
Trends of Real Estate Investment Performance in South-East Nigeria¹

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ABSTRACT

The study was carried out to analyse the trend of residential and commercial real estate investments performances in South East, Nigeria with the view to generate forecasting model for future rents and capital values of different classes of properties in the study area. Survey method was used in carrying out the study. Questionnaire were drawn to collect the annual rents and capital values data; regression analysis model was used to determine the trend characteristics of the property rents, capital values and returns as well as to generate the forecasting model. The results showed that the rents and the capital values of the properties increased significantly with time having P-values <0.05. Properties in Abakaliki on average recorded the highest annual rent growth rate, followed by Aba (10-20% and 10-13.2% respectively); while Owerri recorded the highest average annual capital value growth rate seconded by Aba (6.9 - 10% and 6.2 - 10.6% respectively).

Keywords: Rental values, capital values, trend analysis, Forecasting, residential and commercial properties.

INTRODUCTION

Globally, real estate investments have over the years been adjudged to offer steady growth in value, hence real estate has been considered to possess the characteristic of hedging against inflation. To the investors, real estate offers dual opportunities of value enhancement vis-à-vis rental income and capital value appreciation. The trends of real estate investment performance are factored by demands and supplies levels. Where demands exceed supplies, definitely the rents and prices would soar creating steady increase in returns.

Despite the speculations that real estate rents and capital values are bound to increase with time, it is expedient that real estate investors should be amply informed of the performance history of the various classes of real estate for proper guidance in investment selections that would guarantee investment optimal returns. Observations over the years have shown that most investors naively invest in a particular real estate class and city of their choices without recourse to the historical antecedents of the property market of the cities and the performances of

¹ How to cite this paper: Awa, K. N., Nwanekezie, F. O., Anih, P. C. (2020). Trends of Real Estate Investment Performance in South-East Nigeria; *PM World Journal*, Vol. IX, Issue V, May.

different classes of real estate. These have often led to sub-optimal investment performance particularly when the supplies are not properly matched with the demands.

Therefore, the study was carried out to analyse the performances of residential and commercial real estate investments in South East, Nigeria and to generate a model that would be used in predicting future rents and capital values of residential and commercial real estate in the study area which would guide the investors in their choices of real estate investment and location.

GENERAL AND SPECIFIC OBJECTIVES OF THE STUDY

The study was carried out to analyse the performances of real estate investment in South East, Nigeria; with the view to determine their rental and capital values trend. The specific objectives set out for the study include to:

- (i) examine the trends of residential and commercial real estate investment returns in South East States of Nigeria (2008 -2017)
- (ii) generate the forecasting model for the real estate investment rents and capital values and
- (iii) determine the mean annual growth rate of the rents and capital values of the different classes of properties in the study area.

LITERATURE REVIEW

Kiernan (2009), in his study on the relationship between gross domestic product (GDP) and rental increase, he found out that house prices and nominal gross domestic product (NGDP) in New Zealand rose on average by 8.9% per annum since 1951. The coefficient of 0.910 for (NGDP) indicated that a 1 percent rise in nominal GDP was associated with a 0.910% increase in nominal house prices. The research finding indicates that trend of property values in New Zealand is associated with the change of gross domestic products; hence GDP is considered as a determinant to changes in property values.

Phil and Tim (2009) carried out study on the trends and cycles in New Zealand house prices. In their study, they decomposed the history of New Zealand house price movements into a trend component and a cyclical component. GDP, disposable income per household and interest rates were considered as major drivers of the trend. A co-integration model used for the analysis was able to relate the trend level of house prices to disposable income per household and nominal interest rates. Results from the model suggest that house prices were substantially higher than disposable income per household and nominal interest rates trend level.

Jeong, and Kim (2009) used a time series analysis and a shock-response analysis of the vector auto regression (VAR) model to find the trends in retail rents in South Korea. The data of retail rent series were obtained from three institutions (the Bank of Korea - BOK, the Kookmin Bank, and the Korea Statistic Office) for a period of January 1995 to February 2008. The long-term trends in retail rents showed that there was a continued rise with an occasional interface of a short sluggish period. The researcher further discovered that retail rents had a positive

relationship with office rents, property management expenses, consumer price index, and housing deposit-basis lease value, but negative relationship with interest rate.

Singh and Komal (2009) carried out study on the prospects and problems of real estate in India. Their study was focused on the trends of commercial real estate investment rental values. Cities like Delhi, Mumbai and Gurgaon experienced a 20-25% soar in their rental values because of the demand for independent houses by majorly corporate sectors who rent such houses for their senior executives. Evidence of periodic rental increase was found in sampled commercial lease agreements which specified a 15% increase in the real estate rents in every three years.

