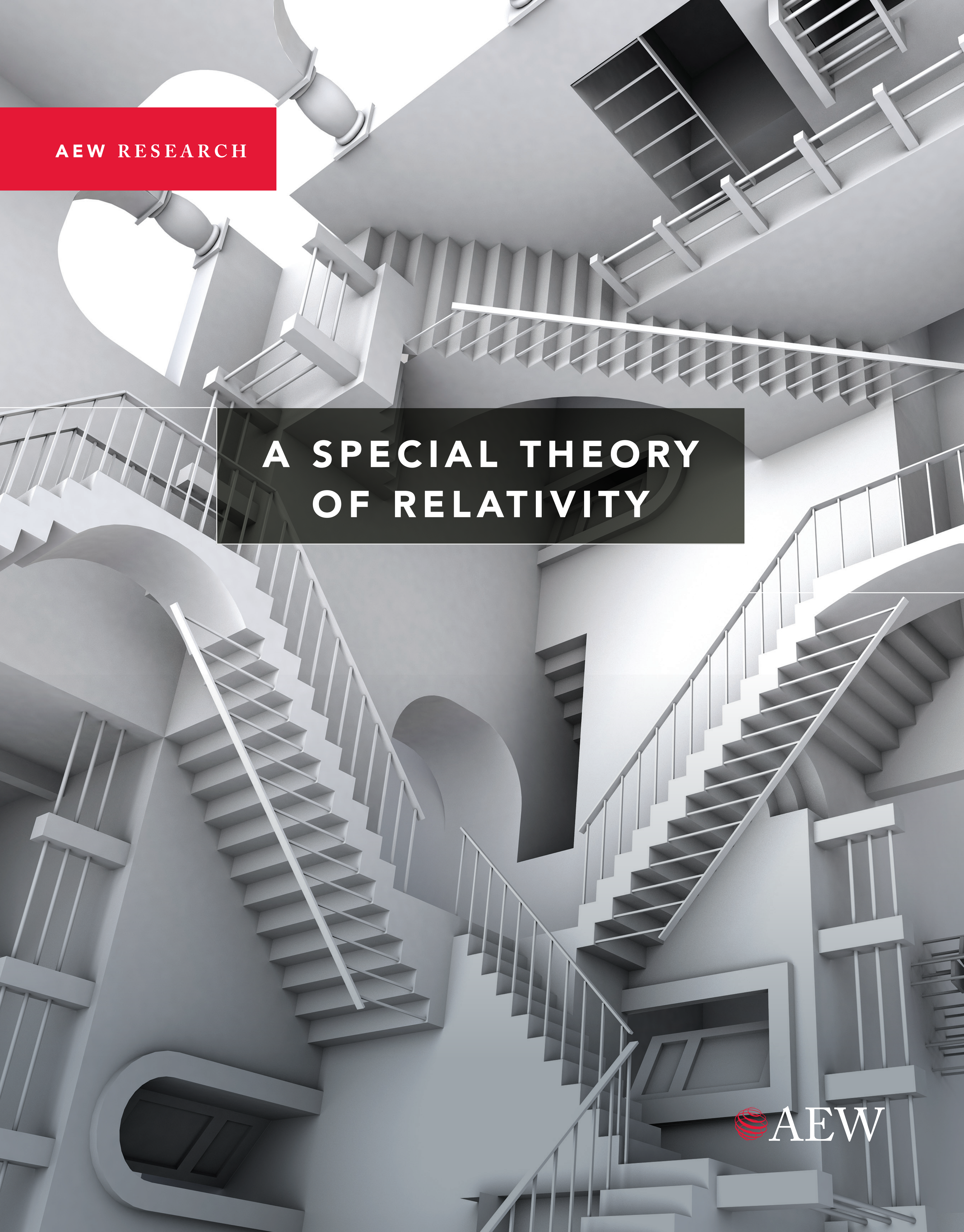

AEW RESEARCH

A SPECIAL THEORY OF RELATIVITY

AEW

Prepared by AEW Research, Winter 2018

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A SPECIAL THEORY OF RELATIVITY[1,2]

Cecil Graham: "What is a cynic?"

