

The Impact of the Nigerian Capital Market on Economic Growth (1990-2010)

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This paper seeks to examine the impact of the Nigerian capital market on its economic growth from the period of 1990-2010. This means that the performance of the stock market is an impetus for economic growth and development. The economic growth was proxied by Gross Domestic Product (GDP) while the capital market variables considered include; Market Capitalization (MCAP), Total New Issues (TNI), Value of Transactions (VLT), and Total Listed Equities and Government Stocks (LEGS). Applying Johansen co-integration and Granger causality tests, results show that the Nigerian capital market and economic growth are co-integrated. This implies that a long run relationship exists between capital market and economic growth in Nigeria. The causality test results suggest a bidirectional causation between the GDP and the value of transactions (VLT) and a unidirectional causality from Market capitalisation to the GDP and not vice versa. The F statistics is significant at 5 percent using a two-tailed test. On the other hand, there is no “reverse causation” from GDP to market capitalization. Furthermore, there is independence “no causation” between the GDP and total new issues (TNI) as well as GDP and LEGS. This is a clear indication of the relative positive impact the capital market plays on the economic growth of the country. The evidence from this study reveals that the activities in the capital market tend to impact positively on the economy. It is recommended therefore that the regulatory authority should initiate policies that would encourage more companies to access the market and also be more proactive in their surveillance role in order to check sharp practices which undermine market integrity and erode investors’ confidence.

Keywords: impact; stock market performance; capital market; economic growth; Nigeria

Introduction

The growth and development of the capital market in Nigeria can be traced to 1946 with the floating of N600,000 (more than 300,000 pounds sterling) worth of government stocks. However, an organized market for the secondary trading of issued stocks was lacking. In 1959, following the establishment of the Central Bank of Nigeria (CBN) a year earlier, a N4 million (2 million pounds sterling). Federal Government of Nigeria development loan stock was issued in line with its role of fostering economic and financial development. In 1986, Nigeria embraced the International Monetary Fund (IMF) Structural Adjustment Programme (SAP) which influenced the economic policies of the Nigerian government and led to reforms in the late 1980s and early 1990s. The programme was proposed as an economic package to rapidly and effectively transform the Nigeria economy within two years (Yesufu, 1996). government to judiciously implement some of its policy measures (Oyefusi and Mogbolu, 2003).

However, until SAP was abandoned in 1994, the objectives were not achieved due to the inability of The notable reforms include monetary and fiscal policies, sectoral reforms such as removal of oil subsidy in 1988 to the tune of 80%, interest deregulation from August 1987, financial market reform and public sector reform which entails the full or partial privatization and commercialization of about 111 public owned enterprises.

The Nigeria stock exchange was to play a key role during the offer for sale of the shares of the affected enterprises (World Bank, 1994; Anyanwu et al, 1997; Oyefusi and Mogbolu, 2003). The introduction of SAP in Nigeria has resulted in significant growth of the financial sector and the privatization exercise which exposed investors and companies to the significance of the stock market (Alile, 1996; Soyode, 1990).

Ariyo and Adelegan (2005) contend that the liberalization of capital market led to the growth of the Nigerian capital market, yet its impact at the macro-economic level was negligible. Again the capital market was instrumental to the initial twenty five Banks that were able to meet the minimum capital requirement of N25 billion during the banking sector consolidation in 2005. The stock market has helped government and corporate entities to raise

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long term capital for financing new projects, and expanding and modernizing industrial/commercial concerns (Nwankwo, 1991). We use econometric techniques the relationship between capital market performance and economic growth. Given the roles the capital market has played during the privatization of public owned enterprises, recent recapitalization of the banking sector and avenue of long term funds to various governments and companies in Nigeria, the objective of this study therefore is to evaluate the level of development of the capital market and how it has impacted on her economic growth.

Literature Review

Capital market is defined as the market where medium and long terms finance can be raised (Akingbohunge, 1996). Capital market offers a variety of financial instruments that enable economic agents to pool, price and exchange risk. Through assets with attractive yields, liquidity and risk characteristics, it encourages saving in financial form. This is very essential for government and other institutions in need of long term funds (Nwankwo, 1999). According to Al-Faki (2006), the capital market is a network of specialized financial institutions, series of mechanism, processes and infrastructure that, in various ways facilitate the bringing together of suppliers and users of medium to long term capital for investment in economic developmental project”

