Cap Rates and Interest Rates: A Conundrum, Or Not

June 2011

US Research

Philip Conner
Principal
Tel 973.734.1339
philip.conner@prudential.com

Prudential Real Estate Investors
8 Campus Drive
Parsippany, NJ 07054
USA

Tel 973.683.1745
Fax 973.734.1319
Web www.prei.com

Executive Summary

- Though it seems counterintuitive, appraisal capitalization rates historically have been fairly resistant to the pressures of rising interest rates, according to the National Council of Real Estate Investment Fiduciaries' (NCREIF) database.
- The "stickiness" of appraisal cap rates does not mean that "spot" pricing is not sensitive to unexpected increases in interest rates. Private market transactions often are re-priced when rates increase suddenly and REIT share prices tend to fall.
- The context of rising interest rates is important, however. The most likely catalyst for higher Treasury bond yields over the next few years is economic growth, which should produce improving space market fundamentals, increasing rents and growing risk appetite.
- Based on historical evidence, if the 10-year Treasury bond yield rises to 5% over the next couple of years, the average NCREIF cap rate could move from its recent level of 6.1% to anywhere between 5.4% and 7.6%, an admittedly broad range. At the midpoint, however, the ending cap rate would be 6.5%, a modest increase of about 40 bps.

With short- and long-term interest rates at historically low levels – still and again, respectively – and the US economy expanding and adding jobs, albeit slowly, it is only a matter of time before interest rates move higher. When it happens and how much rates increase are, of course, hard to say. The Federal Reserve has made clear its intentions to keep short-term rates "exceptionally low" for "an extended period," which most analysts interpret to mean for another year at least. But, at some point the Fed will adopt a less accommodative stance and begin raising short-term rates. Long-term rates are harder to predict, but they too are destined to rise, perhaps sooner than short-term rates. Consensus forecasts call for the 10-year Treasury bond yield to increase by about 40 basis points (bps) to 3.6% by the end of August 2011, and climb to 4.2% by May 2012.[1]

For real estate investors, the prospect of higher long-term interest rates understandably raises questions about the potential impact on capitalization rates. Intuitively, increases in benchmark rates, such as Treasury bond yields, should have an adverse effect on all yield-oriented investments. Evidence from the "spot" market appears to support this notion. When interest rates jump unexpectedly, Private market transactions often "blow up,"

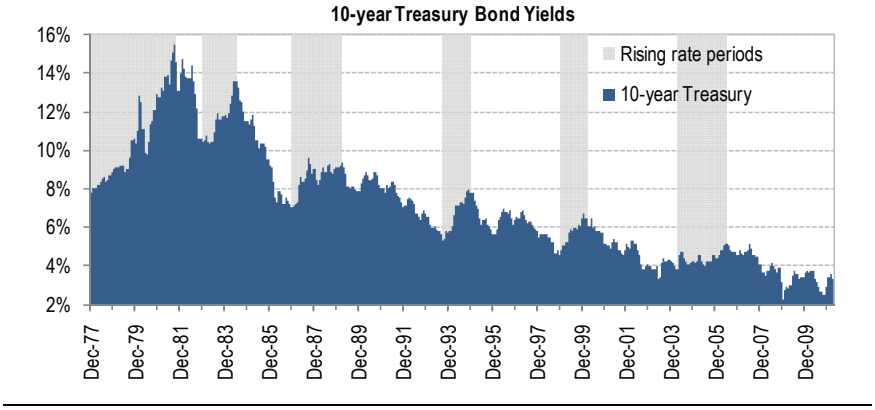
[1] Consensus Economics, May 2011. Forecasts represent mean estimates from a survey of 26 economists and analysts. As of this writing, the 10-year Treasury bond yield is hovering around 3.2%.

or re-price, and REIT shares tend to sell off. But data from the NCREIF Property Index (NPI) presents more of a conundrum, at least on the surface, and suggests the relationship is more complicated. To help sort through the dynamics, this paper examines the historical evidence from NCREIF and offers some thoughts on the possible effects of rising rates on cap rates and US property returns in the next cycle.

