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Financial Development and Economic Nexus in Nigeria: The Role of the Stock Market

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ABSTRACT

The stock market has been touted as catalyst for economic growth as a result of its capacity to provide access to long term capital for industrialization and other projects requiring long term capital, especially in developing countries as Nigeria. In order to establish the pattern of the finance-growth nexus in Nigeria by adopting a time series technique and applying regression model estimation, this study sought to evaluate how the stock market has impacted economic growth in Nigeria following the recent liberalization and the subsequent market integration resulting from globalization. The study found long run relationship between the Gross Domestic Product per Capital Growth Rate (GDPGR) and the explanatory variables (stock market capitalization ratio; total value of shares traded, stock turnover ratio and financial liberalization). The Granger Causality Test results showed that there is a bi-directional relationship that runs from turnover ratio (TNVR) to stock market capitalization 9SMCR) and vice versa within 5% and 10% level of significance. Also, the results also showed that gross domestic product per capital growth rate (GDPGR), stock market capitalization ratio (SMCR), total value of shares traded (STR), and financial liberalization (FINLIB) jointly have causal effects on stock turnover ratio 9TNVR).The study concluded that economic growth and development has not been found invariant to dis-equilibrium in the stock market in Nigeria. It was, therefore, recommended that a policy rethink should be fashioned out to strengthen the stock market so as to enable it to play its pivotal role in the economic growth and development of Nigeria.

Keywords: Economic Growth, Financial Development, Stock Market, Stock Market Dis-equilibrium

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1.0 INTRODUCTION

In pursuing the agenda for economic growth and development, many emerging countries recognize that a major distinguishing factor between them and developed countries is essentially the level of development of their financial sectors, embark on financial markets' reform. According to Akinsola and Odhiambo (2017), most international organizations such the World Bank and International Monetary Fund (IMF), have advocated the introduction of financial liberalization policies to augment higher savings, investment and rapid economic growth in developing countries. They added that the 1980s and 1990s witnessed the birth of economic reform programs in most African countries after catastrophic economic crises. This position had been canvassed by Singh (1997), who stated that during the 1980s and 1990s, many developing countries (DCs) have been engaged in far-reaching reforms of their financial systems, liberalizing them and making them more market-oriented. In carrying out the reform agenda, the importance of the financial sector had been highlighted and decomposed by many developing countries in order to provide a clear understanding of the content of their reform agenda.

Levine (2000) captured the importance of understanding the role of the financial structure to be able to design a reform program suitable for each developing country (DC) when he asked: Are bank-based or market-based financial systems better for promoting long-run economic growth? The answer to this question may not be far to seek if the relationship between economic performance and financial structure is well explored and put in proper perspective. The argument of Khyareh and Oskou (2015) was that for many years, the role of stock markets have been under looked as important components that enhance economic growth, instead bank-based financial institutions were considered more instrumental in accelerating economic growth. Relatedly, Levine (1997) explained that economic development creates demands for particular types of financial arrangements and the financial system responds automatically to these demands.

Most reforms programs embarked upon by the less developed countries contain one cardinal feature of financial markets liberalization. For example, Nyasha and Odhiambio (2018) elucidated the significance of economic reform programs by stating that the controversy surrounding the finance-growth nexus comes at a time when almost all countries in Africa, and globally, are battling to improve their economic growth rates, or at least to maintain them, in order to improve the living standards of their citizens, to curb public deficits, and to steer the debt/GDP ratio onto a steadily declining path. Regarding stock market liberalization, Kinuthia and Etyang, (2014) and Henry (2000) argued that the stock market liberalization is a decision by a country's government to allow foreigners to purchase shares in that country's stock market.

The list of studies on the role of the capital market in the economic growth and development of Nigeria in the recent past is handful. Their findings and conclusions are divergent, hence, the controversy rages and require further contribution towards resolving it. While Josiah, Adediran and Akpeti (2012); Lawal and Okunola (2012); Ogunmuyiwa (2010), and Okoye and Nwisienyi (2013) found that the capital market and its liquidity contributed to the economic growth of Nigeria. Adigwe, Nwanna and Amala (2015) and Nurudeen (2009) provided a contrary outcome. Moreover, no recent study covered the period of policy reform which had a significant impact on Nigeria's economic development and growth following financial market liberalization, hence, this study is different and covered the gestation period: 1998 - 2016. The period of policy reform was effective from 1998 which coincides with the first country American Depository Receipts (Bekaert, Harvey and Lundblad (2003). Although the reform program was announced in 1986, following the adoption of the structural adjustment program (SAP); reforms' announcement dates are not always the commencement of reforms effectively. This line of reasoning was also buttressed by Karolyi (2004) who asserted that financial liberalization dates may be difficult to identify with precision and that their economic impact may be delayed or reversed over time. In addition, the author examined other studies which suggest that economic effects of liberalization substantially lag the official dates of reform. Similarly, Henry (2000) highlighted methods used in identifying liberalization which

include official policy decree dates and issuance of American Global Depository Receipts among others.

