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A fresh look at the performance and diversification benefits of real estate equities in Nigeria: Case study of real estate equity and some selected common stocks

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Abstract

This study evaluated the risk-return characteristics of real estate equities in Nigeria in order to identify diversification benefits arising there from. The study adopted the mean-variance and correlation analysis to test the correlation of real estate equities with those of selected common stocks between 2003 and 2009. The co-movements and positive correlations between real estate equities and the common stocks indicated that real estate equities did not perform any better than common stocks; and also suggested that real estate equities offered no diversification benefits. This finding negates the widely held belief that real estate equities correlate negatively with common stocks and are therefore amenable to diversification. It also confirms the fear that portfolio diversification could fail during periods of financial stress, when it is most needed. The paper recommends further studies incorporating all the asset classes including direct real estate in a mixed-asset portfolio to determine the degree of correlation and the nature of variations(in the various sectors) between and amongst these assets in a portfolio.

Keywords: Diversification benefits, Real estate equities, Risk-return analysis

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1. Introduction

Real estate investment draws increasing attention from investors over the world over as an ideal investment option with returns appreciating in real terms in adverse economic situations. The peculiar advantages of real estate qualify the asset class to be combined with other assets to achieve optimum portfolio returns. Real estate equities, in particular, have developed to provide all strata of investors with a more convenient means of entering the real estate market; and have grown in varieties and sophistication particularly in the internationalization and globalization of the real estate market (Liu et al., 2007; Stevenson, 2003).

To sustain and increase the flow of investment capital into the real estate securities however, performance benchmarks and relative performance measurements are critical requirements. In particular, recent events in national and international economy have suggested the need for a closer look at the diversification potentials of real estate equities relative to other common stocks. Authors in different countries under different economic conditions have examined the optimal composition of the mixed-asset portfolio. A common conclusion is that real estate equities show different returns over time suggesting that a single portfolio allocation strategy may not be optimal (Brounen and Laak, 2005; Ooi and Liow, 2004; Newell and Keng, 2005).

However, the limited flow of foreign investment into the property markets in Africa generally, and Nigeria in particular, has been attributed in part, to lack of investors' confidence, resulting from low level of research activities and limited information (Lim et al., 2006). The markets are therefore perceived as too risky by international investors. Amidu and Aluko (2006) is probably the first and only known empirical study specifically on risk-return structure of listed real estate-related companies in Nigeria. Olaleye (2005, 2008) examined only the diversification strategies adopted by property portfolio managers vis-à-vis other assets, only.

The paucity of studies in this crucial area in the face of volatile and fast changing market conditions make this study imperative. This study therefore seeks to investigate the diversification benefits potentials of real estate equities compared to other common stocks in the Nigerian stock market. Like Amidu and Aluko (2006), this study performed the risk-return analysis. However, this study furthered by determining the holding period return for the period of time covered, the mean-variance analysis; and stocks from four other sectors beside real estate-related sectors were included in the analysis.

2. Performance and diversification benefits of real estate stocks and common stocks

Indirect investment in property companies especially in the United States and United Kingdom has diversification benefits. This is because they provide opportunities for investors to invest in real estate portfolios that are highly diversified. Such investment opportunities have comparable liquidity with non-real estate shares and are more liquid than owning a real property (Glascock and Hughes, 1995).

Literature on indirect real estate performance and diversification is many and varied. Several authors have researched widely on the returns and risk of real estate related shares and their correlation with other

common stocks. Some have empirically studied the performance of real estate shares in different countries especially in United States of America, United Kingdom (Brounen and Laak, 2005) and Asia, (Ting, 2002; Liow, 1997, 2001; Neoh, 1990; Newell et al., 2002) others have looked at the continental factors by studying a group of countries, (Eichholtz et al.,1998; Lu and Mei, 1999), yet there are also those that have examined the firm-specific factors affecting the risk –return character of real estate shares as well as the level of relationship with other common stock (Ziobrowski et al., 1997). Such studies covered different periods; some dealt on Real Estate Investment Trusts (REITs) (Gyourko and Nelling, 1996; Hamzah et al., 2010), adopted different methodologies and arrived at varied results in the different locations of the studies. However, an important question addressed by the literature concerning real estate shares or equities has been whether or not they perform better than other asset classes especially other common stock on risk-return basis and whether they offer diversification benefits especially during economic difficulties. Neoh (1990) was one of the first among several others to study property stocks. Neoh examined five property stocks in Malaysia for the 1981 to 1990 period and found that the mean return on shareholders equity of these five companies was only 6.9%; the mean annual return was between 1 and 4% per annum; and that there was high variability of annual returns which was attributed to the poor stock risk –return performance to a declining profit margin recorded for 10 years. Similarly, Liow (1997) studied the Singapore property share returns for the period 1975 - 1995 and found out that property shares did not perform better than the stock market and had poor risk-adjusted results.