Historical Perspective

There have been six periods of rising interest rates since NCREIF began tracking institutional real estate in 1978. Since peaking at more than 15% in September 1981, Treasury bond yields declined fairly steadily for three decades, interrupted by five episodes of upward cycles lasting at least a year. Several factors contributed to the long downward trend. Chief among these is likely globalization, and specifically the dismantling of barriers that created friction in the global economy and capital markets – events such as the end of the Cold War, the creation of the Eurozone, and the integration of developing markets such as China and India into the global economy.

Exhibit 1: Six Periods of Rising Interest Rates

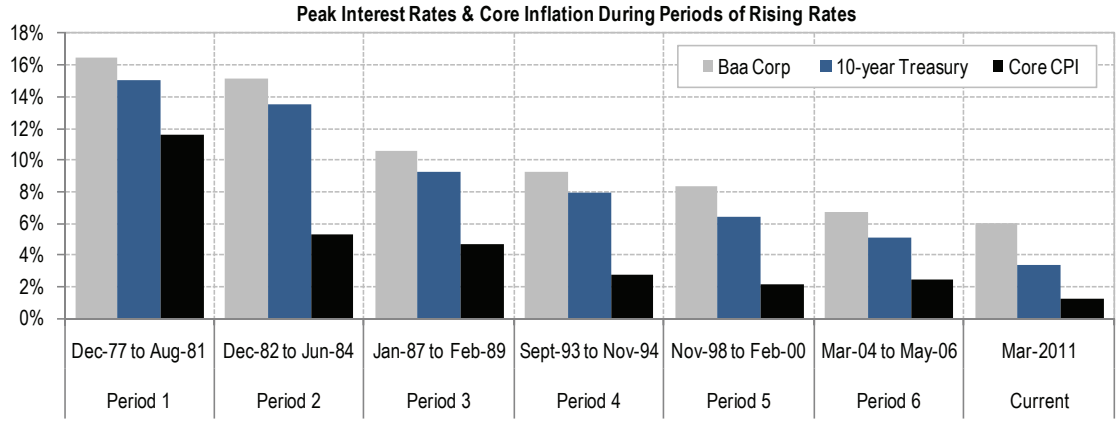


Moody's Analytics (Federal Reserve); PREI Research (data as of 1Q11)

While there are obviously limits to how far the trend can continue, it is interesting to note that in each rising interest rate period, bond yields and inflation have peaked at levels below the peak in the prior period (Exhibit 2). In the 2004-06 cycle, for example, the Treasury yield rose to 5.1% from 3.9%, while the average Baa corporate bond yield increased to 6.8% from 6.2% – both well below their peaks in the prior cycle.

The peak levels in 2004-06 are by no means a limit on the increases we could see in the next cycle, which is to say it "could be different this time." Such a move is clearly possible – investor appetite for US Treasury bonds may be weaker in the next decade than it was in the 2000s, and the supply of Treasury bonds and other sovereign debt is undoubtedly greater. But it would mark a departure from the past three decades and at the very least should raise questions as to how high rates might rise and where risk-averse, yield-seeking capital might flow.

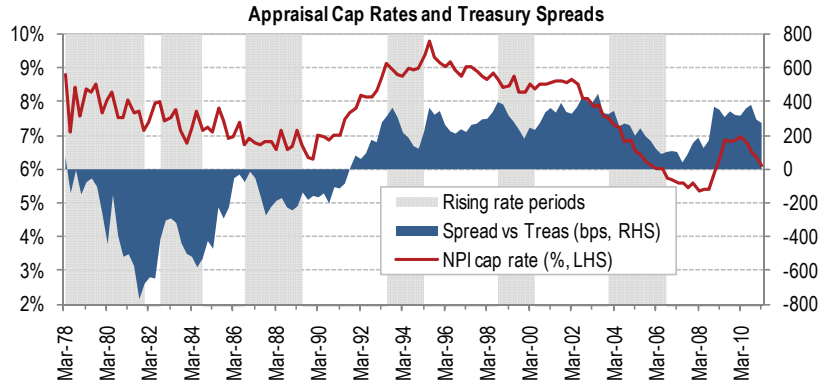
Exhibit 2: Steady Decline in Peak Interest Rates With Each Cycle



