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# Selected Macroeconomic Factors versus Bond Market Development in Nigeria

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***Abstract:*** *This paper examines the macroeconomic determinants of bond market development in Nigeria to address the persistent research question of whether bond market development is driven by macroeconomic factors or institutional factors in emerging markets. Time series data generated over the period of 32 years was analyzed using ordinary least square regression techniques involving multiple regressions. The aggregate bond market capitalization comprising both government bonds and corporate bonds were exploited. The major findings of the study reveals that exchange rate, interest rate, inflation rate and banking sector development have negative and significant influence on the Nigerian bond market capitalization and as such, they demonstrated strong evidence as robust macroeconomic determinants of bond market development in Nigeria.*
*Bond market, development, determinants, economy, Nigeria*
***Keywords:*** *Economy, Bond market, corporate bond, Development, Nigeria, capital market*

## I.INTRODUCTION

The core tripartite roles of any-well-functioning financial markets toward economic growth are the viability of bond market in mobilizing domestic and foreign sources of fund for investment. But surprisingly, most emerging bond markets, including Nigerian bond market is yet to live up to the expectation of this mandate; because the market is characterized by weak corporate mechanism, poor corporate governance, weak regulatory framework and both economic and political instability (Kemboi and Tarus, 2012).

Apart from the long historical problem of shallow and inefficient bond market in Nigeria, the market is also characterized by structural economic problem of bank-dominated economy as against market based-economy. This problem as a matter of fact, has created undue over-reliance on banking finances (making banking sector an absolute substitute for bond market instead of complement). The attendant consequence is that, it has made Nigeria "vulnerable" on the global market. While emphasizing on the problem of bank-dominated economy in most African countries, Eichengreen and Luengnamemitchai (2006:3) strongly argue that:

> *Domestically, banks have the weakness of being closely connected to business and Political leaders but also the strength of long-standing relationships with borrowers. Bond market has the opposite strengths and weakness: transaction are at arm's length, often between anonymous buyer and sellers, but access to the bond market as a source of finance is available only to the largest, longest-established firms about whom the best information is available. The banking system is ideally placed to provide patient finance; such are the argument that financially mature economy should have diversified sources of finance including both an efficient banking system and a well-developed bond market.*

Further still, there is also a noticeable challenge of interest rate variability and exchange rate volatility in the Nigerian bond market. For instance, the average exchange rate of naira per US dollar in the 1980s' was 0.6100% and 7.391% for lowest and highest rate respectively; and in the 90s. The average exchange rate increased from 8.03783% in the beginning to 92.6934%. Till date, the exchange rate in Nigeria has remained volatile (CBN, 2011). Similarly, interest rate and exchange rate in Nigeria is likened to a coin of same side as interest rate variability has over the years persisted in Nigeria. As a matter of fact, the variability of interest rate and exchange rate volatility perhaps may be responsible for the problem of underdevelopment of Nigerian bond market.

Consequently, it seems complex for Nigeria and other African countries to finance critical projects from bond market as alternative sources of finance since Nigeria have been heavily dependent on external grants and concessional loans from donor agencies for funding capital spending and government deficits. As a result, Nigerian local currency bond market appears relatively unattractive for foreign participation through foreign direct investment (FDI). This problem is also exacerbated by the unfavorable exchange rate regime faced by both local and foreign participant in the Nigerian bond market.

The size and depth of Nigerian bond market is also another worrisome issue; coupled with the erosion of public confidence brought about by inflationary pressures in the economy. While the size of the market is comparatively small, there is even another twin challenge of government bond crowding out some existing private/corporate bonds. The crowding out effect is no doubt multiple, since it affects both the non-bank investors and private investors. The maturity and price arbitrariness problems are not also left out, since it can further deteriorate the market confidence.

However, consistent with empirical literature, while most studies have often focused on stock market development and economic growth, no known study have devoted attention to the determinants of bond market development in Nigeria, to address basic issues like: 1) The drought of corporate bonds in the Nigerian bond market, 2) The underdevelopment status of Nigerian bond market, 3) The preference of Nigerian banks to source funds from capital market instead of bond market. For instance, in 2005 banks recapitalization Nigeria, no bank sourced fund from the bond market; in a bank recapitalization that is acknowledged according to Ezeoha (2011) as the biggest 'industry convergence in the history of banking in Africa'. In the light of the above unresolved questions in the Nigerian bond market and the controversial and inconclusive reports on the determinants of bond market development; this study is inspired to investigate what actually drive bond market development in Nigeria from the macroeconomic perspective.

