

PERFORMANCE OF REITS IN EMERGING MARKETS: THE CASE OF NIGERIAN PROPERTY MARKET

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Abstract

Purpose: The study assessed the return/risk performance of Real Estate Investment Trusts in emerging markets, using Nigeria as a case study with a view to providing information for investment decisions.

Design/Methodology/Approach: The study population consisted of all the three existing REIT companies in Nigeria. Secondary data on dividends and share prices of Real Estate Investment Trusts in Nigeria (N-REITs) were sourced from periodicals of the respective companies covering a time frame from 2007 to 2016. These were subsequently translated to the income, capital, total and risk-adjusted returns of N-REITs. The Kwiatkowski-Phillips-Schmidt-Shin (KPSS) and Philip-Perron (PP) Unit Root Analysis; the Auto-Regressive Integrated Moving Average (ARIMA) as well as the Granger Causality Tests were carried out on the data series used in the study.

Findings: The study revealed that the performance of Nigerian REIT companies in terms of income, capital, total and risk-adjusted returns had been low and even negative in some cases. The study found that below optimal performance of N-REITs was traced to the capital return component of N-REITs which had remained static and even negative in most of the investment period.

Practical Implication: Results of this study revealed the peculiar nature of Nigerian REITs; this information can be used by stakeholders in the real estate industry such as pension funds, asset managers, individual investors and insurance companies in making informed investment decisions.

Originality/Value: This study is one of the pioneering research works on Nigerian REITs which is a new investment vehicle in one of the African emerging markets. The study will add to the scanty research in this field as

well as equip both foreign and domestic investors with valuable information for investment decisions.

Keywords: *Investment, performance, property, returns, risk, volatility.*

1. Introduction

Real Estate Investment Trusts (REITs) are increasingly gaining global attention because of their consistent exhibition of some unique attributes such as favorable return/risk characteristics, diversification benefits and inflation-hedging capability among others (Graff, 2001; Dabara, Odewande, Adaranijo, Ankeli, & Abefe-Balogun, 2016). REITs are indirect form of investments in real estate characterized by an encouraging investment performance that makes them attractive to both individual and institutional investors (Devos, Ong, & Speiler, 2016; Dabara and Ogunba, 2019). Direct investment in real estate is observed to be encumbered with many unfavorable conditions (for example, huge capital outlay and maintenance cost required) which make it prohibitive for many prospective investors (Li & Chow, 2015). The attempt to address these unfavorable conditions have led to a revolution in the global real estate market which had translated to yet another important real estate investment vehicle called 'Real Estate Investment Trusts' (Noguera, 2015). This study aims at evaluating the return/risk performance of Real Estate Investment Trusts in Nigeria (N-REITs) with a view to providing investment information that will guide prospective investors in making informed investment decisions in property markets of emerging economies like Nigeria. According to Bekaert, Harvey & Lundblad (2003), the liberalization of global equity markets (including emerging markets) have provided ample opportunities for foreign investors to invest in domestic equities and vice-versa. Hence, there is need to carry out such empirical studies in Nigerian emerging property market.

Oreagba (2010) defined REITs as "a company that owns, and operates income producing real estate, whose shares are publicly traded in a way similar to any stock". REITs can be classified into three types: Equity REITs (which involves investing in direct real estate such as: office, health-care, industrial, retail, lodging and residential); Mortgage REITs (this involves investing in mortgage properties or mortgage-related securities) and Hybrid REITs (a combination of both equity and mortgage REITs). REITs were first introduced in US in the year 1960 (Chiang, 2010; Naidoo, 2014). One of the objectives of its creation was to help in making the advantages and benefits

of investing in direct real estate available to prospective investors who do not have huge capital outlay but could afford to buy REITs shares with small investable funds (Chiang, Kozhevnikov, Lee, & Wisen, 2006). This was made possible because like the traditional stocks, REITs are also traded in the capital market and are made available to all categories of investors (Seguin, 2016).

Ernest & Young (2012) posited that REITs have become one of the vital investment vehicles in mostly the developed economies such as the US, UK, and Germany. This is evident in the amount of investments in REITs which is clearly portrayed by their substantial market capitalizations. For example, Aro-Gordon, Bashir, Abdulsalam & Abdullahi (2014) asserted that in 2012, REITs market capitalizations for the following countries were: US REITs (\$400 billion); Singapore REITs (\$30.5 billion); and Japan REITs (\$42 billion). Li & Chow (2015) estimated the global REITs capitalization as at 2013 at about \$1.1 trillion. More recently (2017) global REITs market capitalization was estimated at over \$3 trillion and about 37 countries have introduced REITs in their capital markets (NAREIT, 2018). This decision could be informed by REITs investment benefits such as real-time pricing, greater liquidity, market/tax transparency, portfolio rebalancing/asset allocation advantages and easy marketability (Zietz, Sirmans & Friday, 2003; McKinley, 2014). It is however observed that emerging markets of especially African countries are yet to fully maximize the inherent potentials in investments in equities such as REITs (Bekaert, Harvey & Lundblad, 2003).

It is obvious that the Nigerian property market is an emerging one. REIT being a new real estate investment vehicle was introduced in 2007. From the annual report and accounts of Skye Shelter Fund (2007), it was reported that the Skye Shelter Fund was the first REIT Company in Nigeria. It was introduced in the Nigerian capital market in the year 2007 with an IPO (Initial Public Offering) of ₦2billion (\$6,535,948). It was also reported in the annual Report and Accounts of the Union Home Hybrid REITs (2008), that the Union Home Hybrid REITs was similarly created and introduced into the Nigerian capital market in the year 2008, with an IPO of ₦50billion (\$163,398,693). The UPDC (UACN Property Development Company) REITs was introduced in 2013 with an IPO of ₦30 billion which is about \$98,039,216 (UPDC Annual Report and Accounts, 2013). The aforementioned are the three REITs companies presently operating in the Nigerian capital market. It was however observed that the REITs industry in

Nigeria was not doing well in terms of return performance on investment (Akpan & Ogunba, 2015) when compared with other REITs industries such as the US, UK, Malaysia and Japan among others.

Nigeria is adjudged to be one of the fastest growing economies in Africa thereby making it a good playing field for both domestic and foreign investments in the real estate sector (Aro-Gordon *et al*, 2014; Dabara & Oyewole, 2015). However, there is dearth of data on REITs to assist investors, hence, this study will add to the scanty existing research work in yet another important emerging real estate market (Nigeria). Similar studies which evaluated the performance of REITs in terms of its risk/return characteristics included the study carried out in Hong Kong by Newell, Wu, Chau & Wong (2010); in Asia by Kundus & Sin (2011) and in Finland by Niskanen (2012). From this group of studies, the observed gap was dearth of studies from emerging real estate markets with current and relevant investment information for consideration by prospective investors. Hence, there is need to provide information on the performance of N-REITs to reflect recent and current situation of the investment vehicle in the Nigerian capital market. This is because both the property markets as well as the capital markets where it operates are dynamic; there is the need for updating from time to time to reflect current happenings in the sector. Therefore, this study will cover a period spanning from the inception of REITs in Nigeria in 2007 to a recent investment transacted year (2016) thereby updating the timeframe for such study in Nigeria. The paper is structured as follows: the next section presents the literature review of relevant papers; followed by the methodology adopted for the study, then the presentation and discussions of results and the paper closes with a conclusion.

2. Literature Review

REITs in Global Context

REITs were first introduced by former US President, Dwight D. Eisenhower through a congressional legislation which was signed into law on the 14th of September, 1960 (Naidoo, 2014). REITs is said to be one of the viable and profitable investment asset classes in global markets (adjudged to be the third largest investment vehicle according to Imperiale, 2002 and Jackson, 2008). This is evident in the performance of REITs in developed economies such as the US, UK, and Germany among others (NAREIT, 2018). On the other hand, REITs in most developing nations are still new and characterized

by features of an emerging property market such as lack of data for investment decisions and challenges of liberalization and integration into the global capital market (Bekaert, et. al., 2003; Ankeli, Dabara, Omotehinshe, Lawal, Odeyomi, & Adebowale, 2017). However, some emerging markets like Malaysia and South Africa developed substantially their REITs markets and had kept growing at an encouraging pace (Zhu, 2008; Kundus & Sin, 2011).

The quests to maximize profit from investment funds have prompted both investors and researchers all over the world to investigate the investment performance of various asset classes (Lee, Kuo, Lee & Lin, 2011). A group of studies have examined the inflation-hedging potentials of REITs. These studies include Aik (2012) and Arnason & Persson (2012). Similarly, studies such as Khoipham (2013) and Naidoo (2014) have investigated the diversification benefits of REITs with contradictory findings as regards the ability of REITs to provide diversification benefits in an investment portfolio. Another group of studies have evaluated the performance of REITs in terms of their risk/return characteristics. Examples include the study carried out in Hong Kong by Newell, Wu, Chau & Wong (2010); in Asia by Kundus & Sin (2011) and in Finland by Niskanen (2012).

Lizieri, McAllister and Ward (2003) in a study conducted in Europe found that in comparison to the general securities in Europe, real estate securities experiences slower transmission of monetary integration due to its small size. Lin and Yung (2004) conducted a study in the US which examined the performance of real estate mutual funds between 1993 and 2001. The methodology adopted for the study involved the use of CAPM and Jensen's alpha among others. Findings from the study revealed that real estate mutual funds underperformed the US equity markets' benchmark for both stocks and direct real estate within the study period. The study also indicated a correlation between the direct real estate market and its related mutual funds. This is congruent with findings of similar study conducted in Hong Kong which provided insight to the correlations between direct real estate and real estate equities (Chau Kwong Wing and Siu Kei, 2004)

Chaudhry, Maheshwari and Webb (2004) investigated the predictors of idiosyncratic risk in REITs. The study period was from 1994 to 2000 (divided into two separate periods: 1994 to 1998 as period one and 1996 to 2000 as period two). Data from 84 REITs companies were used in period one and

data from 91 REITs companies were used in period two. Using a two-stage regression model, the study found that earning variability, financial leverage, performance, liquidity and size of REITs Company were the significant predictors in period one. While the other aforementioned predictors were also significant in period two, it was observed that size and capital were not significant in predicting idiosyncratic risk in period two. Lee and Chiang (2004) examined the substitutability of Equity REITs and Mortgage REITs in a diversified asset portfolio. The authors found that these REITs types due to their similarity in responding to both economic and financial forces are highly substitutable. Sahin (2005) examined the market performance of REITs prior, during and subsequent to announcement of acquisitions. A sample consisting of thirty five acquisition transactions between 1994 and 1998 were used in the study. The study revealed that within three days of acquisition announcements, target REITs had about 4.31% positive abnormal returns. However, the opposite was observed in the long run (within the three years subsequent to the acquisition).

