

# Property Transactions and the Valuation Effects of Public REITs

“Does portfolio focus enhance value in the post-2008 era?”



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## **Executive Summary**

Public real estate investment trusts (REITs) seems to struggle with asset depreciation and subsequent raise in leverage ratios since the outbreak of the global financial crisis in 2008. The initial reaction led to large equity issues in 2009, in an attempt to reduce leverage and regain investors' confidence. This resulted in property transactions that are the outcome of disposition programs for non-core or mature assets, withdrawal from non-core geographical markets and focus on specific property types. Investors and market analyst react divergent on this strategic movements. The main question for them is whether a REIT is able to execute this strategy and under which conditions this is done.

The objective of this research is to gain more insight in the share price effect around the announcement date of property transactions by REITs in the post-2008 era, in order to examine the effect on valuation of portfolio focus by the market. It will test whether the valuation by investors is changed compared to a period of economic growth. It attempts to find evidence that investors in the public European real estate market value portfolio changes that contribute to focus positive or negative. This in the light of attempting to discover conditions for enhancement of market values for European REITs and furthermore REITs in general. The central question throughout this research is:

*What is the relation between property transactions, portfolio focus and the valuation of REITs on the stock market?*

This research applies traditional event study methodology – following McWilliams & Siegel (1997) and MacKinlay (1997) – on 232 property transactions by European listed real estate companies. It uses three event windows and an estimation period of 118 days prior the announcement of the transactions. It provides a market model with the STOXX Europe 600 as a proxy to filter out the abnormal effect of the event. Results are analyzed on significance and abnormal returns are attempted to explained by deal and REIT characteristics.

The literature examined on property transactions and mergers remains inconclusive whether the diversification discount hypothesis holds for REITs. There is evidence that property-type focus is rewarding (Capozza & Lee, 1995; Geltner & Kluger, 1998; Ro & Ziobrowski, 2012) but other conclusions are contradicting (Ro & Ziobrowski, 2011). The results for geographical diversification are more unanimous (Campbell et al., 2001:2003; Florida & Roulac, 2007; Brounen & Koning, 2012, Womack, 2012). It can be hypothesised that geographical focus enhances REIT shareholder wealth. Each of the previous literature covered a specific time frame and examined real estate mergers and acquisitions from a different perspective. Therefore, the outcomes of these studies are not directly comparable and results remain inconclusive. Especially the resemblance with the European REIT-market is arguable since the characteristics of the market are different from the US.

REITs gain significant abnormal stock movement on the announcement day of a property transactions. It appears stock price adjustment to new information takes place in two days prior and one day after the announcement, not on the announcement day itself. This indicates the applied five-day event window is most accurate to capture the sole flux caused by the new information dispensed. Different as hypothesized, it can be concluded that on average, European REITs gain 1,04% cumulative abnormal returns *surrounding* the announcement date of property transactions. As expected, we found no evidence there is a significant difference between abnormal returns of dispositions and acquisitions.

Acquisitions that reconfirm the corporate property-type focus are valued positive and significant with 1,17% on a five-day window around the announcement. In contrast, dispositions which yield more portfolio focus have a significant stock price effect of -2,02%. Consequently, hypothesis three cannot be communicate at once. We accept the null hypothesis that there exist positive CARs for *acquisitions* that contribute to property-type focus. Furthermore, we reject the null hypothesis that this is consistent for *dispositions*, since we observe a significant negative effect. Acquisitions that reconfirm geographical focus have a significant positive average CAR of 1,04%. Dispositions contributing to geographical focus observed a positive effect of 2,33%, although this is not significant. We further conclude there is no linear relationship between abnormal returns surrounding property transactions by REITs and the characteristics of the deal and the REIT.

In general, the relation between property transactions, portfolio focus and the valuation of REITs on the stock market is strongly positive. For three out of four examined subgroups of focus we find positive abnormal returns in a five-day event window surrounding the official press release date of the property transactions that contribute to portfolio focus. Therefore the subtitle-question “does portfolio focus enhance value in the post-2008 era?” can firmly be answered with “yes, it does!”. This result reconfirms the gross of extant literature on this topic, but provides new evidence on the European listed real estate market.

## Contents

Executive Summary .....	3
Preface .....	8
1. Introduction.....	9
1.1 REITs in the post-2008 era.....	9
1.2 Outline .....	10
1.3 Problem definition .....	10
1.4 Relevance.....	11
1.5 Objective.....	12
1.6 Research questions .....	12
1.7 Methodology and Research design.....	12
2. Literature Review.....	14
2.1 The Real Estate Investment Trust.....	14
2.1.1 Position .....	14
2.1.2 Inception and Development .....	16
2.1.3 European REIT-structures .....	17
2.1.4 Performance .....	21
2.2. Valuation Dynamics.....	22
2.2.2 Valuation of REIT Stock .....	22
2.2.3 Discount/premium to NAV.....	25
2.2.4 Real Estate Cycles.....	26
2.3 REITs & Finance .....	28
2.3.1 Capital Budgeting .....	28
2.3.2 Cost of Capital .....	29
2.3.3 Capital Structure .....	30
2.3.4 Financing growth .....	32
2.3.5 Economies of scale .....	34
2.4 Portfolio Changes and REIT Valuation .....	35
2.4.1 Focus and Diversification .....	37
2.4.2 Property type.....	38

2.4.3	Geography.....	39
2.5	Summarization and Propositions .....	40
2.5.1	Literature.....	40
2.5.2	Abnormal Return Hypotheses.....	41
2.5.3	Diversification Discount Hypotheses .....	42
3.	Methodology and Data.....	44
3.1	Even study methodology.....	44
3.1.1	Assumptions.....	44
3.1.2	Event Window.....	45
3.1.3	Data selection.....	47
3.1.4	Market Model.....	49
3.2	Multivariate analysis.....	51
3.2.1	Assumptions.....	51
3.2.2	Regression model.....	52
3.2.3	Variables of interest .....	52
3.2.4	Control variables .....	53
4	Results.....	56
4.1	Descriptive statistics .....	56
4.2	Univariate analysis .....	57
4.2.1	Announcement date CARs.....	57
4.2.2	Subsample CARs .....	58
4.3	Bivariate analysis.....	60
4.3.1	Difference of means .....	60
4.3.2	Bivariate correlation coefficients.....	61
4.4	Multivariate analysis.....	64
4.4.1	Regression results .....	64
4.4.2	Fitness of the model .....	65
4.5	Research restrictions .....	65
5	Conclusions and discussion .....	66
5.1	Main findings .....	66

5.2 Central question .....	67
5.3 Implications.....	67
5.4 Further research .....	67
Bibliography.....	69
Appendix I: Event study methodology.....	74
Appendix II: Data selection.....	75
Appendix III: Companies included in analysis .....	76
Appendix IV: Variable overview .....	77

## **Preface**

The first touch I had with REITs was initiated by a real estate finance course in the fall of 2012. I became interested in this small though dynamic niche in the real estate sector and contacted EPRA in Brussels for backup and a relevant research topic. After an introduction meeting at EPRA I intended to focus this study on growth of the European REIT sector. For outline and focussing reasons, this shifted more to valuation of transactions by the market. This resulted in an event study that relates the property market with the capital market. At first sight this may look quite ambitious for a non-finance student, but with a bit of help and an autodidact mind-set it was manageable. In general, I'm satisfied with the results and the conclusions derived from them.

Then a word of acknowledgement to the people that helped me during this master thesis period. First start with EPRA for their support and large generosity of data, I hope this research adds value for the European listed real estate sector. Of course my supervisor Henk Brouwer – whose knowledge and enthusiasm brought inspiration after every meeting – for his accompaniment and useful comments. Furthermore Erasmus University students Rob and Simon for sharing their experience with financial data gathering and analytical technics. At last, Carla and Joost for the recreational coffee breaks in the university library.

Finalizing this thesis also means the closing of my studentship. Though it sounds liberating to abandon dirty kitchens and crowded libraries, after a couple of years it becomes a form of nostalgia. But of course the next phase of a working man will also have its charms. I'm convinced the knowledge I gained through the master of real estate studies in Groningen, will contribute positive to this.

Utrecht, August 2013

Daan Abrahams



# 1. Introduction

The purpose of this first chapter is to provide introduction and justification of the research topic. It attempts to light out the practical and theoretical relevance for this study. Further it outlines the field of research and states questions that endeavours to be answered later on. At last, the used method to provide answer is discussed.

## 1.1 REITs in the post-2008 era

The public European real estate market has faced a capricious phase the last five years. The global economic meltdown caused a rapidly fall of stock prices in the autumn of 2008. This economic shock also affected commercial real estate prices across Europe. Public real estate investment trusts<sup>1</sup> (REITs) seems to struggle with asset depreciation and subsequent raise in leverage ratios. The initial reaction led to large equity issues in 2009, in an attempt to reduce leverage and regain investors' confidence. But when it became clear this crisis would not blow over in a short period of time, many REITs announced a strategy update for a more constructive approach to sustain in the bad economic outlook. This resulted in property transactions that are the outcome of disposition programs for non-core or mature assets, withdrawal from non-core geographical markets and focus on specific property types. Investors and market analyst react divergent on this strategic movements. The main question for them is whether a REIT is able to execute this strategy and under which conditions this is done.

REITs operate on both the capital market and the property market and are continuously affected by changes in both environments. The benefit of a listed real estate company is that the quality of corporate events can be measured through abnormal stock price movements surrounding the announcement of the event. The magnitude and sign of this movement tells us whether the market perceives the event negative, neutral or positive. Prior research (i.a. Allen & Sirmans, 1987; McIntosh, et al., 1995; Ro & Ziobrowski, 2012) on this topic shows investors value acquisitions and dispositions associated with portfolio focus positively. Transactions that contribute to differentiation are valued negative. The objection against this research can be found in the used samples which mainly consists of periods between 1980 and 2007. In between, the property market faced one of the longest periods of continuous property appreciation in history. Until 2008, the results of this research were valid. But it is legitimate to assume that the global financial crisis has changed investors' behaviour significantly.

It is hard to determine the general market reaction on strategy changes by REITs after 2008. REITs can say they attempt to reduce leverage or focus on a specific property type, but it is the successful strategy that regains investors' confidence. So almost every corporate event embodies a stage of the execution of this strategy. For REITs, this stages consist of investment or

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<sup>1</sup> This research attempts to do statements on the European listed real estate sector, including REITs and non-REITs. Conveniently, the term REIT is used for both variants interchangeably.

disinvestment decisions in the form of property transactions. Ideally, the motivation behind a REIT property transaction is to optimize the portfolio dividend and to maximize wealth for the shareholders. But management preferences, information asymmetries and divergent risk perception can result in negative abnormal stock returns. It can be at great value to both REIT management and investors to have insight in the dynamics of this effect, in order to predict the market reaction of property transactions. Therefore this research aims to provide insight in the relationship between transactions on the property market and the valuation of REITs on the stock market.

Investors demand focused REITs in order to diversify their own portfolio with a mix of companies (Geltner, et al., 2007). Therefore 90% of US equity REITs focus on a single property-type (Ro & Ziobrowski, 2012). The current European REIT-market is not in line with this proposition, since 47% of the constituents of the FTSE EPRA/NAREIT Developed Europe index have diversified portfolios. Also half of the companies in this index have geographic diversified portfolios. It is interesting to know whether the statement by Geltner et al. (2007) is valid for Europe, while REITs start specializing in a property-type and withdraw to core geographic markets.

## **1.2 Outline**

Firstly this research is based on existing financial theories and specific real estate studies which are published in the conventional scientific literature. As common in this field of research (real estate finance), statements are based on empirical evidence that is derived from accurate data and correctly applied statistic and econometric methods. On one hand it attempts to find explanation for an observed phenomenon. The other hand is designated to predict the effect a certain event might have in the foreseeable future and at which conditions this can occur. It is therefore in line with the philosophical movement of logical empiricism, which postulates all knowledge is based on sensory experience. This insures the reliability, power and validity of drawn conclusions.

More specific, it is focused on property transactions by European public real estate companies in the downturn economic environment initiated in 2008. Due to the fragmented regulations for the sector in Europe not all listed property companies are real estate investment trusts. However, we want to draw conclusions for the European listed sector as a whole. Therefore the term REIT is considered as a generic name for all listed real estate companies. So European REITs are all public real estate companies, enrolled in a European trade register and have a listing on a Europe-based stock exchange. It is assumed the differences of fiscal status per nation have no *profound* effects on the validation of the results. Although the conclusions of this research are addressed to European REITs, a resemblance might be found for public real estate markets in other continents.

## **1.3 Problem definition**

It is difficult to determine whether a portfolio strategy for downturn market conditions is effective and exposes the right signal to the market. REIT-managers can act confident on

accomplished portfolio targets or successful finished disposition programs. But still a majority of the European public real estate market faces a share price discount on their NAV per share, which indicates the market does not expect growth in future commercial property prices. In this situation, it is impossible to issue equity on the capital market. With still instable commercial property prices in Europe, REITs are forced to sell-off more assets in order to consolidate or strength their balance sheet. But the downturn market also provides the opportunity to recycle capital by exchange mature assets by acquiring bargains that appear on the property market. It is unclear whether a REIT should act defensive by selling or offensive by acquiring properties. Certainly, strength of the balance sheet, access to capital markets, market exposure and other unique REIT-characteristics play a major role in this trade-off. But one cannot provide a general statement on the extent of influence of these factors.

The question whether to sell or buy assets does not stand alone. Logically, it does matter which properties are sold or acquired. As introduced, investors grant portfolio focus because it provides the opportunity to diversify their wealth portfolio by *pure-play* or *specialized* REITs. It is also plausible that during economic growth, portfolio expansions in new markets – both geographic and property-type – was not punished or even encouraged by investors. In the current economic situation, this exposure and diversification is considered as opportunistic and too risky and REITs have to bring back property-type focus in the portfolio. This puts up the interesting question whether investors indeed value this positively and focus leads to increasing stock returns. Disposing a straightforward answer is problematic because the extant literature is inconclusive or incomplete on this topic.

#### **1.4 Relevance**

Existing literature is inconclusive about the shareholders wealth effect by acquiring and selling REITs. Though, this is an important part of the corporate strategy since it is essential for growth, decline and consolidation of real estate portfolios. It seems that the effect of transactions is largely determined by the characteristics of both the property and the REIT. Previous conducted research used transaction samples before the global financial crisis of 2008. The economic context of that age was totally different compared after the turning point of the market. It is plausible investors became way more sceptic and risk-averse. So the question comes up whether the results of studied samples before 2008 are valid for the current situation. Also, these studies are dedicated to the North-American or Asian market. Hardly any research is conducted on the European listed real estate market. These are the two primary theoretical reasons it is relevant to examine property transactions by REITs on the European market in the post-2008 era.

Despite of the widespread deterioration of the European property market, REITs achieved better results than the average stock market (Brounen & Koning, 2012). But in a global perspective, the European REIT-market is still behind. According table 2.1, listed real estate represents just 1.8% of the total real estate asset stock, while the share in other developed continents is substantial higher. Besides, there are no universal regulations for REITs, which obstructs the development in

the region. The European property market makes relatively less use of the benefits that REITs has to offer for investors. Research on the effects of transactions and the conditions under which this is done, will contribute knowledge for both REIT managers and investors facing investment decisions. In result, the outcomes of this research can support REITs to enhance value and profit to the utmost of the benefits of listed real estate vehicles.

### **1.5 Objective**

The objective of this research is to gain more insight in the share price effect around the announcement date of property transactions<sup>2</sup> by REITs in the post-2008 era, in order to examine the effect on valuation of portfolio focus by the market. It will test whether the valuation by investors is changed compared to a period of economic growth<sup>3</sup>. It attempts to find evidence that investors in the public European real estate market value portfolio changes that contribute to focus positive or negative. This in the light of attempting to discover conditions for enhancement of market values for European REITs and furthermore REITs in general.

### **1.6 Research questions**

In order to define a widespread statement about REITs in general, the following central question will act as a guidance throughout this thesis:

*What is the relation between property transactions, portfolio focus and the valuation of REITs on the stock market?*

To gain more insight to answer the latter question, the following research questions should be answered:

- 1. How does the European REIT-market look like and what are its characteristics?*
- 2. Which theory explains the growth and decline of REITs and how is its share price related to this?*
- 3. What are the outcomes on previous research pertaining to shareholders' wealth effects on property transactions by REITs?*
- 4. Which hypotheses can be tested, regarding an event study on the announcement-period returns of property transactions by European REITs?*
- 5. What are the results of the empirical analysis on the announcement returns of property transactions and how do they suit the existing literature?*

### **1.7 Methodology and Research design**

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<sup>2</sup> The choice to examine property transactions in lieu of REITs general stock performance is an outflow of the attempt to keep this research close to real estate, rather than the financial market.

<sup>3</sup> The result of the downturn market are compared with extant literature using time period samples during economic growth conditions.

The approximation of this research is twofold. Firstly the theoretical framework in which three research questions can be answered by a review of relevant literature and earlier research. Research question one has the purpose to define the field of this research: real estate investment trusts. Secondly the results of previous research on the mechanism that explain the valuation of REITs and the dynamics that explain different values over time. Also the decision making process and capital structure pertaining to property transactions is captured with this question. The extant literature on the valuation effects of transactions by REITs is covered by question three. The final attempt of the literature study is to state a testable hypotheses (question 4).

In the second track the theory is tested quantitatively throughout an event study (see appendix I). The event study is a powerful tool that can help researchers assess the financial impact of changes in corporate policy (McWilliams & Siegel, 1997). The usefulness of such a study comes from the fact that, given rationality in the marketplace, the effects of an event will be reflected immediately in security prices (MacKinlay, 1997). Therefore stock prices are supposed to reflect the true value of firms in contrast to profits, which can be manipulated by insiders. When determining whether a movement in stock price is *abnormal*, the specific effect of an event (e.g. property transactions) can be explained. This can be accomplished by monitoring the share price in a window around the event – the event window – and the same measurement of a longer window before the event, the estimation period, to determine the *normal* behaviour of the stock price. The abnormal returns – which the event might initiated – can be derived by subtracting the expected return from the actual return.

Subsequently, an in-depth analysis can be helpful to derive the underlying factors of the abnormal returns. So what drives the possible abnormal returns, associated with property acquisitions or dispositions? This is possible when using the abnormal return of as a dependent variable and REIT-characteristics as independent variables in cross-sectional regression model (OLS). Also characteristics of the transactions can function as explanatory variables. The question whether an independent variable is relevant for inclusion in the model is answered via the existing literature on shareholders wealth effect around property transaction announcements.

Because this research focuses on the European REIT-market, the European Public Real Estate Association (EPRA) provides data of REIT-characteristics from all constituents of the European REIT-index. Further they provide information of property transactions for 2009-2012 period, where a REIT was a buyer or seller. This data is originated from RCA<sup>4</sup> database and used with permission for academic purposes. After controlling this data, further selection criteria has to be considered. Datastream is used to collect data from stock prices, market values and debt ratios of companies in the sample.

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<sup>4</sup> Real Capital Analytics (RCA) is a comprehensive information system on commercial property investment, including transaction data.

## 2. Literature Review

This chapter contains an overview of the existing literature on REITs and is structured as a funnel. The first section serves a broad macro-economic and European view on the REIT sector, in order to demarcate the field of research. Secondly the valuation dynamics of REITs is exposed to illuminate the mechanism that determines the decline and growth of REIT-stock. Furthermore, theories pertaining to property transactions and capital budgeting/structure are discussed, to get insight in the decision-making process of REIT managers. The literature in section 2.4 becomes more specific on the stock valuation effects of portfolio changes by REITs. To provide an overview, the essential literature is summarized and propositions are transformed into testable hypotheses.

