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Bond Market Development and Economic Growth in Nigeria

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Abstract

This study examined the Effect of Bond Market Development on the Economic Growth of Nigeria. The study adopts the efficient market theory model by Fama which advocates for a capital market where "investment capital must be allocated to its most productive use" in one hand and on the other hand a "market where investors cannot beat the market or find securities that are mispriced" "such that their stock constantly outperform the market. The study employed the use of secondary data for the period of 2003-2020 which were sourced from CBN online published bulletin and report. Bond market capitalization, Bond market size, Government bond performances were considered as proxies for the independent variable. Real Domestic Product RGDP was used as proxy for dependent variable. Findings revealed that bond market capitalization and government bond performance have insignificant negative effect on Nigeria's RGDP whereas bond market size has insignificant positive effect on the real RGDP. The paper concludes that government borrowing with respect to public debt has not shown significant effect on Nigeria's economic growth.

Keywords: *Bond, Bond Market Development and Economic Growth.*

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Background to the Study

Bond market over the years has continued to be source of financial leverage to capital scarce developing economies as a mechanism for long term capital accumulation and allocation; however, many countries are yet to explore this potential means of capital creation. Bond market indisputably can increase the potentials of an economy to exploit other natural resources in order to improve the people's well-being by financing high multiplier sectors of the economy. The rationale behind bond market development is to encourage a Local Currency (LCY) bond market. Based on a request from the G 20, the International Monetary Fund (IMF), the World Bank, the European Bank for Reconstruction and development (EBRD), and the Organization for Economic Co-operation and Development for bond market development, there are identified general preconditions, key components and constraints for a successful local currency bond market development as a diagnostic framework. The diagnostic framework provided an approach to analyze interactions among various markets, such as the money market and their derivatives market. Some of the key of local bond market development includes;

i. Commitment and ownership of the reform process
ii. Credibility to anchor market expectation
iii. Interaction with monetary policy, debt management and sound financial stability
iv. A liquid inter-bank market and
v. A sound and reliable clearing and settlement market infrastructure. EBRD and OECD (2013), IMF and World Bank (2016).

The World Bank group-initiated government bond market development program which supports the development of Local Currency Bond Market (LCBMs) to increase developing countries attractiveness for domestic and foreign investment for efficient fixed income markets which are important to support economic growth and reduce poverty. Smooth functioning fixed income markets help governments sustain policy initiatives, better match savers and investment opportunities based on risk-return preferences, facilitate capital market financing of enterprises and critical infrastructure projects and reduce reliance on foreign currency borrowing and bank financing.

Different studies have revealed that long-term economic growth and development require investment. This investment must be wholistic in nature; infrastructural, manpower, plant and machinery etc. These investments require long-term financing as against the present reality in most growing economies like Nigeria where bulk of finance available has been short-term bank finance.

Globally, a well-developed financial system facilitates the creation of more viable investment opportunities by providing the needed financial and technical supports required for investors. The financial market as one of the components of the financial system need a viable bond market for an effective and efficient market performance. The development of a bond market serves as a tool for economic transformation, financial stability, economic recovery, and enhancing investment in capital formation through the provision of long-term financial needs for both government and private borrowers (Hakansson, 1999, Peiris, 2010; Tendulkar, Hanacock, 2004; Akinsokeji, Adegboye, Edafe, 2016).

Conceptual Framework

A bond market is a market for long term debt securities of government and corporations. It is a long-term financial obligation (debt) of an organization that promises to pay a specified sum of money at specified future dates (Olowe, 2017). A bond is a debt security that promises to make payments periodically for a specified period of time (Mishkin, 2007). The bond market is especially important to economic activity because it enables corporations and governments to borrow to finance their activities and projects because it is where interest rates are determined. Significantly, the importance of the bond market (as the mechanism through which the savings unit of the economy are transformed into medium and long-term investment) in both developed and developing economies are enormous. Bond market globally has played tremendous role in ensuring sustainable economic growth. Bond markets are regarded by many scholars as a "big" player in the economic transformation process of a country (Ogboi, Njogo, Nwankwo, Nkwede, Uguru, Nkwegu (2016).

