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Impact of Defence Expenditure on Capital Market Growth in Nigeria

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Abstract: Despite the government huge funding of defence and other security related matters, insecurity seems to be on the increase across the geopolitical zones in Nigeria. This development could stifle inflows of investments into the country. However, the Nigeria Capital market is adjudged to be among of the vibrant markets globally notwithstanding of the seeming security challenges. This paper examined the impact of defense expenditure on Capital market growth in Nigeria from 1984 to 2019. The study adopted ex post facto research design, and data sourced were from the Central Bank of Nigeria Statistical Bulletin for 35 years. Time-series data extracted related to market capitalization, recurrent defense expenditure and capital defense expenditure from CBN Statistical Bulletin were used for the study. The study employed multiple regression analysis in determining the impact among the variables under investigation. The findings from the Johansen cointegration test indicate a long-run relationship among the variables in the study. The result from the Error Correction Model indicates that recurrent defense expenditure and capital defence expenditure impacts market capitalization positively and significantly both in the short and long run. It was recommended that government spending should be such that it affects market activities positively via policies that are geared boosting investment in the capital market. It was also recommended that policymakers from the fiscal end to collaborate with their monetary counterparts to formulate strategic policies that relates to defence expenditure that will boost the overall growth of the capital market both in the short and long run.

Keywords: Market Capitalization: Recurrent Defence Expenditure: Capital Defence Expenditure: Nigeria.
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1.0 Introduction of the Study

The link between defence spending and economic development is a significant topic of discussion in the development literature. There is proof that a large portion of developed countries' budgetary provision is spent on the defence at the expense of other social needs (Khalid & Mustapha, 2014; James & Jonah, 2022; Falode & Mustapha, 2022a). The reason for the seeming interest in defence expenditure is the resultant economic effect such spending will have on the economic wellbeing of the country. Nigeria's case is important because of the country's persistent growth in defence spending over the last decade, as well as the country's status as a regional force. At almost any point in time, the country has been plagued by various security challenges such as a Boko Haram insurgency in north-eastern region of Nigeria, unrest in the Niger Delta (the country's oil-producing region), and other issues such as kidnapping, armed banditry, and clashes between herdsmen and farmers in many states (Ajala, 2018; Abbass, 2012). These problems have led to the recent increase in defence and military spending in Nigeria. Nigeria was selected because of its unusual dynamism in the pattern of its defence and military expenditures as a fraction of overall government expenditure. Nigeria had formerly sustained high defence expenditure as a fraction of aggregate government expenditure ranging from 20% to above 50% from the 1980s to the early 2000s, but by the mid-2000s, after the country had started consolidating on its return to civilian rule, there was a sharp decline to less than 10% of aggregate government expenditure (Laniran & Ajala, 2021).

According to Stockholm International Peace Research Institute (2012) defence expenditure in Nigeria was 1,860 million U.S. Dollars. Although this figure represents a decrease of 8.95% from 2017 to 2019, it represents a huge part of the country's GDP (SIPRI, 2012). If there was the likelihood of a change in government emphasis on supplying people with the advantages of democracy, the gap may also represent a rise in gross income and spending. It is important to remember that this represents the percentage of defence expenditure in total government spending rather than actual figures; thus, a significant rise in total government spending to other sectors will dwarf the percentage of military spending while not actually reducing absolute figures. However, in recent years, there has been a steady increase in defense spending as the country has encountered even more security threats on several fronts. The primary justification for analyzing the effect of between defence expenditure and capital market growth is to encourage lawmakers to determine the economic effects of the government expending scarce resources and revenue for military and defense purposes. Defence expenditure may have a positive impact on economic activities and by extension the capital market by boosting aggregate demand or ensuring stability, or it can have a negative impact by crowding out investment (Enimola & Akoko, 2011).

