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document version
Publisher's PDF, also known as Version of record

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RETAIL INVESTMENTS BY REAL ESTATE INVESTMENT TRUSTS

A Comparative Analysis of Local Retail Returns for the United States

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Abstract   PN966PKCG

This exploratory paper addresses the driving forces of real estate investment trusts (REITs). After a concise overview of the history of REITs in the USA, the success conditions of retail REITs are addressed by investigating the relationship between local retail rents and a set of local explanatory factors. A sequential regression method is deployed to identify the most prominent, statistically significant variables and to create a ranking of most promising metropolitan areas from an investor's perspective.

1. Introduction

Real estate has become a booming investment market, both internationally and locally. But the driving forces and behaviour of agents on this market may vary significantly. For example, with regard to international real estate, candidate investors need to choose between direct and indirect ways of investing. Does an investor want to own real estate by direct acquisition from the seller, or does he/she prefer to hold real estate assets by buying stocks from local real estate investment funds. For instance, Eichholtz (1996) argues that direct investing in local real estate requires (local) management and expertise, which is normally costly and time-consuming to build up. On the other hand, direct holding of real estate will guarantee direct and instant control over the local assets concerned. However, since local market knowledge is essential in making real estate investment decisions and since most investment funds aim to specialize in specific regions or cities, the authors claim that foreign investment in local real estate should always be practiced in a indirect way;

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outside investors can never compete with well informed local market players. Besides, for an outsider the liquidity of indirect real estate is greater (Brueggeman and Fisher, 1997; Han and Liang, 1995; Mueller et al., 1994). Against the background of these observations there is a need to evaluate the performance of indirect investment decisions.

This paper will focus on indirect equity real estate investment in the United States. Indirect real estate in the United States has already a long history, but it was not until the 1990s that this industry experienced a tremendous expansion. The market for public real estate in this country is nowadays bigger and more matured than anywhere else in the world. By January 2000, over 200 companies participated in the indirect real estate industry in the United States, with a combined market capitalization of $ 12,000 billion. These companies are called "Real Estate Investment Trusts", or simply abbreviated as *REITs*. This study will explore various aspects of REITs, by starting with an introduction into the current REIT business and offering next a more thorough examination of local market real estate investments of REITs. The main aim of the paper is to provide an empirical explanation for differences in profitability of equity REITs in the USA by means of a comparative analysis of local retail returns. This implies that the present paper addresses the following question:

In what way can the business activities of REITs be clearly portrayed, how can REITs optimize their investment strategy, and to what extent can local economic factors explain property returns, taking into account shareholders interests as well as local market features and developments over time?

2. Real Estate Investment Trusts: Structure, Development and Returns

2.1   Structure of the Real Estate Investment Trust

Although the concept of the Real Estate Investment Trust has existed in the United States since the 1880s, its modern structure was created in 1960, when President Dwight D. Eisenhower signed into law the Real Estate Investment Trust Act. This Act exempted REIT's from federal taxation, just like other investment vehicles such as stock and bond corporations and mutual funds. There would no more be double taxation of distributed income to the shareholder. Congress had created a proper means through which capital could be raised from a large pool of investors for

real estate investments, for which a great need arose after World War II (see Decker, 1997).

According to the National Association of Real Estate Investment Trusts (NAREIT), "*[a] REIT is essentially a corporation or business trust that combines the capital of many investors to acquire or provide financing for all forms of real estate*". REITs enable investors to avoid investing directly in real estate by acquiring stocks in an entity that is professionally managed, and whose mission it is to invest in and to add value to a portfolio of real estate.

There are three types of REITs. To be considered an *equity* REIT, at least 75% of the REIT's investment portfolio must consist of income-producing real property. *Mortgage* REITs are on the opposite end of the spectrum with at least 75% of their assets consisting of mortgage instruments, while *hybrid* REITs fall in between equity and mortgage REIT's (see Friday, 1999).

As of 2001, a REIT must observe the following provisions of the Internal Revenue Code, in order to maintain its REIT status (see Koch, 1998).

- Be organized as a corporation, business trust or similar entity
- Be managed by a board of directors or trustees
- Have shares that are fully transferable
- Have a minimum of 100 shareholders
- Have no more than of 50 percent of its shares held by five or fewer individuals during the last half year of each taxable year
- Invest at least 75 percent of total assets in real estate
- Pay dividends of at least 90 percent over its taxable income[1]
- Derive at least 75 percent of gross income from rents from real property or interest on mortgages on real property ("qualified income")

"Qualified income" is defined as rents received for the *"bare right to occupy rental real estate"*. This structure limited the (equity) real estate income to only a portion of what the industry felt should be considered real estate income. The first REITs were precluded from managing themselves or the real estate assets they owned, and they could perform only limited types of services. Consequently, the industry grew very slowly in terms of assets, earnings per share and share price

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[1] From 1976 to 1999, REITs had to pay 95 percent of their taxable income to shareholders.

appreciation (see for an overview Eichholtz, 1996; Hoesli and MacGregor, 2000; Walpole, 1999). The initial REITs offered five basic advantages to stockholders. These were:

− *Liquidity*. REIT shares can be sold on the open market like any other stock, providing a quick exit strategy for investors. Thus, they free investors from difficulties associated with selling direct real estate. Criticism has been raised concerning the true liquidity of REIT shares, since the relatively small size of the REIT market could oppose the selling of (some) REIT shares during falling stock prices.

− *Risk diversification*. REITs spread the risk of investing in real estate over many properties and geographic locations, thereby effectively diluting the risk inherent in investing in any single property.

− *Available capital.* REITs are able to tap into large pools of capital through initial and secondary public offerings, conventional financing and lines of credit. The relatively small denominations of REIT stocks permit both individual and institutional investors to invest in REITs.

− *Readily available information*. The daily trade of REITs in the open market generates a wealth of information on values of REITs shares to both current and potential investors.

− *Absence of cost and burden of direct management*. REIT shareholders do not have to be concerned with the day-to-day duties of managing the real estate assets, since they only have indirect possession of these assets.