Moody's Analytics (Moody's Investors Service, Federal Reserve, Bureau of Labor Statistics); PREI Research

Unfortunately, the limited history and thinness of the early NCREIF data, when the database consisted of only a few hundred properties, make it difficult to draw too many conclusions about the relationship between cap rates and interest rates prior to the mid-1980s. Nevertheless, as Exhibit 3 below shows, prior to the early-1990s cap rates were lower than Treasury bond yields (i.e., spreads were negative). But the early-1990s real estate market crash caused cap rates to rise sharply even though interest rates were falling gradually.

Exhibit 3: Cap Rates Spreads Have Compressed When Interest Rates Rise



National Council of Real Estate Investment Fiduciaries (NCREIF); Moody's Analytics (Federal Reserve); PREI Research (data as of 1Q11)

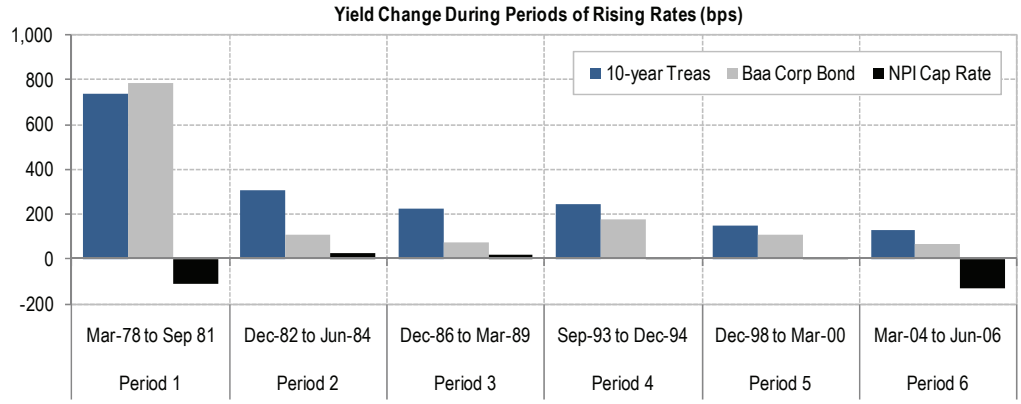
High inflation may partly explain the negative yield spreads during the late-1970s and early-1980s. Core inflation (excluding food and gas) in the US was running at a double-digit pace in 1980 and 1981, and the effects on investors' inflation expectations should not be discounted. In a world where stock and bond returns had been mediocre for a decade and pernicious inflation was eroding purchasing power, private real estate, which had been mentioned explicitly in the Employee Retirement Income Security Act (ERISA) of 1974 as a diversifier, would have looked attractive relative to bonds.

Although real estate's inflation-hedging power is difficult to demonstrate with historical data, the cash yields from commercial property and the real nature of the underlying assets offer more protection against

inflation than Treasury or corporate bonds. Unlike the fixed coupons offered by most bonds, the cash flows from commercial real estate can rise over time. Many commercial leases include rent escalation clauses and/or pass increases in expenses through to tenants, insulating investors against inflation.

Data limitations notwithstanding, when we examine the last six extended periods of rising interest rates, we find that appraisal cap rates either increased modestly or declined in absolute terms (Exhibit 4). Relative to Treasury yields, however, cap rate spreads have compressed during each period. Even if we exclude the earliest period, when the NCREIF data was particularly thin, and the most recent period, when capital flows into the asset class were unusually strong, the average increase in cap rates is a modest +16 bps. By comparison, during the same four periods the 10-year Treasury yield rose an average 233 bps and Baa corporate bond yields rose an average 119 bps.

