

November 15, 2019

SACRS Public Fund Universe Analysis

Summary Highlights, Observations, and Key Takeaways



Presentation Outline

	<u>Page</u>
Market Environment.....	3
SACRS and RVK’s Public Fund Universe.....	5
• Size	
• Internal vs. External Management	
• Passive vs. Active Management	
• Asset Allocation	
• Performance	
• Risk/Return Analysis	
Looking Forward – Asset Allocation.....	20
Additional Plan Information.....	23
Appendix.....	26

Market Environment

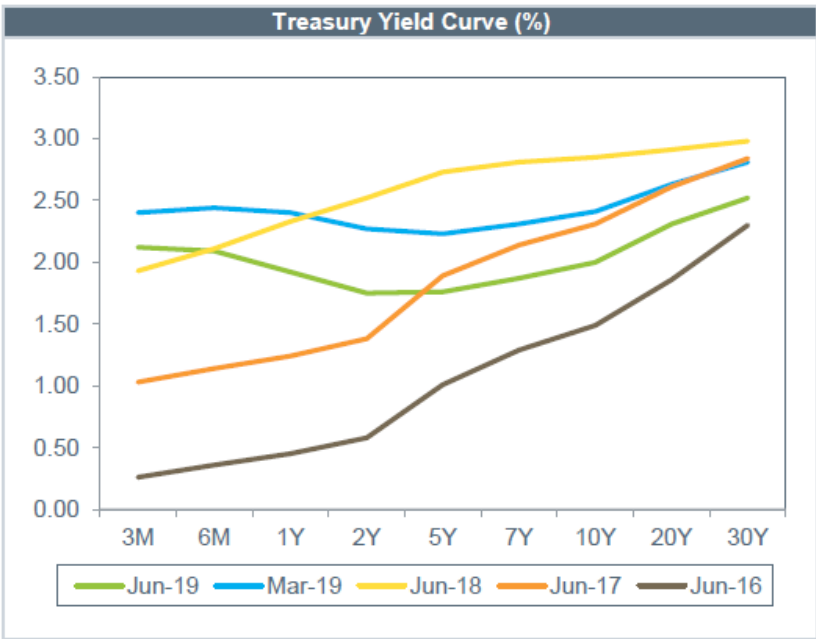


Market Environment as of 6/30/2019

Varied Equity Returns, Strong Fixed Income Returns, Mixed Alternative Assets

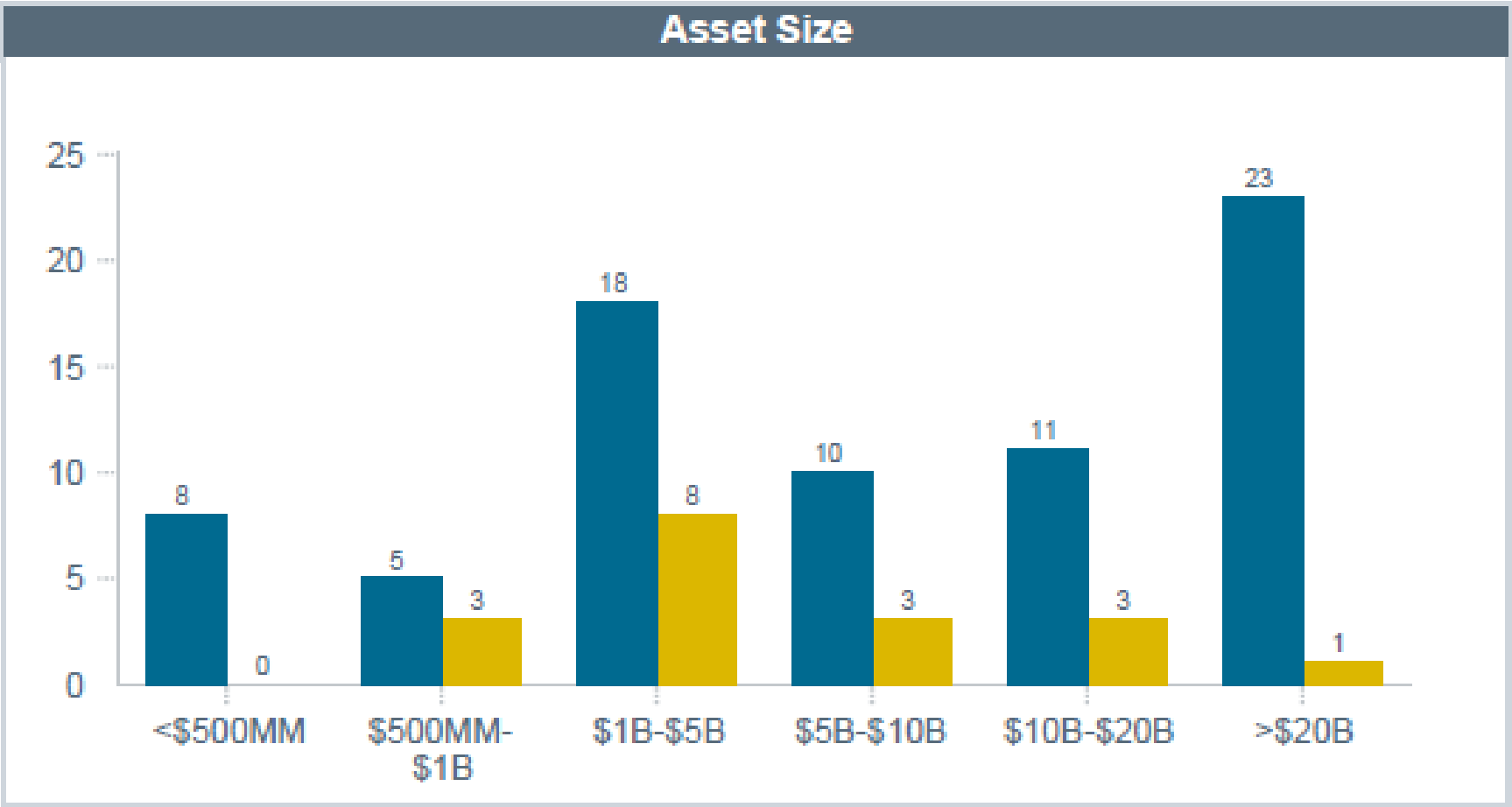
- A volatile year-end 2018 with strong recovery in equities, especially in the US
- Fixed income returns impacted by a declining yield curve for all but shorter maturities
- Real estate returns softened, returning to emphasize yield in core investments
- REITS had very strong returns CYTD 2019
- Hedge funds had a good 6 month return in 2019
- Private equity indications (not shown) through 6/30 showed value added relative to many public equity markets

Market Performance (%)	QTD	CYTD	1 Yr	5 Yr	10 Yr
S&P 500 (Cap Wtd)	4.30	18.54	10.42	10.71	14.70
Russell 2000	2.10	16.98	-3.31	7.06	13.45
MSCI EAFE (Net)	3.68	14.03	1.08	2.25	6.90
MSCI EAFE SC (Net)	1.71	12.55	-6.35	4.40	9.67
MSCI Emg Mkts (Net)	0.61	10.59	1.21	2.49	5.81
Bloomberg US Agg Bond	3.08	6.11	7.87	2.95	3.90
ICE BofAML 3 Mo US T-Bill	0.64	1.24	2.31	0.87	0.49
NCREIF ODCE (Gross)	1.00	2.43	6.41	9.76	9.88
FTSE NAREIT Eq REIT (TR)	1.24	17.78	11.21	7.92	15.46
HFRI FOF Comp	1.49	6.16	1.15	2.19	3.21
Bloomberg Cmdty (TR)	-1.19	5.06	-6.75	-9.15	-3.74



SACRS and RVK's Public Fund Universe – Size, Internal vs. External Management, and Passive vs. Active Management

SACRS Relative to RVK's Public Fund Universe

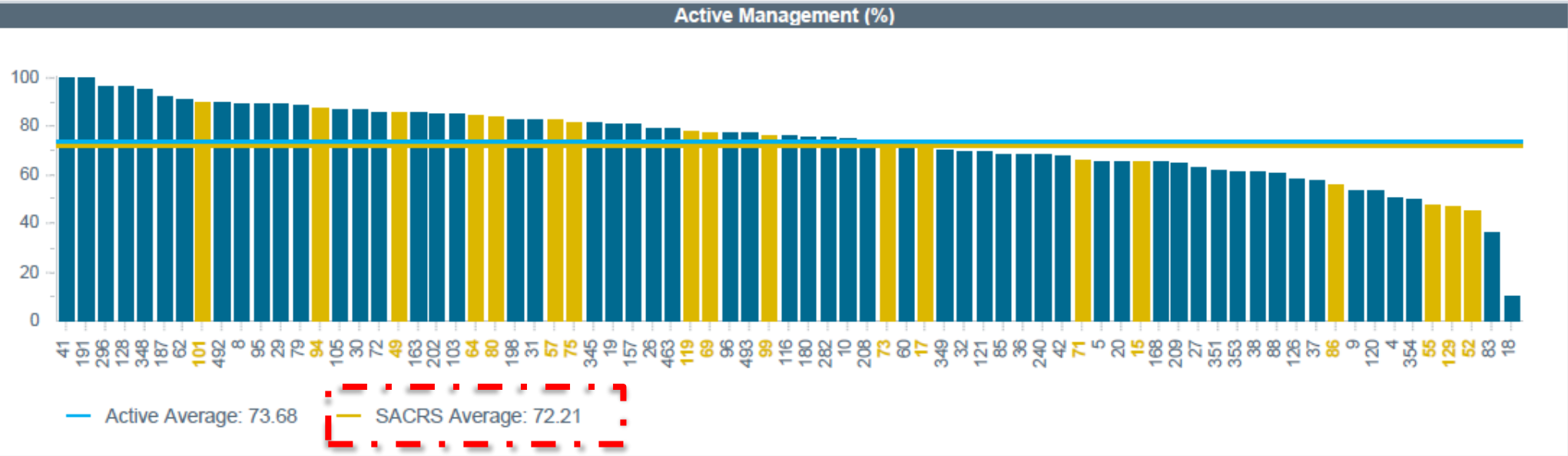
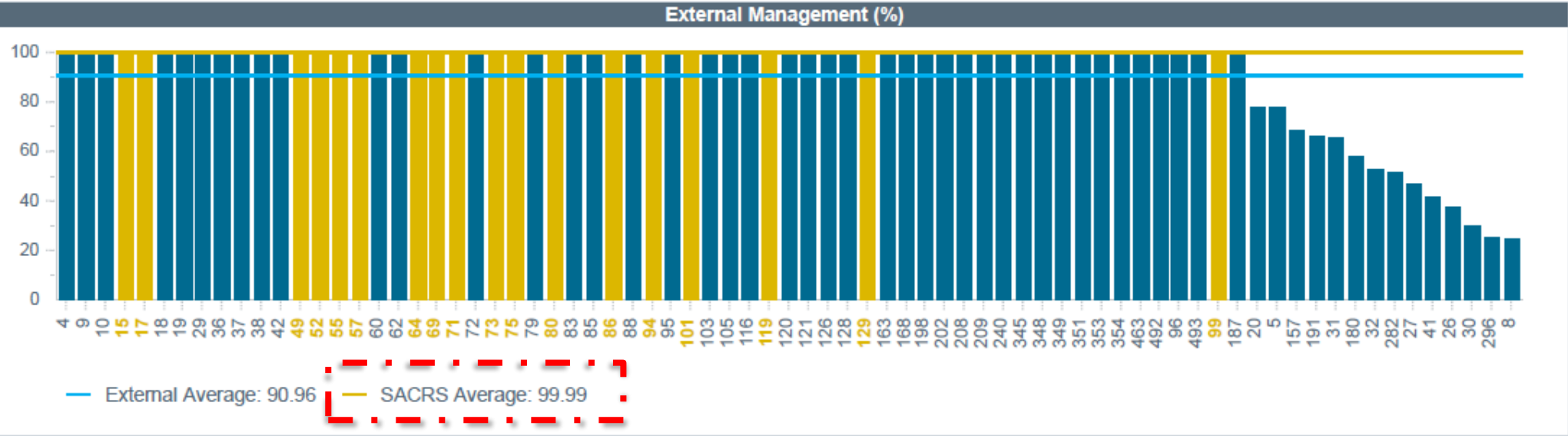


