



Performance differences in property-type diversified versus specialized real estate investment trusts (REITs)

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ABSTRACT

Evidence from the corporate finance literature indicates that diversified firms trade at a discount to otherwise comparable specialized firms. However, very little research has addressed whether a similar diversification discount might exist in equity REITs that diversify across property types relative to those specializing in one property type. Using a sample of 75 equity REITs, the existence of a property-type diversification discount is tested using standard Jensen's Alpha, Treynor Index, and Sharpe Ratio performance ranking methodologies over four commonly employed market proxies. Several variations of these standard tests are also utilized as robustness checks.

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1. Introduction

Do diversified REITs trade at a discount relative to specialized REITs? The study utilizes the performance ranking methodologies of Jensen (1968), Treynor (1965), and Sharpe (1966) to compare whether the stock market performance of REITs that have chosen to diversify by property type differs from the stock market performance of REITs that have become more specialized in their real estate holdings. Knowing whether benefits exist for property-type diversification within one REIT, versus allowing investors to diversify their own portfolios with REITs from several different property niches, is valuable information for all potential REIT investors, including the growing set of institutional REIT investors. Based on findings from the mainstream corporate finance literature, the expectation is that a REIT maintaining a concentrated focus on one property type will experience better performance than will a REIT choosing to diversify its property investments.

At first glance, this expectation of poor performance for property-type diversified REITs relative to specialized counterparts might seem counterintuitive. After all, if a REIT has exposure to a number of property types, then returns are not subject as much to the cash flow

variations of any particular property category. When residential property is performing poorly, office property might be performing particularly well, for example. However, the skills needed to effectively maximize profits from apartment complexes are quite different than the skills needed to maximize profits from a high-rise office building. Thus, when a REIT ventures into a new property type, the manager either has to become an expert on the new property type, hire an expert on the new property type, or settle for lower returns from that property type. Since the time commitment to become an expert is quite substantial, but the property is being considered now, the usual route is to hire an expert on the new property type. Clearly, this solution increases salary expenditures for the REIT, which could very well offset any potential diversification benefit.

This question of differential performance between property type diversified and specialized REITs has not been addressed as thoroughly as one might expect in the REIT literature, given the historical importance of diversification studies in the finance literature.¹ In fact, the application of performance rankings to the REIT industry, in general, has not been as fully explored as has the application of performance rankings to the mutual fund industry. Even with the recent popularity of mainstream corporate finance studies debating the existence of a

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¹ The term "property-type specialized REIT" is preferred to the term "pure-play REIT" since the latter, as originally defined by Geltner and Kluger (1998), indicates a portfolio with no direct exposure to any other property type. Very few of the sample REITs were 100% invested in any one property type during the entire sample period.

diversification discount, only one research study was identified that conducted a systematic analysis of whether a similar diversification penalty might exist for equity REITs. That study drew its data from a sample period during which substantial changes were taking place in the operating environment of REITs, making a re-examination of potential differential performance a worthwhile pursuit.

In addition to the standard Jensen's Alpha and Treynor Index, which are based on a single-factor market model, this study employs alternative Jensen's Alpha and Treynor Index tests that account for both inflation and size. The multifactor analogs of these performance ranking methodologies have been used in several studies that attempt to rank the performance of some type of real estate asset. These studies have included variables to control for total, expected, and unexpected inflation; shifts in the term structure of interest rates; shifts in market risk premia; changes in industrial production; market capitalization; or total assets, among others. By far the most common additional factor included in these multifactor applications is inflation, due to the traditional view of real estate as an inflation-hedging asset. Ibbotson and Siegel (1984); Hartzell, Hekman, and Miles (1987); and Rubens, Bond, and Webb (1989) all provide excellent examples of studies testing the inflation-hedging properties of real estate assets. Sirmans and Sirmans (1987) provide a detailed review of the inflation-hedging line of literature, and observe that the findings on the effectiveness of real estate as an inflation hedge have been somewhat mixed. The particular size control utilized in this study is the market capitalization, following Litt et al. (1999). The results from the three-factor market model are included in an effort to determine whether any observed differences in performance disappear with the use of an alternative return model. This study also includes among its performance measures an alternative form of the standard Sharpe Ratio, called the "Double" Sharpe Ratio, which adjusts for small sample bias in estimations of the standard Sharpe Ratio that utilize annual return data. Vinod and Morey (1999) proposed the use of bootstrapping to minimize the small sample bias problem.

The names and ticker symbols of the REITs that comprise the sample are given in Appendix A. The earliest studies along similar lines often used samples composed of all three types of REITs, equity, mortgage, and hybrid. Some studies even used samples of real estate operating companies (REOCs), which can include builders, property managers, suppliers, and the like. The use of a pure equity REIT sample has become the standard in more recent years, as a way to reduce the potential for heteroskedasticity problems inherent in the use of a mixed sample.

The remainder of this study proceeds as follows: Section 2 provides a brief review of the relevant literature. Section 3 details the data and methodology. Results are given in Section 4, and Section 5 presents the conclusions and recommendations for future research.