The rate of fiscal provision for the various sectors of the economy have different consequences for them. A disproportionately high defence spending will normally come at the expense of social care provision, as well as having an effect on other vital sectors of the economy that necessitate substantial fiscal provisions. In the one hand, excessive defence expenditure impedes economic performance, even as it is critical to stress the value of peace for economic growth (Deger & Sen, 1995; Pieroni, 2009). Researchers such as Benoit (1978) and Alptekun & Levine (2012), on the other hand, offer evidence that defence spending will stimulate economic growth in less developed countries (LDCs). As a result, the argument is anchored around whether or not defence expenditure has a positive effect on economic development. This study, therefore, intends to examine the effect of various forms of defence expenditures on capital market growth in Nigeria. Prior studies on defence expenditures focused on the effect of defence or military expenditure on economic growth. For example, Adams et al. (1991), Mintz & Stevenson (1995), Muller & Atesoglu (1990, 1993), Tekeoglu (2008), Akpanisile & Okunlola (2014) and Axexander (1990). Other studies focused on determinants of military expenditure, for example, Scheetz (1991), just to list a few. Also, empirical studies on defence expenditure capital market nexus is quite few. For example, Solarin & Sahu (2015) and Ullah et al. (2020). This study provides answers to the question- Does defence expenditure impacts capital market growth in Nigeria? in line with the research question,

1.1 Objective of the study

The broad objective of this study is to examine the effect of defence expenditure on capital market growth in Nigeria. The specific objectives are as follows:

i. Examine the effect of recurrent defence expenditure on capital market growth in Nigeria.
ii. Investigate the effect of capital defence expenditure on capital market growth in Nigeria.

1.2 Statement of Hypothesis

The following null hypotheses are formulated to guide this study:

H_{01}: Recurrent defence expenditure has no significant effect on capital market growth in Nigeria.

H_{02}: Capital defence expenditure has no significant effect on capital market growth in Nigeria.

2.0 Literature Review

This section discusses the concept of capital market growth and defence expenditure used in the study.

2.1 Conceptual Framework

2.1.1 Defence Expenditure

According to the Stockholm International Peace Research Institute (2012), security spending encompasses both existing and capital expenses on the armed forces, including peacekeeping forces, defense ministries, and other government departments involved in defense projects paramilitary forces when deemed to be prepared, equipped, and ready for combat operations military space activities (Tsegaye, 2022; Ohanyelu, 2022). Both spending on serving employees, military and civil retirement pensions of military personnel, support care for personnel and their families, logistics and repairs procurement military research and development military construction, and military assistance should be included (in the military expenditures of the donor country). Defense spending, also known as a country's defense budget, is the amount of money spent each year on arming the military. The a priori assumption is that it has an inverse effect on foreign direct investment because increased military spending, especially in crisis-prone areas, discourages foreign investment inflows into the country due to the fear of instability (Ebire et al., 2018).

Defense spending has been a major component of both developing and developing economies' public sector budgets. The defense burden (defense expenditure as a percentage of GDP) varies by region, based on the fiscal, social, and political proportions of both domestic and global settings. A thorough analysis of the relationship between military spending and economic development shows that there could be certain instances where generalizing regarding a defense-growth nexus is not accurate (Tekeoglu, 2008; Falode & Mustapha, 2022b; Yani et al., 2022). According to Herrera (1994), military spending can be described as "all the human resources and material committed by a country to its protection in order to protect its national freedom, the dignity of its territories, and, where necessary, the respect of the international agreements binding on the country and other foreign countries to preserve internal security and public law and order." Herrera's (1994) concept necessitates the isolation of services utilized by a state to preserve defense from all other resources used by other public sector expenses. However, owing to the country's intertwined military and civilian roles, splitting each public sector spending into military and civilian groups is complicated.

2.1.2 Market Capitalization

Market capitalization is described by Chen (2020) as the overall dollar market value of a company's outstanding shares of stock. When commodities can be conveniently and efficiently traded with no loss of value at any point during trading hours, a market is liquid. Market liquidity, according to Levine (1997), is the ease and speed at which capital market agents can turn assets into buying power at agreed-upon rates. It should be remembered that liquidity is a crucial predictor of stock market growth and development. This is because it demonstrates how the economy aids in the better distribution of resources for investment, thus enhancing the outlook for long-term economic growth and prosperity. The possibility of this lies in investors' willingness to change their portfolio easily and efficiently, thus reducing the riskiness of their portfolios. This aids in the facilitation of successful acquisitions in viable projects. Furthermore, liquid markets are often differentiated by ready and eager buyers and sellers. An order to further define stock market liquidity. Odita (2009) described liquidity as the probability that the next transaction will be completed at the same price as the previous one. He goes on to say that a market is deeply liquid if there are significant numbers of ready and eager buyers and sellers. The study adopts the definition of SIPRI (2012) for defence expenditure and Chen (2020) for market capitalization.

