Comparative Study of the Yields Derivable from Residential Property Investment in selected Government Layouts, Lagos, Nigeria

OBA, Peter Tomonidie
Department of Estate Management
Kenule Saro Wiwa Polytechnic, Bori, Nigeria
(Corresponding Author)E-mail: petertomonidie@yahoo.com

MOSES, Oluwafemi Ogunleye
Principal Partner, Femi Ogunleye & Co
Lagos, Nigeria
E-mail: femiogunleye2003@yahoo.com

Abstract

There has been concentration of investment in residential property development for high income earners in the Government Reserved Areas (GRA) of Lagos metropolis. This research therefore investigates the yields that investors could derive from such development. In attaining the aim and objectives of the study, six GRAs were purposely selected while one hypothesis was formulated and tested. The hypothesis is that "there is significant relationship between market yields and addition to housing stock within the period of 2003 – 2012 in the study area", while the null hypothesis is that "there is no significant relationship between market yields and addition to housing stock in the study area". Simple regression analysis was carried out to determine the relationship between yields and the number of residential property supplied to the market within the study period at 0.05 confidence levels. It was found that there is statistically significant relationship between yields and addition to housing stock in two locations (Magodo and Ilupeju). This implies that though there is statistically significant relationship between the variables; yield only account about 55% and 56% variability in addition to housing stock in the respective GRAs. However, there are no statistically significant relationships between yields and addition to housing stock in four locations (Ikeja, Gbagadav, Ogudu and Adeniyi). The yield explained only 11.87% variability in addition to housing stock across the selected areas. The implication is that decision to invest in the individual GRAs is not entirely based on yields. The study recommended that since yield explains only low percentage of variability in residential property development in the form of annual addition to housing stock, further research should be carried out to discover other factors necessitating residential property investment decision making in the study area.

Keywords: *Simple Regression; Government Residential Area; Hypothesis Testing; Confidence Level; Gross Domestic Product*

Introduction

The magnitude of financial input and risk inherent in real estate investment requires an in-depth study of the variables involved and determines property yields for investors and financial institutions in order to give room for comparison during decision making process.

Current market and economic conditions make it mandatory for property investment to be well analyzed before decisions are taken. It is important for real estate investment to have a good measuring yardstick or benchmark for performance evaluation. This gives credibility to real estate investment like the rest of capital market. It also enhances the confidence of investors. An important step to achieve this is to have a good and standardized indicator in form of yields or returns derivable from property investment.

Real estate, unlike other investments is believed to be safer in the current global trend when compared with instability in global stock market, and it is better than low returns on cash savings. Property yields therefore form one of the bases for investors to make decision. (Fraser, 1993) , opined that Land and Building epitomizes financial security because value of building is more stable than value of shares that are subject to the "antics" of the stock market. Research on trends in property yields is a means to study investment behaviour within the property market. The construction of models that track the historical variation in property yields improves our understanding of the determinants of yields and provides the basis for their forecasting. The usefulness of this research is of significance to real estate analysts and professionals in Nigeria.

Investment performance in real estate is basic to all investors. The purpose of investing fund in real estate is to get returns like any other investments. Returns are income receivable on the property, net of operating cost which could be divided by the capital employed for the year to arrive at yields on the investment. The general formula is;

$$Yields = \frac{\text{Net of Income}}{\text{Capital}} \quad \ldots\text{eq. 1 (investproperty.co.uk, 2016)}$$

These are measured over time, most especially on annual or sometimes on quarterly bases. The capital invested, which is the denominator of the return calculation is derived from the property market prices or the appraised value of the asset. In Nigeria, market price comparison is favoured for appraising capital value of commercial property. It is believed that the appraiser must still have to break down the market indices to arrive at a reasonable multiplier.

Capital employed also reflects expenditure on improving the property as this can provide a greater benefit to user and have a significant effect on real estate investments. The reason for employing more effort to determine property yields however is to benchmark investment as well as to provide yardstick to measure investment performance. These are done by careful analysis of investment performance. They provide investors and fund managers with a better understanding of their "assets performance characteristics". This will indicate the yield that individual property achieved or can achieve relative to the market.

