

# Comparative Analysis of the Risk-Return Characteristics of Office and Shop Property Investments in Osogbo, Nigeria

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## Abstract

This study aims at examining the risk-return characteristics of commercial real estate investments in Osogbo Nigeria. Primary data used for this study was obtained through questionnaire survey. A total enumeration survey of all the estate surveying and valuation firms in the study area was carried out. The data collected was used to calculate the income, capital and total returns on investments in commercial properties in Osogbo. Furthermore, descriptive statistics was used to determine the asset returns and asset risk of the selected investment assets. This involved the use of weighted means, percentages and Standard deviations. The study revealed that investments in commercial properties in the study area provided a continuous positive rate of returns ranging between 3.12% and 34.35% while the corresponding risk ranged between 1.50% and 10.11%. The investment information provided in this study has significant implication for both local and foreign investors desiring to invest in the Nigerian property market.

**Keywords:** Asset, Return, Risk, Investment, Portfolio.

## 1. Introduction

An investment can be simply defined as expenditure in cash or its equivalent during one or more time periods in anticipation of enjoying a net inflow of cash or its equivalent in some future time period (Ballantine & Stray, 1998; Koen & Monique, 2010). In view of the limited resources and divers' investment alternatives available to an investor, Marquard & Von-Eije (2006) posited that investment decisions are necessary. The authors further asserted that investment decisions are made as a result of assumptions, expectations and predictions of the future. Consequently, there is usually inherent uncertainty about future returns and risk complexities. Therefore, it is very important for investors to first ascertain the risk-return characteristics of an investment asset as good as possible before committing investment funds to such investment(s).

Investors' informed decisions with respect to the risk-return strategies of real estate investments provide many benefits. It can provide diversification benefits; has low historical correlations to other asset classes; provides current income and the potential for capital appreciation; hedges inflation with returns that equals or exceeds the rate of inflation over longer periods of time; and has the capacity to produce superior risk-adjusted returns relative to other investments asset classes (Hui & Eddie, 2009; Steinke, 2011; Fiorilla & Halle, 2011).

The aim of this study is to examine in a comparative context, the risk-return characteristics of commercial real estate investments in Osogbo metropolis, Nigeria. To achieve the foregoing, the researchers sought for answers to the following questions: What were the return characteristics of office and shop properties in the study area between 2002 and 2012? What were the risk characteristics of office and shop properties in the study area between 2002 and 2012? And is there any relationship between risk and returns on office and shop properties in the study area? The remaining part of the study is presented as follows: the next section presents review of related literature, section three presents the methodological approach adopted for the study, the result/discussion was presented in section four, while section five presented summary of findings, policy implication and conclusion.

## 2. Literature Review

According to Rahmann & woolston (2011), commercial real estate investment is usually rental properties intended to generate a return from rental income and/or capital appreciation. Commercial property types as noted by Fiorilla & Halle (2011) are: office, retail, multi-family, industrial and hotel, self-storage, seniors housing and health care among others. Investments in these real estate assets are associate with multiple risk complexities which includes: investment illiquidity, asset value volatility, asset valuation inaccuracies, leverage-amplifying

negative performance during falling markets, limited/ imperfect benchmarks to gauge closed-end fund performance, combination of a large lot size (capital intensive investments) and high transaction costs (Hoesli & Lekander, 2008; Rahmann & woolston, 2011).

Besides, direct real estate investments are management intensive over the whole property cycle, which is demanding expertise regarding a range of fields from the investors (Steinke, 2011). Similarly, due to lack of frequent transaction data, real estate marketplaces generally have low transparency which induces information asymmetries between the market participants (Georgiev & Georgi, 2003). All these challenges are further reinforced considering transnational investments, since different market practices, laws, taxation, currency, inflation rates, and cultures must be considered (Hoesli & Lekander, 2008). However, measurement issues, market opacity, and other aspects of uncertainty affecting both direct and indirect real estate investments, combined with the above mentioned drawbacks makes commercial real estate investments a very risky business for investors.

Despite its inherent risks, commercial real estate presents a compelling opportunity for investors. Not only does the sector provide many long-term investment benefits, including healthy income returns and a hedge against inflation, but fundamental factors such as the improvement of the risk/return characteristics of the overall mixed-asset portfolio (Thambiah & Foscarì, 2011; Fiorilla & Halle, 2011).

