

The Nigeria Stock Exchange and sustainable growth: Causality Test

FALAYE, Adebajo Joseph

Department of Accounting and Finance, Landmark University, Omu Aran, Nigeria

Corresponding Email: falaye.adebanjo@lmu.edu.ng

Nigeria

ESEYIN Oluwasegun

Department of Economics, Landmark University, Omu Aran, Nigeria

eseyin.oluwasegun@lmu.edu.ng

Nigeria

OTEKUNRIN Adegbola

Department of Accounting and Finance, Landmark University, Omu Aran, Nigeria

otekunrin.adegbola@lmu.edu.ng

Nigeria

ADEYEYE, Olufemi Patrick

Department of Banking and Finance, Federal University, Oye-Ekiti, Nigeria

adeyeyepo@gmail.com

Nigeria

ASALEYE Abiola

Department of Economics, Landmark University, Omu Aran, Nigeria

[asaleye.abiola @lmu.edu.ng](mailto:asaleye.abiola@lmu.edu.ng)

Nigeria

OBADIARU David

Department of Accounting and Finance, Landmark University, Omu Aran, Nigeria

obadiaru.david@lmu.edu.ng

Nigeria

AJAYI Abiodun

Department of Accounting and Finance, Landmark University, Omu Aran, Nigeria

ajayi.abiodun@lmu.edu.ng

Nigeria

ADEMOLA Abimbola

Department of Accounting and Finance, Landmark University, Omu Aran, Nigeria ADEMOLA

ademola.abimbola@lmu.edu.ng

Nigeria

MADUGBA Joseph

Department of Accounting and Finance, Landmark University, Omu Aran, Nigeria ADEMOLA

madugba.joseph@lmu.edu.ng

Nigeria

Abstract

This study aims at finding out if the Nigerian stock exchange has developed to the extent of being able to impact positively on the nation's economy sustainably. The study becomes so imperative given the spate of globalization and foreign investments on the stock exchange. Augmented-Dickey Fuller (ADF) test is used to test for the presence of unit root or otherwise in the variables. Error Correction Model (ECM), Co-integration and Granger Causality Tests are used to evaluate the impact of stock market development on sustainable growth in Nigeria. This was done to see if market capitalization as a measure of market development could impact on sustainable growth of the economy. It was empirically found that the Nigerian stock exchange had positive and significant impact on the sustainable growth of the economy.

Key words

Sustainable growth, economic growth, GDP, equity market capitalization, and debt market capitalization.

JEL classification: G12

Introduction

One could define the stock exchange as the totality of buyers and sellers of equity and loans stocks, their instruments of trade and the enabling frameworks. According to Familoni (2001), the stock exchange is an apex financial market for the sales and purchase of securities and all the allied activities that go along with the trading. It is purely a forum for financial dealings that is made up of two markets; the primary and the secondary stock markets. The primary market is for new issue of shares and the secondary market is for the exchange of already quoted shares.

In the words of Olowe (2011) as quoted by Azubike (2017), the mechanism of stock exchange came into existence to enable investments, which were inherently illiquid to become liquid. This occurs through re-conversion into cash at the decision of the investors without inconveniencing the borrower.

As Azubike (2017) puts it, the stock market is the pivot upon which economies revolve in that it creates, mobilizes and rations long-term funds for economic growth and development. Petros (2007) opined that very liquid stock markets could ease investments in the long-term more profitable projects; thereby improving the efficient allocation of capital and enhancing prospects for long term growth.

Growth is a good measure of success. The longer the term of growth, the merrier the success story is told of any business venture.

The stock exchange is a platform for borrowing and for raising equity capital for growth. It implies then that the more the stock market grows, either in enabling the exchange or issuance of new securities or in raising loan stocks, the more the economy grows.

The stock markets provide an avenue for corporations to raise capital at low costs. Companies in countries with developed stock markets are less dependent on banks' finance.

According to Petros (2007), the stock market is expected to encourage savings by providing individuals with additional financial instruments that may better meet their risk preferences and liquidity needs. The slow rate at which the Nigerian stock market develops could be partially due to the unwillingness of the local firms to go public as explained by Meyers' pecking order theory.

Petros (2007) concludes that developed stock markets are able to positively influence savings among individuals and provide avenues for firms' financing.

This explains the positive relationship that has been reported by many authors, which exists between developed stock markets and the real economy of advanced economies. Hence, the efficiency of the stock exchange is often perceived as a barometer for gauging the level of countries' economic growth.

It further explains the reason why most of the existing literature emphasize the need for government policy framework in enhancing the stock markets' development as observed by Brown and Nyeche (2016). According to neo-classical economists, capital markets' development will lead to economic growth, as a result of inflow of investments from outside liberalized economies (Owusu and Odhiambo, 2014) in Owusu (2016).

