



Measuring Timberland Performance

Timberland investors (and potential investors) frequently ask such awkward questions as: "What sort of returns can I expect from timberland investments?" and "What have timberland investments done in the past?" and "Can you prove it?"

Tracking the performance of institutional timberland investments and comparing individual investments against industry returns is not as simple as comparing investments in the stock market against leading market indexes such as the NASDAQ index or the Standard & Poor's 500. As the institutional timberland investment industry developed in the early 1980's, several timberland investment management organizations (TIMOs) developed timberland indexes based on theoretical timberland investments. While each of these proved useful in providing an indication of expected returns for timberland investments, none was widely accepted by the industry. As historical returns accumulated over time, it became possible to develop indexes based on these actual returns.

TIMBERLAND INDEXES

Two indexes currently exist, the Timberland Performance Index (TPI) and the National Council of Real Estate Investment Fiduciaries (NCREIF) Timberland Index. Both indexes report quarterly and annual returns. There is some overlap in the data used in calculating the indexes, but each also has unique data. Both have limitations, perhaps the most important of which is their short duration. To provide an indication of longer returns, one of theoretical models is needed to backcast returns.

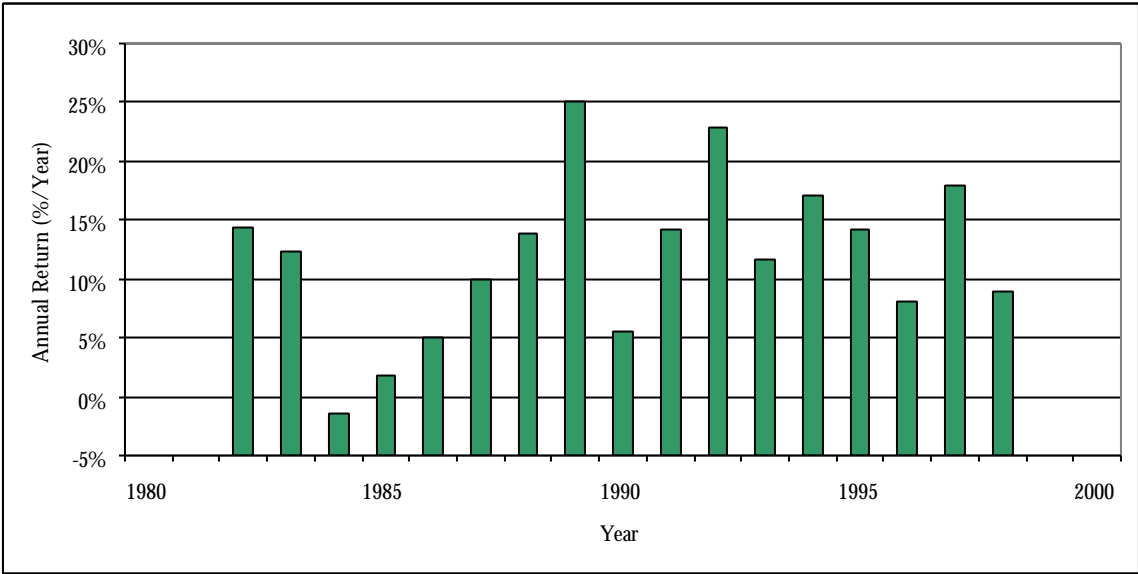
TIMBERLAND PERFORMANCE INDEX (TPI)

The TPI is published by Jon Caulfield at the Warnell School of Forestry at the University of Georgia. The TPI consists of returns (weighted by market value) from 13 timberland funds managed by 3 timberland investment managers. The TPI is based on 100 percent of the asset value of all timberland funds from 1981-1987, but declines to about 25 percent of the value of timberland funds by 1999, because several large funds created after 1987 do not contribute data.

There are two limitations to the TPI: It covers *primarily* the Southern United States, and it reports only total returns.

Annual returns reported by the TPI are shown in Figure 1.

