

Assessment of the Dominant Real Estate Diversification Strategy in South East, Nigeria.

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Abstract: To achieve the optimal real estate investment portfolio diversification benefits in any property market, the dominant diversification portfolio strategy should be adopted. As diversified as the property markets are so are the outcomes of different diversification strategies, hence to understand the most appropriate diversification strategy would require careful scrutiny of the relevant strategies. The study was executed to assess the dominant real estate diversification strategy in South East, Nigeria. Survey method was used in carrying out the study. Thirty one registered estate surveying firms were drawn from a total of sixty six estate Surveying firms located in the study area. Structured questionnaire was used to collect the primary data on the annual rents and capital values of residential and commercial properties from the study area. Mean variance analysis was used in determining the dominant portfolio diversification strategy. The results of the portfolio returns and risks show that the two diversification strategies under review offered significant diversification benefits when compared with the individual property risk – return performances. The comparison of the two diversification strategies employed in the study gave mixed results; at certain points the property type portfolios dominated some of the outcomes of portfolios built by economic specialization strategy. Result of the real estate portfolio built by diversifying within the property type in Owerri outperformed all the real estate portfolios built across the economic specializations of the cities in South East. However, generally the performances of the portfolios built on the economic specialization of the cities across the South East States of Nigeria were found to dominant.

Keywords: portfolio diversification, property type diversification, economic specialization diversification, dominant diversification strategy.

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I. Introduction

Portfolio risk is one of the biggest drawbacks to investors and finding a way to reduce risk is of highest priority to every investor. Reducing investment assets specific risk can be achieved by investing in various sectors, especially ones which have very different characteristics that enable them respond differently to different market conditions; this has been achieved over the years through investment diversification.

Investment assets diversification is the major tenet of The Modern Portfolio Theory introduced by Harry Markowitz in 1952. The implementation of this principle is aimed at reducing risk and achieving the expected returns on investment and it is essentially common in application to financial instruments and property. Diversification as a risk management technique mixes a wide variety of investment within a portfolio. The philosophy that underscores the application of investment diversification is that different kinds of investment portfolio will, on average, yield higher returns and pose a lower risk than the least performing individual investment found within the portfolio and produces the best risk-return ratio compared to any single individual asset in the portfolio. Investment portfolio diversification strives to smooth out unsystematic risk in a portfolio so that the positive performance of some investment will neutralize the negative performance of others. This diversification benefits can be achieved if the investment assets in the portfolio are not perfectly correlated.

Geographical regions have been used by several studies to examine the benefits of geographical real estate portfolio diversification. This approach has been challenged in recent times, as real estate returns are determined to a great extent by economic factors that are not taken into account using traditional regional portfolio approach. The concept of economic diversification is based on the fact that real estate returns of towns with similar economic characteristics may behave similarly independent of the geographic distance between them because people tend to respond apparently alike to the same economic condition. In contrast, towns with different economic specialization patterns are characterized by different risk – return profiles. It is therefore believed that diversifying over towns with different economic profiles might provide greater diversification

benefits in terms of risk and returns than diversifying over administrative regions that do not appropriately reflect economic differences. Mueller and Ziering (1992) in their study on real estate portfolio diversification using economic diversification, they disregarded the arbitrary geographic restriction and looked at the local economic drivers of individual metropolitan areas as the key determinant for more efficient diversification. Venturing into big time real estate investment without proper understanding and application of the principles of Modern Portfolio theory may result to sub-optimal performance of real estate investments. Observations over the years have shown that most investors have often been spurred into towing a particular line of real estate investments basically by the speculation that accommodation demands, rents and capital values will rise in the near future or alternatively by the drive to meet the market demands for accommodations. Often times most real estate investors in Nigeria, with particular reference to South East Nigeria have naively diversified their real estate assets across different property types and geographic administrative regions without recourse to apply the tenets of Modern Portfolio Theory. This has continually made the possibility of achieving the real benefits of portfolio diversification elusive to most investors as often times, their speculations are either not met or marginally met. Hence, this study was carried out to analyse the use of property type real estate portfolio diversification strategy and economic specialization of different cities portfolio diversification strategy with a view to determine the dominant diversification strategy for the zone.

