The Impact of Rental Values on Real Estate Commercial Properties in Port Harcourt

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Abstract. The study examines the impact of rental values on real estate commercial properties in Port Harcourt in order to increase the confidence of major key players in investment properties. The primary data used for this study was obtained through questionnaire survey with estate surveying and valuation firms used as the study population. The study data analysed the income and rental value on commercial investments properties in Port Harcourt. There are about 1,124 commercial properties in Port Harcourt obtained from GIS. Furthermore, systematic random sampling approach and descriptive statistics was adopted to determine returns on commercial investments, annual rental growth rates and rental index. This research tools are weighted mean, percentage, geometric mean, deviation and coefficient of variation, rental index, analysis of variance (ANOVA), Pearson's product moment correlation model. The study revealed that quality of construction for the physical characteristics for offices and shops is very bad in the study area; rent review pattern is 3 years; commercial properties have average rental growth rates which means investors are likely to get high returns; annual rental growth rate follows a similar trend and pattern. Furthermore, increase in rental values is due to other factors, other than inflation.

Keywords: Rental value, Location Attributes, Real Estate Investment, Commercial Property investment

Introduction

The real estate market is a major receptacle of foreign direct investment and the extent of its development determines the extent to which it can contribute and keep afloat a nation's economy. The Nigerian real estate market with its potential, like similar markets in several emerging economies in Africa, has not benefitted from internationalized property investment and remains poorly researched (Babawale, 2019).

Jones Lang LaSalle (2017) stated that with surging rents, significant housing deficits, and over-regulation, the Nigerian real estate market is a matrix of opportunity and unique challenges, which only optimistic investors would be able to successfully convert into viable, long-term profits. He further stated that having already attained titles of being Africa's largest economy and most populous nation with about 178 million people, Nigeria seems bound to also top the list for Africa's most expensive location for commercial properties. With two of its major cities, Abuja and Lagos, following closely behind Angola with average annual rental charges of ₦600,000 per square metre of prime office space which should come as a surprise since there is growing interest in the lucrative prospects of up to ₦146 billion in real estate opportunities (LaSalle, 2017).

The study of performance of real estate investment, whether residential or commercial, is very important at this time when emphasis is on investment performance analysis in many parts of the world. This is even more important in Nigeria where only few studies have been carried out on the level of performance achieved by property investments. Moreover the impact of the ongoing changes in the global and local economy on the performance of property market is serving to highlight the need for its careful consideration in the investment decision making process (Hermans, 2018).

Lately, the demand for commercial properties has risen astronomically in most urban centers in the country. This is as a result of the economic recession which compelled the unemployed and public servants to explore trading activities in addition to their normal jobs. The investors' reaction to this development has been to increase the number of commercial properties at the expense of residential property development. Therefore in many towns and cities of Nigeria, open spaces within the vicinity of public institutions have been irrationally converted to accommodate shops and other commercial outlets. The situation is further compounded with better performance than residential property investment. However, the investors can no longer base their decision on intuitive grasp of the market which was considered inadequate for success in property ventures perceived notion among Nigerian property investors (Ajayi, 2016).

The investors base their investments mainly in commercial properties but there is no basis for their decision apart from the fact that many of the investors believe that tenant risk in terms of security of income is lower in commercial property investment than in residential property while some merely focus on the rental trend of the properties. Whilst opportunities are present in the market, there are also an abundance of obstacles, which may deter progress for investors in the Nigerian property market.

Empirical Review

Crompton (2005) examined factors affecting rental values commercial properties and identified the following causes: age, location, size, neighbourhood characteristics, economic activity, population, transport etc.

