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### What Drives the Property-Type Focus of REITS?

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WHAT DRIVES THE PROPERTY-TYPE FOCUS OF REITS?

BY

SEUNGHAN RO

A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree

of

Doctor of Philosophy

In the Robinson College of Business

of

Georgia State University

GEORGIA STATE UNIVERSITY  
ROBINSON COLLEGE OF BUSINESS

2010

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## **ACCEPTANCE**

This dissertation was prepared under the direction of SeungHan Ro's Dissertation Committee. It has been approved and accepted by all members of that committee, and it has been accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the Robinson College of Business of Georgia State University.

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## **ABSTRACT**

### **WHAT DRIVES THE PROPERTY-TYPE FOCUS OF REITS?**

**BY**

**SEUNGHAN RO**

December 2, 2010

Committee Chair: Dr. Alan J. Ziobrowski

Major Academic Unit: Real Estate

Using a sample of 678 property portfolio changes (acquisitions, dispositions and joint ventures) of U.S. REITs during the period 1990 to 2009, I investigate the issue of what drives the property sector focus of REITs. Geltner and Miller (2001) argue that investors prefer to make their own diversification decisions using narrowly focused REITs as an explanation for the lack of diversification. On the basis of their argument, I develop and examine the research question of how investors react to a change in a REIT's property type focus.

I find a significantly negative market reaction to acquisition and acquisitional JV events that decrease property-type focus. However, I do not find consistent supporting evidence that

dispositional events, including property sales and dispositional JVs which increase property-type focus, yield significantly positive abnormal returns. Only in the limited case of other property-type dispositional JVs do I find a statistically significant positive market reaction relative to those derived from the dispositional events that do not change the property-type focus on the basis of a difference test.

In terms of the results of cross-sectional OLS regressions, I also find strong evidence of a diversification discount derived from acquisitional events that decrease the property-type focus of a REIT regardless of the sample period and the type of property portfolio change. However, I do not find evidence of a wealth benefit received by dispositional events which increase the property-type focus. In addition, I find that the deal size of the property portfolio change relative to the size of the firm and the number of security analysts following the firm are both significant variables that affect the abnormal returns upon the announcement of a property portfolio change. I also find no evidence to support the idea that the diversification discount comes from endogeneity as argued by Villanova (2004).

# **CHAPTER ONE**

## **INTRODUCTION**

### **Background**

From a mean-variance perspective, diversification reduces the unsystematic risk associated with the variability of a portfolio's return in excess of the market return. Optimal diversification is defined as the set of assets that maximize the return for a given level of risk or, alternatively, minimize the risk for a given level of return. Markowitz (1952) developed modern portfolio theory (MPT) to formalize the concept of diversification for an investment portfolio. Markowitz employed stocks to examine his theory; however it is equally applicable to bonds, real estate, government treasury securities, and other financial assets.

Consistent with Markowitz's modern portfolio theory, Young and Graff (1995) argue that diversification within a real estate portfolio requires the composition of many different properties. However, in terms of property-type diversification strategies, there is a conflict between the investment behavior of large institutional real estate investors and Real Estate Investment Trusts (REITs). In particular, large institutional real estate investors tend to own and manage properties broadly diversified by property-type. On the other hand, REITs show a strong tendency to invest in only one particular property-type.

Several studies show that the majority of institutional real estate investors such as life insurance companies and pension funds consistently tend to diversify by property-type for their real estate portfolios. Webb (1984) finds that nearly 61% of institutional investors diversify by property-type. In a more recent survey, Louargand (1992) observes that 89% of institutional investors

diversify by property-type. According to Seiler, Webb and Myer (1999), intra-asset diversification is employed to identify as many different groups of sub-asset classifications as possible to maximize heterogeneity among sub-groups. This practice reduces the correlations between the sub-groups and increases the diversification of the portfolio. Such an increase in diversification reduces unsystematic risk and causes a corresponding increase or upward and leftward shift in the efficient frontier. Thus, the greater the intra-asset diversification provides greater reduction in overall unsystematic risk, and the higher optimum level of portfolio efficiency.

In contrast, Real Estate Investment Trusts (REITs) have a tendency to concentrate their investments into a single property-type. According to the National Association of Real Estate Investment Trusts (NAREIT) Handbooks (1997–2008), more than 90% of the REITs in the U.S. equity REIT sector focus on one property-type or occasionally two closely related property-types. The other 10% of the equity REIT sector is diversified by property-type in terms of either total market capitalization or number of properties. In the early days of REITs, diversified REITs dominated the industry. Figure 1 shows that diversified property REITs accounted for more than 30% of NAREIT index during the 1980s. In recent years, REIT management has shifted its strategy. The percentage of diversified REITs has decreased steadily as REITs have tended to specialize in the various property sectors such as healthcare, hotels, apartments, retail, office and industrial. Thus the conflict with Markowitz's modern portfolio theory, and the inconsistent investment behavior of REIT management with the diversification strategy of institutional real estate investors both motivate the fundamental research question of this study. *What drives the property sector focus of REITs?*

There are several theories which attempt to explain this contradictory behavior. Prior corporate finance literature finds the existence of the “diversification discount” referring to a negative correlation between the market value of a firm’s assets and the degree of diversification in the assets it holds. They find diversified firms tend to trade at a discount relative to similar focused firms. Lang and Stulz (1994), Berger and Ofek (1995), and Comment and Jarrell (1995) find a negative association between firm performance and diversification within the firm. The idea behind these findings is that investors do not want to invest in firms who do their diversifying for them. Investors prefer to make their own diversification decisions. Consistent with this theory, Geltner and Miller (2001) argue that early REITs often diversified by property-type since individual relatively small REIT investors wanted passive investment vehicles and thus were best served by a diversified portfolio of properties. But in the 1990s, REIT investors became dominated by institutions that prefer to make their own diversification decisions. Thus REITs responded to the needs of their investors by becoming more focused.

Another theory argues that once REITs became more actively managed based on the belief that management expertise could usually be more effective when it specialized by property-type. Not only REITs but also mutual funds have a strong tendency to focus on investments in areas where they believe they have expertise. However, Ro and Ziobrowski (2009) examine whether the management expertise of focused REITs drives their lack of diversification and find no evidence of superior performance associated with REIT property-type focus. In addition, Yao, Clifford, and Berens (2004) find that hedge fund sector specialists on the whole, are no better than generalists in terms of their exposure to systematic risk.



## **Purpose of the Study**

In this research, I examine the diversification discount of REITs. If investors prefer to make their own portfolio diversification decisions by employing pure-play REITs (property sector focused REITs), I hypothesize that investors will react positively to a REIT's property portfolio changes which reconfirm their narrow property-type focus. Conversely, investors should react negatively to events which decrease a REIT's property-type focus (i.e. the REIT diversifies). To investigate this research hypothesis, I identify a sample of publicly announced property portfolio changes by REITs coming from property acquisitions, disposition, joint ventures and mergers from 1990 to 2009, and employ standard event-study methodology to compute abnormal returns around the announcement date for these events. In addition, as a robustness check, this study splits a sample period (1990 – 2009) into two sub-periods: (1990-1999) and (2000-2009).

Extending the implication of the argument further suggests the second research question, *“In the presence of appropriate controls, what additional explanatory variables significantly influence abnormal returns on events which change a REIT's property-type focus?”* I employ cross-sectional ordinary least squares (OLS) regression to investigate the relationship between abnormal returns and a set of potential variables of interests as suggested by the literature.

## **Importance of the Study**

This dissertation extends the literature in four important ways. First it tests Geltner and Miller's (2001) explanation for the lack of diversification among REITs. The most prior studies examine

the relationship between performance and diversification strategy and find evidence of a diversification discount. However, several studies have been critical of the diversification discount arguing that endogeneity in the data may have caused the negative relationship between firm value and diversification (Campa and Kedia 2002, Graham, Lemmon and Wolf 2002, Villaonga 2004). To avoid endogeneity, I control for operating performance prior to the announcements of portfolio changes. Second, this dissertation fills a gap in the literature by investigating the market reaction when REITs reconfirm or invest contrary to their focus. Prior literature including Campbell, Petrova and Sirmans (2003) finds wealth benefits received when companies reconfirm their geographical focus in the acquisition. However, they do not examine the wealth effect in terms of property-type diversification. Third, prior literature finds evidence of the wealth effect based on the change of REITs property portfolio diversification associated only with acquisitions and mergers. This dissertation provides evidence for a more comprehensive range of events adding property dispositions and joint ventures. Finally I examine the influence of certain variables of interests on abnormal returns associated with a change in a REIT's property-type focus.

## **Organization of Dissertation**

While this chapter provides a general introduction to the study, the remainder of this dissertation is organized as follows. The second chapter reviews the relevant literature. The third chapter presents the data construction and test methodology. The fourth chapter provides the empirical results and discussion. The fifth chapter concludes the dissertation and suggests future areas of study.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **Overview of the Literature Review**

The literature review is presented in three sections: diversification issues in finance studies, diversification issues in real estate studies, and the wealth effect of real estate portfolio transaction studies. The diversification issues in finance studies reviews several theories associated with the relationship between firm value and diversification, mainly developed in the finance literature. The literature of the diversification issues in real estate studies focuses on property-type diversification covering REITs and other real estate investments. The literature of the wealth effect of real estate portfolio transaction studies discusses the studies of the wealth effect of REITs around changes in property portfolios.

#### **Diversification Issues in Finance Studies**

While a number of finance studies attempt to examine the relationship between the market value of the firm and the degree of its diversification, the evidence still remains debated. Early finance literature on the diversification issues finds the existence of the “diversification discount,” where diversified firms are valued at a discount relative to focused firms, and develops several theories to support the empirical findings. However, more recently, several studies criticize the earlier diversification discount studies. They argue that the diversification discount results from the systematic difference between a stand-alone firm and a single segment of a multi-segment firm, resulting in endogeneity issues.

### *Diversification Discount*

A number of corporate finance studies find evidence of a diversification discount. Lang and Stulz (1994), Berger and Ofek (1995), Comment and Jarrell (1995), and DeLong (2001) all find negative correlation between firm value and the degree of diversification. There are several alternative theories which may explain the observation that diversification reduces the value of the firm: information asymmetry, agency cost, and the inefficient internal allocation of capital.

Ferris and Sarin (2000) argue that a more diversified firm trades at a discount relative to a focused firm because a diversified firm has more informational asymmetry between a firm's managers and its investors. This makes investors less likely to invest in the firm. They find that more diversified firms have less analyst following, lower analysts' consensus and greater forecast error than focused firms, which results in an increase in information asymmetry and negatively affects the value of diversified firms. Bhushan (1989) also finds a negative relationship between the number of analysts and the number of lines of businesses. He argues that because of the increased number of business lines that the analysts must follow, the greater the difficulty and cost. Thus diversified firms have fewer analysts than more focused firms. In addition, diversified firms have more heterogeneous information sets among analysts, which result in a reduced consensus among analysts. Chung and Jo (1996) find a positive relationship between the number of security analysts tracking a firm and the market value of the firm. They argue that investors tend to trade securities which they recognize and the cognizance stems from information provided by security analysts, which reduces information asymmetry.

