

Morgan Stanley

Frozen on the Rates

Impact of Interest Rates on Capitalisation Rates

by Paul Mouchakkaa



Growing up in Canada, hockey was consistently a big part of my life (and still is). With the Winter Olympics, 2014 is a big year in the hockey realm as 12 nations competed for a gold medal in Sochi, Russia. In hockey, there are many ingredients: stick, skates, pads, ice, net, but none more important than the puck. The puck is a frozen disc of vulcanised rubber that every player is chasing, passing, shooting, defending and anticipating its next location. In fact, in the 1990s, Fox Television devised a system which had internal electronics allowing television viewers to track the position of the puck with a blue glow on the screen. Its purpose was to aid viewers to better follow and understand the action of the game.

In today's investment realm, the puck, arguably, is interest rates. Since the global financial crisis (GFC), we have experienced an unprecedented period of low interest rates combined with low inflation. Public equities, real estate, agricultural land and private equity investments have enjoyed strong returns since 2009, which has largely synced up with the quantitative easing (QE) programme introduced by the Federal Reserve. In real estate, office capitalisation rates, or cap rates, as measured in the NCREIF Property Index, have fallen by approximately 160

basis points to 5.6 percent since 2Q 2012 (as of September 30, 2013). As such, many investor eyes are focused on the actions and words of policymakers as to what may or may not happen to interest rates.

With the Fed first hinting in May 2013 at “tapering” and now actually beginning to cut back on QE, the rate on the 10-year US Treasury note has risen to approximately 3 percent today (an increase of approximately 150 basis points from the nadir in July 2012). This has caused considerable unease with investors, particularly in real estate, where some fear that cap rates may be about to rise, signaling the beginning of a real estate correction.

Paul Mouchakkaa is a Managing Director of Morgan Stanley and Head of Global Research and Strategy for the Morgan Stanley Real Estate Investing business (MSREI). Paul was a managing director of real estate consulting services for PCA before joining MSREI. Prior to this, he served as a Portfolio Manager for real estate at the California Public Employees' Retirement System (CalPERS), where he oversaw the research, operations and analytics for CalPERS' entire real estate portfolio. Paul is an active member of various real estate organisations including NCREIF, IREI and the REIS Council. He received a BA with Highest Honors in Economics from Carleton University and an MBA in Finance from the University of Oregon.



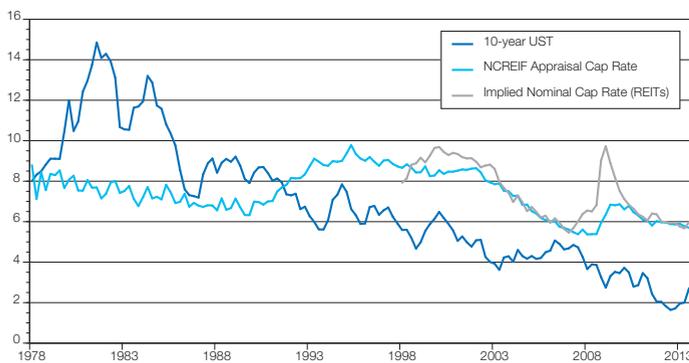
Our analysis, however, suggests a singular focus on the connection between interest rates and cap rates is one that requires much more consideration and perspective. We have looked at the issue first from a technical point of view, and then drawn inferences on what we may experience from a more sustained increasing-rate environment going forward. We believe this paper may serve to provide investors with some key indicators to monitor and potentially act accordingly.

Focusing solely on how interest rate rises may trigger cap rate increases in a vacuum can

be potentially dangerous. Just like in hockey, a player should not be fixated on, or frozen by, the puck alone and must be aware of several other variables in any game situation. In fact, a player may only touch the puck for about a minute in a game of hockey, making his/her play away from the puck of greater importance than his/her play with the puck. Thus, investors must be cognisant of other variables in formulating their investment decisions in today's environment.