After this concise presentation of basic knowledge on REITs, we offer in the next subsection a brief history of the development of the REIT industry.

2.2   Development of the (Equity) REIT Industry

Since the creation of the REIT constellation in 1960, the industry has developed itself with ups and downs. Federal monetary policy, changing real estate tax laws, and dynamic real estate cycles, among other things, exerted a big impact on the demand for REITs by investors. However, it was not until the implementation of the Tax Recovery Act of 1986 that the REIT industry experienced tremendous growth. This Act provided some very important incentives for private real estate

companies to go public, as well as favorable guidelines for REITs to substantially grow (see Decker, 1997). Nonetheless, it also encouraged a real estate boom, since banks and insurance companies created a huge market in development and

Figure 1 - Development of the REIT Industry 1990-1999 (in $ millions)
(SOURCE: *NAREIT*)
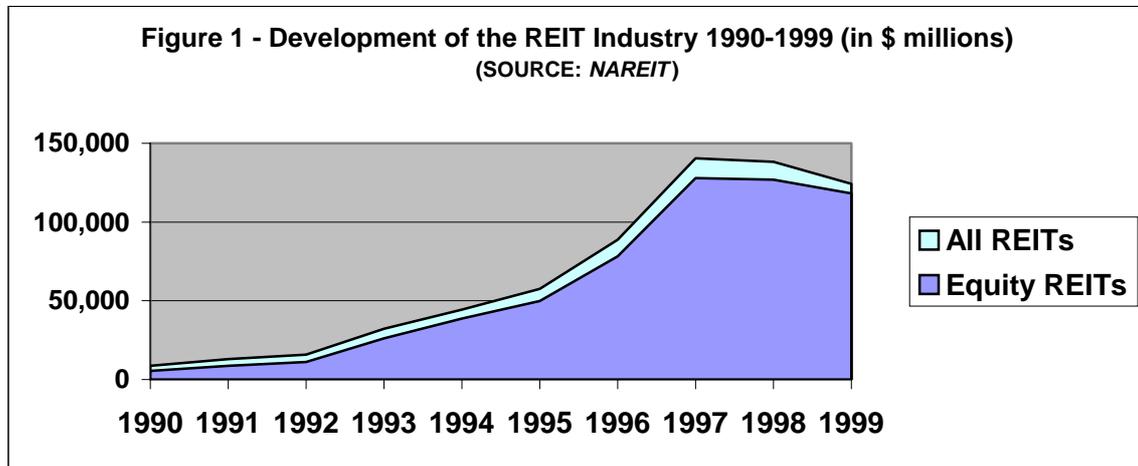
construction loans. These loan programs were so successful that by the late 1980s commercial property markets were overbuilt. The overbuilding of the real estate markets and regional recessions played a central role in one of the worst banking crises of recent decades (see Ghosh et al., 1998). However, new capital requirements, as set forth by the Financial Institutions Reform, Recovery, and Enforcement Act of 1989 (FIRREA), significantly reduced the supply of capital provided by commercial banks, thrifts, and insurance companies, causing the economy to slide back into a recession, and construction of real estate to slow down.

FIRREA did cause a turn-around in real estate fundamentals, and as the economy rebounded in the early 1990s, commercial property markets bottomed out, and more real estate companies turned to the public markets to raise capital (see figure 1). Hence, it has become obvious that the REIT industry has experienced a shocking growth during the 1990s. The industry has dealt with a period of impressive growth between 1992 and 1997, and some lack of investors' interest after that. Nonetheless, although property fundamentals experienced a healthy period, investors still have not yet turned back to REITs *en masse*. However, there is some evidence that this industry will face renewed interest, due to constitutional changes (REIT Modernization Act of 1999). This raises some important questions to be answered here tentatively.

1. It is most likely that, if investors will again favor REITs as investments, they will want to know exactly how REITs behave, in order to understand and analyse their future performance. Do REITs act like common stocks, or do they coincide with private market fundamentals after all? Furthermore, do their returns lead or follow returns of common stocks, respectively private real estate?
2. Should REITs diversify their investments across many different regions or concentrate in designated local economies, in order to optimize their regional investment strategy for their shareholders, and why?
3. Real estate returns are determined in local economies. What kind of regions would offer the most attractive investment opportunities for REITs?

These are issues that will be addressed in the remaining part of this paper.

2.3   Analysis of REIT Returns

In analyzing REITs, many investors and analysts have struggled with the question: What are REITs? Do they behave more like real estate or like common stocks? What are the fundamental forces driving their returns? Throughout the 1990s, many studies have tried to find correlation patterns of REIT returns with those of stocks and private real estate, in order to find out whether investors are able to diversify their portfolio by investing in REITs. Researchers have not always been consistent in their results, as some were convinced that REITs behaved more like common stocks, while others provided evidence for a more positive correlation with private real estate. The present subsection serves as an overview of studies on correlation patterns between REITs and other investment vehicles, with the underlying idea to determine to what extent REITs are influenced by property fundamentals in real estate markets. First, we will pay attention to correlation patterns between REITs and common stocks.

Taylor (in Garrigan and Parsons, 1997) argues that REITs have become less like private real estate and more like other securities throughout its development, because of the evolution of REITs into fully integrated, self-funded entities. As they move from a series of assets into an actively managed portfolio, traditional real estate analysis will become less valuable; instead, the valuation of other companies with similar market capitalization and growth rates has become a more important benchmark. In his motivation, the author discusses three fundamental components in the valuation of REITs: (1) a determination of the nature of the underlying cash flows,

(2) an assessment of the expected growth in cash flow, and (3) a calculation of an appropriate discount rate which is needed to offer a risk compensation for investors. Although the first component, the underlying cash flows, mainly applies to every real estate company, whether public or private, the other two parts seem to provide convincing reasons.. Most investors are attempting to beat a stock market index, like the Standard & Poor's 500 benchmark; so they seek to acquire stocks with relatively better growth prospects and higher rates of return. Therefore, REITs are in a way forced to concentrate on growth and returns, in order to avoid a negative "buy report" from market analysts. Their need to focus on investor's value could damage the REIT's current real estate assets; REITs with high expectations receive a premium on top of their asset value, while those with unfavorable outlooks are punished by a discount which could degrade the value of the company beneath the value of their assets. In conclusion, it is important for REITs to keep up with the growth rate of comparable assets, although this could harm the quality of their real estate assets. However, it is important to take into account the appropriate benchmark when analyzing the value of a REIT.

