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MACROECONOMIC DETERMINANTS OF REAL ESTATE INVESTMENT TRUST'S (REIT'S) DIVIDEND RETURN IN NIGERIA.

OYEDELE JOSEPH BAMIDELE AND ADERIBIGBE JOHN OYEWOLE

Department of Estate Management Obafemi Awolowo University, Ile-Ife, Osun State

Corresponding Author: joe_christ2001@yahoo.co.uk

MACROECONOMIC DETERMINANTS OF REAL ESTATE INVESTMENT TRUST'S (REIT'S) DIVIDEND RETURN IN NIGERIA.

ABSTRACT:

PURPOSE – The Nigeria REIT market has been rated low in term of dividend return amidst the industry variables of Size, NAV, FFO, Leverage, Advisor Puzzle among others. Other Scholars have examined the influence of macro-economic variables (GDP, Inflation, etc.). This study examines the effects of these macroeconomic variables and other specific factors on Nigeria REIT's dividend return.

DESIGN/METHODOLOGY – The study is a quantitative econometric study. The data were collected from various government institutions CBN, NBS, NSE and annual Reports of the Skye Shelter REIT. The data covers the period of existence of REIT in Nigeria (2008-2016). The study utilized multiple regression and correlation analyses to establish the influence and relationship of the macroeconomics variables on REIT return.

FINDINGS – The correlation study shows a significant relationship between REIT dividend to oil price (-ve) and exchange rate (+ve). The regression analysis confirmed the significant effect of oil prices of $P=0.015$ ($P<0.5$). The entire six variables accounted for 95.8% effect on dividend return having R-Square value of 0.958. The F-Value is 31.37 with a significant value of $P = 0.031$ ($P<0.5$)

PRACTICAL IMPLICATIONS – The study contributes to the REIT literature with its consideration of some country specific economic variables (government spending, crude oil price and exchange rate). The study identified the Nigeria economy to be a single commodity (crude oil) as well as import dependent (of consumable commodities), which significantly impacts on the country's currency exchange rate. It thus implies that the economic diversification effort of the current government from mono product situation to multi product economy be successful and sustainable to rejuvenate the Nigeria economy.

ORIGINALITY/VALUE OF WORK – The paper in addition to being the first to examine macroeconomic variables and the Nigeria REIT market, has also added country specific variables of government spending, crude oil price and exchange rate to reflect the peculiar volatility of the Nigeria market.

KEYWORDS: Correlation, Determinant, Dividend, Macroeconomics, REIT Return, Regression

PAPER TYPE – Research Paper

1. INTRODUCTION

As revealed by the International Monetary Fund (IMF), Nigeria as an oil dependent emerging economy was rated the third fastest growing economy in the world after China and Qatar with an annual growth rate of 7 percent in 2014 and 2015 fiscal years. As the 6th largest oil producing country in the world and the 1st position on the African continent with daily crude oil production capacity of about 2.5 million barrels, the country's budgetary revenue and export product value are made up of 75 percent oil revenue and 95 percent oil output respectively. The outstanding performance of the crude oil sector led to the sharp contraction of other sectors that tend to serve as revenue generation bases for the government. For instance, the leading role of agricultural sector in revenue generation prior to crude oil discovery suffers a great setback to the extent that the nation can no longer feed itself without importing food items (Anyanwu et al., 2013; NNPC, 2016; Olaniyi et al, 2015 and World Bank, 2016).

The enlarged revenue from oil and gas sector in the early years placed Nigeria in the global recognition. This reflected in the nation's economic performance leading to growth in other sectors such as education, health and real estate/construction industry until the early 1980s. Like other oil dependent economies, Nigeria macroeconomic outlooks were observed to be stronger until the recent time when the economy starts experiencing hard time due to slump in the oil market. The sharp decline in the oil price at global oil market caught the Nigeria economy unaware, the situation got worsen due to instability of oil output (caused by the incessant vandalisation of oil pipelines by the Niger-Delta militant groups), depreciation of naira against US dollar and high inflation being witnessed by the economy at about 17.2% since 2015.

There have been a drastic reduction in the Nigeria GDP with annual growth rate of 2.11% in 2015, while the Consumer Price Index stood at 20.11% (NBS, 2016). This hostile economic condition being witnessed in the country has directly or indirectly affect the business environment in Nigeria. As a result, the negative effect of some of these macroeconomic indicators has adversely affected performance of business activities in the country. Also, the purchasing power of the citizenry has been weakening which reflects the consumer behavior in the market with respect to their pattern of demand. Thus, the unfriendly business environment that the economy had been subjected to, have discouraged both local and international investors to deploy their funds into Nigeria investment market.