Ring and Dasso (1981) stated that real estate market activity involves many types of properties, many buyers and sellers, and many specialists who interact under appropriate influence to fix prices for the market transactions. Thus, market participants who buy and sell real property rights are consumers and/or occupiers and investors and/or producers. Consequently, occupiers demand real estate products either as consumer goods (e.g. housing accommodation) or as producer goods (e.g. a shop, office, factory, farm) and sometimes as both. As a consumer good, real estate is required for the satisfaction its occupier enjoys and as a producer good; the demand is derived from the contribution a particular real estate product makes to production of goods and services. The real estate market has many submarkets each of which constitutes an investment medium. These media also form the basis for the classification of the real estate market, basically by use, nature and ownership characteristics. Commercial property investment in Port Harcourt is almost entirely controlled by the private sector while consisting of shops, offices, shopping centres, restaurants, hotels, petrol stations and mixed uses. Individual commercial properties situate on major streets in Port Harcourt while mixed commercial/residential uses are found in medium business areas. The need to assess the attributes that influence rental values of commercial real estate has led to many researches like those conducted by Kiel and Zabel (2008), Owusu-Ansah (2012), Babawale and Adewunmi (2019), Tse and Love (2000) amongst others. Tse and Love (2000) identified four groups of attributes that determines rental values of commercial real estate which includes structural, physical, neighborhood characteristics and environment. Aluko (2017) observed different attributes that influence rental values of commercial real estate in different study areas and notable amongst them are locational, structural and neighborhood characteristics. Cebula (2009) observed that in the city of Owusu-Ansah (2012) describes structural attributes of a building to include the size of a building, structural improvements, age and condition of the building. Studies of Selim (2008), Olayinka, Funsho and Ayotunde (2013) and Ajibola, Ebikefe and Awodiran (2014) viewed that the structure of a commercial building and its neighborhood is of paramount importance to the determination of rental values of commercial properties. Selim (2016) observed that the type of building, number of shops and office space, size of the

building, age of building and others were the most important variables that influenced rental values of commercial real estate while Hammer, Booth and Love (2000) and Johnson, Davies and Shapiro (2005) opined that good neighborhood infrastructure affects commercial property rental values.

Methodology

The research approaches adopted for this work were both qualitative and quantitative techniques. To cover the study area effectively, a field survey were conducted with structured questionnaires for the major study population and anchored with semi-structured interviews for the secondary population and other relevant secondary data. The rental values of the selected commercial real estate investments were collected from principal partners and branch managers of Estate Surveying and Valuation firms' in Port Harcourt because Estate Surveyors and Valuers are the only professionals empowered in Nigeria by Decree No24 of 1975 to determine the values of properties and their interest. The total population for the study is Ninety-Nine (99). Hence, 99 questionnaires were administered to the firms. However, 83 questionnaires were properly filled and returned for collation, this represents 83.8% response rate. This response rate was considered enough by the researcher.

The average rental growth rate and coefficient of variation for commercial property investments in Lagos for the period, 2009 – 2018 collected from Estate Surveying and valuation firms were calculated. The average rental growth rate for the period, 2009 – 2018 were calculated using geometric mean rental growth rate and is determined as follows:

$$X = \sqrt[n]{X_1 x X_2 x X_3 x} \ldots x\, X_n$$

Where X = geometric mean

X_1, X_2,… X_n are rental growth rate for each year

n = total number of years within the period

The choice of geometric mean for the calculation of the average rental growth rates for the properties for the period, 2011 – 2020 is based on the fact that each annual rental growth rate accumulated over each year, thereby creating a compounding process for the entire period. The geometric mean reasonably approximates the exponential characteristics of this compounding process (Hargitay & Yu, 2019). The standard deviation is given by:

$$\text{Standard Deviation} = \sqrt{\sum \left(\frac{\bar{x}-x}{N-1}\right)^2}$$

Where x, $\bar{x}$ and N are as defined above. The coefficient of variation is the ratio of standard deviation of rental growth rates to the average rental growth rate and is determined as follows:

$$\text{Coefficient of variation} = \frac{\text{Standard Deviation of Rental Growth Rate}}{\text{Average Rental Growth Rate}}$$

In order to determine whether increase in rental values of commercial properties in Port Harcourt is due to rise in inflation, correlation analysis were adopted. However, annual rental growth in the properties under study was carried out using the Pearson' s Product Moment Correlation Model. The Pearson's Correlation Coefficient is denoted by r and is computed with the expression:

$$r = \frac{N\sum XY - (\sum X)(\sum Y)}{\sqrt{[N\sum X^2 - (\sum X^2)][N\sum Y^2 - (\sum Y)^2]}}$$

where X = Inflation Rate;

Y = Annual Rental growth Rate;

XY = Product of Inflation and Annual Rental Growth Rates;

N = Number of pairs;

r = Correlation Coefficient.

Results and Discussion

In this section, an analysis of the distribution and collection of questionnaires distributed.

