Insights

FTSE Russell

U.S. Listed Real Estate sectors during periods of rising rates: what history tells us

On December 16, 2015, the U.S. Federal Reserve raised the target range for the Federal Funds rate for the first time since 2006, and Janet Yellen, Chairman of the Federal Reserve Board, has indicated that more increases are likely.[1] This movement by the Fed had long been expected, and much has been written about how higher U.S. interest rates may impact markets and asset classes, globally as well as domestically. Some analysts have attempted to forecast what will happen if rates rise, while others have reported what happened in the past during rising rate periods.[2] Here we take the latter approach, and report on what happened to the U.S. listed real estate market (as represented by the FTSE EPRA/NAREIT and FTSE NAREIT indexes) during the most recent three periods of increases in the Fed Funds rate, giving special attention to the performance of different real estate sub-sectors. Vulnerability of listed real estate to rising interest rates is of particular interest, primarily due to their large dividends (payout ratios), use of leverage, and the rate sensitivity of their underlying property values.

We first establish a context for evaluating U.S. real estate sector performance during periods of rising rates by reporting performance over the most recent calendar year—2015—as well as longer term outcomes over our entire sample period (January 1994 through December 2015). We then turn our attention to past periods of rising Fed Funds rates. In all cases, we look at broad measures of the U.S. real estate market—based on FTSE EPRA/NAREIT and FTSE NAREIT Indexes—relative to the broad U.S. equity market as measured by the Russell 3000® Index. This perspective offers information not only about how real estate stocks have fared relative to the broad equity market, but also about how

1 See, for example, Reddy, S., J. Zumbrun and J. Sparshott, “Fed Interest Rate Decision and Janet Yellen’s Press Conference-Recap,” *Wall Street Journals Real Time Economics Blog*, Dec. 16, 2015: http://blogs.wsj.com/economics/2015/12/16/fed-interest-rate-decision-and-janet-yellens-press-conference-live-analysis/.

2 See for example, Lystra, M., “The Russell 2000 Index in a rising interest rate environment: evidence from past cycles,” Russell Index Insights, March 2015.

major real estate sectors, i.e., developers and mortgage REITS, fared relative to equity REITS.[3] We then drill down into U.S. Equity REIT Sub-sectors for a more granular analysis.

Generally, we find:

- Across broad FTSE EPRA/NAREIT and FTSE NAREIT Real Estate Indexes compared to the Russell 3000®:
    - Mortgage REITS have been challenged in all periods examined; the performance characteristics of mortgage REITS were significantly different from other REIT sectors over our sample periods. These results support the 2016 GICS separation of mortgage REITs from other equity REITS: equity REIT stocks will be moved into their own sector while mortgage REITS will remain in the GICS Financial sector classification.[4]
    - Over the entire sample period, non-REIT real estate stocks (e.g., developers) contributed positively to performance, but detracted in calendar year 2015; non-mortgage real estate stocks outperformed the broad equity market represented by Russell 3000 but posted equal risk-adjusted performance measures (Sharpe Ratios).
    - The performance outcomes of equity REITS and non-REIT real estate stocks are mixed across past periods of rising Federal Funds rates, while Mortgage REITS consistently underperformed in each of these periods.
- Among U.S. Equity REIT Sub-sectors
    - Only the two business-related sub-sectors—Office and Industrials—had consistently positive excess returns over the broad FTSE NAREIT U.S. Equity REIT Index over the three past periods of rising Federal Funds rates. Key retail/consumer driven sub-sectors such as the combined Retail Sector, Shopping Centers, Free Standing as well as the Manufactured Housing subsector underperformed in all three periods. Results for other sub-sectors were mixed.
    - During 2015 and over the entire sample period, Self-Storage outperformed and Lodging/Resorts underperformed all other sub-sectors, whether measured by total returns or by Sharpe Ratios. Economic as well as demographic trends help explain these outcomes.

Sectors and Sub-sectors of the U.S. Listed Real Estate Market

U.S. Real Estate Broad Component Sectors: Public real estate stocks in the U.S. are dominated by Equity REITS, and it is this part of the market we track here with the FTSE NAREIT U.S. Equity REIT Index (FNUSERI). A broader measure of real-estate stocks, which includes development companies and other

[3] Dave Brunette and Mat Lystra contributed to this research

[4] See Borachersen-Keto, S., "Real Estate Slated for Eleventh Headline Sector in GICS," REIT.com, November 11, 2014: https://www.reit.com/news/articles/real-estate-slated-eleventh-headline-sector-gics.

non-REIT real estate stocks, is provided by the FTSE EPRA/NAREIT U.S. Index (FENUSI).[5] Another important category is mortgage REITS, here represented by the FTSE NAREIT U.S. Mortgage REIT Index.