Several attempts have been made by previous writers to link the growth of the capital market with the economy. Levine (1991) argued that developed stock market reduces both liquidity shock and productivity shock of businessmen to investment funds as well as enhancing the production capacity of the economy, thereby leading to higher economic growth. This view was supported by King and Levine (1993) that financial development fosters economic growth. Moreover, Bensivenga et al (1996) concluded that well developed financial market (stock market) induces long run economic growth. Levine and Zervos (1996) examines whether there is a strong empirical association between stock market development and long-run economic growth. The study used pooled cross-country time-series regression of forty-one countries from 1976 to 1993 to evaluate this association. The study toed the line of Demircuc-Kunt and Levine (1996) by conglomerating measures such as stock market size, liquidity, and integration of the world markets into index of stock market development. The growth rate of Gross Domestic Product (GDP) per capita was regressed on a variety of variables designed to control for initial conditions, political stability,

investment in human capital, and macroeconomic conditions; and then include the conglomerated index of stock market development. The finding was that a strong correlation between overall stock market development and long-run economic growth exist. This means that the result is consistent with the theories that imply a positive relationship between stock market development and economic growth.

Pedro and Erwan (2004) asserted that financial market development raises output by increasing the capital used in production and by ensuring that capital is put into best uses. Ogwumike and Omole (1996), Ojo (1998), Abdullahi (2005); Adam and Sanni (2005) also stressed the importance of capital market in economic development in Nigeria. Agarwal (2001) argued that financial sector development facilitates capital market development, and in turn raises real growth of the economy. Thornton (1995), Rousseau and sylla (2001); Calderon and Liu (2002) supported that financial system development promotes economic growth. In the same vein, Beckaert et al (2005) demonstrated that capital market development increases economic growth. Similarly, Bolbo et al (2005) indicated that capital market development has contributed to the economic growth of Egypt.

Tharawanji (2007) observed that countries with deeper capital market face less severe business cycle output contraction and lower chances of an economic downturn compared to those with less developed capital market. On their part, Ben and Ghazouani (2007) reported that financial system development could have adverse effect on economic growth in a sample of 11 countries they studied, and therefore advocated for a vibrant financial sector. The World Bank (1994) found that stock market development does not merely follow economic development, but provides the means to predict future rates of growth in capital, productivity and per capital GDP. The conclusion of the Bank is that, increase in banking and stock market development leads to increased real per capital growth. Hamid and Sumit (1998) examined the relationship between stock market development and economic growth for 21 emerging markets over 21 years, using a dynamic panel method. Their results indicated a positive relationship between several indicators of stock market performance and economic growth both directly and indirectly by boosting private investment behaviour.

In Belgium, Nieuwer et al (2005) investigated the long term relationship between economic growth and financial market development. The authors used a new set of stock market development indicators to argue that financial market development substantially affects economic growth. They found strong evidence that stock market development leads to economic

growth in Belgium, especially in the period between (1973) and (1993). Chee et al (2003) indicated that stock market development has a significant positive impact on economic growth in Malaysia. The authors also reported that stock market development Granger-causes economic growth. The study by Muhammed et al (2008) suggested that there is a long-run relationship between stock market development and economic growth. Liu and Hsu (2006) reported a positive impact on economic growth of stock market development in Taiwan, Korea and Japan. The work of Francia et al (2007) showed that shareholder protection causes stock market development and eventually economic growth.

In Nigeria, some authors have also attempted to examine the relationship between stock market development and economic growth. For instance, Adam and Sanni (2005) examined the roles of stock market on Nigeria's economic growth using Granger-causality test and regression analysis. The authors discovered a one-way causality between GDP growth and market capitalization and a two-way causality between GDP growth and market turnover. They also observed a positive and significant relationship between GDP growth turnover ratios. The authors advised that government should encourage the development of the capital market since it has a positive effect on economic growth.

Abu N. (2009), examined whether stock market development raises economic growth in Nigeria, by employing the error correction approach. The econometric results indicate that stock market development (market capitalization GDP ratio) increases economic growth. He however, recommended the removal of impediment to stock market development which include tax, legal and regulatory barriers, development of the nation's infrastructure to create enabling environment where business can thrive, employment policies that will increase the productivity and efficiency of firms as well as encouraging of the Nigerian Securities and Exchange Commission to facilitate the growth of the market, restore the confidence of stock market participants and safeguard the interest of shareholders by checking sharp practices of market operators. Osinubi and Amaghionyeodiwe (2003) also examined the relationship between Nigeria stock market and economic growth during the period 1980-2000 using ordinary least squares regression (OLS). The result indicated that there is a positive relationship between the stock market and economic growth and suggest the pursuit of policies geared towards rapid development of the stock market.