The banking sector, no doubt serves as the bond market dealer/marker; and as such, Nigerian banks appear to be competing with Nigeria bond market in terms of fund provision and at the same time tend to deprive bond market share because of overreliance on bank for funding in Nigeria (Hawkins, 2002). Moreso, Fiscal balance brings about huge supply of government bond which in turn might be accountable for driving out corporate bonds and if the development of corporate bond is distorted, the entire bond market is perhaps affected. In the same way, savings basically is a prime factor for business investments and savings in Nigeria context constitute a significant proportion of investable funds. For instance, the national providence funds, pension saved funds among others are channeled into bond investment in Nigeria. Therefore, the mismanagement of the aggregate savings in Nigeria may be responsible for underdevelopment of domestic bond market in Nigeria. Against this backdrop, the fundamental question of what determines bond market development becomes imperative. Therefore, it makes a research sense to find out, what actually drives bond market development in Nigeria from the macroeconomic point of view, especially to ascertain the impact of these macroeconomic factors on bond development.

## II.REVIEW OF RELATED LITERATURE

By convention and in practice anchoring study of this nature on existing literature and theoretical framework are usually indispensable. Therefore, empirical literature and theoretical structure upon which the study is anchored will constitute the key parts of this literature.

### 2.1Conceptual Review

*The concept of bond and bond market*

Bond is a financial debt instrument (Ogilo, 2014). A borrower issues bond as an issuer; with the financial obligation to pay back to the lender both the amount borrowed and interest with a defined time frame. The lender is regarded as the investor. As a lender (investor) he buys the bond from the issuer. Therefore, in a general simple market notion the bond issuer is the seller while the lender is the buyer. SEC (2010) specifically opines that a bond is:

> *a generic name for a tradable loan security issued by governments and companies as a means of raising capital. The bond is an interest bearing security. It guarantees its holder both repayment of capital at a future specified date (Maturity date) and a fixed rate of interest also known as the coupon.*

On the other hand, bond market is interpreted as the environment where the issuance, buying and selling of financial debt securities take place (Welch, 2009; cited in Ogilo, 2014). The bond market is alternatively called debt market in financial terminology. According to Securities Industry and Financial Market Association, SIFMA (2011) bond market could also be described as a component of financial market where participants can issue new debt securities (regarded as the "primary market") or buy and sell an existing debt securities known as "secondary market". In light of the above, it is perhaps unarguable that the overall goal of bond is the provision of a mechanism for long term funding of public and private investments and expenditures. The maturity period of bond market instruments ranges from 6 years to a maximum of thirty years depending on the type of the instruments.

A typical bond market is composed of international bonds and domestic bonds. While the domestic bond market is made up of the government bonds, corporate bonds and municipal bonds, the Eurobonds and other global bonds makes up the international bonds (Ogilo, 2014).

However, SIFMA classified the bond market into five broad categories namely-the corporate bonds market, governments/agency bonds market, municipal bond market, mortgage backed/collateralized debt and funding. All these categories and other various types of bonds shall be discussed in details in the main work as the researcher proceeds. The participant in the bond market are government, corporate bodies, individuals, institutional investors, traders among others, while the bond market instruments includes bills, notes among others. The types of bonds that are currently being traded in Nigeria bond market are the federal government bonds with current outstanding volume of 4,591.19 billion, agency bonds with current outstanding volume of 1,301.62 billion, sub-national bonds (state government bonds) with current outstanding volume of 483.24 billion, corporate bonds with an outstanding volume of 141.62 billion, corporate Eurobonds with outstanding volume of 4,760.00 billion, FGN Eurobonds with outstanding volume of 1.500.00 billion (Egene and Abiodeen, 2014).