Over the years, long-term developmental projects are financed by government using funds from the money market (banks). This in no small measure has caused high inflation on the economy. The riskiness involved in financial mismatch resulted from using short-term funds to finance long-term projects of the government has exposed banks to financial risks and other related consequences. The large financial intermediation burden placed on banks has exposed them to financial risks (Nwiado, 2013). These challenges have created undue reliance on bank dominated finances over market-based sources such as bond, equity and debenture capital. Eichengreen and Luengnamamifehai (2006) strongly argue that where bank has the weakness of providing sources of finance, the bond market has opposite strength because banks are ideally placed to provide "patience finance" while access to bond market sources of finance is long-term basis.

It is therefore not a fallacy to suggest that the development of a bond market is one of the key targets of every emerging economy around the world, Nigeria inclusive. This implies that every government which seeks independence in fiscal financing must put in place deliberate measures aimed at developing a bond market growth Michael (2021). A well-functioning financial market is a key determinant of a country's economic growth and development. It promotes a strong market-oriented economy with a robust financial system with resilience from external shocks and better integration to the international markets. Countries that seek to this milestone need to develop domestic debt markets especially the bond market with a focus on diversifying investors' base, activating the secondary market, attaining reliable custodial and settlement systems as well as enhancing effective regulation (Herring, Chatusripitak (2000). Countries with underdeveloped domestic debt markets have resorted into external borrowing, Nigeria inclusive. As at 2021, Nigeria external debt rise to N38 trillion, this increase in the country's external debt was driven by 4 billion Eurobond raised from the international debt market to boast the country's external reserve above $40 billion (Nairametrics.com 2023). As at 2018, the country owed over 21.5 trillion naira and pays over 2.3 trillion naira to service the debt only in 2018. The ratio of debt government expenditure is expanded on debt services which would crowd out investment, retard economic growth (Efuntade et al,2020).

External debt financing negatively affects the exchange rates and thus the debt service ratio. In any analysis done by the federal government of Nigeria, it was shown that given a 10 percent increase in government deficit, the N/$ exchange rate depreciates between 1.3 %and 2.4 %. Also 10% increase in the debt service ratio depreciates the exchange rate by about 5% (Ojo and Okuruomu, 1992). The ability of government to meet budget targets is most time impaired for paucity of funds and this results to deficit budgets. Government has resorted to external debt financing. This has created high debt burden for the country and other economic challenges; Low level of investment inflows, low level of industrial out-put, productivity and technical progress, high inflation, balance of payment disequilibrium, high level of unemployment, high level of poverty, poor exchange rate (Nzotta, 2014). Yusuf and Mohamed (2021) through an investigative study on the impact of government debt on economic growth in Nigeria opined that external debt constituted an impediment to long term growth to them, while its short-term effect is growth – enhancing. According to them, domestic debt has a significant positive impact on long term growth while its short-term effect was negative. However, both in the long term and short-term debt service, payments lead to growth retardation confirming debt overhang effect. Therefore, there is the need to keep a close tab on the movement of debt variables for enhanced economic growth and development. This study examined bond market operations in Nigeria with the view to developing an enhanced vibrant domestic debt market (Bond Market) for a robust economic growth and conceptualized as depicted figure below.

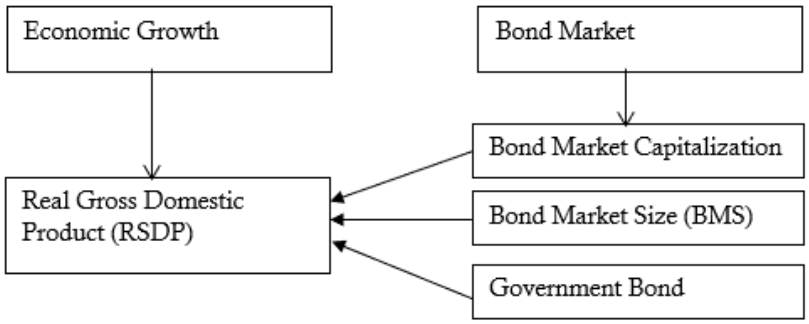

Figure 1: Conceptualized Framework by the researcher

The Following Research Questions were Employed;

i. What is the relationship between bond market capitalization development and Real Gross Domestic Product?
ii. What is the correlation between government bond performance and Real Gross Domestic Product?
iii. To what extent can bond market size impact on Real Gross Domestic Product?