Jackson (2008) carried out a study in the US which compared the risk/return investment performance of lodging REITs and that of other equity REITs (office, health-care, industrial, retail, specialty and residential) for a period from 1993 to 2005. The study employed descriptive statistical tools such as mean and standard deviations as well as the Jensen's index and regression models in analyzing the data obtained. Findings from the study indicated that equity REITs performed better than lodging REITs (on risk/return basis), the study further revealed that the former was more resilient than the latter in the US capital market over the investment period (13 years). However, the study only used one investment indicator (risk/return characteristics) to measure the performance of this investment asset class, the choice of multiple investment indicators (such as diversification potentials, inflation-hedging capability etc) could give a better picture of the true performance of REITs in the study area.

REITs in Emerging Economies

Bekaert, Harvey & Lumsdaine (2002), carried out a study in 20 emerging markets including Brazil, Nigeria, India and Zimbabwe among others. The study aimed at examining the dynamics of emerging market equity as it relates to the correlations among capital flows, dividend yields, returns and interest rates. The methodology adopted for the study used the Vector Autoregression Models, Granger Causality Test and Test of Stationarity of

data sets used in the study. Findings from the study suggested that there was an increase of equity flow by 1.4 % of market capitalization after liberalization of the markets. Showing that capital in emerging markets leaves faster than when it comes in, this was determined in both the pre as well as the post break dynamics. The study also revealed that a decrease of about 0.3% in interest rates had an effect of increasing foreign holdings by about 0.04% of the market capitalization. Similarly, there was a significant positive effect on returns as a result of unexpected shocks to equity flows in the selected emerging markets. In another similar study conducted by Bekaert, Harvey & Lundblad (2007), the authors examined the relationship between liquidity and expected returns in 19 emerging equity markets including Argentina, Greece, Mexico and Pakistan among others. The methodology adopted for the study involved the use of a Simple Asset Pricing Model. Findings from the study indicated that local market liquidity had significant impact on expected returns in emerging markets.

Aik (2012) conducted a study in Asia which was aimed at investigating the impact of the global economic crisis of 2008 on M-REITs. The study period which was divided into 3 regimes (before, during and after the financial crisis) spanned from 2001 to 2010. Comparison was made of the level of correlations, degree of risk/returns capacities of M-REITs in Taiwan, Singapore and Hong Kong in Asia. The methodology used involved the use of Holding Period Returns, Mean, standard deviations, Spearman Rank Correlations, Treynor and Jensen Alpha indices as well as the Capital Asset Pricing Model (CAPM). Findings from the study revealed that M-REITs performed better during the financial crisis period as against pre-financial crisis and post-financial crisis periods. Similarly, M-REITs were found to be good hedges against inflation within the study period.

Mohamad and Zolkifli (2014) carried out a study which covered the following Asian countries: Singapore, Taiwan, Japan, Malaysia, Thailand and Hong Kong. The study aimed at examining the performance of REITs in the study areas between 2007 and 2011 using dividend yield, risk performance, size of the investment and net returns as yardstick for measuring the performance of the said investment asset. The methodology employed consisted of mean, standard deviation, Net Asset Value (NAV), correlations as well as multiple regression model. Findings from the study indicated that the major factors affecting the performance of REITs in the study areas were: size of investment, dividend yield and risk/returns on investment.

However, the study did not consider other investment indicators such as diversification and inflation-hedging characteristics of REITs in the study areas, inclusion of the aforementioned indicators could give a better view on the performance of REITs in the study areas.

A group of studies conducted in South Africa by Akinsomi, Kola, Ndlovu and Motloug (2016) investigated the performance of the broad based black economic empowerment (BBBEE) of both listed and delisted property firms in South Africa. The study covered the period from 2006 to 2012. The return and risk performance of the property firms were obtained by means of holding period returns formulae, capital asset pricing model, sharpe ratio and alfa among others. Findings from the study revealed that Black Economic Empowerment (BEE) compliant firms outperformed the non-BEE compliant firms with respect to both returns and risk performance. Similarly, Akinsomi, Balcilar, Demirer, and Gupta (2017) revealed that speculation in gold market have impact on REITs returns in South Africa, particularly during the global economic meltdown experienced around 2008 to 2011. In the same vein, Ntuli and Akinsomi (2017) found that South African REITs are good return-enhancers with diversification benefits which could encourage shrewd investors to consider its inclusion in their mixed asset portfolios. Another study conducted in South Africa by Ijasan, Tweneboah and Mensah (2017) showed evidence of anti-persistence in South African REITs returns.

REITs in Nigeria

REITs was introduced in Nigeria in the year 2007. Aro-Gordon, *et, al.* (2014) investigated the investment performance of Nigerian REITs (N-REITs) in one of the pioneering studies conducted in the Nigerian capital market. In the study the methodology adopted employed the use of Capital Asset Pricing Model (CAPM), as well as correlation and regression analysis. Findings from the study revealed that N-REITs showed no correlation with other market portfolio in Nigeria. Similarly, N-REITs have diversification benefits in a mix-asset portfolio. However, the study was limited by the sample size used; this is understandable being that REITs was recently introduced into the Nigerian capital market. Hence, the results from this study cannot be generalized, therefore, investors should take caution when applying or using the findings of the study as a basis for investment decision in the Nigerian capital market. This study will add to the existing body of knowledge in this field in Nigeria by updating the timeframe to cover from

the inception of REITs in the country to the most recent transacted investment year. Olanrele, Said & Daud (2014) investigated the influence of external factors on the returns on Nigerian REITs (N-REIT). The external factors considered in the study comprised: political leadership, security, infrastructure and investors' perception of N-REITs. Data for this study was obtained through a questionnaire survey. Both descriptive and inferential statistics were used in analyzing the data. Frequency distributions, percentages, Spearman's correlation and correlation matrixes were used in the analysis to determine the relationship between the said external factors and N-REITs returns/dividends in the study area. Findings from the study suggested that among all the external factors considered, only investor's perception showed a non-significant relationship or correlation with any other factor. Similarly, the study also revealed that N-REITs performance with respect to dividend and returns was low within the study period. However, the study did not consider internal factors relating to the structure and conduct of N-REITs in the Nigerian capital market.

Akpan & Ogunba (2015) in a comparative study examined the performance of direct and indirect (REITs inclusive) real estate investments in an emerging real estate market (Nigeria) and a developed and matured real estate market (the US). The risk/return investment indicators were used as parameters for evaluating the investment performance of the investment asset vehicles in question. The methodology employed involved the use of holding period returns, standard deviations, Sharpe index and Pearson Moment Correlation model in analysis of the data used. Findings from the study suggested that investments in both the direct and indirect real estate in Nigeria outperformed that of its US counterpart (in terms of total returns, total risk, risk-adjusted return and diversification potential) within the study period (2004 to 2013). The study did not consider the structure of the N-REITs companies which could provide explanation for the performance of the N-REITs industry. In a more recent study conducted by Daraba & Ogunba (2019), the authors evaluated the performance of N-REITs from the view point of internal factors. This was with a view to determining the relationship among the structure, conduct and performance of N-REITs. The methodology used involved the structure-conduct-performance model, stationarity test of data used, Granger causality test as well as regression analysis. Findings from the study revealed that there is a bi-directional relationship among the structure, conduct and performance of Nigerian REITs within the study period.

In summary, the studies provided insight to the performance of REITs globally, in emerging economies as well as in Nigeria. The studies revealed that REITs as an alternative real estate investment asset is doing well in terms of return/risk performance (Jackson, 2008; Aik, 2012). This is congruent with findings on direct real estate investments (from which REITs derives its income), this assertion is supported by studies such as Chau Kwong Wing and Siu Kei (2004) and Dabara (2015). However, other studies indicated that REITs when compared to other assets classes in the capital market underperformed the benchmark for these markets (Lizieri, et. al, 2003; Chau Kwong Wing and Siu Kei, 2004). There was also evidence of correlations between REITs and direct real estate investments as well as other investment vehicles in the capital market (Akpan and Ogunba, 2015; Olanrele, Adegunle and Fateye, 2018). Similarly, there was an evidence of diversification and inflation hedging attributes by REITs (Aik, 2012; Arnason and Persson, 2012; Khoiphram, 2013; Naidoo, 2014). Studies such as Olanrele, et. al. (2014) and Mohamad and Zolkifli (2014) revealed that factors such as size of investment, investors perception among other factors affect the performance of REITs. Existing gaps from these studies borders on absence of studies from African emerging markets and lack of liberalization and integration of emerging market REITs into the global market space (Bekaert, et. al, 2002; Bekaert, et. al, 2007), hence this study will extend the frontier of knowledge in this field by covering these identified gaps.

3. Methodology

Presently there are three REITs companies in Nigeria. This study obtained data from all the three existing REITs companies so as to provide the true picture of the REITs industry in the study area. This will guide both domestic and foreign prospective investors (either individual or institutional investors) in making informed investment decisions. The data required for this study consisted of the dividend and share prices of the 3 N-REITs companies for the study period (2007 to 2016). These were sourced from secondary sources (online data bases of the three N-REITs companies as well as their respective annual reports). The data were subsequently used to calculate the income, capital and total returns on N-REITs within the study period. Similarly, the risk-adjusted returns was also calculated which showed the risk-adjusted performance of the N-REIT companies. Furthermore, the test for stationarity using the Kwiatkowski-Phillips-Schmidt-Schin (KPSS) and the Philip-Perron (PP) unit root analysis, the Auto-

Regressive Integrated Moving Average (ARIMA) as well as the Granger causality tests were carried out on the returns variables.

Equation 1 measured the income return of the N-REIT companies; income return is the percentage of the return derived from the rental income or dividend of a company over a particular period. This is obtained by dividing dividend by share price over a particular time period as presented in Equation 1. In contrast to the income return, the capital return measures the increase in capital value of an asset over the measurement period divided by the beginning portfolio capital value. This was measured using Equation 2. Total return in performance measurement is the actual rate of return obtained from an investment over a specified period. It is the summation of both income and capital returns capturing both changes in dividends and capital appreciation of the investment in question (see Equation 3). Risk-Adjusted return in performance measurement refines an investment's return by measuring the level of risk that is involved in producing that return within the investment period. The risk-adjusted return of Real Estate Investment Trusts in Nigeria was calculated using the return-risk ratio, the coefficient of variation and the Sharpe Ratio as presented in Equations 4 to 6. The KPSS and PP unit root analysis were used to test the null hypothesis of a unit root in the data set and ARIMA was used to analyze future predictions of N-REITs returns so as to serve as basis for forecasting. The Granger Causality tests were carried out to determine the causal relationships among the components of the return variables of N-REITs within the study period in the study area.

