



# Public Fund Universe Analysis

Educational Employees' Supplementary Retirement  
System of Fairfax County

Period Ending December 31, 2016

Fund Number: 65



## OVERVIEW

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RVK, Inc. (“RVK”) was founded in 1985 and is one of the largest independent and employee-owned investment consulting firms in the US, providing world-class investment advice to institutional investors. We serve over 400 plans, including pension plans, defined contribution plans, endowments & foundations, insurance pools, and special purpose funds.

## MISSION STATEMENT

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To provide best-in-class investment consulting services to a wide array of sophisticated investors.

## STRATEGIC INVESTMENT ADVICE WITH NO CONFLICTS OF INTEREST

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RVK built its investment consulting practice on the principles of integrity, investment knowledge, client service, and our no conflicts of interest policy. We are exclusively focused on strategic investment consulting services and solely owned by active employees, enabling us to offer advice that is not influenced by other business activities. As a privately-held firm, with no affiliates or parent company, we provide informed and unbiased investment advice to our clients. We offer an extensive slate of consulting services and produce deliverables fully customized to meet each client’s needs.

## KEY TENETS OF OUR CULTURE

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### **RVK BY THE NUMBERS**

- **30+** years of business
- **3** offices - Portland, Chicago, New York
- **\$700+** billion Full-Retainer AUA
- **90+** Investment Professionals
- **50+** Advanced Degrees and Certifications
- **100%** Employee Ownership
- **100%** Revenue Derived from Client Fees
- **100%** Non-Discretionary Services

### **GENERAL CONSULTING SERVICES**

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- Plan Evaluation
- Strategic Asset Allocation
- Investment Policy Development & Review
- Investment Manager Search & Selection
- Performance Analysis & Reporting
- Manager Structure Analysis
- Risk Monitoring and Management
- Client Education
- Special Projects

### **SPECIALTY CONSULTING SERVICES**

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- Real Estate Consulting Services
- Custody, Record keeper, Third-Party Administrator Searches
- Asset/Liability Studies
- Endowment Spending Policy Studies
- Securities Lending Reviews
- Pacing Studies
- Strategic Planning Reviews
- Outsourced CIO (“OCIO”) Searches, Evaluation, and Ongoing Monitoring
- Directed Consulting Services
- Fee Reviews
- Defined Contribution Solutions Services
- Investment Operations Solutions
- Board and Investment Program Operational Reviews

**FOR MORE INFORMATION ABOUT OUR SERVICES, PLEASE CONTACT:**

**[Business.Development@RVKInc.com](mailto:Business.Development@RVKInc.com)**  
**503-221-4200**

## Participants

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Alameda County Employees' Retirement Association	Anchorage Police & Fire Retirement System
Arlington County Employees' Retirement System	California State Teachers' Retirement System
City of Fresno Retirement Systems	City of Milwaukee Employees' Retirement System
Civilian Employees' Retirement System of the Police Department of Kansas City, Missouri	Colorado Public Employees' Retirement Association
Confederated Tribes of the Warm Springs Tribal Council Pension Fund	Contra Costa County Employees' Retirement Association
County Employees' Annuity & Benefit Fund of Cook County	District of Columbia Retirement Board
<b>Educational Employees' Supplementary Retirement System of Fairfax County (65)</b>	Employees Retirement System of Texas
Fire & Police Employees' Retirement System of Baltimore	Fire and Police Pension Association of Colorado
Florida State Board of Administration	Fort Worth Employees' Retirement Fund
Fresno County Employees' Retirement Association	Georgia Division of Investment Services
Gila River Indian Community Retirement Plan	Illinois Municipal Retirement Fund
Imperial County Employees' Retirement System	Iowa Public Employees' Retirement System
Kansas Public Employees' Retirement System	Kentucky Retirement Systems
Kentucky Teachers' Retirement System	Kern County Employees' Retirement Association
Los Angeles City Employees' Retirement System	Los Angeles County Employees Retirement Association
Los Angeles Fire and Police Pension System	Los Angeles Water & Power Employees Retirement Plan
Marin County Employees' Retirement Association	Mendocino County Employees' Retirement Association
Merced County Employees' Retirement Association	Montana Public Employees' Retirement System
Montana Teachers' Retirement System	Municipal Employees' Annuity and Benefit Fund of Chicago
Municipality of Anchorage Pre-Funding Program	Nevada Public Employees' Retirement System
New York State Common Retirement Fund	Newport News Employees' Retirement Fund
North Carolina Retirement System	Ohio Public Employees' Retirement System
Orange County Employees' Retirement System	Pennsylvania Public School Employees' Retirement System
Pennsylvania State Employees' Retirement System	Police Retirement System of Kansas City, Missouri
Public School and Education ERS of Missouri	San Diego City Employees' Retirement System
San Diego County Employees Retirement Association	San Diego Transit Corporation Employees Retirement
San Joaquin County Employees' Retirement Association	San Mateo County Employees' Retirement Association
Santa Barbara County Employees' Retirement System	Sonoma County Employees' Retirement Association





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South Dakota Retirement System  
State of New Jersey Pension Fund  
State Teachers Retirement System of Ohio  
Teachers' Retirement System of Louisiana  
Texas Municipal Retirement System  
Tulare County Employees' Retirement Association  
Virginia Retirement System  
Wyoming Retirement System

Stanislaus County Employees' Retirement Association  
State Retirement and Pension System of Maryland  
State Universities Retirement System of Illinois  
Teachers' Retirement System of the State of Illinois  
The Navajo Nation Retirement Plan  
Ventura County Employees' Retirement Association  
West Virginia Investment Management Board

**Fourth Quarter Economic Environment**

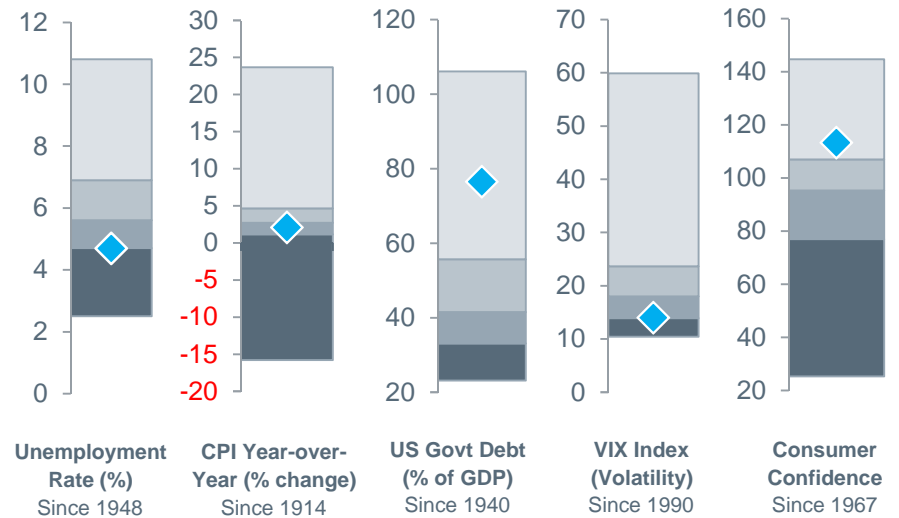
**Key Economic Indicators**

The surprising result of the United States presidential election produced an initial market shock, as US equity futures traded off nearly 5% during the night of November 8th. By morning however, the volatility and uncertainty gave way to renewed optimism for risk assets as markets contemplated the policy objectives and corresponding economic impact of the Trump administration's agenda. The bullish sentiment in the US cleared the path for the Federal Reserve Open Market Committee to raise the benchmark federal funds rate by 25 basis points during its December meeting. The move was widely anticipated, as economic data supported the Fed tightening at this point in the economic cycle. On November 30, 2016, OPEC announced a deal to cut oil production by 1.2 million barrels per day, the first cut since 2008, which drove the price of oil up nearly 10% on the day of the announcement. In Europe, the European Central Bank announced a moderation in the pace of asset purchases from €80 billion per month to €60 billion, but also extended the duration of the purchase program.

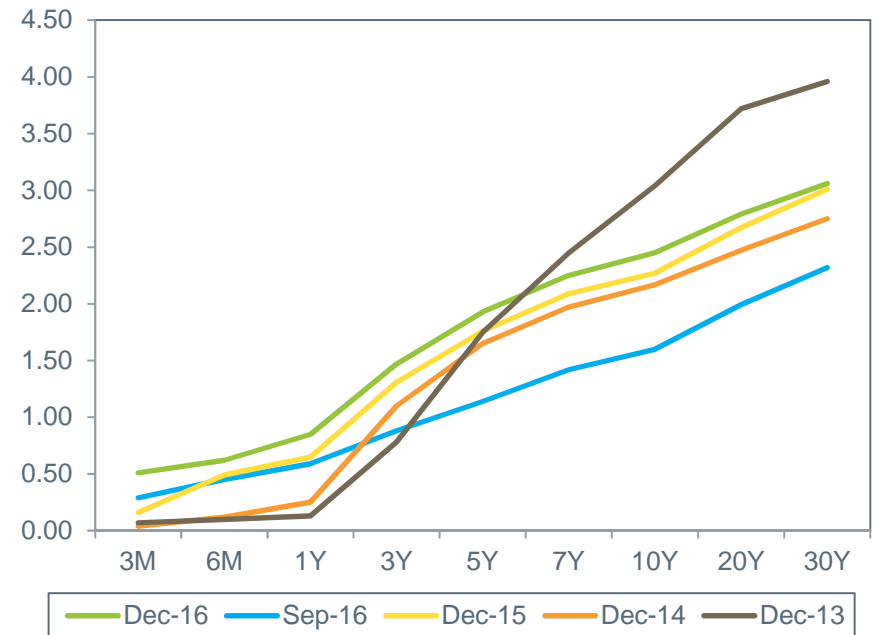
Economic Indicators	Dec-16	Sep-16	Dec-15	Dec-13	20 Yr
Federal Funds Rate (%)	0.55 ▲	0.29	0.20	0.07	2.35
Breakeven Infl. - 1 Yr (%)	1.27 ▲	0.95	0.85	1.50	N/A
Breakeven Infl. - 10 Yr (%)	1.97 ▲	1.61	1.58	2.23	N/A
CPI YoY (Headline) (%)	2.1 ▲	1.5	0.7	1.5	2.2
Unemployment Rate (%)	4.7 ▼	4.9	5.0	6.7	6.0
Real GDP YoY (%)	1.9 ▲	1.7	1.9	2.7	2.3
PMI - Manufacturing	54.50 ▲	51.70	47.90	56.00	52.20
USD Total Wtd Idx	95.76 ▲	90.01	94.25	76.15	86.86
WTI Crude Oil per Barrel (\$)	53.7 ▲	48.2	37.0	98.4	56.0
Gold Spot per Oz (\$)	1,152.3 ▼	1,315.8	1,061.4	1,205.7	784.3

Market Performance (%)	QTD	CYTD	1 Yr	5 Yr	10 Yr
S&P 500 (Cap Wtd)	3.82	11.96	11.96	14.66	6.95
Russell 2000	8.83	21.31	21.31	14.46	7.07
MSCI EAFE (Net)	-0.71	1.00	1.00	6.53	0.75
MSCI EAFE SC (Net)	-2.86	2.18	2.18	10.56	2.95
MSCI Emg Mkts (Net)	-4.16	11.19	11.19	1.28	1.84
Bloomberg US Agg Bond	-2.98	2.65	2.65	2.23	4.34
BofA ML 3 Mo US T-Bill	0.08	0.33	0.33	0.12	0.80
NCREIF ODCE (Gross)	2.11	8.77	8.77	12.21	5.82
Wilshire US REIT	-2.28	7.24	7.24	12.02	4.80
HFRI FOF Comp	0.88	0.53	0.53	3.42	1.31
Bloomberg Cmddy (TR)	2.66	11.74	11.74	-8.96	-5.58

**Key Economic Indicators**



**Treasury Yield Curve (%)**



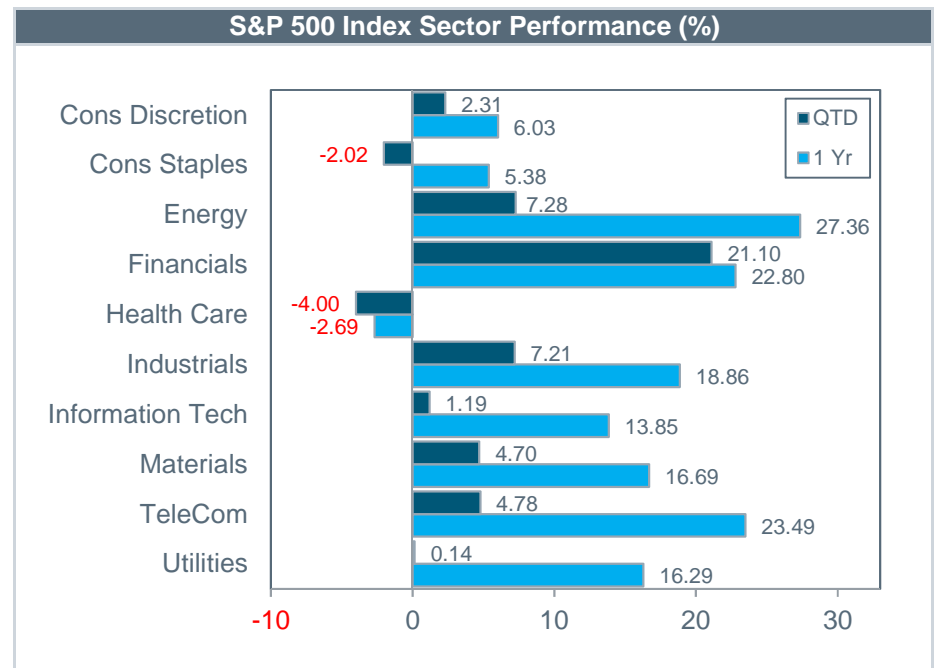
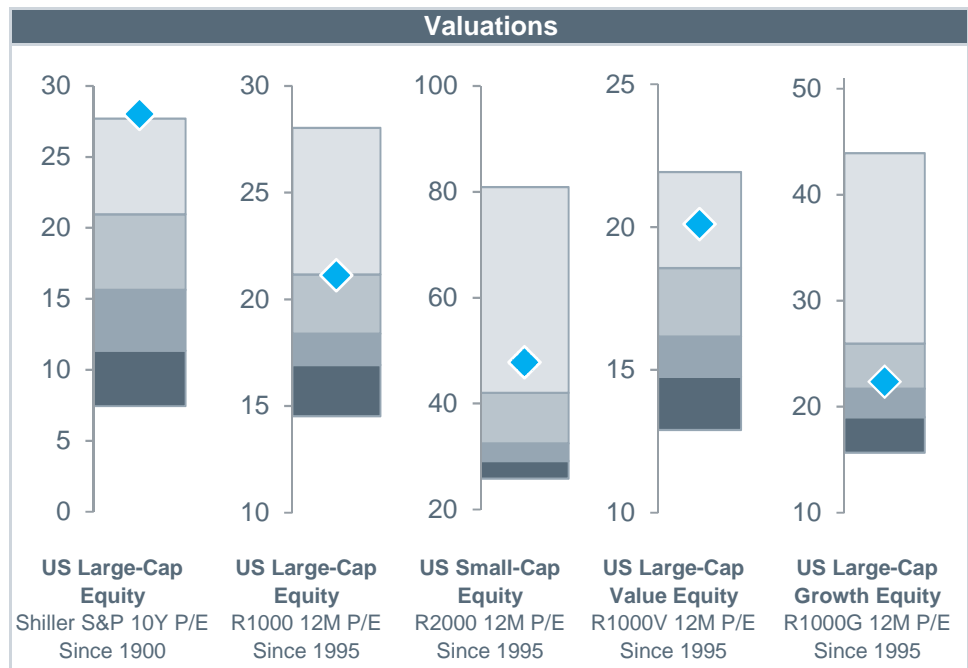
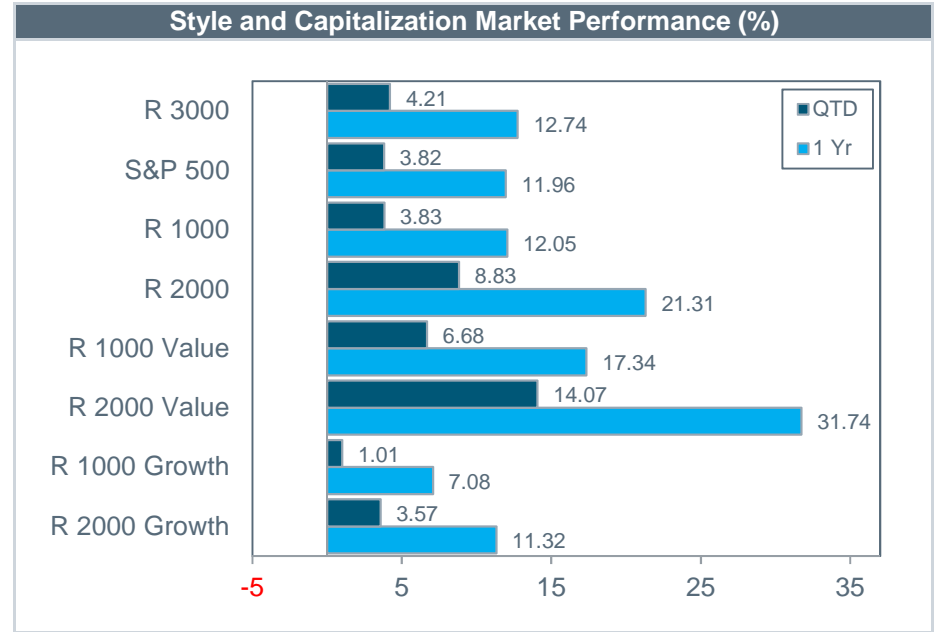
Treasury data courtesy of the US Department of the Treasury. Economic data courtesy of Bloomberg Professional Service. Breakeven Inflation does not have 20 years of history; therefore, its 20-year average is shown as N/A.

### Fourth Quarter Review

**Broad Market**  
 US equity markets started the fourth quarter with a slight decline, fueled largely by uncertainty surrounding the presidential election. However, results swiftly shifted post-election, and all major US equity indices finished the quarter and year in positive territory, with the Russell 3000 Index returning 4.2% and 12.7%, respectively.

**Market Cap**  
 While all major indices finished the quarter in positive territory, small cap led the way with the Russell 2000 returning 21.3% compared with 12.1% for the Russell 1000.

**Style and Sector**  
 Value stocks outperformed growth across all market caps in 2016. Post-election, several sectors finished the year with a strong rally including: Consumer Discretionary (14.5%), Energy (28.0%), Financials (20.4%), and Producer Durables (18.2%).



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.

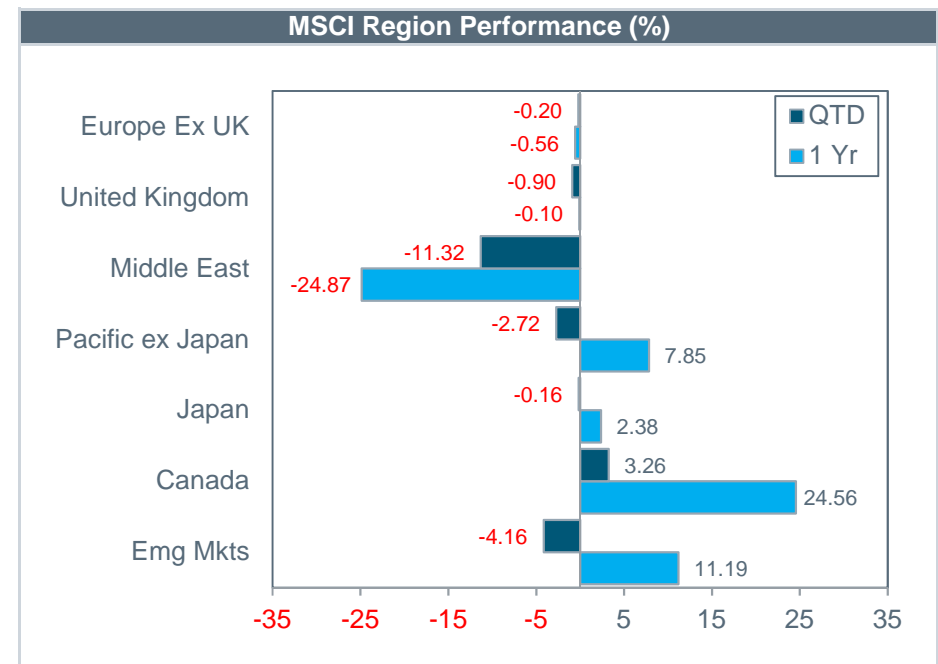
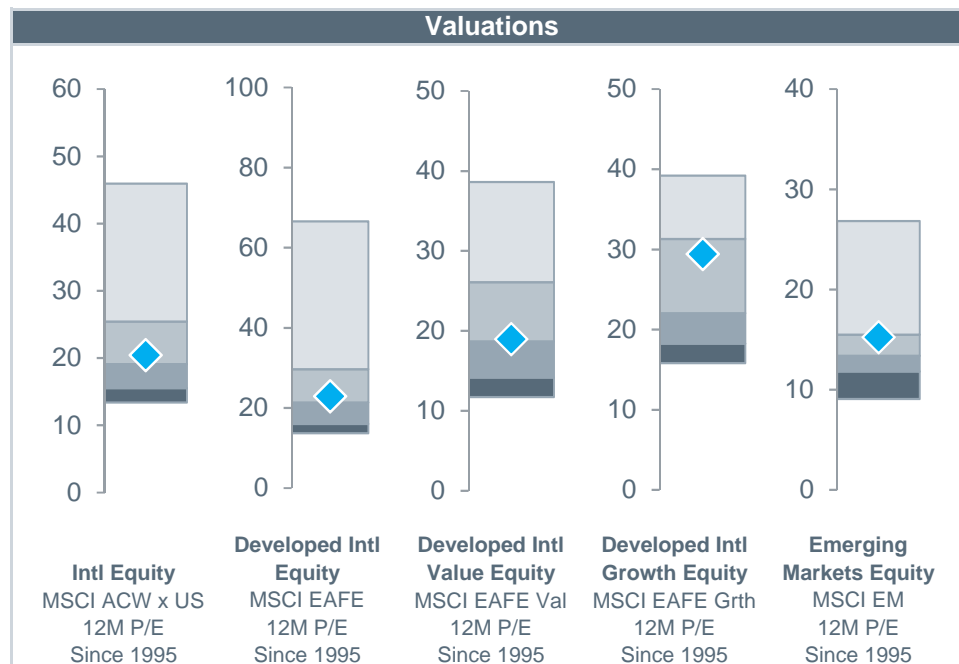
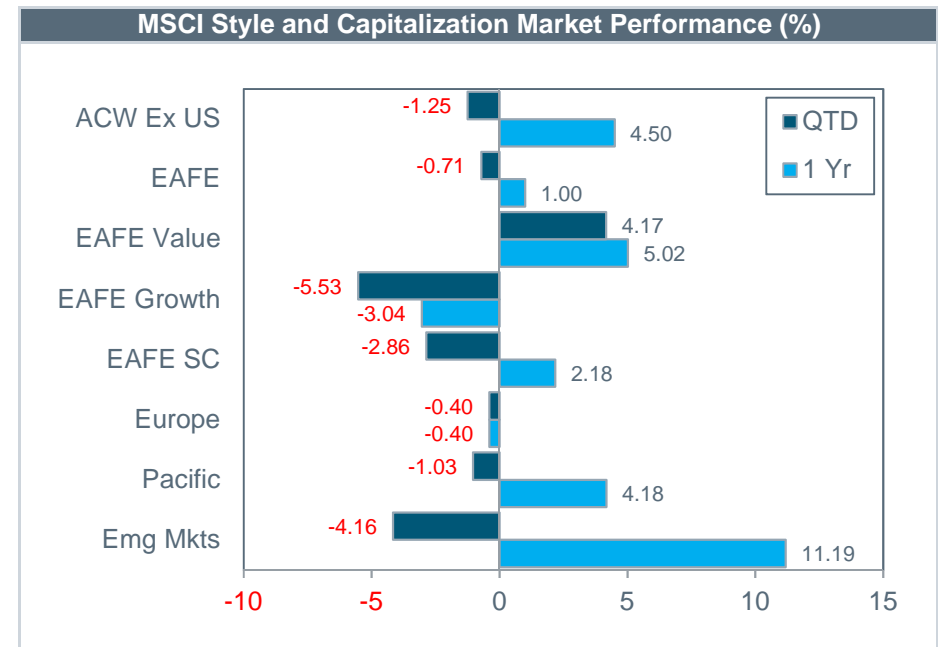


### Fourth Quarter Review

**Developed Markets**  
 Developed international markets ended the quarter slightly negative, but were positive for the year. Cyclical sectors, such as financials and energy, provided positive contributions for the quarter. By country, there were few bright spots, with only a few European countries posting positive returns in Q4.

**Emerging Markets**  
 Emerging Markets underperformed developed markets by a significant margin for the quarter. Year-end returns remained strong, but lagged US equities. Poor performance in emerging markets this quarter stemmed from fears that stimulus programs in the US could lead to higher bond yields and a stronger dollar, which may draw significant capital to the currency.

**Market Cap & Style**  
 Value stocks outperformed growth stocks for both the quarter and year while small-cap lagged large-cap for the quarter, but outperformed for the year.



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.





**Fourth Quarter Review**

**Broad Market**

Recent and anticipated interest rate hikes negatively affected bond market returns for the quarter. The Bloomberg Barclays US Aggregate Bond Index ended the year with a return of 2.7% after returning -3.0% during Q4. Long duration government bonds, which are particularly sensitive to interest rate movements, returned -11.5% for the quarter and ended the year with a return of 1.4% as measured by the Bloomberg Barclays Long US Government Index.

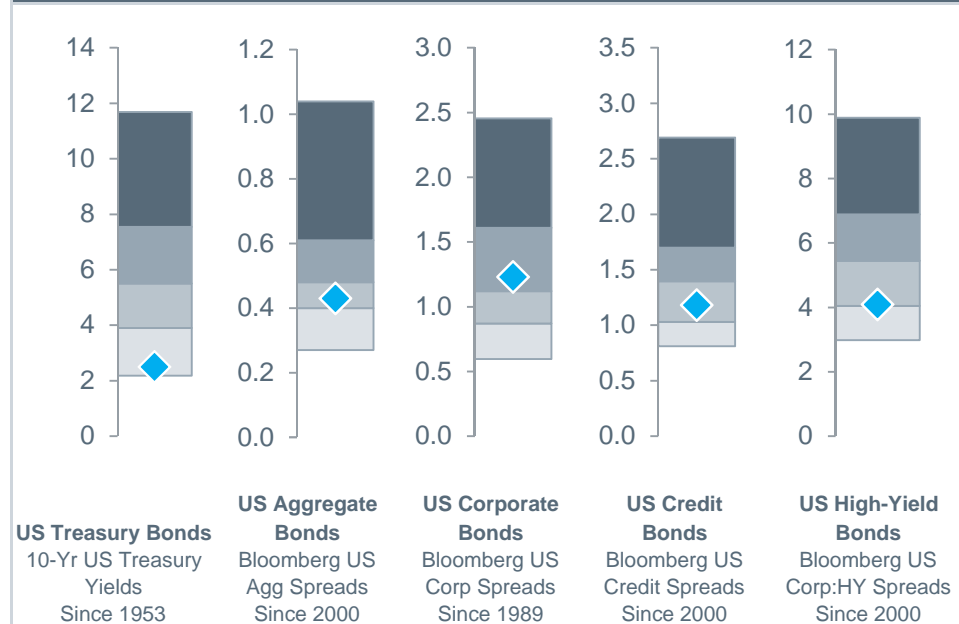
**Credit Market**

Investment grade and high yield credit spreads compressed during the quarter as investors' increased their appetite for credit. The BofAML US High Yield Index returned 17.5% for the quarter – its best return since 2009.

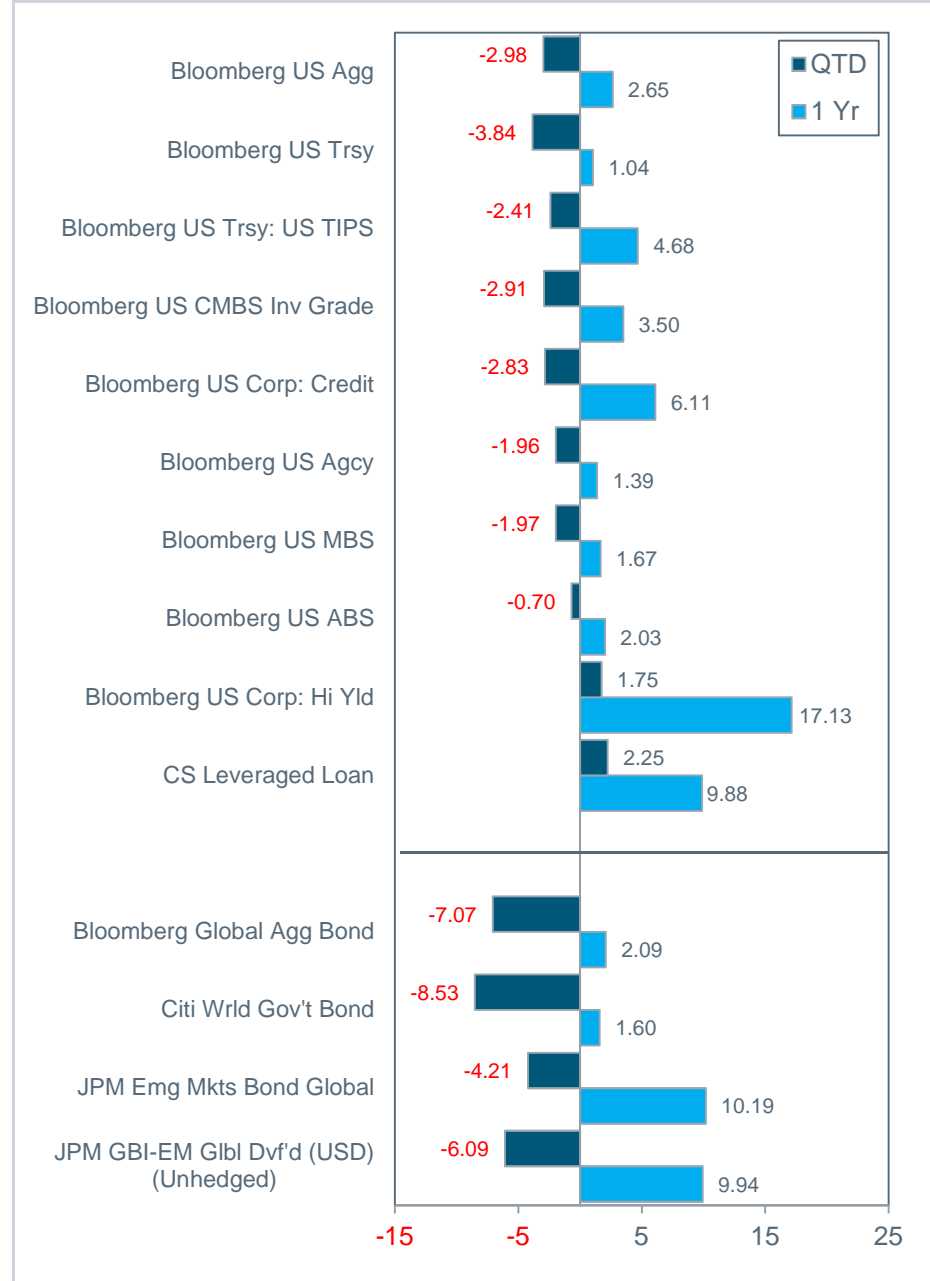
**International**

Foreign debt from both developed and emerging markets declined significantly during the quarter as the US dollar strengthened. The sharpest decline occurred immediately following the US presidential election.

**Valuations**



**Fixed Income Performance (%)**



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



**Fourth Quarter Review - Absolute Return**

**General Market - Hedge Funds**

The fourth quarter wrapped up a mixed year for the hedge fund industry. Individual hedged equity managers had another difficult quarter from an alpha perspective, with early reports indicating the second worst quarter of alpha generation since 2010, in part due to sector rotations out of technology, consumer, and health care following the November elections. Poor performance from short books was a main detractor for many managers that delivered disappointing alpha and absolute returns. The best performing strategies for the year continued to be in the distressed/restructuring space.

**General Market - Global Tactical Asset Allocation (GTAA)**

Most GTAA managers underperformed an undiversified and static 60/40 portfolio of US large cap equity and US fixed income. Managers that focus on lower-volatility and low correlation alpha provided the strongest performance for the quarter, as long dollar, short US duration, and credit positions were rewarded in a welcome break from a challenging year for these managers.

**Fourth Quarter Review - Real Assets**

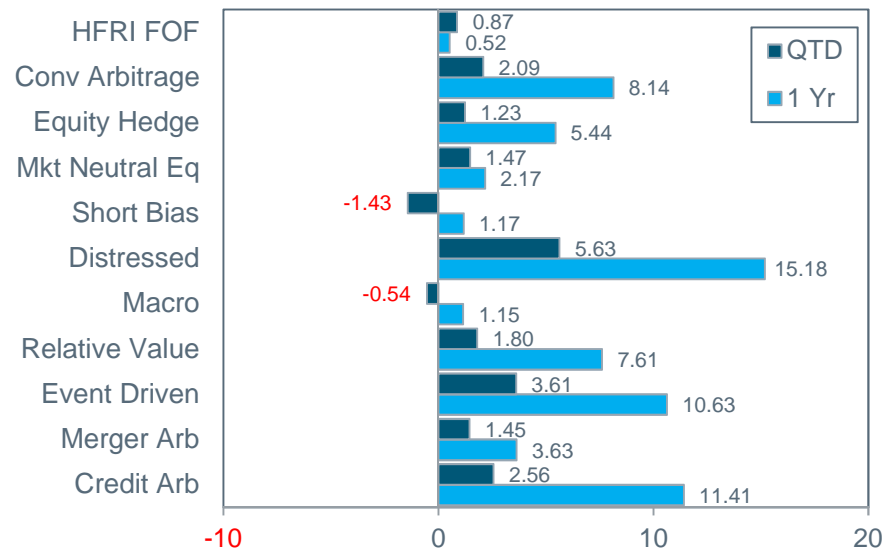
**General Market - Diversified Inflation Strategies (DIS)**

While most managers ended the year in positive territory, the fourth quarter proved challenging due to macroeconomic events. Managers with larger energy commodity exposure and natural resource equity exposure led the group during both the quarter and year. Managers with larger infrastructure and REIT allocations posted negative performance during the quarter as these asset classes initially appeared correlated with increased bond yields. Those that structurally allocate to TIPS at the expense of REITs, infrastructure, and natural resource equity ended the quarter at the approximate midpoint of the group.

