

Research on the Impact of Stock Market Development on Real Economic Growth in Nigeria

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Abstract

This paper investigates the impact of stock market development on real economic growth in Nigeria. The Johansen Cointegration and vector error correction model (VECM) were used to analyze annual time series data on stock market development indicators and real gross domestic product (GDP) from 1984 to 2018. The results show a long run relationship between stock market development and economic growth in Nigeria. In the long run, market capitalization ratio, all share index and rediscount rate have significant positive effect on GDP, whereas market turnover ratio, and trade openness have strong negative influence on GDP. Results also show evidence of causality effects running from stock market development to real GDP. The paper concludes that stock market development is important for economic growth in Nigeria. The paper recommends that government promote stable economic and political environment, strengthen the regulation and supervision of the stock market, streamline market processes, improve trading system, and increase investment in manufacturing and logistics infrastructure.

Keywords: Financial development, Nigerian Stock Exchange, capital accumulation, savings mobilization, liquidity, risk diversification, VECM.

JEL Classification: E22, E44, E50, E60, F43, G10.

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INTRODUCTION

There is broad consensus in economics that financial system is important for economic growth. A well-functioning financial system reduces information and transaction costs by aggregating and efficiently allocating scarce savings resources to the most profitable industrial projects, stimulate technological innovation and productivity, and thereby fostering economic growth [1-5]. However, not all economists share this view. Robinson [6] believes that economic growth precedes financial development. He argued that demand for most financial services follow economic growth, that is specific types of financial services arise as a result of economic development. Meanwhile, Lucas [7] opine that the role of financial development in economic growth is often over-emphasized by researchers, implying that financial development is a relatively unimportant factor in economic development. Furthermore, recent empirical evidence suggests the finance-growth relationship run in both directions, that is, both finance and growth influence each other.

Researchers have also examined the importance of stock markets for real sector growth. Scholars theorize that stock markets boost economic growth through liquidity creation, risk diversification, information acquisition, corporate control and savings aggregation [8-15]. The presence of a well-developed stock market would be advantageous to any economy. According to Greenwood and Smith [16] large stock markets can make it cheaper to aggregate savings and thereby promote investment in the most productive technologies. Endogenous growth theories emphasize technological change as the main driver of sustained economic growth. Therefore, innovative high-technology firms will be the key engine of structural transformation that is crucial for maintaining the long run growth capacity of an economy. Innovative firms are high risk and have greater profit and growth potential when successful, but require uninterrupted capital for both start-up and growth. Banks may be unwilling to extend loans due to the high-risk nature of these firms. The stock market may bridge the gap by aggregating funds and channeling them to these firms. The contribution of the stock market is necessary because of the importance of innovative firms for

sustained growth, and the necessity to maintain the country's competitiveness and rapid technological change.

As a developing country, Nigeria aims to achieve economic growth by stimulating primary production to enhance the competitiveness of its real sector; significantly increasing the production of processed and manufactured goods for export; stimulating domestic and foreign trade in value-adding goods and services; and strengthening linkages between key sectors of the economy. Part of the strategy for attaining these goals is developing a robust stock exchange to provide investors and businesses a reliable, efficient and an adaptable exchange center to save and to access capital. Thus, the Nigerian Stock Exchange (NSE) - with the objective to mobilize savings for productive investment and promote good governance for sustainable and equitable long-term growth and competitiveness - is expected to play a unique role in the growth and sustainable development of Nigerian economy. However, the NSE is plagued by issues and challenges that inhibit the realization of its main objectives. For space and convenience, I highlight three key challenges. First, the shallowness of the economy and over dependence on oil revenue makes the entire system unstable. High unemployment and low disposable income of majority households means that savings are almost non-existent. Hence, financial markets and institutions are unable to mobilize funds to support industrial projects. Second, the costs of listing on the NSE is one of the highest in the world. The IPO process is time consuming, chaotic and expensive. Executing transactions on NSE require multiple fees, such as NSE fees, Central securities clearing system fees, Securities and Exchange Commission fees, value added tax, stamp duty, and brokerage fees and commission. This discourages investors and firms from trading on the NSE, and hence low turnover and liquidity. Since 2015, a number of firms have voluntarily delisted from the NSE due to little or no activity on their stocks, high transaction costs on the NSE, and harsh operating environment. The consequence of low activity and liquidity is that on the one hand, savers may find the stock market unattractive, and hence the stock market's role of savings mobilization and risk amelioration will be undermined. On the other hand, firms will struggle to access capital from the public, and hence reduced investment in longer-term high-return projects, with negative implications for growth. And thirdly, the stock market is subject to abuse and manipulation by powerful actors - at the expense of the smaller unsuspecting investor. These illegal activities sometimes go undetected and unpunished due to inactive supervision and weak regulation enforcement. This can lower public confidence in the stock market.