2.2 Empirical Review

Several analysts have explored the relationship between military spending and stock market expansion. Solarin & Sahu (2015), for example, examined the impact of military spending on stock market growth in 36 countries from 1989 to 2010. This study's variables included stock market capitalization, military spending, and military burden. According to the regression findings, military spending has a negative and substantial impact on stock market performance in the countries studied. The main drawback of this report is that it concentrated on markets with a large market structure, and the recent affairs of most countries struggling with asymmetric disputes were not addressed. This research was conducted from the end of 2010 to the end of 2011. Between 2010 and 2019, several stock exchanges emerged amid a volatile investment environment, which was not captured in Solarin & Sahu (2015) research. Furthermore, it is discovered that the thesis has some methodological flaws, since it neglected to subject the data to some critical preliminary examinations to prevent

producing erroneous regression effects. As a result, the study's results may be deceptive. The current thesis aims to resolve these shortcomings by relying further on the Nigerian stock market by using a more rigorous approach.

Ullah et al. (2020) modelled the relationship between military spending and stock market development (a)symmetrically in China from 1992 to 2017. The variables used for the study are stock market liquidity proxied for stock market development, market size growth, military expenditure, and inflation rate. The study applied non-linear autoregressive distributed lagged model and two step Engel-granger for short run asymmetries. The result from the study confirms that positive and negative shocks in military expenditure have substantial positive and or negative impact on stock market development in the long run, but in the short run only the positive shocks in military expenditure have significant positive relationship with stock market development (Shu'ara & Amin, 2022). Given that the result from the study supports the nonlinearity of military expenditure and stock market growth in the long run which means the relationship between the variables is disproportionate in China, the recommended that policy makers should carefully fashion out measures for a long-term policy measure. The major limitation as captured by the author is the fact that the study should be replicated in other economies facing long standing conflicts and Nigeria is a good case study to fill this required gap.

Dune & Watson (2000) discovered that military spending has a positive and important impact on jobs in South Africa. They published a report on military spending and jobs in South Africa from 1980 to 1998. Secondary data is used to assess their place on the relationship between the variables. Using the Autoregression distributed lagged modeling methodology, the variables used include GDP, military expenditures, stock market capitalization, wages, exchange rate, and inflation. They discovered that stock market efficiency in South Africa has been improving as a result of the system's law and order. Furthermore, the report concludes that GDP does not granger cause stock market performance, but military spending does. The report did not specify a metric for military spending. Furthermore, the reaction of the stock market in the host country where the analysis is being performed varies dramatically from that of the Nigerian economic structure. Other reports on economic development and military spending concentrated on developed countries with a developing financial system. For example, Hou & Chen (2013) discovered that military spending has a direct effect on economic development. Between 2007 and 2012, they published a report on military spending and economic development in developed countries. The variables used in the analysis included gross domestic product, stock market capitalization, all share index, exchange rate, security spending, and inflation rate, as well as dummy variables to describe times of volatile investment and specific investment climates (Mustapha, 2022; Wubante et al., 2022). The five-year time span could be too limited, affecting the robustness of this study's findings.

Similarly, the conclusions of Hou & Chen (2013) align with those of Greenwood & Smith (1997), who discovered that military spending has a significant impact on market stability and economic development in emerging economies. Greenwood & Smith (1997) studied capital markets in growth and the development of financial markets from 1990 to 1996. Stock market capitalization, GDP, exchange rates, all share index, military spending, and debt servicing and responsibility are among the variables included. Stock market appreciation is measured by market capitalization and all share indices. The panel regression findings indicate that military expenses have a major impact on investment inflows into the financial system, and the granger causality tests show a bi-directional association in the variables used in the analysis. The key drawback of this analysis is that the sample size is insufficient to examine the degree to which military spending impacts economic and, by extension, stock market performance.

2.3 Theoretical Framework

Theoretically, the relationship between defense expenditures and economic development has specifically been addressed in three ways (Egounleti, 2022; Hassan et al., 2022). The first argument focuses on how military spending boosts economic growth through the defense, technical, and aggregate demand effects. In this Keynesian context, defence expenditure is perceived as an important part of government spending that acts as an investment into the market and, as a result, positively stimulates the economy by its multiplier effect. Increases in each of the aggregate demand variables increase the society's capital stock, which leads to higher benefit and can encourage higher investment, resulting in short-run multiplier effects and higher aggregate growth rates. According to Benoit (1973, 1978), increased military spending can stimulate economic development by growing intellectual resource skills of the population through schooling, and military industry can provide useful skill. Externalities in defense expenditures are also important for economic development, such as the provision of road networks that can be used by both the military and civilians (Barro & Sala-i-Martin, 1995).