The income return is expressed as follows

$$IR_t = \frac{NI_t}{CV_{t-1}} \quad (1)$$

Where:

- IR_t = income return for period t
- NI_t = Net income received in period t (dividend)
- CV_{t-1} = CV at the end of period t-1

The capital return is expressed as

$$CR_t = \frac{CV_t - CV_{t-1}}{CV_{t-1}} \quad (2)$$

Where:

CR_t = Capital return for period t

CV_t = CV at the end of measurement period

CV_{t-1} = CV at the start of period t-1

The total return is expressed as

$$TR_t = \frac{NI_t + (CV_t - CV_{t-1})}{CV_{t-1}} \quad (3)$$

TR_t = Total return

CV_{t-1} = Capital value of N-REITs at the beginning

CV_t = Capital value of N-REITs at the end

NI_t = Income of N-REITs received during the holding period

Furthermore, the researchers analyzed the risk-adjusted returns on N-REITs using the following:

Sharpe ratio

This was used to measure the risk-adjusted returns of N-REITs. It showed both the risk as well as the return performance profile of the N-REIT companies. It is presented as:

$$S_P = \frac{E(R_P) - R_F}{\sigma(R_P)} \quad (4)$$

Where:

$E(R_P)$ = denotes the expected return of the portfolio;

R_F = denotes the return on the risk-free asset (proxied by the 90 days Treasury bill rates);

$\sigma(R_P)$ = denotes the standard deviation of the portfolio returns.

Coefficient of Variation

$$CV = \sigma(R_P) / E(R_P) \quad (5)$$

Where

CV = Coefficient of Variation

$\sigma(R_P)$ = denotes the standard deviation of the portfolio returns

$E(R_P)$ = denotes mean of the expected return of the portfolio

Return Risk Ratio

$$RR = E(R_P) / \sigma(R_P) \quad (6)$$

RR = Return Risk Ratio

$\sigma(R_P)$ = denotes the standard deviation of the portfolio returns

$E(R_P)$ = denotes mean of the expected return of the portfolio

Trend Analysis: Trendlines were used to graphically display trends in the data sets that were used for this study to help analyze future predictions. Also, the moving average of the trendlines was used to smoothen out fluctuations in the data and show the pattern or trend more clearly. The R^2 value was used to determine the reliability of the trend and the accuracy of the forecast or predictions made. "A trendline is said to be most accurate when its R-Squared value is at or near 1. Similarly, least square linear regression equations were generated for predictions of returns values'.

The equation is in this form:

$$y = mx + b \quad (7)$$

Where:

- y** is the dependent variable (dividend, share prices and returns values as the case may be)
- m** is the slope of the line, which equals the change in the y value divided by the change in the x value;
- x** is the dependent variable (year in this case); and
- b** is the y-axis intercept of the line.

Kwiatkowski-Phillips-Schmidt-Schin (KPSS) as well as the Philip-Perron (PP)

The Kwiatkowski-Phillips-Schmidt-Schin (KPSS) as well as the Philip-Perron (PP) unit root analyses were used to test the null hypothesis of a unit root (stationarity properties) on the return variables in the N-REITs industry.

Granger Causality Tests on N-REITS

Granger causality is a way to examine the causality between or among two or more variables in a time series. The Granger Causality test is a probabilistic account of causality; it uses empirical data sets to find patterns of correlation or relationships in a uni-directional or bi-directional way among the variables. The Granger Causality tests were carried out to determine the causal relationships among the components of the return variables of N-REITs within the study period.

4. Results and Discussions

The researchers obtained the dividend and share prices of Skye Shelter Fund REITs, Union Homes REITs and UPDC REITs covering a period from 2007 to 2016 from the companies' respective annual reports. The collated data were presented in Table 1. The dividend and share prices were subsequently used to calculate the income returns, capital returns and total returns of investments in the three N-REITs companies using Equations 1, 2 and 3 respectively.

Table 1: Quarterly data on the share prices and dividends on the N-REITs companies

Year	Skye Shelter Fund REITs		Union Homes REITs		UPDC REITs	
	Share Price	Dividend	Share Price	Dividend	Share Price	Dividend
2007	Q1	100.00 (.327)	-	-	-	-
	Q2	100.00 (.327)	-	-	-	-
	Q3	100.00 (.327)	-	-	-	-
	Q4	100.00 (.327)	-	-	-	-
2008	Q1	115.12 (.376)	1.16 (.004)	50.00 (.163)	-	-
	Q2	117.49 (.384)	1.16 (.004)	50.00 (.163)	-	-
	Q3	118.79 (.388)	1.16 (.004)	50.00 (.163)	-	-
	Q4	118.28 (.387)	1.16 (.004)	50.00 (.163)	-	-
2009	Q1	108.00 (.353)	1.75 (.006)	50.00 (.163)	1.00 (.003)	-
	Q2	103.00 (.337)	1.75 (.006)	50.00 (.163)	1.00 (.003)	-
	Q3	105.00 (.343)	1.75 (.006)	50.00 (.163)	1.00 (.003)	-
	Q4	96.84 (3.16)	1.75 (.006)	50.00 (.163)	1.00 (.003)	-
2010	Q1	100.00 (.327)	1.60 (.005)	50.75 (.166)	0.19 (.001)	-
	Q2	100.00 (.327)	1.60 (.005)	50.85 (.166)	0.19 (.001)	-
	Q3	98.69 (.323)	1.60 (.005)	50.85 (.166)	0.19 (.001)	-
	Q4	99.51 (.325)	1.60 (.005)	50.95 (.167)	0.19 (.001)	-
	Q1	99.51 (.325)	1.01 (.003)	50.00 (.163)	0.57 (.002)	-

Year	Skye Shelter Fund REITs		Union Homes REITs		UPDC REITs		
	Share Price	Dividend	Share Price	Dividend	Share Price	Dividend	
2011	Q2	99.51 (.325)	1.01 (.003)	50.00 (.163)	0.57 (.002)	-	-
	Q3	97.80 (.320)	1.01 (.003)	50.00 (.163)	0.57 (.002)	-	-
	Q4	97.38 (.318)	1.01 (.003)	50.00 (.163)	0.57 (.002)	-	-
2012	Q1	100.00 (.327)	1.25 (.004)	50.00 (.163)	0.53 (.002)	-	-
	Q2	100.00 (.327)	1.25 (.004)	50.00 (.163)	0.53 (.002)	-	-
	Q3	100.00 (.327)	1.25 (.004)	50.00 (.163)	0.53 (.002)	-	-
	Q4	100.00 (.327)	1.25 (.004)	50.00 (.163)	0.53 (.002)	-	-
2013	Q1	100.00 (.327)	1.31 (.004)	50.00 (.163)	-	10.00 (.033)	-
	Q2	100.00 (.327)	1.31 (.004)	50.00 (.163)	-	10.00 (.033)	-
	Q3	100.00 (.327)	1.31 (.004)	50.00 (.163)	-	10.00 (.033)	-
	Q4	100.00 (.327)	1.31 (.004)	50.00 (.163)	-	10.00 (.033)	-
2014	Q1	99.68 (.326)	1.45 (.005)	50.00 (.163)	-	10.00 (.033)	0.08 (.0003)
	Q2	98.72 (.323)	1.45 (.005)	48.55 (.159)	-	9.48 (.032)	0.08 (.0003)
	Q3	98.05 (.320)	1.45 (.005)	47.90 (.157)	-	9.49 (.031)	0.08 (.0003)
	Q4	97.79 (.319)	1.45 (.005)	47.71 (.156)	-	9.03 (.295)	0.08 (.0003)
2015	Q1	100.00 (.327)	1.79 (.006)	45.55 (.149)	-	9.78 (.032)	0.11 (.0004)
	Q2	100.00 (.327)	1.79 (.006)	45.55 (.149)	-	9.60 (.031)	0.11 (.0004)
	Q3	100.00 (.327)	1.79 (.006)	45.55 (.149)	-	9.79 (.032)	0.11 (.0004)

Year	Skye Shelter Fund REITs		Union Homes REITs		UPDC REITs		
	Share Price	Dividend	Share Price	Dividend	Share Price	Dividend	
2016	Q4	100.00 (.327)	1.79 (.006)	45.55 (.149)	-	9.95 (.033)	0.11 (.0004)
	Q1	100.00 (.327)	-	50.00 (.163)	-	10.00 (.033)	0.06 (.0002)
	Q2	100.00 (.327)	-	50.00 (.163)	-	10.00 (.033)	0.06 (.0002)
	Q3	100.00 (.327)	-	50.00 (.163)	-	10.00 (.033)	0.06 (.0002)
	Q4	100.00 (.327)	-	50.00 (.163)	-	10.00 (.033)	0.06 (.0002)

Source: Online data base and annual reports of the Skye Shelter Fund REITs, Union Homes REITs and UPDC REITs

Note: 1. Q1 = First quarter, Q2 = Second quarter, Q3 = Third quarter, Q4 = Fourth quarter

- The figures in parenthesis are the USD equivalent of share prices and dividend within the study period (\$1 to ₦306 at Central Bank of Nigeria' official exchange rate).
- The year of commencement of the companies are 2007, 2008 and 2013 for Skye Shelter Fund, Union Homes REITs and UPDC REITs respectively, hence the data used reflecting this fact.
- At the time of writing this report, dividend for some of the years were not declared e.g Skye Shelter Fund in 2016

Table 1 presented the quarterly dividends and share prices of the Skye Shelter Fund REITs, Union Homes REITs and the UPDC REITs from inception of the respective companies (i.e 2007, 2008 and 2013 respectively) to 2016. It was observed that there were no dividend returns at some points in the respective companies, this could be because the companies at such points did not declare dividends (being a new investment asset class that is just trying to stabilize in an emerging market in a developing economy, similarly its creation was at the time of the global economic crisis). By the same token, it was also observed that the share prices for Nigerian REITs have been static over long period of time. This could be adduced to the fact that REITs is new in Nigeria, and there are little changes in transactions on REITs in the capital market which invariably affects the changes in supply and demand for REITs shares, thereby making the share prices as well as the dividend returns static over long periods.

The quarterly share prices of the Skye Shelter Fund REITs ranged between ₦96.84 (\$0.32) and ₦118.79 (\$0.39) with the highest share price recorded in the third quarter of 2008. At this time, though REITs was relatively new in Nigeria, it had begun to gain popularity and people were beginning to get interested in the investment asset. The quarterly dividends ranged between ₦1.01 (\$0.003) recorded in 2011 and ₦1.79 (\$0.006) recorded in 2015 (at this time N-REITs investments were gradually improving in performance subsequent to the global economic meltdown). For the Union Homes REITs, its quarterly share prices ranged between ₦45.55 (\$0.15) and ₦50.95 (\$0.17) with the highest share price obtained in the fourth quarter of the year 2010. Its quarterly dividends ranged between ₦0.19 (\$0.001) and ₦1.00 (\$0.003) within the study period. The highest dividend was recorded in the year 2009 a year after the introduction of Union Homes REITs into the market. Similarly, the UPDC REITs' quarterly share prices ranged between ₦9.03 (\$0.03) and ₦10.00 (\$0.033) and its dividends ranged between ₦0.06 (\$0.0001) and ₦0.11 (\$0.0004) within the study period. It was observed that the companies performed better in terms of share prices and dividend prior to and subsequent to the global economic meltdown.