U.S. Equity REIT Sub-sectors: the U.S. Equity REIT market is divided by FTSE NAREIT into a number of sub-sectors. These sub-sector categories have varied over time as the types of Equity REITs listed in the U.S. have evolved; in Table 1 we report the index weight and constituent count of key sub-sectors of the U.S. Equity REIT Market as of year-end 2015.[6]

Table 1: Structure of the FTSE NAREIT U.S. Equity REIT Index: Percent Index Weight and Constituent Count of key sub-sectors as of December 31, 2015

	U.S. Equity REIT Sub-sectors	Weight in Index	Number of Constituents
Business	Industrial	6.4	11
	Office	12.52	27
Retail	Shopping Centers	8.38	18
	Regional Malls	13.2	8
	Free Standing	3.4	6
Residential	Apartments	15.27	16
	Manufactured Homes	1.24	3
Other	Diversified	5.52	14
	Lodging/Resorts	5.6	17
	Health Care	12.14	17
	Self-Storage	7.53	5

Source: NAREIT, data as at 31 December 2015.

These U.S. Equity REIT key sub-sectors fall broadly into four general categories: those more driven by business or commercial enterprise such as Office and Industrial; retail-related sub-sectors (Shopping Centers, Regional Malls, and Free Standing); residential sectors (Apartments and Manufactured Housing); and a catch-all other category. The three largest sectors by index weight are Apartments, Office and Health Care; the three smallest by that measure are Free-Standing, Diversified and Lodging/Resorts. By constituent count, the three largest are Office and Shopping Centers, with Health Care and Lodging/Resorts tying for third. The three smallest sub-sectors based on constituent count are Manufactured Homes, Self-Storage and Free-Standing.

We caution that the performance of REIT sub-sectors can be driven by idiosyncratic—company specific—factors, as the constituent count of many of the sub-sectors is quite small. Other factors such as company and/or subsector differences in the use of leverage can impact performance differentials. Sector specific issues can be important, among them the average length of leases of the

[5] The relative composition of these indexes changed over time as methodology enhancements were applied and as REITs became more common over the period measured.

[6] In this report we focus on the sectors and sub-sectors for which we have returns data over our entire sample period, thus we exclude Data Centers, Single Family Homes, Specialty, Timber and Infrastructure from the analysis.

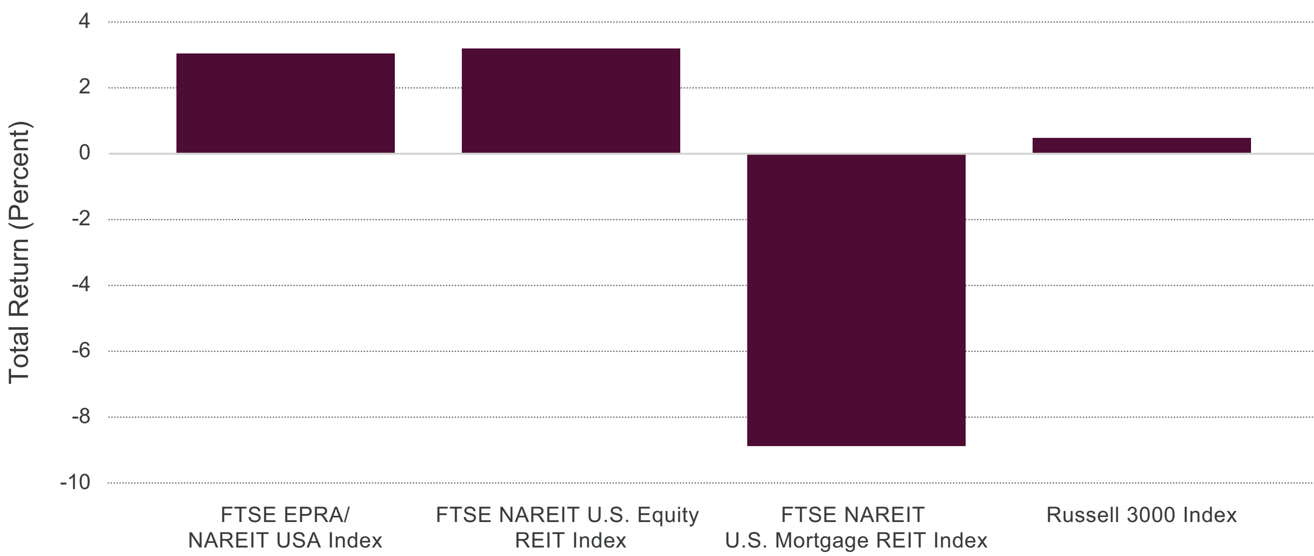
underlying properties, with Lodging/Resorts having the shortest leases (one-day on average) and the business-related sectors normally characterized by having the longest lease periods. The effect of idiosyncratic elements on return can be time-varying, as can the systematic (sector and market-based) drivers of returns.