Proponents of this school of thought argue that defence spending aids in the internal and external stabilization of a region, as well as providing much-needed infrastructures such as road and communication infrastructures required for military operations but also essential for economic activity. More specifically, they argue that countries will profit from the spillover impact of R&D investments in the military sector, based on the well-established R&D-Growth relationship in the economic growth literature. According to Yakovlev (2012), military research and development will result in the development of advanced technologies such as radar, jet engines, and nuclear technology, which can then be used for industrial production and, ultimately, economic growth. This strand's leading supporters include (Benoit, 1973; 1978; MacNair et al., 1995). However, opponents of this viewpoint have often argued that military spending could divert human and monetary capital away from civilian research and development programs (Levine & Renant, 1992). Defense spending has the potential to crowd out not just private investment, but also other government spending that could boost human capital formation (Shieh et al., 2002). Given the government sector's low productivity, redirecting resources from civilian to military purposes can hinder long-term country productivity, technical projects, and development (Enimola & Akoko, 2011).

The second aspect contends that defence spending stifles economic prosperity by crowding out private investment. According to this framework, increased military spending drains limited taxpayer money that should have been used for such social objectives such as health and education programs. To meet its other non-military or defence commitments, the government will have to raise taxes, incur deficits, or a hybrid of the two, stifling investments and private spending. This strand's leading supporters include (Deger & Smith, 1983: Huang & Mintz, 1990). Using a case study of Turkey and the Granger causality test to investigate the course of the causal interaction between the factors, Gokmenoglu et al. (2015) contend that military spending stifles economic development. According to the authors, there are two big explanations for the country's lack of comparable economic growth as military spending rises. First, in a developed world with limited capital, military spending is limited by low income and development, and additional military spending stifles economic development. Second, if a nation is a net importer of weapons, as Turkey is, defense purchases would be funded by scarce money and foreign exchange reserves, placing the country under increased economic strain (Gokmenoglu et al., 2015).

The third aspect contends that there is no discernible link between defence spending and economic development. Proponents contend that both the positive spillover effect and the negative crowding-out effect are, at best, hazy and contradictory. This strand's leading supporters include (Biswas & Ram, 1986; Alexander, 1990; Adams et al., 1991). The lack of agreement on the existence of the relationship between military spending and economic development, as well as differences in assessments of analytical studies, have often been attributed to country and study-specific contexts such as methods and techniques used. Many recent observational studies have relied on cross-sectional and panel data sets (Yildirim et al., 2005; Chang et al., 2011; Hou & Chen, 2013). Since countries' social and security problems differ, it is virtually unrealistic to anticipate defense spending to have the same effect on economic development around the board. This justifies country-specific analyses using time-series statistics, such as this one, which focuses on Nigeria and uses annual data from 1981 to 2017 based on data availability. Ram (1995) contends that examining the association between military expenditures and economic development in country-specific circumstances produces results of greater explanatory capacity. For this study, we are adapting the Keynesian theoretical framework to guide the result of this study. In line with the Keynesian context, defence expenditure is perceived as an important part of government spending that acts as an investment into the market and, as a result, positively stimulates the economy by its multiplier effect.

3.0 Methodology

The research design for this study is an expost facto research design. Annual secondary sources of data were used for this study which were sourced from the CBN. The secondary data which are time series were collected on the following variables: market capitalization, recurrent defence expenditure and capital defence expenditure spanning from 1984 – 2019. The technique employed for this study is Error Correction Mechanism (ECM). The ECM method is an econometric technique developed by Engel and Granger (1987) as a means of reconciling the short-run behaviour of an economic variable with its long-run behaviour. The data were subjected to a stationarity test to avoid spurious regression and analyzed using Eviews 11. The multiple regression that captures the effect of capital flows on financial stability in Nigeria is stated below:

$MCAPt = \beta 0 + \beta_1 DRE_{It} + \beta_2 DCE_t + \varepsilon_t$

Where,

MCAP = Market Capitalization for the overall market value of a company's outstanding shares

DER = Defence Recurrent Expenditure represents all expenditures on personnel overhead and other related expenditures

DCE = Defence Capital Expenditure represents all spending on military hardware and development research in military technology

β_0 = constant term

β_1 and β_2 = beta coefficients

ε = error term

Table 1: Variables
Measurement and Apriori Expectations

S/N	Variable	Measurement	Source
1	Capital market growth	Market Capitalization	Solarin & Sahu (2015), Chen (2020)
2	Defence Recurrent Expenditure	Recurrent expenditures for defence and internal security	SIPRI (2013), Laniran & Ajala (2021)
3	Defence Capital Expenditure	Capital expenditures for defence and internal security	SIPRI (2013), Laniran & Ajala (2021)

Source: Author's compilation

4.0 Results and Discussion

This section presents the analysis of the data as well as the discussion of findings. Below are the findings.

