

# **Benchmarking Real Estate Performance**

## Considerations and Implications

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The real estate asset class has difficulties in developing and applying benchmarks to measure performance. Most investors acknowledge the limitations in this area relative to more efficient asset classes (e.g., stocks and bonds). As a result of these limitations, many investors do not fully appreciate the implications of the benchmark on how to manage a real estate program.

This paper will examine three issues: (1) the choice of benchmark for today's real estate program, including the NCREIF Property Index and several alternatives; (2) how your benchmark can assist in risk budgeting within the real estate program; and (3) how the time period used to measure performance relative to your benchmark affects portfolio construction and ultimately performance. The focus in this paper is on private equity real estate, and does not address publicly traded real estate securities or real estate related debt investments.

### **CHOICE OF BENCHMARKS TODAY**

The first issue most institutional investors must face is the selection of an appropriate benchmark for their real estate program.<sup>1</sup> The choice of a benchmark actually entails two levels of discussion: do you select a real estate related benchmark, and if so, what are your choices within real estate?

#### ***Do you select a real estate related benchmark?***

While it may seem obvious to use a benchmark related to the asset class being measured, many institutional investors today still use a benchmark for real estate that is unrelated to the asset class. Two common non-real estate benchmarks in use are real rates of return (e.g., CPI plus 500 basis points) and some form of fixed income product (e.g., US Treasuries) plus some premium (e.g., 10 year Treasuries plus 200 basis points). These have evolved over time, adopted either from the role of real estate as an inflation hedge or the view of real estate as an asset class intended to provide returns between bonds and public securities.

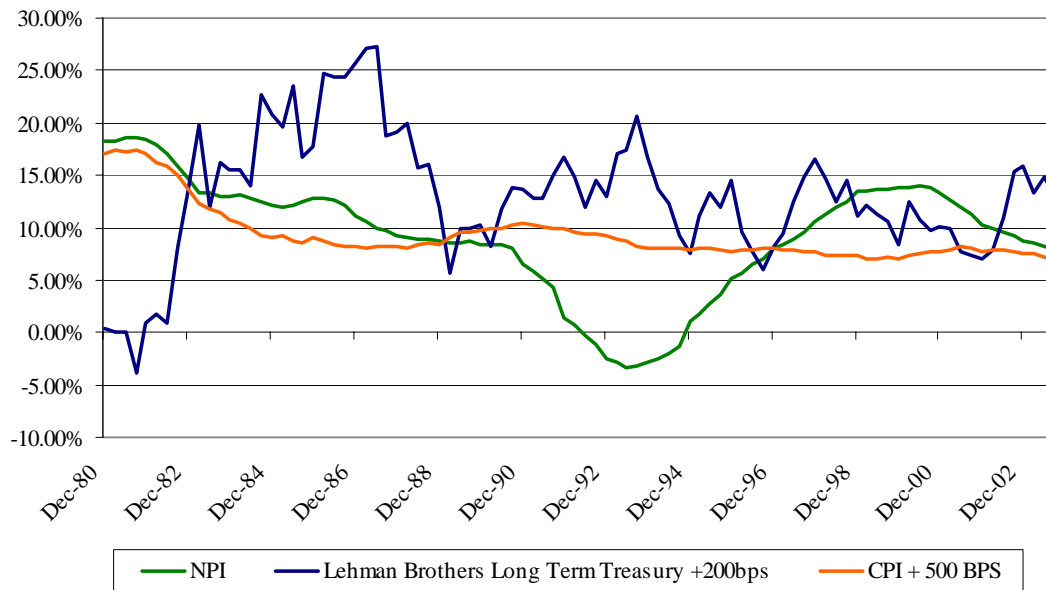
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<sup>1</sup> For purposes of this paper, I will concede that the current choices are not optimal, as no benchmark exists today for private equity oriented real estate that is: (i) investible, and thus represents an alternative means of obtaining asset class exposure without active management; (ii) calculated with a frequency that matches other asset classes (e.g., daily or monthly rather than quarterly); (iii) is well described and clearly defined, or is widely shared or available to all investors (particularly proprietary databases maintained by consultants); or (iv) reflects the wide range of styles or investment strategies available in real estate. The industry is struggling with solutions to address these issues.