Conner (2010) and Payton (2011) observed that the case for investing in commercial real estate looks particularly attractive when viewed in the context of the current market environment, although it is not without risk. they posited that perhaps the most obvious reasons why commercial real estate merits inclusion in a management portfolio are derived from both cyclical and noncyclical factors – specifically, the favorable long-term outlook for real estate demand, from both users and investors, property cash flows and real estate’s potential inflation hedging characteristics. The liquidity of commercial real estate provides investors the most efficient means to obtain exposure to property markets globally. The ability to trade daily not only provides a useful tool for investors to create tactical allocations to the sector and global regions, but it also provides a means to efficiently rebalance allocations as market conditions change (Fiorilla & Halle, 2011).

Giliberto (1993) asserted that real estate particularly demonstrates different risk and return characteristics depending on: the type of property, the location of the property, and the status of the property in terms of its development. In addition, Steinke (2011) revealed that in real estate investments, characteristics of market, tenancy and the features of the property influences the expectations regarding risks and returns of the investments. Furthermore, Mughees (2010) and Steinke (2011) identified and distinguished real estate’ risk-return strategies as: Core/Core plus (low risk); Value Add (moderate risk) and Opportunistic (high risk). Mughees (2010) posited that the size of the allocation among the real estate risk-return strategies depends on an investor’s risk-return appetite, but can generally be in the range of 5% - 15%.

### **3. Methodology**

Primary data required for this study was obtained through questionnaire survey. The questionnaire was designed in such a way as to elicit for information on the socio-economic characteristics of the respondents as well as the average capital and rental values (per square meter) of commercial real estate investments in Gbongan road, Alekuwodo Road, Station road, Old garage axis and Ola-Iya axis of Osogbo metropolis, Nigeria. The population for the study consisted of all the office and shop properties in the management portfolios of all the 14 estate surveying and valuation firms in the metropolis. The capital and rental values of the selected commercial real estate investments were collected from the principal partners/branch managers of private practicing Estate Surveying and Valuation firms in Osogbo metropolis (this is because the Estate Surveyors and Valuers are the only professionals in Nigeria that are empowered by the law i.e Decree No 24 of 1975 to determine the value of properties and their interest). Total enumeration survey of all the 14 estate surveying firms was conducted. Hence, 14 questionnaires were administered on the Principal/branch managers of the firms. However, only 8 questionnaires were appropriately filled and returned for collation, this represents 57% response rate. This response rate was considered adequate by the researchers because it’s the aggregate averages of the rental and capital values that was used in the study. The data collected was treated as follows:

First, the rental and capital values were used in calculation of the income returns using Equation 1.

The income return is expressed as follows

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

Where:

- IR<sub>t</sub> = income return for period t
- NI<sub>t</sub> = Net income received in period t (rent)
- CV<sub>t-1</sub> = CV at the end of period t-1

Second, the capital return was also calculated using Equation 2

The capital return is expressed as

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

Where:

- CR<sub>t</sub> = Capital return for period t
- CV<sub>t</sub> = CV at the start of measurement period
- CV<sub>t-1</sub> = CV at the end of period t-1

Third, both the income and the capital returns were used to determining the total returns.

The total return is expressed as

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

Where

- TR<sub>t</sub> = Total return
- CV<sub>t</sub> = Capital value of direct property at the beginning
- CV<sub>t-1</sub> = Capital value of direct property at the end
- NI<sub>t</sub> = Income of direct property received during the holding period

Fourth, the standard deviations of the returns values were calculated. This was used to measure the volatility of the income, capital and total returns which could primarily indicate the risk of investing in office spaces and shops in the study area.