Lord Darlington: "A man who knows the price of everything and the value of nothing."

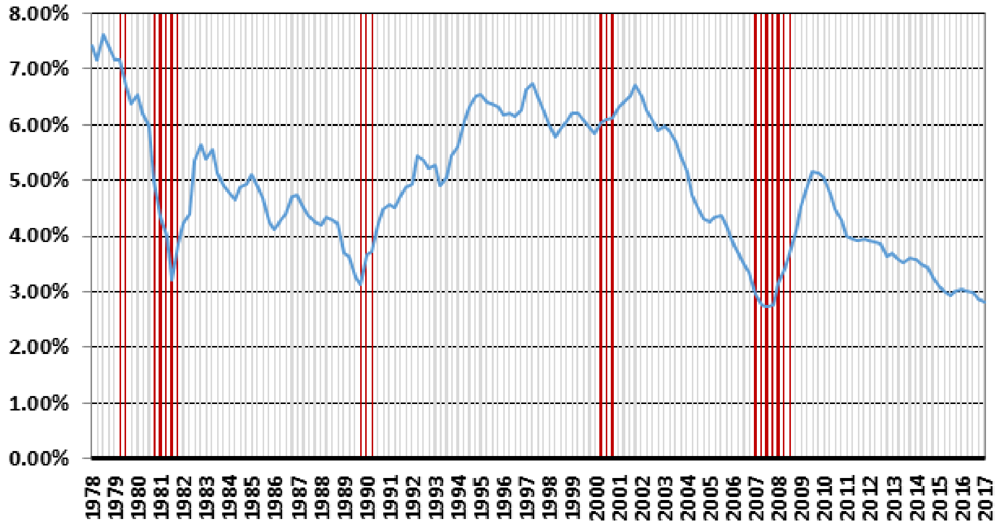
Cecil Graham: "And a sentimentalist, my dear Darlington, is a man who sees an absurd value in everything, and doesn't know the market price of any single thing."

– *Oscar Wilde, Lady Windermere's Fan, Act 3 (1893)*

Real Estate is Expensive

In absolute terms property is expensive today, there can be no argument. The average cash yield (after cap-ex) of the NCREIF Property Index is now firmly below 3%, a level previously reached only at the peak of prior property valuations cycle or periods of economic contraction.

Figure 1: Average Property Cash Yield and Prior Recessions



Sources: NCREIF, National Bureau of Economic Research (NBER)

[1] With apologies to Albert Einstein.
[2] Please note, prompted by reader feedback, we have made several changes to this paper since the original version released in early 2018. Specifically, for the analysis of price-earnings multiples, we have used trailing rather than forward multiples for the stock market to better match our estimate of a real estate earnings multiple. Additionally, for the analysis of direct real estate values relative to listed real estate values, we have used estimates of REIT premium or discount to net asset value (NAV) for "major sectors" (i.e. apartment, industrial, office and retail) rather than "all REITs" to better match the private direct institutional property universe. While these changes do not change the overall conclusion of this analysis, we find both warranted and thank our readers for their suggestions.

For investors, however, valuation is always a relative not absolute metric. If we are honest with ourselves, we must admit that most asset markets across the globe appear expensive today, at least through the lens of historical valuation metrics. For example, one simple valuation measure of the equity market championed by Warren Buffet and others is the relationship between the value of the stock market and aggregate nominal GDP. Buffet's rule of thumb for this measure finds the market very undervalued at readings less than 0.50; moderately undervalued between 0.50 and 0.75; fair valued between 0.75 and 0.90; modestly overvalued between 0.90 and 1.15; and grossly overvalued above 1.15. As Figure 2 reveals, this measure currently stands above 1.40, the same level last recorded at the peak of the dot-com bubble. Perhaps more worrisome, volatility measures (e.g. VIX) typically used to gauge investor anxiety reached an all-time low during the first week of 2018, suggesting broad investor complacency.