While such benchmarks will allow an investor to measure its real estate program relative to these objectives, neither informs the investor about the underlying real estate asset class, or the performance of their portfolio relative to the asset class. **Exhibit A** shows the rolling three year performance of real estate (as measured by the NCREIF Property Index or NPI), CPI plus 500 basis points and Lehman Brothers Long Term Treasuries plus 200 basis points.

### Exhibit A

Rolling 3 Year Return as of September 30, 2003



As can be seen, over this period these three measures have produced very different results in the same time periods. In some instances the differences are due to performance of the underlying real estate asset class, but some differences relate to interest rates, inflation expectations, capital flows and other broad economic factors. Not surprisingly, the NPI is negatively correlated to the Treasuries over this period, and is weakly correlated to the CPI-based measure, as shown in **Exhibit B**.

### Exhibit B

	NPI	Idx: Lehman Brothers Long Term Treasury +200bps	CPI + 500 BPS
NPI	1.000		
Idx: Lehman Brothers Long Term Treasury +200bps	-0.124	1.000	
CPI + 500 BPS	0.382	-0.254	1.000

If the goal of any benchmark is to measure how the asset class performs and your investments relative to that universe, then the CPI and Treasury based measures do not meet that goal for real estate. Furthermore, they do not allow an investor to evaluate how a manager or fund has fared relative to other managers or funds, the broader real estate market, or to perform attribution analysis.

If the objective of including real estate in the total portfolio is to provide the returns and other attributes associated with the asset class, then a real estate related benchmark should be used.

### *Which real estate benchmark do you select?*

Unlike stocks and bonds, private equity real estate has no passive indices available for investment and few widely available benchmarks. Most plan sponsors choose between the NPI (or some variation thereon), or proprietary indices developed and/or maintained by their consultant, or other alternatives (e.g., a benchmark comprised of a peer universe).

### NPI Benchmark

The NPI is an aggregation of property level performance from a group of investment managers. As of the Fourth Quarter, 2003, the NPI was comprised of 4,060 properties with a gross market value of \$132.4 billion. Performance of the NPI over the period of 1985 to the Third Quarter 2003 is shown in **Exhibit C**. Also shown in **Exhibit C** is the performance of alternative benchmarks discussed below.

The NPI typically is used as the real estate benchmark because it has one critical ingredient: it measures a significant portion of the universe of the institutional equity real estate asset class, and the performance of the NPI can be attributed to factors that investors and managers can affect or control (e.g., operating life cycle, location and property type). The NPI is regularly maintained and it is relatively transparent and widely available at nominal cost. Because of these features, most institutional investors use the NPI (with or without a risk premium attached) for their real estate benchmark.

While the NPI does provide the broadest measure of institutional investment in the asset class, it has several shortcomings (e.g., it is not investible; it represents essentially unleveraged core performance, and it is not an optimal portfolio mix). That leads many investors to look for alternatives.

