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The effect of capital market on the Nigerian economy: An empirical analysis

Ilori, Olanrewaju Olurotimi[1] and Adeusi, Stephen Oluwafemi[2]

[1,2]*Department of Finance, Faculty of Management Sciences, Ekiti State University, Ado-Ekiti, Nigeria*
Email: lanreilori@yahoo.com

Abstract
This study investigated the effect of capital market on the Nigerian economy from 1989 to 2019. Data for this study were collected from the Central Bank of Nigeria statistical bulletin 2019 and from the Nigerian stock exchange fact sheet. The Augmented Dicker Fuller (ADF) unit root test, Autoregressive distributed lag (ARDL) bounds test were used to evaluate the effect of capital market on the Nigerian economy. The Augmented DickerFuller (ADF) unit root test proved that the variables are integrated at levels and at first difference i.e I (0) and I (1) hence stationary. The ARDL test and bounds test reveals that long run relationship exists among the variables. The results revealed that in the long run, MCAP is significant and exhibits a positive relationship with GDP while ASI and TLS are significant but exhibits negative relationship with GDP and VTS also exhibits negative relationship with GDP but is not significant. It was then recommended that there is need to introduce and implement policies that will increase the level and size of market capitalization in the Nigerian capital market by the government through the regulatory agencies as increase in market capitalization will lead to increase fund availability for desired investment which in turn will increase productivity of the Nigeria economy.

Keywords: Capital market, GDP, Market capitalization, Total listed securities

1.0 Introduction

Success in capital accumulation and mobilization for development varies among countries, but it is largely dependent on domestic savings and inflows of foreign capital. Therefore, to arrest the menace of economic downturn in any country, effort must be geared towards effective resources mobilization. It is in realization of this that consideration is given to development of capital market as an institution for the mobilization of finance from the surplus sectors to the deficit sectors of the economy. Money is involved in most aspects of human economic struggle. Capital build up is boosted with money which in turn expands economic growth,

Inimino, Bosco and Abuo (2018) posited that to achieve rapid economic growth, it essential to access long term finance through capital market. The raw material in the capital market is money which can be gotten through a well functional and carefully administered capital market guided by regulatory authorities who enforces regulations guiding all stakeholders. Binuyo, Durojiaiye and Edy-Ewoh (2019), explains that capital market is a complex institution imbued with inherent mechanism through which long-term funds of the surplus sectors

of the economy are made accessible to the deficit sectors.

The market allows government and business concerns the chance to sell stocks and bonds in order to raise capital from the surplus of other economic agents. The capital market is specialized and a veritable instrument of growth due to its capability to activate and assemble saving and investment. The significance of capital market is in its intermediation capability within the economy to link the deficit sector with the surplus sector. Taiwo, Alaka and Afieroho (2016) assert that capital market is the cornerstone of any financial system since it provides the funds needed for financing, not only business and other economic institutions but also the programs of government as a whole. This is in contrast with the conclusions of Adeoye (2015) who appraised the impact of Nigerian capital market on the economy using data from 1992 to 2011 and concluded that capital market insignificantly impact the economy. Ewah, Essang and Bassey (2009), appraise the impact of the capital market efficiency on economic growth of Nigeria also concluded that capital market in Nigeria has not contributed meaningfully to the economy. This also is in contrast with the conclusion of (Eichengreen and Leblang, 2003) that capital market has a negative effect on the economy. This is a pointer to the fact that there is a challenge of which school of thought is correct and it is this challenge that motivated this study.

2.Literature review

The effect of capital market on an economy hinges on the hypothetical structure of the research of Schumpeter, (1911) which clarified that for growth and technological advancement to occur, a functional financial system must initially be in place to provide services to investors. The Schumpeter, (1911) debate later evolved as the McKinnon(1973) hypothesis, which is a policy analysis tool for developing countries with strong recommendation and high priority on the competence of financial systems in financial intermediation. The above theory gained popularity through the endogenous growth models of Fry (1988), Greenwood and Jovanovic (1990) and Pagano (1993) which expanded the link between financial intermediation role of capital markets and growth indices. These models give recognition to the capital market as a veritable institution that enhances the economic growth of economy