The existence of the challenges bedeviling the NSE called for re-examination of the stock market and growth relationship in Nigeria. The purpose of this study therefore is to examine the relationship between stock market development and real economic growth in Nigeria both in the short and long run, using advanced econometric techniques, including ADF test, Johansen cointegration test, and VECM. The study answers the following questions: is there a relationship between stock market development and economic growth in Nigeria in the long run and in the short run? Does stock market development cause economic growth in Nigeria? Moreover, previous studies in Nigeria present different views. Those with evidence of strong positive relationship between stock market and growth [17-19], and those that show negative impact of stock market on growth [20], as well as those that suggest no causal relationship between stock market and economic growth in Nigeria [21, 22]. The unresolved nature of the argument further strengthens the basis to carry out further investigation on the topic.

Given the recent signal by government to revive the stock market and increase investor confidence in the NSE, the findings of this study and policy recommendations will serve as reference and guide for policy makers and future researchers. It will also deepen the knowledge on stock market and growth relationship.

LITERATURE REVIEW

Theoretical Review

There are three broad views in literature regarding the relationship between financial development and economic growth. The first and dominant view is that a well-developed financial system will reduce information and transaction costs and efficiently allocate capital, and thus promote investment and technological innovation, and finally foster economic growth. The second view is that financial services, institutions and markets are created and expanded in response to demand arising from increased economic activities, meaning that financial development follows the lead of economic growth. The third view argues that both finance and economic growth influence each other, meaning there is bidirectional causation between financial development and economic growth. Another view argue that finance is unimportant for economic growth. The disparate views on finance and growth extends to stock market and growth relationship. A group of researchers theorize that stock markets provide certain critical functions that reduce market frictions and foster economic growth through the channels of capital accumulation and technological innovation [8-10, 12, 23-27]. In contrast, some researchers argue that stock market development does not spur growth, but rather, it is economic growth that stimulates demand for stock market services. For instance, Olabisi *et al.* [28] describes the demand for stock market services as a

derived demand. Other authors believe that stock market development is unimportant for economic growth [29-31].

Stock markets provide the bridge through which savings of surplus units can be transformed into medium and long-term investments in the deficit units [32]. Stock markets build this bridge through five key functions, as proposed by scholars that a well-functioning stock market enhances liquidity, risk diversification, information acquisition, corporate control, and savings aggregation, and thereby foster economic growth through the channels of capital accumulation and technological innovation. These five key functions of stock markets and how they induce growth is discussed below as the theoretical framework for this paper.

First, Stock markets can enhance liquidity of financial assets which may stimulate investment in long-term projects, and hence promote economic growth. According to Levine & Zervos [13] and Bencivenga *et al.* [24], more liquid stock markets will decrease demotivation to investing in long-term projects because investors can easily sell their ownership stake in an investment project before the maturity date. Caporale *et al.* [10], Levine [12], and Ovat [33] supported this prediction. Some high-return projects require long-term capital, but savers tend to invest their savings where it is easy and cheap to trade their investments. By providing liquidity, stock markets can enable investors to quickly and cheaply trade their investments when they deem fit. This increases the incentive for savers to invest in long-term, high return projects, thereby increasing real activities. Meanwhile, stock markets enable firms to access uninterrupted long-term capital since investors who require liquidity in the short-term can sell their investments to those who prefer long-term capital appreciation. On aggregate, this can have a positive effect on the economy, and thus stimulate economic growth [10, 12].