The real estate sector is in no way immune from the happenings of the macroeconomic variables and the general investment market in Nigeria. Hence by extension, Real Estate Investment Trust (REIT) which is a multi-billion investment vehicle cannot stand in isolation amidst these economic challenges. A harmful of earlier researches have investigated the effect of macroeconomics factors/variables on both direct and indirect real estate investments. However, the variable(s) considered by each study may differ at particular time of the study. The main focus of the many literatures among the macroeconomic variables include inflation (Bello, 2005; Hamelink, Hoesli, & MacGregor, 1997; Hoesli, 1994; Hoesli, Matysiak, & Nanthakumaran, 1996; Laopodis, 2009; C. L. Lee & Lee, 2012; Ma'in, Arifin, Hatta, Hashim, & Isa, 2016; Maurer & Sebastian, 2002; Newell, 1996; Park, Mullineaux, & Chew, 1990). Other variables that have been studied include interest rate (Laopodis, 2009; Ma'in et al., 2016), GDP (Ajide, 2014; Christopher, 2014; Ifeakackukwu & Ditimi, 2014), currency exchange rate (Diala, Kalu, & Igwe-Kalu, 2016; S. L Lee, 2001; S. L. Lee & Thomas, 2006; Liu & Mei, 1992; Mordi, 2006; Quan & Titman, 1997; Tabet & McAllister, 1998), government spending (Ajide, 2014). There have been very few of these studies in Nigeria market. In addition, Nigeria is a crude oil exportation dependent country as its main revenue (about 90%) is derived from oil exportation. The international price of crude oil determines the currency exchange rate and government spending. Therefore this study considered the inclusion of crude oil price as a variable of note in Nigeria economy. Interest rates has been widely discoursed in relation to cost of funds and high capitalized REIT was found utilizing leverage more in the market, the cost of which increases the cost of operation and could reduce revenue, thereby reducing dividend distribution (Olanrele, 2016). Interestingly, in the study of REITs in Nigeria though there are few available studies that have been undertaken and reported, the influences of macroeconomic factors have not been investigated. The current study is anchored on the search for the cause(s) of low performance of N-REIT. This study however excludes interest rates but investigates the effect of the six other macroeconomic variables viz; Inflation, GDP, Market Capitalization, Government Spending (expressed as a percentage of GDP), Global Crude Oil Price and Currency Exchange Rates. The relationship between these individual variables was sought relative to the return on dividends as well as the joint effect of these variables on Nigeria REITs return simultaneously

The immediate sections 2

provides the review of past studies on the subject matter. Section 3 presents the methodology and data used in the study while section 4 discusses the empirical results. Conclusions and recommendation drawn in section 5.

2. LITERATURE REVIEW

In the private business world, REIT has been widely acknowledged as an asset class important for portfolio diversification for enhanced return performance (Goebel, Harrison, Mercer, & Whitby, 2013). This attraction of REIT has been extended to the public economic and investment management where investment in real estate assets can foster the growth opportunity for any economy and also in resuscitation of a recessed economy. This position is manifested in the development of different REIT regimes following different economic/financial crisis. The Nigeria REIT came into existence following the enactment of Investment Securities Act of 2007 and the setting of guidelines by the Securities and Exchange Commission (SEC). SKYE Shelter Fund (SKYE REIT) is the first REIT registered in Nigeria in 2007 followed by the Union Homes Hybrid REIT in 2008 and lately is the 2013 entrant UPDC REIT. Over the period of existence of REIT in Nigeria, the REIT market has been assessed to be of low performance in term of both distribution and market index (Olanrele, 2016). However, various studies have investigated the different factors that might be responsible for REIT return performance. The result shows that both internal (formal) factors that are peculiar to equity investments (Size, Income, Leverage, NAV, Liquidity) and external (informal) relating to operating environment (government policy, Infrastructure, Security) ranks high among others. The influence of Management Style (Advisor Puzzle) has also been reported whether internal or external Advisor (Olanrele, 2016; Olanrele, Said, & Daud, 2014, 2015).

Beneath the external factors of government policy and other operating environment are macroeconomic factors that have been reported in literature of their influences and relationship with real estate investment's return performances. Ma'in et al. (2016) investigated the determinants of Islamic REIT performance in South East Asian and Middle East countries of Malaysia, Singapore, Bahrain and Kuwait. The performance was measured with NAV and the study found a positive relationship with only market capitalization. The result was not different from the general perception shot the fact that the more capitalized a REIT is, the more fund it has to invest in high income yielding properties for a better return on investment. The study only takes the individual REIT capitalisation and not the entire market capitalization (for all equities). Asteriou and Beghazi (2013) modelled daily REIT return and volatility and found a positive correlation between REIT return and general stock market, the study however did not use the general stock market capitalization but the index (S&P 500).

The common perception of real estate investment as a good hedge against inflation, making real estate an attractive investment option has been subjected to discussion in the literature and diverse result has emerged perhaps due to data, methodology, market and time. Hamelink et al. (1997) in their study reported time diversification effect of the real estate inflation protection. (Barkham, Ward, & Henry, 1996) reported a positive relationship inflation and real estate. Other studies that found positive relationship between inflation and real estate return include (Hamelink & Hoesli, 1996; Hoesli, 1994; Hoesli et al., 1996; Newell, 1996).

Ma'in et al. (2016) in their study of the macroeconomic factors and firm-level characteristics on Islamic REIT performance in Asia and the Middle East, found both inflation and interest rates having insignificant relationship with REIT performance. Wurstbauer and Schafers (2015) investigated inflation hedge and protection qualities of real estate and infrastructure in the USA between 1991 and 2013 and it was found that direct infrastructure has a better inflation protection than the real estate assets. This was corroborated by Maurer and Sebastian (2002) in their analysis of German Open Ended Funds providing superior inflation protection qualities better than other indirect real estate investment options. Bello (2005) decomposed inflation into actual and expected inflations and found a non-existent inflation hedge of real estate for actual inflation, but that real estate possessing hedge against expected inflation. In a study of equity REIT in the US Park et al. (1990) found a result of negative but significant coefficient of return to expected and non-expected inflation. The study on French REIT revealed that increase in interest rates and inflation decreases the REIT return (Manni & Teng, 2007). There is a consensus that the stock market (equities) performs low as inflation rises (Bello, 2000; Bruegeman, Chen, & Thibodeau, 1992) and this suggests that real estate equities like REIT will not be an exception.