4.1 Descriptive Statistics

Table 2
Descriptive Statistics

	MCAP	DER	DEC
Mean	6049.229	299.0361	130.346
Median	713.700	93.69632	63.42845
Maximum	25890.22	1393.56	591.2642
Minimum	5.50000	0.297528	0.2627
Std. Dev.	8034.196	389.5518	144.9866
Skewness	1.018055	1.167836	1.201019
Kurtosis	2.610229	3.151683	4.169037
Jarque-Bera	6.446504	8.217561	10.70466
Probability	0.039825	0.016428	0.004737
Sum	217772.3	10765.3	4692.455
Sum Sq. Dev.	2.26E+09	5311271	735739.5
Observations	36	36	36

Source: Eviews output (2021)

From table 2, it is observed that the average of each variable is not exactly located at the middle (median) of the distribution. The table also shows the skewness of the distribution, which measures the length of the tail of the distribution. MCAP, DER and DEC are positively skewed. Thus, they have a long right tail. The table also measures the kurtosis (peakedness or flatness) of the distribution. All variables are platykurtic that is, the distributions are flat relative to the normal.

4.2 Correlation Analysis

Table 3.
Correlation Analysis

	MCAP	DER	DEC
MCAP	1		

DER	0.769839	1	
	23.20074	-----	
	0.00000	-----	
DEC	0.601787	0.797247	1
	12.16683	11.8493	-----
	0.00000	0.0000	-----

Source: Eviews 11 output (2021)

The correlation matrix shows the relationship between the endogenous variable and the exogenous variables employed in the study. The result is presented in table 3 above. The result from the correlation matrix shows the relationship between each pair of variables. The relationship between each exogenous variable and endogenous variable are expected to be strong while the relationship between each pair of exogenous variables is expected to be low. This submission according to Gujarati & Porter (2009), a correlation coefficient between two exogenous variables above +8 or -8 is considered excessive and may indicate the existence of multicollinearity. Table 3 shows that all correlation coefficient between pairs of exogenous variables is less than + or – 8. Thus, suggesting that the exogenous variables can be fitted into one regression model. Furthermore, the correlation matrix reveals the correlation between market capitalization, recurrent defense expenditure and capital defence expenditure are 0.769839, 0.601787 and 0.797247.

4.3 Unit Root Test Results

Table 4:

Augmented Dickey-Fuller tests

Variable	ADF Statistics	1%	5%	10%	Order of Integration
MCAP	-5.771394	-3.639407	-2.951125	-2.614300	I(1)
DER	-4.214450	-4.296729	-3.568379	-3.218382	I(1)
DEC	-3.646759	-3.689194	-2.971853	-2.625121	I(1)

Source: eViews output (2021).

Table 4 shows the stationarity test results which was carried out to test the presence of unit root at 5% Mackinnon critical value. The study adopted the ADF because it is conducted by augmenting the preceding equations by adding the lagged values of the endogenous variable, the aim is to include sufficient terms so that the stochastic term is not serially correlated. Looking at table 4, the analysis of the ADF test results shows that MCAP, DRE and DEC are all stationary at first difference 1% level of significance. The result clearly informs the decision to carry out a parsimonious Error Correction Mechanism (ECM). All variables employed for the study are statistically significant considering that all p-values as displayed in table 4 above are all below 5%.

4.4 Cointegration Test

Table 5

Lag Length Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1591.986	NA	1.67e+32	94.05798	94.37223	94.16515
1	-1375.468	331.1450	9.32e+27	84.20398	86.71799	85.06133
2	-1234.384	157.6822*	6.13e+25*	78.78727*	83.50103*	80.39480*

Source: eViews output (2021)

The test for cointegration will not be relevant if the optimal lag length is not first determined. The analysis as displayed in table 4.1.4 above found that two lags were more appropriate in conducting the Johansen cointegration test.

