Original Research Article

Risk-Return Performance of Residential Property Investment in Lagos, Nigeria: A Quantitative Survey Analysis from 2001 to 2021

ABSTRACT

Aim: To evaluate the risk-return performance of residential property investment between 2001 and 2021 in Lagos, Nigeria.
Study Design: Quantitative Survey research.
Place and duration of study: Eti-osa and Somolu LGA, Lagos State, 2022.
Methodology: Survey with structured questionnaire collected primary data on non-owner-occupied residential property investments in Somolu and Eti-Osa, Lagos, Nigeria. Estate surveying and valuation firm provided the data. Analysis used descriptive statistics (charts, tables, standard deviation, and coefficient of variation) and trend analysis over 20 years (2001-2021) to assess risk-return performance. This included rental index, rental growth rate, standard deviation, and coefficient of variation.
Results: In Eti-Osa, duplexes had a high expected return of 54.04% with a risk of 18.58. Bungalows and flats had lower returns of 44.61% and 41.8% with risks of 16.38 and 15.39, respectively. Duplexes performed best with a coefficient of variation of 0.34, followed by bungalows and flats at 0.37 each. In Somolu, self-contained and duplex properties performed best with returns of 19.12% and 19.08% but higher risks of 14.82 and 17.08. Bungalows and tenement buildings had returns of 15.5% and 15.32% with lower risks of 10.43 and 8.25. Self-contained apartments had the lowest return of 13.31% and low risk of 6.57, performing best in risk-return with coefficient of variation of 0.49. Overall, Eti-Osa properties performed better than Somolu.
Conclusion: The study shows that rental prices experienced an overall upward trend, with flats and bungalows exhibiting higher rental growth rates compared to other property types. Appreciation rates varied across property categories, with duplexes in Eti-Osa and bungalows in Somolu showing higher average annual appreciation rates. Anticipated yield and risk varied among property types, with duplexes having the highest anticipated yield but also the highest level of risk. Therefore, this study recommends that investors prioritize flats and bungalows in Eti-Osa and Somolu, Lagos for higher rental growth and appreciation. Evaluate duplex risks, as they offer greater returns but entail elevated risk.

Keywords: Property investment, Rate of Return, Risk-return performance, Rental growth rate

1. INTRODUCTION

The residential property sector is a major part of the real estate market [1] that command huge attraction from construction organizations, cooperate companies, contractors, and individual investors [2]. Dabara [3] noted that the residential property investment sector is a very important sector attractive for investors to dive in because of its ability to hedge over inflation. Residential property investment options are of different types ranging from single-family homes, duplexes, bungalows, flats, tenement building tenement houses, and multi-story apartment blocks [4]. Mintah, Higgins, Callanan, and Wakefield [5] posited that Residential property has now become a crucial asset in the portfolio of long-term investors, and various studies have argued that residential property is an effective investment vehicle. Like other forms of investment, it is capital intensive and its capital recovery takes more time for the investors [6]. Thus, it is only expedient for investors to be anxious in the realization of its return.

Residential properties possess important characteristics such as localization, durability, fixity, heterogeneity, and being subject to government laws, regulations, and taxes [7]. This asset class offers high yields due to factors like long-term construction, costs of buying and selling, ownership proof challenges, capital outlay, management issues, and ownership types [8]. Thus, the uniqueness of the investment environments requires careful consideration by residential property investors [7]. It is incorrect to assume that two properties with similar characteristics will yield the same returns. Therefore, prudent investors should consider various alternatives and assess the attributes of residential properties to determine their risk-return profiles. This research aims to identify the attributes of residential property investment and their correlation with return on investment.

Recent research has examined the performance of residential property investments, including studies by [9], [10] and [11]. These studies emphasize the importance of location in investment performance, with Enugu and Anambra State experiencing lower-than-expected returns on residential properties. Commercial property investments in Onitsha outperformed residential properties during the studied period. Despite previous research on risk-return performance, investors in residential property still face declining returns. Therefore, this study aims to evaluate the risk-return performance of residential property investments in Lagos, Nigeria, from 2001 to 2021, and identify the underlying reasons for persistent deficiencies in investment performance.

2. LITERATURE REVIEW

This literature review examines the risk-return performance of residential property investment in Lagos, Nigeria over the period of 2001 to 2021. Our aim is to gain a thorough understanding of the dynamics and trends in this significant sector in the region by analyzing scholarly literature and empirical research.

The characteristics of the residential property and the surroundings where it exists are crucial factors to be considered while venturing into residential property investment [12]. However, Residential property investment cannot be separated from its nature, physical characteristics, and built environmental attributes such as good transportation [13]. According to Raymond [14], literature identified residential property as a four-dimensional land use with distinguishing features such as durability, unyielding structure, and fixity in nature. These natures are what describe its characteristic behavior as a real estate investment medium. Also, Frazer [15] recognized durability, location fixity, and heterogeneity as the characteristics of residential property investment. An assertion supported by [16] is that a residential property possesses the common characteristics of providing shelter, security, comfort, privacy, investment, and personal identity. As a consumer good, residential property is mandated to provide a certain level of satisfaction to its residents [10].

Fraundorf [17] and Akinsola [18] have highlighted the importance of logical investors seeking to allocate their funds to investment portfolios that offer a certain degree of certainty in order to safeguard the purchasing power of their capital. This involves ensuring a positive annual rate of return on investment while minimizing risk. Nevertheless, it has been noted that the risk specific to the property falls short of this anticipation. Steinke (2011) provided support for the assertion through a study that analyzed various dimensions of the property allocation process within real estate investment firms. It revealed that in residential property investment, market behavior, lease term, and the physical attributes of the property have the power to influence the risks and return expectations of the investment.

A study was conducted by [20] to investigate the advantages and significance of residential real estate. The research revealed that the risk-return attributes of residential investment are contingent upon the risk-return preferences of the investor, albeit typically falling within the 5% to 15% range. Okonu et al. (2019) employed correlation analysis to assess the relationship between risk and return in investment for a period of seven years. The research conducted an analysis of the risk-adjusted rate of return of multiple apartments situated in 1004 Estate. Additionally, the study explored the feasibility of diversification within sub-markets of residential real estate. The study revealed that the risk attached to the various apartments is high, and there is a strong

relationship between the apartments' risk and their returns. Udobi, Onyejiaka, and Nwozuzu [22] in a similar comparative study, measured the risk-return performance of residential and commercial property using the coefficient of variance in Anambra. The findings show that commercial property investments perform better in return than residential property investments, while the case was reversed on annual return using the standard deviation.