The Asset Risk is expressed as

$$Asset\ risk = \sqrt{\frac{\sum(x_i - \bar{x})^2}{N}} \dots \dots \dots (4)$$

Where:

- $x_i$  = the asset periodic returns,
- $\bar{x}$  = the mean return and
- N = the number of observations

Fifth, trendlines were used to graphically display trends in the data sets used for this study to help analyze problem of future predictions. Also, the moving average of the trendline was used to smooth out fluctuations in the data and show the pattern or trend more clearly. The R<sup>2</sup> value was used to determine the reliability of the trend and the accuracy of the forecast or predictions made. A trendline is said to be most accurate when its R-Squared value is at or near 1. Similarly, least square linear regression equations were generated for prediction of future rental, capital and returns values. These are the equations of a straight line that best fits the points on the chart. The method used to determine these equations involves finding the line that produces the least value for the sum of the squares of the vertical differences between data points and the line.

The equation is in the form:

$$y = mx + b \dots \dots \dots (5)$$

where:

$y$  is the dependent variable (rental, capital or returns values as the case may be)

$m$  is the slope of the line, which equals the change in the  $y$  value divided by the change in the  $x$  value;

$x$  is the dependent variable (year in this case); and

$b$  is the  $y$ -axis intercept of the line.

Finally, a comparative analysis of the return-risk characteristics of commercial real estate investments in the study area was carried out.

#### 4. Results and Discussion

This section presented the results from analysis of data obtained for the study and subsequently discusses the results accordingly. First, the respondents profile was presented and analyzed. Second, the average rental/capital values (per meter square) of commercial property investments in the study area within the period was calculated and presented. Third, the income, capital and total returns from the said investments were accordingly calculated. Fourth, the risk characteristics of the asset classes in question were also calculated and accordingly analyzed. Finally, the section concluded with a comparative analysis of the return-risk profiles of commercial real estate investments in the study area.

Table 1: Respondents' profile

Respondents' Characteristics	Status	Frequency	Percentage
Position in the firm	principal partner	6	75
	associate partner	0	0
	branch manager	2	25
	head of Department	0	0
	Total	8	100
Educational qualification	OND	0	0
	HND	3	37
	B.Sc/B. Tech	4	50
	MSc/M. Tech	1	13
	PhD	0	0
Total	8	100	
Professional qualification	FNIVS	1	13
	ANIVS/RSV	4	50
	ANIVS	2	24
	Probationer	1	13
	Total	8	100
Years of Professional practice	1-11yrs	3	37
	12-21yrs	4	50
	22-31yrs	1	13
	above 31yrs	0	0
	Total	8	100

Source: Authors' Field Survey, 2013

Table 1 showed the profile of the respondents who supplied data on rental and capital values in terms of their: position in the Estate Firm, educational qualification, professional qualification and years of professional practice as Estate Surveyors and Valuers. This was done in order to ascertain the validity and reliability of the data collected for the study.

Table 2 presents the average rental values in Naira (per m<sup>2</sup>) of office and shop properties in Gbongan road, Alekuwodo road, Station road, Old garage axis and Ola-Iya area of Osogbo metropolis.

Table 2: Average Rental Values in ₦ (per m<sup>2</sup>) of Office and Shop properties in Osogbo (2002 – 2012)  
 Source: Authors' Field Survey, 2013

Property Type	Property Location	Year										
		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Offices	Gbongan Road	1005	1315	1452	2102	2518	3982	4006	4321	4443	6321	7127
	Alekuwodo Road	988	997	1003	2112	2247	2854	3354	3542	3649	4008	5342
	Station Road	711	752	790	1053	1322	1602	2543	2786	2866	3213	3398
	Old garage axis	1276	1376	1564	1786	1876	2755	3112	3655	3897	4322	6554
	Ola-Iya axis	1121	1235	1356	1564	1987	2675	3766	4876	5755	6334	7189
	<b>Average</b>	<b>1020</b>	<b>1135</b>	<b>1233</b>	<b>1723</b>	<b>1990</b>	<b>2774</b>	<b>3356</b>	<b>3836</b>	<b>4122</b>	<b>4840</b>	<b>5922</b>
Shops	Gbongan Road	511	543	598	654	677	711	723	789	1098	2544	3221
	Alekuwodo Road	632	678	702	722	750	906	987	1055	1234	1298	3544
	Station Road	498	566	623	765	778	895	1011	2112	2566	2655	2786
	Old garage axis	513	533	576	654	687	811	865	1006	1522	1590	2136
	Ola-Iya axis	489	522	543	653	702	798	943	998	1013	1654	1786
	<b>Average</b>	<b>529</b>	<b>568</b>	<b>608</b>	<b>690</b>	<b>719</b>	<b>824</b>	<b>906</b>	<b>1192</b>	<b>1487</b>	<b>1948</b>	<b>2695</b>

