

Rational Differences Between Public and Private Real Estate

May 2004

Research

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Two ownership markets – public and private – compete for commercial real estate. Although real estate has been traded in the private markets since before the creation of any organized exchanges, the dramatic growth of the REIT market since 1993 has enhanced the status and influence of the public market. In today's environment, the public market is as important as the private in shaping trends in the industry. Furthermore, investors have a genuine choice between public and private vehicles to gain exposure to real estate.

While the objectives of public and private real estate vehicles are often similar, and the underlying assets in which they invest may be the same, the performance characteristics of the vehicles themselves can differ dramatically, particularly over relatively short time horizons. As the historical returns of REITs and private real estate demonstrate, the two markets are not perfectly aligned. The most important difference between the two markets, however, is the significantly higher volatility of the public markets.

The differences between public and private real estate investment performance are frequently attributed to inherent flaws in private market benchmarks, such as the NCREIF Property Index (NPI). Many believe that these "flaws" are caused by deficiencies or inefficiencies in measuring private market investment performance. To be sure, some of the criticisms of private real estate benchmarks are valid, and limitations exist as to how a benchmark like NCREIF's should be utilized. But the "flaws" in private market benchmarks have become a scapegoat to explain any and all performance disparities between the two markets.

The differences between these markets are important and rational. In this paper, we advance two hypotheses, the sentiment theory and the marginal investor theory, to explore the sources of the public market's higher volatility. The public and private markets are often subject to different and differing degrees of powerful sentiment gyrations. At times, these forces cause the public and private markets to deviate from each other in their implicit pricing of underlying assets. Furthermore, the different investor constituencies – private real estate investors are almost exclusively

long-term investors, while investors in public securities may be both long and short term – clearly define the two markets. As a result, the public market provides greater liquidity along with higher volatility. The private market provides more stability, but with less liquidity.

Key Performance Characteristics

Analysts and investors typically evaluate investments (or asset classes) using three key performance characteristics: return, volatility and correlation. For real estate investments of all types, these attributes are partly determined by the fundamentals of the underlying assets, which include property-specific features, such as property type and quality, and market-specific features, such as vacancy rates, rents and local market practices. However, the nature and structural characteristics of the vehicles and markets (public and private) in which the assets are owned and traded also affect return, volatility and correlation.

Exhibit 1 shows the historical returns for US public equity REITs and private real estate investments. Although the magnitude of return differences varies from year to year and over the different time intervals, it is clear that public and private real estate investments historically have performed differently. Over the longer term, however, the returns have been more comparable. The generally higher historical returns for REITs are due, at least in part, to REITs tending to use 30% to 50% leverage, while the NPI is unleveraged. Many REITs also generate additional earnings from property management and other tenant services that are not reflected in the NCREIF returns.

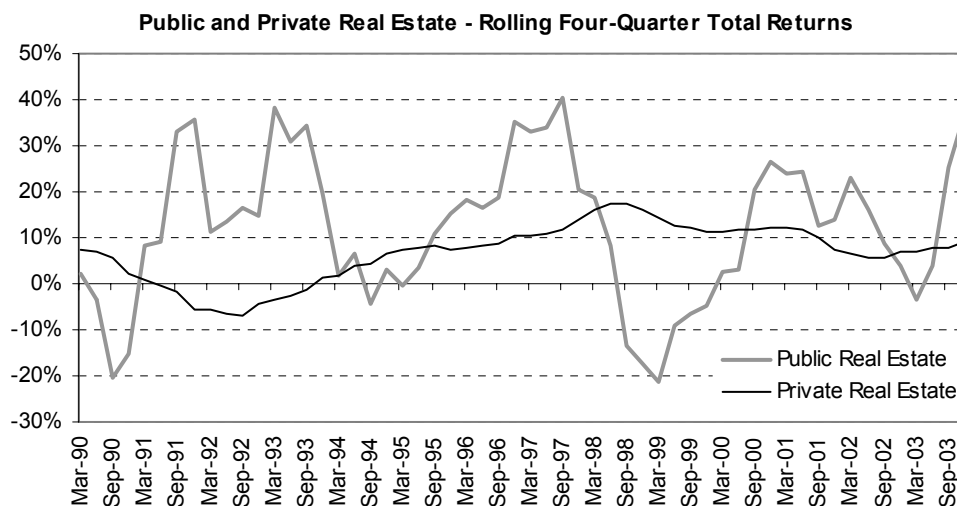
	Public Real Estate	Private Real Estate	Difference (bps)
1990	-15.4%	2.3%	(1,770)
1991	35.7%	-5.6%	4,130
1992	14.6%	-4.3%	1,890
1993	19.7%	1.4%	1,830
1994	3.2%	6.4%	(320)
1995	15.3%	7.5%	780
1996	35.2%	10.3%	2,490
1997	20.3%	13.9%	640
1998	-17.5%	16.2%	(3,370)
1999	-4.6%	11.4%	(1,600)
2000	26.4%	12.2%	1,420
2001	13.9%	7.3%	660
2002	3.8%	6.7%	(290)
2003	37.2%	9.0%	2,820
3-Year Return	17.5%	7.7%	980
5-Year Return	14.4%	9.3%	510
10-Year Return	10.7%	9.9%	80