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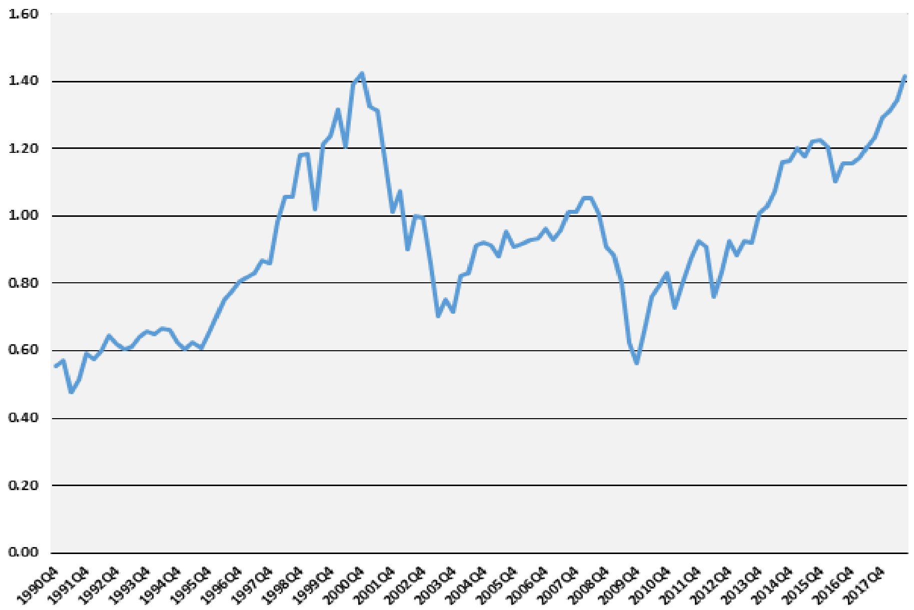
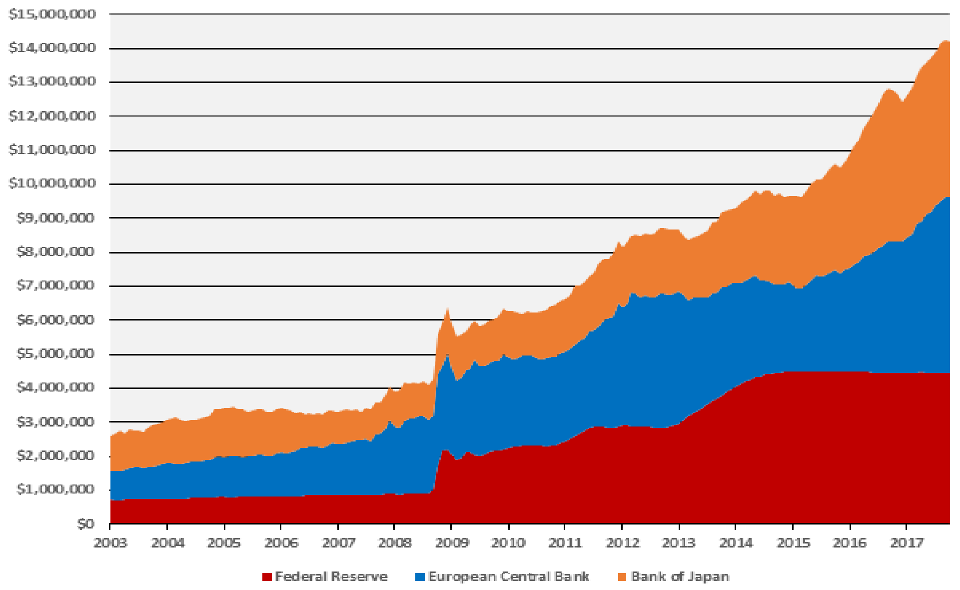
Figure 2: Ratio of Wilshire 5000 Capitalization and Nominal GDP



