

## REIT Preferred Securities in a Rising Interest Rate Environment

*Patience has historically been rewarded when investing in REIT preferred shares*

### Executive Summary

- *During short bursts in interest rates: Performance has been resilient – and in each case when losses have occurred, the asset class recovered any and all losses within 6 months.*
- *During extended periods of rising interest rates: Performance has varied – but consistently positive during the following 12 months.*
- *Performance of the REIT preferred asset class has historically been moderately correlated with long term changes in 10-year U.S. Treasury yields – with certain periods exhibiting tight correlations and other periods showing almost no correlation.*
- *Not all REIT preferreds perform equally: Individual REIT preferreds can perform quite differently during periods of rising interest rates.*
- *Patience has historically been rewarded when investing in REIT preferred shares.*

(Please note that this document is only intended to provide education and transparency into the REIT preferred asset class.)

## I. Historical Performance of REIT Preferreds During and Subsequent to Short Bursts in Interest Rates

- *Performance has been resilient – and in each case when losses have occurred, the asset class recovered any and all losses within 6 months.*

Historic returns of the REIT preferred asset class have, in our view, been resilient during periods of abrupt increases in interest rates. While REIT preferreds have experienced both positive and negative returns over these periods, overall, the asset class has only dropped by 1% on average. Specifically, we analyzed all time periods since 2000 during which the 10-year U.S. Treasury rate rose by at least 50 basis points within 12 months. In doing so, we found 11 such occurrences; of those 11 time periods, we have depicted nine in Figure 1<sup>(1)</sup>.

*Figure 1: Performance of REIT Preferreds During and After Short Bursts in Interest Rates*

Period	# of months	10-year Treasury Rate			REIT Preferred	
		Start rate	End rate	Difference	During rising rates	6-month after
Nov 2001 - Mar 2002	5	4.2%	5.4%	1.2%	8%	6%
Jun 2003 - Jul 2003	2	3.1%	4.1%	1.0%	0%	7%
Apr 2004 - May 2004	2	3.7%	4.9%	1.2%	-7%	11%
Sep 2005 - Jun 2006	10	4.0%	5.1%	1.1%	2%	7%
Nov 2010 - Dec 2010	2	2.6%	3.3%	0.7%	1%	7%
Feb 2012 - Mar 2012	2	1.8%	2.4%	0.6%	1%	7%
May 2013 - Dec 2013	8	1.7%	3.0%	1.3%	-10%	15%
Feb 2015 - Jun 2015	5	1.6%	2.4%	0.8%	0%	3%
Oct 2016 - Dec 2016	3	1.6%	2.6%	1.0%	-5%	9%
<b>Average</b>	<b>4</b>			<b>1.0%</b>	<b>-1%</b>	<b>8%</b>

*Short bursts in interest rates defined as at least 0.5% rise in the 10-year yield within 12 months. REIT preferred total return based on the Wells Fargo Hybrid & Preferred Securities REIT Index (WHPSR). Source: Bloomberg.*

Based on this analysis, we believe that the performance of REIT preferreds in the face of abrupt increases in interest rates has been resilient, with a positive return in three time periods shown above, a flat return in two, and a negative return in four time periods.

Overall, 10-year U.S. Treasury rates rose by an average 100 basis points during these nine time periods, while the average return for REIT preferreds was a modest negative 1%. The data also shows that within the following six months, REIT preferreds produced an average 8% total return – and in each period, generated returns in excess of what was lost in previously. In our view, this indicates that sell-offs in response to brief spikes in interest rates have represented buying opportunities.

We note that REIT preferred performance is driven by many factors beyond changes in interest rates, and discuss several of these other drivers in Sections III and V of this report. As such, while this discussion draws an implicit cause-and-effect relationship between the movement in interest rates and the performance of REIT preferreds, other factors have played and will play a meaningful role in asset class returns. We thus caution that future episodes of rising rates may result in different returns and may not prove consistent with prior data.