According to Singh, as quoted by Petros (2007), the stock market is expected to accelerate economic growth by providing a boost to domestic savings while increasing the quantity and the quality of investments. The stock market provides an avenue for growing companies to raise capital at lower costs.

Petros (2007) is of the view that stock markets are therefore able to influence economic growth by encouraging savings among individuals and providing avenues for firm's financing. In line with this, Azubike (2017) quoted Chris (2012) that the stock market is a major engine of growth and development for any economy. On it, firms or government could raise funds at will, and at favourable terms –equity or debt.

To grow simply means to naturally increase by addition either through assimilation or accretion (Herman, 1993). Thus, growth is quantitative; and therefore measurable. In the words of Chandra et al (2017), growth remains one of the most important factors in valuation, access to capital, increasing shareholders' return, as well as attraction of top skilled / professionals

In the words of Adebajo (2014), growth becomes sustainable when resources used and the extent of such growth does not become hazardous to the future generations.

Hence, sustainable growth could define as the concerted actions of an economy's policy makers that promote the people's standard of living and the economic health of a given area. In other words, sustainable growth could be defined as sequential increases of material wealth of which production process are not detrimental to the wellbeing of the concerned economy.

Growth becomes sustainable when its rate can be continued with, without causing economic problems. Toni (2016) perceives sustainable growth as having to do with corporate efficiency and long term stability. It is about maximizing resources. In her words, it entails the ability to

continually earn more than the outlay at a good margin, militating unprecedented risks, while continuing to invest. It requires immense agility and dynamism / flexibility.

Agility here implies being able to optimize spending on production factors that are adding value, while putting an eye on the look for better and more efficient ways of accomplishing tasks. Toni (2016) submits that being agile equally helps to mitigate risks by being able to shift, change and pivot ahead of or in response to market forces.

Thus, sustainable growth could be defined as such increment that could be maintained without having to jeopardise control or ownership of firms. Pandey (2010: 637) defines sustainable growth as annual percentage growth in sales that is consistent with firm's financial policies; assuming no issue of fresh equity. That is, sustainable growth of a single product firm is such growth rate that the firm attains while maintaining its annual operational efficiency; without raising external equity. It seems implied here that equity stock could contributory jeopardise control or ownership of firms; hence, sustainable growth if not well managed.

Howitt (2006) that sustained economic growth is always a process of continual transformation that all countries should engage in. According to him, economies that cease to transform themselves are destined to fall off the path of economic growth, which is never ending if they are to enjoy continued prosperity.

Objectives of study

Study set out to find out if there exists a causal relationship between the stock exchange and sustainable growth. In addition to this were the set sub objectives of study, which include finding out if the stock exchange, had any impact on sustainable growth in Nigeria. The second sub-objective of study was to establish the nature of impact, if there is that the stock exchange has on sustainable growth in Nigeria.

Hypotheses of study

The two null hypotheses of study are that stock exchange has no impact on sustainable growth in Nigeria; and that there exists no causal relationship between the stock exchange and growth in Nigeria.

Statement of the problem

Statement of the problem that ignited this study is well captured in Brown and Nyeche (2016). In their words, Brown and Nyeche stated that studies on the relationship that exists between financial development and economic growth in emerging economies placed more emphasis on the importance of the banking sector. Those studies ignore the strategic role of the stock markets in these countries, relative to economic growth.

Brown and Nyeche identified the roles of the stock markets among others to include savings mobilization and creation of liquidity. Other roles identified by them include diversification of risks, enhanced corporate control, and efficient allocation of funds. They concluded that efficient and effective delivery of these functions could foster economic growth rate.

Nigeria is one of such emerging economies. The extent to which the Nigerian stock exchange could impact its efficiency on sustainable economic growth is the subject of concern to this study.

An overview of the Nigerian stock market development

A rich overview of the Nigerian stock market development could be seen in Owusu (2016). The stock market, which was established in 1960 as Lagos Stock Exchange metamorphosed into the Nigerian Stock Exchange in 1977, now with its branches in the North West, South west and south eastern parts of Nigeria. Each of the branches in Kano and Kaduna, Lagos and Ibadan, and Port-Harcourt and Onitsha had its own trading floor while the head-quarters remain in Lagos.

Even though there appears to be conspicuously absent the presence of any of its branches in the north eastern part of the country, the Nigerian stock exchange has been evolving over the years. The development of the Exchange manifests in the size of the market, the nature of the market operators, and in its instruments of exchange.

For instance, the size of the market manifests not only in volume of securities traded from 8 in the year 1961 to 257 in year 2016, but also in the increasing market capitalization; among other variables.