Source: Moody's Analytics

For their part, sovereign bonds in the U.S., Europe and Japan continue near historically low levels, in large part because of deliberate central bank policy. Faced with the reality of a hopelessly over-leveraged world and the very real possibility of a deflationary spiral not seen since the Great Depression, the Federal Reserve, and later the Europe Central Bank, joined with the Bank of Japan down a radical road of asset reflation as they tried to rebound from the Global Financial Crisis. They first took short interest rates to zero and then introduced balance sheet expanding quantitative easing (QE) to get around the thorny problem of the zero bound; forcing long rates lower than they would naturally move with a zero short rate. In large part, the scheme worked. Debt service burdens plunged, sitting in safe assets became untenable, banking systems became over-reserved and capital flowed back into riskier assets; as a result, valuations rapidly rose and loan-to-value ratios declined. In this environment, property benefitted along with all other asset markets as values recovered, first to prior peaks and then far beyond any prior peak. Unfortunately, the world now finds itself with nearly $15 trillion of central bank owned assets, a roughly five-time increase relative to pre-crisis levels. All of this will only make investing more difficult going forward as all must now navigate the unfamiliar terrain of rising interest rates and shrinking excess reserves.

Figure 3: Federal Reserve, European Central Bank and Bank of Japan Balance Sheets in U.S. Dollars (Millions)



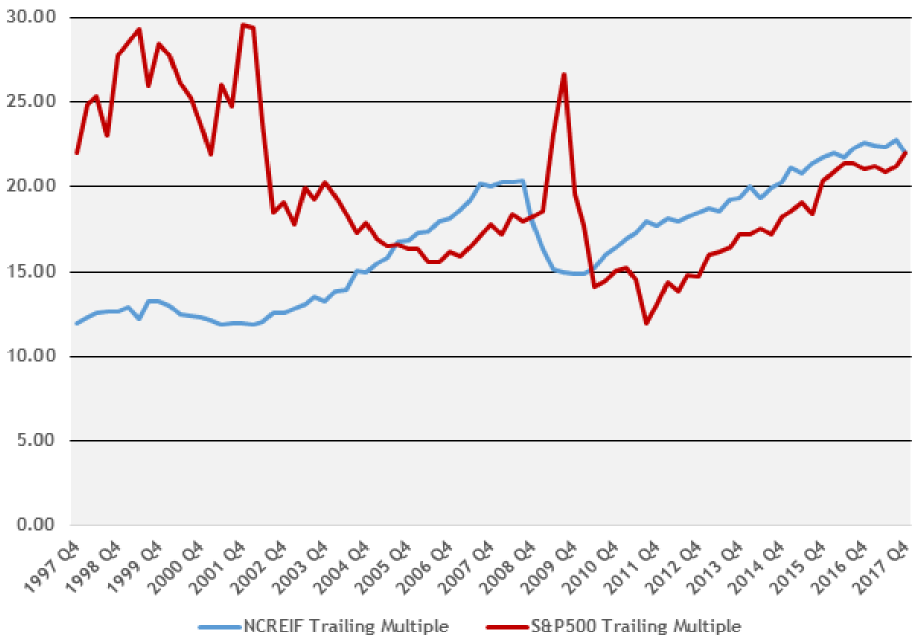
Source: Federal Reserve Bank of St. Louis

The Search for Relative Value

Stocks, bonds and REIT valuations are set in a real-time, continuous auction market with a high degree of information efficiency. In contrast, directly-owned real estate trades in a much slower moving private market with a much lower, albeit improving, degree of information efficiency and is largely valued in a somewhat backward looking appraisal process. As such, we believe comparing direct real estate valuation metrics to comparable measures from these other markets can help reveal the degree to which property is over-valued or under-valued today and going forward. Behind this belief is a fundamental assumption that, absent structural change in capital markets, the relationship between similar valuation metrics across asset classes should be ultimately mean reverting.

Equity market valuations are typically expressed in terms of price to earnings ratios (PE ratios). For property, for this comparison we use the ratio of property value to net operating income (NOI) or, in real estate jargon terms, the inverse of the property capitalization rate. Over the past twenty years, the average property market multiple has been roughly 15% below the average equity market multiple, albeit with a wide degree of variation. Today, the earnings multiple measure for property is roughly equal to the equity market suggesting that direct property looks slightly more expensive than equities relative to history.