It can be concluded from the literature (see for an overview Klamer, 2000) that an assumed lack of positive correlation between an index for public returns (as proxied by the NAREIT Index) and an index for private returns (as proxied by the NCREIF Index) can mostly be attributed to differences in price settings and management issues. As REITs are exposed to a continuous price setting at the stock market, short-run property market fluctuations will be recognized faster, which results in more volatility. Furthermore, as they need to satisfy their shareholders, REIT management is forced to keep up with market standards for income distribution levels. REITs are in a continuous search of investment opportunities, and prefer to invest in weak local property markets, experiencing a downturn real estate cycle (i.e. counter-cyclical investment). Once property markets start to bottom out, REIT management will be rewarded for acquiring cheap properties.

Therefore, private and public real estate returns do correlate in the long run, as both businesses are driven by local economic returns, but public real estate tends to lead private real estate in the short run, because shareholders' demands force REITs to make rather opportunistic (risky, and more volatile) investments. This implies that REITs have to be very well aware of how to invest their capital. Increases in risks due to investments in weak markets should be accompanied by some "hedge" from returns

in less risky markets. The issue of local investment risks, and how to avoid them, will be discussed in the next section.

3. Regional Investment Strategies: To diversify or not to diversify ?

3.1 Regional Issues

Among the first authors to examine diversification benefits in real estate investments were Hartzell et al. (1986). Using a regional clustering of four U.S. regions (East, Midwest, South, and West), they reached the conclusion that current distinctions by region make little sense, because of low levels of systematic risk. The costs of diversification appear to outweigh the relative benefits. In other words, since the regions were so broadly defined, higher diversification benefits could be achieved by diversifying *within* the four regions, instead of across. Moreover, diversification across the relatively fragmented local real estate markets requires an extensive (and expensive) database of information, along with higher management costs due to the additional local expertise needed. The authors suggest that diversification within regions would lead to more benefits. Furthermore, they indicate that a more detailed clustering (by combining property type, metropolitan growth rate, and other common economic forces) offers more benefits in terms of diversification.

Grissom et al. (1987) and Cole et al. (1989) support these conclusions. By comparing naive diversification (achieved by randomly combining properties across many different geographic regions and property types) to diversification within a certain region, they reach the conclusion that the former is less efficient, due to a higher level of information costs and management costs, and therefore produces diversification diseconomies.

However, Miles and McCue (1984) have demonstrated that naive diversification, in the sense of adding more properties to an investor's portfolio, does provide substantial gains, since they found the unsystematic risk of real estate to be approximately 90 percent. That is, 90 percent of the risk associated with investing in a certain property can be explained by local market factors, and only 10 percent of its risk can be attributed to general real estate market developments. Their results led them to believe that even within regions, naive diversification would significantly reduce unsystematic risk, due to relatively inefficient regional markets.

Since the late 1980s, more focus has been put on defining regions based on economic (industrial) similarities instead of geographic boundaries. Hartzell et al. (1987) were the first to provide a more economically classified system of eight regions. These regions are supposed to be economically homogeneous, based on long-term economic trends, as well as geographically contiguous. The classification system, which is also referred to as the "Salomon Brothers eight economic regions", since they are part of Salomon Brothers' diversification strategy. The authors demonstrate that the eight-region categorization does produce lower interregional correlation coefficients, in contrast to the traditional four-region classification. And therefore, diversification across these eight regions should provide the investor with a significant reduction of unsystematic risk. The benefits of regional diversification – in general – is confirmed in other studies (see e.g. Malizia and Simons, 1991). Intra-city diversification benefits are established also in the empirical literature (see for example Williams, 1996 and Rabianski and Cheng, 1997).

The relevance of diversification for REITs in particular is demonstrated by Wilkerson (1998). Because of their need to meet today's expectations on earnings from shareholders as a publicly traded company, REITs have less flexibility when it comes to managing tomorrow's portfolio. This suggests that REITs have to pay extra attention to the markets (and related real estate cycles) they are investing in, in particular to the interaction of those cycles. When one market suffers from overbuilding, other investments in the portfolio could be in a favorable real estate cycle. Thus, REITs need to assemble a portfolio of investments in regional markets based on differentiated real estate cycles, to ensure they can satisfy their shareholders expectations in the long run.

Holden and Redding (1994) are among the first researchers to explore the national distribution of REIT property holdings, by examining the portfolio characteristics of the 25 largest REITs by the end of 1993. Their findings indicate that, in the upper segment, REITs on average do not invest in large Metropolitan Statistical Areas (MSAs) to the same extent as institutional investors do: 22 percent of REIT properties (by value) are not located in the 100 largest MSAs in the country, in which substantially all institutional-grade properties are located. Properties in the REIT portfolio are located in an additional 159 cities. Furthermore, the authors demonstrate that REITs individually tend to concentrate investments in a particular geographic region or property type. Finally, the largest REITs have the highest

concentrations in the Mideast and Southeast; they are least concentrated in the Midwest.

Shilton et al. (1996) analyzed the top thirty counties of institutionally owned real estate. They found that in 1993, 55 percent of all institutionally held properties were located in the 30 most popular counties, with California (greater Los Angeles area and San Francisco) and the Midwest (Chicago) at the top.

Pulling the facts together, these findings could indicate that REITs suffer from the "infant-industry-concept". That is, as REITs on average do not have the same capital base as institutional investors, they could prefer to specialize in relatively small markets, where competition of institutional investors is significantly reduced and market dominance could be more easily achieved.