Source: Authors' Field Survey, 2013

The rental values in Table 2 were arrived at by calculating for each year respectively, the aggregate total averages of all the respondents' responses in the study area per meter square. For both office and shop properties, the rental values was observed to be higher along Gbongan and Station road of the metropolis and lowest along Station road for offices and along Ola-iya axis for shops.

Figure 1 presents the trend analysis of the average rental values of both office and shop properties in Osogbo between 2002 and 2012.

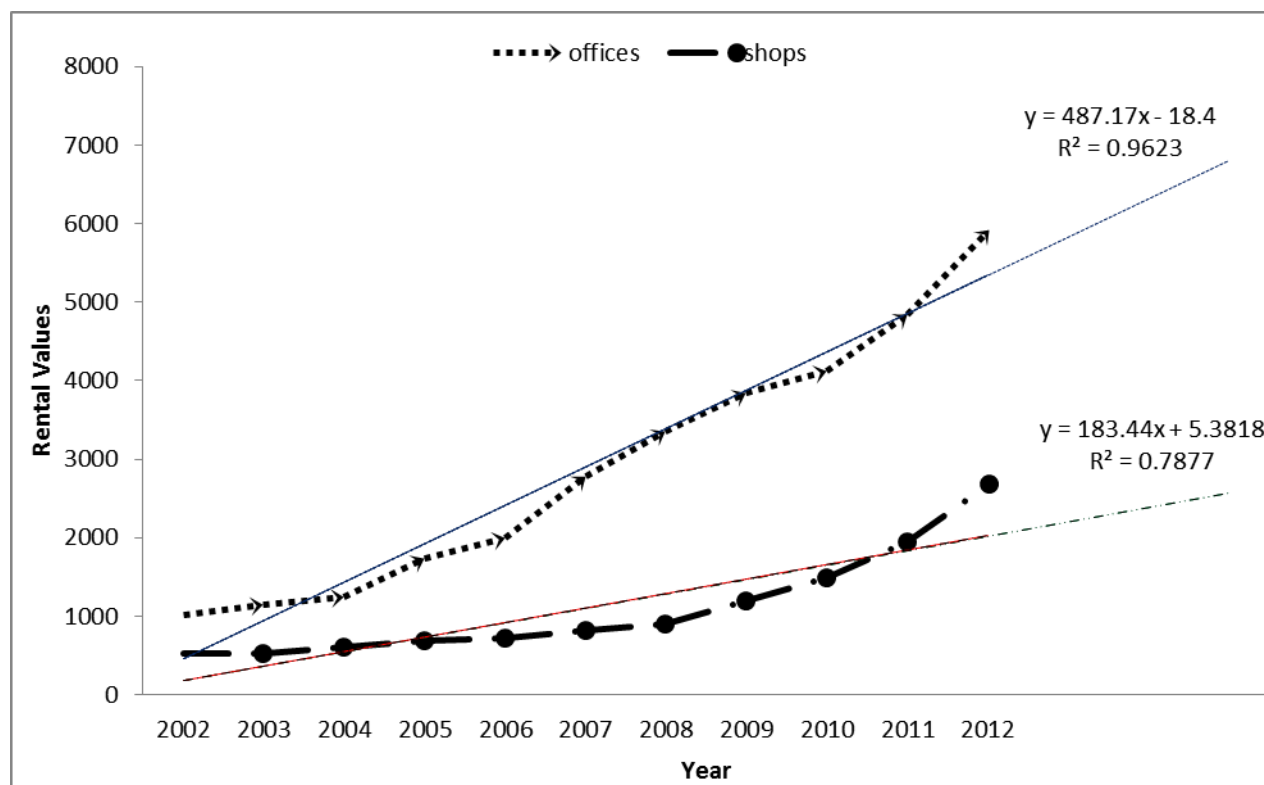


Figure1: Trend Analysis of Rental Values in Osogbo

For both property types, the trendlines indicated a consistent and steady increase from 2002 to 2012. There was a wide margin in the growth rate of office and shop property types in the study area, with the office property type indicating a far better growth rate. This is an indication that investment in office properties could be a better option than investment in shop properties in the study area. A future forecast with respect to rental values of