For the Skye Shelter Fund Company, as well as the UPDC REITs Company (as at the time of writing this paper), it was observed that there was a relative consistency in issuance of dividend unlike the Union Homes REITs. This could perhaps be because of the low performance of the investment asset in the capital market. The share prices and dividend of N-REITs is generally

considered low when compared to other global REITs industries such as the US (a developed economy) and Malaysia (a developing economy) within the same investment period (Akpan & Ogunba, 2015; Olanrele, et al, 2015). This implies that performance of N-REITs is neither a time phenomenon nor an emerging market phenomenon. The share prices and dividends presented in Table 1 were used to calculate the income, capital and total returns presented in Tables 2, 3 and 4 respectively in the sub-sections below.

Quarterly Income Return on Real Estate Investment Trusts in Nigeria

Income return is the percentage of the return derived from the rental income or dividend of a company over a particular period.

Table 2: Quarterly Income Return on Real Estate Investment Trusts in Nigeria

Year		Skye Shelter Fund REITs	Union Homes REITs	UPDC REITs
2007	Q1	-	-	-
	Q2	0.0	-	-
	Q3	0.0	-	-
	Q4	0.0	-	-
2008	Q1	1.2	-	-
	Q2	1.0	0.0	-
	Q3	1.0	0.0	-
	Q4	1.0	0.0	-
2009	Q1	1.5	2.0	-
	Q2	1.6	2.0	-
	Q3	1.7	2.0	-
	Q4	1.7	2.0	-
2010	Q1	1.7	0.4	-
	Q2	1.6	0.4	-
	Q3	1.6	0.4	-
	Q4	1.6	0.4	-
2011	Q1	1.0	1.1	-
	Q2	1.0	1.1	-
	Q3	1.0	1.1	-

Year		Skye Shelter Fund REITs	Union Homes REITs	UPDC REITs
	Q4	1.0	1.1	-
	Q1	1.3	1.1	-
	Q2	1.3	1.1	-
2012	Q3	1.3	1.1	-
	Q4	1.3	1.1	-
	Q1	1.3	0.0	-
	Q2	1.3	0.0	0.0
2013	Q3	1.3	0.0	0.0
	Q4	1.3	0.0	0.0
	Q1	1.5	0.0	0.8
	Q2	1.5	0.0	0.8
2014	Q3	1.5	0.0	0.8
	Q4	1.5	0.0	0.8
	Q1	1.8	0.0	1.2
	Q2	1.8	0.0	1.1
2015	Q3	1.8	0.0	1.1
	Q4	1.8	0.0	1.1
	Q1	0.0	0.0	0.6
	Q2	0.0	0.0	0.6
2016	Q3	0.0	0.0	0.6
	Q4	0.0	0.0	0.6

Source: Analysis of survey data

Note: Q1 = First quarter, Q2 = Second quarter, Q3 = Third quarter, Q4 = Fourth quarter

Similarly, the companies started at different time period i.e 2007, 2008 and 2013 for the Skye Shelter Fund, Union Homes and UPDC REITs respectively.

Table 2 presented the quarterly income returns for Skye Shelter Fund REITs, Union Homes REITs and UPDC REITs from their respective years of inception (i.e 2007, 2008 and 2013 respectively) to 2016. The quarterly income returns of the N-REITs companies were observed to have kept fluctuating

within the study period. For example, the income returns for the Skye Shelter Fund REITs indicated that in the first quarter of 2008, 1.2% income return was realized, this decreased to 1.0% in the last three quarters of that investment year. The highest income return for the company was obtained in 2015 (1.8%) from the first to the fourth quarter of that year. For the Union Homes REITs and the UPDC REITs, the highest income return obtained were 1.1% in 2012 and 1.2% in the first quarter of 2015 respectively. Analysis from the 3 companies showed that the highest income returns on investment in the N-REITs industry (i.e 2.0%) was recorded by the Union Homes REITs in the year 2009, followed by 1.8% income returns recorded by the Skye Shelter Fund in the year 2015. From Table 2 the companies had better returns prior to and subsequent to the global economic depression. This implies that the global economic depression had a negative impact on the N-REITs industry. The quarterly income returns for all the N-REITs companies were observed to be very low within the study period. Studies from some developed economies such as Seguin (2016) and Li & Chow (2015) presented better returns values on investment in REITs. This suggests that N-REIT not performing up to mark is not a global phenomenon.

However, it is important to note that all the income return values in all the 3 N-REITs companies were positive; suggesting that, investment in any of the three companies provided positive income return values though it was generally low. This could be attributable to the performance of the direct real estate market in Nigeria (from which REITs derive its income) which was in agreement with similar studies such as Dabara (2015) and Akpan & Ogunba (2015). Both foreign and domestic prospective investors who desire to enjoy returns on their investment could consider investing in N-REITs to take advantage of the positive income returns it provides. Figure 1 below presents the trend analysis of the income return of the N-REITs companies.

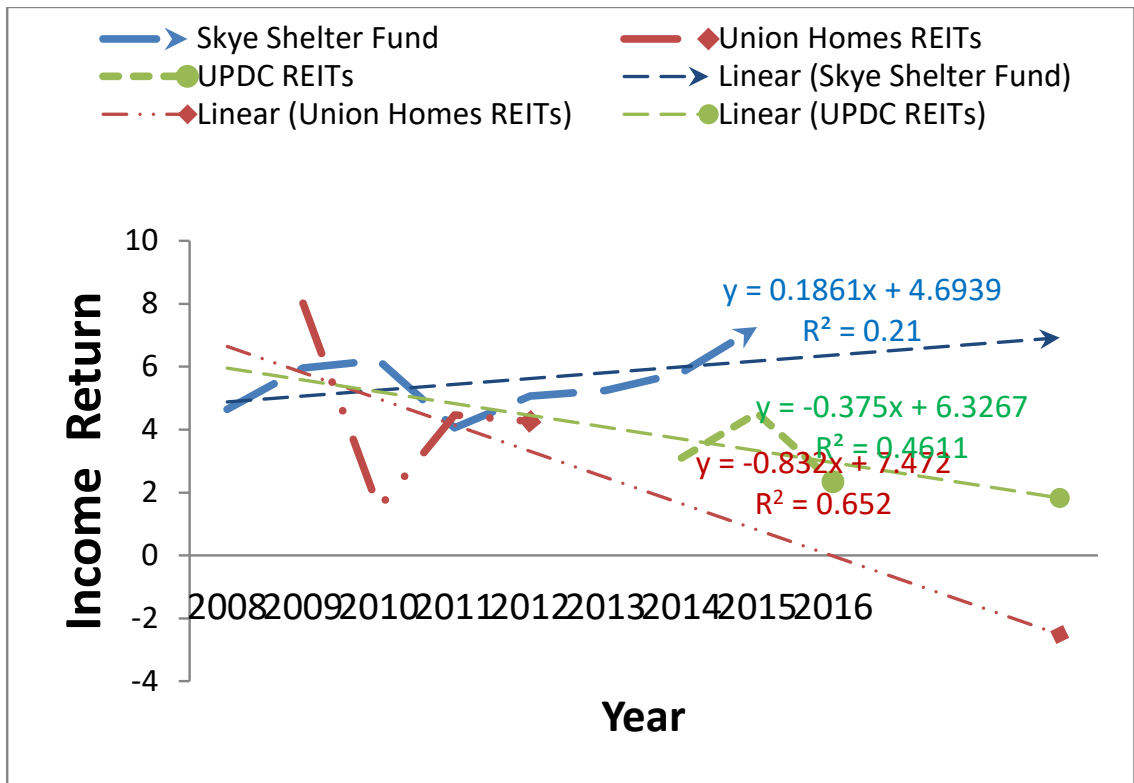


Figure 1: Trend analysis of income return on N-REITs companies

Figure 1 showed that for all the three N-REIT companies there was a high level of volatility for their respective income returns as indicated by their respective trend lines, with the Union Homes REITs showing the highest level of volatility when compared to the other companies. Similarly, for the UPDC REITs and Union Homes REITs, the smoothed trend lines indicated a consistent and steady decrease in its income returns from 2008 to 2016, while the Skye Shelter fund indicated a steady increase in its returns for the study period. A future forecast with respect to the income returns in the study area for additional three years, from 2017, was made. The analysis indicated continues steady increase for the Skye Shelter Fund and decrease for the Union Homes REITs and UPDC REITs income returns. The level of reliability of the trend and accuracy of the forecast as determined by the R^2 value (which is the coefficient of determination) for the three N-REITs companies' respective income returns were 21% for the Skye Shelter Fund, 46.11% for the Union Homes REITs and 65.2% for the UPDC REITs. The least square regression equation in the analysis can be used to generate returns in the study area for years beyond the study period for the purpose of forecast or predictions. 'Y' in the equation represents returns in the study

area while 'X' represents the year selected for the desired analysis. From the analysis above, it can be inferred that the income return for the Skye Shelter Fund has a steady and consistent increase over the study period and this increase is likely to be maintained over the next three years as seen from the predictive trend lines. While the Union Homes REITs and the UPDC REITs have a steady and consistent decrease over the study period and this decrease is likely to be maintained over the next three years as seen from the predictive trend lines.

Quarterly Capital Return on Real Estate Investment Trusts in Nigeria

In contrast to the income return, the capital return measures the changes (increase or decrease) in capital value of an asset over the measurement period. The capital return of the Real Estate Investment Trusts in Nigeria was calculated using Equation 2 and the results are presented in Table 3.

Table 3: Quarterly capital returns of N-REITs companies

Year		Skye Shelter Fund REITs	Union Homes REITs	UPDC REITs
2007	Q1	-	-	-
	Q2	0.0	-	-
	Q3	0.0	-	-
	Q4	0.0	-	-
2008	Q1	15.1	-	-
	Q2	20.6	0.0	-
	Q3	01.1	0.0	-
	Q4	-0.4	0.0	-
2009	Q1	-8.7	0.0	-
	Q2	-4.6	0.0	-
	Q3	1.9	0.0	-
	Q4	-7.8	0.0	-
	Q1	3.3	1.5	-

Year		Skye Shelter Fund REITs	Union Homes REITs	UPDC REITs
2010	Q2	0.0	0.2	-
	Q3	-1.3	0.0	-
	Q4	0.8	0.2	-
2011	Q1	0.0	1.9	-
	Q2	0.0	0.0	-
	Q3	-1.7	0.0	-
	Q4	-0.4	0.0	-
2012	Q1	2.7	0.0	-
	Q2	0.0	0.0	-
	Q3	0.0	0.0	-
	Q4	0.0	0.0	-
2013	Q1	0.0	0.0	-
	Q2	0.0	0.0	0.0
	Q3	0.0	0.0	0.0
	Q4	0.0	0.0	0.0
2014	Q1	-0.3	0.0	0.0
	Q2	-1.0	-2.9	-5.2
	Q3	-0.8	-1.3	0.1
	Q4	-0.3	-0.4	-4.9
2015	Q1	2.3	-4.5	8.3
	Q2	0.0	0.0	-1.8
	Q3	0.0	0.0	2.0
	Q4	0.0	0.0	1.6

		Skye Shelter Fund REITs	Union Homes REITs	UPDC REITs
	Year			
	Q1	0.0	9.8	0.5
	Q2	0.0	0.0	0.0
2016	Q3	0.0	0.0	0.0
	Q4	0.0	0.0	0.0