Agency cost has also been linked to the diversification discount. Denis, Denis and Sarin (1997) argue that the diversification discount occurs because there is the conflict of interest between the shareholders and the managers of a publicly owned firm. Diversification may benefit managers because management's power or managerial compensation is associated with firm size. Thus, managers tend to sustain diversification strategy even if it reduces shareholder benefit. They find managerial equity ownership is negatively related to the level of diversification. Jensen (1986) argues that firm growth benefits managers since it increases management's power and prestige. Diversification is one means of growth. Jensen and Murphy (1990) find evidence that diversification raises the compensation of managers since managerial compensation is positively related to the size of a firm. Consistent with agency cost theory, Amihud and Lev (1981) find that managers engage in diversification to reduce their undiversified employment risk (e.g. risk of losing their job).

Several studies find that the resource allocation in diversified firms differs from that in focused firms, suggesting that diversified firms tend to misallocate internal capital. Stulz (1990) finds that firm diversification results in inefficient internal capital investments such as overinvestment in low-performing businesses. Lamont (1997) also finds that diversified firms allocate their internal capital inefficiently, overinvesting in poor sectors. Shin and Stulz (1998) argue that diversified firms tend to disregard traditional market indicators of the value such as Tobin's  $q$  since different business segments are associated with different market indicators. They find evidence of inefficiency in the capital allocation of diversified firms. Rajan, Servaes and Zingales (2000) find that increases in diversity of resources and opportunities in diversified firms result in more inefficient investment and less valuable firms.

### *Challenges to the Diversification Discount*

Campa and Kedia (2002), Graham, Lemmon and Wolf (2002) and Villaonga (2004) challenge evidence of the diversification discount. They argue that the diversification discount results from an endogeneity bias since stand-alone firms are not comparable to segments of multi-segment (diversified) firms. They find that diversification does not destroy value. Rather diversification is the acquisition of already discounted businesses segments. Poor performance firms tend to diversify to enhance their firm value, which makes diversified firms appear to have a diversification discount. Campa and Kedia (2002) employ instrumental variables such as firm, industry, and macroeconomic characteristics in two-stage regressions to control for endogeneity and find evidence that the lower value of diversified firms results from an endogeneity bias. They find no evidence of a diversification discount after controlling for this endogeneity in the Compustat database. Graham, Lemmon and Wolf (2002) are critical of prior studies that assume each segment of a diversified firm is comparable to a “typical” stand-alone firm as a benchmark. They find evidence supporting systematic differences between segments of diversified firms and the stand alone firms (endogeneity), which are not comparable. Villaonga (2004) finds that diversified firms trade at a discount prior to further diversification into additional business divisions.

### **Diversification Issues in Real Estate Studies**

While variety topics in diversification issues are explored in real estate studies, this review mainly focuses on literature in terms of property-type diversification. It classifies studies into

studies employing real estate investment and studies focusing on real estate investment trusts (REITs).

#### *Property-type Diversification in Real Estate Investment*

De Witt (1996) finds that the majority of real estate fund managers have strategies to diversify by property-type as well as by location for their real estate portfolio construction. Firstenberg, Ross, and Zisler (1988) investigate the performance of more than 600 individual real properties from 1974 to 1987. They classify the properties into four types: office, retail, industrial and apartments, and create mean-variance efficient portfolios composed of real estate only and another composed of mix-assets with real estate, common stocks and bonds. They find that including different property-types in real estate portfolios increases the efficiency of both portfolios.

Lee (2001) employs data on retail, office and industrial properties around 326 different locations in the United Kingdom during the period 1981 – 1995 to investigate real estate returns in terms of property-type and regional factors. He finds that the level of risk reduction resulting from property-type diversification is significantly greater than that achieved solely by regional diversification. Hartzell, Hekman, and Miles (1986) examine quarterly data from a single institutional portfolio composed of 270 properties over the ten years 1973 – 1983 and find that property sector diversification offers more effective risk reduction for real estate investment when compared to regional diversification. Miles and McCue (1984), Lee and Byrne (1998), Fisher and Liang (2000) and Byrne and Lee (2000) find similar evidence.

Cronqvist, Hogfeldt, and Nilsson (2001) employ a portfolio composed of 32 Swedish real estate firms from 1990 to 1996 to examine the value loss for firms signaling the intention of following a diversifying strategy. They find that when firms diversify they pay too much when acquiring new assets and when hiring and firing employees in the creation of the new organization. They also find that firms pursuing diversified strategies tend to have private rather than institutional ownership.

Boer, Brounen, and Veld (2005) examine how the corporate focus of real property companies affects their stock performance employing data from 275 international real property companies in the U.S. and Europe over 1984 – 2002. They find that property companies in the U.S. have a tendency to focus on property-type while those in European countries are more likely to focus on geographical regions. In terms of analyzing the relationship between firm focus and stock performance, they find that firms with geographical focus significantly outperform the overall market while the stock performance is positively related to property-type focus. In addition, this study finds that an increase in firm focus increases firm-specific risk.

#### *Property-type Diversification in Real Estate Investment Trusts (REITs)*

As mentioned in Chapter one, many of the early REITs maintained a property-type diversification strategy. Pagliari, Scherer, and Monopoli (2005) show that during the 1980s more than 30% of REITs were composed of diversified REITs although that percentage has fallen steadily. Boer, Brounen, and Veld (2005) also find that in the early nineties, the average number of different property-types in a REIT's portfolio was more than three; today this number has fallen below two. Geltner and Miller (2001) suggest three explanations for the change. First,



earlier REITs were often diversified by property-type because REIT investors wanted passive investment vehicles and thus were best served by a diversified portfolio of properties. But, after the significant legislative changes to the REIT structure in 1993, REIT investors became dominated by institutions that prefer to make their own diversification decisions. Second, as REITs became more actively managed, they acquired management expertise that specialized by property-type. That is, they exhibited a strong tendency to focus on investments in areas where they believed they had expertise requiring distinct and highly specialized management skill. Third, investors prefer assets that are simpler to understand and evaluate thus reducing information asymmetry. Since focused REITs are less complex than diversified REIT, they are therefore easier to analyze and thus more highly valued.

Miles and McCue (1982) examine the ratio of return to risk of equity REIT portfolios compared to commingled real estate funds from 1972 to 1978, regressing on variables including property-type, size, and location. They find the correlation between different property-types is relatively low and conclude that property-type diversification provides significantly higher risk adjusted cash yields in comparison to the other variables.

Gyourko and Nelling (1996) examine whether the type of property and the regional distribution of properties held in the underlying portfolio of REITs influences the systematic risk of the REIT. They find no meaningful impact for either property-type or geographical diversification in their REIT stock market return data. However, this study employs a relatively limited data period (1990 – 1992) before institutions were legally permitted to invest in REITs.

Chen and Peiser (1999) examine how the performance of REITs before 1993 differs from that of REITs after 1992 when institutions became active in the REIT market. They find that after 1992, REITs somewhat outperform the REITs before 1992 while risk patterns are not very different. In addition, they also classify the various REIT property-types by average monthly return, standard deviation, and beta. They find property-type focused REITs perform better than diversified REITs, but provide no analysis of the statistical margin of the difference.

Capozza and Seguin (1999) investigate the effect of REIT specialization by analyzing cash flows and firm value. They concentrate on the issue of whether management expertise in terms of focus and diversification strategy affects REIT performance and value. They conclude that more diversified REITs actually make higher gross yields from their properties. However, the higher gross-cash-flow yields of diversified REITs are offset by higher corporate-level expenses, which results in the reduction of value. In terms of cash flows available to shareholders, they find no evidence that the cash flows vary with REIT specialization. This study analyzes the value of REITs on the basis on property level cash flow rather than REIT performance from the perspective of investors in stock market.

Eichholtz, Op't Veld, and Schweitzer (2000) examine the returns of US equity REITs from 1990 to 1996 to determine whether managerial focus of REITs explains performance. To measure the performance of REITs in terms of property-type and regional diversification, they use Jensen's alpha from CAPM and multifactor models and find evidence supporting the notion that property-type focused REITs perform better than property-type diversified REITs while regionally

focused REITs underperform regionally diversified REITs. However, the sample period (1990 – 1996) spans one of the most significant periods of change in the US REITs industry.

Benefield, Anderson, and Zumpano (2008) examine the diversification discount related to a property-type diversification in equity REITs. They employ 75 US equity REITs from 1995 to 2006 to analyze the performance in terms of Jensen's Alpha, the Treynor Index, and the Sharpe Ratio. They find evidence that diversified REITs significantly perform better than focused REITs for the period 1995 – 2001. However, this study does not match the property-type composition of diversified and focused REITs. That is, the sample selected by Benefield et al. for property type focused REITs does not accurately reflect the property type mix in their diversified REIT sample. Since different property-types may perform better than other property-types in different time periods (Gallo, Lockwood, and Rutherford 2000), different compositions of property-types may result in bias. Pagliari, Scherer, and Monopoli (2005) and Riddiough, Moriatry, and Yeatman (2005) also argue that portfolios with different property-type compositions are not fully comparable when different real estate property indices have different mixes of property types. Benefield, Anderson, and Zumpano also ignore the differences in leverage between portfolios. Riddiough, Moriatry, and Yeatman (2005) find evidence that mismatched leverage may result in over a 2% annual return difference for the comparison.

Ro and Ziobrowski (2009) also examine whether property-type focused REITs perform better than diversified REITs. In order to compare performance, they construct two different portfolios; one is composed of only focused property REITs and the other composed of only diversified property REITs. They then match the various property-type allocations in the both portfolios and

rebalance annually. They investigate abnormal returns employing CAPM and the Fama-French three-factor model with Carhart's momentum factor and find no evidence of superior performance associated with property-type focused REITs. Consistent with modern portfolio theory, they also find higher market risk associated with focused REITs.

### **Wealth Effect of Real Estate Portfolio Transaction Studies**

Early literature on the wealth effects of real estate portfolio changes suggest that property portfolio transactions are value-creating events for sellers, but value-neutral events for buyers. For example, Glascock, Davidson and Sirmans (1991) employ standard event study methodology to examine the wealth effect of transactions which realign real estate portfolios. They utilize a sample of 150 real property transaction announcements including 99 buyers and 51 sellers over 1971 – 1986. They find statistically significant positive abnormal returns for sellers associated with real property transactions while the abnormal returns of buyers are not statistically different from zero. Elayan and Young (1994) investigate the wealth effects of shareholders on merger or acquisition announcements in which the buyer or seller is a real estate company. They also find evidence that shareholders of seller companies experience statistically significant abnormal returns while those of buyer companies do not have significant excess returns. McIntosh, Ott and Liang (1995) examine the shareholder wealth effects of REITs on the property transaction announcement and find consistent evidence supporting that there is no significant excess return on acquisition events while sale transaction events experience positive excess returns. Booth, Glascock and Sarkar (1996) also find similar results employing more precise event data and a more appropriate method, GARCH, to estimate expected returns and standard errors. They

attempt to explain this finding using differences in the tax treatments for buyers and sellers, or the number of buyers relative to the number of sellers.