Dahoa (2003) explored on the trends of house prices in Hong Kong discovered that after a peak reached in 1997 there was a drop of 66.9% and 48.7% respectively in house price index and rental index respectively. The situation in Scotland was quite different as no regular trend in office rents was observed. However, there were fluctuations particularly between 1987 and 2002 (Langdon & Everest, 2003).

Woods (2007) analysed on the impacts of commercial property market on the stability of the Irish financial system, he observed that over the period of 2003 to 2006, there was a large increase in capital values in the Irish commercial property market without a correspondingly large increase in rents. Consequently, the trend in income yields on all types of commercial property reached very low levels in 2006. This showed that within the period the capital values of the commercial properties witnessed increase with time, while the returns decreased with time in Ireland.

Chris and Sotiris (2000) in their research modelled retail rents in the United Kingdom with the use of vector-autoregressive and time-series models. Two retail rent series were used, compiled by LaSalle Investment Management and CB Hillier Parker, and the emphasis was on forecasting. The results suggest that the use of the vector-auto-regression and time-series models in the study picked up all the important features of the data that were useful for forecasting purposes. The relative forecasting performance of the models appeared to be subject to the length of the forecast time-horizon. The results also showed that the variables which were appropriate for inclusion in the vector-auto-regression systems differed between the two rent series, suggesting that the structure of optimal models for predicting retail rents could be specific to the rent index used. Ex ante forecasts from the time-series model used suggest that both LaSalle Investment Management and CB Hillier Parker real retail rents exhibited an annual growth rate above their long-term mean.

Simon and Oliver (2011) examined four alternative rental forecasting models in the context of the London office market. The forecasting ability of an Auto regressive Integrated Moving Averages (ARIMA) model, a Bayesian Vector Auto regression approach, an OLS based single equation model and a simultaneous equation model were compared and contrasted. The models were estimated using the CB Hillier Parker London Office index over the period 1977- 1996, with out-of-sample testing undertaken on the following three years of data. Diagnostic testing was also conducted on the alternative models. The findings revealed that the Bayesian Vector

Auto regression model produces the best forecasts, while the ARIMA model failed to pick up on the large uptake in rental values during the testing period.

Nwuba (2004) in his study examined the differences in house rent in different zones in Kaduna (Nigeria) between 1986 and 2004; he observed increase of the house rent which was ascertained to be statistically significant. Nwuba and Adeagbo (2007) in a related research discovered that there was a steady rise in house rents index in Kaduna during the same period. Idudu (1989) in his study on trends in rental values observed that urban rents in Nigeria maintained upward movements over the period being reviewed. A related study carried out by OmuoJune (1994) confirms the findings of Idudu. Iroham et al(2013) assessed the trend in rental values of commercial properties in Akure, Nigeria; the commercial properties evident in the study area were purpose-built office space, converted office space and shopping complex. Their findings showed that purpose built office had the highest rent and trend relationship between time and office rents movement, this indicated that office rents grew significantly over time.

Daniel et al (2018) carried out a study on the assessment of the trend of residential properties proximate to Federal Polytechnic Ede, Nigeria with a view to providing information for real estate investment decisions. The study found out that there was a significant increase in the rental values of residential properties in the neighbourhoods around the institution. Ankeli et al (2016) examined the impact of housing infrastructure on the trend of rental values of residential properties in Oshogbo metropolis Nigeria. The study revealed that properties with better conditions in terms of infrastructures and physical soundness command higher rental value trend in the study area.

Chukwu, Aniagolu and Obodo (2016) explored the trends in rental values of residential properties in Enugu, Nigeria; using New-Heaven and Achara layouts. Their findings revealed that rental values of residential properties in the study areas increased steadily in the past ten years (2005 – 2014) and that the rental values of residential properties in New-Heaven were higher than those in Achara layout from 2005 – 2009. The gap in the rent difference between the two layouts was reduced within 2010 – 2014 and this was found to have been contributed by the significant improvement in the infrastructural facilities in the Achara layout.

RESEARCH METHODOLOGY

Survey method was used in carrying out the study. Thirty one registered estate surveying firms were drawn from a total sixty six estate Surveying firms located in the study area as the sample population. The basis of sampling was on the willingness of the firms to participate and their ability to supply the required data. Structured questionnaire was used to collect the primary data on the annual rents and capital values of residential and commercial properties in the central business districts and high density zones of the study area for a period of ten years (2008 – 2017).