Ghosh et al. carried out a study in 1996 with data covering 12 years (between 1985 and 1996) by dividing the study period into four periods of three years each. The result showed that REITs and the Standard and Poor's(S&P 500) index had very weak correlation declining from a value of 77% in the first period to 40% in the last periods. Correlation was also the same in the periods between REITs and the Ibbotson Small Capitalization Index which declined from 83% to 33%.

Furthermore, Mull and Soenen (1997) analysed the correlations between US REITs, domestic stocks, domestic bonds and domestic consumer price inflation for the time period 1985 to 1994 in the G-7 countries. They found a positive correlation with stocks, low (mostly negative) correlation with bonds and rather small, mostly positive correlation with consumer price inflation. They concluded that due to the positive correlation with stocks, the diversification potential of US REITs was limited. Still on international diversification, (see also Eichholtz, 1996). Gyourko and Nelling (1996) concluded that Real Estate Investment Trusts (REITs) added little in terms of diversification benefits to overall portfolio (see also Conover et al., 2002; Wilson and Okunev, 1996) while Giliberto and Mengden (1996) and a host of other studies carried out in the 1990s confirmed low or declining correlation of real estate equities with other common stocks.**.** Stevenson (2000) examined the potential diversification opportunities arising from the extension of real estate portfolios into an international environment. Using data for ten countries, the study compared the diversification benefits obtained from both real estate securities and hedged indices for a twenty year period from 1978 to 1997. Stevenson could not confirm that there are diversification benefits obtainable from real estate equities in the international market especially in the context of a mixed asset portfolio. Extending their study to the new millennium, Newell et al. (2002) analyzed the performance of four listed property trusts in Malaysia over the 1991-2000 periods. The study reveals that the risk of investing in three of the listed property trust was

higher than the overall stock market risk and significantly above the office real estate risk. Ting (2002) carried out a study to determine whether listed property companies achieved higher risk adjusted returns than shares and direct investment in residential properties; whether listed property companies could offer portfolio diversification potential when included in an investment portfolio; and whether listed property companies could act as substitutes for direct residential property investments. Ting found out that property development companies performed better (27.0%) than property investment companies (4.36%), listed property trusts (23.89%) and shares (13.01%) but on an overall basis, the property sector represented by the property index did not perform better than shares. In terms of correlation, the correlation matrix for all the investment options showed that property shares and the property index showed a high positive correlation with the stock market with correlation coefficients greater than 0.70 meaning that property shares could not offer portfolio diversification potentials when incorporated in a share portfolio due to its high positive correlation with the stock market returns. Newell and Acheampong (2002) examined the changing correlation and asset risk profiles under different investment cycle conditions between 1980 and 2000 in order to determine whether the inter-asset correlations involving Listed Property Trusts (LPTs) change under different market conditions. Also, the authors verified whether the inter-asset correlations involving LPTs increased with increasing market volatility as well as comparing the differences in the dynamics of these relationships given the significant growth of LPTs in the 1980s to the 1990. It was observed in the study that correlation between LPTs, and the stock market over the 20 years period was 0.64. The conclusion was that there was increased correlation between LPTs and shares during periods of increasing LPT volatility and increasing stock market volatility would result in reduced portfolio diversification benefits, a period when these benefits were mostly needed in a mixed-asset portfolio. In terms of the perspectives of different investors, Stevenson (2003) carried out a re-examination of the diversification proposition from the perspective of a US-based investor from 1980-2002 using a mean-variance spanning approach. Results confirm limited diversification benefits though not strongly enough to encourage the extension of REITs portfolios to international markets.