Moreover, Nasiru et al. [23] opined that the residential property investment risk-return attribute is yet to be captured in the Nigerian real estate market, but Wilhemsson and Zhoa [24] stated that the upward rise in residential property investment risk is a result of imperfect knowledge of property price determination and unfounded trends in making decisions in the real estate investment market. Although the literature has proven that unsystematic risk can be reduced through diversification, for instance, Radonic, Cooper, and Omans [25] researched how residential property investment risk can be geographically diversified, and the result shows that geographical diversification can only be possible if market integration is reduced. Similarly, Fan, Pu, Deng, and Ong [26] revealed that residential property investment correlation increases among properties of different dimensions would eventually lead to a negative slope on return. Hence, diversification of residential property is only possible if the inherent risk attributed to residential property is well managed and certified as one of the management strategies to reduce risk, not eliminate it [24].

The evaluation of performance for real estate investments among the various options available to property investors is often based on the risk-return relationship. The study conducted by [27], analyzed the performance of the residential property sector in Malaysia during the period spanning from 1989 to 2001. The study cantered on the evaluation of the risk-return trade-off between the risk-adjusted performance of residential properties and equity investments. The study conducted a correlation analysis to examine the diversification benefits of the investment media. The study's results indicated that detached dwellings exhibited greater capital appreciation in comparison to alternative housing types. The study determined that the principal factors influencing the performance of residential properties in Malaysia are the growth rate of the population and the geographical location. Despite the fact that the research was not conducted within the borders of Nigeria, This demonstrates the persistent requirement to analyze the risk-return attributes within the research area.

3. STUDY AREA

Lagos, located between longitudes 20°42'E and 30°42'E and latitudes 6°22'N and 6°52'N, is a megacity in Nigeria. It covers about 3,577 square kilometres, which is only 0.4 percent of Nigeria's total land area. However, according to the 1991 national population census, despite its small size, it houses more than 6.2 percent of the nation's population. The city is situated along the Bight of Benin on the Gulf of Guinea and is characterized by lagoons, creeks, and waterways, which make up 17 percent of the state's total area. This geographical feature exacerbates the scarcity of available land. As a result, the city's real estate market has significantly expanded thanks to people moving there in search of better opportunities from all over the nation. However, Lagos is not without challenges. The city's main problem right now is the rising rents for residential properties, which have resulted in rent defaults and the expansion of slum areas. This situation hampers the realization of developers', investors', and proprietors' objectives. Additionally, as [28] reported the rapid growth of the Lagos metropolis and its population has put a strain on social and infrastructure facilities. According to projections, Lagos will have an estimated 18 million residents by 2010 and multiple of that in 2025, placing it among the top ten most populous cities in the world. The city currently has a population of around 15 million. The study area for this research focuses on Lagos State due to its prominence as a prime location for residential property investment opportunities in Nigeria.

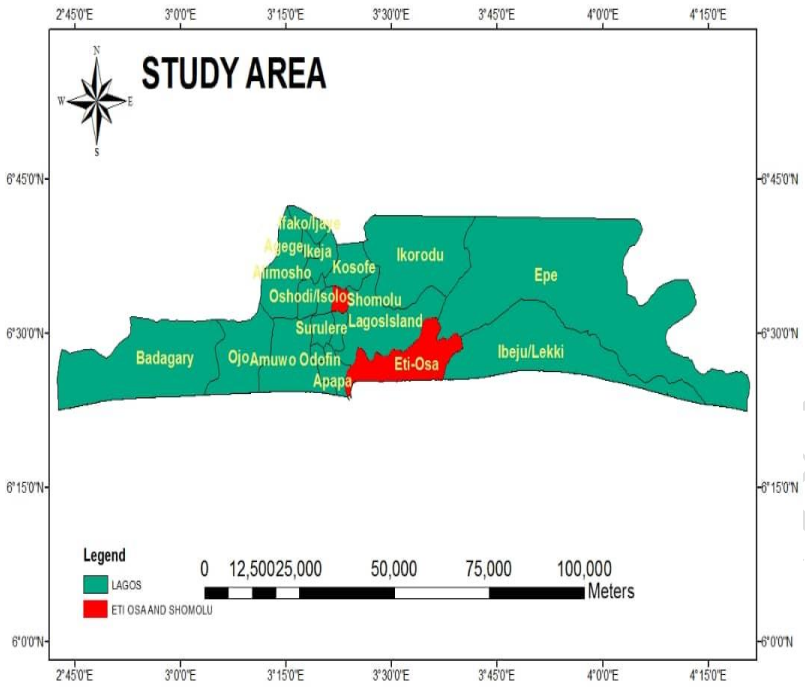

Fig 1: Map of Lagos state showing Eti-Osa and Somolu local government area.
Source: Author

4. METHODOLOGY

The study employed a quantitative research design. Primary data was collected through a survey using a structured questionnaire in order to address the research questions and test the hypotheses formulated in the study. The study targeted non-owner-occupied residential property investments in Somolu and Eti-Osa local government areas of Lagos, Nigeria. The data used was collected from estate surveying and Valuation Firm in Lagos, Nigeria. According to the Nigeria Institute of Estate Surveyors and Valuers (NIEVS) Lagos State branch directory[29], there are 388 practicing firms of Estate Surveying and Valuation in Lagos. The sampling size of Registered Estate Surveying and Valuation firms in the study area was 196 firms, after adopting [30] formula, given the large volume of the sample frame and the constraint of time, as shown below: $n=N/(1+N(e^{2})$, where n = sample size, N = population, e=size level of precision.