To determine the trends of rents and capital values of the properties, least squares trend measurement method was used to estimate the parameters for the regression model. Regression analysis was carried out to establish the values of the parameters (β_0 , β_1 , R^2 , t-calc., p-values as shown in Table1, 2, 3, 4 and 5). These values were used in defining the trend characteristics of

the variables which could be used to predict the future values of the rents and capital values of the different classes of properties for each of the cities beginning from 2018 being the 11th year.

STUDY AREA

Nigeria is divided into six geopolitical zones, among which are South East, South South, South West, North Central, North East and North West. South East geopolitical zone is made up of five States, namely Abia, Anambra, Ebonyi, Enugu and Imo. The people of South East States are Ibos, the local language of the people is Igbo and the region is known for its high population density. The entire South East States lie within Latitude 4° 40' 00"N, 7° 15' 00"N and 6° 40' 00"E, 8° 25' 00"E.

The study was specifically carried out in five major cities in South East States of Nigeria and the cities include: Aba, Abakiliki, Enugu, Onitsha and Owerri. The cities were selected based on their outstanding urban status within the region which has over the years attracted many real estate investments.

RESULTS AND FINDINGS

To illustrate the trends of rental and capital values of the residential and commercial properties in South East of Nigeria, linear regression analysis of the rents, capital values and returns of the properties were carried out for each of the cities as shown in Table 1,2,3,4 and 5. The results presented in the trend analysis Tables pointed out that the rents and the capital values of all the properties increased significantly with time while the returns did not.

The trend analysis in Table 1 shows that the change in the rental and capital values of all the classes of real estate in Aba were significant with time. The P-values are less than 0.05 at 5% significant level. This therefore showed that the capital and rental values of the properties increased with time. On the contrary, the trends of returns of the classes of real estate were generally not significant with time excepting blocks of tenement shops and residential properties in Aba central business district (CBD).

The values in β_1 column indicate the measure of how much the rate of returns, rental and capital values of the properties increased with time. In Table 1, rents of blocks of six number three bedroom flats in Aba CBD demonstrated the highest trend value (142.182) followed by rents of tenement shops in the CBD (137.52). This shows that they recorded highest value increase with time. The values in R^2 column indicate the variation of the trend accounted by time. Taking for example, the variation in the trend of four number three bedroom flats in Aba CBD accounted by time was 97%.

Table 1: Results of real estate investment performance trends in Aba

| Property Type | Variables | Constant (β_0) | β_1 | R ² | t-calc. | p-value | Remarks |
|--|-----------|------------------------|-----------|----------------|---------|---------|---------|
| Blocks of four number three bedroom flats on two floors (CBD) | Rent | 422.667 | 94.788 | 0.970 | 16.162 | <0.0001 | S |
| | CV | 13.200 | 1.836 | 0.909 | 8.93 | <0.0001 | S |
| | Return | 3.247 | 1.592 | 0.347 | 2.06 | 0.073 | NS |
| Blocks of six number three bedroom flats on three floors (CBD) | Rent | 634.00 | 142.182 | 0.970 | 16.16 | <0.0001 | S |
| | CV | 19.067 | 1.988 | 0.970 | 16.16 | <0.0001 | S |
| | Return | 9.780 | 0.247 | 0.009 | 0.276 | 0.789 | NS |
| Tenement residential blocks (CBD) | Rent | 271.413 | 50.638 | 0.908 | 8.88 | <0.0001 | S |
| | CV | 10.067 | 1.279 | 0.844 | 6.57 | <0.0001 | S |
| | Return | 0.140 | 1.791 | 0.449 | 2.55 | 0.034 | S |
| Blocks of tenement shop (CBD) | Rent | 315.187 | 137.752 | 0.963 | 14.385 | <0.0001 | S |
| | CV | 10.067 | 2.179 | 0.844 | 6.57 | <0.0001 | S |
| | Return | 1.060 | 2.175 | 0.519 | 2.94 | 0.019 | S |
| Blocks of four number three bedroom flats on two floors (High Density Area) | Rent | 322.773 | 61.772 | 0.910 | 8.97 | <0.0001 | S |
| | CV | 11.267 | 0.806 | 0.923 | 9.77 | <0.0001 | S |
| | Return | 7.373 | 0.459 | 0.025 | 0.46 | <0.0001 | NS |
| Blocks of six number three bedroom flats on three floors (High Density Area) | Rent | 484.160 | 92.658 | 0.910 | 8.97 | <0.0001 | S |
| | CV | 13.80 | 1.436 | 0.935 | 10.70 | <0.0001 | S |
| | Return | 3.740 | 1.278 | 0.380 | 2.22 | 0.058 | NS |
| Tenement residential blocks in (High Density Area) | Rent | 301.093 | 46.463 | 0.951 | 12.48 | <0.0001 | S |
| | CV | 7.600 | 0.582 | 0.943 | 11.56 | <0.0001 | S |
| | Return | 11.393 | -0.148 | 0.003 | -0.16 | 0.880 | NS |
| Blocks of tenement shop (High Density Area) | Rent | 435.680 | 77.484 | 0.961 | 14.01 | <0.0001 | S |
| | CV | 7.600 | 0.582 | 0.943 | 11.56 | <0.0001 | S |
| | Return | 13.573 | -0.015 | 0.00003 | -0.02 | 0.988 | NS |