Yellow bars are SACRS plans

SACRS Relative to RVK's Public Fund Universe

Portfolio Management
Percentage Externally Managed & Percentage Actively Managed

As of June 30, 2019



SACRS

SACRS Relative to RVK's Public Fund Universe

Portfolio Management Statistics

As of June 30, 2019

Asset Range	Actively Managed (%)	Passively Managed (%)	Externally Managed (%)	Internally Managed (%)
Over \$20B	73.92	26.08	74.59	25.41
\$10B-\$20B	71.12	28.88	93.21	6.79
\$5B-\$10B	67.66	32.34	97.55	2.45
\$1B-\$5B	78.32	21.68	98.51	1.49
\$500MM-\$1B	73.86	26.14	100.00	0.00
Under \$500MM	73.60	26.40	100.00	0.00
SACRS	72.21	27.79	99.99	0.01

Percentages shown for asset ranges are representative of the average allocation.

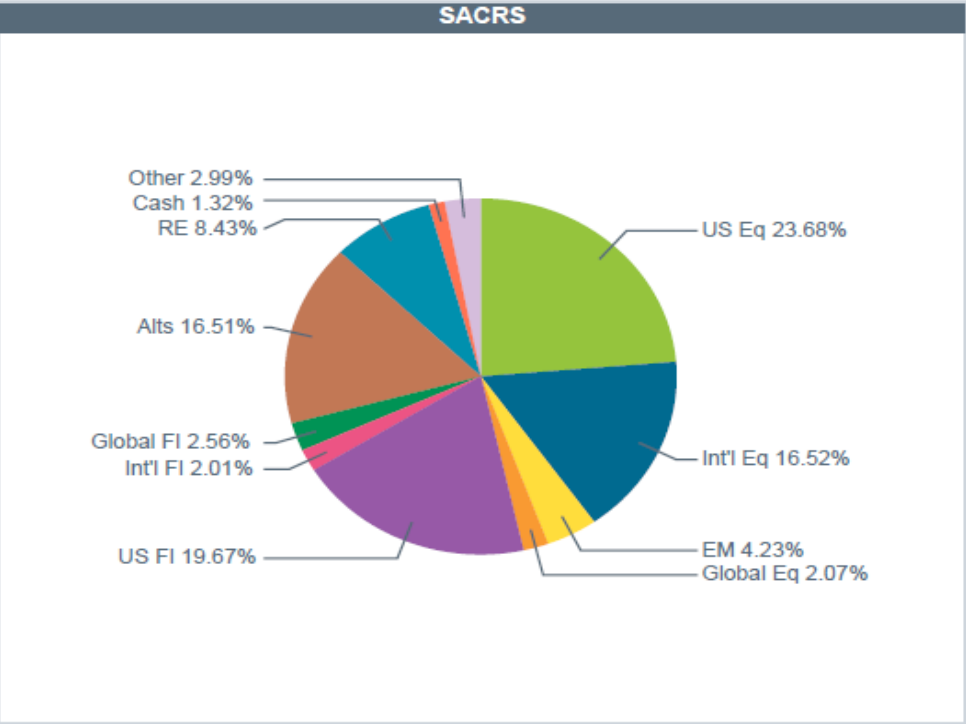
Portfolio (%)	Active Management		External Management	
	Public Fund Universe	SACRS	Public Fund Universe	SACRS
90 to 100	8	1	56	18
50 to 89	56	14	8	0
10 to 49	6	3	6	0
Less than 10	0	0	0	0
Total Funds Reporting	70	18	70	18

SACRS and RVK's Public Fund Universe – Asset Allocation



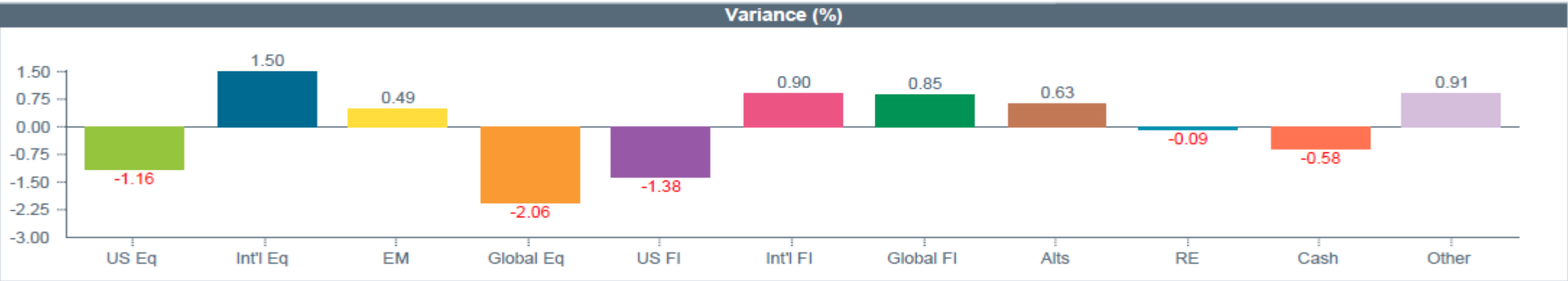
SACRS relative to RVK's Public Fund Universe: Asset Allocation