Sources: NAREIT; NCREIF; Prudential Real Estate Investors

Remarkably, the return series reveal several years during which public real estate investment returns were negative while private returns were positive, or vice versa, but not a single year since 1990 when returns for both public and private real estate were negative.

Exhibit 2 shows the rolling four-quarter returns for US public equity REITs and private real estate since 1990. It clearly shows the most important difference between the performance characteristics of the private and public markets: the significantly higher volatility of public REIT returns versus private real estate returns.

Exhibit 2: Rolling Four-Quarter Returns Reveal Volatility of Public Returns



Sources: NAREIT; NCREIF; Prudential Real Estate Investors

Annual public market returns have varied much more dramatically from year to year than private real estate returns (see **Exhibit 3**). Since 1990, private property returns ranged from as low as – 5.6% in 1991, at the bottom of the early-'90s real estate market crash, to as high as 16.2% in 1998, with an annual standard deviation of 6.2%. Annual returns for public REITs, in comparison, have ranged from as low as –17.5% in 1998, the peak year of private real estate returns, to as high as 37.2% in 2003, with an annual standard deviation of 17.1%.

Exhibit 3: Investment Performance Volatility

	1990-2003	1994-2003
Public Real Estate	17.1%	16.5%
Private Real Estate	6.2%	3.2%

Sources: NAREIT; NCREIF; Prudential Real Estate Investors

Admittedly, some of the difference in volatility may be due to weaknesses in the NPI, such as smoothing due to staggered appraisals, which artificially understate the true volatility of the assets. But even with such weaknesses in the private benchmark, investment performance and, by implication, the pricing of the underlying assets has differed significantly in the public and private real estate markets. Further, these episodes of misalignment can persist for a surprisingly long time – much longer than the appraisal lag explanation would support.

Exhibit 4, which shows the correlations between public and private real estate and other major asset classes from 1984 through 2003 (using quarterly data), highlights two important aspects of public and private real estate returns. First, as the different return series for public and private real estate suggest, the correlation between the two markets is quite low. In fact, over the 1990-2003 period, public and private real estate returns in the US were *negatively* correlated. Second, the correlations between public real estate and the other major asset classes are generally much higher than the correlations between private real estate and stocks and bonds. As shown, public equity REITs are more highly correlated with small cap stocks, particularly small cap value stocks.

Exhibit 4: Public Real Estate Returns More Highly Correlated with Other Asset Classes

	Public Real Estate	Private Real Estate	S&P 500	Small Cap Growth	Small Cap Value	7-10 Yr Govt./ Credit Bonds
Public Real Estate	---	-0.07	0.43	0.55	0.73	0.13
Private Real Estate	-0.07	---	0.00	-0.14	-0.13	-0.15
S&P 500	0.43	0.00	---	0.84	0.68	-0.07
Small Cap Growth Stocks	0.55	-0.14	0.84	---	0.76	-0.09
Small Cap Value Stocks	0.73	-0.13	0.68	0.76	---	0.05
7-10 Yr Gvt./Credit Bonds	0.13	-0.15	-0.07	-0.09	0.05	---
Average	0.35	-0.10	0.38	0.38	0.42	-0.03