CV- Capital value, S- significance at 5% (p<0.05), NS- not significant at 5 %(p>0.05).

The trend of the rents and capital values of the classes of real estate in Abakaliki increased significantly with time as shown in Table 2, this shows that their P-values are less than 0.05. The results of the analysis indicated that the returns of the different classes of real estate in Abakaliki did not increase significantly with time. Rents of blocks of six number three bedroom flats on three floors in the CBD recorded the highest trend in terms of increase with time (where $\beta_1 = 128.873$). Generally, the trends of the increase in rent were more significant with time than the capital values and returns in Abakaliki.

Table 2: Results of real estate investment performance trends in Abakaliki

| Property Type | Variables | Constant (β_0) | β_1 | R ² | t-calc. | p-value | Remarks |
|--|-----------|------------------------|-----------|----------------|---------|---------|---------|
| Blocks of four number three bedroom flats on two floors (CBD) | Rent | 465.067 | 85.915 | 0.931 | 10.35 | <0.0001 | S |
| | CV | 12.267 | 1.115 | 0.964 | 14.69 | <0.0001 | S |
| | Return | 8.533 | 0.368 | 0.025 | 0.452 | 0.664 | NS |
| Blocks of six number three bedroom flats on three floors (CBD) | Rent | 697.60 | 128.873 | 0.931 | 10.35 | <0.0001 | S |
| | CV | 15.600 | 1.218 | 0.956 | 13.14 | <0.0001 | S |
| | Return | 7.853 | 0.518 | 0.118 | 1.03 | 0.332 | NS |
| Tenement residential blocks (CBD) | Rent | 140.00 | 47.091 | 0.939 | 11.06 | <0.0001 | S |
| | CV | 6.800 | 0.945 | 0.970 | 16.18 | <0.0001 | S |
| | Return | 10.187 | 0.157 | 0.003 | 0.142 | 0.891 | NS |
| Blocks of tenement shop (CBD) | Rent | 235.200 | 61.091 | 0.957 | 13.33 | <0.0001 | S |
| | CV | 6.800 | 0.945 | 0.970 | 16.18 | <0.0001 | S |

| | | | | | | | |
|--|--------|---------|--------|-------|-------|---------|----|
| | Return | 121.693 | 0.154 | 0.002 | 0.135 | 0.896 | NS |
| Blocks of four number three bedroom flats on two floors (High Density Area) | Rent | 457.600 | 51.200 | 0.941 | 11.31 | <0.0001 | S |
| | CV | 12.000 | 0.36 | 0.955 | 13.10 | <0.0001 | S |
| | Return | 8.447 | 0.132 | 0.004 | 0.174 | 0.806 | NS |
| Blocks of six number three bedroom flats on three floors (High Density Area) | Rent | 686.40 | 76.800 | 0.941 | 11.31 | <0.0001 | S |
| | CV | 14.733 | 1.012 | 0.956 | 13.73 | <0.0001 | S |
| | Return | 9.640 | 0.045 | 0.001 | 0.07 | 0.943 | NS |
| Tenement residential blocks in (High Density Area) | Rent | 156.80 | 38.691 | 0.951 | 12.49 | <0.0001 | S |
| | CV | 6.133 | 0.794 | 0.954 | 12.91 | <0.0001 | S |
| | Return | 10.807 | 0.084 | 0.001 | 0.07 | 0.945 | NS |
| Blocks of tenement shop (High Density Area) | Rent | 190.400 | 53.964 | 0.956 | 13.25 | <0.0001 | S |
| | CV | 6.133 | 0.794 | 0.954 | 12.91 | <0.0001 | S |
| | Return | 11.733 | 0.130 | 0.002 | 0.110 | 0.915 | NS |

CV- Capital value, S- significance at 5% ($p < 0.05$), NS- not significant at 5% ($p > 0.05$).