Table 1. Distribution and return of questionnaire administered on practicing estate surveyors and valuers

Class of Respondent	Sample Size/Number distributed	Number returned / retrieved	Number not returned or improperly filled	Percentage of total number distributed and returned/retrieved	Percentage not returned or improperly filled	Total
Practicing Estate Surveyors and Valuers	99	83	16	83.8%	16.2%	100%
Total	99	83	16	83.8%	16.2%	100%

The Table 1 above showed questionnaire distribution and retrieval from practicing Estate Surveyors and Valuers in respect of the return characteristic of commercial property market in Port Harcourt. The population sample size which was the total number of questionnaire distributed was 99 out of which only 83 were returned/retrieved, representing 83.8% of the total number distributed while 16 questionnaires representing 16.2% were not returned by Practicing Estate Surveyors and Valuers. Therefore, out of the total of 99 questionnaires distributed, a total of 83 were returned/retrieved, representing 83.8% of the number distributed.

Table 2. Amount of commercial properties in property portfolio

Description	Frequency	Percentage
1-10	7	8.4
11-20	32	38.6
21-30	24	28.9
31 and Above	20	24.1
Total	83	100

As shown in the Table 2 above, 7 respondents representing 8.4% of the total population were of the opinion that the amount of commercial properties in their property portfolio are between 1-10, 32 respondents representing 38.6% of the total population said that they have between 11-20, 24 respondents representing 28.9% of the total population said theirs are between 21-30, while 20 respondents representing 24.1% of the total respondents said they have between 31 and above. From the table, it can be deduced from the table that the amount of commercial properties in most respondents' property portfolio is between 11 and above.

Table 3. Ranking lease structure often used for commercial properties in your area

Rank	Always	Sometimes	Seldom	Not Used	N	FX	$\bar{x}$	Ranking
	X	X	X	X				
Weekly	0	0	3	80	83	86	1.04	4
Monthly	45	38	0	0	83	294	3.54	2
Biannual (half yearly)	0	71	9	3	83	234	2.82	3
Annually (Yearly)	80	3	0	0	83	329	3.96	1
Biennial (Every two years)	0	0	1	82	83	84	1.01	5
Total							2.47	

The above Table showed the mean mark calculated from the response of the respondents on ranking lease structure often used for commercial properties. Annually (yearly) was rated highest with a weighted mean score of 3.96 while Biennial (Every two years) on the other hand was the least rated by the respondents having a weighted mean score of 1.01. This result confirms that annually (yearly) is the major lease structure used for commercial properties in the study area.

Table 4. Quality of construction for the physical characteristics of commercial properties

Description	Very Good	Good	Fair	Poor	Very Poor	N	FX	$\bar{x}$	Decision
Offices	1	26	32	20	4	83	249	3.0	Rejected
Shops	1	27	28	26	1	83	250	3.01	Rejected
Total								3.33	

The Table 4 showed the mean mark calculated from the response of the respondents on the decisions regarding the quality of construction for the physical characteristics of commercial properties. The table shows a lower weighted mean score of 3.0 as against the average weighted mean score of 3.33 and as such rejected proving that most commercial properties in the study area are not in a tenantable state. The quality of construction for the physical characteristics for offices and shops are very bad in the study area.

Table 5. Rent review intervals observed in commercial properties in the study area

Description	Rent Review Intervals Observed and Frequency of Properties					
	2years	3years	4years	5years	6years	Total
Offices	29	17	2	0	0	48
Shops	16	16	3	0	0	35
Total	45	33	5	0	0	83

Expected Rent Review Pattern in Commercial Property Investments in the Study Area

Table 6. Expected rent review pattern in commercial property investments in the study area

S/N	Rent Review Pattern	Frequency	% Occurrence	Probability	Expected Rent Review Pattern
1	2 years	45	54.22	0.5422	1.0844
2	3 years	33	39.76	0.3976	1.1928
3	4 years	5	6.02	0.0602	0.2408
4	5 years	0	0	0	0
5	6 years	0	0	0	0
	Total	83	100	1.0000	2.5180

Analysis of Data and Interpretation of Results on Rental Levels for Offices and Shops in the Study Area, 2010 – 2019

Rental levels in the commercial properties under study for the period, 2009–2018 were determined based on the annual average rental values of each type of property for each year. In calculating the average rental value for each year for each type of commercial property under study, the weighted mean was used.