In summary, identification and selection of potentially attractive regional investment markets requires knowledge of strategic diversification. To what extent can the chosen strategy provide the real estate investment company and hence its shareholders with optimal diversification benefits and sufficient property returns? Regarding this issue, much can be learned from studies that dealt with general real estate diversification and investment while, however, taking into account differences in responsibilities and owner expectations between private and public investment companies.

The most important findings include the fact that diversification should be based on economic differences between regions, and that geographic proximity is not required for an optimal interregional diversification strategy. Furthermore, large metropolitan areas tend to be higher interrelated with each other, because of their relatively more diversified, stable economies compared to smaller metropolitan areas. Most institutional investors therefore avoid smaller areas (less than 250,000 residents), because of higher levels of volatility (and hence risk). Nonetheless, these areas seem to offer attractive investment opportunities for REITs, as they can easier achieve local market dominance, and reduce costs on information gathering and expertise. They can "buy the city," or the local economy. Finally, REITs need to operate in a counter-cyclical way, to meet shareholders' demands, and are therefore in continuous search of potential growth markets. The issues here at stake are the following: How can REITs identify particular growth markets, what kind of "growth" should be focussed on, which variables do they have to analyse in order to comprehend investment opportunities, and how could these factors evolve over time?

These questions will be addressed in subsection 3.2, for one type of real estate specifically, viz. the retail sector. Why do we focus on retail? First, retail diversification has not been studied as much as other kinds of real estate. For example, regarding intra-city diversification benefits, studies on both office/industrial (see Rabianski and Cheng, 1997), and apartment (see Wolverton et al. 1997) diversification have been performed. More important however, is the fact that retail determinant, and retail forces are not straightforward identified. Office and industrial real estate are closely correlated to economic factors such as employment growth, industry growth, and the unemployment rate. Apartment real estate on the other hand, is largely affected by demographic factors, housing prices, and interest changes. Retail real estate however, is affected by both economic and demographic influences, and may therefore be considered more interesting to examine. Finally, as we will see, retail investments by REITs are much more spread out over the United States. This has to do with their tenants: Many REITs make compromises with national large retailers to locate their stores in REITs retail centers. By "contracting" these big retailers, the REIT is assured of a large customer threshold, which will reduce their investment risk, and hence increases their scope beyond certain regions, to a nationwide exposure.

3.2 Local Market Analysis of Retail

Retail real estate returns for REITs can be proxied by retail sales. REITs are legally forced to distribute 95 percent of their income (90 percent as of January 1st, 2001), so they will need to prioritize all factors that can have a significant impact on their current and future income. For retail real estate, income will be generated by rents from shopping centers and other retail real estate, which in turn are highly determined by local demand and supply of retail space. Since supply of retail space is rather inelastic in the short run, rents are determined by the (dis-)equilibrium between demand and supply, or by a relative over- (or under-)demand for retail space in a local market. This demand will be well ahead of supply when the market experiences an – for the developers unexpected – increase in retail sales, which may stimulate business expansions and attract new retailers. Consequently, the direct investor (REIT) as well as the indirect investor (shareholders of REIT) in retail real estate need to have due knowledge of those factors that have a crucial influence on retail sales, and moreover need to understand how changes in these factors have an impact on (future) levels of

retail sales, rents, and income[2]. First, we deal with retail sales and its determinants, and next we will focus on rent per square foot, which directly relates to retail sales and is also influenced by many factors.

Retail is a demand-driven industry. This demand is based on the purchasing power of consumers. Purchasing power is fundamentally determined by two sources: demographic factors (population) and income. Therefore, these two factors will be examined more thoroughly, as well as the impacts of changes in these factors on purchasing power and retail sales. The relationship between retail real estate and purchasing power is visualized in Table 1.

Table 1 – Relationship Retail Real Estate with Purchasing Power
REITs have to meet shareholder's expectations
Need for focus on income part of return on investment
Income determined by rent from retail activities
Rent is based on (short-term) demand for and supply of retail space
Local demand for retail space is derived from local retail sales
Retail sales depend on purchasing power of consumers
Analysis of factors affecting purchasing power

Demographic characteristics are one of the most important factors for retail activity within a regional market. Kateley (in White and Gray, 1996) mentions five demographic features that are of special relevance in retail demand analysis.

1. *Households and household formations*. As the base unit of consumption for retail goods, the number of households, their average size, and rate of growth are of particular importance.

2. *Household compositions*. Every type of household (singles, couples with no children, families, etc.) has a different purchasing profile.

3. *Age*. The age structure of population varies greatly from city to city. Proportions of older and younger people, as well as changes in these proportions need to be analyzed to understand their impact on retail sales.

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[2] When analyzing retail sales, one could imagine many other factors that in some way or another have an (indirect) affect on retail sales, viz. Internet sales. This section however, does not aim to provide a complete overview of all possible factors, but to examine only the most important sources of influence on local retail sales.

4. *Race and Ethnic Background*. Asian, Hispanic, and African-American populations, who are majority groups in many areas, have distinct retail preferences and shopping patterns.

5. *Immigrants*. The role of newcomers in many metropolitan areas should be included in retail analysis, because they account in large part for population growth.

Clearly, these demographic factors do not only differ among different metropolitan areas, but play also a role in the competition between retail activity in central urban districts and suburban locations (see also Gordon et al. 1998 and Sullivan 1990). Although the evidence from the literature is not unambiguous (see for more details, Klamer, 2000), some remarks can be made about the factors influencing the local economy's investment opportunities for REITs. First, lagged retail sales appear to be a good proxy for actual and future retail sales; however, these results may only be of significance for developers, who make use of short-term time horizons. They are concerned with short-run volatility in retail sales. Furthermore, some of these studies assumed new retail space to come directly to the market, which is unrealistic. Investors are of course concerned with short-run volatility, but perhaps even more with the magnitude of future retail sales in the (mid-) long term, since they have to deal with the implications of several emerging lags. Will demand still be in excess of supply taking into account all projects that are currently under development? Therefore, crucial socioeconomic factors should be included in the analysis. In short, the most important factors affecting retail sales are related to demographic factors and income levels.