A comprehensive study on the relationship between capital market development and economic growth, according to Levine (1997), was undertaken by the World Bank Research Group. They researched into the nexus between economic growth and stock market development and concluded that stock market development is positively correlated with the development of financial intermediaries and long term economic growth. Adoms, Yua, Okaro and Ogbonna (2020) examined the relationship between capital market and economic development in emerging African economies and concluded that capital market has a significant relationship with economic development in the selected emerging Africa economies in Nigeria and South Africa except for Kenya which conforms with the Finance Led Growth Hypothesis Theory. Inimino, Bosco and Abuo (2018) examined capital market and economic growth in Nigeria from 1986 to 2016 and employed Augmented Dickey-Fuller test and Autoregressive Distributed Lag model concluded that capital market has impacted on economic growth in Nigeria positively. Binuyo, Durojiaiye and Edy-Ewoh (2019) examined capital market and economic growth in Nigeria from 1986 to

2017 using Ordinary least squares technique for analysis and concluded that market capitalization has a positive influence on gross domestic product (GDP) while value of transactions has a negative and insignificant influence on GDP.

Ubesie, Nwanekpe and Ejilibe (2020), employed ordinary least square method (OLS) in investigating Impact of Capital Market on Economic Growth in Nigeria. They concluded that among the variables considered, only labour force insignificantly impacted Nigeria Economy.Taiwo, Alaka and Afieroho (2016) worked on annual time series data spanning from 1981 to 2014 using Vector Error Correction methods. They concluded that market capitalization rate, total value of listed securities, labor force participation, accumulated savings and capital formation are significant macroeconomic determinants factors of economic growth in Nigeria. Adeoye (2015) appraise the impact of Nigerian capital market on the economy using data from 1992 to 2011, employed the multiple regression analysis and concluded that capital market insignificantly impacted the economy within the period.

Mishra (2010), using time series data on market capitalization, total market turnover and stock price index from 1991 to 2010 in India, investigated capital market efficiency impact on economic growth. Their study reveals that there is a linkage between capital market efficiency and economic growth in Indian.Ewah, Essang and Bassey (2009), appraise the impact of the capital market efficiency on economic growth of Nigeria using time series data from 1963 to 2004. They discovered the Nigeria capital market possessed capacity to grow, but it has not contributed meaningfully because of low market capitalization, low absorptive capitalization, illiquidity, misappropriation of funds among others.

Evidence across countries revealed that there are inconclusive arguments and debates on the effects of capital market on the economy. For example, Adeoye (2015), Ewah, Essang and Bassey (2009) and Rodrick (1998) found that capital market does not affect growth, while others stood their grounds that there is positive effect (Adoms, Yua, Okaro and Ogbonna (2020), Ubesie, Nwanekpe and Ejilibe (2020),Binuyo, Durojiaiye and Edy-Ewoh (2019), yet others note that it is negative effect (Eichengreen and Leblang, 2003). Certain studies show the effects to be heterogeneous across countries at different stages of institutional and economic growth (Bekaert, Harvey and Lundblad, 2003) (Edwards 2001) and countries with different macroeconomic structures (Arteta, Einchengrean and Wyplosiz (2001),Ranciere and Westermann (2006) observed that we could expect the growth effect of capital markets to be smaller in high-income than in middle-income countries. Consequently, these varied arguments necessitated this study which is an attempt at evaluating the effect of capital market on the Nigerian economy.

3.Methodology

Data for this study was sourced from the CBN statistical bulletin 2019 and the Nigerian Stock Exchange fact sheet and the data spanned from 1989 to 2019 which makes it a 30-year base year period. Eviews 9 statistical software is employed for the tests. Autoregressive distributed lag (ARDL) test was used to evaluate the effect of capital market on the Nigerian economy because the order of integration is a combination of levels and first difference i.e I (0) and I (1). The chosen proxy for the Nigerian economy is Real Gross domestic product while the

chosen proxies for capital market includes Market capitalization, all share index, Total listed securities, Value of traded securities.