In Enugu, the trend of the rent and capital values of the different classes of real estate under review increased significantly with time apart from the rent of tenement residential blocks in (high density areas) as illustrated in Table 3. Rents of blocks of six number three bedroom flats on three floors and blocks of tenement shops both in the CBD recorded the highest trend in terms of increase with time with β_1 of 162.069 and 148.867 respectively. The results of the trends maintained similar pattern as in Aba and Abakaliki where the trend of the increase in rents were more significant with time than the capital values and returns.

Table 3: Results of real estate investment performance trends in Enugu

| Property Type | Variables | Constant (β_0) | β_1 | R ² | t-calc. | p-value | Remarks |
|--|-----------|------------------------|-----------|----------------|---------|---------|---------|
| Blocks of four number three bedroom flats on two floors (CBD) | Rent | 671.227 | 108.701 | 0.965 | 14.79 | <0.0001 | S |
| | CV | 38.667 | 2.333 | 0.813 | 5.897 | <0.0001 | S |
| | Return | 0.207 | 1.135 | 0.247 | 1.620 | 0.144 | NS |
| Blocks of six number three bedroom flats on three floors (CBD) | Rent | 1014.04 | 162.069 | 0.962 | 14.29 | <0.0001 | S |
| | CV | 50.133 | 3.067 | 0.820 | 6.04 | <0.0001 | S |
| | Return | 2.733 | 0.883 | 0.112 | 1.00 | 0.345 | NS |
| Tenement residential blocks (CBD) | Rent | 695.520 | 46.327 | 0.945 | 11.74 | <0.0001 | S |
| | CV | 23.133 | 1.230 | 0.912 | 9.12 | <0.0001 | S |
| | Return | 5.700 | 0.205 | 0.010 | 0.284 | 0.782 | NS |
| Blocks of Tenement shop (CBD) | Rent | 1286.133 | 148.867 | 0.912 | 16.69 | <0.0001 | S |
| | CV | 23.133 | 1.230 | 0.036 | 9.12 | <0.0001 | S |
| | Return | 8.547 | 0.410 | 0.995 | 0.55 | 0.599 | NS |
| Blocks of four number three bedroom Flats on two floors (High Density Area) | Rent | 556.587 | 71.0.50 | 0.919 | 38.41 | <0.0001 | S |
| | CV | 29.00 | 1.327 | 0.002 | 9.54 | <0.0001 | S |
| | Return | 5.700 | 0.100 | 0.995 | 0.139 | 0.893 | NS |
| Blocks of six number three bedroom flats on three floors (High Density Area) | Rent | 834.880 | 106.575 | 0.807 | 38.41 | <0.0001 | S |
| | CV | 42.00 | 1.145 | 0.266 | 5.79 | <0.0001 | S |
| | Return | 0.893 | 0.721 | 0.012 | 1.71 | 0.127 | NS |
| Tenement residential blocks in (High Density Area) | Rent | 15.933 | 1.212 | 0.959 | 13.67 | 0.0001 | S |
| | CV | 15.933 | 1.212 | 0.034 | 13.67 | <0.0001 | S |
| | Return | 5.820 | 0.382 | 0.978 | 0.529 | 0.611 | NS |
| Blocks of tenement shop (High Density Area) | Rent | 893.113 | 69.661 | 0.959 | 18.71 | <0.0001 | S |
| | CV | 15.933 | 1.212 | 0.039 | 13.67 | <0.0001 | S |
| | Return | 8.313 | 0.414 | 0.964 | 0.57 | 0.568 | NS |

CV- Capital value, S- significance at 5% ($p < 0.05$), NS- not significant at 5% ($p > 0.05$)

The results of the analysis of the trends of rents and capital values of the different classes of real estate in Onitsha as shown in Table 4 increased significantly with time; this indicated that their P-values are less than 0.05. Rents of blocks of six number three bedroom flats in the CBD and high density areas and rents of tenement shops in the high density areas exhibited higher level of trends i.e. their increase with time was higher compared to the other properties (their β_1 were 7.436, 68.596 and 64.782 respectively). The trend analysis results show that the increase in the rent with time was more than that of the capital values across all the classes of real estate.