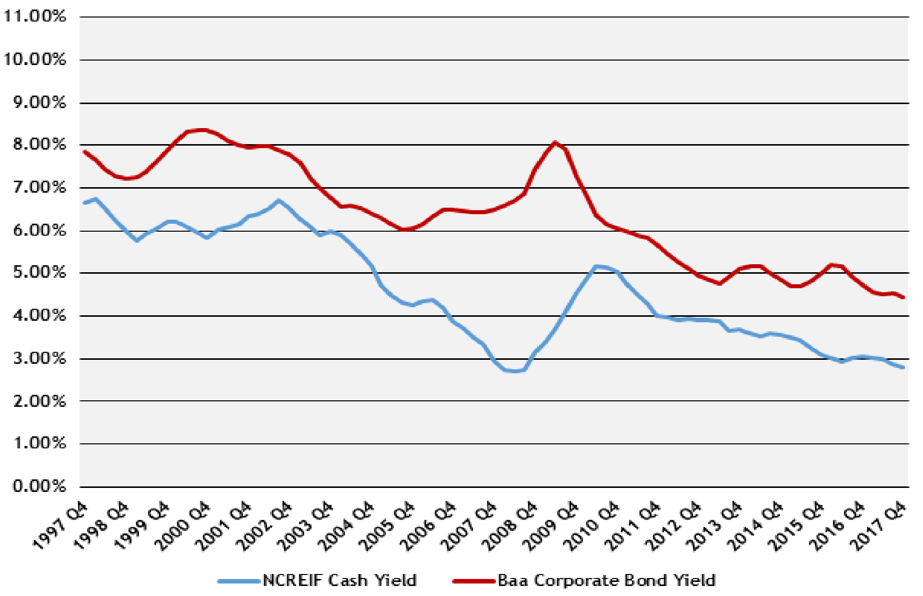
Figure 4: Comparison of Earnings Multiples



Sources: NCREIF, Bloomberg

Bond investors generally focus on the yield they will receive, given the price they are paying as well as the quality of that yield. For comparisons to property, we examine the relationship between investment- grade bond yields (Baa or bbb) and the actual cash yield of property (i.e. after cap ex). Since 1997, the NCREIF cash yield has averaged 185 basis points less than the yield from Baa corporate bonds, roughly where the spread stands today. This suggests that property is fairly-valued on a yield basis relative to bonds.

Figure 5: NCREIF Cash Yield and Baa Corporate Bond Yield (%)