Table 6. *Johansen Cointegration*

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.542934	43.85722	29.79707	0.0007
At most 1 *	0.337565	18.02064	15.49471	0.0204
At most 2 *	0.125626	4.430155	3.841465	0.0353

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Source: Eviews 11 output (2021)

Table 6 shows the Johansen cointegration test, the trace test reveals 3 cointegrating equations at 5% level of significance. This means that a long-run relationship exists among the variables and hence, the need to conduct an Error Correction Mechanism (ECM) to further explain the relationship among the variables.

4.5 Error Correction Mechanism

To further shed light on the short-run changes that may have occurred in estimating the long-run cointegration equation and test the formulated hypotheses, the Error Correction Mechanism (ECM) was carried out and the result is displayed in table 7 below.

Table 7: *Error Correction Model's Result*

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	295.1450	335.9016	0.878665	0.3873
D(MCAP(-1))	0.139885	0.181246	0.771799	0.4469
D(DER)	5.134876	5.137185	0.999551	0.0264
D(DER(-1))	0.202051	6.894883	0.029304	0.4768
D(DEC)	20.37413	7.482238	2.723000	0.0112
D(DEC(-1))	-10.77317	7.424803	-1.450970	0.0083
ECT(-1)	-0.672398	0.210834	-3.189224	0.0036

R-squared	0.551372	Mean dependent var	761.2828
Adjusted R-squared	0.451677	S.D. dependent var	2236.398
S.E. of regression	1656.026	Akaike info criterion	17.84347
Sum squared resid	74045442	Schwarz criterion	18.15772
Log likelihood	-296.3390	Hannan-Quinn criter.	17.95064
F-statistic	5.530589	Durbin-Watson stat	1.985001
Prob(F-statistic)	0.000763		

Source: Eviews output (2021)

From the analysis in table 7, the ECM term agrees with our aprior expectation. The negative sign and the statistical significance of the ECM at 1% imply that the speed of adjustment to its long-run equilibrium is 67.24%. Thus, the ECM will adequately act to correct any deviations of the short-run dynamics to its long equilibrium by 67.24% annually. The analysis also shows the coefficient of determination measured by the R^2 is 55.14% which implies that 55.14% of the total variations in capital market growth is accounted for by the explanatory variables – DER and DEC. While the remaining 44.86% represents the changes in the dependent variables which were not explained by the equation. After adjusting the R^2, the total variation becomes 45.17%. Also, the fitness of the model was tested using F-statistics which shows that the model is statistically fit as indicated by the significance level of 1%. Also, the Durbin Watson test shows that there is an absence of serial correlation. The residuals of the analysis were subjected to various diagnostic tests. The residuals were tested for serial correlation using Breush-Godfrey serial correlation LM test (See appendix C). Findings indicated that there was no serial correlation. Lastly, the study tested for Heteroskedasticity using Autoregressive Conditional Heteroskedasticity (ARCH) (See appendix D) and findings indicated that the residuals were not heteroskedastic (i.e. there were homoskedastic).

4.6 Test of Hypotheses

H_{01}: Recurrent defence expenditure has no significant effect on capital market growth in Nigeria.

The empirical result shows that recurrent defence expenditure has a positive and significant effect on capital market growth in Nigeria which is evident at 1% level of significance. Based on this result, the null hypothesis is rejected. Also, the lag recurrent expenditure was also found to be positive but statistically insignificant at 1%. The implication of this finding is that a unit increase in recurrent defence expenditure increases capital market growth by 5.134 unit. Similarly, one year lag recurrent defence expenditure positively affects capital market growth in Nigeria. These findings are in line with the studies of Ullah et al. (2020) who found a positive significant relationship between military expenditure and stock market development.

H_{02}: Capital defence expenditure has no significant effect on capital market growth in Nigeria.

The result shows that there is a positive significant effect of capital defence expenditure on capital market growth in Nigeria at 1% level of significance. Hence, the rejection of the null hypothesis. Implying that a unit increase in capital defence expenditure results in 20.37 unit increase in capital market growth in Nigeria all things being equal. On the other hand, an increase in the one-year lag of capital defence expenditure negatively impacts capital market growth in Nigeria. Implying that one year lag capital defence expenditure could retard capital market growth in Nigeria. This study corroborates the findings of Solarin & Sahu (2015) who found that military expenditure has a significant negative effect on stock market development.