Performance of U.S. Real Estate Stocks During 2015

Broad U.S. Real Estate Sectors Compared to the Russell 3000 Index

The FTSE EPRA/NAREIT U.S. Index (FENUSI) which measures U.S. listed real estate outperformed the Russell 3000 Index—the broad index of the U.S. Stock Market—during 2015 as shown in Figure 1. The FTSE NAREIT U.S. Equity REIT Index slightly underperformed the FENUSI Index, however, indicating that 2015 was a better year for Equity REIT stocks than for other types of real estate stocks such as development companies. The FTSE NAREIT U.S. Mortgage REIT Index (measuring Mortgage REITS) suffered, with negative performance verging on a decline close to 9% for the year.

Figure 1: Performance of U.S. Listed Real Estate Indexes compared to the Russell 3000 Index Calendar Year 2015

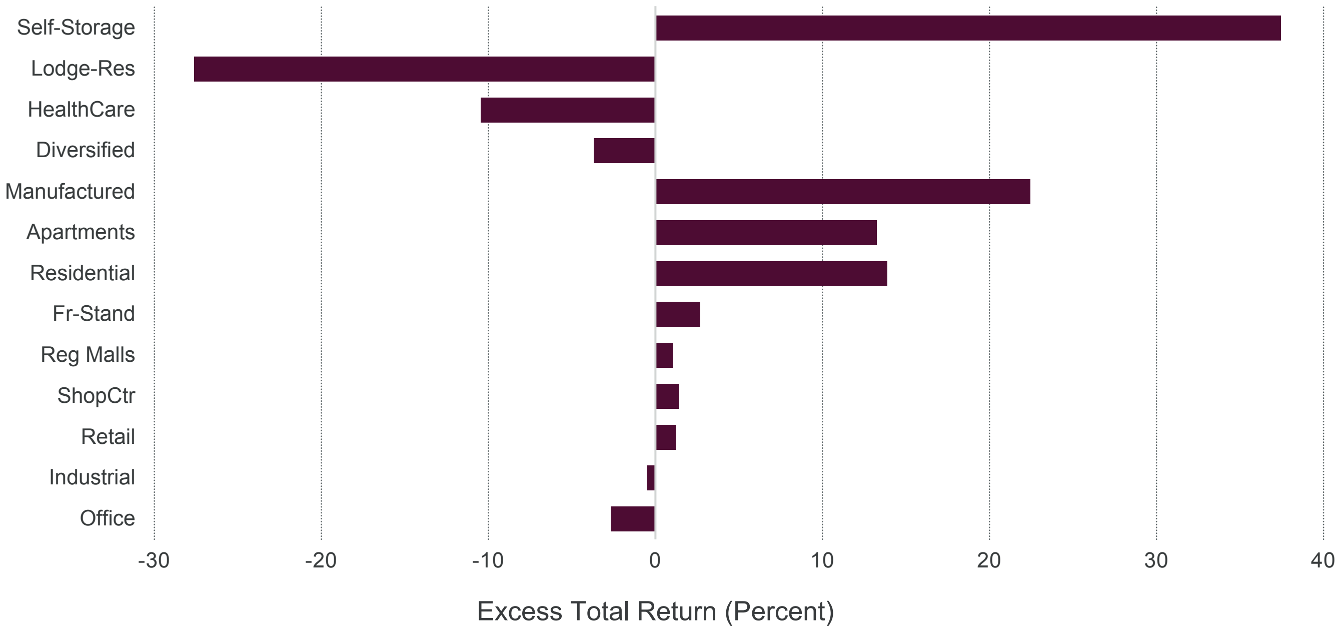


Source: FTSE Russell, FTSE EPRA/NAREIT, NAREIT, data as at 31 December 2015. Past performance is no guarantee of futures results. Please see the end for important legal disclosures.

U.S. Equity REIT Sub-sector Performance

During 2015 it was the retail/consumer oriented sub-sectors—led by Self-storage and Manufactured Housing—that achieved the strongest results, as we see in Figure 2 where we display the excess return of each sub-sector over the FNUSERI for the year. The commercial sub-sectors of offices and industrials slightly underperformed the parent index during this time, while the greatest underperformance occurred in Lodging/Resorts (by far the greatest underperforming sector), Health Care and Diversified.