Asset Allocation
SACRS vs. Average of All Funds

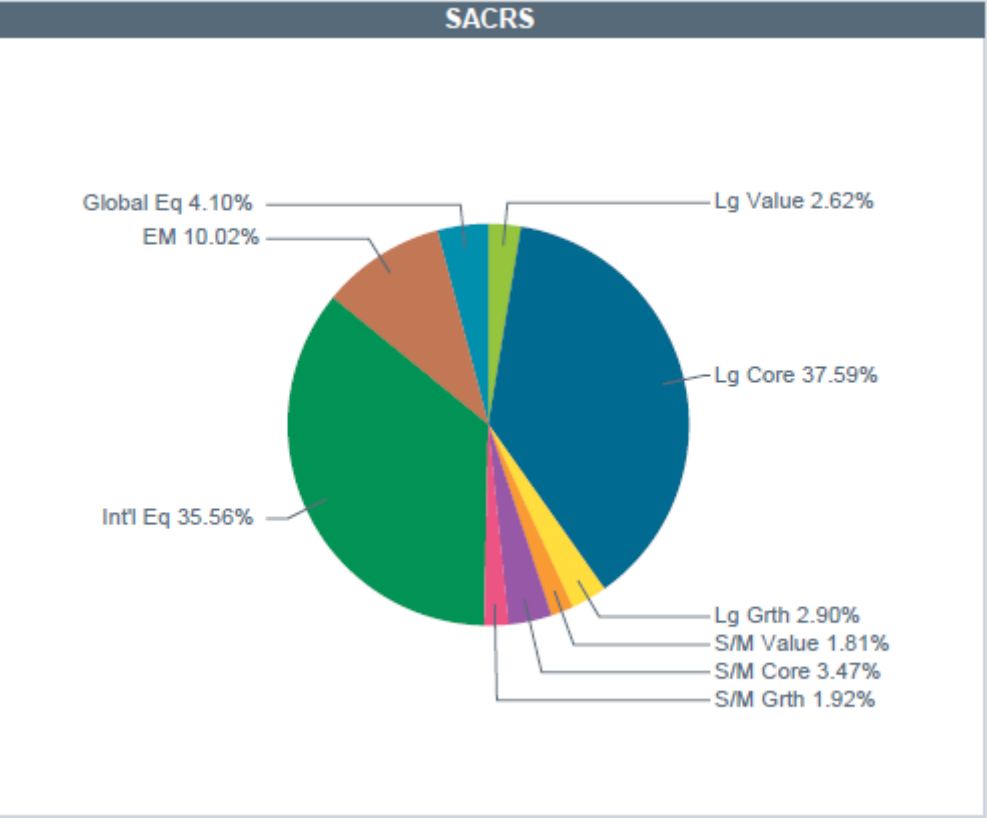


Greater dedicated non-US exposure relative to the Universe

- More non-US equity
- Greater international and global fixed income

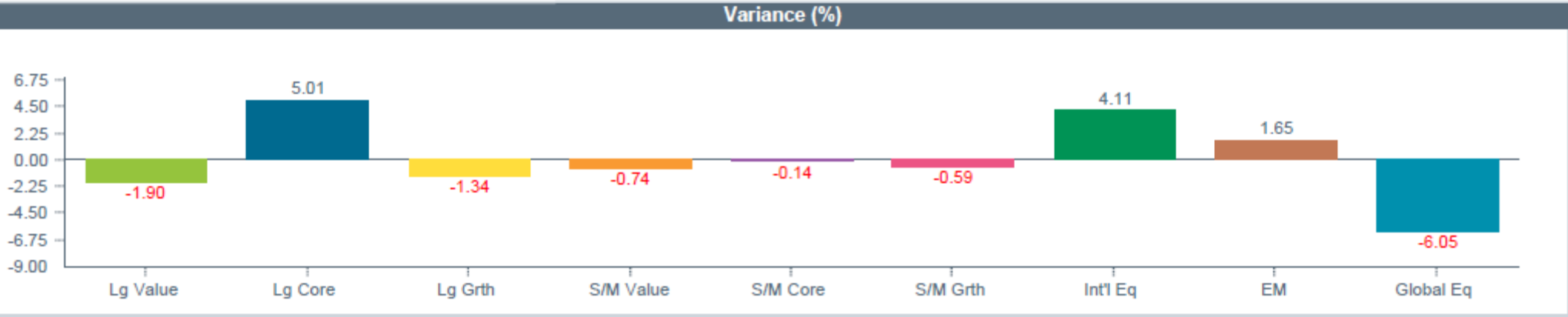


SACRS relative to RVK's Public Fund Universe

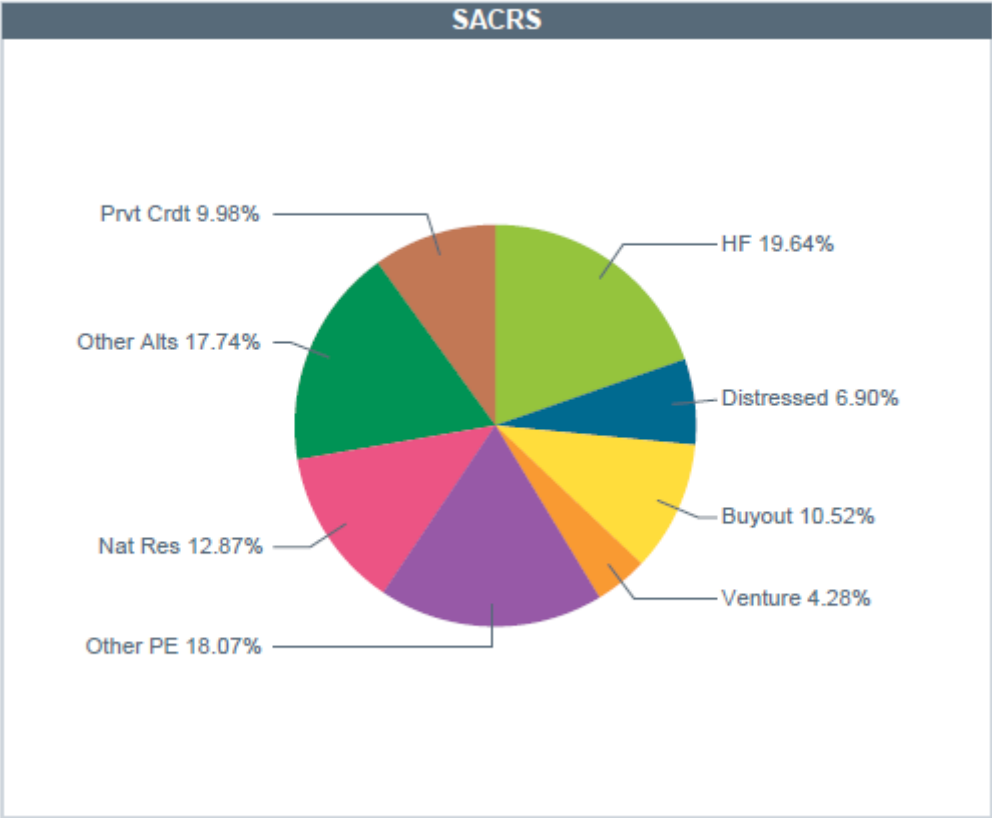


Equity structures include less global mandate exposure and style dedicated structures

- Greater large cap core equity weight,
- Larger international and emerging market allocations
- Smaller weights in global

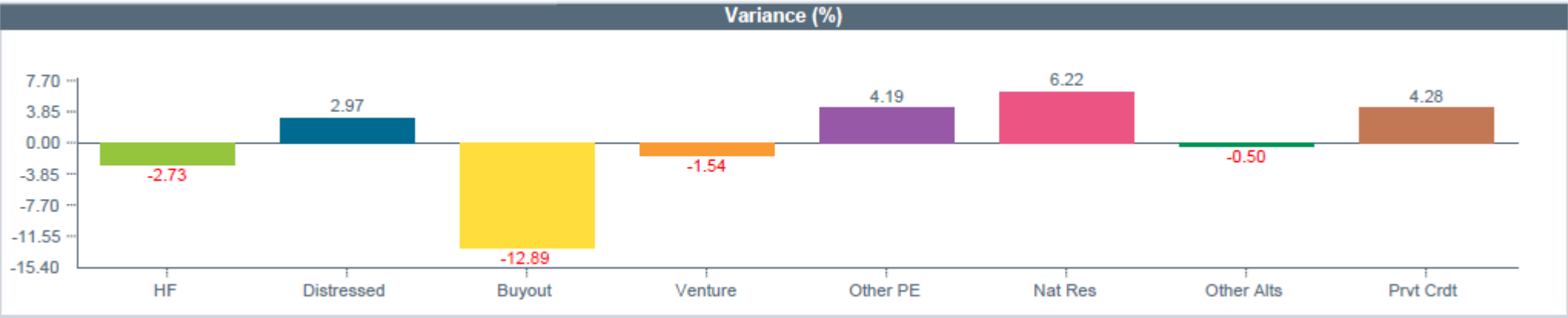


SACRS relative to RVK's Public Fund Universe



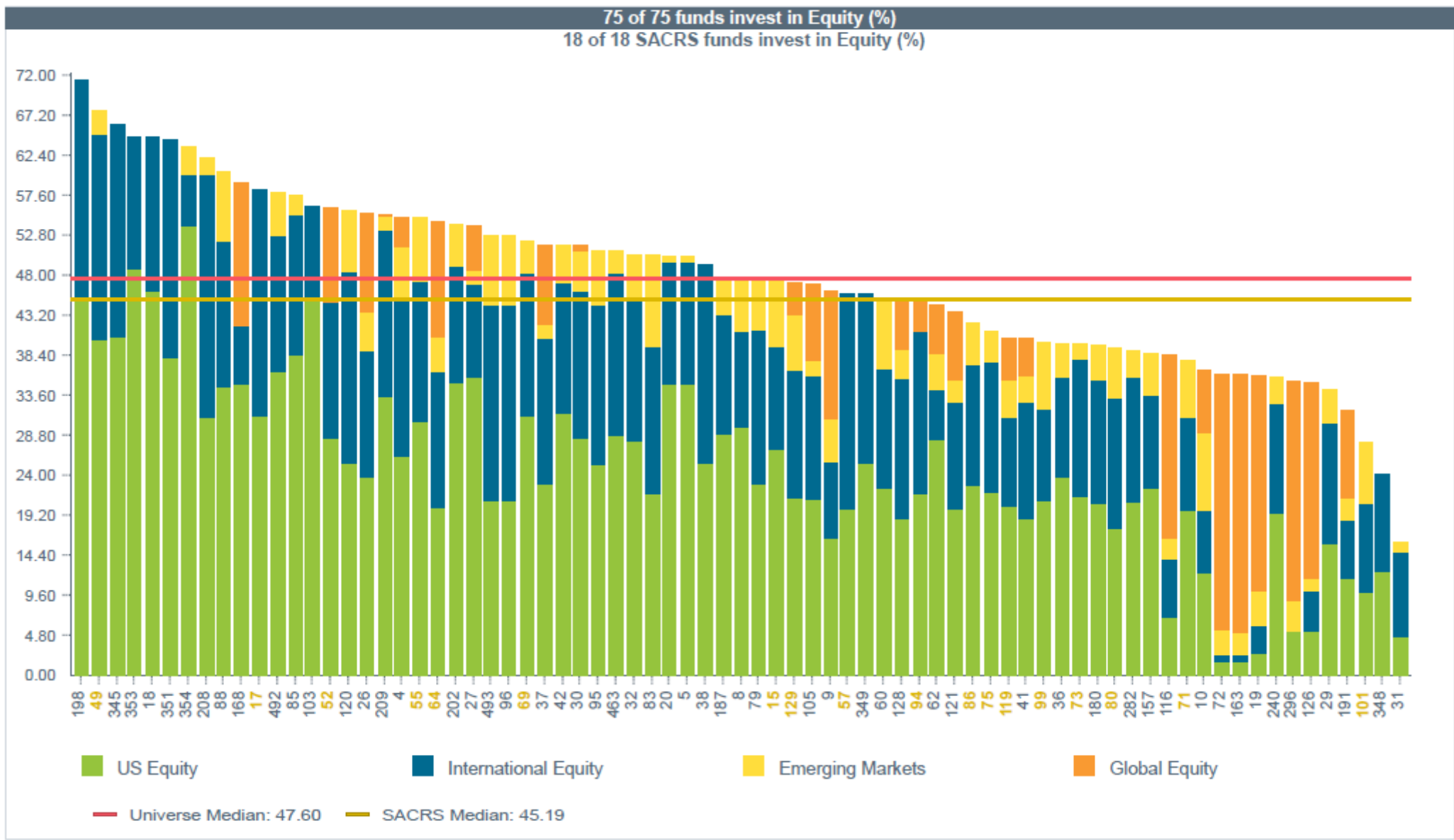
Alternatives include less buyout, greater private credit allocations

- Greater allocations in distressed, less buyout and venture
- Larger allocations to natural resources and private credit
- Lower hedge fund allocations