### Alternative Benchmarks

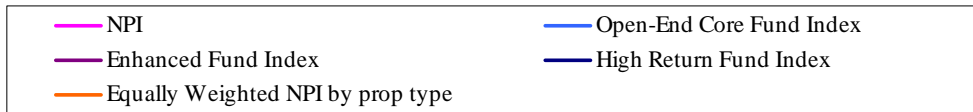
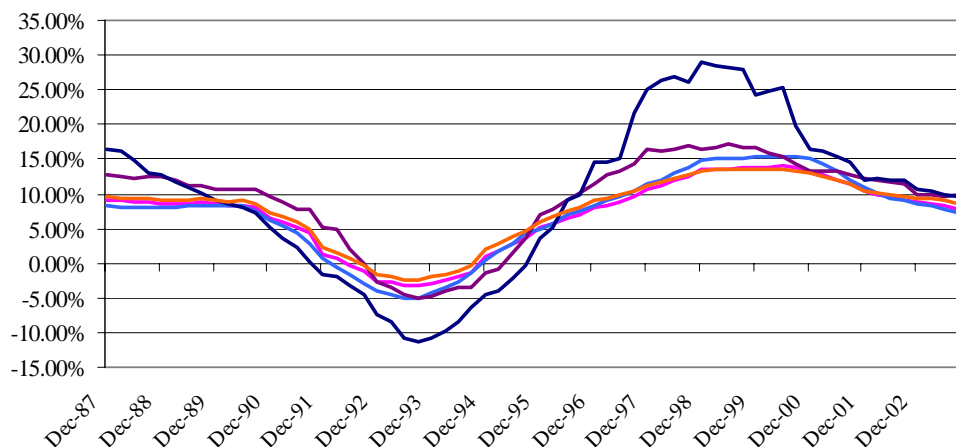
A number of potential alternatives exist to the NPI. Most have pros and cons, and few are free of some issue that makes it less than ideal (the issues include investability, comparability, transparency and access, to name a few).

**Exhibit C** also shows the performance of several proprietary Townsend databases: a market weighted index of the open end core funds (OECF Index, comprised of nine funds

with a NAV of \$21.1 billion); a stylized index comprised of moderate risk value added funds (Enhanced Fund Index, comprised of 26 funds with a NAV of \$7.8 billion); and a stylized index comprised of higher risk funds, including so-called opportunity funds and development funds (High Return Index, comprised of 58 funds with a NAV of \$18.2 billion). It also includes a stylized NPI to illustrate another potential alternative. Correlations of these various indices are shown in **Exhibit D**; various risk adjusted return measures are shown in **Exhibit E**.

### Exhibit C

#### Rolling 3 Year Returns as of September 30, 2003



Data from 3/31/1985 through 9/30/2003

### Exhibit D

	NPI	OECF Index	Enhanced Fund Index	High Return Fund Index	Equally Weighted NPI by prop type
NPI	1.000				
OECF Index	0.920	1.000			
Enhanced Fund Index	0.801	0.714	1.000		
High Return Fund Index	0.683	0.664	0.706	1.000	
Equally Weighted NPI by prop type	0.995	0.919	0.798	0.685	1.000

## Exhibit E

	NPI	OECF Index	Enhanced Fund Index	High Return Fund Index	Equally Weighted NPI by prop type
One Year Return	7.84%	9.03%	8.17%	9.34%	8.92%
Three Year Return	7.87%	7.23%	9.92%	9.67%	8.69%
Five Year Return	9.47%	9.79%	10.97%	12.44%	9.91%
Ten Year Return	9.73%	10.42%	12.21%	15.54%	10.22%
Fifteen Year Return	6.69%	6.74%	8.34%	8.42%	7.28%
Since Inception Return	7.16%	7.08%	9.11%	9.60%	7.72%
Standard Deviation	3.06%	3.36%	4.25%	7.79%	2.86%
Down Side Risk	3.60%	3.82%	4.89%	6.95%	3.40%
Sharpe Ratio	0.603	0.530	0.909	0.566	0.826
Information Ratio		-0.050	0.736	0.414	1.441
Alpha		-0.07%	1.89%	2.54%	0.52%
Tracking Error		1.31%	2.57%	6.13%	0.36%
Jensen Alpha		-0.08%	1.79%	1.26%	0.64%
Beta	1.000	1.008	1.053	1.701	0.934
R-Squared	1.000	0.843	0.607	0.444	0.988
Correlation	1.000	0.920	0.801	0.683	0.995

Data from 3/31/1985 through 9/30/2003

One alternative for investors is to create a stylized NPI to reflect either their specific portfolio composition or some optimized allocation by property type (and location). **Exhibit C** includes one example of a stylized NPI—it has been equally weighted to the four traditional property types. While this option as a benchmark may provide a superior alternative to the NPI, it still is not investable nor does it show different investment styles.