Second, stock markets provide risk diversification services that can impact economic growth by channeling resources to high-risk high-return projects [12]. Savers prefer investments that generate greater returns at low risk, but projects with potential for high returns tend to be associated with higher levels of risk. The ability to provide risk diversification may help absorb the business risks of individual projects and may stimulate savers to invest in risky but potentially high-return projects. This may increase the rate of capital accumulation, and hence economic growth.

Third, stock markets foster the collection and processing of information about firms which may improve capital allocation and stimulate economic growth [34, 35]. Efficient stock markets can reflect the value and future expectations of firms through stock prices and information, making it easy for investors to

acquire information about firms which they can use to increase their income by investing in the most profitable firms, thus capital will flow to profitable investments and may stimulate growth [36].

Fourth, stock markets may influence corporate control by creating conditions that push managers to align their interest with those of shareholders (generate high returns and create wealth), thereby increasing productivity growth [12]. For example, the efficient market hypothesis proposes that available information of the performance and value of the firm can be reflected in the stock price. This provides owners the opportunity to link executive compensation to market price of stocks, and thus may help bring the interest of managers in line with those of shareholders [12]. Likewise, well-developed stock markets can foster improved corporate control by making it easy for takeovers of poor performing firms. Takeovers are generally driven by low valuations of the takeover target [37]. The risk of a takeover and possibility of getting sacked may incentivize managers to act in line with interest of shareholders [38, 39].

Fifth, large stock markets can facilitate the mobilization of savings and efficient allocation of resources and thus promote economic growth. By aggregating savings from different savers, firms can have access to large capital at economically efficient scale [12]. The role of aggregating savings reduces the transaction costs for firms seeking large capital for projects, and for individual savers seeking investment opportunities in large efficient firms. It also reduces the informational imbalance between savers and firms, such that savers feel encouraged to put their savings to productive use through stock markets that lists thousands of productive firms. Improved mobilization of savings can enhance resource allocation and permit the adoption of better technologies, boost technological innovation, and thereby stimulate economic growth [3].

EMPIRICAL REVIEW

Atje and Jovanovic [8] examined the relationship between stock market development and economic growth using stock market and GDP data on 40 countries from 1980 to 1988. They found strong correlation between growth and stock market turnover. Similarly, Levine and Zervos [13] examined the relationship between stock market development and long run economic growth by applying regression techniques on data of 41 countries for the period 1976 to 1993. The result suggested that stock market development was positively and strongly related with long-run economic growth. In another study, Beck and Levine [9] researched the impact of stock markets on economic growth using a panel data set for the period 1976-1998. Overall, they found that stock markets positively impacted growth.

Caporale *et al.* [10] investigated whether stock market causes growth by conducting vector auto-regressions tests on data obtained from a sample of seven countries. Their empirical evidence suggested that a well-developed stock market can foster economic growth in the long-run, and supported theories that well-functioning stock markets can promote economic development by powering the engine of growth through accelerated capital accumulation and better resource allocation. In another study, Nieuwerburgh *et al.* [40] investigated the relationship between stock market development and economic development in Belgium. They found strong evidence that stock market development caused economic growth in Belgium. Similarly, Kaplan [26] studied the relationship between stock market performance and real economic activity in Turkey using quarterly stock market data. The result indicated that there was close connection between market capitalization and economic activity and that stock market caused real economic activity. Furthermore, Coskun *et al.* [11] explored the relationship between different components of capital market and economic growth in Turkey. They found a long-run positive relationship between capital market and economic growth.

Seven and Yetkiner [14] studied the role of financial intermediation in low, middle- and high-income countries for the period 1991 to 2011. They found a positive association between stock market development and economic growth in middle- and high-income countries. In another study, Cave *et al.* [41] analyzed data from 101 countries for the period 1990 to 2014 using multiple indicator multiple causes (MIMIC) model to measure the importance of banking sector and stock market development for economic growth. Whereas the result suggested a negative relationship between banking sector and economic growth, the effect of stock market development on economic growth was positive up to a threshold after which the effect became negative.