commercial properties in the study area for additional three years from 2012 was made. The analysis indicated continues steady increase of rental values for both office and shop properties for the next three years with the office property type exhibiting a better growth rate throughout the prediction period. The level of reliability of the trend and accuracy of the forecast as determined by the  $R^2$  value for both property types is as follows: For the office property, the level of reliability and accuracy of the forecast is 96.23%, while that of the shop property type is 78.77%. From the analysis above, it can be inferred that rental values of office and shop properties in the study area had a steady and consistent growth over the study period and this growth is likely to be maintained over the next three years as seen from the predictive trendlines. The office property type in Osogbo showed a better growth rate than shop property type in the predictive years.

The capital values obtained for this study were also analyzed. Similarly, the capital values used in the study were also obtained from the valuation based indices of commercial properties in the study areas. The capital values obtained from the prime commercial areas of the study areas respectively were derived on per meter square basis and presented in Table 3.

Table 3 showed the average capital values in Naira (per  $m^2$ ) of office and shop properties in Gbongan road, Alekuwodo road, Station road, Old garage axis and Ola-Iya axis of Osogbo metropolis.

Table 3: Average Capital Values in ₦ (per  $m^2$ ) of Office and Shop properties in Osogbo

Property Type	Property Location	Year											
		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Offices	Gbongan Road	16100											
		20800	16125	17834	18171	19321	20135	22678	30876	34567	36123	37347	38997
	Alekuwodo Road	27800	20831	21665	22876	23657	27865	29876	30879	30998	31234	37876	41324
	Station Road	10155	27886	28764	29456	31675	33453	33699	33786	33998	34987	35463	35898
	Old garage axis	25000	17213	18765	19564	20453	20987	25765	29782	33543	36874	38342	41678
	Ola-Iya axis	19971	28002	29876	30876	32546	32987	33453	34213	35675	37654	39876	40786
	<b>Average</b>		<b>22011</b>	<b>23381</b>	<b>24189</b>	<b>25530</b>	<b>27085</b>	<b>29094</b>	<b>31907</b>	<b>33756</b>	<b>35374</b>	<b>37781</b>	<b>39737</b>
		7700											
Shops	Gbongan Road	12000	7735	7986	8354	8675	9543	10564	15677	19342	27543	30443	33567
	Alekuwodo Road	11000	12056	13543	13987	14221	15678	17654	20786	21345	22453	23786	24332
	Station Road	10665	11032	11765	12435	12987	13768	14008	17564	19786	20564	22343	23768
	Old garage axis	8500	13768	14321	14987	15443	15987	17865	20654	22341	24876	26459	27865
	Ola-Iya axis	9973	8945	9354	9564	10675	11677	13657	19876	22348	27880	28765	29008
	<b>Average</b>		<b>10707</b>	<b>11394</b>	<b>11865</b>	<b>12400</b>	<b>13331</b>	<b>14750</b>	<b>18911</b>	<b>21032</b>	<b>24663</b>	<b>26359</b>	<b>27708</b>

Source: Authors' Field Survey, 2013

The capital values presented in Table 3 were likewise arrived at by calculating for each year respectively, the aggregate total averages of all the respondents' responses in the study area per meter square. The highest capital values for both office and shop properties were obtained in 2012. The lowest capital values were recorded in the year 2002. For all the prime commercial areas in Osogbo the highest capital values was obtained in Old garage axis (₦41, 678) in the year 2012 while the highest for shops was obtained in Gbangang road (₦33,567) in the year 2012.

Figure 2 showed the trend analysis of the average capital values of both office and shop properties in Osogbo between 2002 and 2012.

