



# Public Fund Universe Analysis

## Mendocino County Employees' Retirement Association

Period Ending June 30, 2018  
Fund Number: 49



# RVK Honored to Receive *Greenwich Quality Leader Award*

- **Greenwich Associates\*** conducted interviews with over 1,000 senior professionals of large plan sponsors and ranked opinions of their investment consulting relationships on a series of key metrics, including, but not limited to:
  - Understanding Clients' Goals and Objectives
  - Advice on Long-term Asset Allocation
  - Proactive Advice and Innovative Ideas
  - Credibility with the Board and/or Investment Committee
  - Knowledge of Investment Managers
  - Advice on DC Plan Structure and Design
  - Client Satisfaction with Manager Recommendations
  - Responsiveness to Client Requests and Needs
  - Competitive Fees
- **RVK is grateful to be 1 of 3 firms among large US consultants to receive this award for 2017**



**As a valued client, we are humbled by your continued confidence and thankful for your support.  
From all of us here at RVK, thank you for the opportunity to serve you!**

\*Greenwich Associates is the leading provider of global market intelligence and advisory services to the financial services industry. They conduct an annual survey to institutional investors whereby approx. 1,200 respondents rank their respective investment consulting relationships on key metrics on a scale from 1 (poor) to 5 (excellent). The award is based upon Greenwich Associates' 2017 US Institutional Investors study.

## OVERVIEW

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. In May 2018, RVK received a Greenwich *Quality Leader Award*, demonstrating our high level of client service.

## MISSION STATEMENT

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

## STRATEGIC INVESTMENT ADVICE WITH NO CONFLICTS OF INTEREST

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 are in control of our business policy, providing firm stability for 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



### **RVK BY THE NUMBERS**

- **30+** years of business
- **3** offices - Portland, Chicago, New York
- **\$900+** billion Full-Retainer AUA
- **90+** Investment Professionals
- **60+** 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**



Alameda County Employees' Retirement Association  
 Arlington County Employees' Retirement System  
 Chicago Teachers' Pension Fund  
 City of Fresno Retirement Systems  
 City of Plano Other Post-Employment Benefits Trust  
 Civilian Employees' Retirement System of the Police Department of Kansas City, Missouri  
 Confederated Tribes of the Warm Springs Tribal Council Pension Fund  
 County Employees' Annuity & Benefit Fund of Cook County  
 Employees Retirement System of Texas  
 Fire and Police Pension Association of Colorado  
 Fresno County Employees' Retirement Association  
 Gila River Indian Community Retirement Plan  
 Imperial County Employees' Retirement System  
 Kansas City, Missouri Employees' Retirement System  
 Kern County Employees' Retirement Association  
 Los Angeles County Employees Retirement Association  
 Los Angeles Water & Power Employees Retirement Plan  
**Mendocino County Employees' Retirement Association (Fund No. 49)**  
 Montana Public Employees' Retirement System  
 Municipal Employees' Annuity and Benefit Fund of Chicago  
 Nevada Public Employees' Retirement System  
 Newport News Employees' Retirement Fund  
 Ohio Public Employees' Retirement System  
 Pennsylvania Public School Employees' Retirement System  
 Police Retirement System of Kansas City, Missouri  
 Public School and Education ERS of Missouri  
 San Bernardino County Employees' Retirement Association  
 San Diego County Employees Retirement Association  
 San Mateo County Employees' Retirement Association

Anchorage Police & Fire Retirement System  
 California State Teachers' Retirement System  
 City of Austin Employees' Retirement System  
 City of Milwaukee Employees' Retirement System  
 City of Plano Retirement Security Plan  
 Colorado Public Employees' Retirement Association  
 Contra Costa County Employees' Retirement Association  
 District of Columbia Retirement Board  
 Fire & Police Employees' Retirement System of Baltimore  
 Fort Worth Employees' Retirement Fund  
 Georgia Division of Investment Services  
 Illinois Municipal Retirement Fund  
 Iowa Public Employees' Retirement System  
 Kansas Public Employees' Retirement System  
 Los Angeles City Employees' Retirement System  
 Los Angeles Fire and Police Pension System  
 Marin County Employees' Retirement Association  
 Merced County Employees' Retirement Association  
 Montana Teachers' Retirement System  
 Municipality of Anchorage Pre-Funding Program  
 New York State Common Retirement Fund  
 North Carolina Retirement System  
 Orange County Employees' Retirement System  
 Pennsylvania State Employees' Retirement System  
 Public Employees Retirement Association of New Mexico  
 Sacramento County Employees' Retirement System  
 San Diego City Employees' Retirement System  
 San Diego Transit Corporation Employees Retirement