Figure 2: Performance of U.S. Equity REIT Sub-sectors in excess of the FTSE NAREIT U.S. Equity REIT Index Calendar Year 2015



Source: FTSE Russell, NAREIT, data as at 31 December 2015. Past performance is no guarantee of futures results. Please see the end for important legal disclosures.

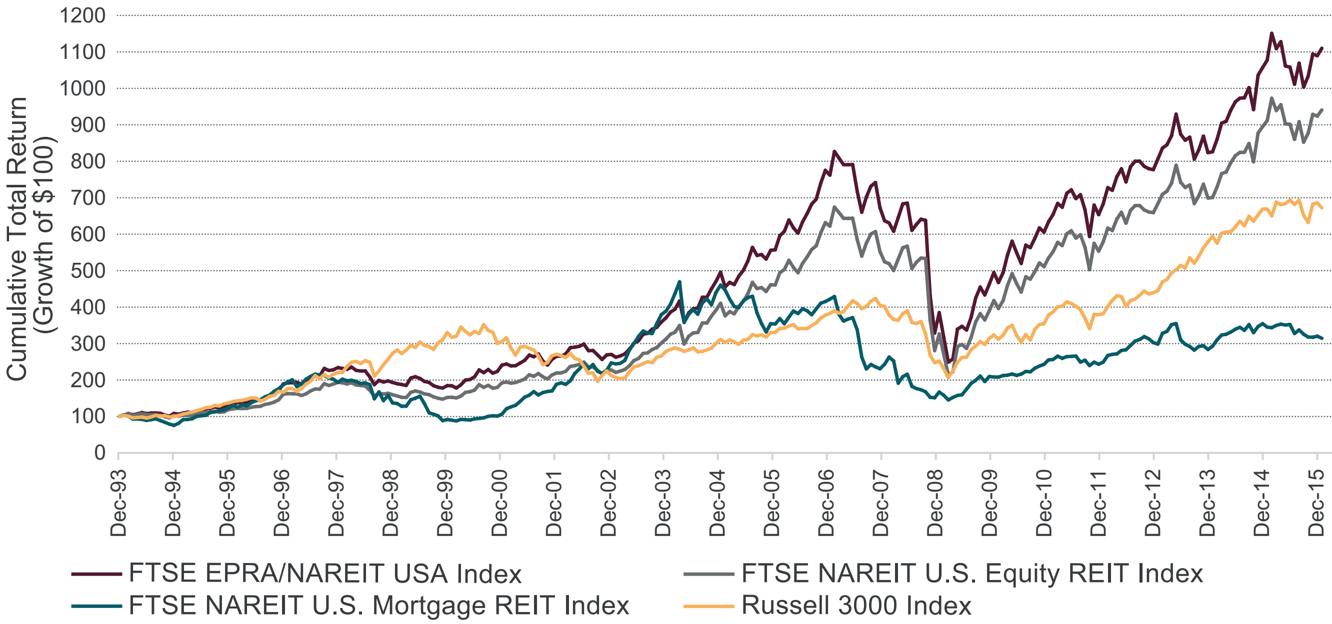
Performance of U.S. Listed Real Estate Sectors over the long term: 1994-2015

Long term performance outcomes over our entire sample period (1994 to 2015) for the Broad U.S. Real Estate Sectors compared to the Russell 3000 exhibit some commonality with 2015 outcomes. In the U.S. Equity REIT Sub-sector analysis, the correspondence with 2015 excess returns is more mixed. When viewed on a risk-adjusted basis (incorporating volatility), broad real estate outcomes match the Russell 3000, while mortgage REITS' poor performance (relatively speaking) over this longer period is brought into even sharper focus. For equity REIT sub-sectors, Self-Storage is a standout, both in terms of returns as well as risk-adjusted performance, posting a Sharpe ratio far higher than other sectors 1994-2015.

Broad U.S. Real Estate Sectors compared to the Russell 3000

Listed real estate stocks in the U.S. (the FENUSI and the FNUSERI) outperformed the Russell 3000 (a measure of the broad U.S. equity market) over this long term period, as we see in Figure 3 below, which charts the cumulative increase/decrease in index values (base = 100 as of December 31, 1993). The blue line represents the FTSE EPRA/NAREIT U.S. Index, and its differential against the red line—the FTSE NAREIT Equity REIT Index— indicates that inclusion of non-REIT real estate stocks (primarily developers) had a positive impact on performance over this time period. Both of these U.S. real estate market indexes outperformed the Russell 3000 Index when measured on this cumulative basis. The U.S. mortgage REITS index—the green line—had a brief period of strength from 2000 through 2004 but has generally been challenged over this time. These outcomes correspond in broad terms to the relationships we observed above during calendar year 2015, with the exception that over the long period, the broader U.S. real estate index (FENUSI) delivered higher index returns than the U.S. Equity REIT Index (FNUSERI).