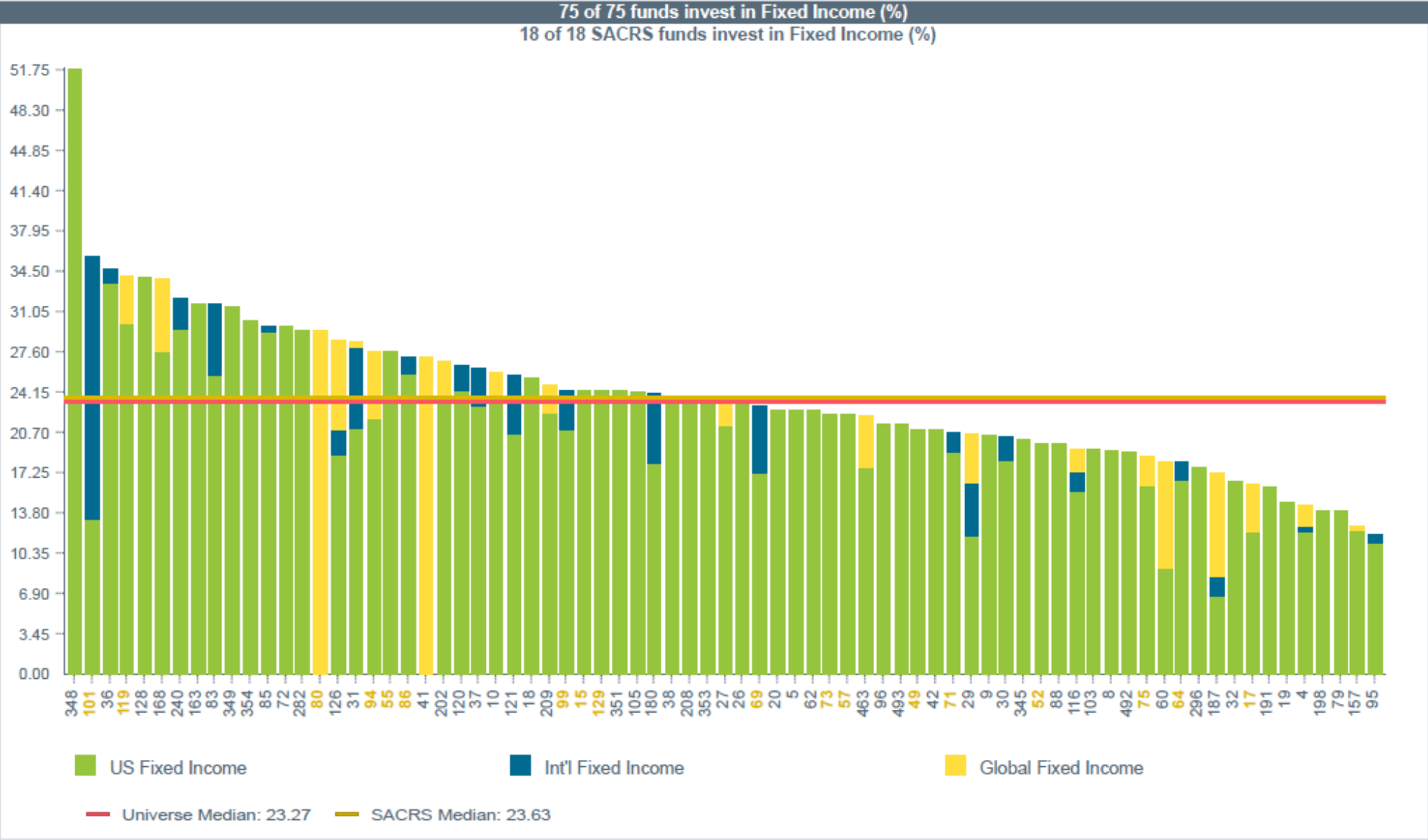
SACRS relative to RVK's Public Fund Universe

Equity allocations are slightly lower than the Universe Median, but vary significantly



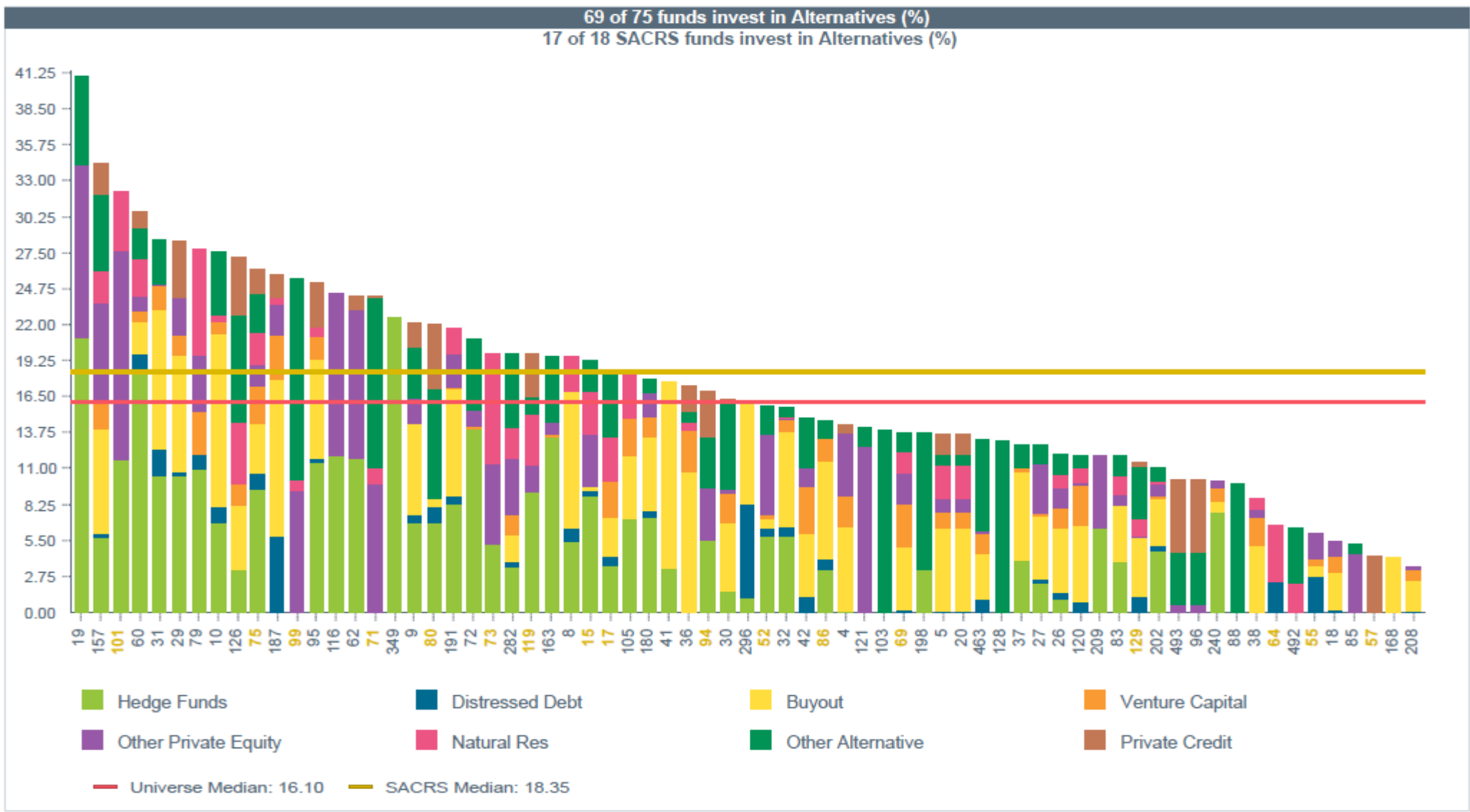
SACRS relative to RVK's Public Fund Universe

Fixed Income allocations are in line with the Universe Median, but vary widely



SACRS relative to RVK's Public Fund Universe

Alternative assets ex-real estate exceed the Universe Median, but vary in composition and total allocation



SACRS and RVK's Public Fund Universe – Performance and Risk/Return

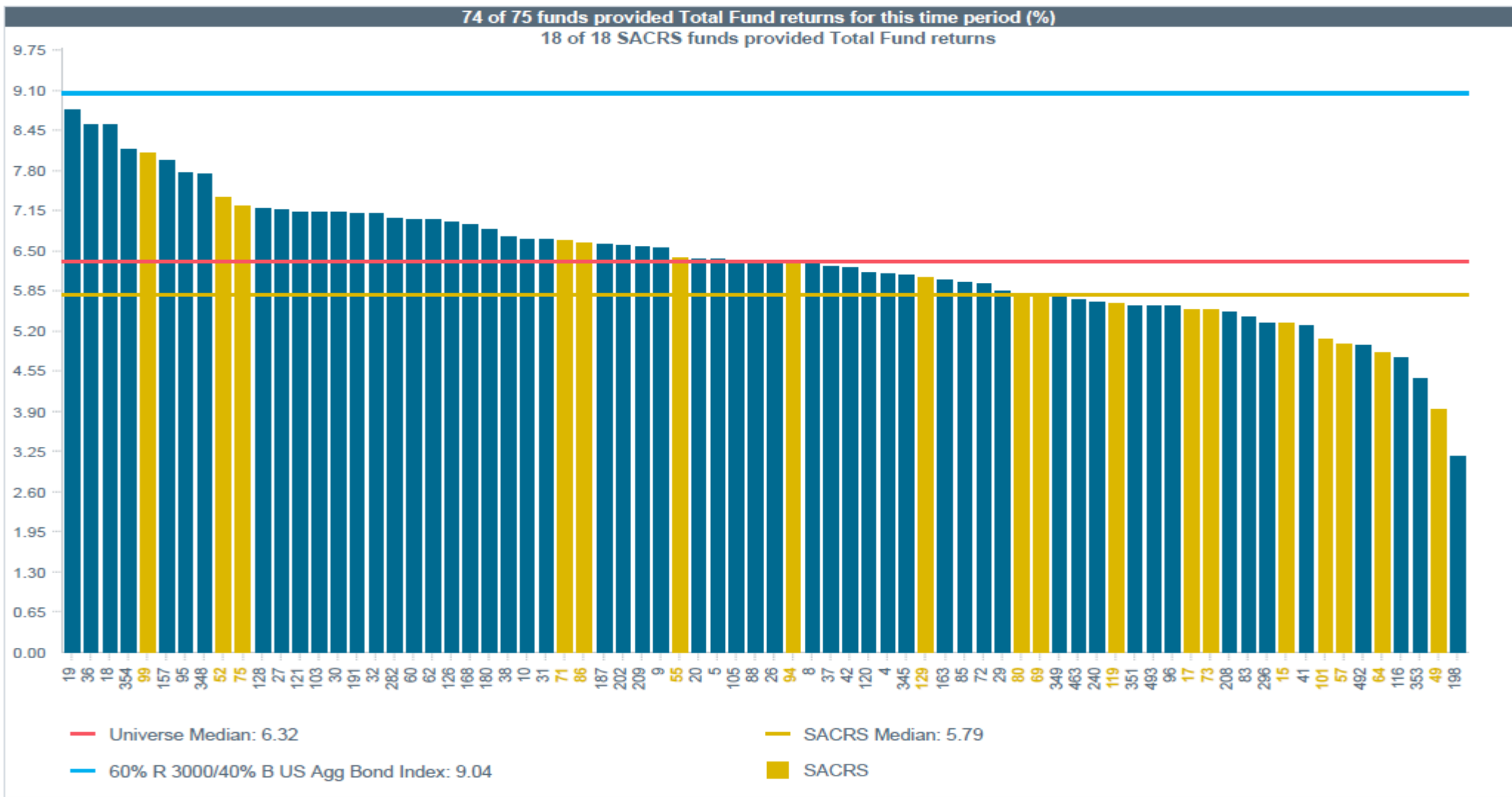


SACRS relative to RVK's Public Fund Universe

The SACRS median underperformed the Universe median by 0.53% and both medians underperformed a 60/40 index