Exhibit 4: Cap Rate Spreads Have Absorbed Most of Increase in Benchmark Rates



** Due to the quarterly frequency of NCREIF data, the dates for the six periods differ slightly from the preceding chart.*

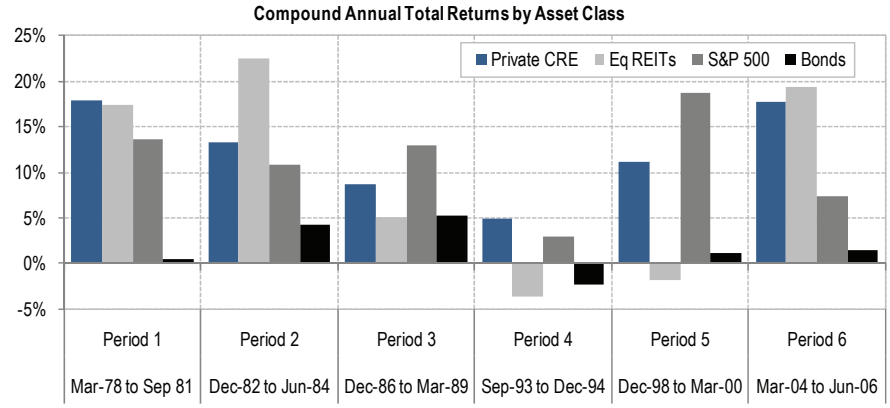
Sources: Moody's Analytics (Moody's Investors Service, Federal Reserve); NCREIF; PREI Research

Although these results might seem counterintuitive, especially to anyone who has been in the midst of negotiating the sale of a property when rates change suddenly, there are several reasons why appraisal cap rates would not move in tandem with interest rates. Some have to do with the nature of private real estate transactions, which typically take months to consummate and frequently involve ongoing negotiations throughout the due diligence process. While a seller usually has the option to terminate a deal if a buyer attempts to "re-trade" prior to closing, such a decision almost always has negative consequences for the seller in the form of financial or opportunity costs. At the same time, in a competitive bidding process, the highest bidder is likely to be the most sensitive to changes in the cost of capital.

More importantly perhaps, Treasury yields typically rise during periods of economic growth and expanding employment, which serve as a catalyst for improving space market fundamentals and increasing risk appetite. The compression in corporate bond yield spreads during five of the six periods illustrates how investors' appetite for risk changes when long-term rates are rising. From an appraisal perspective, a strengthening macroeconomic environment and more bullish investor sentiment should offset at least some of the adverse effects of the higher benchmark rates through adjustments to rent/income growth rates and discount rates.

As the stable (or declining) cap rates imply, private real estate has performed relatively well during all six rising interest rate cycles. Among the major asset classes, private real estate, as measured by the NPI, has delivered the highest or second-highest compound annual total returns in each period, and the highest average total returns (12.2%) over the six periods (Exhibit 5). Public real estate performance was more mixed. Equity REITs delivered the best results in two of the six periods and slightly underperformed private real estate in the first cycle; but REITs suffered negative total returns in two periods, which caused the average for the six periods to lag the S&P 500 (9.8% versus 11.1%). As expected, bonds fared the worst, with average returns of just 1.7% per year.