Figure 3: Cumulative Performance of U.S. Listed Real Estate Indexes compared to the Russell 3000 Index January 1994-December 2015.



Source: FTSE Russell, FTSE EPRA/NAREIT, NAREIT, data as at 31 December 2015. Past performance is no guarantee of futures results. Please see the end for important legal disclosures. The FTSE NAREIT Index Series was launched March 2006 and the FTSE EPRA/NAREIT Developed Index Series (of which the USA index is a subcomponent) was launched February 2005; data prior to these launch dates are back-tested and hypothetical.

What about risk-adjusted returns? Table 2 reports volatility levels (standard deviations), returns, as well as Sharpe Ratios (a measure of risk-adjusted outcomes)[7] for these broad indexes. The listed real estate indexes experienced higher volatility over 1994-2015 than the Russell 3000. The mortgage REIT index had the highest volatility over this time period with an annualized standard deviation of 20.9%; the FTSE EPRA/NAREIT U.S. Index (FENUSI) measured 20.3% and the FTSE NAREIT Equity REIT Index (FNUSERI) 19.7; all were measurably more volatile than the Russell 3000 at 15.1%. The Sharpe Ratios, however, indicate that the Russell 3000, the FENUSI as well as the FNUSERI all achieved the same risk/return level: 0.5. Mortgage REITS, however, had a much lower risk-adjusted performance of 0.2 over this sample period.

[7] Here we calculate the Sharpe Ratio (source: MPI Stylus Pro) based upon the index excess returns over a cash measure (3-month U.S. Treasury Bills). The Sharpe Ratio reported here is ratio of the index excess returns over cash to the standard deviation of the index excess returns over the same cash measure.

Table 2: Key Performance Statistics based on Total Returns Jan 1994-Dec 2015

	Sharpe Ratio	Annualized StdDev, %	Annualized Return, %
FTSE EPRA/NAREIT USA Index	0.5	20.3	11.6
FTSE NAREIT U.S. Equity REIT Index	0.5	19.7	10.7
FTSE NAREIT U.S. Mortgage REIT INDEX	0.2	20.9	5.3
Russell 3000 Index	0.5	15.1	9.0

Source: FTSE Russell, FTSE EPRA/NAREIT, NAREIT, data as at 31 December 2015. Past performance is no guarantee of futures results. Please see the end for important legal disclosures. The FTSE NAREIT Index Series was launched March 2006 and the FTSE EPRA/NAREIT Developed Index Series (of which the USA index is a subcomponent) was launched February 2005; data prior to these launch dates are back-tested and hypothetical.

U.S. Equity REIT Sub-sectors

Sub-sector outcomes over our entire sample period of 1994-2015 do not line up as the broad sectors generally did with calendar year 2015 returns. There were two notable similarities, though: the Self-Storage and Lodging/Resort sectors, both in 2015 and over our entire sample period, were respectively the highest and lowest performing sub-sector in the U.S. Equity REIT market. Figure 4 charts the cumulative excess performance of the U.S. Equity REIT Sub-sectors (over the FNUSERI) over the entire sample period. The Lodging/Resort sub-sector appears to have been challenged since 2001. Despite a brief upturn in early 2008, by early 2009 the sector had returned to underperforming and continued on that downward trend through year-end 2015. The Self-Storage sector began to distinguish itself from the pack by early 2009, and has been on a fairly consistent upward path ever since.