*Ultimately, we believe patient investors have historically been rewarded for holding onto their REIT preferred shares through and after short bursts in interest rates.*

## II. Historical Performance of REIT Preferreds During and Subsequent to More Extended Periods of Rising Rates

➤ *Performance has been varied – but consistently positive over the next 12 months.*

REIT preferreds have historically exhibited varied results during more extended periods of rising interest rates – which counters popular belief that rising interest rates negatively impact REIT preferreds. Specifically, we have analyzed all extended periods of time (defined by us to be longer than 12 months) since 1998 when interest rates have risen in excess of 150 basis points. In doing so, we have found three such occurrences<sup>(2)</sup>. We have highlighted performance of the REIT preferred asset class during these three time periods and 12 months subsequent time periods in Figure 2.

<sup>(1)</sup> We omitted two time periods that satisfied our criteria for abrupt increases in interest rates because we believe performance of REIT preferreds was primarily driven by macroeconomic factors other than interest rates (including them would have favorably skewed our results for REIT preferreds). Specifically, we omitted the period before the bursting of the “tech bubble” from April 1999 to June 1999, during which REIT preferreds rose 2%, and fell 12% in the subsequent six months, along with the broader market. We also omitted the period from January 2009 to March 2009, right after the great financial crisis. The asset class rose 18% during that period and rose another 30% in the subsequent six months. We also excluded asset class performance from January 2018 to present (during which 10-year U.S. Treasury yields have risen by ~50 bps) as subsequent returns are definitionally not available.

<sup>(2)</sup> Note that the period of August 2012 to December 2013 meets our criteria for an extended period of rising interest rates, but much of this increase was attributable to a short term burst from May to December 2013, which is shown in Figure 1. We have also excluded asset class performance from July 8, 2016 to present (during which 10-year U.S. Treasury yields have risen ~150bps) as subsequent returns are definitionally not available.

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As seen in Figure 2, performance has varied, which counters popular belief that a rising interest rate environment always spells trouble for REIT preferreds. Instead, the asset class has actually generated an average 3% total return during these extended time periods, and positive returns in one such occurrence. Further, in the two periods that REIT preferreds experienced a decline, the asset class generated 20-25% returns in the following 12 months – both levels of returns that were several multiples in excess of what was lost.

**Figure 2: Performance of REIT Preferreds During and After Extended Periods of Rising Interest Rates**

Period	# of months	10-year Treasury Rate			REIT Preferred	
		Start rate	End rate	Difference	During rising rates	12-month after
Oct 1998 - Dec 1999	15	4.4%	6.4%	2.0%	-9%	25%
Jun 2003 - Jun 2006	37	3.1%	5.1%	2.0%	21%	8%
Aug 2012 - Dec 2013	17	1.5%	3.0%	1.6%	-3%	20%
<b>Average</b>	<b>23</b>			<b>1.9%</b>	<b>3%</b>	<b>18%</b>

*Extended rise in interest rates defined as at least 1.5% increase in 10-year yield over more than 12 months. REIT preferred total return based on the ICE Bank of America Merrill Lynch REIT Preferred Index prior to 2000 and based on the Wells Fargo Hybrid & Preferred Securities REIT Index (WHPSR) subsequent to 2000, as the WHPSR began in January 2000. Source: Bloomberg.*

We take away two key implications from the above data. First, our analysis indicates that REIT preferreds may not necessarily experience negative returns in the event of an extended period of rising interest rates. Rather, we believe the asset class's relatively high income accumulation and other factors may combine to offset any deleterious impact of rising interest rates. Second, the asset class has historically exhibited positive returns in the 12 months following extended periods of rising interest rates. In our view, this indicates that sell-offs in response to extended spikes in interest rates have represented buying opportunities.

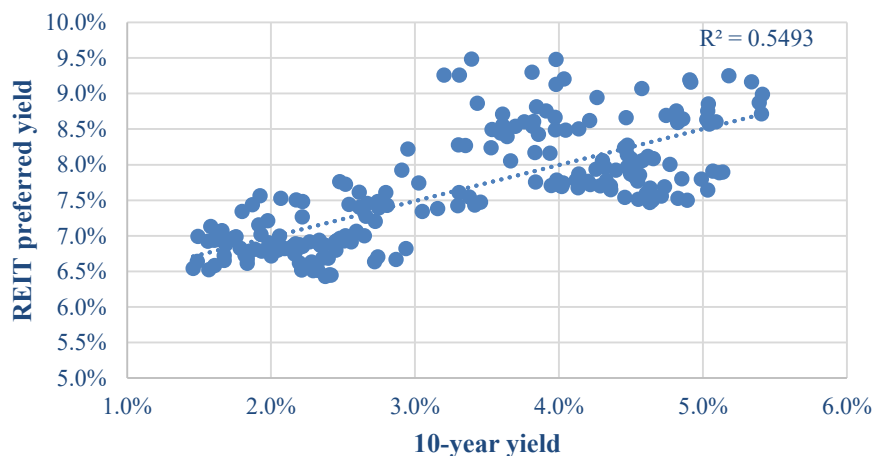
*We believe patient investors have been rewarded for holding onto their REIT preferred shares through and after extended periods of rising interest rates.*