The objective of this paper is to establish the pattern of the finance-growth nexus in Nigeria by adopting a time series methods and applying regression model estimation which is of great importance as a result of the recent liberalization and globalization experience that has created an impression of improvement in the domestic financial systems as catalyst for the observed growth and development of Nigeria.

The paper is organized as follows: Section 2.0 reviews the relevant literature, Section 3.0 covers Methodology and Data; Section 4.0 deals with Analysis while Section 5.0 Contains Summary and Conclusion.

2.0 LITERATURE REVIEW

2.1 Conceptual Review

2.1.1 Gross Domestic Product (GDP)

The study used GDP per capita growth rate. GDP is measured as yearly percentage growth of real GDP per capita. Njemcevic (2017) justifies the use of per capita GDP because of the effects of labor on growth. The author argued that labor is a significant factor and is expected to have important effect on growth. Other studies which adopted this variable in similar fashion include Azmeh, et al (2017) and Kinuthia and Etyang (2014). Iheaanacho (2016) defined growth as the real gross domestic (GDP) growth per capita (growth rate). In order to determine the variation in the growth rate which explains whether the variation is positive (a case of growth) or negative (a case of decline), there should be ways of capturing these measures of growth and development. Iheanacho (2016) identified four widely used measures of financial sector intermediary development as follows: the domestic bank credit to the private sector divided by GDP, liquid liabilities to GDP and Deposit money banks' assets to GDP and bank deposits to GDP. Madichie and Maduka (2014) argued that theoretically, the linkage between finance and economic growth may take different forms while Udude (2014) explained that financial development involves the establishment and expansion of institutions, instruments and markets which support investment and growth process. The significant role of the stock market to economic growth, argued, Gajdka and Pietraszewski (2016) is widely acclaimed and positively correlated. Characteristically, they acknowledge some disagreements on which indicators are best suited in measuring economic growth of a country; they, however, identified the rate of growth of national income, hence investors should prefer those where the rate of GDP growth is high in the long-run.

2.1.2 Stock Market Capitalization Ratio (SMCR)

Stock market capitalization ratio is obtained by dividing total market capitalization by GDP as a measure of the size of the stock market. Khyareh and Oskou (2015) is a recent study which adopted this measure. Levine and Zervos (1998) on their part argued that the market capitalization ratio equals the value of listed shares divided by GDP and was used by them as a measure of market liquidity. Kinuthia and Etyang (2014), SMCR is the product of outstanding shares and market price of equities on a stock exchange and reflects the size of a stock market. Expatiating on the relevance of this variable, Njemcevic (2017) posited that the market capitalization ratio is used as a measure of the size of the market; but pointed out that this measure in economies in transition is volatile since it is majorly influenced by the stock price index, as such markets lack depth and adequate liquidity.

2.1.3 Stock Turnover Ratio (STR):

Stock turnover ratio is a percentage of total market capitalization and is a measure of stock market liquidity. Mohtadi and Agarwal (2004) point out that the turnover ratio is not a direct measure of theoretical definitions of liquidity, they explain that high turnover is often used as an indicator of

low transaction costs. Levine and Zervos (1998) point out that turnover measures trading relative to the size of the stock market; thus, a small liquid market will have a high turnover but small value traded. The adoption of this variable here is modeled after the studies by Levine and Zervos (1998) and Mohtadi and Agarwal (2004). Kinuthia and Etyang (2014) argued that stock markets may also influence risk diversification to avoid liquidity risk. Their assertion was that liquid equity markets positively influence long-term investment since such markets allow securities' holders the opportunity to trade their securities. According to them, stock market liquidity is the extent to which a financial asset can be bought and sold easily without causing a major price dis-equilibrium and loss of value of such an asset. To them, turnover ratio is one of the yardsticks for measuring liquidity and equals the value of stock transactions divided by market capitalization. The argument of Njemcevic (2017) is in tandem with those of Kinuthia and Etyang (2014) as turnover ratio is used to indicate the level of market liquidity.