However, Campbell, Petrova, and Sirmans (2003) analyze the shareholder wealth effects of 209 REIT portfolio acquisitions over the period 1995 to 2001. Inconsistent with prior literature, they find evidence of significant abnormal returns on the acquisition announcement in the aggregate. Furthermore, they find wealth benefits received when companies reconfirm their geographic focus in the acquisition. The events that do not reconfirm (diversify) their regional focus exhibit negative insignificant abnormal returns. However, they do not examine the wealth effect in terms of property-type diversification.

Campbell, Gosh, and Sirmans (2001) examine a sample of 85 merger transactions over the period 1994 – 1998 when a publicly traded equity REIT is an acquirer. The sellers of 40 events are public REITs while the other 45 events have private sellers. Among 40 public-to-public mergers, 25 mergers increased the geographic diversification of the acquiring firms while 25 out of 45 public-to-private mergers also increased geographic diversification. They find evidence of negative market reaction when the mergers increased the geographic diversification of acquirers, which is consistent with Campbell, Petrova, and Sirmans (2003).

Campbell, Petrova, and Sirmans (2006) investigate the shareholder wealth effects of property disposition by equity REITs for 1992 – 2002. They find evidence of significant positive abnormal returns on disposition announcements. However, this study does not examine how the market reacts to changes of focus affected by property sell-offs.

Campbell, White-Huckins, and Sirmans (2006) examine 185 Joint Ventures by REITs from 1994 to 2001 and find that the market positively reacts to the announcement of joint ventures by REITs. In particular, they find positive significant abnormal returns on the announcement of joint ventures if the REIT's JV partner is a property-type diversified REITs rather than property-type focused REITs. They argue that property-type diversified REITs employ the JVs to obtain highly specialized management expertise in particular property-types, and thus diminish the managerial problems associated with property-type diversification.

## **CHAPTER THREE**

### **DATA AND METHODOLOGY**

This chapter presents sources of empirical data and the methodology used to examine the following research hypotheses.

#### **Hypothesis**

This study is motivated by the lack of property-type diversification in REITs and investigates a theory developed by Geltner and Miller (2001), i.e. investors prefer to make their own diversification decisions with pure-play (property-type focused) REITs. To develop the first research hypothesis, Campbell, Petrova and Sirmans (2003) find a significant positive abnormal return to the announcement of the property acquisition to reconfirm their geographical focus. Abnormal returns associated with an announcement which reduces geographic focus are insignificantly different from zero. However, they do not examine the market's reaction to announcements affecting property-type diversification. Therefore, in this dissertation I examine the following research hypotheses.

*H1: The market has a significant positive reaction to the announcement of a REIT's property portfolio changes (dispositions, or dispositional JVs) which increase their narrow property-type focus.*

*H2: The market has a significant negative reaction to the announcement of a REIT's property portfolio changes (acquisitions, or acquisitional JVs) which decreases a REIT's property-type focus.*

## **Data**

### *Identification of Property Portfolio Changes of REITs*

Following Campbell, Petrova, and Sirmans (2003 and 2006), I obtain information on announcements about the property portfolio changes (acquisition, disposition, joint venture or merger) of REITs from the Dow Jones News Retrieval using the Dow Jones Factiva Online Database service in the years 1990 – 2009. To be included in the sample, an announcement must be found in the Dow Jones Newswire, the Press Release Wires or the Reuters Newswires. The announcement day refers to the date of the first report of the portfolio change in one of these publications, which provides a trading day if the announcement is made before 3:59 p.m. However, if the event is announced after 3:59 p.m., the event day is considered to be the next trading day after the announcement. I exclude a transaction from the sample if other significant events are announced during the event window or a transaction with a total value less than 5 million. In terms of the sample selection, I exclude property-type diversified REITs due to the difficulty in defining the property portfolio change which increases or decreases property-type focus.

### *Identification of Property-types and Daily Return of REITs*

I employ daily return data obtained from the CRSP/Ziman US Real Estate Data Series which provides return series for individual REITs trading on the NASDAQ, New York Stock Exchange



and American Stock Exchange. This database provides property-type classifications for individual REITs including health care, industrial and office, residential, lodging and resort, retail, self storage, and diversified.

### *Identification of the control variables measured for each property portfolio change*

We obtain the information regarding the size of property portfolio changes by REITs from press releases, and from 10Q and 10K SEC filings prior to the announcement. Property type and geographical focus change are obtained from the SNL Real Estate database and also from 10Q and 10K SEC filings. Other accounting data including total assets, debt and funds from operations (FFO) are obtained from COMPUSTAT and from 10Q and 10K SEC filings. The numbers of analysts following each REIT are obtained from Institutional Brokers' Estimate System (IBES). I obtain institutional holdings from the CDA/Spectrum 13 (f) Institutional Holdings, provided by Thomson Reuters.

## **Methodology**

### *Standard Event Study Methodology*

Following Mikkelsen and Partch (1986), I employ standard event study methodology to investigate the abnormal return for an equally balanced portfolio around the event announcement date (acquisition, disposition, or joint venture). I use the market model to estimate the abnormal return in reaction to the event, using daily returns with the following equation:

$$R_{i,t} = \alpha_i + \beta_i R_{m,t} + \varepsilon_{i,t} \quad (1)$$

where  $R_{i,t}$  is the rate of return on security  $i$  over the period  $t$ , which is one day,  $R_{m,t}$  is the rate of return on the equally weighted market index. The CRSP value-weighted market return is used as the market proxy. Daily returns are obtained from the CRSP database. Day 0 is the announcement day,  $\alpha_i$  is the estimated intercept,  $\beta_i$  is the estimated slope of the linear relationship between security  $i$  and the return on the market index, and  $\varepsilon_{i,t}$  is the unsystematic component of security  $i$ 's return on day  $t$ .

The estimated expected return for security  $i$  at time  $t$  given the daily return is the following:

$$\hat{R}_{i,t} = \hat{\alpha}_i + \hat{\beta}_i R_{m,t} \quad (2)$$

where  $\hat{\alpha}_i$  and  $\hat{\beta}_i$  are estimates of  $\alpha_i$  and  $\beta_i$ . I obtain these estimates using 60 daily returns from day  $t-250$  through day  $t-20$ .

The abnormal return (AR) for security  $i$  at time  $t$  is given by the following equation:

$$AR_{i,t} = R_{i,t} - \hat{R}_{i,t} = R_{i,t} - (\hat{\alpha}_i + \hat{\beta}_i R_{m,t}) \quad (3)$$

The market model, equation (1), is applied to all samples and abnormal returns are calculated for each event day associated with the announcement. To compute the cumulative abnormal return (CAR), I use one-day (Day 0), two-day (Days 0, +1), and three-day (Days -1, 0, +1) windows for

the time horizon of the announcement period. The cumulative abnormal return (CAR) for security  $i$  is the sum of  $AR_{i,t}$  over the various window periods (1, 2, and 3-day), given by:

$$CAR_{i,t} = \sum_{t=T_1}^{T_2} AR_{i,t} \quad (4)$$

where  $T_1$  is the first day of the interval and  $T_2$  is the last day of the interval.

The mean cumulative abnormal return (MCAR) for a sample of  $N$  securities is given by,

$$MCAR_i = \frac{1}{N} \sum_{i=1}^N CAR_i \quad (5)$$

The expected value of the CAR is not different from zero if there is no abnormal return performance. Following Elayan and Young (1994), I employ a t-test for the statistical significance of the abnormal return over various window periods (1, 2, and 3-day). The variance of the CARs is calculated from t-120 to t-21 and any possible first order serial dependence in the excess returns is given by:

$$Var(MCAR_{T_1, T_2}) = (T)Var(MCAR_t) + 2(T-1)Cov(MCAR_t, MCAR_{t+1}) \quad (6)$$

where  $T = T_2 - T_1 + 1$ ,

$$Var(MCAR_t) = \sum_{t=120}^{t=21} (MCAR_t - MCAR_m)^2 / 99$$

$$MCAR_m = \sum_{t=120}^{t-21} MCAR_t / 100, \text{ and}$$

$$Cov(MCAR_t, MCAR_{t+1}) = \sum_{t=120}^{t-21} (MCAR_t - MCAR_m)(MCAR_{t+1} - MCAR_m) / 99$$

The t-statistic for the MCAR over the various intervals from  $T_1$  and  $T_2$  is

$$t = MCAR_{T_1, T_2} / \text{Var}(MCAR_{T_1, T_2}) \quad (7)$$

If  $T_1 = T_2$ ,  $t_{MCAR_{T_1, T_2}}$  is equivalent to the t-statistic for  $MCAR_t$ .

### *Cross-Sectional Regression*

I develop a cross-sectional ordinary least squares regression model to examine the relationship between abnormal returns and a set of potential variables of interests. The control variables are selected on the basis of prior literature. I develop the following cross-sectional regression model to investigate the relationship.

$$\begin{aligned} AR = & \alpha + \beta_1 PROPD + \beta_2 PROPF + \beta_3 \ln SIZE + \beta_4 SIZER + \beta_5 DEBTR + \beta_6 PFFO \\ & + \beta_7 INST + \beta_8 ANALY + \beta_9 GEOD + \beta_{10} ACDS + \beta_{11} ADJV + \beta_{12} JVRT + \varepsilon \end{aligned} \quad (8)$$

where:

$AR$  = Abnormal returns for an equally balanced portfolio around the event announcement;

*PROPD* = Dummy variable equal to 1 if the property portfolio change decreases property type focus and 0 otherwise;

*PROPF* = Dummy variable equal to 1 if the property portfolio change increases property type focus and 0 otherwise;

$\ln SIZE$  = Natural logarithm of the firm's total assets at the end of the last quarter prior to the announcement;

*SIZER* = The ratio of the total price of property portfolio change divided by the firm's total assets at the end of the last quarter prior to the announcement (*SIZE*);

*DEBTR* = Debt ratio or the total debt divided by the total assets of the firm at the end of the last quarter prior to the announcement;

*PFFO* = Funds from Operations divided by total assets at the end of the last quarter prior to the announcement;

*INST* = Number of shares owned by institutional investors divided by the total number of shares outstanding at the end of the last quarter prior to the announcement;

*ANALY* = Number of analysts' forecasts of FFO for the REIT at the end of the last quarter prior to the announcement;

*GEOD* = Dummy variable equal to 1 if the property portfolio change decreases geographical focus and 0 otherwise;

*ACDS* = Dummy variable equal to 1 if the property portfolio change derives from acquisition or acquisitional JV and 0 otherwise;

*ADJV* = Dummy variable equal to 1 if the property portfolio change derives from acquisition or disposition and 0 otherwise;

*JVRT* = Dummy variable equal to 1 if a JV partner is another REIT and 0 otherwise

PROPD is my primary variable of interest. PROPD is a dummy variable equal to 1 if the property portfolio change decreases property type focus and 0 otherwise. I hypothesize that this variable should be significantly negative suggesting that any reduction in the portfolio focus is viewed negatively by investors.

