

**THE IMPACT OF STOCK MARKET OPERATIONS ON THE NIGERIA
ECONOMY:A TIME SERIES ANALYSIS(1981-2008)**

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ABSTRACT

This paper attempts to empirically examine the impact of stock market capitalization, value of listed securities and all share index on Grods DomesticPproduct of the Nigeria economy over twenty eight (28) year period. The unit root test and co-integration test were carried out. The result revealed a positive relationship between market capitalization and output level of Gross Domestic Product (GDP). The result also show that the value of listed securities had a positive and significant relationship with the output level of Gross Domestic Product (GDP) while the all share index has a negative and a significant relationship with the output level of GDP. The implication of this result is that the growth or increase in market capitalization and value of listed securities up to 2008 has resulted to increases in output level of GDP in Nigeria. It is recommended that policy makers and market regulators in Nigeria should sustain policy measures that will ensure continuous increase in the GDP.

INTRODUCTION

The most essential function of the capital market is to facilitate the mobilization and allocation of medium and long term funds that will ginger the process of economic growth and development. Economic growth is achieved when the capital market through its financial intermediation role succeed in accumulating capital for productive engagement from the saving surplus of the economy and channeling same to the deficit spending economic units. For the purpose of this study, **Economic Growth** is defined as a sustained rise in the output of goods, services and employment opportunities with the sole purpose of improving the economic and financial welfare of the citizens. It is the role of the capital market to continue to provide a means of allocating the Nations real and financial resources between various investors, thereby broadening the ownership base of businesses through issuance and trading of financial instrument. Such instruments, also known as **financial securities**, are claims on the borrower's future income or assets. **Equities** represent ownership stake in a particular firm that issued them and **Bond** is a debt instrument which is a contractual agreement by the borrower to pay the holder of the instrument fixed Naira amount at regular intervals (interest and principal payments) until a specified maturity date, when a final payment will be made (Mishkin, 1997).

Capital Market is the market in which long term debt (maturity greater than one year) and equity instruments are traded. The capital market is made up of two inter-related segments, the primary market which provides the mechanism for raising funds through the issuance of fresh or new securities. The secondary market provides facilities for trading in already existing securities, hence creating liquidity in the market. The economy will feel the effect of the stock market activities more positively when the Gross Domestic Product (GDP) is on the increase as a result of the operations of the capital market. In this context, **Fund** is the sum of money or stock of convertible wealth employed, set aside for a business enterprise, especially the quick capital or available asset of a business firm or corporation. **Stock Market** refers to that organization which is set up for the purpose of administering the conduct of trading on the securities of quoted companies in the economy. It is a vital arm of the capital market. (Nzotta, 2004). To perform its wealth creation and welfare improvement function optimally, the capital or stock market must assert positive influence on the working of the economy through its operations. Three explanatory variables: market capitalizations, value of listed securities and all share indexes are cardinal for our purposes. **Gross Domestic Product (GDP)** is employed as proxy for economic growth in this study and it is conceptualized as the total monetary value of all goods and services produced in an economy over a defined or specified period of time, say one year. The way Gross Domestic Product reacts is a function of the magnitude and direction of the effects of the forces at play in the stock market. This way is what this paper terms impact of stock market operations. **Operations** for the purpose of this paper, concerns itself with the activities, things, actions, simulations generated from the workings of the Nigerian stock market that bring about the corresponding reactions by the macro economic indicators such as the Gross Domestic Product (GDP). (Onoh, 2007).

In the capitalist ideology of ensuring efficient allocations of scarce financial resources and massive capital formation, there is the interplay of individuals (private and corporate investors), specialized financial institutions and instruments. This arrangement form a network of institutions, processes, infrastructures and mechanisms that facilitate the convergence of suppliers and users of medium and long term fund for investment purposes, otherwise called the **stock or capital market**. **Investment** refers to economic activities which aim at increasing the productive quantity and quality of existing capital resources. It is the change in capital stock over time. It refers to the use of present resources to produce further resources. With reference to financial securities, investment refers to only the new issues of securities which represent net additions to aggregate capital funds of the firm, not trading on existing securities which does not add to the stock of existing capital. This is the laying out of savings or accumulated capital in a manner and for a purpose which promises a return of principal and satisfactory income. (Nzotta, 2004).