Obamiro (2005) investigated the role of the Nigeria stock market in the light of economic growth.

The authors reported that a significant positive effect of stock market on economic growth. He suggested that government should create more enabling environment so as to increase the efficiency of the stock market to attain higher economic growth. Ezeoha et al (2009) investigated the nature of the relationship that exists between stock market development and the level of investment (domestic private investment and foreign private investment) flows in Nigeria. The authors discovered that stock market development promotes domestic private investment flows thus suggesting the enhancement of the economy's production capacity as well as promotion of the growth of national output. However, the results show that stock market development has not been able to encourage the flow of foreign private investment in Nigeria.

Efforts were also made by Nyong (1997) to develop 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. Four measures of capital market development, the ratio of market capitalization to GDP (in percentage), the ratio of total value of transactions on the main stock exchange to GDP (in percentage), the value of equities transaction relative to GDP and listings were used. The four measures were combined into one overall composite index of capital market development using principal component analysis. A measure of financial market depth (which is the ratio of broad money to stock of money to GDP) was also included as control variable.

The result of the study was that capital market development is negatively and significantly correlated with long-run growth in Nigeria. Ted et al (2005) examine the empirical association between stock market development and economic growth in India. Whereas the authors found support for the relevance of stock market development to economic development during pre-liberation, they discovered a negative relationship between stock market development and economic development for the post liberalization period. Ewah et al (2009) appraised the impact of capital market efficiency on economic growth in Nigeria, using time series data on market capitalization, money supply, interest rate, total market transaction, and government development stock between 1961-2004 using multiple regression and ordinary least squares estimation techniques.

The result of the study shows that the capital market in Nigeria has the potential to induce growth, but it has not contributed meaningfully to the economic growth of Nigeria because of low market capitalization, low absorptive capacity, illiquidity, misappropriation of funds among others. Some

authors focus on the causal relationship between stock market development and economic growth for example; Gursoy and Muslumov (1999) confirmed the existence of a bidirectional causal relationship between stock market development and economic growth. Their study also revealed a stronger association between stock market development and economic growth in developing countries.

Following Gursoy and Muslumov (1999), authors like Luintel and Khan (1999) and Hondroyannis et al (2005) also reported a bi-directional between stock market development and economic growth. This study is very important because the Nigerian stock market which witnessed a boom in the last few years is now experiencing a meltdown, as market capitalization has declined from over N13trillion in 2007 to N9.918trillion in 2010. The all-share index has also fallen from 57,990.22 points to approximately 24,770.52 points in the same period. Moreover, the confidence of shareholders and investors seems to be eroding. Thus, it is expected that this study would complement the efforts of government and policy makers in reviving the Nigeria stock market and restoring the confidence of shareholders and other participants in the market. In addition, it is believed that a vibrant and well developed stock market would attract foreign investors and enhance the attainment of higher economic growth.

Methodology

Data sources, description and method of analysis

This study employed secondary data obtained from the Central Bank of Nigeria Statistical Bulletin, Nigerian Stock Exchange Fact book, Securities and Exchange Commission database and from the relevant literatures (books, journals, previous research papers and electronic sites). The time series data cover the period 1990-2010. In an attempt to investigate the impact of the Nigerian stock market performance on economic growth, which has the ultimate aim of increasing the standard of living of the average Nigerian by improving their income, we applied co-integration and error correction modeling to the data obtained. We indeed ascertained the link between stock market earnings and macroeconomic growth indices.

Thus, the economic growth was proxied using the constant value of Gross Domestic Product (GDP) while the capital market performance variables were proxied using the Market Capitalization (MCAP), Total New Issues (TNI), Value of Transactions (VLT), and Total Listed Equities and Government Stock (LEGS). Since most of the time series data are

non-stationary, we decided to carry out the unit root tests for stationarity. According to Granger and Newbold (1974), and Engle and Granger (1987), the application of OLS to non-stationary data would result in spurious regression. For valid estimation and inference to be made, a set of non-stationary variables must be cointegrated. This means that a linear combination of these variables that is stationary must exist. To determine if the time series data are stationary, we carried out unit root test, which resulted in linear combination of series called the cointegration equation. This, however, may be interpreted as a stable long-run (equilibrium) relationship among the non-stationary time series variable. It also ignores the short run dynamics that might cause the relationship not to hold in the short run.