1.1. Problem Statement And Justification

The practice of naively diversifying real estate investment based on the traditional administrative geographic region or across the cities may not offer the optimal diversification benefits required by any prudent investors. Different cities and administrative geographic regions possess economic characteristics that determine their investment performance capacities. The similarities and differences of the economic characteristics of the cities or geographic region are vital to the choice of diversification strategy that would offer the most efficient portfolio. Therefore, to obtain optimal diversification benefits of real estate investment portfolio in South East states of Nigeria, the most efficient diversification strategy must be employed. This can be achieved through discreet application of Modern Portfolio Theory which helps to isolate the most efficient diversification strategy suitable for any given area.

Modern Portfolio Theory is an investment model that describes how a rational investor can use diversification to obtain the optimal portfolio. It is a complete deviation from traditional security analysis by shifting emphasis from analysing the characteristics of individual securities that comprise the overall portfolio (Edwin and Martins, 1997). An efficiently diversified real estate portfolio maximizes the portfolio expected returns for a given amount of portfolio risk, or equivalently minimizes risk for a given level of return, thereby creating optimal investment performance. On the contrary, when real estate investment portfolio is naively diversified, it undermines the relevance of modern portfolio theory; thereby creating an inefficient portfolio. This ultimately results to poor investment performance.

In spite of the opportunities offered by Modern Portfolio Theory, most real estate investors in South East states of Nigeria have over the years continued to naively diversify their real estate investment portfolios. This they do by spreading their real estate investments across the major cities of South East states or in some circumstances by concentrating their real estate investment in any city of their choices.

This study was designed to carry out a critical analysis of the application of property type real estate investment diversification and economic specialization strategies on real estate investment portfolio diversification in South East States of Nigeria with a view to determine the dominant strategy that would offer optimal diversification benefits. The outcomes of the study serve as guides to real estate investors in South East Nigeria in selecting the most appropriate diversification strategy that will enable them achieve an efficient diversified investment portfolio for superior risk-adjusted returns.

1.2. General And Specific Objectives Of The Study

The aim of this study is to carry out analysis of real estate portfolio diversification strategies in South East Nigeria with a view to isolate the dominant strategy.

The objectives of the study are to:

- (i) determine the returns of the different classes of real estate investment in the selected cities in South East Nigeria,
- (ii) build different real estate investment portfolios based on economic diversification strategy and property type and
- (iii) determine the dominant real estate investment portfolio diversification strategy in South East Nigeria.

II. Literature Review

Several studies have been carried out on real estate diversification benefits at different places to determine the usefulness of portfolio diversifications. Kallberg and Liu (1996) and Kafor (2005) in their studies affirmed that it is more profitable to diversify than to hold on to the same investment assets. Ian (2011), in his study concluded that location is a major determinant in real estate investment. He stated that a piece of real estate can perform differently among countries, regions, cities and within the city. This assertion was arrived at based on Ian study in which different properties in different locations correlated negatively to indicate risk reductions across different location.

Olaleye (2005), Olaleye and Aluko (2007), Aluko and Olaleye (2006, 2008) and Olaleye, Ajayi and Mfam (2011), carried out studies on evaluating real estate diversification strategies. Their studies were essentially on comparing naive diversification strategies with Modern Portfolio Theory based quantitative methods. Their findings reveal that using geographic diversification strategies achieved more benefits in terms of return/risk ratio. Olaleye, Aluko and Ajayi (2007), undertook studies on the challenges in the application of diversification theory, with a view to determine the factors influencing the choice of naive diversification. Their findings reveal that lack of transaction information or recognised market index to measure market return and other trend data was a major issue.