These retail sales-determining factors have to be taken into account by REITs in the decision-making process of retail investments, in particular local economies. However, there are some other elements that REITs have to pay attention to, being an investor as stated earlier. The most important lessons are:

▪ REITs operate in a (short-term) counter-cyclical way and invest in markets with weak property fundamentals to eliminate income volatility, to benefit from short-term investment opportunities, and to avoid competition from institutional investors.

▪ The best opportunities for REITs appear to lie in medium-sized metropolitan areas, where competition of institutional investors is reduced and market dominance can be easier achieved.

- REITs need to take into account the interaction between real estate cycles of local markets, to ensure a well-diversified portfolio and hence satisfaction of their shareholders' expectations in the long run.
- Growth in earnings is the only way to meet shareholders' expectations, so REITs need to focus on (local) economies with demand well ahead of supply, resulting in rapid growth in occupancies and rent levels.

Because of these requirements, REIT management needs to be confident about their understanding of (retail) property cycles in local economies. It is important that REIT management has the capacity to comprehend in what stage of the real estate cycle its investments find themselves, and how this stage can be explained by socioeconomic factor in order to obtain insights into property return changes.

Regarding the entry in real estate cycles, Wilkerson (1998) demonstrates that REITs tends to be in markets with the greatest liquidity. Liquidity is minimal in a cycle when assets are cheapest. Pricing is then favorable (i.e., relatively low) to real values, real estate fundamentals are poor –so investors are nervous– and the flow of capital is frozen. Liquidity is also lowest at the top of the cycle when performance is strongest. Generally, investors are at that point pleased with the high returns they have received so far, neglect the oncoming downturn, and hang on to their properties instead of selling them. Therefore, the greatest amount of trading tends to occur on the way up the cycle; as a result, the largest percentage of REIT investments occur in regions well into the recovery stage. It is important for REIT management to recognize markets that are at the bottom of their real estate cycle, or in the early stage of recovery. The later the investment decision is made, the higher the probability that institutional investors will enter those markets: They generally avoid risky, volatile growth markets until it is certain that this growth will last for a certain period of time, or fundamentals are stabilized.

But which kind of local economies offer the best investment opportunities for REITs? Based on their limitations and shareholder's requirements, it appears that cities with the highest rates of growth offer the best investment opportunities for REITs. However, this implies more variations in returns and more investment risks; it is therefore important to thoroughly study the crucial factors that determine future levels of growth, in order to quickly respond to this with new supply, and capture a maximum level of additional rent increase revenues, without running the risk that

local economies will sooner than predicted fall into an economic downturn. Moreover, REITs need to avoid competition of institutional investors in these types of markets, since the latter do not have to take risky (volatile) investment opportunities. And finally, REITs can more easily capture a large part of the market, thereby creating market dominance, which provides them with the power of determining the levels of rent.

4. Empirical Analysis of Retail REIT Investments

This section will provide insight into some important characteristics of the market for shopping centers, and offer also an empirical description and statistical analysis of retail REIT investments. Data on REITs can be obtained from the National Association of Real Estate Investment Trust, or NAREIT. It is the umbrella organization of the REIT industry, which keeps track of REIT performance and its market capitalization, and provides links to all REIT-members, among other things. A total of 200 REITs are listed on its website, from which 50 have specialized on retail real estate.[3] However, not all of those 50 retail REITs could be used for analysis purposes; most of them have specialized further into a particular kind of retail real estate, such as shopping centers, regional centers and freestanding retail properties. To be able to generate mutual consistent results, one particular, rather homogeneous group has been chosen for our study purposes: "shopping center"-investing REITs.

4.1 Data description

There are 31 REITs in the dataset characterized as shopping center-specialized. Not all of those REITs could be used for our analysis purposes, due to data limitations. The main aim of our study is to empirically test to what extent investment returns can be explained by local market socioeconomic characteristics, and whether or not these characteristics have a significant influence in these local areas. Subsection 3.3 explored already the way retail investments by REITs can be measured by shareholders, based on income stocks. Generated levels of rent from investments should be sufficient to meet the shareholder's requirements. Therefore,

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[3] According to NAREIT, REITs are considered "specialized" if more than 75 percent of its assets are invested into a particular type of real estate (offices, industrial, retail, apartments, et cetera).

rent measured per square feet will be the focus of our explanation, by exploring the characteristics of a local market.

From subsection 2.3 it was concluded that local market dominance would offer favorable rent strategies for REITs. That would mean that markets should be analyzed at a small-scale level, or sub-market areas within larger (metropolitan) areas, since REITs cannot achieve market dominance in those large metropolitan areas. Moreover, shopping centers might be located between neighborhoods, or cities, to draw customers from more than one market place. The actual site might then sometimes be characterized as a rural area; exploring the characteristics of that specific area may not be possible or lead to biased results. Furthermore, as demonstrated before, large metropolitan areas tend to be higher interrelated with each other, because of their relatively more diversified, stable economies compared to smaller metropolitan areas. REIT should seek investment opportunities in smaller, more volatile markets. But data is not always publicly available for smaller markets, especially on the socio-economic factors to be used which can only be obtained on a larger, metropolitan or county level (see below). However, shopping centers have a wide threshold, and are able to attract customers from outside the specific area (neighborhood) they are located in. Therefore, exploring socioeconomic determinants for rent per square foot should in pricinciple offer interesting outcomes.

The United States Office of Management and Budget (OMD) defines metropolitan areas on the basis of the general concept of a core area, containing a large population concentration and adjacent communities that have a high degree of economic and social integration with that core area. These economically and socially integrated areas are known as MSAs. Currently defined MSAs have been effective in use for data analysis by the Bureau of Census[4] since 1990. Current standards provide that each qualifying MSA must include at least:

- One city with 50,000 or more inhabitants, or a Bureau of the Census-defined urbanized area of at least 50,000 inhabitants, and
- Total metropolitan population of at least 100,000 (75,000 in New England)

Nowadays, there are 310 MSAs in the United States. These MSAs are the crucial entity on which data is gathered for the database.