PROPF is another primary variable of interest. PROPF is a dummy variable equal to 1 if the property portfolio change increases property type focus and 0 otherwise. I hypothesize that this variable should be significantly positive suggesting that any substantial increment in the portfolio focus is viewed positively by investors.

I control for the firm size because several studies in the finance literature find a negative association between abnormal returns and firm size (Loderer and Martin 1990; Asquith, Bruner, and Mullins 1983). Shleifer and Vishny (1997) argue that larger companies' managers are less bound by shareholder discipline since shareholders exercise less governing power in large firms.

I control for the size ratio between the size of property portfolio change and the size of the REIT using SIZER since Campbell, Petrova and Sirmans (2006) find a significant positive relationship between abnormal returns on a property sale by a REIT and the size ratio. Clearly the larger the size of the transaction relative to the size of the REIT, the greater is the impact on firm performance.

I control for the firm's debt ratio by using DEBTR, which is the total debt divided by the total assets of the firm. According to free cash flow theory suggested by Jensen (1986), firms with higher leverage make better investment decisions since less free cash flow leaves them less likely to waste resources. Stulz (1990), Maloney, McCormick, and Mitchell (1993) and Kang (1993) also find a significant positive relationship between leverage and returns.

I control for endogeneity using a REIT's operating performance prior to the announcement of a portfolio change. PFFO, is Funds from Operations divided by total assets. Villanova (2004) finds that diversified firms trade at a discount prior to their further diversification into additional business divisions. This implies that the diversification discount results from endogeneity. Controlling the operating performance prior to the announcement of a portfolio change, I investigate whether the diversification discount may be caused by endogeneity.

REIT institutional holdings are controlled for using INST. As shown in Figure 1, REIT management has shifted its strategy through time. In the early days of REITs, diversified property-type REITs dominated the industry. However, REITs have tended to focus on a single property-type since the early 1990s when REIT investors became dominated by institutions that may prefer to make their own diversification decisions.

The number of analysts that forecast the FFO for a REIT is controlled for using ANALY. Chung and Jo (1996) find that the number of security analysts positively affects the market value of the firm. Ferris and Sarin (2000) also find more diversified firms have fewer analysts following the firms' performance.

Geographical focus changes are controlled for using GEOD, which is a dummy variable equal to 1 if the property portfolio change decreases geographic focus and 0 otherwise. Campbell, Petrova and Sirmans (2003) find wealth benefits are received when companies reconfirm their geographical focus in an acquisition while events which reduce their regional focus exhibit negative wealth benefits. Following Campbell, Petrova and Sirmans (2003), I define the event to decrease geographical focus as the property transaction which expands its property portfolio into states where it was not previously operating.

Acquisitional events including acquisitions and acquisitional JVs are controlled for using ACDS, which is a dummy variable equal to 1 if the property portfolio change derives from acquisition or acquisitional JV and 0 otherwise (dispositions or dispositional JV). Campbell, White-Huckins, and Sirmans (2006) find positive abnormal returns on acquisitional JV announcements while negative abnormal returns are expected on dispositional JV events.

Property transactions including acquisitions and dispositions are controlled for using ADJV, which is a dummy variable equal to 1 if the property portfolio change derives from acquisition or disposition and 0 otherwise (JVs).

JV with other REITs as a partner is controlled for using JVRT. Campbell, White-Huckins, and Sirmans (2006) find positive abnormal returns when a REIT has a JV with another REIT. They argue that it is difficult for a REIT to have synergies with a non-REIT partner due to the unique REIT institutional structure.



## CHAPTER FOUR

### RESULTS

#### Descriptive Statistics

Table 1 presents the summary statistics of 678 sample US Equity REIT property portfolio change events by year of announcement and property-type over the sample period 1990 – 2009. A balanced cross sectional sample represents the REIT property-type population in terms of the number of REIT. As shown by the table, over 80% of the sample events occurred in the office/industrial, residential, and retail REIT sectors. The sample includes 140 different REITs and covers all different property-type focused REITs, but excludes property-type diversified REITs due to the difficulty in defining the property portfolio change which increases or decreases property-type focus. I examine a relationship between abnormal return and REIT property-type, and find no significant relationship.<sup>1</sup> In terms of the announcement by year, the distribution over the sample period varies, but most property portfolio change events occur after 1993. I find no property portfolio change event by a joint venture over the sub-period 1990 – 1993 since REITs had not employed joint ventures as an investment strategy prior to 1994 (Campbell, White-Huckins, and Sirmans 2006). I test for a relationship between the abnormal return and the time of the event and find no evidence of the significant relationship.<sup>2</sup>

Table 2 summarizes data on the average value of deal size by year of announcement over the sample period. In terms of property transactions including acquisitions and dispositions (Panel A), the average value of the 463 property acquisitions and dispositions is over \$ 37 million.

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<sup>1</sup> The results are available upon request.

<sup>2</sup> The results are available upon request.

During the early- and mid-1990s, the size of the deals was relatively small, less than \$ 20 million. However, it rose significantly during the late 1990s and continued to stay around \$ 40 million in 2000s. In terms of joint ventures (Panel B), the average size of the 215 deal was over \$ 251 million. We also see the similar tendency increasing deal sizes after the mid-1990s. This tendency follows the remarkable growth of the equity REIT market after 1993, triggered by legislative changes to the REIT structure which made REITs more attractive investment to institutional investors. As we would expect, Table 2 clearly shows that JV deal sizes were much larger than property transactions (acquisitions and dispositions).

Table 3 is the distribution of the 678 REIT property portfolio change events by year of announcement with the classification of the events in terms of the property-type focus change. I employ the definition of property portfolio change developed by Campbell, Petrova and Sirmans (2003). They regard portfolio change as a single transaction in which two or more unrelated properties are traded from the same seller in a same date. REIT typically trades a group of properties from institutional investors or other real estate firms.

Panel A shows 228 property acquisitions and 235 property dispositions by REITs. In terms of the property-type focus change, 61 acquisitions decreased the property-type focus of a REIT. The other 167 acquisitions reconfirmed the REIT's property-type focus (same property-type acquisition) which did not alter property-type focus. Of the 235 property dispositions, 71 events increase property-type focus of the REIT. 164 property-type dispositions are neutral dispositional events which do not to change property-type focus.

Panel B in Table 3 shows the 136 acquisitional JVs and 79 dispositional JVs created by REITs during the sample period. According to Campbell, White-Huckins, and Sirmans (2006), an “acquisitional” JV is defined as a JV that is established as a vehicle for obtaining property at a reduced acquisition cost. They define “dispositional” JV as a JV that seeks to obtain cash or increase liquidity by partially disposing properties to the JV partner (usually a financier). I find that 22 acquisitional JVs can be classified as events which decreased the property-type focus of the REIT with the remaining 114 acquisitional JVs reconfirming the property-type focus of the REIT. Also, 8 announcements of other property-type dispositional JV are identified as property portfolio changes which increase the property-type focus of the REIT. 71 same property-type dispositional JVs have neutral dispositional events which do not change the property-type focus of the REIT.

### **Abnormal Returns**

The results of the event study associated with announcements of property acquisition (Panel A) and property disposition (Panel B) are presented in Table 4. Each portfolio provides three mean cumulative abnormal returns (CARs) in one-day (0), two-day (0, +1) and three-day (-1, 0, +1) windows around the announcement date.

In Panel A, all abnormal returns for the acquisition events as a whole are not significantly different from zero. However, to investigate the effects of property-type focus change, I segregate the 61 acquisitions that reduce the focus of the REIT from those that reconfirm their property-type focus. The results indicate that acquisitions which decrease the property-type focus of the REIT show significantly negative abnormal returns in all event windows and more than

60% of the results are negative in one- and two-day window. By contrast, in 167 same property-type acquisitions, abnormal returns in one- and two-day window are significantly positive at 10% confidence level. The difference test between the two groups is statistically significant over all event windows. The results indicate property acquisitions that decrease the property-type focus cause a negative reaction in the market. This finding is evidence of diversification discount to support the research hypothesis (H2).

In Panel B in Table 4, the overall disposition announcements exhibit positive abnormal returns with significantly positive values in all windows. Again I separate the sample, distinguishing between those dispositions that sharpen the focus of the REIT by selling “other” property-types and same property-type dispositions which have no material impact on the focus of the REIT. The 71 dispositions that increase the property-type focus (other property-type dispositions) of the REIT show significantly positive abnormal returns in the one- and three-day windows. The two-day window is also shows a positive abnormal return although it is not statistically significant. In 164 same property-type dispositions, abnormal returns in two- and three-day windows are significantly positive, consistent with Campbell, Petrova and Sirmans (2006). On the basis of the difference test between the two groups, the abnormal returns on other property-type dispositions are not statistically different from those derived from the same property-type dispositions.

This result is not especially surprising. A number of prior studies find that asset dispositions by firms provide significant benefits to shareholders. For example, Campbell, Petrova and Sirmans (2006) find that abnormal returns resulting from major sales of real property by US REITs are significantly positive. They argue that the results support that the positive abnormal returns are

derived mainly from the value of efficient asset reallocation (property disposition). Consistent with their study, I find evidence of positive abnormal returns on all disposition announcements. However, I find no evidence to support the hypothesis that the significant positive market reaction results from dispositions that increase property-type focus since the abnormal returns are not significantly higher than those of same property-type dispositions.

To confirm the findings of Campbell, Petrova and Sirmans (2003), I examine the effects of property geographical focus changes by REITs in Panel C. I separate property acquisitions into two groups: those acquisitions that decrease geographical focus (58) and those acquisitions that reconfirm their geographical focus (170). I find that acquisitions which decrease geographical focus of the REIT (other geographical location acquisition) show significantly negative abnormal returns in one- and two-day events while acquisitions that reconfirm the same geographical focus have no significant abnormal returns. The difference test between two groups is statistically significant in all event windows, which is consistent with Campbell, Petrova and Sirmans (2003). They argue that this cost of diversification supports the notion that shareholders of REITs give greater value to corporate focus rather than diversification since investors prefer to form their own diversification decisions.

Table 5 shows the results of the event study associated with announcements of acquisitional JV (Panel A) and dispositional JV (Panel B). In Panel A, all abnormal returns for overall acquisitional JVs are significantly positive, consistent with Campbell, White-Huckins, and Sirmans (2006). When distinguishing 22 other property-type acquisitional JVs from those which reconfirm their property-type focus, the results indicate that the acquisitional JVs that decrease

property-type focus of REIT have a low or negative level of abnormal returns and no significance in all event windows. In 114 same property-type acquisitional JVs, however, abnormal returns in all event windows are large and significantly positive. The difference between the two groups is statistically significant. This result provides additional support for my research hypothesis (H2) although the market reaction to JV events that decrease the property-type focus is not significantly negative.

