Combination Of Property Type And Economic Specialization Diversification Strategies In Real Estate Investment Porftfolios In Nigeria

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Abstract

The study was carried out to analyse the combination of property type and economic specialization portfolio diversification strategies of real estate investment portfolios in South East, Nigeria. This was targeted at determining the benefits of the strategies. Survey research method was applied in the study and structured questionnaire was used in collecting rental and capital market values of residential and commercial properties in the central business districts and high density areas of the selected cities. The total returns of the different classes of properties were determined from the field data and Karl Pearson correlation analysis and mean variance analysis were used in the data analysis. The results showed that combining property type and economic specialization of the cities portfolio diversification strategies in South East, Nigeria offers diversification benefits. The correlation coefficients analysis results indicated that about 50% of the correlation coefficients were weak, 25% were negatively correlated, while 25% were positively correlated but less than 1. The results of the mean variance analysis further demonstrate that the combination of the diversification strategies contributed significantly to the risks reduction of the portfolios.

Key words: portfolio diversification, property type diversification, economic specialization diversification, diversification benefit.

Introduction

The introduction of Modern Portfolio Theory by Markowitz in 1952 made a great positive transformation in financial investment. It brought about a shift in paradigm from naive investment diversification strategy to a more complex statistical approach that guarantees efficient portfolio diversification.

Modern Portfolio Theory opened up wide range of research opportunities in efforts to explore more efficient approaches to investment portfolio diversifications. Real estate investments, by the virtue of its characteristics and outstanding performances of its inclusion in investment portfolios have attracted much attention to the investment analyst and investors in the past few decades. Hence, a lot of researches have been carried out to explore the investment opportunities real estate offers in investment portfolio diversification.

Globally, much study has been done in real estate portfolio diversification strategies covering property type strategy, geographic location, economic specialization and portfolio diversification strategies involving managers and a comparison of either of the two or more strategies as the case may be. On the contrary, available literatures show that much has not been done in the aspect of combining different diversification strategies particularly in Nigeria.

This study is therefore designed to carry out analysis of the performances of the combination of property type portfolio diversification strategies and economic specializations of the cities in South East States of Nigeria with a view to determine its benefits.

Problem statement and justification

To explore the opportunities offered by portfolio diversification strategies, most investors are faced with many questions particularly when confronted with the options of selecting the diversification strategy that would best achieve their investment goals. Examples of such questions have been whether to maintain the same property type while diversifying across the cities or diversify within the property type while remaining in the same city or to go for a combination of the two strategies.

Previous studies have indicated that most investors prefer adopting property type portfolio diversification strategy to geographic economic diversification portfolio diversification strategy and vice versa. Unravelling the benefits and advantages of combining property type and geographic economic specialization of the cities portfolio diversification strategy will open up more opportunities to investors in South East Nigeria, who definitely would find the approach very rewarding.

General and Specific Objectives of the Study

The aim of the study is to analyse the performances of real estate investment portfolios in South East States of Nigeria when diversified by the combination of property type and economic specializations of the selected cities with the view to determine the associated benefits. The specific objectives include to:

(i)   determine the returns of residential and commercial properties in the selected cities in South East Nigeria and

(ii) examine the benefits of combining property type and economic specialization portfolio diversification strategies in real estate investment in the selected cities of South East Nigeria.

Literature Review

 Hishamuddin (2006) in his study, confirmed that diversification is a way to generate similar returns but at a reduced exposure to risk; while Seiler, Webb and Myer (1999) in their study ascertained that portfolio diversification as an investment strategy assists investment managers to completely remove specific risk by decreasing the fluctuations of a portfolio's return in excess of what the market will reward in terms of risk premium.

Kaiser and Clayton (2008) in their study categorized real estate risks into diversifiable risks, partly diversifiable risks and non-diversifiable risks. They explained that the

diversifiable risks that can be eliminated by portfolio diversification are the risks depending on property type, geographic/economic region as well as enterprise risks and style risk. Analysis of Kaiser's assertion implies that a combination of diversified property characteristic upon which the risks depend would amplify its horizon of diversification benefits.