Descriptive statistics such as charts, tables, standard deviation, coefficient of variation, and trend analysis were used for the data analysis. The tables and charts were used to represent the data collected from the information retrieved for the trend analysis. Trend analysis is a statistical technique that examines past trends to predict the future direction of a variable. In essence, this approach seeks to predict future actions through the analysis of prior behaviors. The objective of this procedure is to detect profitable investment opportunities that exhibit a positive trend as well as identify negative trends to enable investors to exit before incurring losses. This technique is applicable for analyzing the risk-return performance of residential property investments in the study area over the period of 20 years between 2001 and 2021. This is explained through the rental index, rental growth rate, standard deviation, and coefficient of variation, which is the ratio of an investment's expected return to its risk. The standard deviation is a statistical tool used in finance to measure the historical volatility of an investment's annual rate of return [31]. A greater distance of data points from the mean indicates a higher deviation within the dataset, resulting in a higher standard deviation for more dispersed data. A higher standard deviation of securities indicates a greater deviation of each price from the mean, resulting in a wider price range. The distance of the data points from the mean indicates a high level of risk for the investment. The formula for Standard

Deviation SD = $\sqrt{\frac{\sum|x-\mu|^2}{N}}$, SD = Standard deviation (the risk factor), x is the value of the ith point in the data set, μ= the mean value of the data set and N is the number of data points in the data set.

5. RESULT AND FINDINGS

This section focuses on the results of the collected data and the interpretation of the findings. The Estate Surveyors and Valuers in Lagos, A total of 196 questionnaires were distributed to Estate Surveying and Valuation (ESV) firms in Lagos. Out of these, 159 questionnaires were retrieved, representing 81.1% of the surveyed firms. The questionnaires were collected and determined to be appropriate for subsequent analysis. The questionnaires were administered to the respondents in person. In order to ascertain the credibility of the data retrieved from these firms for proper implementation, the respondent Estate Surveyors and Valuers' years of experience in property management and the type of residential property managed by the firm in both selected local government areas were analyzed, and the result is presented in Table 1.

Table 1: Background Information on the Estate Surveyors and Valuers

Socio-economic characteristics		**ETI-OSA**		**SOMOLU**	
		Freq.	Percent	Freq.	Percent
Year of experience in property management	1-5years	27	16.98	31	19.50
	6-10years	94	59.12	82	51.57
	11-15years	21	13.21	19	11.95
	16-20 years	10	6.29	25	15.72
	21 and above	7	4.40	2	1.26
	Total	159	100.00	159	100.00
Residential property types managed by the firms	Tenement	10	6.28	25	51.57
	Self-contained	72	45.28	135	84.91
	Flat	159	100.00	159	100.00
	Bungalow	95	59.74	82	51.57

	Duplex	35	84.90	64	40.25

Source: Field Survey, 2022

The study conducted in Eti-Osa revealed in Table 1 that a significant proportion of estate surveyors and Valuers possess 6–10 years of experience in property management, accounting for 59.12% of the participants in Eti-Osa and 51.57% in Somolu. It can be seen that in Eti-Osa and Somolu, 16.98% and 19.50%, respectively, possess professional experience ranging from 1 to 5 years.

Table 1 show that all respondent firms manage flats in both study areas. However, there are differences in managing other residential properties. For example, 45.28% and 84.91% of firms manage self-contained apartments in Eti-Osa and Somolu, respectively. Bungalows are managed by 59.74% and 51.57% of firms in Eti-Osa and Somolu, respectively. Duplexes are managed by 22.01% and 40.25% of firms in Eti-Osa and Somolu, respectively. Tenement buildings are the least managed property type, with 6.29% and 15.72% of firms involved in Eti-Osa and Somolu, respectively. In summary, Table 1 highlights variations in the duration of professional practice and the types of residential properties managed by estate surveying firms in Eti-Osa and Somolu.

5.1 Characteristics of Residential Property Investment in the Study Area

The first objective of the study is to examine the characteristics of residential property investment in the study area. The information provided by the Estate Surveyors and Valuers from their respective firms' portfolios on the characteristics of the properties in the two different locations are presented in Table 2.

Table 2: Characteristics of Residential Property Investment by Estate Surveyors and Valuers

Residential Property Characteristics		**ETI-OSA**		**SOMOLU**	
		Freq.	Percent	Freq.	Percent
Level of rent default	High	78	49.06	47	29.56
	Moderate	45	28.30	67	42.14
	Low	36	22.64	45	28.30
	Total	**159**	**100.00**	**159**	**100.00**
Time on the market	<1 month	20	12.58	75	47.17
	1-3 months	29	18.24	30	18.87
	4-6 months	32	20.13	14	8.81

	7-9 months	51	32.08	21	13.21
	10-12 months	10	6.29	11	6.92
	>12 month	17	10.69	8	5.03
	Total	**159**	**100.00**	**159**	**100.00**

Source: Field Survey, 2022

Table 2 indicates varying levels of rent default in the study area, with Eti-Osa having a higher rate (49.06%) compared to Somolu (29.56%). The percentage of respondents reporting low, moderate, or average rent default is higher in Somolu (70.44%) than Eti-Osa (60.94%), suggesting higher occupancy rates in Somolu. Properties in Eti-Osa tend to stay vacant on the market for longer periods compared to Somolu. About 69% of respondents agree that residential properties in Eti-Osa remain vacant for more than 2 months, while only around 34% agree with this in Somolu, indicating higher demand in the latter.

5.2 Risk-Return Performance of Residential Property Investments

5.2.1 Trend Analysis

Trend analysis was done using one primary parameter: the rent paid by the occupiers. As previously indicated, the participants regarded these parameters as the most significant, as a considerable number of them did not provide feedback on the remaining parameters. The rental rates of properties over the period of study were analyzed to determine the risk-return performance of the residential properties in the study areas. The results are presented in Tables 3–10 and Figures 2–8.

Information on the average rental value of the five different types of residential properties adopted in the study (tenement, Self-contained, Flat, bungalow, and Duplex) in Eti-Osa and Somolu Local government areas is presented in Table 3.