2.1.4 Total Value of stock traded (TNVR):

Total value of stocks traded ratio is used as a percentage of gross domestic product. Levine and Zervos (1998) state that value traded captures trading relative to the size of the economy. Mohtadi and Agarwal (2004) point out the significance of the value traded ratio by stating that it measures the organized trading of firms' equities as a share of national output and therefore should positively reflect liquidity on an economy-wide basis. They also state that the total value traded ratio complements the market capitalization ratio, because, to them, a market may be large, there may be little trading. The adoption of this variable here is also modeled after the studies by Levine and Zervos (1998) and Mohtadi and Agarwal (2004). Njemcevic (2017) highlighted the well-known fact that value of shares traded is an indicator of stock market liquidity like stock turnover ratio except that the denominator of this indicator is market capitalization while the denominator of stock turnover ratio is the gross domestic product (GDP). Ovat (2012) wrote that the value of shares traded ratio measures the organized trading of firms' equity as a share of national output which positively captures liquidity on an economy wide basis.

2.1.5 Financial Liberalization (FINLIB):

Stock market liberalization is taken as a percentage of foreign ownership of listed equities on the local bourse and this measure is generally believed to enhance risk sharing between foreign and domestic investors. Auzairy, Ahmad and Ho (2011) argued that if liberalization has a positive relationship with market performance, then it complies with the Standard International Asset Pricing Model but if otherwise, then there is no reason for the authorities to implement such policies since it initiates a downfall of market returns.

2.1.6 Overview of the Stock Market in Nigeria

The Nigerian Stock Exchange (NSE) was established in 1960 (NSE, 2007). The Stock Exchange provides the platform for trading in the secondary market after such shares would have been listed on the Trading Floors of the Exchange in Lagos being the headquarters of the NSE. However, such listed stocks can be traded upon simultaneously in all the Floors of the Exchange where it has Branch Offices across major cities in the country. The market has a network of stockbrokerage firms, issuing houses, practicing corporate law firms, and firms of auditors and reporting accountants. The Exchange started operations in Lagos in 1961 with 19 securities listed for trading. Integrity is the watchword of the Stock Exchange. Market operators subscribe to the code "Our word is our bond". The Nigerian Stock Exchange has been operating an Automated Trading System (ATS) since April 27, 1999, with dealers trading through a network of computers connected to a central server and as a result, enables on-line trading and surveillance. The market has been deregulated since 1993 but the Exchange maintains an All-Share Index formulated in January 1984 (January 3, 1984 = 100). However, only common stocks (ordinary shares) are included in the computation of the index. The index is value-weighted and is computed daily while clearing,

settlement and delivery of transactions on the Exchange are done electronically by the Central Securities Clearing System (CSCS) Ltd, a subsidiary of the Stock Exchange.

The market capitalization of the exchange in 1995 was $2.00billion (Usman, 1998), when the Naira exchanged at ₦67.66 to the US dollar. The turnover of the Nigerian Stock Exchange and the total market capitalization as at 31st December, 2004 was put at ₦120.7 billion and ₦2.112 trillion respectively (Okereke-Onyiuke, 2005). The most capitalized stock on the Exchange in the early 2000s was Nigerian Breweries and its capitalization was put at ₦323.67 billion in 2004. In dollar terms, this was about $2.42billion when the Naira was exchanging at 134 to the US dollar. The number of Nigerians who own shares is dismal. This clearly indicates that the market is small but the equity culture can be said to be growing as the market is still evolving, although, recent developments in the market casts doubt on the potential of this market. For example, more firms are voluntarily delisting or delisted by regulators than new ones in recent years.