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Sonoma County Employees' Retirement Association  
Spokane Employees' Retirement System  
State of Michigan Retirement Systems  
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

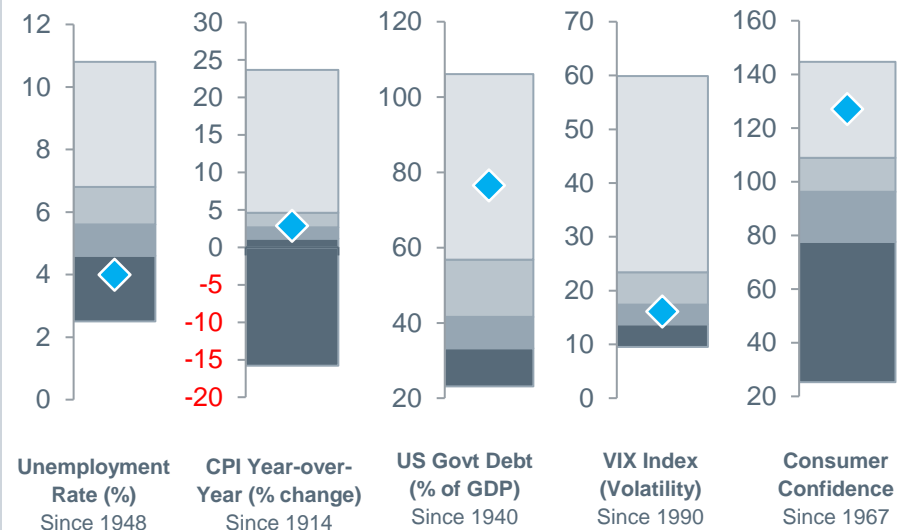
Santa Barbara County Employees' Retirement System  
South Dakota Retirement System  
Stanislaus County Employees' Retirement Association  
State of New Jersey Pension Fund  
State Universities Retirement System of Illinois  
Teachers' Retirement System of the State of Illinois  
The Navajo Nation Retirement Plan  
Ventura County Employees' Retirement Association  
West Virginia Investment Management Board

## Second Quarter Economic Environment

## Key Economic Indicators

The US dollar strengthened significantly relative to a trade weighted basket of currencies during the second quarter of 2018, reversing a trend of weakening that began over a year earlier. This tightening dollar liquidity environment and the escalating trade tensions between the United States and its global trading partners put significant pressure on non-US assets. Economic data released during the quarter continue to indicate a strong economic expansion in the United States. According to the Bureau of Economic Analysis, first quarter GDP grew at an annual rate of 2.0%. The heightened equity market volatility that characterized the first quarter of 2018 softened to a degree during Q2, as the S&P 500 produced three straight months of positive returns. Despite what appear to be relatively tight labor market conditions, wage growth has remained subdued. With this backdrop, the Federal Open Market Committee raised the Federal Funds rate to a range between 1.75% and 2.00% during its June meeting. The continued robust US economic activity also flowed through to heightened expectations for additional interest rate increases.