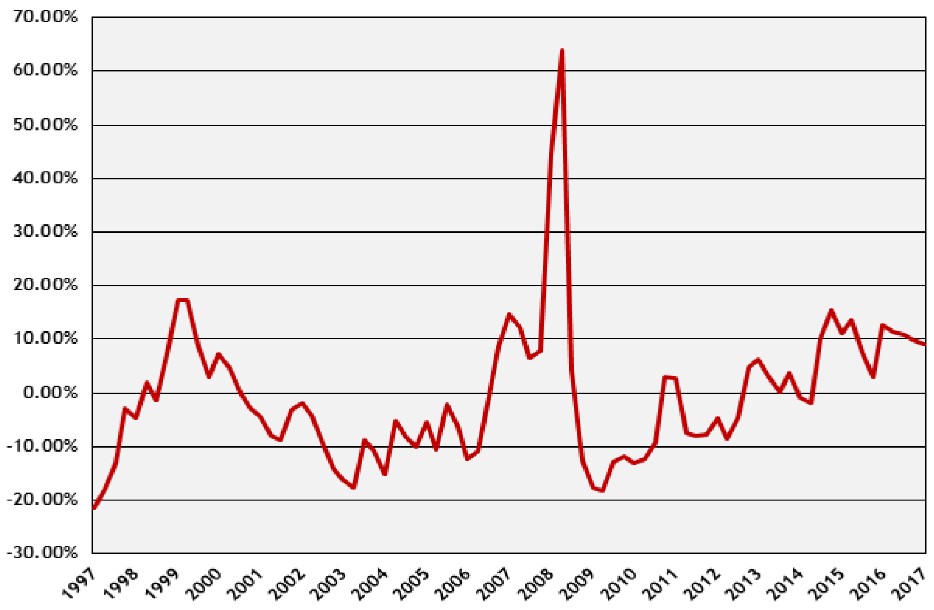


Sources: NCREIF, Bloomberg

Finally, for the comparison to publicly traded REITs, we employ the long used measure of REIT premium or discount to underlying net asset value (NAV) and turn it round to see where NAV is valued relative to the REIT itself. In other words, where is property more attractively priced, in the public market or the private market?

As of year-end 2017, private real estate was trading at at a 10% premium to REITs, indicating that public real estate traded at slightly more attractive valuations than real estate in the private market. Historically, property has been valued at a slight discount to REIT share value (-1.4%) or, more intuitively, companies have traded at a small premium to gross asset value.

Figure 6: Private Direct Real Estate Premium to Discount to REIT NAV



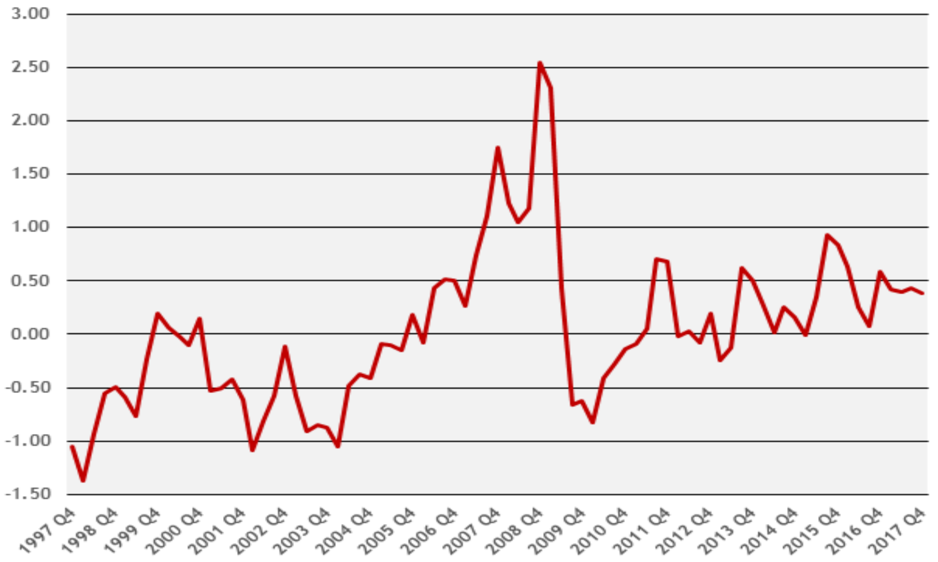
Source: Green Street Advisors

U.S. commercial property appeared to be very close to long-term valuations norms relative to stocks, bonds and REITs.

Putting it All Together

Each of the various capital market comparisons discussed above measure value in very different ways with metrics on very different scales. In order to combine all of these measures into one metric of relative valuation, we perform a simple transformation of the data known as a Z-Score standardization, which allows us to express each measure in terms of standard deviations from the long-term average. With all three measures now on the same scale, we simply combine them into an equally weighted index, a direct real estate relative value index (RVI). One practical benefit of this index is that relative property valuation is expressed in terms of standard deviations above or below long-term norms. As shown in Figure 7, with an index reading between zero and positive one-half standard deviation at year-end 2017, U.S. commercial property appeared to be very close to long-term valuations norms relative to stocks, bonds and REITs. More simply put, property today is close to fair value in a world where most asset classes are expensive by historic metrics.

Figure 7: Private Direct Property Relative Value Index



Source: AEW Research

What Does This Mean Going Forward?