Lee and Lee (2012) affirmed that the global financial crisis of 2007-8 evidently increases the volatility of risk hedging capacity of REITs futures. In the study of Australia and Japan REIT markets, it was found that REIT as an effective hedging instrument outperforming other equity stock, interest rates and foreign currency but the hedging ability of REITs varies over time. The traditional low risk feature of REITs was almost eroded by the global financial crisis suggesting that REIT return is subjective to capital market risk. REIT futures as a derivative in the market have real estate as its underlying asset and the assets determine the value of the REIT future. Despite of the acknowledgement of the importance of REITs in investor's portfolio, the interaction of REITs as an asset class with the general stock market capitalization and the economy has been scarcely investigated. In a study of the USA markets, Laopodis (2009) emphasized the interest of the portfolio managers in the sensitivity of returns of asset options (REIT inclusive) to market movements and the general economy. It was found that the portfolio managers will be able to enhance their risk management strategy especially for the real estate assets. Using the data from the USA market for 1971-2007, the economy accounts for 8% of equity and 6% of the stock market excess returns indicating a non-turbulent response of equity REITs to shock from the small and mid cap stock index (S&P500) movements. It was further reported that the stock market accounted for a smaller percentage (4%) of the equity REIT return reflecting that a pick up activity of the economy can also lead to high interest rates which in turn may reduce the return of equity stocks as well as equity REITs. The Laopodis' study used industrial production as a proxy for the economy excluding other variables of the economy and also stock market indices instead of market capitalization.

In the Asian REIT market, the emerging REITs are more sensitive to macroeconomics variable changes than the established REIT markets (Loo, Annuar, & Ramakrishan, 2016). The GDP plays a significant role. Baum and Salem (2016) also identified the GDP as a strong determinant of foreign direct investment (FDI) in commercial real estate in a study of the Middle East and North Africa (MENA). The US GDP was reported to gain an increase 3.9% annual rate in the third quarter of 2014 with an increase in the NAREIT index to 26.4% YTD and 27.2% one year return as shown in figure 1 below (Christopher, 2014).

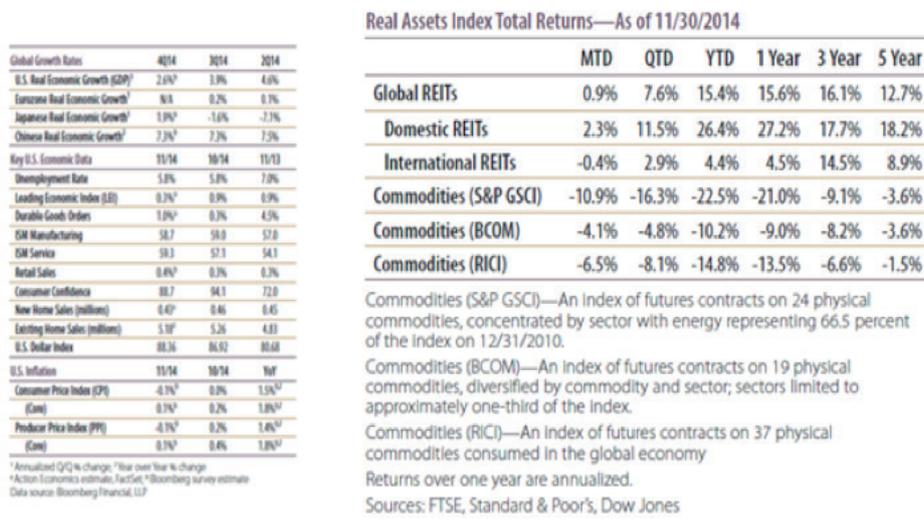


Figure 1: Global GDP growth rates and real assets total returns as of November 30, 2014 – Christopher, 2014

The study conducted in Nigeria by Ajide (2014) investigated the nation's economic growth in the face of capital formation and population. GDP was used as a proxy for economic growth while the factors of capital formation include FDI and economic freedom (EF). Economic freedom was assumed to involve government spending, inflation and 'black market' premium on exchange rate. The study concluded that economic freedom factors affect the GDP and impacts on all sectors including the real estate sector of the economy

In respect of the global oil price and currency exchange rate, Ifeakachukwu and Ditimi (2014) affirmed a strong negative impact of international oil price on the exchange rate between Nigerian naira and the US dollar. The relationship between exchange rate (Naira/Us dollar) to commercial property return was investigated in Nigeria by Diala et al. (2016) from which a positive but insignificant correlation was postulated. Osinubi and Amaghyeodiwe (2009) earlier reported same negative pattern of property return of the slide of Nigerian naira against US dollar in both official and parallel currency market. The study opined that given such situation, limited FDI will be experienced in the real estate sector as a result of the volatility of the currency exchange rate. The study limited itself to direct commercial property investment without including indirect real estate like REIT. Adamu (2005) aligned with the negative impact of exchange rate volatility on investments. The unanticipated return driven by changes in exchange rates was found to be a driven factor in international diversification (Liu & Mei, 1988). Mordi (2006) cautioned that improper management of exchange rate can introduce destabilizing distortions to an economy. The risk of the exchange rate can also lead to volatility of return from real estate asset (Lee, 2001).

From the foregoing, a large body of literature abounds on the influences of macroeconomic factors on REIT returns across different markets. However, no study has been conducted on N-REIT. Nigeria being a monoprodukt economy depending solely on oil and gas exploration exportation, the study of crude oil price changes has not been undertaken. Exchange rate volatility is also yet to be included in Nigeria REIT investigation. This present study includes these variables in addition to GDP and inflation. The stock market capitalization is also included in this study to explore the impact of REIT in the market as well as the market influence on REIT sector.