3.1 Model specification:

This research study adapted the model stated by Inimino, Bosco and Abuo (2018) in their research work, that is, the model was cast in agreement with that of Inimino, Bosco and Abuo (2018) byincluding all share index and total listed securities as proxies for capital market hence the functional relationship between capital market and the Nigeria economy can be presented as:

GDP = f (MCAP, ASI, TLS, VTS)

$$GDP = \alpha0 + \alpha1MCAP + \alpha2ASI + \alpha3TLS + \alpha4VTS + \mu t \quad \ldots\ldots\ldots\ldots\ldots\ldots(1)$$

Where the variables are:

GDP = Real Gross domestic product

MCAP = Market capitalization

ASI= All share index

TLS= Total listed securities

VTS= Value of traded securities

α0= intercept of the model

α1- α4 = coefficient of the independent variables or parameters

μt= stochastic error term incorporating other factors that are not considered in the model

To bring the data of both the dependent and independent variables to a level of equal comparability, their logarithm is calculated and gotten.

$$\log GDP = \alpha0 + \alpha1\log MCAP + \alpha2\log ASI + \alpha3\log TLS + \alpha4\log VTS + \mu t \quad \ldots(2)$$

the coefficients in the model are expressed in their elasticity since the variables are in natural logarithm form hence they measure direct response of growth to variable changes.

4.Results and Discussions

Table 1 **Augmented Dickey Fuller Unit Root Test**

At Level						
variable	ADF test at level	critical value at 5%	critical value at 10%	probability	remark	order of intergration
gdp	-2.0928	-2.964	-2.621	0.2487	Non-stationery	Nil
mcap	-1.6585	-2.964	-2.621	0.4413	Non-stationery	Nil
asi	-2.8441	-2.964	-2.621	0.0642	Non-stationery	Nil
tls	-3.1938	-2.964	-2.621	0.0303	Stationery	i (1)
vts	-1.098	-2.964	-2.621	0.7034	Non-stationery	Nil
At First Difference						
variable	ADF test at 1st diff.	critical value at 5%	critical value at 10%	probability	remark	order of intergration

gdp	-5.1025	-2.9678	-2.623	0.0003	Stationery	i (1)
mcap	-4.1571	-2.9678	-2.623	0.0031	Stationery	i (1)
asi	-3.8246	-2.9678	-2.623	0.007	Stationery	i (1)
vts	-5.5617	-2.9678	-2.623	0.0001	Stationery	i (1)

Source: Author's computation (2021)

Table 1 shows the unit root test for the variables. Generally, the unit root test involves the test of stationarity for variables used in the model analysis. The importance of stationarity of the time series used borders on the fact that a non-stationary time series is not possible to generalize to other time periods apart from the present. This makes forecasting based on such time series to be of little practical values. Gujarati (2004) explained that regression of a non-stationary time series against another non-stationary time series may produce spurious regression. The Augmented Dickey Fuller (ADF) test is employed in order to analyze unit roots.

Decision Rule: If the Augmented Dickey Fuller (ADF) test statistic is greater than the MacKinnon critical value at 5% (all in absolute term) and the probability is less than 5% the variable is said to be stationary. Otherwise it is non-stationary.

Table 1 shows TLS with an ADF value of -3.193844 exceeds the critical ADF value of -2.963972 and -2.621007 at 5% and 10% respectively and a probability of 0.0303 which is less than 5% is stationary at levels i.e. i (1).

Table 1 also shows the result of the unit root test at first difference, GDP with an ADF value of -5.102524 exceeds the critical ADF value of -2.967767 and -2.622989 at 5% and 10% respectively and a probability of 0.003 which is less than 5% is stationary at first difference i.e. I (1). MCAP with an ADF value of -4.157097 exceeds the critical ADF value of -2.967767 and -2.622989 at 5% and 10% respectively and a probability of 0.0031 which is less than 5% is stationary at first difference i.e. I (1). ASI with an ADF value of -3.824613 exceeds the critical ADF value of -2.967767 and -2.622989 at 5% and 10% respectively and a probability of 0.0070 which is less than 5% is stationary at first difference i.e. I (1). VTS with an ADF value of -5.561737 exceeds the critical ADF value of -2.967767 and -2.622989 at 5% and 10% respectively and a probability of 0.0001 which is less than 5% is stationary at first difference i.e. I (1).

The result of the Augmented Dickey Fuller unit root test on all the variables revealed in table 1 that the data is I (0) and I (1) meaning the data is stationery at level and first difference combined. Given that the variables were integrated of order 1(0) and 1(1) only but not second difference I (2) so as to avoid spurious regression results. The requirement to fit in an ARDL model to test for long run relationship is satisfied.