Considering performance indicator, yields is widely used in business to determine profitability in the property market. It provides comparable analysis of performance level, which investor might reasonably be expected to achieve. Sometimes it is used to compare property portfolio and to allow focus on the best practices. (Bok, 2012), opined that:

"These comparisons can then be developed through attribution and activity analysis to generate weighted scores measuring the impact of portfolio structure, stock selection and relative effects of the active management strategies and timing on performance."

Methods

The research method described the strategy of investigating the hypothesis for this study which is: **H_1:** that there is significant relationship between yields and the addition to residential property in the study area. This was analysed by statistical data using both descriptive comparative and analytical correlation techniques. The null hypothesis which is stated below as H_0 will also be compared to determine the validity of H_1. **H_0:** that the yields derivable from residential property in the study area will have no significant relationship. The statistical analysis will be designed to test this null hypothesis as well, so as to find out the validity of H_1.

Some sets of data were collected namely; data on average rental value per annum for 4 bedroom detached house, number of residential building completely built and supply to the market for the period of 2003 – 2012. In analyzing the data, a number of techniques were arrived at by use of Startgraph software, Pearson's product moment correlation coefficient technique, simple regression analysis, analysis of variance (ANOVA). Each of the techniques and application are discussed below.

Pearson Products Moment Correlation Coefficient Technique

In using this technique, the explanatory variable of data collected (a long side location attribute, accessibility, and demand and supply factors) were regressed to determine the correlation coefficients and levels of relationship between the two variables.

Simple Regression Analysis

The evaluation of relationship between dependent and independent variables was carried out using the simple regression models. The first step consisted of defining the variable of the yield with reference to rental and capital value of residential properties. This was to determine the relationship between the combined explanatory variables and number of residential properties that was added to the market.

In this case, residential property yields was regressed and correlation on the set of explanatory variable. The coefficients of the variables measure directly or indirectly the marginal effects of the independent variables in addition to housing stock in the study area. The simple regression analysis is relevant to this study as it assists in predicting, making inferences, testing the set hypothesis, and modeling the relationships between the variables. Also, Analysis of variance (ANOVA) was used to establish the p-value of 0.05.

Results

The trend in rental and capital values, relationship between yields and addition to yields of housing stock are analysis using the data collected.

Determination of the Relationship between Yields and Housing Stock.

The details below show the analysis of average rent, average capital value and average yields between 2003- 2012. The data was from the field survey through questionnaires and it indicated the rent was only stable for two yearly. This is responsible for two yearly arrangements in rent and capital value columns.

Table 1: ***Analysis of response to questionnaire (***Source: Field Survey)

S/N	Research Objectives from Questionnaire	Frequencies	Percentage (%)

1.	*Previous research work*	**10**	**7.69**
2.	Trends in residential property	25	19.23
3.	Growth in the rental values	35	26.92
4.	Growth in the capital values	25	19.23