3. METHODOLOGY AND DATA

There abound varieties of methods for analysis in any study of the relationship and interaction of variables that have been adopted by the earlier studies on time series data. Ma'in et al. (2016) adopted Panel Data Analysis with quarterly observation over a period of five (5) years. Diala et al. (2016) used Exponential Generalised Auto Regression Conditional Heteroscedasticity (EGARCH) in their study of exchange rate and property return in Nigeria. Laopidis adopted Vector Auto Regression (VAR) and Granger Causality and Cointegration analysis while Lee and Lee (2012) combined Ordinary Least Square (OLS) and GARCH models assessing inflation hedge effectiveness of REIT futures. The GARCH model was also adopted by Asterious and Beghazi (2013). Ifeakachukwu and Ditimi (2014) employed Granger Causality and Error Correction Modelling (ECM) to investigate the effects of the capital inflow on exchange rate in Nigeria. Their choice of model (Multivariate) was dependent on the properties of unit root analysis, cointegration and multicollinearity. Adije (2014) also adopted multivariate modelling in a study of determinants of economic growth in Nigeria. The current study has adopted both Correlation study to establish the interaction of the variables with each other and multiple regression analysis to establish the simultaneous effect of all the independent variables on the dependent variable and their level of significance.

The Regression Model look thus:

$$Y = f(x_i, i=1-k) \quad (1)$$

Y is the dependent variable (dividend return), x_i represent the independent variables (1-k).

Expanding the equation, we have

$$Y = a + b_1x_1 + b_2x_2 + b_3x_3 + \dots + b_nx_n + e, \text{ where } b \text{ is the coefficient and } e \text{ is the error of regression}$$

$$\text{In Standardised form, } Y = b_1x_1 + b_2x_2 + b_3x_3 + \dots + b_nx_n \quad (2)$$

The data for this study include the dividend return (dependent variable) from Skye Shelter REIT the foremost REIT in Nigeria. Skye REIT was chosen out of the three REITs because it is the first (Equity) REIT, and it has declared dividends each year since it started operation up till (2008-2016). UHomes REIT is a hybrid REIT whose return can be further affected by its mortgage REIT undertaken. UPDC REIT is the latest entry into Nigeria REIT market in 2013, though Equity REIT, it has declared dividend only once in 2015. The dividend return is chosen as there is evidence of distribution by Skye REIT while there has been no appreciable change in the REIT unit prices. Skye REIT stock price has remained same for most years of its existence while the REIT sector capitalization exhibits a south eastward pattern of movement. The independent variables include the GDP, Inflation, Market Capitalisation, and Government Spending. We have added Global Oil Price and the Exchange rate because the Nigeria economy is 90% crude oil dependent with greater impact on the value of Nigeria currency (Naira). The data for the predictors were collected from the official publications of the respective institutions in Nigeria including the Central Bank of Nigeria (CBN), the National Bureau of Statistics (NBS) and the Nigerian National Petroleum Corporation (NNPC). The data were collected on annual averages to be in the same horizon with the dividend data which are available on a yearly basis.

The sample in this study is small despite of covering the entire period of REIT existence in Nigeria (9 years) and as such the ADF test of co-integration is expected to be low. The descriptive statistics of the data is presented in Table 1. Exchange rate is normally distributed both in terms of the Skewness and Kurtosis as the value is far above 1.96. Government spending shows a shorter tail in skewness indicating a contraction in government spending on the average. REIT return have the minimum volatility in term of standard deviation portraying a less turbulent dividend movement over the period. The residual statistics (Table 2) shows that there is no outlier in the data presented as the Malahanobis distance's value (7.09) is less than the maximum (22.46) allowable for the six (6) IVs presented in this study (Chua, 2009). There is no multicollinearity among the IVs as the minimum Tolerance between the GDP and Government Spending ($r=0.88$) is 0.12 slightly greater than 0.1 of the decision rule (Table 3).

	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Deviation Statistic	Skewness Statistic	Kurtosis Statistic
Gross Domestic Product	170.31	568.50	387.8422	156.91827	-.605	-1.648
Inflation	8.00	18.55	11.9389	3.47884	.720	.080
Market Cap in US\$	32.73	121.27	77.9778	28.02889	-.114	-.514
Government Spending	5.10	14.20	9.3233	3.96083	.262	-2.216
Average Oil Price	42.84	114.40	86.9311	28.10195	-.548	-1.506
Official Exchange Rate	118.50	300.93	171.2589	52.41314	2.249	5.774
REIT Dividend Return	3.65	7.15	5.3567	1.24011	.348	-.932

	Minimum	Maximum	Mean	Std. Deviation
Predicted Value	3.6243	7.1485	5.3567	1.23357
Std. Predicted Value	-1.404	1.453	.000	1.000
Standard Error of Predicted Value	.194	.254	.223	.022
Adjusted Predicted Value	3.4707	6.6017	5.1012	1.07113
Residual	-.22769	.15167	.00000	.12717
Std. Residual	-.895	.596	.000	.500
Stud. Residual	-1.388	1.144	.169	.963
Deleted Residual	-.58909	.98592	.25543	.57067
Stud. Deleted Residual	-5.121	1.376	-.313	2.064
Mahal. Distance	3.783	7.090	5.333	1.204
Cook's Distance	.007	1.960	.662	.706
Centered Leverage Value	.473	.886	.667	.150

4. RESULTS AND DISCUSSION

PRELIMINARY STATISTICS' EMPIRICAL RESULT

Table 1 presents the descriptive statistics of the variables on a yearly basis for the entire period for which REIT has been introduced in Nigeria (2008-2016). N-REIT give a mean dividend return of 5.36% with the least standard deviation of 1.24% portraying defensive investment quality and a stable return. However, the average inflation for the same period stood at 11.94%, far above the N-REIT return in confirmation of no inflation hedge characteristics for indirect real estate assets. This result agreed with the earlier findings reported in the literature (Ma'in et al., 2016; Manni & Teng, 2008; Bello, 2000 and Brueggman et al., 1999).