Globally, it has been a traditional practice to diversify real estate investment based on geographic region that have been created by political or historical events or alternatively across different cities with the perception that their location differences would most likely create diversification benefits. This view has been challenged by most scholars in their different studies (Muller & Ziering, 1992; Muller, 1993; Dipasquale & Wheaton, 1996; and Hoesli & MacGregor, 2000). They illustrated in their studies that, rather than focusing on the administrative geographic region/location differences, economic variations of the cities and regions should be the basis of real estate investment diversification. They further discovered from their studies that the administrative regions traditionally used to define the real estate sub-markets are sub-optimal because real estate returns of cities with similar economic characteristics may behave similarly independent of the geographic distance between them. Heydenreich (2010) used annual office market data over the period from 1981 to 2003 to examine the benefits of economic versus traditional geographic (administrative) diversification in the United Kingdom (UK). Using annual employment data from Cambridge Econometrics, the author organised UK counties into 11 categories based on the level of specialisation in a number of counties relative to the national average. Then, using mean-variance analysis for different holding periods of five and ten years and for a number of sub-periods Heydenreich compared the efficient frontiers produced by the 11 economic regions with the 11 standard regions of the UK as classified by the UK government. The author concluded that the traditional administrative regional approach to diversification yields inferior results to that produced by the economic regional classification; though the analysis was confined to just one sector (offices).

Researchers argue that real estate portfolios should be constructed based on an analysis of the economic characteristics of the city in which the properties are located. The idea is that geographic diversification strategies should be based on cities that differ in their economic characteristics and structures (Mueller, 1993; DiPasquale & Wheaton, 1996; Hoesli & MacGregor, 2000). This was further buttressed by Jackson (2013) who argued that the administrative regions traditionally used to define the sub-markets are suboptimal, as the definitions are based on historical and governmental factors rather than on market fundamentals. He reported that a more efficient way to devise a real estate strategy is to build the portfolio based on the clustering derived from discernable market drivers.

Hartzel, Hekman and Miles (1986) analysed a ten year period 1973 – 1983 using a single institutional portfolio of about 270 properties and came out with the results that property type diversification was more efficient than regional diversification. Hartzel, Shulman and Wurtzbeck (1987) study showed that regional diversification does matter for real estate portfolio in the sense that the eight-region categorization they used provided lower correlations. However, an investor can also reduce the portfolio risk by diversifying within the asset class. Seiler, Webb and Myer (1999) state that the different ways of diversifying within real estate exist due to the fact that real estate is heterogeneous, i.e. that it varies by size, property type, geographic and economic region, and proximity to a metropolitan area. In view of the above, most investors have often selected to diversify within real estate asset classes while others chose to diversify based on geographic differences, sometimes with emphasis on economic factors.

III. Research Methodology

Survey method was adopted in carrying out the study; the subjects of study were residential and commercial properties in the central business districts (CBDs) and high density areas of the cities. Annual rents and capital values of residential and commercial properties in the central business districts and high density zones of the study area were obtained from Thirty One registered estate surveying firms located in the study areas with the help of structured questionnaire.

To analyze the data collected, rates of return for the different classes of properties were estimated and Karl Pearson correlation analysis and mean-variance analysis were used to determine the dominant diversification strategy amongst the strategies employed in the study. The benefits of geographic diversification can be determined by measuring the correlations between time series of real estate returns aggregated by the cities. Similarly, correlating real estate returns aggregated by property type can give information about the usefulness of diversification by property type. Deciding which of the two approaches to real estate diversification is more effective can be done by comparing the correlations of both approaches; the lower correlations imply which diversification strategy would be best.

1.1. The 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 (see figure 1). The people of South East States are predominantly 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.

For the purpose of this study, the four largest and most populated cities in South East Nigeria were selected as the study areas. The cities comprised Aba (Abia state), Enugu (Enugu State), Onitsha (Anambara State) and Owerri (Imo State).

Aba and Onitsha are major commercial cities in South East Nigeria; the projected population of the cities in 2019 are 1,586,287 and 1,349,00 respectively (<https://populationstat.com>> Nigeria, 2019); while Enugu and Owerri are administrative cities (state capitals) and educational towns hosting two Universities each, polytechnics and colleges of education with a projected population of 723,575 and 1,297,921 respectively in 2019 (<https://populationstat.com>> Nigeria, 2019). The statuses of the cities selected for the study have over the years made them highly attractive to real estate investors.