**2.2 Empirical Review**

Fink, Haiss and Hristoforova, (2003) studied the causal relationship between bond market development and economic growth, using thirteen (13) most developed countries of the world including United State of America, England, Switzerland, Germany, Austria, Netherland, Spain, Italy, Japan, Norway among other European countries. They discovered an inter dependence relationship between bond market and real output in the case of United State of America, United Kingdom, Switzerland Germany, Austria and Spain. In their methodology, they applied bivariate autoregressive model for the purpose of determining the nature of their hypothesized causal relationship between the bond sector development and economic growth. The period covered in their study span from 1950 to 2000. The famous granger causality test was conducted in their analysis to actually define causality in term of predictability. Meanwhile, in the final analysis, Fink et al (2003) discovered that there are differences in the causality patterns of some of the countries in their sample. These differences were due to the heterogeneity of market structures of European and Asian countries in sampled countries and also the difference in the degree of openness and international integration of the capital market in the countries. For instance, while there is one way direction of causality in the case of Norway, there is bi-directional causality in the case of Finland, Japan and Italy. They also found that there is a reasonable support for supply-leading causality from the bond market capitalization change to real growth in United States of America, Britain, Germany, Austria, and Switzerland. This supply-leading causality was rather found to be very weak in countries like Netherlands and Spain. Therefore, with supply-leading hypothesis found in the majority of the countries; it was concluded in their study that real economic activity is significantly influenced by the development of the bond market. There was no recommendation made for policy implications in the study.

Again, Adelegan and Radzewicezbak (2009) investigated what determines Bond market development in sub-Saharan African with a sample of 23 sub-Saharan African (SSA) countries. One thing special about their study is that they included factors like stages of economic development, economic size as well as historical, structural and institutional variables into their OLS regression model. The result of the study reveals that savings constraint is a major setback of domestic bond market development and financial market deepening in sub-Saharan Africa. Adelegan and Radzewicezbak (2009) argue that these constraints have brought about 'low level of financial intermediation by banks'. In conclusion, they indicated a 'confluence of factors that play critical role in the development of domestic bond market in SSA to include structure of the economy, investment profile, law and order, size of the banking sector, the level of economic development and other various macroeconomic factors. Regional integration of bond market in SSA was recommended in the study. Further, Christensen (2004) studied Domestic Debt market in sub-Saharan Africa with the purpose of reviewing the depth of African bond markets. The data bet of study was drawn from 27 sub-Saharan African countries with 20 observations (1980-2000). Findings from the study revealed that "domestic debt markets in these countries are generally small, highly short-term in nature and often have a narrow investor base". Moreso, the study supports the argument that domestic government debt is effectively crowding out private sector lending.

Consequently Mu et al (2013) who worked on Bond market in Africa firmly argue that even though African bond market has steady growth rate, but the market is still underdeveloped. While using an econometric model in analysis of their data, they discovered that "government securities market capitalization is directly related to better institutions and interest rate volatility, but inversely related to the fiscal balance, higher interest rate spread, exchange rate volatility and capital account openness". Interesting about Mu et al (2013) study is the incorporation of basic institutional variables (corruption, rule of law, geographical/natural endowment, bureaucracy etc) in their study.

Moreso, Eichengreen and Luengnamemitchai (2004) document that large country size, strong institutions, less volatile exchange rate and more competitive banking sector show positive association with bond market capitalization in Asian countries, while, fiscal balances is negatively associated with the growth of government bonds in the Asian region.

In Newserland, Dicke and Fan (2005) investigated the factors that are associated with the development of corporate debt market while working on the topic "Banks and corporate debt market development". In their study, they made use of panel data covering 30 countries from 1989-2002. The major crux of their study was to found out the relationship between banking sector structure and corporate bond market development. They classified corporate bond market development along other possible determinants of bond market development to include: Market players (-such as global corporation, government commitments, public debt market and institutional investors); institutions (such as legal system, and credit rights), Economic interrelationships and incentives (such as mergers and acquisition, per capita income, defined contribution schemes, corporate tax rate among others. Upon this premise they hypothized that "the more concentrated the banking sector. The more power that banks can exercise and the less likely it will be that corporate debt market will grow or better put "a highly concentrated banking sector could more effectively protect itself from disintermediation caused by bond market development"(Dicke and Fan 2005). Using multiple regression analysis in their study, they discovered that bank concentration is significantly negatively correlated with bond market development, adding that "the power of banks to resist disintermediation is related to their market power" (Dicke and Fan 2005). This means that the more concentrated the banking sector, the more negative association it has with bond market development. Dickie and Fan (2005) maintain that outstanding corporate debt securities as ratio of GDP have a close relationship with "a number of opportunistic elements", and other variables such as the volume of merger and acquisition as a percentage of GDP had positive signs as expected in their apriror institutional variables such of accounting standards, creditor right and judicial efficiency as used in their regression were also found to be a contributory factor to the weak corporate governance discovered in the countries of studies. Remarkably, they concluded that corporate debt market can only develop in an environment where the natural resistance of bank can be overcome. They recommended prospective economic policies to aid pressures to develop debt market in order to reduce capital cost and its associated risk.