MAIN EMPIRICAL CORRELATION STUDY'S RESULT

Table 3 shows correlation coefficient analysis results of the study. The result indicates a weak direct relationship between inflation and REIT return. This suggests that real estate will respond positively with an increase to a rise in inflation to an inflation hedging feature. However, the magnitude of increase in REIT return (0.27%) does not match the rise in inflation (1%). The finding of a positive relationship agreed with earlier studies (Bello, 2005, Barkham et al., 1996 and Newell, 1996) and contradicts Park (1990) who found a negative coefficient of return to both expected and non-expected inflation. The weak positive correlation in this study and a low volatility return aligned with Wurstbauer and Schafers (2015) who find only a higher inflation hedge of direct infrastructure than real estate and Maurer and Sebastian (2002) of German Open Ended Funds display of superior inflation hedge than indirect real estate investment. The study also agreed the result of the decomposition of inflation where real estate is found to have hedge against expected inflation. Interestingly, the correlation analysis further reveals the relationship between inflation and other economic variables. Expectedly, there is an inverse relation between inflation and GDP. A general rise in price will reduce the purchasing power of consumers and real value of money and such will be reflected in the GDP. A negative but significant correlation with stock market capitalization is not out of place since the increase in prices will definitely leave little in the hands of investors to place in the market. Government spending can also lead to inflation as shown in Table 3. This could be notice in the last days of the immediate past government in Nigeria when the spending on security, electioneering and other extravagancies lead to a non-market determined prices of properties (both in term of rental and purchasing), the reduced spending of the current regime has resulted in price fall even of bare land. Surprisingly, there is a negative correlation between inflation and crude oil price meaning that an increase oil price will reduce inflation. This is converse to the 'more money, higher price' assumption in economics. However it is a reality in Nigeria as the fall in prices of crude oil resulted in rising inflation suggesting that other factors will be responsible for the control of inflation. Exchange rate and inflation are positively related showing that a devaluation of the local currency will result in a rise in prices as evident in Nigeria.

As shown in Table 3, the empirical result gave a weak non-significant direct relationship of GDP and REIT return

	Gross Domestic Product	Inflation	Market Cap in US\$	Government Spending	Average Oil Price	Official Exchange Rate	REIT Dividend Return
Gross Domestic Product	1						
Inflation	-.432	1					
Market Cap in US\$.246		1				
Government Spending	.476	-.809**	.195	1			
Average Oil Price	-.880**	.710*	.008	-.693*	1		
Official Exchange Rate	.135	-.530	.677*	-.368	.729	1	
REIT Dividend Return	.431	.495	-.496	-.021	-.678*	.689*	1
	.247	.176	.175	.957	.045		
	.200	.266	-.332	.052	-.892**	.689*	1
	.607	.489	.383	.894	.001	.040	

(0.2). While the positive relationship is applauded, the result contradicts Baum and Salem (2016) that GDP plays a significant role in commercial real estate investment. The result also plays down the more sensitivity of emerging REIT markets to macroeconomic variables reported by (Loo et al., 2016). Although a rise in GDP in Nigeria market shows an increase in REIT return as expected, but not on a magnitude expressed by Christopher (2014) as presented in fig. 1. Similarly, the economic growth model as a rise in GDP by Ajide (2014) is not noticed on the sector growth including real estate. Nigeria was declared Africa largest economy in 2014 but with no benchmarking in the real estate sector. Nevertheless, the study revealed that the GDP is positively related to market capitalization, oil price and exchange rate, having a negative and significant relation with Government spending as may be expected.

Stock market capitalization displayed a negative correlation to REIT return. This can be explained in two ways. Firstly, the previous studies of market capitalization and REIT return performance conducted their studies on individual REIT capitalization and the results abound identified that the more capitalised REIT will be providing sufficient enough fund to be invested in high profile properties that will yield good income for higher return (Olanrele, 2016). Few studies argued that at a point, bigger REIT may not yield a better return due to a long decision making process and possible increased expenditure. Ma'in et al (2016) considered market capitalization in this context of individual REIT size and reported market capitalization to be only variable of a significant positive contribution to the Islamic REITs in Asia and Middle East. The entire REIT sector capitalization can also be investigated over the aggregate REIT return, the current study neither considered individual REIT capitalization nor REIT sector capitalization. Secondly, the influence of the entire stock market capitalization can be investigated on REIT sector return to ascertain the weight of the contribution of REIT to the stock market and the impact of the stock market capitalization on REIT sector performance. This is the context of the current study. Incidentally, no study to our knowledge has taken this direction. The finding of a negative relationship suggests that an increase in stock market capitalization could result in fall in REIT return, this is not totally unconnected as N-REIT sector constitutes only 0.41% of the market capitalization (Olanrele, 2016 pp128). This indicates that the REIT sector is not attracting new investor to benefit from the new fund coming into the market, it is illiquid and contribute nothing to the increase rise in the entire stock market capitalization. This result contradicts Asteriou and Begjazi (2013) which stipulates that general stock market is directly related to REIT return, though using Indices for both the general stock market (S&P 500 Index) and REIT return (Dow Jones REIT indices) corroborating Laodopis (2009). Market capitalization further shows a significant negative correlation with government spending suggesting that government spending in the economy especially through money market results in a fall in capitalization. This is a reflection of the Nigeria economy where people's daily survival takes precedent over investment, this may be expected in Nigeria. There is a weak negative marginal correlation between capitalization and currency exchange rate, but a positive unsurprising significant relationship with the global crude oil price.