The respondents' frequencies to questionnaire

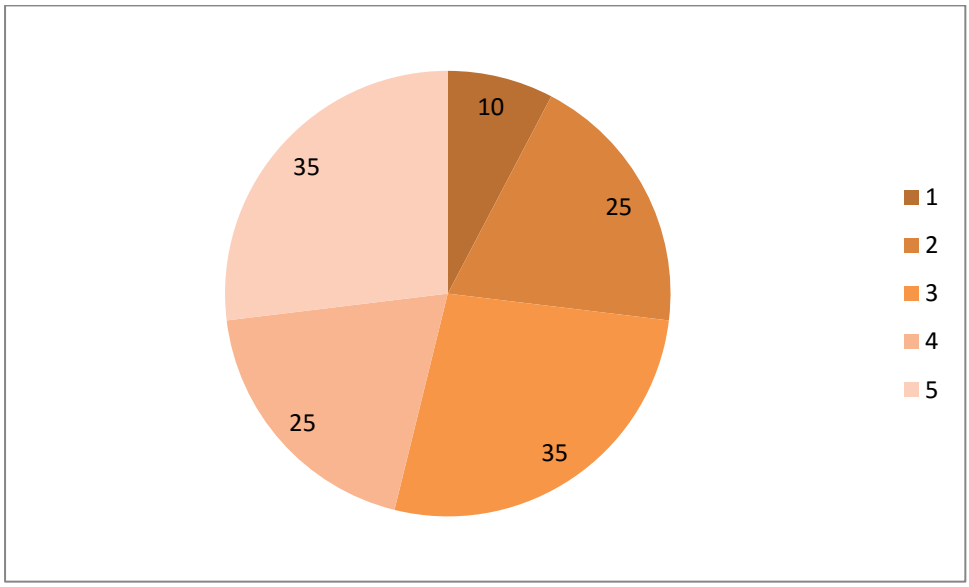

Figure 1: The pie chart showing percentage of the respondents to the questionnaire

Table 2a: Analysis of Rent, Capital Value and Yield (Source: Field Survey)

		Ikeja GRA			Magodo			Gbagada		
S/N	**Year**	**Rent**	**Cap/V**	**Yields**	**Rent**	**Cap/V**	**Yields**	**Rent**	**Cap/V**	**Yields**
1.	2002/3	₦2.5m	₦75m	3.33%	₦.75m	₦25m	3.00%	₦1m	₦20m	5.00%
2.	2004/5	₦4m	₦100m	4.00%	₦1.5m	₦35m	4.29%	₦1.5	₦30m	5.00%
3.	2006/7	₦6m	₦150m	4.00%	₦2.5m	₦50m	5.00%	₦2.5m	₦50m	5.00%
4.	2008/9	₦6.5m	₦250m	2.60%	₦3.5m	₦100m	3.50%	₦3.5m	₦100m	3.50%
5.	2010/11	₦8m	₦350m	2.29%	₦4m	₦180m	2.22%	₦4.5m	₦120m	3.00%

Table 2b: Analysis of Rent, Capital Value and Yield (Source: Field Survey)

		Ogudu			Ilupeju			Adeniyi Jones		
S/N	**Year**	**Rent**	**Cap/V**	**Yields**	**Rent**	**Cap/V**	**Yields**	**Rent**	**Cap/V**	**Yields**
1.	2003/4	₦1.2m	₦30m	4.00%	₦1m	₦25m	4.00%	₦1.5m	N50m	3.00%
2.	2005/6	₦2m	₦50m	4.00%	₦1.5m	₦45m	3.33%	₦2.5	N75m	3.33%

3.	2007/8	₦3m	₦70m	4.28 %	₦2.5 m	₦65m	3.84 %	₦4m	N120 m	3.33 %
4.	2009/10	₦4m	₦120 m	3.33 %	₦3.5 m	₦100 m	3.50 %	₦5m	N180 m	2.77 %
5.	2011/12	₦5m	₦150 m	3.33 %	₦4.5 m	₦145 m	3.10 %	₦6m	N250 m	2.40 %

The data above indicates the average information collected on field survey through questionnaires. The first column indicates the period that the information covers. The rent, capital value and yields columns are shown against the corresponding periods.

Table 3: AVERAGE YIELDS FOR TEN YEARS

The average yields for each location of the study area are summaries below: (Source: Field Survey)

	Years				
Location	**Jan.2003-Dec04**	**Jan.2005-Dec06**	**Jan.2007-Dec08**	**Jan.2009-Dec10**	**Jan.2011-Dec12**
Ikeja GRA	3.33	4	3	2.6	4.5
Magodo	3	4.29	5	3.5	3.7
Gbagada	5	3	5	3.5	4
Ogudu	4	3	4.28	3.33	4.5
Ilupeju	4	3.33	3.84	3.5	3.5
Adeniyi Jones	3	3.33	3.33	2.77	3
Means	**3.72**	**3.49**	**4.08**	**3.2**	**4**

The yields are group on two yearly bases which is the common pattern of rent increases in the study area.