2.2 Empirical Review

The empirical literature is replete with mixed results following reform agenda of many developing countries. For example, Azmeh, Samman and Mouselli (2017) provided evidence that financial liberalization which they measured by the number and size of foreign banks, was not a good policy to increase economic growth in in their sample of 33 developing countries with a GDP per capita of less than 3,595. The study by Tai (2017) provided mixed evidence regarding the impact of financial markets development on the capital structure of firms listed on Ho Chi Minh Stock Exchange, Vietnam. The results showed that market capitalization of firms listed in that stock exchange has a positive effect on their capital structure while volume of shares traded has a negative effect. This means that the effects of financial liberalization on the stock market studied were mixed. One major finding of Akinsola and Odhiambo (2017) was that the financial development coefficient shows a significant and positive relationship between the ratio of domestic credit to the private sector as a share of GDP and economic growth in the Sub-Saharan African countries studied between 1980 - 2015 but based on other results in the same study, they dropped a caveat: financial liberalization policies should be implemented with caution, taking into cognizance the sequencing and timing of the policies to avoid endangering financial stability. Ngongang (2015) studied the relationship between financial development and economic growth using a sample of 21 Sub-Saharan African countries for the period 2000 – 2014 and found that financial development did not have any effect on economic growth. The findings by Ananwude and Osakwe (2017) on the relationship between stock market development and economic growth between 1981 and 2015 showed that there was a positive but insignificant relationship between stock market development and economic growth in Nigeria and South Africa. Orji, Ogbuabor and Anthony-Orji (2015) established that the financial liberalization exercise in Nigeria has impacted significantly on the Nigerian economy. The study by Kinuthia and Etyang (2014) provided evidence of a one-way causality running from market capitalization (stock market development) to GDP per capita.

Concerns regarding the structuring of the financial system in order to enable it play a catalytic role in promoting the economic growth and development of countries is well documented. Policy makers and global financial institutions have addressed this concern through liberalization. While substantiating the financial development-economic growth assertion; Nyasha and Odhiambo (2018) argued that given the rapid and dynamic rate of globalization, there is tremendous pressure on a number of developing countries to modernize their financial sectors in line with global trends, standards and best practices, so as to foster their economic growth and development. Levine (1997) explained that specifically, countries with larger banks and more active stock markets grow faster over subsequent decades even after controlling for many other factors underlying economic growth. Banks and stock markets being the major institutions that play intermediation roles in any economy have been found to be crucial in this regard. Levine (2002) argued that countries with greater degrees of financial development – as measured by aggregate measures of bank development and market development – enjoy substantially greater economic growth rates.

Like banks, the stock market is a channel of savings mobilization from surplus economic units to deficit economic units towards providing the much needed funds in the capital formation process for investment purposes. Olweny and Kimani (2011) wrote that the stock market plays a major role as an economic institution which enhances the efficiency in capital formation and allocation. Regarding the importance of the stock market in the financial systems of many developing countries, Singh (1997) suggested that in addition to financial de-repression, there has been a major new element in the development of developing countries' (DCs) financial systems in recent years – the establishment and fast expansion of stock markets; stressing further that these markets have played a key role in the internal as well as external financial liberalization processes in leading DCs. Ahmad, Khan and Tariq (2012) explained that the stock exchange of a country is the financial institution that deals with financial instruments. There is a consensus in the financial economics literature that stock markets enhance growth and development especially when a once segmented market is linked to the global capital markets; hence, capital mobility is facilitated.

2.3 Theoretical Consideration and Hypothesis Development

The finance led growth theory can be found in the pioneering works of Schumpeter (1911) which posited that a particular model of innovation can lead to economic growth in a less developed country. This model of growth theory, on which this study is premised, was followed by the postulation of Mckinnon (1973) and Shaw (1973) that economic growth in less developed countries can be achieved through trade liberalization and increased efficiency of the financial sector. Arcand, Berkes and Panizza (2012), however, pointed out the damaging outcome of recent crisis and raised concerns that some countries may have financial systems which are "too large" compared to the size of the domestic economy. The implication of this is that there could be a threshold above which financial development hits negative social returns. For instance, Asekome and Agbonkhese (2015) chronicled the benefits of market opening, apparently as part of financial markets reform, to include increased opportunity for diversification, risk reduction as well as lower cost of capital; such expected benefits have not been consistent in several emerging economies. This study made use of the following testable hypothesis: Ho: Stock market development does not have a significant impact on the growth and economic development of Nigeria.

3.0 METHODOLOGY

This study adopted the Generalized Least Squares (multiple linear regression analysis) model to evaluate the relation between stock market development and economic growth and development in Nigeria during the period: 1998 – 2016. Laopodis (2003) is a study which provides support for the adoption of the regression models used in this study. The study analyzed the effect of stock markets development on the real economic growth of Nigeria and the representative samples from the Nigeria Stock Exchange (indicators) were employed.