The negative correlation of crude oil price with REIT return and Government spending is disappointingly revealing governance in Nigeria that has benefited in the oil windfall and high prices but without corresponding investment in infrastructures and other public goods that can foster growth and development of all other sectors. Unfortunately, proceeds of the oil wind fall and increased prices could not be found in the nation's reserve but accrued to the privileged private hands as government officials or their proxies. As expected oil price has negative significant relation to exchange rate in agreement with Ifeakachukwu and Ditimi (2014). This means as oil prices increased revenue, the exchange rate falls strengthening the local currency and vice-versa in an economy that is dependent on oil revenue and consumed foreign products like Nigeria. Oil prices unexpectedly have a significant negative correlation with REIT return. This is a reflection of government spending and investment direction for the crude oil revenue in Nigeria. It suggests that even with increased revenue equities may not be benefitting. Though the price may rise, if supply is affected inversely, there may be no revenue increase in the real sense. The exchange rate shares a significant direct relationship with the REIT return (0.69). This result agrees with the findings of Diala et al. (2016) of a positive correlation of exchange rates and property return. It also corroborates Osinubi and Amaghonyeodiwe (2009) that a slide in Nigerian naira against US dollar produces a negative impact on property returns and also with negative relation of exchange rate volatility on investment return (Adamu, 2005 and Lee, 2009). The result opined that a strong naira against US dollar and other currencies will lead to increasing real estate return. Government spending is expected to increase REIT return, this study affirmed this thought on a very marginal effect (0.05). In summary therefore, GDP, Inflation, Government Spending and Exchange Rate have direct correlation with REIT return with only exchange rate being significant at $P < 0.05$ (having p value = 0.04). Both Stock

Market Capitalisation and Oil Price posit inverse relationships to REIT return, with Oil Price significant at $p < 0.01$ (having p value = 0.001)

EMPIRICAL RESULT: REGRESSION ANALYSIS

The regression analysis estimates the relationship and interactions of the predictor variables in order to show their contribution to and degree of influence on the response variable. The F- statistics of the Analysis of Variance (ANOVA) is significant at $P < 0.05$ (with a value of 0.031) as presented in Table 4. The significant F test value indicates that the model for this regression is better fit than an intercept-only model. The Durbin-Watson value of 2.82 (Table 6) is outside the acceptable value of 1.5 -2.5 suggesting an autocorrelation between the predictor variables. This is not strange because one predictor (exchange rate) indicates a non-normal distribution through Skewness and Kurtosis statistics and another variable (government spending) show a partial normality (Table 1). The beta values from the regression coefficients show inverse relations of exchange rates to REIT return (Table 6) instead of market capitalization (Table 3) in addition to the oil price. This does not pose a surprise because correlation shows the relationship between variables while regression gives the interaction and estimate of predictor variable's influence on the dependent variable (and simultaneously if the predictors are more than one). Oil price has a significant influence (together with the intercept) on REIT return ($p = 0.015$). Adjusted R-square value (0.958) indicates that the variables in the model accounted for 95.8% effect on REIT return leaving less than 5% to the other variables that may not have been considered in this study.

Model	Sum of Squares	Df	Mean Square	F	Sig.	
1	Regression	12.174	6	2.029	31.366	.031
	Residual	.129	2	.065		
	Total	12.303	8			

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.995a	.989	.958	.25433	.989	31.366	6	2	.031	2.819

The positive influence of GDP to REIT return could be said to agree with Baum and Salem (2016) and Loo et al. (2016) the interaction of inflation with REIT dividend is not different from the correlation and strengthen the earlier opinion of direct relationship expressed by Barkhan et al. (1996), Newell (1996) and Bello (2005). However, the study could not affirm the inflation hedge characteristics of real estate assets in support of Wurstbauer and Schalfers (2015). The regression also shows a positive influence of market capitalization in agreement with Ma'in et al. (2016) despite the diverse context of investigation. The current study added the remaining three variables to the determinants of REIT return. Generally government spending is expected to stimulate investment and business environment and produce vibrant economic system, the study affirmed the thought with a positive and strong coefficient of 0.876 (Table 6). Oil price contributes negatively to REIT return in the regression. This is the effect of a drastic fall in the global crude oil price from \$114 per barrel in 2013 to \$43 in 2016. The misappropriation of revenue in Nigeria as evidenced by the recent revelations from the ongoing fight against corruption contributes in no small measure to the negative impact of oil price on REIT return. There exist a negative influence of exchange rate on REIT return, an indication that the volatility

of exchange rate of Nigerian naira to other currencies especially the US dollar (on which crude oil is globally priced) is impacting negatively on real estate performance. This is in contrast to findings of Diala et al. (2016) that reported positive relation of exchange rate and property return but aligned with earlier studies finding of negative impact of the exchange rate volatility on property return (Adamu, 2005; Lee, 2001; Osinubi & Amaghonyeodiwe, 2009).