Table 5a: Development added to the existing stock of residential property in the Study Area (Source: Field Survey)

LOCATIONS	**Jan2003-Dec04**	**Jan2005-Dec06**	**Jan2007-Dec08**	**Jan2009-Dec2010**	**Jan2011-Dec2012**
Ikeja GRA	45	40	52	35	32
Magodo	41	38	45	40	35
Gbagada	30	35	25	27	30
Ogudu	35	38	40	25	28
Ilupeju	42	38	45	30	35
Adeniyi Jones	28	32	40	42	30
Means	**36.83**	**36.83**	**41.17**	**33.17**	**31.67**

Table 5b: Development added to the existing stock of residential property in the Study Area (Source: Field Survey)

LOCATIONS	**Jan2003-Dec04**	**Jan2005-Dec06**	**Jan2007-Dec08**	**Jan2009-Dec10**	**Jan2011- Dec12**
Ikeja GRA	45	40	52	35	32
Magodo	41	38	45	40	35

Gbagada	30	35	25	27	30
Ogudu	35	38	40	25	28
Ilupeju	42	38	45	30	35
Adeniyi Jones	28	32	40	42	30
Means	**36.83**	**36.83**	**41.17**	**33.17**	**31.67**

Table 6: Average of both stock and yields (Source: Field Survey)

Periods	**Added Stock**	**Yields**
Jan.2003-Dec.2004	**36.83**	**3.72**
Jan.2005-Dec.2006	**36.83**	**3.49**
Jan.2007-Dec.2008	**41.17**	**4.08**
Jan.2009-Dec.2010	**33.17**	**3.20**
Jan.2011-Dec.2012	**31.67**	**4.00**

Simple statistical regression was applied by startgraph software to determine the statistical relationship between the variables which is the addition to stock within the study period of ten years and the yields. This is with the view of determining the statistical relationship between the random variable and the independent variables in other to determine the level of significance.

Simple Regression - Yield vs. Addition to Housing Stock for IKEJA

Dependent variable: Yield
Independent variable: Addition to Housing Stock
Linear model: Y = a + b*X

Table 7: Table showing Yield vs. Addition to Housing Stock for Ikeja

Parameters	**Least Squares Estimate**	**Standard Error**	**T-Statistic**	**P-value**
Intercept	5.13433	1.27187	4.03682	0.0038
Slope	-0.0404003	0.0307069	-1.31567	0.2247

Table 8: Table showing Analysis of Variance for Ikeja

Source	***Sum of Squares***	***Df***	***Mean Square***	***F-Ratio***	***P-Value***
Model	0.831762	1	0.831762	1.73	0.2247
Residual	3.84408	8	0.48051		
Total (Corr.)	4.67584	9			

Correlation Coefficient = -0.421764
R-squared = 17.7885 percent
R-squared (adjusted for d.f.) = 7.51206 percent
Standard Error of Est. = 0.693188
Mean absolute error = 0.461535
Durbin-Watson statistic = 1.25641 (P=0.0637)
Lag 1 residual autocorrelation = 0.315375

The output shows the results of fitting a linear model to describe the relationship between Yield and Addition to Housing Stock. The equation of the fitted model is

Yield = 5.13433 - 0.0404003*Addition to Housing Stock

Since the P-value in the ANOVA table is greater or equal to 0.05, there is no statistically significant relationship between Yield and Addition to Housing Stock at the 95.0% or higher

confidence level. The R-Squared statistic indicates that the model as fitted explains 17.7885% of the variability in Yield.

The correlation coefficient equals -0.421764, indicating a relatively weak relationship between the variables. The standard error of the estimate shows the standard deviation of the residuals to be 0.693188. The mean absolute error (MAE) of 0.461535 is the average value of the residuals. The Durbin-Watson (DW) statistic tests the residuals to determine if there is any significant correlation based on the order in which they occur in data file. Since the P-value is greater than 0.05, there is no indication of serial autocorrelation in the residuals at the 95.0% confidence level.

