

Real Estate Indicators: Too Hot to Touch or Cool Enough to Handle?

The real estate market, as measured by the NCREIF Property Index, has been on an often unpredictable ride over the past 25 years, with quarterly returns peaking near 6% and falling as low as -8%. Many real estate investors were blindsided by the market collapse in 2008 and 2009. Callan's Real Assets Consulting Group has identified seven indicators—based on spreads in real estate and fixed income markets—that have helped signal when the institutional real estate market is overheated or cooled. Individually these spreads offer little

guidance for real estate investors, but assessed collectively alongside prevailing market dynamics, Callan believes that narrowed spreads across multiple indicators frequently occur prior to periods of declining returns. Conversely, widening spreads have often been followed by periods of stable or increasing returns. In the following display, the relevant indicators are color coded alongside historical returns for the NCREIF Property Index—a leading industry benchmark reflecting real estate property returns for

institutional investors. We highlight specific occasions when the indicators have preceded performance trends.

These historical trends reveal the unpredictable nature of real estate market cycles, highlighting the importance of a long-term perspective for investors.

Quartile Results

as of 9/30/2021



WIDE SPREAD: blue blocks signal quarters when spreads were the widest (top quartile)



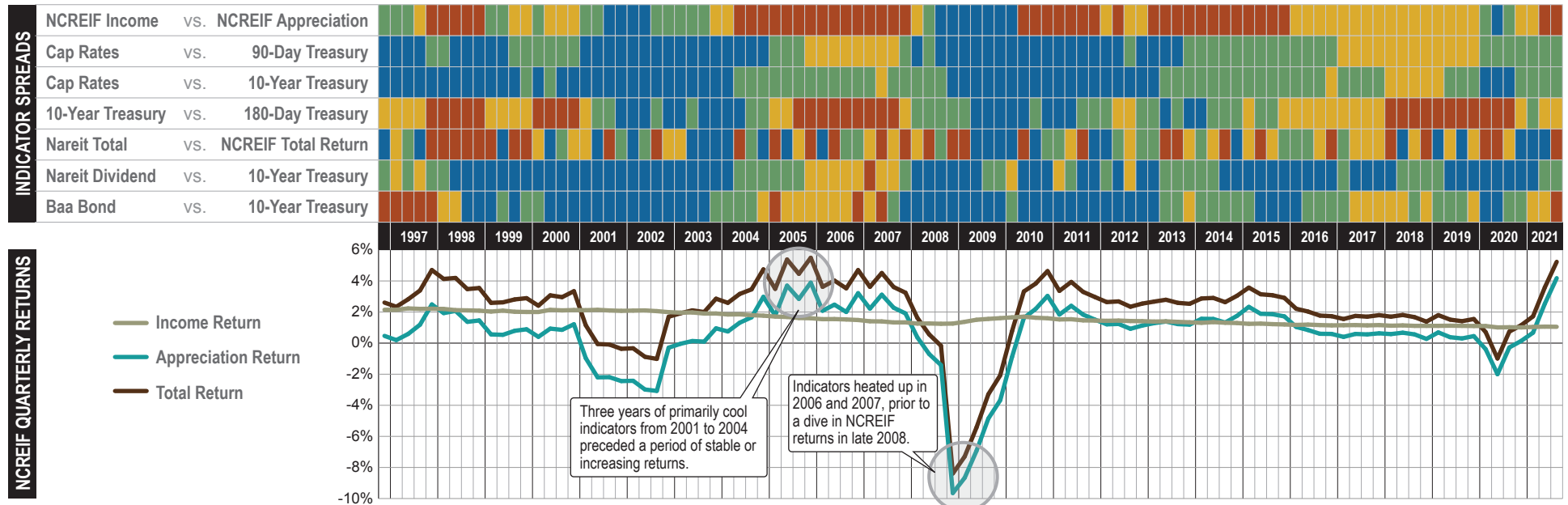
2nd Quartile: green blocks define quarters when spreads were less wide



3rd Quartile: yellow blocks mark quarters when spreads narrowed



NARROW SPREAD: red blocks are periods when spreads were narrowest or inverted (fourth quartile)



The seven indicator spreads reveal multiple instances when wide spreads (cool indicators) preceded stable or increasing performance, and narrow spreads (hot indicators) were more prevalent before declining market periods.