The dependent variable employed was the real gross domestic product per capita growth rate and four independent variables: market capitalization ratio, stock turnover ratio, total value of stocks traded and financial liberalization.

This paper presents a general model relating Real GDP Per Capita Growth Rate to the independent variables employed in order to assess the effects of stock market development on the economic growth and development of Nigeria, viz:

$$GDPGR = f(SMCR, STR, TNVR, FINLIB) \quad (1)$$

The explicit form of Equation (1) is represented econometrically as follows:

$$GDPGR = \beta_0 + \beta_1 SMCR_i + \beta_2 STR_i + \beta_3 TNVR_i + \beta_4 FINLIB_i + \varepsilon_i \quad (2)$$

where GDP = Gross Domestic Product Per Capita Growth Rate, SMCR = Stock Market Capitalization ratio, STR = Total Value of Shares traded, TNVR = Stock Turnover ratio, FINLIB = Financial Liberalization; ε = Stochastic disturbance term and i = the ith observation since the data is time serial.

To test the existence of a significant relationship among the variables expressed in Equation (2), the hypothesis is re-stated as follows: H_0: $\beta_1 = \beta_2 = 0$. Stock market development does not have a significant impact on the growth and economic development of Nigeria.

4.0 DATA ANALYSIS AND INTERPRETATION

Data used for this study were obtained from CBN Statistical Bulletin, National Bureau of Statistics, 2017 and World (Bank) Development Indicator database, 2017. The variables considered were gross domestic product per capital growth rate (GDPGR), stock market capitalization ratio (SMCR), total value of shares traded (STR), stock turnover ratio (TNVR) and financial liberalization (FINLIB). This section is divided into two main parts, these are: descriptive and empirical analyses.

4.1 Descriptive Analysis

The gross domestic product per capital growth rate (GDPGR) has an average value of 3.24% with a standard deviation of 7.10. This shows that the growth rate within the period varies noticeably. Stock market capitalization ratio (SMCR) has an average value of 15.86% with a standard deviation of 8.13 which implies that market capitalization was about 15.86% of the country's gross domestic product during the period. Total value of shares traded (STR) on the average was N671.89b and standard deviation of 635.38. This means that during the period of this study the Nigerian Stock Exchange recoded a turnover of N671.89 billion on average with a deviation of 635.38 which is significant. The average and standard deviation values of stock turnover ratio (TNVR) were 8.13% and 3.02 respectively. Financial liberalization (FINLIB) has a mean value of 1538.72% and a standard deviation of 2472.79.

Table 1. Summary Statistics

Obn	Mean	Max	Min	Std. Dev.
GDPGR				
20	3.24	30.36	-5.48	7.1
SMCR				
20	15.86	39.95	5.65	8.13
STR				
20	671.89	2350.88	13.57	635.38
TNVR				
20	8.13	17.56	4.69	3.02
FINLIB				
20	1538.72	10858.1	104.9	2472.79

Source: Authors' Computation (2018).

4.2 Empirical Analysis

4.2.1 Stationarity Tests

This section tests for the order of integration, the study employed Augmented Dickey Fuller (ADF) test (Dickey and Fuller, 1979) and Phillip Peron (PP) test (Phillip and Peron, 1988). Details of these results are contained in Table 2. ADF and PP are the most commonly used unit root tests approaches. The results show that all the series were not significant at all the levels except for GDPGR and FINLAB under Phillips-Perron (PP). However, on the basis of ADF test; it was clearly established that all the series were integrated of order one I(1). This indicates that the study can proceed to check if a long-run relationship exists among the variables using a co-integration test.

Table 2. Unit Root Test

Variables	**@LEVEL**	**@1ST Diff.**	**Order**
	Augmented Dickey-Fuller (ADF)		
Log(GDPGR)	-2.699	6.477***	I(1)
LOG(SMCR)	-1.731	-4.320**	I(1)
LOG(STR)	-1.452	-4.429**	I(1)
LOG(TNVR)	-2.705	-4.215**	I(1)
LOG(FINLIB)	-3.093	-6.115***	I(1)
	Phillips-Perron (PP)		
Log(GDPGR)	-3.495*	-17.112***	I(0)
LOG(SMCR)	-1.643	-7.247***	I(1)
LOG(STR)	-1.245	-6.279***	I(1)
LOG(TNVR)	-3.034	-15.922***	I(1)
LOG(FINLIB)	-5.602***	-12.133***	I(0)

Source: Researchers' study (2018) .*** represents p<0.01, represents ** p<0.05 and represents * p<0.1

4.2.2 Co-integration Test

Co-integration test tests for long run relationships between non-stationary series. In this study, we test for co-integration by means of Johansen approach under both trace statistic and the maximum eigenvalue criteria. As reported in Table 3, the Johansen co-integration test results provide sufficient evidence against the null hypothesis of no co-integration; hence, establishing the presence of a long-run relationship among the variables.