IV. Results And Findings

The total annual returns of different classes of properties in the study areas were estimated by finding the percentage of the sum of the annual rents and annual capital value appreciation to the capital values of the properties at the beginning of the year as illustrated in equation 1. The total annual return are shown in Table 1. Geltner and Miller (2007) described that the total return of any investment is composed of two parts, an income return component (y_t) and an appreciation (growth) return component (g_t).

$$R_t = \frac{CF_t + V_t - V_{t-1}}{V_{t-1}} = \frac{CF_t}{V_{t-1}} + \frac{V_t - V_{t-1}}{V_{t-1}} \quad [\text{eq. 1}]$$

Where:

R_t = total return on investment

CF_t = cash flow paid to the investor during the period t

$V_t - V_{t-1}$ = change in the market value of the asset within the time t

V_{t-1} = market value of the asset at the beginning of period

The income return (y_t) is the net amount of cash flow (CF_t) paid out to the investor during the period and is calculated by dividing the cash flow paid out to the investor during period "t" by the market value of the asset at the beginning of period "t", (V_{t-1}). The appreciation return (g_t) is calculated by dividing the change in the market value of the asset ($V_t - V_{t-1}$) during period t, by the market value at the beginning of period "t" i.e. (V_{t-1}) (Geltner, 2007).

Table 1: Mean Annual Total Returns for Different Classes of Real Estate

Class of Property	Aba (%)	Enugu (%)	Onitsha (%)	Owerri (%)
A block of 4no. 3bedroom flat on Two floors in the central business district	12	6.5	7.3	9.8
A block of 6no. 3bedroom flat on Three floors in the central business district	11.1	7.6	7.4	8.8
A block of tenement roomy accommodation in the central business district (residential)	9.9	6.8	5.4	11.2
A block of tenement roomy accommodation in the central business district (commercial)	12	10.8	6.7	14
A block of 4no. 3bedroom flat on Two floors in the high density area	9.9	6.3	7.5	11.3
A block of 6no. 3bedroom flat on Three floors in the high density area	10.8	4.9	7.9	10.6
A block of tenement roomy accommodation in the high density area (residential)	10.6	7.9	12.8	13.4
A block of tenement roomy accommodation in the high density area (commercial)	13.5	10.6	12.8	14.4

The results of the analysis of the total returns shown in Table 1, indicate that real estate investments in Owerri outperformed those of the others cities in the study area; it was closely followed by the real estate investment in Aba. Enugu was observed to record the least total returns across all the classes of properties.

To determine the dominant real estate portfolio diversification strategy between the two strategies under review (property type and across economic specialization of the cities); the returns, standard deviations and the modified Sharpe ratios obtained from the portfolios independently constructed based on the two strategies were analysed and compared.

The portfolio returns were estimated using the understated formula:

$$E(R_p) = \sum_{i=1}^n W_i E(R_i) \quad \text{eq. 2}$$

Where:

$E(R_p)$ = expected return on the portfolio

W_i = weight of security i in the portfolio

$E(R_i)$ = expected return on security i

While the portfolio risk is estimated with the formula below:

$$\sigma_p = \sqrt{w_1^2 \sigma_1^2 + w_2^2 \sigma_2^2 + 2w_1w_2 \rho_{1,2} \sigma_1 \sigma_2 + \dots} \quad \text{eq. 3}$$

The comparison of the performances of the two portfolio strategies adopted in this study was carried out based on the outcomes of the investment portfolios built from the returns of the properties. The outcome as shown in Table 2 indicates mixed results. The predominance of the performances of the portfolio diversifications based on economic specializations of the study areas was not absolute because at certain points the property type diversifications dominated some of the outcomes of portfolios built on the basis of economic specialization.

Results of the real estate portfolio built under the option of within the property type diversification in Owerri outperformed all the real estate portfolios built across the economic specializations of the cities in South East Nigeria (see Table 2). The portfolio recorded 12.04% returns with modified Sharpe ratio of 3.72. This implied that for the foregoing portfolio, every unit of risk borne attracted 3.72% rate of return.

From the portfolio performance ranking in Table 2, portfolios built by diversifying across the economic specialization of the cities with each of the following property types: Blocks of six number three bedroom flat on three floors (CBD), blocks of six number three bedroom flat on three floors (high density areas), blocks of tenement roomy shops (CBD) and blocks of tenement roomy shops (high density areas), were ranked second, third, fourth and fifth (based on their modified Sharpe ratio) respectively ahead of the other portfolios built by diversifying within property types. These implied that, apart from the within the property type portfolios in Owerri, the above mentioned portfolios dominated all other portfolios emanating from within the property types in the other four cities (see Table 2).