### 2.1 The Real Estate Investment Trust

This section gives an introduction on real estate investment trusts and the dynamic position it has in the real estate and capital market. Further it provides a brief history of the upswing of the REIT-sector throughout Europe and its performance ever since.

#### 2.1.1 Position

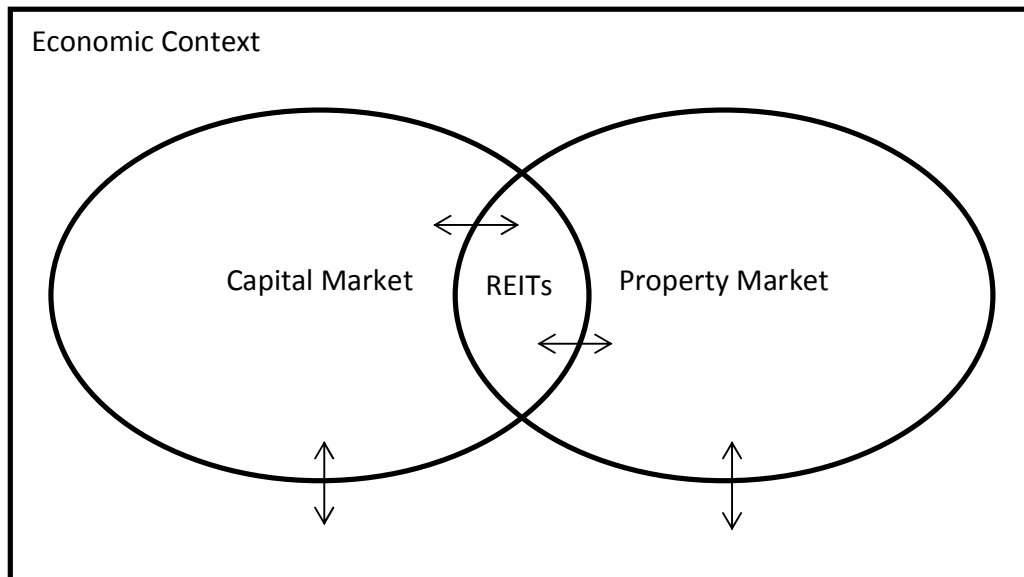
A public REIT is a real estate company that has securitized ownership through a public listing. The market value of the company is determined by the stock market. This means it is an investment vehicle that allows investors to participate indirect in real estate assets, from a relative small amount of capital. Public REITs appear in three major forms; the equity REIT, the mortgage REIT and the hybrid REIT. The equity REIT owns and manage direct real estate assets and distributes its taxable profit to shareholders as dividend. A mortgage REIT owns real estate debt and distributes interest to shareholders. A hybrid REIT is – as expected – a combination of the two forms. Because this research is based on public REITs that manage and trade direct real estate, it solely focuses on equity REITs<sup>5</sup>.

The position of REITs in the economy is schematized in figure 2.1. REITs are positioned on the interface with the capital and the property market. The real assets are an element of the property market, where the price is determined by demand and supply of space for different property types. The price of the ownership of the assets – the share price – is determined by investors on the capital market. This means a REIT is valued twice both different, which is a substantial dynamic in relation to privately held real estate companies. The property market and the capital market are both influenced by factors of respectively the local and global economy. For instance, if inflation is high, the attractiveness of real estate investment grows because it can function as a hedge. The share price will enhance. Idem, if local vacancy rates rises in the core geographical market, the underlying property value comes under pressure. This finally leads to a downside

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<sup>5</sup> From now on, the term 'REITs' refers to equity REITs and listed real estate companies.

adjustment of the stock price, since a REIT is the interrelation between the two markets. Bottom line is that macro-economic factors such as inflation, interest rates, employment rates and purchasing power always have an impact on the market's forecast of the future earnings and value growth of a REIT's property portfolio.



**Figure 2.1 Position of REITs in relation to the economy and submarkets**

There are four major advantages – from the perspective of an investor – to mention in case of the efficiency of REITs compared to direct real estate or private funds (Geltner, et al., 2007). Firstly the factor transparency. Because the shares of REITs are publicly traded, they are committed to International Financing Reporting Standards (IFRS), which gives insight in the corporate management. Secondly, REITs have the predicate to be more liquid. Because its shares are traded on a public stock market they can be converted relatively fast into cash or other assets without excessive transaction costs. This gains the investor a high level of flexibility in contrast to direct property ownership. The third benefit is the fact that investors can diversify more easily in different assets with relatively few capital. Real estate exposure can be spread out in different regions or subsectors, which marginalizes systematic risk. At last, due to regulatory constraints, REITs in general are dividend stock which gives shareholders a stable and high dividend.

Sceptics about public real estate note that the share price of REITs is to volatile pertaining to the underlying real estate. Hence, investors should consider a substantial share of direct real estate in their portfolio. But for the bulk of investors, the critical mass to manage a direct real estate portfolio efficient is too large. In general, REITs offer the possibility to invest in high-quality real estate assets, without the risk of management. Therefore institutional investors often choose to allocate their real estate exposure between direct and indirect participations. This ‘best of two

worlds' approach provides the opportunity to minimize real estate risk and to maximize the return.

### **2.1.2 Inception and Development**

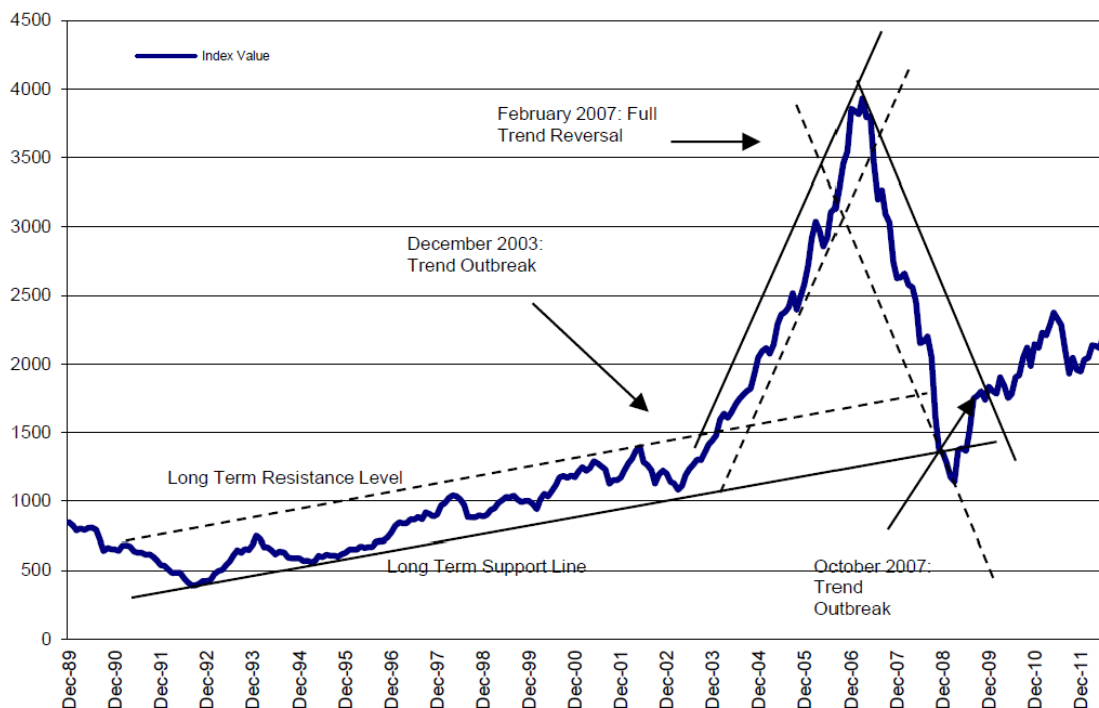
In the mid-twentieth century US investment banks and institutional investors were demanding for a broader spectrum of asset classes, supplemental to stocks and bonds. As a result of a successful lobby, an amendment was included in the Cigar Excise Tax Extension of 1960; the Real Estate Investment Trust Act. This meant the birth of the REIT. Because of a tax-exempt status, investors could participate in large, diversified portfolios of real estate and profit from the liquidity of the public market at once (Brounen & Koning, 2012). Although REITs enjoyed an initial popular period, they did not develop into a substantial source of real estate capital (Raff, 2001). Ensuing the market cycle in the late 1960s, REITs were not able to become preferable above stocks and bonds. Due to the restriction to passive investment activities, REITs' upward trend was very low during the 1970s. The passive management restriction prohibited REITs to apply active property management to their portfolio. The Tax Reform Act from 1986 loosened this restriction which caused a giant leap in the number and size of REITs. The number of REITs surged from 50 to 176 within ten years after the introduction of the act. The five-year period after 1993 is considered as the *REIT boom*, where real estate ensured an important position as asset class, next to stocks and bonds. Brounen & Koning (2012, p. 200) state: "Low interest rates and bond yields created a window of opportunity for real estate companies to enter the public equity markets and equip themselves with additional capital to take advantages of the depressed real estate prices." This capital was provided by pension plans, mutual funds and insurance companies, which suddenly turned to REITs as a real estate investment.

The REIT-boom reached its turning point in 1998 when the appraisal values of the underlying real estate suddenly stopped growing. The supply of investment opportunities was exceeding its demand, therefore prices fall. The premiums to NAV that REITs enjoyed – and largely contributed to the growth of the sector – evaporated. In addition, regional REIT-indexes declined and quoted an overall discount to NAV. The REIT-investors that profited from the growth-period were now pulling back and heading for the next opportunity. In this period, US politicians signed into law the REIT modernization act. The primary feature of this new legislation – introduced in 1999 – enables REIT organization to construct and own a taxable subsidiary which is allowed to develop and quickly sell properties and provide substantial services to its property tenants (Block, 2012). The demise of the REIT-boom coincided with the build-up of the dotcom bubble (Brounen & Koning, 2012). At this point, it was doubtful whether REITs were an investment vehicle for the underlying property market or an integrated part of the broader stock market. Recent studies



brought answer<sup>6</sup>. After the burst of the dotcom bubble in 2000, REITs were able to raise additional capital by SEOs in order to recover.

From 2002 to 2007, the European REIT-index faced a continuous upward movement (see figure 2.2). The demand for real estate investment vehicles grew and countries as UK and France introduce their own REIT-structure at this stage. In December 2003 the index of REITs outbreaks the trend of moderate growth. This long run of growth seems to have made many in the industry forget the reality that the cycle always goes down at a certain point in time (Hewlett & Kaufmann, 2008). In fact we observe that the trend outbreak in 2003 was the inflation of a real estate bubble, which started to run down in 2007. In 2008 we recognize this as the official outburst of a global financial crisis. Initially caused by a rise in subprime mortgage delinquencies and foreclosures in the US, and the resulting decline of securities backed by this mortgages. Today, we still experience the aftermath of the latter.



**Figure 2.2 Long term technical analysis EPRA/NAREIT Developed Europe Index (EPRA, 2013)**

### 2.1.3 European REIT-structures

The upswing of the European REIT was driven by two main motives (Brounen & Koning, 2012). First to provide the possibility to invest small amounts of capital in real estate, without

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<sup>6</sup> See Boudry, Coulson, Kallberg & Liu (2012) and Hoesli & Oikarinen (2012) or section 2.2.2.

tremendous transaction costs, normally associated with acquisitions of direct real estate. Second, a REIT is a proper structure to decrease the cost of capital, which makes REITs more competitive and provides them a stronger position in case of bidding on property acquisitions. The implementation of the European structure is a recent development since most national legislators made REITs possible after 2000. Europe accounts around 40% of the global commercial real estate, but only 14% of the global listed property market. Also the share of the total listed real estate market is substantial smaller compared to North America and Asia (see table 2.1). Therefore Europe faces arrearage in relation to North-America.

**Table 2.1 Size of the total real estate market per region (EPRA, 2013)**

€ billion	Total Real Estate	EPRA Index Market Capitalization	EPRA Index vs. Total real estate
North America	5,599.0	372.7	6.7%
Asia-Pacific	4,231.2	257.6	6.1%
Europe	5,768.6	103.1	1.8%

The Netherlands was the first European country, and the first after the US, introducing a REIT-like structure in 1969. A real estate company possesses the Dutch FBI-status (*Fiscale Beleggings Instelling*) has an corporate tax-exemption and is required to distribute 100% of its net income to shareholders. There is a leverage restriction up to 60% on the property investment level. The tax-exemption has constraints for domestic project development due to unfair competition. This, in combination with the early introduction makes the Dutch REIT-sector relatively international focused. Nowadays five REITs are quoted on a Dutch stock index, which all have international diversified portfolios. Four trusts are strongly or mainly focused on retail properties. The cumulative market capitalization amounts € 5.8 billion, which covers 2.1% of the total real estate market in the Netherlands.

It last until 1995 when Belgium introduced its own REIT-structure equivalent: *Société d'Investissement à Capital fixe* (SICAFI). Based on the US REIT, it was introduced to promote collective real estate investments and to ensure a form of real estate investment of high transparency, making it possible to distribute cash flow to the greatest possible extent. Unlike the US and Dutch total tax-exemption, Belgian REITs are granted 16.5% tax on unrealized capital gains and tax-exempt reserves. 80% of its net income has to be distributed to the owners. Property development is allowed but they may not sell the developed within five years. The current Belgian REITs are quoted on the Euronext Index Brussels and show a range of property-type specialized REITs.

The European introduction of tax beneficial real estate vehicles got into gear with the French implementation of SIIC (*Sociétés d'Investissements Immobilier Cotees*) in 2003. The motives behind this introduction were the legal equalization with other European countries, decrease their budget deficit through the levy on unrealized capital gain by converting companies and the attempt to sweep the persistent discount to NAV of property companies (Brounen & Koning,

2012). SIIC is not subjected to any formal leverage requirements but cannot provide services to tenants. Also it must have a minimum free float<sup>7</sup> of 15%. SIICs are allowed to apply project development, but this is not covered by the tax-exempt. As in Belgium, private real estate companies which convert to REIT must pay 16.5% tax on unrealized capital gains. After its introduction, RIIC proved to be a tremendous success as 31 SIICs are quoted at the end of 2010, with a combined market capitalization of € 25.9 billion (see table 2.2).

The UK-REIT regime was introduced in early 2007 after a long but successful lobby from industry groups. To satisfy UK-REIT conditions, companies must have an acceptable proportion of total profits and assets relative to rentals. In addition, they are required to distribute at least 90% of profits from tax-exempt business. While other European structures have a leverage restriction as percentage of the property investment or total assets, UK-REITs must ensure they have 125% rental income cover to debt interest. If engaged in property development, they have to guarantee this is for long-term investment purposes (CSM, 2008). Because UK's liberal attitude towards financial markets, it loosened the provisions for UK-REITs in 2010. Initially there were 9 UK-REITs since the introduction, which is grown until 24 in 2012. Proposed changes in the UK-REIT regime will significantly attract the investment vehicle to a wider investor pool and induce IPOs. Today, the UK has a leading position (4.7%) in Europe with the largest representation of the listed sector in the domestic real estate market.

Germany is the largest economy of Europe – and the first country to have a real estate company that listed its shares on a public stock exchange<sup>8</sup> – but is one of the most underrepresented by the listed real estate sector. The current REIT-structure was introduced in 2007 and can own commercial and residential property built since this date, and have to distribute 90% of net profit to shareholders annually. The Deutsche Börse set up two separate indexes for G-REITs but where the British enjoy success as a latecomer in the REIT-era, the Germans facing the opposite. After the introduction of the G-REIT in the spring of 2007, only four currently exists. This makes Germany one of Europe's lags (0.7%) in terms of the share of listed versus total real estate market. The reason is partly the outburst of the global financial crisis but there is a more fundamental reason why the G-REIT regime is not broadly integrated. The prevalent investment culture of the open-end fund structure curbed the growth of the listed sector. Unlike REITs, open-end funds issue shares that are redeemable on a daily basis at a pre-specified rate which is only sluggishly adapted to price changes of the underlying assets (Bannier, et al., 2007). We do now know that this structure faces a high level of problems since legislation ordains a liquidation of funds in an illiquid market.

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<sup>7</sup> Free float (or public float) is a term for the percentage of shares that are publicly tradable on the stock market. Large holdings of founding shareholders, corporate cross-holdings and holdings of the Government in partially privatized companies are usually excluded for public trading.

<sup>8</sup> In 1850, the German real estate company Concordia Bau und Boden AG securitized its ownership (Brounen, 2002)

The South European nations do have REIT-regimes but are considered premature. Spain developed a structure (SOCIMI) in response on the real estate massacre that hit the nation in 2008 and thereafter. Yet, no real estate company is publicly traded due to the ongoing uncertainty of Spain's real estate market<sup>9</sup>. Italy introduced a REIT-legislation (SIIQ) in 2007 and two companies are listed ever since. Despite the effort to integrate the benefits and transparency of REITs to the system, it is an uphill process. The distressed position that some European nations faces is the main reason for this, since the equity tap for real estate investments is largely cut off. Sweden, Norway, Switzerland and Austria have listed property companies, but do not have a REIT-like structure. As conventional corporate companies, they are condemned to pay corporate tax on their returns.

**Table 2.2 Size of the total real estate market per country in Europe (EPRA, 2013)**

€ billion	Legal name	Total Real Estate	EPRA Index		REIT-regime incepted
			Market Capitalization	EPRA Index vs. Total real estate	
United Kingdom	UK-REIT	813.3	38.2	4.7%	2007
Sweden	N/A	67.6	7.8	4.6%	N/A
Switzerland	N/A	194.8	8.8	4.5%	N/A
France	SIIC	929.4	25.9	2.8%	2003
Finland	FINNISH REIT	87.5	1.8	2.1%	2009
Netherlands	FBI	281.7	5.8	2.1%	1969
Belgium	SICAFI	169.9	3.1	1.8%	1995
Austria	N/A	38.0	1.6	1.2%	N/A
Germany	G-REIT	1,188.3	8.8	0.7%	2007
Norway	N/A	152.5	0.6	0.4%	N/A
Italy	SIIQ	743.2	0.5	0.1%	2007

*Note:* Spain has a REIT-regime but has no companies (left) that are constituent of the EPRA-index

The deviated position of the listed real estate sector in European nations as presented in table 2.2 is a result of historical reasons. Interestingly, the current relative size of the sector is not a derivative of the introduction of REIT-legislation. The listed share of total real estate in the UK is more than twice as large as the Netherlands, notwithstanding the almost forty-year lead of the latter. The differences seems to have its origin in the widespread background of investment culture in Europe. In the Anglo-Saxon model of the UK, it is way more common to raise equity on the stock market, in contrast of Germany for instance. This effects the relative size of the securitized real estate sector per country. Also the presence of large pension funds and its investment preferences – direct or indirect real estate – leads to divergent figures. The large variety of REIT-structures in Europe results in constraints for the development of the sector.

The legal differences between European REIT-structures are important to notify for this study. Deviated constraints on leverage and retaining dividend will always influence REIT management

<sup>9</sup> There were few but those funds faced bankruptcy or were delisted.

decisions. Also investors' perception of similar events by similar REITs can be affected by this regulations. For instance, in the US there is one REIT-structure with a large number of trusts. This makes research on this market more solid en consistent. Plausibly, this might be the reason the academic contribution on property transactions by European REITs is underexposed. The advocate of the sector, the European Public Real Estate Association (EPRA), is partly commissioned to attain more cohesion between European REIT-legislations.

