0.047266	0.039847	-1.186195	0.2494
D(LOG(TOP(-1)))	0.008803	0.024189	0.363929	0.7197
D(LOG(FSTR(-1)))	-0.150275	0.085556	-1.756462	0.0943
D(LOG(MRR(-1)))	-0.001198	0.037600	-0.031851	0.9749
ECM(-1)	0.091527	0.023095	3.963090	0.0008
R-squared	0.548822			
Adjusted R-squared	0.368351			

The conflict in the results obtained with the Trace and Max-Eigen statistics is on the number of co-integrating equations. However, the important thing is that both agree that there is at least one co-integrating equation, implying that there exists a long-run relationship between economic growth and stock market performance indicators which means that all the variables in the model are co-integrated. The existence of co-integrating relationships among the six I(1) variables implies that the impact of the stock market on economic growth in Nigeria is most efficiently represented by an error correction specification.

Table 3 shows the long-run relationship existing between economic growth and stock market performance indicators in Nigeria within the period specified in the study. The first thing to note is the negative sign, and the statistical significance (at 5% level) of the error correction term. This is as expected. The implication of an error correction term of – 0.39358 is that any disequilibrium from the long-run equation will correct at a speed of 39.36% annually. So then, it could be said that on the long-run, stock market performance or growth impacts on economic growth in Nigeria. However, the impact is rather insignificant (at 5% level) and negative for market capitalization, (MCAPR), market turnover ratio (TOR), total number of deals ratio (TNDR), financial structure development (FSTR). The coefficients for MRR and trade openness (TOP) are signed according to *a priori* expectation. Furthermore, the low adjusted R² (0.3683) suggests the existence of some other exogenous variables that influenced GDP other than the variables since they could explain only about 37% of the total variation in GDP.

Wald test indicated the absence of causality on the short-run from any of the stock market performance indicators to the economy (GDP) (see table 4). The reverse causality from MCAP to GDP was checked equally; and no causality was found. Hence on the short-run there is no

causality between GDP and the stock market development. These results are in agreement with the findings of Riman, *et al* (2008) who found no causality between GDP and stock market development both on the short-run and long-run.

The pairwise causality test between GDP and the stock market performance proxies indicates that on the long-run, some of the stock market performance indicators such as MCAPR and TNDR granger-cause GDP. One of the control variables (MRR) was also found to granger-cause GDP. Therefore, it could be said that while there is no causality on both directions between stock market development and economic growth in the short-run, there is however a unidirectional causality from the stock market to economic growth in the long-run.

5. Conclusion

The study investigated the existence of causality between the stock market and economic growth in Nigeria using time series data obtained from the central bank of Nigeria for the period-1981-2009. It found the existence of a unidirectional causality from some of the stock market performance indicators to economic growth only in the long-run. In the short-run, there is no causality between stock market development indicators and the GDP. The reason for this development may be as a result of the various anomalies experienced within the Nigerian financial system and the downturn in the capital market in the recent times. This suggests that stock market development is neither a strong factor influencing economic growth, neither is economic growth very strong in influencing stock market development in Nigerian. Hence, there might be other exogenous factors in existence that might have influenced both economic growth and stock market development in Nigeria.

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