Source: Analysis of survey data

Note: Q1 = First quarter, Q2 = Second quarter, Q3 = Third quarter, Q4 = Fourth quarter

Table 3 presented the quarterly capital returns of the N-REITs companies within the study period. The highest capital return was obtained in the second quarter of 2008 (20.6%) by the Skye Shelter Fund REIT Company (this was when REITs just came on board in the Nigerian capital market, all the 20,000,000 share units offered at the Initial Public Offering by the company at ₦100 (\$ 0.32) each were all fully subscribed and paid for, investors were interested in the new investment vehicle, hence, demand and supply positively influenced the capital value of the REITs shares at that time). For the Union Homes REITs company, it had its highest capital return in the first quarter of 2016 (9.8%), this could be attributed to the fact that the country was just recovering from the economic depression it experienced in 2015 as a result of a change in government. The least capital returns for the company was recorded in the first quarter of 2015 (-4.5%), that was when the national economic depression was at its peak. Surprisingly, the UPDC REIT Company which came on board in 2013 had its highest capital returns in the first quarter of 2015 (8.3%) despite the economic depression experienced in Nigeria at that time (this indicated that REITs in an emerging economy like Nigeria could be resilient to certain level, even in economic depressions). The least capital return for the company was recorded in the second quarter of 2014 (-5.2%). Generally the capital returns of the N-REIT Companies were observed to be low and even negative in some cases. Similar studies from other emerging markets like the Asian REITs industries showed better return values within similar time frame (see Kundus & Sing, 2011; Khoipham, 2013), suggesting that the performance of N-REIT is not an emerging market phenomenon as other REITs industries in emerging markets were seen to be doing well despite being situated in emerging markets.

The poor capital return performance observed in the study area could be traceable to the forces of demand and supply in the N-REITs industry, as this economic law tends to increase share prices of assets in the capital market when there is high demand for such shares and vice-versa when the demands is low. This invariably affects the capital returns of such an investment. Similarly, REITs is new in Nigeria and many people do not know about the investment potential inherent in this investment vehicle hence the low demand. Figure 2 below presents the trend analysis of the capital return of the N-REITs companies.

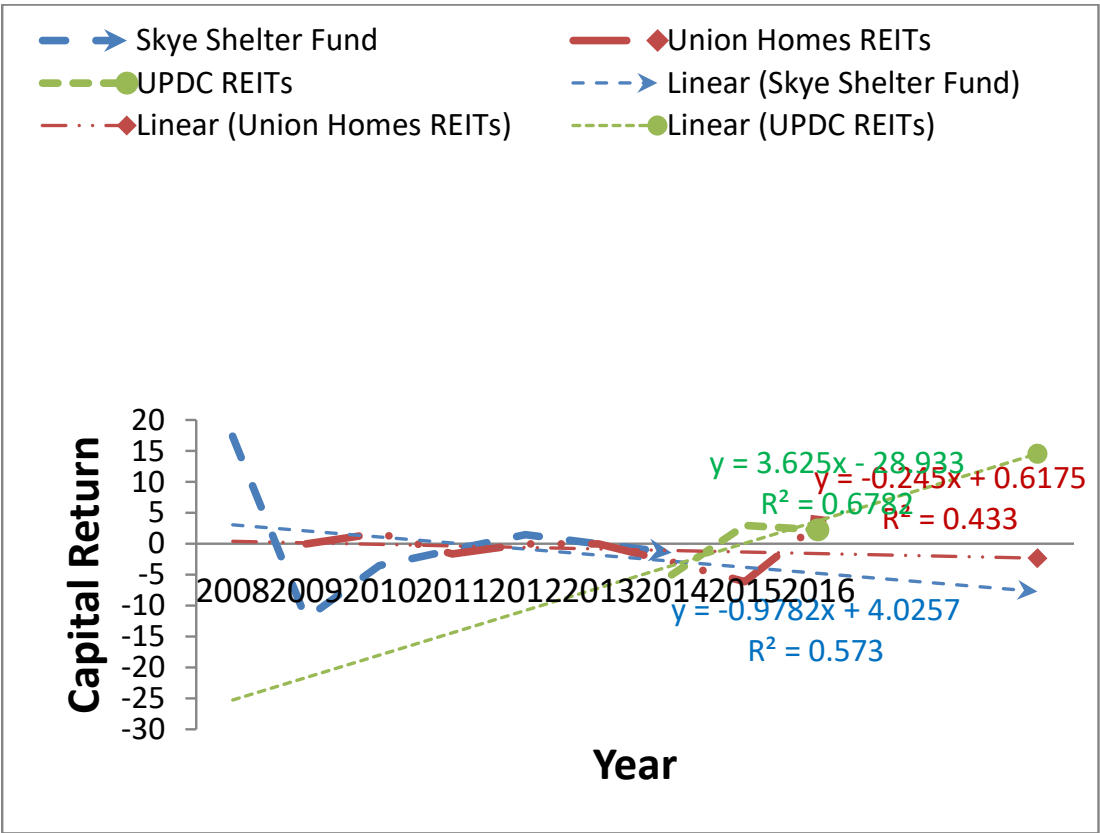


Figure 2: Trend analysis of capital return on N-REITs companies

Figure 2 shows that for all the three N-REITs companies, there was a slight or minimal level of volatility for their respective capital returns as indicated by their respective trend lines, with the Skye Shelter Fund showing the highest level of volatility when compared to the other two companies. Similarly, for the Skye Shelter Fund and Union Homes REITs, the smoothed trend lines indicated a consistent and steady decrease in their capital returns from 2008 to 2016, while the UPDC REITs indicated a steady

increase in its returns for the study period. A future forecast with respect to the capital returns in the companies for additional three years, from 2017, was also made.

The analysis indicated continues steady increase for the UPDC REITs and decrease for the Union Homes REITs and the Skye Shelter Fund' capital returns. The level of reliability of the trend and accuracy of the forecast as determined by the R^2 value for the three N-REITs companies' respective capital returns were 57.3% for the Skye Shelter Fund, 43.3% for the Union Homes REITs and 67.82% for the UPDC REITs. The least square regression equation in the analysis which was used to generate returns in the study area for years beyond the study period for the purpose of forecast or predictions indicated that the capital return for the UPDC REITs have a steady and consistent increase over the study period and this increase is likely to be maintained over the predicted years as seen from the predictive trend lines. While the Union Homes REITs and the Skye Shelter Fund have a steady and consistent decrease over the study period and this decrease is likely to be maintained over the next three years as seen from the predictive trend lines.

Quarterly Total Return on Real Estate Investment Trusts in Nigeria

Total return in performance measurement is the actual rate of return obtained from an investment over a specified period. The total return of Real Estate Investment Trusts in Nigeria was calculated using Equation 3 and the results are presented in Table 4.

Table 4: Quarterly total returns of N-REITs companies

Year		Skye Shelter Fund REITs	Union Homes REITs	UPDC REITs
2007	Q1	-	-	-
	Q2	0.0	-	-
	Q3	0.0	-	-
	Q4	0.0	-	-
2008	Q1	16.1	-	-
	Q2	21.6	-	-
	Q3	2.1	-	-
	Q4	0.6	-	-
2009	Q1	-7.1	2.0	-
	Q2	-2.9	2.0	-
	Q3	3.6	2.0	-
	Q4	-6.1	2.0	-
2010	Q1	4.9	1.9	-
	Q2	1.6	0.6	-
	Q3	0.3	0.4	-
	Q4	2.4	0.6	-
2011	Q1	0.1	3.0	-
	Q2	0.1	1.1	-
	Q3	-0.7	1.1	-
	Q4	0.6	1.1	-
2012	Q1	4.0	1.1	-
	Q2	1.3	1.1	-
	Q3	1.3	1.1	-
	Q4	1.3	1.1	-
2013	Q1	1.3	0.0	-
	Q2	1.3	0.0	0.0
	Q3	1.3	0.0	0.0
	Q4	1.3	0.0	0.0
	Q1	1.2	0.0	0.8

Year		Skye Shelter Fund REITs	Union Homes REITs	UPDC REITs
2014	Q2	0.5	-2.9	-4.4
	Q3	0.7	-1.3	0.9
	Q4	1.2	-0.4	-4.1
2015	Q1	4.1	-4.5	9.4
	Q2	1.8	0.0	-0.7
	Q3	1.8	0.0	3.1
	Q4	1.8	0.0	2.7
2016	Q1	0.0	9.8	1.1
	Q2	0.0	0.0	0.6
	Q3	0.0	0.0	0.6
	Q4	0.0	0.0	0.6

Source: Analysis of survey data

Note: Q1 = First quarter, Q2 = Second quarter, Q3 = Third quarter, Q4 = Fourth quarter

Table 4 presented the quarterly total returns of N-REITs companies within the study period. The highest total return obtained by the Skye Shelter Fund REITs was in the second quarter of 2008 (21.6%) while the least was in the first quarter of 2009 (-7.1%). The Union Homes REITs had its highest total returns in first quarter of 2011 (3.0%) and had its least total return in the first quarter of 2015 (-4.5%). The UPDC REIT Company had its highest total return in the first quarter of 2015 (9.4%) and its least total return was obtained in the second quarter of 2014 (-4.1%). It was observed that the total returns obtained from the N-REIT Companies were generally low. In comparison to studies within similar time frame, REITs industry in the UK recorded a total returns as high as 23.9% in 2012 while Malaysia recorded return values as high as 9.77% in 2008 (NAREIT, 2017). This suggests that the performance of N-REIT is not based on time phenomenon as other REITs industries were seen to be doing well within the same time frame.

It is also important to note that all the return values in all the 3 N-REITs companies were mostly positive but for some few exceptions, this suggests that investment in any of the three companies provided positive total return values in most of the years within the investment period, though the values were observed to be low. This findings is congruent with similar studies such

as Dabara, Ogunba & Araloyin (2015) and Dabara, Omotehinshe, Okunola, Ankeli & Adaranijo (2016).

Figure 3 below presents the trend analysis of the total return of the N-REITs companies.