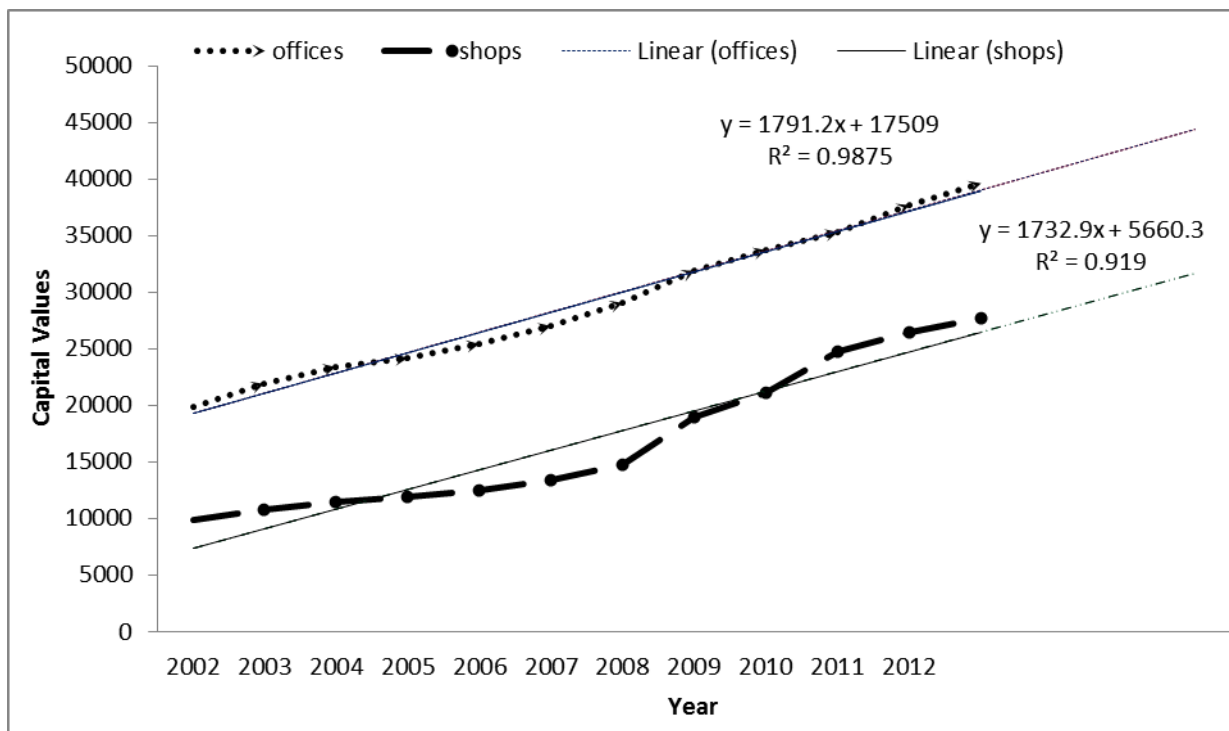


Figure 2: Trend Analysis of Capital Values in Osogbo

Figure 2 showed that for both property types, the trendlines indicated a consistent and steady increase from 2002 to 2012. The office property type indicated a better growth rate than the shop property type throughout the study period. A future forecast with respect to the capital values of commercial properties in the study area for additional three years from 2012 was also made. The analysis indicated continues steady increase of capital values for both office and shop properties for the next three years with the office property type exhibiting a better growth rate. The level of reliability of the trend and accuracy of the forecast as determined by the  $R^2$  value for both property types is as follows: For the office property, the level of reliability and accuracy of the forecast is 98.75%, while that of the shop property type is 91.90%. From the analysis above, it can be inferred that capital values of office and shop properties in the study area had a steady and consistent growth rate over the study period and this growth rate is likely to be maintained over the next three years as seen from the predictive trendlines.

As mentioned earlier, the income, capital and total returns for both office and shop properties in Osogbo were calculated using Equations 1, 2 and 3. These are presented in Table 4 accordingly.

Table 4 presented the income, capital and total returns on office and shop property investments in the study area within the study period.