Table 4: Results of real estate investment performance trends in Onitsha

| Property Type | Variables | Constant (β_0) | β_1 | R ² | t-calc. | p-value | Remarks |
|--|-----------|------------------------|-----------|----------------|---------|---------|---------|
| Blocks of four number three bedroom flats on two Floors (CBD) | Rent | 448.800 | 48.291 | 0.968 | 15.55 | <0.0001 | S |
| | CV | 26.667 | 2.261 | 0.983 | 21.50 | <0.0001 | S |
| | Return | 5.167 | 0.379 | 0.052 | 0.662 | 0.526 | NS |
| Blocks of six number three bedroom flats on three floors (CBD) | Rent | 673.200 | 72.436 | 0.968 | 15.55 | <0.0001 | S |
| | CV | 31.667 | 2.152 | 0.949 | 12.18 | <0.0001 | S |
| | Return | 4.133 | 0.585 | 0.078 | 0.820 | 0.436 | NS |
| Tenement residential blocks (CBD) | Rent | 354.200 | 26.855 | 0.819 | 6.71 | <0.0001 | S |
| | CV | 22.667 | 1.170 | 0.904 | 8.67 | <0.0001 | S |
| | Return | 2.260 | 0.564 | 0.078 | 0.796 | 0.449 | NS |
| Blocks of tenement shop (CBD) | Rent | 655.200 | 39.709 | 0.904 | 8.67 | <0.0001 | S |
| | CV | 22.667 | 1.170 | 0.904 | 8.67 | <0.0001 | S |
| | Return | 3.540 | 0.571 | 0.076 | 0.813 | 0.441 | NS |
| Blocks of four number three bedroom flats on two floors (High Density Area) | Rent | 397.440 | 45.731 | 0.942 | 11.45 | <0.0001 | S |
| | CV | 14.667 | 0.806 | 0.942 | 11.41 | <0.0001 | S |
| | Return | 8.640 | -0.205 | 0.014 | -0.331 | 0.712 | NS |
| Blocks of six number three bedroom flats on three floors (High Density Area) | Rent | 596.160 | 68.596 | 0.942 | 11.45 | <0.0001 | S |
| | CV | 17.067 | 0.824 | 0.960 | 13.81 | <0.0001 | S |
| | Return | 6.787 | 0.206 | 0.018 | 0.383 | 0.712 | NS |
| Tenement residential blocks in (High Density Area) | Rent | 280.00 | 29.527 | 0.894 | 8.23 | <0.0001 | S |
| | CV | 8.00 | 1.145 | 0.932 | 10.50 | <0.0001 | S |
| | Return | 21.060 | -0.496 | 0.168 | -1.27 | 0.239 | NS |
| Blocks of tenement shop (High Density Area) | Rent | 130.480 | 64.782 | 0.742 | 4.80 | 0.0001 | S |
| | CV | 8.000 | 1.145 | 0.932 | 1050 | <0.0001 | S |
| | Return | 20.413 | -1.379 | 0.148 | -0.18 | 0.273 | NS |

CV- Capital value, S- significance at 5% (p<0.05), NS- not significant at 5 %(p>0.05)

The trend analysis in Table 5 shows that the rents and capital values of the different classes of real estate in Owerri increased significantly with the time. The returns did not increase significantly with time. Rents of block of six number three bedroom flats in the CBD and high density areas exhibited more increase with time (β_1 -114.50 and 82.579 respectively) when compared with other properties.

Table 5: Results of real estate investment performance trends in Owerri

| Property Type | Variables | Constant (β_0) | β_1 | R ² | t-calc. | p-value | Remarks |
|---|-----------|------------------------|-----------|----------------|---------|---------|---------|
| Blocks of four number three bedroom flats on two floors (CBD) | Rent | 907.387 | 76.330 | 0.970 | 16.15 | <0.0001 | S |
| | CV | 27.403 | 3.306 | 0.874 | 7.46 | <0.0001 | S |
| | Return | 2.587 | 1.315 | 0.104 | 1.43 | 0.191 | NS |
| Blocks of six number three bedroom flats on three Floors | Rent | 1361.08 | 114.50 | 0.970 | 16.15 | <0.0001 | S |
| | CV | 42.027 | 3.597 | 0.963 | 14.39 | <0.0001 | S |