1 Year Annualized Total Fund Returns

As of June 30, 2019



SACRS relative to RVK's Public Fund Universe

SACRS median underperformed the Universe median, with less risk

Risk/Return Analysis
5 Year Annualized Total Fund Returns vs. Standard Deviation

As of June 30, 2019



ID	Risk (%)	Return (%)	Sharpe
69	6.30	7.36	1.03
64	6.58	7.01	0.94
86	5.43	6.79	1.09
75	5.81	6.46	0.98
17	7.25	6.42	0.78
52	6.79	6.36	0.83
101	4.35	6.25	1.23
15	6.48	6.20	0.84
129	5.61	6.15	0.95
57	6.59	5.98	0.79
71	5.15	5.97	1.00
73	6.03	5.94	0.85
49	7.99	5.88	0.65
55	6.47	5.86	0.79
99	5.44	5.76	0.92
119	5.90	5.44	0.79
94	5.76	5.14	0.76
80	5.82	4.79	0.70

← Best Return
(69)

← Best Sharpe,
Lowest Risk
(101)

SACRS relative to RVK's Public Fund Universe

SACRS median marginally underperformed the Universe median, with modestly greater risk

Risk/Return Analysis
10 Year Annualized Total Fund Returns vs. Standard Deviation

As of June 30, 2019



ID	Risk (%)	Return (%)	Sharpe
69	8.77	10.56	1.14
52	9.16	10.44	1.09
17	9.76	10.44	1.03
64	8.91	10.35	1.11
57	9.15	9.99	1.04
75	8.28	9.67	1.11
73	8.63	9.61	1.06
15	8.49	9.53	1.07
49	9.68	9.52	0.95
55	8.87	9.43	1.01
86	7.13	9.39	1.24
129	7.03	9.36	1.25
80	8.21	9.07	1.05
99	7.84	9.00	1.09
101	5.26	8.87	1.56
119	7.84	8.66	1.04
94	8.31	8.51	0.97
71	6.67	8.36	1.17

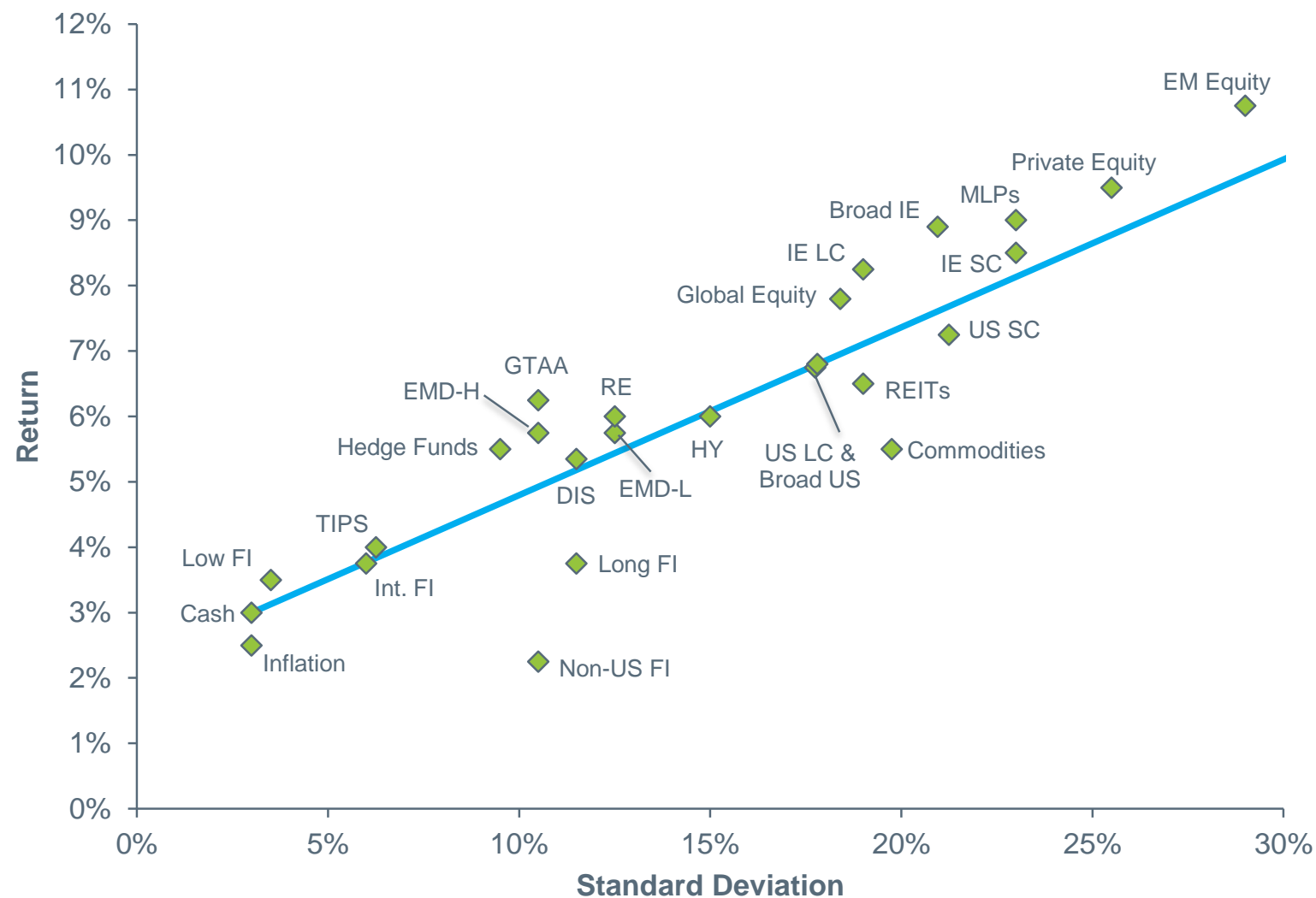
← Best Return (69)

← Best Sharpe, Lowest Risk (101)

Looking Forward – Asset Allocation



2019 RVK Capital Markets Line (CML)*

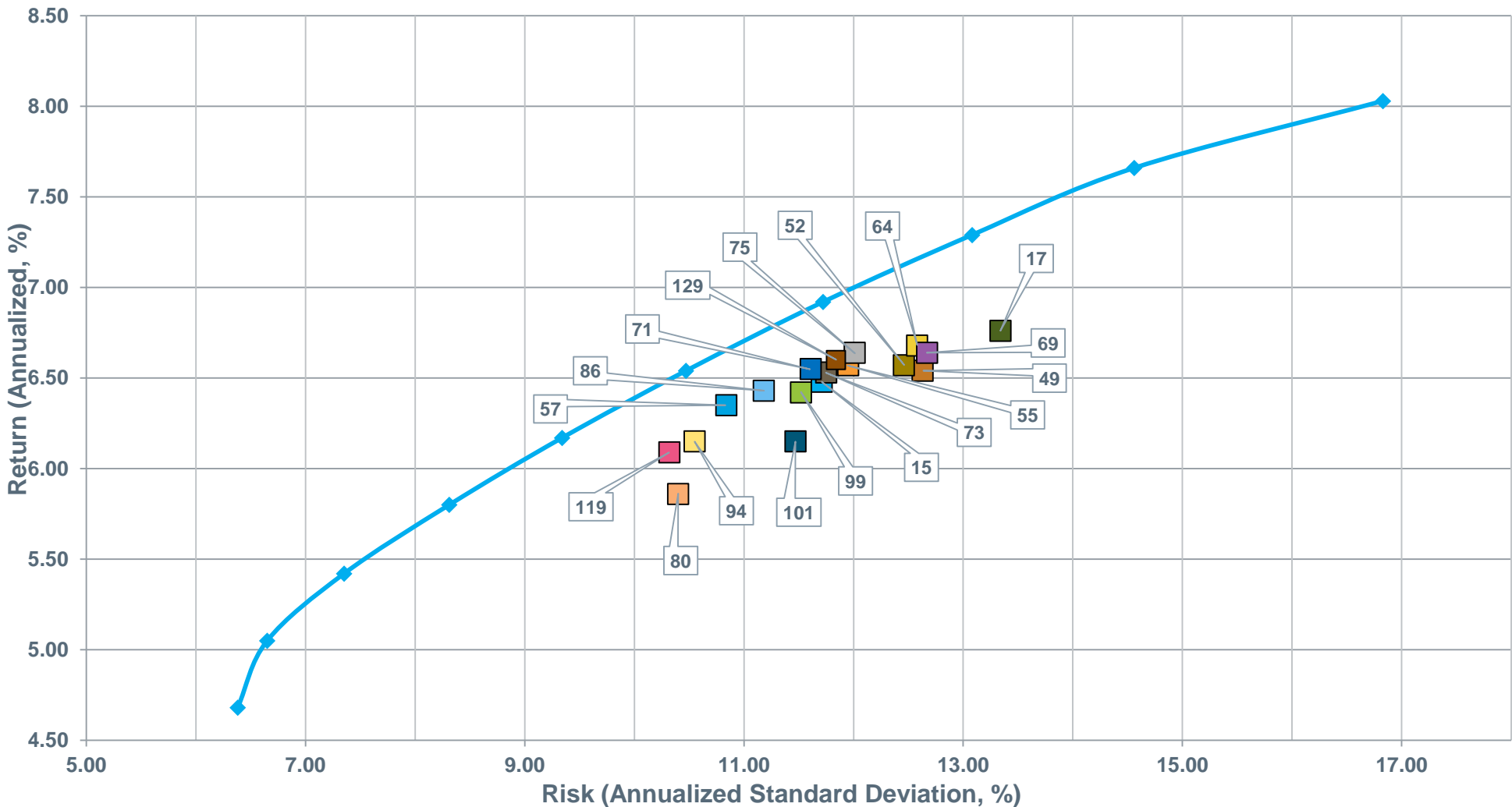


*2019 RVK Assumptions, Arithmetic, net of fees and utilizing indexing where available. Time frame 10+ years.