Simple Regression - Addition to Stock vs. Yield (Magogo)

Dependent variable: Addition to Stock
Independent variable: Yield
Linear model: Y = a + b*X

Table 9: Table showing Yield vs. Addition to Housing Stock for Magogo

Parameters	Least Squares Estimate	Standard Error	T-Statistic	P-value
Intercept	30.6835	3.01567	10.1747	0.0000
Slope	2.53095	0.808387	3.13087	0.0140

Table 8: Table showing Analysis of Variance for Magogo

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Model	60.348	1	60.348	9.80	0.0140
Residual	49.252	8	6.1565		
Total (Corr.)	109.6	9			

Correlation Coefficient = 0.742038
R-squared = 55.0621 percent
R-squared (adjusted for d.f.) = 49.4448 percent
Standard Error of Est. = 2.48123
Mean absolute error = 1.93741
Durbin-Watson statistic = 1.43889 (P=0.1004)
Lag 1 residual autocorrelation = 0.18803

The output shows the results of fitting a linear model to describe the relationship between Addition to Stock and Yield. The equation of the fitted model is:

Addition to Stock = 30.6835 + 2.53095*Yield

Since the P-value in the ANOVA table is less than 0.05, there is a statistically significant relationship between Addition to Stock and Yield at the 95.0% confidence level. The R-Squared statistic indicates that the model as fitted explains 55.0621% of the variability in Addition to Stock. The correlation coefficient equals 0.742038, indicating a moderately strong relationship between the variables. The standard error of the estimate shows the standard deviation of the residuals to be 2.48123. The mean absolute error (MAE) of 1.93741 is the average value of the residuals. The Durbin-Watson (DW) statistic tests the residuals to determine if there is any significant correlation based on the order in which they occur in data file. Since the P-value is greater than 0.05, there is no indication of serial autocorrelation in the residuals at the 95.0% confidence level.

Simple Regression - Addition to Stock vs. Yield Gbagada

Dependent variable: Addition to Stock
Independent variable: Yield

Linear model: Y = a + b*X

Table 11: Yield vs Addition to Stock Gbagada

Parameter	*Least Squares Estimate*	*Standard Error*	*T-Statistic*	*P-Value*
Intercept	39.9063	4.96658	8.03496	0.0000
Slope	-2.5625	1.18894	-2.15528	0.0633

Table 12: Table showing Analysis of Variance for Gbagada

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Model	42.025	1	42.025	4.65	0.0633
Residual	72.375	8	9.04688		
Total (Corr.)	114.4	9			

Correlation Coefficient = -0.606095
R-squared = 36.7351 percent
R-squared (adjusted for d.f.) = 28.827 percent
Standard Error of Est. = 3.0078
Mean absolute error = 2.4125
Durbin-Watson statistic = 0.628805 (P=0.0058)
Lag 1 residual autocorrelation = 0.62643

The output shows the results of fitting a linear model to describe the relationship between Addition to Stock and Yield. The equation of the fitted model is:

Addition to Stock = 39.9063 - 2.5625*Yield

Since the P-value in the ANOVA table is greater or equal to 0.05, there is no statistically significant relationship between Addition to Stock and Yield at the 95.0% or higher confidence level. The R-Squared statistic indicates that the model as fitted explains 36.7351% of the variability in Addition to Stock. The correlation coefficient equals -0.606095, indicating a moderately strong relationship between the variables.
The standard error of the estimate shows the standard deviation of the residuals to be 3.0078. The mean absolute error (MAE) of 2.4125 is the average value of the residuals. The Durbin-Watson (DW) statistic tests the residuals to determine if there is any significant correlation based on the order in which they occur in data file. Since the P-value is less than 0.05, there is an indication of possible serial correlation at the 95.0% confidence level.