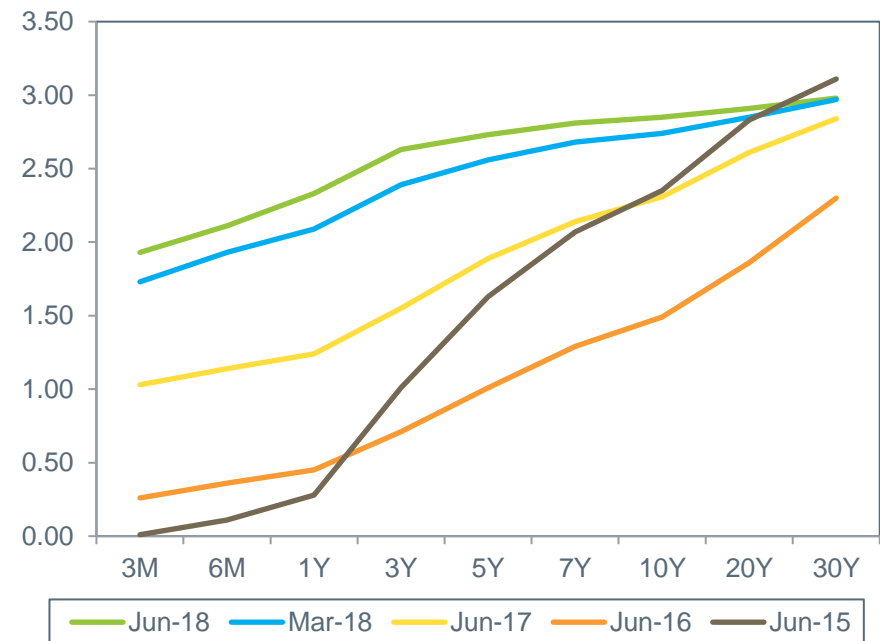
## Key Economic Indicators



Economic Indicators	Jun-18	Mar-18	Jun-17	Jun-15	20 Yr
Federal Funds Rate (%)	1.91 ▲	1.68	1.06	0.08	2.02
Breakeven Infl. - 1 Yr (%)	1.42 ▼	2.23	0.72	0.73	N/A
Breakeven Infl. - 10 Yr (%)	2.13 ▲	2.06	1.74	1.89	N/A
CPI YoY (Headline) (%)	2.9 ▲	2.4	1.6	0.1	2.2
Unemployment Rate (%)	4.0 ▼	4.1	4.3	5.3	5.9
Real GDP YoY (%)	2.9 ▲	2.6	2.1	3.4	2.3
PMI - Manufacturing	60.2 ▲	59.3	56.7	52.3	52.5
USD Total Wtd Idx	89.97 ▲	86.37	90.49	89.82	86.45
WTI Crude Oil per Barrel (\$)	74.2 ▲	64.9	46.0	59.5	58.8
Gold Spot per Oz (\$)	1,253 ▼	1,326	1,242	1,172	856

Market Performance (%)	QTD	CYTD	1 Yr	5 Yr	10 Yr
S&P 500 (Cap Wtd)	3.43	2.65	14.37	13.42	10.17
Russell 2000	7.75	7.66	17.57	12.46	10.60
MSCI EAFE (Net)	-1.24	-2.75	6.84	6.44	2.84
MSCI EAFE SC (Net)	-1.57	-1.33	12.45	11.32	6.81
MSCI Emg Mkts (Net)	-7.96	-6.66	8.20	5.01	2.26
Bloomberg US Agg Bond	-0.16	-1.62	-0.40	2.27	3.72
ICE BofAML 3 Mo US T-Bill	0.45	0.81	1.36	0.42	0.35
NCREIF ODCE (Gross)	2.05	4.30	8.44	11.04	5.29
Wilshire US REIT	9.73	1.52	3.88	8.42	7.81
HFRI FOF Comp	0.41	0.68	5.13	3.45	1.40
Bloomberg Cmdty (TR)	0.40	0.00	7.35	-6.40	-9.04

## Treasury Yield Curve (%)



## Second Quarter Review

## Broad Market

US equity markets delivered positive results across all market caps and styles for the quarter. The S&P 500 Index returned 3.4%, buoyed by strong performance in the energy sector as oil prices continued to rise throughout the quarter. Continuing a first quarter trend, technology and consumer discretionary sectors drove market performance as the S&P 500 Technology and Consumer Discretionary Indices returned 7.1% and 8.2%, respectively.