#### **2.1.4 Performance**

Prior to 1970s, institutional investors were merely participating in stocks, bonds and real estate with separated strategies. This changed after the introduction of the Modern Portfolio Theory (MPT) for mixed-asset portfolios<sup>10</sup>, introduced by Markowitz (1952). MPT provides institutional investors a target allocation with the most efficient risk-return profile. Because REITs are negatively correlated with bonds (Boudry, et al., 2012) and on the long-term low with the general stock market, it provides a good opportunity to out-diversify unsystematic risk. As an asset class, REITs are considered as real estate. So the supply of capital for REITs is heavily depending on the asset allocation by institutional investor and the correlation of REITs with other asset categories.

Brounen & Koning (2012) examine the performance of the nine largest REIT markets in the world and find that REITs offered a modest outperformance combined with a moderate systematic risk profile. They find alphas has been the highest in Europe, which indicates European REITs performed relative best, relative to a benchmark. This is supported by the examination of two-decade returns of different asset catagories in Europe (see figure 2.3). European listed real estate sector does not only outperform intercontinental equivalents, but also other asset classes as bonds, equities, direct real estate and gold. Not only REIT returns contribute to this success. REIT stocks often benefit when investors periodically shift their capital in more higher-yielding investments (Block, 2012). Boudry et al. (2012, pp. 235) state: "The steady cash flows produced by commercial real estate combined with the dividend payout requirements imposed on REITs means that REITs have large and steady dividend payouts." It is hard to determine the indentify REITs as growth or dividend stock. It seems to be determined by the phase of the real estate cycle and the size, age and growth opportunities of individual REITs.

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<sup>10</sup> US institutional investors were actually forced to apply MPT due to the implementation of the Employee Retirement Income Security Act (ERISA) that provided implications for planning capital allocation on the level of the broad, mixed-asset portfolio (Geltner, et al., 2007).

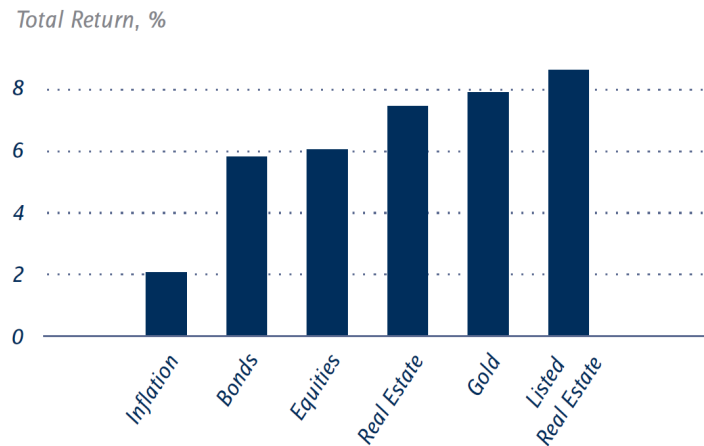


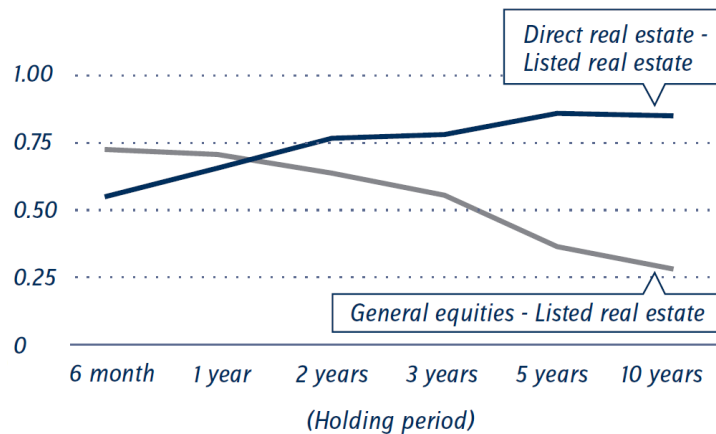
Figure 2.3 Comparative investment performance (20 years to June 2012) (EPRA, 2013)

## 2.2. Valuation Dynamics

To draw conclusions on the valuation effect of property transactions by REITs, we first need to have insight in the mechanism that explains the valuation of REITs by the stock market. Hence this section displays the background on the common used valuation methods and the constraints regarding to the discrepancy between the stock price and the net asset value of listed real estate companies. Finally, the influence of economic cycles and REIT stock valuation is explained.

### 2.2.2 Valuation of REIT Stock

“As with any asset, the value of a common share of a REIT is a function of three fundamental factors: REIT cash flow available to distribute to shareholders; expected growth in REIT level cash flow and underlying property NAV; and the appropriate risk-adjusted discount rate.” (Geltner, et al., 2007, pp. 592) As every other property company, REITs net asset value (NAV) is external appraised by assessors and consist of the market value of all properties owned. But the uniqueness of REITs is that their shares are also continuously valued on the stock market. The market will also come up with their value perception of the portfolio of real assets. Due to the fast incorporation of public information, the market value of the share gives an adequate view of the companies value (see Fama, et al., 1969). But the share price is also more volatile than its underlying assets, because it is an element of the stock market. Especially short-run investment in REITs is associated with more correlation with general equities rather than direct real estate. In the long run – at least one and a half year – this is converted and REITs are behaving like the underlying property market (EPRA, 2013) (see figure 2.4). Recent studies (Boudry, et al., 2012; Hoesli & Oikarinen, 2012) confirm this relationship on the longer horizon.



**Figure 2.4 Correlations with general equities and direct real estate (EPRA, 2013)**

### *Capital Asset Pricing Model*

The theory of financial asset pricing was initiated by Sharpe (1964) and Lintner (1965), who developed the capital asset pricing model (CAPM) to posit that a stock's excess return above the risk-free rate is conditioned on its systematic risk (Allen, et al., 2000). CAPM is a broadly used method in the financial world to estimate the return and risk of a stock security. It is a trustful measure because it takes into account the historical performance of the stock, pertaining to the market. It is obtained by determining the risk-free rate, which is the theoretical return of an investment with no risk of financial loss. Normally this rate is perceived as the yield on short-dated government bonds. The risk-free rate is added with a risk premium that varies with the amount of systematic risk involved. The beta is actually the correlation coefficient of the stock and the market, which is called the market portfolio. Is it under one, the stock is less volatile – and less riskier – than the market. Is it above one, vice versa. Between the parentheses we find the market risk premium and this is the risk premium per unit of systematic risk. The return on the market portfolio is obtained by examination of the historical performance of a market index.

$$R_e = r_f + \beta(r_m - r_f) \tag{2.1}$$

$r_f$  = Risk-free rate

$\beta$  = Equity beta

$r_m$  = Expected market portfolio return

### *Constant Dividend Growth Model*

Another way to estimate the cost of equity a REIT is facing is by executing the constant dividend growth model. Theretofore the expected dividend for the next year is divided by the current stock price, and added with the expected future growth rate. The major assumptions are that the

dividend estimate is correct, the growth rate is constant and matches with the market expectations (Berk, et al., 2012). Current stock prices are publicly known. The dividend for the next year is an estimation, but since REITs lease properties based on a fixed contractual rent, it is less hard to appraise. More hard is it to estimate the future dividend growth rate. It requires forward-looking insight in the company's earnings. The advantage with REITs is that earnings equals dividend, since the requirement to distribute income. Thereby the long-run growth in earnings is a good measure of dividend growth. Because earnings for REITs consists of rents, the annual rental growth (like-for-like) explains a large share of growth of dividend. To obtain more earnings, REITs can optimize the rental income by lowering vacancy rates and upgrade tenants (see section 2.3.5 for internal growth). This extra growth is harder to estimate because it is subjected to the skills and experience of the REIT management.

$$R_e = \frac{Div_1}{P_E} + g \tag{2.2}$$

*Div<sub>1</sub>* = Expected dividend next year  
*P<sub>e</sub>* = Current stock price  
*g* = Future dividend growth rate

Geltner et al. (2007, pp. 285) state: “REIT share prices reflect not only their existing in-place assets, but also their entity-level capital structure<sup>11</sup> (such as the degree of leverage), and their future growth opportunities as represented by their ability to make positive NPV acquisitions, developments and dispositions.” This is an important proposition that proves there is a strong relation between transactions by REITs and their share price. If we assume analysts will value REIT stock by the constant dividend growth model, important determinants are the dividend in the next year and the expected future growth rate of the dividend. If the market notices that REITs are able to buy undervalued properties on the property market, whose value will rise in the near future, they apply a higher growth rate in the model. Also the dividend for the next year is positively adjusted because shareholders can expect more dividend from uprising rental income. Because the equity is temporarily underpriced in the opinion of *some* investors, demand rises, which finally push up the share price until a new equilibrium is attained. On the contrary, when property prices falling, negative growth rates will press down the share price. This theory postulates that trades made by REITs on the property market, will always have impact on their value on the capital market. So changes in a property portfolio – accomplished through transactions – can help a REIT enhance the market value of the stock. This mechanism is of

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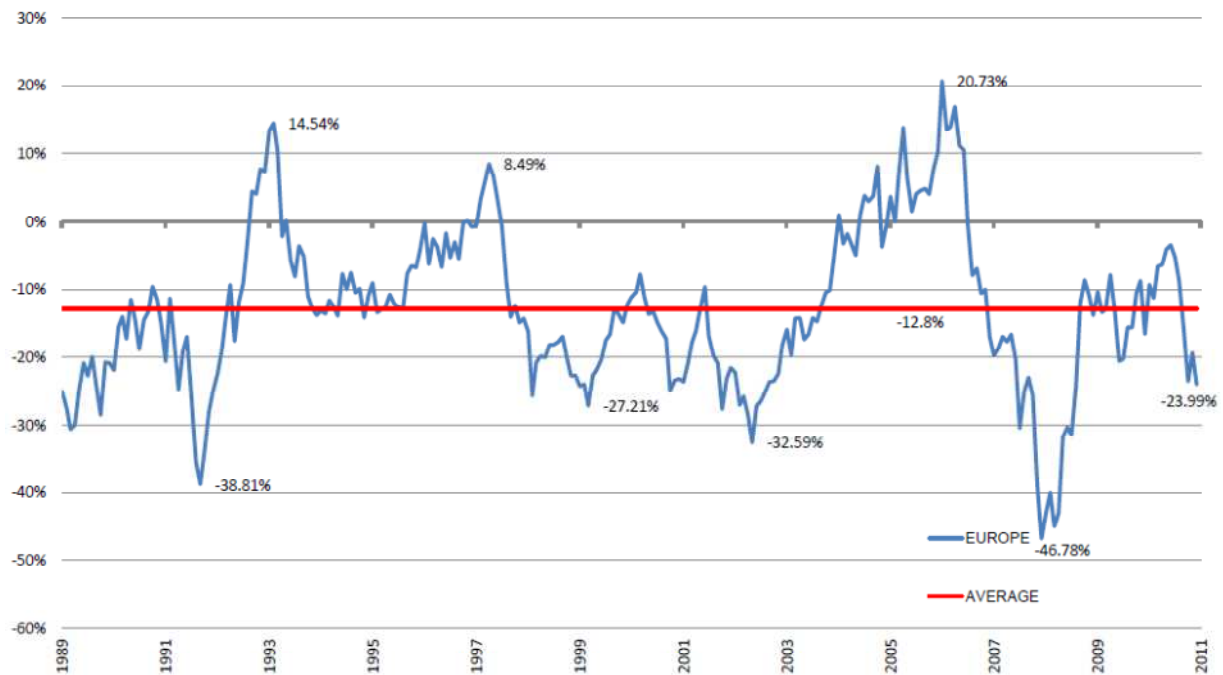
<sup>11</sup> We can see that this is a violation of the theory of Modigliani & Miller (1958) that states that capital structure doesn't matter, and therefore proved to be conceptual.



major importance for the analysis of REIT-transactions and the abnormal shareholder return they might cause.

### 2.2.3 Discount/premium to NAV

Net asset value is an appraisal of the total real value of the assets under management (EPRA, 2011). Because it is appraised quarterly it is often outdated on the day an investor is interested in this number. This is often referred as ‘sticky pricing’. Therefore the market cap<sup>12</sup> of the outstanding shares gives a more accurate view on a REITs’ market value. The difference between these two valuations is called a discount or premium to NAV, depending on the sign of the ratio. In theory, a premium represents an expected higher appreciation of the underlying real estate, by the market. A discount is its negative equivalent, since the market expects further depreciation of the real assets. Whether a REIT is quoting a premium is an important contributor to the ability to raise capital on the equity market, which is among debt essential to finance growth (see Ghosh et al.,1997 & Ooi et al.,2010).



**Figure 2.5 FTSE EPRA/NAREIT Europe Index Discount to Published NAV (EPRA, 2011)**

Since it existence, EPRA administrates the stock price discount to the published NAV of its index constituents (see figure 2.5). Worthy to highlight is the cyclical movement of this parameter, every 3-4 years. Between 1991 and 1993 the *REIT boom* is recognized, followed by the drain of

<sup>12</sup> Market cap refers to market capitalization which contains the total value of issued shares of a publicly traded company. Market cap equals the share price times the numbers of shares outstanding.

REIT-investors in 1997, shifting capital in dotcom-bubble. Also the imitable period of rising real estate prices between 2003 and 2007 is reflected in the graphic. Then – in approximately one year – a 21% premium turned into a 47% discount for the European REIT-sector in general. In this case, the effect of sticky pricing becomes visible. Because REITs are integrated with the financial markets they were pulled too by the global free fall of stock markets in 2008. The periodical appraisal of the underlying real estate is delayed and way more influenced by local rent values and vacancy rates. In 2009 we observe a reversion to the long-run average discount to NAV, because it takes longer for the NAV to adjust to the new economic situation.

There are several explanations for discounts proposed by the literature. Patel et al. (2009) state that first there is the presence of a ‘stock market effect’, which means that REIT stock price is only partly determined by the characteristics of the property market. Second, REIT stock price reflects the low liquidity in the underlying property market, which is not adequately incorporated in the NAV. This explanation was also given by Clayton & MacKinnon (2000). Third, valuation bias causes a ‘smoothing effect’ which affects the NAV. In their analysis, Patel et al. (2009) discover a tendency for discount to NAV to revert to the long term mean value of 20% and a lower risk premium in equivalent yields in private than in public markets. This suggests that investors in public markets have different conception of property and rental risk than what is conveyed by private property valuation. The data of figure 2.5 confirms this *chronical* discount of REIT stock prices holds for the European market. Then there are the differences between discounts to NAV of firms. It is plausible this is driven by REIT characteristics such as size and leverage (Capozza & Lee, 2001) and diversification in terms of property-type and geography (Capozza & Seguin, 1999).

But there is more evidence that the discrepancy between the price of a REIT share and the NAV per share is caused by the REIT valuation of the market. Providing a REIT valuation model, based on the earlier explained constant dividend growth model, Clayton & MacKinnon (2000) find that REIT premiums and discounts depend on the relative differences in required returns and expected growth rates. Central to this model is the prevalence of differences in investors’ perception of risk premiums and growth opportunities in private and public markets. The crux here is that rent and property value appreciation are common for both markets. Ergo, the risk premiums for both public and private markets and the discount to NAV are directly related. Previously, we saw that the risk premium is measured by CAPM and relies on the performance of the market and the correlation of the asset with it. Hence, REITs’ discount to NAV is also heavily influenced by the sentiment of macro-economic variables. Again, graphic 2.5 confirms this by displaying a cyclical movement mainly explained by the global economical trend.

#### **2.2.4 Real Estate Cycles**

Inevitably, REITs are subjected to the cyclical performance of the global economy and local real estate markets. If through economic growth demand for real estate increases, real estate prices rise because the supply is fixed on the short-run. Graff (2001, pp. 117) posits; “It follows that

REITs are not growth stocks, but rather cyclical income-producing assets with comparable investment characteristics to underlying REIT investment portfolios.” So the real estate cycle is an important determinant, especially in the long run, for the income-producing capabilities – ergo dividends – of REITs. From a different perspective, performance of REIT stock is a good measure and anticipatory for commercial real estate because it is supposed to lead the cycle (EPRA, 2013). The transparency and liquidity of REITs makes them efficient for predicting the real estate market in general. Real estate is a large segment of the economy for developed countries. Thereby it is also one of the most cyclical industries in the economy. Hewlett & Kaufmann (2008) state that the real estate cycle comprises three general phases; upturn, maturity and downturn.

#### *Upturn phase*

At this stage the real estate sector still remains in a *buyer's market*. Smart buyers – which have overcome the recent downturn – recognize that many sellers still have a downturn mentality. There is still caution since many participants in the market are not really sure an upturn had begun. Vacancies reverse into a reasonable range in response to the general economic recovery, which results in rising demand on the space market. Property development is slowly getting in gear, but due to the delay, new property is introduced on the market sporadically. Rising demand enhances rental incomes and appraisal values of properties owned by REITs. This is further spindled by the stronger appetite for real estate investments, because investors notice the growth in dividends from real estate investments. This is a tendency we noticed in the REIT-boom after 1993.

#### *Mature phase*

The mature phase is followed up by the upturn phase and normally lasts one to three years. In this time there is approximate equilibrium between supply and demand of real estate. During this phase a lot of properties are developed to meet the rising demand. The market is optimistic and opportunistic since it seems impossible to ‘lose’ by investing in real estate. We can paralyze this phase with the period of growth between 2003 and 2007. But the market is iterative and self-destructive. There is a turning point where there is such a lot new property on the market, vacancies are rising again. The expansion of the real estate stock has come to saturation. A cyclical managed REIT has to assure it sold its non-core properties before real estate prices go down.

#### *Downturn phase*

One can think that it is ‘different’ this time, but it is certain the market goes down sometime. The downturn is a period of adjustment. The low demand acutely freezes property development. Projects that were planned and considered as feasible, are now unrealistic due to radical changes in economic outlook. Rents and property values are falling, especially in less attractive parts of

metropolitan areas. This is also called negative feedback loop (Geltner, et al., 2007), because the previous demand in real estate investments caused overbuilding and fictitious high property prices. After the point of reversal, this leads to increased vacancy rates and depreciations. In this research, the period after 2008 is considered as a downturn phase for real estate markets in Europe.

## **2.3 REITs & Finance**

This section is dedicated to the finance aspects that are relevant pertaining to REITs, performance and property transactions. Capital budgeting (2.2.1) refers to the decision-making process of investment on the property market. Cost of capital is a major part of this process, but is also interrelated with capital structure (2.2.3) and hence explained separately (2.2.2). Because acquisitions are considered as external growth, the topic arises how these growth is financed (2.2.4). Internal growth and the economies-of-scale for REITs are explained in paragraph 2.2.5.

### **2.3.1 Capital Budgeting**

A REIT can be seen as a portfolio of projects arising from capital budgeting<sup>13</sup> decisions (Capozza & Seguin, 1998). In fact, every property transaction is a (dis)investment decision that is part of a broader portfolio strategy. This means that a REIT has to allocate its capital to different properties, based on an underlying strategy. Because this research attempts to attain insight in the shareholders' wealth effect of property transactions, the valuation effect of property trading REITs on the stock market is examined. This is unilateral because it is known that REITs operate in two markets. The property market, where the transaction price is formed, is therefore highlighted in this section. This micro-level investment theory for real estate companies, or better said mechanism, is comprehensively stated by Geltner et al. (2007) and is helpful to attain insight how this decision-making works.

By far the most important statement in this mechanism is the distinction between market value (MV) and investment value (IV). MV is the expected price for which you can sell an asset today, independent of its owner. So as it denotes, market value is the price the market is willing to pay for the property when it comes for sale. IV is what the asset is worth to *you* if you don't sell it for a long time and is dependent of the appraisal of the future revenues the property will generate, inclusive the future disposal. If the IV equals or is higher than the MV, the property is a good investment and one should retain it in its portfolio. A property with a smaller IV than the MV should be sold. This is the first fundamental a wealth-maximizing real estate portfolio manager should consider during decision making in asset allocation.