Expected Risk/Return

The expected risk and return of each SACRS member is modeled using RVK's 2019 capital market assumptions, and Fund asset allocations as of June 30, 2019

- Expected returns from just below 6% to 6.8%, net of fees, assuming indexing where available
- Expected risk from greater than 10% to approximately 13.5%



Time frame 10+ years.

Additional Plan Information



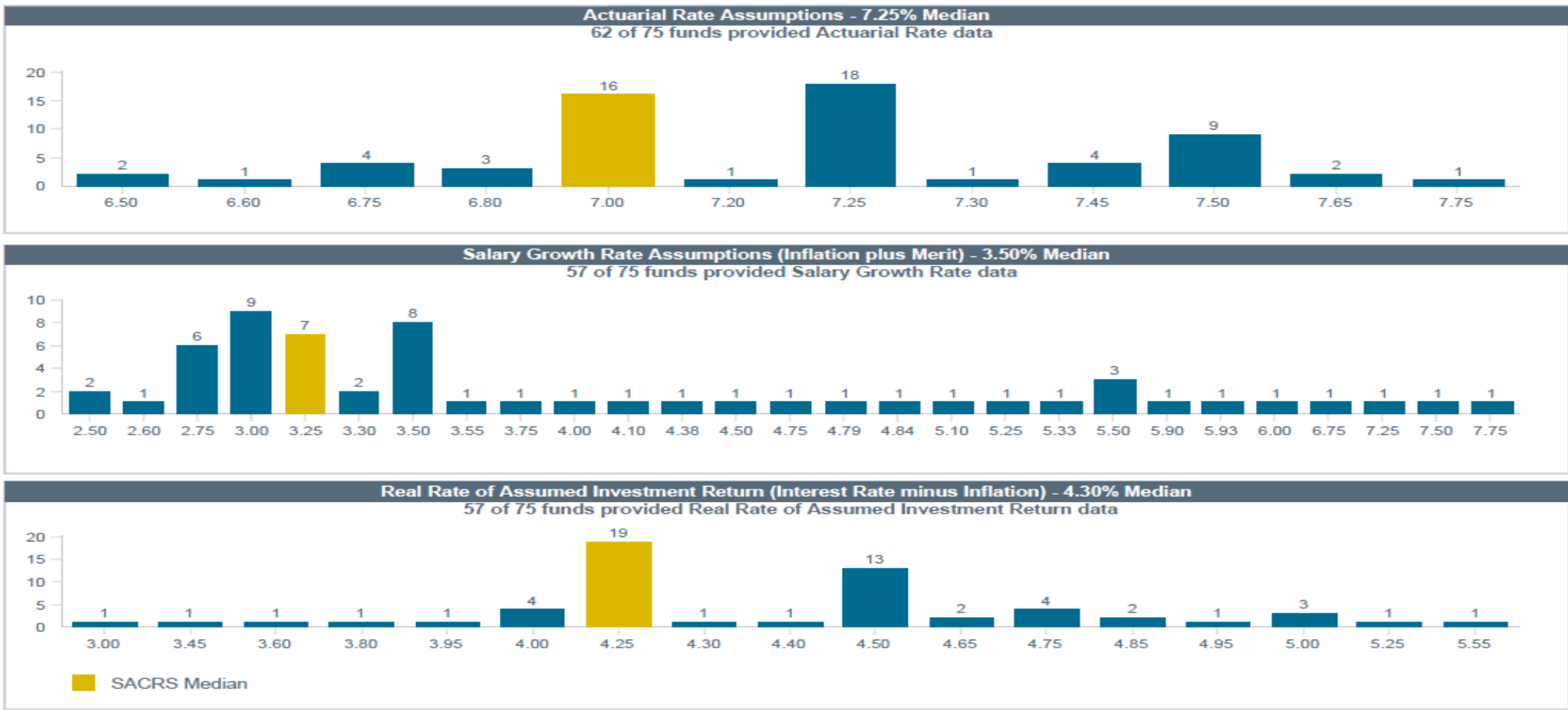
Expected Risk/Return

Additional plan information

- Actuarial rate is 7% compared to other systems that have a notable concentration at 7.25%
- Real rate of return assumption is 4.25% for SACRS

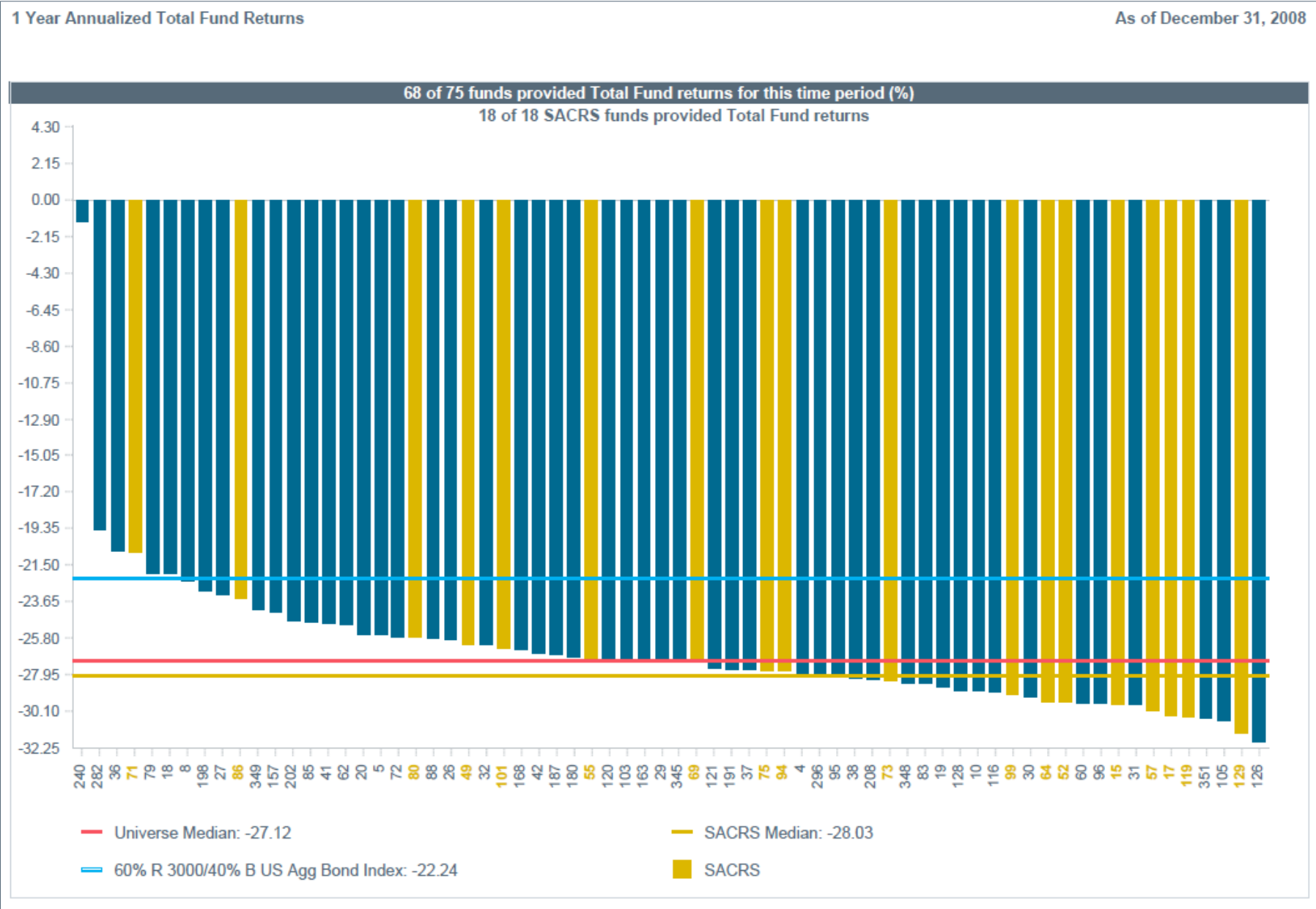
Actuarial Assumption Rates

As of June 30, 2019



SACRS Performance in 2008

How did the current best performers perform during the Great Financial Crisis?