However, one expects that the operations of the stock market must be significant in influencing economic growth which is evidenced by the GDP. The operations are represented by factors such as stock market capitalization, value listed securities and all share index. According to the Nigerian Securities and Exchange Commission (1998), **Market Capitalization** for any quoted company is the worth of that company as determined by market forces, i.e. demand and supply of its securities. Market capitalization of any security is therefore, its value as perceived by investors. It is the product of the company's share price in the market and its outstanding shares (paid up capital) at a given date. In the light of this, an empirical examination of the magnitude and direction of relationship between Gross Domestic Product (GDP) and stock market capitalization, value of listed securities and all share index becomes expedient. This however, constitutes the central problem of the study. The objectives of this study are to critically examine the nature of relationship between stock market capitalization and gross domestic product; to exami; and to ascertain the nature of relationship between the all share index and the Gross Domestic Product.

LITERATURE REVIEW

The study of Goldsmith (1969) and other previous studies have attempted to demonstrate that the stock market activities, indeed, influence the economic growth of developing economies. While they seem to agree on the significant consideration of stock market operations as a variable in explaining the economic growth in the developed economies, there appear to be disagreements in respect of the direction of causality between economic growth and financial market of developing countries.

In a later study, two key positions on how the changes in market stock catalyze the pace of economic growth were ascertained. The first is by making proper changes possible in the firms without affecting the productive process in the economy. The other is by offering higher possibilities of portfolio diversification, Levien (1991).

Levine and Zervos (1998) presented a study of stock market and economic growth over the period of 1976–1993 and used data on forty seven (47) countries. Their findings showed that there exist a strong relationship between stock market liquidity and economic growth, capital accumulation and productivity, while stock market size is not correlated to economic growth. It was also found out that the ratio of bank lending to the foreign direct investment showed strong impact on economic growth.

Atje and Jovanovic (1993), carried out a cross country study of market and economic growth covering the period 1980–1988 and found a positive and significant correlation between average economic growth and stock market capitalization for forty (40) countries. The result is evidence that the level of stock market operations helps to explain growth in per capital output. In sharp contrast to Atje and Jovanovic (1993), Harris (1997) re-examine the empirical relationship between stock market and economic growth. The result exposed the fact that the level of stock market activity does not help to explain growth in per capital output.

In another study by Demirguc-kut and Marsimovic (1998) cited in Henry (2000), stock market activities in the area of transmission of already existing assets (secondary market activity) was discovered to exert significant influence on the economic growth more than fund channeling (primary market activity). The result of this study, with a sample of thirty (30) countries for the period 1980 to 1991 reveals that, banks and stock markets are not rival institutions but are complementary to one another and that the advancement in stock market in developing countries does not imply a decrease in the banking system. Similar study by the same authors Demireus-Kut and Levein (1996) using data from forty four (44) countries, both developed and developing, for the period 1986–1993 concluded that “countries with well developed stock markets tend to also have well developed financial intermediaries.” This suggests that proper financial intermediation leads to allocative efficiency of productive resources to preferred growth areas in the economy.