In Africa, Enisan and Olufisayo [42] examined the long-run and causal relationship between stock market development and economic growth for seven sub-Saharan Africa countries. They conducted an ARDL bounds test and a Granger Causality test based on VECM. The ARDL test results suggested that stock market development was co-integrated with, and has a strong and positive long-run impact on economic growth in Egypt and South Africa. Granger causality test showed that stock market development Granger caused economic growth in Egypt and South Africa. In Cote D'Ivoire, Kenya, Morocco and Zimbabwe, the Granger causality test showed evidence of bidirectional relationship between stock market development and economic growth. The evidence for Nigeria indicated weak causal link between stock market development and economic growth. They concluded that stock markets could help promote growth in Africa, and that

further development of African stock markets could be achieved through appropriate regulatory and macro-economic policies. Furthermore, Boako and Alagidede [43] studied the causal relationship between stock market development and economic growth in African countries. They found a rather stifle relationship between stock market development and economic growth in Africa. They concluded that the role of finance in economic growth may occur through other channels other than stock market development. Moreover, Badr [30] investigated the causal relationship between stock market development and economic growth in Egypt using the vector auto regression model on annual time-series data from 2002 to 2013. The co-integration result suggested that there was no long run relationship between stock market and economic growth, and the granger causality test indicated no causal relationship between stock market and economic growth in Egypt. He explained that the stock market did not contribute to economic growth during the study period, and that the Egyptian stock market may be seen as a casino. He concluded that the Egyptian stock market was weak and inefficient, as activities were based on speculation and not investment.

In Nigeria, Alajekwu & Achugbu [44] examined the role of stock market development on economic growth using time series data from 1994 to 2008, and applying the ordinary least square techniques. They found that market capitalization had a weak negative correlation with economic growth, whereas turnover ratio was positively and significantly correlated with economic growth. They concluded that liquidity has the potential to stimulate economic growth in Nigeria, and that whereas market capitalization did not strongly influence economic growth, it had a strong impact on stock market liquidity. Similarly, Ovat [33] investigated the impact of two stock market measures (size and liquidity) on Nigeria's economic growth, they found that market liquidity had a positive and significant impact on the rate of economic growth, more than market size which had an insignificant influence on the economy.

Furthermore, Aibgovo & Izekor [23] studied the link between stock market development and economic growth in Nigeria by using the cointegration, error correction mechanism and Granger causality techniques to analyze annual time series data from 1980 to 2011. They found evidence of a strong positive relationship between market turnover ratio and economic growth both in the long-run and short-run. Whereas market capitalization strongly and positively influenced economic growth in the long-run, value of traded shares positively and significantly influenced growth in the short run. In contrast, all share index negatively and significantly influenced growth in the short run. Evidence from granger causality test indicated in general that economic growth promoted stock market development, however, there was

evidence of causality from stock market to economic growth when turnover ratio was used as stock market indicator. They concluded that stock market development had a key role to play in the economic growth of developing countries, and recommended that the government should promote greater regulation, supervision, and security of stock market.

Finally, Oriaregbete [45] investigated the relationship between stock market and economic growth in Nigeria. He used market capitalization (MCP), all share index (ASI) and value of new shares (VNS) as proxy for stock market activities, and gross domestic product (GDP) as proxy for economic growth. He conducted a regression analysis, stationarity test, co-integration error correction model and Granger causality tests. The regression showed that MCP has a positive and strong relationship with GDP, whereas ASI has a positive but insignificant relationship with GDP. The co-integration result provided evidence of a long-run relationship between stock market activities and economic growth in Nigeria. The Granger causality test showed that MCP and VNS had a unidirectional causality relationship with GDP. He concluded that the stock market was important for Nigeria, and that reforms should be carried out to enhance stock market activities, while also promoting information on new shares to encourage the public to invest.