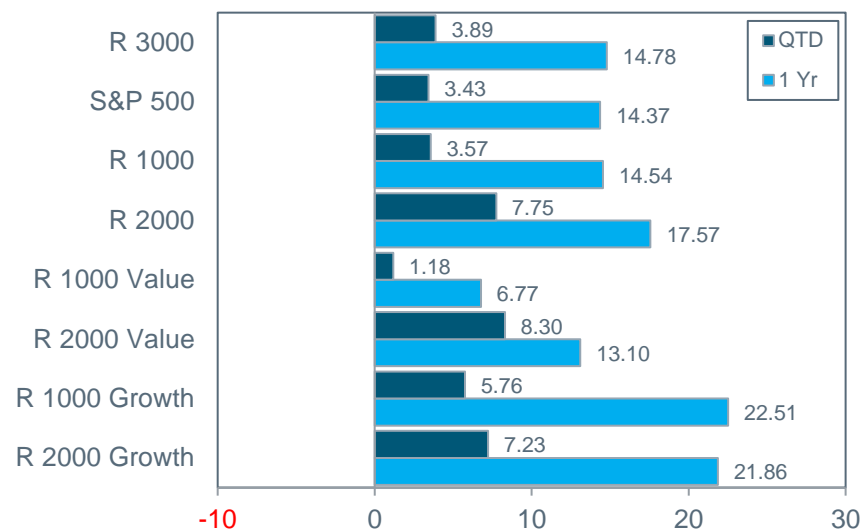
## Market Cap

Increasing global trade tension pushed investors toward the more domestically-oriented small and micro cap segments of US equity markets and away from larger cap, multinational companies.

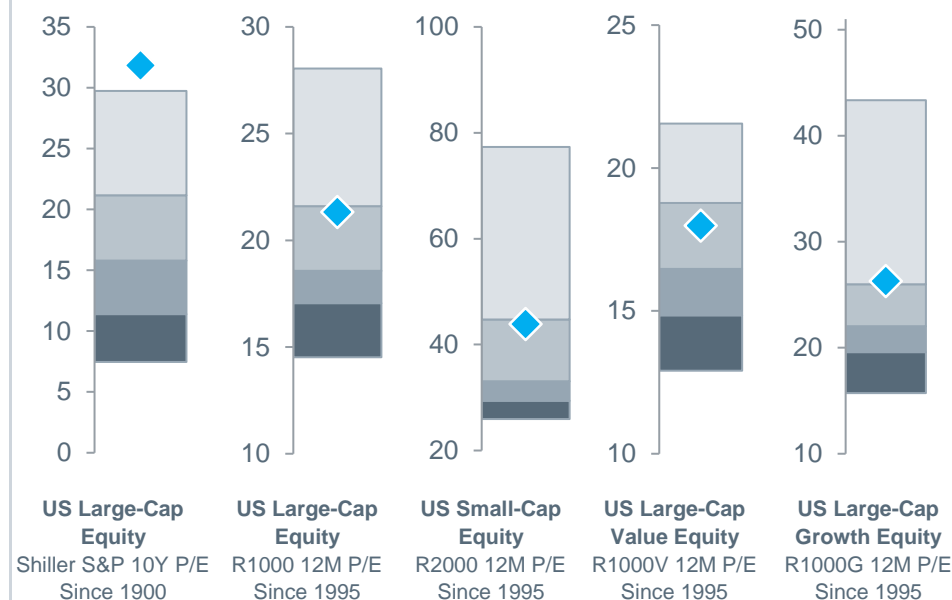
## Style and Sector

Active large cap growth and value managers generally fared well as secular growth trends and continued strong corporate earnings provided a positive stock-picking environment.

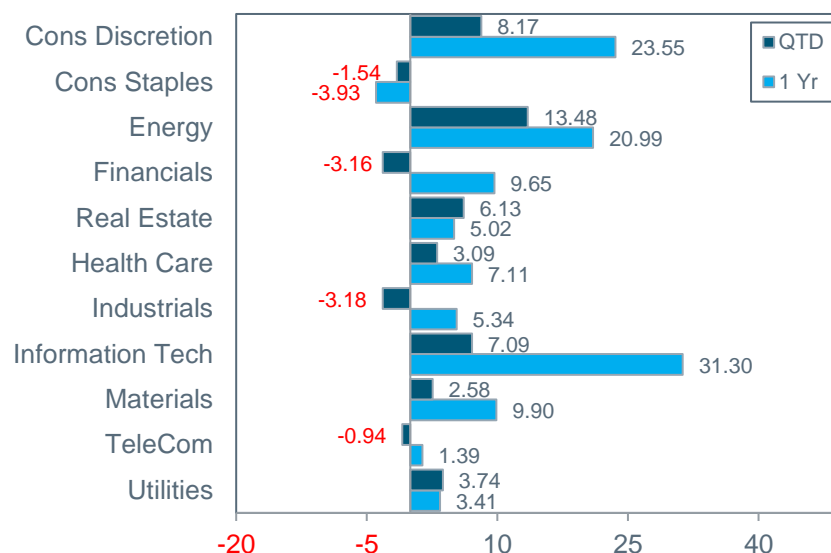
## Style and Capitalization Market Performance (%)



## Valuations



## S&amp;P 500 Index Sector Performance (%)



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.