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.996	1.370			
	Gross Domestic Product	.012	.004	1.489	2.661	.117
	Inflation	.043	.061	.120	.704	.554
	Market Cap in US\$.009	.009	.205	1.057	.401
	Government Spending	.274	.112	.876	2.450	.134
	Average Oil Price	-.063	.008	-1.431	-8.148	.015
	Official Exchange Rate	-.020	.010	-.862	-2.006	.183

a. Dependent Variable: REIT Dividend Return

In summary, the study presented a negative influence of Currency Exchange Rate and Crude Oil Prices with oil price been significant and strong. GDP, Inflation, Market Capitalisation and Government Spending possess positive effect on REIT return. It is however necessary to state clearly that the inflation hedge of real estate assets is in doubt. The regression equation of the prediction in this study looks thus:

$$D = 1.49GDP + 0.12Inf + 0.21MC + 0.88GS - 1.43COP - 0.86ExR$$

Where,

D = REIT dividend return, GDP = gross domestic product, Inf = Inflation, MC = market capitalization, GS = government spending, COP = crude oil price and ExR = currency exchange rate.

5. CONCLUSION

To enhance the investment attraction quality of REITs in Nigeria market, the performance in terms of dividend return and capital gain would need to be enhanced. The study emphasizes on the macroeconomic factors as they play a major role in REIT return performance. Studies on macroeconomic variables' implication on REIT have consistently considered GDP, interest rates, inflation and risk. The implications of the findings are that real estate assets have no inflation hedge, the GDP is positively related to REIT return and stock market capitalization also enhances performance. This study is the first to introduce the country specific factors of government spending, crude oil price and currency exchange rate into the study of indirect real estate assets and macroeconomics variables especially in Nigeria. The new findings show that government spending has a strong positive influence on investment return due to the possession of a driving force and stimulation for the market. The global fall of crude oil price had been negatively and significantly affecting the REIT return. The study also provides evidence of a negative effect of the devaluation of the local currency (Naira) on REIT return. These new findings appear to have implication on REIT market. Foreign exchange volatility is a disincentive for FDI into the real estate sector and can serve a cation to institutional investors. Nevertheless, government spending of a capital nature (especially into the real sector, infrastructure and agriculture) will drive the inflow of funds to the real estate sector. Improved revenue from the oil & gas sector, if properly utilized promises a better day ahead for the Nigerian economy in general. The study therefore contributes to the REIT literature by identifying the country specific economic factors' relationship

with REIT dividend return. Adjusted R^2 value shows that the six factors investigated in this study accounted for 95.8% of REIT return suggesting that the less than only 5% of REIT return can be accorded to idiosyncratic factors of the N-REIT. In conclusion, the rebasing of Nigeria GDP to attain the largest economy in Africa in 2014 seems deceptive and government should come up with a clear policy to grow the economy back to its glorious era of the 'Giant of Africa' in its true sense, to foster the real estate sector and REIT growth in particular. The unrelenting effort of the current government in Nigeria to diversify the Nigeria economy to agriculture, which was once the backbone of Nigeria; manufacturing, to boost made in Nigeria product and solid mineral exploration and development is commendable and promise to enhance the investment market as well as the real estate sector.

LIMITATIONS

Regardless of the theoretical and practical implication of this study, it has some limitations that can be addressed in future investigations. The study utilized a small data set of nine (9) years observations that can be considered inadequate to have a generalisable result despite the fact that REIT have existed for 9 years in Nigeria comparative to other markets of longer REIT existence. [Similar study can be repeated in near future perhaps on quarterly data basis.](#) The current study utilized one REIT out of three that is existing in Nigeria. The rationale for this was explained in the methodology section (section 3). Nevertheless, we suggest a study of the aggregate N-REIT return in future research. The model adopted in the study is multiple regression, other models such as VAR, Granger Causality, GARCH or EGARCH can be adopted in future studies to capture the leptokurtosis nature of some of the variables investigated (exchange rate and inflation).