5.0 Conclusion and Recommendation

This study examines the impact of defence expenditure on capital market growth in Nigeria spanning over the first quarter of 1984 to the last quarter of 2019. An econometric model was specified using ECM to ascertain the effect of the independent variables on the dependent variables. The variables were first tested for stationarity, using ADF and the analysis revealed that all variables were integrated in the order of 1 that is, I(1). This informed the decision to conduct cointegration analysis to determine the long-run relationship among the variables which revealed that there exists a long-run relationship between the variables. ECM test was performed, and the findings revealed that the speed of adjustment to its long-run equilibrium was corrected at 67.24%. In testing the hypotheses, the findings show that recurrent defence expenditure and capital defence expenditure have a positive impact on capital market growth in Nigeria while the one-year lag of capital defence expenditure negatively and significant impact on capital market in Nigeria. Based on the findings; the following recommendations are put forward: There is a need for strategic policies by the fiscal authorities on expenditures relating to defence and other security matters to ensure efficient utilization of appropriated funds meant for defence and security matters in Nigeria. The positive impact of defence expenditure implies that defence expenditure boosts economic activities thereby increasing investment participation in the capital market. Therefore, the recurrent aspect of defence expenditure that is meant for remuneration and administration of personnel's and other relevant agencies in the defence sector should be strategically monitored to discourage non payments of remunerations and maintenance of defence and military facilities.

6.0 Reference of the Study

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Appendices

A. Cointegration Test

Date: 04/01/21 Time: 13:55
Sample (adjusted): 1987 2019
Included observations: 33 after adjustments
Trend assumption: Linear deterministic trend
Series: MCAP DER DEC
Lags interval (in first differences): 1 to 2

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.542934	43.85722	29.79707	0.0007
At most 1 *	0.337565	18.02064	15.49471	0.0204
At most 2 *	0.125626	4.430155	3.841465	0.0353

Trace test indicates 3 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 *	0.542934	25.83658	21.13162	0.0101
At most 1	0.337565	13.59048	14.26460	0.0637
At most 2 *	0.125626	4.430155	3.841465	0.0353

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level

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

B. ECM Result

C. Dependent Variable: D(MCAP)
Method: Least Squares
Date: 04/01/21 Time: 14:08
Sample (adjusted): 1986 2019
Included observations: 34 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	295.1450	335.9016	0.878665	0.3873
D(MCAP(-1))	0.139885	0.181246	0.771799	0.4469
D(DER)	5.134876	5.137185	0.999551	0.0264
D(DER(-1))	0.202051	6.894883	0.029304	0.4768
D(DEC)	20.37413	7.482238	2.723000	0.0112
D(DEC(-1))	-10.77317	7.424803	-1.450970	0.1583
ECT(-1)	-0.672398	0.210834	-3.189224	0.0036

R-squared	0.551372	Mean dependent var	761.2828
Adjusted R-squared	0.451677	S.D. dependent var	2236.398
S.E. of regression	1656.026	Akaike info criterion	17.84347
Sum squared resid	74045442	Schwarz criterion	18.15772
Log likelihood	-296.3390	Hannan-Quinn criter.	17.95064
F-statistic	5.530589	Durbin-Watson stat	1.985001
Prob(F-statistic)	0.000763		

D. Serial Correlation Test

Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 2 lags

F-statistic	4.598928	Prob. F(2,31)	0.0178
Obs*R-squared	8.237325	Prob. Chi-Square(2)	0.0163

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 04/01/21 Time: 08:46
Sample: 1984 2019
Included observations: 36
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	76.21737	402.0517	0.189571	0.8509
DER	0.653446	1.750928	0.373200	0.7115
DEC	-2.213579	4.846735	-0.456715	0.6511
RESID(-1)	0.537608	0.182027	2.953451	0.0059
RESID(-2)	-0.295383	0.181744	-1.625265	0.1142

R-squared	0.228815	Mean dependent var	-1.01E-13
Adjusted R-squared	0.129307	S.D. dependent var	1871.975
S.E. of regression	1746.758	Akaike info criterion	17.89716
Sum squared resid	94586037	Schwarz criterion	18.11709
Log likelihood	-317.1488	Hannan-Quinn criter.	17.97392

F-statistic	2.299464	Durbin-Watson stat	2.085874
Prob(F-statistic)	0.081031		

E. Heteroskedasticity Test result

Heteroskedasticity Test: Breusch-Pagan-Godfrey
Null hypothesis: Homoskedasticity

F-statistic	2.007460	Prob. F(2,33)	0.1504
Obs*R-squared	3.904834	Prob. Chi-Square(2)	0.1419
Scaled explained SS	10.95449	Prob. Chi-Square(2)	0.0042