Table 3. Johansson Co-integration Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.992	161.372	76.973	0.000	86.395	34.806	0.000
At most 1 *	0.898	74.977	54.079	0.000	41.027	28.588	0.001
At most 2	0.685	33.950	35.193	0.068	20.772	22.300	0.081
At most 3	0.378	13.178	20.262	0.350	8.540	15.892	0.485
At most 4	0.227	4.638	9.165	0.326	4.638	9.165	0.326

Source: Authors' Computation (2018). Note: Trace test and Max-eigenvalue indicates 2 co-integrating equation(s) at the 0.05 level, * denotes rejection of the hypothesis at the 0.05 level, **MacKinnon-Haug-Michelis (1999) p-values.

4.2.3 Diagnostics check inverse roots of the AR

The test on stability condition for the model indicates that no root lies outside the unit circle. The graphical output of the stability condition is displayed in Figure 1 below. It shows that all the inverse roots of the AR characteristics polynomials lie within the unit circle, thus, we conclude that the VECM models satisfy the stability condition. For inverse Roots of AR Characteristics Polynomial, see appendix.

4.2.4 Granger Causality Test Result:

Following the results from the co-integration tests, the study proceeded by examining the direction of causality among the series. The study utilizes Granger causality within the Vector Auto-regression (VAR) framework. The main goal of this was to examine the effects of stock market development on the economic growth and development of Nigeria. The study utilized time series

data for 1998 to 2017. As can be seen from Table 4, the extracted results showed that there is a bi-directional relationship that runs from turnover ratio (TNVR) to stock market capitalization ratio (SMCR) and vice versa within 5% and 10% level of significance. Also, the result showed that gross domestic product per capital growth rate (GDPGR), stock market capitalization ratio (SMCR), total value of shares traded (STR), and financial liberalization (FINLIB) jointly have causal effects on stock turnover ratio (TNVR). It can be observed that stock market development indicator does not have causal effect on economic growth and development of Nigeria during the period covered by this study.

Table 4. VAR Granger Causality Test Result

VARIABLE	GDPGR	SMCr	STr	TNVR	FINLIB
GDPGR		0.002 (0.966)	0.141 (0.707)	0.061 (0.805)	0.087 (0.768)
SMCr	0.073 (0.787)		0.013 (0.910)	**5.708**** **(0.017)**	0.890 (0.345)
STr	0.014 (0.907)	1.642 (0.200)		0.756 (0.385)	0.359 (0.549)
TNVR	0.044 (0.833)	**2.817*** **(0.093)**	2.188 (0.139)		2.298 (0.130)
FINLIB	0.040 (0.842)	0.026 (0.871)	0.001 (0.971)	0.612 (0.434)	
All	0.391 (0.983)	3.417 (0.491)	6.801 (0.147)	**12.660**** **(0.013)**	5.571 (0.234

Source: Authors' Computation (2018) *** represents p<0.01, represents ** p<0.05 and represents * p<0.1

5.0 CONCLUSION AND RECOMMENDATIONS

The study examined the effects of stock market development on the economic growth and development of Nigeria. The study utilized time series data that covers the period from 1998 to 2017. The major empirical tools that were used in this study were unit root tests, co-integration test, and VAR based granger causality test. The unit root tests' results showed that all the series were integrated of order 1(1); the Johansen co-integration test revealed that long-run relationship exists among the selected series. However, we found evidence of a bi-directional relationship that runs from turnover ratio (TNVR) to stock market capitalization ratio (SMCR) and vice versa. The study also found that gross domestic product per capital growth rate (GDPGR), stock market capitalization ratio (SMCR), total value of shares traded (STR) and financial liberalization (FINLIB) jointly have causal effects on stock turnover ratio (TNVR). We conclude that economic growth and development has not been found invariant to dis-equilibrium in the stock market in Nigeria during the period covered by this study. We recommend that there should be a policy rethink on how to make the stock market play its pivotal role as espoused by the finance and growth theory. There should be ways to promote the equity culture among Nigerians. The capital market regulators should also encourage medium-and-small scale enterprises (MSMEs) to list in the second-tier of the Nigerian Stock Exchange (NSE). Ways to achieve this include relaxing the listing requirements so as to make the market to be more competitive. Finally, efforts should be made to

facilitate aggressive macro-economic growth of the country which in turn can impact the stock market more positively.