Sources: NAREIT; NCREIF; Ibbotson Associates (Wilshire small cap growth and value stock indices and Citigroup bond indices); Prudential Real Estate Investors (correlations based on quarterly data)

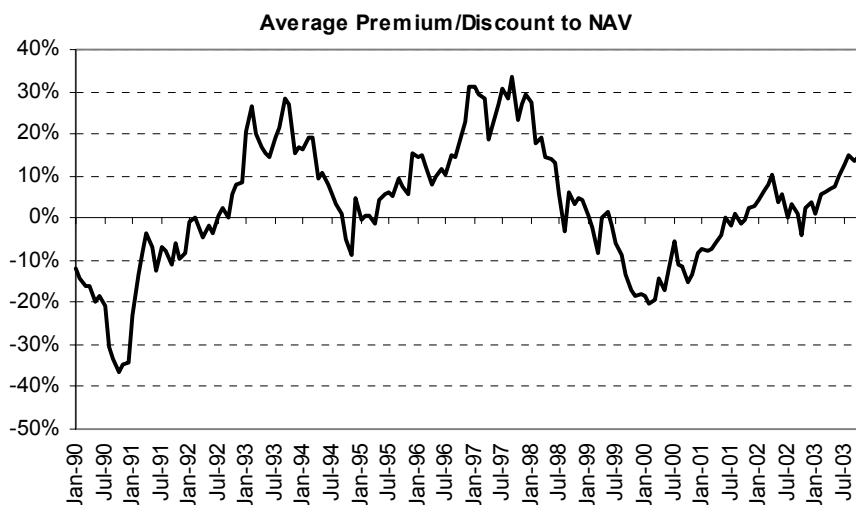
Although the low correlations between public and private real estate and the higher correlations between public real estate and other major asset classes are important characteristics of the public and private real estate markets, both features are largely byproducts of the factors that raise the volatility of public real estate, namely fundamental differences in the sources of capital and the drivers and velocity of capital flows. Two theories, the sentiment theory and the marginal investor theory, help illustrate why the public and private markets periodically diverge.

The Sentiment Theory

In their simplest form, publicly traded real estate securities represent partial, indirect ownership interests in the underlying assets in a real estate portfolio, much the same way that mutual fund shares represent partial interests in the underlying stocks in the mutual fund portfolio. Like closed-end funds, however, real estate securities often trade at share prices that differ from the net asset value (NAV) per share implied by the underlying assets. **Exhibit 5** shows the historical relationship between REIT share prices and estimated NAVs per share. As the chart clearly shows, sometimes REITs trade at a premium to NAV, while at other times they trade at a discount.

While numerous factors affect the pricing of the securities relative to their underlying NAVs, the relationship between REIT share prices and property values is not static. Rather, share prices have been much more volatile than the underlying asset values. In essence, the NAV premium or discount is an additional layer of volatility that exists in the public markets. The volatility of real estate share prices, therefore, can be viewed as the sum of the volatility of the underlying assets and the volatility of the NAV premium or discount.

Exhibit 5: Real Estate Securities Seldom Trade at Net Asset Value (NAV)



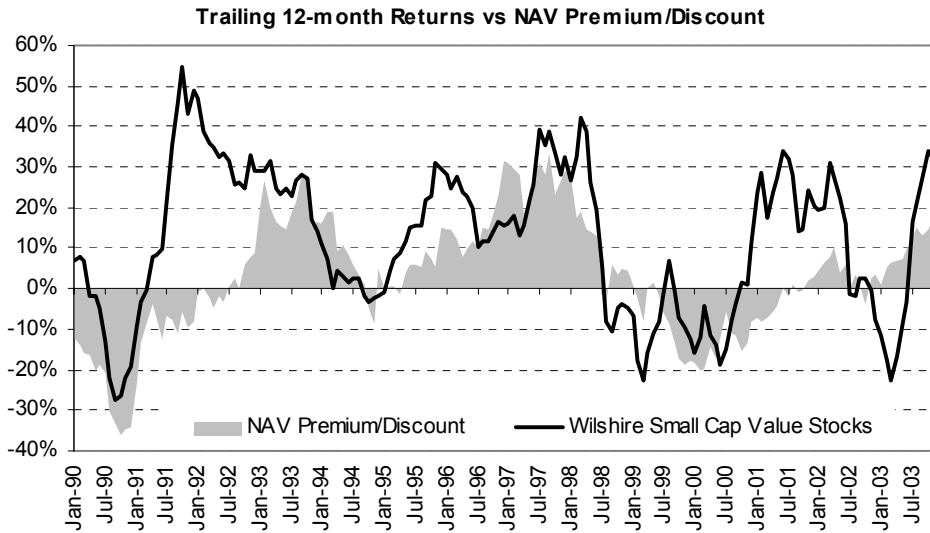
Sources: Green Street Advisors; Prudential Real Estate Investors