RESEARCH METHODS

This paper employs the Johansen Cointegration and vector error correction model (VECM) to estimate the impact of stock market development on real economic growth in Nigeria, using annual time series data on real gross domestic product (GDP) and stock market development indicators from 1984 to 2018. The GDP data was obtained from the

annual Statistical Bulletin of the Central Bank of Nigeria (CBN), while the stock market data were obtained from the annual Statistical Bulletins of the Securities and Exchange Commission of Nigeria (SEC). The study employed six variables, grouped into dependent, independent and control variables. The dependent variable includes the real GDP that is the real GDP of Nigeria at 2010 constant prices. GDP is the main measure of economic growth in Nigeria, so it is used in this study to represent economic growth. The independent variables include (1) Market capitalization ratio (MCR) which is measured as total stock market capitalization divided by GDP, and indicates the size of the NSE. (2) Market turnover ratio (MTR) which indicates market liquidity, and is measured as the total value of transactions divided by GDP. And (3) all share index (ASI), which is the index data of the Nigerian stock exchange. Two more variables were adopted to control for other effects on economic growth, and they include (1) Openness to trade (OTR) measured as total exports plus total imports divided by real GDP, and (2) Rediscount rate (RDR) which is the minimum rediscount rate/monetary policy rate of the Central bank of Nigeria. The RDR can have significant impact on key macroeconomic aggregates. The Stata statistics software is used to carry out the analysis, and the steps are as explained in the following paragraph.

First, a unit root test was conducted to test the stationarity of the time series data. Times series data may contain unit roots, meaning they are non-stationary, and may result in spurious empirical results [46, 47]. Therefore, it is imperative to perform a unit root test to verify whether the time series are non-stationary when conducting autoregressive modelling. An Augmented Dickey Fuller (ADF) test for unit root was performed which fits a model of the form:

$$\Delta y_t = \alpha + \beta y_{t-1} + \delta_t + \zeta_1 \Delta y_{t-1} + \zeta_2 \Delta y_{t-1} + \dots + \zeta_k \Delta y_{t-k} + t \tag{1}$$

Where k is the number of lags specified. The null hypothesis of the test is H0: $\beta = 0$, that is the data is non-stationary and needs to be differenced to make it stationary. The data were transformed to their natural log form and differenced and were found to be stationary at first difference. Second, A Johansen co-integration test was conducted on the log transformation of the variables to see if they are cointegrated. We use

the Johansen’s Trace statistic method which is based on Johansen’s maximum likelihood estimator of the parameters of a cointegrating VECM. The null hypothesis is that H0: rank (Π) = r_0 , that is there is no cointegrating equation in the model. Whereas the alternative hypothesis is that H1: $r_0 < \text{rank}(\Pi) \leq n$, where n is the maximum number of cointegrating vectors. Therefore, the test statistic is:

$$LR(r_0, n) = -T \sum_{i=r_0+1}^n \ln(1 - \lambda_i) \tag{2}$$

Where LR (r_0, n) is the likelihood ratio statistic for testing the null hypothesis versus the alternative hypothesis. T is the number of observations and λ_i are

the estimated eigenvalues. The econometric model for the study based on the VECM is specified as follows:

$$\begin{aligned} \Delta \ln GDP_t = & \sigma + \sum_{i=1}^{k-1} \beta_i \Delta \ln GDP_{t-i} + \sum_{j=1}^{k-1} \phi_j \Delta \ln MCR_{t-j} + \sum_{m=1}^{k-1} \varphi_m \Delta \ln MTR_{t-m} \\ & + \sum_{p=1}^{k-1} \zeta_p \Delta \ln ASI_{t-p} \\ & + \sum_{q=1}^{k-1} \rho_q \Delta \ln OTR_{t-q} + \sum_{v=1}^{k-1} \omega_v \Delta \ln RDR_{t-v} + \lambda_1 ECT_{t-1} + u_{1t}. \end{aligned} \tag{3}$$