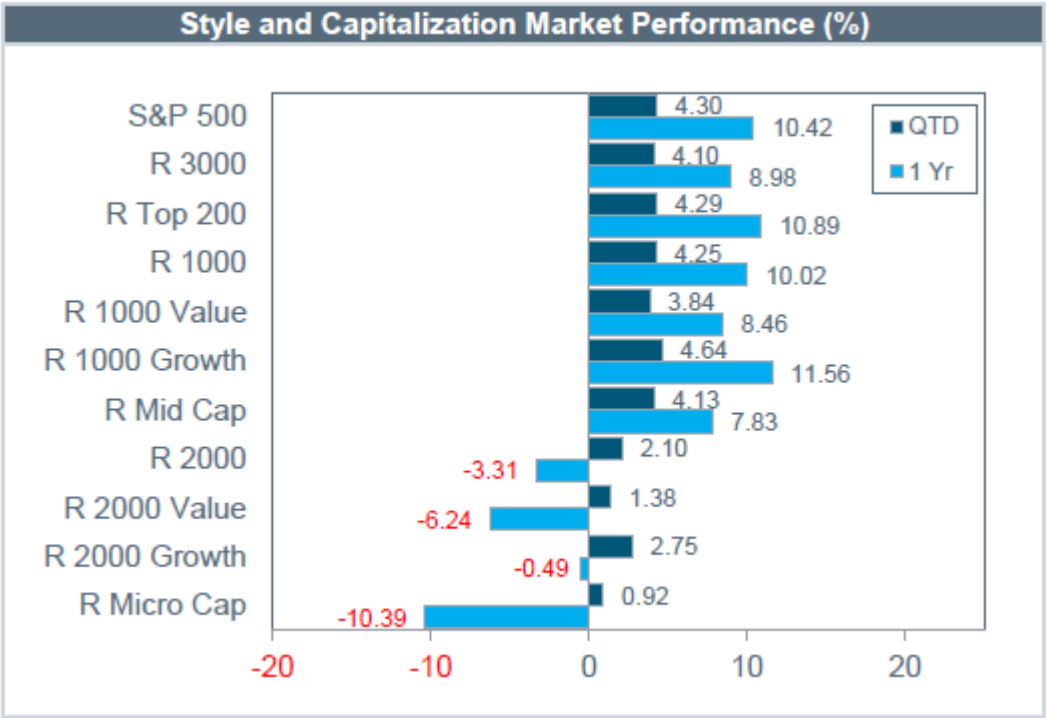
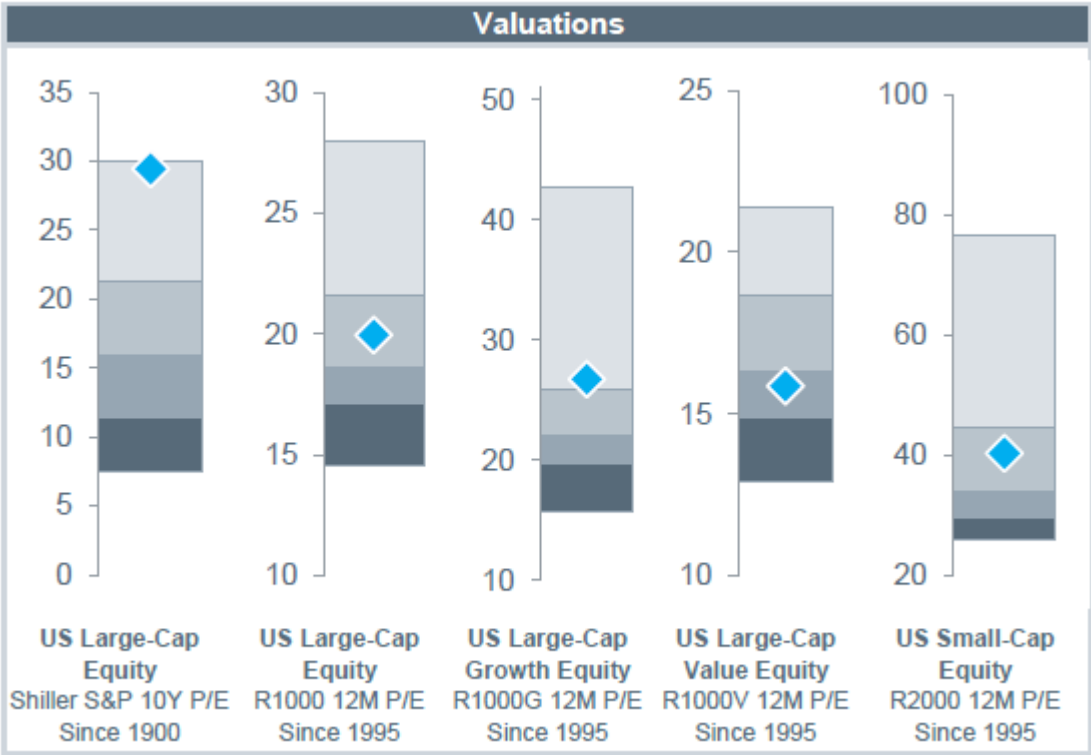
Appendix



Market Environment – US Equities as of 6/30/2019

US Growth remains expensive on a PE basis, Large Cap outperformed

- Russell 1000 Growth PE in top valuation quartile
- Russell 1000 Value PE below median
- Small cap lagged large cap in Quarter and 1 year

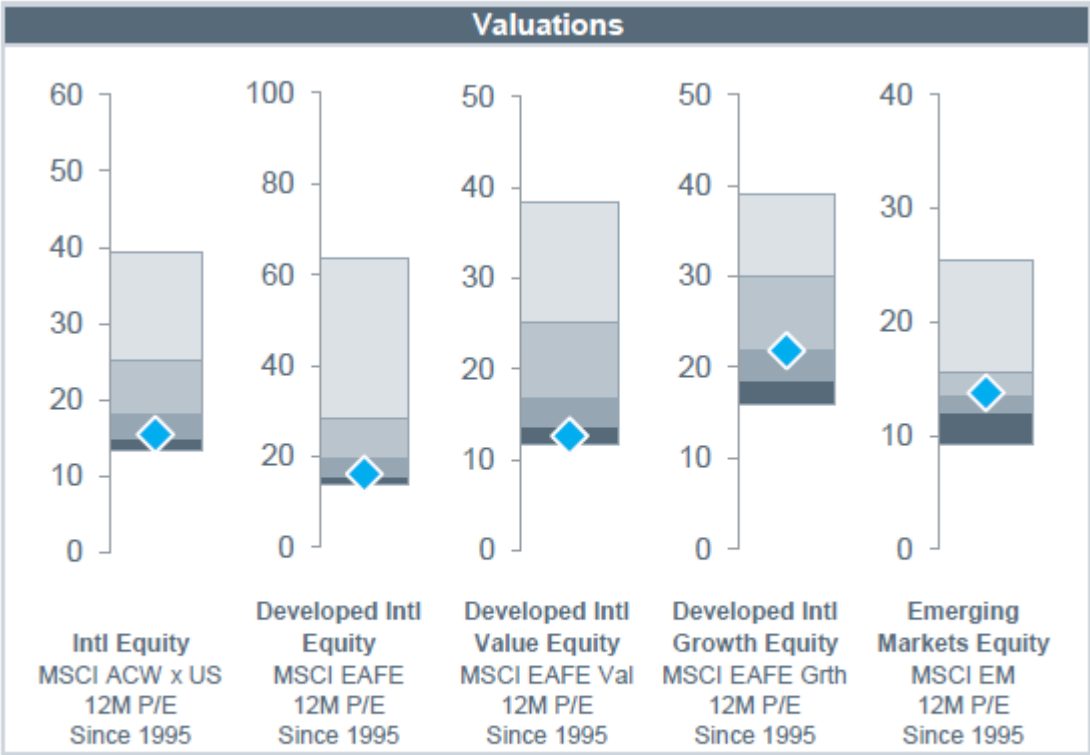


Valuation data courtesy of Bloomberg Professional Service and Robert J Shiller, Irrational Exuberance, Second Edition. P/E metrics shown represent the 5th through 95th percentiles to minimize the effect of outliers.

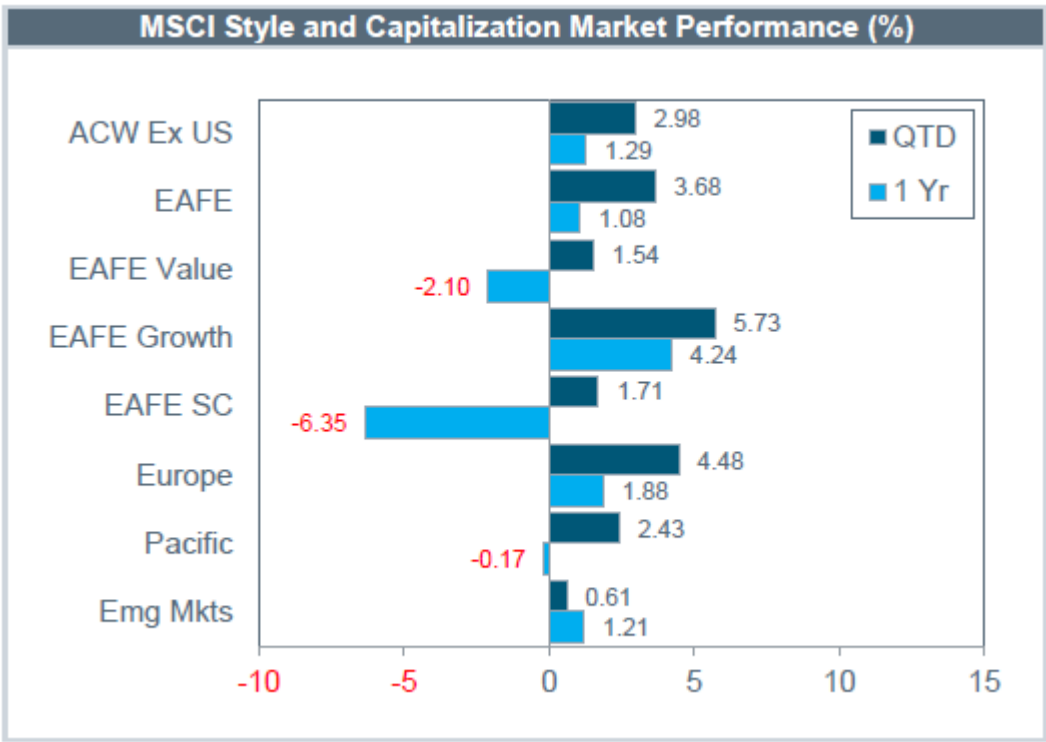
Market Environment – Non US Equities as of 6/30/2019

Lower valuation in Non-US equities, Growth in favor, Europe outperformed

- 3rd or 4th quartile valuations except for developed growth and emerging markets
- Growth outperformed
- Large cap outperformed small cap
- Developed outperformed emerging markets



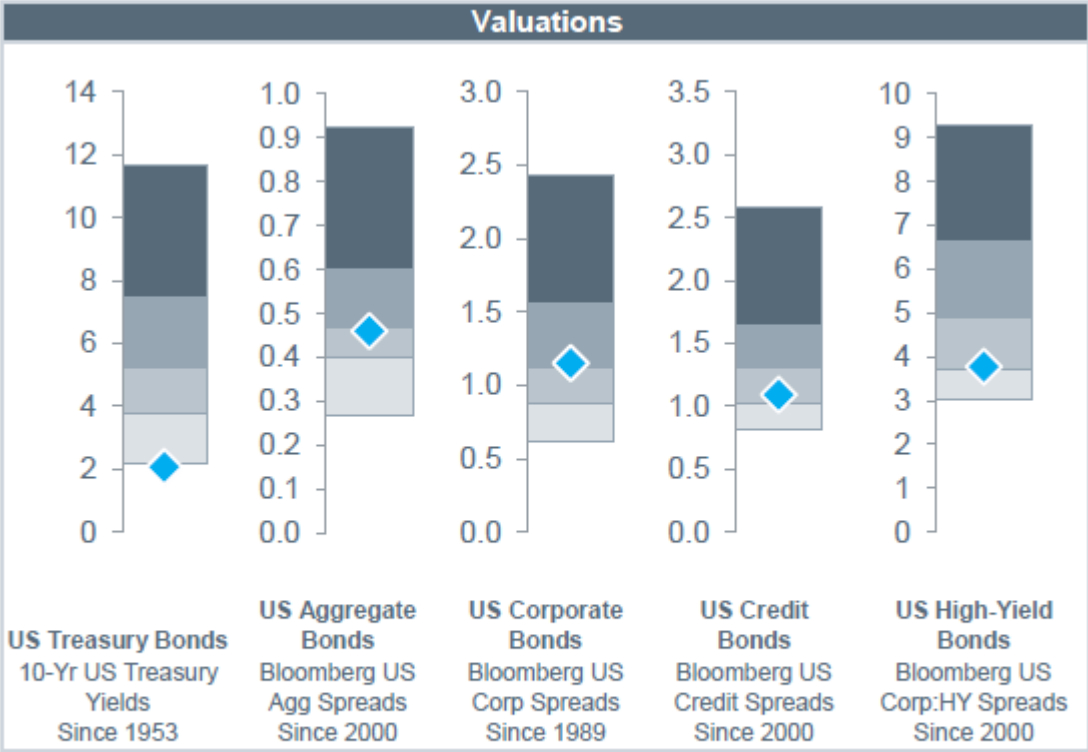
Valuation data courtesy of Bloomberg Professional Service.
P/E metrics shown represent the 5th through 95th percentiles to minimize the effect of outliers.
All returns are shown net of foreign taxes on dividends.