## III. Statistical Correlation Between Performance of REIT Preferreds and 10-year U.S. Treasuries

- *Performance of the REIT preferred asset class has historically been moderately correlated with long-term changes in 10-year U.S. Treasury yields – with certain periods exhibiting tight correlations and other periods showing almost no correlation.*

Consistent with popular belief, the long term performance of REIT preferreds has been moderately correlated to changes in 10-year U.S. Treasury rates. Specifically, we calculate that the R-squared between REIT preferred yields and 10-year U.S. Treasury yields from 2001 through May 2018 is 55%, which indicates that the two yields are only mildly correlated. (R-squared is a statistical calculation that measures the amount of movement in one variable that can be explained by movement in another variable; in this context, the changes in REIT preferred yields that can be explained by changes in U.S. 10-year Treasury yields. The higher the R-squared, the more statistically correlated the two series of data.)

*Figure 3: Long Term Correlation between REIT Preferreds and 10-year U.S. Treasuries (2001-2018)*

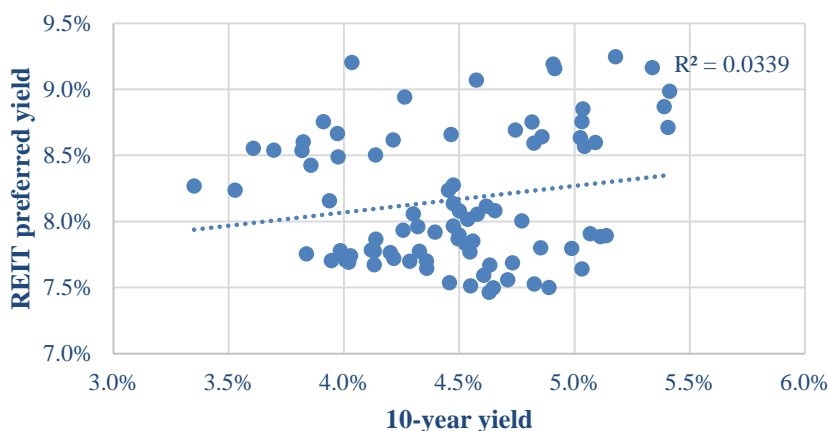


*REIT preferred yields based on the Wells Fargo Hybrid & Preferred Securities REIT Index (WHPSR). Data based on month-end values from January 2001 to May 2018. Source: Wells Fargo, Bloomberg.*

That said, when digging in more deeply, we find that the relationship between REIT preferreds and 10-year US Treasuries has varied greatly over time, with certain periods showing tight correlations and other periods showing almost no correlation.

Going back a ways, the statistical correlation between REIT preferreds and 10-year U.S. Treasuries from 2001 to 2007 as shown in Figure 4 was close to zero (R-squared of just 3%). During this period of time, the S&P 500 rose by 97%, economic conditions were robust and the REIT preferred market marched steadily higher – performance which we believe was irrespective of changes in interest rates. As a consequence, correlations between these two were essentially nil, and other influences served as a driving force in the performance of REIT preferreds.