In United Kingdom, Choudhry (2009) studied the United Kingdom Bond market on the topic tilted- "the value of introducing structural reform to improve bond market liquidity: experience from the UK gilt market". The study covered the time of 1993 to 2002, so as to capture the period in which United Kingdom Monetary Authorities introduced various structural reforms on the gilt market, purposely for improving the UK government bond liquidity. The crux of the study was to empirically ascertain the impact the reforms by examining the liquidity levels within the post-reform period of the market. Multiple regression technique was adopted in his methodology to estimate the values of observed price error (OPE) as the dependent variable. The study was motivated on getting the determinants of the proxy measure of market liquidity (such as bonds age, the bid-offer spread and the amount of bonds outstanding) and largest contributor of the various explanatory variables in influencing liquidity levels of the gilt market. As such, issue size, bond maturity, overall market confidence, bond minimum on discount and swap spread were used as independent variables of the study. In all these variables, a cross sectional time series data was utilized. These data grouped into three periods (comprising period 1 to period 3) for the purpose of connivance in testing the variables under study. In his analysis, it was found that bond size of the UK gilt market has negative significant relationship with the observed price error. This means that a large issue size of bond in the gilt market suggest greater liquidity but with smaller spread. As a matter of fact, issue size in the bond market does not greatly influence bond liquidity. Then for terms of maturity, it was discovered that it is positively significant at 5% level; which means that higher term maternity bonds tends to increase interest rate risk with wider spread. On the other hands, market confidence was observed to be negatively significant statistically with bond market liquidity. It is reported that market confidence is not practically significant because it has very unnoticeable impact on the observed price error. Though this practical implication appears strange but it is believed that the transparency and efficiency in a developed bond market like UK gilt market should have a market yields that reflect true fair value instead of market sentiments. The premium and discount price variables were reported to have no certain sign from the result. This finding is in tedium with that of Daiz and Skinner (2001) as cited in Choudhry (2009). Then swap variable was found with the expected sign (positively significant). The Chow test conducted because of common nature of structural changes in financial market proved valid. In the final analysis according to the interpretation of his statistical values, it was concluded that an increase in market liquidity would not all the time bring about reduction in observed price error, especially in an illiquid trading economic conditions. He also further concluded that market liquidity can be maintained via the application of most trading conditions such as market volatility, bench mark bond issuance, swap spread among other factors. Therefore, introducing structural reforms as a helping hand to increase and sustain liquidity in bank market were recommended to foreign debt agencies.

Other studies also reviewed include: Kahn (2005), worked on original sin and bond market development in Sub-Saharan Africa, Xiong and Yan2010) who studied the heterogeneous expectation and bond markets, Seok(2012), who investigated the determinants for Asian bond market development, Dickie and Fan (2005) who worked on bank and corporate debt market development, Loncarski, Horst and Veld(2006), investigated

why companies issue convertible bonds, Becker and Ivashina (2013) who justified reaching for the bond market, Ogilo(2014) who studied the effect of selected macro-economic variable on bond market development in Kenya, Onaolapo and Adebayo(2010), who investigated the effective development of the bond market and the Nigeria economy, Hakansson (1999) who studied the role of corporate bond market in an economy-and in avoiding crises, among others. The identified gap in the reviewed literature is that none of these studies has primary focus on Nigerian bond market.

## III. THEORETICAL FRAMEWORK

This study is anchored on the Information Asymmetry theory. Theoretical evidences have shown that information asymmetry usually associates with agency theory and pecking order theory. Meanwhile, the theory of information asymmetry was propounded by George Akerlof, Micheal Spence and Joseph Stiglitz in 1970; and in 2001, three of them were awarded a noble price in Economics for their concerted research analysis of market with information asymmetry. Basically, the gamut of information asymmetry postulates a situation where one party in business transaction has more and superior information than another (David and Braruch, 2000). The theory presents two groups in an ideal market-the informed group (which comprises the managers of the firms who have full knowledge about the firms' prospects) and the uninformed group (the investors in the firm who do not have superior information about the firm). Like the problem with agency theory (the problem of conflicting interest between management and investors); information asymmetry also breeds the problem of moral hazard, adverse selection, information monopoly discriminatory action and reserve prices (Black, 1998; David and Baruch, 2000).