Mueller and Ziering (1992), in their study on real estate portfolio diversification using economic diversification tested the potential for risk reduction for different geographical classifications of the American property market. The classifications tested are the four standard regions; East, Mid-West, West and South, the eight economic regions created by Hartzell, Shulman and Wurtzebach, (1987) and two additional classifications made for this study.

The data used in the study came from a large real estate fund and consists of quarterly real estate return during the time period 1973-1990. The methods used in the study were comparison of correlation matrices and efficient frontiers for the four different classifications. The analysis of the correlation matrices showed that economic classifications were superior to geographical although less of the matrices for economic regions were statistically significant.

Grissom, Kuhle and Walther (1987) used data from Houston and Austin from 1975 – 1983 to investigate within real estate diversification benefits and concluded that markets and property type reduced diversifiable risk than just by property type only or across markets only.

Eichholtz and Hoesli (1995) postulated a two-step approach to portfolio allocation that firstly involves the decision of how much to invest in each asset class; and secondly, the decision of which the optimal strategy within the asset class is, which in part involves effective risk management through diversification within the asset class. They also found out in their study that the most common diversification categories for real estate portfolios are property type and geographical economic region.

Weng and Huang (2004) carried out a research on the potential for portfolio diversification across China's real estate market with the view to reveal the potential for risk diversification in China's real estate investment. The study explored the diversification opportunities across thirty- five large-scale and medium-scale cities in China; it designed the basic diversification strategy by grouping the submarkets in the sampled six cities and investigated whether there was any stability in cluster membership across sub-periods. The research outcome showed that a combination of property type and economic specialization of the city clusters offered diversification benefits.

Piet, Martin, Bryan and Nanda (1995) in their research analysed data from the USA and UK to determine whether diversification within a region by property type is better than diversification between regions within a property type. They compared both strategies to full diversification by both property type and region; calculated and compared property type and regional correlation matrices. The authors produced efficient frontiers and calculated principal components to determine if there was dominant property type

or regional dimensions to real estate returns. From their findings, they suggested that for the USA a purely retail portfolio diversified over all regions would have been almost as effective as a fully diversified portfolio. In the UK, there was less diversity across regions within retail property. Overall, there was no simple conclusion applicable to all regions and all property types in either country.

Awa and Anih (2018) carried out a study on the performances of residential and commercial real estate portfolio diversification across the different neighbourhood economic specialization in Aba, Nigeria. The study divided Aba into five distinct economic neighbourhoods driven by varied economic factors that shaped the neighbourhood activities and diversified residential and commercial property types across the neighbourhoods. From the outcomes of the study, they concluded that the differences in the neighbourhood micro-economy created significant diversification benefits by producing improved risk – return ratios of the ensuing portfolios. Therefore, the outcomes of their study indicate that a combination of different real estate portfolio diversification strategies offers good opportunity of securing diversification benefits.

Kafor (2005) carried out similar study in Aba and Port Harcourt (Nigeria) where she used 32 properties belonging to U.O.O. properties limited. The study period was five years and the classes of properties used were agricultural, industrial, residential and commercial properties. Simple correlation analysis was used to measure the degree of association between the property variables. In her findings, she stated that portfolio risk can be reduced across the property types and locations in Aba and Port Harcourt.

Olaleye (2005), Olaleye and Aluko (2007), and Olaleye, Ajayi and Mfam (2011), in their studies evaluated 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 (2008a) and Olaleye, Aluko and Ajayi (2007), undertook studies on the challenges in the application of diversification theory, with the view to determine the factors influencing the choice of naive diversification. Their findings revealed that lack of transaction information or recognised market index to measure market return and other trend data was a major issue affecting the effectiveness of the application of diversification theory in Nigeria.