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<sup>13</sup> Capital budgeting refers to the allocation of assets of a company, so everything that happens on the left-hand-side (resources) of the balance sheet.

Supply and demand for real estate meets each other on the property market. The intersection between the supply and demand represents the most plausible price the property will be traded for; the asset transaction market equilibrium. This equilibrium is attained when buyers and sellers are indifferent to execute a transaction and is so called *marginal*. But in reality it represents the median of a bandwidth which capture the price. Considering an arm's length transaction<sup>14</sup>, a property owner will only sell its property if the IV is lower than the MV. The buyer will only acquire if his IV exceeds the MV. When there are possibilities for arbitrage, this is called an *intramarginal* deal. This is why transactions only occur on the left-hand-side of the intersection. Intramarginal deals are mainly a result of income tax status and operational advantages in managing the property.

The next question that emerges is how the IV is determined. The investment value is the sum of all discounted future costs and revenues over a certain time period, also considered as the present value. The present value also includes the discounted residual value at the end of the exploitation period. This method is considered as a discounted cash flow model (DCF) which can make the necessary adjustment for time and risk. If you subtract the MV from the IV, the net present value (NPV) is left. A negative NPV means that the asset should be disposed or not acquired, a positive NPV asset should be retained or acquired. This is considered as the NPV investment decision rule. With this straightforward insight, portfolio managers can decide to buy, hold or sell properties. This is by far the most used tool for decision making in corporate capital budgeting.

### 2.3.2 Cost of Capital

A NPV is an absolute value and does not explain till what extent the investment adds or destroys capital. Besides, the NPV is largely influenced by the applied *discount rate*. Discount rates reflect the time value of money and the price of risk. This makes it hard to compare investments with both positive NPVs. This is solved by the application of the *internal rate of return* (IRR), which is literally the discount rate for which the NPV equals zero. Now the investor – the REIT – should choose for the investment with the highest IRR. But this should only be the case if the IRR reaches a minimum acceptable rate of return; the *hurdle rate*. The hurdle rate is setting a benchmark of the return a new project has to meet. So if the IRR exceeds the hurdle rate, the investment creates value and should be done. But when the IRR discounts the hurdle rate, the investment is irresponsible because there are better yielding or less riskier investments elsewhere. The composition of the hurdle rate arises from the *weighted average cost of capital* (WACC) the investment is facing. Therefore not all investments can be calculated with one firm-related discount rate. WACC is a weighted average of the expected return shareholders demanding ( $R_e$ ) and the cost of debt ( $R_d$ ). In a broader sense, it is the best available expected return offered in the

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<sup>14</sup> This means that both parties in the deal are acting in their own self-interest and are not subjected to any pressure or duress from the other party. This results that the price being paid for the property is the *fair value*.

market on an investment of comparable risk and term to the cash flow being discounted (Berk, et al., 2012).

$$WACC = \frac{E}{MV} * R_e + \frac{D}{MV} * R_d * (1 - T_c)$$

(2.3)

$R_e$	= cost of equity
$R_d$	= cost of debt
$E$	= market value of the equity invested
$D$	= market value of the debt invested
$MV$	= total market value of the investment
$E/V$	= percentage of financing that is equity
$D/V$	= percentage of financing that is debt
$T_c$	= corporate tax rate

In the latter formula there are two important components that determines the WACC. The first one is the cost of equity ( $R_e$ ). Or better said, common stock capital. There are two major methods to estimate what return investors in REITs demanding; The capital asset pricing model (CAPM) and the constant dividend growth model (CDGM). As we saw in section 2.2.2, these methods are also used by investors to value REIT stock. The second important determinant is the cost of debt ( $R_d$ ) which is the effective rate that a company pays on its current debt. Direct real estate investors can have totally the same perception of the future cash flows a property should provide, but still one chooses for disposal and another for acquisition. This phenomena is caused by the different costs of capital (thus divergent costs of equity and debt) companies are facing. Large and experienced property companies can obtain debt against lower interest rates on a par, due to a lower risk profile. Also the risk premium component can be appraised different. Therefore they apply divergent discount rates to the future cash flows and come up with unequal investment values. In property biddings, the party with the lowest hurdle rate (or the lowest risk premium) is able to do the sharpest bid.

### 2.3.3 Capital Structure

Because REITs are exempted of corporate tax and are not allowed to retain dividend, they have a rather different capital structure than *normal* corporates. Besides, due to its tangability, real estate is a strong collateral, so they are more often strongly leveraged. In upswing markets, this combination can provide excessive dividends for shareholders. Though leverage is restricted by the local REIT-regime, in a downhill market this can be extra risky. The risk of financial leverage is that lenders may not be able to refinance the entire debt if the value of underlying properties has declined substancially when the debt matures (Graff, 2001). When this appears to happen, REITs will be forced to liquidate part of the portfolio at exactly the wrong time for the shareholders to cover the required debt payment. What we see now – in a period of real estate down market – is that REITs attempt to pressing down their LTV (so repay debt) by property

disposals indeed. This also can be accomplished by raising equity, but due to the economic condition REITs' market values facing discounts to NAV. In this situation it is hard yet impossible to issue shares. Now we see that economic and furthermore real estate cycles affecting the capital structure of REITs. In addition they will acquire or sell properties. This is where the capital structure intersects the matter of this study.

Effort of scholars (Cannaday & Yang, 1996) attempts to find the optimal leverage strategy for real estate companies that invest in income-producing properties. The conventional wisdom is that using more debt decreases the required equity investment and increases the size of the tax shelter. Meanwhile, as the loan-to-value (LTV) ratio increases, the interest rate charged by the lender increases, which indicates a higher cost of debt. Cannaday & Yang derive several concluding hypothesis about the relationship between the optimal LTV-ratio and investor characteristics. The single relevant for this study is that the optimal LTV-ratio increases as the required rate of return on equity for the investor increases. So higher risk premiums are positively related to more leverage on the investment-decision-level.

Modigliani & Miller (1958) did an Nobel-prized contribution on this aspect of corporate finance and state that under certain assumptions, it makes no difference whether a company is financed with debt or equity. This is later adopted as the Modigliani-Miller theory and is based on three main assumptions. Firstly that the market is perfect and totally efficient. Secondly, there are no taxes, transaction costs and bankruptcy costs, which means there are no information asymmetries. At last, the left-hand-side of the balance sheet and the right-hand-side of the balance sheet are independent. So the finance of an operation does not affect the assets and the assets are not affected by the way they are financed. With this condition satisfied, M&M suggesting that capital structure doesn't matter. But we know that none of these assumptions are met in the real economy. The market is not perfect and transaction costs do exist. Besides, the way assets are financed is highly related to the liabilities of the company. However, M&M theory shows us that levered firms have a higher value because they can profit from tax deduction from paid interest over debt. In every industry there exist an optimal leverage ratio that equates of the benefit of debt and the bankruptcy risk it causes.

In an attempt to examine the performance of REITs in relation to their financing choice, Ghosh, Nag, & Sirmans (1997) found the choice of financing mode appears to be market-driven. Their analysis suppose that the performance of REIT stock is a strong indicator of its financing choice. This means that the likelihood the company is able to raise funds from the capital market is increases when its stock market performance is better. Reversely, when the stock performance is poor, it is designated to the debt market. The evidence is delivered by the finding that REITs that perform best are most active in raising capital, and the firms that suffered in the stock market are least active. Further, REITs that perform well tend to raise a larger amount of capital and prefer equity to debt financing especially if their property type is hot (Ghosh, et al., 1997). To

recapitulate, a healthy stock performance is the primary condition for a REIT to issue equity in order to finance acquisitions for external growth.

The analysis of marginal financing decisions by REITs by Ooi, et al. (2010), covers 143 equity REITs and spans a 17-year period from 1986 to 2003. They argue whether this decisions are related to a target leverage hypothesis. The results suggests that this is strongly influenced by the capital market conditions. Hence, REIT managers appear to time and choose their financing activities based on the time-varying costs of debt and equity capital. More specific, REITs are inclined to issue more equity in a bull market, when their stocks are high valued<sup>15</sup>. Debt obligations tend to be issued during periods when the interest rate for long-term debt is low. They observe that in the long-run most REITs move their capital structure to their target leverage level. So it appears that REIT managers are opportunistic, rather than indifferent, as the M&M theory suggests.

REITs will have to decide how to distribute debt and equity in case of a property investment, but the effect on the total LTV-ratio of the firm is more relevant. Especially since share prices reflect, among other things, their entity-level capital structure<sup>16</sup> (Geltner, et al., 2007). According to the risk-analysis by Brounen & Koning (2012), REIT leverage is key to REIT betas. Thus more leverage drives systematic risk upwards. Reversely interpreted, REITs that minimize financial leverage can reduce the sensitivity of their returns to stock-market changes (Allen, et al., 2000).

#### **2.3.4 Financing growth**

External growth can be generated through attractive property acquisitions and developments, as well as activities such as property expansions, joint ventures, and initiating new real estate-related activities (Block, 2012). To finance these opportunities, even a successful REIT will have to raise new capital externally (Ghosh, et al., 1997). Secondary equity offering (SEO) is a new equity issue by a company whose shares are already publicly traded. Together with debt, it is a source of capital to finance external growth. It is interesting to examine the realized capital gains of the European REIT-market since 2001 (see figure 2.6). We cannot assume there is a consistent trend in REITs raising capital via debt and equity. To explain this alteration, keep in mind figure 2.2 with returns of the European REIT index of the same time-period. Between 2001 and 2007, REITs realized an uninterrupted growth of index. In all these years, debt issues were preferred above equity and right issues. Pursuant, the proposition by Ghosh et al. (1997) – that the better the market performance, the more likely the company raise funds via equity issues – is invalid. In the year 2008 where the freefall of stock prices took place, the whole market seems to hold back,

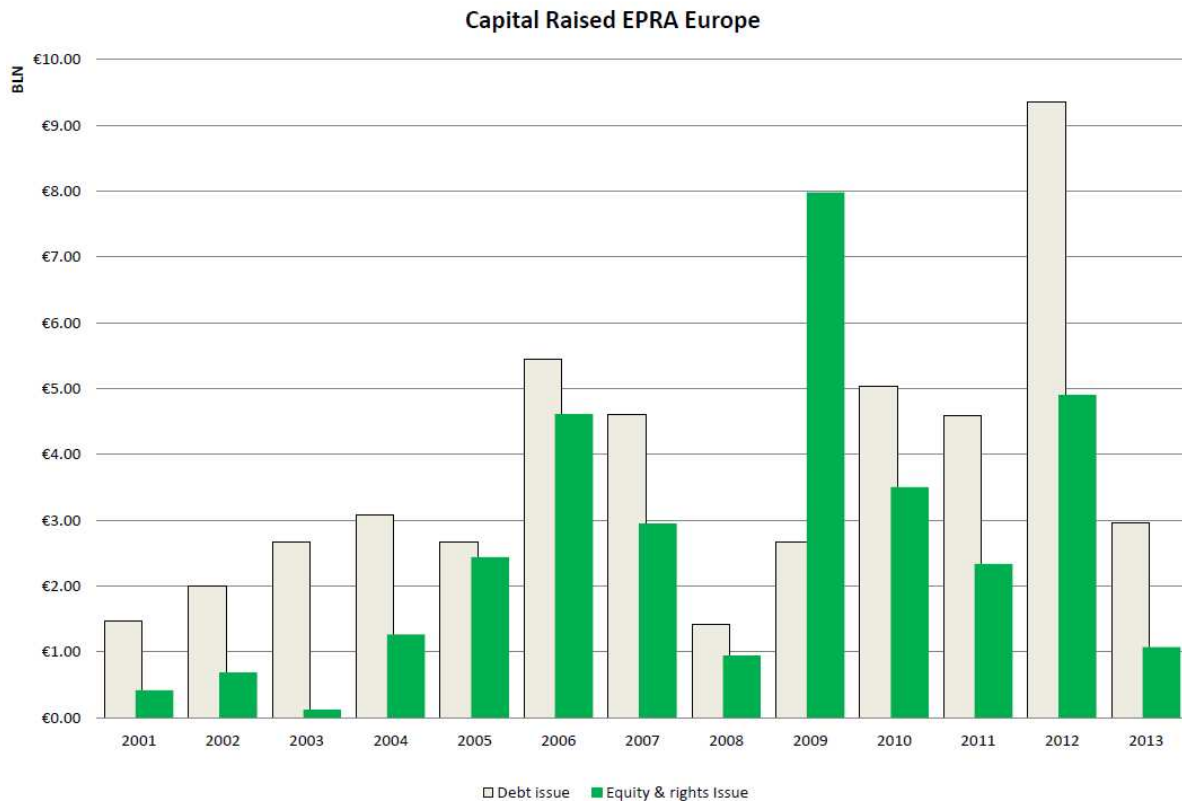
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<sup>15</sup> Which is consistent with the findings of Ghosh, Nag, & Sirmans (1997)

<sup>16</sup> We can see that this is a violation of the theory of Modigliani & Miller (1958) that states that capital structure doesn't matter, and therefore proved to be conceptual rather than practical.



uncertain what is about to come. When in 2009 property values also decline, REITs attempt to maintain leverage ratios by large equity issues. So the statement by Ghosh et al. (1997) and Ooi, et al. (2010) – REITs issue more equity when there stock is high valued – does not seem to hold since the excessive equity issues on the lowest point of stock prices since ten years. After 2009, the preference for debt financing prevails again.



**Figure 2.6 Capital raised by EPRA constituents from jan-2001 to apr-2013 (EPRA, 2013)**

As displayed in figure 2.6, equity issues are not uniformly distributed through time, but rather tend to occur in clusters. To explain these phenomena, Buttimer et al. (2005) tested three hypotheses and give insight in the underlying motivations for a REIT to prefer stock financing above debt.

#### *Capital demand hypothesis*

A change in the economic environment of a private real estate company can present it with new investment opportunities which increase the firm's demand for capital. This is called the capital demand hypothesis and it is an important explanation why equity offerings occur. Because this investment opportunities occur often widespread for a particular industry, equity issuances tend to cluster (Buttimer, et al., 2005). As for REITs, this is inherent to the ability to fulfil positive NPV deals on the property market.

#### *Information asymmetry hypothesis*

The Information Asymmetry Hypothesis holds that the market recognizes that managers of a firm have superior information about that firm relative to the market (Buttner, et al., 2005). There is extensive evidence that stock financing of investment opportunities is negatively associated with shareholder wealth. Myers & Majluf (1984) found a basis for this and state that the management is assuming to know more about a firm's future value than potential investors. Managers who expect a decline in stock price will be more likely to use stock financing in order to compensate future loss. Vice versa, managers who believe the share price is undervalued, will sooner choose debt financing. As such, an SEO constitutes a negative signal to the market, and may result in a decline in stock value for the pre-existing shareholders (Ghosh, et al., 1997). The information asymmetry hypothesis by Myers & Majluf resulted in a pecking order of capital raising choices; retained earnings, debt, private placement, and finally, preferred and common stock.

There are a few objections concerned by postulating this pecking order holds for REITs. Firstly, REITs are required to distribute the major part of their earnings as dividends to shareholders. Therefore the negative signal conveyed by the seeking of external capital is somewhat muted. Furthermore, excessive debt financing is perceived as riskfull by conventional REIT-investors since this is by far the most common reason why real estate companies got in trouble when the market reversed in 2008. Because REITs are exempted from corporate tax, the usual motivation for debt financing – loan interest is deductible from corporate tax – does not exist. Finally, by the relative transparency of a REIT's assets, the underpricing-effect of a SEO is smaller compared to non-REIT corporates.

#### *Investor sentiment hypothesis*

The Investor Sentiment Hypothesis posits that in some periods a type of investors may become irrationally optimistic and willing to overpay for stocks, or at least for a subset of stocks. This reduces the cost of raising equity for REITs, and thus more firms will issue SEOs during this period (Buttner, et al., 2005). Investor sentiment hypothesis assumes that more equity is issued in times REIT stock is overpriced. According to figure 2.5 that shows average share price discounts to NAV, there existed a general premium on REIT stock between 2004 and 2006. Considering figure 2.6 we observe a growth of equity issues in this period, but it is never preferred above debt. Nevertheless, we can conclude the investor sentiment hypothesis holds for REITs because more equity is raised in the period when their stock was overpriced.

#### **2.3.5 Economies of scale**

Economies of scale is an elementary theory that covers the phenomenon that larger scaled companies attain substantial benefits in relation to their smaller counterparts. The fundamental tenet is that a company's expenses relatively decrease when the size and turnover grows. Scholars discuss whether this is valid for the modern REIT-sector. Research executed by Capozza & Lee (1995) concluded that the ratio between general and administrative expenses (G&A) and total assets is above average for small REITs. Also small REITs seems to trade at significant discount

to net asset value. Ambrose, et al. (2005) find that large REITs are increasing growth prospects while succeeding at lowering costs, leading to a direct relationship between REIT profitability and REIT size. Larger REITs also enjoy an advantage for G&A expenses.

Because analysts will value the ratio between equity and return, REIT's management will always attempt to deploy the current capital as efficiently as possible. Especially since the restriction for withholding earnings makes the dividend more sensitive for this. Achieving more with the same resources is considered as internal growth. This growth can be achieved when a REIT is able to increase profits from operating and managing its properties by increased rental revenues. Meanwhile the expense growth must be under control. There are several ways to increase property revenues (Block, 2012). Firstly, and most simply, a property owner can ask more rent to its current tenant. But this source is exhaustible since tenants will not appreciate this and rent increases are often regulated to annually percentages. Secondly, a REIT can increase revenue by maximizing the occupation rate of its properties. In a bear market, especially after a period of overbuilding of commercial properties, this can be problematical. Even with the best economic condition, a certain amount of vacancy is inevitable. There are always tenants who needs moving space, resulting in friction vacancy. A third and more intensive tool to increase rental income is to expand existing properties and rent the new units to existing or new tenants. A fourth tool is to relocate tenants to an unit which offers the ability to pay more rent. This is often applied on shopping centres where the tenant's turnover is connected to the level of the rent. At last, a property owner can strive to find the tenant that is able to pay the highest rent regarding the location and achieve a better tenant mix.

#### **2.4 Portfolio Changes and REIT Valuation**

For the bulk of corporate firms in the world, production or providing services is the primary activity. Acquisitions and disposals of single or large sets of assets occurs sporadically when a company maintains consolidation or needs expansion. REITs do not have a production process or a range of services to provide. Their single task is to generate dividend for shareholders by investing – debt and equity – and managing real estate assets. REITs acquire and sell real estate assets on the property market which makes property transactions an important tool for corporate strategy. The motives underpinning this strategy are divergent; attaining an efficient portfolio, personal preferences of the management or reduction of financial leverage. Actually there is a spectrum of ways how equity REITs can grow and shrink by transactions. On the one side by acquiring single properties on the property market and add these to their existing portfolio. On the other side it is possible to merge an entire REIT<sup>17</sup>. Especially REITs that are undervalued by

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<sup>17</sup> Though the topic of this research alludes for property transactions, extant literature on REIT mergers can give clarifying insight in the underlying portfolio strategy and the shareholder wealth effects.

the market are vulnerable for take-overs<sup>18</sup>. In between we find growth possibilities by sell-offs and acquisition of existing portfolios of properties. When a REIT does a substantial transaction on the property market, relatively to its size, shareholders will discount this new information in the market value on the equity market. The dual-market structure of REITs results that a transaction has a twofold effect on both the NAV and the market value. This dynamic provides publicly traded REITs a unique tool to monitor how property transactions are interpreted by the market, in contrast to private property companies. In the literature exist no convention on the definition of portfolio changes. Whereas the relevance of this study is concerned, the broad spectrum between single property transactions and REIT mergers is examined in this review.