Brounen and Eichholtz (2003) also analyzed the diversification potential of property shares for the UK and the US for the period of 1986 to 2002, and found decreasing correlations between the asset classes. Ooi and Liow (2004) examined the historical performance of real estate stock and property related stocks listed in seven developing markets in East Asia comprising Hong Kong, Indonesia, Malaysia, Singapore, South Korea, Taiwan and Thailand between 1992 and 2002. The study adopted regression models and the findings indicated that the traded real estate sector in Hong Kong, Indonesia Malaysia, Singapore and Thailand under performed the general stocks between 1992 and 2002. In Nigeria, Amidu and Aluko (2006) investigated the investment performance of listed property and construction companies from 1998 to 2005 to determine their competitive and comparative advantages over shares in the stock market. Data on the average quarterly prices of the only listed property company, UACN Property Development Company Plc (UPDC) and six listed construction companies were compiled from the Nigerian Stock Exchange (NSE) for the period. The All Share Index (ASI) was also compiled on a monthly basis. Risk-return analyses were carried out. The Sharpe Index was used as a performance index for risk – adjusted returns. It was found that the seven companies under performed on risk-adjusted basis in comparison with stock relative to the stock market benchmark.

However, from the correlation analysis, the shares of the seven companies offer diversification benefits. The limitation of the study is that dividend payments over the period covered was not included in the determinations of returns thereby understating the holding period return. Were these included, the risk-return profile would have been different; and so would have been the correlation matrix. Furthermore, the risk free rate adopted for the Sharpe Index was not representative of the entire study period. Amidu and Aluko's study was also carried out at a time when there was relative stability and boom in the Nigerian stock market, [First Securities Discount House Limited (FSDH), 2009]. In 2008, Lee and Hwa studied the role of Malaysia property shares and REITs in a mixed – asset portfolio from 1991 – 1996 by examining property shares and REITS in a mixed asset portfolio and investigating the risk reduction benefits of including property shares and REITs in a mixed asset portfolio. Adopting a mean-variance framework and the optimization of asset portfolio modeled as quadratic programming function, it was discovered that Property share was not an attractive diversification in which it failed to offer any risk reduction enhancement for a mixed portfolio.

Nguyen (2010) built a risk adjusted performance index of Asian listed property companies into developed, emerging and lesser emerging markets with developed comprising of Japan, Hong Kong, Singapore; emerging Malaysia, Korea, Taiwan, Thailand and lesser China, India, Indonesia, Philippines, Sri Lanka and Vietnam and assessed the performance of each of these sectors from the perspective of US investors. It was observed that on country performance analysis, India best performed with highest return and average risk while Taiwan, showed a market of highest risk and low return. The Philippines and Malaysia were the two countries of lowest return with average risk on downside risk context, India had highest returns and lowest with risk. Taiwan, the Philippines and Korea underperformed with high investment risk but lower return. Vietnam had high return and low risk.

In Malaysia, Hamzah et al. (2010) used three indices namely the Sharpe Index, Treynor Index and Jensen index to measure the performance, the degree of systematic risks and whether there were returns higher than the market portfolio of listed property trusts between 1995 and 2005. The result indicated that although there was variability in the risk-adjusted performance of the property trusts, they performed better than the market portfolio during the crisis period of 1997-1998. There was however, a low performance during the pre-crisis period of 1995-1997 and post crisis period of 1998 to 2005. In addition, the listed property trusts had a higher systematic risk than the market portfolio during the pre-crisis and post crisis periods.

From the above empirical studies, we conclude that the diversification debate of real estate equities in relation to other asset classes continues with several other factors coming into consideration with changes in local and global economies.

3. Risk-return profiles of real estate equities

The measurement of total return on direct real estate investment is the sum of the income return (net income received) and the capital return (change in capital value) over the period of measurement. Holding

period return is the equivalent measures for shares and gilts (Hoesli and Macgregor, 2000; Kalu 2001; Kelvin 2006). Holding period return is given by:

$$R_t = \frac{P_t - P_{t-1} + D_t}{P_{t-1}} \qquad (1)$$

Where,

R_t is total return of the security in period t;

P_t is price at the end of the period;

P_{t-1} is price at the beginning of the period; and

D_t is the dividend or cash disbursement received during the period.

Risk is measured by the standard deviation given by:

$$s = \sqrt{\frac{\sum(x - \bar{x})^2}{N - 1}}$$

where, *s* is the standard deviation; *x* is each value in the sample; $\bar{x}$ is the mean of the values, and *N* is the number of the values (the sample size).

After determining the risk-return characteristics of real estate investments, a decision rule usually adopted in choosing investment options is the Mean-Variance Analysis or the Risk Adjusted Performance (RAP). In order to assist in making a choice between two or more investments, the risk-return tradeoff is needed and the most commonly used measure is the expected return divided by the risk. This measures the unit of expected return for each unit of risk.