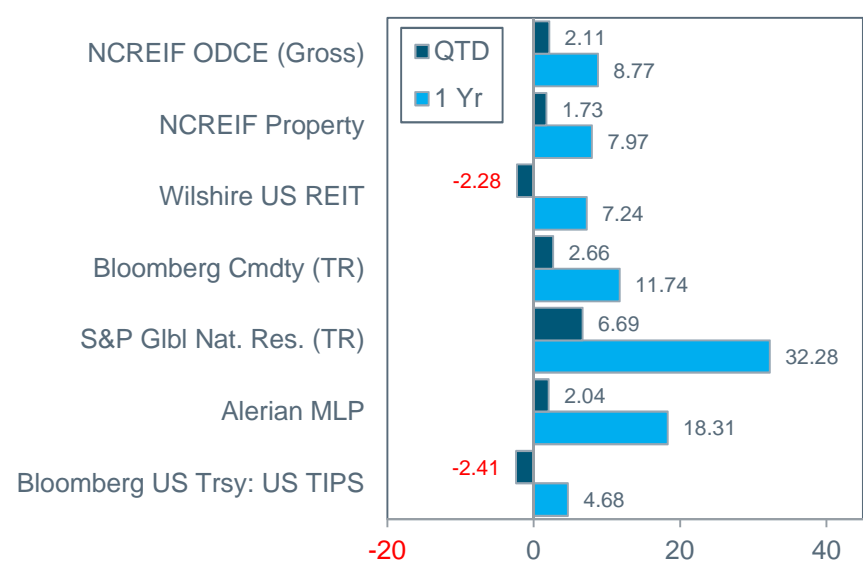
**General Market - Real Estate**

Investors responded to recent US political events and interest rate increases by selling off REITs, as evidenced by the -3.5% return in the FTSE/NAREIT US Real Estate Index during the quarter. The NCREIF-ODCE Index returned 2.1% for the quarter based on preliminary results, with a nearly equal share of returns deriving from income and appreciation.

**HFRI Hedge Fund Performance (%)**



**Real Asset Performance (%)**



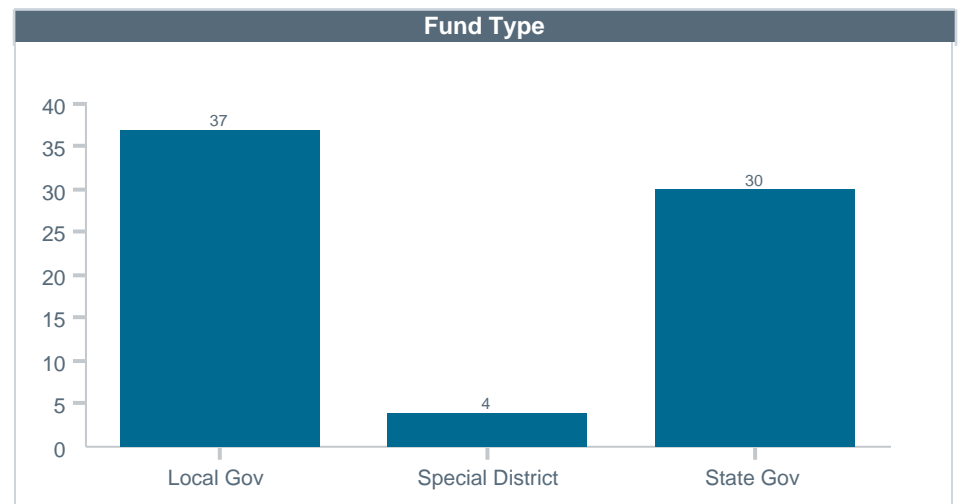
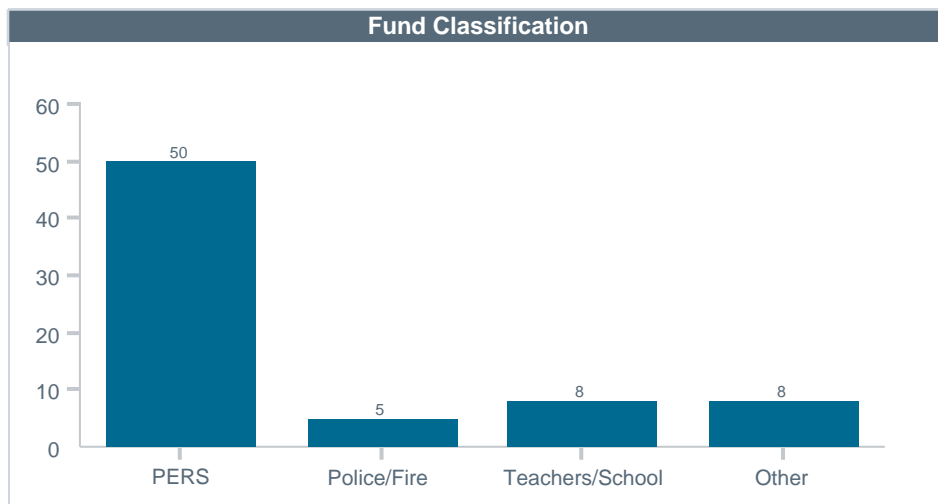
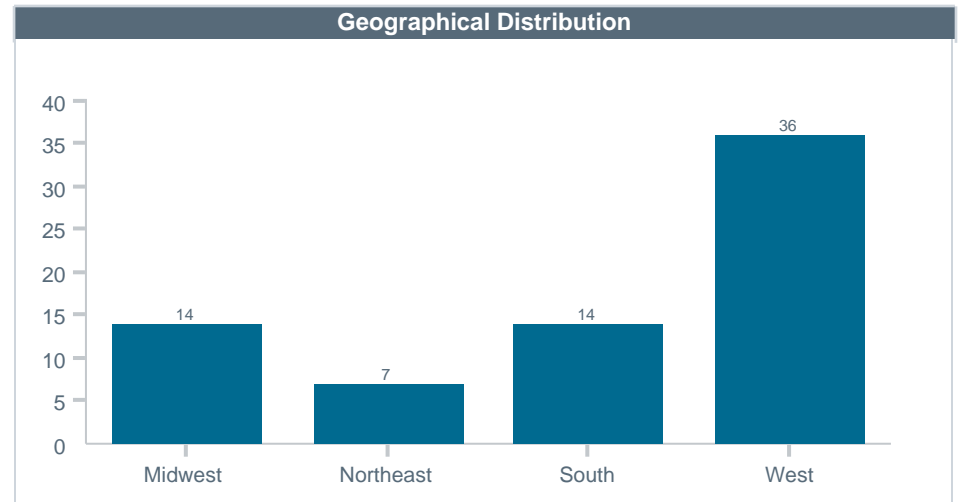
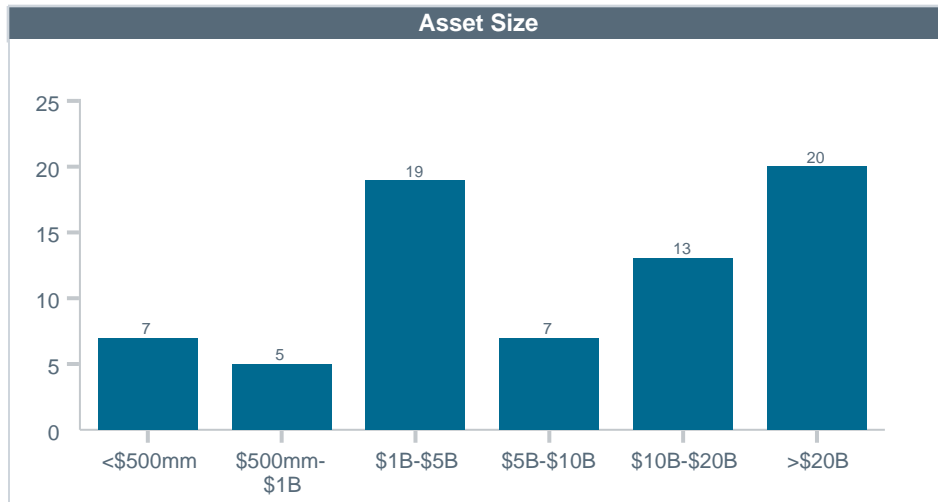
Annual Asset Class Performance

As of December 31, 2016

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Best	25.91	61.34	33.16	34.00	35.97	39.38	8.44	78.51	28.60	22.49	20.00	38.82	31.78	15.02	21.31
	16.56	55.81	31.45	26.19	32.18	16.23	5.24	58.21	26.85	15.99	18.23	32.39	19.31	9.59	17.13
	14.84	47.25	25.55	21.39	26.34	15.97	2.06	46.78	22.04	13.56	17.59	29.30	13.69	4.23	11.96
	10.27	38.59	20.25	21.36	19.31	11.63	-2.35	31.78	18.88	9.24	17.32	22.78	12.50	1.38	11.74
	5.54	36.18	18.33	13.82	18.37	11.17	-10.01	28.60	16.83	7.84	16.35	13.94	5.97	0.55	11.19
	3.58	28.96	13.06	13.54	16.32	10.25	-21.37	27.17	16.36	4.98	16.00	8.96	4.89	0.05	8.77
	1.78	28.68	11.14	7.49	15.79	6.97	-26.16	26.46	15.12	2.11	15.81	7.44	3.64	-0.27	7.24
	1.02	23.93	10.88	5.34	11.86	6.60	-33.79	18.91	15.06	0.10	10.94	1.86	3.37	-0.31	6.67
	-1.37	11.61	9.15	4.91	10.39	5.49	-35.65	11.47	10.16	-4.18	8.78	0.07	2.45	-1.44	4.68
	-6.17	9.28	8.56	4.55	4.85	5.00	-37.00	11.41	7.75	-5.72	6.98	-2.02	0.04	-3.30	2.65
	-7.83	8.39	8.46	3.07	4.34	1.87	-39.20	5.93	6.54	-12.14	4.79	-2.60	-2.19	-4.41	2.18
	-15.94	5.88	6.86	2.84	2.72	1.45	-43.38	1.92	6.31	-13.32	4.21	-8.61	-4.30	-4.47	1.00
	-20.48	4.11	4.34	2.74	2.07	-1.57	-47.01	0.21	5.70	-15.94	0.11	-8.83	-4.95	-14.92	0.52
Worst	-22.10	1.15	1.33	2.43	0.49	-17.55	-53.33	-29.76	0.13	-18.42	-1.06	-9.52	-17.01	-24.66	0.33
	S&P 500 - US Large Cap	R 2000 - US Small Cap	MSCI EAFE (Net) - Int'l Dev.	MSCI EAFE SC (Net) - Int'l SC	MSCI EM (Net) - Int'l Emg Mkts	Bloomberg US Agg Bond - FI	Bloomberg US Corp: Hi Yield - FI	Bloomberg US Trsy: US TIPS - FI	Bloomberg US Gov/Credit: Lng - FI	NCREIF ODCE (Gross) - Real Estate	Wilshire US REIT - REITs	HFRI FOF Comp Index - ARS	Bloomberg Cmdty (TR) - Commod.	BofA ML 3 Mo T-Bill - Cash Equiv	

NCREIF ODCE (Gross) performance is reported quarterly; performance is shown N/A in interim-quarter months.



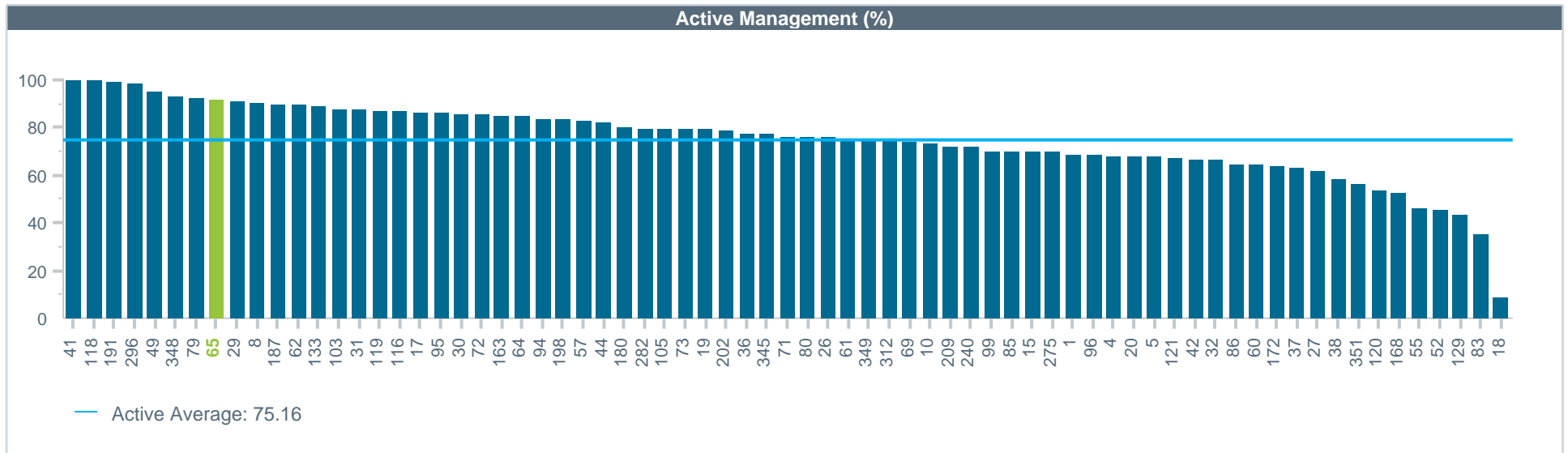
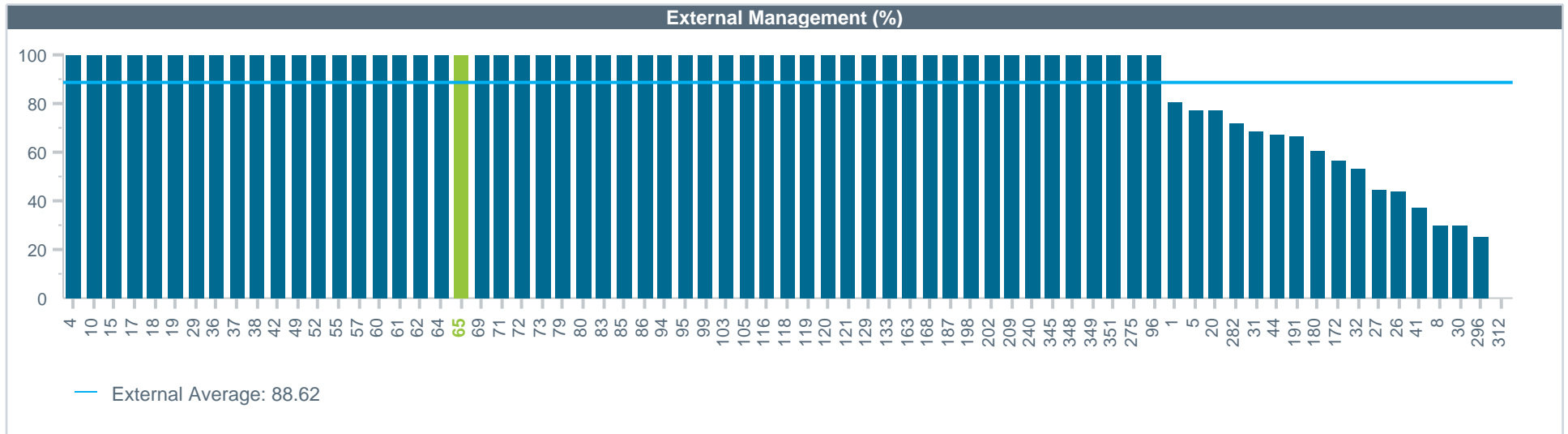


■ Universe: 71 funds



Portfolio Management

Percentage Externally Managed & Percentage Actively Managed



■ Fairfax County





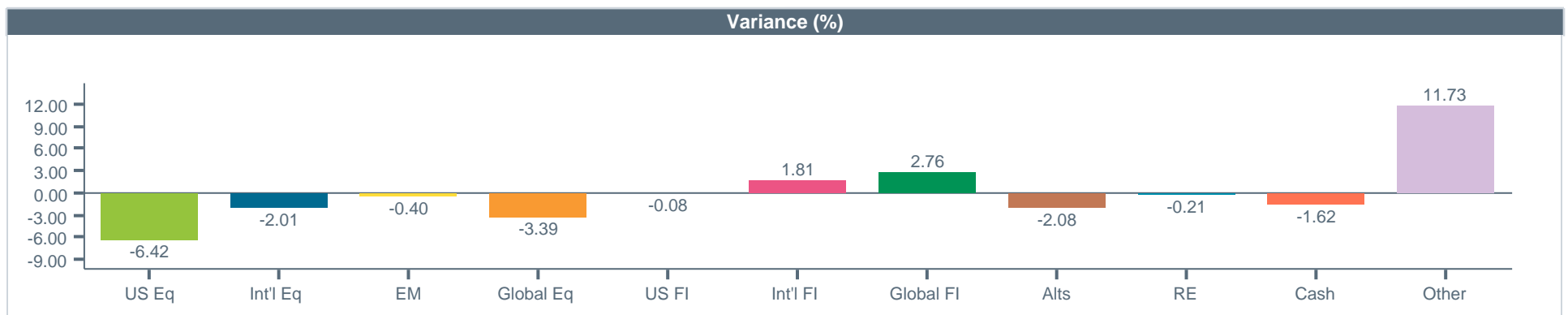
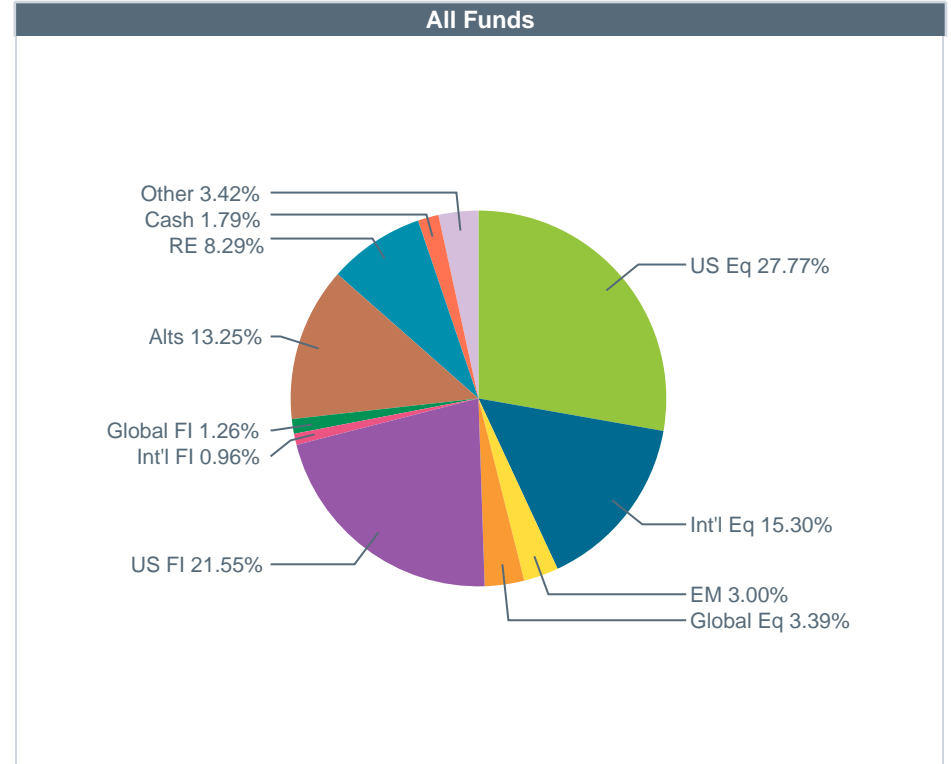
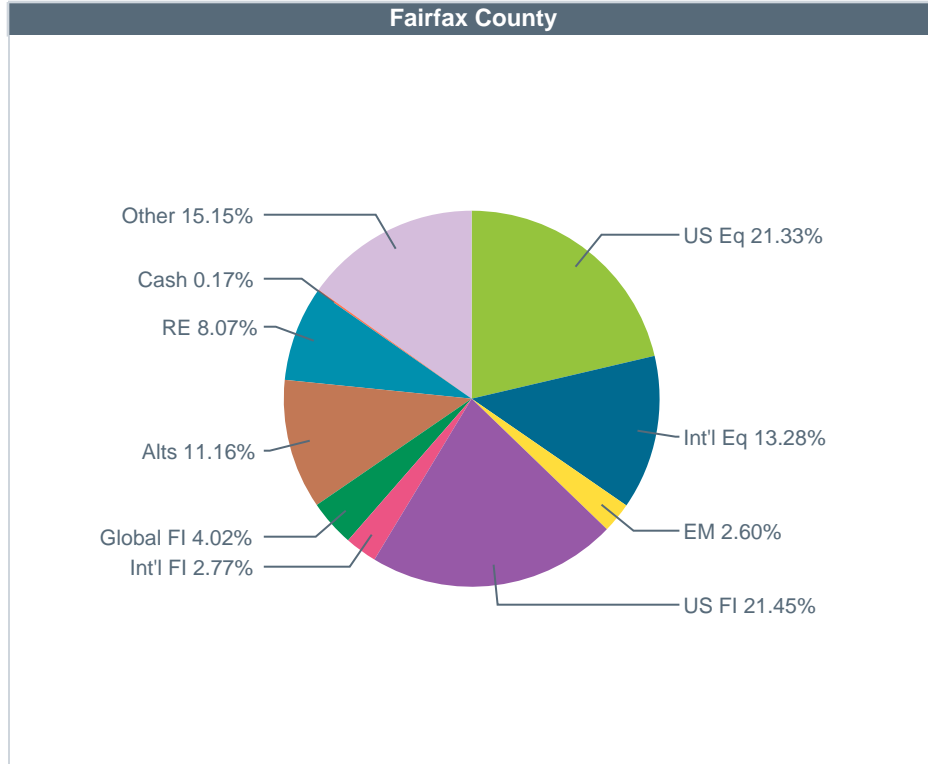
Asset Range	Actively Managed (%)	Passively Managed (%)	Externally Managed (%)	Internally Managed (%)
Over \$20B	75.30	24.70	73.22	26.78
\$10B-\$20B	72.53	27.47	82.57	17.43
\$5B-\$10B	70.45	29.55	96.71	3.29
\$1B-\$5B	77.32	22.68	98.79	1.21
\$500mm-\$1B	71.89	28.11	99.99	0.01
Under \$500mm	80.84	19.16	100.00	0.00
<b>Fairfax County</b>	<b>91.83</b>	<b>8.17</b>	<b>100.00</b>	<b>0.00</b>

Portfolio (%)	Active Management		External Management	
	Public Fund Universe	Fairfax County	Public Fund Universe	Fairfax County
90 to 100	11	1	54	1
50 to 89	55	0	10	0
10 to 49	4	0	6	0
Less than 10	1	0	1	0
<b>Total Funds Reporting</b>	<b>71</b>	<b>1</b>	<b>71</b>	<b>1</b>



Asset Allocation

Fairfax County vs. Average of All Funds

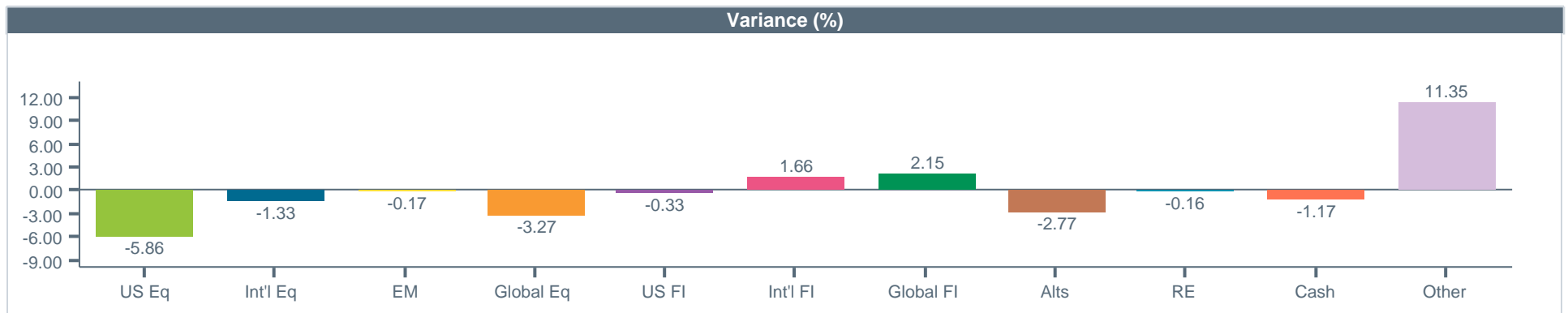
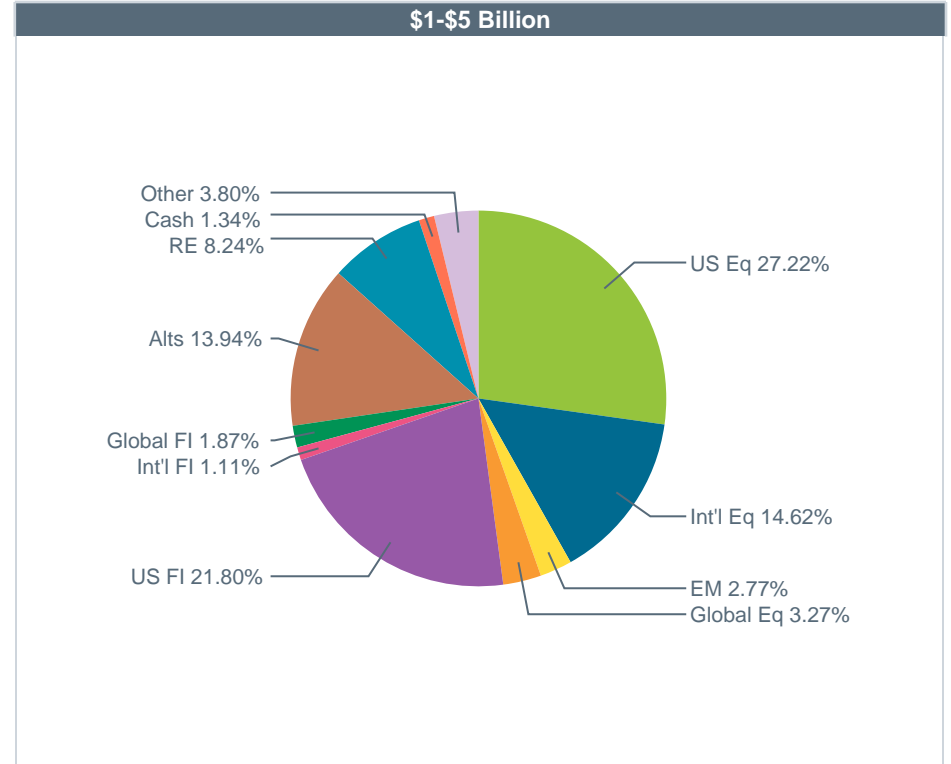
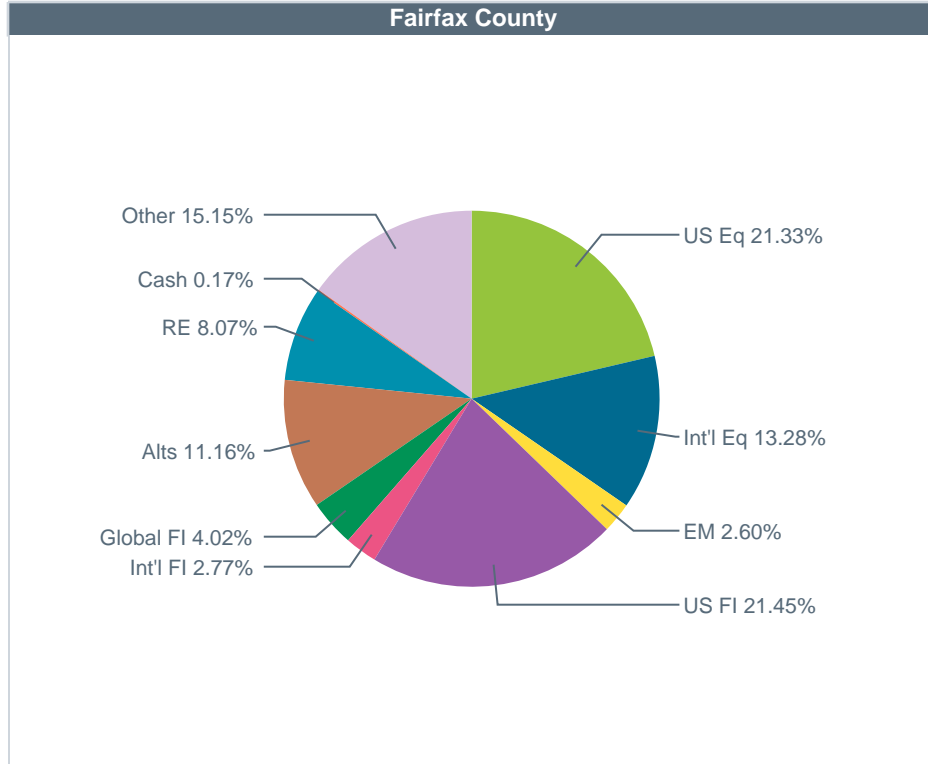


Allocations shown may not sum up to 100% exactly due to rounding.



Asset Allocation

Fairfax County vs. Average of Similar Size Funds

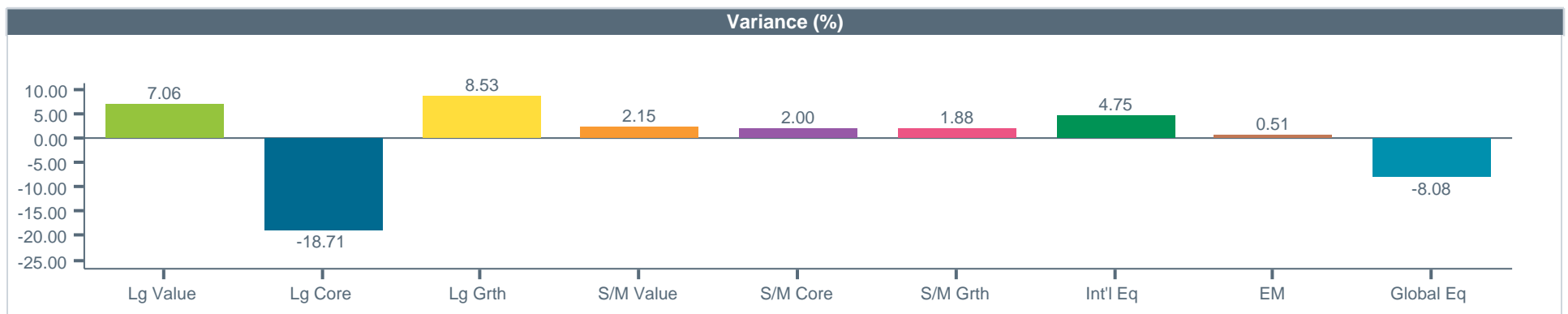
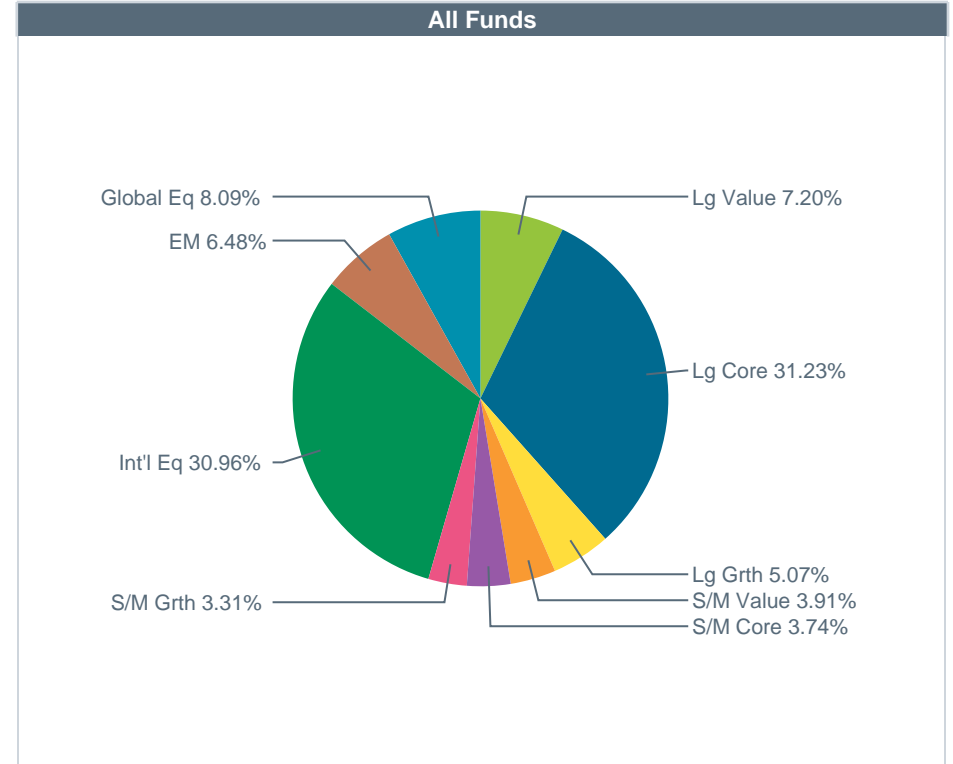
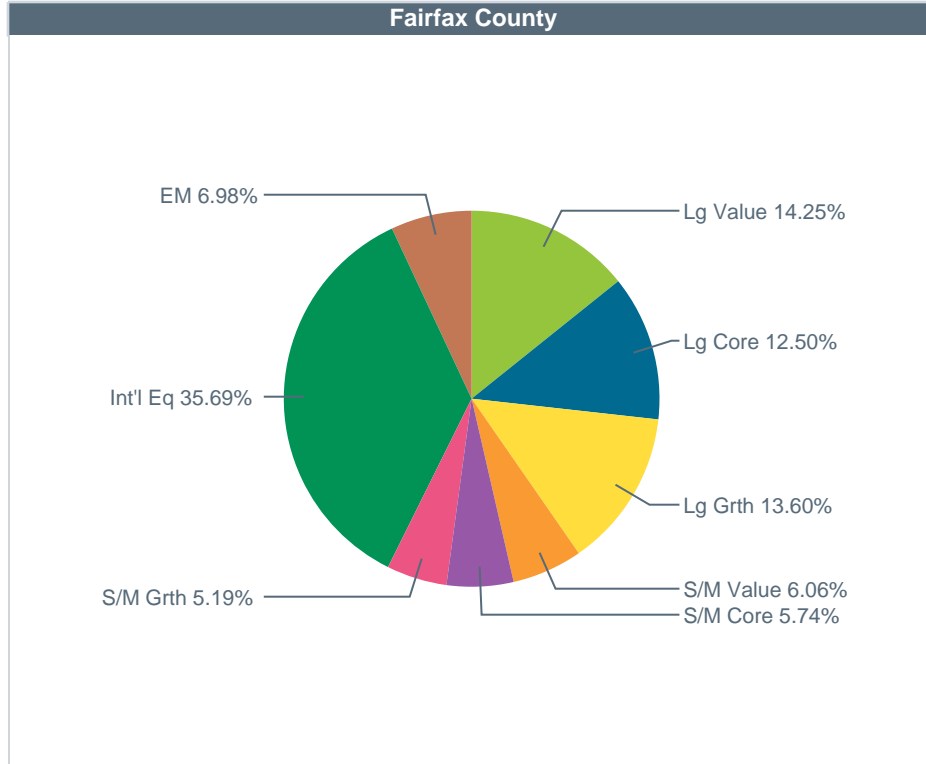