Positive and insignificant impact on real gross domestic product in Nigeria at long run corporate government has positive and insignificant impact on real gross domestic product in Nigeria at long run.

Empirical Review

This study infactically examine the relationship effect of bond market development on the economic growth of Nigeria. While the review previous studies on relevant study remains the focus, there is also the need for a comprehensive review for deep insight and robust setting security prices, and that the prices of stock, bonds and other securities must fully reflect all available information at any point in time, this enable investment capital to be allocated to its most productive use thereby promoting investment, resources allocation productivity and economic growth. Uchegbu, Okezie, Ihemeje & Merue (2023) carried on a study on the impact of bonds market on economic growth of Nigeria. The finding of the result revealed that; federal government bond has positive and insignificant impact on real gross domestic product in Nigeria at long run. State government bond has positive and insignificant impact on real gross domestic product in Nigeria at long run. Corporate government bond has positive and insignificant impact on real gross domestic product in Nigeria at long run. The following policy measures are suggested because their implementation should enhance the economic growth of Nigeria. The Nigeria government at the federal level should make proper use of funds sourced from the bond market of the Nigeria economy to enhance the real gross domestic product in the country. Different States in the country should also as a matter of urgency make proper use of funds source from the bond market by investigating it in the development projects in their state in the country. Finally, the companies in the country that sourced their funds from the bond market should also make judicious use of the funds.

Chidi-Okeke, Ogbonna, Okeke & Uzoamaka (2020) conducted a study on the relationship between Nigeria bond market and economic development. The study adopted Autoregressive Distributive Lag (ARDL) test to ascertained both Long Run and Short-Run Dynamics. The result of the study revealed that bond market has no significant impact on economic growth. Nkwede (2020) conducted a study on macroeconomic determinants of bond market development in Nigeria. The study makes used of time series data and the data covered the period of 32years. The stated hypotheses of the study were analyzed using ordinary least square regression techniques. The findings of the study revealed that exchange rate, interest rate, inflation rate and banking sector development have negative and significant impact in the Nigerian bond market capitalization and as such, they demonstrated strong evidence as robust macroeconomic determinants and drivers of bond market development in Nigeria.

Alhassan, Bernand and Adje (2019) examine the influence of bond market determinants on the development of the bond market in Ghana. The study covered from 1980 to 2015. The study adopted the Augmented Dickey-Fuller (ADF) stationarity test, the Johansen Co-integration test and other tests and Vector Error Correction Model to analyze the stated hypotheses. The finding of the study revealed that bank size, external debt, money supply and size of the economy are significant determinants of corporate bond market development in Ghana.

Bolanle, Adefemi and Obalade (2018) carried out a study on macroeconomic determinant of stock market development in Nigeria. The study covered from 1981 to 2017. The study employed the ARDL bound testing technique to investigate the long run and short run

relationship between the dependent variable (stock market development) and independent variables (GDP, banking sector development, stock market liquidity, foreign direct investment, inflammation rate and savings rate). The finding of the study revealed that both the short run and long run, key macroeconomic determinants of stock market development in the context of the Nigerian Stock Exchange Market are banking sector development, stock market liquidity, foreign direct investment and to an extent the income level (GDP) while inflation rate which measures macroeconomic stability, and savings rate do not significantly explain stock market development. This study recommended that policymakers should ensure economic stability in order ensure the development of stock market.

Akinsokeji (2016) examined the impact of bond market in aggregate investment and the Nigeria economy using a disaggregate approach on data covering the periods of 1980-2013. The study used Vector Error Correction Method (VECM) and Granger Causality and discovered that macroeconomic variable has no direct impact on economic growth while savings promote the widening of the bond market. The causality test indicates that the flow of bond market goes from bonds to savings, then from savings to investment, and then from investment to real GDP growth.