In Panel B in Table 5, the results indicate that dispositional JV announcements which increase property-type focus (other property-type dispositional JV) yield significantly positive abnormal returns. The difference test shows they are also significantly higher than the same property-type dispositional JVs in two- and three-days window. This finding supports the research hypothesis (H1).

### **Cross-Sectional Regression**

Table 6 shows the summary statistics for the raw REIT data used to generate the variables in the cross-sectional regression analysis over the sample period. I present average, minimum, and maximum values of the total REIT assets, total REIT debt, percentage of institutional shareholders, and the number of analysts at the end of the last quarter prior to the announcement of the property portfolio change. Funds from Operations are earned during the last quarter prior to the announcement of the property portfolio change.

Table 7 shows the descriptive statistics of continuous variables in cross-sectional regression analysis over the sample period. The dependent variable in the cross-sectional regression, *CAR*

(2), is a two-day (days 0, +1) cumulative abnormal return (CAR) for an equally balanced portfolio around the event announcement. The deal size ratio is the total price of property portfolio change divided by the firm's total assets (*SIZER*). As suggested by Table 2, the deal size ratio for joint ventures is nearly four times larger than property acquisitions and dispositions. The other variables used in the regression are reasonably consistent among the groups of transactions investigated. Panel D shows correlation coefficients among the independent variables. As we might expect, the correlation among between the firm size (*lnSIZE*), institutional ownership (*INST*) and number of analysts is relatively high indicating that larger REITs attract higher institutional ownership and greater analyst interest. Correlation among the other continuous variables is generally low.

Table 8 presents cross-sectional ordinary least squares regressions with a heteroskedastic adjustment following MacKinnon and White (1985). The regressions use 463 property portfolio changes deriving from acquisitions and dispositions to test the significance of the relationship between abnormal returns and a set of control variables discussed above. The regressand is the two-day (days 0, +1) cumulative abnormal return; *CAR* (2). During the entire sample period, I find that the indicator variable (*PROPD*) for acquisitions that decrease REIT property-type focus is significantly negative. This suggests that portfolio changes that decrease REIT property-type focus reduce value, confirming my earlier findings presented in Table 4. As a robustness check, I repeated the analysis for two sub-periods. (1990 – 1999 and 2000 – 2009) and find consistent results.

However, I find that the other primary variable (*PROPF*) for property dispositions which increase property-type focus (other property-type dispositions) is not significant for the total sample period. Only during the sub-period 1990 – 1999 do I find a significantly positive coefficient.

With respect to our control variables, during overall sample period, I find no significant relationship of firm size (*lnSIZE*) or deal size ratio (*SIZER*) to abnormal returns. Debt ratios also are not related to abnormal returns and have no significant coefficient over all sample periods. This result is consistent with Campbell, Petrova and Sirmans (2006). Also, I find no significant relationship between the FFO and abnormal returns. Thus I find no support for a diversification discount derived from endogeneity as argued by Villaonga (2004). Lastly abnormal returns are also not related to whether the transaction is an acquisition or a disposition.

A number of control variables are significantly related to abnormal returns. Institutional ownership (*INST*) exhibits a significantly negative relationship with abnormal returns. A higher degree of institutional ownership results in more significant negative reaction to the announcement of a REIT's property portfolio change that decreases a REIT's property-type focus. I find a significantly positive coefficient for the number of analyst (*ANALY*) over the entire sample period, confirming evidence found in prior literature. Ferris and Sarin (2000) find that more diversified firms have less analyst following, which results in more informational asymmetry and a negative impact on the value of the diversified firm. Also, Chung and Jo (1996) find that the number of security analysts positively affects the market value of the firm.



Consistent with the findings of Campbell, Petrova and Sirmans (2003), I find that a decrease in the geographical focus results in negative abnormal returns.

Table 9 shows the results of the regression on abnormal returns in 215 joint venture announcements. As with individual transactions, *PROPD* is significantly negative for the entire sample period which supports research hypothesis (H2). The market has a significant negative reaction to the events that decrease a REIT's property-type focus. However, I again find no evidence to support research hypothesis (H1); the coefficient *PROPF* is not significant. Thus I find no significant positive market reaction to the increase in property-type focus,

I do find a significantly positive coefficient for the deal size ratio (*SIZER*). This implies that higher value deals cause a positive market reaction, consistent with evidence found by Campbell, Petrova and Sirmans (2006). As presented by Table 7, the deal size ratios for joint ventures are substantially larger than for property transactions, which may be leading to an increase in the positive relationship between the deal size and cumulative abnormal return. Consistent with the results for transactions in Table 8, the coefficient for the number of analyst (*ANALY*) is significantly positive over all sample periods. The indicator variable for acquisitional JVs (*ACDS*) is also significantly positive. This supports the findings shown in Table 5. Abnormal returns for acquisitional JVs tend to be significantly positive. This confirms results found by Campbell, White-Huckins, and Sirmans (2006). None of the other variables used in the regression are significant.

## **Robustness Check**

As a robustness check of the results, I combine property portfolio transaction events (acquisitions and dispositions) and JV events (acquisitional JVs and dispositional JVs) as shown in Table 10. This is a comprehensive analysis combining the results of Table 4 (property transactions) with the results presented in Table 5 (JVs).

Panel A shows significantly positive abnormal returns in one- and two-day windows for all acquisitional events including acquisitions and acquisitional JVs. When segregating 83 other property-type acquisitional events from 281 events to reconfirm their property-type focus, I find that acquisitional events which decrease property-type focus cause a significantly negative market reaction while same property-type acquisitional events yield significantly positive abnormal returns. The difference test between the two groups is statistically significant over all event windows and supports research hypothesis (H2) of a diversification discount.

The results of Panel B in Table 10 are not very different from those of dispositional events included in Table 4 and Table 5. 79 dispositional events that increase property-type focus yields a significantly positive market reaction over all event windows. In terms of the difference test between other property-type dispositional events versus same property-type dispositional events, dispositional events that increase property-type focus are not significantly different from the same property-type dispositional events in the two- and three-day windows. Again I fail to find evidence in support of research hypothesis (H1): the positive market reaction to the events which increase their narrow property-type focus.

Table 11 presents cross-sectional ordinary least squares regressions using the entire 678 property-type portfolio change sample combining two groups: all property transactions including acquisitions & dispositions (Table 8) and all joint ventures (Table 9). The overall results are very consistent with those of Table 8 for property transactions. Regardless of the time frame, I find that the variable (*PROPD*) indicating an acquisition (Transaction or JV) that decreases REIT property-type focus provokes a significantly negative market reaction. This suggests that portfolio changes that decrease REIT property-type focus reduce value. However, the other primary variable (*PROPF*) for property portfolio changes which increase property-type focus (other dispositions and dispositional JVs) indicates no significance over all time periods.

Relative to the type of event (acquisition, disposition, acquisitional JV and dispositional JV) property acquisitions are controlled for using *ADJV\_Ac*, which is a dummy variable equal to 1 if the property portfolio change derives from an acquisition and 0 otherwise. Property dispositions are controlled for using *ADJV\_Dis*, which is a dummy variable equal to 1 if the property portfolio change derives from a disposition and 0 otherwise. Acquisitional JVs are controlled for using *ADJV\_JVA*, which is a dummy variable equal to 1 if the property portfolio change derives from acquisitional JV and 0 otherwise. The reference group for these dummy variables is dispositional JVs. I find evidence to support the notion that acquisitional events including acquisitions (*ADJV\_Ac*), and acquisitional JVs (*ADJV\_JVA*) have significantly larger abnormal returns than dispositions and dispositional JVs events.

## **CHAPTER FIVE**

### **CONCLUSION AND FUTURE DIRECTIONS**

#### **Conclusion**

A fundamental question in terms of property-type diversification strategies is why there is a conflict between the investment behavior of large institutional real estate investors and Real Estate Investment Trusts (REITs). REITs show a strong tendency to invest in only one particular property-type while large institutional real estate investors tend to own and manage properties broadly diversified by property-type. Geltner and Miller (2001) argue that earlier REITs had often been diversified by property-type because REIT investors were best served by a diversified portfolio of properties by employing passive investment vehicles. But in the 1990s, REIT investors became dominated by institutions that prefer to make their own diversification decisions and REITs responded to the needs of their investors by becoming more focused.

In this dissertation, I investigate the issue of what drives the property sector focus of REITs. I examine the above argument of Geltner and Miller (2001), which addresses the research question of how investors react to a change in a REIT's property type focus. If investors prefer to make their own portfolio diversification decisions by employing property-type focused REITs, I hypothesize that investors will react positively to a REIT's property portfolio changes which increase their narrow property type focus (H1). Conversely, investors should react negatively to events which decrease a REIT's property type focus (H2).

To examine the research hypothesis, I take three research processes. First, I obtain event announcements of the property portfolio changes including transactions and JV formations of

REITs over the sample period, 1990-2009. Then, I classify the samples of property portfolio change: acquisitional events that decrease property-type focus, neutral acquisitional events which do not change property-type focus, dispositional events which increase property-type focus, and neutral dispositional events which do not change property-type focus. Secondly, I employ standard event study methodology to investigate the abnormal return around the event announcements and apply it to the groups classified in the first step. Lastly, I use a cross-sectional OLS regression analysis to examine the relationship between abnormal returns on property portfolio changes and a set of potential variables of interest.

I find evidence of significantly negative abnormal returns for acquisition and acquisitional JV events that decrease property-type focus. Abnormal returns for these acquisitional events are significantly more negative than those for neutral acquisitional events which do not change property-type focus. I also find significantly negative abnormal returns for acquisitions which decrease geographical focus consistent with Campbell, Petrova and Sirmans (2003). This is strong evidence of the diversification discount to support research hypothesis (H2). However, I do not find consistent support that dispositional events which increase property-type focus have significantly positive abnormal returns (H1). Only in the limited case of other property-type dispositional JVs do I find a statistically significant positive market reaction relative to those derived from the neutral dispositional events on the basis of the difference test.

In terms of the results of cross-sectional OLS regressions, I find strong evidence of diversification discount derived from acquisitional events that decrease property-type focus of the REIT regardless of the sample period and type of property portfolio change. However, I do

not find evidence of a wealth benefit received by dispositional events which increase property-type focus.

In addition, I find that the deal size of property portfolio change and the number of security analyst are significant variables that affect the abnormal returns on announcement of property portfolio changes. I also find no evidence to support the idea that the diversification discount comes from endogeneity as argued by Villanova (2004).