Thus, the idea behind adopting information asymmetry as part of the theoretical foundation for this study is on the premise that substantial proportion of the transactions in bond market and investment decision making are based on transmission of firms accounting and financial information from those who have it to those who need it. These accounting and financial information are structured on information asymmetry. Therefore, these two theories (efficient market theory and the information asymmetry theory) form the two strong pillars upon which the study stands.

## IV. METHODOLOGY

### 3.1Research Design and Data

Based on the nature of the variables of the study (variables that are completely out of the control of the researcher) this study adopts ex post facto (ie after the fact) research design. The choice of this design is according to the belief of Agha (2011) that ex post facto is most suitable in a study characterized by observation of events or influences on a phenomenon that have already taken place. As a quantitative research, the study as well made use of descriptive research approach for the purpose of explaining the data collected.

### 3.2 Sources of Data Collection

The nature of data used in this study is times series data. Meanwhile, all these data were basically sourced from Nigerian Stock Exchange Fact-book of various years, Nigerian Stock Exchange Annual Report and Statement of Account, CBN Statistical Bulletin and Nigeria Bureau of Statistics. Some data were also sourced from ICE data of stock market development of World Bank, Banks and International Financial Statistics of IMF among others.

The scope of study is focused on Nigerian bond market as the case in point. The study is also cover both government bonds and corporate bonds in Nigeria within the period of 1981-2012. The reason for limiting the scope of the study to both government bonds and corporate (and within 1981-2012) is because of availability and accessibility of data in one hand and the other hand, it is also to capture the overall Nigerian bond market in terms of size and depth on economic wide bases.

## V. Description of Research Variables

The variables of the study is generally be grouped into dependent and independent variables. In one hand, bond market development forms the dependent variable of the study. It is measured by aggregate bond market capitalization (BdCap) as a percentage of GDP. The reason behind using aggregate bond market capitalization (ie both government bond and corporate bond) as measure of bond market development in this study is because; it captures the overall market size/depth of Nigerian bond market on economy wide bases. This reason is also supported by Levine and Zervos (1998). On the other hand, the independent variables of the study include the macroeconomic variables. The independent variables are operationally defined in this study as follows:

## VI. Model Specification

It implies that the development of bond market in Nigeria is dependent on macroeconomic factors. Thus, this statement can explicitly be expressed in a functional relation as: bond market development is a function of macroeconomic variables. Since the focus of this study is to investigate the determinants of bond market development in Nigeria by examining the contribution of each of these variables, the regression equation is thus specified as:

$$\mathbf{LogBdca/GDP_t = log\ \square_0 + \square_1 logInt_t + \square_2 logBks_t + \square_3 logfdi_t + \square_4 logFbla_t + \square_5 logExgr_t + \square_6 logInfr_t + \square_7 logSavs_t + \square_8 logByid_t + \in} \ldots [1]$$

Where log = logarithm

Bdca = Bond Market capilalization

GDP = Gross Domesit Product

Int = interest rate variability

Bks = Banking sector development

Fdi= Foreign direct investments

Fbla = Fiscal balances

Savs = Savings

Infr = Inflation rate

Byid = Bond yield

$\in$ = Error term

The purpose of adopting an exponential (non-linear) regression model is to keep away from additive simple linear regression model. Meanwhile, naturally, one would theoretically estimate a simple linear relationship using simple linear regression model; but some natural phenomena often assume linearity. This is similar to the relationships under study. Since the relationship between the respective dependent variable may not be linear; then exponential (non-linear) regression equation, becomes a better model that will capture or predict a closer realistic relationship. Again, econometrically, simple regressions often do not provide adequate prediction of the dependent variable due to the case of internal validity or superiority. Theoretically, there must be more than one independent variable that explains the variability in the dependent. This logic helps to obtain better prediction on the dependent variable by regressing the dependent variable on more than one independent variable.