Barton (1992) in his study highlighted the relationship between stock prices and expected earnings using the earnings expectation model. Oludoyi (2001), in his study shows that the current market price of a stock equals the expected value of the sum of next period’s price and dividend discounted. This he further explained exerts significant impact on the wealth of the nation. The conclusion of Barlett (2000) has it that rising stock prices have two basic effect on the economy of the nation. To start with, it increases the wealth of a nation thereby raising the amount of consumer spending. He also stated that rising prices of stocks in the stock market can increase investment spending thereby leading to the issue of new stocks. As such, the stock market affects the economy through the wealth creation effect. Irving (2004) study, considered a link between stock exchanges and overall socio-economic development. According to him, there is no relationship and even where there is such could be harmful. Based on his findings, he advised African countries not to devote their scarce economic resources to promotong stock exchange, rather, such resources should be used to fight poverty, provide adequate social services, and develop infrastructure. Sule (2009) demonstrates that while activities in the secondary market tend to grow the stock market earnings through its wealth effects, the primary market did not.

Unlike the earlier studies by the authors, this paper tends to highlighten the essential behavioral pattern of the Gross Domestic in response to impact provided by the various operational variables in the Nigeria’s stock market. The logical point of entry is to determine the relationships between the operational variables (market capitalization, value of listed securities, all share indexes) and the Gross Domestic Product.

METHODOLOGY

The study employs various data obtained from the Central Bank of Nigeria (CBN), Statistical Bulletin, National Bureau of Statistics, National Account of Nigeria, and the Nigerian Stock Exchange fact book. The time series data cover the period of 1981–2008. In an attempt to investigate the impact of stock market operations on the Nigerian economy which has the aim of increasing the level of production of goods and services in the Nigerian economy, we use the Gross Domestic Product as proxy for the performance of the Nigerian economy which is our dependent variable and stock market capitalization (MCAP), value of listed securities (VLS) and all-share index (ASI) as stock market performance or explanatory variables. We use the unit root test to test for stationarity of the times series data. We also carried out a co-integration test to identify long-run relations (equilibrium) amongst the co-integrating vectors. In this study, we employed the Jonansen co-integrating technique because it performs better when we are dealing with multiple regressions. Finally, we used the error correction model to correct for disequilibrium.

MODEL SPECIFICATION

Following the position of Demirgus-Kunt, Ali and Levine (1996) and the theoretical underpinnings and empirical review earlier made in this paper, we can hypothesize that the Gross Domestic Product is a positive function of market capitalization (MCAP), value of listed securities (VLS) and all share index (ASI). Depending on the prevailing circumstances, these variables could be postulated to be negatively related to the Gross Domestic Product (GDP).

The model is based on Demirgus-Kunt, Ali and Levine (1996) theory on the relationship between stock market earnings and economic growth. This is modified to measure the stock market impact on the Gross Domestic product in Nigeria. We specify a three predictor model as follows:

$$GDP = a_1 + a_2MCAP + a_3VLS + a_4ASI + U_t \dots \dots \dots (1)$$

$$F_1 > 0, \quad F_2 > 0, \quad F_3 > 0$$

Where:

- GDP** = GROSS DOMESTIC PRODUCT
- MCAP** = MARKET CAPITALIZATION
- VLS** = VALUE OF LISTED SECURITIES

ASI = ALL SHARE INDEX
 U_t = Stochastic variable (error term)
 A_1 = Intercept
 A_2, a_3, a_4, a_5 = Slope

DATA ANALYSIS AND INTERPRETATION

This section shows the empirical analysis of this study. It entails the analysis of data on the impact of stock market operation on the Nigeria economy. This analysis is based on testing the basic assumptions about the relationship between stock market operation and the Nigeria economy.

TABLE 1: Annual Time Series of Real Macro Economic Variable (GDP) and Stock Market Variables (1981–2008)