A substantial body of financial literature is dedicated to the question whether mergers and acquisitions result in abnormal returns, but Allen and Sirmans (1987) were the first focusing on equity REITs. After executing an empirical analysis on 38 REIT-merger announcements from 1977 to 1983, they ascertain increasing wealth of the acquiring REIT's owners. A motivation is offered in the utilization of tax losses and improved asset management. In contrast, Sahin (2005) finds evidence in case of mergers, acquiring REITs experience statistically significant negative abnormal returns during the three-day period around the announcement. Contrawise, target REITs experience statistically positive ARs<sup>19</sup>. This has been extended by Glascock, Davidson and Sirmans (1991), who hypothesized that restructuring real estate assets influence the distribution of gains from corporate buyers and sellers. In a studied sample of 51 portfolio purchases during 1971-1986, they find gains for both buyers and sellers, but buyers gain only when they make few purchases. There are no gains observed in the announcement-period for firms pursuing an acquisition strategy. Regarding the time frames studied by the prior literature, note that the data concludes events prior to or around 1986. With the introduction of a passage of the Tax Reform Act of 1986, external property management was no longer required for REITs. Because REITs became much more an active investment, it is reasonable to expect different returns before and after 1986 (Womack, 2012).

The thin evidence and upward surge of REITs in early nineties stimulated further research. McIntosh et al. (1995) reporting results of a studied sample of 54 property acquisitions and 38 property sales announcement by REITs, between 1968 and 1990. They find that REITs do not experience significant wealth effects from transactions announcements. Though, because of the significant relationship between positive abnormal returns and an increase in dividend paid by the REIT in the year of announcement, they find a significant positive shareholder wealth effect upon the announcement of a sale transaction when the sale is associated with an increase in REIT

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<sup>18</sup> Many REITs protect themselves for takeovers by issuing preferred stock, making it hard for bidding firms to obtain a substantial share of the ownership. Other ways, like poison pills, golden parachutes and greenmail are also used but the aversion of legislators is growing since these tools disturb the market.

<sup>19</sup> AR refers to abnormal return of the stock, outside the long-run average return of the equity.

dividends. This is consistent with the proposition that REITs are considered as dividend stock<sup>20</sup>. Further research (Booth, et al., 1996) on a sample of 131 sell-offs of real estate assets by corporate firms find that returns to acquirers are insignificantly different from zero. In addition, Campbell et al. (2006) examined a larger sample (139 sell-offs) with post-1992 REITs and controlled for influential cause variables. They conclude that REIT sell-offs are associated with significant positive shareholders returns. While often suggested, this is not a result of the undervaluation of the real estate assets prior to the transaction. Also corporate tax exemption is not a determinant of abnormal returns. Like other type of firms, positive returns in REIT sell-offs are associated with improvement in asset efficiency. That is why the abnormal returns are inversely related to the firm's operating performance prior to the sale.

More recent study on acquisition announcements of Asian REITs (Ooi, et al., 2011) remarks a significant positive abnormal return in a five-day window around the event date. In contrast to earlier findings (Glascock, et al., 1991), it suggests frequency of acquisition is not detrimental to shareholders wealth. Besides have acquisition announcements that are accompanied by SEOs<sup>21</sup> to finance the purchase, lower wealth effects. Investors associate SEOs with a signal of the management that the assets of a REIT are overvalued by the market<sup>22</sup>. Smaller-sized REITs experiencing larger economic gain, due to the view that smaller firms enjoy greater opportunities of scale economies. The results further demonstrate that acquisitions of mixed-use properties or a portfolio of properties are associated with significantly lower stock returns, implying firms are rewarded for corporate focus and penalized for diversification. In the next section more on this aspect.

#### **2.4.1 Focus and Diversification**

Nowadays a wide range of REITs are participating the equity market due to investors' demand of different risk-return profiles. An often heard proposition is that (institutional) investors prefer to make their own diversification decisions using narrowly focused REITs (Ro & Ziobrowski, 2012). They diversify by property type to reduce overall unsystematic risk while maintaining the return of the total wealth portfolio. A primary condition to do so is the existence of pure-play firms. On the other side should managers, for the purpose of REIT's self-interest, pursue diversification to reduce unsystematic risk in within the portfolio. Assuming both parties base investment decisions on Markowitz's modern portfolio theory (1952) there is a persistent conflicting interest. According to Geltner et al. (2007) there exist no conceptual basis for the application of MPT below the level of the entire wealth portfolio of the investor. Though,

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<sup>20</sup> Refer to general literature of REIT as an investment class

<sup>21</sup> Secondary equity offering: New shares are issued by an already publicly traded company

<sup>22</sup> Practical evidence of the information asymmetry hypothesis by Myers & Majluf (1984).

especially in Europe, we see a substantial amount of diversified REITs by property type and/or geography (see introduction 1.1).

The penalty investors granting diversified firms is commonly called the *diversification discount*. The corporate finance literature indicates that diversified firms trade at a discount to otherwise comparable specialized firms. The distinction between valuation of diversified and focussed REITs seems to be emerged from investors' preferences to diversify their portfolios by specialized REITs. Another popular explanation for the diversification discount may be associated with inefficient internal asset allocation (Campbell, et al., 2003). "A non-diversified REIT acquiring properties of the same type or in the same market can incur lower per unit costs in comparison to a diversified REIT acquiring multiple types of properties or properties in diverse locations." (Bers & Springer, 1997, pp. 278) So the philosophy behind this discount is that knowing more of less is better than knowing less of more.

#### **2.4.2 Property type**

Early REITs were often diversified by property-type, because REIT investors sought-after passive investment vehicles and thus were best served by a diversified portfolio of properties (Geltner, et al., 2007). After important legislative changes for institutional investors in 1993, REITs became flooded by institutions that prefer to make their own diversification decisions by employing pure-play REITs<sup>23</sup>. In the mid-eighties 61% of institutional investors diversify by property type (Web, 1984). In the early nineties this number already increased to 89% (Louargand, 1992). Hence, REITs exhibit a strong tendency to invest in one particular property type. The causality between investors' demand and property-type focus of REITs is supported by the fact that non-REIT real estate investors usually own and manage broadly diversified portfolios, because the lack of influence from shareholders. The question whether this property-type focus contributes to better performance is argued by a slight number of scholars.

In an attempt to discover performance differences in property-type versus specialized REITs, Benefield et al. (2009) find evidence diversified REITs perform better when the overall markets performing well. Contrary, specialized REITs perform better when overall market conditions are not as favorable. This results, derives from a sample of 75 equity REITs, suggests the existence of a diversification discount is determined by market conditions. Ro & Ziobrowski (2011) compared the share performance of specialized versus diversified REIT portfolios during 1997-2006 and find no evidence of superior performance associated with REITs specializing in a single property type. To test robustness, they checked for different sub-periods and adjust the model to a value-weighted and equal-weighted form. They do prove that specialized REITs have higher market risk than diversified REITs, which is consistent with the modern portfolio theory (Markowitz, 1952). Capozza & Seguin (1999) examines the relationship between property-type

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<sup>23</sup> Property sector-focussed REITs

specialization, cash flows, and real estate property values. They hypothesized that less focused firms are harder to value and monitor and therefore less transparent. Inconsistent with Ro & Ziobrowski (2011), they find evidence that there is a penalty imposed on trusts that are diversified by property type. In that case, pure-play REITs discredit their diversified equivalents.

The previous research is conducted to general performance, in relation to diversified versus specialized REITs. In addition, it is interesting to isolate REIT transactions that have influence on property-type focus. Therefore Ro & Ziobrowski (2012) investigate 678 portfolio changes of US REITs between 1990 and 2009. They find a significant negative market reaction to acquisitional events that decrease property-type focus. Conversely, they found substantial wealth benefits from dispositions that increase property-type focus. Geltner & Kluger (1998) came up with comparable results and define a technique to build REIT-based property-type pure-play portfolios. These results support the proposition that institutional investors demanding for property-type focused REITs and hence, value a portfolio strategy substantiating this, positively.

### **2.4.3 Geography**

We already examined the market penalty imposed on diversification by property type. Yet, we look whether this is valid for geographical diversification. Unlike stock or bonds, an investment in direct real estate is tangible and detached to a location. Effective managerial focus becomes more risky if properties are widely spread apart (Womack, 2012). Also, geographic dispersion of properties results to an increased likelihood of contracting for property management and costs associated with monitoring the dispersed ownership (Bers & Springer, 1997). Studies conducted on this topic prove that acquiring firm shareholders returns are lower, the further the transaction takes them from their central corporate focus.

According to Campbell et al. (2001; 2003), a wealth benefit is received by firms that reconfirms its commitment to geographical focus by property acquisitions. In reverse, they find a negative market reaction when the transaction increased the geographic diversification of acquirers. Geographical diversification is not beneficial to the modern REIT because it may limit economies-of-scale opportunities. This is demonstrated by Womack (2012), which also find substantial negative returns for acquisitions linked to geographical diversification. In contrast to the target firm, which experiences a benefit that is positive related to the distance of the bidder firm. It seems plausible that a local firm has more regional information and therefore is able to negotiate a lower or more fair price than remote bidders.

These results are inconsistent with the modern portfolio theory which states that to reduce unsystematic risk, investors should diversify by asset type and geography. For this reason, Florida & Roulac (2007) tested to what extent mean portfolio risk is reduced by property investments in several metropolitan areas in the US. Their findings suggest that the effectiveness of geographic diversification should not be overestimated. The marginal risk reduction from expanding into more cities diminishes quickly, which makes the choice of staying geographically

concentrated an obvious portfolio strategy. This is undeviating with Brounen & Koning (2012), which found superior risk-adjusted returns for geographically-focussed REITs, compared with their diversified peer, in a 1990-2010 time period sample of global REIT-returns.

## **2.5 Summarization and Propositions**

This section recapitulates the prior discussed literature and specially focuses on the findings of valuations effects of transactions by REITs. Further it presents two sets of hypotheses which will be tested in the next chapters.

### **2.5.1 Literature**

Recapulatory, the European listed real estate market is deviated in result of different legislations and national preferences of real estate investment vehicles. The often cited real estate cycle seems to be consistent for the European market. The outburst of the global financial crisis caused evaporated commercial real estate prices and consequently REIT indexes. Investors' sentiment and bad economic outlook brought REIT share prices under the long term average discount to published NAV. This indicates the European market still faces a downturn. Specialized REITs perform better when overall market conditions are not as favorable (Benefield, et al., 2009) and this is why investors should grant portfolio focus in the current market conditions.

The literature examined on property transactions and mergers remains inconclusive whether the diversification discount hypothesis holds for REITs. There is evidence that property-type focus is rewarding (Capozza & Lee, 1995; Geltner & Kluger, 1998; Ro & Ziobrowski, 2012) but other conclusions are contradicting (Ro & Ziobrowski, 2011). The results for geographical diversification are more unanimous (Campbell et al., 2001:2003; Florida & Roulac, 2007; Brounen & Koning, 2012, Womack, 2012). It can be hypothesised that geographical focus enhances REIT shareholder wealth. Each of the previous literature covered a specific time frame and examined real estate mergers and acquisitions from a different perspective. Therefore, the outcomes of these studies are not directly comparable and results remain inconclusive. Especially the resemblance with the European REIT-market is arguable since the characteristics of the market are different from the US.



**Table 2.3 Literature overview pertaining to REIT property transactions and mergers**

Authors	Year published	Wealth effect measured	Market	Sample period	Sample size	CAR Window	Estimation Window	Abnormal Return
Allen & Sirmans	1987	Acquiring REIT mergers	US	1977-1983	38	(-1,0)	(-120,-41)	+*
Glascock, Davidson & Sirmans	1991	Corporate sell-offs	US	1971-1986	51	N/A	N/A	Buyers: + Sellers: +
McIntosh, Ott & Liang	1995	REIT RE transactions	US	1968-1990	92	(0,+1)	(-200, -26)	Total sample: +0,63% Acquisition: +0,17% Disposition: +1,29%*
Campbell, Petrova & Sirmans	2003	REIT property portfolio acquisitions	US	1995-2001	209	(0,+1)	N/A	+0,5%*
Sahin	2005	REIT mergers	US	1991-2000	35	(-1,+1)	(-200,-21)	Target: +4,3%* Bidder: -1,2%*
Campbell, Petrova & Sirmans	2006	REIT property sell-offs	US	1992-2002	139	(-1,+1)	N/A	+0,8%*
Womack	2010	REIT mergers	US	1980-2007	94	(-10,+1)	(-120,-20)	Target: +5 – +6% Bidder: -1 – 0%
Ooi, Ong & Neo	2011	Property acquisitions	Asia	2002-2007	228	(-2,+2)	(-100,+10)	+0,38%*
Ro & Ziobrowski	2012	Property type portfolio change	US	1990-2009	678	(-1,+1)	(-250,-20)	Diversification: -* Focus: +

Note: \* refers to significant effect, +/- refers to unquantified effect

### 2.5.2 Abnormal Return Hypotheses

To draw conclusions pertaining to property transactions and portfolio strategies by European REITs, hypothesis must be tested. The first hypothesis (*H1*) arose from the question whether REITs face abnormal returns surrounding the announcement date of property transactions in general. The literature showed that for different sample periods, samples of REITs and event windows, REIT-shareholders gain returns different as expected (abnormal returns). None of these contributions can guarantee this is valid for European REITs after the outbreak of the global financial crisis in 2008. Therefore it is useful to repeat this research on a new constructed sample and re-examine whether the abnormal return hypothesis still holds. Because the literature is inconclusive and the sample exists of both acquisition and disposition events, the effect is expected to be neutral. This makes that null hypothesis *H1a* postulates there is no abnormal stock return measured surrounding the announcement date of a property transaction. The alternative hypothesis (*H1b*) postulates the contrary.

- *H1a: REIT shareholders gain no abnormal stock returns surrounding the announcement date of a property transaction.*
- *H1b: REIT shareholders do gain abnormal stock returns surrounding the announcement date of a property transaction.*

As stated in the problem definition, REITs can have different reasons to sell-off real estate assets after 2008. But also in a global financial crisis, capital is recycled and assets are acquired. To advice the REIT-market, it is interesting to test which event – acquisition or disposition – yields the most favourable effect. Prior research showed scholars distinguish there samples between the effects for acquisitions and dispositions, or only analyze one out of two subgroups. As shown in the literature overview (table 2.3) there consist no convention on the results of these subgroups.

In addition, the second null hypothesis (*H2a*) is in line with the previous and postulates there is no difference between the abnormal stock returns surrounding the announcement date of acquisitions and dispositions. Again, the alternative hypothesis posits the contrary and is adopted in case the null hypothesis does not seem to hold.

- *H2a: There is no significant difference between abnormal stock returns surrounding the announcement date of acquisitions and dispositions by REITs.*
- *H2b: There is a significant difference between abnormal stock returns surrounding the announcement date of acquisitions and dispositions by REITs.*

### **2.5.3 Diversification Discount Hypotheses**

Findings of prior research support the hypothesis that shareholders of equity REITs value greater corporate focus, not greater diversification, because they are able to create their own preferred forms of diversification by purchasing shares in more than one REIT (Campbell, et al., 2003). In case of real estate portfolios, diversification and focus can be measured in property-type and geography. To draw conclusions for both aspects they are hypothesized separately.

Geltner et al. (2007) argue that institutional investors prefer to make their own portfolio diversification decisions by employing property-sector focused REITs. This is supported by the evidence of Ro & Ziobrowski (2012) which found a significant negative market reaction to acquisition events that decrease property-sector focus. So we hypothesize that investors react positive to transaction announcements that increase property-type focus. This is tested dually through acquisition events that increase focus and disposition events that decrease diversification. Given the previous studies it is expected that the abnormal stock returns surrounding the announcement date of property transactions that contribute to property-type focus is positive. This results in the following null and alternative hypotheses:

- *H3a: REITs gain positive abnormal stock returns surrounding the announcement date of a transaction that contributes to property-type portfolio focus.*
- *H3b: REITs gain negative abnormal stock returns surrounding the announcement date of a transaction that contributes to property-type portfolio focus*

In line with property-type focus, the effect of more or less geographical focus associated with a property transaction can be tested. As the extant literature postulates (Campbell, et al., 2003) that REIT-shareholders gain positive abnormal returns surrounding the announcement of property transactions that reconfirm geographical focus, it is expected the results of this study are valid to this.

- *H4a: REITs gain positive abnormal stock returns surrounding the announcement date of a transaction that contributes to geographical portfolio focus.*

- *H4b: REITs gain negative abnormal stock returns surrounding the announcement date of a transaction that contributes to geographical portfolio focus.*

### **3. Methodology and Data**

In this chapter the methodologies to test the hypotheses are explained. It also describes the used data, selection criteria for this data, the composed variables and the relevance and expectation of the outcomes of this analysis. To be clear, the analysis consists of two stages. First the application of an event study that measures the abnormal impact of property transaction on the market value of a REIT. To check whether this effect is significant, statistic parametric tests (t-tests) are used. The second stage of the analysis is the explanation of the abnormal returns that are observed. As common in this field of research, this is done by the applying multiple regression (ordinary least-square). This part of analysis attempts to show which factors explain the abnormal effect. The results of the twofold analysis are interpret and discussed in chapter four.

#### **3.1 Even study methodology**

A standard event study is the most conventional and responsible tool to measure the impact of a specific corporate event on the value of the firm and typically consists of ten steps<sup>24</sup>. According to the semi-strong efficient market hypothesis (EMH) (Fama, et al., 1969), stock prices incorporate all relevant information that is available to market traders. The usefulness of an event study comes from the fact that, given semi-efficiency, the effects of an event will be incorporated immediately in security prices (MacKinlay, 1997). On the basis of the theory of Geltner et al. (2007) that REIT share prices reflect, among other things, growth opportunities as represented by their ability to make positive NPV acquisitions and dispositions, the financial impact of transaction announcements by REITs can be measured.

The *event* of this study are European real estate transactions in case were a European listed real estate company was a seller or a buyer. In chapter 2 is stated that there is a mechanism that justifies the abnormal stock price movement associated with transactions by REITs. The first stage of this analysis is to check whether this is valid for the European market in the 2009-2012 period. The abnormal returns are the observed returns that cannot be explained by the sole fluxes of the market as a whole. If they are statistically different form zero, it is likely the unusual returns are caused by the transaction announcements (see Fama, et al., 1969). The impact of the event is measured over a period of days which is called the event window. To validate the results, we use one-day, three-day and five-day event windows. In order to allude the results, two subsamples are compiled for acquisition and disposition events.

##### **3.1.1 Assumptions**

According the event study literature (McWilliams & Siegel, 1997) there are underlying assumptions for the identification of abnormal returns. It is meaningful to take not of these conditions because the interpretation of the final results are based on them. The first assumption

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<sup>24</sup> Refer for content of steps to Appendix I

is that markets are efficient. Market efficiency postulates that stock prices incorporate all relevant information that is known to market traders. If this condition is satisfied, all new financially relevant information that is initially revealed to the market will be quickly incorporated into stock prices. To identify an event, it must be recognized that it contributes new relevant information to the market.

The second assumption is that the studied events are unanticipated and the market did not have the information prior to the event. Precisely under this condition, abnormal returns can be assumed to be the result of the market's reaction to the new information available. But there exists a possibility the information from the event is anticipated or did leak out prior to the announcement. In this situation it is not certain when exactly investors took notice of the event and which stock price movement can be devoted to it. Therefore an event study is not always accurate and the results are less solid. The dynamics to handle this problem are discussed in the next section.