Simple Regression - Addition to Stock vs. Yield (Ogudu)

Dependent variable: Addition to Stock
Independent variable: Yield
Linear model: Y = a + b*X

Table 13: Yield vs Addition to Stock vs. Ogudu

Parameter	*Least Squares Estimate*	*Standard Error*	*T-Statistic*	*P-Value*
Intercept	33.2047	13.8675	2.39443	0.0436
Slope	-0.00123542	3.58877	-0.000344247	0.9997

Table 14: Table showing Analysis of Variance for Ogudu

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Model	0.00000494169	1	0.00000494169	0.00	0.9997
Residual	333.6	8	41.7		
Total (Corr.)	333.6	9			

Correlation Coefficient = -0.00012171
R-squared = 0.00000148132 percent
R-squared (adjusted for d.f.) = -12.5 percent
Standard Error of Est. = 6.45755
Mean absolute error = 5.35991
Durbin-Watson statistic = 0.740536 (P=0.0101)
Lag residual autocorrelation = 0.58436

The output shows the results of fitting a linear model to describe the relationship between Addition to Stock and Yield. The equation of the fitted model is

Addition to Stock = 33.2047 - 0.00123542*Yield

Since the P-value in the ANOVA table is greater or equal to 0.05, there is no statistically significant relationship between Addition to Stock and Yield at the 95.0% or higher confidence level. The R-Squared statistic indicates that the model as fitted explains 0.00000148132% of the variability in Addition to Stock. The correlation coefficient equals -0.00012171, indicating a relatively weak relationship between the variables. The standard error of the estimate shows the standard deviation of the residuals to be 6.45755.

The mean absolute error (MAE) of 5.35991 is the average value of the residuals. The Durbin-Watson (DW) statistic tests the residuals to determine if there is any significant correlation based on the order in which they occur in data file. Since the P-value is less than 0.05, there is an indication of possible serial correlation at the 95.0% confidence level. Plot the residuals versus row order to see if there is any pattern that can be seen.

Simple Regression - Addition to Stock vs. Yield (Ilupeju)
Dependent variable: Addition to Stock
Independent variable: Yield
Linear model: Y = a + b*X

Table 15: Yield vs Addition to Stock vs. Ilupeju

Parameter	*Least Squares Estimate*	*Standard Error*	*T-Statistic*	*P-Value*
Intercept	6.92158	9.84585	0.702994	0.5020
Slope	9.45783	2.97267	3.18159	0.0130

Table 16: Analysis of Variance

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Model	154.163	1	154.163	10.12	0.0130
Residual	121.837	8	15.2297		
Total (Corr.)	276.0	9			

Correlation Coefficient = 0.747369
R-squared = 55.856 percent
R-squared (adjusted for d.f.) = 50.338 percent
Standard Error of Est. = 3.90252
Mean absolute error = 2.63354
Durbin-Watson statistic = 1.28532 (P=0.0527)
Lag residual autocorrelation = 0.325885

The output shows the results of fitting a linear model to describe the relationship between Addition to Stock and Yield. The equation of the fitted model is

Addition to Stock = 6.92158 + 9.45783*Yield

Since the P-value in the ANOVA table is less than 0.05, there is a statistically significant relationship between Addition to Stock and Yield at the 95.0% confidence level. The R-Squared statistic indicates that the model as fitted explains 55.856% of the variability in Addition to Stock. The correlation coefficient equals 0.747369, indicating a moderately strong relationship between the variables. The standard error of the estimate shows the standard deviation of the residuals to be 3.90252. The mean absolute error (MAE) of 2.63354 is the average value of the residuals. The Durbin-Watson (DW) statistic tests the residuals to determine if there is any significant correlation based on the order in which they occur in data file. Since the P-value is greater than 0.05, there is no indication of serial autocorrelation in the residuals at the 95.0% confidence level.