4. Data and methodology

Secondary data on All Share Index, historic share prices and dividend history were obtained from the database of the Central Securities Clearing System (CSCS) with the assistance of registered stockbrokers. The CSCS is a statutory body that keeps records of the daily transactions on the Nigerian Stock Exchange (NSE) and other issues such as share certificate depository, among others. Therefore, the following stocks were selected for comparing their performances with that of real estate, UACN Property Development Company Plc (UPDC). They are Nigerian Bottling Company Plc (NBC) representing the food and beverage sector, United Bank for Africa Plc (UBA) for the banking sector, NEM Insurance Plc (NEM) for the insurance sector and Oando Plc (OANDO) for the oil and gas sector while the All Share Index (ASI) is the official Nigerian stock market index.

Total returns from the real estate share and that of those selected common stocks were computed for comparative purposes. The selection criteria were based on the sectoral groupings for measuring stock performance. The Nigerian Stock Exchange (NSE) presently has four sectoral indices comprising the NSE food and beverage index, the NSE banking index, the NSE insurance index and the NSE oil and gas index. The

food and beverage sector comprises 12 companies; the banking sector has 21 companies under it. Under the insurance sector are 22 companies while the oil and gas has 8 companies under it. Based on this, four companies were selected for the purpose of comparing their performance with that of the only quoted real estate - UPDC, over the period of study. The return determined in this study is the holding period return (HPR) made up of both changes in prices of the shares over the period and dividends paid over the period as stated in equation 1 in this study.

5. Results and discussions

Table 1 shows the share prices and dividend payments of the real estate stock and the holding period return from 2003 to 2009.

Table 1. UPDC Share Prices, Dividend and Holding Period Return

Years	Price of share at the beginning	Price of share at the end	dividend history	Holding period return (%)
2003	5.75	6.57	0.35	20.35
2004	6.50	8.85	0.45	43.08
2005	8.60	8.75	0.20	4.07
2006	8.75	13.80	0.25	60.57
2007	13.65	23.37	0.35	73.77
2008	24.22	26.84	0.49	12.84
2009	27.75	19.86	0.75	- 25.73

Source: NSE and UPDC Annual Report and Accounts

Table 1 shows the only active listed real estate company on the Nigerian stock market, UPDC. The company's return peaked with 73.77% in 2007 and reduces in 2008 to 12.84%, while it became negative in 2009 during the Nigerian banking crisis cum the crash of the stock market.

It should be noted at this point that the difference at the end of previous year and at the beginning of the next year can be interpreted as the performance of the stock after every successive year.

Table 2 shows the holding period return of the other stocks used in this analysis computed in the same way as Table 1. The share prices and dividend history of the four companies used in the computation including the ASI had previously been sourced from the annual reports of the companies and the database of the CSCS.

Table 2. Comparative Performance of Real Estate equity and the Selected Common Stocks: 2003-2009

Years	ASI	UPDC	NBC	UBA	NEM	OANDO
2003	20,281.90	20.35	65.25	34.76	74.00	53.55
2004	23,844.50	43.08	-4.47	-2.67	21.33	32.07
2005	24,085.80	4.07	9.33	43.3	-23.68	-10.05
2006	33,189.30	60.57	-42.27	98.57	75.86	-24.56
2007	57,990.22	73.77	59.41	90.89	284.31	84.82
2008	31,450.78	12.84	-41.47	71.18	-63.50	-33.76
2009	20,827.1	-25.73	-44.76	18.66	-33.33	28.18
Mean	**30,238.52**	**26.99**	**0.15**	**50.67**	**47.86**	**18.61**
Variance	**174463682.20**	**1187.32**	**2233.99**	**1418.33**	**13698.43**	**1884.16**
Mean-Variance Ratio	**5769.58**	**43.99**	**14893.2 7**	**27.99**	**286.22**	**101.24**

Table 2 is the summary of the descriptive statistics of the returns of companies under consideration showing their relative performance against the backdrop of stock market index. UBA Plc provides the highest annual return of 50.67% which is substantially higher than property stocks 26.99% per annum. This high return can be attributed to the firm specific variable of the company as well as the banking sector consolidation of 2005. The return gap as compared with other company shares was substantial. This implies that the underlying assets and sector of operations can affect the risk and return of shares. The more confidence investors have on the assets and the company all other things being equal, the more patronage of that particular stock. On risk-adjusted basis, UBA shares remain the best performing having the least risk-return ratio. This is followed by UPDC**.**

6. Correlation of real estate shares and other common stocks

Table 3 presents the correlation coefficients of real estate stocks and other common stocks which is a test of the extent or strength of their relationships. *The results show that UPDC's share has a positive correlated with other stocks. The positive correlation of UPDC share with those of other stocks indicates the absence or limited diversification benefits. Figure 1 more clearly depicts the co-movements of the share returns. All

shares, including that of the real estate company, rise or fall in the same direction meaning that there are no diversification benefits.