Table 7. Weighted rents for offices and shops in the study area, 2010 – 2019

Year	Offices	Shops
2011	₦ 1.500,000	₦ 1,200,000
2012	₦ 1,800,000	₦ 1,300,000
2013	₦ 1,850,000	₦ 1,400,000
2014	₦ 1,950,000	₦ 1,500,000
2015	₦ 2,400,000	₦ 1,900,000
2016	₦ 2,600,000	₦ 2,100,000
2017	₦ 2,700,000	₦ 2,200,000
2018	₦ 3,000,000	₦ 2,600,000
2019	₦ 3,200,000	₦ 2,700,000
2020	₦ 3,500,000	₦ 2,800,000

Rental Growth for Office and Shop in the Study Area, 2010 – 2019

Annual rental growth rates were determined for the properties under study for the period, 2010 – 2019. The annual rental growth rates were determined based on weighted rents in each type of property for each year under study. The annual rental growth rates were calculated as percentage increase in rent for each of the years under study. For example, the annual rental growth rate in office for 2010 is 13.33%. This is calculated as follows:

Rent for 2010 ₦ 1,500,000
Rent for 2011 ₦ 1,800,000
Rental Increase ₦ 300,000
Rental growth rate for 2009 $\frac{₦\ 300,000}{₦\ 1,500,000} \times \frac{100}{1} = 20\%$

The same procedure was adopted for the calculation of annual rental growth rates for each year for each type of property under study as summarised in Table 8.

Table 8. Annual rental growth for office and shop in the study area, 2010 – 2019

Year	Annual Growth Rate	
	Office (%)	Shops (%)
2011	–	–
2012	20	8.33
2013	2.78	7.69
2014	5.41	7.14
2015	23.07	26.67
2016	8.33	10.53
2017	3.84	4.76
2018	11.11	18.18
2019	6.67	3.85
2020	9.38	3.70

Average Rental Growth and Coefficient of Variation for Commercial Property Investments in the Study Area, 2010 – 2019

The average rental growth rate and coefficient of variation for commercial property investments in the study areas for the period, 2010 – 2019 were calculated from data in Tables 8. These are summarised in Table 9. For example, the average rental growth rate, standard deviation and coefficient of variation for office in the study areas for the period, 2010 – 2019 is calculated as follows.

Table 9. Average rental growth rates for office in the study area

Year	X	$(x - \bar{x})$	$(x - \bar{x})^2$
2011	–	– 9.06	82.08
2012	20	10.94	119.68
2013	2.78	– 6.28	39.44
2014	5.41	– 3.65	13.32
2015	23.07	14.01	196.28
2016	8.33	– 0.76	0.58
2017	3.84	– 5.22	27.25
2018	11.11	2.05	4.20
2019	6.67	– 2.39	5.71
2020	9.38	0.32	0.10

Table 10. Average rental growth rates for shop in the study area

Year	X	$(x-\bar{x})$	$(x - \bar{x})^2$
2011	–	– 9.09	82.63
2012	8.33	– 0.76	0.58
2013	7.69	– 1.4	1.96
2014	7.14	– 1.95	3.80
2015	26.67	17.58	309.06
2016	10.53	1.44	2.07
2017	4.76	– 4.33	18.75
2018	18.18	9.09	82.63
2019	3.85	– 5.24	27.46
2020	3.70	– 5.39	29.05

The same procedure was adopted for the calculation of average rental growth rate, standard deviation and coefficient of variation for each type of property under study for the period, 2011 – 2020. These are summarised in Table 11 as follows.

Table 11. Average rental growth rates, standard deviation and coefficient of variation for office and shop in the study areas, 2011 – 2020

Type of Commercial Property	Rental Growth Rate, 2011 – 2020	Standard Deviation	Coefficient of Variation
Office	90.59	7.3684	0.8133
Shop	90.85	7.8739	0.8662

Generally, the average rental growth rate are for commercial properties in the study area for the period, 2011 – 2020 is phenomenal as summarised in Table 11. The table shows that all the study commercial properties have very high rental growth rates and the implication of these is that, investors in commercial property investments in the study areas will get high returns if they invest in such properties.