Research Methodology

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 as the sample population. The basis of sampling was on the willingness of the firms to participate and their ability to supply the required data. Structured questionnaire was used to collect the primary data on the annual rents and capital values of residential and commercial properties in the central business districts and high density zones of the study areas.

To achieve the set objectives, the field data was analysed to derive the total returns (R_t) of the different classes of real estate by adopting the formula below:

$$R_t = CF_{t} + V_t - Vt\text{-}1 / V_{t\text{-}1}$$

Where:

R_t = total returns
CF_t = cash flow paid out to the investor during the period t
$V_t - V_{t\text{-}1}$ = asset capital appreciation value during the period t
$V_{t\text{-}1}$ = market value of the asset at the beginning of the period t

The income return is the net amount of cash flow (CF) 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, ($V_{t\text{-}1}$). The appreciation return is the capital value of the asset during the period and is calculated by dividing the change in the market value of the asset during period t, ($V_t - V_{t-1}$) by the market value at the beginning of period t (Geltner, 2007).

To determine whether the combination of the two diversification strategies in building real estate investment portfolios in the study area will offer diversification benefits, Karl Pearson correlation analysis was used to determine the correlation coefficients of the returns of the properties (see Table 2) and the mean variance analyses of different portfolios built from the returns of the different classes of real estate. Generally, for an investment portfolio to yield improved risk – return ratio, the investments assets to be selected must be such that respond differently to external influences, hence, the cyclical pattern of investment as stated by Olaleye (2016), must move in opposite directions or negatively correlated. More so, weak-positively correlation coefficients equally guarantee significant diversification benefits.

The Study Area

Nigeria is divided into six geopolitical zones; from the inception of the zoning, it has become a major means of reference to different economic and political blocks in Nigeria. For ease of coverage as well as to enhance effectiveness, South East geopolitical zone was selected for the study.

South East geopolitical zone is made up of five States, namely Abia, Anambra, Ebonyi, Enugu and Imo. 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 with wide spread urbanization. The entire South East States lie within Latitude 4º 40´ 00"N, 7º 15´ 00"N and 6º 40´ 00"E, 8º 25´ 00"E. For the purpose of this study, the five largest and most populated cities in South East Nigeria were selected. The cities comprised Aba (Abia state), Abakaliki (Ebonyi State), Enugu (Enugu State), Onitsha (Anambra 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); Abakakliki is purely an administrative town and the state capital of Ebonyi State with a projected population of 775,604 in 2019 (http://population.city/nigeria/abakaliki/) while Enugu and Owerri double as administrative cities (state capitals) and educational towns with a projected population of 723,575 and 1,297,921 respectively in 2019 (https://populationstat.com> Nigeria, 2019). The strategic positions of the cities selected for the study have over the years made them highly attractive to real estate investors.

Results and Findings

The rental and the capital values data obtained from the field survey were analysed to derive the returns of the different classes of properties being studied; see table 1. Generally, real estate investments in Owerri outperformed similar classes of properties in other cities when their return and risk performances are compared; while Enugu recorded the least performances as illustrated in Table 1.

Table 1: Performance Analysis of Different Classes of Properties in Different Cities (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
Abakaliki	CBD	4brf	10.6	6.71	0.63
		6brf	10.7	4.34	0.41
		Tr	11.1	8.99	0.81
		Ts	12.5	9.29	0.74
	High Density	4brf	9.2	6.14	0.67
		6brf	9.9	5.04	0.51
		Tr	11.3	9.62	0.85
		Ts	12.5	7.71	0.62
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

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Onitsha	CBD	4brf	7.3	4.77	0.65
		6brf	7.4	6.03	0.82
		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
		Ts	12.8	10.3	0.81
Owerri	CBD	4brf	9.8	8.38	0.86
		6brf	8.8	2.62	0.3
		Tr	11.2	5.11	0.46
		Ts	14	6.23	0.45
	High Density	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 residential blocks, **Ts** – Tenement block of shops