Where $\beta_i, \phi_j, \varphi_m, \zeta_p, \rho_q,$ and ω_v equal the short-run dynamic coefficients of the model's adjustment long-run equilibrium. λ_1 equals the speed of adjustment parameter with a negative sign. ECT_{t-1} is the error correction term, which is the lagged value of the residuals obtained from the co-integrating regression of the dependent variable on the independent variables. It contains long run information derived from the long run cointegrating relationship. U_{1t} denote the residuals, which are stochastic error terms, sometimes referred to as impulses, or innovations or shocks. The study consists of six variables and hence six equations based on VECM. The target and dependent variable is $\ln GDP$, and the other variables are independent variables.

$\ln GDP$ represents the natural logarithm of GDP which is the dependent variable; the delta notation

in front denotes the differenced level. $\ln MCR, \ln MTR$ and $\ln ASI$ represent stock market development, whereas $\ln OTR$ and $\ln RDR$ are control variables, which can have effect on economic growth [25, 48].

RESULTS AND DISCUSSION

The Augmented Dickey-Fuller test was conducted for the series and the results (see Table 1) show that all the variables were non stationary, at their raw or level form, but when the values of the variables were differenced, they all became stationary that is they are integrated of order one, $I(1)$ at the 5% significance level. Next, according to the model we are using, when the data series are stationary at first difference, then a cointegration test must be conducted.

Table-1: Augmented Dickey Fuller test for unit root

Variables	ADF test statistic		Critical values		Interpretation	Remark
	Level	1 st Difference	1%	5%		
lnGDP	-0.647	-3.738	-4.316	-3.572	I(1)	Stationary
lnMCR	-2.352	-4.971	-4.316	-3.572	I(1)	Stationary
lnMTR	-1.792	-4.489	-3.702	-2.980	I(1)	Stationary
lnASI	-2.342	-5.088	-4.316	-3.572	I(1)	Stationary
lnOTR	-2.256	-5.928	-4.316	-3.572	I(1)	Stationary
lnRDR	-2.272	-5.151	-3.702	-2.980	I(1)	Stationary

Source: Author's Stata output, 2020.

Having verified that the data series have a unit root and are integrated of the order one, an optimal lag test was run and the optimal lags selection were 4 based on the Akaike Information Criterion (AIC). The Johansen cointegration test was then conducted and the results (see Table 2) show a maximum of four cointegrating equations in the model. This means that

the variables are cointegrated and exhibit a long run relationship, implying the data series are related and can be combined in a linear fashion, therefore, the null hypothesis that there is no cointegrating equation in the model is rejected. Hence, the long run model is estimated based on the specified vector error correction model (VECM).

Table-2: Johansen Cointegration test

Maximum rank	Trace statistic	5% Critical value	Max statistic	5% Critical value
0	573.1566	94.15	340.1579	39.37
1	232.9987	68.52	120.8194	33.46
2	112.1794	47.21	81.7929	27.07
3	30.3865	29.68		

Source: Author's Stata output, 2020.

The results from the VECM estimation (see Table 3) show the long run relationship between stock market development and economic growth, with the signs of the coefficients reversed in the long run. It can be seen that $\ln MCR, \ln ASI$ and $\ln RDR$ have positive

effects on $\ln GDP$, whereas $\ln MTR$ and $\ln OTR$ have negative effects on $\ln GDP$. The coefficients are statistically significant at 1% level, except $\ln RDR$ which is insignificant at 26.8%. All the variables are statistically relevant to predict movement in GDP.

Table-3: The long run model

Variable	Coefficient	P > z	Summary of long run relationship	
			Impact on GDP	Significance level
lnGDP	1	.	Impact on GDP	Significance level
lnMCR	-.557824	0.000	Positive	Significant
lnMTR	.3585243	0.000	Negative	Significant
lnASI	-1.181016	0.000	Positive	Significant
lnOTR	.9058971	0.000	Negative	Significant
lnRDR	-.0826358	0.000	Positive	Significant
Constant	-8.309018			

Source: Author’s Stata output, 2020.