Although the sources and magnitude of the volatility in the NAV premium or discount vary and can change, investor sentiment affects pricing on at least three levels. At the market level, as the recent global bear market in public equities demonstrated quite clearly, stocks go in and out of favor with investors. The collapse of the tech market and ensuing lack of confidence in the corporate sector, particularly in the wake of the failures of large public companies like Enron and WorldCom, precipitated a broad sell-off in the US stock market. For a period after these events, the sell-off affected not only the tech sector and the handful of firms that were directly implicated in various high-profile corporate scandals, but also the stocks of most companies whose shares trade in the public market.

Exhibit 6 shows an overlay of the NAV premiums and discounts shown in **Exhibit 5** and the trailing 12-month returns for small cap value stocks. While the broader stock market returns clearly do not fully explain the movements in NAV premiums and discounts, the more dramatic movements in the NAV premium or discount frequently coincide with large movements in stock market returns. This is not true in all cases, of course. After back-to-back years of strong share price appreciation in 1996 and 1997, REIT share prices fell sharply in 1998. According to Green Street Advisors, REITs traded at a discount from mid-1999 through mid-2001 despite generally robust returns for the broader US stock market during all but the last year of that period.

The REIT sector then became a haven for investors searching for safety and yield in the wake of the tech market collapse. Most REITs began trading at a premium to NAV in the second half of 2001, even as the broader stock market suffered through several years of negative returns. So, while investor sentiment toward stocks generally may have a “tidal effect” on real estate securities that causes premiums and discounts to expand and contract as stocks move in and out of favor, the relationship between investor sentiment and public real estate performance is more complex.

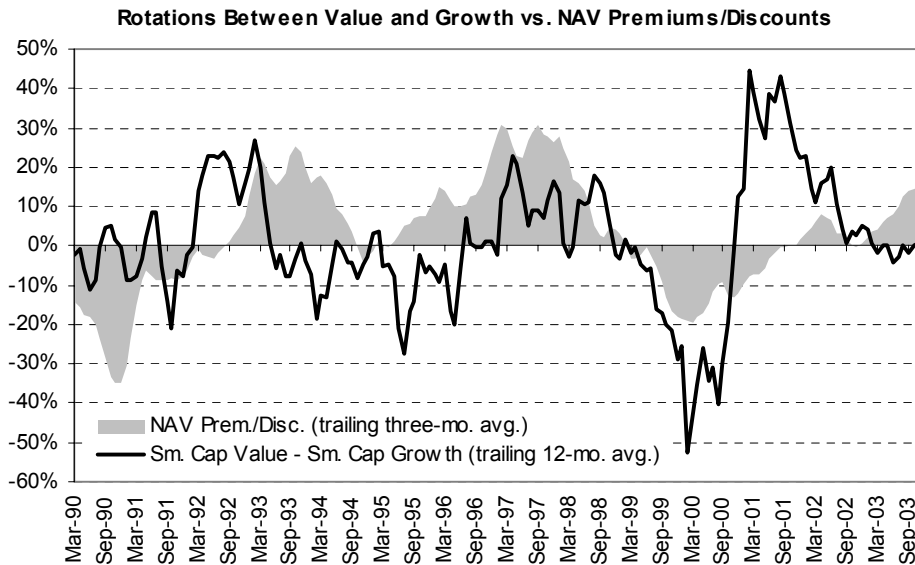
Exhibit 6: Value Stock Returns and NAV Premiums/Discounts



Sources: Ibbotson Associates (Wilshire small cap value stock index); Green Street Advisors; Prudential Real Estate Investors

Investor sentiment toward value and growth can also affect the NAV premium or discount for real estate securities. Most real estate stocks are considered value investments due to their relatively high dividend yields and modest growth potential. In fact, as **Exhibit 4** showed earlier, REITs are much more highly correlated with value stocks than with growth stocks. **Exhibit 7** illustrates the difference between the trailing 12-month returns for small cap value and growth stocks along with the trailing three-month average NAV premium or discount for REITs.