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APPENDIX

A1. Hypothesis testing
Null Hypothesis: GDPGR has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 1 (Fixed)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.699248	0.2478
Test critical values:	1% level	-4.571559	
	5% level	-3.690814	
	10% level	-3.286909	

Null Hypothesis: D(GDPGR) has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on SIC, maxlag=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.477273	0.0003
Test critical values:	1% level	-4.571559	
	5% level	-3.690814	
	10% level	-3.286909	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 18

A2. SMCR
Null Hypothesis: LOG(SMCR) has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on SIC, maxlag = 4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.731144	0.6969
Test critical values:	1% level	-4.532598	
	5% level	-3.673616	
	10% level	-3.277364	

Null Hypothesis: D(LOG(SMCR)) has a unit root
Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on SIC, maxlag = 4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.320028	0.0160
Test critical values:	1% level	-4.571559	
	5% level	-3.690814	
	10% level	-3.286909	

A3. STR

Null Hypothesis: LOG(STR) has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on SIC, maxlag = 4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.451710	0.8101
Test critical values:	1% level	-4.532598	
	5% level	-3.673616	
	10% level	-3.277364	

Null Hypothesis: D(LOG(STR)) has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on SIC, maxlag = 4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.428757	0.0131
Test critical values:	1% level	-4.571559	
	5% level	-3.690814	
	10% level	-3.286909	

A4. TNVR

Null Hypothesis: LOG(TNVR) has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on SIC, maxlag = 4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.705265	0.2452
Test critical values:	1% level	-4.532598	
	5% level	-3.673616	
	10% level	-3.277364	

Null Hypothesis: D(LOG(TNVR)) has a unit root
Exogenous: Constant, Linear Trend

Lag Length: 3 (Automatic - based on SIC, maxlag = 4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.215483	0.0235
Test critical values:	1% level	-4.728363	
	5% level	-3.759743	
	10% level	-3.324976	

A5. FINLIB

Null Hypothesis: LOG(FINLIB) has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 3 (Automatic - based on SIC, maxlag = 4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.092901	0.1406
Test critical values:	1% level	-4.667883	
	5% level	-3.733200	
	10% level	-3.310349	

Null Hypothesis: D(LOG(FINLIB)) has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 1 (Automatic - based on SIC, maxlag = 4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.114971	0.0007
Test critical values:	1% level	-4.616209	
	5% level	-3.710482	
	10% level	-3.297799	

A6. GDPGR

Null Hypothesis: GDPGR has a unit root
Exogenous: Constant, Linear Trend
Lag length: 1 (Fixed Spectral OLS AR)

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-3.495531	0.0687
Test critical values:	1% level	-4.532598	
	5% level	-3.673616	
	10% level	-3.277364	

Null Hypothesis: D(GDPGR) has a unit root
Exogenous: Constant, Linear Trend
Bandwidth: 17 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-17.11187	0.0001
Test critical values:	1% level	-4.571559	
	5% level	-3.690814	
	10% level	-3.286909	

A7. SMCR

Null Hypothesis: LOG(SMCR) has a unit root
Exogenous: Constant, Linear Trend
Bandwidth: 3 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-1.642568	0.7363
Test critical values:	1% level	-4.532598	
	5% level	-3.673616	
	10% level	-3.277364	

Null Hypothesis: D(LOG(SMCR)) has a unit root
Exogenous: Constant, Linear Trend
Bandwidth: 13 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-7.246738	0.0001
Test critical values:	1% level	-4.571559	
	5% level	-3.690814	
	10% level	-3.286909	

A8. STR

Null Hypothesis: LOG(STR) has a unit root
Exogenous: Constant, Linear Trend
Bandwidth: 3 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-1.245475	0.8703
Test critical values:	1% level	-4.532598	
	5% level	-3.673616	
	10% level	-3.277364	