Table 3: Average Rental Value of Residential Properties in Eti-Osa and Somolu

Year	ETI-OSA					SOMOLU				
	Tenement	Selfcon	Flat	Bung	Duplex	Tenement	Selfcon	Flat	Bung	Duplex
2001	35,000	185,000	750,000	800,000	800,000	35,000	165,000	200,000	400,000	450,000
2002	38,000	200,000	750,000	800,000	800,000	35,000	170,000	200,000	400,000	450,000
2003	35,000	200,000	750,000	800,000	950,000	40,000	180,000	300,000	500,000	500,000
2004	37,000	300,000	800,000	900,000	950,000	45,000	185,000	300,000	500,000	450,000
2005	35,000.	385,000	900,000	1,000,000	1,000,000	45,000	185,000	400,000	500,000	600,000
2006	35,000	400,000	1,000,000	1,000,000	1,550,000	50,000	189,000	400,000	550,000	750,000
2007	40,000	440,000	1,500,000	1,250,000	1,500,000	50,000	200,000	500,000	600,000	750,000
2008	40,000	459,000	1,800,000	2,000,000	1,800,000	60,000	200,000	500,000	600,000	800,000
2009	55,000	476,000	2,000,000	2,400,000	2,500,000	60,000	200,000	500,000	700,000	1,100,000
2010	50,000	500,000	2,300,000	2,600,000	3,000,000	70,000	230,000	600,000	700,000	1,300,000
2011	60,000	550,000	2,500,000	2,600,000	4,500,000	70,000	245,000	700,000	850,000	1,350,000
2012	65,000	600,000	2,800,000	3,600,000	5,226,000	70,000	245,000	700,000	900,000	1,600,000
2013	75,000	750,000	3,500,000	4,550,000	6,176,000	75,000	255,000	700,000	900,000	1,600,000
2014	85,000	750,000	4,000,000	4,600,000	6,500,000	85,000	255,000	700,000	1,000,000	1,350,000

2015	86,000	800,000	4,020,000	4,970,000	7,500,000	90,000	300,000	800,000	1,000,000	1,900,000
2016	90,000	800,000.	4,500,000	5,300,000	7,520,000	90,000	355,000	800,000	1,300,000	2,150,000
2017	90,000	800,000	5,475,000	5,300,000	7,920,000	90,000	375,000	1,000,000	1,300,000	2,250,000
2018	93,000	850,000	5,675,000	5,350,000	7,820,000	94,000	400,000	1,000,000	1,350,000	2,500,000
2019	95,000	900,000	6,850,000	6,500,000	8,000,000	98,000	400,000	1,200,000	1,500,000	2,600,000
2020	100,000	1,000,000	6,750,000	6,707,000	8,500,000	120,000	450,000	1,200,000	1,500,000	2,850,000
2021	120,000	1,200,000	6,407,000	7,750,000	8,250,000	135,000	455,000	1,350,000	1,550,000	2,850,000

Source: Field Survey, 2022

Table 3 shows that Eti-Osa and Somolu local government areas have experienced increasing rates of return over the years. However, there have been fluctuations in the rates of returns for self-contained apartments and flats in Eti-Osa, with a drop in 2004 for self-contained apartments and in 2010 for flats. Rent for tenements and duplexes have remained relatively stable, while bungalow rents have increased slightly. In Somolu, the rates of return for self-contained apartments and flats have remained steady, with a slight increase for flats in 2015 and 2016. Rent for tenements and bungalows have steadily increased over the years, and duplex rental prices saw a steady increase from 2011 to 2016. In 2017, the rent for flats in Eti-Osa was higher than in Somolu, potentially due to higher demand or better housing quality in Eti-Osa.

Table 4 and Figures 2-4 present the rental index, which measures the variation in rental rates compared to the reference year of 2001 (indexed score of1). It provides the percentage variation in rental rates for each category in each year.

Table 4: Rental Index of residential Properties in Eti-Osa and Somolu

Year	ETI-OSA					SOMOLU				
	Tenement	Selfcon	Flat	Bung	Duplex	Tenement	Selfcon	Flat	Bung	Duplex
2001	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2002	1.09	1.08	1.00	1.00	1.00	1.00	1.03	1.00	1.00	1.00
2003	1.00	1.08	1.00	1.00	1.19	1.14	1.09	1.50	1.25	1.11
2004	1.06	1.62	1.07	1.13	1.19	1.29	1.12	1.50	1.25	1.00
2005	1.00	2.08	1.20	1.25	1.25	1.29	1.12	2.00	1.25	1.33
2006	1.00	2.16	1.33	1.25	1.94	1.43	1.15	2.00	1.38	1.67
2007	1.14	2.38	2.00	1.56	1.88	1.43	1.21	2.50	1.50	1.67
2008	1.14	2.48	2.40	2.50	2.25	1.71	1.21	2.50	1.50	1.78
2009	1.57	2.57	2.67	3.00	3.13	1.71	1.21	2.50	1.75	2.44
2010	1.43	2.70	3.07	3.25	3.75	2.00	1.39	3.00	1.75	2.89
2011	1.71	2.97	3.33	3.25	5.63	2.00	1.48	3.50	2.13	3.00
2012	1.86	3.24	3.73	4.50	6.53	2.00	1.48	3.50	2.25	3.56
2013	2.14	4.05	4.67	5.69	7.72	2.14	1.55	3.50	2.25	3.56
2014	2.43	4.05	5.33	5.75	8.13	2.43	1.55	3.50	2.50	3.00
2015	2.46	4.32	5.36	6.21	9.38	2.57	1.82	4.00	2.50	4.22
2016	2.57	4.32	6.00	6.63	9.40	2.57	2.15	4.00	3.25	4.78
2017	2.57	4.32	7.30	6.63	9.90	2.57	2.27	5.00	3.25	5.00

2018	2.66	4.59	7.57	6.69	9.78	2.69	2.42	5.00	3.38	5.56
2019	2.71	4.86	9.13	8.13	10.00	2.80	2.42	6.00	3.75	5.78
2020	2.86	5.41	9.00	8.38	10.63	3.43	2.73	6.00	3.75	6.33
2021	3.43	6.49	8.54	9.69	10.31	3.86	2.76	6.75	3.88	6.33

Source: Field Survey, 2022

Figures 2-4 demonstrate the temporal and spatial variation in rental indices for different residential property types in Eti-Osa and Somolu local government areas. Generally, rental indices show an upward trend over time, with self-contained and duplex properties exhibiting relatively higher indices compared to tenements and bungalows. Eti-Osa outperforms Somolu in terms of rental indices, except for tenements where Somolu performs better. Table 4 provides valuable data for understanding rental index patterns and fluctuations in both areas. It suggests that Eti-Osa presents favorable opportunities for residential property investments.