Exhibit 5: Direct and Listed CRE Has Performed Well During Rising Interest Rate Cycles



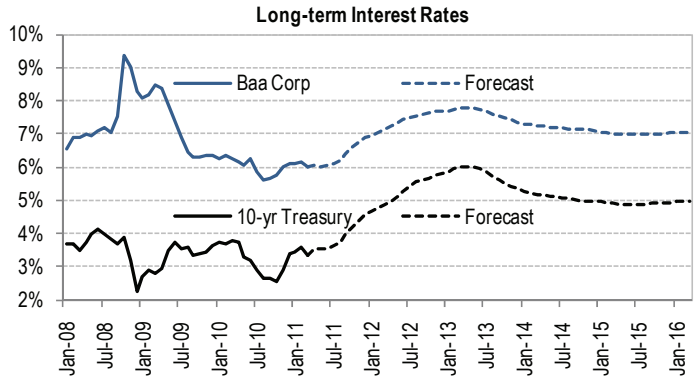
NCREIF; Bloomberg (FTSE NAREIT, Standard & Poor's, Barclays Global); PREI Research

The Next Cycle

The historical evidence should allay fears that rising benchmark interest rates over the next two to three years will have a dramatic adverse effect on commercial property values provided, of course, that the catalysts for higher rates are positive factors, such as a more robust economy and increased appetite for risk. In fact, even modest, below-trend growth should be sufficient to dampen the effects of higher interest rates, partly because the magnitude of any increase in benchmark rates would be modest in a weak growth scenario. Current cap rates for core assets are materially lower than at the start of any of the prior six rising interest rate cycles, but the same is true of Treasury and corporate bond yields and core inflation.

Three factors will largely determine how NCREIF cap rates respond to higher rates: (1) the magnitude of the increase in interest rates; (2) the risk premium ascribed to private real estate; and (3) property income growth. Of these, the first – the magnitude of the increase – is clearly the wildcard. According to Moody's Analytics' forecasts, 10-year Treasury bond yields will peak at 6% in the spring of 2013 before settling down to about 5% in 2014 and beyond (Exhibit 6). Corporate bond yields are forecast to rise to a peak of about 7.8%, but spread compression is expected to absorb roughly one-third of the increase in benchmark rates.

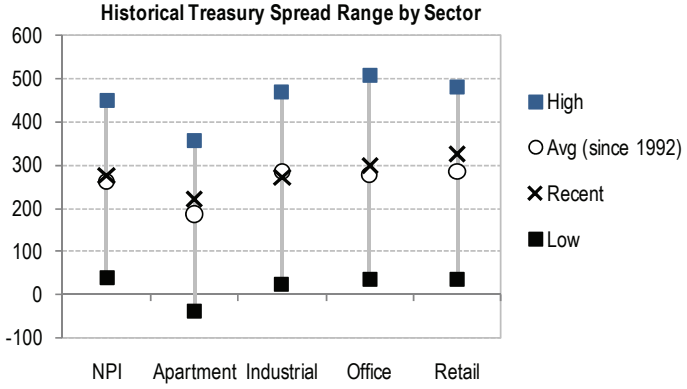
Exhibit 6: Long-term Interest Rates Expected To Peak in 2013



Moody's Analytics (Federal Reserve); PREI Research (forecasts as of May 2011)

NCREIF cap rates have fallen steadily since cresting in 1Q10, partly due to the declining net operating income (NOI) of the properties within the index and partly due to the recovery in core property valuations. Although cap rates feel uncomfortably low today, the spreads relative to the 10-year Treasury yield were more or less in line with long-term averages for all major property types as of 1Q11 (Exhibit 7). Historically, cap rate spreads have absorbed most of the increase in Treasury yields – about 93%, on average, excluding the earliest and most recent periods of rising rates, when cap rates actually declined.

Exhibit 7: Cap Rate Spreads For Major Property Types Are Near Long-term Averages



** Spreads based on a 10-year Treasury yield of 3.3%*

Moody's Analytics (Federal Reserve); NCREIF; PREI Research (data as of 1Q11)

Logically, investors should expect cap rates to be lower when property income is at a cyclical low, much in the same way that price-to-earnings (P/E) ratios of stocks should be higher on trough earnings. While NOI in some sectors may continue to decline over the next few quarters as leases are renewed at lower market rates, the outlook for NOI growth in 2012-2014 is encouraging, especially for core assets in "gateway" markets and for sectors such as apartments and hotels, whose short lease durations allow property income to respond more quickly to improvements in market fundamentals. Vacancy rates have stabilized, and with little construction in the pipeline and nascent signs of renewed tenant demand across all property types, rents should begin to recover in the second half of 2011 and first half of 2012.