2. Literature review

The standard single-factor performance measures of Jensen (1968), Treynor (1965), and Sharpe (1966) are well understood. Therefore, the development and usage of these measures will not be reviewed in detail here. However, the "Double" Sharpe Ratio is a newer technique that merits some discussion. Vinod and Morey (1999) proposed an improvement to the standard Sharpe Ratio utilizing bootstrapping techniques to minimize the small sample bias present in computing Sharpe Ratios. Since Sharpe Ratios are typically computed using annual data, even a relatively long time span yields only a few observations. Vinod and Morey (1999) suggest resampling with replacement from the annual returns to form as many new samples as desired. They then compute each security's Sharpe Ratio for each new sample, followed by the variance of these Sharpe Ratios. Finally, they divide the standard Sharpe Ratio by this variance to arrive at an adjusted Sharpe Ratio relatively free of small sample bias. The only departure from the Vinod and Morey (1999) methodology in this study is that the resampling undertaken uses quarterly returns, since quarterly time periods are

used. Since the sample only includes observations from 1995 through 2006, using the annual time periods originally proposed by Jensen (1968), Treynor (1965), and Sharpe (1966) would leave only twelve observations. Fortunately, Grinblatt and Titman (1989), among others, have shown that the use of shorter time periods can be just as effective in performance ratings. Hence, for this study, quarterly returns are used for estimation of performance rankings.

Studies focusing on risk and return of real estate assets have historically been hampered by the limited availability of return data. Real estate is traded relatively infrequently and much of the transaction information has traditionally been kept private.² Consequently, researchers have turned to the use of REITs as a proxy for studying the underlying real estate assets. The use of REITs certainly avoids the problem of data availability, but one must assume that the underlying assets owned and managed by REITs are valued properly in the marketplace.

The first studies to focus specifically on REITs tended to compare REIT performance to the performance of other financial assets and market benchmarks.³ Other researchers have attempted to determine whether the addition of REITs to common stock and mixed-asset portfolios enhances returns and/or improves diversification benefits. Despite the extensive amount of literature on this topic, researchers still have not identified an optimal allocation to real estate for a mixed-asset portfolio.⁴ Sivitanides (1996) merged this optimal portfolio construction literature with property-type diversification by trying to identify the optimal exposure to four property types within real estate portfolios using internal rate of return measures rather than annual returns.

Early corporate finance literature on the diversification discount found that diversified firms seemed to trade at a discount relative to similar focused firms. The common theme in the findings of these earlier studies was that investors did not want firms to do their diversifying for them, preferring instead to handle any necessary diversification by investing in different types of firms. Lang and Stulz (1994), Berger and Ofek (1995), and Comment and Jarrell (1995) all find evidence supporting the existence of a diversification discount. However, these studies define diversification by the number of business segments the firms report to Compustat. Villalonga (2004b), among others, argues that the business segment database of Compustat can introduce considerable noise and bias into the results of such tests, stemming from the way in which operations from various business segments are aggregated. Additionally, several authors (e.g. Lemelin, 1982, MacDonald, 1985, Montgomery and Hariharan, 1991, and Silverman, 1999) have argued that firms choosing to operate in multiple business segments differ systematically from firms that choose to remain focused in one

² Some authors, such as Ibbotson and Siegel (1984) for example, went to great lengths to construct their own indices of real estate returns to use in comparisons with returns on other asset classes. Earlier studies also often used reappraisal data to look at risk and return in real estate portfolios, but the use of appraisal data carries with it its own set of problems (see, for example, Giliberto, 1988 and Geltner, 1989a,b). Chief among these problems is the fact that reappraisal data tends to artificially smooth the return stream, which creates difficulties in computing an accurate standard deviation of returns. Geltner (1993) argues that even the use of transaction-based indices can introduce problems with temporal smoothing due to the common practice of reappraising only a portion of the real estate portfolio at any one time.

³ See for example, Smith and Shulman (1976), Davidson and Palmer (1978), Zerbst and Cambon (1984), Brueggeman, Chen, and Thibodeau (1984), Kuhle, Walther, and Wurtzbach (1986) and Kuhle (1987). Most of this research has generated mixed results, with some arguing that REITs have greater total risk than common stocks and slower growth rates, while others found that REITs have lower systematic risk than common stocks with comparable returns, except during periods of high inflation, when REITs tend to outperform other securities.

⁴ Paladino and Mayo (1998) find a high correlation between REITs and the general stock market. Gyourko and Nelling (1996) find little benefit from adding REITs to general investment portfolios. In more recent work, however, Lee (2005) argues that not only does real estate provide a diversification benefit to a mixed-asset portfolio, but it also increases the return due to diversification. Lee and Stevenson (2005) find that REITs not only provide a diversification benefit when added to a mixed-asset portfolio, but that the benefit increases over longer investment time horizons. Bond and Glascock (2006) find that adding European publicly traded real estate securities to a mixed-asset portfolio increases return and reduces risk.

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