Table 5 and Figures 2-4 analyze the rental growth rates for various property types in Eti-Osa and Somolu, measured as the percentage difference between average rents of the current and previous years.

Table 5: Rental Growth Rate of residential Properties in Eti-Osa and Somolu

Year	**ETI-OSA**					**SOMOLU**				
	Tenement	Selfcon	Flat	Bung	Duplex	Tenement	Selfcon	Flat	Bung	Duplex
2001	-	-	-	-	-	-	-	-	-	-
2002	0.09	0.08	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
2003	-0.08	0.00	0.00	0.00	0.19	0.14	0.06	0.50	0.25	0.11
2004	0.06	0.50	0.07	0.13	0.00	0.13	0.03	0.00	0.00	-0.10
2005	-0.05	0.28	0.13	0.11	0.05	0.00	0.00	0.33	0.00	0.33
2006	0.00	0.04	0.11	0.00	0.55	0.11	0.02	0.00	0.10	0.25
2007	0.14	0.10	0.50	0.25	-0.03	0.00	0.06	0.25	0.09	0.00
2008	0.00	0.04	0.20	0.60	0.20	0.20	0.00	0.00	0.00	0.07
2009	0.38	0.04	0.11	0.20	0.39	0.00	0.00	0.00	0.17	0.38
2010	-0.09	0.05	0.15	0.08	0.20	0.17	0.15	0.20	0.00	0.18
2011	0.20	0.10	0.09	0.00	0.50	0.00	0.07	0.17	0.21	0.04

2012	0.08	0.09	0.12	0.38	0.16	0.00	0.00	0.00	0.06	0.19
2013	0.15	0.25	0.25	0.26	0.18	0.07	0.04	0.00	0.00	0.00
2014	0.13	0.00	0.14	0.01	0.05	0.13	0.00	0.00	0.11	-0.16
2015	0.01	0.07	0.01	0.08	0.15	0.06	0.18	0.14	0.00	0.41
2016	0.05	0.00	0.12	0.07	0.00	0.00	0.18	0.00	0.30	0.13
2017	0.00	0.00	0.22	0.00	0.05	0.00	0.06	0.25	0.00	0.05
2018	0.03	0.06	0.04	0.01	-0.01	0.04	0.07	0.00	0.04	0.11
2019	0.02	0.06	0.21	0.21	0.02	0.04	0.00	0.20	0.11	0.04
2020	0.05	0.11	-0.01	0.03	0.06	0.22	0.13	0.00	0.00	0.10
2021	0.20	0.20	-0.05	0.16	-0.03	0.13	0.01	0.13	0.03	0.00
	0.07	**0.10**	**0.12**	**0.13**	**0.13**	**0.07**	**0.05**	**0.11**	**0.07**	**0.11**

Source: Field Survey, 2022

Table 5 shows evidence of fluctuations in rental growth throughout the period of study. In Eti-Osa, bungalows and Duplexes exhibited the highest average rental growth of 13% each, followed by blocks of flats with an average growth rate of 12%, while Self-contained apartments had a 10% growth rate. The growth rates for these residential property types are in double digits. However, tenement buildings displayed the lowest average growth rate of 7%, which is a single digit. Thus, investments in duplexes, bungalows, and blocks of flats prove to be better options for investment in Eti-Osa. In Somolu, the average rental growth of self-contained apartments happens to be the least (5%) followed by tenement buildings and bungalows with average growth rates of 7% each. The average growth rates of these properties are in single units, while those of flats and duplexes are in double digits of 11% each. From the analysis of Table 5, properties in Eti-Osa outperformed those in Somolu in terms of growth prospects, and this is one of the factors that influence any investment decision, be it real estate or non-real estate. Furthermore, there exists a high degree of variability in the growth rates of the various residential properties, which is influenced by the frequency of rent review periods.

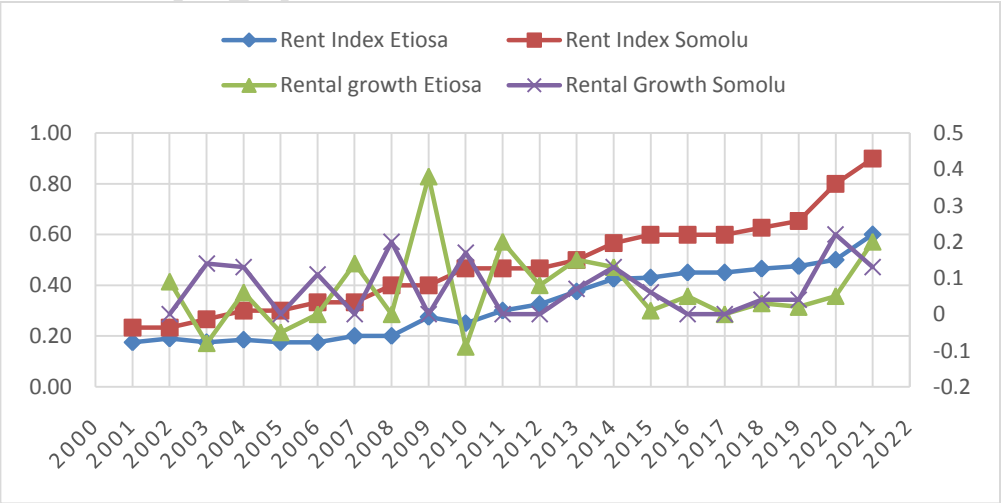

Figure 2: Rental Index and Growth of Tenement Building in Eti-Osa and Somolu

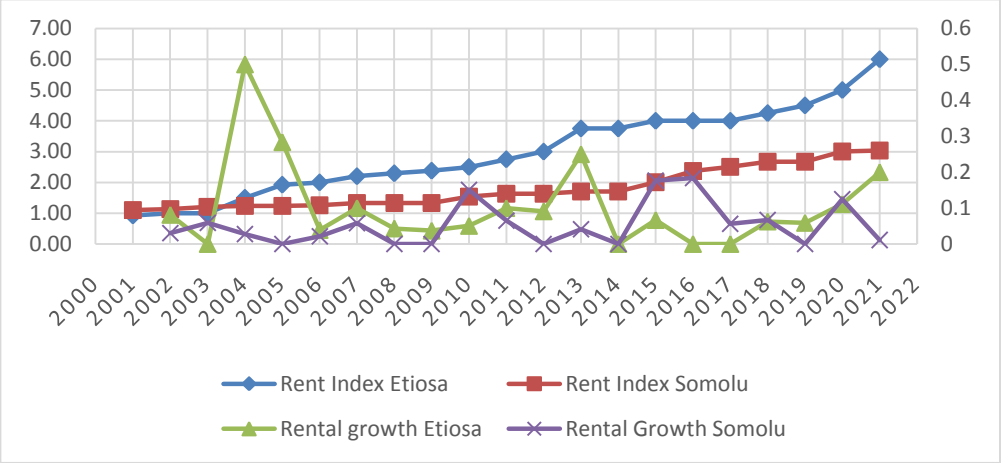

Figure 3: Rental Index and Growth of Self contain Buildings in Eti-Osa and Somolu