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Equity Style Allocation

Fairfax County vs. Average of All Funds

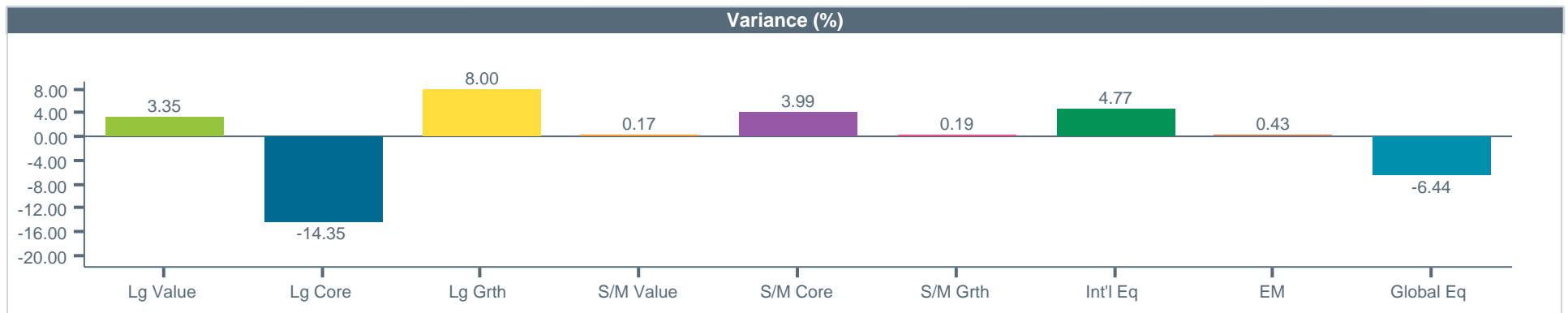
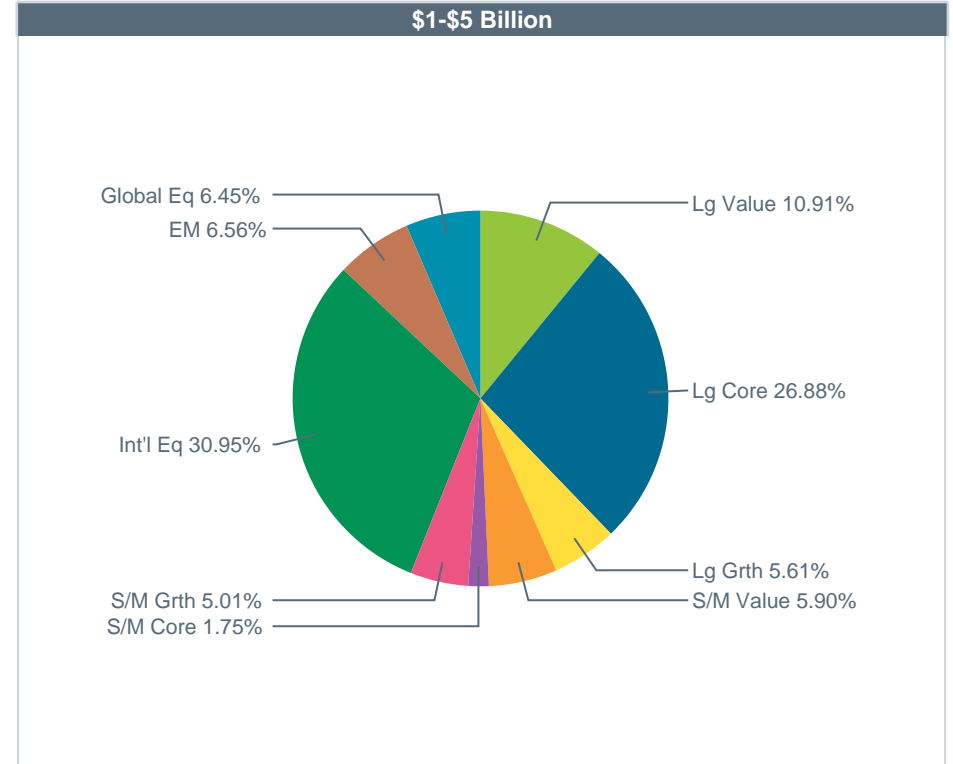
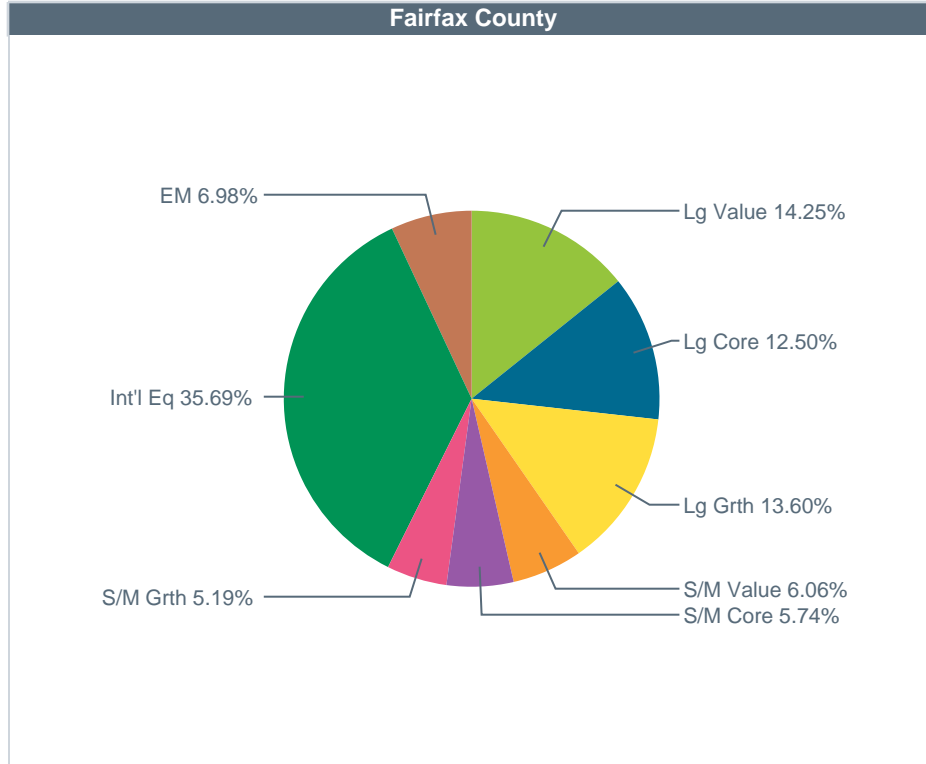


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Equity Style Allocation

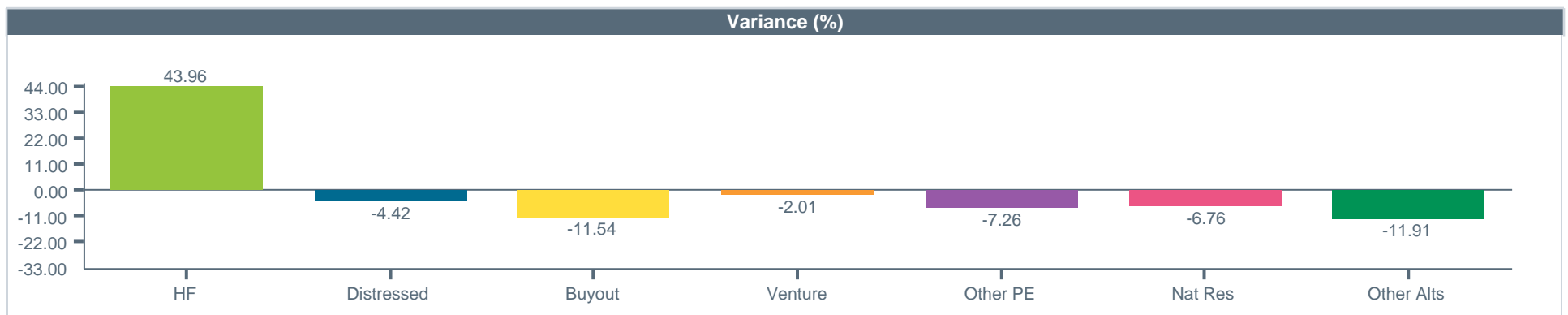
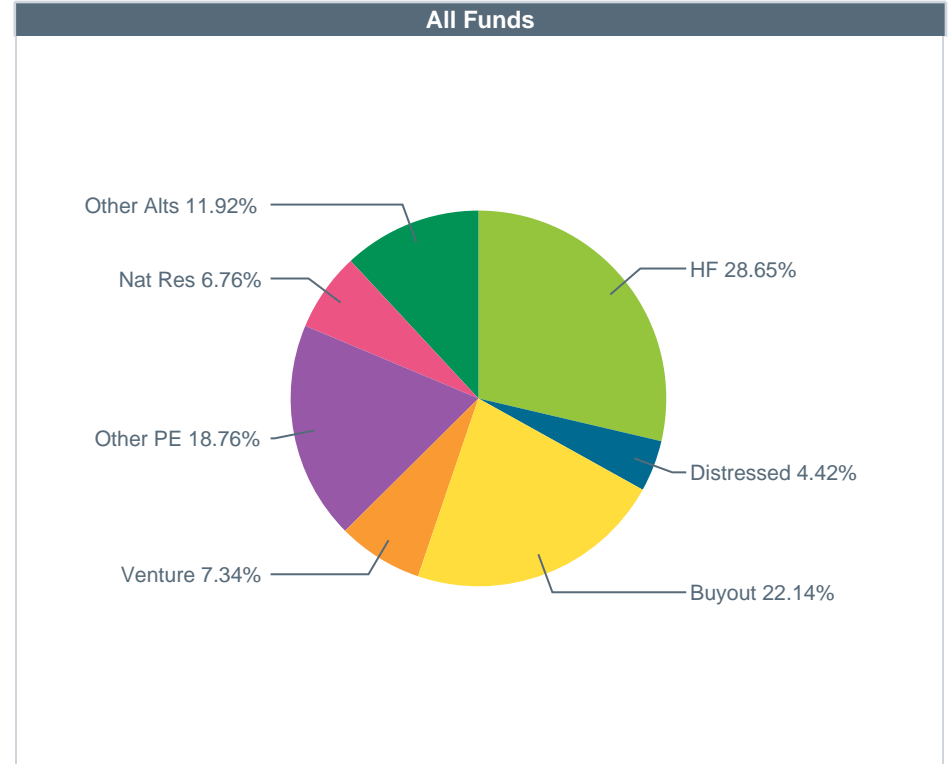
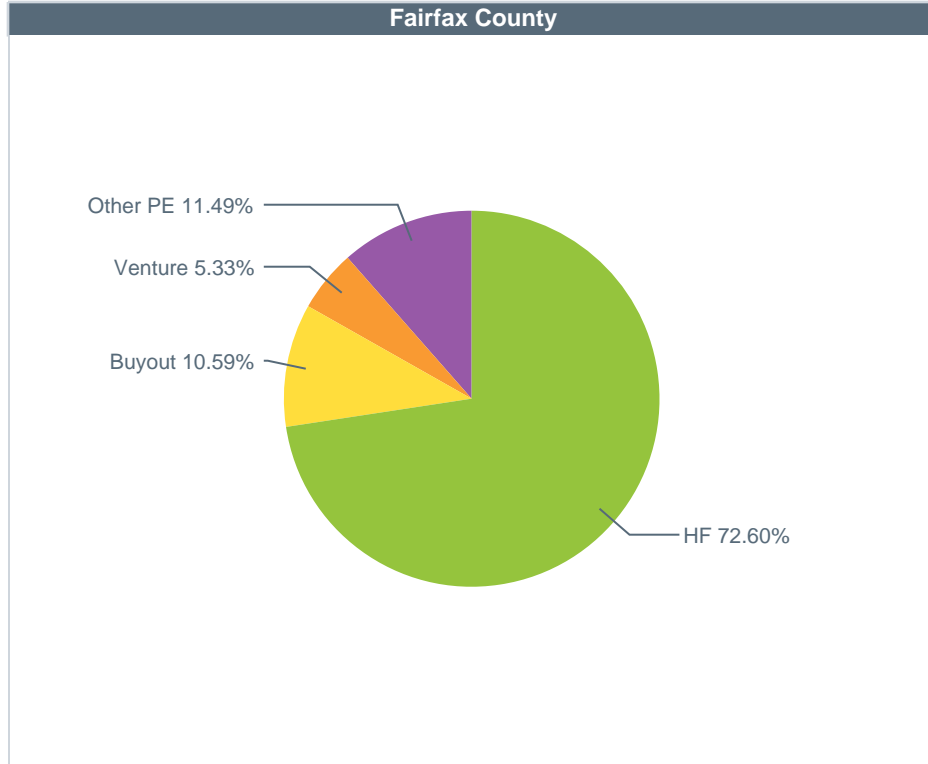
Fairfax County vs. Average of Similar Size Funds



Allocations shown may not sum up to 100% exactly due to rounding.

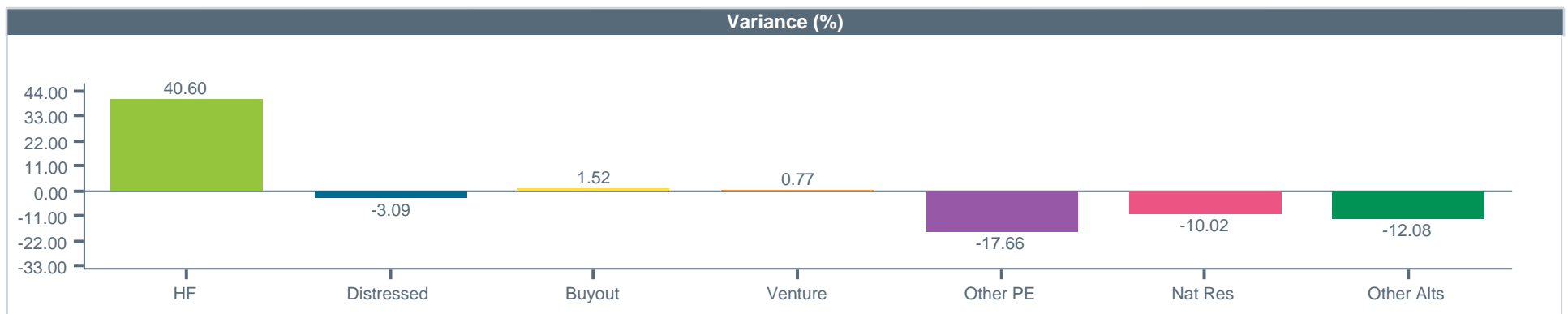
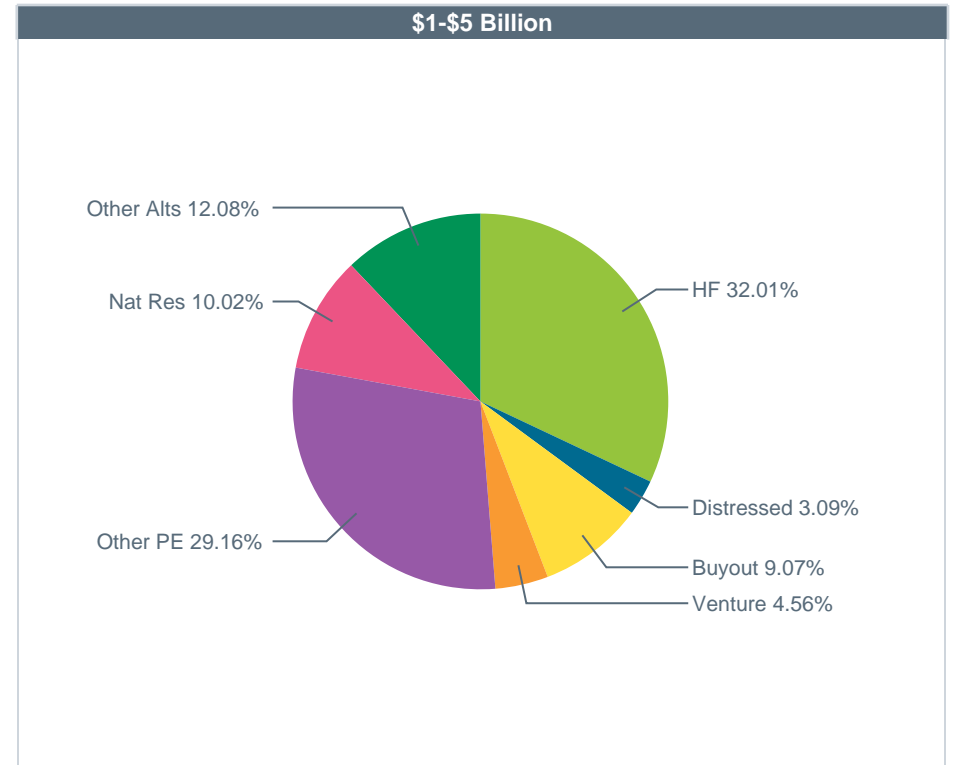
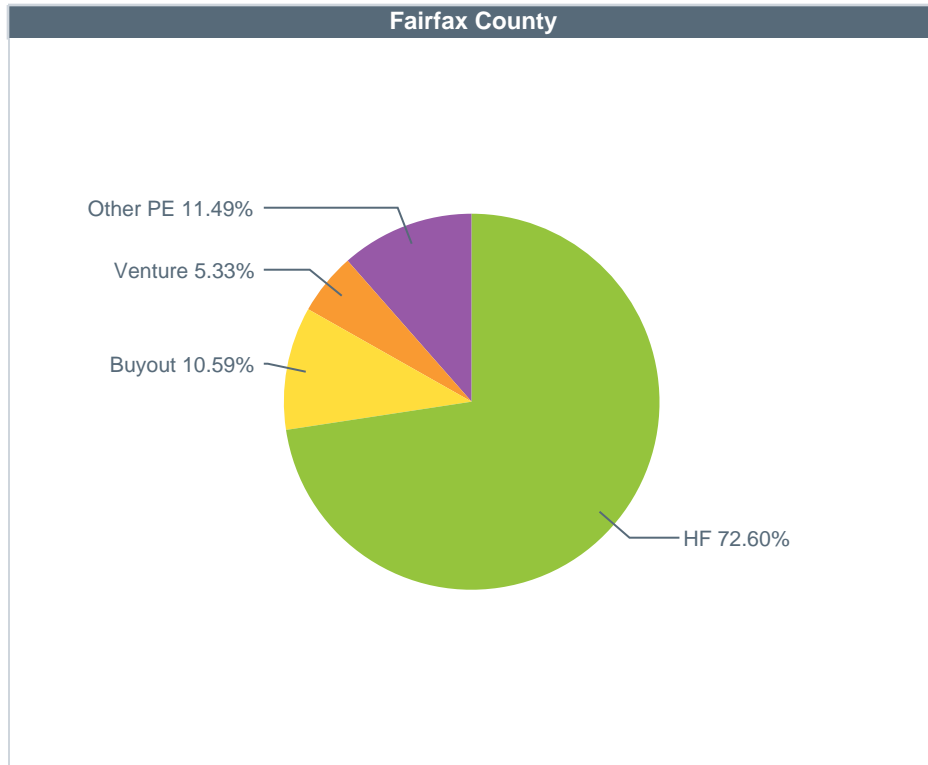






Allocations shown may not sum up to 100% exactly due to rounding.

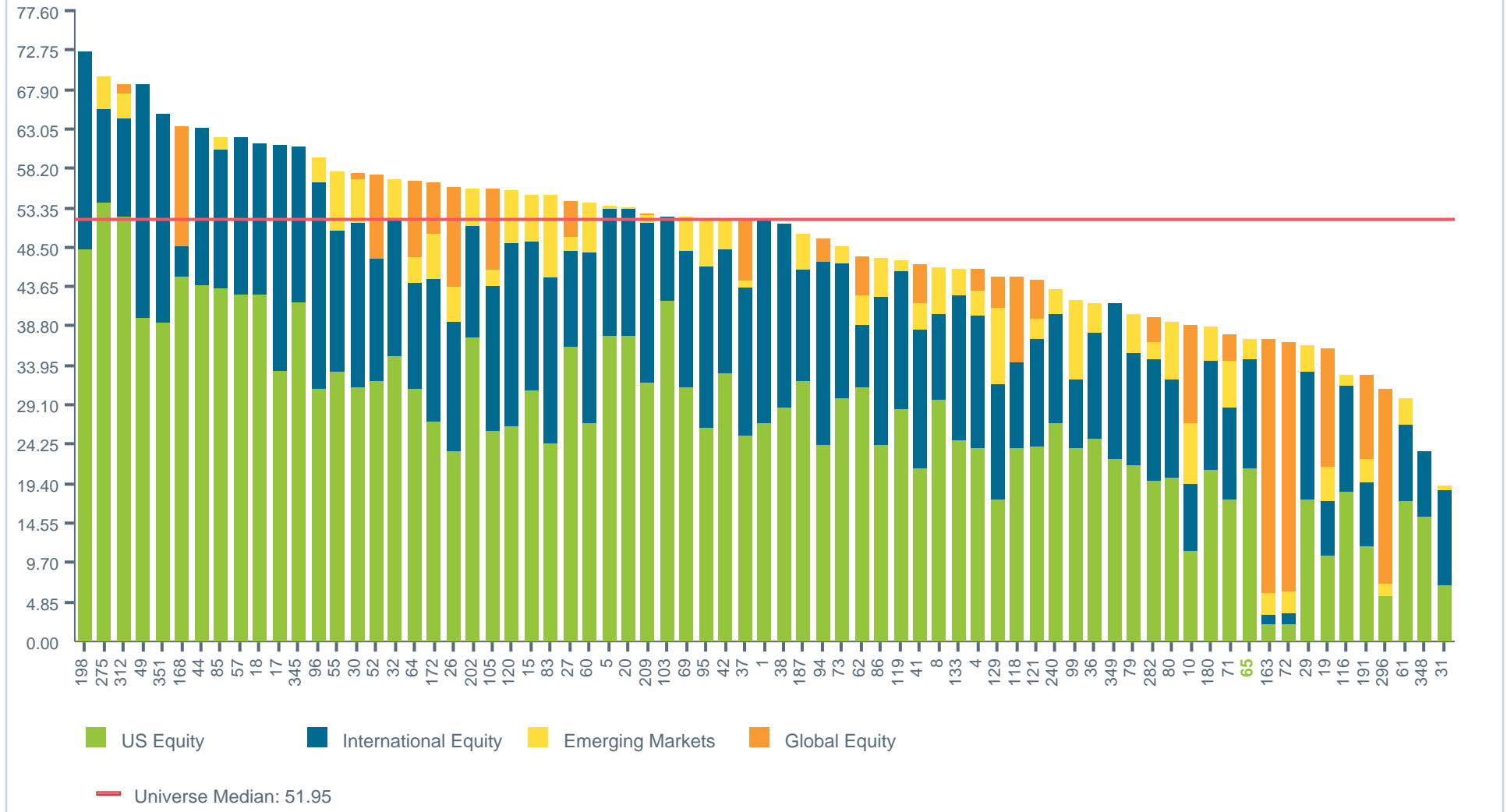


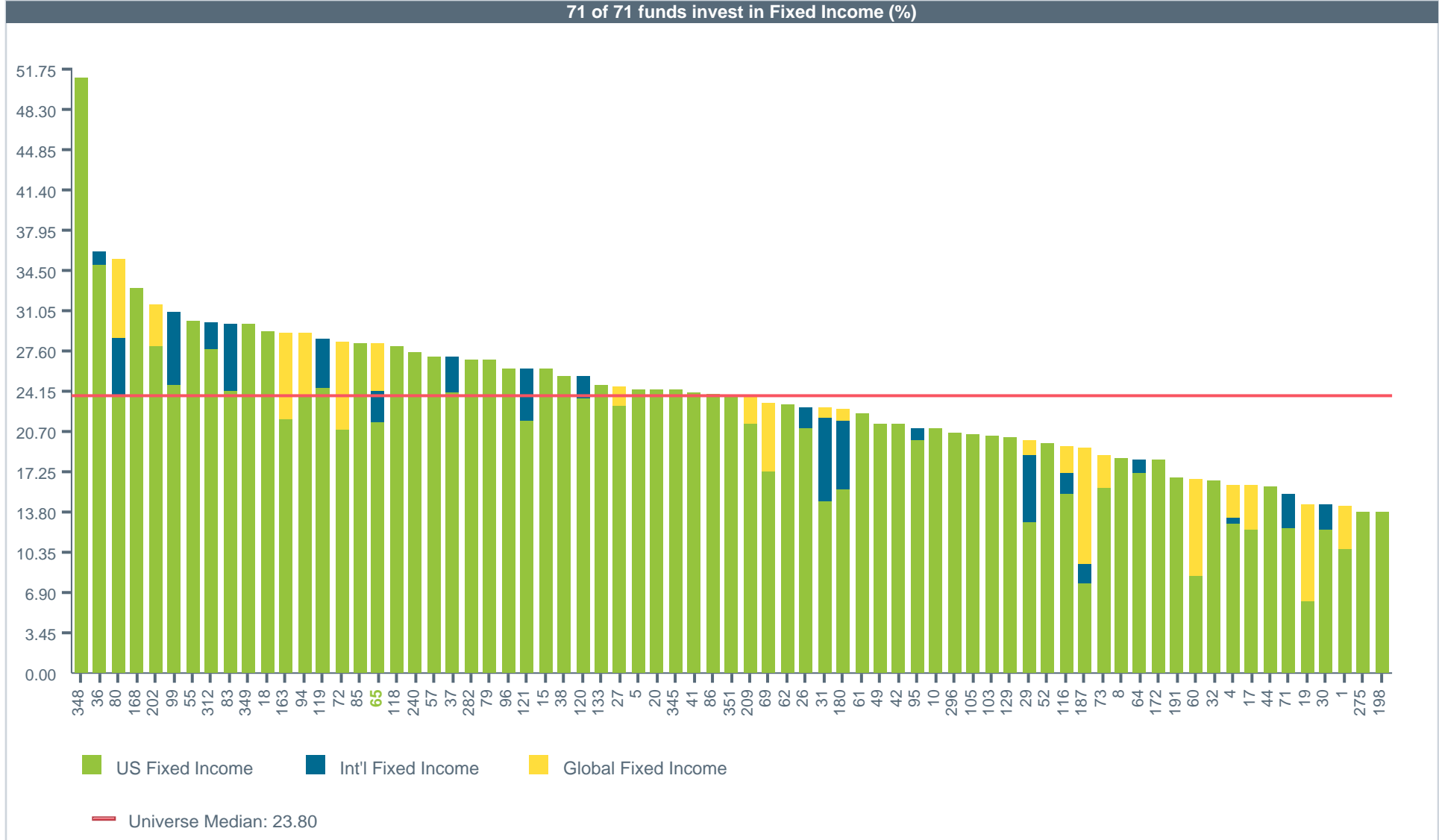


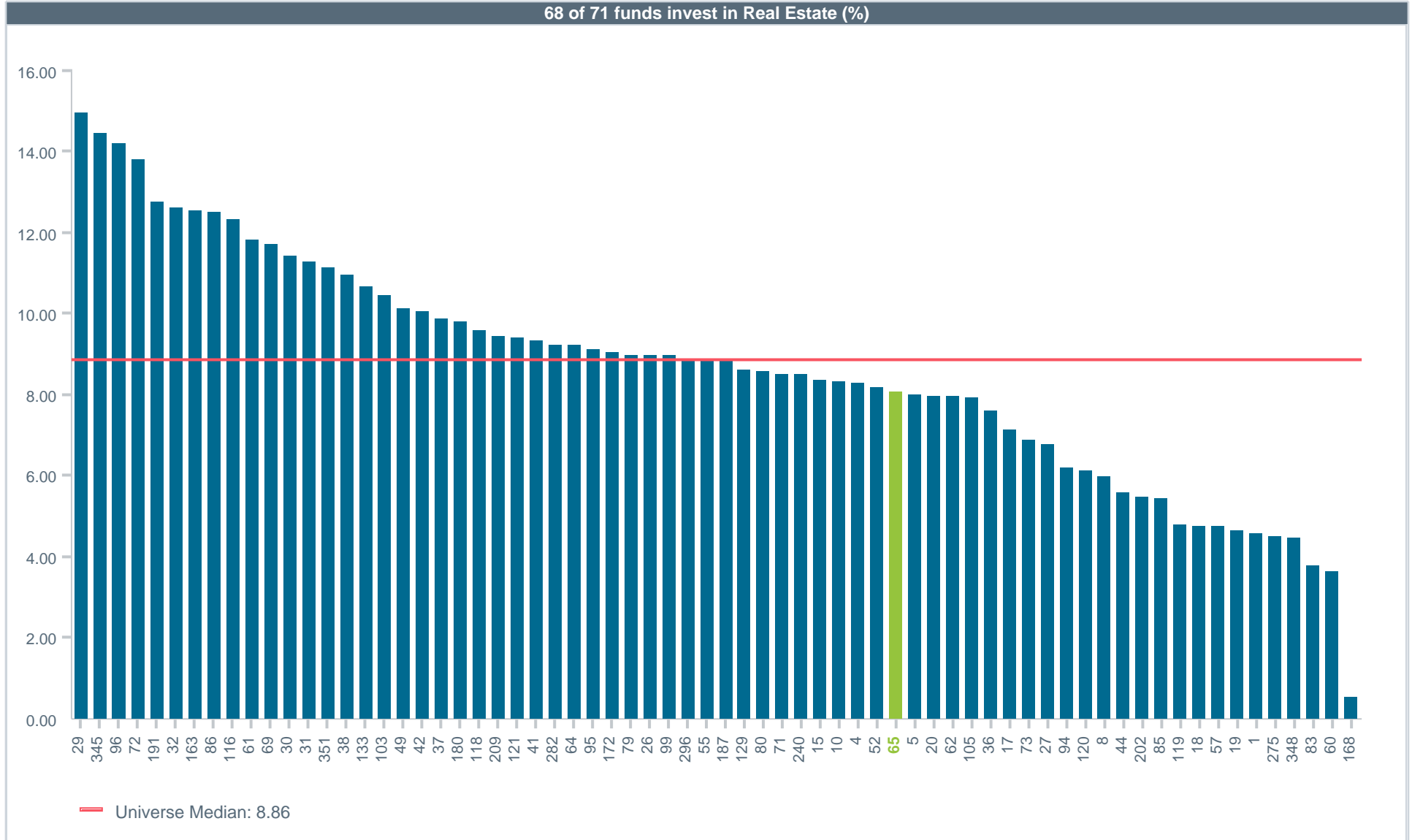
Allocations shown may not sum up to 100% exactly due to rounding.