The outcomes of the correlation coefficient analysis as shown in Table 2 demonstrate that combining property type and economic diversification strategies in real estate investment in the study area offer significant benefits. Breakdown of the outcome of the correlation coefficients indicates that about 50% of the property correlation coefficients were weakly correlated (between 0 to 0.5), while about 25% were negatively correlated (<0) and 25% were positive and strongly correlated, but not perfectly correlated (<1>0.5). With reference to the decision rule guiding the application of correlation coefficient of investment portfolio, because the correlation coefficients obtained by the combination of the two diversification strategies were not perfectly correlated, but were predominantly weakly and significantly negatively correlated, it was adduced that the combination of the two portfolio diversification strategies offers diversification benefits.

To further confirm the credence of the outcomes of the combination of both diversification strategies as illustrated in the preceding paragraph, two different portfolios were constructed by combining the two diversification strategies and presented in Table 3.
(i)   The first portfolio was built with two different properties selected from each of the cities; the outcome showed significant improvements on the performance (11.04% return, 4.1% standard deviation and 2.69 modified Sharpe ratio) compared to the risks - returns ratio of the individual properties used for the portfolio as shown in Table 4.
(ii)   The second portfolio was built by selecting four properties from each of the cities cutting across the central business district and high density zones of the cities on equal weighted basis. The results showed a reasonable increase in the rate of return and the Sharpe ratio with an appreciable level of risk reduction (see Table 3) when compared with the first portfolio. These confirmed the likelihood of a portfolio risk-return ratio to increase with the increasing number of investment

assets in any given portfolio until the efficient frontier is attained. The increase in the rate of returns and Sharpe ratio with a considerable decline of the risk level in portfolio II as shown in Table 3 affirmed that the combination of property type diversification strategy and across the economic specialization of the cities offered diversification benefits in the selected cities in South East, Nigeria.

Table 3: Real Estate Investment Portfolio Diversification/Mean Analysis (Combining within the Property Type and Across the Economic Specialization of the Cities Diversification Strategy).

Portfolio Diversification Strategy	Portfolio Return (%)	Portfolio Risk (%)	Modified Sharpe Ratios
I. Building real estate investment portfolio by selecting two different properties from each of the cities.	11.04	4.1	2.69
II. Building real estate investment portfolio by selecting four properties from each of the cities	11.4	3.66	3.11

Table 4: Performances Analysis of Properties Used in Building Portfolio

City	Property Type	Total Mean Returns %	Risks %	Modified Sharpe Ratios
	A14F	13	8.67	1.499
Aba	A2TS	12	7.76	1.546
	Ak1TR	11.1	8.99	1.234
Abakaliki	Ak26F	9.9	5.04	1.964
	E16F	7.6	7.59	1.001
Enugu	E2TR	7.9	5.96	1.325
	O14F	7.3	4.77	1.53

Onitsha	O2TS	12.8	10.3	1.242
	Ow1TS	14	6.23	2.247
Owerri	Ow24F	11.3	5.03	2.246

A1 – Aba CBD**, A2 –**Aba High Density Areas, **Ak1** – Abakaliki CBD, **Ak2** – Abakaliki High Density Areas, **E1 –** Enugu CBD**, E2 – E**nugu High Density Areas**, O1 –** Onitsha CBD**, O2 –** Onitsha High Density Areas**, Ow1 –** Owerri CBD**, Ow2 –** Owerri High Density Areas, **4F** - Four number three bedroom flats on two floors, **6F** - Six number three bedroom flats on three floors, **TR** – Tenement residential blocks, **TS** – Tenement block of shops

Conclusion

The outcome of the correlation coefficient in appendix A demonstrates that combining the two diversification strategies. The findings were further supported by the results of the mean variance analysis by the different portfolios built by combining property type and economic portfolio diversification strategies. This was demonstrated by high levels of risks reduction of the portfolios while maintaining returns significantly higher than the least performing individual properties.

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