## VII. RESULTS AND ANALYSIS

*4.1 Diagnostic Results*

The results of diagnostic tests conducted to validate empirical results and the data employed in the study and for the purpose of accomplishing the basic assumptions of OLS are summarized below:

*(a) Unit Root Test:*The unit root test was conducted using ADF statistics on both the independent and the dependent variables. The result shows that all the variables were stationary at first difference with zero lag.

(b) *Result on Autocorrelation test*: The autocorrelation assumption test was performed using Durbin Walton test. The purpose is to confirm the likelihood of autocorrelation in the model and to accomplish the assumption of independent error which arises if the disturbance term grows to influence the dependent variables. The conventional rule is that the closer the value of *d* to 2 the less likelihood of the problem of autocorrelation. Results indicate that *d* value is 1.5. The values are actually within the acceptable range of near 2. Therefore, the autocorrelation assumption is accomplished.

(c) *Result on Normality Test* : Among other techniques of checking for normality assumptions, Jarque-Bera technique was adopted. The reason is because it is for asymptotic test dedicated to OLS and it captures both skewness and kurtosis. Consistent with the instructive rule of JB statistics, the results of the normality test shows that the residual is not normally distributed regarding the values of skewness or kurtosis. But we did not worry much about this problem because Tabachick and Fidell(1989) suggest that the problem of the skewness or kurtosis does not significantly change the regression results. See fig. 1 bellow.

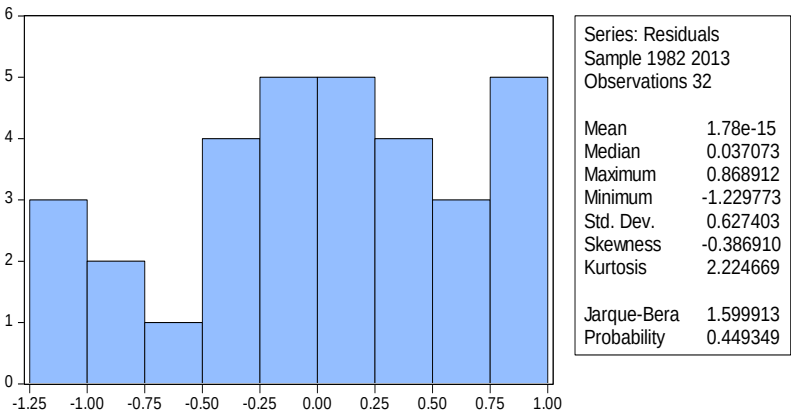


Fig. 1: Normality Test Result

(d) *Result on Multicollinearity Test*: To accomplish Multicollinearity assumption, the variance inflation factor (VIF) test was conducted. VIF test is one of the most conventional tests that are reliable in measuring the level of multicollearity. Conventional approach to VIF is that the value of VIF should not exceed ten, as suggested by Guiarati (2003), Hair and Goodman (2008). Our result of VIF showed value less than ten.

(e) *Result on Heteroscedasticity Test*: Again, Heteroscedasticity occurrence was checked in the model estimation. This was done using Breusch-Pagan-Godfrey method. The essence of testing for Heteroscedasticity is to detect if there is an association between the independent variables and residuals value in the model and to ensure no violation of the constant variance assumption that perhaps leads to the predicament of Heteroscedasticity. Generally, this OLS assumption is accomplished when the OLS coefficient estimates are best linear unbiased (i.e BLUE OLS) (Iyoha, 1996). From the heteroscedasticity Test, the results indicate that the *cal.obs R square* is 9.034732; indicating that the error terms has a constant variance.

## VIII. EMPIRICAL RESULTS

Table **1**: Regression Results

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -8.339318 | 1.141375 | -7.306380 | 0.0000 |
| D(FDI) | 0.082648 | 0.067549 | 1.223528 | 0.2335 |
| FBLA | 2.829209 | 1.205473 | 2.346969 | 0.0279 |
| LOG(SAVS) | 1.846621 | 0.608361 | 3.035402 | 0.0059 |
| BYID | 0.111099 | 0.045076 | 2.464721 | 0.0216 |
| INFR | 0.000351 | 0.009222 | -0.038028 | 0.0029 |
| BKS | -0.040658 | 0.044570 | -3.912229 | 0.0275 |
| EXGR | 0.006295 | 0.004622 | -2.361784 | 0.0018 |
| INT | -0.167108 | 0.038732 | -4.314532 | 0.0003 |

R-Squared = 0.833567, Adjusted R-Squared = 0.775677, F-statistic =4.39920,
Prob(F-statistic) = 0.000000, DW stat = 1.961744, S. E of regression =0.728389.
**Source:** EViews Stat.