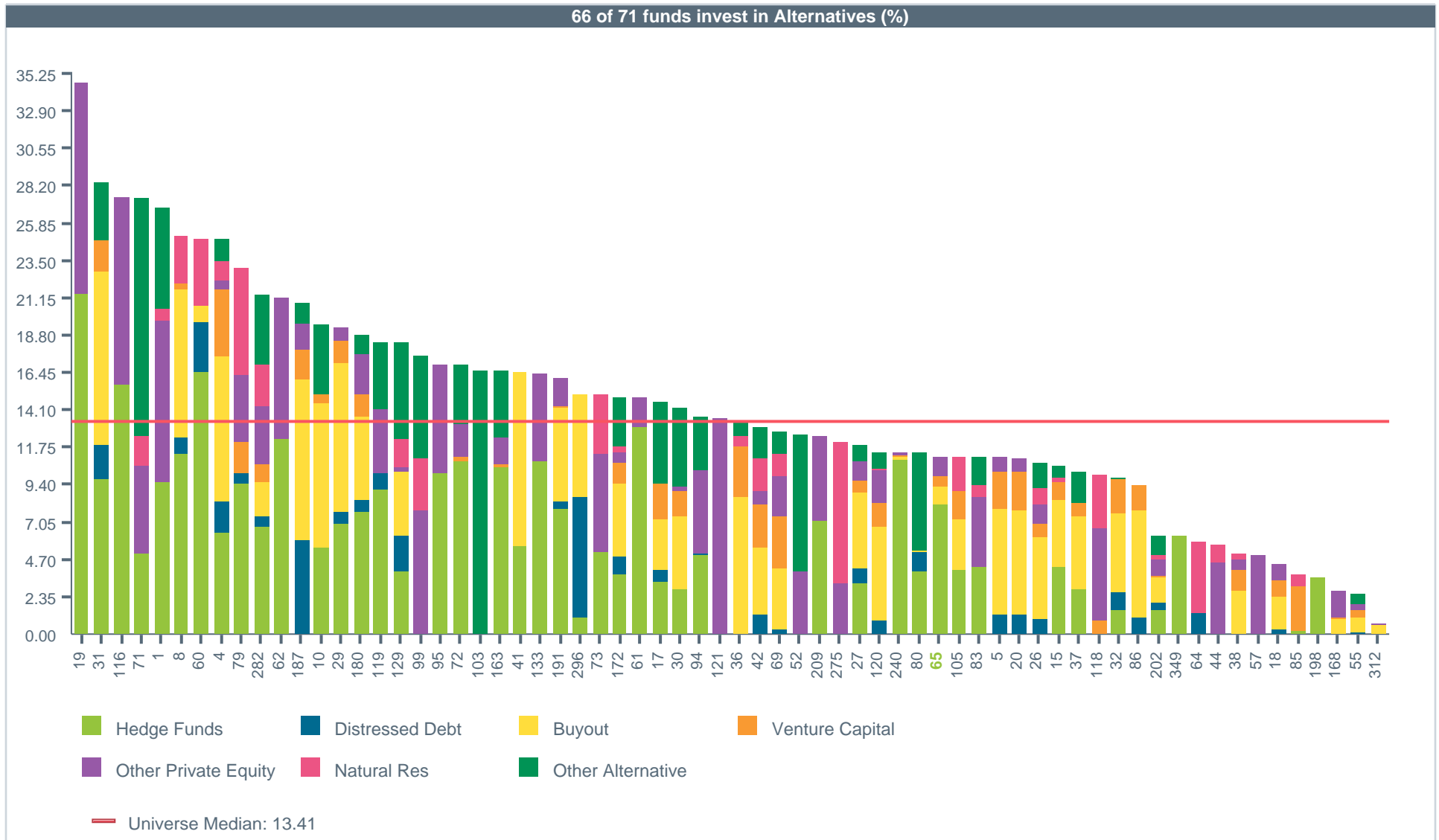
71 of 71 funds invest in Equity (%)

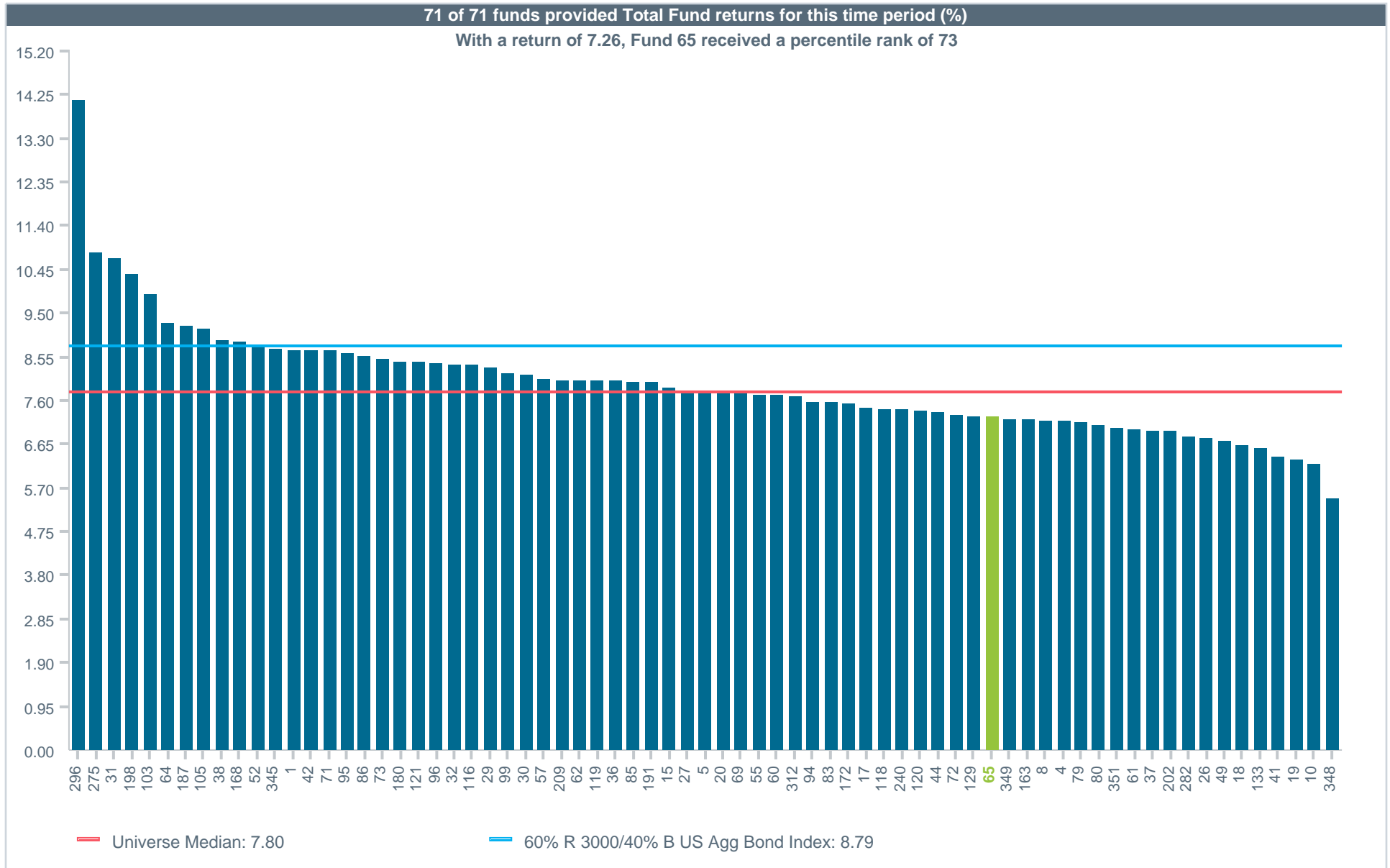






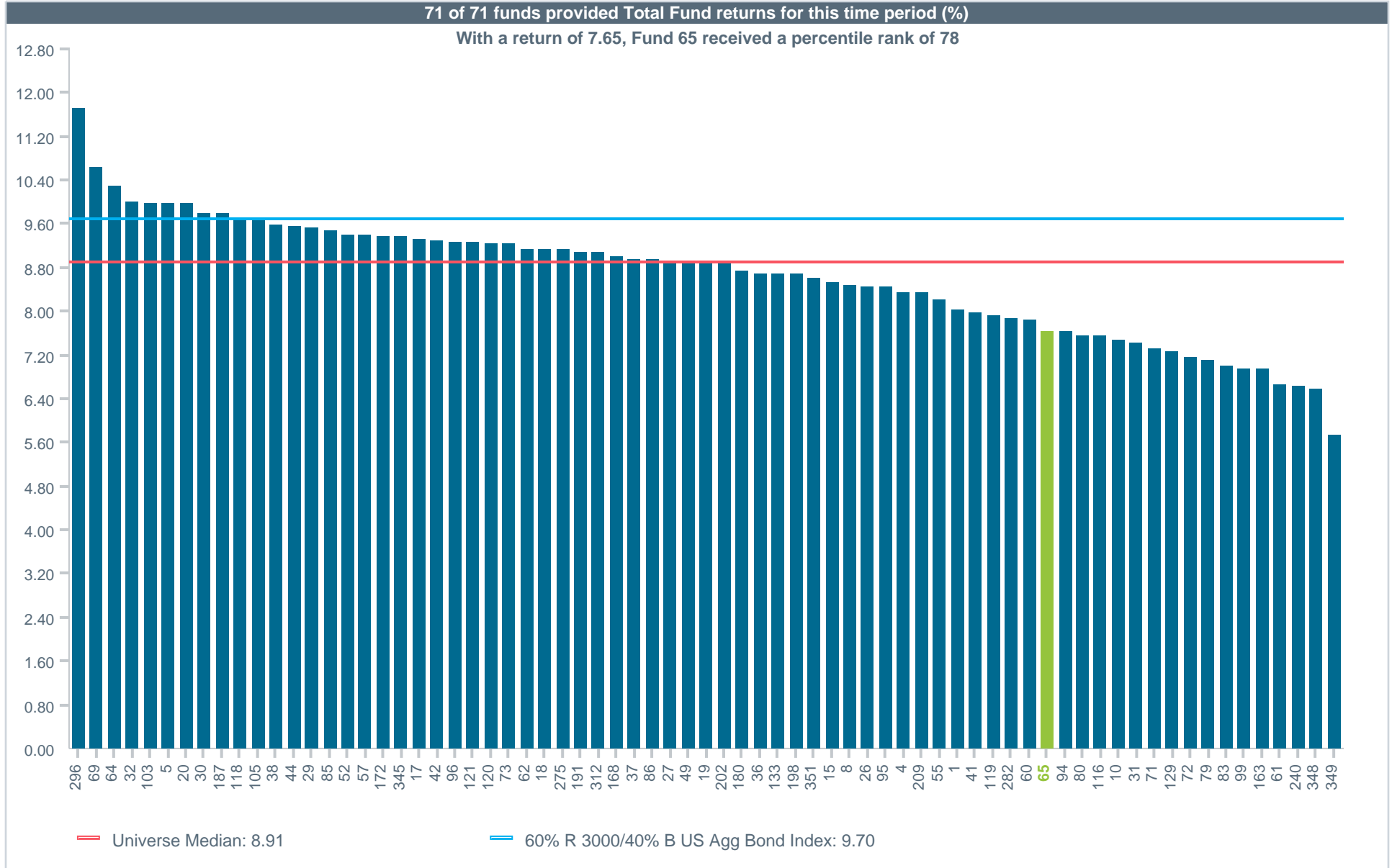






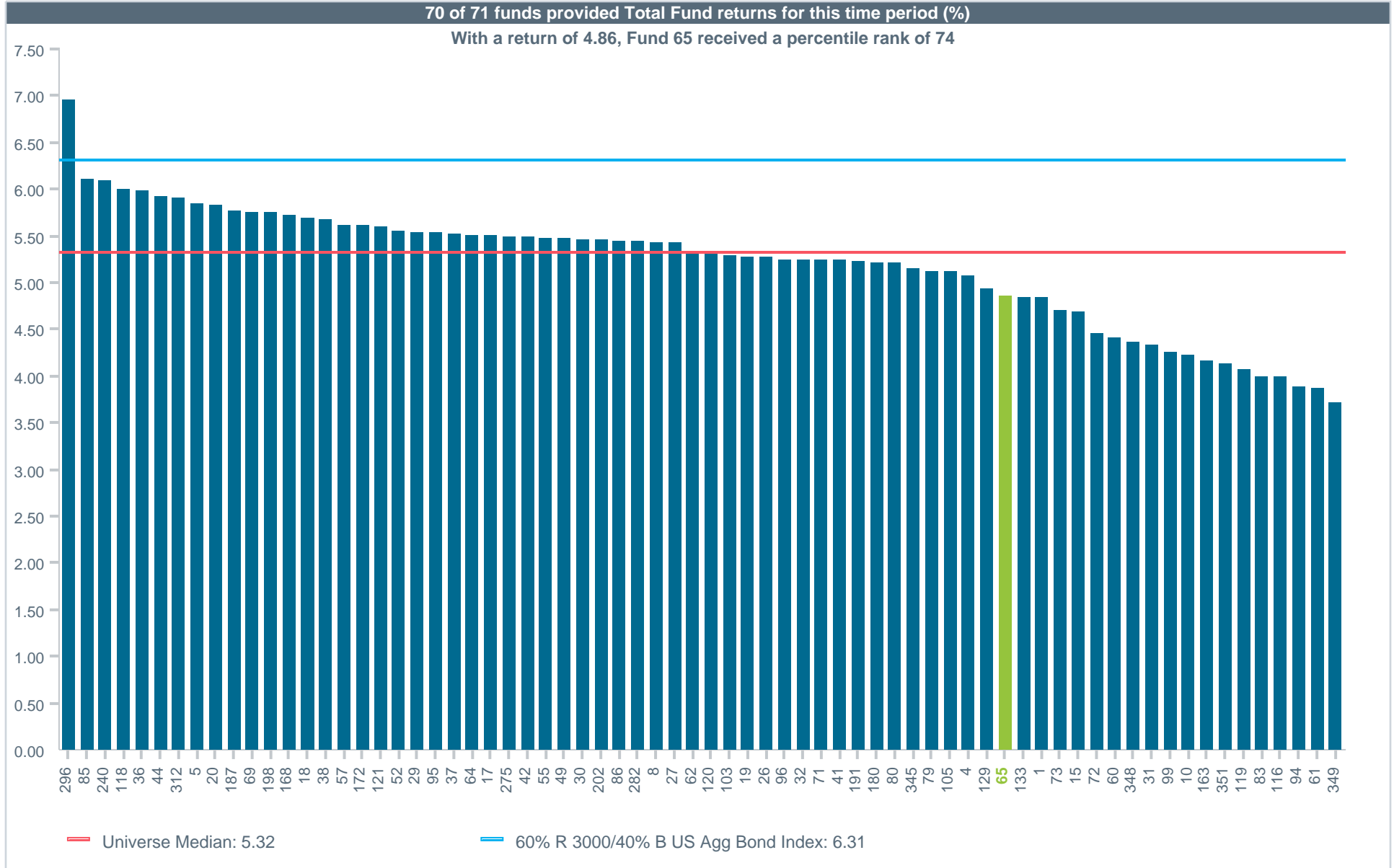
Funds with less history than the specified time period will not appear in the chart.





Funds with less history than the specified time period will not appear in the chart.





Funds with less history than the specified time period will not appear in the chart.

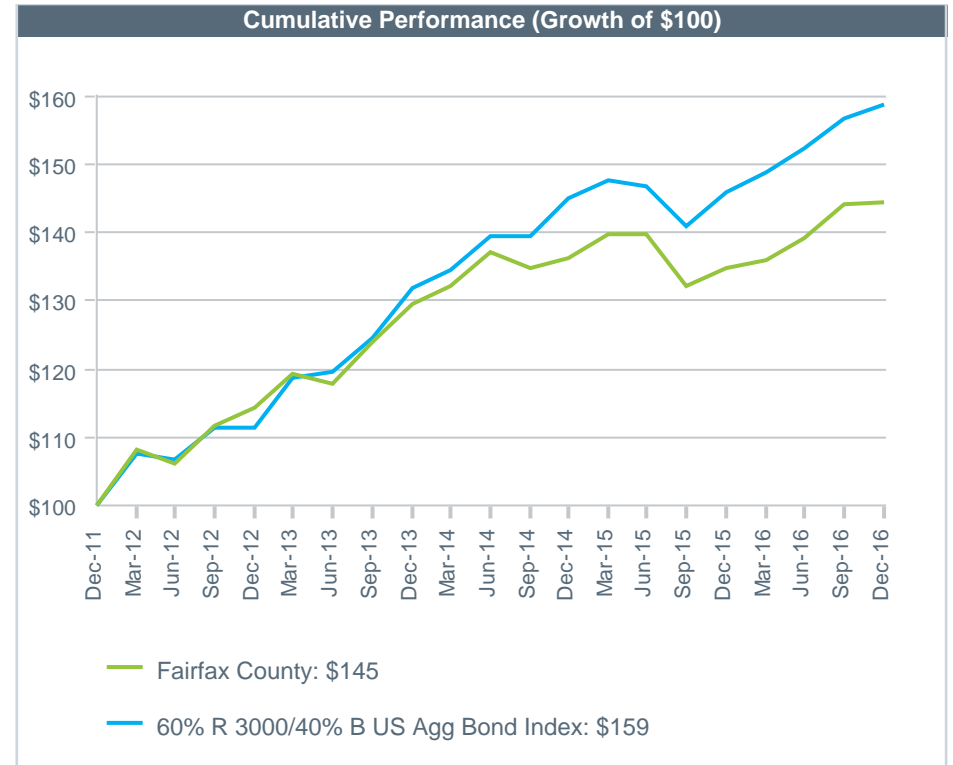
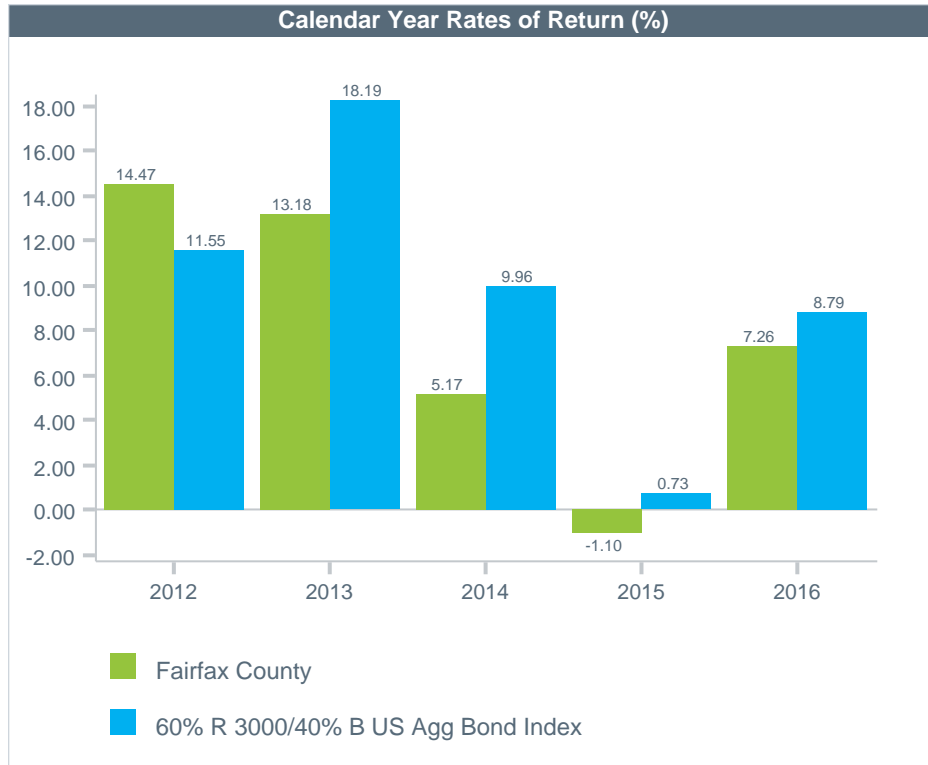


Fund Number: 65

As of December 31, 2016

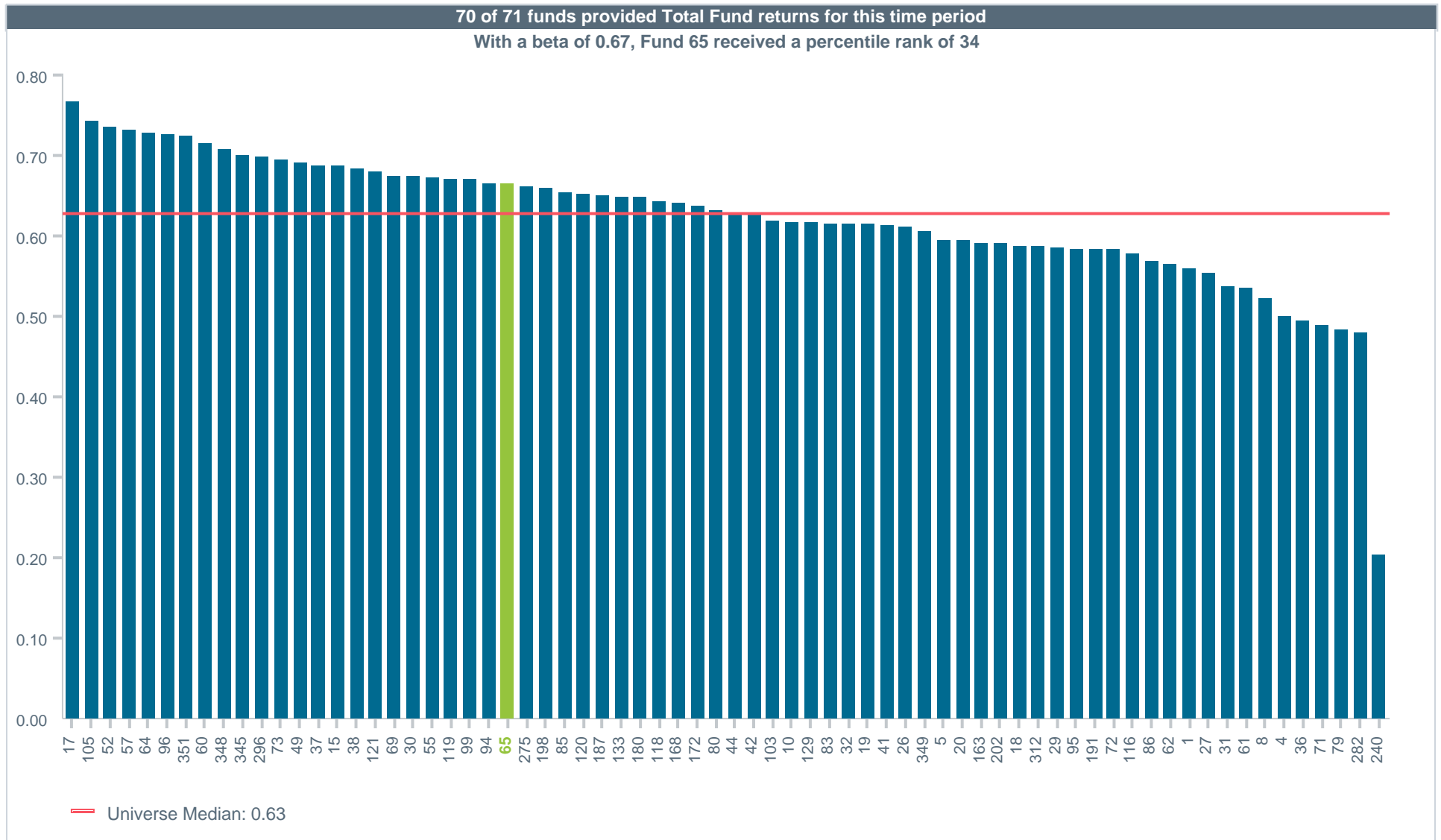
Total Return - Total Fund

Fairfax County vs. 60% R 3000/40% B US Agg Bond Index



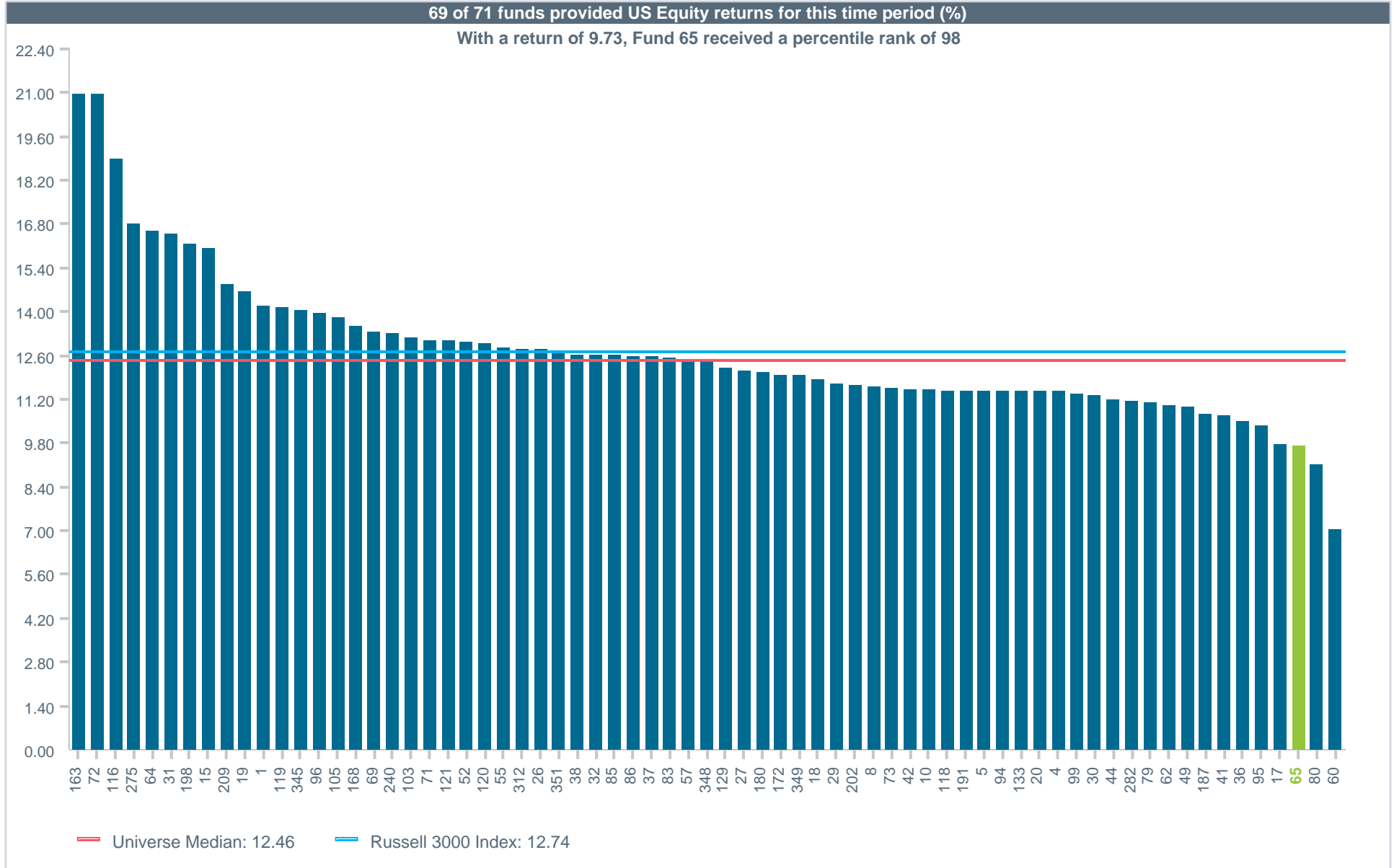
Annualized Returns (%)			
	1 Year	3 Years	5 Years
Fairfax County	7.26	3.72	7.65
60% R 3000/40% B US Agg Bond Index	8.79	6.41	9.70
Variance	-1.53	-2.69	-2.05





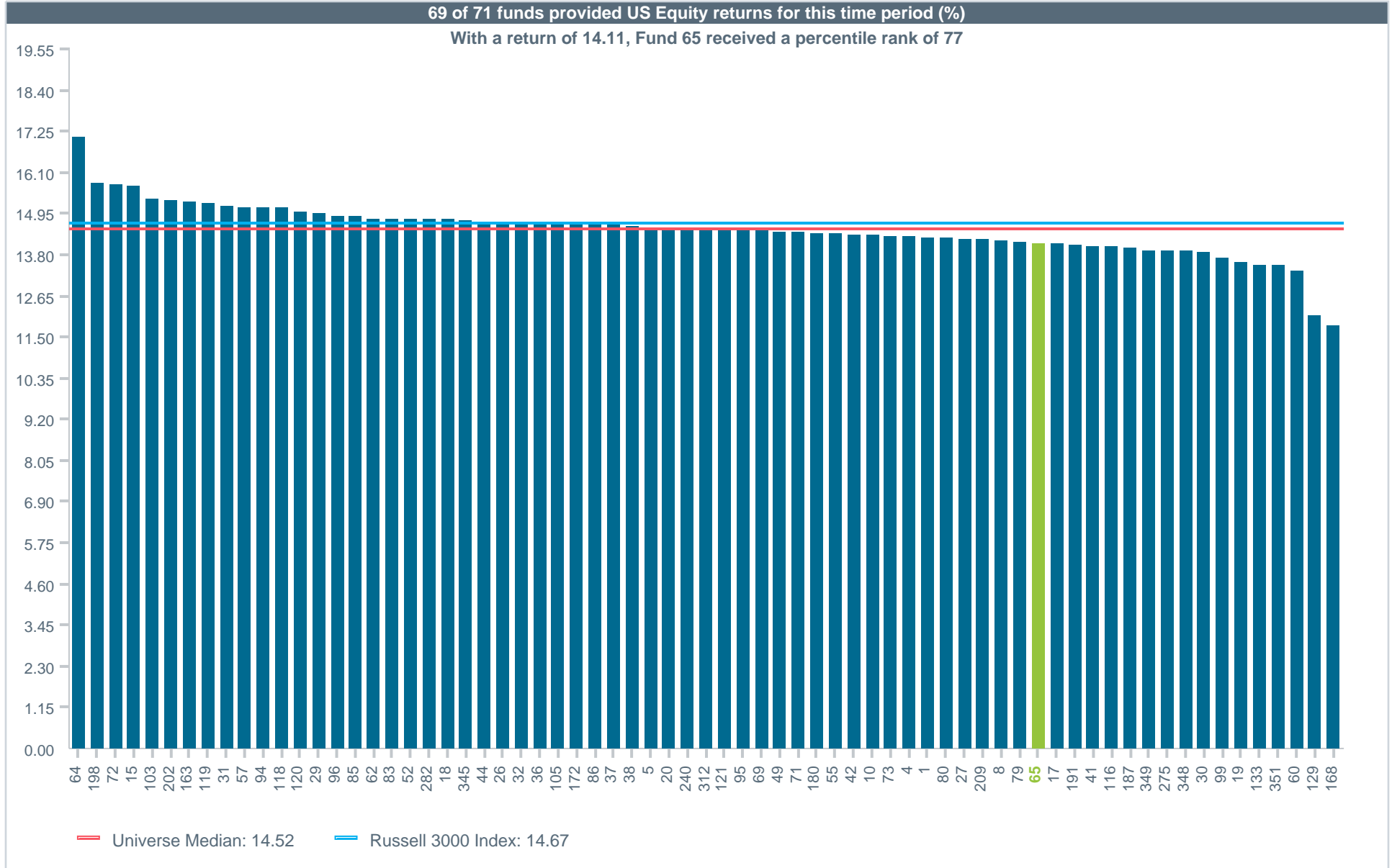
Funds with less history than the specified time period will not appear in the chart. Benchmark used is the S&P 500 Index (Cap Wtd).





Funds with less history than the specified time period will not appear in the chart.

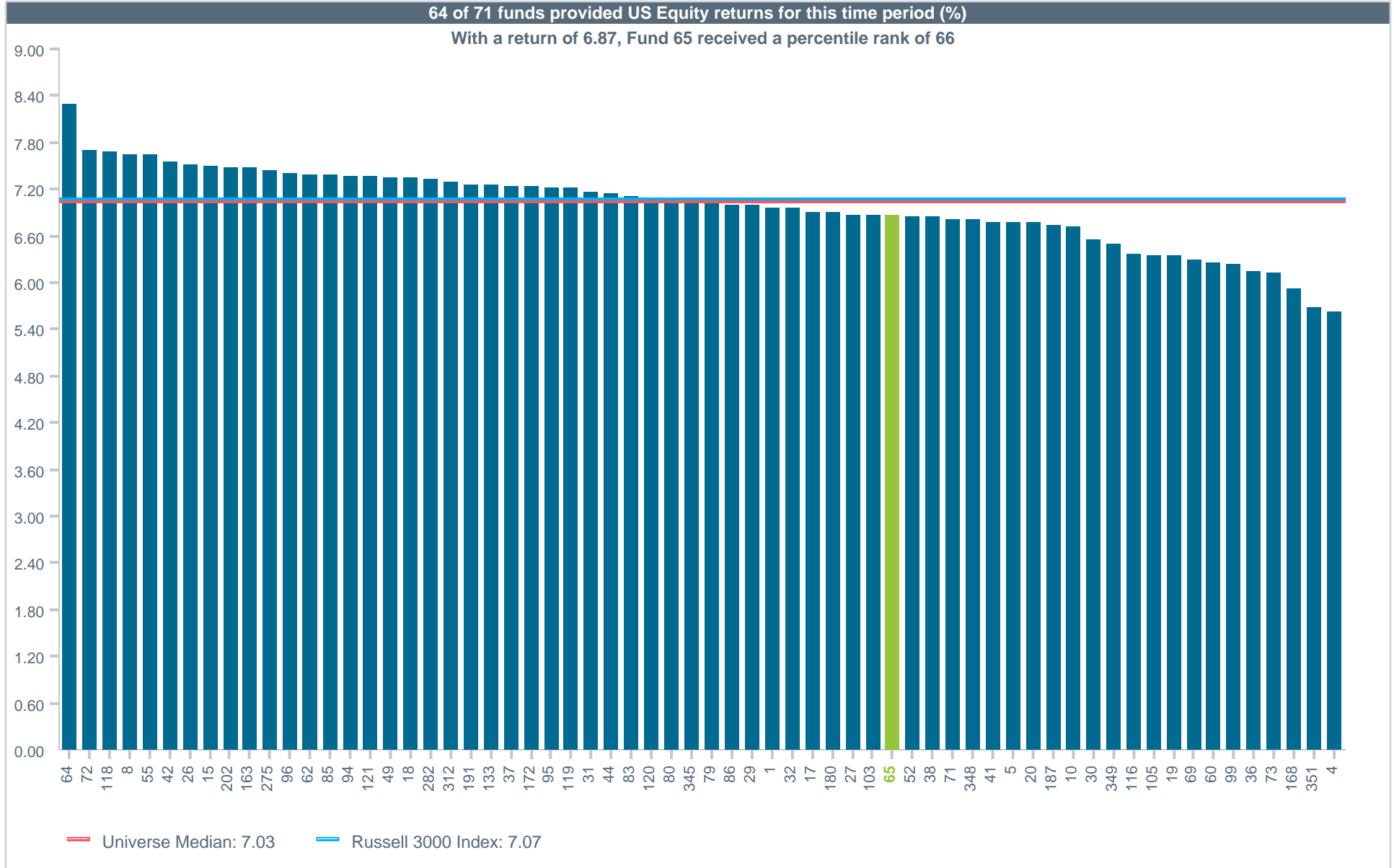




Funds with less history than the specified time period will not appear in the chart.





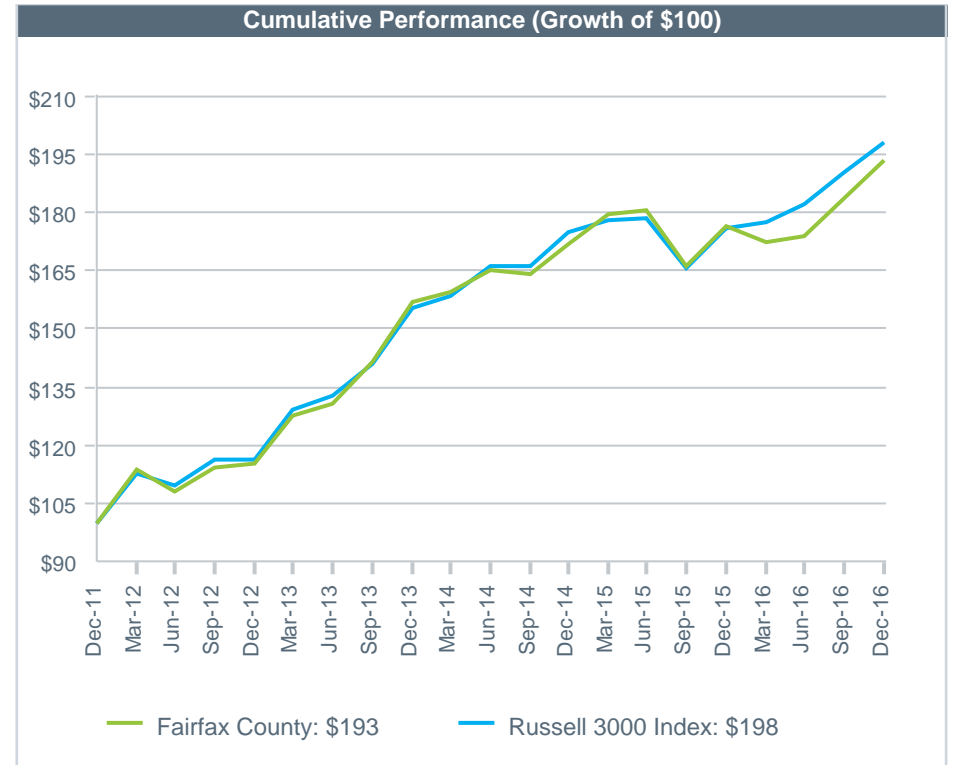
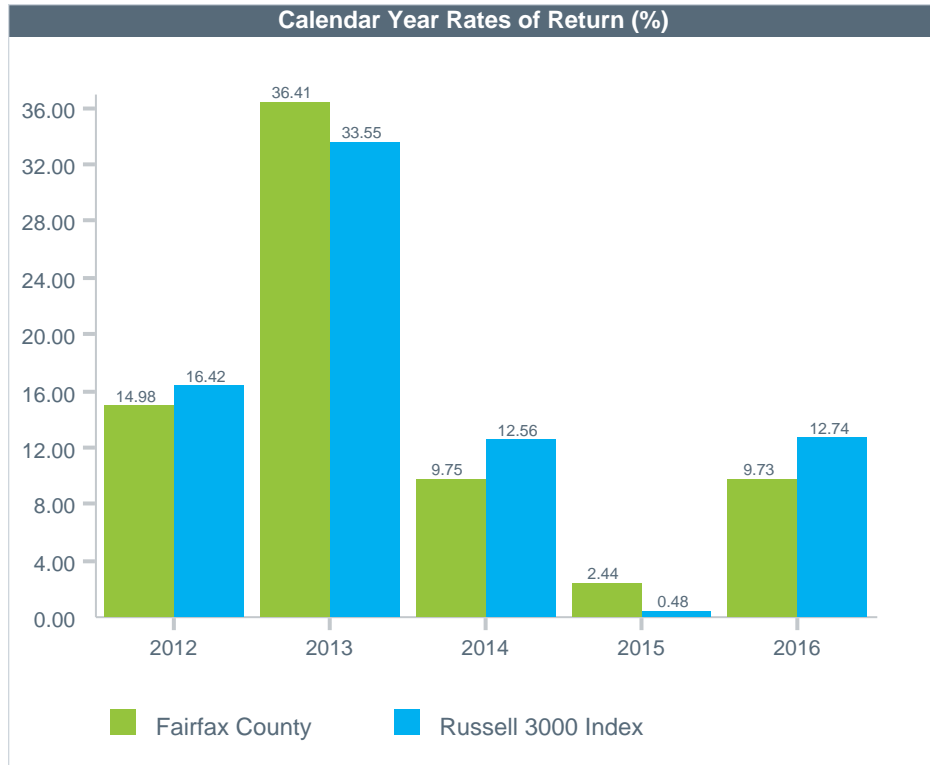


Funds with less history than the specified time period will not appear in the chart.