Nkwede, Uguru and Nkwegu (2016) analyzed the macroeconomic variables that determined bond market development for the periods 1980-2013. The study employed descriptive and ordinary least square estimation techniques. The results revealed that corporate bond market development was influenced by economic variables such as exchange rate, savings, inflation rate, banking sector development, interest rate, fiscal balance, bond yield and foreign direct investment. It was also revealed that from these economic variables savings and exchange tends to be more significant than other macroeconomic factors within the period under review.

Nwado and Deckor (2013) demonstrated that domestic corporate bonds are huge source of liquidity in the Nigerian bond market and every other corporate bond market. Their empirical analysis is on domestic bond market and the development of Nigerian Capital Market revealed that a combination of both domestic and foreign participants in a bond market increases the chances of corporate bond market development but also covers that natural yield curve. The data used in the study were collected from the Central Bank of Nigeria, ordinary regression techniques were used in their study. In their financial analysis, they discovered that insignificant relationship between domestic market participation (DMTP) in domestic bond market and liquidity in the same domestic bond market. They concluded in their study that foreign participation in the domestic bond market contributes very little to the liquidity in the Nigerian domestic bond market and does not affect national field curve. Other work revealed did not actually effectively consider that investment capital must be allocated to its most productive use which this work considered.

Methodology

This study adopted quasi-experimental design in its development. Quasi experimental design, according to Amaefule, Onyekpere and Onyekperem (2017) it takes a number of measures, such that the relationship between the dependent and independent variables over a given

period of time can be measured. This informs the choice of the design for this study because the explanation suits the core objective of this study which seeks to evaluate the impact of bond market development on the economic growth of Nigeria. This study utilized secondary source as the sole source of data collection. The data were sourced from the Central Bank of Nigeria (CBN) online published bulletin and Reports. The quantitative data collected covered the various proxies for the dependent and independent variables of the study for the period covering 2003 – 2020.

The study employs Vector Error Correction Model with the aid of E-view statistical package Version 7.0. The choice of this technique for this study is based on the Unit root test result. The researcher thus adjudged this technique as being suitable for the analysis of this study. However, the F-statistics was adopted in testing each of the three hypotheses of this study.

Model Specification

RGDP = F(BMC, BMS, GBP) …….. (1)

Where: RGDP = Real Gross Domestic Product of Nigeria (at constant basic prices)
BMC = Bond Market Capitalization
BMS = Bond Market Size
GBP = Government Bond Performance

The above equation can be rewritten into multiple regression models as follows:

$RGDP = \alpha + \beta_1 BMC + \beta_2 + BMS + \beta_3 GBP + \varepsilon$ …….. (2)

Where: $\boldsymbol{\alpha}$ is the intercept of the multiple regression line
$\boldsymbol{\beta_1, \beta_2 \& \beta_3}$ are the coefficient of the explanatory (independent) variables
$\boldsymbol{\varepsilon}$ is the stochastic variable or error term

It is eloquent in research that time series data most times exhibit trends of non-stationarity; as such, the result of the model tested will be spurious which results to a very high coefficient of determination (R^2), false signal from the t-statistics, thus indicating highly significant regression coefficients and a Durbin Watson statistic tending to zero. Stationarity of time series data indicates that its statistical properties such as mean, variance, autocorrelation, etc., are all constant overtime; suggesting reliability of policy decisions made from the result of the time series analysis. One advantage of a stationarized time series data is that it is relatively easy to predict because the assumption usually is that its statistical properties will be same in the future as they have been in the past. Augmented Dickey-Fuller (ADF) is employed in this study in order to establish the stationarity of the time series data used for the variables. Data can be non-stationary at the face value (at level) but can be made stationary at first, second, third and in fact up to nth difference. Most studies, in order to ensure reliability of the ADF result limits the stationarity level to second difference. This study is consistent with existing literature; thus, the acceptance level of the ADF test is maximum of 2^{nd} difference. Therefore, if up to the 2^{nd} difference the ADF result is insignificant (i.e. P-value > 0.05), then the data will be cleaned and the scope expanded to ensure stationarity.