Simple Regression - Addition to Stock vs. Yield (ADENIYI JONES)
Dependent variable: Addition to Stock
Independent variable: Yield
Linear model: Y = a + b*X

Table 17: Yield vs Addition to Stock vs. Adeniyi Jones

Parameter	*Least Squares Estimate*	*Standard Error*	*T-Statistic*	*P-Value*
Intercept	43.5371	27.998	1.55501	0.1586
Slope	-2.96081	9.05039	-0.327147	0.7520

Table 18: Analysis of Variance

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Model	4.09776	1	4.09776	0.11	0.7520
Residual	306.302	8	38.2878		
Total (Corr.)	310.4	9			

Correlation Coefficient = -0.114898
R-squared = 1.32015 percent
R-squared (adjusted for d.f.) = -11.0148 percent
Standard Error of Est. = 6.18771
Mean absolute error = 5.19473
Durbin-Watson statistic = 0.708477 (P=0.0041)
Lag residual autocorrelation = 0.538107

The output shows the results of fitting a linear model to describe the relationship between Addition to Stock and Yield. The equation of the fitted model is

Addition to Stock = 43.5371 - 2.96081*Yield

Since the P-value in the ANOVA table is greater or equal to 0.05, there is not a statistically significant relationship between Addition to Stock and Yield at the 95.0% or higher confidence level. The R-Squared statistic indicates that the model as fitted explains 1.32015% of the variability in Addition to Stock. The correlation coefficient equals -0.114898, indicating a relatively weak relationship between the variables. The standard error of the estimate shows the standard deviation of the residuals to be 6.18771. The mean absolute error (MAE) of 5.19473 is the average value of the residuals. The Durbin-Watson (DW) statistic tests the residuals to determine if there is any significant correlation based on the order in which they occur in data file. Since the P-value is less than 0.05, there is an indication of possible serial correlation at the 95.0% confidence level. Plot the residuals versus row order to see if there is any pattern that can be seen.

Simple Regression - Average Addition to Stock vs. Average Yield across the study area

Dependent variable: Average Addition to Stock
Independent variable: Average Yield

Linear model: Y = a + b*X

Table 19: Average Yield vs Average Addition to Stock across the Study Area

Parameter	*Least Squares Estimate*	*Standard Error*	*T-Statistic*	*P-Value*
Intercept	23.2039	12.315	1.8842	0.0963
Slope	3.44989	3.32408	1.03785	0.3297

Table 20: Table Showing Analysis of Variance of Average Yield vs Average Addition to Stock across the Study Area

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Model	13.0157	1	13.0157	1.08	0.3297
Residual	96.6697	8	12.0837		
Total (Corr.)	109.685	9			

Correlation Coefficient = 0.344477
R-squared = 11.8664 percent
R-squared (adjusted for d.f.) = 0.849734 percent
Standard Error of Est. = 3.47616
Mean absolute error = 2.56281
Durbin-Watson statistic = 0.500165 (P=0.0024)
Lag residual autocorrelation = 0.59954

The output shows the results of fitting a linear model to describe the relationship between Average Addition to Stock and Average Yield. The equation of the fitted model is

Average Addition to Stock = 23.2039 + 3.44989*Average Yield

Since the P-value in the ANOVA table is greater or equal to 0.05, there is not a statistically significant relationship between Average Addition to Stock and Average Yield at the 95.0% or higher confidence level. The R-Squared statistic indicates that the model as fitted explains 11.8664% of the variability in Average Addition to Stock. The correlation coefficient equals 0.344477, indicating a relatively weak relationship between the variables. The standard error of the estimate shows the standard deviation of the residuals to be 3.47616.

The mean absolute error (MAE) of 2.56281 is the average value of the residuals. The Durbin-Watson (DW) statistic tests the residuals to determine if there is any significant correlation based on the order in which they occur in data file. Since the P-value is less than 0.05, there is an indication of possible serial correlation at the 95.0% confidence level.

Determination of the relationship between additions to Housing Stock and yields.

Attempt is made to establish the relationship that exists between yields and addition to Housing stock in the study area. In doing so, a simple regression model was adopted using the Statgraphic software with the output shown in tables 6-20 above. In this case, average addition to Housing stock is the dependent variable while the yields is the independent variable with linear model

Y = a + b (X) ...eq. (investproperty.co.uk, 2016)

Determination of the Relationship between Average additions to stock and average yield across the study area.