| | | | | | | | |
|--|--------|---------|--------|-------|-------|---------|----|
| (CBD) | Return | 4.713 | 0.747 | 0.668 | 4.02 | 0.004 | NS |
| Tenement roomy residential blocks (CBD) | Rent | 411.133 | 35.594 | 0.961 | 14.01 | <0.0001 | S |
| | CV | 9.900 | 2.169 | 0.988 | 25.70 | <0.0001 | S |
| | Return | 8.127 | 0.561 | 0.099 | 0.94 | 0.375 | NS |
| Blocks of tenement roomy shop (CBD) | Rent | 592.480 | 58.545 | 0.962 | 14.17 | <0.0001 | S |
| | CV | 9.90 | 2.169 | 0.988 | 25.70 | <0.0001 | S |
| | Return | 12.00 | 0.362 | 0.028 | 0.478 | 0.645 | NS |
| Blocks of four number three bedroom flats on two floors (High Density Area) | Rent | 510.267 | 61.733 | 0.960 | 13.89 | <0.0001 | S |
| | CV | 14.807 | 1.913 | 0.944 | 11.66 | <0.0001 | S |
| | Return | 6.373 | 0.888 | 0.350 | 2.08 | 0.071 | NS |
| Blocks of six number three bedroom flats on three floors (High Density Area) | Rent | 765.476 | 82.570 | 0.960 | 13.89 | <0.0001 | S |
| | CV | 21.800 | 2.436 | 0.967 | 16.26 | <0.0001 | S |
| | Return | 7.367 | 0.586 | 0.182 | 1.73 | 0.121 | NS |
| Tenement roomy residential blocks in (High Density Area) | Rent | 394.333 | 49.594 | 0.944 | 11.73 | <0.0001 | S |
| | CV | 7.420 | 1.142 | 0.972 | 16.66 | <0.0001 | S |
| | Return | 11.460 | 0.345 | 0.029 | 0.49 | 0.639 | NS |
| Blocks of tenement roomy shop (High Density Area) | Rent | 605.967 | 31.542 | 0.953 | 12.72 | <0.0001 | S |
| | CV | 7.420 | 1.142 | 0.972 | 16.66 | <0.0001 | S |
| | Return | 13.673 | 0.130 | 0.004 | 0.187 | 0.856 | NS |

CV- Capital value, S- significance at 5% ($p < 0.05$), NS- not significant at 5% ($p > 0.05$)

FORECASTING OF RENTS AND CAPITAL VALUES IN THE STUDY AREA.

Conventionally, if a trend is determined, the rate of change can be calculated and tentative estimate concerning the future can be made. Therefore, to generate the forecasting model for the values of the rents and capital values of the different classes of real estate in the study area, values of β_0 and β_1 extracted from Table 1, 2, 3, 4, and 5 were used to substitute for the variables in the regression formula shown below to serve as a forecasting model:

$$Y = \beta_0 + \beta_1 t$$

Where:

Y = rent or capital value

β_0 = constant

β_1 = trend value

t = time (year 11, 12, 13...) using 11 as the base year for 2018.

The substitution of the parameters in the formula with values from the trend analysis in Table 1 – 5, multiplied by time (t) would give the forecasted values for the annual rent and capital value of the properties for any of the years.

MEAN ANNUAL RENTAL AND CAPITAL VALUES GROWTH RATE FOR THE DIFFERENT CLASSES OF PROPERTIES

From the rental and capital values data collected from the field, the average annual growth rates for the different classes of properties were determined. The results as illustrated in Table 6 and 7 showed that properties in Abakaliki on average recorded the highest annual rent growth rate

followed by Aba (10% -20% and 10% -113.2% respectively); while Owerri recorded the highest average annual capital value growth rate followed by Aba (6.9% - 10% and 6.2% - 10.6% respectively) for the period under review. Generally, the trend of rental growth was higher for all the classes of properties in all the cities in the study area with the exception of owerri where the growth in Capital values were higher than the growth in rental values for all the classes of properties.

Table 6: Mean Annual Rent Growth Rate for Different Classes of Properties (2008 – 2017)

| City | Central Business District | | | High Density Areas | | |
|-----------|----------------------------------|--------------------------------|----------------------------|----------------------------------|--------------------------------|----------------------------|
| | Block of Three Bedroom Flats (%) | Tenement Residential Block (%) | Block of Tenement Shop (%) | Block of Three Bedroom Flats (%) | Tenement Residential Block (%) | Block of Tenement Shop (%) |
| Aba | 11 | 10.9 | 12.7 | 15.2 | 10 | 13.3 |
| Abakaliki | 15 | 15 | 10 | 10 | 20 | 20 |
| Enugu | 10.5 | 4.7 | 7.9 | 9.8 | 6.2 | 6.5 |
| Onitsha | 8.6 | 6.3 | 5 | 8 | 15 | 15 |
| Owerri | 6.4 | 5.6 | 6.5 | 7.9 | 8.6 | 3.8 |

Table 7: Mean Annual capital Value Growth Rate for Different Classes of Properties (2008 – 2017)

| City | Central Business District | | | High Density Areas | | |
|-----------|----------------------------------|--------------------------------|----------------------------|----------------------------------|--------------------------------|----------------------------|
| | Block of Three Bedroom Flats (%) | Tenement Residential Block (%) | Block of Tenement Shop (%) | Block of Three Bedroom Flats (%) | Tenement Residential Block (%) | Block of Tenement Shop (%) |
| Aba | 10.58 | 10 | 8.4 | 6.2 | 10 | 6.3 |
| Abakaliki | 6.4 | 5.0 | 10 | 5.3 | 5 | 10 |
| Enugu | 4.4 | 5.4 | 4.0 | 4.0 | 2.2 | 5.5 |
| Onitsha | 6.7 | 5.7 | 4.0 | 4.7 | 3.9 | 12.5 |
| Owerri | 8.6 | 6.9 | 10 | 8.8 | 9.2 | 10 |