In the words of Owusu (2016), some of the major factors that enhanced this were the indigenization of the Exchange's credit base in its early days that led to the huge investments in the loans stock issues in the year 1961 and year 1962.

Equally of note as a contributory factor to the increasing size of the market capitalization was the Tax Management Act of 1961. The ordinance mandated all pension and provident funds in Nigeria to invest at least one third of funds in government stocks. According to Owusu (2016), the 1961 Act mandated all newly established pension and provident funds that were incorporated after 1961 to invest at least half of their funds in stocks.

In addition to this, Insurance and Miscellaneous Provisions Act of 1961 required that minimum of 25 percent of all local investments of insurance companies must be in government securities. Forty percent of their premiums must be in locally insured risks in any financial year. In the words of Okonkwo et al (2014), as cited by Owusu (2016), the Bank of Industry encourages successful enterprises to go public. The Bank offers to subscribe to their shares after incorporation; encouraging such companies to apply at the appropriate time for quotation on the stock exchange.

Out of the 29 stock exchanges in Africa today, the Nigerian stock exchange ranks only behind Egypt and South Africa stock exchanges (Wikipedia, 2017).

The securities listed on the stock exchange as at 1985 was 220. In the year 2007 however, the listed securities had increased to 310. Due to the recent global financial crises, the number dropped; and it is now 257. The number of quoted banks has reduced to 15.

The increasing trend in the loan stocks on the Nigeria stock exchange is well captured in Nwankwo (1985). The number of government securities recorded in 1961 was 92 and in 1966, the stock exchange recorded 501 traded government securities. That accounted for 45.7% of the total traded securities on the Exchange.

One should note that two major types of securities are dealt with on the Nigeria stock exchange. This is in line with the primary objectives for the establishment of the Exchange to promote increasing public participation in the private sector of the economy. The two major types are the government loan stocks and the industrial securities.

According to Nwankwo, the value of government stock traded was recorded as N1.4million in 1961. It was estimated at 93% of the total value of transactions on the Exchange. Government stock traded increased to N179million in 1977. In that year, the figure was estimated at 99.3% of the total value of transactions on the Exchange.

In the words of Brown and Nyeche (2016), the Nigerian stock market is constrained by low level of savings and investments. These reduce capital formation that could spur economic growth. According to them, the Nigerian financial system still remains underdeveloped. They attributed this to repressive financial policies.

These have led to insolvencies, low savings, and insufficient allocation of resources. Despite all these, the Nigerian stock exchange is one of the largest 3 stock exchanges in Africa. It compares with Egypt and South Africa stock markets. It is a member of African Securities Exchanges Association.

One should note that the Egyptian Stock Exchange was founded in 1883, while the Johannesburg Stock Exchange was founded in 1887. The Nigerian Stock Exchange only came into being in 1960; with 223 listings as at May 2014.

Theoretical framework

The pecking order theory is based on the assertion that managers have richer knowledge of firms than investors. Hence, managers will issue out debt instruments when optimistic about firms' future prospects. This implies that equities are issued by prudent managers when they are sceptical about firms' prospects. In other words, the issuance of debt instruments is an indicant that the firm is sure of steady cash inflows that would repay the sum borrowed and its attached costs. This means that informed finance managers would only favour the issuance of equities whenever the ruling price of shares is over-valued.

Summarily, the pecking order theory asserts that the issuance of new equities is often the last resort of managers. Hence, the managers prefer financing projects with retained earnings when available and adequate. When not adequate, managers prefer to borrow, using the retained earnings as leverage.

One could therefore state that debt is considered cheaper than the cost of equity capital. Payable interests on debt are deductible before tax.

Moreover, internal equity is cheaper than external equity capital. This is so because there are no costs of issuance attached.

Therefore, managers avoid issuing new equities so that wrong signals would not be relayed to the investing public about their firms. Hence, they mostly avoid raising capital via the stock

exchange publicly. This explains why some finance managers would choose to raise funds privately; but with some of the structures of the stock exchange.

In the words of Pandey (2010), managers always prefer to use internal finance. In the absence of internal finance, managers would issue secured debt instruments. If not sufficient, managers would issue unsecured debt or better still a hybrid of debt instruments. Thus, informed managers only issue new equities as a last resort to finance projects.

Meanwhile, there is the endogenous growth theory, which sought to explain the need to focus inward in a bid to advance growth. The endogenous growth theory is of the view that long run growth rate of any economy depends on policy measures. Good policies aid savings and optimal allocation of resources. This implies that policies that embrace openness, competition, change, and innovations will enhance growth.