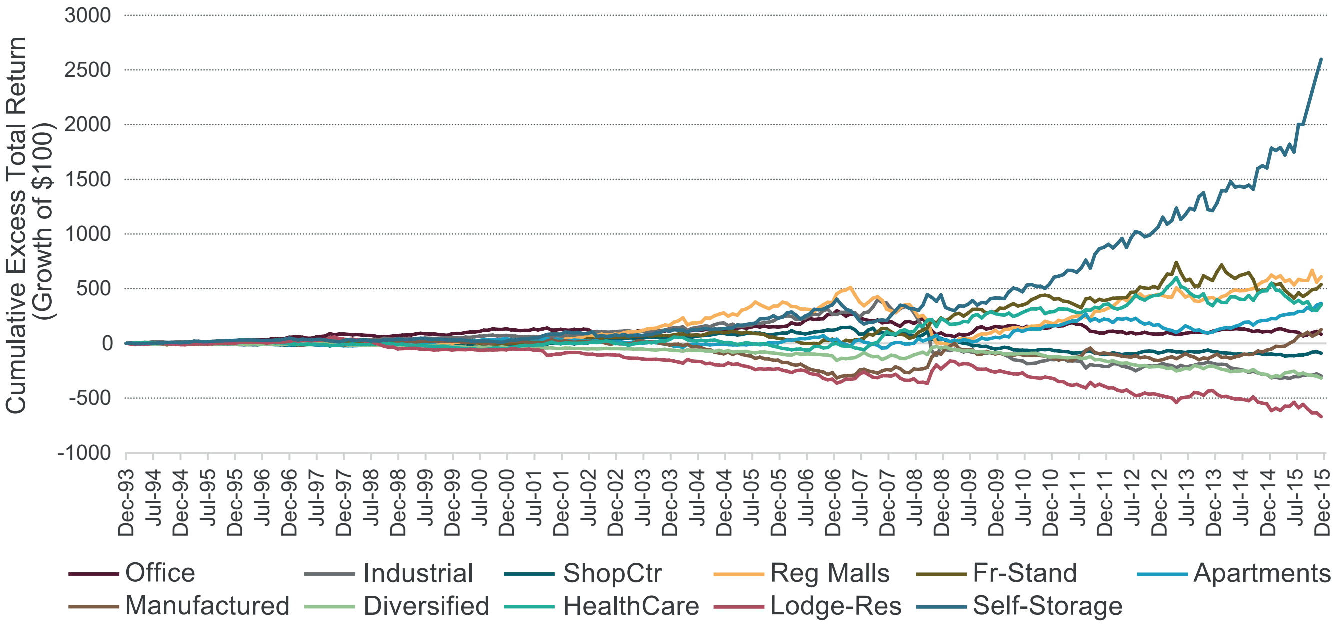
Many factors likely contributed to the varied performance results of REIT sub-sectors outlined above, but we can hypothesize connections between the outcomes of these two sectors since 2009 with broad economic and demographic trends in the U.S. The Great Recession was in full throttle by early 2009, and as such had a detrimental impact on consumer discretionary spending on non-necessities such as resorts and hotels. The Lodging/Resort sector can react immediately to changes in the economy, given the short duration of the leases and the discretionary role they play in consumers' budgets.

Self-Storage on the other hand, may have benefitted from the economic upheaval. Many people lost their homes; some downsized; and Millennials moved back in with parents, all of which may have boosted the demand for storage facilities. Longer-term demographic and economic changes may have also fostered increasing use of storage facilities. The U.S. Census Bureau reported in 2014 on growing populations in metropolitan areas, spurred by baby boomers and young professionals.[8] Urban centers as far apart as New York, San Francisco and Seattle continue to support building of micro-housing (sometimes

[8] Westcott, L., "More Americans Moving to Cities, Reversing the Suburban Exodus," The Wire: News from the Atlantic, March 27 2014: http://www.thewire.com/national/2014/03/more-americans-moving-to-cities-reversing-the-suburban-exodus/359714/

called aPodments on the west coast); the tiny size of these living quarters may necessitate the leasing of storage space outside the home.[9] Whether these trends will continue, whether Self-Storage will continue its upward path, and whether the Lodging/Resort sector will continue to fall is, however, not at all certain. Past performance is never a guarantee of future outcomes.

Figure 4: Cumulative Performance of U.S. REIT Sub-sectors in excess of the FTSE NAREIT U.S. Equity REIT Index January 1994-December 2015.



Source: FTSE Russell, NAREIT, data as at 31 December 2015. Past performance is no guarantee of futures results. Please see the end for important legal disclosures. The FTSE NAREIT Index Series was launched March 2006; data prior to launch date are back-tested and hypothetical.

What happens when we incorporate volatility into this sub-sector performance comparison? In financial theory, the higher the risk, the greater the expected return should be at least over the long term. This does not always appear to be the case in practice, however, and we noted above that among the broad REIT sectors, mortgage REITS recorded the lowest cumulative performance yet had the highest volatility over this 21 year period. We can make the same observation for the Equity REIT sub-sectors in that the lowest total return was realized by the sub-sector with the highest volatility (Table 3). Lodging/Resorts posted the lowest risk-adjusted performance number of 0.2 (Sharpe Ratio) from Jan 1994-Dec 2015. Industrials did record the same volatility level as Lodgings/Resorts but posted a higher return, and thus a higher Sharpe Ratio (0.4). Self-storage was the fourth lowest risk sub-sector over the same period but achieved by far the highest Sharpe Ratio of 0.8 due to its higher return levels.