Table 2 **Bounds test**

Test Statistic	**Value**	**k**
F-statistic	7.303787	4
Critical Value Bounds		

Significance	I0 Bound	I1 Bound
10%	2.2	3.09
5%	2.56	3.49
2.50%	2.88	3.87
1%	3.29	4.37

Source: Authors' Computation (2021)

The result of the Augmented Dickey Fuller unit root test led to the autoregressive distributed lag (ARDL) bounds test. The bounds test revealed in table 2, that the f-statistic figure of 7.303787 > than both the lower bounds figure of 2.56 and upper bounds figure of 3.49 at 5% significance. This provides evidence that there is long run relationship among the variables, hence we refuse to accept Null hypothesis which says no cointergration/long run relationship exist and we accept alternative hypothesis. It can therefore be concluded from the ARDL bounds test that there is a long-run relationship among the variables. Therefore, this study illustrates that capital market variables have a long run relationship with the Nigerian economic growth. Following the establishment of long-run cointegration relationship among the variables, the long-run and short-run dynamic parameters for the variables were obtained.

Table 3: ARDL short run results

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Probability**
D(GDP(-1))	-0.859841	0.190324	-4.517765	0.0203
D(GDP(-2))	-1.338269	0.416638	-3.212067	0.0489
D(GDP(-3))	-0.481008	0.286818	-1.677047	0.1921
D(MCAP)	2.626254	0.378699	6.934947	0.0061
D(MCAP(-1))	1.4709	0.338155	4.349777	0.0224
D(MCAP(-2))	0.89255	0.432996	2.061335	0.1313
D(MCAP(-3))	0.550387	0.245072	2.245822	0.1104
D(ASI)	-1.876663	0.371644	-5.049624	0.015
D(ASI(-1))	-0.886533	0.214245	-4.13795	0.0256
D(ASI(-2))	-0.29384	0.290393	-1.011871	0.3861
D(ASI(-3))	-0.208047	0.230963	-0.900782	0.4341
D(TLS)	-5.816065	0.926275	-6.27898	0.0082
D(TLS(-1))	7.153525	1.489305	4.803264	0.0172
D(TLS(-2))	2.38525	0.688801	3.4629	0.0406
D(VTS)	0.331723	0.042154	7.869249	0.0043
D(VTS(-1))	0.596904	0.130612	4.570041	0.0197
D(VTS(-2))	0.523078	0.131525	3.977014	0.0284
D(VTS(-3))	0.228184	0.106773	2.137091	0.1222
C	101.4937	17.09558	5.936842	0.0096
MCAP(-1)	2.504085	0.453746	5.518691	0.0117
ASI(-1)	-1.647138	0.427621	-3.851865	0.0309

TLS(-1)	-17.44394	3.029291	-5.758421	0.0104
VTS(-1)	-0.059162	0.03791	-1.560617	0.2165
GDP(-1)	-1.930048	0.313952	-6.147591	0.0087

R-squared = 0.993409 Durbin-Watson stat = 1.922144 Source: Author's computation (2021)

The result of the bounds test led to the cointergration and long run form test which revealed in table 3 showed the result of the short-run dynamic coefficients associated with the long-run relationships which indicates adjustment to long-term equilibrium in the dynamic model. Succinctly put, it indicates adjustment from short run equilibrium to long-run equilibrium in the dynamic model. This implies that deviations from the short-term growth rate in economic growth adjust quickly to long run equilibrium. The Durbin Watson statistic value of 1.92 which is approximately 2.0 submits that the model is free from autocorrelation. This depicts that the variables have the potentials to adjust to stable long run relationship or equilibrium with economic growth.

Hence, in the short run, D(GDP(-1)), D(GDP(-2)), D(ASI), D(ASI(-1)), D(TLS), ASI(-1), TLS(-1), GDP(-1) affect GDP negatively and are significant. While D(GDP(-3)), D(ASI(-2)), D(ASI(-3)), VTS(-1) affect GDP negatively and are not significant. Table 3 also revealed that in the short run, D(MCAP), D(MCAP(-1)), D(TLS(-1)), D(TLS(-2)), D(VTS), D(VTS(-1)), D(VTS(-2)), MCAP(-1) affect GDP positively and are significant. While D(MCAP(-2)), D(MCAP(-3)), D(VTS(-3)) affect GDP positively and are not significant. The R-squared figure of 0.993409 revealed that the explanatory variables explain 99.3% of GDP (Nigerian economy) which is the dependent variable.