Figure 1--Timberland Performance Index--Total Returns



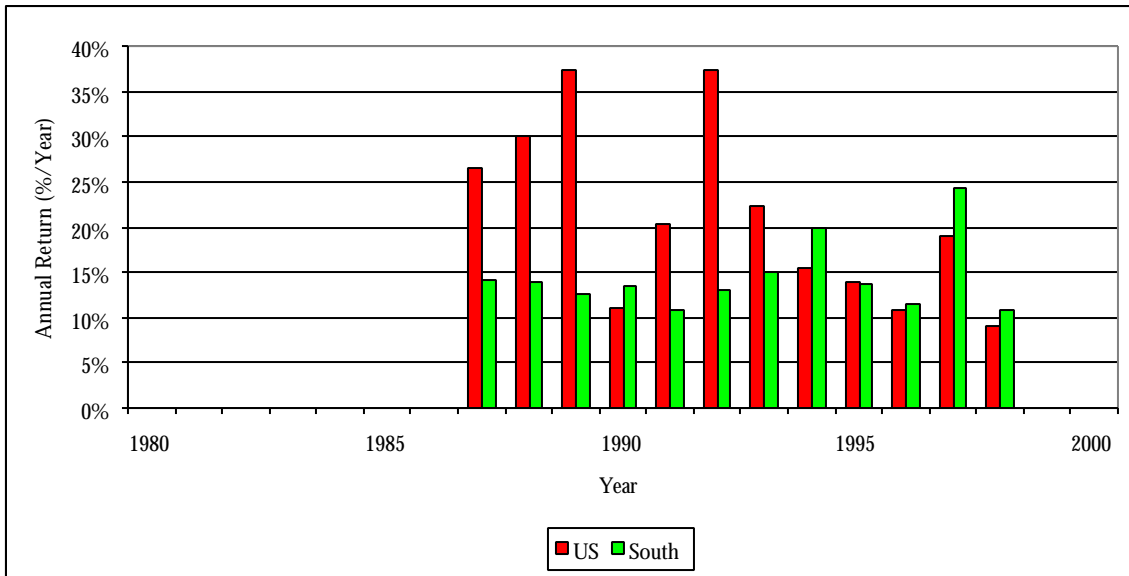
NCREIF TIMBERLAND INDEX

The NCREIF Timberland Index has been published by the National Council of Real Estate Investment Fiduciaries since 1994 and contains returns reaching back to 1987. It is a property-based index reporting returns for three regions of the United States: the South, Northeast and Pacific Northwest. In addition to total returns, the NCREIF index reports income and appreciation returns.

There are three limitations to the NCREIF index. The first limitation is the number of contributors: the index currently has only two contributors, Hancock Timber Resource Group and Forest Investment Associates. (Prudential Timber ceased contributing in 1999). This still leaves the NCREIF index with a market value of over \$3 billion. The second limitation is its short duration: returns are only available since 1987. This limitation will be of less concern over time as more years of results are added. The final limitation relates to the use of quarterly appreciation returns as reported by NCREIF. Annual appreciation returns can be used as reported, but quarterly appreciation returns must be used carefully. Appreciation returns are based on appraised values. About half of the properties in the NCREIF index are appraised semi-annually while the other half are appraised annually. In quarters when these properties are not appraised, the appreciation return is reported as zero. As a result, quarterly appreciation returns as reported by NCREIF show far more volatility than is actually the case. The volatility of quarterly appreciation returns are in turn reflected in quarterly total returns--making them not a reliable measure of returns.

The NCREIF index should not be compared directly to the TPI because the NCREIF index contains a substantial proportion of returns from two other regions. The chart below (Figure 2) separates out NCREIF Southern returns from the full (U.S.) index returns. The very high US returns from 1987 through 1993 reflect returns from the Pacific Northwest

Figure 2--NCREIF Timberland Index--Total Returns



COMPARISON OF RETURNS REPORTED BY THE TPI AND NCREIF INDEXES

How do the TPI and NCREIF indexes compare? Figure 3 compares the total annual returns for the two indexes. Of interest is the low correlation between them: the correlation coefficient for the two indexes for the period 1987-1998 is just over 19 percent. However, over time, the two indexes show similar levels of returns (Figure 4). Note that the *since inception* returns are not directly comparable because the two indices have different starting dates.