Model specification

The methodology adopted for this study was based on the improvement suggested by Demirgüç-Kunt and Levine (1996), Levine and Zervos (1996), and Ewah et al (2009) which have investigated linkage between stock market and economic growth. Their studies infer that the economic growth (Proxied by Gross Domestic Product) is significantly influenced by the capital market indices such as market capitalization, new issues, value of transaction and total listing.

To examine the long run relationship, one would need to use the Johansen co-integration test and develop an over parameterized error correction model (ECM₁) and a parsimonious error correction model (ECM₂). ECM₁ involves leading and lagging of the variables in the regression equation. ECM₂ introduces dynamism into the model.

The following are the *a priori* expectations of the coefficient of the model: $a_1, a_2, a_3, a_4 > 0$ The functional form on which our econometric model is based on is given as:

$Y = f(x_1, x_2, x_3, x_4) \dots \dots \dots (1)$ Where Y is economic growth or GDP = dependents variable $X_1 - x_4$ are independent variables F represents the functional notation. This can be specifically stated as:

$GDP = f(MCAP, TNI, VLT, LEGS) \dots \dots \dots (2)$

Where; GDP = Gross Domestic Product (proxy for economic growth) MCAP = Market Capitalization TNI = Total New Issues VLT = Total value for Transactions LEGS = Total listed equities and government stock. The explicit form of equation (i) is represented as: $GDP = \beta_0 + \beta_1 MCAP + \beta_2 TNI + \beta_3 VLT + \beta_4 LEGS + \varepsilon \dots \dots \dots (3)$

Where: B_0 = intercept of relationship in the model / constant $B_1 - B_4$ = Coefficients of each of the

independent variables e = stochastic/ Error terms By loglinearising, the model becomes;

$$\log(\text{GDP}) = \beta_0 + \beta_1 \log(\text{MCAP}) + \beta_2 \log(\text{TNI}) + \beta_3 \log(\text{VLT}) + \beta_4 \log(\text{LEGS}) + \varepsilon \dots \dots \dots (4)$$

Where; Log = Natural log From equation (4) model can be specified in a time series forms as;

$$\log(\text{GDP})_t = \beta_0 + \beta_1 \log(\text{MCAP})_t + \beta_2 \log(\text{TNI})_t + \beta_3 \log(\text{VLT})_t + \beta_4 \log(\text{LEGS})_t + \varepsilon \dots \dots \dots (5)$$

$$\Delta \log(\text{GDP}) = \beta_0 + \sum_{i=0}^n \beta_1 \log(\text{MCAP})_{t-1} + \beta_0 + \sum_{i=0}^n \beta_2 \log(\text{TNI})_{t-1} + \beta_0 + \sum_{i=0}^n \beta_3 \log(\text{VLT})_{t-1} + \beta_0 + \sum_{i=0}^n \beta_4 \log(\text{LEGS})_{t-1} + \beta_0 + \sum_{i=0}^n (\text{ECM})_{t-1} + \beta_0 + \sum_{i=0}^n t \dots \dots \dots (6)$$

By stating the error correction model (ECM) from equation (5), the model becomes; Where: $\sum_{i=0}^n (\text{ECM})_{t-1}$ Error Correction term $t-1$ meaning the variables were lagged by one period $\sum t$ White Noise Residual. To test for the existence of long run equilibrium relationship, the error correction model i.e. equation (6) can be conducted by placing some restrictions on estimated long run coefficient of variables.

Therefore, the hypothesis for the test is formulated as follows: $H_0: B_1 = B_2 = B_3 = B_4 = 0$ (No long run relationship i.e. no co-integration) $H_1: B_1 \neq B_2 \neq B_3 \neq B_4 \neq 0$ (Presence of long run relationship i.e. co integration exists).

As already stated, the estimated regression results are based on the Johansen cointegration technique and the granger causality test. These results are presented and discussed in this section. The procedure involves the investigation and determination of the time series properties of all variables included in the regression model. The appropriate test here is the unit root test which in this case is based on the Augmented Dickey-Fuller (ADF) test which provides the framework for the determination of the order of integration of each time series and consequently the (Non) stationarity of same.