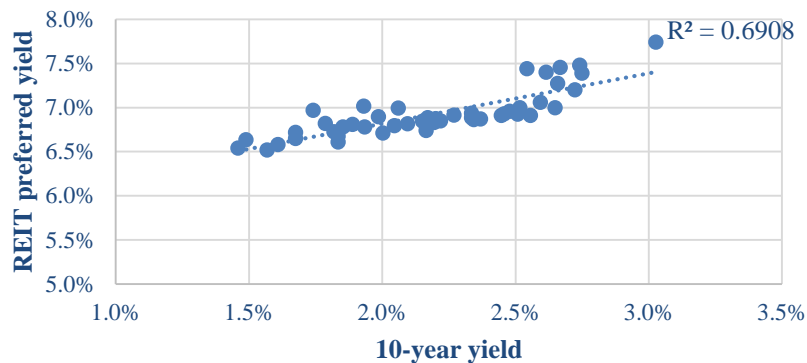
**Figure 4: Correlation between REIT Preferreds and 10-year U.S. Treasuries (2001-2007)**



*REIT preferred yields based on the Wells Fargo Hybrid & Preferred Securities REIT Index (WHPSR). Data based on month-end values from January 2001 to December 2007. Source: Wells Fargo, Bloomberg.*

Fast forward to after the financial crisis, REIT preferreds were more highly correlated with 10-year U.S. Treasuries. From 2013 to 2016, we calculate the R-squared between the two to be close to 70%, which is considered to be tightly correlated. During that time, credit spreads for REIT preferreds had returned to more normal levels (from what were extraordinarily wide levels during the financial crisis from 2009 through 2012) and we believe that changes in preferred asset prices and yields were more prominently explained by changes in U.S. Treasuries than in other variables.

*Figure 5: Correlation between REIT Preferreds and 10-year U.S. Treasuries (2013-2016)*



*REIT preferred yields based on the Wells Fargo Hybrid & Preferred Securities REIT Index (WHPSR). Data based on month-end values from January 2013 to December 2016. Source: Wells Fargo, Bloomberg.*

Please note that since 2017, we calculate that correlations between REIT preferreds and 10-year U.S. Treasuries have actually broken down again, with an R-squared of just 30%. (Though we note that the limited number of monthly observations over this time period may mean the R-squared is not statistically significant). REIT preferred dividend yields have risen just 20 basis points over the past 17 months despite U.S. Treasury yields rising by 47 basis points over that same period. Hence, the asset class has recently benefitted from credit spread compression that has helped to drive asset class pricing. (Please see next section for additional description as to how credit spreads may impact the performance of REIT preferreds in a manner that may serve to counterbalance any deleterious impact of rising interest rates.)

When taken in total, our analysis suggests that changes in the performance of REIT preferreds are moderately correlated to changes in 10-year U.S. Treasuries over the longer term – but over shorter time periods, other variables such as changes in credit spreads or in the broader equity market may play a large role in driving performance in the asset class.

*We believe REIT preferreds do carry a moderate long term correlation with 10-year U.S. Treasuries, but that the relationship has varied greatly depending upon (sometimes more powerful) macroeconomic factors.*

## IV. Not All REIT Preferreds Respond the Same to Rising Interest Rates

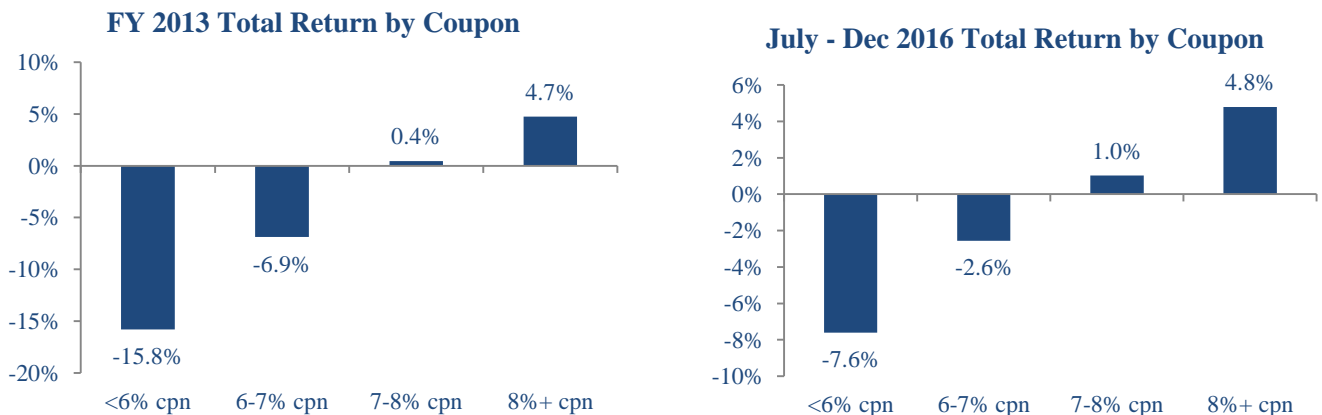
- *Individual REIT preferred issues can perform quite differently during periods of rising interest rates*