Year	Gross Domestic Product	Market Capitalization	Value Listed Securities	All Share Index
1981	94,325.02	5.0	304.8	100
1982	101,011.23	5.0	215	100.2
1983	110,064.03	5.7	397.9	104.2
1984	116,272.18	5.5	256.5	115.5
1985	134,603.32	6.6	316.6	127.3
1986	134,603.32	6.8	497.9	163.8
1987	193,126.20	8.2	382.4	190.9
1988	263,294.46	10.0	850.3	233.6
1989	382,261.49	12.8	610.3	325.4
1990	472,648.75	16.3	225.4	513.8
1991	545,672.41	23.1	242.1	783
1992	875,342.52	31.2	491.7	1,107.60
1993	1,089,679.72	47.5	804.4	1,543.80
1994	1,399,703.22	66.3	985.9	2,205.00
1995	2,907,358.18	180.4	1,838.80	5,092.20
1996	4,032,300.34	285.8	6,979.60	6,992.10
1997	4,189,249.77	281.9	10,330.50	6,440.50
1998	3,989,450.28	262.6	13,571.10	5,672.70
1999	4,679,212.05	300.0	14,072.00	5,266.40
2000	6,713,574.84	472.3	28,153.10	8,111.00
2001	6,895,198.33	662.5	57,683.80	10,963.10
2002	7,795,758.35	764.9	59,406.70	12,137.70
2003	9,913,518.19	1,359.3	120,402.60	20,128.90
2004	11,411,066.91	2,112.5	225,820.00	23,844.50
2005	14,610,881.45	2,900.1	262,935.80	24,085.80
2006	18,564,594.73	5,121.0	470,253.40	33,189.30
2007	20,657,317.67	13,294.6	1,076,020.40	57,990.20
2008	23,842,170.70	9,516.2	1,679,138.70	31,450.78

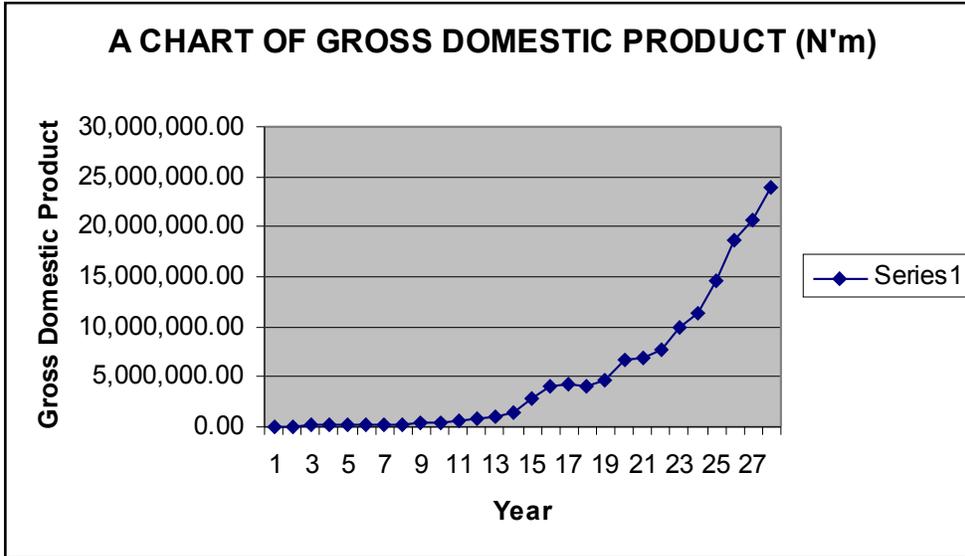
Source: Central Bank of Nigeria, Statistical Bulletin, Various Issues.

Source: National Bureau of Statistics, National Account of Nigeria, Various Issues.