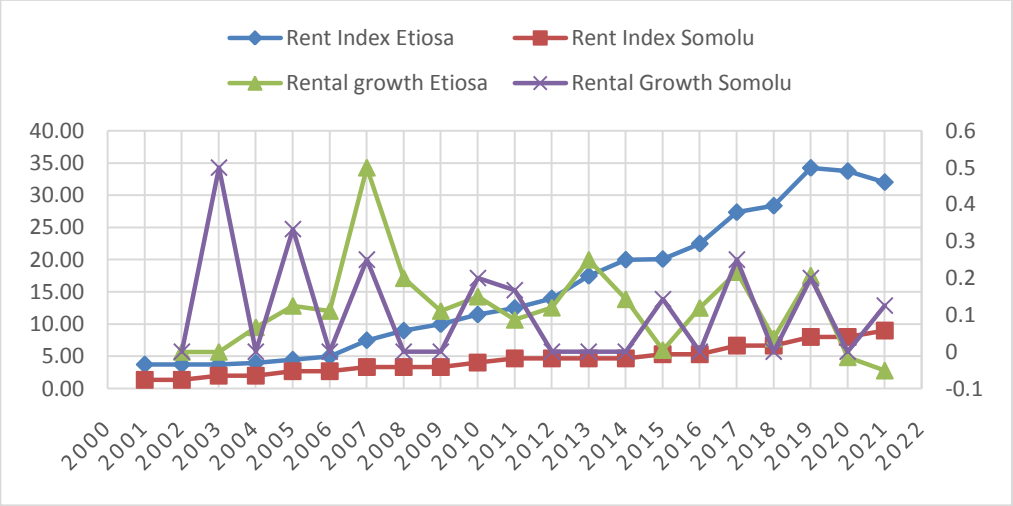

Figure 4: Rental Index and Growth of Block of Flats in Eti-Osa and Somolu

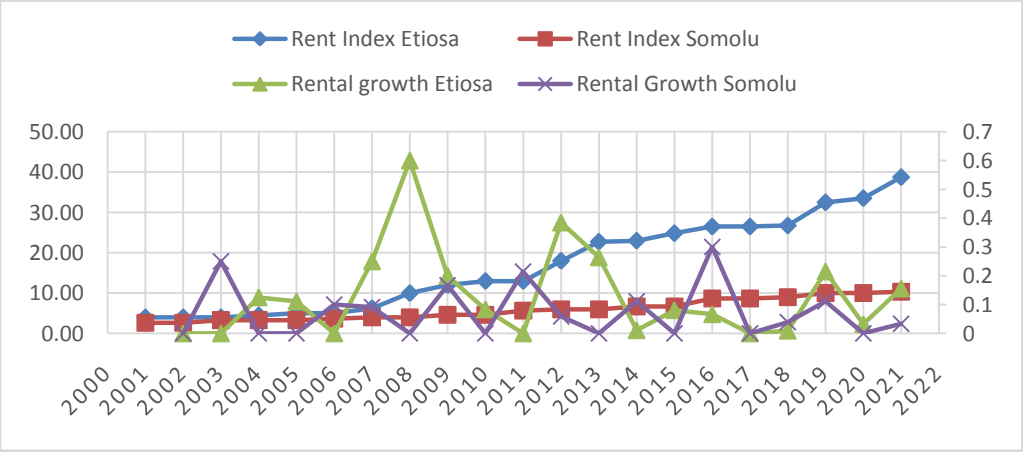

Figure 5: Rental Index and Growth of Bungalow in Eti-Osa and Somolu

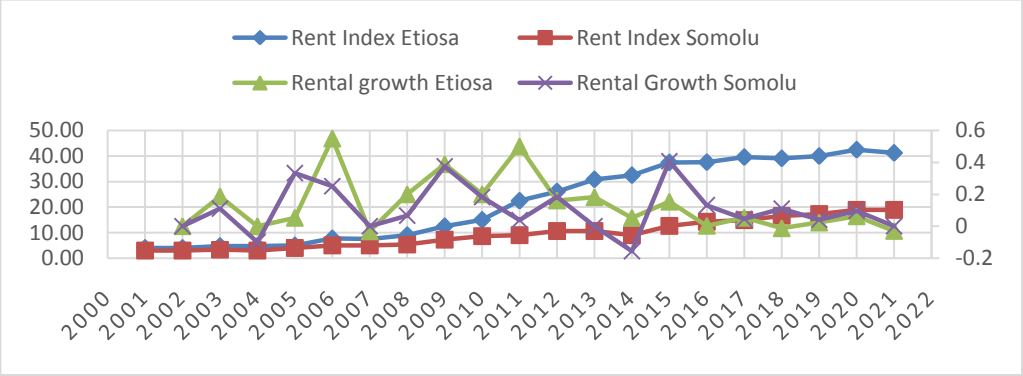

Figure 6: Rental Index and Growth of Duplex in Eti-Osa and Somolu

Table 6 and Figures 7 and 8 below present information regarding the mean yearly appreciation percentages (%) of the five selected property categories in two local government areas of Lagos State, Nigeria, specifically ETI-OSA and SOMOLU, spanning from 2001 to 2021. The final trio of rows displays the projected mean return, level of risk, and coefficient of variation (C of V) for each local government area and category of residential property type. The enumerated property categories include tenement, self-contained, flat, bungalow, and duplex.