The third and last assumption to mention is the allegation the researcher has isolated the effect of an event from the effect of other events. It is assumed the event study is not biased with confounding effects such as announcements of quarterly or annual figures, declaration of dividends, changes in the company's management or – in case of REITs – the signing of a major leasing contract. Perhaps this is the most critical assumption of the event study methodology (McWilliams & Siegel, 1997). If the event windows of different corporate events overlap, it is impossible to filter out the sole effect of the event of interest. The length of the event window is hence an important factor that has influence on the likelihood of confounding effects.

### **3.1.2 Event Window**

The event window is the time-period which the stock price adjusts to the new information that is disclosed by the announcement of the event. There exists disagreement about the length of the event window. A one-day (0) event window is more ensuring to represent the initial price effect of the particular event being announced. Also if we assume semi-efficiency of the market (Fama, et al., 1969), prices adjust to new information in a small timespan. But there is a plausible probability that information about the event might leak upfront and causing purposeful trade in the days before the announcement. Especially property transactions, which inseparably involves another market participant (the seller or acquirer) that might have no interest in discretion of the deal specifics, are vulnerable for information leakage. As it is shown that leakage of information is likely, the window should include some time prior to the announcement of the event so that abnormal returns associated with the leakage will be incorporated (McWilliams & Siegel, 1997). The length of this period is difficult to determine since it is unknown when investors get information in advance, and what the content and accuracy of this information is.

Also the effect on the announcement date itself might not be representative for the market reaction. If the announcement reaches traders just before or after close of trading, the stock price cannot

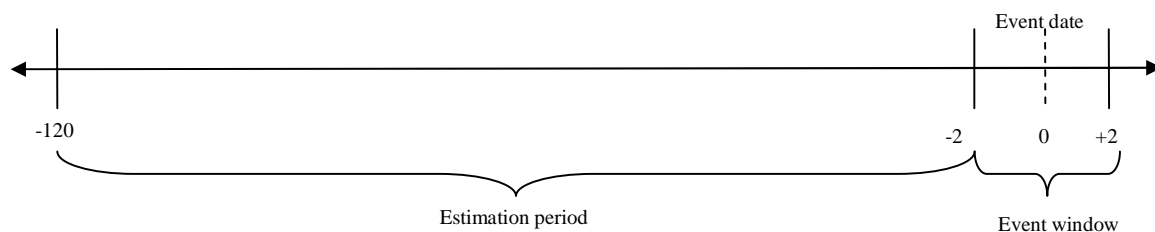
accurate adjust to the new information. There is also the overreaction of the market to new information. The initial shock effect an event causes to the stock price is often muted in the successive trading days. It is assumed the more *rational* long-term effect of the event is surfaced in this period. Therefore the event window should cover a period after the announcement date of the transaction.

Considering the prior, the event window should at least cover three days surrounding the announcement. By expanding this period it is more likely that relevant stock price movement is measured. But with longer event windows, the likelihood other events are covered in the window grows. So the choice of the length of the event window is a trade-off between the attempt to capture the relevant price effect and the risk of bias caused by other events around the announcement date. Because it is much more difficult to control for confounding effect when long event windows are used, an event window should be as short as possible (McWilliams & Siegel, 1997). Following extant real estate M&A event studies, the abnormal returns for different CAR windows is tested.

Following prior research, the CAR window that is used is set on a five-day window (-2,+2) around the event announcement date. Some studies use longer windows but in the end only find significant CARs on the interval of this five days. On the one side this should be sufficient to capture the sole effect of the announced event, otherwise it reduces the confounding effect of other corporate events around the timeframe<sup>25</sup>. In order to generalize the results, CARs are also obtained for a one-day window (0) and three-day window (-1,1). It is predicted that this will yield different results, because information might leaked out upfront and investors' might under- or overreact to new information (Fama, 1998). Following McIntosh et al. (1995), CARs are calculated for three samples. First the total sample with all transactions included. This will result in the abnormal effect of property transactions by REITs in general and is predicted to be neutral, as stated in *H1a*. To check whether there is a difference between abnormal returns between acquisitions and dispositions (*H2*), two subsamples are composed. The t-statistic is measured for all samples of CARs to check whether they are insignificant different from zero on the 90%-, 95%- and 99%-confidence interval. As common in event studies, the CAR window that provides the best capture of the event effect will later serve as the dependent variable in the cross-sectional regression. The estimation period used in prior event studies fluctuate between 79 days (Allen & Sirmans, 1987) and 230 days (Ro & Ziobrowski, 2012). To calculate the expected return during the event window, we used an average estimation period between -120 and -2 days of the event announcement, which is 118 days in total.

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<sup>25</sup> Although the sample is checked for confounding events and cases were deleted, there still is a change that other significant events which not reported on the corporate website, are affecting the stock price.



**Figure 3.1 Timeline event study, estimation period and event window**

### 3.1.3 Data selection

All property transactions within Europe in the period 2009-2012 are collected from RCA-database<sup>26</sup>. In these transactions was at least one – acquirer or seller – public real estate company involved. The selection starts with the deletion of companies that are constituents of the FTSE EPRA/NAREIT Developed Europe Non-Rental Index. In general, these companies are strongly exposed in real estate development and speculative land acquisitions. Therefore they have no tax-exempt on their earnings and are valued different. Also investment managers are deleted because they have no specific real estate equity to relate transactions to. The database includes all transactions by public real estate companies on European soil, which means non-European funds investing in Europe have to be excluded from the sample.

The RCA database also consists of street talk, approximations and estimations of real estate transactions. This data is not reliable enough to assimilate in the analysis. Also deal values of these transactions are often unknown. Hence, merely confirmed deals are selected to assure transactions really took place on the circumstances as displayed. These confirmation means that the transaction details are mentioned in an official press release on the companies' website, which ascertains the information is perceived by investors and incorporated in the share price. An incompletely informed market is a violation of the efficient market assumption. Apparently REITs time the announcement of transactions, because often the announcement date is inconsistent with the effective transaction date. One transaction is deleted because the official announcement date falls out the 2009-2012 sample period. A REIT estimates the effect an event might have on the stock return and compensate, if possible, bad with good news. If there occur other influential corporate events within three days around the announcement, the transaction is deleted. Overlapping event windows causing bias in the result and impede the attempt to filter out the sole effect of the transaction. To assure the quality of the deal is noticed by investors, solely deals with a confirmed cap rate are selected. The further use of this ratio is explained in section 2.3.4.

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<sup>26</sup> See appendix II for a step-by-step selection of the data sample

When a company announces an acquisition or disposition of a group of properties, it is plausible the transactions are part of one corporate strategic action and hence are aggregated. Following Ooi et al. (2011), the aggregate value of the properties is treated as a single event. This is not valid when a company announces acquisitions and dispositions at the same date or in case of different property types in the combined deal announcement. The opposite direction and the heterogeneity of the events cannot be interpreted in the results later on. This also applies to property swaps. These events are hence deleted. Further, there is no threshold applied for the minimal or maximal deal value of the transactions. It is reasonable to assume that the deal size influences the excessive stock return effect, but it is more profound to consider the relative deal size to the total market value of the REIT.

The breakdown of the total transaction sample over the 2009-2012 period is demonstrated in table 3.1. With a total of 232 transactions, the sample size is in line with Campbell et al. (2003) and Ooi et al. (2011) which both find significant positive abnormal returns for acquisitions. In general, the total sample size is above average of the common sample sizes used in extant literature (see table 2.3). Following Ro & Ziobrowski (2012) the sample is divided between acquisition and disposition events, and the question whether they are neutral or contribute to more diversity in the portfolio. The total subsamples for acquisitions and dispositions with respectively 121 and 111 transactions are still representative – if normal distributed – for enough statistical power in univariate and bivariate analysis. The lower level subsamples for transactions that are non-core ranging from 7 to 16 observations have statistical constraints for applying parametric tests. The distribution of this samples is monitored in order to consider non-parametric tests to determine whether the difference between the abnormal returns are significantly different from zero. Further, the transactions are reasonably equal distributed over the four-year sample period. The total deal value of the sample contains of slightly 16 billion euro with an average of 68,9 million euro. The subsample for acquisition events in the REIT's core market has the lowest (56,32 M€) and the subsample for disposition events with another property-type has the highest (119,99 M€) average deal value. Finally, the lowest deal value in the sample is for an industrial acquisition for 1,9 million by a Swedish company and the largest deal value is nearly 950 million euro for an aggregated retail acquisition by a Dutch REIT in Germany (see appendix III). This substantial difference is later compensated by applying the relative deal size to the market value of the firm as a control variable in the multivariate analysis.



**Table 3.1 Distribution of total transaction sample, acquisition and disposition subsamples, over the year 2009-2012**

Number of announcements	Entire period 2009-2012	Year				Deal value (€M) 2009-2012	Average deal value (€M) 2009-2012
		2009	2010	2011	2012		
<b>Total sample transaction</b>							
Total transactions	232	53	46	68	65	15.986,39	68,91
<b>Subsample acquisition</b>							
Total acquisition	121	14	26	44	37	7.833,95	64,74
Acquisition other property-type	7	1	3	2	1	586,19	83,74
Acquisition same property-type	114	13	23	42	36	7.247,76	63,58
Acquisition non-core market	16	3	3	4	6	1.919,89	119,99
Acquisition core market	105	11	23	40	31	5.914,06	56,32
<b>Subsample disposition</b>							
Total disposition	111	39	20	24	28	8.152,44	73,45
Disposition other property-type	16	5	6	3	2	2.655,13	165,95
Disposition same property-type	95	34	14	21	26	5.497,32	57,87
Disposition non-core market	12	3	2	5	3	827,70	68,98
Disposition core market	99	36	18	19	25	7.324,74	73,99

*Note:* acquisition and disposition events took place on European soil and were executed by European listed real estate companies between 2009 and 2012. The transaction had to be announced via a press release on the company's corporate website. The company's property type is determined by the subdivision of the FTSE EPRA/NAREIT sector indexes as of 2013; Diversified, Office, Industrial, Retail and Health Care. The core company's core geographical market(s) is determined by the portfolio weight per country as of 2011 according to EPRA. A market is defined as non-core when it represents less than 15% of the total portfolio.

### 3.1.4 Market Model

An abnormal return ( $AR$ ) is, as the term implies, a return that deviates from the expected return. The abnormal return is derived by subtracting the expected return from the actual return ( $R_{it}$ ). So to filter the abnormal price effect of REIT stock surrounding property transaction announcements, the expected return must be defined. To prevent a distortion of the analysis, we use indexed daily returns instead of absolute values to standardize the stock movement. There are several ways to compute abnormal returns. The most simple is the constant mean return model which uses the equity's average stock return as a benchmark. Because it is assumed the average return is constant over time, it does not allow for general market movements. More profound is the index model that provides the abnormal return by subtracting the market portfolio ( $R_{mt}$ ) return from the actual return. This model does allow for market movements but assumes each equity has the same risk and return characteristics as the market as a whole. Therefore the mean return and the index model are both inappropriate.

Finance literature applying event study methodology is undivided in the proposition that the market model is most suitable to filter the sole effect of the event on the stock return (Fama, 1998). The market model takes both market and equity risk into account. It assumes that the

return of the security is linearly related to the return of a market portfolio. It controls for the security's responsiveness to the market portfolio and unique security characteristics. This is accomplished by calculating the parameters  $\alpha$  and  $\beta$  for the estimation period (-120,-2). In the market model the expected return is estimated as follows:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \quad (3.1)$$

Which makes the equation for the abnormal return:

$$AR_{it} = R_{it} - (\alpha_i + \beta_i R_{mt}) \quad (3.2)$$

Where for both equations count  $R_{it}$  is the rate of return on security  $i$  over the period  $t$ , which is one day.  $R_{mt}$  is the rate of return of the value-weighted market index, which is soon further described. Parameter  $\alpha_i$  stands for the average return of the equity compared to the market average and  $\beta_i$  the sensitivity of equity's  $i$  return to the market return, i.e., the market risk of the equity. Error term  $\varepsilon_{it}$  is the unsystematic component of security  $i$  on day  $t$ . In the second equation is  $AR_{it}$  the abnormal return, which is the difference between the expected and the actual return.

The extant literature conducted on event studies on REITs were mainly focused on the US market. The commonly used market proxies are S&P500 and the Russel-2000 index. The sample of this study consists of REITs operating and listed on the European market, which makes this proxies not representable. As the European S&P500-equivalent, the S&P Europe 350 seems an obvious choice but includes no real estate companies. Therefore the STOXX Europe 600 is used as the benchmark portfolio to filter out the abnormal return of the event in the market model. This is an index with a fixed number of 600 components and represents large, mid and small capitalization companies across 18 countries of the European region. Because it also includes 29 REITs, it is a solid market representation and hence appropriate to measure the market portfolio return.

After we calculated the abnormal return for each security on a certain day, we obtain the average cumulative abnormal returns (CARs) for the one-day (0), three-day (-1,1) and five-day (-2,2) event windows. The mean cumulative abnormal return for a sample of  $N$  securities is given by:

$$CAR_{it} = \frac{1}{N} \sum_{i=1}^N \sum_{t=T_1}^{T_2} AR_{it} \quad (3.3)$$

Where  $T_1$  is the first day and  $T_2$  the last day of the event window. The expected CARs for the three windows is zero if there is no abnormal return effect around the announcement of property transactions. To check whether the abnormal effect is different for acquisitions and dispositions, CARs are calculated for these two subsamples.

### **3.2 Multivariate analysis**

Univariate and bivariate analysis of CARs on different event windows is inadequate and will lead to merely superficial results. As in line with extant literature, to explain the abnormal returns associated with property transactions by REITs, a cross-sectional ordinary-least-square (OLS) regression model is developed. Here the five-day CAR-window (-2,2) is used as the dependent variable, explained by two variables of interest and multiple control variables that are selected on the basis of prior literature. At the same time, regression is used as a robustness check for the relationship between CARs and focus/diversification.

#### **3.2.1 Assumptions**

Multiple regression is a statistical technique that can be used to analyse the relationship between one dependent and several independent variables. The regression variate forms a linear combination of the independent variables that best predicts the dependent variable (Hair, et al., 2010). It is a straightforward technique that can provide both prediction and explanation to the researcher. To judge whether this technique is appropriate for the research problem, the data distribution must meet certain assumptions to draw conclusions from the results.

##### *Linearity of the phenomenon measured*

The major assumption in case of multivariate analysis is linearity. A correlation shows the linear relationship, but a non-linear relations is not visible from a correlation coefficient (Hair, et al., 2010). Mutual relations are examined to reduce the risk the real relationship is underestimated. This is done by scatterplots of independent and dependant variables.

##### *Constant variance of the residuals*

The volatility of market model residual variances differ across firms over time (Binder, 1998). This makes the satisfaction of the homoscedasticity condition problematic because the presence of unequal variances. To check this condition is met, residual plots and statistical tests (Levene) are used.

##### *Independence of the residuals*

This assumption requires that the predicted value is independent and is not related to any other prediction. This is checked for visually by plotting the residuals of the variables against time. If there is no trend or slope noticeable in the cloud of points, the variables are independent at first sight. But it is plausible that AR's are not as independent as observed. The stock return for a given is firm is always time-based dependent and therefore called a time-series. Furthermore,

stock returns are heavily influenced by the general stock market movements and therefore heavily correlated with each other. Because we used the market model in the prior section, we filtered out the this general stock movement and derived cumulative abnormal return for a specific event. Also we checked for overlapping event windows for the same firms. In this case the CARs for the different events and REITs in the sample are assumed to be independent.

#### *Normality of the distributed residuals*

The most frequently encountered assumption violation is non-normality of the independent or dependent variables (Hair, et al., 2010). The first step to achieve normality is to standardize the variables which makes the mean zero and all variables comparable in one regression model. To assure the normality condition is met, a visual check of the histogram of the distributed residuals is performed. Take into account that the normality assumptions becomes less stringent with large samples. Over 200 cases it becomes even irrelevant and normality can be assumed (Norušis, 2012).

#### **3.2.2 Regression model**

Two linear regression models are constructed to give insight in the research problem. The first model is designated for the total sample (equation 3.4), the second (equation 3.5) for the subsamples, using ‘deal role’ as a selection variable. On the basis of extant literature there assumed to be a relationship between the independent variable (cumulative abnormal returns) and several control variables. The variables explaining whether a transactions leads to more or less property-type (*PROPF*) and geographic (*GEOGF*) focus are at our primary interest. Continuous variables are checked for assumptions for normality and transformations are made if necessary. In the regression, standardized residuals are used for making mutual comparison of regression coefficients possible. For an overview of variables, abbreviations, units and data sources see Appendix IV.

#### *Total Sample*

$$CAR_{(-2,+2)} = \alpha + \beta_1 PROPF + \beta_2 GEOGF + \beta_3 DEALR + \beta_4 DEALVALUE + \beta_5 DEALSIZER + \beta_6 CAPRATE + \beta_7 MACAP + \beta_8 LTVRATIO + \varepsilon \quad (3.4)$$

#### *Subsamples acquisition / disposition*

$$CAR_{(-2,+2)} = \alpha + \beta_1 PROPF + \beta_2 GEOGF + \beta_3 DEALVALUE + \beta_4 DEALSIZER + \beta_5 CAPRATE + \beta_6 MACAP + \beta_7 LTVRATIO + \varepsilon \quad (3.5)$$

#### **3.2.3 Variables of interest**

The variables of interest are emanated from the diversification discount hypotheses testing the possible effect of acquisition and disposition events associated with increased property-type and geographical focus.

#### *Property-type focus (PROPF)*

The first variable of interest is a dummy variable that explains the effect of property type focus and equals '1' if the transaction property type is unequal to the property-type identity of the REIT. The property-type identity of the REIT is determined by the subdivision of the FTSE EPRA/NAREIT sector indices. REITs that are constituent of the diversified index at the time of the transaction can only commit neutral transactions that neither increase or decrease property-type focus. Even if their corporate strategy proclaims transactions are driven by an increase in property-type focus. Subjective arbitrage on individual cases would confound the veracious level of the results.

As Ro & Ziobrowski (2012) find negative market returns on acquisition events that decrease property-type focus on a recent US sample, it is expected the coefficient of this variable is negative for the acquisition subsample. Further, they found (insignificant) positive returns of disposition events that increase property-type focus, hence the coefficient for the disposition subsample is expected to be positive.

#### *Geographic focus (GEOGF)*

The second variable of interest is a dummy for geographical focus and equals '1' if the country where the transaction takes place is unequal to the core-market(s) of the REIT portfolio. The core geographical market per REIT is determined by the country allocation of the property portfolio. A geographical market is defined as core if it represents at least 15% of the total weight of the portfolio. Country allocation of less than 15% is defined as non-core.

Like the dummy for property-type focus, there is a reverse relation expected for both subsamples. Ro & Ziobrowski (2012) find negative ARs for acquisitions in other geographical locations than the property portfolio already included. In addition, Campbell et al. (2003) find positive returns when REITs reconfirm their geographical focus in the acquisition. It is forecasted that the slope of dummy *GEOGF* is negative for the acquisition subsample.

### **3.2.4 Control variables**

#### ***Deal characteristics***

##### *Deal role (DEALR)*

DEALR is a dummy for the deal role of the REIT within the property transaction. The main reason to include this variable is to validate the bivariate analysis of the CAR-window. The variable equals '0' if the deal is an acquisition and '1' represents a disposition. In the total sample

no distinction is made between acquisitions and dispositions. Therefore it is hypothesized the effect of this variable is neutral and the coefficient is not statistically different from zero. This variable is omitted in the subsamples for acquisition and disposition events to avoid endogeneity error<sup>27</sup>.