We estimate relation (1) using the econometric software E Views 5.1 provided by Quantitative Micro Software. The results of the unit root test for stationarity is presented in table 1.0 below:

Results and Discussion

Table 1. Unit root test result

Variable	Lag	ADF Stat @ Stationary	Coefficient		Order of integration	Remark
			Level	1st Diff		
LGDP	2	-5.6833	-3.0206	-3.0299	I(1)	Stationary
LMCAP	1	-3.9826	-3.0404	-	I(0)	Stationary
LTNI	0	-4.8705	-3.0299	-	I(0)	Stationary
LVLTS	0	-5.9102	-3.0299	-	I(0)	Stationary
LLEGS	0	-5.9963	-3.0299	-	I(1)	Stationary

The results of the unit root test for stationary are presented in table 1 above. As shown in the table, it can be seen that the GDP is integrated of order one, while the MCAP, TNI, VLT and LEGS are stationary at level. This means that the GDP was differenced once before it could attain stationary while the other time series variables attained stationarity without any differentiation. The hypothesis of non-stationary was

therefore rejected for the entire variables. The optimum lag length, which is a guide for model selection are reported in column two of the table and were selected on the basis of the Schwarz Criterion (SC). This provides a basis for the test for cointegrating relationships among the stationary series of the same order. We next proceed to explaining the cointegration test as follows:

Table 2. Johansen cointegration test result

H_0	HA	Eigen value	Trace (stat)	Critical Value (0.05)	Prob.
$R=0$	$r=1$	0.959295	152.5567	76.28	0.0000
$R\leq 1$	$r=2$	0.820452	91.7298	54.0790	0.0000
$R\leq 2$	$r=3$	0.75742	59.1009	35.1926	0.0000
$R\leq 3$	$r=4$	0.680531	32.1886	20.2618	0.0007
$R\leq 4$	$r=5$	0.4248	10.50773	9.1645	0.0277

Cointegrating Vector normalized on GDP

GDP = 0.3462LMCAP – 0.1439LTNI – 0.64989LVLT + 1.0912LLEGS – 7.755719
(0.07467)(0.01248)(0.04464)(0.31656)(0.63825)

Note: Trace test indicates 5 cointegrating eqn (s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level **MacKinnon-Haug-Michelis (1999) p-values.

The result of the Johansen co integration test presented above shows that Trace test indicates five (5) cointegrating equations at 0.05 significant level. From the above equation, the Market capitalization (MCAP) and total listed equities and government stocks (LEGS) are positively signed while the total new issue (TNI) and total value of transactions (VLT) have an inverse relationship with the gross domestic product (GDP).

This shows that a million naira increase (decrease) in LMCAP and (LLEGS) will amount to about 0.3462 and 1.0912 million naira increase (decrease) in LGDP respectively while a million naira increase (decrease) in LTNI and LVLT will results to 0.1439 and 0.6499 decrease (increase) in LGDP in the long run respectively. The constant coefficient which is negatively signed indicates that there will constant declines of about 7.7557 million naira if the capital market proxies were constant or equated to zero.

Accordingly, all the independent variables conform to the a priori expectation except the LLEGS which was negatively signed against the LGDP. Also, the variables are all significant using the standard error test, this is a clear indication that the variables proxied to capture capital market have a relative significant impact on the economy. Though, there is tendency that the capital market will have remarkable impact on the economy, however, the impact is still relatively significant. This is further be explained by the residual plot of the model, as depicted below. Residuals are differences between the one-step-predicted output from the model and the measured output from the validation data set. Thus, residuals represent the portion of the validation data not explained by the model. The top axes show the

autocorrelation of residuals for the output (whiteness test). The horizontal scale is the number of lags, which is the time difference (in samples) between the signals at which the correlation is estimated. The horizontal dashed lines on the plot represent the confidence interval of the corresponding estimates. Any fluctuations within the confidence interval are considered to be insignificant. Though, our model has a residual autocorrelation function within the confidence interval, indicating that the residuals are uncorrelated, however, there are some residual fluctuations that are produced outside the confidence interval. The bottom axis shows the cross-correlation of the residuals with the input. A good model should have residuals uncorrelated with past inputs (independence test). The model also passes the independence test, having residuals uncorrelated with past inputs. The evidence of correlation indicates that the model does not describe how the output is formed from the corresponding input.