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[4] The Bureau of the Census is the largest publicly publishing information source in the U.S..

4.2   Outline of the Database

The database is built up as follows.

1. Data on rents per square feet, as well as on the investment regions are obtained from the U.S. Security and Exchange Commission (SEC). In addition to REITs, the SEC publishes annual financial reports on REITs. Since a number of REITs does not provide data on rents per square foot, a total of 9 REITs has been selected for further analysis. These 9 REITs contain a combined portfolio of 474 different shopping center properties.

2. These properties are located in different larger and smaller cities, villages, and counties. Their locations are grouped within MSAs, in descending order of rent per square foot. This is done in such way, that for all properties within each MSA total rent and square footage are summed up. Consequently, one number of rent per square foot is obtained for each MSA. This step is repeated until 50 different MSAs are identified; those MSAs contain thus the best performing properties measured by levels of rent per square foot.

3. Next, socioeconomic data on population, income and related factors is gathered. However, as mentioned earlier, not all desired information is publicly accessible and without charges; therefore sometimes data is somewhat dated or not available for all requested years. The actually used variables are summarized below (see Table 2).

4. The socio-economic factors will be analyzed on their explanatory ability of rent per square foot. However, the U.S. is also subdivided into 3,141 counties, which serve as administrative and local governmental areas. Some data is only published on county level, and not on a metropolitan level. To obtain the desired information, relevant counties are grouped within the MSAs they are part of. By doing so, the value-weighted aggregated totals of all counties will generate the required data on MSA-level.

5. In total, a number of 16 factors have been studied (see Table 2), with a total of 36 different variables. For instance, each sub-group of age (age brackets 35-54, 55-64, and >65), has been classified as exogenous variables. Furthermore, to analyse both short-term and long-term influences, many factors include both static short-term, and dynamic long-term values, which are all classified as different variables.

Some general indications can be presented on the expected impact some explanatory variable will likely have on retail rent; a positive or negative impact (see

also Table 2). For instance, as *Total Population* will expand, so will the level of retail sales, and thereby the levels of rent.

Table 2 – Explanatory variables		
Explaining Variable	Data Available	Correlation with rent
1. Total Population	1998, change over 1994-98	Positive
2. Household Size	1997, change over 1990-97	Positive
3. Population Density (Per Square Mile)	1998, change over 1990-98	Positive
4. Relevant Age Groups (35-54; 55-65; >65)	1996, change over 1990-96[5]	Positive
5. Ethnic Composition (White; Black; Hispanic)	1996	Positive
6. Population growth by nature (Natural growth; Immigration	Change over 1990-97	Positive
7. College Graduation	1990	Positive
8. Median Household Income	1997, change over 1993-97	Positive
9. Average Job Wage	1998, change over 1994-98	Positive
10. Total Personal Income	1998, change over 1994-98	Positive
11. Relevant Income Groups ($35-40,000; $40-50,000; and $50-75,000)	1990	Positive
12. Total Employment	1998, change over 1994-98	Positive
13. Total Farm Employment	1998, change over 1994-98	Negative
14. Unemployment Rate	1996, change over 1990-96	Negative
15. Social Securities Beneficials	1996, change over 1990-96	Negative
16. Retail Trade Earnings	1998, change over 1994-98	Positive
17. Per Capita Retail Sales	1992	Positive
Sources: U.S. Bureau of the Census; U.S. Bureau of Economic Analysis; Urban Land Institute; U.S. Bureau of Labor Statistics; Marcus & Millichap Forecasts		

4.3 Method of Analysis

After the data collection stage, we were in a position to perform a further statistical analysis in order to identify major drivers. A linear regression model was used to estimate the set of relevant parameters. Rent per square foot in 1999 is the dependent variable for which a number of independent (explanatory) variables is available. However, due to regression limitations in terms of degrees of freedom, it is not possible to use all 36 variables in the regression analysis at the same time. Therefore, a technique referred to as "Theil's sequential regression strategy" has been used to solve this problem (see Theil, 1971). This procedure works in the following way. First, all variables are measured on their individual impact on rent per square foot. The factors with the most impact (i.e. highest coefficient and/or highest level of significance, as measured by the T-value, and R^2) are selected as *true* independent

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[5] Change in age group for 1990-96 is only available for age group "above 65 years."

variables. Next, additional variables will be added individually to this set of variables, and total impact of true independent, and each additional variable is measured. Only those variables that add a significant impact to the set of independent variables are then included in the new list of "true" independent variables. The process of sequentially adding additional (leftover) variables will then start again, until an optimal set of independent variables is obtained. The steps in this process are conducted for both a set of theoretically determined variables, and an extended set of variables (see the previous subsection). The results of these estimates are presented in Section 5.

5. Results and Implications

In this section we will interpret our empirical results. The set of 36 variables has been analyzed and examined on their ability to explain variations in "rent per square foot of leasable shopping center area"[6]. First, the examination of the impact of each of the individual variables gives some preliminary insights into their individual (significant) influence on levels of rent per square foot. The outcomes of the clearly significant explanatory variables are presented in Table 3.