Exhibit 7: Investor Sentiment and REIT Pricing



Sources: Ibbotson Associates (Wilshire small cap value and growth stock indexes); Green Street Advisors; Prudential Real Estate Investors

As the chart clearly shows, rotations between the value and growth segments of the stock market have been frequent and, at times, quite dramatic. For example, near the peak of the bull market in 1999 and early-2000, while REITs were trading at steep discounts to NAV, growth stocks outperformed value stocks by more than 50% on a trailing 12-month basis. However, after the tech market collapsed in the spring of 2000, investor sentiment shifted strongly in favor of value investments like REITs. In the 12 months after the tech bubble burst, value stocks outperformed growth stocks by nearly 45%. Investor flight to the relative safety of yield-driven value investments pushed REIT share prices above the underlying NAV per share.¹ To the extent that real estate stocks are viewed as value (or growth) stocks by public market investors, the NAV premium relative to the underlying value of the properties will narrow or widen when investor sentiment toward value or growth opportunities changes.

Finally, investor sentiment toward the management of a particular company or trust can affect the underlying share price. For example, many event studies have shown that announcements regarding changes in management, immediate or planned, often cause stock prices to rise or fall as investors evaluate the potential impact of those changes on the relative attractiveness of the company's shares. Investors' perception of the management of a public real estate company, therefore, may also cause the share price to diverge from the estimated NAV per share.

The relatively small size of the REIT market further amplifies the effects of sentiment shifts on REIT share prices. Since 1990, the equity market capitalization of the public REIT market has grown rapidly from less than \$10 billion to more than \$224 billion. Despite the recent growth, however, REITs still represent less than 2% of the US stock market and a very small share of the \$4.4 trillion institutional commercial real estate market in the US.² A small amount of marginal capital in the stock market could represent a significant share of the REIT market capital base, resulting in powerful movements in prices. It would take greater capital flows to achieve the same effect in the private market due to its large size.

The Marginal Investor Theory

Although both public and private vehicles provide exposure to the essential investment characteristics of real estate, each market attracts its own investors due to fundamental differences between the public and private market structures. Most importantly, because liquidity is relatively constrained in the private markets, its natural clientele consists almost exclusively of long-term investors. The public markets, however, are much more liquid and can easily accommodate both long- and short-term investors. Since short-term investors trade far more frequently than long-term investors, the marginal investors in the public market – those who trade and determine the pricing – are disproportionately short-term investors.

The differences in liquidity are largely due to the time and cost of transactions in the private versus public markets. Transactions usually are more costly and take considerably longer to negotiate and execute in the private investment markets than in the public markets. In most private market transactions, buyers undertake considerable due diligence to understand the

¹ For a more detailed discussion of the relationship between investor sentiment and REIT valuations, see "Stock Market Rotations and REIT Valuations," Robert Falzon, *Wharton Real Estate Review*, Vol. VII, No. 1, Spring 2003.

² "Sizing Up the US Real Estate Investment Market," Prudential Real Estate Investors, January 2003.

financial, physical, environmental and competitive characteristics of a potential acquisition before the transaction is finalized and closed. Throughout this period, which is usually measured in months rather than in the minutes or seconds required to transact in the most liquid public markets, the contract price often can be renegotiated or the transaction itself can be terminated altogether. To the extent that potential buyers can renegotiate the purchase price before the transaction is closed, the longer transaction times in the private markets mean that transaction prices can be moving averages of all the information – property-specific, local market factors and broader economic trends – that is gathered and analyzed during the due diligence process.