Null Hypothesis: D(LOG(STR)) has a unit root
Exogenous: Constant, Linear Trend
Bandwidth: 9 (Newey-West automatic) using Bartlett kernel

	Adj. t-Stat	Prob.*

Phillips-Perron test statistic		-6.278942	0.0004
Test critical values:	1% level	-4.571559	
	5% level	-3.690814	
	10% level	-3.286909	

A9. TNVR

Null Hypothesis: TNVR has a unit root
Exogenous: Constant, Linear Trend
Bandwidth: 2 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-3.033735	0.1492
Test critical values:	1% level	-4.532598	
	5% level	-3.673616	
	10% level	-3.277364	

Null Hypothesis: D(TNVR) has a unit root
Exogenous: Constant, Linear Trend
Bandwidth: 17 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-15.92238	0.0001
Test critical values:	1% level	-4.571559	
	5% level	-3.690814	
	10% level	-3.286909	

A10. FINLIB

Null Hypothesis: FINLIB has a unit root
Exogenous: Constant, Linear Trend
Bandwidth: 1 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-5.601656	0.0013
Test critical values:	1% level	-4.532598	
	5% level	-3.673616	
	10% level	-3.277364	

Null Hypothesis: D(FINLIB) has a unit root
Exogenous: Constant, Linear Trend
Bandwidth: 7 (Newey-West automatic) using Bartlett kernel

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-12.13303	0.0000

Test critical values:	1% level	-4.571559
	5% level	-3.690814
	10% level	-3.286909

A11. CO-INTEGRATION TEST

Date: 10/08/18 Time: 15:16
Sample (adjusted): 2000 2017
Included observations: 18 after adjustments
Trend assumption: No deterministic trend (restricted constant)
Series: GDPGR LOG(SMCR) LOG(STR) LOG(TNVR) LOG(FINLIB)
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.991768	161.3716	76.97277	0.0000
At most 1 *	0.897640	74.97666	54.07904	0.0002
At most 2	0.684634	33.94998	35.19275	0.0677
At most 3	0.377766	13.17758	20.26184	0.3498
At most 4	0.227133	4.637666	9.164546	0.3255

Trace test indicates 2 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 No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.991768	86.39498	34.80587	0.0000
At most 1 *	0.897640	41.02668	28.58808	0.0008
At most 2	0.684634	20.77241	22.29962	0.0805
At most 3	0.377766	8.539914	15.89210	0.4846
At most 4	0.227133	4.637666	9.164546	0.3255

Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

A12. VAR Granger Causality/Block Exogeneity Wald Tests
Date: 10/08/18 Time: 23:36
Sample: 1998 2017
Included observations: 18

Dependent variable: D(GDPGR)

Excluded	Chi-sq	df	Prob.
D(LOG(SMCR))	0.073258	1	0.7867
D(LOG(STR))	0.013700	1	0.9068
D(LOG(TNVR))	0.044447	1	0.8330
D(LOG(FINLIB))	0.039587	1	0.8423
All	0.391162	4	0.9832

Dependent variable: D(LOG(SMCR))

Excluded	Chi-sq	df	Prob.
D(GDPGR)	0.001858	1	0.9656
D(LOG(STR))	1.641561	1	0.2001
D(LOG(TNVR))	2.816564	1	0.0933
D(LOG(FINLIB))	0.026298	1	0.8712
All	3.417357	4	0.4906

Dependent variable: D(LOG(STR))

Excluded	Chi-sq	df	Prob.
D(GDPGR)	0.141368	1	0.7069
D(LOG(SMCR))	0.012814	1	0.9099
D(LOG(TNVR))	2.187916	1	0.1391
D(LOG(FINLIB))	0.001351	1	0.9707
All	6.800741	4	0.1468

Dependent variable: D(LOG(TNVR))

Excluded	Chi-sq	df	Prob.
D(GDPGR)	0.060886	1	0.8051
D(LOG(SMCR))	5.707736	1	0.0169

D(LOG(STR))	0.755662	1	0.3847
D(LOG(FINLIB))	0.611805	1	0.4341
All	12.65970	4	0.0131

Dependent variable: D(LOG(FINLIB))

Excluded	Chi-sq	df	Prob.
D(GDPGR)	0.086985	1	0.7680
D(LOG(SMCR))	0.890216	1	0.3454
D(LOG(STR))	0.359408	1	0.5488
D(LOG(TNVR))	2.298246	1	0.1295
All	5.571134	4	0.2335