Table 6: Risk-Return Performance of Residential Properties in Eti-Osa and Somolu

Year	ETI-OSA					SOMOLU				
	Tenement	Selfcon	Flat	Bung	Duplex	Tenement	Selfcon	Flat	Bung	Duplex
2001	-	-	-	-	-	-	-	-	-	-
2002	15.63	15.14	34.46	36.22	36.22	7.00	10.24	7.00	7.00	7.00
2003	-1.91	6.50	24.37	26.00	30.87	22.29	13.29	60.50	33.75	18.89
2004	21.40	72.25	88.50	91.75	93.37	20.38	9.97	7.00	7.00	-3.70
2005	0.27	36.03	46.33	48.33	48.33	7.00	7.00	42.67	7.00	42.67
2006	6.00	10.13	19.48	19.48	28.05	27.44	17.17	14.69	26.16	43.37
2007	21.14	16.60	32.50	28.75	32.50	6.50	12.70	33.13	16.18	6.50
2008	6.00	10.58	28.86	31.59	28.86	27.80	6.50	6.50	6.50	13.60
2009	45.75	9.93	29.85	35.08	36.38	6.50	6.50	6.50	24.25	46.44
2010	-3.64	11.34	34.03	37.82	42.86	24.25	22.48	27.80	6.50	25.86
2011	27.20	16.60	40.00	41.20	64.00	6.50	13.45	24.25	29.32	10.60
2012	14.83	15.64	39.64	48.36	66.10	14.83	14.83	14.83	21.59	36.10

2013	22.31	32.50	60.00	70.50	86.76	13.57	10.33	6.00	6.00	6.00
2014	20.13	6.00	32.00	36.80	52.00	20.13	6.00	6.00	17.78	-10.56
2015	7.25	13.07	38.83	46.43	66.67	12.24	24.71	21.14	6.00	49.19
2016	20.44	15.09	42.84	48.84	65.49	6.00	25.43	6.00	37.80	19.95
2017	5.50	5.50	37.64	36.44	54.45	6.00	11.97	32.50	6.00	10.93
2018	9.02	12.09	45.27	43.03	60.01	20.21	22.76	15.09	19.52	27.88
2019	17.98	22.29	60.79	58.53	68.24	9.99	5.50	26.60	17.22	9.72
2020	10.53	16.67	48.61	48.37	58.33	29.18	18.69	5.50	5.50	15.64
2021	26.00	26.00	52.04	58.75	61.25	18.69	6.67	18.69	9.02	5.50
Exp Ret	**14.59**	**18.50**	**41.80**	**44.61**	**54.04**	**15.32**	**13.31**	**19.12**	**15.50**	**19.08**
Risk	**11.76**	**15.05**	**15.39**	**16.38**	**18.58**	**8.25**	**6.57**	**14.82**	**10.43**	**17.08**
C of V	**0.81**	**0.81**	**0.37**	**0.37**	**0.34**	**0.54**	**0.49**	**0.78**	**0.67**	**0.90**

Source: Field Survey, 2022

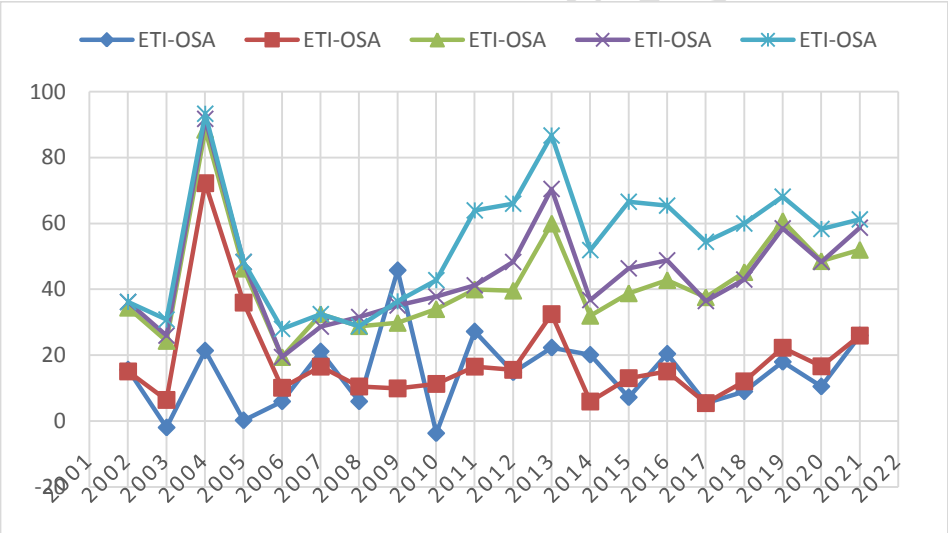

Figure 7: Rate of Return of all Property types in Eti-Osa

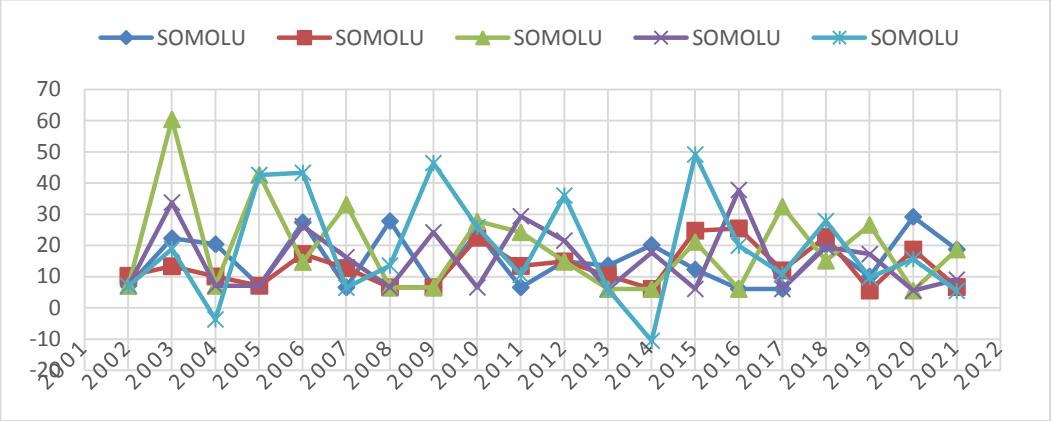

Figure 8: Rate of Return of all Property types in Somolu

From Table 7, it is evident that the rate of returns significantly varied across property types and locations. It was observed in Eti-Osa that duplexes had an expected rate of return as high as 54.04% with an attendant high level of risk of 18.58, whereas bungalows and flats had comparatively lower rates of return of 44.61% and 41.8% and risk levels of 16.38 and 15.39, respectively. This implies that as the level of risk increases, so does the level of expected return from such an investment to compensate for the high level of risk. The coefficient of variation, which is a measure of the relative performance of the investment in terms of risk and return, shows that duplexes are the best-performing residential property investment in Eti-Osa (0.34), followed by bungalows and blocks of flats, with each having a coefficient of variation of 0.37, while tenements and self-contained apartments performed the least with coefficients of variation of 0.81 each.