On the other hand, policies that restrict change by protecting some particular firms are likely to retard growth. In clear terms, endogenous growth theory holds that economic growth is primarily the function of endogenous forces.

Efficient market hypothesis

Efficient market hypothesis states that when investors are faced with new set of information some of them could over react while others could under react. This means that investors' reactions are at random and follow a normal distribution pattern. In the words of Jensen (1978), a market is 'efficient' with respect to information set. In an efficient market, it is not possible to generate excess returns on the basis of the available information set. This is due to the fact that prices adjust instantly and in an unbiased manner to new information; leaving no room for investors to make excess returns. This further means that all information available about a stock's expected future cash flows is included in the price of the stock.

Efficient market hypothesis equally states that it is impossible to beat the market. This is because market prices already integrated and reveal all relevant information. It assumes that all investors perceive all available information in the same manner.

Efficient capital market implies a well-informed market. In the words of Pandey (2010; pp.: 46), efficiency of any stock exchange may be defined as the ability of the securities to reflect and incorporate in their prices all relevant information; with speed.

Thus, the efficiency of security prices depends on the speed with which the prices adjust to any relevant available information. The more the speed of adjustment, the more efficient will be the security's prices.

Moreover, Fama (1970:383) categorised capital markets' efficiency into weak, semi-strong, and strong forms. The weak-form is the lowest form of efficiency that defines a market as being efficient if current prices completely reflect all information contained in past prices. This form implies that past prices cannot be used as a predictive tool for abnormal returns by using only the past history of prices.

The semi-strong form of efficiency states that the present market prices reflect all publicly available information. These include information on money supply, exchange rate, interest rates, and stock splits among others. If the information set to incorporate private information, it is not likely for a market participant to earn abnormal profits; then, the market is referred to as having strong form of efficiency.

Under the strong form of efficient market, market prices of securities reflect all relevant information, including both public and private information. The strong form of efficient market implies that private information reflects in the shares' prices. Private information may be tough to obtain even though it could prove useful in making abnormal profits.

Empirical Evidence

Today, the stock market remains in focus due to its perceived benefits by policy makers. People often cite it as a barometer of business direction (Petros, 2007). Notable among the economic benefits of the stock markets are savings mobilization and creation of liquidity; with which corporations are established and grow. Petros asserts that efficient delivery of these functions can augment the rate at which economies grow.

Petros applied the autoregressive distributed lag model to find if there existed any long run relationship between stock market development and economic growth in Zimbabwe. The study concluded that economic growth was positively and significantly associated with an improvement in the performance of stock markets in the country.

It must be noted that earlier in the study Petros had highlighted the studies conducted by Levine and Zervos (1998) and Nyong (1997) on the co-integration between stock markets and economic growth. According to Petros, Nyang had developed an aggregate index of capital market development; and used it to determine its relationship with long run economic growth in Nigeria. The study employed a time series data from 1970 to 1994 and included a measure of financial depth as control. Nyong found out that capital market development was negatively and significantly correlated with long run growth in Nigeria.

Levine and Zervos, as reported by Petros, examined whether there was a strong association between stock market development and long-run economic growth. The study used pooled cross-country time-series regression of 41 countries from 1976 to 1993; to evaluate the association.

They conglomerated the stock market sizes, liquidity, and integration with world markets into stock market development index. The growth rate of GDP per capita was then regressed on a variety of variables designed to control for initial conditions, and then included the conglomerated index of stock market development. The study found out a strong correlation between overall stock market development and long run economic growth.

In a similar study Owusu (2016) used the ARDL – bounds testing approach and unrestricted error correction model (UECM). He used combined stock market development index. Study found that stock market development had a negative effect on sustainable economic growth in Nigeria. In the words of Owusu, this might have been due to the illiquid nature of the Nigerian stock market, as well as its size relative to the magnitude of the nation's economy.

This view was partially corroborated by Ovat (2012); as cited by Owusu. Ovat had examined the effect of stock markets in driving economic growth, with evidence from the Nigerian stock market.

Ovat disaggregated stock market development into stock market size and liquidity. The study made use of unit root, co-integration, and Granger causality tests. It found out two-way causation between stock market liquidity and economic growth. The strength of the causality emanated from stock market liquidity, while the market size was found to have little or no effect on economic growth.

Further in the empirical evidence of Owusu (2016) is a similar study conducted and reported in Owusu and Odhiambo (2014) on the Ghanaian stock market development vis-a-vis her economic growth. The ARDL-bounds testing approach and multi-dimensional stock market development proxies were employed. The study found that stock market developments had no positive effect on economic growth both in the short and long-runs.

Werema and Nikupala (2016) reports that Biyan (2012) found that both market capitalization and value of shares traded slightly contributed to economic development. This is in their literature review studying the impact of the stock exchange market on the economic growth of Tanzania.