Rental Index for Office and Shop in the Study Areas, 2011 – 2020

Using 2011 as the base year, rental index was constructed for the commercial properties (office) for the period 2011 – 2020, rental index was calculated as follows.

$$\left(1+\frac{20}{100}\right) \text{ X 100 (Rental Index for the base year)}$$

= [1 + 0.20] X 100
= [1.20] X 100
= 120

The same procedure was adopted for the calculation of rental index for all the study commercial property in the study area using 2011 as the base year. These are summarised in Tables 12 as follows.

Table 12. Rental index for office and shop in the study area, using 2011 as the base year

Year	Rental Index	
	Office	Shop
2011	100	100
2012	120	108.33
2013	102.78	107.69
2014	105.41	107.14
2015	123.07	126.67
2016	108.33	110.53
2017	103.84	104.76
2018	111.11	118.18
2019	106.67	103.85
2020	109.38	103.70

The Table 12 above shows rental index for commercial properties in the study area for a period of ten years. Results of the rental index analysis in the study area maintained higher upward trends in rental values. These upward trends are due to annual growth in inflation, among other factors.

Table 13. ANOVA

Year	Annual Rental Growth Rates for Office and Shop	
	X_1	X_2
2011	–	–
2012	20	8.33
2013	2.78	7.69
2014	5.41	7.14
2015	23.07	26.67
2016	8.33	10.53
2017	3.84	4.76
2018	11.11	18.18
2019	6.67	3.85
2020	9.38	3.70
∑	90.59	90.85

Note: X_1 = Annual Rental Growth Rates for Office; X_2 = Annual Rental Growth Rates for Shop

Table 14. ANOVA

Year	Square of Annual Rental Growth Rates for Office and Shop				
	X_1	X_1^2	X_2	X_2^2	∑X
2011	–	–	–	–	–
2012	20	400	8.33	69.39	24.44
2013	2.78	7.73	7.69	59.14	40.82

2014	5.41	29.27	7.14	50.98	14.56
2015	23.07	532.22	26.67	711.29	16.17
2016	8.33	69.39	10.53	110.88	29.48
2017	3.84	14.75	4.76	22.66	38.21
2018	11.11	123.43	18.18	330.51	38.3
2019	6.67	44.49	3.85	14.82	75.53
2020	9.38	87.98	3.70	13.69	46.66
∑	90.59	1309.26	90.85	1383.36	324.17

The analysis of variance calculation is summarised in Table 15 as follows.

Table 15. Analysis of variance of rental value used for commercial properties

Source of variance	Sum of squares	Degree of freedom	Mean square	F – ratio
Within groups	1469.35	9	163.26	0.8999
Between groups	15.6	1	15.6	0.0951
Error (residual)	1632.79	9	181.42	
Total	3117.74	19	164.09	

The critical (table) value of F at degree of freedom of 1 and 8 at 0.05 level of significance is 0.8999. This is greater than the calculated F ratio. Since the calculated F – ratio of 0.0951 is less than the critical F – value of 0.8341, showing that the annual rental growth rates for commercial property investments in the study area do not differ significantly. It also implies that although rental values of commercial properties in the study area, comprising office and shop respectively increased at a phenomenal rate within the period, 2011 – 2021, differences in the rates of such increases within and between the various types of commercial properties in the property market are not statistically significant and hence, rental growth in commercial properties in the study area follows a similar trend and pattern.

Summary of Findings, Implication and Conclusion

The study examined the phenomenal increase in rental values of commercial property which covers the period of 2009 – 2018.

The findings from the study shows the increase in rental value is due to rise in inflation, population pressure on available housing stock and shortage of accommodation for the low-income earners. However, It was established that rental trend in commercial properties in Port Harcourt is increasing at high average annual rental growth rate and rise in rental index caused by rental growth in commercial properties in the city. Moreover, Valuers in Port Harcourt are not responding to current trends in the property market especially the higher upward trends in rental values due to annual growth in inflation, among other factors that were reflected in the income multiplier for market valuation.

Other findings deduced from the study shown that the quality of construction for the physical characteristics for offices and shops are very bad in the study area; the rent review pattern for investment properties in the study area is 3 years; the study also shows that commercial properties have average rental growth rates and the implication of these is that, investors in commercial property investments in the study areas are likely to get high returns if they invest in such properties; the study also observed that the annual rental growth rate for commercial property investments in the study area follows a similar trend and pattern. Furthermore, the study also shows that increase in rental values of all the study properties may be due to other factors, other than inflation.

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