In many time series, integrated processes are considered together and they form equilibrium relationships, these leads to the concept of cointegration. The idea behind the cointegration is that although multivariate time series is integrated, certain linear transformations of the time series may be stationary. If two or more series are themselves non-stationary, but a linear combination of them is stationary, then the series are said to be cointegrated. This also test the rate of long run relationship between variables. The P-value of the trace statistics is compared with 5% critical level of significance, if the P-value is less than 0.05 in at least one equation, we conclude that a long run relationship exists in the model.

To test for the significance of the collective effect of the independent variables on each of the proxies of dependent variable in the models, F-statistics will be employed. Also, the coefficient of determination (R^2) will be used in ascertaining the extent of the effect or influence of the independent variables on the dependent variables. This study adopts 95% level of reliability (confidence) to the results of the analyses. That is 5% level of significance. Thus, the decision rule for each of the tests is:
Accept H_0 and reject H_A: if P-value **>** 0.05

Data Presentation and Analysis
Data collected for this study include data on Real Gross Domestic Product (RGDP), BMC, and GBP *see appendix 1.*

Data analysis in this study was carried out using vector error correction model, cointegration. The data were subjected to some diagnostic test such as jaguar bera test for normality, heteroskedasticity test for consistence of variance, Augmented Dickey Fuller test for stationarity of the data set, test for multicollinearity as presented in section 3 of this work.

Table 1: Unit Root Test with the ADF Statistic

Variable	Level of integration	T-statistic	Critical Value	Observed level P-value (5%)
BMC	I (1)	-3.649260	-3.065585	0.0168
BMS	I (1)	-3.090246	-3.081002	0.0492
GBP	I (1)	-3.952995	-3.065585	0.0022
GEXES	I (1)	-3.181987	-3.065585	0.0448

Source: E-view Output

The table above reveals all parameter estimates were integrated in other one. This show the data are consistent overtime. Hence, we can further test for long run relationship

Table 2: Cointegration Test

Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.815044	63.01001	47.85613	0.0010
At most 1 *	0.764095	36.00779	29.79707	0.0085
At most 2	0.529077	12.89856	15.49471	0.1186
At most 3	0.051714	0.849580	3.841466	0.3567

Source: E-view version 9.0 statistical Result, 2019

The cointegration result presented above indicate two cointegrating equations. This implies that all the parameter estimates entered will co-move in the long run towards equilibrium. Variance inflation factor was used to test for presence of multicollinearity in the model. Below is VIF result;

Table 3.

Variance Inflation Factors
Date: 05/16/22 Time: 08:27
Sample: 2003 2020
Included observations: 16

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C(1)	0.015301	5.053432	2.053432
C(2)	0.153019	10.34027	2.435361
C(3)	1.238253	2.248676	2.243435
C(4)	1.659572	13.41507	3.660663
C(5)	7.344446	41.08963	4.950777
C(6)	3724161.	33.43047	NA

The above result revealed VIF as 2.1, 2.4, 2.2, 3.7, 4.9. This implies that there is no correlation among variable. Indicating that the variables were independent of themselves since the VIF<5.

Table 4: Estimated Vector Error Correction Model Result

Dependent Variable: D(RGDP)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Date: 05/16/22 Time: 08:22
Sample (adjusted): 2005 2020
Included observations: 16 after adjustments
D(RGDP) = C(1)*(RGDP(-1) - 10.4929114393*BMC(-1) - 2.44258438542
*BMS(-1) + 1.03074753103*GBP(-1) - 41678.2385149) + C(2)
*D(RGDP(-1)) + C(3)*D(BMC(-1)) + C(4)*D(BMS(-1)) + C(5)*D(GBP(-1))
+ C(6)

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.125500	0.123696	-1.014584	0.3342
C(GDP)	0.473277	0.391176	1.209883	0.2541
C(BMC)	-0.607719	1.112768	-0.546132	0.5969
C(BMS)	0.481398	1.288244	0.373686	0.7164
C(GBP)	-0.831872	2.710064	-0.306957	0.7652
C(6)	1174.491	1929.808	0.608605	0.5564
R-squared	0.564699	Mean dependent var		2122.290
Adjusted R-squared	0.347048	S.D. dependent var		1652.199
S.E. of regression	1335.067	Akaike info criterion		17.51135
Sum squared resid	17824032	Schwarz criterion		17.80107
Log likelihood	-134.0908	Hannan-Quinn criter.		17.52618
F-statistic	8.594519	Durbin-Watson stat		1.435816
Prob(F-statistic)	0.043586			