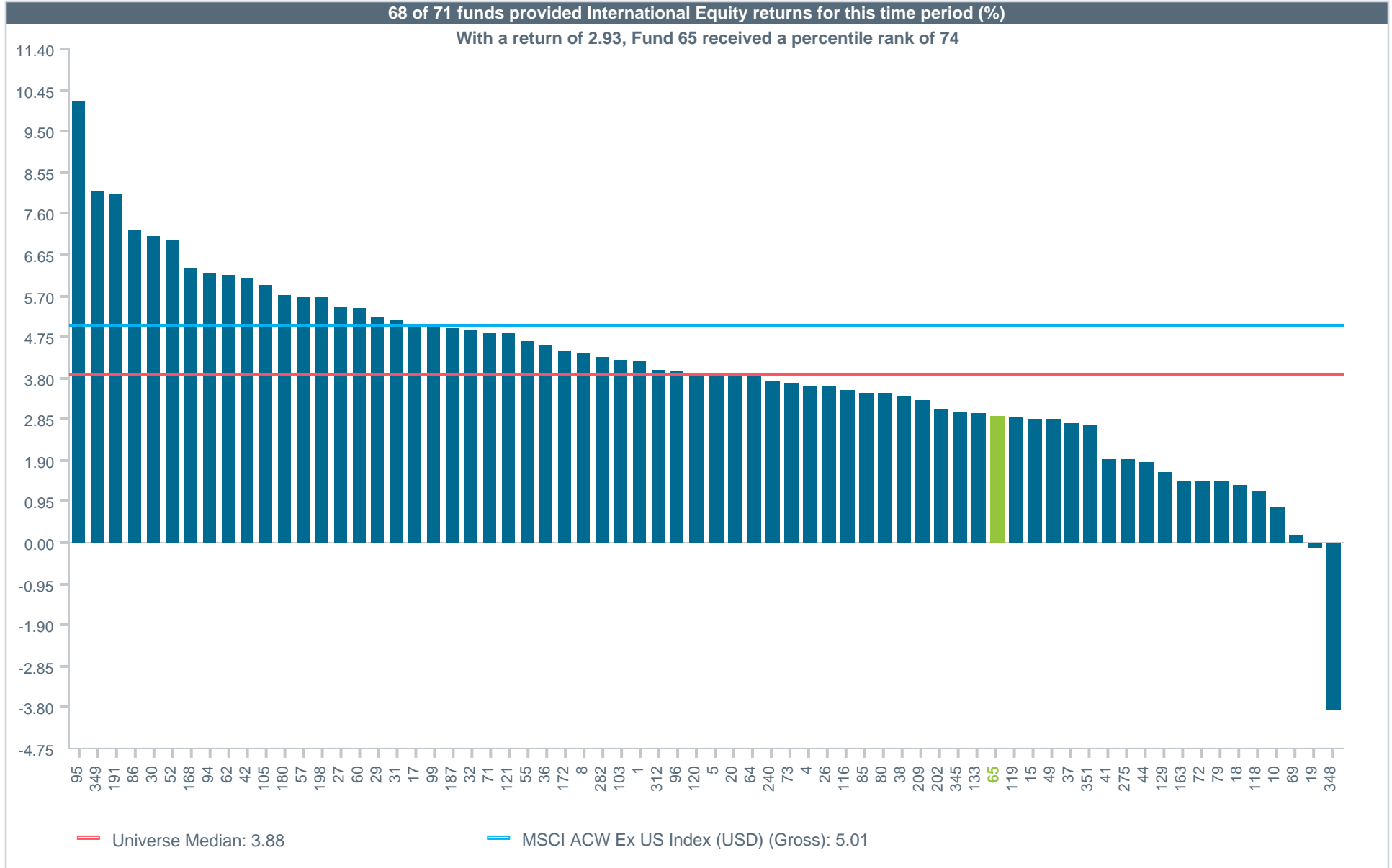
Total Return - US Equity

Fairfax County vs. Russell 3000 Index



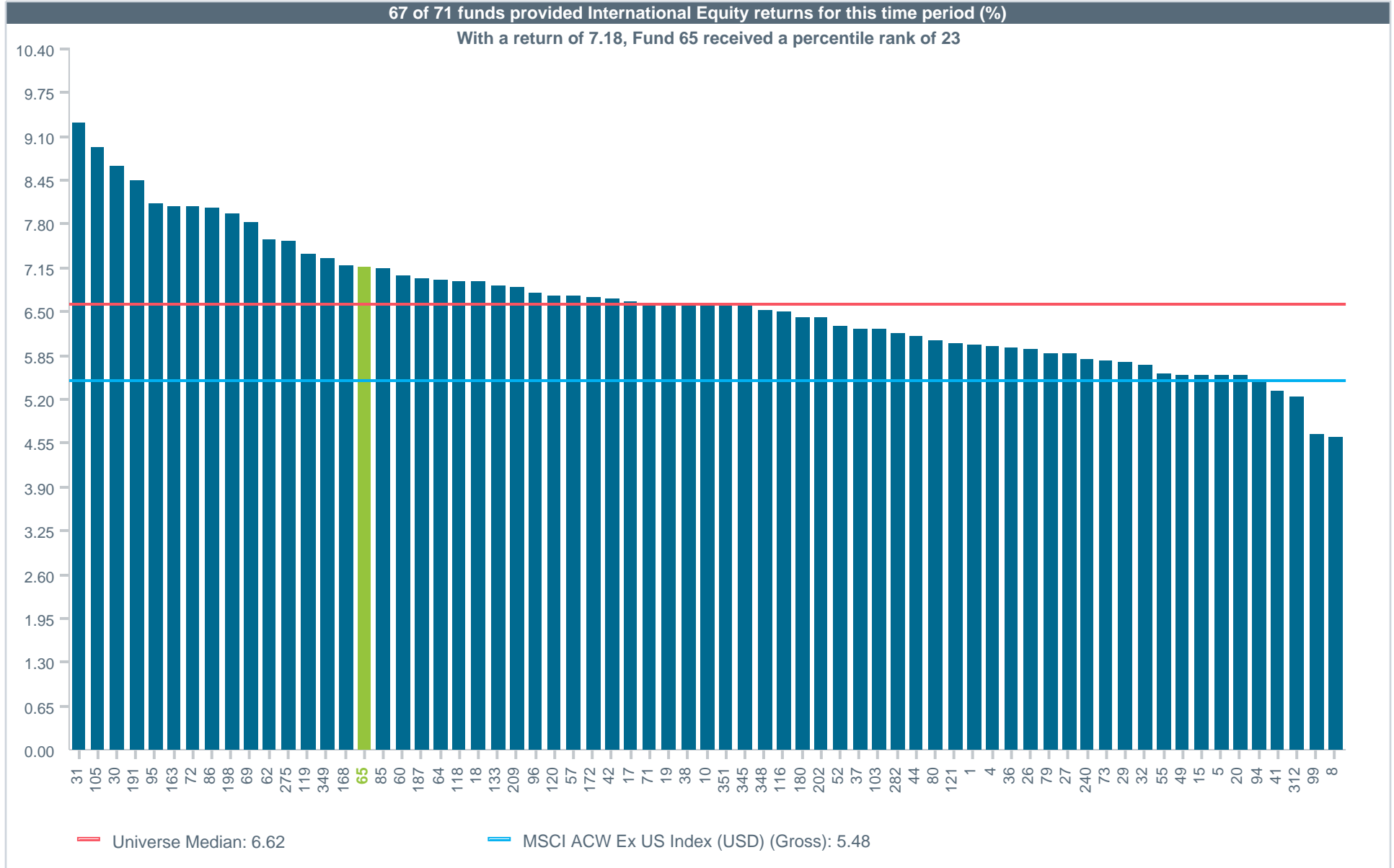
Annualized Returns (%)			
	1 Year	3 Years	5 Years
Fairfax County	9.73	7.25	14.11
Russell 3000 Index	12.74	8.43	14.67
Variance	-3.01	-1.18	-0.56





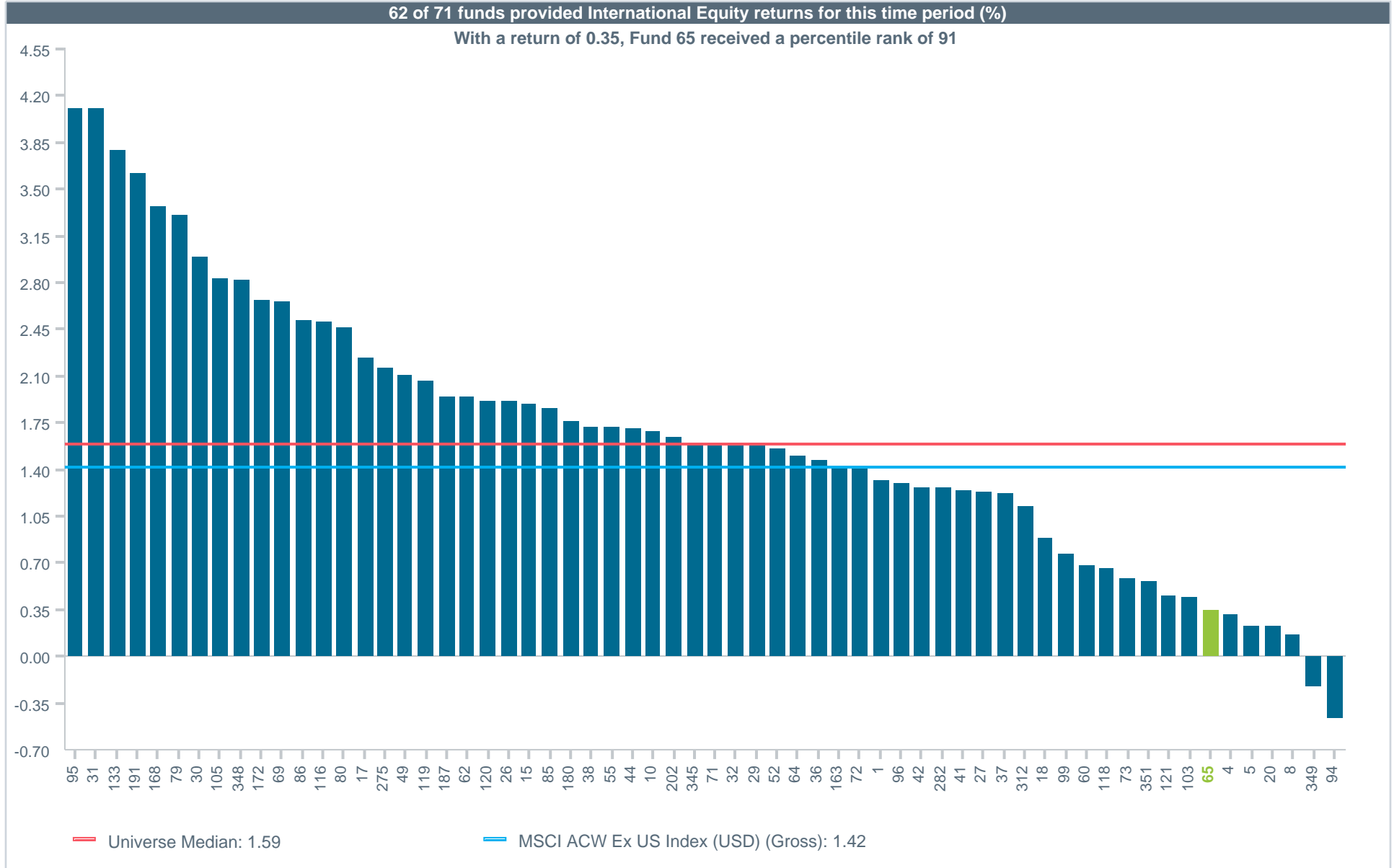
Funds with less history than the specified time period will not appear in the chart.





Funds with less history than the specified time period will not appear in the chart.



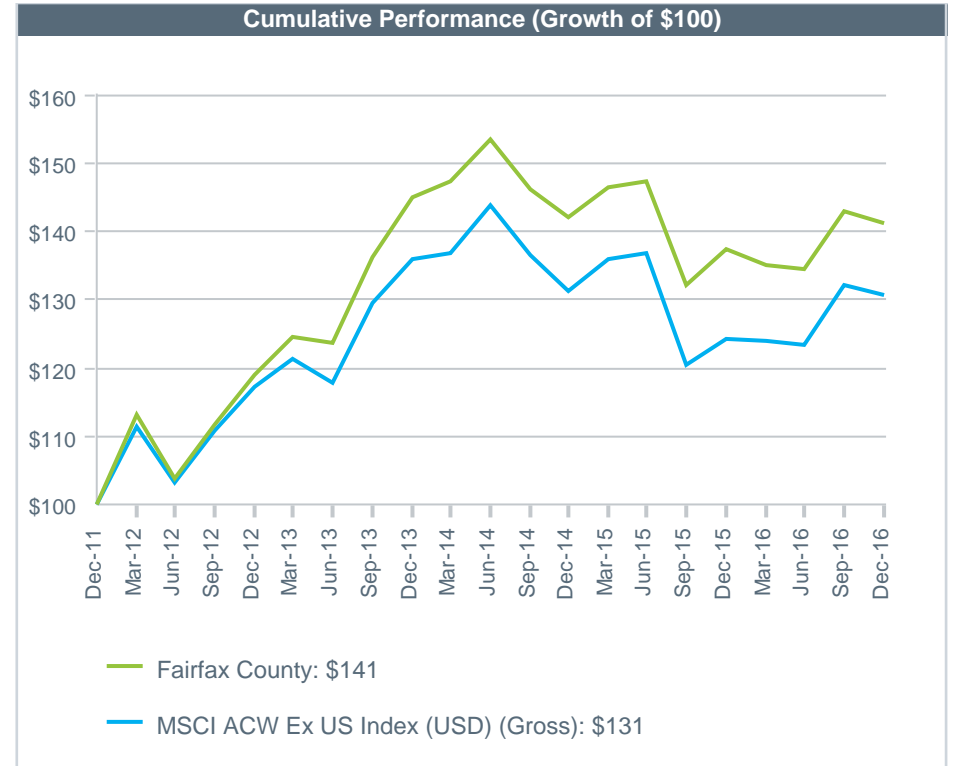
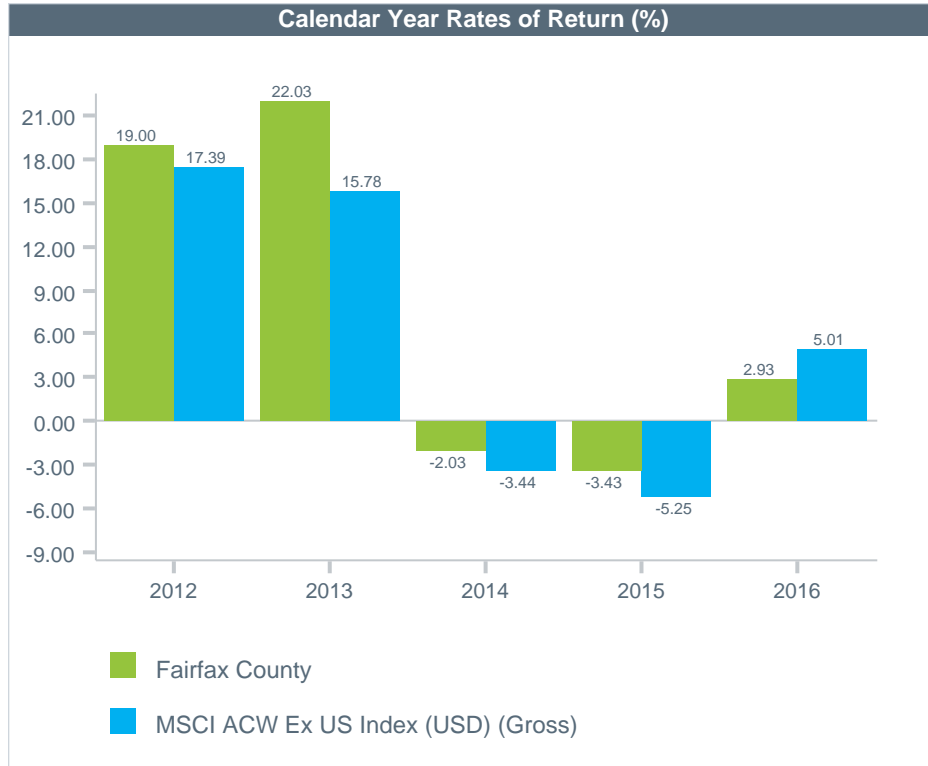


Funds with less history than the specified time period will not appear in the chart.



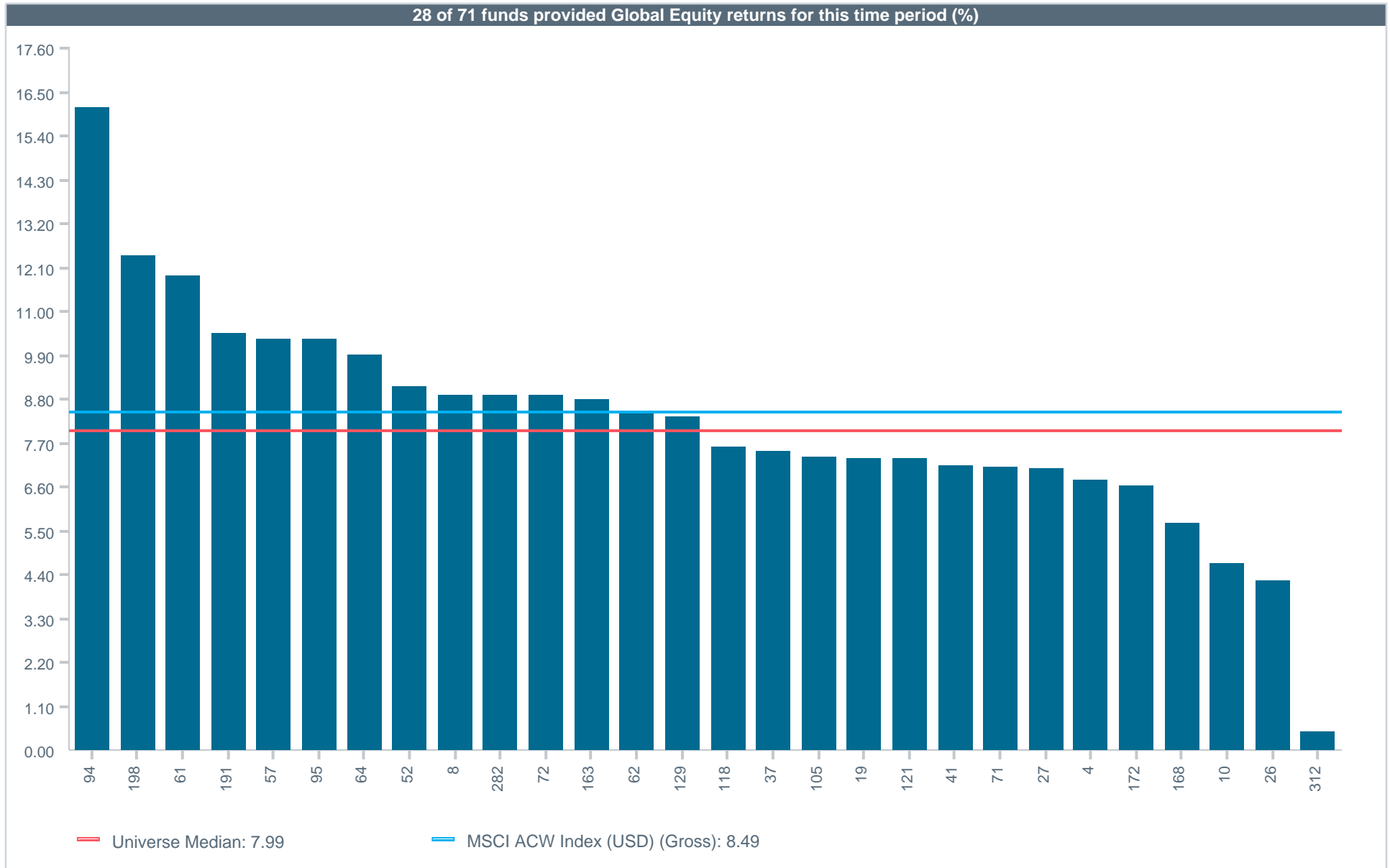
Total Return - International Equity

Fairfax County vs. MSCI ACW Ex US Index (USD) (Gross)



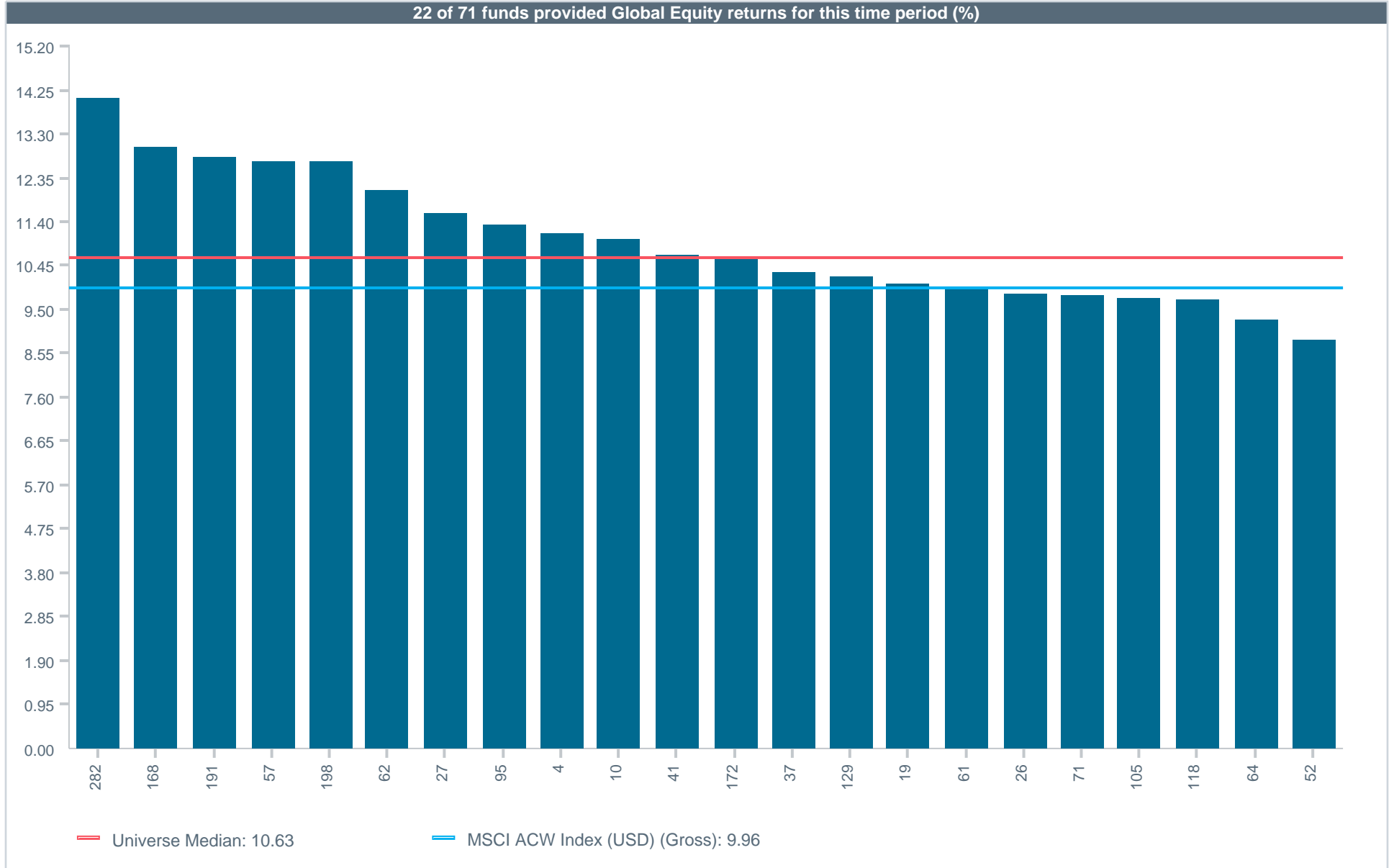
Annualized Returns (%)			
	1 Year	3 Years	5 Years
Fairfax County	2.93	-0.88	7.18
MSCI ACW Ex US Index (USD) (Gross)	5.01	-1.32	5.48
Variance	-2.08	0.44	1.70





Funds with less history than the specified time period will not appear in the chart.

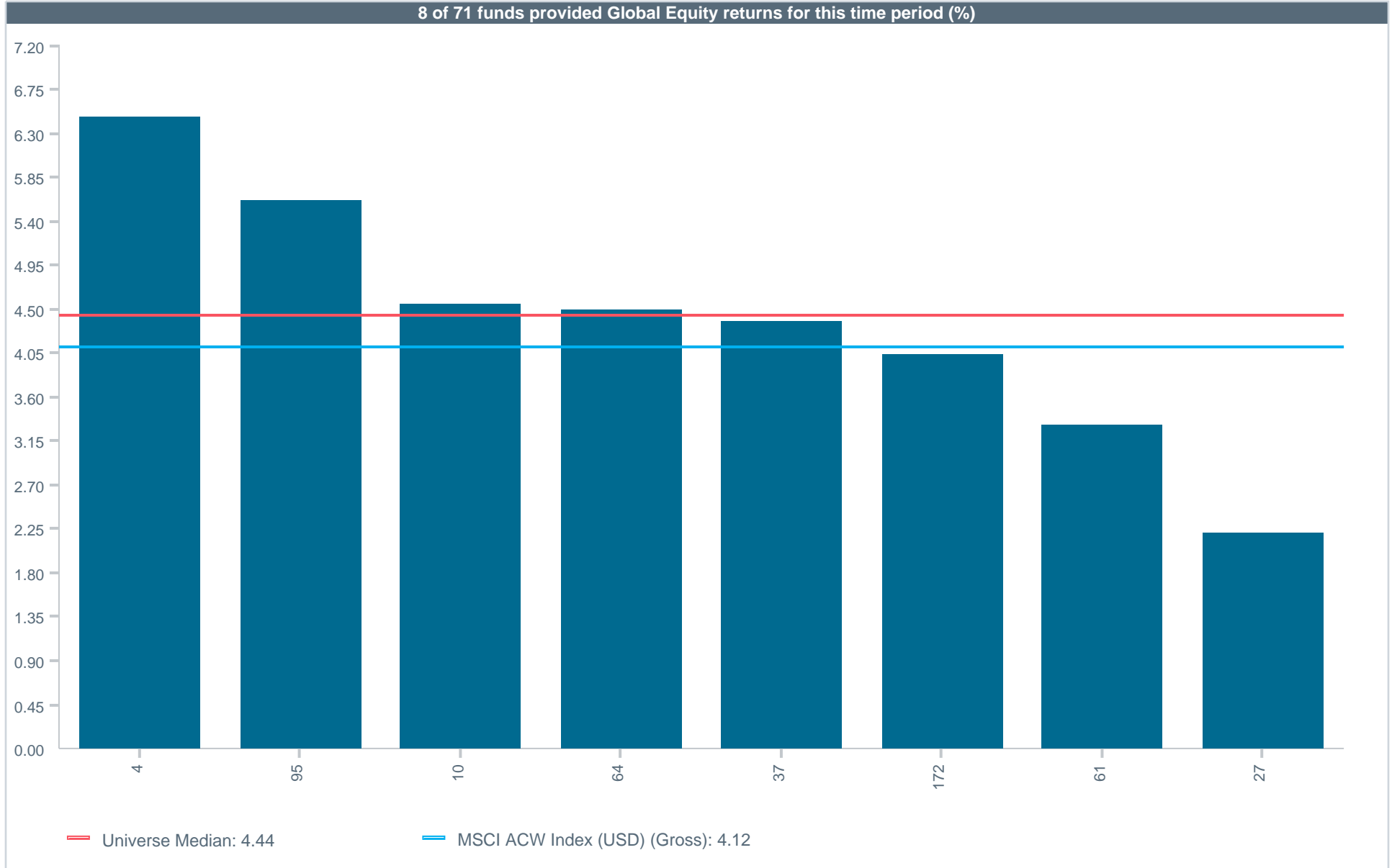




Funds with less history than the specified time period will not appear in the chart.







Funds with less history than the specified time period will not appear in the chart.



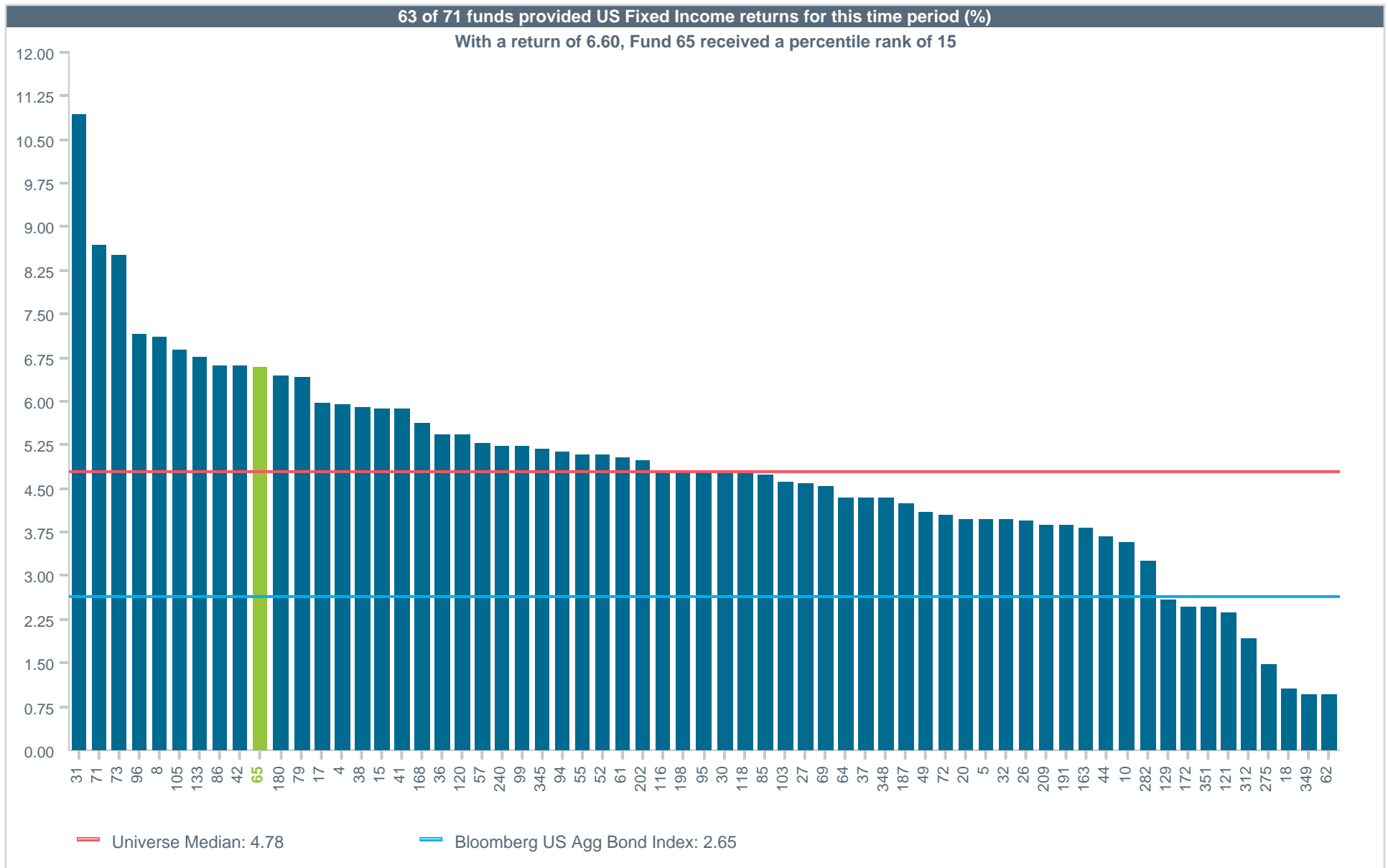
Total Return - Global Equity

Fairfax County vs. MSCI ACW Index (USD) (Gross)

Calendar Year Rates of Return (%)	Cumulative Performance (Growth of \$100)
<p>Fairfax County does not have return data for Global Equity</p>	

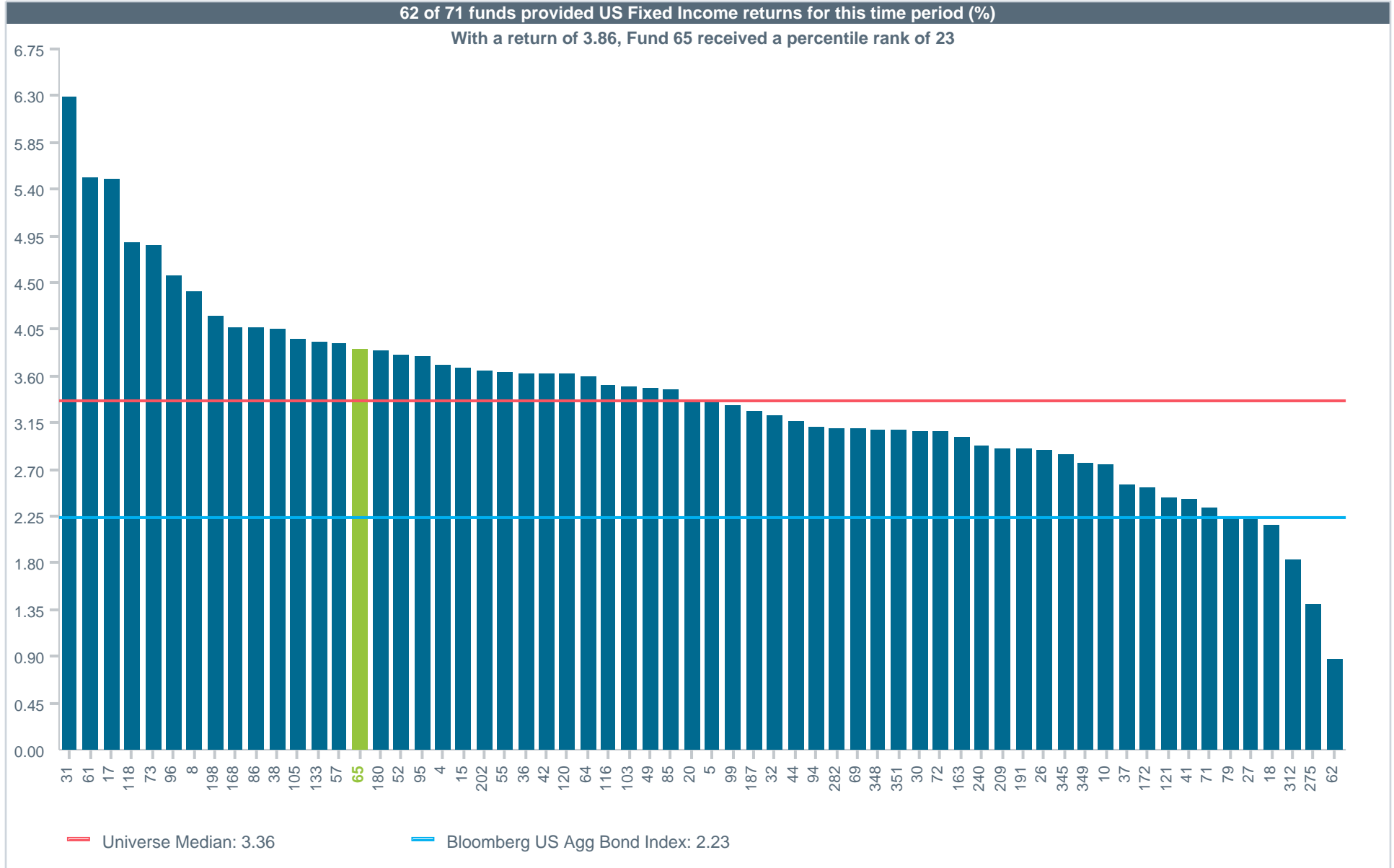
Annualized Returns (%)			
	1 Year	3 Years	5 Years
Fairfax County	N/A	N/A	N/A
MSCI ACW Index (USD) (Gross)	N/A	N/A	N/A
Variance	N/A	N/A	N/A





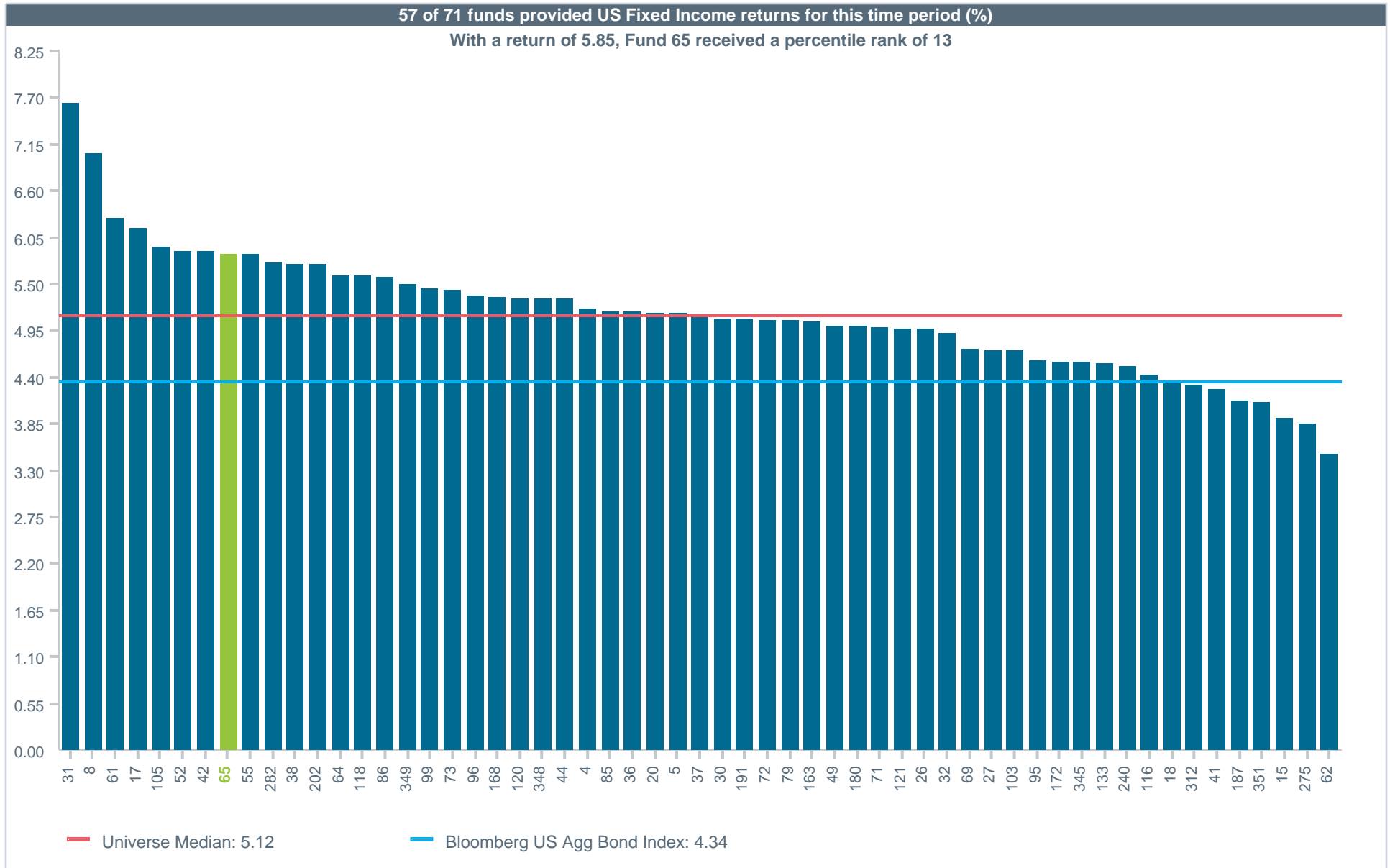
Funds with less history than the specified time period will not appear in the chart.