The fact is that investment style or risk matters. This is shown most clearly in the rolling three year performance data shown in **Exhibit C**. If an institutional investor's program has meaningful weights to either sector, then a pure NPI benchmark would be inadequate as a measure of performance relative to risk. One option is to add a risk premium to the NPI (say, 100 basis points). This does work, but it is only an approximation of the risk and not a more precise measure based upon weighting of the components or actual performance of those elements.

A better option is to incorporate investment style benchmarks that capture risk by sector and then compute an overall customized benchmark. While not perfect, using style benchmarks provides superior information to the investor.

The OECF Index offers investors a truly investible alternative benchmark with a high correlation to the NPI (0.92). The performance of the OECF Index is shown in **Exhibit C**. The big advantage of the OECF Index as a benchmark is that it *is investible*: it is

possible for an investor to allocate its capital to the OECF funds in the index based upon their relative market weighting. An investor could have a true real estate index (of sorts). An investor can consciously under or overweight allocations to the individual funds to generate out performance (e.g., to create alpha or minimize tracking error).

The bottom line is that no single benchmark works for all real estate investors. Most institutional investors would be best served by adopting a composite benchmark that includes the NPI or the OECF Index for the core component, and relative weights of the other investment style indices to capture non-core risk and performance attributes. Until this type of information is collected and maintained by an industry organization (such as NCRIFE), the only source of this data is to retain a consultant to measure and provide such a customized benchmark.

## **RISK BUDGETING AND BENCHMARKS**

One area a benchmark can provide additional insight is to help manage a real estate program relative to differing levels of risk. An appropriate benchmark can help incorporate risk budgeting concepts in portfolio management.

### Risk Budgeting

A stylized benchmark can help the investor budget where it should take risk within the real estate program. As shown in **Exhibit D**, over the 1985 to 2003 period, the highest absolute returning investment style was High Return, particularly for the 10 year period where the High Return Fund Index produced a 15.5% return, more than 300 basis points above the Enhanced Return Fund Index and almost 600 basis points above the NPI.

How did these high alpha funds do on a risk adjusted basis? **Exhibit E** shows some absolute and risk adjusted return measures for these sectors. The High Return Fund Index generated a much higher standard deviation, higher downside risk, lower Sharpe ratio, lower Information ratio, and much larger tracking error, than the Enhanced Return funds. This data could suggest that it may not always pay to shoot for alpha by investing in these funds; while they have generated strong alpha, they did so at a high level of risk (not to mention higher costs). Perhaps the better source of risk adjusted returns has been the moderate risk sector represented by the Enhanced Return funds.

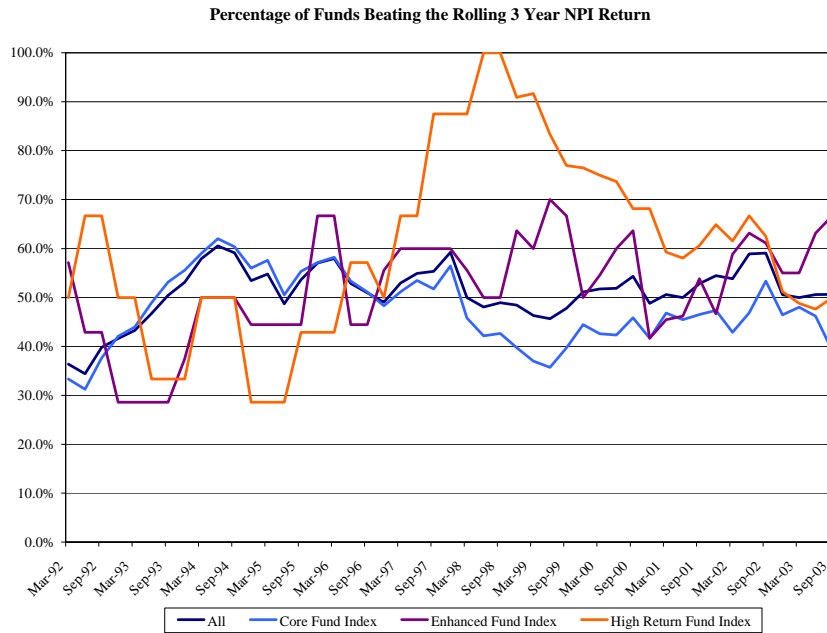
The long term data suggests that over an extended period of time, such as a full market cycle, an investor should carefully consider whether they should take on the risks inherent in the High Return sector in order to generate excess returns. Simply put, there are periods when it does not pay to be an investor in this style. Given the illiquidity of such funds, it is much more difficult to be tactical with such funds, particularly with the still developing secondary market for trading interests in closed-end funds.