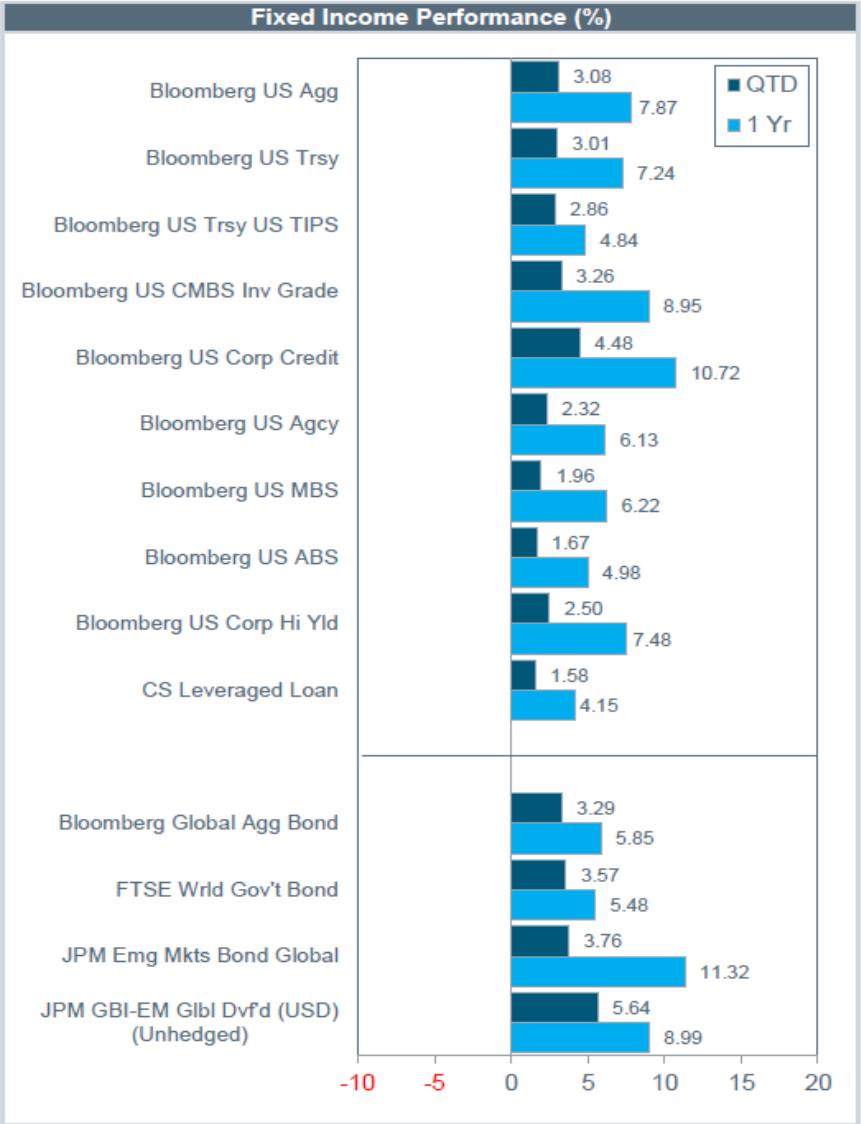
Market Environment – Fixed Income as of 6/30/2019

Yields low, Credit and High Yield Spreads below Median, Credit outperformed

- 10 year Treasury yields at the low end of the distribution (observations since 1953)
- US Credit and US High Yield spreads bottom of 3rd quartile
- US Corporate Credit outperformed



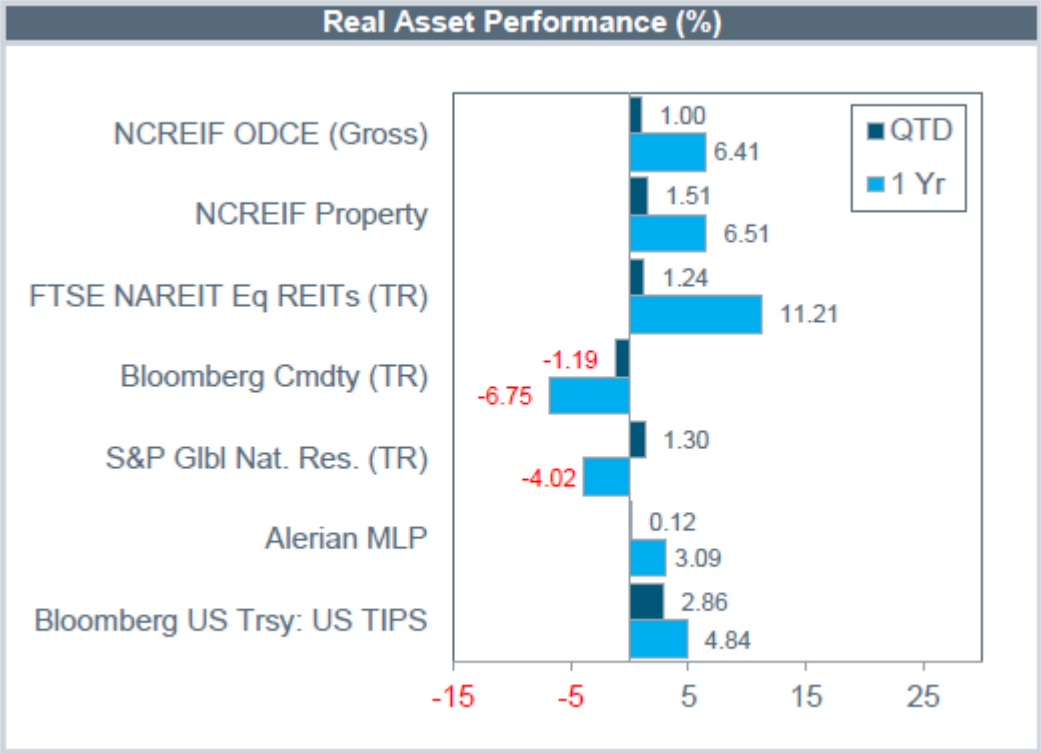
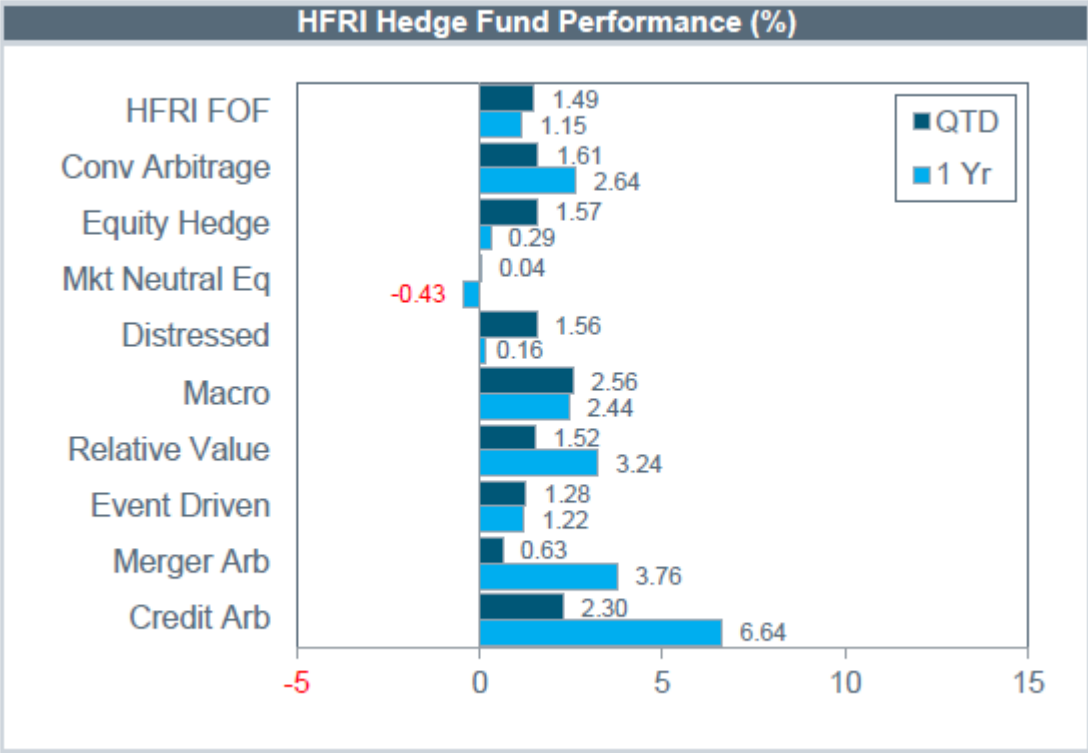
Valuation data courtesy of Bloomberg Professional Service.
Valuations shown represent the 5th through 95th percentiles to minimize the effect of outliers.



Market Environment – Alternative Assets as of 6/30/2019

REITS dominate the year, followed by real estate, TIPS

- REITS outperform in the year after a difficult 2018 year-end
- Real estate returns 6%
- TIPS provide positive returns of nearly 5%
- MLP's net a soft, but positive year as did hedge funds, although individual hedge fund strategy returns were varied
- Commodities and natural resources were negative for the year



PORTLAND

BOISE

CHICAGO

NEW YORK