Source: Nigeria Stock Exchange, Fact Sheet Various Issues

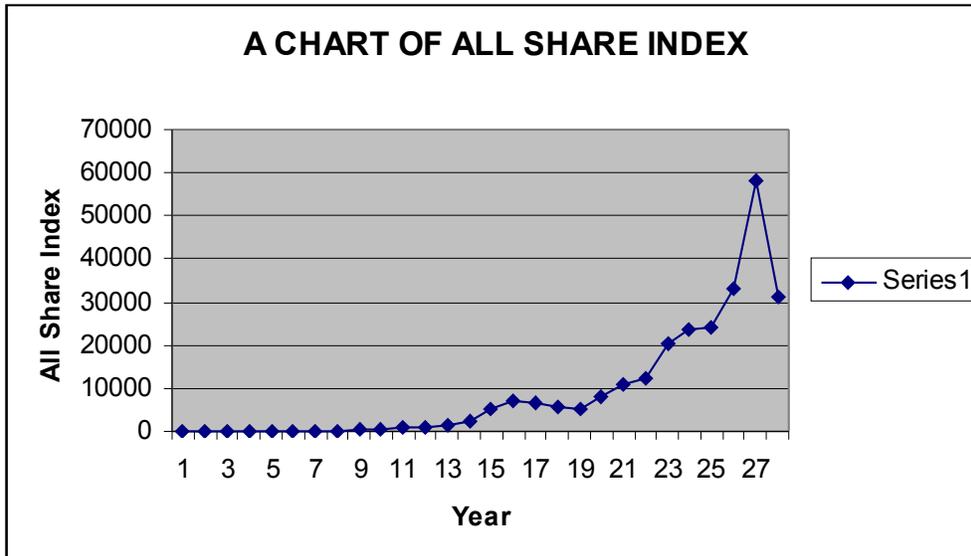
Annual time series data for the period of 1981 - 2008 are used in the present study. We started the empirical analysis by examining the characteristics of the variables used. *Table 2* reports the Unit Root Tests result -Augmented Dickey Fuller (ADF) tests. To proceed with the test, graph of each series is visually examined to see whether a trend is present or not as shown in figure below:

Figure 1



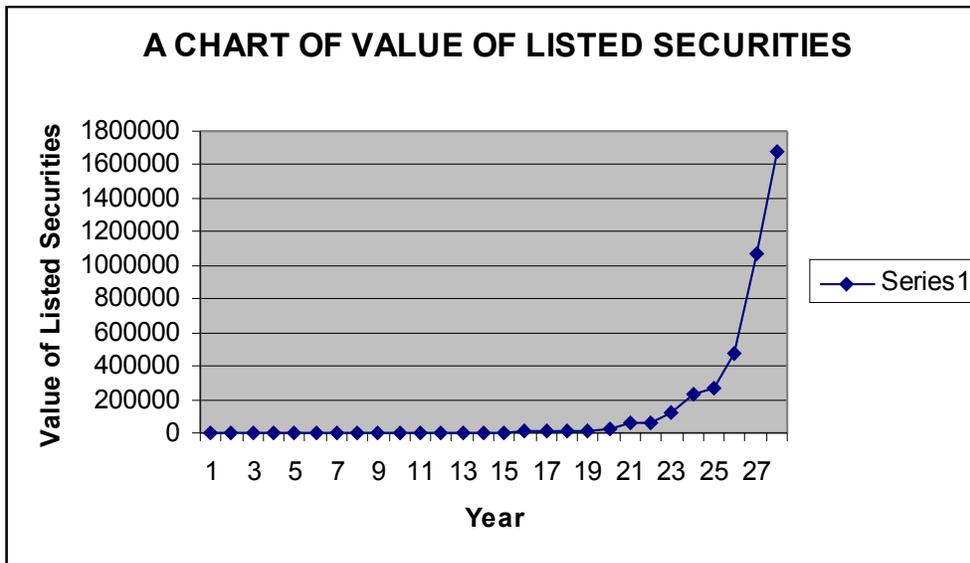
Source: Researcher's Computation

Figure 2



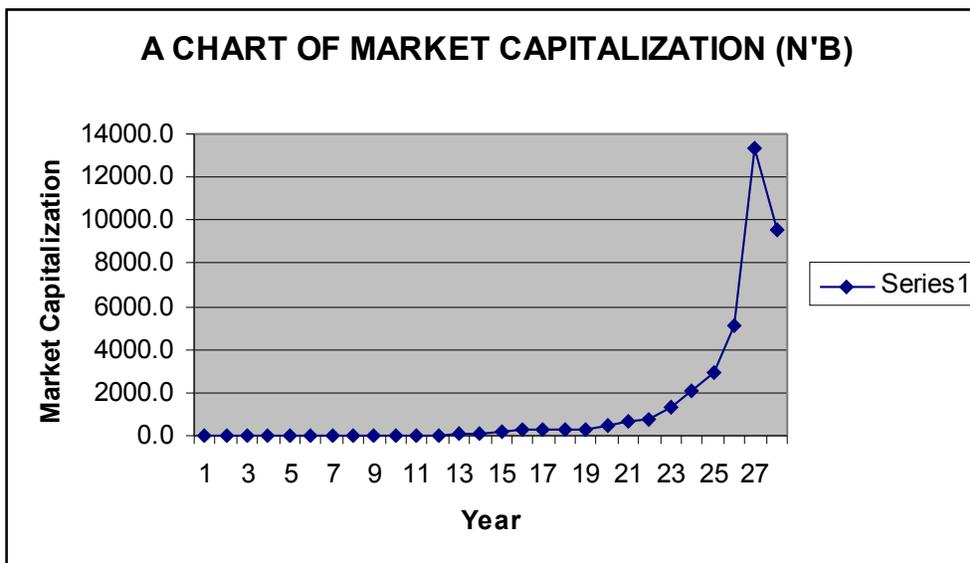
Source: Researcher's Computation

Figure 3



Source: Researcher's Computation

Figure 4



Source: Researcher's Computation

A trend variable is necessary in the ADF regression if trends are present in the series. In the absence of a trend in the series, only an intercept is included in testing for unit roots.

UNIT ROOT TESTS

The Augmented Dickey Fuller (ADF) test of unit roots was conducted for all the time series (including a deterministic trend), which were used in the study. The ADF results showed that all the variables were non-stationary at their levels. The test results revealed that the series were all integrated series of order (1). The results of the ADF tests are shown on *Table 2* below:

TABLE 2: Augmented Dickey-Fuller Test Results

S/NO	VARIABLES	ADF STATISTIC AT LEVEL	CRITICAL VALUE 5 %	ADF STATISTIC 1 ST DIFFERENCE	CRITICAL VALUE (5%)	ORDER OF INTEGRATION
1	GDP	4.3630	3.7709	8.4310	3.7709	1(1)
2	MCAP	3.2214	3.7709	5.2142	3.7709	1(1)
3	VLS	2.8341	3.7709	4.4411	3.7709	1(1)
4	ASI	-2.8388	3.7709	-3.7723	3.7709	1(1)

Source: Self-computed

Augmented Dickey-Fuller result shows that market capitalization in relation to Gross Domestic Product is positive, and Gross Domestic Product in relation with value of listed securities is positive at ADF level, while all share indexes with gross domestic product is negative at ADF statistic level in order of integration (1).

CO-INTEGRATION TEST

Johansen procedure is used to identify long-run consumption expenditure amongst the co-integrating vectors. *Table 3* reports the estimates of Johansen procedure and standard statistics. In determining the number of co-integrating vectors, we used degrees of freedom adjusted version of the maximum eigenvalue and trace statistics, since the existence of small samples with too many variables or lag Johansen procedure tends to over estimate the number of co-integrating vectors.

Table 3: Normalized co-integrated coefficients, (1) co-integration equation(s)

GDP	MCAP	VLS	ASI	C
1.000000	2.024739	3.44057	-2.4380	6875.258
	(0.20277)	(1.62822)	(9.6139)	
Log likelihood	-887.6655			

Test indicates two co-integrating equation(s) at 5% significance level. Based on the estimates, the long run elasticity can only be reported for market capitalization, value of listed securities and all share index variable. The value of the

long-run elasticity of output level of Gross Domestic Product with respect to market capitalization is 2.02. This is obtained from the coefficient, and the implication of this is that the long run relationship between output level of gross domestic product and market capitalization is positive. Value of listed securities has a long run positive relationship with output level of gross domestic product and all share indexes have a long run negative relationship with output level of Gross Domestic Product.