The cointegrating equation is stated thus,

$$ECT_{t-1} = \left[\begin{matrix} 1.000lnGDP_{t-1} - 0.557lnMCR + 0.358lnMTR - 1.181lnASI + \\ 0.906lnOTR + 0.083lnRDR - 8.309 \end{matrix} \right] \tag{4}$$

And the model can be estimated as:

$$\begin{aligned} \Delta lnGDP_t = & .111 - 0.748\Delta lnGDP_{t-1} - 0.746\Delta lnMCR_{t-1} + 0.013\Delta lnMTR_{t-1} \\ & + 0.032\Delta lnASI_{t-1} + 0.344\Delta lnOTR_{t-1} + 0.755\Delta lnRDR_{t-1} \\ & - 0.893ECT_{t-1}. \end{aligned} \tag{5}$$

The adjustment term (-0.893) is statistically significant at the 5% level, suggesting that previous year’s errors (or deviation from long-run equilibrium) are corrected for within the current year at a convergence speed of 89.3%. It can be concluded that market capitalization ratio and all share index both have positive and strong effect on economic growth in the

long run. Minimum rediscount rate/Monetary policy rate also has a positive but insignificant effect on economic growth in the long run. In contrast, market turnover ratio and openness to trade both have negative and significant effect on economic growth in the long run, on average, ceteris paribus.

Table-4: Diagnostic tests

Lagrange-multiplier test for residual autocorrelation				Normality test (Jarque-Bera)			
H0: no autocorrelation at lag order				H0: The residuals are normally distributed.			
Lag	Chi2	df	Prob > chi2	Equation	Chi2	df	Prob > chi2
1	35.3	36	0.50183	D_lnGDP	2.426	2	0.29731
2	50.3	36	0.05768	D_lnMCR	6.490	2	0.03897
				D_lnMTR	0.944	2	0.62360
				D_lnASI	0.594	2	0.74300
				D_lnOTR	0.817	2	0.66450
				D_lnRDR	0.193	2	0.90812
				All	11.465	12	0.48957

Source: Author’s Stata output, 2020.

Diagnostic tests were performed to test the correctness of the whole system model under the VECM estimation (see table 4). Test for autocorrelation show insignificant probabilities based on the null hypothesis of no autocorrelation. This means that there is no serial correlation in the whole system model. Test for normality show that p-value of the target model (d_lnGDP) is insignificant at 29.7%, so the null hypothesis cannot be rejected, meaning that the residuals are normally distributed.

The first research question was, is there a relationship between stock market development and economic growth? The study results provide evidence of a strong relationship between stock market

development and economic growth. The second research question was: does stock market development cause economic growth in Nigeria? The causality test show evidence of causality running from stock market development to GDP in the long run. The coefficient of the error correction term is negative and statistically significant. It can therefore be concluded that there is a long run causality in the GDP equation at the 5% (0.018) significance level. However, there is no evidence of causality running from GDP to stock market development. For short-run causality, it was found that market capitalization ratio, all share index and minimum rediscount rate cause economic growth in the short run, whereas market turnover ratio and openness do not cause GDP in the short run. Our

findings on the impact of stock market development on real economic growth in Nigeria is consistent with [23, 48] in Nigeria, It is also in line with [8-10, 24-27].

IMPLICATIONS OF RESULTS

The results of this study show that market capitalization ratio has positive and significant impact on economic growth in Nigeria, implying that larger stock markets enhance the possibility for firms to quickly and cheaply raise capital. This means that firms can fund innovative, long-term high-return projects that increase overall performance, and finally promote economic growth.

The negative effect of market turnover ratio highlights the relatively low activity and liquidity of the Nigerian stock exchange (NSE). This may be due to the uncompetitive cost structures, inefficient and cumbersome processes, insufficient risk management, and inadequate high-tech trading infrastructure. The implication of low activity and liquidity is that savers may not find the stock market attractive, and hence the stock market's role of savings mobilization and risk amelioration will be undermined. On the other hand, firms may struggle to access capital from the public and hence reduced investment in longer-term high-return projects with negative implications for growth.