Display 1: Cap Rates Show Disconnect with US Treasuries

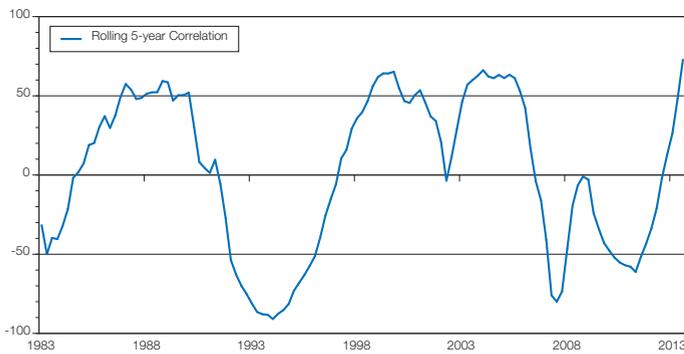
*Cap Rates and US Treasury Yields
1978 through 2013 Q3, Quarterly Yield, %*



Sources: Moody's Analytics, NCREIF, Green Street Advisors, US Federal Reserve Board. Data through September 30, 2013.

Display 2: Rolling 5-Year Correlation Varies Widely Over Time

*Rolling 5-Year Correlation
US Treasury Yield and Real Estate Cap Rate, 5-Year Correlation, %*



Sources: Moody's Analytics, NCREIF, MSREI Strategy. Data through September 30, 2013.

Display 3: Statistical Relationship Depends on Time Horizon							
Statistical Correlation and Beta Cap Rates relative to 10-Year US Treasury Yield							
	1-yr	3-yr	5-yr	7-yr	10-yr	20-yr	Since 1978
Correlation	-0.82	0.45	0.73	-0.19	0.11	0.79	0.26
Beta	-0.18	0.12	0.41	-0.09	0.06	0.72	0.09

Sources: Moody's Analytics, NCREIF, MSREI Strategy. Data as of September 30, 2013.

Technical Analysis

The logic behind a connection between cap rates and interest rates makes sense, both intuitively and theoretically. As the "risk-free" alternative, the rate on 10-year US Treasury notes generally serves as the baseline for expected returns. From a historically observed point of view, however, studying the correlation of cap rates and US Treasury rates is somewhat unwieldy. There are timing disconnects, appraisal lags, and other exogenous variables that influence the bond market and real estate market differently. The most obvious technical impediment is that the US economy has had essentially a "bond bull market" for the past 32-plus years where interest rates have been on a broad downward trajectory. Thus, studying the impact of US Treasury rates on cap rates is somewhat challenging.

The broad and sweeping conclusion based on a pure technical/quantitative point of view is that there is very little correlation historically between cap rates and changes in the 10-year US Treasury rates. As shown in *Display 1*, there have been various episodes where cap rates have not moved in the same direction as US Treasury yields.

In addition, digging deeper and analysing key descriptive statistics also shows very little consistent connection between cap rates and interest rates. The 5-year rolling correlation varies considerably over time as shown in *Display 2*. Additionally, the static correlation coefficient calculation also demonstrates considerable dispersion over various time horizons in *Display 3*.

The last element of technical analysis we undertook was an episodic analysis of actual periods when the 10-year US Treasury yield moved upward and how cap rates reacted.

As shown in *Display 4*, there have been eight key periods where Baa corporate rates and/or the 10-year US Treasury rate have moved upward, and in five of these eight historic episodes cap rates have actually moved in the opposite direction. Given the lagged nature of valuation and appraisals, this phenomenon even held true when measuring cap rates on a one-year forward basis. Only during the periods from December 1989 to October 1990, October

1993 to November 1994 and during the GFC from November 2007 to November 2008 did cap rates increase along with corporate bonds or US Treasury rates.

Thus, from the technical side, it is quite tenuous to make claims that a rise in interest rates will be met with a rise in cap rates. However, the technical analysis — particularly the episodic analysis — does provide some insight and inferences that may be drawn from a historical perspective. Importantly, an upward movement in interest rates and cap rate changes cannot be looked at and analysed in a vacuum.

Key Inferences

In studying the various episodes shown in *Display 4*, some key inferences can be drawn on what other factors have historically affected cap rates. The first variable is credit availability. The influence credit availability has on real estate values simply cannot be ignored. Actually, in the period from October 1998 to May 2000, US Treasury rates increased 191 basis points while the stock of US commercial real estate mortgages rose by over \$450 billion. This resulted in a fall in cap rates of 32 basis points over the same period and 5 basis points, one-year forward. In contrast, during the early 1990s (December 1989 to October 1990), US Treasury rates increased 88 basis points, while lending stock scaled back by over \$50 billion. In this instance, cap rates increased by 68 basis points over the same period and 150 basis points, one-year forward.