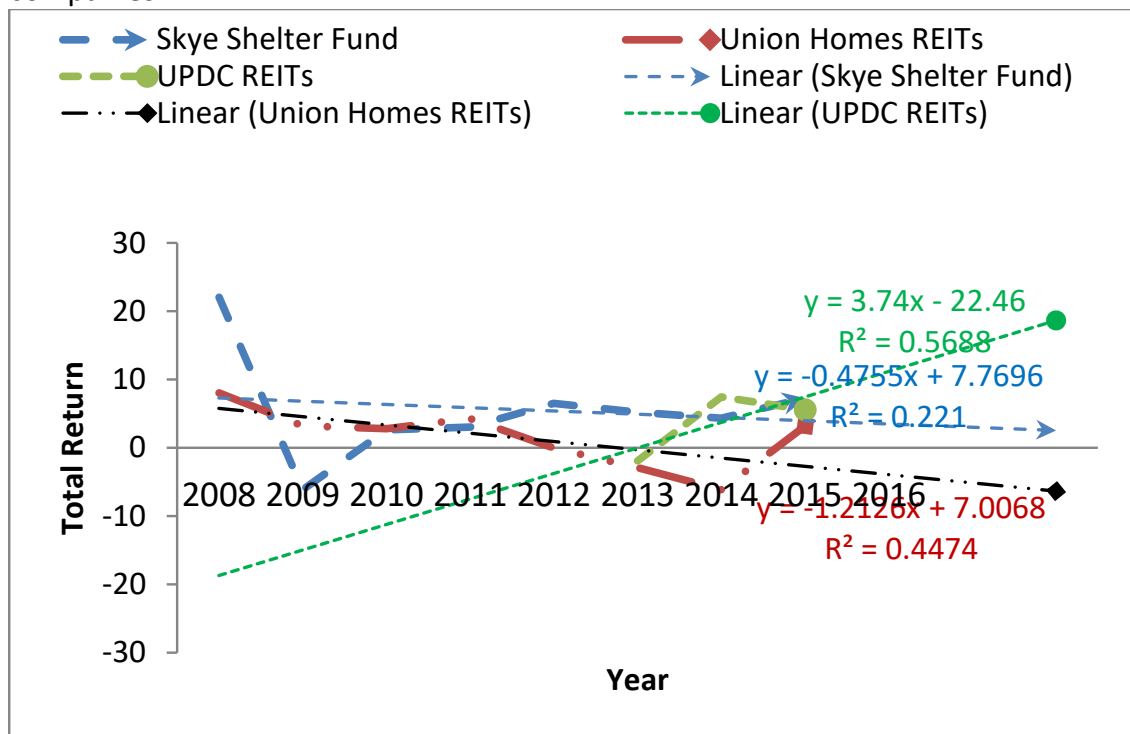


Figure 3: Trend analysis of total return on N-REITs companies

Figure 3 shows that for all the three N-REITs companies there was less volatility for their respective total returns as indicated by their respective trend lines, with the Union Homes REITs showing the least level of volatility when compared to the other two companies. Similarly, for the Skye Shelter Fund and Union Homes REITs, the smoothed trend lines indicated a consistent and steady decrease in its total returns from 2008 to 2016, while the UPDC REITs indicated a steady increase in its total returns for the study period. A future forecast with respect to the total returns in the study areas for additional three years, from 2017, indicated a continuous steady increase for the UPDC REITs and decrease for the Union Homes REITs and Skye Shelter Fund' total returns.

The level of reliability of the trend and accuracy of the forecast as determined by the R^2 value for the three N-REITs companies' respective

total returns were 22.1% for the Skye Shelter Fund, 44.74% for the Union Homes REITs and 56.88% for the UPDC REITs. The least square regression equation in the analysis used for the purpose of predictions revealed that the total return for the UPDC REITs had a steady and consistent increase over the study period and this increase is likely to be maintained over the next three years as seen from the predictive trend lines. While the Union Homes REITs and the Skye Shelter Fund have a steady and consistent decrease over the study period and this decrease is likely to be maintained over the next three years as seen from the predictive trend lines.

Comparative Analysis of the Income, Capital and Total Returns on the N-REITs Industry

For the purpose of comparison, a comparative analysis of the income, capital and total returns of the N-REITs industry in Nigeria was carried out. This is to help investors such as pension funds, insurance companies and asset managers as well as individual investors in decision making. Table 5 presents returns data in the industry while Figure 4 presents the trend analysis of the returns in the N-REITs industry.

Table 5: Comparative Analysis of the Income, Capital and Total Returns of N-REITs

Year	Quarter	Income Return	Capital Return	Total Return
2007	Q1	0.0	0.0	0.0
	Q2	0.0	0.0	0.0
	Q3	0.0	0.0	0.0
	Q4	0.0	0.0	0.0
2008	Q1	1.2	15.1	16.3
	Q2	1.0	20.6	21.6
	Q3	1.0	1.1	2.1
	Q4	1.0	-0.4	0.6

Year	Quarter	Income Return	Capital Return	Total Return
2009	Q1	3.5	-8.7	-5.2
	Q2	3.6	-4.6	-1.0
	Q3	3.7	1.9	5.6
	Q4	3.7	-7.8	-4.1
2010	Q1	2.1	4.8	6.9
	Q2	2.0	0.2	2.2
	Q3	2.0	-1.3	0.7
	Q4	2.0	1.0	3.0
2011	Q1	2.1	1.9	4.0
	Q2	2.1	0.0	2.1
	Q3	2.1	-1.7	0.4
	Q4	2.1	-0.4	1.7
2012	Q1	2.4	2.7	5.1
	Q2	2.4	0.0	2.4
	Q3	2.4	0.0	2.4
	Q4	2.4	0.0	2.4
2013	Q1	1.3	0.0	1.3
	Q2	1.3	0.0	1.3
	Q3	1.3	0.0	1.3
	Q4	1.3	0.0	1.3

Year	Quarter	Income Return	Capital Return	Total Return
2014	Q1	2.3	-0.3	2.0
	Q2	2.3	-9.1	-6.8
	Q3	2.3	-2.0	0.3
	Q4	2.3	-5.6	-3.3
2015	Q1	3.0	6.1	9.1
	Q2	2.9	-1.8	1.1
	Q3	2.9	2.0	4.9
	Q4	2.9	1.6	4.5
2016	Q1	0.6	10.3	10.9
	Q2	0.6	0.0	0.6
	Q3	0.6	0.0	0.6
	Q4	0.6	0.0	0.6

Source: Analysis of survey data

Note: Q1 = First quarter, Q2 = Second quarter, Q3 = Third quarter, Q4 = Fourth quarter

From Table 5, the highest income return values were recorded in the 3rd and 4th quarter 2009 (3.7%) respectively, while the lowest was recorded in 2016 (0.6%) for all the four quarters. The highest recorded capital return value was 20.6% recorded in 2008 while the least was -9.1% obtained in the 2nd quarter of 2014. For the total returns, the highest return value was recorded in 2008 (21.6%) while the least was recorded in 2014 (-6.8%). It was observed that the income returns in each year of the investment period have positive return values. This showed that the return problem

experienced by the N-REITs industry was not attributable to the income return component; this is congruent with the findings of a similar study conducted on emerging markets by Dabara (2015). However, the capital returns was observed to be negative in most of the investment years indicating that the major problem as regards return could be attributable to the capital return component. The trend analysis of the income, capital and total returns on the N-REITs industry is presented in Figure 4.

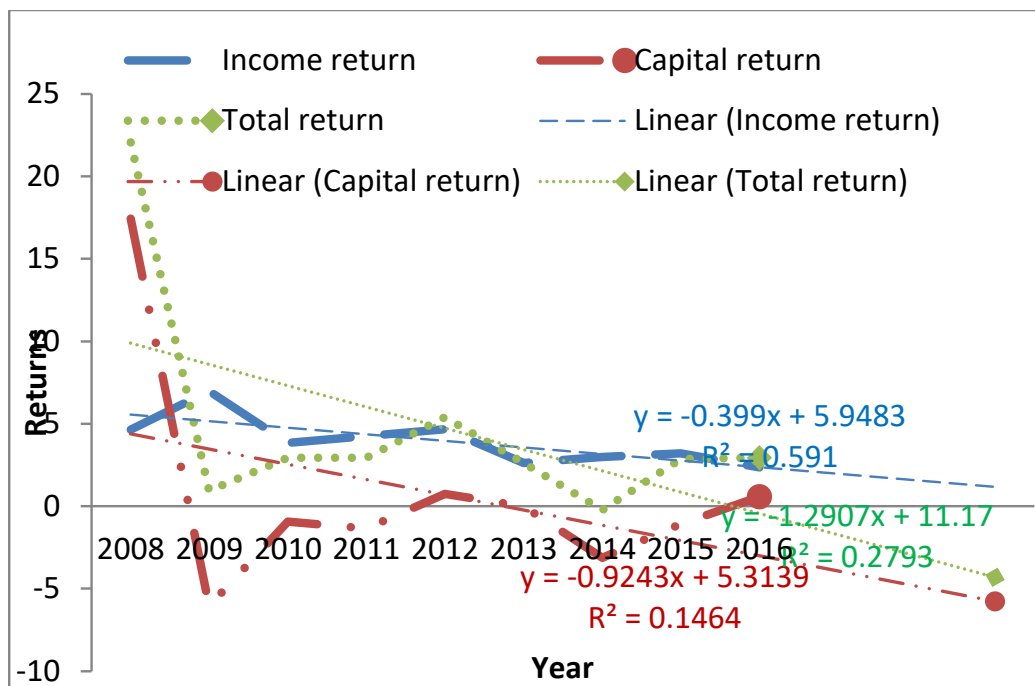


Figure 4: Trend analysis of the income, capital and total return on N-REITs companies

Figure 4 shows that the income, capital and total returns on the N-REITs industry revealed some levels of volatility for their respective returns as indicated by their respective trend lines, with the capital returns showing the highest level of volatility when compared to the other two returns indicators. Similarly, for all the returns, the smoothed trend lines indicated a consistent and steady decrease from 2008 to 2016. A future forecast with respect to the returns in the N-REITs industry for additional three years, from 2017 was made. The analysis indicated continues steady decrease in all the returns in the N-REITs industry. The level of reliability of the trend and accuracy of the forecast as determined by the R^2 value for all the returns were 59.1% for the income return, 14.64% for the capital return and 27.93% for the total return. The least square regression equation used in this

analysis showed that the income, capital and total returns in the N-REITs industry all showed a steady and consistent decrease over the study period and this decrease is likely to be maintained over the next three years as seen from the predictive trend lines.

Table 6: Descriptive statistics of the Income, Capital and Total returns of the N-REITs industry

Statistics	Income Return	Capital Return	Total Return
Mean	4	3.14	3.57
Median	3.9	-0.9	2.9
Std. Deviation	1.4	9.68	6.7
Skewness	1.2	1.48	0.7
Kurtosis	1.8	0.85	0.7
Minimum	2.4	-6.1	-0.2
Maximum	7	22	22
Sum	36	28.2	42

Source: Analysis of survey data, 2017

Table 6 presented the descriptive statistics of the three return components (income, capital and total) in the N-REITs industry. Hence, it shows the range, minimum, maximum and mean values of the variables. It also shows the standard deviation, skewness and kurtosis for each of the variables.

Risk-Adjusted Return on Real Estate Investment Trusts in Nigeria

Risk-Adjusted return in performance measurement refines an investment's return by measuring the level of risk that is involved in producing that return within the investment period. The risk-adjusted return of Real Estate

Investment Trusts in Nigeria was calculated using the return-risk ratio, the coefficient of variation and the Sharpe Ratio as presented in Equations 4 to 6. The data used for the calculation included the Treasury Bill Rates obtained from the annual reports of the Central Bank of Nigeria, total returns on investments of the N-REITs companies and Standard Deviations of the returns on N-REITs' investment.