Same was the report of a similar study that was conducted on Kenyan Stock market by Ikikii and Nzomi (2013). The same results were also found in Mauritius (Nowbutsing, 2009) and South Africa (Odhiambo, 2009), as reported by Werema and Nikupala (2016).

In their own study of the impact of the stock market on economic growth of Tanzania, Werema and Nikupala reported that the stock market capitalization had a weak significance and a negative effect on economic growth. The volume of shares traded was reported to have a positive effect on economic growth.

These results were contrary to priory expectation that the stock market capitalization and volume of shares traded should have a positive impact on economic growth. In the words of Werema and Nikupala, these results could be because of the small nature of the stock market capitalization in Tanzania. ‘This implies that the stock market in Tanzania is still in its infant stage and cannot affect economic growth (Werema and Nikupala, 2016).

In consonance with this view is the literature review of Azubuike (2017) on studies conducted on the Nigerian and German stock markets’ impact on economic growth of these countries.

Azubuike had reviewed Amaghionyeodim (2003), Adamu and Sanni (2005), Obamiro (2005), Abu (2009), Ewah et al (2009) and Autonios (2010). The studies all found positive correlation between stock markets development and economic growth.

Research design

Study focused on effectively capturing the impact of that aspect of the Nigerian stock exchange that mostly pertains to sustainable growth of the economy. The ordinary least square method with the Augmented Dickey Fuller test was adopted for unit root. The used framework based on the work of Anulika (2017) and is stated below.

$$GDP_t = f(M_s, V_t, M_{pD}, M_{pE}, C_{rP}, i, v, ecm)$$

Where:

GDPR	=	log of Gross Domestic Product
M_s	=	Broad Money supply
M_{pD}	=	Market Capitalization (Debt)
M_{pE}	=	Market Capitalization (Equity)
C_{rP}	=	Credit to the private Sector
V_t	=	Volume of stock traded
i	=	Prime interest rate
ecm	=	error correction term

Economic A Priori Expectation

In line with empirical reasoning, financial deepening, market capitalization, credit to the private sector, and money supply have positive relationship with GDP; while interest rate has negative relationship with GDP. If the estimates do not conform to what is stated in the model, then there ought to be some strong reasons to enable the acceptance of the stated estimates.

Data sources

The used secondary data were sourced from various issues of the Central Bank of Nigeria's Annual Reports and Statistical Bulletins, and the Nigerian Stock Exchange Fact Sheets.

Data analysis

The unit root tests conducted for all the variables, as shown in Annexure-1, except for the value of stock traded (V_t) and the interest rates (i) were stationary at first difference. This implies that only the value of stock traded (V_t) and the interest rates (i) were stationary at 1% level of significance.

Data analysis and interpretation of result

Unit Root and Co-integration Test

It has been established from literature that most time series variables usually have unit root. Since this study adopts time series data for empirical analysis, the test for the presence of unit root or otherwise in the variables becomes imperative. The Augmented-Dickey Fuller (ADF) test is used to achieve this. The result shows only prime interest rate variable is found to be stationary at level. Other variables in the study are stationary at first difference.

Table 1. Result of Unit Root Test

Variable	ADF	Order of Integration
LRGDP	-4.947660	I(1)***
LC _{rP}	-4.238626	I(1)***
LM _{pD}	-2.834313	I(1)*

LRM _s	-3.333425	I(1)**
M _p E	-4.426028	I(1)***
LV _t	-4.605980	I(1)***
<i>i</i>	-4.73989	I(0)***

***Statistically significant at 1 percent

**Statistically significant at 5 percent

*Statistically significant at 10 percent

Source: Authors' computation, 2018

There is the need to conduct co-integration test among variables. This is because the presence of unit root in almost all the variables reveals that there is short run disequilibrium among them. Johansen co-integration test was therefore adopted which revealed that there is long run relationship among the variables.

Regression Result

Since almost all the variables in the model are not stationary at level, adopting ordinary least square method (OLS) would not be suitable. Thus, **Error Correction Model (ECM)** was adopted instead of ordinary least square estimator.