Table 3 – Impact of Individual Variables on Rent per Square Foot			
Variable	Coefficient		Standard Error
1. 96 POP 55-64	97,25875	(2,46427)	39,46758
2. 96 POP >65	28,56253	(2,343357)	12,18872
3. 90-96 % in SOC SEC BEN	8,753479	(2,851518)	3,069761
	t-value in brackets		

Apparently, only 3 out of 36 variables manage to influence the levels of rent per square foot: *1996 Population 55-64 years*, *1996 Population > 65 years*, and *1990-96 Change in Number of Social Security Beneficials*. Clearly, the individual R^2 for these variables appears to fall between 10 and 15 percent, so that on their own, the

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[6] Besides "rent per square foot" the same calculations have been performed for respectively "total rent per MSA", and "total gross leasable area per MSA." Unfortunately, data results were not very satisfactory for neither one of them, as only two true independent variables could be found for both total rent, and total GLA: *1998 Population Density*, and *1990-97 Change in Household Size*. In addition, the most explanatory set of variables reached a R^2 of only 26 and 20 percent, for total rent and tot GLA respectively.

independent variables are only partly capable of explaining the levels of rent per square foot. This first result may be explained by two things. Either these variables are not entirely suitable, up-to-date or complete for our analysis, or the levels of rent per square foot are determined at such a narrow-scaled (intra-city) level, that the underlying differences between sub-markets are not captured at the metropolitan level. A further exploration of the second argument is thus needed to create more insight on in this matter. Therefore, a portfolio of independent variables should next be composed, that is better able to explain variations in levels of rent per square foot. Table 4 provides an overview of the best possible set of independent variables, composed by using "Theil's sequential strategic regression"-technique.

Table 4 – Optimal Set of Variables on Rent per Square Foot*			
Variable	Coefficient	(T-value)	Standard Error
1. 98 TOTAL POP	$5,44^{E}$-07	(3,468547)	$1,57^{E}$-17
2. 96 POP >65	59,54624	(5,569662)	10,69118
3. 98 POP DENS	-0,00283	(-1,98502)	0,001428
4. 9097 % IMMIGR	-40,4171	(-2,44809)	16,50964
5. 9498 % PERS INC	16,57544	(2,872889)	5,769607
6. 90 HOUSEH \$40-50,000	-33,3757	(-3,48725)	9,570754
7. 98 FARM EMPL	-0,00014	(-2,6735)	$5,16^{E}$-05
8. 9498 % FARM EMPL	8,861712	(2,947762)	3,006251
9. 9096 % SOC SEC BEN	8.343026	(3,458093)	2,412609
10. 92 PER CAP RETAIL SLS	-0,00096	(-3,37862)	0,000285
R^2 = 0,650958			

*) constant included in the regression analysis (with coefficient 12.90)

All selected variables in this portfolio are statistically significant, and the R^2 has a value of 0,65. There appear to be several variables which have a significant positive influence on the levels of rent per square foot, including *1998 Total Population*, *1996 Population >65 years*, *1994-98 Change in Personal Income*, *1994-98 Change in Farm Employment*, and again *1990-96 Change in Social Security Beneficials*. Based on the theoretical considerations discussed earlier, it is no surprise that total population, as well as changes in personal income, and farm employment, are positively correlated to rent per square foot. The fact that population aged above 65 years is also positively related to rents per square foot, indicates that this age bracket has become more important as a group of shopping center-customers; their part of total population is increasing. Finally, a rather intriguing result is found for the change

in beneficials of social security. No clear explanation seems at hand for the positive relationship between rents per square foot and this determinant. Theoretically, those beneficials receive below average income, which might supposingly lead to a reduction in the demand for retail, and hence a reduction in rent per square foot. The only plausible explanation may be that, if in comparison to 1990 more people have received social security benefits, and if the unemployment rate did not increase, the aggregated demand for retail would increase too. Since actually the rate of unemployment generally fell in most MSAs over the last decade due to favorable economic conditions, it seems thus plausible that social security beneficials were able to significantly increase retail sales and rents per square foot.

Other variables, like *1990-97 Change in Immigration* and *1994-98 Change in Number of Households with Income of $40-50,000*, appear to have a significant negative impact on rents per square foot. Considering the increase in beneficials from social security, as well as the decrease on average in unemployment, the only explanation for a decrease in rents per square foot due to change in immigration is that, although these immigrants (both domestic and international) generally do find work, their income falls below the average income level of the local economy. Therefore, this leads to a reduction in rents per square foot. Next, the negative correlation with rents per square foot for the number of households with an income between $40,000 and $50,000 can likely be explained by the year of measurement of this variable: 1990. Normally, as earlier demonstrated, households in this income bracket are generally very well represented as customers of shopping centers, and one would expect a higher percentage of this group to be positively related to rents per square foot. So if the percentage of households in this income bracket in 1990 does not relate positively to increases in levels of rent per square foot in 1999, the only option left is a mismatch between the dates of measurement of the two factors. Income in general has increased over this period, and *rising* rents per square foot could therefore only negatively be explained by *static* percentages of households with an income between $40,000 and $50,000.

The rest of the variables, *1998 Population Density*, *1998 Farm Employment*, and *1992 Per Capita Retail Sales* have, although significant, no clear theoretical influence on the rent per square foot. Population density could have both positive and negative effects on rent levels, depending on competitor's actions and supply elasticity. Farm employment appears to have a significant value, but it is not quite

clear how the local economy does benefit from –or may be hindered by– a static value of farm employment. Clearly a decrease in total farm employment might indirectly lead to an increase in average level of income for the local economy, since farm employees receive below-average levels of income and finally, per capita retail sales in 1992 are significant, but appear to have only a minor influence on rents per square foot. It seems likely that, *static* retail sales for 1992 are simply too much out-dated to have a clear impact.

The R^2 for our regression results is .65, so that almost two-thirds of all variations in rents per square foot can be explained by 10 socioeconomic variables at the *metropolitan* level. This is quite satisfactory in the light of the uniqueness of real estate property (the site it is located on is unique). Visibility, access to the site, and other site-specific factors clearly have an impact on its returns, which can differ from the nearest-by located properties, (shopping centers in this case). Using this kind of analysis, REIT shareholders as indirect investors in real estate, who are often in lack of local market knowledge or expertise to analyse REIT returns (i.e. international investors), can explain up to 65 percent of REIT returns. Consequently, it is als interesting to select MSAs based on a thorough analysis of local market factors. The next step will therefore present an overview of these MSAs that on average perform best on all of the 10 significant independent variables.