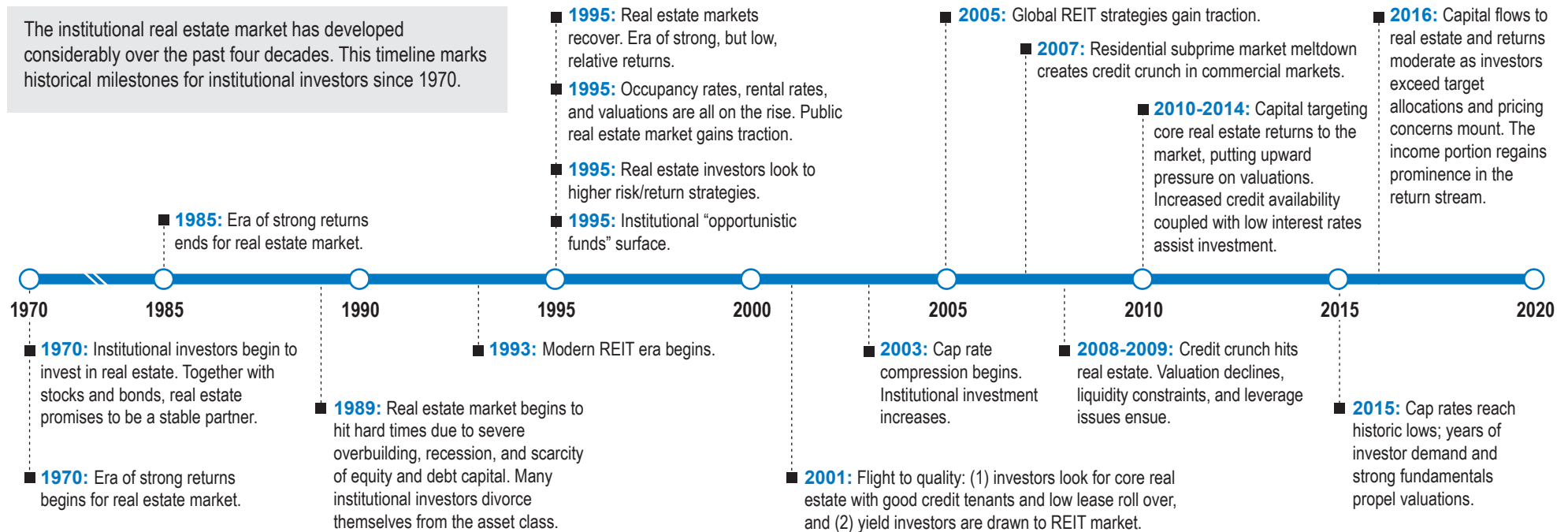
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History of Institutional Real Estate Investment



Callan Real Estate Leading Indicators: On a quarterly basis, Callan calculates each indicator spread and then assigns it to one of four color-coded quartiles ranging from widest (1st quartile) to narrowest (4th). The quartile rankings are based on data from 1978 to the test quarter to ensure the results are not skewed by future trends.

NCREIF Income vs. Appreciation: Core real estate investors expect a majority of total return to be earned from real estate income. When this spread narrows, investors earn a larger share of returns from the more speculative appreciation component. Wide spreads historically range from 2% to 10%, and narrow spreads from -2% to 0.5%.

Cap Rates vs. 90-Day Treasury: A cap rate is the ratio of annualized net operating income to the value of the property. High cap rates can result from falling property prices or bearish investor expectations about future real estate returns. Real estate investors should expect a yield premium in the form of a positive spread for this indicator. Narrow spreads and low cap rates suggest investors may be assuming risk they may not be compensated for. Higher spreads indicate that investors demand higher risk premiums for private real estate investments relative to ultra-safe, short-term Treasuries. Wide spreads historically range from 4% to 7%, and narrow spreads from -8% to -0.5%.

Cap Rates vs. 10-Year Treasury: This spread is similar to the comparison of cap rates versus 90-day Treasuries, only it offers insight into the size of the risk premium demanded for private real estate relative to longer-term,

ultra-safe, liquid investments. When this spread narrows, investors may be assuming risk for real estate investments they may not be compensated for. Wide spreads historically range from 2% to 5%, and narrow spreads from -8% to -1%.

10-Year Treasury vs. 180-Day Treasury: This spread represents part of the "yield curve" and many economists suggest that low or inverted spreads can predict the onset of recessionary conditions. Wider spreads reflect accommodative monetary policies but suggest higher interest rates and inflation in the long term. Wide spreads historically range from 2% to 4%, and narrow spreads from -2% to 0.5%.

Nareit Total vs. NCREIF Total: Nareit Total reflects dividend income plus capital appreciation leveraged returns for publicly traded real estate investment trusts (REITs), while NCREIF Total represents unlevered dividend income plus capital appreciation returns on commercial real estate investment properties. The volatility of the Nareit Index is higher than that of the NCREIF Index. This suggests the presence of a residual equity component to the Nareit that could be related to small cap stocks, be simply unique to REITs, or both. Others believe that the Nareit Index is a leading

indicator of what the trend will be for the privately held NCREIF Index. Wide spreads historically range from 7% to 37%, and narrow spreads from -30% to -3%.

Nareit Dividend vs. 10-Year Treasury: The Nareit Dividend reflects REIT dividends only (no capital appreciation) on levered investments. Narrowing spreads indicate investors' willingness to accept a lower risk premium for an asset in a higher risk category than Treasuries. Publicly traded REITs are susceptible to public stock market forces and return lower dividend yields when prices are bid up. Wide spreads historically range from 1% to 7%, and narrow spreads from -1% to -7%.

Baa Bond vs. 10-Year Treasury: This spread compares yields on riskier Baa-rated corporate bonds with like-duration Treasuries. Wider spreads indicate bond investors demand higher risk premiums, signaling weak credit market health with scarcer credit and increased default risk. Spreads narrow when risk premiums fall and conditions in the credit markets are more favorable. Wide spreads historically range from 3% to 6%, and narrow spreads from 1% to 2%.

For more information about this report or Callan's Real Estate Consulting Services, please contact Avery Robinson at 415.974.5060 or contact your Callan consultant.