In Somolu, the reverse is the case. Self-contained and duplex properties performed best in terms of return (19.12% and 19.08%), but with considerably high levels of risk (14.82 and 17.08). Also, bungalows and tenement buildings showed an expected rate of return of 15.5% and 15.32%, respectively, but with lower levels of risk of 10.43 and 8.25, respectively. The least performed residential property in Somolu in terms of expected return is the self-contained apartment, with an expected return of 13.31% and a considerably low level of risk of 6.57. Looking at their relative performances in terms of risk-return using the coefficient of variation, self-contain performed the best with a coefficient of variation of 0.49, while duplex (0.90) in Somolu performed the least. Comparing the performances of the properties in Eti-Osa and Somolu, residential properties in Eti-Osa performed better than those in Somolu. Thus, any prospective investor should consider investing in Eti-Osa residential areas for optimum performance, especially when they invest in duplexes, bungalows, and blocks of flats.

6. DISCUSSION OF RESULTS

According to Anene [32], the housing rental prices tend to rise in urban areas due to increased demand resulting from population growth and migration. This can explain the overall upward trend in rate of return observed in both Eti-Osa and Somolu. The rental prices have been a topic of concern in Africa. Canton [33] reported that rapid urbanization, limited housing supply, and inadequate urban planning contributed to rising housing costs in many African cities. This aligns with the observed increase in rental price in Lagos State, including Eti-Osa and Somolu. As the data also shows in Figure 2, 6 and Table 4, it can be observed that self-contained and duplex residential properties demonstrate a comparatively elevated rental index in contrast to tenement and bungalow properties. This discovery aligns with the present global context, in which rental value are influenced by various factors such as geographical location, available amenities, and type of property. Furthermore, Anene [32] reported that there exist a positive correlation between the quality of amenities and properties and the rental rates they command. Figure 2 and Table 11 show that Eti-Osa exhibits a higher rental index for most property types compared to Somolu, indicating that Eti-Osa outperforms Somolu in terms of rental index. In comparison to Somolu, Eti-Osa exhibits

a higher average rental index for self-contained units, flats, bungalows, and duplexes. This implies that Eti-Osa has the potential to provide more profitable investment prospects.

Table 5, figures 2,3,4 and 5, shows that there exists a certain degree of disparity in the rising rental growth rate across the five selected types of residential property adopted in this study within the two local government areas in Lagos State. Duplexes in Eti-Osa exhibit an average rental growth rate of 13%, while Table 12 revealed that in Somolu, bungalows demonstrate the most substantial increase in rate of return, averaging at 16%. The results of this study suggest that rental growth rates vary across residential property types and locations within Lagos State. Additionally, the data indicates a predominantly positive trend in rental growth within Lagos State throughout the past two decades. Among various types of properties, flats and bungalows have demonstrated the most remarkable upsurge in rental growth rates. This phenomenon is consistent with the growing demand for urban residential property investment, which is fueled by factors such as population expansion, urbanization, and evolving societal preferences. The rental rates in Nigeria have exhibited an overall upward trajectory, which can be attributed to various factors such as urbanisation, limited housing supply, and shifting demographics [34]. Additionally, Agyemang and Morrison [35] have identified urbanisation, population growth, and migration as significant catalysts for the expansion of the rental market. The present research outcome may be attributed to the factors of rapid urbanization and population growth, which have led to an enhanced demand for rental properties in the study area.

Table 7 reveals that residential properties in Eti-Osa generally exhibit higher returns compared to Somolu. Specifically, duplexes, bungalows, and flats in Eti-Osa show the highest expected returns, with percentages of 54.04%, 44.61%, and 41.80%, respectively. In Somolu, duplexes, flats, and self-contained properties have the highest expected returns, with percentages of 19.08%, 19.12%, and 15.50%, respectively. In Eti-Osa, duplexes have the highest risk at 18.58%, while tenements have the lowest risk at 11.76%. In Somolu, flats have the highest risk at 14.82%, while self-contained properties have the lowest risk at 6.57%. The coefficient of variation (C of V) provides a measure of the risk-to-return ratio. The flat property in Eti-Osa stands out with a lower coefficient of variation (0.37) compared to other properties. Similarly, in Somolu, the self-contained property has the lowest coefficient of variation (0.49), suggesting a relatively lower risk associated with return compared to both locations. The result of this study is consistent with Hoesli et al [36] that highlighted the importance of analyzing risk-to-return ratios. As well as Omotayo et al [37] that emphasized the need for proper risk assessment in property investments for a better expected return option.

5.0 CONCLUSION AND RECOMMENDATION

This study has examined the risk-return performance of residential property investment return in Eti-Osa and Somolu in Lagos State. The survey conducted among Estate Surveyors and Valuers revealed important trends and patterns in rent defaults, rent review periods, property conditions, and depreciation rates, presence of tarred roads, market durations, property locations, and criminal activities. The study also analyzed the risks and return performance of residential property investments in the two areas. Rental prices showed an overall upward trend over time, with flats and bungalows exhibiting higher rental growth rates compared to other property types. Appreciation rates varied across property categories, with duplexes in Eti-Osa and bungalows in Somolu showing higher average annual appreciation rates. The anticipated yield and level of risk varied among property types, with duplexes having the highest anticipated yield but also the highest level of risk. Investors are advised to prioritize flats and bungalows in Eti-Osa and Somolu, Lagos State, due to their potential for greater rental growth and appreciation rates. It is important to thoroughly evaluate risks when considering duplexes, as they provide greater returns but also entail elevated levels of risk.

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