The improving outlook for space market fundamentals and increasing risk appetite on the part of investors, evident in record low junk bond-yields, will likely cause cap rate spreads to compress over the near to medium term, and remain below the long-term average as investors anticipate a recovery in property income. Assuming that is the case, Exhibit 8 shows the expected ending cap rates based on historical cap rate spreads versus Treasury bonds since 1992 for a range of ending Treasury yields (from 4% to 6%). The table shows the resulting range of ending cap rates for three ending Treasury yield scenarios if cap rate spreads compress to their all-time low (+41 bps) or revert to the long-term average (+263 bps). For example, if the Treasury bond yield increases to 5%, the likely range of ending cap rates would be 5.4% to 7.6%. At the midpoint of this range, 6.5%, the increase in the NCREIF cap rate would be about 40 bps.

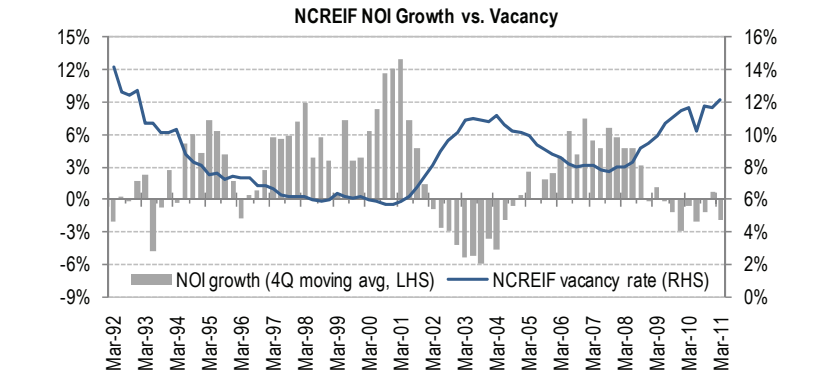
Exhibit 8: Potential Range of Ending Cap Rates

	Ending 10-year Treasury		
Cap Rate Spread	**4.0%**	**5.0%**	**6.0%**
Long-term Avg (+263 bps)	6.6%	7.6%	8.6%
Midpoint	5.5%	6.5%	7.5%
Low Spread (+41 bps)	4.4%	5.4%	6.4%

PREI Research

Taking the analysis one step further, we can use a "building blocks" approach to calculate expected total returns for a range of ending cap rates based on the current NCREIF cap rate (6.1%), the historical spreads shown above, and an assumed NOI growth rate. The model is relatively simple: the expected total return is equal to the initial cash yield, which we set to 80% of the cap rate, plus the projected growth in NOI, plus (or minus) the implied value change based on the shift in the cap rate. Over the complete history of the NPI, NOI growth has averaged about 2.9% (Exhibit 9). Unsurprisingly, growth has been much stronger during recovery periods, averaging 5.5% during the extended recovery from the early-90s market crash (2Q94-2Q01), and 4.0% in the recovery from the 2001 recession (4Q04-3Q08).