Funds with less history than the specified time period will not appear in the chart.



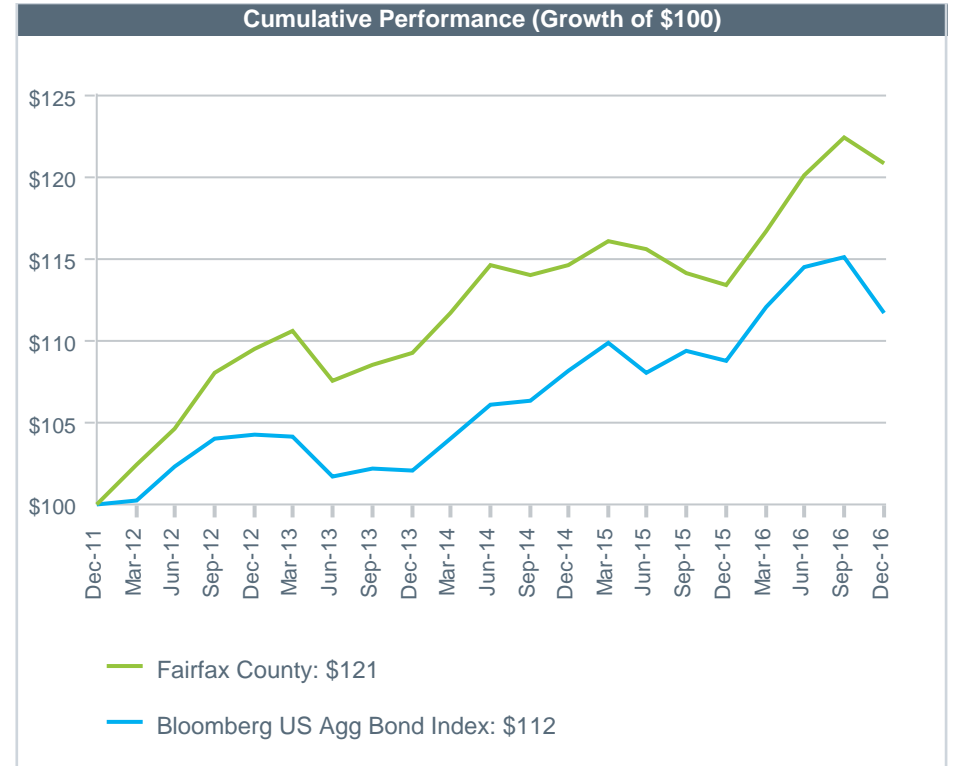
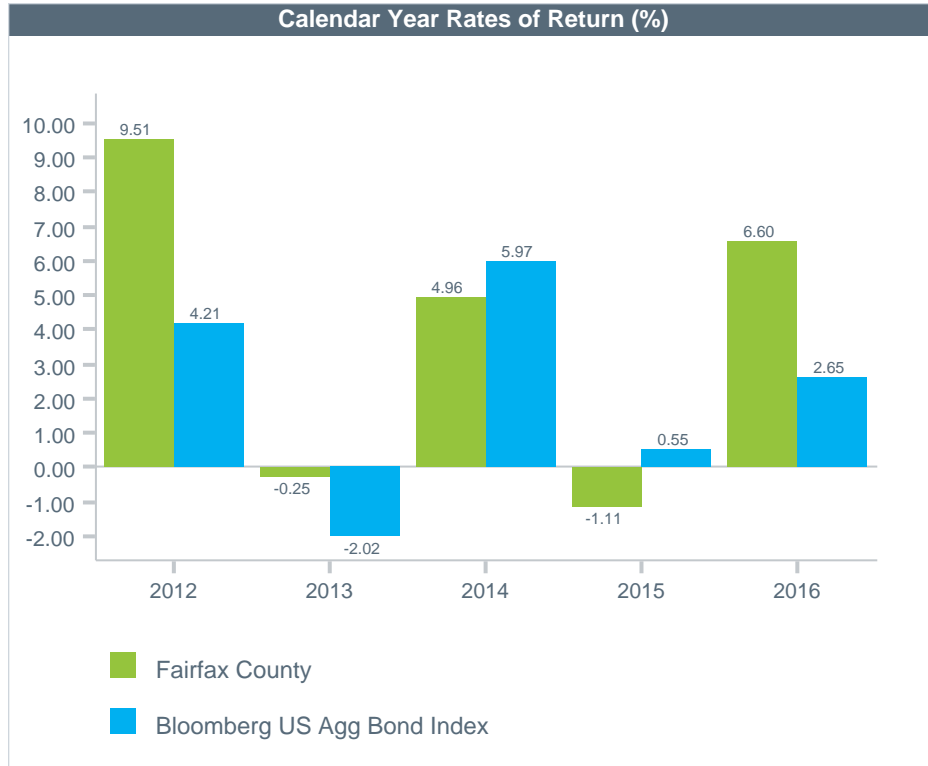


Funds with less history than the specified time period will not appear in the chart.



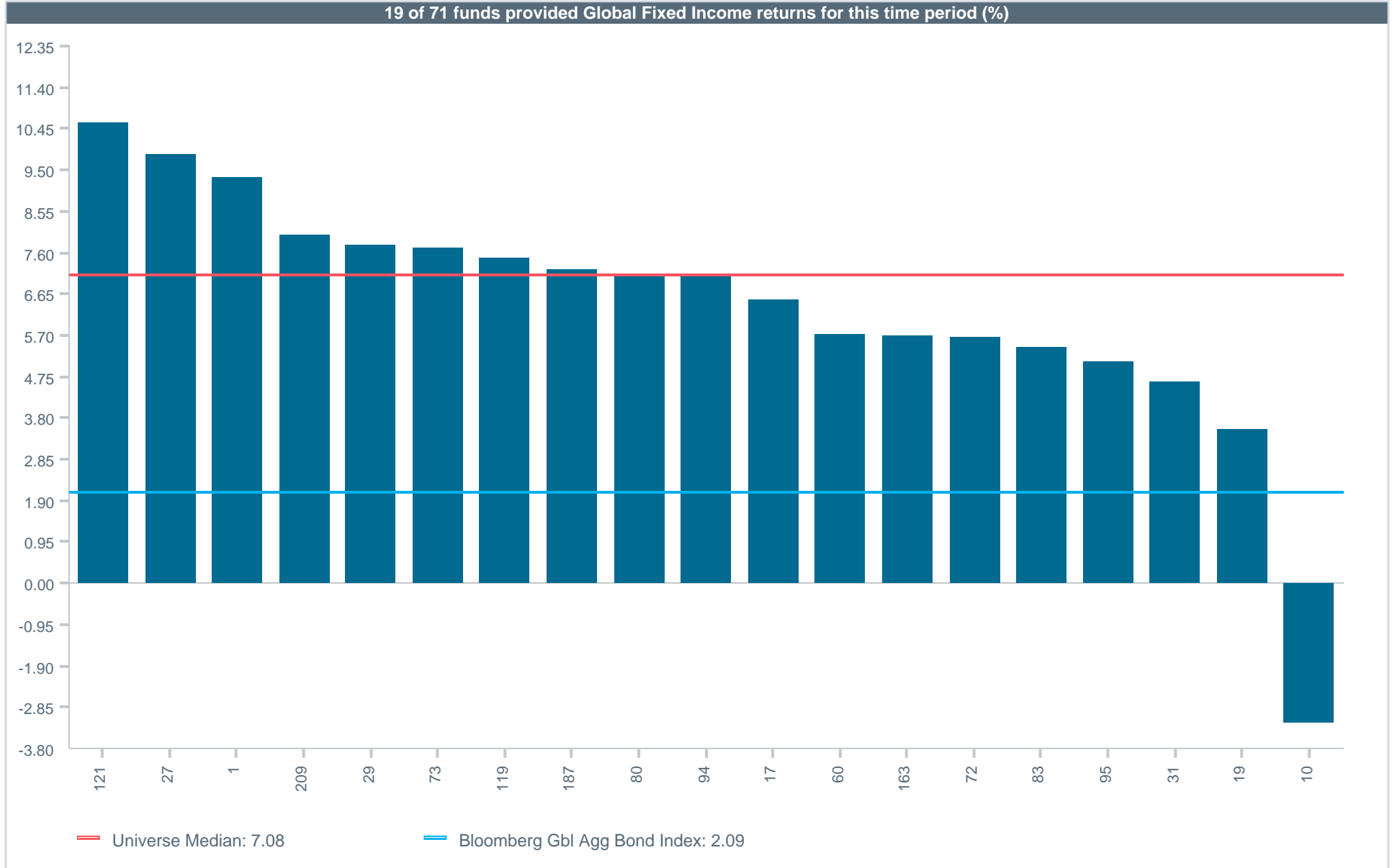
Total Return - US Fixed Income

Fairfax County vs. Bloomberg US Agg Bond Index



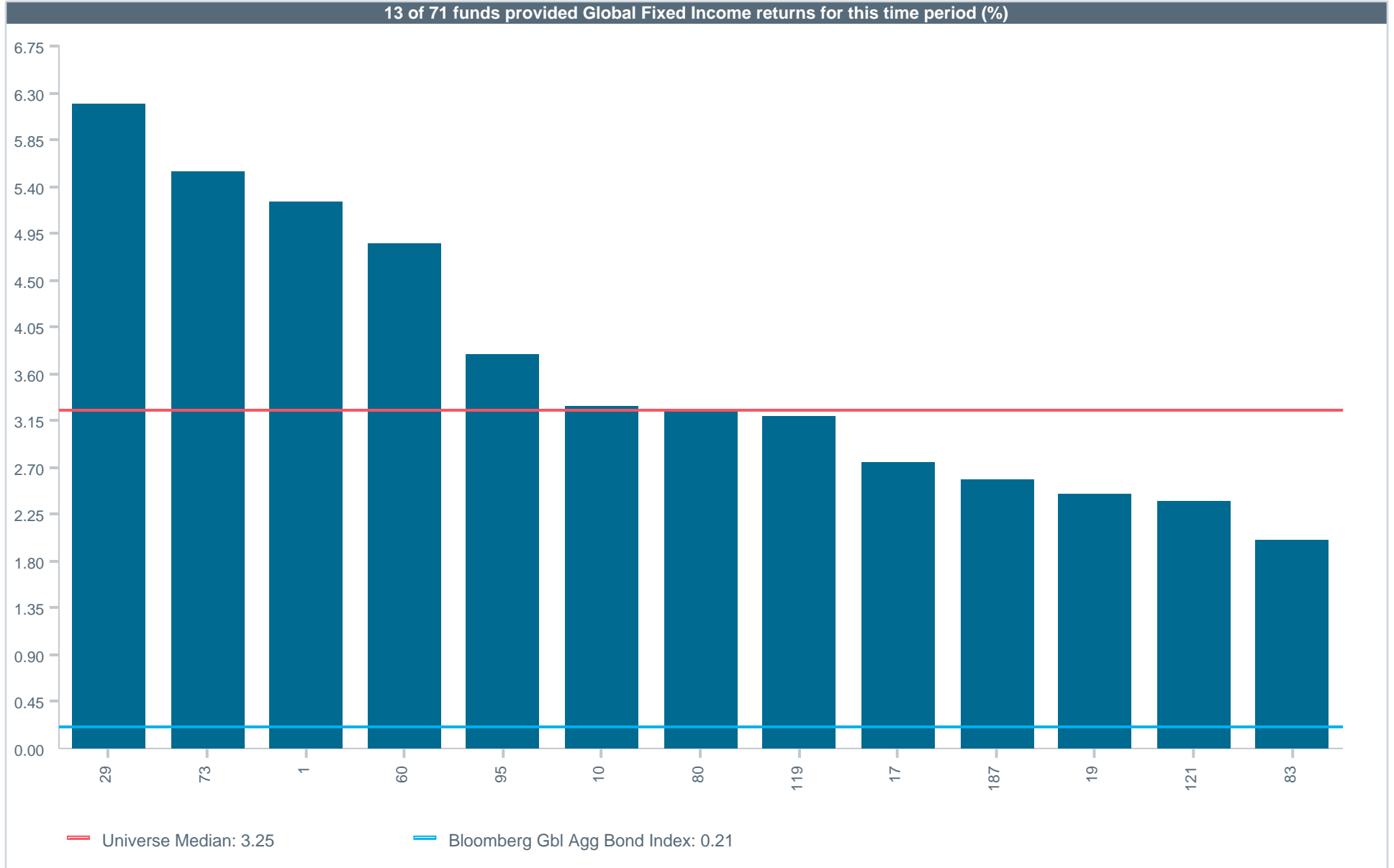
Annualized Returns (%)			
	1 Year	3 Years	5 Years
Fairfax County	6.60	3.43	3.86
Bloomberg US Agg Bond Index	2.65	3.03	2.23
Variance	3.95	0.40	1.63





Funds with less history than the specified time period will not appear in the chart.

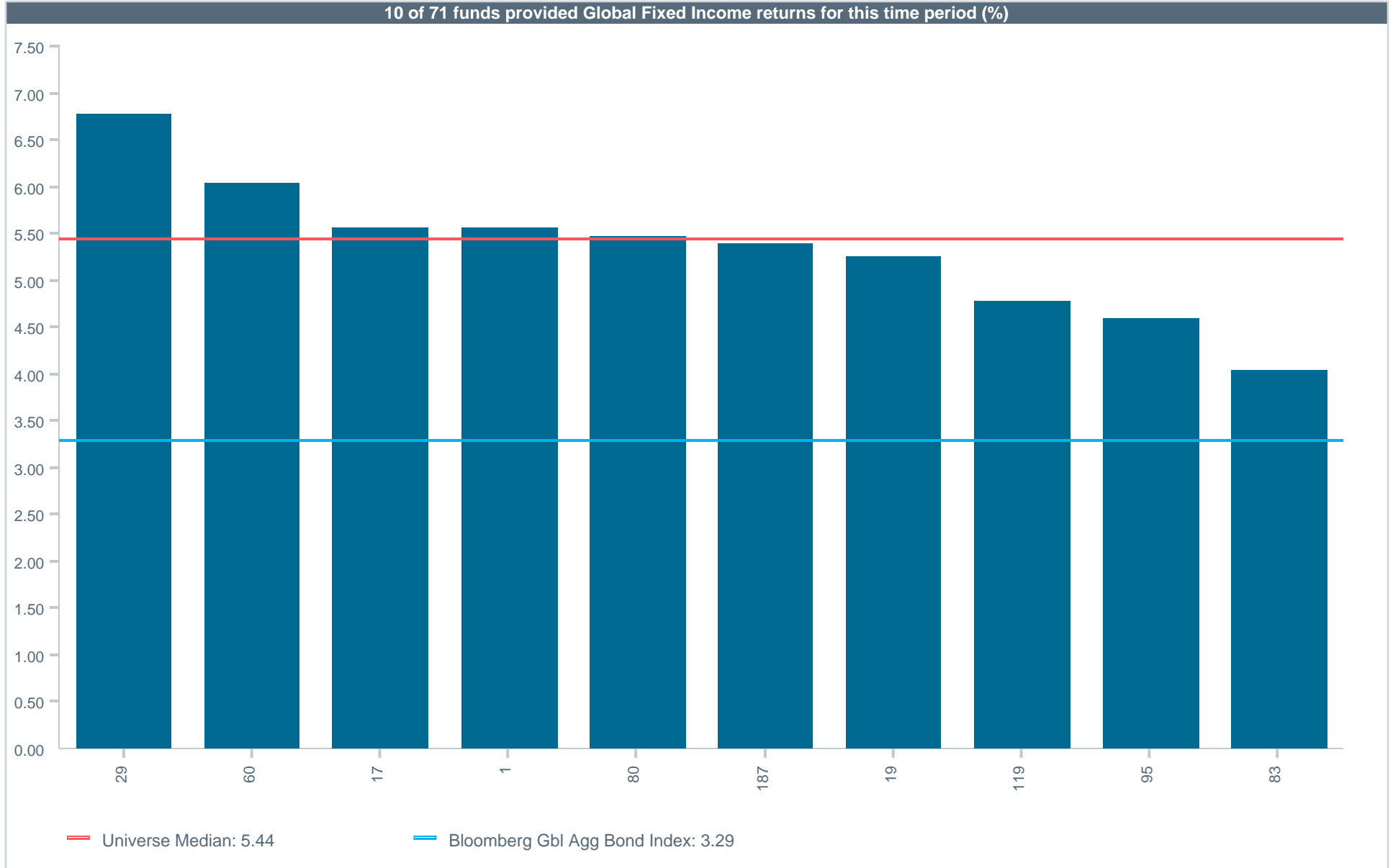




Funds with less history than the specified time period will not appear in the chart.







Funds with less history than the specified time period will not appear in the chart.



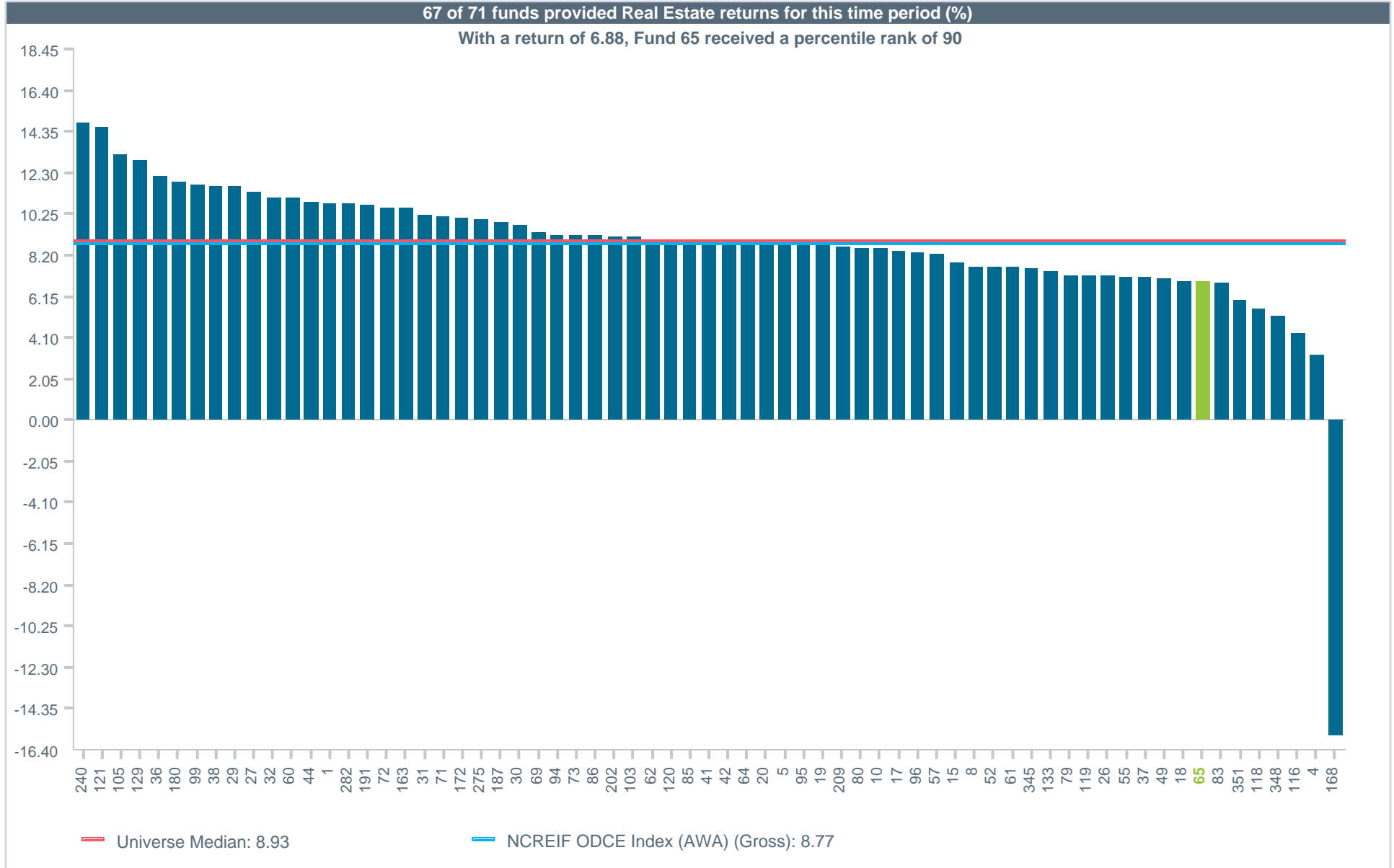
Total Return - Global Fixed Income

Fairfax County vs. Bloomberg Gbl Agg Bond Index

Calendar Year Rates of Return (%)	Cumulative Performance (Growth of \$100)
<p>Fairfax County does not have return data for Global Fixed Income</p>	

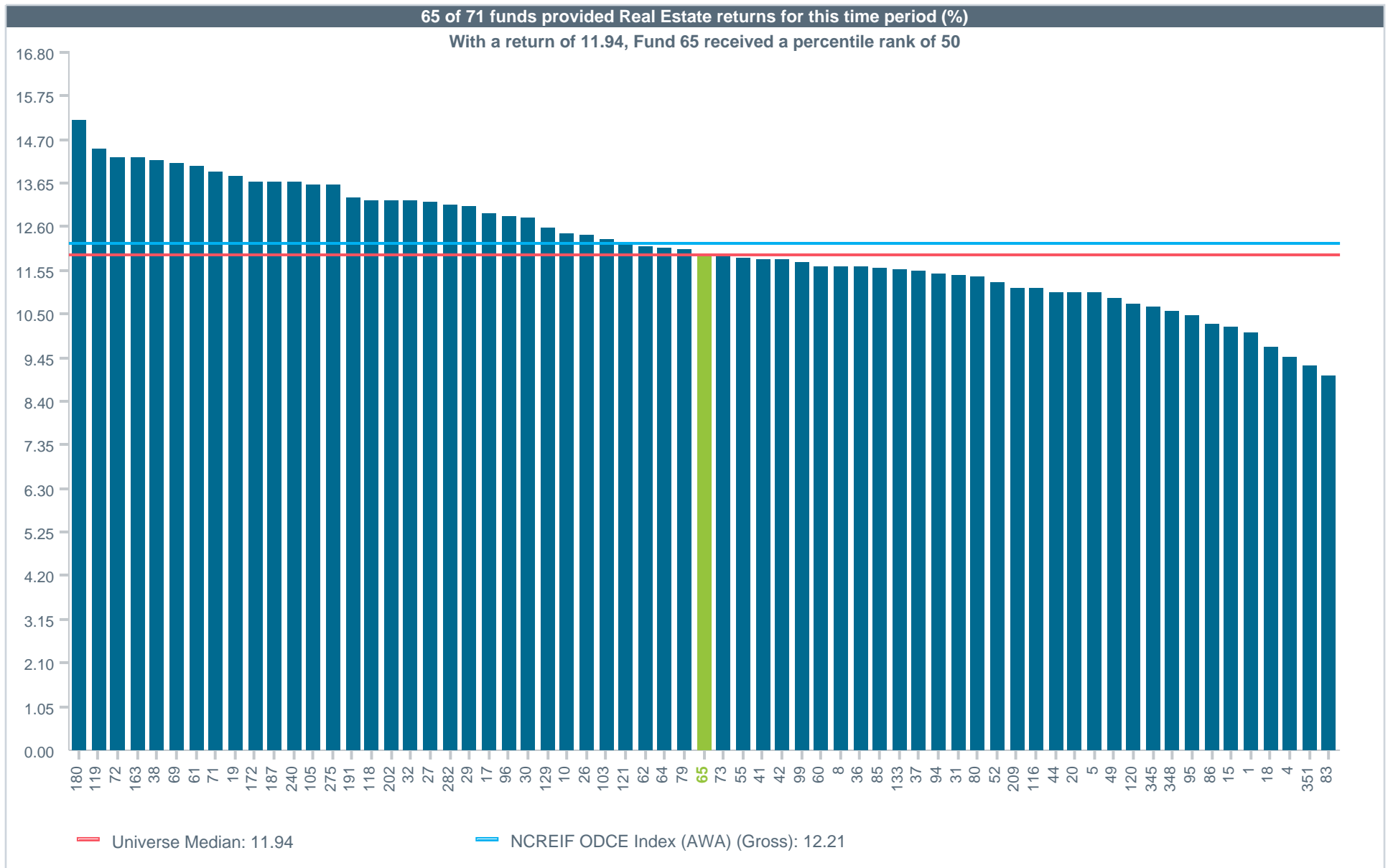
Annualized Returns (%)			
	1 Year	3 Years	5 Years
Fairfax County	N/A	N/A	N/A
Bloomberg Gbl Agg Bond Index	N/A	N/A	N/A
Variance	N/A	N/A	N/A





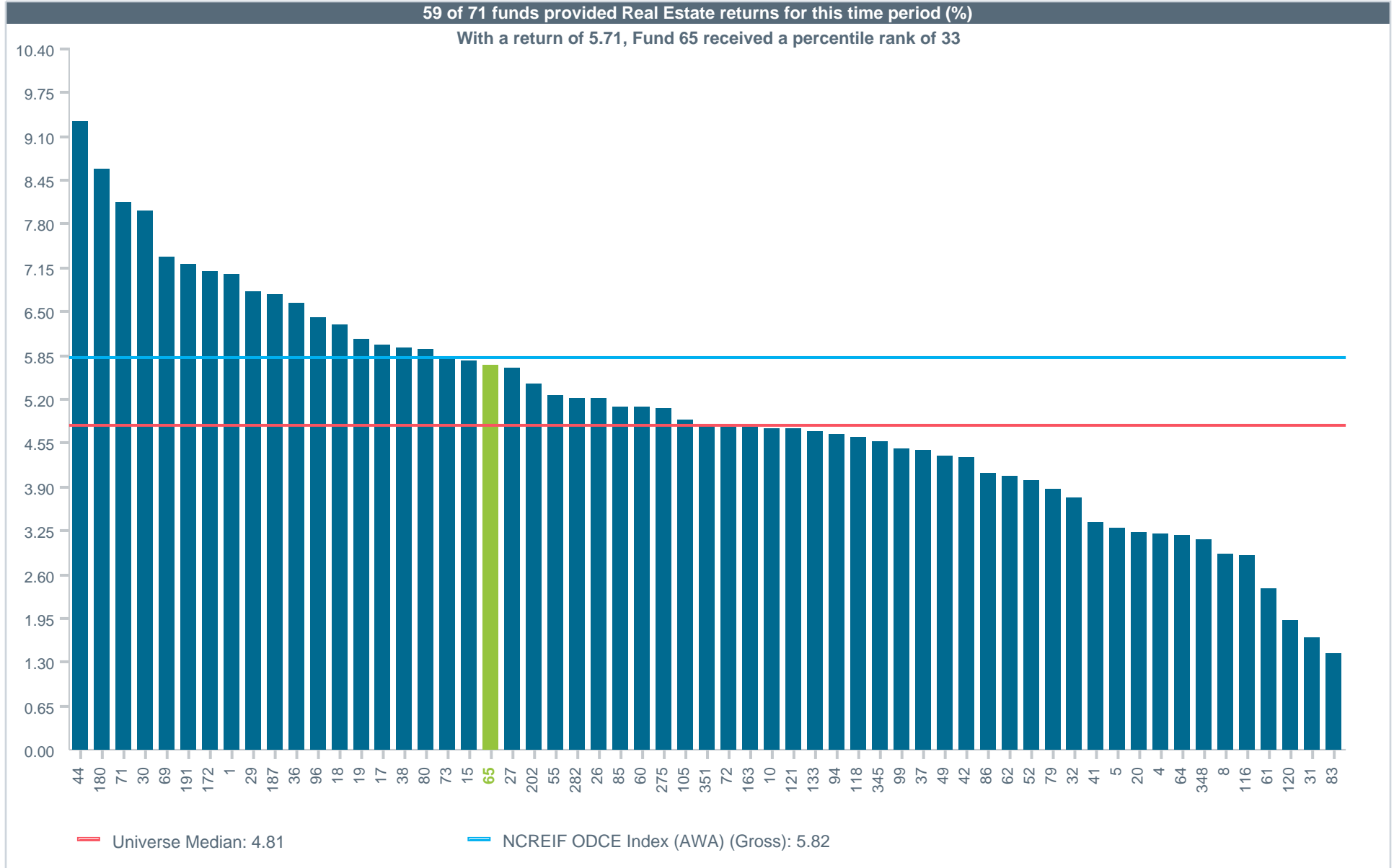
Funds with less history than the specified time period will not appear in the chart.





Funds with less history than the specified time period will not appear in the chart.