As we look ahead at 2018 and beyond, we believe that U.S. commercial property will continue to produce returns that are competitive with other asset classes and fulfill the role that investors have for property in their portfolios. Real estate is a hybrid asset class with return characteristics similar to both fixed income (periodic cash flows from leases) and equity (the right to re-lease or sell in the future). As such, when "fairly valued", go forward real estate returns should fall somewhere between debt and equity. Today, consensus surveys such as PREA suggest annual unleveraged total U.S. property returns of approximately 5.5% over the next five years, with almost all of this coming from pre-capex income rather than appreciation. With bond yields still near historic lows and various measures of equity market valuation near all-time highs, we believe that real estate returns at this expected level will be attractive in a difficult overall investment environment.

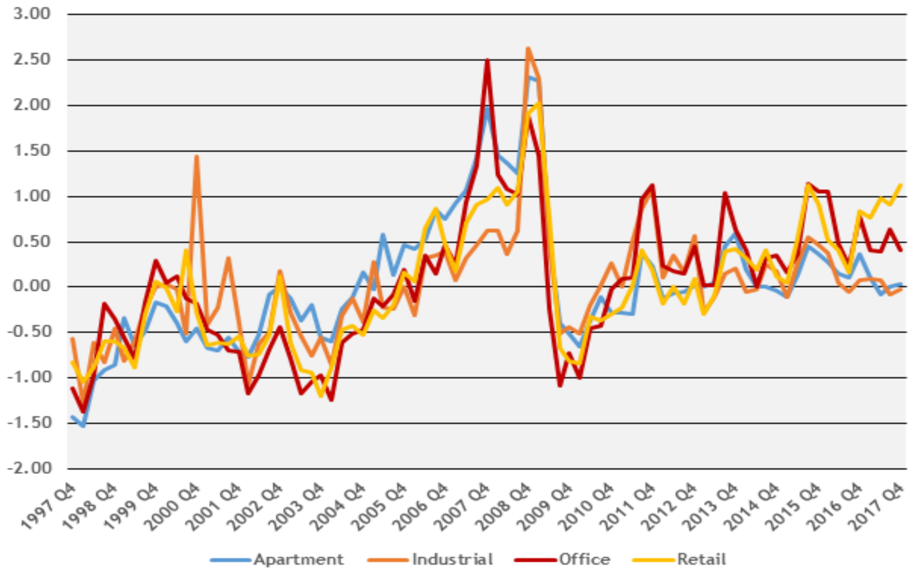
For investors with higher return requirements, we also continue to believe there are sound, albeit not riskless, paths forward. Here in the U.S., most significantly, America is simply not supplying enough housing units to meet the demand of household formation and nearly all markets are facing intractable affordability problems. Given this, we continue to see opportunity in residential development in many markets across the spectrum of for-sale (condo), rental (apartment) as well as compelling opportunities in seniors housing. At the same time, the renewed expectation for an extended business cycle possibly creates more opportunities to buy current or near-term vacancy in select office and industrial properties. Finally, with respect to retail properties, the preponderance of sentiment has turned massively negative. While one cannot ignore the impact of e-commerce on this sector, there are both positive and negative consequences. We have long prided ourselves as a value-oriented investor and become naturally intrigued when most investors line up on just one side of a trade, as markets tend to reward those who provide rather than demand liquidity.

The current economic and property cycle is already elongated and likely to be extended further. Successfully investing over the remainder of this cycle and into the next will simply be harder, as the outsized returns of the recovery from the Great Financial Crisis are now behind us. Property market fundamentals remain sound and are not likely to improve from here but at the same time; there is also no reason to expect fundamentals to deteriorate rapidly. While investors are right to be cautious over valuations in an absolute sense, they can take some comfort in the knowledge the property is no more expensive today than anything else they might own.

Appendix - Relative Value Index by Property Type

Applying the methodology described above to each of the major property types reveals some interesting differences in relative valuation. On average, direct retail property appears to represent the most expensive of the four major property types relative to historic norms, particularly relative to listed retail companies and on a current yield basis. Conversely, direct industrial and apartment properties currently represent the best relative value, particularly relative to listed industrial property companies.

Figure 8: Private Direct Property Relative Value Index by Major Property Type



Source: AEW Research

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