Exhibit 9: NOI Growth Should Rebound As Vacancies Recede

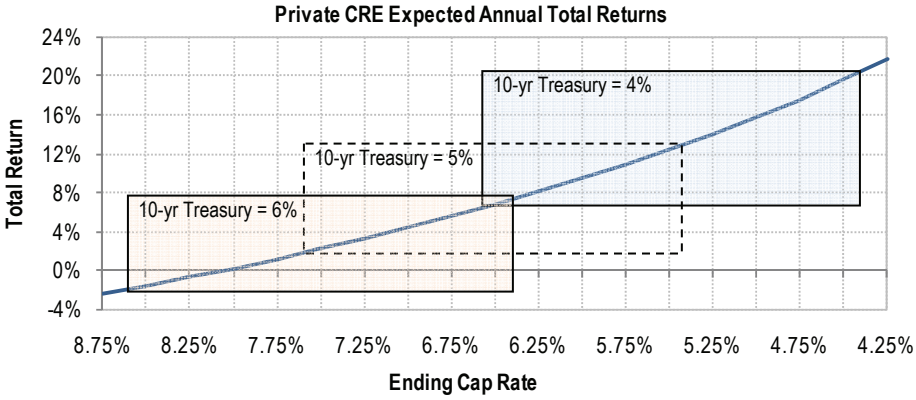


NCREIF; PREI Research (data as of 1Q11)

Exhibit 10 shows the expected annual total returns over a three-year time horizon assuming NOI growth of 4% per year. The shaded blue box in the upper right quadrant highlights the range of expected returns if the 10-year Treasury increases to 4% and cap rate spreads are between the all-time low and long-term average, as shown in Exhibit 8. The dotted-line box in the center shows the range of expected returns

assuming a 5% Treasury yield, which is roughly in line with Moody's forecast for early 2014; and the pale orange-shaded box (lower left) shows the range for a 6% Treasury yield. As a point of reference, if in three years the 10-year Treasury is 5%, NOI growth averages 4% per year and the ending cap rate rises to 6.5% (the midpoint of the range in Exhibit 8), the three-year expected total return for core, unleveraged real estate would be about 6.8% per year, which seems to fit well with expectations for stocks and bonds.

Exhibit 10: Three-Year Expected Total Returns, Unleveraged Core Real Estate



PREI Research

Assumptions and Caveats

As is always the case when using historical commercial real estate data to develop a view of the future, it is important to remember the limitations of the data that is available for the asset class. This analysis relies on cap rate data from the NCREIF Property Index, which began tracking the US institutional commercial real estate market in 1978. NCREIF has made an invaluable contribution to our understanding of private, institutional real estate performance, but the data is nevertheless imperfect. Beyond the thinness of the early history, the appraisal-based nature of the index creates a lag that likely causes NCREIF cap rates to miss the peaks and troughs of the cycle, which may dampen the effects of rising interest rates. Analysis of the index's relatively short history is further compromised by the significant structural changes that have taken place over the past two decades, particularly in the real estate capital markets but also in the global economy.

Furthermore, each of the six rising interest rate cycles identified in this analysis has its own "story" that will never be replicated exactly. In the earliest cycle, during the late 1970s and early 1980s, the NCREIF data was very thin, the asset class was relatively new to institutional investors and inflation was very high. It is highly likely that all of these factors affected cap rate behavior. Likewise, during the most recent rising interest rate cycle, from 2004-2006, capital flows into real estate were extraordinarily strong, and the securitized debt market (CMBS) was booming. Future cycles will be impacted by different dynamics which, at the very least, makes it difficult to generalize about how cap rates will respond to rising interest rates.

Lastly, forecasting interest rates is difficult and fraught with risk. The range of projections for Treasury yields over the next several years is very wide, and though most expect rates will converge toward 5%, there is even some disagreement over the direction that rates will move. Moreover, context matters. The magnitude, timing and catalysts of interest rate movements are critically important factors in how cap rates

respond. Our analysis assumes that the US economy continues to expand, perhaps at a below-trend growth rate in the near term, and that the long-term deficit is addressed such that US Treasury bonds remain a primary safe harbor for investors. However, there is always a risk that exogenous shocks – such as continued high oil prices due to unrest in the Middle East, or the sovereign debt crisis in Europe – could significantly disrupt the global financial markets.