### Manager Selection

An appropriate benchmark also helps an investor in manager selection, by showing the likelihood of managers within a style sector to outperform the stylized benchmark for that sector. This concept incorporates both risk budgeting and manager selection.

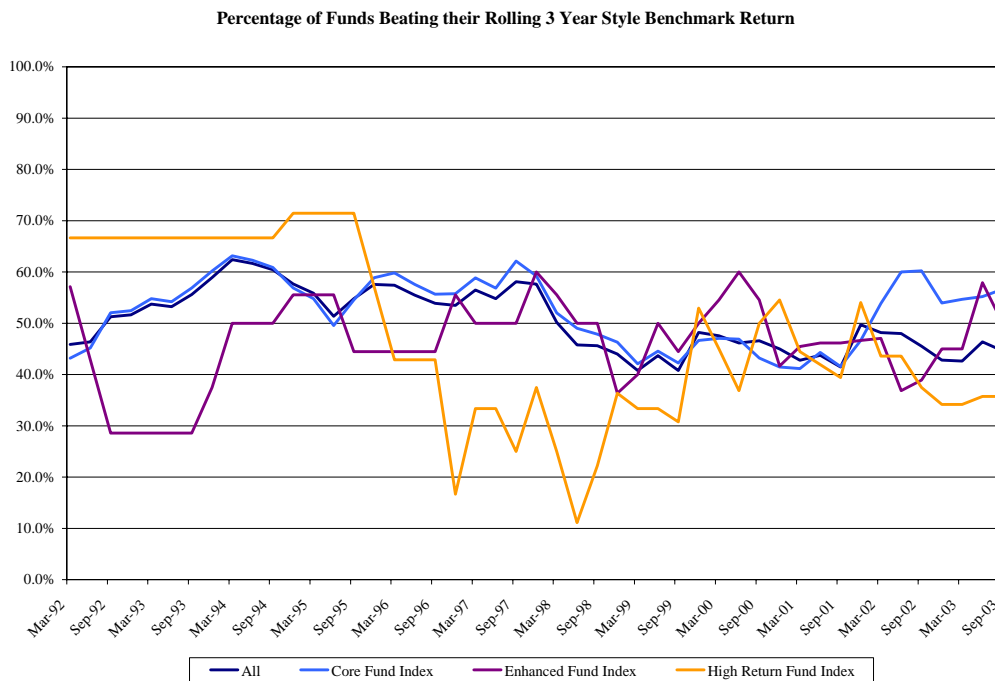
If we looked at a fund manager’s ability to beat only the NPI, regardless of investment style, it is not hard to fathom that most Enhanced and High Return Funds have outperformed the NPI over rolling three year periods, with more than half of the funds shown (and most of the Enhance and High Return) beating the NPI over most of the periods. This is shown in **Exhibit F**.

### Exhibit F



A more useful analysis is to compare each fund manager’s performance to the stylized benchmark for that particular style. That has been done in **Exhibit G**.