The negative effect of openness to trade on economic growth can easily be attributed to unstable policies and inadequate manufacturing and logistics infrastructure. Stability of policies and adequate infrastructure can attract foreign capital and investment, boost production capacity in the real sector, enhance the competitiveness of the country in international trade, and thereby increase output and growth. The monetary policy rate and rediscount rate show a positive impact on economic growth in the long run, implying the importance of yield to economic growth. Alongside market size, safety and liquidity, rate of returns enhances the competitiveness of financial assets, such as equity investments. This can encourage savers to invest in financial assets, such as equity. Thus, firms have the equity financing to take advantage of profitable investment opportunities, increase their earnings power and drive up the market value of their equity. Also, if firms' rate of return is higher than the discount rate, they will be incentivized to increase investment, and hence increase their earnings power further with positive implications for economic growth.

CONCLUSION

This paper examined the relationship between stock market development and economic growth in Nigeria both in the short run and the long run. We employed ADF unit root test, Johansen cointegration test, and the VECM. The overall finding is that stock market development has a long-run relationship and strong influence on economic growth in Nigeria. We also observed the direction of movement in the

relationship as stock market caused economic growth in Nigeria. The findings of this study will contribute to the existing debate on finance growth nexus, and will deepen the knowledge of stock market and growth relationship in Nigeria.

Exploiting the influence of stock market on economic growth would require vigorous commitment and all-round efforts of the government. In view of the findings of this study and the objective of the NSE of developing a robust stock market that provides savers/investors and businesses a reliable, efficient and an adaptable exchange center to save and to access capital, we recommend the following:

- 1) The government should work hard to achieve a stable economic and political environment. The starting point is to create the conditions that allow for job opportunities for the people to earn income sufficient for consumption, saving and investment. An increase in income per capita level could boost private savings from which the capital market can marshal resources for long term investments, generate greater returns, and hence economic growth. This could also trigger the strengthening of the retail and institutional savings environment, providing more deposits and liquid resources for banks to facilitate the pooling of savings. In addition, a stable political environment may reduce political risk and may make the market appealing for both domestic and foreign investors, since they may be assured that their investment's returns will not be significantly exposed to the impacts of political instability.
- 2) The government should strengthen the effectiveness of regulation, oversight and supervision of the stock market to prevent illegal activities, market manipulation, and to increase the confidence of individual savers, investors and all participants in the capital market. The rules and regulations of trading in the stock exchange could be reviewed and improved. It should be objective, non-arbitrary, and institutionalized to provide support for the system. The Securities and Exchange Commission (SEC) should be strengthened to provide active and regular supervision of activities in the stock market to prevent market abuse and to enforce market regulations in case of violations or misconduct. This will boost investor confidence in the market.
- 3) Authorities should remove lengthy and cumbersome processes by streamlining the market processes and improving the trading system so that market participants can trade quickly and cheaply. The process of initial public offerings (IPO), and transaction execution could be streamlined to make them efficient and cost effective for all participants. Risk management systems should also be improved. Latest infrastructure/technology and information networks should be employed to improve and make market processes more efficient.

Execution taxes and fees should be reviewed and simplified. These can enhance liquidity of the stock market.

- 4) The government should maintain stable and reliable policies to promote trade and attract foreign investment. The government should also increase investment in manufacturing and logistics infrastructure, as well as improve public service processes to create a friendly environment for doing business. This can attract foreign investment and more capital into the NSE.
- 5) The current corona virus (COVID-19) pandemic and efforts to prevent and fight the spread (such as lockdowns and social distancing) have hit the income of individuals and firms hard, and have stalled growth for many countries. The government should roll out stimulus packages that include both fiscal and monetary policies to mitigate the impact of the pandemic and to spur growth. Particularly, targeted and bespoke stimulus packages should be provided for sectors and firms that have been hit hardest by the pandemic. This may increase economic activities and may prevent further voluntary delisting of firms from the Nigerian stock market.

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