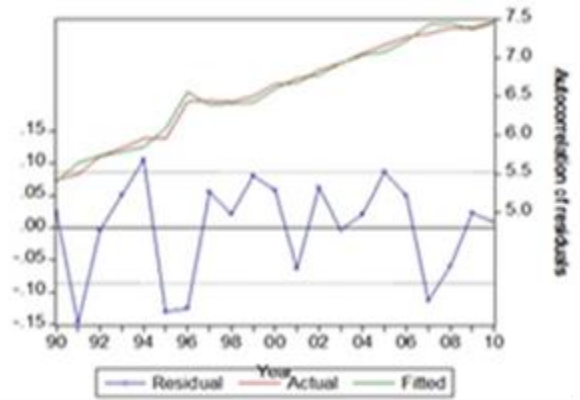


Figure 1. The residual plot

Table 3. Granger causality test

<i>Null Hypothesis:</i>	<i>Obs</i>	<i>F-Statistic</i>	<i>Probability</i>
LMCAP does not Granger Cause LGDP	19	3.72074	0.05060
LGDP does not Granger Cause LMCAP		1.97486	0.17559
LTNI does not Granger Cause LGDP	19	0.00928	0.99077
LGDP does not Granger Cause LTNI		0.84916	0.44867
LVLTL does not Granger Cause LGDP	19	2.39890	0.12710
LGDP does not Granger Cause LVLTL		4.56805	0.02971
LLEGS does not Granger Cause LGDP	19	0.03847	0.96236
LGDP does not Granger Cause LLEGS		0.12420	0.88416

The causality test results suggest a bidirectional causation between the GDP and the value of new issue (LVLTL) and a unidirectional causality from Market capitalisation to the GDP (MKT→LGDP) and not vice versa. The F statistics is significant at 5 percent using a two-tailed test; the critical value is 2.08 for (15, 4 degree of freedom). On the other hand, there is no “reverse causation” from GDP to the LMCAP. Furthermore, there is independence “no causation” between the LGDP and LTNI as well as GDP and LLEGS. This is a clear indication of the relative positive impact the capital market played on the economic growth of the country

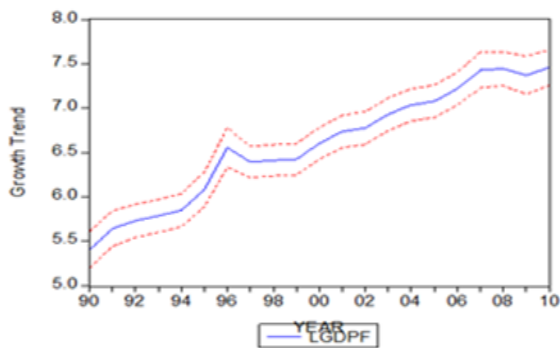


Figure 2. The economic growth forecast graph

The LGDP forecast graph shows a trend and steady growth rate from the period of 1990 to 2006. The increase though reflected on the GDP as a marginal increase but has no significant and measurable impact on the growth of the economy. However, there was a sharp decline in the growth rate between the periods Of 2006 to 2009, which could be ascribed to the shoddy effect of the increase in bank capital base which made them all rush into the capital market. The graph also portrays an increase after the decline from 2009 to 2010.

Conclusion and Recommendation

According to the results, the stationary test indicates that the GDP was stationary at the first difference, while other variables are stationary at level. Secondly, the co-integration test illustrate that the variables are co-integrated and implying that a long run relationship exists between them. Also, the causality test implies that there is a bi-directional causation between GDP and LVLTL, also an independence causation of the market capitalization (LMCAP) and the GDP was exhibited by the result. The result also shows an independent or ‘no correlation’ between the GDP and LTNI as well as LLEGS.

In addition to the above, only the LMCAP and LLEGS prove to have a positive impact on the growth of the economy, being positively signed, while other variables were negatively signed, implying a negative or insignificant impact on the growth of the economy. However, the findings aligns with Ariyo and Adelegan (2005) and Ewah et al.(2009) who found that the capital market in Nigeria has the potentials to induce growth but has not contributed significantly to economic growth of Nigeria due to low market capitalization, small market size, few listed companies, low volume of transactions, illiquidity among others. Also our result supports Demirgüç-Kunt and Asli (1996) and Harris (1997) who found no hard evidence but strong positive relationship between stock market and economic growth which is contrary to the literatures that there is positive relationship between stock market and economic growth.

Based on the discussion of findings of the study, the following recommendations are made

-Encouraging more private limited liability companies and informal sector operators to access the market for fresh capital.

-Trading impediments such as high transaction costs should be reviewed to encourage more active trading in stocks.

-SEC should be more proactive in its surveillance role in order to check sharp practices which undermine the capital market integrity and erode investors' confidence.

Recommendation for further study: Contrary to our *a priori* expectation, GDP and the volume of transactions (LVLT) are not only inversely related, but also have a bi-directional causal relationship. This, in our opinion deserves further investigation.

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