Given our knowledge on the main factors that can explain local retail rents, we can now try to identify the best performing metropolitan areas on these variables. In doing so, a list is obtained of the MSAs that score best on the most explanatory variables, i.e., a list of high opportunity MSAs, based on site-specific data from our study. The list is obtained in the following way. From the database, containing 50 MSAs with the highest levels of rent per square foot, only those variables are selected that together have proven to be the optimal set of independent variables in explaining rents per square foot (see Table 4). For each variable, the scores of the (50) areas (MSAs) are sorted top-down, i.e., the MSA having the highest score for a specific explanatory variable is coming first. Subsequently, the top 15 of MSAs for each independent variable are gathered, through which a selected database of 150 MSAs (10 variables times 15 best performing MSAs per variable) is generated. Each MSA is then analyzed on its frequency of presence within this "Top 15 database" of 150 MSAs. The results are shown in Table 5.

Table 5 – Most Occurring MSAs for Top 15 of Key Independent Variables		
Number of Hits	MSA	Rent/GLA
7 Times:	• Phoenix-Mesa, AZ	11,38
	• San Diego, CA	10,18
6 Times:	• Naples, FL	11,04
	• San Francisco-Oakland-San Jose, CA	10,19
5 Times:	• New York-Northern New Jersey-Long Island, NY-NJ-CT-PA	17,73
	• Houston-Galveston-Brazoria, TX	11,30
	• Atlanta, GA	11,15
	• Los Angeles-Riverside-Orange County, CA	10,74
	• Chicago-Gary-Kenosha, IL-IN-WI	10,42
	• Miami-Fort Lauderdale, FL	10,06
	• Reno, NV	9,94
	• Modesto, CA	9,39
	• Dallas-Fort Worth, TX	9,02

From the 50 metropolitan areas, 13 MSAs occur at least 5 times in the top segment, based on the values for the optimal set of 10 variables. The highest ranking ones are clearly the sun states in the USA. Almost 50 percent of all "hits" in the top 15 database can be attributed to the above mentioned MSAs, and therefore these are the MSAs that may be seen as the most promising investment markets for shopping centers. This creates more transparency in the sense that rent levels are best predicted in these markets. This is in particular important for real estate investors who do not have local market knowledge on property performances, but may wish to invest in them directly, or indirectly by buying stocks of REITs that invest in these regions. This holds for investors from other parts of the U.S. as well as for international investors.

6. Conclusion

The crucial characteristic of the Real Estate Investment Trust-structure is the fact that a REIT is obliged to distribute 90 percent of its taxable income to shareholders. Therefore, REITs have to prioritize the level of rents received from tenants, as these are the fundamental values determining their income returns. Furthermore, its business activities are related to its investment strategy. When a REIT chooses to concentrate its investments in certain regions, it can benefit from efficient local management expertise.

REITs are in a continuous search of weak property markets, markets that are about to bottom out of their economic downturn. If REITs acquire properties in the cheapest period of the real estate cycle, they will receive great rewards for doing so, when property markets stars to climb again. After all, they can then benefit from local (increasing) market rents, while they have bought properties for below-market prices. Of course, this strategy contains a certain element of risk, and it is therefore very important to understand how property returns are explained. With a proper understanding and knowledge of changes in returns, they can screen markets for the best investment opportunities, and better forecast when and where to enter the market. Finally, smaller markets are not as diversified as the larger metropolitan areas, which makes them less volatile, because the area is less vulnerable to economic downturns in one or a few industries. This vulnerability is something REITs are looking for: It could provide them with attractive investment opportunities, if they manage to enter such markets.

Because REITs experience a lot of investment risk, they need to be sure that their other investments could absorb possible unprofitable investments. Therefore, it is very important to make use of a diversification strategy, which enables them to reduce portfolio risks as much as possible. In developing an optimal diversification strategy, REITs should take into account the fact that the success of diversification is solely determined by economic characteristics. Simply naive diversifying, by selecting regions that lie miles apart from each other, will not have the impact required, since these regions might have more or less similar economic bases. Even closeby situated large metropolitan areas could generate more diversification benefits, if they possess economically uncorrelated industries. Diversification benefits can also be obtained through intra-city investments and "buying the city", when regions are economically "vulnerable". Still, REITs need to constantly screen the market, to determine to what extent additional growth can be achieved, or when a downturn can be expected. It is therefore of great importance that they have insights into those factors that can explain local property returns. This has been the subject of the empirical part of this paper.

In our empirical analysis of retail REIT investments in shopping centres, we have found a compound set of determinants. More precisely, we detected 10 key factors that (out of 36 exogenous variables) provide the highest level of explanation on levels of rent per square foot. The big question is then of course: Why this set of

10 variables? It appears that it is the combination that improves the level of transparency. We have seen that on an individual basis, only three factors manage to have a significant impact on retail rents. Some implications on interrelations between these variables can be mentioned. The variables can, perhaps with the exception of 1992 Retail Sales, be broadly subdivided into two groups, viz. income-related factors and population-related factors. We can assume that within these subgroups, the variables are to a large extent correlated with each other. For instance, as total population increases, so will probably population aged above 65 years, and most likely population density too. Equally, as the percentage of social security beneficials increases over the period 1990-96 (and unemployment falls), personal income will experience an increase during the same period. The relative position within this set justifies their "selection" of optimal rent-explaining variable. The combination of factors offers the best clarification on retail rents, because on the one hand they *correlate* with each other; however, on the other hand they also provide a *complementary* impact in explaining rents. This issue deserves to be examined in further research.

Although our research has tried to analyse several local investment-related matters, some important things need to be examined more thoroughly. For instance, to what extent and in which way can correlations between rent-explaining variables be investigated in order to improve "explanatory power?" How do these variables interrelate through time, and how can the combination of static and dynamic variables in one dataset be improved, without damaging their combined explanatory power? Mutual inter-relating forces between retail rent-explaining determinants should therefore be the focus of future research on local (retail) real estate returns, besides more site-specific socio-economic information on expenditure patterns of households. Such information is also necessary to understand the changes in retail activity in central parts versus suburban locations in metropolitan areas.

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