The empirical results as presented in table **1** aptly show that interest rate, exchange rate, banking sector development and inflation rate have significant influence on bond market development in Nigeria. The results indicate that the relationship between interest rate, exchange rate, banking sector development and inflation rate as macroeconomic factors are negative and very significant. This means that these macroeconomic factors are major determinants of bond market development in Nigeria. It also suggest that an increase inflation, exchange rate, interest rate and the amount of credit provided by the banking sector, within the Nigerian economy, brings about decrease in the aggregate bond market capitalization in the Nigerian bond market if all other factors are held constant. From the results, it is interpreted that high inflation rate and the unstable interest rate inherent in Nigeria economy can scare potential investors in the Nigerian bond market-as this is in agreement with the Keynesian theoretical standpoint that high inflation rate and interest rate negatively affect investment. In concrete terms, no doubt, high inflation and interest rate discourages investment in bond securities because both individual investors and firms found it extremely unattractive to invest in a business environment characterized with such circumstances. As a matter of fact, it will also be difficult for bond market to develop.

Again, for banking sector development and bond market development, it is discovered that banking sector development has no positive significant impact on bond market development in Nigeria. The implication of this finding is that a unit increase in the amount of total credit provided by the Nigeria banks to private sector brings about reduction in the level of bond market capitalization in Nigeria. The result is also consistent with the theoretical position about banking sector development or banking system size and bond market development. For example, it is debated in the theoretical literature that where bond market is not living up to the expectation of the potential funds users, bank plays both role of banking institutions and the role of bond market in terms of funds provisions to the needy investors. Again, it is argued in the literature that bond markets suffer a lot in any economy that is bank dominated instead of market dominated. As much as can be established, Nigerian economy is bank dominated, and as such, Nigerian banks, have allegedly taken up the role of bond market in term of funds provision. No wonder, Greenspan (2000) claims that Nigerian bond market act like a spare tyre in the provision of corporate funds. The Nigerian banks recapitalization of 2005 and the banks consolidation policy of 2010 no doubt repositioned Nigerian banks to be more concentrated. The concentration makes the banks to arrange strategic loan packages which attract the public not to seek for funds from the bond market (Benstan, 1994; Rejan and zingales, 2003; Sehinasi and Smith, 1998). On the other hand, the result is also consistent with the empirical findings of Eichengreen and Luengnamemtchai (2006), Adelegan and Radzewiz- Back (2009), Choudhry (2009), Fink *et al*, (2003), Dicke and Fan (2005), among others.

Furthemore, other macroeconomic factors such as foreign direct investment and savings proved to have positive significant impact on bond market development in Nigeria. Thus, an increase foreign direct investment and increase in general awareness about savings in Nigeria will lead to increase in investment in the bond market. Any increase in the bond market investment would increase the volume of bond market capitalization as more bonds will be issued; as such, the market would expand (leading to greater development). Therefore FDI and savings are strong determinants of bond market development in Nigeria.

Against researcher's expectation, fiscal balance and bond yield show a positive but insignificant relationship. Therefore the study does not find fiscal balance and bond yield as determinants of bond market development in Nigeria. It should be re-emphasized here that fiscal balance and bond yield were added in the research variables as controlled variables not as direct macroeconomic variables. Reason not farfetched; budget balance (either deficit or surplus) play a vital role in determining the level of government debt. Bond yield on the other hand plays the same role on bond securities investment. Thus it was expected that their behaviours could have influence on bond market development. Essentially, other indicators in the estimation such as $R^2$ adjusted value, show 77% (i.e above 70%) - meaning that 77% fluctuations in Nigerian bond market is explained by the regression model. The Durbin-Waston statistics is also close to 2, therefore the overall result is not by chance.

## IX. CONCLUSION

It is concluded in this present study that interest, rate, exchange rate, inflation rate, banking sector development and savings are among the macroeconomic factors that spur bond market development in Nigeria. The policy implication of these findings is that macroeconomic factors in Nigeria act as catalyst for Nigerian bond market development. The study recommends further research on the institutional determinants of bond market development with attention to country's specific characteristics.

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