Table 4: Income Return (IR), Capital Return (CR) and Total Returns (TR) on Office and shop Properties in the Study area

Year	Income Returns		Capital Returns		Total Returns	
	Offices	Shops	Offices	Shops	Offices	Shops
	IR (%)	IR (%)	CR (%)	CR (%)	TR (%)	TR (%)
2002	4.64	4.94	10.19	7.42	14.83	12.36
2003	5.16	5.30	6.22	6.42	11.38	11.72
2004	5.27	5.34	3.46	4.13	8.73	9.47
2005	7.12	5.82	5.57	4.51	12.69	10.33
2006	7.79	5.80	6.10	7.51	13.89	13.31
2007	10.24	6.18	7.42	10.78	17.66	16.96
2008	11.54	6.14	9.66	28.21	21.20	34.35
2009	12.03	6.30	5.79	11.22	17.82	17.52
2010	12.21	7.07	4.79	17.27	17.00	24.34
2011	13.68	7.90	6.81	6.88	20.49	14.78
2012	14.90	10.22	5.95	3.12	20.85	13.34
Weighted Average	9.51	6.46	6.54	9.77	16.05	16.23

Source: Analysis of Survey data, 2013

From Table 4 the highest income return was obtained from office properties as shown by a weighted average of 9.51% against 6.46% demonstrated by shop properties. Similarly, for the capital returns the highest weighted average was seen in shop properties (9.77%) as against the office properties (6.54%). The total returns revealed that investments in shop properties in the study area provided better returns (16.23%) than investments in office properties (16.05%).

Table 5 presented the risk profile of investments in both office and shop properties in the study area. This was calculated using Equation 4.

Table 5: Risk profile of investments in office and shop properties in the study area

Property Type>Returns	Std. Deviation	Rank
Office IR	3.66	4
Shop IR	1.50	6
Office CR	1.96	5
Shop CR	7.30	2
Office TR	10.11	1
Shop TR	7.23	3

Source: Analysis of Survey data, 2013

Table 5 showed the risk characteristics of investments in commercial real estate in the study area. From Table 5, the level of riskiness from the highest to the lowest is as follows: office properties 10.11% (total returns); shop properties 7.30% (capital returns); shop properties 7.23% (total returns); office properties 3.66% (income returns); office properties 1.96% (capital returns) and shop properties 1.50% (income returns) respectively.



Table 6: Comparative analysis of return and risk profiles of commercial real estate investments in Osogbo (2002-2012)

Property Type/ Returns	Minimum Return	Maximum Return	Weighted Return	Rank (Weighted Return)	Std. Deviation	Rank (Std. Deviation)
Office IR	4.64	14.90	9.50	4	3.66	4
Shop IR	4.94	10.22	6.45	6	1.50	6
Office CR	3.46	10.19	6.54	5	1.96	5
Shop CR	3.12	28.21	9.77	3	7.30	2
Office TR	8.73	21.2	16.31	2	10.11	1
Shop TR	9.47	34.35	16.40	1	7.23	3

Source: Analysis of Survey Data, 2013

From Table 6, the highest returns obtained (16.40%) has a corresponding third level of risk (7.23%), while the lowest returns obtained (6.45%) had a corresponding lowest level of risk (1.50%). The risk bearing capacity of office and shop properties in the study area presents a unique opportunity for investors to shield their investment portfolios from risk complexities and the inherent uncertainties associated with it. Another unique characteristics of commercial properties which investors can consider as an advantage of including commercial properties in their investment portfolios is its return profile. The return and risk characteristics of an investment asset are key rationale for investing in commercial real estate in order to maximize profits and minimize as well as spread investment risk in a mixed-asset portfolio.

### 5. Summary of Findings, Implication and Conclusion

The study examined the risk-return characteristics of commercial real estate investments in Osogbo metropolis Nigeria. The study covered the period between 2002 and 2012. Findings from the study showed that investments in both office and shops properties provided a continuous positive rate of returns throughout the study period. The highest return obtained within the study period was 34.35% and the lowest was 3.12%. Similarly, the highest level of risk was 10.11% while the lowest was 1.50%.

This Study provided investment information with respect to commercial real estate in Osogbo metropolis. The investment information provided in this study has significant implication for both local and foreign investors desiring to invest in the Nigerian property market. This research enables empirically validated, more informed and practical property investment decision-making with respect to selection of assets for a proper and appropriate investment portfolio mix so as to enhance portfolio performance by obtaining highest returns with possible minimal risk.

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