Shifting to today, banks in the US have been showing increased appetite for real estate. Although construction financing is still hard to come by, real estate credit flows have been increasing over the past two years, and the CMBS market has reinvented itself and is playing a more active role in today's real estate lending environment. The risk here, however, is that credit availability can shift rather quickly as shown during the GFC, when banks essentially stopped lending and the CMBS market came to a complete halt.

The second key variable to pay close attention to regarding the connection between interest rates and cap rates is the supply/demand dynamic. During the late 1980s, supply grew well ahead of potential demand. From 1985 to the end of the decade, approximately 700 million square feet of office came online versus absorption of 526 million square feet. Further, construction financing grew at a compound annual growth rate of 23.5 percent between 1984 and 1988. Looking at the lead-up to the GFC, approximately 262 million square feet of office space came online while absorption was only 48 million square feet. This time around,

construction financing grew at approximately 18 percent between 2004 and 2008 as condo conversions and residential housing projects exploded in growth. Essentially, the glut of supply and pullback of credit led to a rise in cap rates in the early 1990s whereas, a large fall in demand (starting in 2008) coupled with little

Display 4: Past Periods of Rising Interest Rates

Episodic Analysis

Change in basis points over the period	10-yr US Treasury yield	Baa corporate yield	NPI real estate cap rate	NPI real estate cap rate (1-yr forward impact)
Jan to Oct 1987	244	190	-13	-26
Dec 1989 to Oct 1990	88	92	68	150
Oct 1993 to Nov 1994	263	201	4	16
Jan to Sep 1996	118	88	-16	-24
Oct 1998 to May 2000	191	172	-32	-5
Feb 2005 to Jun 2006	94	96	-52	-94
Nov 2007 to Nov 2008	-62	281	50	142
Jul 2012 to Sep 2013	128	60	-26	nd

Sources: Moody's Analytics, NCREIF, MSREI Strategy. Data as of September 30, 2013.

credit availability caused the most recent rise in cap rates during the GFC.

Inflation is another key variable. The recent rise in interest rates since mid-2012 has largely been a change in the real yield. If the cause of further increases in US Treasury rates emanates from an increase in inflation, real estate values may not necessarily fall materially. Real estate has the potential to offer partial inflation protection, as higher cash flow from rents or income

About Morgan Stanley Real Estate Investing

Morgan Stanley Real Estate Investing (MSREI) is the global private real estate investment management arm of Morgan Stanley. For more than two decades, MSREI has been one of the most active global real estate investors, acquiring over \$188 billion of assets in 36 countries as of December 31, 2013. With 16 offices across 12 countries worldwide, MSREI leverages the relationships, expertise and perspective of Morgan Stanley to provide our clients with access to real estate globally. For more information about MSREI, please visit our website at www.morganstanley.com/realestate.

About Morgan Stanley Investment Management

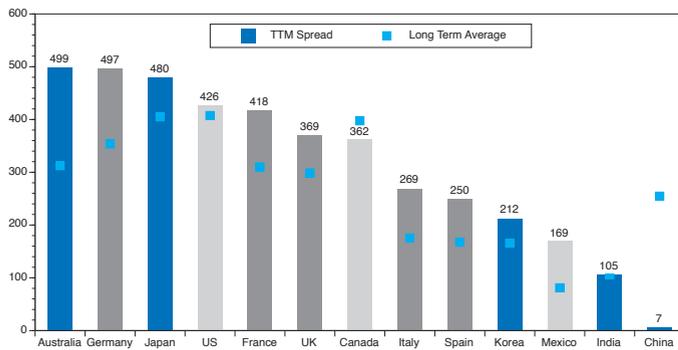
Morgan Stanley Investment Management (MSIM), together with its investment advisory affiliates, has 558 investment professionals around the world and approximately \$373 billion in assets under management or supervision as of December 31, 2013. MSIM strives to provide outstanding long-term investment performance, service and a comprehensive suite of investment management solutions to a diverse client base, which includes governments, institutions, corporations and individuals worldwide. For more information, please email us at info@morganstanley.com or visit our website at www.morganstanley.com/im.

may offset any rise in cap rates. Inflation, however, has not shown any material increase, so far. What may further mitigate a potential rise in cap rates, though, even if inflation does not increase is the fact that current cap rate spreads to sovereign bond rates in many countries are

Display 5: Current Cap Rate Spreads May Act as a Buffer

Office Cap Rate Spread to Sovereign Bond Yields

TTM Transaction Cap Rates to 10-Year Gov't Note Yields (bps)



Sources: Real Capital Analytics, Bloomberg, Moody's Analytics, MSREI Strategy. Data as of September 30, 2013. Average since March 2007, except China and India in which data goes back to June 2010.

well above their historic means. This may act as a buffer for real estate value changes in a rising rate environment (*Display 5*).