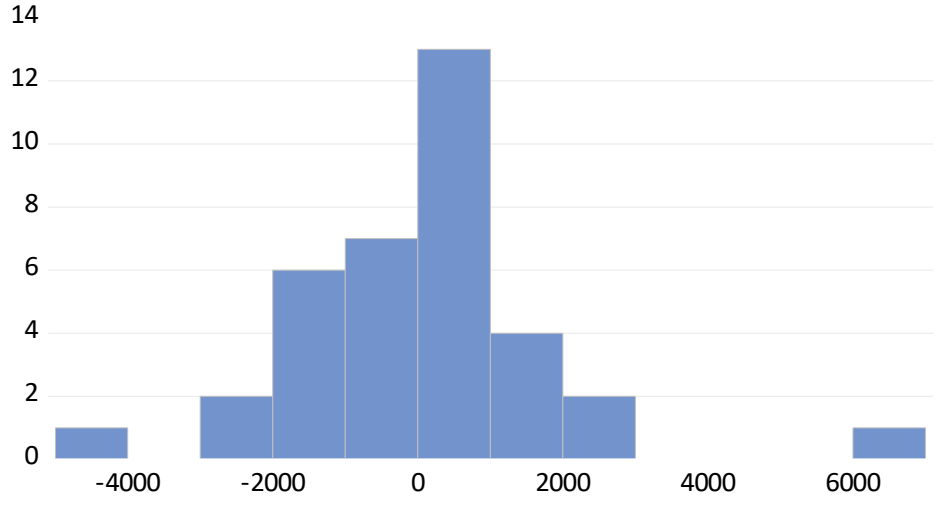
Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 04/01/21 Time: 08:46
Sample: 1984 2019
Included observations: 36

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	801230.0	1962495.	0.408271	0.6857
DER	-4946.432	8532.355	-0.579726	0.5660
DEC	31338.76	22924.83	1.367023	0.1809

R-squared	0.108468	Mean dependent var	3406950.
Adjusted R-squared	0.054435	S.D. dependent var	8928558.
S.E. of regression	8682143.	Akaike info criterion	34.87109
Sum squared resid	2.49E+15	Schwarz criterion	35.00305
Log likelihood	-624.6796	Hannan-Quinn criter.	34.91715
F-statistic	2.007460	Durbin-Watson stat	2.366905
Prob(F-statistic)	0.150405		

F. Normality Test

G.



H.

Series: Residuals	
Sample 1984 2019	
Observations 36	
Mean	-1.01e-13
Median	58.98602
Maximum	6984.748
Minimum	-4955.205
Std. Dev.	1871.975
Skewness	0.961456
Kurtosis	7.677237
Jarque-Bera	38.36120
Probability	0.000000

DATA

Year	DER	DEC	MCAP
1984	0.35	0.26	5.50
1985	0.46	0.46	6.60
1986	0.47	0.26	6.80
1987	0.30	1.82	8.20
1988	2.11	1.90	10.00
1989	4.23	2.62	12.80
1990	3.40	2.92	16.30
1991	2.68	3.35	23.10
1992	1.34	5.12	31.20
1993	14.66	8.08	47.50
1994	10.09	8.79	66.30
1995	13.82	13.34	180.40
1996	15.99	14.86	285.80
1997	22.06	49.55	281.90
1998	21.44	35.27	262.60
1999	71.37	42.74	300.00
2000	84.79	53.28	472.30
2001	79.63	49.25	662.50
2002	152.19	73.58	764.90
2003	102.61	87.96	1,359.30
2004	134.39	137.77	2,112.50
2005	151.65	171.57	2,900.06
2006	194.17	185.22	5,120.90
2007	256.67	226.97	13,181.69
2008	332.93	287.10	9,562.97
2009	354.19	291.66	7,030.84
2010	550.90	260.20	9,918.21
2011	785.44	231.80	10,275.34
2012	790.06	190.50	14,800.94
2013	844.07	283.65	19,077.42
2014	774.77	229.63	16,875.10
2015	807.59	226.81	17,003.39
2016	775.55	147.72	16,185.73
2017	931.68	328.94	21,128.90
2018	1,083.73	446.25	21,904.04
2019	1,393.56	591.26	25,890.22

Source: CBN Statistical Bulletin 2020