#### *Deal value (DEALVALUE)*

Likely there is a positive relationship between the absolute value of a property transaction and the magnitude of a REIT's abnormal return surrounding the announcement of the deal. Large deals are more comprehensive followed by the market. Besides, with large deals comes more stakeholders, which makes the transaction more vulnerable for the leakage of information in advance of the announcement. It is plausible a larger deal causes more rumour and hence speculative trading than their smaller counterparts. The coefficient of this predictor is expected to be significantly positive. Furthermore, the market for larger and more expensive properties may tend to be thinner and less contestable (Ooi, et al., 2011). Hence we predict a positive correlation between the deal value and abnormal shareholder return.

#### *Deal size to market capitalization (LOGDEALRATIO)*

Deal size to market cap is a ratio variable that controls for the relationship between the relative deal size and the observed abnormal returns. We hypothesized there is no abnormal wealth effect for shareholder surrounding the announcement of transactions. But assuming there is, we expect the magnitude of the effect to be larger when the transaction is relatively large compared to the size of the REIT<sup>28</sup>. Relatively large deals are more close monitored by analyst and possibly resulting in substantial trading of REIT-stock, resulting in change of stock price.

#### *Capitalization rate (CAPRATE)*

The capitalization rate – or yield – is the ratio between the property value and the gross initial level of rent the property is able to generate. The yield is also a reflection of risk associated with the property, because it measures the investor's (in this case the REIT itself) perception of risk weighed against the rental growth prospects (Wilkinson & Reed, 2008). In theory, mature assets with low growth prospects and high risk perception have high capitalization rates. One can assume these are assets a REIT wants to sell-off and recycle the capital into assets with more growth prospects and better risk/return profiles. Ergo, assets with low capitalization rates. Because the market interprets a property transactions on the basis of the capitalization rate, it is expected there is an inverse relationship between cap rates of acquisitions and the observed

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<sup>27</sup> A binary grouping variable that still is applied in the subsamples cannot explain any variance of the dependent variable and therefore causing statistical implication in the regression model.

<sup>28</sup> Following Campbell, Petrova & Sirmans (2006)

abnormal stock movement surrounding the announcement of the transaction. In case dispositions this relationship is expected to be contrariwise.

### ***REIT characteristics***

#### *Market capitalization<sup>29</sup> (LOGMACAP)*

It is plausible that greater price discovery and larger increases in trading activity will be associated with larger REITs following the release of REIT-specific information like property transactions, vis-à-vis their smaller counterparts (Chatrath, et al., 2012). Also stock of the smaller subsection of REIT industry is expected to be less liquid, and therefore are not as informationally efficient as those larger REITs (Brounen & Koning, 2012). This suggestion is underpinned by the fact that larger REITs present less uncertainty about their valuation since they have higher levels of institutional ownership and are more closely covered by analysts. There also consists a basis that smaller-sized REITs have more opportunities for synergistic value creation through economies of scale (Ooi, et al., 2011). Therefore it is expected that there is an inverse relationship between the size of a REIT and the abnormal return around the announcement date of a property transaction.

#### *Loan-to-value of company<sup>30</sup> (LOGLTVRATIO)*

According the findings of Campbell et al. (2006), shareholder returns are lower in sell-offs motivated by the desire to reduce long-term debt. Now we cannot exactly subtract the underlying motivations from the data. So as common in this field of research, we use the annual average loan-to-value ratio as a control variable. As stated by Allen et al. (2000), risk of a REIT is expected to be positively related to its degree of financial leverage. When we equate risk with volatility and consider leverage is perceived negative by the market, abnormal returns associated with deal announcements are inverse related to leverage. So we expect the slope of this variable is negative.

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<sup>29</sup> Market capitalization is the share price multiplied by the number of ordinary shares in issue. This data is received via Datastream for every transaction event, one day prior the announcement.

<sup>30</sup> Total debt as % of total capital (Worldscope): (Long Term Debt + Short Term Debt & Current Portion of Long Term Debt) / (Total Capital + Short Term Debt & Current Portion of Long Term Debt) \* 100%.

## 4 Results

The findings of the analysis and the interpretation of them are defined in this chapter. First prima facie evidence of the descriptive statistics is displayed in section 4.1. The time course and the individual significance of cumulative abnormal returns are interpreted in section 4.2. To attain more statistical power on the univariate evidence, section 4.3 shows the findings and interpretations of bivariate analysis in the form of difference-of-mean tests and bivariate correlations. In an attempt to provide more profound explanation about the observed abnormal returns, results of multivariate analysis are described in section 4.4. Finally, section 4.5 provides insight in the limitations and problems the research encountered and the possible effect this had on the results.

### 4.1 Descriptive statistics

Table 4.1 presents summary statistics (minimum, maximum, mean and standard deviation) of 232 property transactions by European REITs, divided in three samples. The full sample which contains all analysed transactions and two subsamples for acquisitions and dispositions. We observe hardly any abnormal returns on the announcement date itself. When the event window becomes longer, the cumulative abnormal return becomes larger. This tells us that abnormal stock movement takes place before or after the effective announcement date. Prima facie, there seems to be no *substantial* difference between the cumulative abnormal returns for the subsamples. But to confirm this, more sophisticated analytics are required. We also see that the transactions that are not part of the property-type or geographical focus are in the majority<sup>31</sup>. Interestingly, the market capitalization (size) of selling REITs is twice as large as acquiring REITs. The difference in average absolute deal value is not in proportion with this. This might be caused by the fact that larger REITs introduce more extensive disposition programs. In general, larger REITs own more *prime* properties which are, notwithstanding the financial crisis, easier to dispose than their moderate counterparts. Furthermore, the average leverage ratios for buyers is larger than for sellers. This indicates there is no evidence – at least for this sample – that pressing down leverage is a major motive for REITs to dispose properties.

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<sup>31</sup> Beware of the reverse interpretation of the subsamples on property-type and geographical focus. For the acquisition subsample this means more diversity because of the increased exposure in non-core market. A disposition means the contrary because it decreases this exposure.



**Table 4.1 Descriptive statistics of 232 property transactions by European REITs and subsamples**

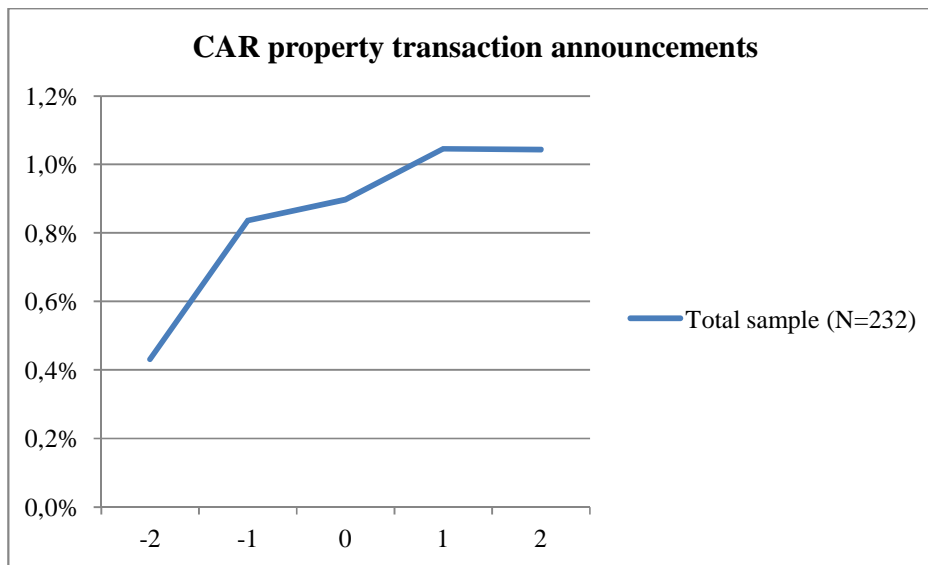
	Full Sample (N=232)				Subsample Acquisitions (N=121)				Subsample Dispositions (N=111)			
	Min.	Max.	Mean	Std. Deviation	Min.	Max.	Mean	Std. Deviation	Min.	Max.	Mean	Std. Deviation
<b>AR (0)</b>	-,125	,117	,001	,026	-,038	,033	,001	,014	-,125	,117	,000	,035
<b>CAR (-1,+1)</b>	-,189	,244	,006	,044	-,048	,069	,008	,025	-,189	,244	,004	,059
<b>CAR (-2,+2)</b>	-,169	,268	,010	,050	-,094	,093	,011	,035	-,169	,268	,010	,062
<b>Property-type focus</b>	0	1	,10	,299	0	1	,06	,234	0	1	,14	,353
<b>Geographic focus</b>	0	1	,12	,326	0	1	,13	,340	0	1	,11	,312
<b>Deal role</b>	0	1	,48	,501	0	0	0	0	1	1	1	0
<b>Absolute deal value</b>	1,9	949,1	68,9	104,4	1,9	949,1	64,7	107,1	4,3	667,8	73,4	101,8
<b>Deal value / REIT size</b>	0,14%	67,83%	4,98%	7,33%	0,14%	33,90%	4,94%	5,44%	0,18%	67,83%	5,02%	8,97%
<b>Capitalization rate</b>	0,00%	12,44%	6,76%	1,49%	0,00%	12,44%	6,80%	1,53%	3,50%	10,00%	6,72%	1,45%
<b>Market capitalization</b>	66	16.949	2.564	2.897	174	6.131	1.750	1.667	66	16.949	3.451	3.616
<b>LTV Ratio</b>	24,2%	83,6%	47,4%	14,3%	24,2%	70,9%	49,0%	14,1%	24,2%	83,6%	45,6%	14,4%

*Note:* The dummy for property-type focus equals '1' if the property-type is not in line with the pretended portfolio focus. Dummy geographical focus equals '1' if the property is not located in a core geographical market. Absolute deal value is in million €. Deal value to REIT size is based on the market capitalization of the REIT one day prior the transaction. Capitalization rate is the gross initial rent divided by the total transaction volume. LTV ratio is the reported annual leverage ratio from Worldscope, obtained via Datastream.

## 4.2 Univariate analysis

### 4.2.1 Announcement date CARs

Figure 4.1 contains a graphic of the cumulative abnormal returns measured for the surrounding five days of the effective announcement date of REIT property transactions. It shows that on  $t=-2$  the AR is already over 0,4% which indicates information about the transaction already leaked to the market and led to positive returns. In the day before the announcement ( $t=-1$ ) the CAR is doubled, indicating the AR for this day is from the same magnitude as the day before. Remarkably, the AR is substantially smaller for the day the information is formally confirmed by the company. There appears to be no significant positive or negative reaction when the official information about the deal is available. This might be the evidence that the ARs before the announcement date are mainly the result of rumour that feeds the market with (false) positive expectations. When the true information appears to be disappointing in the light of the rumour, investors might react neutral or even negative. Therefore the CAR on  $t=0$  is muted. On the day after the announcement ( $t=1$ ) the information is interpreted more profound which leads to a slightly better CAR. In the second day after the announcement, all public information is incorporated in the share price since the CAR is smoothed. Considering this, we can assume the abnormal stock price effect of transaction announcements by REITs is best captured in a *longer* event window of five days (-2,+2).



**Figure 4.1 Cumulative abnormal returns surrounding REIT property transaction announcements**

The assumption of market efficiency (Fama, 1998) does not seem to hold entirely for this results. If it did, we saw more significant AR movement on the announcement day itself. It appears the valuation of a property transactions is based on information leakage in advance, and the somewhat *delayed* interpretation of the official information on the day after the announcement. Hereby, the assumption that property transactions are unanticipated events is also violated. In general, we can say that all transactions are anticipated by the market due to the significant abnormal return effect in the two days before the announcement. Apparently, markets become speculative when rumours with leaked information are spread.

#### 4.2.2 Subsample CARs

The abnormal shareholder returns for all combinations of subsamples and event windows are displayed in table 4.2. At first, we observe positive abnormal shareholder returns for property transactions in general. For the one-day window on the announcement date we find a slightly positive and insignificant AR. This can have two causes. First the total sample consists of acquisitions and dispositions, which makes the measured abnormal effect neutral. Further, it can be a sign that the market indeed has no unambiguous response on the day of the property transaction announcement. As expected, CAR's are larger for longer event window since this is a cumulative measurement. The three-day window (-1,+1) CAR of 0,62% is very similar to the 0,63% McIntosh et al. (1995) find in their short event window for the combined transactions sample. In the longer five-day event window (-2,+2) a larger and more significant CAR is observed. This proves that information associated with a property transaction is leaked at least two days upfront the official announcement. Upon further examination (see figure 4.1), it can be postulated that it takes the market one day following the announcement to incorporate all relevant information in the share price.

In addition, we take a look at the acquisition subsample. Here we find little larger CARs than the total sample. The three-day and five-day event windows in this analysis provide significant positive abnormal returns surrounding the announcement of an acquisition, which is consistent with prior literature (Allen & Sirmans, 1987; McIntosh, et al., 1995; Ooi, et al., 2010). Since prior research used other continental REIT-markets and time periods, this result can be generalized and the abnormal shareholder wealth effect of acquisitions by REITs can be considered as more universal. Further analysis on the subsample shows that acquisitions in line with the current property-type focus, enhance shareholder value. This is consistent with previous results (Ro & Ziobrowski, 2012) indicating a positive relation between focus and shareholder value. Acquisitions that contribute to portfolio diversification by property-type are valued negative in the one-day and three-day, and slightly positive in the five-day event window. Due to the low sample size, the results are not significant and hence hard to interpret. When a REIT acquires a property that is unequal to the core geographical portfolio allocation, investors still seem to value this positive in the three-day event window. Though, the sample size is small and the result is significant on a 90%-confidence interval. Consistent with Campbell et al. (2001; 2003), a wealth benefit is observed by firms that reconfirms their commitment to geographical focus by property acquisitions. The results show significant positive CARs of 0,66% and 1,04% on respectively the three-day and five-day event window.

**Table 4.2 Cumulative abnormal shareholder returns for 232 REIT property transaction announcements and subsamples for one-day (0), three-day (-1,1) and five-day (-2,2) event windows**

	Obs.	AR (0)	Sig.	CAR (-1,+1)	Sig.	CAR (-2,+2)	Sig.
<b>Total sample transaction</b>	232	0,06%	,723	0,62%**	,035	1,04%***	,002
<b>Subsample acquisition</b>	121	0,08%	,533	0,79%***	,001	1,12%***	,001
Other property-type	7	-0,11%	,768	-1,05%	,352	0,36%	,797
Same property-type	114	0,09%	,496	0,90%***	,000	1,17%***	,001
Non-core market	16	-0,04%	,278	1,65%*	,071	1,68%	,19
Core market	105	0,16%	,256	0,66%***	,004	1,04%***	,002
<b>Subsample disposition</b>	111	0,04%	,908	0,43%	,445	0,96%	,106
Other property-type	16	0,16%	,895	0,30%	,883	-2,02%*	,093
Same property-type	95	0,02%	,959	0,45%	,427	1,46%**	,027
Non-core market	12	1,62%	,193	4,18%	,138	2,33%	,341
Core market	99	-0,15%	,647	-0,03%	,957	0,79%	,189

*Notes:* Daily equity returns are obtained with Datastream. The STOXX Europe 600 index is used as a market proxy for the measure of the market-model-adjusted returns.

\*Significantly different from zero at the 10% confidence level or better.

\*\*Significantly different from zero at the 5% confidence level or better.

\*\*\*Significantly different from zero at the 1% confidence level or better.

The event study results furthermore show that the announcement of dispositions provides positive insignificant abnormal returns. However, this result lacks of statistical power. We observe a significant negative market reaction (-2,02%) for dispositions that contribute to more property-type portfolio focus for a five-day event window. This does not meet the expectation that attaining more corporate focus is rewarding and inconsistent with the extant literature postulating this proposition. Because the relative low sample size, the measurement might be not that veracious and is hence arguable. Sell-offs of properties in line with the property-type focus is not penalized. Contrary, it is valued significantly positive. This might be explained by portfolio renewal through the sale of mature assets. There consists no evidence on this result regarding to more portfolio diversification. There can be many other motivations for property dispositions. Property dispositions of assets in non-core geographical markets are valued substantial positive but measurements lack of statistical significance. The CARs for dispositions of assets that are part of the core geographical market are varied and hence hard to interpreted. They also provide less statistical power.

### **4.3 Bivariate analysis**

#### **4.3.1 Difference of means**

In chapter two we hypothesized there is no difference between the CARs around the announcement date of acquisitions and dispositions by REITs. To test this, an independent-samples t-test is obtained wherefore three CAR variables are split up into two groups. The grouping statistics and the results of the test are displayed in respectively table 4.3 and table 4.4. Before starting with interpretation we take a look at the Levene's test for equality of variances. The significance for all variables is lower than ,005 which indicates that the variability of CARs between acquisitions and dispositions is significantly different (Norušis, 2012). Hence, we interpret table 4.4 from the second row; 'Equal variance not assumed'. As consistent with the abnormal return analysis in section 4.2.1 there is hardly any excessive stock movement on the day of the announcement ( $AR_{(0)}$ ). There is, of course, no difference between the two groups neither. For the three-day CAR there exists a 0,4% difference between the two groups. For the five-day CAR we observe a 0,2% difference. Because the confidence intervals including the value of 0, it is likely the population means are equal. The slight difference observed is not significant. The null hypothesis that there is no difference between the two groups is therefore adopted. This is consistent with extant literature that is inconclusive whether acquisitions or dispositions receive more abnormal returns surrounding transaction announcements.

**Table 4.3 Grouping Statistics**

	Deal Role	N	Mean	Std. Deviation	Std. Error Mean
AR (0)	Acquisitions	121	,001	,014	,001
	Dispositions	111	,000	,035	,003
CAR (-1,+1)	Acquisitions	121	,008	,025	,002
	Dispositions	111	,004	,059	,006
CAR (-2,+2)	Acquisitions	121	,011	,035	,003
	Dispositions	111	,010	,062	,006

**Table 4.4 Independent sample t-tests for acquisition and disposition CARs**

	Levene's Test for Equality of Variances		t-test for Equality of Means							
							95% Conf. Interv. Of dif.			
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper	
AR (0)	Equal variance assumed	17,404	,000	,126	230	,900	,000	,003	-,006	,007
	Equal variance not assumed			,123	144,083	,903	,000	,004	-,007	,007
CAR (-1,+1)	Equal variance assumed	19,386	,000	,620	230	,536	,004	,006	-,008	,015
	Equal variance not assumed			,601	144,754	,549	,004	,006	-,008	,015
CAR (-2,+2)	Equal variance assumed	7,061	,008	,251	230	,802	,002	,007	-,011	,015
	Equal variance not assumed			,246	171,666	,806	,002	,007	-,012	,015

### 4.3.2 Bivariate correlation coefficients

Before dispensing statements on the multiple regression results, we take a look at the partial correlation coefficient of the continuous variables included in the regression variate. To obey the assumption of independency of the error terms, the possible existence of multicollinearity is checked. This means that mutual correlations of predictors might not be too large because they can affect explanatory power of the model. Variables with correlation coefficients above 0,6 should be considered for deletion from the model (Hair et al., 2010). At least, all significant correlation should be explained.