Source: E-view version 9.0 statistical Result, 2019

Estimated Model

D(RGDP) = C(1)*(RGDP(-1) - 10.4929114393*BMC(-1) - 2.44258438542*BMS(-1) + 1.03074753103*GBP(-1) - 41678.2385149) + C(2)*D(RGDP(-1)) + C(3)*D(BMC(-1)) + C(4)*D(BMS(-1)) + C(5)*D(GBP(-1))+ C(6

H_{01}: There is no significant relationship between BMC and gross domestic product.

In testing for significance of relationship between BMC and (RGDP), the result shows a negative relationship with T-statistic value of -0.607719 and P-value of 0.5969. The result indicating the P-value of 0.5969 is greater than 0.05, the study therefore accepts the null hypothesis and concludes that there is no significant relationship BMC and gross domestic product**.** This implies that BMC contributes insignificantly to growth of Nigeria economy

H_{02}: There is no significant relationship between BMS and gross domestic product.

The calculated result reveals t-statistics of BMS as 0.481398 with a corresponding P-value of 0.7164. The result indicates that the P-value of 0.7164 is greater than 0.05, this implies that there is no significant relationship between BMS and gross domestic product**.**

H_{03}: GBP has no significant effect on gross domestic product.

The result on hypothesis three shows significant relationship between GBP and gross domestic product, the result indicates a significant relationship with the coefficient of -0.831872 and statistic value of -0.306957 with P-value of 0.7652. Since the result indicate P-value of 0.7652 which is greater than 0.05, we therefore reject the null hypothesis indicating there is no significant relationship between GPB and gross domestic product.

Discussion of Findings

The findings from the analysis and test statistics are discussed in line with the empirical review carried out in the second chapter this study. Discussion of the findings is as follows:

1. In respect of the first objective and hypothesis of this study, we find BMC has an insignificant negative effect on Nigeria's economic growth. This result agrees with Onaolapo and Adebayo (2010) that concluded that bond market capitalization has a negative and insignificant effect on economic growth.
2. With respect to the second objective and hypothesis of this study, the study holds that BMS revealed positive and insignificant relationship with Nigeria economic growth. This finding agrees with Onaolapo and Adebayo (2010) whose findings show a negative and significant relationship between GDP and bond market size.
3. The study revealed in the third hypothesis that the coefficient of GBP is positive and insignificantly related to real gross domestic product. This means that GBP has no effect on growth of the economy. This agrees with Nkwede, Uguru and Nkwegu (2016) who showed that in the long run government bonds depicted a positive but insignificant relationship with economic growth. It also agrees with Ndinda (2017) whose study showed that there is a positive relationship between government bond performance and economic growth.

Conclusion and Recommendations

This research investigated on bond market development and economic growth in Nigeria. Bond market development was disaggregated into Bond Market Capitalization, Government Bond Performance and Bond Market Size as predictors while real gross domestic product was used as proxy for economic growth. Data on the proxies were collected from the CBN statistical bulletin and were analyzed using vector error correction model. The findings from the analysis are summarized as follows:

i. Bond Market Capitalization has insignificant negative effect on Nigeria's RGDP.
ii. Bond Market Size has insignificant positive effect on the nation's RGDP.
iii. Government Bond Performance has insignificant negative impact on the nation's RGDP.

Based on the findings, the study concluded as that government borrowing with respect to public debt have not shown significant effect on Nigeria's economic growth; notwithstanding, that public debt was viewed from the perspective revitalizing the economy. However, the joint test reveals public debt jointly impact on economic growth. The following policy measure are suggested for improved bond market performance for rapid economic growth.

i. The Nigeria government should cut down at the rate it borrows, since they do not reflect positively in the economy.
ii. For government bond to perform, the Nigerian government should ensure they channel the borrowed funds in capital project instead recurrent expenditure.
iii. The Nigeria government via Debt Management Office should monitor closely all borrowed fund and ensure the serve the purpose for which it was borrowed.

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