## Second Quarter Review

## Developed Markets

The tightening dollar liquidity environment and the escalating trade tensions between the US and its global trading partners put significant pressure on non-US assets. Emerging market equities fell 7.96% during the quarter. Developed international equities also declined, further exacerbating losses experienced in Q1.

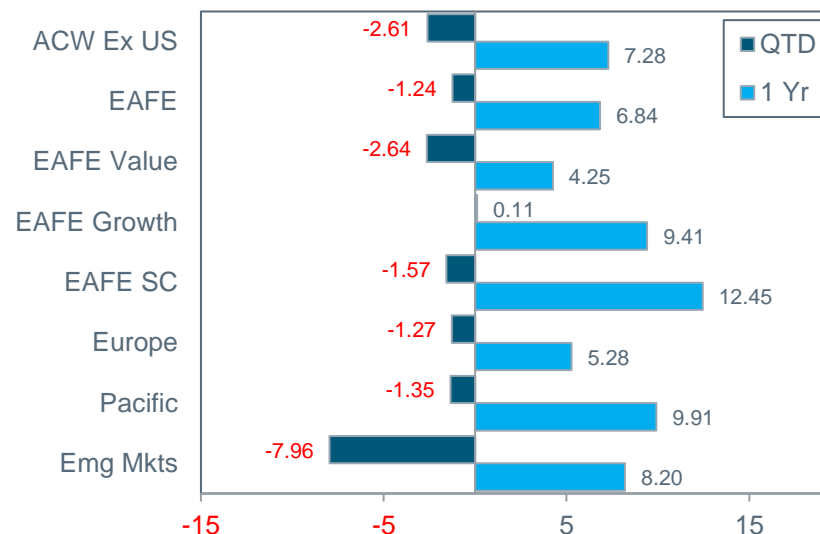
## Emerging Markets

Emerging markets had a challenging quarter, making it by far the worst performing equity class this year. The MSCI Emerging Markets Index trailed the MSCI EAFE Index by 672 basis points during the quarter.

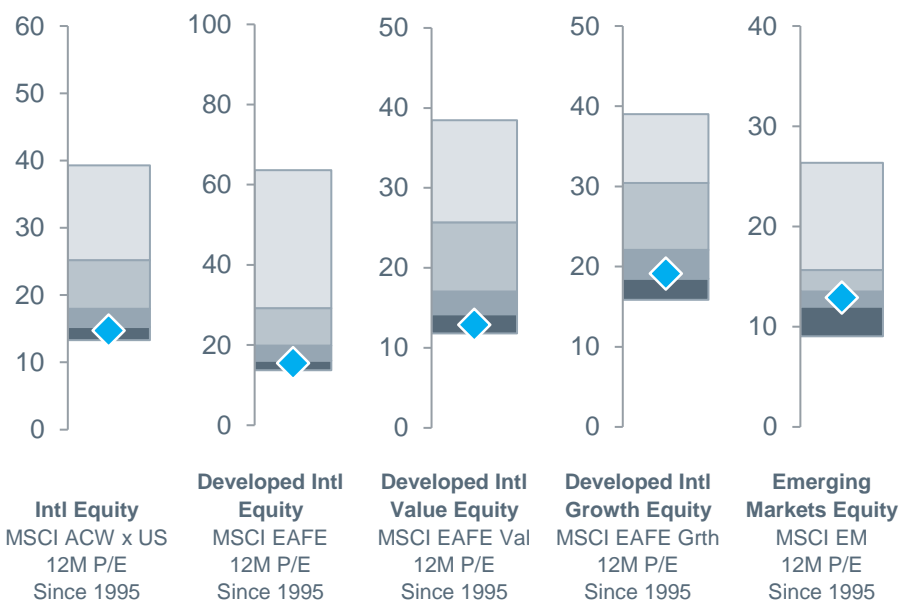
## Market Cap &amp; Style

While developed international growth stocks were slightly positive, value stocks brought down the overall market during the quarter. Small cap stocks fared worse than large cap stocks. Emerging markets growth stocks outperformed value stocks and large cap stocks outperformed small cap stocks.