The variable, prime interest rate (*i*), was eliminated from the Error Correction Model because it was found to be stationary at level. The formulation of Error Correction Model requires that all variables under consideration must be stationary at level. Error Correction Model is given as below.

$$\Delta \text{LRGDP}_t = \beta_0 + \beta_1 \text{LC}_t \text{P}_t + \beta_2 \text{LM}_t \text{P}_t + \beta_3 \text{LRM}_t + \beta_4 \text{M}_t \text{P}_t + \beta_5 \text{LV}_t + \beta_6 \Delta \text{LRGP}_{t-1} + \beta_7 \text{LC}_t \text{P}_{t-1} + \beta_8 \text{LRM}_{t-1} + \beta_9 \text{M}_t \text{P}_{t-1} + \beta_{10} \text{LV}_{t-1} + \beta_{11} \text{ECT}_{t-1} + \mu$$

Regression result of the error correction model (ECM)

Variable	Coefficient	t-Statistics	Prob. Value
C	1.493603	1.758278	0.1292
LC _t P	-0.516365	-1.457802	0.1952
LM _t P	0.140595	2.023851	0.0894

LRM _s	0.916766	10.85051	0.0000
M _p E	1.72E-05	0.882847	0.4113
LVT	-0.036373	-0.541048	0.6080
D(LRGDP(-1))	-0.036368	-0.481118	0.6475
LC _r P(-1)	0.485492	2.321631	0.0593
LRM _s (-1)	-1.191058	-7.082569	0.0004
M _p E(-1)	2.82E-05	1.164956	0.2883
LV _t (-1)	-0.077254	-0.856585	0.4246
ECT(-1)	-0.860222	-2.398117	0.0534
R-squared	0.987619		
Adjusted R-squared	0.964920		
F-statistic	43.51016		
Prob(F-statistic)	0.000081		

Interpretation of Results

The co-efficient of the error correction term (ect_{t-1}) is -0.860222 and it is statistically significant at 10 percent level of significance. The negativity and statistical significance of the variable satisfies the condition of reliability of the error correction model. It implies that about 86 percent of the error is corrected annually. Hence, the speed of adjustment between short run disequilibrium and long run equilibrium among the variables is very high. Given the R^2 of 0.987619, it indicates that about 98 percent of the variable factors causing the change in log of real gross domestic product have been captured in the model. The overall model is statistically significant as revealed by the value of F-statistics.

The result of analysis shows that, out of all the variables analysed, LM_pD, LRM_s, LC_rP_{t-1}, and LRM_s_{t-1} are statistically significant. From the result, although the lag impact of broad money supply on economic growth is negative. However, the impact of real broad money supply of the current period on the economic growth is positive and very high.

In the same vein, it has also been established from the result that there is huge impact of the volume of credit to private sector in the previous year on the economic growth of the current year when other variables were held constant. Most important is the fact that the magnitude of market capitalization (debt), which has direct and concomitant impact on economic growth of Nigeria. This is an empirical proof that the Nigerian stock exchange has impacted on sustainable growth of the nation's economy. It is in line with the theoretical postulations of Pandey (2010: 637).

Conclusion

The stationarity of the variables at 1st difference, given 1% level of significance implies the reliability of data. Equally from the normalized co-integration equation, the focal sustainable growth aspect (MpD) of market capitalization has positive long-run relationship with economic growth (GDPR). It is however mind bulging that the causality tests unveiled that neither market capitalization (debt), market capitalization (equity) nor volume of stocks traded on the Nigeria stock exchange had any granger causal effect on the growth of the economy. This implies an under-developed state of the nation's stock exchange. It calls for the need to further develop the nation's stock market.

Recommendations

The authorities of Security and Exchange Commission could be commended if one considers the feat attained by the Nigerian Stock Exchange relative to its contemporaries on African continent. However, one feels obliged to still admonish them to sustain the tempo; given the global expectation of Nigeria to emerge more pronounced in the committee of advanced nations.

In line with this, additional impetus should be accorded the creation of more assorted plush debt instruments on the stock exchange. Quants could be directly employed by the SEC to increasingly execute the task. In institutions of higher learning, SEC could encourage studying stock-trading as a professional course of study like Accounting, Banking, Finance, Marketing and so on, in a bid to produce more quants.

Besides, more branches of stock broking and commodity exchange platforms could be created in all the states of the federation; linked up by electronic trading and telecommunication systems. In addition, more awareness campaign could be engendered towards facilitating increased listing of firms; towards boosting activities on the stock exchange.