Table 3. Inter-Share Correlation Matrix (2003-2009)

	ASI	UPDC	NBC	UBA	NEM	OANDO
ASI	**1.000**					
UPDC	**0.725***	**1.000**				
NBC	**0.325**	**0.367**	**1.000**			
UBA	**0.713***	**0.553**	**0.007**	**1.000**		
NEM	**0.822***	**0.781***	**0.671***	**0.480**	**1.000**	
OANDO	**0.378**	**0.281**	**0.768***	**0.015**	**0.725***	**1.000**

Note: *significant at the 0.05 level (1-tailed).

7. Conclusion

This study has shown that under the period of study, there were no diversification benefits in terms real estate equity and the selected common stocks especially during the period of financial crisis when the benefit is most needed.

Their positive correlation and co-movements indicate that their returns move in the same direction suggesting little or no presence of diversification benefits. It also shows that returns of the real estate equity (UPDC) did not show any return advantage given the underlying asset which is totally real estate. The study shows that that the variability of returns for the assets classes is high thus reducing the risk stabilizing effect of a diversified portfolio. It also confirms the fear that portfolio diversification can fail during the period under investigation. This is a probable reason why majority of investors in the Nigeria stock market are not giving real estate equities any special consideration in their portfolio mix.

8. Recommendations

It is hopeful that the empirical findings of this research can help both institutional and retail investors to adopt appropriate tactics and strategies in order to reap the full benefits of diversification. We also recommend that studies be carried out incorporating all the asset classes including direct real estate in a mixed-asset portfolio to determine the degree of correlation and the nature of variation (in the various sectors) between and amongst these assets in a portfolio.

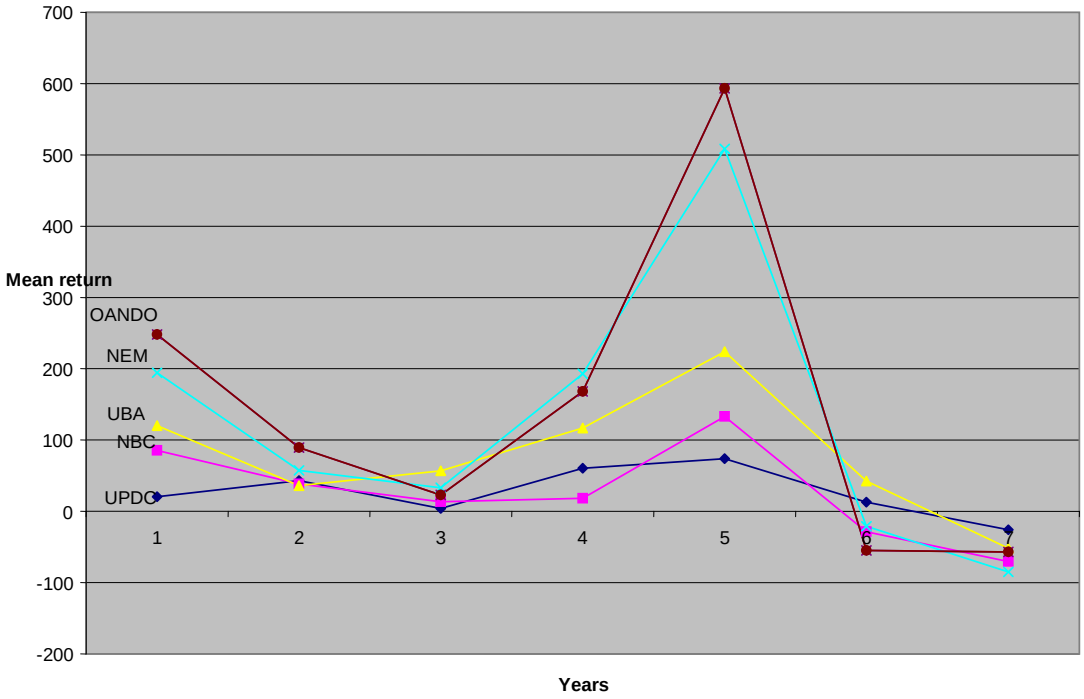

Figure 1. Line graph representing the mean returns of the shares

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