In sum, my results support hypothesis (H2). Namely the market reacts significantly negative to acquisitions that decrease the focus of a REIT. Furthermore, strictly speaking, my results do not support hypothesis (H1), that dispositional events which increase property-type focus should provoke a significant positive market reaction. However, it should be noted that the market's reaction to dispositional events that narrow property-type focus as measured in this study are, in fact, positive albeit not in a statistically significant fashion. This finding may potentially be explained by Prospect Theory (Kahneman and Tversky 1979). Prospect Theory asserts that people tend to be more severely psychologically impacted by losses or negative events than gains or positive events. This phenomenon is known as loss aversion. Thus we could expect to see a much stronger negative market reaction to events that investors do not like (REITs losing focus), in comparison to the investors' positive reaction to events that investors do like (REITs increasing focus). Overall the results of this event study and cross-sectional regression analysis support the theory proposed by Geltner and Miller (2001) which postulates that investors prefer to make their own diversification decisions using narrowly focused property-type REITs.

## **Future Direction**

In this dissertation, I employ property portfolio changes including acquisitions, dispositions, and joint ventures of property-type focused REITs to examine the research question, *what drives the property sector focus of REITs*. In terms of the sample selection, I exclude property-type diversified REITs due to the difficulty in defining the property portfolio change which increases or decreases property-type focus. However, a future study could suggest the opposite research question: *what makes diversified or hybrid REITs tend to be diversified?* For example, Campbell, White-Huckins and Sirmans (2006) find significantly positive abnormal returns on joint ventures when a diversified REIT is a JV partner. They argue that the JV may diminish the effect of the diversification discount associated with a diversified REIT by providing a vehicle partnering with specialized expertise. The diversified nature of diversified REITs or hybrid REITs may yield a different market reaction to their property portfolio changes compared to focused REITs.

I also find a significantly negative relationship between institutional ownership and abnormal returns from property portfolio changes. However, Below, Stansell, and Coffin (2000) find that different types of institutional investors have different investment objectives and needs. Thus, a future research could examine how abnormal returns on property portfolio changes of REITs are affected by different types of institutional investors.

Geltner and Miller (2001) argue another possible explanation of the REIT's general lack of diversification is that analysts can more easily understand REITs that specialize in one of the standard market segments in comparison to multiple market segments. Future research could investigate how security analysts affect REIT property-type diversification.

Table 1 ▪ Summary statistics for acquisition, disposition, acquisitional joint venture and dispositional joint venture by US REITs, by announcement period over the year 1990 – 2009 and REIT property type

Number of Announcements	Entire Period	Year				
	1990 - 2009	1990-1993	1994-1997	1998-2001	2002-2005	2006-2009
Panel A: Acquisition & Disposition						
REIT property-type						
Health Care REIT	8 (1.7%)	0	1	0	4	3
Office/ Industrial REIT	133 (28.7%)	2	29	36	36	30
Lodging / Resorts REIT	68 (14.7%)	0	11	12	23	22
Residential REIT	116 (25.1%)	1	26	29	38	22
Retail REIT	135 (29.2%)	3	16	31	49	36
Self-Storage REIT	3 (0.6%)	0	0	0	0	3
Total	463	6	83	108	150	116
Panel B: Acquisitional JV & Dispositional JV						
REIT property-type						
Health Care REIT	8 (4.7%)	0	2	2	0	4
Office/ Industrial REIT	61 (27.9%)	0	3	35	12	11
Lodging / Resorts REIT	20 (9.3%)	0	4	6	5	5
Residential REIT	31 (14.4%)	0	4	18	5	4
Retail REIT	86 (39.1%)	0	9	27	14	36
Self-Storage REIT	9 (4.7%)	0	1	6	0	2
Total	215	0	23	94	36	62

Notes: Data include acquisitions, dispositions and joint ventures announced in the Dow Jones Newswire, the Press Release Wires or the Reuters Newswires. The announcement day refers to the earlier of the date of the first report of the announcing in one of these publications, which provides a trading day if the announcement is made before 3:59 p.m. However, if the event is announced after 3:59 p.m., the event day is considered as the next trading day of the announcement. I exclude a transaction from the sample if other significant events are announced during the event window or if a total value of transaction is less than \$ 5 million. I employ property-type classifications for individual REITs obtained from the CRSP/Ziman US Real Estate Data Series which provides return series for individual REIT trading on the NASDAQ, New York Stock Exchange and American Stock Exchange.



Table 2 ▪ Summary of deal value for data set of 463 real estate transactions (acquisition and disposition) and 215 joint ventures (acquisitional JV and dispositional JV) by equity REITs by announcement period over the year 1990 – 2009

Deal Value (\$M)	Entire Period	Year				
	1990 - 2009	1990-1993	1994-1997	1998-2001	2002-2005	2006-2009
Panel A: Acquisition & Disposition (463)						
Average Deal Size	37.35	15.65	16.64	48.20	36.63	44.12
Standard Deviation	3.43	2.83	1.74	10.67	4.31	7.26
Minimum	5.10	6.58	5.10	5.53	5.85	5.13
Maximum	770.00	23.50	108.00	770.00	321.00	565.00
Panel B: Acquisitional JV & Dispositional JV (215)						
Average Deal Size	251.99	0.00	63.58	175.62	395.20	354.52
Standard Deviation	26.53	0.00	12.71	21.77	88.78	63.97
Minimum	6.40	0.00	9.50	6.40	10.00	12.00
Maximum	3,000.00	0.00	220.00	1,000.00	2,740.00	3,000.00

Notes: Data include acquisitions, dispositions and joint ventures announced in the Dow Jones Newswire, the Press Release Wires or the Reuters Newswires. The announcement day refers to the earlier of the date of the first report of the announcing in one of these publications, which provides a trading day if the announcement is made before 3:59 p.m. However, if the event is announced after 3:59 p.m., the event day is considered as the next trading day of the announcement. I exclude a transaction from the sample if other significant events are announced during the event window or if a total value of transaction is less than \$ 5 million. (\$M: Millions of Dollars)

Table 3 ▪ Distribution of data set of 463 real estate transactions (acquisition and disposition) and 215 joint ventures (acquisitional JV and dispositional JV) by equity REITs by announcement period over the year 1990 – 2009

Number of Announcements	Entire Period	Year					Deal Value (\$M)
	1990 - 2009	1990-1993	1994-1997	1998-2001	2002-2005	2006-2009	1990 - 2009
Panel A: Acquisition & Disposition							
Total Acquisition	228	6	51	45	76	50	37.47
Acquisition - Other Property-type	61	5	9	12	24	11	41.57
Acquisition - Same Property-type	167	1	42	33	52	39	35.97
Total Disposition	235	0	32	63	74	66	37.22
Disposition - Other Property-type	71	0	18	24	19	10	63.40
Disposition - Same Property-type	164	0	14	39	55	56	25.89
Total	463	6	83	108	150	116	37.35
Panel B: Acquisitional JV & Dispositional JV							
Total Acquisitional JV	136	0	20	62	21	33	243.99
Acquisitional JV- Other Property-type	22	0	1	9	5	7	242.19
Acquisitional JV - Same Property-type	114	0	19	53	16	26	244.34
Total Dispositional JV	79	0	3	32	15	29	265.76
Dispositional JV - Other Property-type	8	0	0	3	1	4	474.63
Dispositional JV - Same Property-type	71	0	3	29	14	25	242.23
Total	215	0	23	94	36	62	251.99

Notes: Data include acquisitions, dispositions and joint ventures announced in the Dow Jones Newswire, the Press Release Wires or the Reuters Newswires. The announcement day refers to the earlier of the date of the first report of the announcing in one of these publications, which provides a trading day if the announcement is made before 3:59 p.m. However, if the event is announced after 3:59 p.m., the event day is considered as the next trading day of the announcement. I exclude a transaction from the sample if other significant events are announced during the event window or if a total value of transaction is less than \$ 5 million. (\$M: Millions of Dollars)

Table 4 ▪ Announcement period daily and cumulative abnormal returns (CARs) in percent for REIT shareholders in a sample of 228 acquisitions and 235 dispositions announced over the year 1990 – 2009

Property Transaction Announcements	Obs.	Day (0)			Day (0, 1)			Day (-1, 0, +1)		
		CAR		% Neg.	CAR		% Neg.	CAR		% Neg.
Panel A: Acquisition										
Total Acquisition	228	-0.020		0.487	0.020		0.522	0.030		0.487
Acquisition - Other Property-type	61	-0.490	***	0.607	-0.490	**	0.623	-0.430	*	0.525
Acquisition - Same Property-type	167	0.150	*	0.443	0.210	*	0.485	0.190		0.473
t - Stats for difference (t critical value)		-2.690	***	(1.661)	-1.628	*	(1.663)	-1.665	**	(1.663)
Panel B: Disposition										
Total Disposition	235	0.200	**	0.502	0.180	*	0.464	0.310	**	0.472
Disposition - Other Property-type	71	0.380	**	0.479	0.210		0.493	0.380	**	0.465
Disposition - Same Property-type	164	0.120		0.494	0.170	*	0.451	0.280	*	0.476
t - Stats for difference (t critical value)		1.284		(1.653)	0.036		(1.653)	0.452		(1.653)
Panel C: Geographical Diversification										
Total Acquisition	228	-0.020		0.487	0.020		0.522	0.030		0.487
Acquisition - Other Geographical Location	58	-0.310	**	0.638	-0.370	*	0.621	-0.340		0.569
Acquisition - Same Geographical Location	170	0.070		0.435	0.120		0.512	0.150		0.459
t - Stats for difference (t critical value)		-2.003	**	(1.659)	-1.749	**	(1.660)	-2.067	**	(1.659)

Notes: Abnormal return is calculated in accordance with standard event study methodology following Mikkelsen and Partch (1988). CRSP value weighted market return is used as the market proxy. Daily returns are obtained from the CRSP database. Estimation period is day -250 to day -20. Day 0 is the announcement day, which is the first date that news of the agreement is announced in the Dow Jones Newswire, the Press Release Wires or the Reuters Newswires. The announcement day refers to the earlier of the date of the first report of the announcing in one of these publications, which provides a trading day if the announcement is made before 3:59 p.m. However, if the event is announced after 3:59 p.m., the event day is considered as the next trading day of the announcement.

\*\*\*, \*\*, and \* indicates significance at the 1%, 5% and 10% levels, respectively.