In table 4.5 we see Pearson's correlation coefficients for the independent variable ( $CAR_{(-2,+2)}$ ) and the five standardized continuous predictors in the regression model. No correlations above 0,6 are found, which indicates the multicollinearity in the data is tolerable. The fact that there is no significant correlation between the independent variable and a single predictor is worrying because the accuracy of the model is in dispute. There appears to be a positive significant correlation between the absolute deal value (LOGDEALVALUE) and the relative deal size to market capitalization (LOGDEALSIZE). This is explained by the fact that the relative deal size is derived from the absolute deal value. The capitalization rate (CAPRATE) is negative correlated with both absolute and relative deal size. This means that larger deals are sharper priced and have lower cap rates. It seems logically that prime real estate with low cap rates is traded for larger

prices. The size of the REIT (LOGMARKETCAP) is positive correlated with the absolute deal value which indicates that larger REITs are able to acquire and sell-off larger and/or more expensive properties. This is explained by the fact that larger REITs have larger properties in stock and are able to acquire larger projects, in contrast to smaller counterparts. Interestingly, this finding is not supported by the correlation between REIT-size and relative deal value since it notes significantly negative. This suggest that larger REITs did not execute major transactions relatively to their size. Contrariwise, smaller REITs executed transactions with more impact on the total market capitalization of the company. This might be evidence that small REITs are more affected by the global financial crisis and have executed more extensive strategies, relatively to their portfolio size.

**Table 4.5 Pearson’s bivariate correlation coefficients for all continuous variables**

		CAR (-2,+2)	Zscore(LOGDEALVALUE)	Zscore(LOGDEALSIZE)	Zscore(CAPRATE)	Zscore(LOGMARKETCAP)	Zscore(LOGLTVRATIO)
CAR (-2,+2)	Pearson Correlation	1					
	Sig. (2-tailed)						
	N	232					
Zscore(LOGDEALVALUE)	Pearson Correlation	-,080	1				
	Sig. (2-tailed)	,227					
	N	232	232				
Zscore(LOGDEALSIZE)	Pearson Correlation	-,066	,556**	1			
	Sig. (2-tailed)	,317	,000				
	N	232	232	232			
Zscore(CAPRATE)	Pearson Correlation	,018	-,310**	-,243**	1		
	Sig. (2-tailed)	,790	,000	,000			
	N	232	232	232	232		
Zscore(LOGMARKETCAP)	Pearson Correlation	-,008	,399**	-,540**	-,047	1	
	Sig. (2-tailed)	,907	,000	,000	,480		
	N	232	232	232	232	232	
Zscore(LOGLTVRATIO)	Pearson Correlation	,021	-,227**	,256**	,107	-,512**	1
	Sig. (2-tailed)	,748	,001	,000	,104	,000	
	N	232	232	232	232	232	232

Notes: \*\*. Correlation is significant at the 0.01 level (2-tailed). Predictors are standardized and transformed if necessary (natural logarithm) to meet the assumption of normality of the residuals.

Absolute deal value is negative correlated with the leverage ratio (LOGLTVRATIO) of the company. This implies larger deals are executed by more conservative financed REITs. An explanation could be found in the fact that banks and other financiers apply more stringent conditions for granting corporate loans. Besides, how larger the loan, how more risk is involved and financiers can demand even a less levered balance sheet. The relation between leverage and relative deal size appears to be positive. This can be explained by the fact that smaller REITs sooner execute relative large transactions to their size and might be higher levered. The proposition that smaller REITs are higher levered is confirmed by the strong negative relationship between leverage and market capitalization. Possibly, larger REITs have better access to the capital markets and are more able to restrain leverage.

## 4.4 Multivariate analysis

### 4.4.1 Regression results

The output of the multiple regressions are presented in table 4.6, starting with the interpretation of the full sample. The constant is significantly positive and has a regression coefficient of 1,2%, which indicated the mean of the response when all explanatory variables are zero, is positive. A nonzero intercept term confirms the presence of abnormal returns (Buttimer, et al., 2005). The variables of interest cannot be examined for this sample because it depends on the deal role of the REIT how to interpret them. Consistent with the previous results, the dummy for deal role does not explain any variability of the distribution of the  $CAR_{(-2,2)}$ . This confirms again that there is no difference between abnormal returns from acquisitions and dispositions. Further, there are no deal characteristics that explain any significance variance of the dependent variable. Also REIT-characteristics have no explanatory value for the model.

**Table 4.6 Regressions of cumulative abnormal returns surrounding announcement date of property transactions of European REITs**

	Independent variables	Full sample		Subsample acquisition		Subsample disposition	
		$\beta$	Sig.	$\beta$	Sig.	$\beta$	Sig.
<i>Variables of interest</i>	<i>Constant</i>	,012**	,019	,011***	,004	,013*	,059
	Property-type focus	-,024**	,036	-,005	,728	-,034*	,065
	Geographic focus	,010	,347	,007	,458	,012	,553
<i>Control Variables</i>	<i>Deal characteristics</i>						
	Deal role	,000	,966	-		-	
	Absolute deal value	Excl.		Excl.		-,001	,943
	Deal value / REIT size	-,004	,317	-,004	,327	-,003	,727
	Capitalization rate	-,002	,611	,001	,835	-,003	,591
	<i>REIT characteristics</i>						
	Market capitalization	-,001	,760	-,001	,890	Excl.	
LTV Ratio	,000	,920	,000	,920	,002	,776	
	N	232		121		111	
	R <sup>2</sup>	,032		,019		,048	
	Adjusted R <sup>2</sup>	,002		-,033		-,007	

*Note:* Dependent variable is  $CAR_{(-2,2)}$ . Dummy for property-type focus equals '1' if transaction is *not* in line with the portfolio property-type. Dummy for geographic focus equals '1' if transaction takes place in a country that is *no* part of the core portfolio (core-market has at least 15% portfolio weight). In every sample one variable is excluded from the analysis because the explanation of the dependent variable was negligibly small. Dummy for deal role is not included in subsamples analysis because this is the selection variable for the subsamples.

\*Significantly different from zero at the 10% confidence level or better.

\*\*Significantly different from zero at the 5% confidence level or better.

\*\*\*Significantly different from zero at the 1% confidence level or better.

Outside the constant, any beta coefficient in the subsample for acquisition is significant. Disregarding this, we see a slightly negative market reaction (-0,5%) of acquisition announcements associated with more diversification of property-types within the existing



portfolio. This is consistent with the negative market reaction found by Ro & Ziobrowski (2012). Acquisitions that are not part of geographical focus, positively influence (0,7%) cumulative abnormal returns around the announcement date. Though the lack of statistical power, this result is inconsistent with Campbell et al. (2001; 2003) and Womack (2012), stating geographical diversification is penalized.

The beta coefficient for dispositions that contribute to more property-type focus is significantly negative. This is different than one would expect from extant literature, since Ro & Ziobrowski (2012) found substantial wealth benefits from dispositions that increase property-type focus. According to Ooi et al. (2011) we should expect a premium on corporate focus. Disposition of assets outside the core geographical market(s) is positively received, concluding that geographical focus is rewarded. Unfortunately this coefficient lacks of statistical significance. The impact of other independent variables is too little for reflection.

#### **4.4.2 Fitness of the model**

Although typical for studies on this topic, overall model fit is poor. Coefficient of determination ( $R^2$ ) deviates between 2% and 5% for the three models. This is consistent with regression results from Campbell et al. (2003) (3,2%), Ro & Ziobrowski (2012) (3,8%) and closely with Ooi et al. (2011) (6,5%). Another indicator of poor fitness of the model is the discrepancy of  $R^2$  and adjusted  $R^2$ . How larger this distinction, how less the model suits the data (Hair et al., 2010). Also adjusted  $R^2$  turns negative for the subsamples, which indicates the model contains terms that do not help to predict the response. The exclusion of this variables from the model did not solve this problem however. Another way to observe poor fitness are the low correlation coefficients of the independent variable and the explanatory variables. This means individual variables explain no or less variability in the distribution of cumulative abnormal returns.

#### **4.5 Research restrictions**

The findings of the analysis in this research are the result of the availability of data and decisions made by the researcher. Also the factor of convenience of data gathering and time limitations play a major role in the extensiveness of the dataset. Although the successfulness of the data gathering, not all topics discussed in chapter 2 are covered by the quantitative analysis. This affects the extent of the statements that can be derived from them. Nevertheless, we can only state conclusions of our sensual experience.

## 5 Conclusions and discussion

This chapter finalizes this research with the main conclusions from the analysis. Also it lights out what implications this results can have on the decisions of REIT management and REIT investors. Finally it provides a cross for further research on this topic.

### 5.1 Main findings

Applying event study methodology on 232 property transactions, REITs gain significant abnormal stock movement on the announcement day of a property transactions. It appears stock price adjustment to new information takes place in two days prior and one day after the announcement, not on the announcement day itself. This indicates the applied five-day event window is most accurate to capture the sole flux caused by the new information dispensed. Different as hypothesized, it can be concluded that on average, European REITs gain 1,04% cumulative abnormal returns *surrounding* the announcement date of property transactions. Null hypothesis one is thereby rejected. As expected, we found no evidence there is a significant difference between abnormal returns of dispositions and acquisitions. This means hypothesis two is accepted.

Acquisitions that reconfirm the corporate property-type focus are valued positive and significant with 1,17% on a five-day window around the announcement. In contrast, dispositions which yield more portfolio focus have a significant stock price effect of -2,02%. Consequently, hypothesis three cannot be communicate at once. We accept the null hypothesis that there exist positive CARs for *acquisitions* that contribute to property-type focus. Furthermore, we reject the null hypothesis that this is consistent for *dispositions*, since we observe a significant negative effect. We hypothesized CARs for transactions that contribute to geographic focus are positive and analysed results confirm this. Acquisitions that reconfirm geographical focus have a significant positive average CAR of 1,04%. Dispositions contributing to geographical focus observed a positive effect of 2,33%, although this is not significant and might be based on chance.

**Table 5.1 Hypotheses and conclusions**

	Postulation	Null Hypothesis	Alternative Hypothesis
H1	No abnormal returns around transaction announcements	Rejected	Accepted
H2	No difference between ARs of acquisitions and dispositions	Accepted	
H3	Positive CAR when transaction contributes to property-type focus	<i>Acquisitions</i>	Accepted
		<i>Dispositions</i>	Rejected
H4	Positive CAR when transaction contributes to geographic focus	<i>Acquisitions</i>	Accepted
		<i>Dispositions</i>	Accepted

*Notes:* For clear interpretation, hypotheses 3 and 4 are split up between acquisitions and dispositions. See section 2.5.2 and 2.5.3 for an overview of the initial null hypotheses and alternative hypotheses.

Further analysis of partial correlation coefficients showed that smaller REITs use more financial leverage and did relatively larger deals during the studied period. In general, smaller REITs have

weaker ties to the financial markets for raising equity and debt, in contrast to their larger counterparts. In a period with decreasing property values, the last resorting option to raise capital is liquidation of assets. That explains why smaller REITs relatively do larger portfolio changes.

Multivariate analysis to explain the observed abnormal returns yield poor results. Nevertheless it can tell us the event study results are robust and can be assumed more veracious. Besides, we can conclude that the variance of announcement day CARs *cannot* be explained by the set of control variables. This research is based on prior studies using data samples of US REITs which are situated in a large and heterogeneous market. It is possible that the European REIT market is still that divided and influenced by domestic factors, that obtained international data causes constraints during analysis.

## **5.2 Central question**

In general, the relation between property transactions, portfolio focus and the valuation of REITs on the stock market is strongly positive. For three out of four examined subgroups of focus we find positive abnormal returns in a five-day event window surrounding the official press release date of the property transactions that contribute to portfolio focus. Therefore the subtitle-question “does portfolio focus enhance value in the post-2008 era?” can firmly be answered with “yes, it does!”. This result reconfirms the gross of extant literature on this topic, but provides new evidence on the European listed real estate market.

## **5.3 Implications**

The conclusions of this research strengths the proposition REITs should consider to focus – if they did not already – on specific property types and geographical markets. In general, transactions that contribute to portfolio focus are value enhancing in the downturn period after 2008. So investors value portfolio focus not very different than periods before the global financial crisis that were examined by scholars. However, it is not irrefutable proved that transactions that contribute to diversification is always valued negative. For investors this provides the opportunity to diversify their own portfolio of specialized REITs. The abnormal returns surrounding property transaction announcement is explained by the appreciation of portfolio focus of investors. The two days prior the announcement yielding the main part of the abnormal return observed. This indicates information leakages and the rumour this is causing can be very effective for investors looking for short-term opportunities. For long-term investors it is useful the REIT focuses its strategy and does step-by-step transactions to increase market value.

## **5.4 Further research**

Few research is conducted on the topic of growth of the European REIT market. Especially the period after the global economic meltdown in 2008 really made conventional financial theories arguable. Hopefully, this study contributes on the effects of portfolio changes and the valuation effects of REITs in a capricious market. But to support the sector in attaining a sustainable period of growth, more profound research is necessary. A useful parameter for future studies might be

the discount to NAV, since we know a premium is an essential factor for financing growth. Possibly this is a substantial factor of determination of observed CARs associated with property transaction announcements. Further it is interesting to get deeper into the real underlying motives of REITs to acquire or sell properties. Often there is a discrepancy between what the REIT ideally should do – presented as their *strategy* – and what the REIT finally lives up to. Of course, more comprehensive market data is essential to gain more insight in this dynamics.

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## **Appendix I: Event study methodology**

Steps to implement an event study by McWilliams & Siegel (1997):

- Step 1: Define an event that provides new information to the market.
- Step 2: Outline a theory that justifies a financial response to this new information.
- Step 3: Identify a set of firms that experience this event and identify the event dates.
- Step 4: Choose an appropriate event window and justify its length, if it exceeds two days.
- Step 5: Eliminate or adjust for firms that experience other relevant events during the event window.
- Step 6: Compute abnormal returns during the event window and test their significance.
- Step 7: Report the percentage of negative returns and the binomial Z or Wilcoxon test statistic.
- Step 8: For small samples, use bootstrap methods and discuss the impact of outliers.
- Step 9: Outline a theory that explains the cross-sectional variation in abnormal returns and test this theory econometrically.
- Step 10: Report firm names and event dates in data appendix.

## Appendix II: Data selection

### Selection of all reported transactions by REITs on European soil in the period 2009-2012 (RCA)

Action	Deals left	Notes
<b>Total RCA Database</b>	<b>2.395</b>	Gratefully provided by EPRA, with permission of RCA.
Select confirmed deals	748	RCA database also consists of street talk, approximations and estimations. This data is not reliable enough to assimilate in the analysis. Hence, merely confirmed deals are selected to assure transactions really took place on the circumstances as displayed in the database.
Deselect investment managers	726	So includes REOCs, REITs and intuitional investors with a listing on a European stock exchange.
Deselect deals without known cap rate	411	A publicly known cap rate assures the market perceived the quality of the property and the deal.
Remove transactions by non-European companies	388	Non-European companies are not the topic of interest for this study
Remove transactions by constituents of the EPRA Europe non-rental Index	362	Non-rental companies are involved in property development and have a rather different structure than equity REITs.
Verify announcement date	266	Deals are only included in the sample if the transaction is official announced via a press release on the corporate website of the REIT. RCA dates that were not correct have been adjusted.
Remove compressed and excluded deals	232	See notes below.
<b>Total sample for analysis</b>	<b>232</b>	Includes 121 acquisitions and 111 dispositions.

*Notes:* In case of transactions of a group of properties, the transactions are compressed on the following conditions:

- The properties are acquired or sold by the same REIT
- The deals are announced on the same date
- Properties are located in the same geographical area
- When the property-types are similar
- It is plausible the transactions are part of one corporate strategic action and hence can be valued as one transaction

(If so, weighted average cap rate is calculated for the accumulated deal value)

Transactions are excluded on the following conditions:

- If the announcement of the transaction is accompanied by the announcement of one or more transactions and these transactions have different property types, geographical allocations
- If there are significant transactions two days surrounding the announcement date, preventing bias with overlapping event windows
- If there took place another major corporate event on the time-interval of two days around the announcement date of the transaction
- When the announcement consists of a swap of properties
- Transactions registered within time-sample, but effectively announced before 2009 or after 2013

## Appendix III: Companies included in analysis

Company Name	Property Sector	Core Market(s)	No. Transactions
A & J Mucklow Group plc	Industrial	United Kingdom	1
Alstria	Office	Germany	1
Befimmo SCA	Office	Belgium	2
British Land	Diversified	United Kingdom	37
CA Immo	Diversified	Germany	1
Citycon Oyj	Retail	Finland	3
Cofinimmo	Diversified	Belgium	7
Corio NV	Retail	France/Netherlands/Italy	7
Derwent London	Office	United Kingdom	5
Deutsche EuroShop AG	Retail	Germany	3
DIC Asset AG	Diversified	Germany	8
Eurocommercial	Retail	France/Italy/Sweden	5
F&C REIT	Diversified	United Kingdom	2
Fabege	Office	Sweden	4
Fastighets AB Balder	Diversified	Sweden	4
Fonciere des Regions	Diversified	France/Italy	8
Gecina	Diversified	France	3
Great Portland Estates	Office	United Kingdom	15
Hamborner AG	Diversified	Germany	6
Hammerson plc	Retail	United Kingdom/France	24
Icade SA	Diversified	France	1
Inmobiliaria Colonial SA	Diversified	France/Spain	1
Klepierre	Retail	France	3
Klovern AB	Diversified	Sweden	5
Kungsleden AB	Diversified	Sweden	14
Norwegian Property ASA	Office	Norway	2
NSI	Diversified	Netherlands/Belgium	3
Picton Property Income Limited	Diversified	United Kingdom	4
Primary Health Properties PLC	Health Care	United Kingdom	1
SEGRO	Industrial	United Kingdom	6
Silic SA	Office	France	2
Societe de la Tour Eiffel	Diversified	France	1
Sponda Plc	Diversified	Finland	1
Unibail-Rodamco	Retail	France	10
Unite Group Plc	Diversified	United Kingdom	4
VastNed Retail NV	Retail	France/Italy/Netherlands	9
Warehouses De Pauw (WDP)	Industrial	Belgium/Netherlands	3
Wereldhave NV	Diversified	Belgium/Netherlands/Finland	6
Wihlborgs Fastigheter AB	Diversified	Sweden	10

## Appendix IV: Variable overview

Variable	Abbreviation	Type	Definition	Unit	Source
$AR_{(0)}$	$AR(0)$	Ratio	Abnormal return on the announcement day	%	RCA, Datastream
$CAR_{(-1,1)}$	$CAR(-1,1)$	Ratio	Cumulative abnormal return on a three-day window around the announcement day	%	RCA, Datastream
$CAR_{(-2,2)}$	$CAR(-2,2)$	Ratio	Cumulative abnormal return on a three-day window around the announcement day	%	RCA, Datastream
Property-type focus	<i>PROPF</i>	Binary	Dummy equals '1' if transaction is not in line with property-type portfolio focus	0/1	RCA, EPRA
Geographic focus	<i>GEOGF</i>	Binary	Dummy equals '1' if transaction is not in line with geographic portfolio focus	0/1	RCA, EPRA
Deal role	<i>DEALR</i>	Binary	Dummy equals '0' for acquisition and '1' for dispositions	0/1	RCA
Absolute deal value	<i>LOGDEALVALUE</i>	Interval	Absolute transaction price	Million €	RCA
Relative deal value to REIT size	<i>LOGDEALSIZE</i>	Ratio	Relative transaction price pertaining to the size of the REIT (market cap)	%	RCA, Datastream
Capitalization rate	<i>CAPRATE</i>	Ratio	Gross initial rent, divided by property price	%	RCA
Market capitalization	<i>LOGMARKETCAP</i>	Interval	Total market value of shares outstanding, one day prior deal announcement	Million €	Datastream
Loan-to-value ratio	<i>LOGLTVRATIO</i>	Ratio	Average annual reported leverage ratio	%	Worldscope