Not all REIT preferreds are created equally. Issues differ by balance sheet leverage, property sector exposure, credit-worthiness, coupon, call protection, duration, ownership profile, and other characteristics. While many factors influence the performance of REIT preferreds, we focus on four issues that – aside from changes in interest rates – we believe play a vital role in the ultimate total return performance of REIT preferred shares.

**A: Coupon:** REIT preferred issues carry coupon yields ranging from less than 5% to over 9%. These various coupons have historically responded quite differently to changes in interest rates, with lower coupon preferreds generally being more interest rate sensitive (i.e. demonstrating higher duration) than higher coupon preferreds. For example, Figure 6 depicts the weighted average total return of REIT preferreds by coupon in calendar year 2013 and in the second half of 2016—two time periods when interest rates have risen. In both periods, higher coupon issues dramatically outperformed lower coupon issues, with excess returns of as much as 20% during certain periods of time.

*Our analysis suggests that not all REIT preferreds are created equal, and that selected preferred shares—particularly those with higher coupons—could still provide positive returns even during periods of rising interest rates.*

**Figure 6: Dispersion in REIT Preferred Returns**



REIT preferred returns based on LDR Capital Management proprietary database. Source: LDR Capital Management, Bloomberg.



**B. Callability:** New issue REIT preferreds generally carry 5 years or more of call protection. This feature enables REIT preferred investors to lock in predictable and durable income streams for an extended period of time. Once preferreds have reached their call dates, though, REIT issuers have the ability to retire their preferred securities. In certain circumstances, soon-to-be-called preferred securities trade tightly to par value given the expectation of being redeemed, and thus experience little duration risk.

*Selected currently callable preferred securities have and should continue to exhibit little duration risk – and, in our view, offer reasonable protection during times of rising interest rates.*

**C. Credit Quality:** The REIT preferred universe is marked by a large number of eclectic, non-rated and smaller issues – as well as a large number of first-time issuers. In 2017 alone, we count 11 REIT preferred issuances sized less than \$100 million and separately, 15 first-time issuers. In addition, we calculate that 48% of the entire REIT preferred universe currently has no established credit rating. Because these eclectic and non-rated issues are often too small for large institutional preferred managers, they generally carry wider credit spreads and higher coupons. Irrespective of scale, credit rating, or seasoning in the preferred marketplace, many of these issuers are backed by what we consider to be solid commercial real estate assets, long term lease structures, creditworthy tenants, and sound balance sheets. If these companies mature and deliver consistent results over time, we believe that their costs of capital should quite naturally decline. In turn, we believe that their preferred issues should demonstrate tighter credit spreads – and their total returns would be driven by fundamental considerations rather than interest rate considerations.

*We therefore believe that eclectic and smaller-issuer preferreds are oftentimes driven by credit changes in addition to changes in interest rates.*

**D. Fixed-to-Floating Rate Features:** Over the past three years, a select number of mortgage REITs have issued fixed-to-floating rate preferred shares. These preferred issuances generally offer a fixed-rate coupon for defined number of years (usually 5-7 years), and a floating rate coupon thereafter based on a predetermined spread over Treasuries. These securities offer investors the ability to achieve competitive upfront yields, as well as the ability to keep pace with any potential future changes in interest rates. As a consequence of their floating rate coupon, we believe that these preferred securities should carry lower duration after their up-front fixed rate period expires.