References

1. Abu, N. (2009) Does stock market development raise economic growth? Evidence from Nigeria. *The review of Finance and Banking. Vo. 1, No.1, pp 15-26*
2. Adam, J., Sanni, I. (2005) Stock market development and Nigeria's economic growth. *Journal of Economics and Allied Fields. Vol.2 No. 2*
3. Adebajo, J. F. (2014) Financial re-engineering and sustainable economic development in Nigeria. *VERITAS Vol. 5, No. 3*
4. Autonios, A. (2010) Stock market and economic growth: an empirical analysis for Germany. *Business and Economics Journal, Vol. 2010: BEJ-1*
5. Azubuike, A. (2017) Impact of the Nigerian Stock Exchange on economic growth. *MPRA Paper No. 75984, posted 4/1/2017; downloaded 12/1/2017 <https://mpra.ub.uni-muenchen.de/75984/>*
6. Brown, E. D., Nyeche, E. W. (2016) The imperative of stock market on economic growth in Nigeria: the endogenous model. <https://www.omnicsonline.org/open-access/the-imperative-of-stock-market...>
7. Chandra, G., Allen, M., Kara, S. (2017) Grow fast or die slow: the role of profitability in sustainable growth. <https://www.mckinsey.com/industries/high-tech/our-insights/grow-fast>.
8. Ewah, S., Esang, A. E., Bassey, J. U. (2009) Appraisal of capital market efficiency on economic growth in Nigeria. *International Journal of Business and Management. Vol. 4, No. 12*
9. Fama, E. F. (1970:383) Efficient capital markets: a review of theory and empirical work. *Journal of Finance. Vol.25.No.2*
10. Familoni, J. A. (2001) A practical approach to investment analysis. *Babs printing and publishing Co., Ado-Ekiti, Nigeria.*
11. Herman, E., Kenneth, N.T. (1993) Sustainable growth: an impossibility theorem. <http://dieoff.org/page37.htm>
12. Howitt, P. (2006) Coordination issues in long-run growth. In *Handbook of Computational Economics, Volume II: Agent-Based Computational Economics.*
13. Ikikii, S., Nzomi, J.N. (2013) An analysis of the effects of stock market development on economic growth in Kenya, Kampala: analysis and planning division, *Kilimo Trust.*
14. Jensen, M. C. (1978:95) Some anomalous evidence regarding market efficiency. *Journal of financial economics, Vol.6, No.2/3 pp 95*
15. Levine, R., Zervos, S. (1998) Stock markets, banks and economic growth. *American Economic Review. 88: 537 - 57*
16. Nowbutsing, B.M. (2009) Stock market development and economic growth: the case of Mauritius. *International Business and Economic Research Journal Vol.8 No.2*
17. Nwankwo, G. O. (1985) The Nigerian Financial System. *Macmillan Publishers Ltd. Pp 134 - 137*
18. Obamiro, J.K. (2005) Nigerian economy: growth and the role of stock market. *Journal of Economics and Financial Studies. Vol.2 No.2*
19. Odhiambo, P. N. (2009) Stock market development and economic growth in South Africa: an ADFL Bounds Testing Approach. Pretoria, University of South Africa.
20. Ogundina, J. A., Ashamu, S. O. (2015) Stock market development and economic growth in Nigeria: application of Granger causality test. *Journal of Policy and Development Studies Vol. 9, No 5*

21. Okonkwo, O. N., Owwuru, H. O., Ajudua, E. I.(2014) Stock market performance and economic growth in Nigeria: an empirical appraisal. *European Journal of Business Management* Vol. 6 pp 33 - 42
22. Olowe, O., Matthew, A. O., Fashina, F. F. (2011) Nigerian stock exchange and economic development. *Revista Manager Journal* No. 14
23. Oriaregbete, S. (2017) The stock market: an imperative for economic growth. A case of Nigeria stock exchange.
24. Ovat, O. (2012) Stock market development and economic growth in Nigeria: market size versus liquidity. *Can.Soc.Sci.*2012, 8 [Cross Ref]
25. Owusu, E. L. (2016) Stock market and sustainable economic growth in Nigeria. *Economies* Vol. 4, No. 25; doi:10.3390/economies4040025
www.mdpi.com/journal/economies
26. Owusu, E.L., Odhiambo, N.M. (2014) Stock market developments and economic growth in Ghana: an ARDL-Bounds Testing Approach
27. Pandey, I. M. (2010: 637) Financial Management. *Vikas Publishing House PVT Ltd*
28. Petros, J. (2007) The effect of the stock exchange on economic growth: a case of Zimbabwe stock exchange. *Research in Business and Economics Journal*
29. Toni, J. (2016) Middle-market enterprises –planning for sustainable growth (KPMG)
<https://home.kpmg.com/au/en/home/insights/2016/middlemarketenterprises>. Downloaded on 16/12/2017
30. Werema, S., Nikupala, L. (2016) Impact of stock exchange market to the economic growth in Tanzania. *International journal of scientific and technical research in engineering*. Vol. 1. Issue 8, 2016.
31. Wikipedia. List of African stock exchanges (Downloaded on 10/12/2017)