On a holistic analysis of the performances of both strategies, portfolios diversified across the economic specialization of the cities were adjudged to dominate the within property types. This was adduced from the outcomes of the modified Sharpe ratios where greater number of portfolios diversified across the economic specialization of the cities outperformed about 80% of the property type portfolios.

Table 2: Performance Analysis of Real Estate Investment Portfolios Built by Diversifying within Property Types and Across the Economic Specializations of the Cities.

Portfolio Diversification Strategy	Portfolio Return (%)	Portfolio Risk (%)	Modified Sharpe Ratio	Performance Ranking
Diversifying across the economic specialization of the cities in South East				
I. A block of 4no.3bedroom flat on two floors (CBD)	9.1	4.8	1.89	12
II. Blocks of 6no.3bedroom flat on three floors (CBD)	9.14	2.7	3.38	2
III. Blocks of tenement residential property in the CBD	8.8	3.9	2.25	7
IV. Blocks of tenement shops in the CBD	11.6	4.31	2.69	4
V. Blocks of 4no.3bedroom flat on two floors in the high density areas	9.12	4.2	2.17	9
VI. Blocks of 6no.3bedroom flat on three floors in the high density areas.	8.98	3	2.99	3
VII. Blocks of tenement residential property in the high density areas	11.16	5.68	1.96	11
VIII. Blocks of tenement shops in the high density areas	12.76	4.9	2.6	5
Diversifying within the property type in South East				
I. Diversifying within property type in Aba	11.57	4.26	2.44	6
II. Diversifying within property type in Enugu	8	3.8	2.1	10
III. Diversifying within property type in Onitsha	8.83	3.98	2.21	8
IV. Diversifying within property type in Owerri	12.04	3.23	3.72	1

V. Conclusion

The outcomes of the portfolio returns and risks show that the two diversification strategies under review offered significant diversification benefits when compared with the individual property risk – return performances as shown in Table 2 and appendix A. The comparison of the two diversification strategies employed in the study gave mixed results as shown in Table 2. Result of the real estate portfolio built by diversifying within the property type in Owerri outperformed all the real estate portfolios built across the economic specializations of the cities in South East. However, generally the performances of the portfolios built on the economic specialization of the cities across the South East States of Nigeria dominated when compared with Property type portfolio diversification strategy.

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Appendix A: Performance Analysis of Different Classes of Properties in Different Cities in South East States of Nigeria (2008 -2017)

City	Zone	Type of Real Estate	Expected Return (%)	Standard Deviation	Covariance
Aba	CBD	4brf	12	7.76	0.65
		6brf	11.1	7.3	0.66
		Tr	10	7.68	0.77
		Ts	13	8.67	0.67
	High Density	4brf	9.9	8.31	0.84
		6brf	10.8	5.96	0.55
		Tr	10.6	7.73	0.73
		Ts	13.5	7.95	0.59
Etnugu	CBD	4brf	6.5	6.56	1.01
		6brf	7.6	7.59	1.00
		Tr	6.8	5.9	0.87
		Ts	10.8	6.19	0.57
	High Density	4brf	6.3	5.86	0.93
		6brf	4.9	4.01	0.82
		Tr	7.9	5.96	0.76
		Ts	10.6	6.04	0.57
		4brf	7.3	4.77	0.65
		6brf	7.4	6.03	0.82

Onitsha	CBD	Tr	5.4	5.97	1.11
		Ts	6.7	5.94	0.89
	High Density	4brf	7.5	5.08	0.68
		6brf	7.9	4.41	0.56
		Tr	12.8	10.49	0.82
Owerri	CBD	Ts	12.8	10.3	0.81
		4brf	9.8	8.38	0.86
		6brf	8.8	2.62	0.3
	High Density	Tr	11.2	5.11	0.46
		Ts	14	6.23	0.45
		4brf	11.3	5.03	0.45
		6brf	10.6	3.22	0.3
		Tr	13.4	5.85	0.44
		Ts	14.4	5.68	0.39

4brf - Four number three bedroom flats on two floors, **6brf** - Six number three bedroom flats on three floors, **Tr** – Tenement roomy residential blocks, **Ts** – Tenement roomy block of shops

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