Conclusion

In summary, the connection between cap rates and interest rates has historically been loose. Perhaps this is merely due to the fact there has been a long downward trajectory in interest rates over the past 30-plus years. However, even so, cap rates cannot be viewed in a vacuum as only being driven by changes in US Treasury rates, nor as a proxy for overall real estate returns. Other variables such as credit availability, the supply/demand dynamic, inflation and spreads must also be taken into account. The picture today shows that these other variables may mitigate or potentially offset any rise in cap rates. Credit availability is growing, construction lending has been muted, demand is outpacing supply broadly and spreads have been wider than historic means. So far, inflation-led growth has been a missing ingredient.

Thus, it is not easy to draw a firm conclusion on what may happen to cap rates and real estate values should interest rates climb. It is very difficult and challenging to try to react accordingly with precision to a variable as unpredictable as interest rates. The puck has a tendency to bounce around unpredictably and randomly. To overreact or put too much focus only on rates would not necessarily serve the goals and objectives of investors. Being mesmerised or frozen by the puck may lead to being left out in the cold. ❖

DISCLAIMER

This document is being provided for informational purposes only and is not an offer, or a solicitation of an offer, to buy or sell any security or strategy.

Past performance is not indicative of future results. The views and opinions expressed in the document are speculative in nature, subject to change, may not come to pass, and are not intended to predict the future of any investment.

All investing involves risks, including a loss of principal. The risks associated with real estate investing can include fluctuations in the value of underlying properties; defaults by borrowers or tenants; market saturation; changes in general and local economic conditions; decreases in market rates for rents; increases in competition, property taxes, capital expenditures, or operating expenses; and other economic, political or regulatory occurrences affecting the real estate industry.

The information contained herein refers to research, but does not constitute an equity research report and is not from Morgan Stanley Equity Research. Unless otherwise indicated, the views expressed are those of the research and strategy team of Morgan Stanley Real Estate Investing ("MSREI") and may differ from those of Morgan Stanley Equity Research and other Morgan Stanley affiliates (including others within MSREI). These views may also differ from investment strategies implemented by MSREI now or in the future. The information (including facts, opinions, estimates or projections) contained herein is based on financial, economic, market and other conditions prevailing as of the date hereof. As such, it remains subject to change at any time. By providing such information, MSREI assumes no obligation to provide any update or supplement to such information following the date hereof. Although reasonable care has been taken to ensure that the information (including facts, opinions, estimates or projections) contained herein is accurate, complete and fair, no warranty, express or implied, is made as to the accuracy, completeness or fairness of such information. Certain economic and market information contained herein may have been obtained from third parties sources. While MSREI believes that such sources are reliable, neither MSREI nor any other Morgan Stanley affiliate has independently verified such information or assumes any responsibility or liability for the accuracy, completeness or fairness of such information or any omission of information.

These materials contain projections and other forward-looking statements. Any statements that are not historical facts are forward-looking statements that involve risks and are inherently uncertain. Sentences or phrases that use such words as "believe," "anticipate," "plan," "may," "hope," "can," "will," "expect," "should," "goal," "objective," "projected" and similar expressions also identify forward-looking statements, but their absence does not mean that a statement is not forward-looking. Portfolio "profiles" by property type, location, investment structure, leverage or return for blind pool or partially blind pool products should be treated as projections. Projections and other forward-looking statements, including statements regarding MSREI's assessment of the market, are by their nature uncertain insofar as actual realised returns or other projected results can change quickly based on, among other things, unexpected market movements, changes in interest rates, legislative or regulatory developments, errors in strategy execution, acts of God and other asset-level developments. There can be no assurance that projections and other forward-looking information will not change based on subsequent developments and without further notice, and no assurance can be given as to outcome. You should not place undue reliance on forward-looking statements, including forecasts and projections, and statements regarding the assessment of the market, which speak only as of the date referenced herein.