More importantly perhaps, the higher transaction costs and relative illiquidity of most private real estate investments create significant barriers for short-term investors. For example, holding periods for “opportunity funds,” the prototypical short-term investors in the private real estate markets, are seldom less than three to five years, which can be a lifetime for short-term investors in the public equities markets. Investors in the public markets, in contrast, can trade in and out of the shares of a public company many times, and at a fraction of the cost, in the time it would take to acquire a single asset in the private transaction market. According to Morningstar, the average turnover rate of managed mutual funds was 111% in 2002, which suggests that short-term investors comprise an important share of the investor base of the US public equities market. So, while long-term investors dominate the private markets, the investor base in the public markets has the potential to be much more broadly diversified and include short- and long-term investors as well as dedicated and non-dedicated real estate investors.

To illustrate the disproportionate influence that short-term and non-dedicated real estate investors can have on pricing, consider two hypothetical investment markets, A and B, each comprised of 100 investors. All of the investors in Market A are long-term investors who, for illustrative purposes, trade only once every 10 years. (Average holding periods of long-term real estate investors vary but typically range from seven to 10 or more years.) However, half of the investors in Market B are short-term investors who trade once per year. Over a 10-year period, short-term investors in Market B will trade a total of 500 times versus just 50 trades, or 9% of all trades, by long-term investors in Market B (see **Exhibit 8**).

Exhibit 8: Disproportionate Influence of Short-term Investors

	Market A	Market B
Number of Long-term Investors	100	50
Number of Short-term Investors	0	50
Trading Activities Over 10 Years		
# of Trades by Long-term Investors	100	50
# of Trades by Short-term Investors	<u>0</u>	<u>500</u>
Total Trades	100	550
% of Trades by Short-term Investors	0%	91%

Assumptions:

- Short-term investors trade once every year
- Long-term investors trade once every 10 years

Source: Prudential Real Estate Investors

Alternatively stated, although short-term investors comprise only half of the investor base, the marginal investors in Market B are predominantly short-term investors. Because their trading activity dominates the buying and selling in Market B, short-term investors wield disproportionate pricing power. Likewise, the presence of short-term investors in the public real estate markets has a similar, disproportionate effect on real estate share prices. At times, their trading activity will nudge share prices back toward NAV, and at other times it will widen the gap between share prices and NAV. The factors that influence short-term investors' decisions to buy or sell real estate stocks, however, may be completely unrelated to underlying property market fundamentals. Thus, while short-term investors in the public market create liquidity by trading more frequently, they also create additional volatility.

Rational Differences, More Opportunities

Today investors can use public or private vehicles to gain exposure to the essential characteristics that make real estate attractive in a mixed-asset portfolio – relatively high, stable cash yields, low correlations with other asset classes and competitive risk-adjusted returns. But as with most choices, investors must consider the trade-offs between the alternatives. The public markets provide liquidity with higher volatility. The private markets provide stability but with less liquidity. The differences in the volatility of public and private real estate investments create opportunities to exploit periods of misalignment between the two markets. While most of these opportunities can be classified generally as arbitrage, the strategies for arbitraging between the two markets are many and diverse.

Perhaps the most obvious form of arbitrage involves buying real estate assets (or shares) in the private or public market where they are valued at a discount, and selling them in the market where they are valued more dearly. For example, when strong investor demand for public real estate securities or weak private investor demand for real estate assets causes share prices to trade significantly above the underlying NAV per share, investors and property owners have an opportunity to realize gains by buying relatively undervalued assets in the private market and selling them in the public market (e.g., through an initial public offering or by trading properties for shares in an existing public entity).

A less obvious example is a real estate fund with a mandate to invest in both public and private markets. Presumably, the fund's allocations to the two markets would depend on their relative attractiveness. If public securities were trading at historically high premiums to NAVs, the fund's allocation to public real estate may be significantly reduced to take advantage of the eventual reversion of the premium to its mean. And if the public pricing discount relative to NAV is very deep, it may be an opportune time to increase the allocation to public securities in anticipation of a narrowing of the pricing discount.

While these are just two opportunities that arise periodically from the fundamental differences between the public and private markets, nearly all of the strategies entail finding the optimal match between capital sources and property investments. The dual capital markets in the ownership of real estate give investors choices for investing their real estate dollars and more opportunities to profit from transient market imbalances.

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