9 See, for example, Kaysen, R., "Leasing Begins for New York's First Micro-Apartments," New York Times Real Estate, Nov. 20, 2015; Mehlhaf, N., "Micro apartments as small as 150 square feet NW Portland,: KBW.com Dec. 16, 2015: http://www.kgw.com/news/local/editors-picks/micro-apartments-as-small-as-150-square-feet-nw-portland/4373570; Kelleher, S., "Seattle's micro-housing boom offers an affordable alternative," Seattle Times, March 4, 2015: http://www.seattletimes.com/pacific-nw-magazine/seattles-micro-housing-boom-offers-an-affordable-alternative/.

Table 3: Key performance Statistics of U.S. Equity REIT Sub-sector based on Total Returns Jan 1994-Dec 2015, Sorted by Sharpe Ratio (Highest to Lowest)

	Sharpe Ratio	Annualized StdDev, %	Annualized Return, %
Self-Storage	0.8	19.6	17.6
Fr-Stand	0.6	17.7	13.0
Apartments	0.6	19.8	12.4
Office	0.5	21.5	11.2
Reg Malls	0.5	25.9	13.3
Manufactured	0.5	18.2	11.4
HealthCare	0.5	20.7	12.3
FNUSERI	0.5	19.7	10.7
Industrial	0.4	30.5	8.8
ShopCtr	0.4	21.9	10.2
Diversified	0.4	20.9	8.7
Lodge-Res	0.2	30.5	4.6

Source: FTSE Russell, NAREIT, data as at 31 December 2015. Past performance is no guarantee of futures results. Please see the end for important legal disclosures. . The FTSE NAREIT Index Series was launched March 2006; data prior to launch date are back-tested and hypothetical.

U.S. Listed Real Estate during past periods of rising interest rates

We now have a context to evaluate U.S. Equity Listed Real Estate and U.S. Equity REIT Sub-sector performance during periods when the Federal Reserve enacted a program of increasing the Federal Funds rate. While some investors may welcome rising rates as a clear signal that the U.S. economy has fully recovered from the Great Recession, there are also concerns that putting the brakes on too soon, or too aggressively, could create a slowdown.

Below we examine the impact that Fed tightening had on the performance, volatility and risk-adjusted outcomes of U.S. listed real estate sectors and sub-sectors during previous periods of rising interest rates. We report the performance of the FTSE EPRA/NAREIT USA Index as well as the FTSE NAREIT Equity REIT Index and its sub-sectors following the last three periods of Fed tightening: 1994, 1999 and 2004. Of the three periods we evaluated, the 1994 and 2004 cycles of rate increases were the most aggressive, each spanning more than 12 months with net increases in rates of 3 percentage points (PP) and 4.75 pp respectively. The 1999 cycle was shorter in duration and came with a comparatively mild 1.75 pp increase in the Fed funds rate (Table 4).

Table 4: Past Periods of Increases in the Federal Funds Rate

Federal Reserve activity:		
Date of first federal funds rate increase	End date of the rate increase cycle	Total percentage point increase in the fed funds rate points
June 30, 2004	June 29, 2006	4.75
June 30, 1999	May 16, 2000	1.75
Feb. 4, 1994	Feb. 1, 1995	3.00

Source: Federal Reserve Bank of New York

Broad U.S. RE Sectors compared to the Russell 3000 Index

Table 5 reports the total performance of the FTSE EPRA/NAREIT and FTSE NAREIT indexes measuring the U.S. listed real estate market (the FENUSI and the FNUSERI), the mortgage REIT Index and the Russell 3000 during these three periods. The only consistent outcome is that the mortgage REIT index was the lowest performing index in all three time periods (as it was during 2015 and over our entire sample period). During the first period of Fed action, February 1994 to February 1995, the FTSE EPRA/NAREIT U.S. Index (the broader real estate stock index) had higher returns than the Russell 3000 which in turn outpaced the FTSE NAREIT U.S. Equity REIT Index (FNUSERI). Over the second period, however, the Russell 3000, boosted by its inclusion of technology stocks and the Dot.Com boom, outperformed both real estate stock indexes, and the FNUSERI (the equity REIT index) delivered higher index returns than the FENUSI. The third period had yet a third performance order, with the two real estate indexes posting significantly higher returns than that of the Russell 3000 (note that this last third period has been characterized as part of a real estate bubble) while the mortgage REIT index again had the lowest return. No discernible pattern appears across these three periods.