Table 7: Average Quarterly T-Bill rates and Total return of N-REITs companies from 2007 to 2016

Year	Quarter	T-Bill Rates	Total Return Skye Shelter Fund	Total Return Union Homes REITs	Total Returns UPDC REITs
2007	Q1	6.95	-	-	-
	Q2	2.01	0.0	-	-
	Q3	6.44	0.0	-	-
	Q4	6.88	0.0	-	-
2008	Q1	8.57	16.1	-	-
	Q2	8.36	21.6	-	-
	Q3	9.14	2.1	-	-
	Q4	6.74	0.6	-	-
	Q1	2.80	-7.1	2	-
	Q2	3.31	-2.9	2	-

Year	Quarter	T-Bill Rates	Total Return Skye Shelter Fund	Total Return Union Homes REITs	Total Returns UPDC REITs
2009	Q3	4.51	3.6	2	-
	Q4	4.52	-6.1	2	-
	Q1	2.36	4.9	1.9	-
	Q2	1.71	1.6	0.6	-
2010	Q3	4.06	0.3	0.4	-
	Q4	7.27	2.4	0.6	-
	Q1	7.62	0.1	3	-
	Q2	8.78	0.1	1.1	-
2011	Q3	7.80	-0.7	1.1	-
	Q4	14.6	0.6	1.1	-
	Q1	14.70	4.0	1.1	-
	Q2				

192 The 19th AfRES Annual Conference

Year	Quarter	T-Bill Rates	Total Return Skye Shelter Fund	Total Return Union Homes REITs	Total Returns UPDC REITs
2012	Q2	13.78	1.3	1.1	-
	Q3	13.62	1.3	1.1	-
	Q4	12.44	1.3	1.1	-
	Q1	10.41	1.3	0	-
2013	Q2	10.88	1.3	0	0
	Q3	11.26	1.3	0	0
	Q4	10.86	1.3	0	0
	Q1	11.52	1.2	0	0.8
2014	Q2	10.46	0.5	-2.9	-4.4
	Q3	9.86	0.7	-1.3	0.9
	Q4	10.15	1.2	-0.4	-4.1

Year	Quarter	T-Bill Rates	Total Return Skye Shelter Fund	Total Return Union Homes REITs	Total Returns UPDC REITs
2015	Q1	10.95	4.1	-4.5	9.4
	Q2	10.07	1.8	0	-0.7
	Q3	10.12	1.8	0	3.1
	Q4	6.43	1.8	0	2.7
2016	Q1	4.85	0.0	9.8	1.1
	Q2	7.87	0.0	0	0.6
	Q3	13.76	0.0	0	0.6
	Q4	14.00	0.0	0	0.6

Source: Annual report of Central Bank of Nigeria and analysis of survey data, 2017

Table 7 presented the Treasury Bill Rates within the study period; the highest T-bill rates obtained within the study period was 14.70 in the first quarter of 2012, while the lowest was 1.71 recorded in the second quarter of 2010. It also presented the total returns of the respective N-REITs companies. The total return values for the three REITs companies kept fluctuating within the study period as aforementioned earlier. The data presented in Table 7 was used in calculating the mean return values for each of the company within the investment period as well as the total risk (Standard Deviations) of each of the N-REITs companies. The results are presented in Table 8.

Table 8: Total return and total risk of N-REITs companies

N-REIT Company	Total Return	Total Risk
Skye Shelter Fund REITs	4.70	6.23
Union Homes REITs	1.35	4.00
UPDC REITs	2.94	3.78
Mean	3.00	4.67

Source: Analysis of survey data, 2017

From Table 8 the Skye Shelter Fund REITs Company presented the highest return value within the investment period (4.70) with a corresponding high risk (6.23). UPDC REITs provided the second highest return value (3.00) in the industry with the least risk (3.78). While the Union Homes REITs provided the least return value (1.35) and the second highest risk (4.00). The mean total return for the N-REITs industry within the study period was 3.00 while the mean risk within the study period was 4.67. These results have implications for prospective investors in N-REITs as they need to weigh both returns and risk before making investment decisions, being that investors are risk averse and have different levels of risk tolerance. The data presented in Table 8 was used to calculate the risk-adjusted returns of the N-REITs companies. The result of the analysis was presented in Table 9.

Table 9: Risk-Adjusted Returns of N-REITs companies

N-REIT Company	Return Risk Ratio	Coefficient of Variation	Sharpe Ratio
Skye Shelter Fund REITs	0.6	1.13	-0.53
Union Homes REITs	0.35	2.56	-1.69
UPDC REITs	0.89	1.06	-1.19
Mean	0.61	1.58	-1.14

Source: Analysis of survey data, 2017

Table 9 presented the risk-adjusted returns of N-REITs companies which comprised the return risk ratio, coefficient of variation as well as the Sharpe ratio of the N-REITs companies for comparative analysis. The Skye Shelter Fund REITs provided a return risk ratio of 0.6 with a coefficient of variation of 1.13 and a Sharpe ratio of -0.53; the Union Homes REITs presented a return risk ratio of 0.35, a coefficient of variation of 2.56 and a Sharpe ratio of -1.69; while the UPDC REITs presented a return risk ratio of 0.89, a coefficient of variation of 1.06 and a Sharpe ratio of -1.19. The mean return risk ratio for the N-REITs industry within the study period was 0.61, while mean for the coefficient of variation for the industry was 1.58 and that of the Sharpe ratio was -1.14. It is important to note that, all the return values in all the 3 N-REITs companies with respect to Sharpe ratios were negative. These results are not congruent with findings from similar emerging markets like Malaysia and South Africa (Zhu, 2008; Aik, 2012; Naido, 2014) as well as property markets of developed economies like the US (Jackson, 2008). The implication of this scenario is that when weighing both returns and risk, individual and institutional investors (whether foreign or domestic) need to exercise caution when investing in N-REITs. In global markets generally, a Sharpe Ratio of 3.0 or higher is considered good. However, for N-REITs the values are all below this benchmark.

The sub-section below presents the unit root analysis conducted to test for the stationarity properties of the returns variables as well as the ARIMA and Granger Causality test on the said variables.

Table 10: KPSS and PP unit root test on data for the structure, conduct and performance of N-REITs

Returns Variables	KPSS Statistics	1% Critical Value			5% Critical Value			10% Critical Value			PP Statistics	1% Critical Value			5% Critical Value			10% Critical Value		
		Value	Value	Value	Value	Value	Value	Value	Value	Value		Value	Value	Value	Value	Value	Value	Value	Value	Value
Income Return	0.337500*	0.739	0.463	0.347	-5.18639*	-2.93722	-2.00629	-1.59807												
Capital Return	0.3257150*	0.739	0.463	0.347	-10.6668*	-2.8861	-1.99587	-1.59909												
Total Return	0.320190*	0.739	0.463	0.347	-5.84822*	-2.8861	-1.99587	-1.59909												

Source: Analysis of survey data, 2017

Note: * = stationary at level

Kwiatkowski-Phillips-Schmidt-Shin (KPSS) and Philip-Perron (PP) Unit Root Analysis

Unit root test (test of stationarity) of the data sets used in the study was carried out using the Kwiatkowski-Phillips-Schmidt-Schin (KPSS) as well as the Philip-Perron (PP) models for analyzing the stationarity characteristics of the data series. The choice of these unit root tests tools were in line with previous studies such as Arltova & Fedorova (2016) which posited that the most suitable stationarity tests for short time series data set are the PP tests complimented by the KPSS test. The unit root analysis was used to test the null hypothesis of a unit root (stationarity properties) for the entire data set. The result from the test was reported in Table 10.

The computed KPSS and PP test-statistics as seen in Table 10 are integrated of order $I(0)$. The computed unit root test indicated stationary series (at level) with respect to the data sets used. It was observed that the KPSS and PP statistics were smaller than the critical values - "tau" at 10%, 5%, and 1% significant levels respectively; therefore we can reject H_0 for the income, capital and total returns variables. This means that the data series are all stationary series at 10%, 5% and 1% significant levels and are integrated of order $I(0)$.

Auto-Regressive Moving Average (ARIMA) Analysis

ARIMA (Autoregressive Integrated Moving Average), is a statistical analysis model used in forecasting time series data to predict future trends based entirely on its own inertia. This helps in predicting future points in the time series. Hence it "shows the pattern of growth/decline in the data, the rate of change of the growth/decline in the data as well as the noise between consecutive time points in the series"

Skye Shelter Fund's returns

Model: ARIMA (0, 0, 1) (0, 0, 1). ARIMA with non-seasonal MA and seasonal MA of order 1.

Coefficients:

	MA(1)	SMA(1)	Intercept
Coefficients	0.5111	0.3733	1.5874
Standard Error	0.1666	0.1484	0.6222

AIC = 225.35

Table 11: Point forecast for Skye Shelter Fund's returns

Year		Point Forecast
2017	Q1	1.270089
2017	Q2	2.217628
2017	Q3	2.210949
2017	Q4	2.183155
2018	Q1	1.800227
2018	Q2	1.587422
2018	Q3	1.587422
2018	Q4	1.587422
2019	Q1	1.587422
2019	Q2	1.587422
2019	Q3	1.587422
2019	Q4	1.587422

Source: Analysis of survey data, 2017

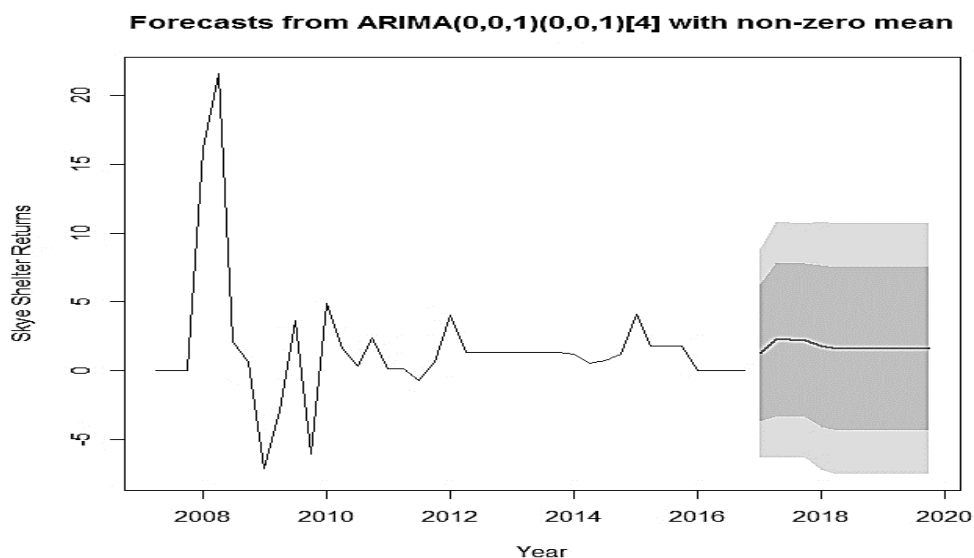


Figure 5: Graphical forecast for Skye Shelter Fund's returns

The expected Skye Shelter Fund's returns are expected to drop below 2.0 from first quarter of 2018.