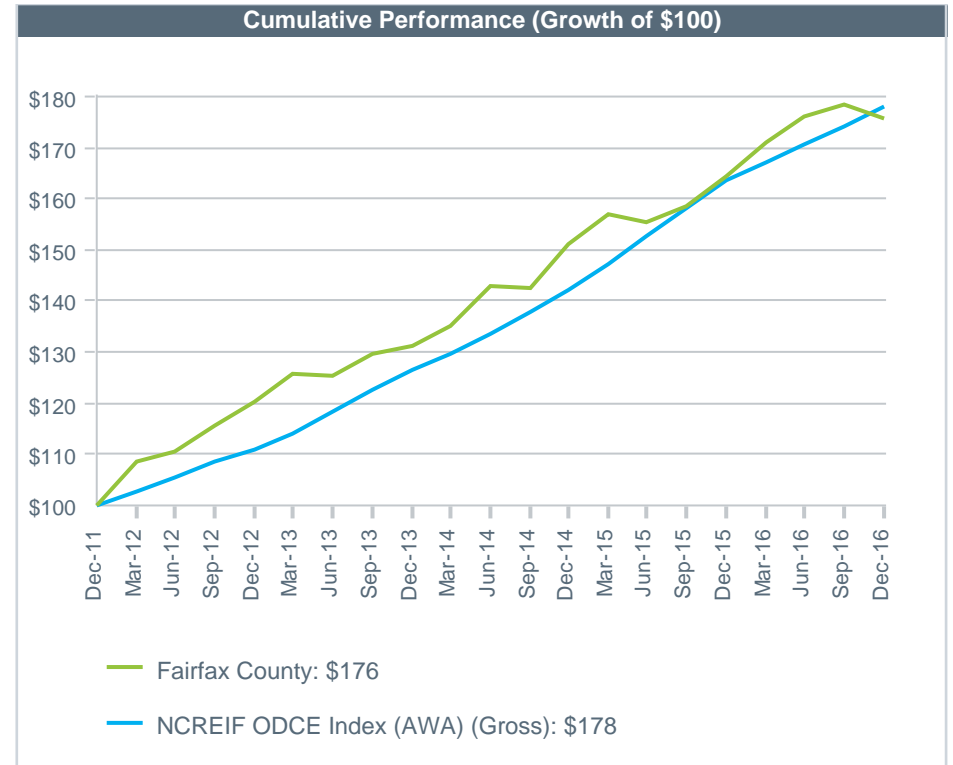
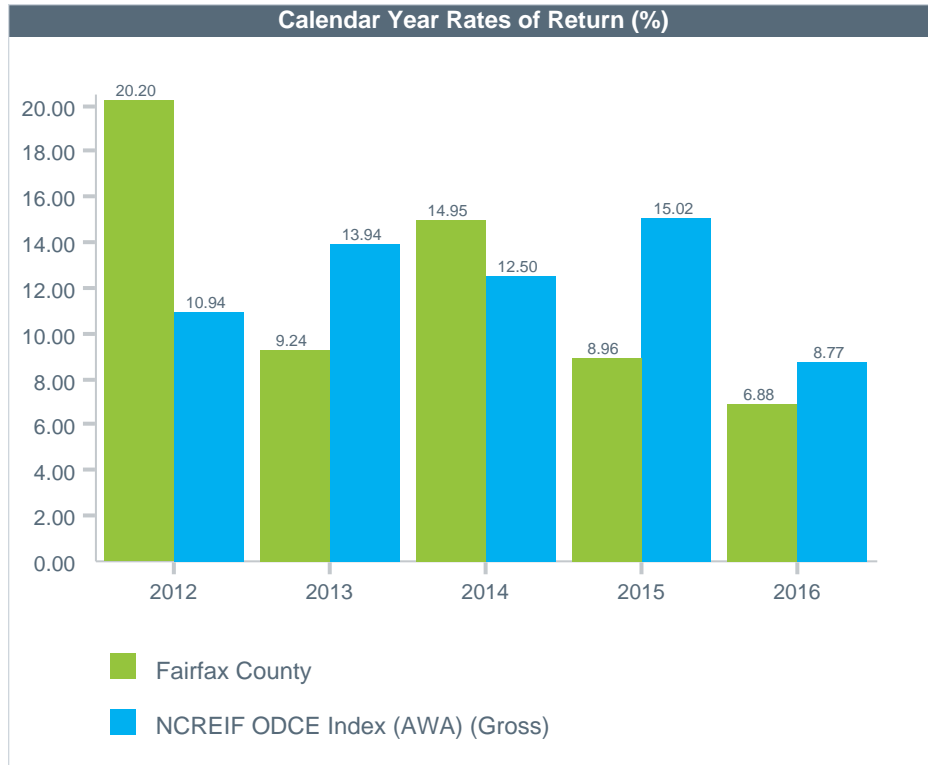


Funds with less history than the specified time period will not appear in the chart.



Total Return - Real Estate

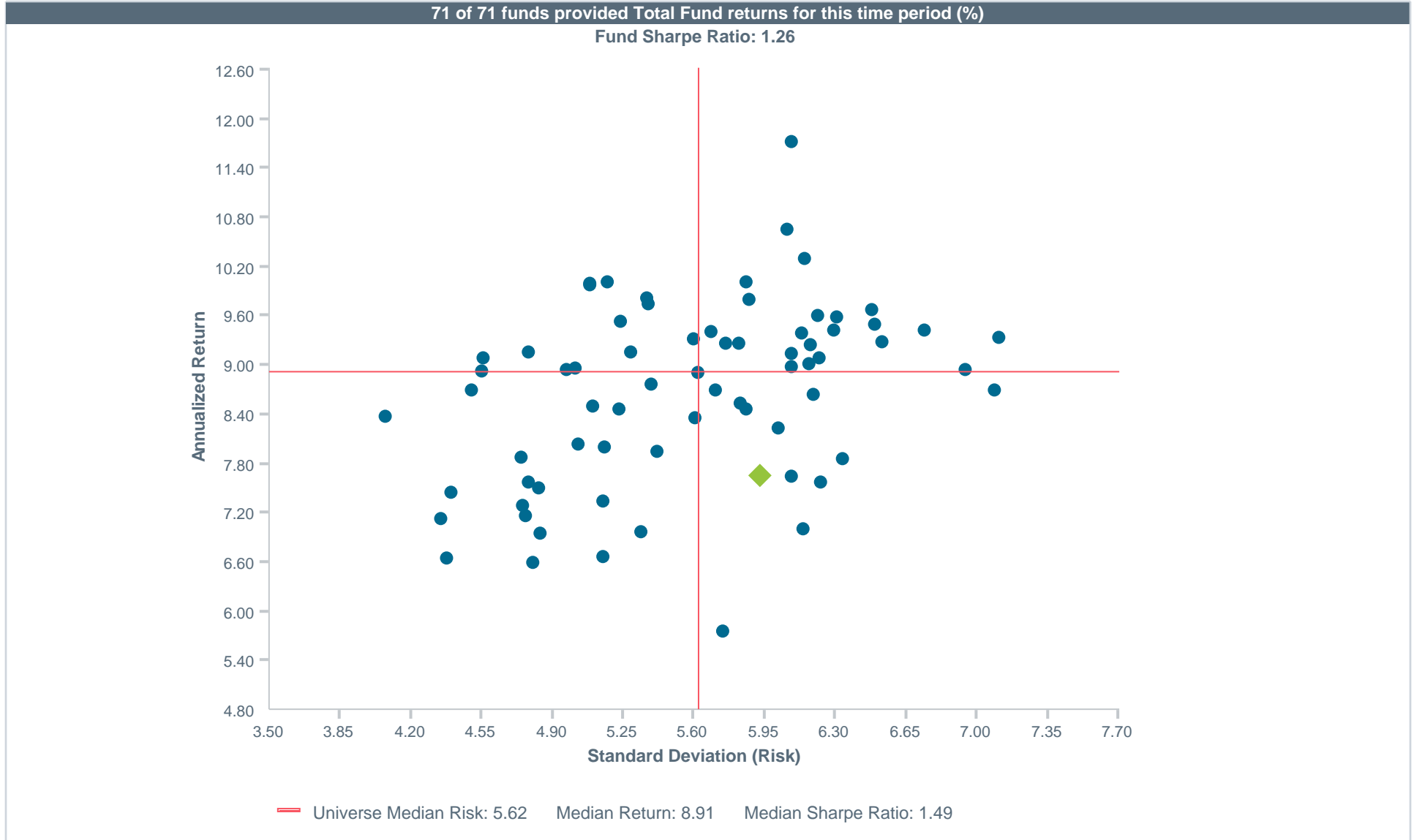
Fairfax County vs. NCREIF ODCE Index (AWA) (Gross)



Annualized Returns (%)			
	1 Year	3 Years	5 Years
Fairfax County	6.88	10.21	11.94
NCREIF ODCE Index (AWA) (Gross)	8.77	12.07	12.21
Variance	-1.89	-1.86	-0.27



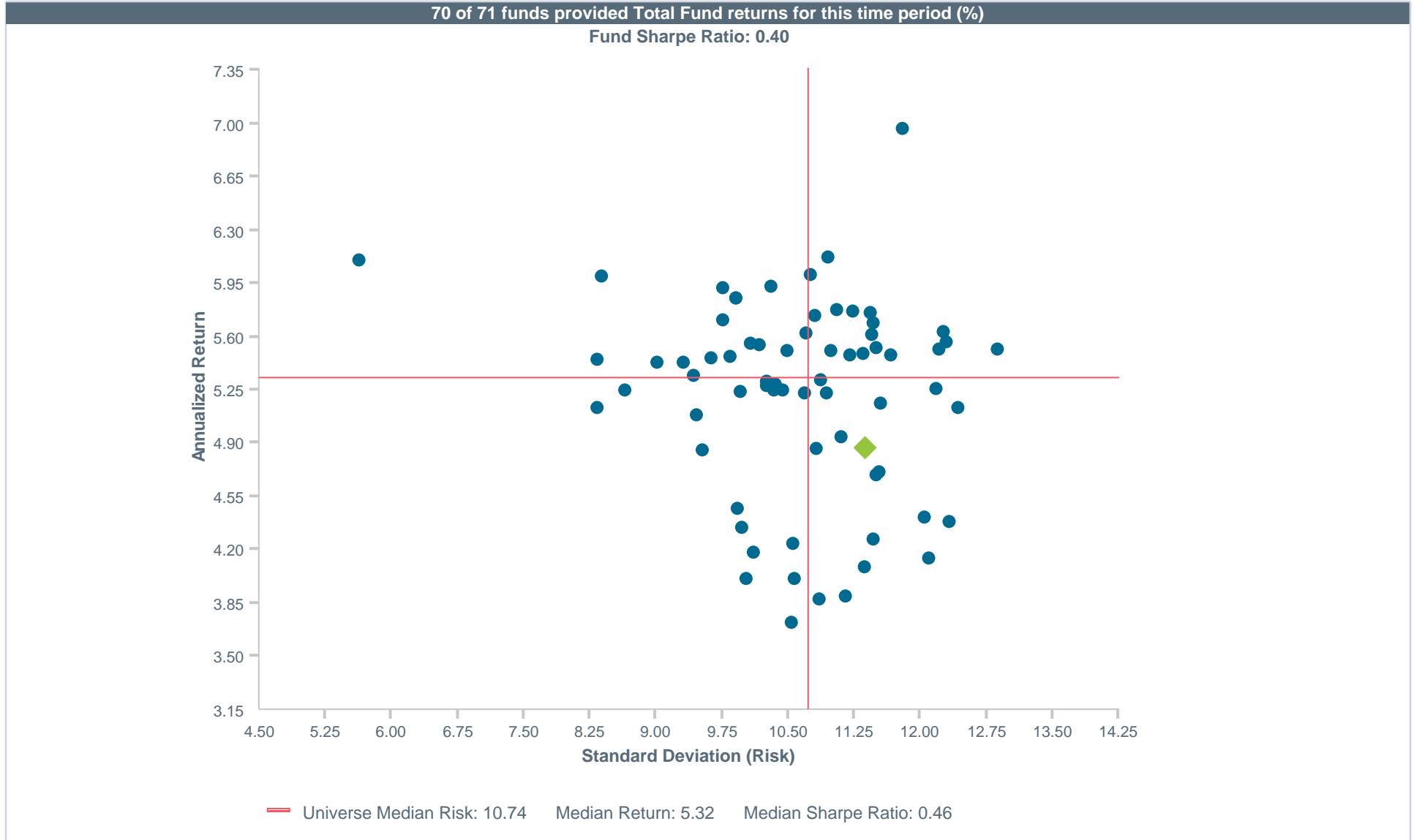
5 Year Annualized Total Fund Returns vs. Standard Deviation



Funds with less history than the specified time period will not appear in the chart.



10 Year Annualized Total Fund Returns vs. Standard Deviation



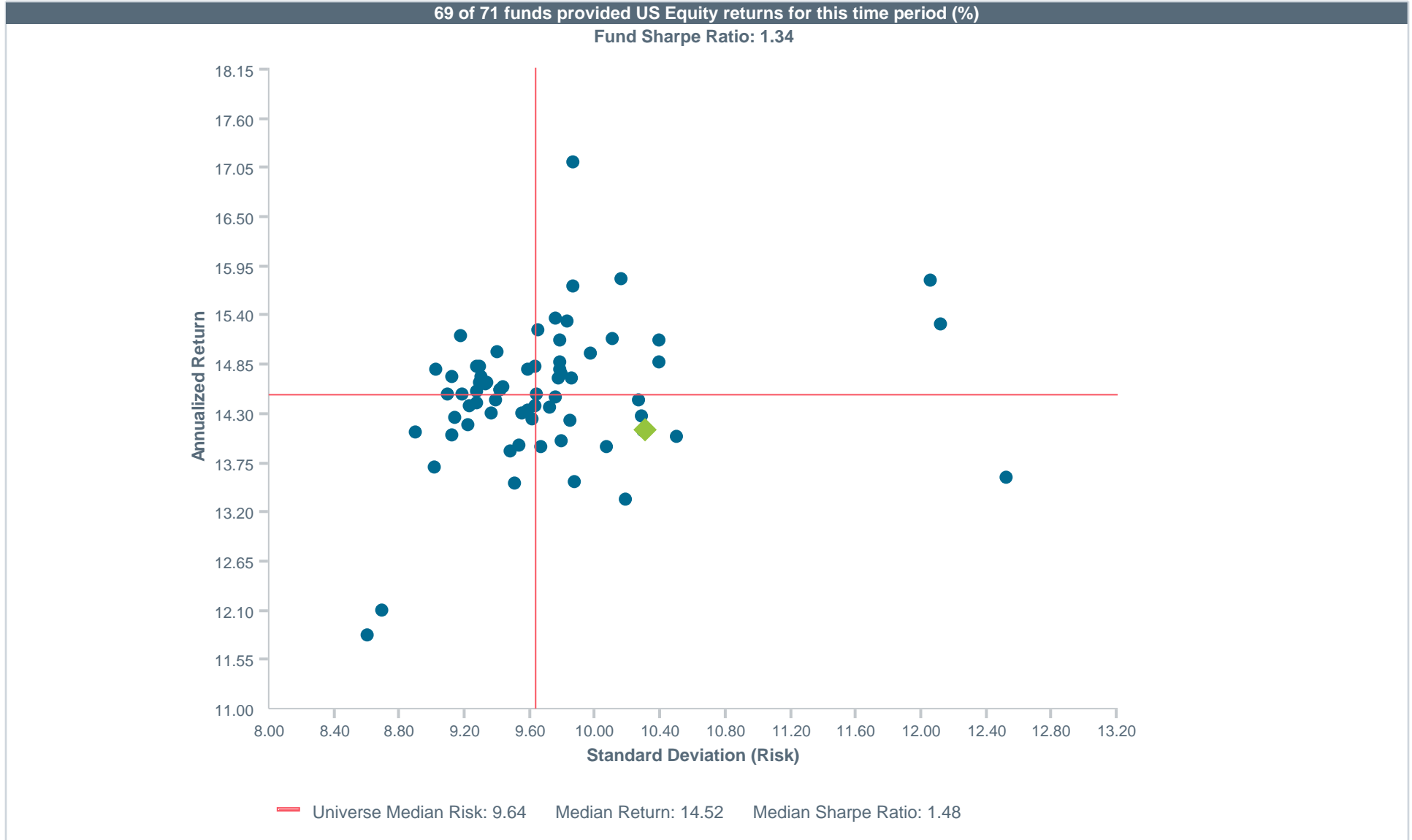
Funds with less history than the specified time period will not appear in the chart.





Risk/Return Analysis

5 Year Annualized US Equity Returns vs. Standard Deviation

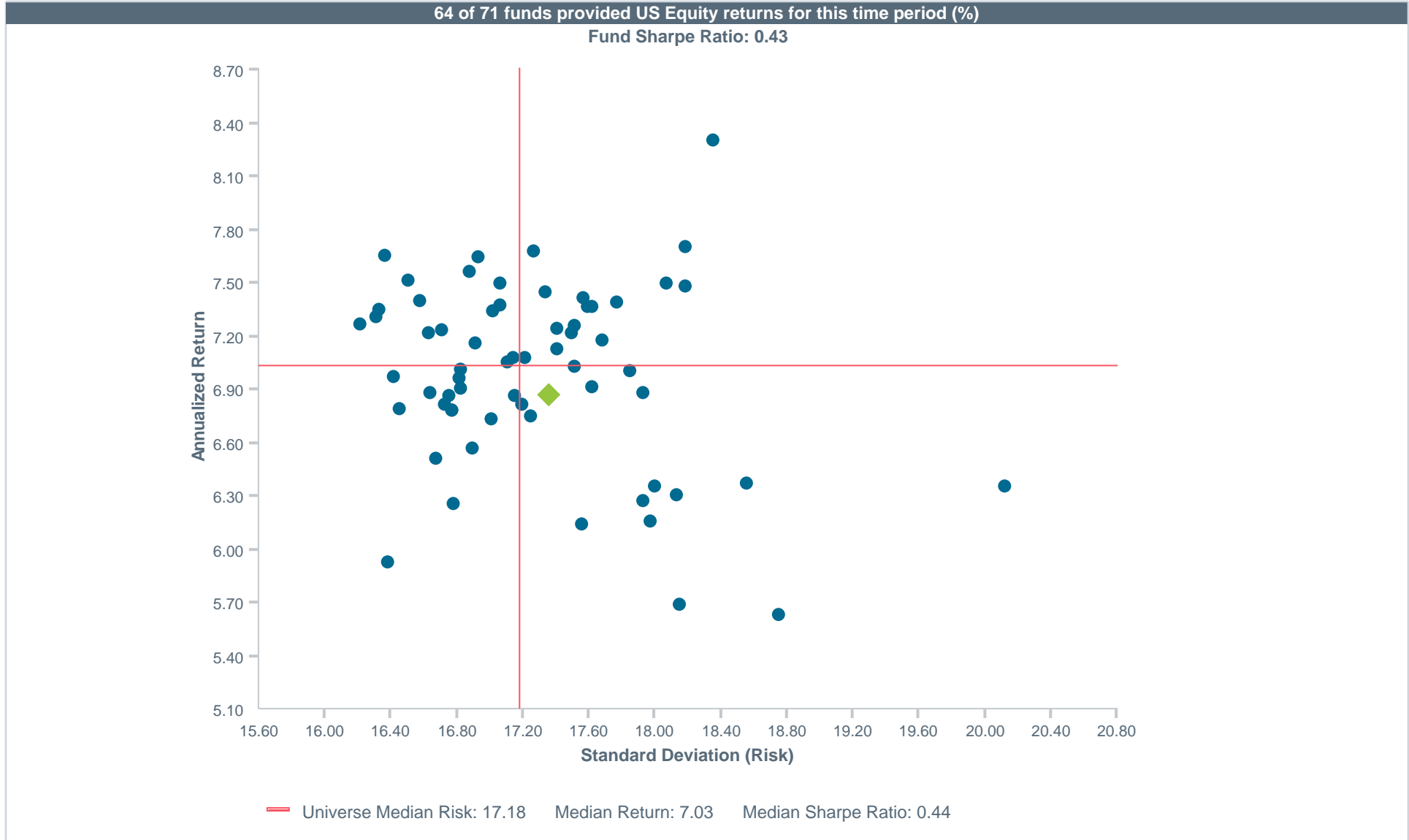


Funds with less history than the specified time period will not appear in the chart.



Risk/Return Analysis

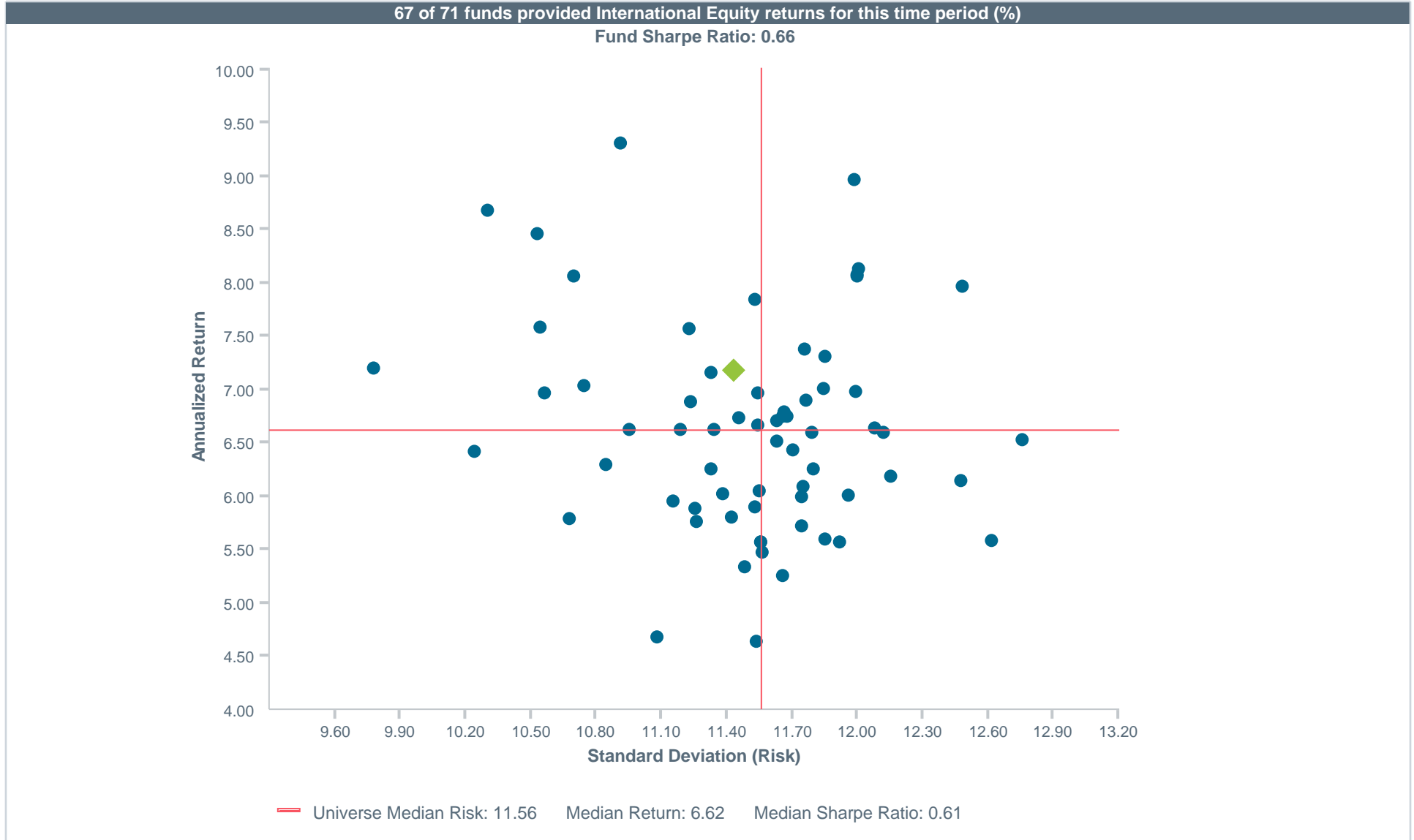
10 Year Annualized US Equity Returns vs. Standard Deviation



Funds with less history than the specified time period will not appear in the chart.



5 Year Annualized International Equity Returns vs. Standard Deviation

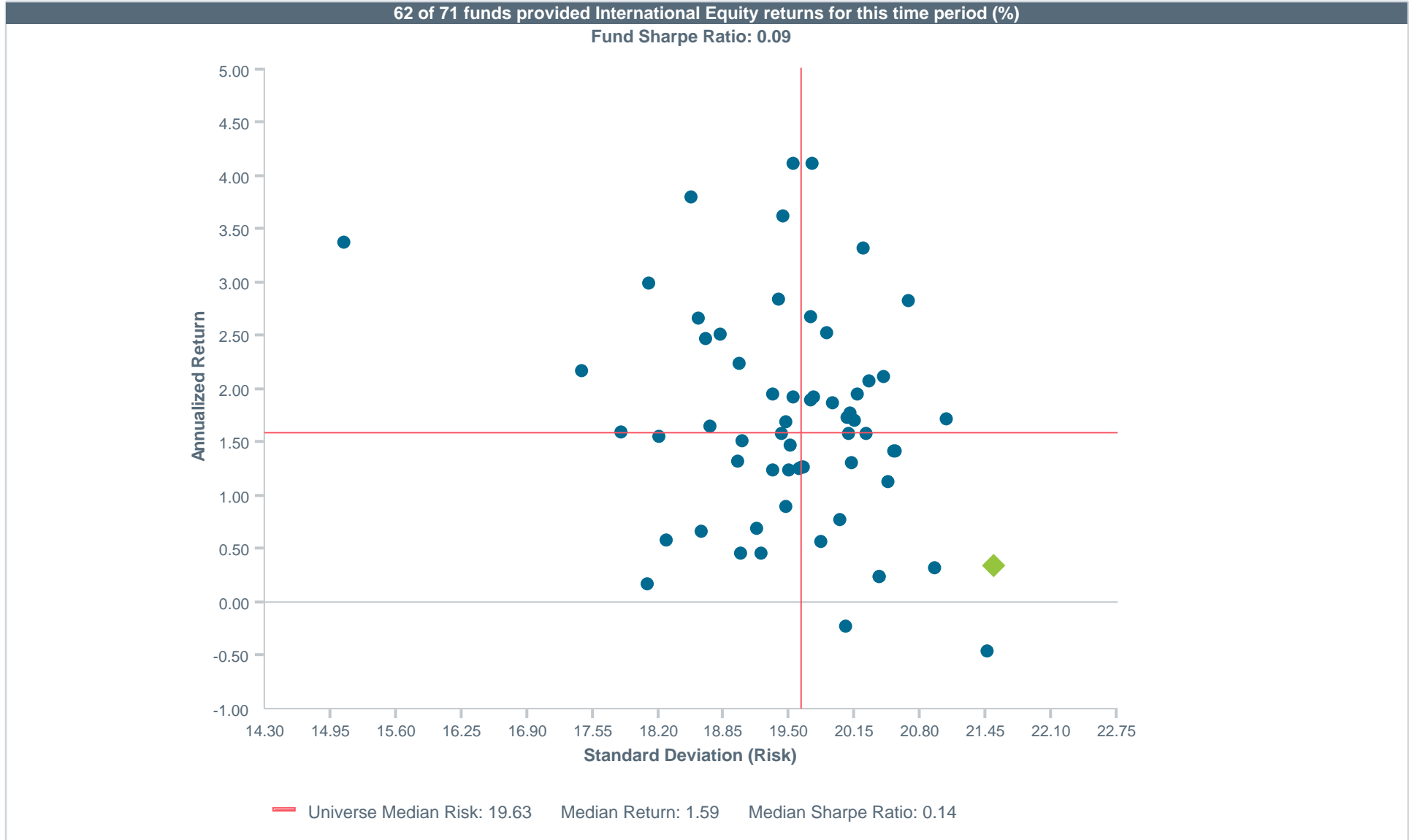


Funds with less history than the specified time period will not appear in the chart.



Risk/Return Analysis

10 Year Annualized International Equity Returns vs. Standard Deviation

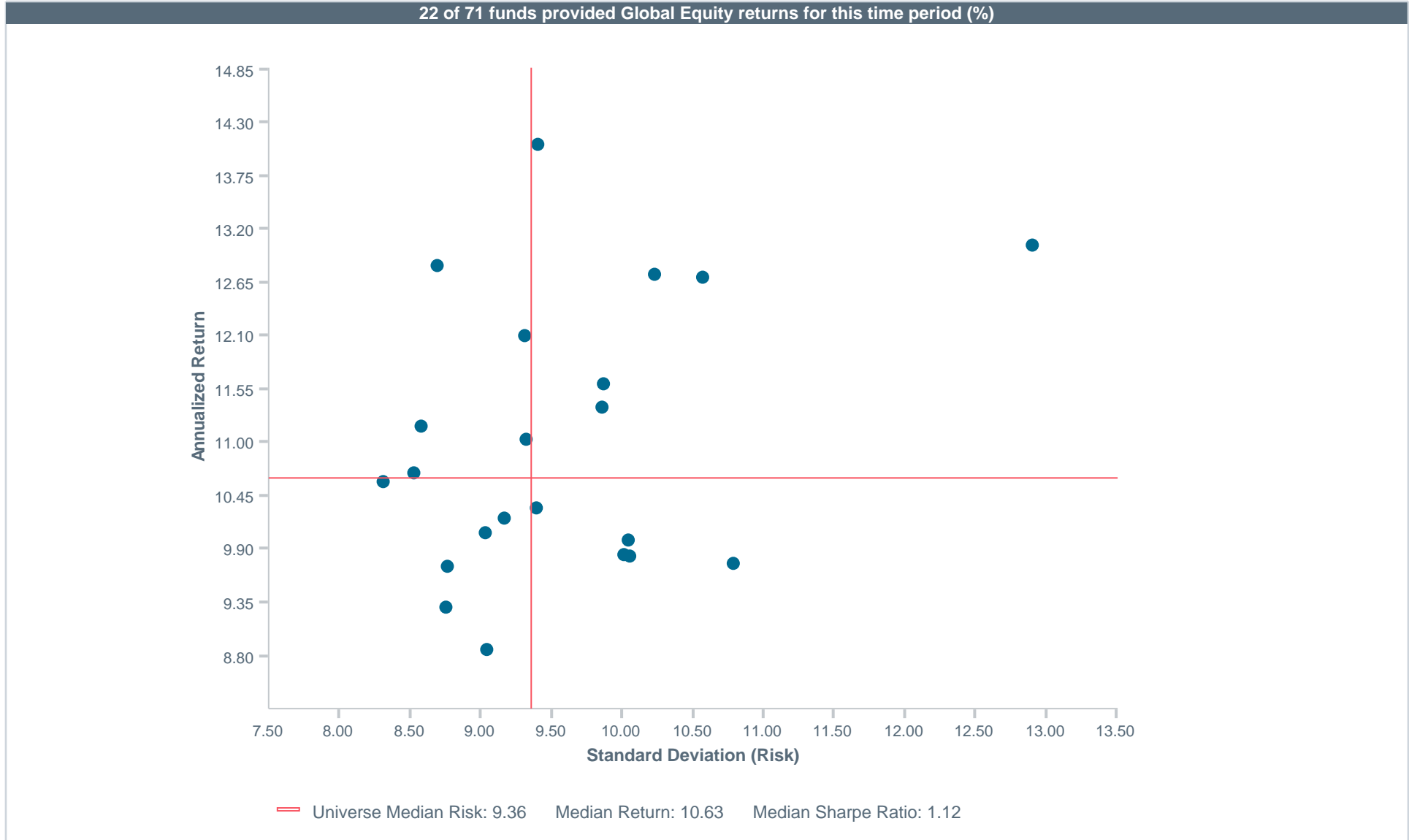


Funds with less history than the specified time period will not appear in the chart.



Risk/Return Analysis

5 Year Annualized Global Equity Returns vs. Standard Deviation

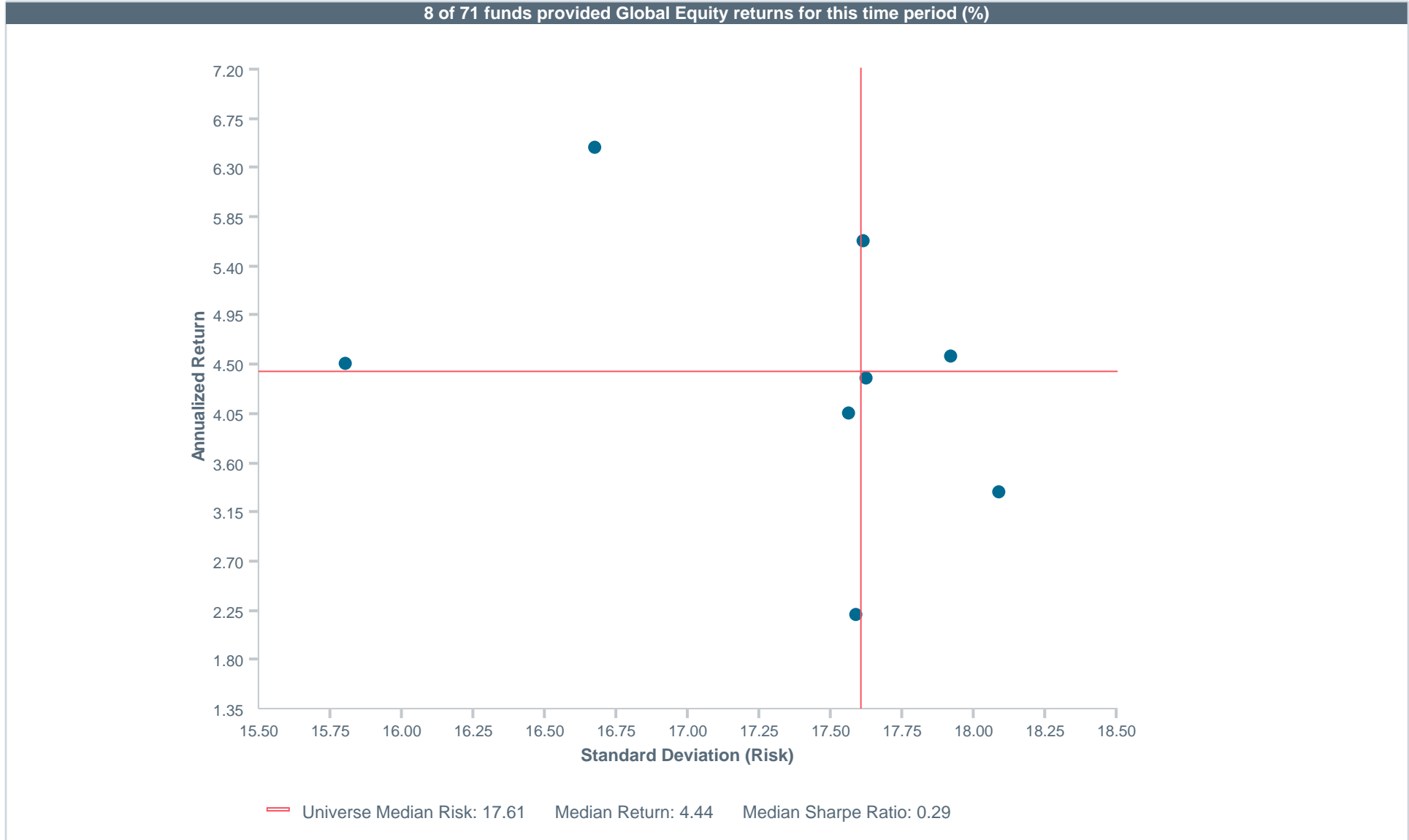


Funds with less history than the specified time period will not appear in the chart.



Risk/Return Analysis

10 Year Annualized Global Equity Returns vs. Standard Deviation



Funds with less history than the specified time period will not appear in the chart.



Risk/Return Analysis

5 Year Annualized US Fixed Income Returns vs. Standard Deviation



Funds with less history than the specified time period will not appear in the chart.