Table 5: Performance of U.S. Listed Real Estate Indexes and the Russell 3000 during Past Periods of Increases in the Federal Funds Rate based on Total Returns

	Feb-94 – Feb-95	Jun-99 – May-00	Jun-04 – Jun-06
FTSE EPRA/NAREIT USA Index	5.31	-3.73	27.18
FTSE NAREIT U.S. Equity REIT Index	0.45	-1.17	26.27
FTSE NAREIT U.S. Mortgage REIT INDEX	-11.68	-39.99	1.93
Russell 3000 Index	3.13	11.83	9.47

Source: FTSE Russell, FTSE EPRA/NAREIT, NAREIT, data as at 31 December 2015. Past performance is no guarantee of futures results. Please see the end for important legal disclosures. The FTSE NAREIT Index Series was launched March 2006 and the FTSE EPRA/NAREIT Developed Index Series (of which the USA index is a subcomponent) was launched February 2005; data prior to these launched dates are back-tested and hypothetical.

U.S. Equity REIT Sub-sectors

Although we could not identify any patterns of performance for the broader index measures of the U.S. listed real estate market (other than the underperformance of Mortgage REITS), there are some consistencies in U.S. Equity REIT Sub-sector outcomes across these three periods of rising rates. In Table 6 we report sub-sector excess returns over the FTSE NAREIT U.S. Equity REIT Index in each period.

The rows highlighted in dark gray identify sub-sectors that had positive excess returns in all three time periods. Two sub-sectors are in this category: Office and Industrial. These are the sub-sectors most dominated by business and commercial activity, and ones where lease terms are commonly of the longest duration. Those highlighted in light gray are sub-sectors posting consistent negative excess returns. The combined Retail sector suffered negative returns in all three periods, as did two of its three sub-sectors: Shopping Centers and Free Standing. Manufactured also experienced negative returns in all three periods. These are sectors primarily driven by individuals rather than business enterprises. Other similar sectors such as Regional Malls, Apartments and Self-Storage posted positive excess returns in two out of the three periods, however. Lodging/Resorts, Diversified and Health Care had negative excess returns in two out of the three instances.

Table 6: Performance of U.S. Equity REIT Sub-sectors in excess of the FTSE NAREIT Index during Past Periods of Increases in the Federal Funds Rate based on Total Returns

	Feb-94 – Feb-95 Annualized Return, % Excess	Jun-99 – May-00 Annualized Return, % Excess	Jun-04 – Jun-06 Annualized Return, % Excess
Office	1.89	5.24	1.67
Industrial	15.64	9.27	0.62
Retail	-0.96	-5.23	-0.92
ShopCtr	-1.22	-4.33	-0.70
Reg Malls	3.66	-6.28	0.85
Fr-Stand	-0.42	-4.30	-12.18
Residential	-3.99	9.14	4.91
Apartments	-3.31	10.25	6.52
Manufactured	-9.02	-2.28	-23.06
Diversified	-3.42	-11.42	0.69
HealthCare	4.74	-20.09	-11.77
Lodge-Res	-3.07	-4.48	2.68
Self-Storage	7.07	-12.74	3.67

Source: FTSE Russell, NAREIT, data as at 31 December 2015. Past performance is no guarantee of futures results. Please see the end for important legal disclosures. The FTSE NAREIT Index Series was launched March 2006; data prior to launch date are back-tested and hypothetical.

Conclusion

Over the most recent calendar year (2015), we observe that the Self-Storage sub-sector had the greatest return among the sub-sectors of the U.S. Equity REIT Market. This was also true over the entire period of our sample data, 1994-2015. The lowest returning sub-sector over both periods was Lodging/Resorts. Even when modified for risk, these observations hold. Over these two periods, REIT sub-sectors tied more to the retail/individual consumers rather than to businesses have delivered higher returns. But during past periods of rising Federal Funds rates we see, in contrast, that the business-related sectors achieved the highest returns.

Viewing the outcomes of FTSE EPRA/NAREIT USA and the FTSE U.S. Equity REIT Indexes--which measure listed real estate stocks at a higher level—and comparing them to the FTSE NAREIT Mortgage REIT index and the Russell 3000 index of the U.S. stock market, we note the following: first, the mortgage REITS sector has consistently underperformed; and second, although the U.S. real estate indexes have tended to demonstrate more volatility, they have also had higher returns than the Russell 3000. On a risk-adjusted basis (Sharpe Ratio), performance of both the FTSE EPRA/NAREIT USA and the FTSE U.S. Equity REIT Indexes was comparable to the Russell 3000 over our 21-year sample period. There was, however, no commonality of outcomes, no pattern, over the three past periods of rising rates.

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