Closing Thoughts

Investors' concerns about the impact of rising interest rates on commercial real estate are understandable, and in the near term, some disruptions in the transaction market and REIT market are likely when long-term rates begin to move higher. However, the historical evidence from NCREIF suggests it would be a mistake to interpret near-term volatility in spot pricing as an ominous sign for the asset class. Real estate performance is largely determined by capital and space market forces, and barring a contraction in the US economy, space market forces will have a positive effect on property performance over the next several years.

In fact, if supply remains subdued for an extended period, which appears likely given banks' limited appetite for construction lending and the wide gap in many markets between property values and replacement costs, the real estate cycle could enjoy a protracted recovery in fundamentals, similar to the latter half of the 1990s. While the likelihood of higher interest rates necessarily means that capital market forces will be less favorable than if rates were to remain low or decline further, history strongly suggests that the cost and availability of capital are not purely a function of benchmark interest rates. Investor sentiment – the risk premium, as reflected in the spreads ascribed to commercial real estate and other risky assets – is also critical. Against a backdrop of improving fundamentals and the threat of inflation, real estate should look relatively attractive, even if Treasury rates rise.

Important Disclosures

These materials represent the views, opinions and recommendations of the author(s) regarding the economic conditions, asset classes, securities, issuers or financial instruments referenced herein. Distribution of this information to any person other than the person to whom it was originally delivered and to such person's advisers is unauthorized, and any reproduction of these materials, in whole or in part, or the divulgence of any of the contents hereof, without prior consent of Prudential Real Estate Investors is prohibited. Certain information contained herein has been obtained from sources that PREI believes to be reliable as of the date presented; however, PREI cannot guarantee the accuracy of such information, assure its completeness, or warrant such information will not be changed. The information contained herein is current as of the date of issuance (or such earlier date as referenced herein) and is subject to change without notice. PREI has no obligation to update any or all of such information; nor do we make any express or implied warranties or representations as to the completeness or accuracy or accept responsibility for errors. These materials are not intended as an offer or solicitation with respect to the purchase or sale of any security or other financial instrument or any investment management services and should not be used as the basis for any investment decision. Past performance may not be indicative of future results. No liability whatsoever is accepted for any loss (whether direct, indirect, or consequential) that may arise from any use of the information contained in or derived from this report. PREI and its affiliates may make investment decisions that are inconsistent with the recommendations or views expressed herein, including for proprietary accounts of PREI or its affiliates.

The opinions and recommendations herein do not take into account individual client circumstances, objectives, or needs and are not intended as recommendations of particular securities, financial instruments or strategies to particular clients or prospects. No determination has been made regarding the suitability of any securities, financial instruments or strategies for particular clients or prospects. For any securities or financial instruments mentioned herein, the recipient(s) of this report must make its own independent decisions.

Conflicts of Interest: Key research team staff may be participating voting members of certain PREI fund and/or product investment committees with respect to decisions made on underlying investments or transactions. In addition, research personnel may receive incentive compensation based upon the overall performance of the organization itself and certain investment funds or products. At the date of issue, PREI and/or affiliates may be buying, selling, or holding significant positions in real estate, including publicly traded real estate securities. PREI affiliates may develop and publish research that is independent of, and different than, the recommendations contained herein. PREI personnel other than the author(s), such as sales, marketing and trading personnel, may provide oral or written market commentary or ideas to PREI's clients or prospects or proprietary investment ideas that differ from the views expressed herein. Additional information regarding actual and potential conflicts of interest is available in Part II of PIM's Form ADV.

Prudential Investment Management is the primary asset management business of Prudential Financial, Inc. Prudential Real Estate Investors is Prudential Investment Management's real estate investment advisory business and operates through Prudential Investment Management, Inc. (PIM), a registered investment advisor. Prudential Financial and the Rock Logo are registered service marks of The Prudential Insurance Company of America and its affiliates.

Prudential Real Estate Investors
8 Campus Drive
Parsippany, NJ 07054
USA

Tel 973.683.1745
Fax 973.734.1319
Web www.prei.com
E-mail prei.reports@prudential.com

© Copyright 2011