REFERENCES

- Adamu, P. A. (2005). The impact of exchange volatility on private investment in Nigeria: an error correction representation. *The Nigerian Journal of Economics and Social Studies*, 47(2), 301-317.
- Ajide, K. B. (2014). Determinants of Economic Growth in Nigeria. *CBN Journal of Applied Statistics*, 5(2), 147-170.
- Anyanwu, S., Aiyedogun, J. O. S., Ohwofassa, B. O. (2013). FDI in Real Sector and Economic Growth in Nigeria (1989-2011): A Parsimonious error correlation model. *Journal of Economics and Sustainable development*. Vol 6 (5)
- Asteriou, D., & Begiazi, K. (2013). Modeling of daily REIT returns and volatility. *Journal of property Investment and Finance*, 31(6), 589-601.
- Barkham, R. J., Ward, C. W. R., & Henry, O. T. (1996). The Inflation Hedge Characteristics of UK Property. *Journal of Property Finance*, 7(1), 62-76.
- Baum, A., & Salem, M. (2016). Determinants of foreign direct investment in selected MENA countries. *Journal of property Investment and Finance*, 34(5), 116-142.
- Bello, O. M. (2000). Risk Management in the Process of Property Development Construction in Nigeria. *Journal of the Federation of Construction Industry*, 15(3), 15-23.
- Bello, O. M. (2005). The Inflation Hedging Attributes of Investments in Real Estate, Ordinary Shares and Naira Denominated Deposits between 1996 and 2002. *Journal of Banking*, 1(1), 1-28.
- Bruegeman, W. B., Chen, A. H., & Thibodeau, T. G. (1992). Some Additional Evidence on the Performance of Commingled Real Estate Investment Funds 1972-1991. *Journal of Real Estate Research*, 7, 433-448.
- Christopher, P. (2014). Updating our commodity prices targets with changes in global policy outlook *International Strategy Weekly*. North America: Well Fargo Advisors.
- Chua, Y. P. (2009). *Advanced Research Statistics: Regression test, factor analysis and SEM analysis*. Shah Alam, Selangor - Malaysia: McGraw-Hill Education.
- Diala, O. A., Kalu, I. U., & Igwe-Kalu, A. (2016). Effect of exchange rate volatility on commercial property returns in Nigeria. *African Journal of Accounting, Economics, Finance and Banking Research*, 10(10), 30-45.
- Goebel, P. R., Harrison, D. M., Mercer, J. M., & Whitby, R. J. (2013). REIT Momentum and Characteristics-Related REIT Returns. *Journal of Real Estate Finance and Economics*, 47, 564-581.
- Hamelink, F., & Hoesli, M. (1996). Swiss Real Estate as a Hedge against Inflation: Evidence using Hedonic and Auto Regressive Models. *Journal of Property Finance*, 7(1), 33-49.
- Hamelink, F., Hoesli, M., & MacGregor, B. (1997). Inflation Hedging versus inflation protection in the US and UK. *Real Estate Finance*, 14(2), 63-73.
- Hoesli, M. (1994). Real Estate as a Hedge against Inflation: Learning from the Swiss Case. *Journal of Property Valuation and Management*, 12(3), 51-59.
- Hoesli, M., Matysiak, B., & Nanthakumaran, N. (1996). The long-term Inflation Hedging Characteristics of UK Commercial Property. *Journal of Property Finance*, 7(1), 50-61.
- Ifeakackukwu, N. P., & Ditimi, A. (2014). Capital Inflow and Exchange Rate in Nigeria. *Mediterranean Journal of Social Sciences*, 7, 263-272.
- Laopodis, N. (2009). REITs, the stock market and economic activity. *Journal of property Investment and Finance*, 27(6), 563-578.
- Lee, C. L., & Lee, M.-L. (2012). Hedging Effectives of REIT Futures. *Journal of property Investment and Finance*, 30(3), 257-281.
- Lee, S. L. (2001). The risk of investing in Real Estate markets of the Asian region *Working Paper*. UK: University of Reading.
- Lee, S. L., & Thomas, M. (2006). Impact of exchange rates on international real estate portfolio. *Journal of Real Estate Portfolio Management*, 12(3), 277-292.
- Liu, C., & Mei, J. (1992). The predictability of returns on equity REITs and their co-movement with other assets. *Journal of Real Estate Finance and Economics*, 5, 401-418.
- Loo, W. K., Annuar, M. A., & Ramakrishan, S. (2016). Integration between Asian REIT markets and macroeconomic variables. *Journal of property Investment and Finance*, 34(1), 68-82
- Ma'in, M., Arifin, N. A. M., Hatta, M. F. M., Hashim, M. H., & Isa, S. S. M. (2016). Determinants of Islamic Real Estate Investment Trust Performance. *Advanced Science Letters*, 22, 4321 - 4325.
- Manni, C., & Teng, X. C. (2007). *Investigation on the Real Estate Market. What are the Main Factors Influencing the Performance of the French Real Estate Investment Trust*. School of Economics, UMEA University, Sweden.
- Maurer, R., & Sebastian, S. P. (2002). Inflation Risk Analysis of European Real Estate Securities. *Journal of Real Estate Research*, 24.
- Mordi, C. N. O. (2006). Challenges of exchange rate volatility in economic management in Nigeria. *CBN Bulletin*, 30(3), 17-25.
- NBS (2016). The Nigeria Bureau of Statistics Annual Report. www.nigerianstat.gov.ng.
- Newell, G. (1996). The Inflation Hedging Characteristics of Australian Commercial Property 1984-1995. *Journal of Property Finance*, 7, 6-20.
- NNPC (2016). Monthly Financial and Operations Report for December, 2016. www.nnpcgroup.com
- Olaniyi, Z. O., Adedokun, M. A., Ogunleye, A. A. and Oladokun, Y. O. (2015). An Empirical Analysis of the Contribution of Agricultural Sector to Nigerian GDP: Implication for Economic Development. *Journal of Developing Country Studies*. Vol 5 (21)
- Olanrele, O. O. (2016). *Analysis of the Performance and Acceptance of Real Estate Investment Trusts in Nigeria*. (PhD), University of Malaya, Kuala Lumpur, Malaysia.
- Olanrele, O. O., Said, R., & Daud, M. N. (2014, 2-5 September). *Real Estate Investment Trust (REIT) in Nigeria: The Influence of External Factors on Return*. Paper presented at the 14th Africa Real Estate Society (AfRES) Annual Conference, Cape Town, South Africa.
- Olanrele, O. O., Said, R., & Daud, M. N. (2015). *An Evaluation of the Performance and Acceptability of REIT in Nigeria*. Paper presented at the African Real Estate Society (AFRES) Annual Conference 2015, Kumasi, Ghana.
- Osinubi, T. S., & Amaghonyeodiwe, L. A. (2009). Foreign direct investment and exchange rate volatility in Nigeria. *International Journal of Applied Econometrics and Quantitative*, 6(2), 83-116.
- Park, J., Mullineaux, D. J., & Chew, I. K. (1990). Are REITs Inflation Hedges? *Journal of Real Estate Finance and Economics*, 3(3), 5-23.
- Quan, D. C., & Titman, S. (1997). Commercial Real Estate prices and stock market returns and international analysis. *Financial Analyst Journal*, 53(3), 21-34.
- Tarbet, H., & McAllister, P. (1998). *Property and currency markets: analysing the correspondence*. Paper presented at the American Real Estate Society (ARES) Conference, Montero, USA.
- World Bank (2016). World Bank Report on Emerging Economies. <https://data.worldbank.org>
- Wurstbauer, D., & Schafers, W. (2015). Inflation hedging and protection characteristics of infrastructure and real estate assets. *Journal of property Investment and Finance*, 33(1), 19-44.