EMPIRICAL RESULTS AND DISCUSSION

The results of model estimation and the various diagnostic tests are presented below. Equation 1 is estimated using the output level of Gross Domestic Product (GDP) as the dependent variable. The results of parameter estimate, along with the standard errors, t-values and the corresponding critical values are given in the tables. The signs of all estimated coefficient are expected in the Ordinary Least Square (OLS) model in *Table 4*. The parameters of all variables in *Table 4* are significant at 95% confidence interval.

Table 4: The Over-parameterized Error Correction Model

Dependent Variable: D (GDP,2)					
Method: Least Squares					
Date: 28/01/10 Time: 09:33					
Sample (adjusted): 1981 - 2008					
Included observations: 27 after adjusting endpoints					
Variable	Coefficient	Std. Error	t-Statistic	Prob.	
C	0.03210	2.20330	0.01457	0.3119	
D (VLS,2)	3.04242	0.21932	1.61322	0.0042	
D(VLS(-1),2)	1.04031	0.05620	-0.77941	0.0061	
D(MCAP,2)	8.01031	8.40516	0.95302	0.6440	
D(MCAP(-1),2)	3.10440	5.30340	0.58536	0.8271	
D(ASI,2)	-2.21514	7.00270	2.37550	0.0389	
D(ASI(-1),2)	-1.40310	4.39808	0.31903	0.9443	
ECM(-1)	0.33511	0.41910	0.79959	0.1910	
R-squared	0.953032	Mean dependent var		0.056308	
Adjusted R-squared	0.815322	S.D. dependent var		0.013164	
S.E. of regression	10625.12	Akaike info criterion		-2.561024	
Sum squared resid	0.399447	Schwarz criterion		-2.316136	
Log likelihood	39.58143	F-statistic		6.084068	
Durbin-Watson stat	1.870522	Prob(F-statistic)		0.000331	

Source: Self-computed

Note *significant at 1 percent

**Significant at 5 percent

In *Table 4*, market capitalization has a positive relationship with output level of gross domestic product. A 1% rise in the market capitalization increases the output level of Gross Domestic Product by 8.01% while the F-Statistic shows that stock market operation is enhancing the growth of Nigeria economy; hence we accept the

alternative hypothesis and reject the null hypothesis. Value of listed securities has a positive and significant relationship with output level of gross domestic product at first difference. The implication of this finding is that the growth in value of listed securities up to 2008 has resulted to increases in output level of gross domestic product in Nigeria. All share index has a negative and significant relationship with output level of gross domestic product with lagged difference. The co-efficient of determinant shows that 95% of the total variations in output level of Gross Domestic Product is explained by the explanatory variables.

CONCLUDING REMARKS

The study sought to examine the impact of selected stock market operation (activities) on the Nigeria economy. In the light of this effect, the study equally sought to identify the long-run impact of the stock market indicators on the economy. The result indicates that significant relationship exist between market capitalization and Gross Domestic Product, and also between the value of listed securities and Gross Domestic Product variables. By implication, market capitalization and value of listed securities affects the economic growth of Nigeria. The All Share Index negatively but significantly affects the growth rate of the economy. The result confirms that previous market capitalization and value of listed securities ginger up current economic growth even in the face of influence by other economic variables. In any given year, a 1% rise in market capitalization increases the output level of GDP by 8.01%. While a 1% rise in the value of listed securities increases the output level of GDP by 3.04%. The identified behavior of GDP in response to the stimuli provided by stock market operation is largely growth motivated.

In conclusion, we recommend that to enhance economic growth, policy markers and market regulators should sustain the level of reform and market efficiency.

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