*Ultimately, fixed-to-floating rate preferred securities can offer investors lower duration risk and the ability to participate in – rather than be exposed to – rising interest rates.*

## V. Changes in Credit Spreads and Changes in Time Horizon Can Substantially Impact the Performance of REIT Preferred Shares

Total returns to REIT preferreds over a defined period of time are commonly a function of four variables: 1) Dividend income being distributed, 2) Changes in baseline interest levels – most notably for this asset class 10-year U.S. Treasury rates, 3) Changes in credit spreads and, 4) Time period it takes for changes in interest rates to occur. We offer two hypothetical examples below to demonstrate how both changes in time horizon and changes in credit spreads can impact the ultimate returns achieved by investors in REIT preferred shares.

**Change in time horizon.** Figure 7 illustrates that the time frame over which interest rate changes occur can play a vital role in determining the ultimate total returns experienced by investors. In this example, we freeze all variables except for the time horizon over which interest rates change. One scenario assumes interest rates rise by 50 basis points over 6 months and a second scenario assumes interest rates rise by 50 basis points over 2 years.

As seen below, were interest rates to rise by 50 basis points over a 6-month period, a 7% coupon \$25 par value preferred would theoretically lose 3.2% over those six months. In comparison, were interest rates to rise by 50 basis points over a 24-month period, that same 7% coupon \$25 par preferred would theoretically earn a positive 7.3% over those 24 months, as dividend income accumulated outweighs the price decline of the preferred stock.

*Figure 7: Pace of Interest Rate Changes Can Greatly Impact Returns*

	Time Horizon Scenarios	
	6 months	2 years
Change in 10-year Rate	0.50%	0.50%
Change in Preferred Price	(\$1.67)	(\$1.67)
Dividend Income	\$0.88	\$3.50
Total Return Per Share	(\$0.79)	\$1.83
<b>% Total Return</b>	<b>-3.2%</b>	<b>7.3%</b>

*Scenarios assume initial price of \$25 and 7% dividend rate.*

**Change in credit spreads.** Figure 8 illustrates that changes in credit spreads can also play a vital role in the total return equation of REIT preferreds. In this example, we assume a 2-year time horizon and freeze all variables except for credit spreads. One scenario assumes no change in credit spreads and that interest rates rise by 100 basis points and a second scenario assumes credit spreads tighten by 100 basis points coincident with a 100 basis points rise in interest rates.

*Figure 8: Credit Spread Changes Can Play a Vital Role in Performance*

As seen in Figure 8, the 2-year total return of a 7% coupon \$25 par value preferred that experienced no credit spread improvement would theoretically be a positive 1.5%. In comparison, the 2-year total return of that same 7% coupon \$25 par value preferred that experienced a 100 basis point tightening in credit spreads would theoretically be a positive 14.0%.

	Credit Spread Scenarios	
	No Change	Tightening
Change in 10-year Rate	1.00%	1.00%
Change in Credit Spread	0.00%	-1.00%
Net Change in Yield	1.00%	0.00%
Change in Preferred Price	(\$3.13)	\$0.00
Dividend Income	\$3.50	\$3.50
Total Return Per Share	\$0.37	\$3.50
<b>% Total Return</b>	<b>1.5%</b>	<b>14.0%</b>

*Scenarios assume initial price of \$25, 7% dividend rate, and 2-year time horizon.*

## CONCLUSION

*We believe patience has been rewarded when investing in REIT preferred shares*

In our view, rising interest rates have not historically proven to be an alarm bell for investors in REIT preferred shares. Instead we believe that downdrafts in the asset class have presented attractive buying opportunities. History has shown that the REIT preferred asset class has proven resilient to short bursts in interests rates, with certain time periods driving negative returns and certain periods actually driving positive returns. No matter, the asset class has recovered any and all losses that may have occurred within six months. Similarly, REIT preferred shares have shown varied results during more extended periods of rising rates, and recovered amounts in excess of any realized losses within 12 months. We note that REIT preferreds come in different shapes and sizes, and performance is often driven by many factors other than interest rates. Ultimately, we believe patience and a long term focus have been historically rewarded when investing in the REIT preferred asset class.

# REIT Preferred Securities in a Rising Interest Rate Environment

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### Index Definitions

Wells Fargo Hybrid and Preferred Securities REIT Index is a proprietary index representing the performance of preferred shares and depository shares of REIT preferred securities.

ICE BofA Merrill Lynch REIT Preferred Index is a proprietary index representing the performance of investment-grade \$25-par value fixed rater REIT preferred securities.