## Exhibit G



When the style benchmarks are used rather than the NPI, the percentage of funds exhibiting the ability to generate alpha is significantly reduced. When all of the funds are considered, 50% of the funds beat their style benchmarks in slightly less than half of the periods. (See **Exhibit G**). Although market weighting of the funds can have a distorting effect (e.g., when a few large funds perform particularly well or poorly), it is interesting that in the Enhanced and High Return Fund categories fewer funds beat their respective indices over the periods shown. This data suggests that manager selection is very important, particularly in the higher risk categories of investment.

### TIMEFRAME ISSUES

The last issue is what time frame is used to measure performance relative to the benchmark. Since most investors see real estate as a longer term investment, few use periods as short as a single year; most look at performance over rolling three or five year periods. The question not always considered is how does the timeframe affect the composition and risk profile of your program?

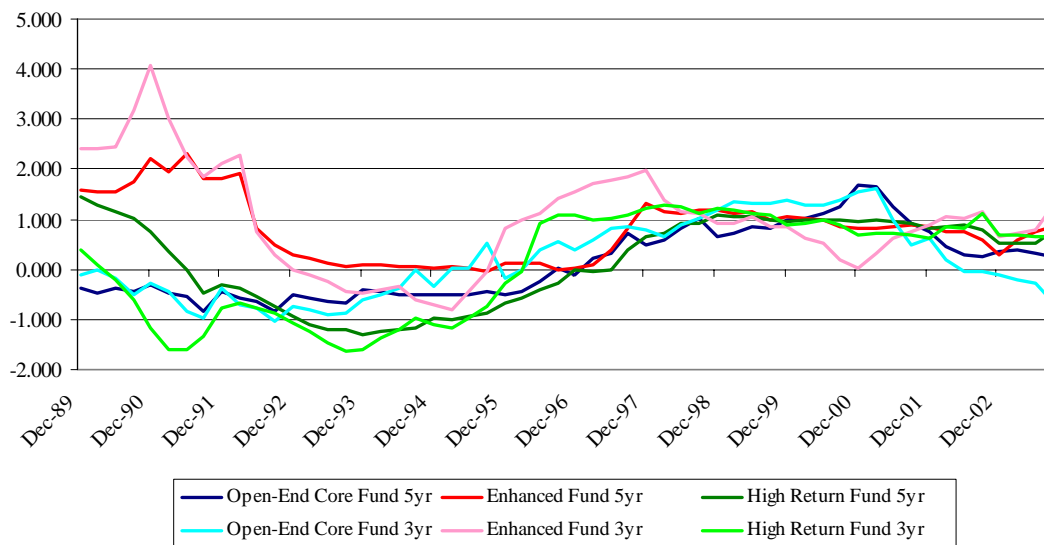
An example best illustrates this point. If your measurement period is five years, then an institutional investor can explore a wider variety of investment alternatives that include more volatile and less liquid investments. Generally, most High Return funds offer a typical “J curve” investment profile with negative or extremely low returns in the early periods, with stronger performance in the intermediate to longer terms. A five year period will allow an investor to make a number of such investments and perhaps layer

them into the portfolio, thus attempting to minimize the periods of negative returns by having some funds in different stages of fund life at all times. It also allows an investor to “smooth out” some of the potential periods of excess volatility.

What if your measurement period was three years? **Exhibit H** shows the rolling three year and five year performance and Information ratio over the last 15 years. The smoothing effect of the longer measurement period is apparent, as is the quicker reaction to market forces in the shorter periods.

### Exhibit H

Rolling Information Ratios



What are the possible implications? If you measure performance over shorter periods, an investor (and its funds) most likely will experience greater volatility in terms of performance and risk. This increased volatility may trigger increased incentive fees in periods of strong performance, or cause a manager or staff employee to be prematurely terminated in periods of under performance relative to the benchmark. Using a time period that is too short may limit the ability to construct a portfolio of real estate investments that meets the objectives of the program, or utilize the investments that represent the best opportunities in the real estate market at that time.

This data suggests that the time period of measurement itself has an implication on strategy and portfolio construction. The choice of the measurement period should be given suitable consideration in order to best match the goals and objectives of the real estate program with the risk profile of the investor.