CONCLUSION

From the research findings, it is adduced that rents and capital values of residential and commercial properties in the study area increased significantly with time and the increase in the capital values were more stable compared to the rents which were periodic. Generally, the trend of rental growth was higher for all the classes of properties in the study area with the exception of Owerri where the growth in Capital values were higher than the growth in rental values for all the classes of properties.

REFERENCES

- Ankeli, I. A., Dabara, I. D., Oyeleke, O. O., Guyimu, J. and Oladimeji, E. J. 2016. “*Residential Housing Rental Values and Infrastructural Development in Osogbo, Nigeria*”. *International Journal of Arts and Sciences* 9 no.1: 29- 40.
- Chris, B. and Sotiris, T. 2000. “*Forecasting Models of Retail Rents*”. *Environmental Planning* 32: 1825 – 1839.
- Chukwu, A. C., Aniagolu, C. O. and Obodo, C. M. 2016. “*Trends in Rental Values of Residential Properties in Enugu, Nigeria; a Comparative Study between New Haven and Achara Layouts*”. *Journal of Multidisciplinary Engineering Science and Technology* 3 no.2: 4037 – 4047.
- Dahoa, D. 2003. *Assessing Hong Kong's Deflationary Trend*. Retrieved February 14, 2004 from <http://www.ctctrade.com/econforum/boc031001.htm>
- Daniel, I. D., Ifeanyi N. U., Olusegun, J. O., Omotoso, K. L. and Oke O. E. 2018. “Trends in the Rental Values of Residential Properties Proximate to Tertiary Institutions: The Case of Federal Polytechnic Ede, Nigeria”. *European Journal of Business and Management* 10 no. 24:17 – 23.
- Idudu, O. J. A. 1989. “*Mobilisation of Private and Public Investments in Property Development*”. Paper Presented at the 19th Annual Conference of the Nigerian Institution of Estate Surveyors and Valuers in Lagos, 6th – 9th April.
- Iroham, C. O., Oluwunmi, A. O., Simon, R. F. and Akerele, B. A. 2013. “*Assessing the Trend in Rental Values of Commercial Properties in Commercial Hub of Akure, Nigeria*”. *International Journal of Sustainable Land Use and Urban Planning* 1no.2: 32-45.
- Jeong, E. J. and Kim, D. H. 2009. A study of Retail Rents with VAR Model (in South Korea). Paper presented at the Pacific Rim Real Estate Society Conference, in Sydney, Australia, 18 – 21 January.
- Langdon, D. and Everest, D. 2003. Analysis of historical construction costs movements in Scottish Social Housing: Final report. Retrieved May 31, 2013 from <http://www.scotland.gov.uk/Publications/2004/06/19127/34780>
- Kiernan, G. 2009. “*Housing First, the Economy Second*”. *Sunday Star-Times*, 12 April, p.8
- Nwuba, C. C. 2004. “*An Analysis of Location Differences in Trends in House Rents in Kaduna, Nigeria, 1986-2003*”. *The Estate Surveyor and Valuer* 27 no.1 : 64-71.
- Nwuba, C. C. and Adeagbo, D. O. 2007. “*The Relationship between Housing Construction Costs and House Rents Trends in Kaduna, Nigeria*”. *The Quantity Surveyor* 55no.2:24 – 30.

Omuojine E. O. 1994. “*Property Market in Nigeria: Analysis and Perspective*”. *The Estate Surveyor and Valuer* 18 no.1:15-21.

Phil, B. and Tim, N. 2009. *Trends and Cycles in New Zealand House Prices*. Paper for CHRANZ Workshop on 9 July 2009. Reserve Bank of New Zealand.

Simon, S. and Oliver, M. 2011. “*A Comparison of Alternative Rental Forecasting Models: Empirical Tests on the London Office Market*”. *Journal of Property Research* 20 no.3: 235-260. <https://doi.org/10.1080/0959991032000162338>

Singh, V., and Komal M. 2009. “*Problems and Prospects of Real Estate in India*”. *International Research Journal of Finance and Economics* 24: 243-254.

Woods, M. (2007). A financial Stability Analysis of the Irish Commercial Property Market. *Financial Stability Report*. 75 - 90.

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