Figure 3--Comparison of TPI and NCREIF Indexes--Annual Returns

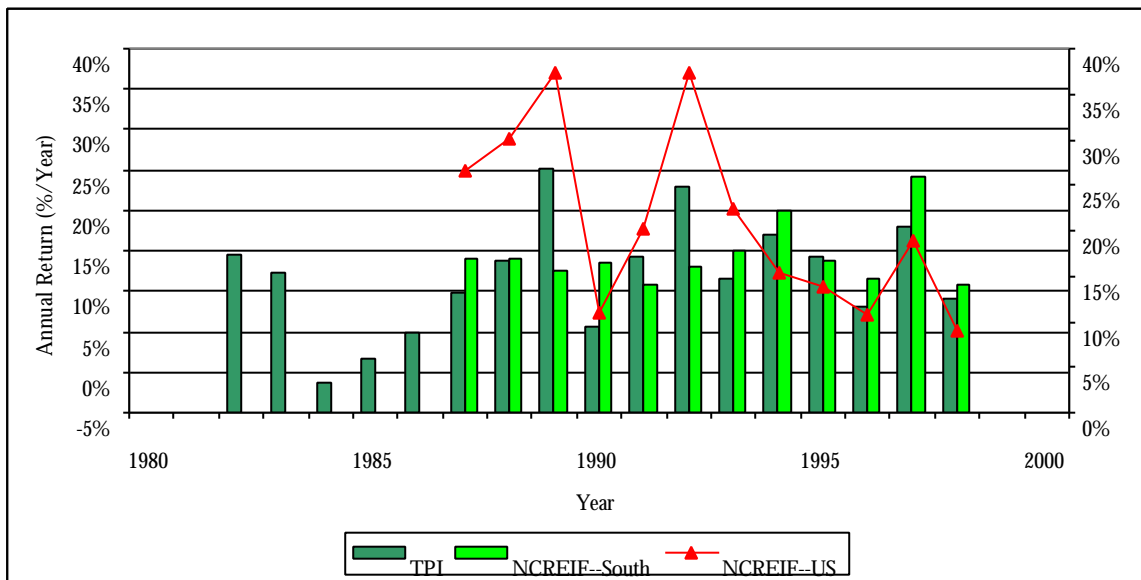
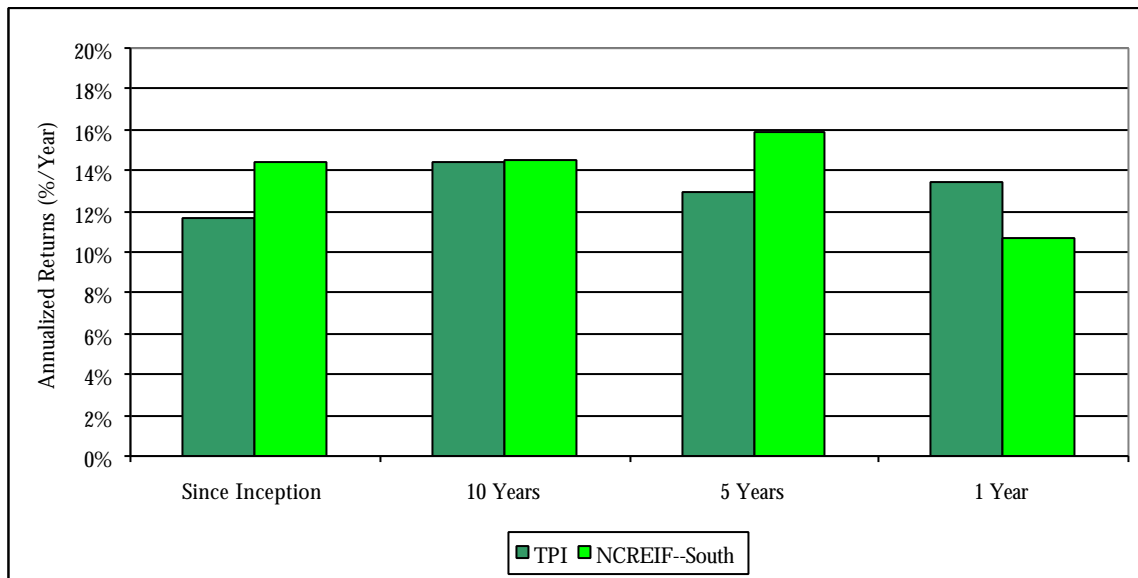


Figure 4--Comparison of TPI and NCREIF Indexes--Annualized Returns



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The *Timberland Report* looks at the timberland investment industry with an emphasis on the United States. The opinions expressed are those of the editor, who is solely responsible for its content, and may not reflect the opinions of James W. Sewall Company.

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