The output shows explains 23.2039% of the variability in average addition to stock. The correlation coefficient equals 0.344477, indicating a relatively weak relationship between the variables. The attempt in this section is to attain the fifth objective, which is to determine the relationship between yields and addition to stock of residential property in the study area. The result indicated that there was no statistical relationship at the 95% or higher confidential level.

Conclusions

The different literatures consulted analyse the factors affecting rental and capital values from different perspectives. These factors reflected on yields drivable in different locations. These authors made different contributions on real estate property market based on different environment of their focus; (Raymond & James, 2003; DiPasquale & Wheaton, 1992; Keogh, 1994; Fisher, 1992; Fraser, 1993).

Among the factors perceived having greater influence on real estate property yields are; the state of overall economy, employment and unemployment level, funding, the level of yields relative to interest rate, political stability, demand and supply, level of infrastructure. All these variables were analysed applied and are valuable assets to this research exercise. Data were collected from various sources as earlier mentioned. Data relating to the numbers of added buildings especially the type being studied, these were secured from Lagos state Ministry of environment and Physical planning. Other sources of data are Central Bank of Nigeria, field survey by the researcher and others from

The research hypothesis was analysed by the use of parametric and nonparametric techniques. It produces a positive result in two locations and negative result in four locations. The positive result shows that there is correlation between the added stock and the yield, while the negative result shows that there is no correlation between the added stock and the yield. The statistics used are simple regression, comparative mean and Pearson moment correction model which defined statistical significant relationship.

The research discovered no significant relationship between yields and number of added housing stock within the study area in the study period. The data collected were regressed to determine relationship between the added stock and the yield in the six of the study areas. Incidentally two locations, Magodo and Ilupeju's data indicated that there is statistical significant relationship. While Ikeja, Gbagada, Ogudu and Adeniyi Jones show that there is no statistical significant relationship.

To test H_1: There is statistically significant relationship between the market yields and number of addition to residential housing stock in the selected government residential areas over 10years study period (2003- 2012).

The hypothesis H_1; that market yields will be significantly related to number of new residential building added to the market at the research period was proved invalid. There is no positive correction in at least four major locations out of six. The average addition of all the locations was also regressed with the average yields across the study area the result was also negative. This therefore means that null (H_0) hypothesis; that says there is no statistically significant relationship between the market yields and number of addition to residential housing stock in the selected government residential areas over 10years study period (2003-2012) is proofed valid. There is no correlation in the four locations at statistically significant to a 95% confidence level.

The conclusion to the research study shows that investors in real estate market in Nigeria may not necessarily rely on calculation of yields before investing. What is therefore the motivating factor for real estate investment will be recommended for further studies. Other recommendations are as follows: Therefore it is recommended that Government must establish a good data base in real estate Industry for capturing, analysis and storing data to be used by researchers and policy makers. That government must put machinery in place to enhance political stability for investment to thrive and to encourage business related issues. Investors are strongly influenced by the underlying political and legal framework. Real estate Industry must be synchronized to reflect the nation's financial system such that it will be easy for investor to calculate and rely on interest rate regime to calculate yield and profitability.

References

Bok, J. (2012). *Key Benefits of Property Portfolio Benchmarking.* IPD Benchmarking Guide Consultative Release.

DiPasquale, D., & Wheaton, W. C. (1992). "The Market for Real Estate Assets and Space: A Conceptual framework". *Journal of the American Real Estate and urban Economics Association*, 181-197.

Fisher, J. D. (1992). "Integrating Research on Markets for Space and Capital". *American Real Estate and Urban Economics Association*, 161-180.

Fraser, W. D. (1993). *Principles of property investment and pricing.* United Kingdom (UK): Palgrave Macmillan.

investproperty.co.uk. (2016, May 28). *investproperty*. Retrieved from investproperty: http://www.investmentproperty.co.uk

Keogh, G. (1994). " Use and Investment Market in British Real Estate". *Journal of Property Valuation and Investment*, 58-71.

Raymond, Y. T., & James, R. W. (2003). Models of office Market Dynamics. *Journal of Urban Studies*, 71-89.