Annexure 1

<u>Variable</u>	<u>ADF T-Statistics</u>	<u>Order of Stationarity</u>
<i>I</i>	-4.073989	I (0)***
LCrP	-4.238626	I (1)***
LMpD	-2.834313	I (1)*
LMpE	-4.426028	I (1)***
LMs	-3.333425	I (1)**
LRGDP	-4.94766	I (1)***
LVt	-4.60598	I (1)***

*** = 1% Significance

** = 5% Significance

* = 10% Significance

Annexure 2

Co-integration result

Date: 02/27/18 Time: 13:47
Sample (adjusted): 1987 2015
Included observations: 29 after adjustments
Trend assumption: Linear deterministic trend
Series: GDP MPD MPE VT CRP I MS
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 *	0.999400	572.1401	125.6154	0.0001
At most 1 *	0.987918	356.9996	95.75366	0.0000
At most 2 *	0.967831	228.9350	69.81889	0.0000
At most 3 *	0.887476	129.2696	47.85613	0.0000
At most 4 *	0.688008	65.91656	29.79707	0.0000
At most 5 *	0.535661	32.13797	15.49471	0.0001
At most 6 *	0.288988	9.890900	3.841466	0.0017

Trace test indicates 7 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 *	0.999400	215.1405	46.23142	0.0000
At most 1 *	0.987918	128.0645	40.07757	0.0000
At most 2 *	0.967831	99.66545	33.87687	0.0000
At most 3 *	0.887476	63.35301	27.58434	0.0000
At most 4 *	0.688008	33.77859	21.13162	0.0005
At most 5 *	0.535661	22.24707	14.26460	0.0022
At most 6 *	0.288988	9.890900	3.841466	0.0017

Max-eigenvalue test indicates 7 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

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

Normalised co-integration

Normalized cointegrating coefficients (standard error in parentheses)

GDP	MPD	MPE	VT	CRP	I	MS
1.000000	0.000000	-14.71740 (0.37589)	65.36689 (1.81892)	3.295437 (0.33445)	2.736587 (15.0248)	-5.862457 (0.39096)

Annexure 3

Granger Causality Tests

Pairwise Granger Causality Tests

Date: 02/27/18 Time: 13:55

Sample: 1985 2015

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
MPD does not Granger Cause GDP	29	1.17930	0.3247
GDP does not Granger Cause MPD		18.8950	1.E-05
MPE does not Granger Cause GDP	29	0.17045	0.8443
GDP does not Granger Cause MPE		9.52257	0.0009
VT does not Granger Cause GDP	29	0.06634	0.9360
GDP does not Granger Cause VT		7.87661	0.0023
CRP does not Granger Cause GDP	29	1.18278	0.3237
GDP does not Granger Cause CRP		12.0995	0.0002
I does not Granger Cause GDP	29	0.00657	0.9935
GDP does not Granger Cause I		2.82980	0.0788
MS does not Granger Cause GDP	29	0.14486	0.8659
GDP does not Granger Cause MS		7.18975	0.0036
MPE does not Granger Cause MPD	29	2.05695	0.1498
MPD does not Granger Cause MPE		2.81240	0.0799
VT does not Granger Cause MPD	29	3.05609	0.0657
MPD does not Granger Cause VT		33.3344	1.E-07
CRP does not Granger Cause MPD	29	14.5057	7.E-05
MPD does not Granger Cause CRP		7.00772	0.0040
I does not Granger Cause MPD	29	0.12240	0.8853
MPD does not Granger Cause I		1.59402	0.2239
MS does not Granger Cause MPD	29	16.5618	3.E-05
MPD does not Granger Cause MS		4.18516	0.0276
VT does not Granger Cause MPE	29	2.52775	0.1009
MPE does not Granger Cause VT		19.7656	8.E-06
CRP does not Granger Cause MPE	29	3.19107	0.0590
MPE does not Granger Cause CRP		10.6735	0.0005
I does not Granger Cause MPE	29	0.05246	0.9490
MPE does not Granger Cause I		2.40840	0.1114
MS does not Granger Cause MPE	29	5.05216	0.0148
MPE does not Granger Cause MS		20.4209	7.E-06

CRP does not Granger Cause VT	29	12.7541	0.0002
VT does not Granger Cause CRP		1.80807	0.1856
I does not Granger Cause VT	29	0.16990	0.8448
VT does not Granger Cause I		1.27051	0.2989
MS does not Granger Cause VT	29	8.12591	0.0020
VT does not Granger Cause MS		4.97145	0.0156
I does not Granger Cause CRP	29	0.39304	0.6793
CRP does not Granger Cause I		1.37888	0.2711
MS does not Granger Cause CRP	29	18.7523	1.E-05
CRP does not Granger Cause MS		4.51151	0.0217
MS does not Granger Cause I	29	1.62421	0.2180
I does not Granger Cause MS		0.10580	0.9000