Risk/Return Analysis

10 Year Annualized US Fixed Income Returns vs. Standard Deviation



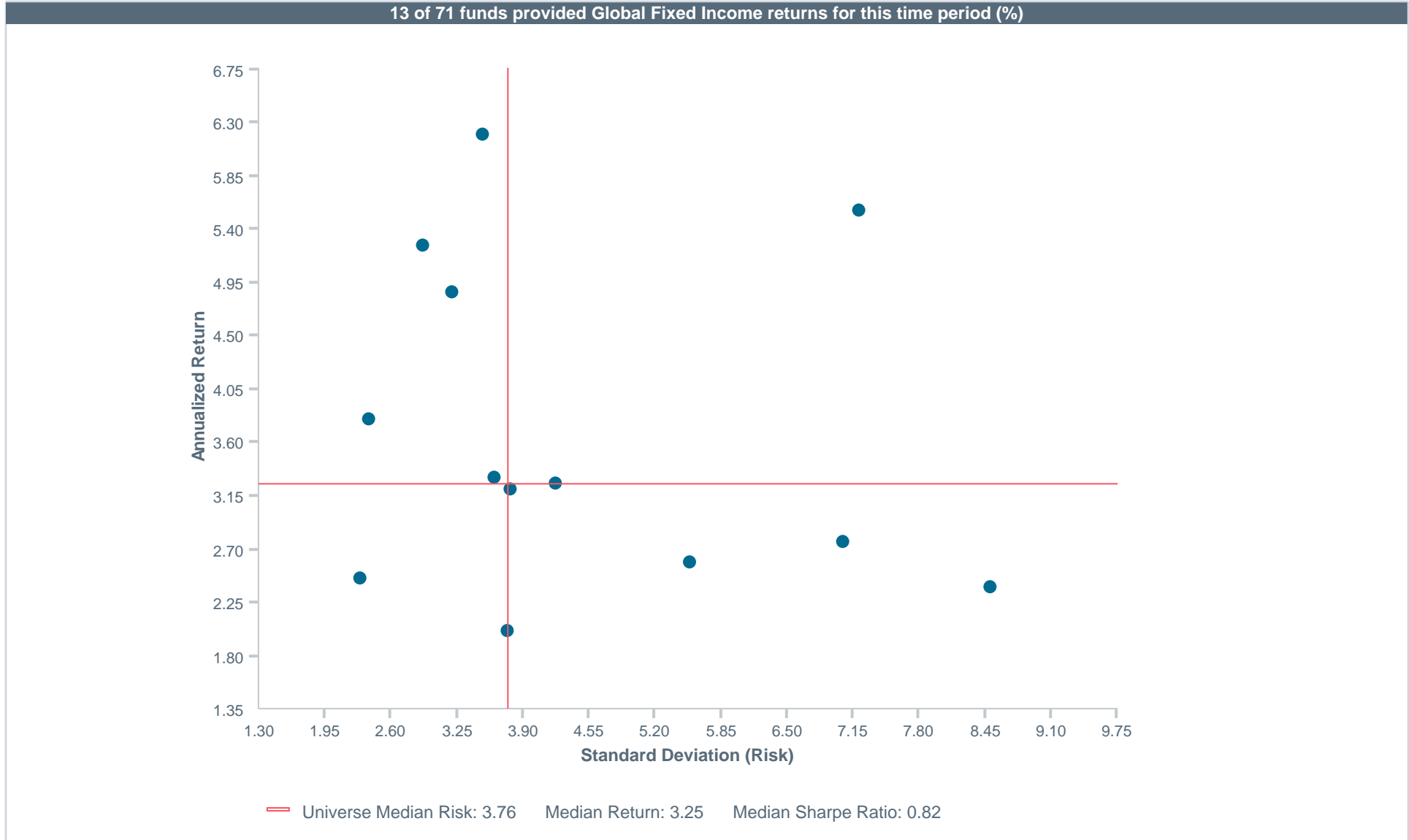
Funds with less history than the specified time period will not appear in the chart.





Risk/Return Analysis

5 Year Annualized Global Fixed Income Returns vs. Standard Deviation



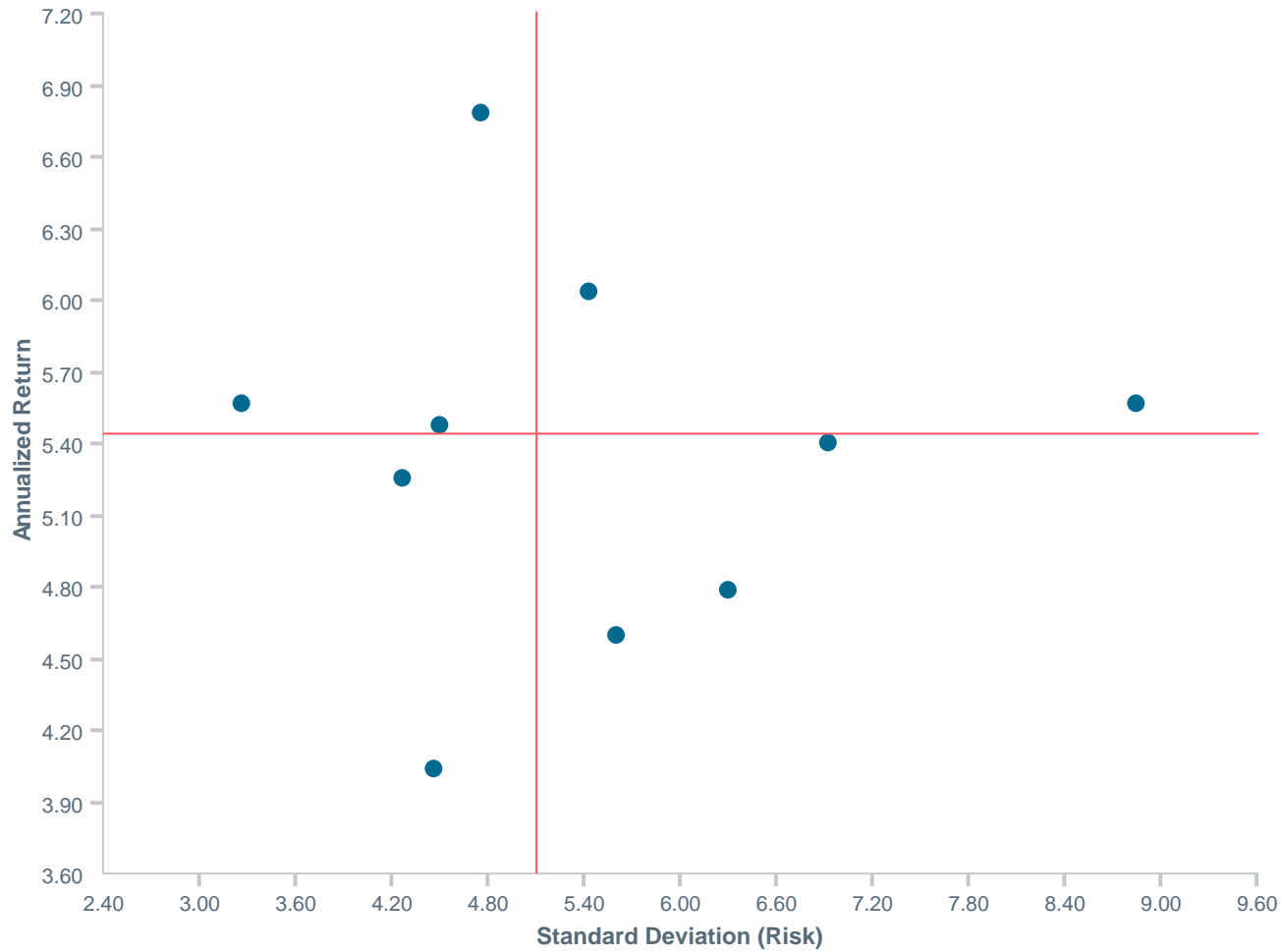
Funds with less history than the specified time period will not appear in the chart.



Risk/Return Analysis

10 Year Annualized Global Fixed Income Returns vs. Standard Deviation

10 of 71 funds provided Global Fixed Income returns for this time period (%)



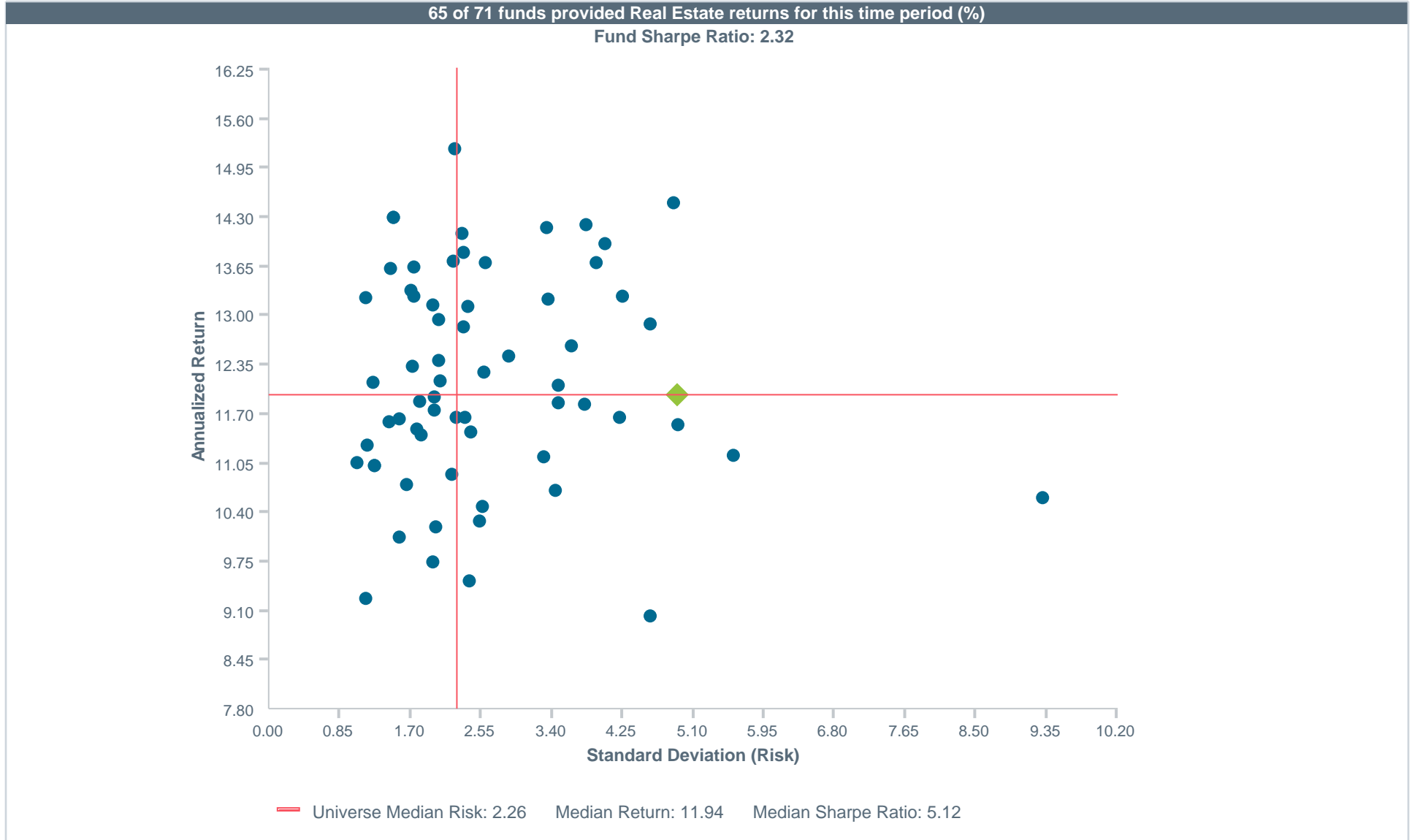
— Universe Median Risk: 5.10    Median Return: 5.44    Median Sharpe Ratio: 0.83

Funds with less history than the specified time period will not appear in the chart.



Risk/Return Analysis

5 Year Annualized Real Estate Returns vs. Standard Deviation

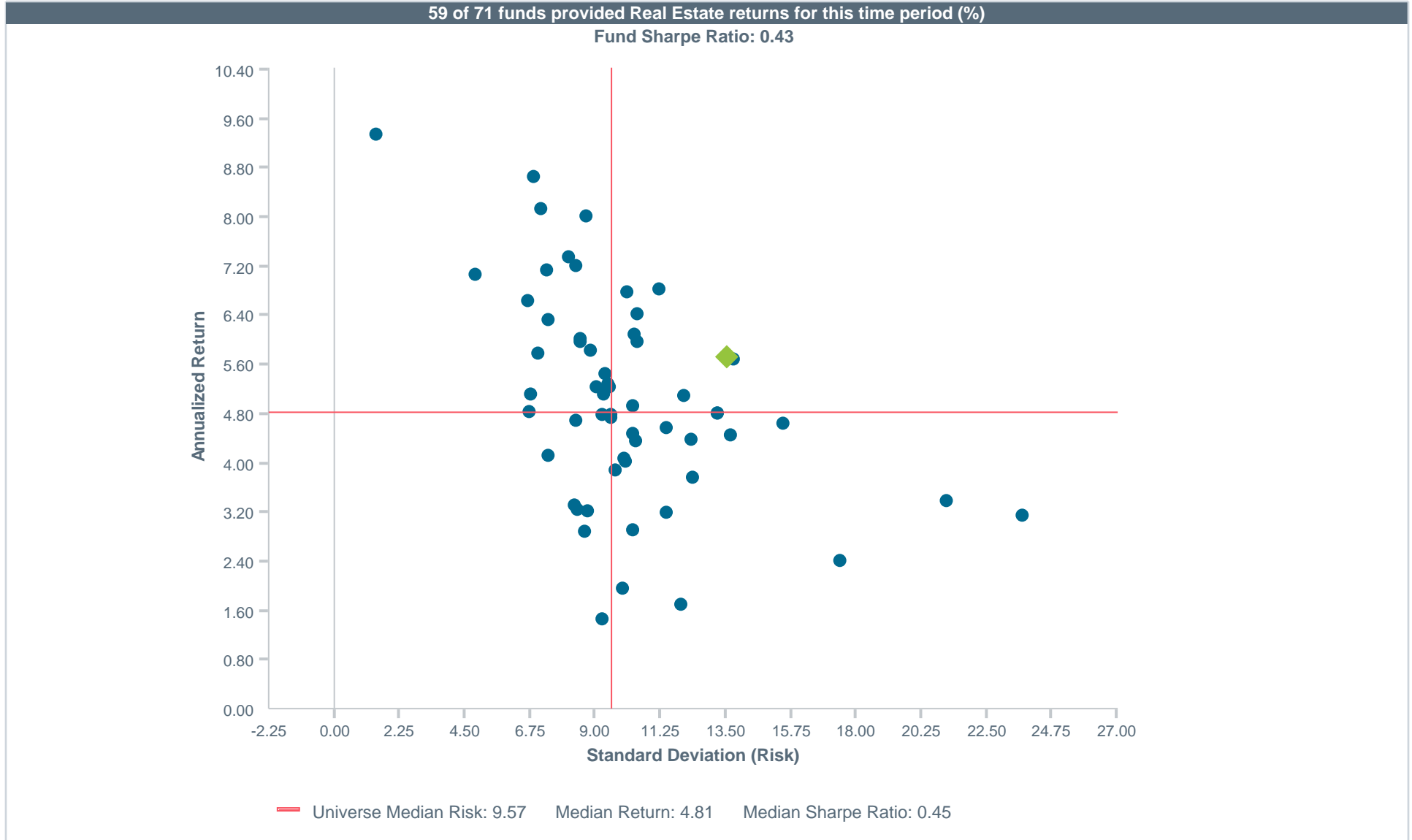


Funds with less history than the specified time period will not appear in the chart.



Risk/Return Analysis

10 Year Annualized Real Estate Returns vs. Standard Deviation

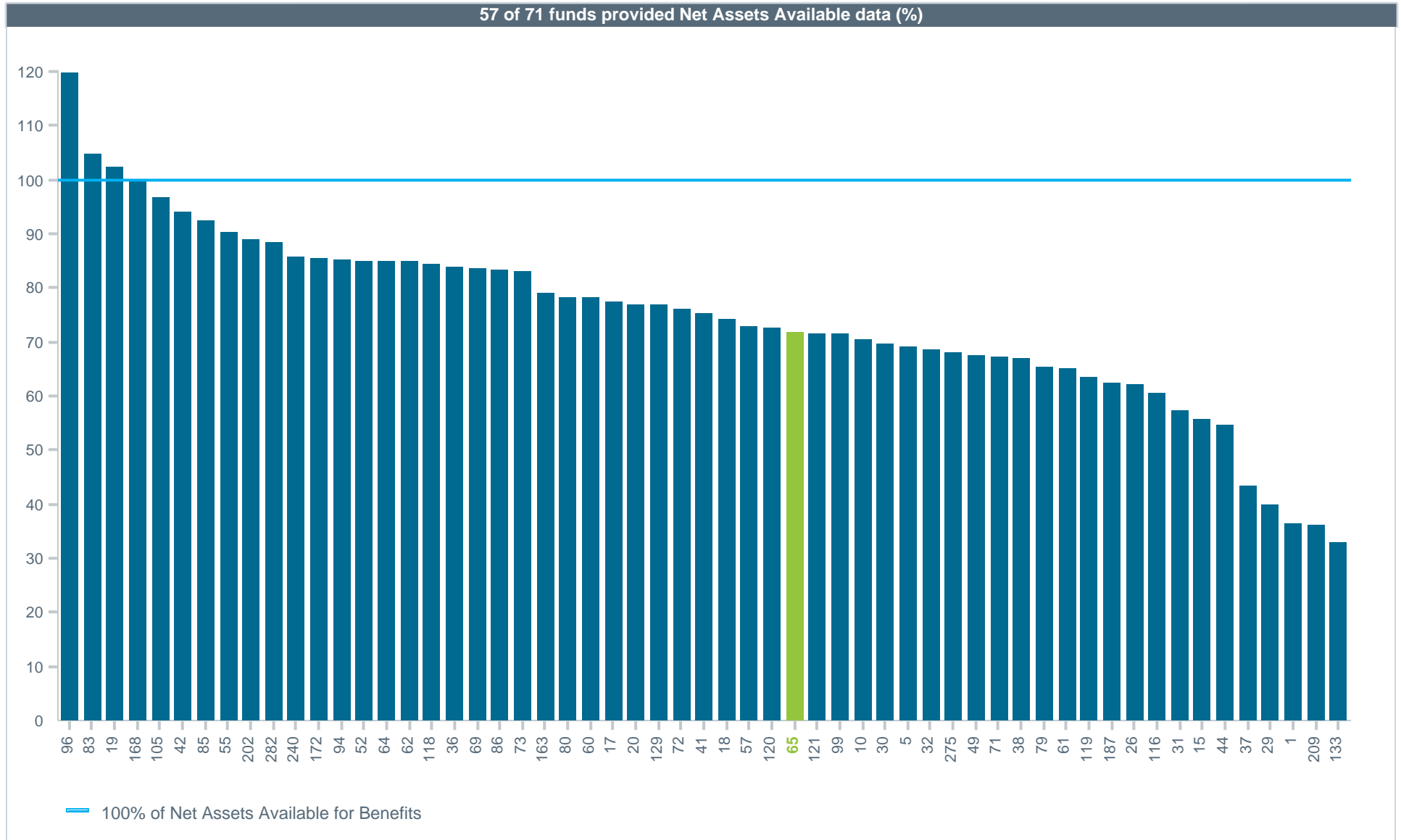


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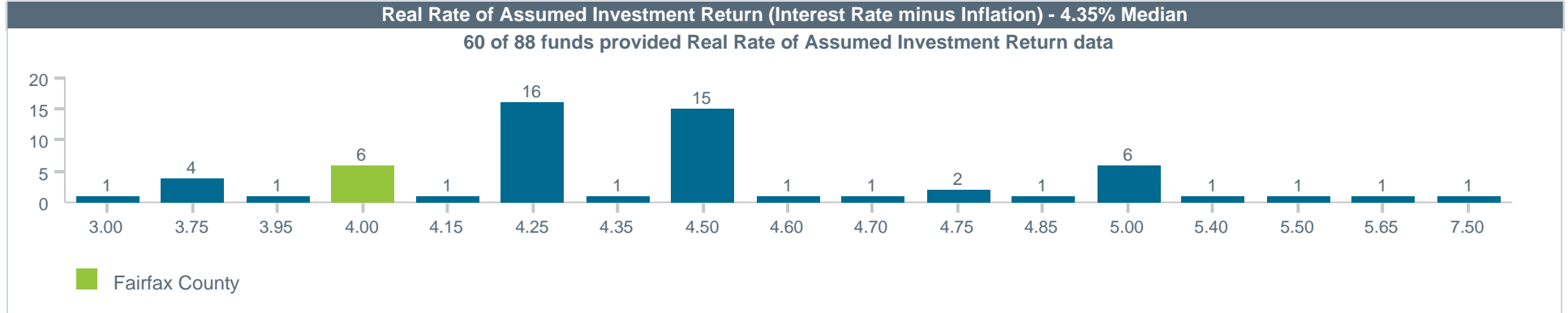
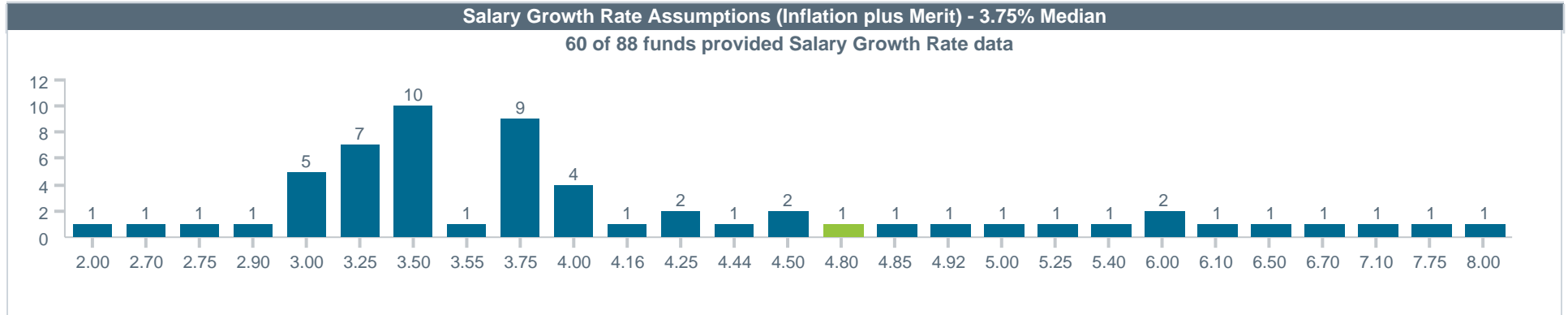
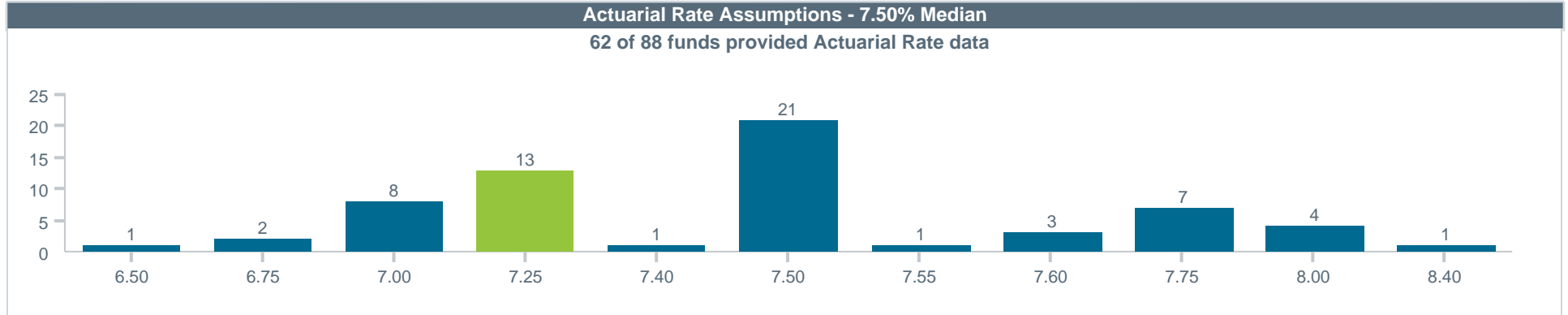
Net Assets Available For Benefits

Expressed as a Percentage of the Pension Benefit Obligation



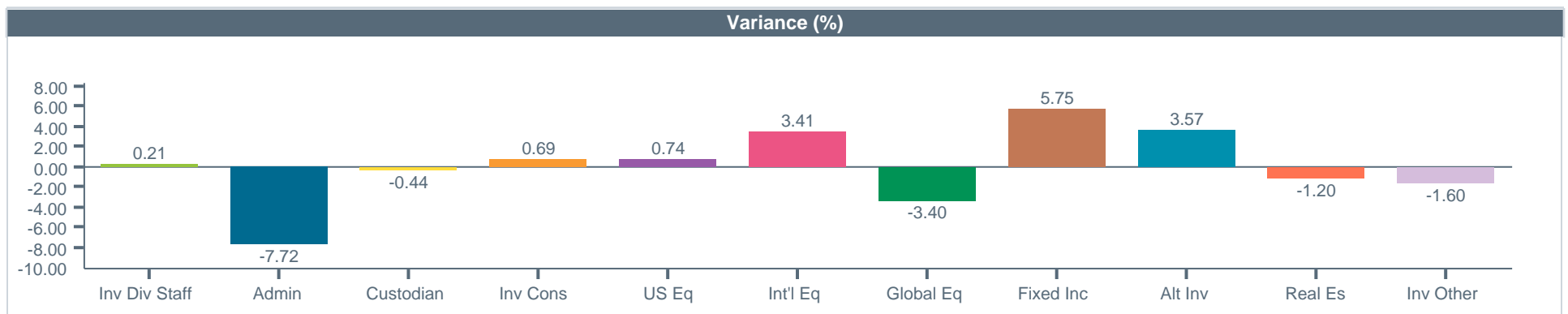
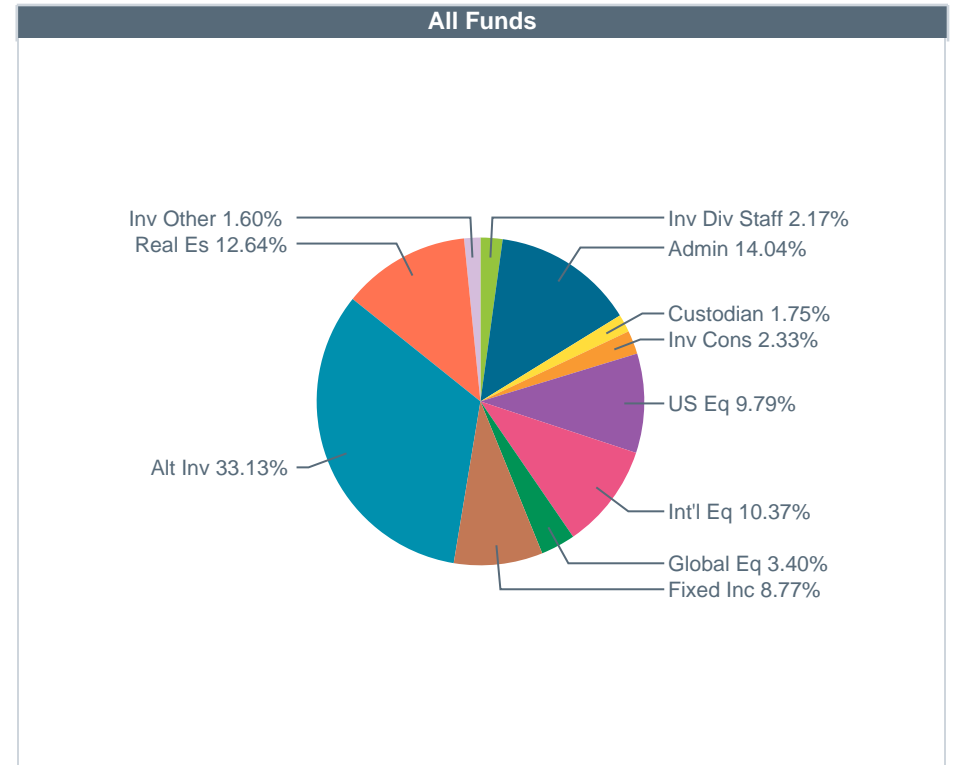
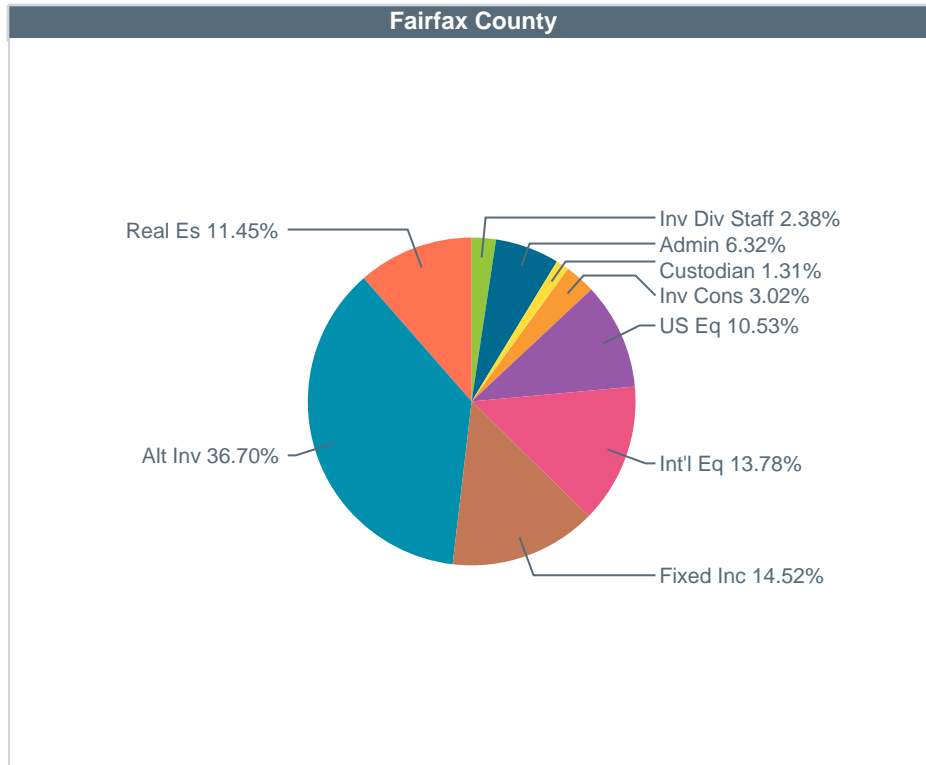
Funds that did not provide data will not appear in the chart.





Funds that did not provide data will not appear in the chart.





Allocations shown may not sum up to 100% exactly due to rounding.



## Total Fund Fee Summary in Basis Points

## Fairfax County vs. Average by Asset Range

55 of 71 funds provided fee data for this time period

Administrative Expenses	Fairfax County	Under \$500 Million	\$500mm - \$1 Billion	\$1 - \$5 Billion	\$5 - \$10 Billion	\$10 - \$20 Billion	Over \$20 Billion
Internal Inv. Div. Staff	1.58	1.12	0.00	0.81	0.91	0.98	2.11
Actuary	0.70	2.75	0.96	0.49	0.36	0.17	0.11
Legal	0.33	0.78	0.96	0.67	0.40	0.21	0.20
Consultant	0.08	0.18	0.24	0.25	0.53	0.07	0.15
Audit	0.34	0.61	0.52	0.20	0.12	0.07	0.06
Other Professional	0.03	0.10	0.47	0.34	0.26	0.35	0.83
General Administrative	2.71	13.22	10.17	7.71	6.45	2.84	2.88
<b>Total Administrative Expenses</b>	<b>5.76</b>	<b>18.76</b>	<b>13.33</b>	<b>10.46</b>	<b>9.02</b>	<b>4.69</b>	<b>6.34</b>
Investment Expenses	Fairfax County	Under \$500 Million	\$500mm - \$1 Billion	\$1 - \$5 Billion	\$5 - \$10 Billion	\$10 - \$20 Billion	Over \$20 Billion
Custodial	0.87	1.71	2.64	1.33	0.57	0.52	0.31
Investment Consulting	2.00	2.49	2.18	2.00	0.74	0.66	0.50
US Equity	6.97	4.18	8.01	7.51	6.51	3.87	2.24
International Equity	9.12	2.04	6.03	7.25	6.10	5.16	3.80
Global Equity	0.00	5.69	2.70	1.60	2.10	1.94	1.12
Fixed Income	9.61	3.97	6.25	5.79	4.72	3.65	3.68
Real Estate	7.58	5.37	7.78	7.83	8.51	5.48	5.46
Other Investment Management	0.00	0.00	0.00	1.08	1.08	0.90	0.81
<b>Total Investment Expenses (ex. Alt Inv)</b>	<b>36.14</b>	<b>25.46</b>	<b>35.59</b>	<b>34.40</b>	<b>30.32</b>	<b>22.19</b>	<b>17.93</b>
Alternative Investments	24.30	7.87	7.15	16.93	20.20	16.03	22.73
<b>Total Investment Expenses</b>	<b>60.44</b>	<b>33.33</b>	<b>42.74</b>	<b>51.33</b>	<b>50.52</b>	<b>38.22</b>	<b>40.66</b>
<b>Total Expenses</b>	<b>66.20</b>	<b>52.09</b>	<b>56.07</b>	<b>61.79</b>	<b>59.54</b>	<b>42.91</b>	<b>47.00</b>

Expressed in basis points on total fund assets. Funds that did not provide fee data will not appear in the table.





## GIPS Compliance Survey Summary

**Q1. Are you currently claiming compliance or considering compliance with the CFA Institute's Guidance Statement on the Application of the Global Investment Performance Standards (GIPS) to Asset Owners, effective January 1, 2015?**

Of the 71 participants in the 2016Q4 Public Fund Report, 53 participants provided a reply to the GIPS Compliance Survey. Of those participants, 6 answered "Yes, Currently Comply", 3 answered "Yes, Considering", and 44 answered "Not Considering".

**Q2. According to the GIPS standards, asset owner net of fees performance must reflect internal as well as external investment costs, and such net of all fee performance is required to be calculated and presented to fund oversight committees/Boards. Please identify which, if any, of the following costs you are currently including or will consider including in net performance that is in compliance with the GIPS standards.**

	<u>Currently Include</u>	<u>Considering</u>	<u>Not Considering</u>	<u>Unsure at this Time</u>
• Internal investment department compensation/benefits	6	1	2	2
• Allocation of non-investment department expenses (human resources, communications, technology, performance measurement, and compliance to support internal management team)	6	1	2	2
• Investment research services (100% or pro-rata determination)	5	0	2	4
• Investment consulting fees (general investment consulting and project fees; 100% or pro-rata determination)	7	0	2	2
• Pro-rata data valuation fees	3	1	2	5
• Pro-rata overhead indirectly related to asset management (building and utilities fees to support internal management team)	4	1	2	3

**Miscellaneous Comments**

- Performance shown is gross of fees, with the exception of the following:
  - **Funds 31, 49, 350, and 351:** Performance shown is net of fees.
  - **Funds 5 and 20:** Performance shown is net of fees, except for Total Fund performance.
  - **Fund 85:** Performance shown for Real Estate is net of fees.
- Performance shown is calculated using quarterly performance provided by participating public funds.
- Performance shown may differ from a fund's actual performance due to rounding.
- Net Assets Available for Benefit includes funding percentage valuation as of dates between December 2015 and December 2016.
- Allocations shown reflect dedicated managers/mandates rather than actual exposure, with the exception of the following:
  - **Funds 1, 29, and 119:** Performance shown for Global Fixed Income includes US and Non-US exposure.
  - **Funds 4, 42, and 64:** Performance shown for US Fixed Income includes US and Non-US exposure.

**Glossary of Terms**

**Beta** - A measure of the sensitivity of a portfolio to the movements in the market. It is a measure of a portfolio's non-diversifiable or systematic risk.

**Return** - Compounded rate of return for the period.

**% Return** - The time-weighted rate of return of a portfolio for a given period.

**Sharpe Ratio** - Represents the excess rate of return over the risk-free return (i.e., BofA ML 3 Mo US T-Bill Index unless specified otherwise), divided by the standard deviation of the excess return to the risk free asset. The result is the absolute rate of return per unit of risk. The higher the value, the better the product's historical risk-adjusted performance.

**Standard Deviation** - A statistical measure of the range of a portfolio's performance. The variability of a return around its average return over a specified time period. Calculation is based on quarterly periodicity.

PORTLAND

CHICAGO

NEW YORK

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