Union Homes REITs Returns

Model ARIMA (0,0,1)(0,0,1). ARIMA with non-seasonal MA of order 1 and a seasonal MA of order 1.

	MA(1)	SAR(1)	Intercept
Coefficients	0.3031	0.5946	0.5670
Standard Error	0.1780	0.2256	0.2921

AIC = 142.54

Table 12: Point forecast for Union Homes REITs returns

Point Forecast		
2017	Q1	-5.19309
2017	Q2	0.904101
2017	Q3	0.904101
2017	Q4	0.904101
2018	Q1	3.991724
2018	Q2	0.366555
2018	Q3	0.366555
2018	Q4	0.366555
2019	Q1	-1.46923

2019	Q2	0.686161
2019	Q3	0.686161
2019	Q4	0.686161

Source: Analysis of survey data, 2017

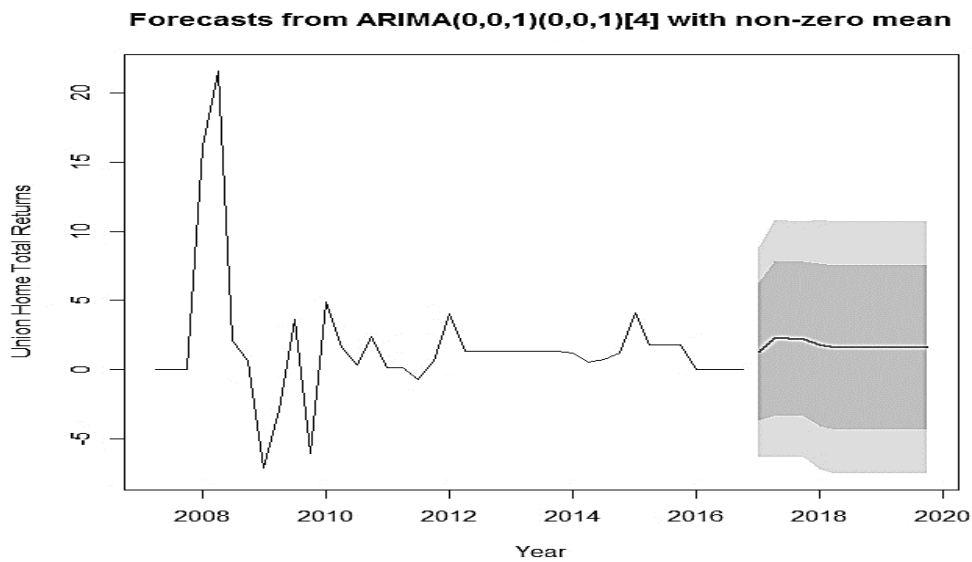


Figure 6: Graphical forecast for Union Homes REITs returns

It can be observed that the Union Homes returns are expected to drop below 0 in 2019.

UPDC REITs Returns

Model: ARIMA (1,0,0). ARIMA with non-seasonal autoregressive model with order 1.

	AR(1)	Intercept
Coefficients	-0.3635	0.7217
Standard Error	0.2293	0.5400

Aic = 79.67

Table 13: Point forecast for UPDC REITs returns

	Point	Forecast
2017	Q1	0.765876
2017	Q2	0.70558
2017	Q3	0.727498
2017	Q4	0.719531
2018	Q1	0.722427
2018	Q2	0.721374
2018	Q3	0.721757
2018	Q4	0.721618

Source: Analysis of survey data, 2017

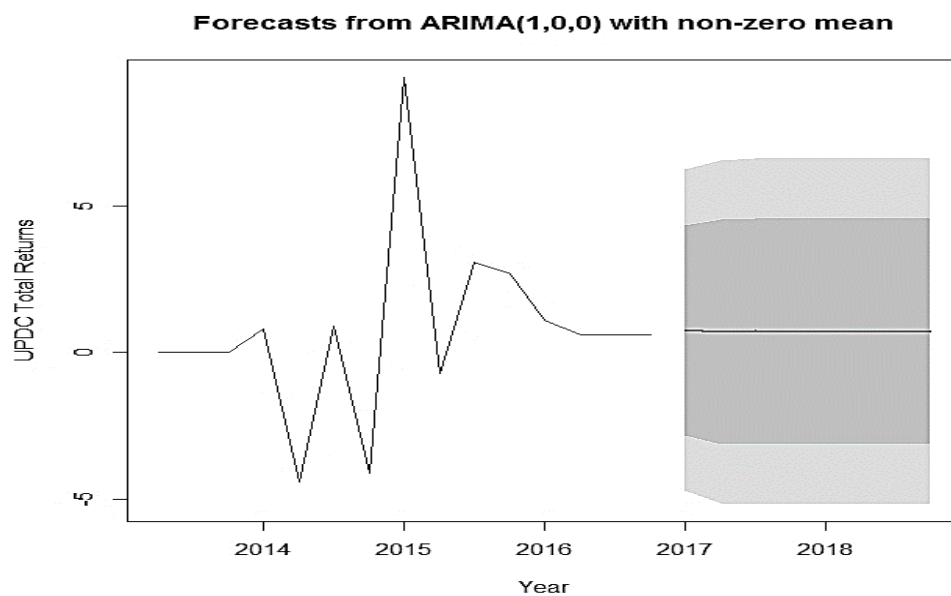


Figure 7: Graphical point forecast for UPDC REITs returns

It can be also seen that the expected forecast up till the last quarter of 2018 is approximately 0.7.

N-REITs returns

Model: ARIMA (1,0,0). AIMA with autoregressive model with order 1.

	AR(1)	Intercept
Coefficients	0.2195	2.4424
Standard Error	0.1527	0.9873

AIC = 246.8

Table 14: Point forecast for N-REITs returns

	Point Forecast	
2017	Q1	2.037934
2017	Q2	2.353589
2017	Q3	2.422881
2017	Q4	2.438092
2018	Q1	2.441431
2018	Q2	2.442164
2018	Q3	2.442325
2018	Q4	2.44236
2019	Q1	2.442368
2019	Q2	2.44237
2019	Q3	2.44237
2019	Q4	2.44237
2020	Q1	2.44237
2020	Q2	2.44237
2020	Q3	2.44237
2020	Q4	2.44237

Source: Analysis of survey data, 2017

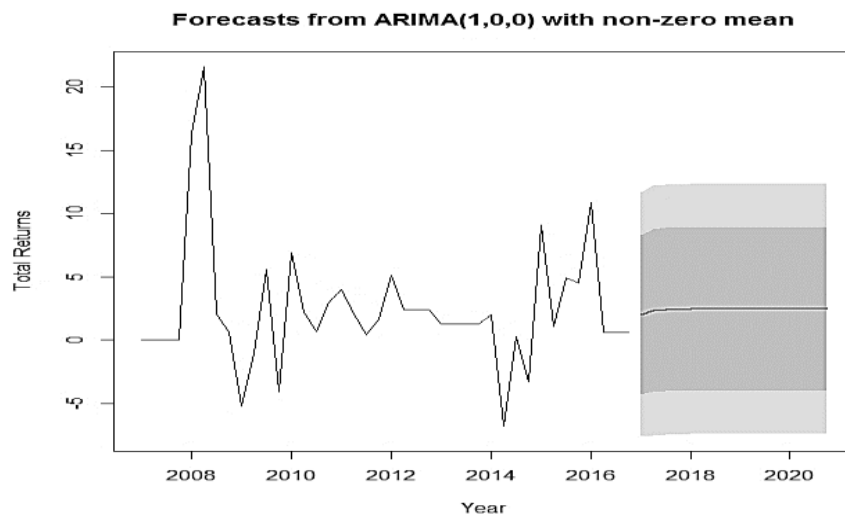


Figure 8: Graphical point forecast for N-REITs returns

It can be observed from the forecast that the N-REITs would experience an average constant return from second quarter of 2019.

Granger Causality Tests on Returns of N-REITS

This test was conducted to determine the causal relationship between the income, capital and total returns of N-REITs within the study period. Table 15 presents results of the test.

Table 15: Granger causality tests for the income, capital and total returns variables of N-REITs

Null Hypothesis:	F-Statistic	P-Value
INC_RET does not Granger Cause CAP_RET	10.4776	0.0471
CAP_RET does not Granger Cause INC_RET	0.33881	0.7469
TOT_RET does not Granger Cause CAP_RET	7.9986	0.0526
CAP_RET does not Granger Cause TOT_RET	2.20062	0.3124
TOT_RET does not Granger Cause INC_RET	0.49541	0.6687
INC_RET does not Granger Cause TOT_RET	4.12774	0.1950

Analysis of survey data, 2017

Table 15 presented the results of Granger Causality tests of the returns performance of N-REITs. The results obtained indicated a bi-directional Granger Causality for the income, capital and total returns of N-REITs, suggesting that there was a two way positive relationships existing among the return variables. This means that the income returns of N-REITs affected both the capital returns (with P-value as 0.0471) and total returns (with P-value as 0.1950) of the N-REITs industry. Similarly, the capital returns of N-REITs also affected both the income (with P-value as 0.7469) and total returns (with P-value as 0.3124) of the N-REITs industry. By the same token, the total returns of the N-REITs also affected the income returns (with P-value as 0.6687) and capital returns (with P-value as 0.0526) of the N-REITs industry. The implication of this result to the N-REITs industry is that an increase or decrease in any of the returns component will have a corresponding effect on the others.

5. Conclusion

This study evaluated the return/risk performance of N-REITs within the study period (2007 to 2016). Findings from the study showed that the performance of Nigerian REITs companies in terms of income, capital, total and risk-adjusted returns have been very low and even negative in some cases from inception to 2016. This result is congruent with what was found in literature. Studies such as Akpan & Ogunba (2015) and Olanrele et al. (2015) presented similar results in the Nigerian property market. However, in comparison to REITs of other countries (both developed and emerging markets) such as the US, Canada, Japan, Germany, South Africa and Malaysia, studies (within similar time frame/both developed and emerging markets) have shown that performance of REITs in such countries were high (Imperiale, 2002; Jackson, 2008). The implication of this findings is that the performance of N-REITs as seen from this study, was not a reflection of the performance of REITs in the global markets, neither was it a time phenomenon nor emerging market phenomenon, but very specific to Nigeria. Thus, both individual and institutional investors such as pension funds, insurance companies and asset managers need to exercise caution when investing in N-REITs. However, considering that the income return component of N-REITs was positive throughout the investment period under investigation (with a mean return of 4%) and the investment potential inherent in the Nigerian property market from which N-REITs derives its income, both foreign and domestic investors could consider

investing in N-REITs to enjoy such returns. The limitation of this study borders on data availability, the number of REIT companies in Nigeria used for the study and the time frame covered. The researchers could not obtain all the desired data for the study, similarly Nigeria has only three REIT companies which started operations in 2007, 2008 and 2013 respectively, a larger sample and longer time frame could have provided a better view of the industry.

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