Table 4: ARDL long run results

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Probability**
MCAP	1.297421	0.075463	17.192925	0.0004
ASI	-0.853418	0.160332	-5.322822	0.013
TLS	-9.038083	0.932827	-9.688913	0.0023
VTS	-0.030653	0.019036	-1.610311	0.2057
C	52.586115	5.186382	10.139267	0.002

Source: Author's computation (2021)

The results revealed in table 4 that in the long run, the result of the estimated coefficients of the long run relationship exhibits that:

GDP=52.5861+1.2974MCAP-0.8534ASI-9.0381TLS-0.0307VTS

This means ASI and TLS are significant and exhibits a negative relationship with GDP while MCAP is significant and exhibits positive relationship withGDP and VTS also exhibits negative relationship with GDP but is not significant. A 1% increase in ASI will cause a decrease of 0.85% in GDP. This result compared with the short run result tallies together. Result is not in synchronization with theoretical expectation because of poor awareness mechanism put in place for the public concerning the capital market and trading in company shares and bonds. A 1% increase in TLS will cause a decrease of 9.03% in GDP. The result here tallies with short run result but result is not in line with theoretical expectation because of poor awareness mechanism, hence the

percentage of people investing in the capital market is generally low. A 1% increase in MCAP will cause an increase of 1.30% in GDP.

This result compared with the short run result tallies together and the result is in line with theoretical expectation because market capitalization is product of share price by number of shares which is the value of a company hence as market capitalization increases it will in turn impact positively on the economy by increasing GDP which is a measure of a country's economic activities. A 1% increase in VTS will cause a decrease of 0.03% in GDP. The result here does not tally with short run result and result is not in line with theoretical expectation because the public majority does not trust the capital market for investment purposes.

5.Conclusion

This study empirically examined the relationship between capital market and Nigerian economy from 1989 to 2019using time series analysis. Several diagnostic test was performed on the data such as the unit root test, Auto-regressive distributed lag (ARDL) test, bounds test, co integration and long run form test. The unit root test revealed that all the variables are stationary at level and first difference. The Auto-regressive distributed lag (ARDL) test and the bounds test revealed that there is long run relationship among the variables because the f-statistic figure of 7.303787 > than both the lower bounds figure of 2.56 and upper bounds figure of 3.49 at 5% significance hence we refuse to accept Null hypothesis which says no long run relationship exist and we accept alternative hypothesis. The cointegration and long run result confirmed the presence of both short run and long run relationships between the variables.

The test finding reveals that a long run relationship that is positive and significant is observed to exist between GDP and Market capitalization. The relationship between all share index (ASI) and Gross Domestic Product in the long run is observed to be negative but significant. The same goes for TLS as the relationship between total listed securities (TLS) and Gross Domestic Product in the long run is observed to be negative but significant enough to explain the dependent variable GDP. However, the long run relationship between volume of total listed securities (VTS) in the stock market and GDP is observed to be inversely related to GDP in the long run but positively related to GDP in the short run but VTS is not significant to explain the dependent variable GDP. In conclusion, though, research evidence has shown mixed findings for several economies, but with regards to the Nigerian capital market, a key challenge is the loss of investor confidence due to corporate malfeasance from capital market operators, management and quoted companies. Hence, steps must be taken to restore investor confidence.

On this premise, the study recommends among others, that there is need to introduce and implement policies that will increase the level and size of market capitalization in the Nigerian capital market by the government through the regulatory agencies as increase in market capitalization will lead to increase fund availability for desired investment which in turn will increase productivity of the Nigeria economy. Capital market regulatory authorities should increase value of traded securities in the market. This goes beyond mere regulatory measures but should include but not limited to punitive measures to check fraud and other malpractices that betray the trust from investors.

Regulatory agencies should be focused on enhancing the efficiency and transparency of the market in order to improve investor's confidence. Investors should be encouraged with necessary incentives to increase the volume and value of equities being traded in Nigeria, thus widening the coast of investment opportunities as well as increasing productivity. Capital market regulatory authorities should also create public awareness on the gains derivable from investing in the Nigerian capital market and the procedure to follow for would be investors. They should also strive to make such procedure seamless.

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