Table 5 ▪ Announcement period daily and cumulative abnormal returns (CARs) in percent for REIT shareholders in a sample of 136 acquisitional joint ventures and 79 dispositional joint ventures announced over the year 1990 – 2009

Joint Venture Announcements	Obs.	Day (0)			Day (0, 1)			Day (-1, 0, +1)		
		CAR		% Neg.	CAR		% Neg.	CAR		% Neg.
Panel A: Acquisitional JV										
Total Acquisitional JV	136	0.250	***	49.3	0.450	***	42.6	0.450	**	44.1
Acquisitional JV- Other Property-type	22	0.130		45.5	-0.050		45.5	0.070		40.9
Acquisitional JV - Same Property-type	114	0.270	***	50.0	0.550	***	42.1	0.530	*	44.7
t - Stats for difference (t critical value)		-1.225		(1.688)	-2.235	**	(1.681)	-1.570	*	(1.681)
Panel B: Dispositional JV										
Total Dispositional JV	79	-0.340		54.4	-0.320		49.4	-0.060		44.3
Dispositional JV - Other Property-type	8	0.150		62.5	0.840	**	25.0	1.260	**	37.5
Dispositional JV - Same Property-type	71	-0.400		53.5	-0.450		52.1	-0.210		45.1
t - Stats for difference (t critical value)		0.911		(1.796)	1.797	**	(1.753)	1.405	*	(1.860)

Notes: Abnormal return is calculated in accordance with standard event study methodology following Mikkelsen and Partch (1988). CRSP value weighted market return is used as the market proxy. Daily returns are obtained from the CRSP database. Estimation period is day -250 to day -20. Day 0 is the announcement day, which is the first date that news of the agreement is announced in the Dow Jones Newswire, the Press Release Wires or the Reuters Newswires. The announcement day refers to the earlier of the date of the first report of the announcing in one of these publications, which provides a trading day if the announcement is made before 3:59 p.m. However, if the event is announced after 3:59 p.m., the event day is considered as the next trading day of the announcement.

\*\*\*, \*\*, and \* indicates significance at the 1%, 5% and 10% levels, respectively.

Table 6 ▪ Summary statistics of data set for variables in regression analysis over the announcement period 1990 – 2009

Sample REITs on Announcements	Mean Value (1900 - 2009)				
	Total Asset (\$M)	Total Debt (\$M)	FFO (\$M)	Inst. Own.	Analysts
Panel A: Acquisition (228)					
Mean	1,950.38	951.94	29.31	0.59	3.39
Minimum	32.67	0.00	-25.25	0.00	0
Maximum	16,253.00	7,085.00	567.20	0.99	17
Panel B: Disposition (235)					
Mean	3,054.94	1,574.65	47.80	0.62	4.31
Minimum	24.61	13.21	-114.27	0.00	0
Maximum	21,516.68	14,528.80	1,026.74	1.00	18
Panel C: Acquisitional JV (136)					
Mean	2,472.60	1,237.85	31.09	0.62	3.47
Minimum	98.51	20.00	-3.85	0.02	0
Maximum	18,660.11	8,593.17	237.44	1.00	13
Panel D: Dispositional JV (79)					
Mean	3,926.11	2,202.81	40.47	0.65	3.90
Minimum	181.10	45.07	1.41	0.00	0
Maximum	24,883.37	12,063.74	275.27	0.99	13

Notes: Accounting data including total asset, debt and Funds from Operations (FFO) are obtained from COMPUSTAT and from 10Q and 10K SEC filings. The number of analyst data is obtained from Institutional Brokers' Estimate System (IBES). Institutional holdings from CDA/Spectrum 13 (f) Institutional Holdings is provided by Thomson Reuters. All information is data at the end of the last quarter prior to the announcement of the property portfolio change. (\$M: Millions of Dollars)

Table 7 ▪ Summary statistics of continuous variables in regression analysis over the announcement period 1990 – 2009

Summary Statistics (1990 - 2009)	Continuous Variable						
	<i>CAR (2)</i>	<i>lnSIZE</i>	<i>SIZER</i>	<i>DEBTR</i>	<i>PFFO</i>	<i>INST</i>	<i>ANALY</i>
Panel A: Entire Sample (678)							
Mean	0.001	21.075	0.061	0.495	0.014	0.613	3.794
Standard Deviation	0.020	1.205	0.125	0.144	0.014	0.261	2.987
Minimum	-0.203	17.019	0.001	0.000	-0.074	0.000	0
Maximum	0.106	23.937	1.458	1.072	0.210	0.999	18
Panel B: Acquisition & Disposition (463)							
Mean	0.001	20.959	0.034	0.493	0.014	0.603	3.855
Standard Deviation	0.019	1.260	0.054	0.148	0.014	0.264	3.157
Minimum	-0.081	17.019	0.001	0.000	-0.074	0.000	0
Maximum	0.106	23.792	0.575	0.991	0.194	0.997	18
Panel C: Acquisitional JV & Dispositional JV (215)							
Mean	0.002	21.325	0.119	0.501	0.013	0.634	3.656
Standard Deviation	0.023	1.037	0.195	0.135	0.015	0.253	2.591
Minimum	-0.203	18.406	0.002	0.040	-0.018	0.002	0
Maximum	0.074	23.937	1.458	0.845	0.210	0.999	13
Panel D: Correlation Among Continuous Variable							
<i>lnSIZE</i>		1					
<i>SIZER</i>		-0.216	1				
<i>DEBTR</i>		0.185	-0.010	1			
<i>PFFO</i>		-0.050	-0.017	-0.252	1		
<i>INST</i>		0.553	-0.051	0.039	-0.037	1	
<i>ANALY</i>		0.499	-0.091	0.010	-0.052	0.371	1

Notes: *CAR (2)* is two-day (days 0, +1) Cumulative Abnormal Returns (CARs) for an equally balanced portfolio around the event announcement; *lnSIZE* is the natural logarithm of the firm's total assets at the end of the last quarter prior to the announcement; *SIZER* is the ratio of the total price of property portfolio change, divided by the firm's total assets at the end of the last quarter prior to the announcement (*SIZE*); *DEBTRD* is the debt ratio of the total debt divided by total assets of the firm at the end of the last quarter prior to the announcement; *PFFO* is the Funds from Operations divided by total assets at the end of the last quarter prior to the announcement; *INST* is the number of shares owned by institutional investors divided by the total number of outstanding shares at the end of the last quarter prior to the announcement; *ANALY* is the number of analyst to forecasts of FFO for REITs at the end of the last quarter prior to the announcement.

Table 8 ▪ Regressions of announcement period abnormal returns in 463 property portfolio changes (acquisition and disposition) by US REITs over the announcement period 1990 – 2009 and sub-periods

Acquisition & Disposition (463)	Entire Period (1990 - 2009)		1990 - 1999		2000 - 2009	
	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat
<i>Constant</i>	0.028	(1.36)	0.112	(3.48)	0.037	(1.32)
<i>PROPD</i>	-0.008 ***	(-2.68)	-0.016 ***	(-3.45)	-0.007 **	(-2.04)
<i>PROPF</i>	0.003	(1.21)	0.007 *	(1.72)	0.001	(0.36)
<i>lnSIZE</i>	-0.001	(-0.70)	-0.005 ***	(-3.04)	-0.001	(-0.68)
<i>SIZER</i>	0.016	(0.88)	0.068 ***	(3.38)	-0.059 *	(-1.94)
<i>DEBTR</i>	-0.010	(-1.59)	-0.008	(-0.88)	-0.010	(-1.26)
<i>PFFO</i>	-0.005	(-0.07)	0.027	(0.22)	-0.038	(-0.50)
<i>INST</i>	-0.015 ***	(-3.47)	-0.018	(-2.36)	-0.018 ***	(-3.46)
<i>ANALY</i>	0.001 **	(2.44)	0.001 *	(1.78)	0.001 **	(2.05)
<i>GEOD</i>	-0.006 **	(-2.02)	-0.008 *	(-1.95)	-0.003	(-0.81)
<i>ACDS</i>	0.002	(0.97)	0.003	(0.81)	0.003	(1.13)
<i>Adj. R<sup>2</sup></i>	0.038		0.215		0.039	
<i>F:</i>	2.952		4.691		2.449	
	(0.00)		(0.00)		(0.01)	

Notes: Dependent variable is *CAR* (2), the two-day (days 0, +1) Cumulative Abnormal Returns (CARs) for an equally balanced portfolio around the event announcement; *lnSIZE* is the natural logarithm of the firm's total assets at the end of the last quarter prior to the announcement; *SIZER* is the ratio of the total price of property portfolio change, divided by the firm's total assets at the end of the last quarter prior to the announcement (*SIZE*); *DEBTRD* is the debt ratio of the total debt divided by total assets of the firm at the end of the last quarter prior to the announcement; *PFFO* is the Funds from Operations divided by total assets at the end of the last quarter prior to the announcement; *INST* is the number of shares owned by institutional investors divided by the total number of outstanding shares at the end of the last quarter prior to the announcement; *ANALY* is the number of analyst to forecasts of FFO for REITs at the end of the last quarter prior to the announcement; *PROPD* is dummy variable equal to 1 if the property portfolio change decreases property-type focus and 0 otherwise; *PROPF* is dummy variable equal to 1 if the property portfolio change increase property-type focus and 0 otherwise; *GEOD* is dummy variable equal to 1 if the property portfolio change decreases geographical focus and 0 otherwise; *ACDS* is dummy variable equal to 1 if the property portfolio change derives from acquisition or acquisitional JV and 0 otherwise.

\*\*\*, \*\*, and \* indicates significance at the 1%, 5% and 10% levels, respectively.

Table 9 ▪ Regressions of announcement period abnormal returns in 215 property portfolio changes (acquisitional joint venture and dispositional joint venture) by US REITs over the announcement period 1990 – 2009 and sub-periods

Joint Venture (215)	Entire Period (1990 - 2009)		1990 - 1999		2000 - 2009	
	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat
<i>Constant</i>	-0.049	(-1.20)	-0.062	(-1.17)	-0.037	(-0.58)
<i>PROPD</i>	-0.012 *	(-1.81)	-0.023 **	(-2.08)	-0.010	(-1.13)
<i>PROPF</i>	0.002	(0.19)	-0.007	(-0.31)	0.004	(0.36)
<i>lnSIZE</i>	0.002	(0.94)	0.002	(0.98)	0.002	(0.54)
<i>SIZER</i>	0.015 *	(1.85)	0.038 ***	(2.73)	0.008	(0.75)
<i>DEBTR</i>	-0.006	(-0.49)	-0.009	(-0.67)	-0.017	(-0.79)
<i>PFFO</i>	-0.079	(-0.73)	-0.398	(-1.21)	-0.082	(-0.63)
<i>INST</i>	-0.001	(-0.20)	0.008	(0.77)	-0.004	(-0.45)
<i>ANALY</i>	0.002 ***	(3.39)	0.002 **	(2.48)	0.002 **	(2.32)
<i>ACDS</i>	0.009 **	(2.42)	0.007	(1.43)	0.010 **	(1.99)
<i>JVRT</i>	0.009	(1.16)	0.024	(1.57)	0.004	(0.44)
<i>Adj. R<sup>2</sup></i>	0.073		0.146		0.022	
<i>F:</i>	2.939		2.699		1.524	
	(0.00)		(0.00)		(0.13)	

Notes: Dependent variable is *CAR* (2), the two-day (days 0, +1) Cumulative Abnormal Returns (CARs) for an equally balanced portfolio around the event announcement; *lnSIZE* is the natural logarithm of the firm's total assets at the end of the last quarter prior to the announcement; *SIZER* is the ratio of the total price of property portfolio change, divided by the firm's total assets at the end of the last quarter prior to the announcement (*SIZE*); *DEBTRD* is the debt ratio of the total debt divided by total assets of the firm at the end of the last quarter prior to the announcement; *PFFO* is the Funds from Operations divided by total assets at the end of the last quarter prior to the announcement; *INST* is the number of shares owned by institutional investors divided by the total number of outstanding shares at the end of the last quarter prior to the announcement; *ANALY* is the number of analyst to forecasts of FFO for REITs at the end of the last quarter prior to the announcement; *PROPD* is dummy variable equal to 1 if the property portfolio change decreases property-type focus and 0 otherwise; *PROPF* is dummy variable equal to 1 if the property portfolio change increase property-type focus and 0 otherwise; *ACDS* is dummy variable equal to 1 if the property portfolio change derives from acquisition or acquisitional JV and 0 otherwise; *JVRT* is dummy variable equal to 1 if a JV partner is another REIT and 0 otherwise. \*\*\*, \*\*, and \* indicates significance at the 1%, 5% and 10% levels, respectively.



Table 10 ▪ Announcement period daily and cumulative abnormal returns (CARs) in percent for REIT shareholders in a sample of 364 acquisitional events (acquisitions and acquisitional JVs) and 314 dispositional events (dispositions and dispositional JVs) over the y

	Obs.	Day (0)			Day (0, 1)			Day (-1, 0, +1)		
		CAR		% Neg.	CAR		% Neg.	CAR		% Neg.
Panel A: Acquisition & Acquisitional JV										
Total Acquisitional Events	364	0.080	*	0.489	0.180	**	0.486	0.190		0.470
Acquisitional Events - Other Property-type	83	-0.320	**	0.566	-0.370	**	0.578	-0.300		0.494
Acquisitional Events - Same Property-type	281	0.200	***	0.466	0.340	***	0.459	0.330	**	0.463
t - Stats for difference (t critical value)		-3.078	***	(1.657)	-2.493	***	(1.657)	-2.288	**	(1.657)
Panel B: Disposition & Dispositional JV										
Total Dispositional Events	314	0.060		0.513	0.060	*	0.471	0.220	**	0.465
Dispositional Events - Other Property-type	79	0.360	**	0.532	0.280	**	0.468	0.470	**	0.456
Dispositional Events - Same Property-type	235	-0.040		0.506	-0.020		0.472	0.130	*	0.468
t - Stats for difference (t critical value)		1.934	**	(1.652)	0.818		(1.651)	1.012		(1.654)

Notes: Abnormal return is calculated in accordance with standard event study methodology following Mikkelsen and Partch (1988). CRSP value weighted market return is used as the market proxy. Daily returns are obtained from the CRSP database. Estimation period is day -250 to day -20. Day 0 is the announcement day, which is the first date that news of the agreement is announced in the Dow Jones Newswire, the Press Release Wires or the Reuters Newswires. The announcement day refers to the earlier of the date of the first report of the announcing in one of these publications, which provides a trading day if the announcement is made before 3:59 p.m. However, if the event is announced after 3:59 p.m., the event day is considered as the next trading day of the announcement.

\*\*\*, \*\*, and \* indicates significance at the 1%, 5% and 10% levels, respectively.

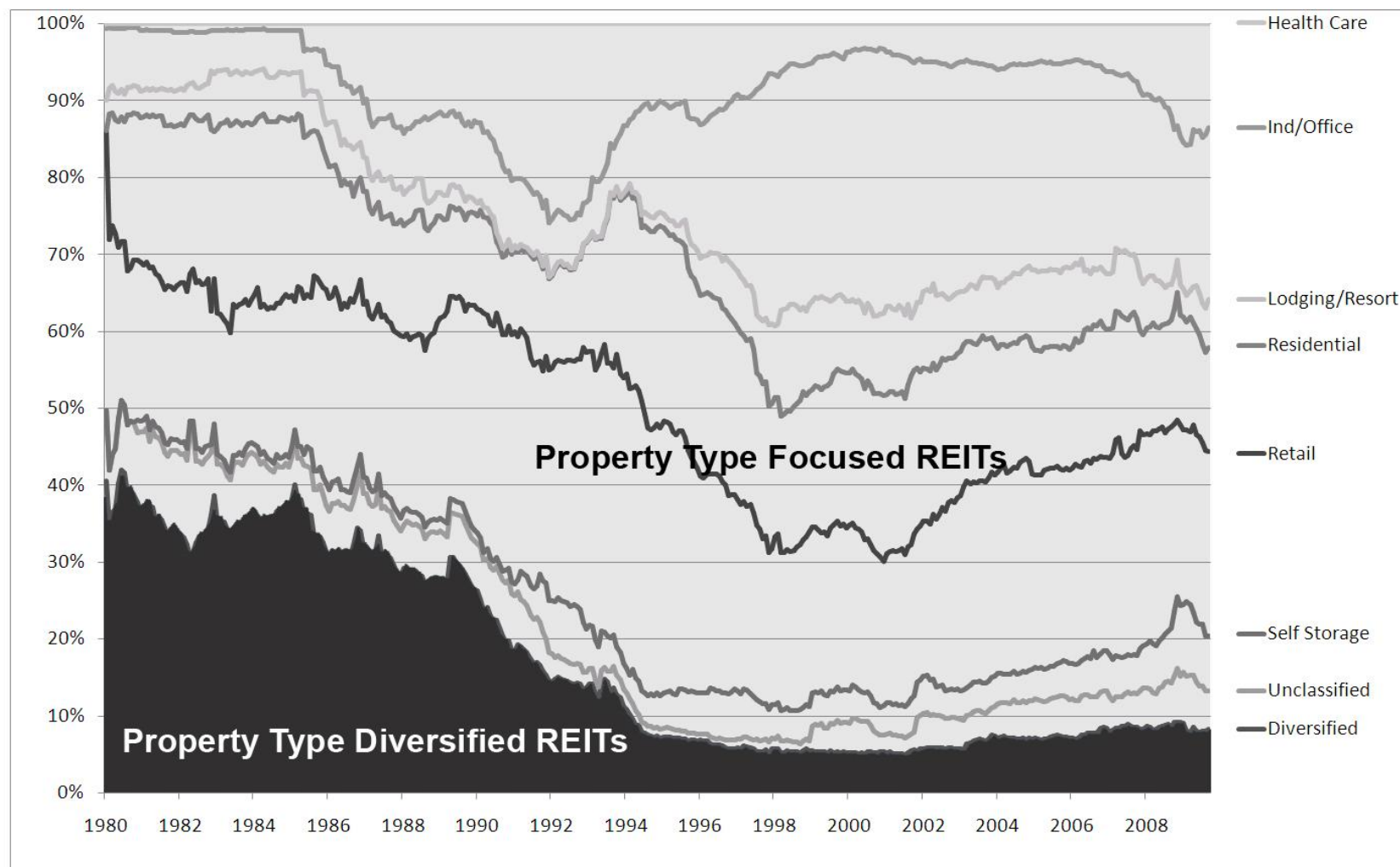
Table 11 ▪ Regressions of announcement period abnormal returns in 678 property portfolio changes (acquisition, disposition, acquisitional joint venture and dispositional joint venture) by US REITs over the announcement period 1990 – 2009 and sub-periods

All Sample	Entire Period (1990 - 2010)		1990 - 1999		2000 - 2009	
	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat
<i>Constant</i>	0.010	(0.53)	0.063	(2.21)	-0.001	(-0.04)
<i>PROPD</i>	-0.006 **	(-2.35)	-0.009 **	(-2.20)	-0.007 **	(-1.99)
<i>PROPF</i>	-0.001	(-0.20)	-0.004	(-0.82)	0.002	(0.47)
<i>lnSIZE</i>	0.000	(-0.30)	-0.003 **	(-2.34)	0.001	(0.45)
<i>SIZER</i>	0.016 **	(2.33)	0.041 ***	(3.57)	0.006	(0.69)
<i>DEBTR</i>	-0.007	(-1.27)	-0.004	(-0.52)	-0.011	(-1.43)
<i>PFFO</i>	-0.044	(-0.77)	-0.032	(-0.25)	-0.068	(-1.04)
<i>INST</i>	-0.010 ***	(-2.72)	-0.003	(-0.45)	-0.014 **	(-3.06)
<i>ANALY</i>	0.001 ***	(3.52)	0.001 **	(2.47)	0.001 ***	(2.68)
<i>GEOD</i>	-0.005 *	(-1.68)	-0.005	(-1.26)	-0.004	(-1.06)
<i>ADJV_Ac</i>	0.006 **	(1.96)	0.007	(1.35)	0.005 ***	(1.46)
<i>ADJV_Dis</i>	0.003	(0.99)	0.004	(0.69)	0.002	(0.70)
<i>ADJV_JVA</i>	0.005 *	(1.78)	0.003	(0.60)	0.009 **	(2.20)
<i>Adjusted R<sup>2</sup></i>	0.037		0.091		0.059	
<i>F:</i>	3.153		2.744		2.379	
	(0.00)		(0.00)		(0.01)	

Notes: Dependent variable is *CAR* (2), the two-day (days 0, +1) Cumulative Abnormal Returns (CARs) for an equally balanced portfolio around the event announcement; *lnSIZE* is the natural logarithm of the firm's total assets at the end of the last quarter prior to the announcement; *SIZER* is the ratio of the total price of property portfolio change, divided by the firm's total assets at the end of the last quarter prior to the announcement (*SIZE*); *DEBTRD* is the debt ratio of the total debt divided by total assets of the firm at the end of the last quarter prior to the announcement; *PFFO* is the Funds from Operations divided by total assets at the end of the last quarter prior to the announcement; *INST* is the number of shares owned by institutional investors divided by the total number of outstanding shares at the end of the last quarter prior to the announcement; *ANALY* is the number of analyst to forecasts of FFO for REITs at the end of the last quarter prior to the announcement; *PROPD* is dummy variable equal to 1 if the property portfolio change decreases property-type focus and 0 otherwise; *PROPF* is dummy variable equal to 1 if the property portfolio change increase property-type focus and 0 otherwise; *GEOD* is dummy variable equal to 1 if the property portfolio change decreases geographical focus and 0 otherwise; *ADJV\_Ac* is dummy variable equal to 1 if the property portfolio change derives from acquisition and 0 otherwise; *ADJV\_Dis* is dummy variable equal to 1 if the property portfolio change derives from disposition and 0 otherwise; *ADJV\_JVA* is dummy variable equal to 1 if the property portfolio change derives from acquisitional JV and 0 otherwise.

\*\*\*, \*\*, and \* indicates significance at the 1%, 5% and 10% levels, respectively.

Figure 1 ■ Property-type Allocation for the CRSP / Ziman Equity REITs Index (1980-2009)



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