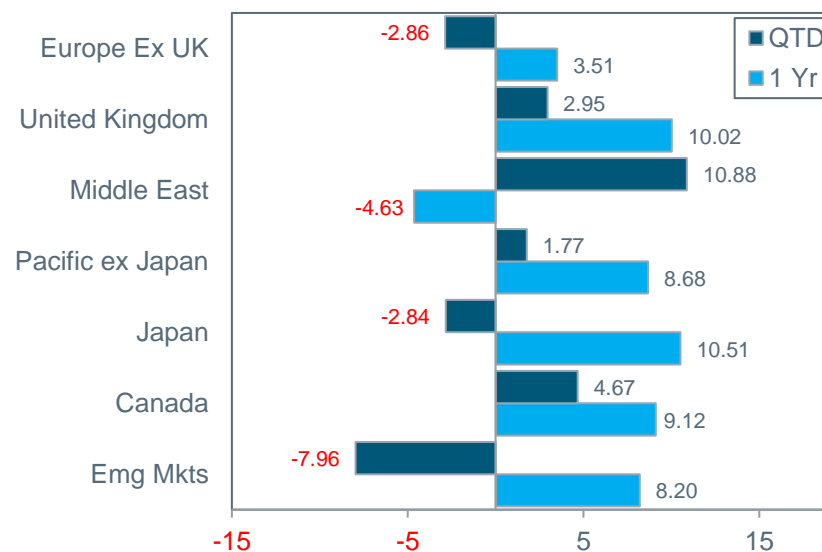
## MSCI Style and Capitalization Market Performance (%)



## Valuations



## MSCI Region Performance (%)



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.

## Second Quarter Review

## Broad Market

The Federal Open Market Committee raised the Federal Funds rate to a range between 1.75% and 2.00% during its June meeting. The Bloomberg Barclays US Aggregate Bond Index posted a return of -0.16% as interest rates slightly increased and the Treasury yield curve flattened during the quarter.

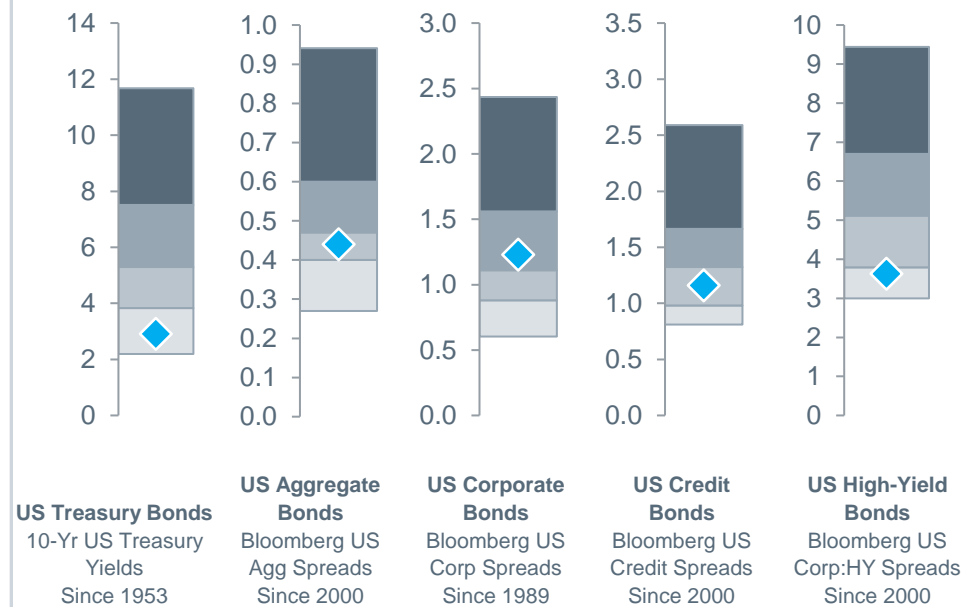
## Credit Market

The option-adjusted spread on investment grade corporate bonds increased from 1.17% to 1.30%. The Bloomberg Barclays US Corporate Credit returned -0.98% for the quarter and underperformed the Bloomberg Barclays Corporate High Yield Index which returned 1.03%.

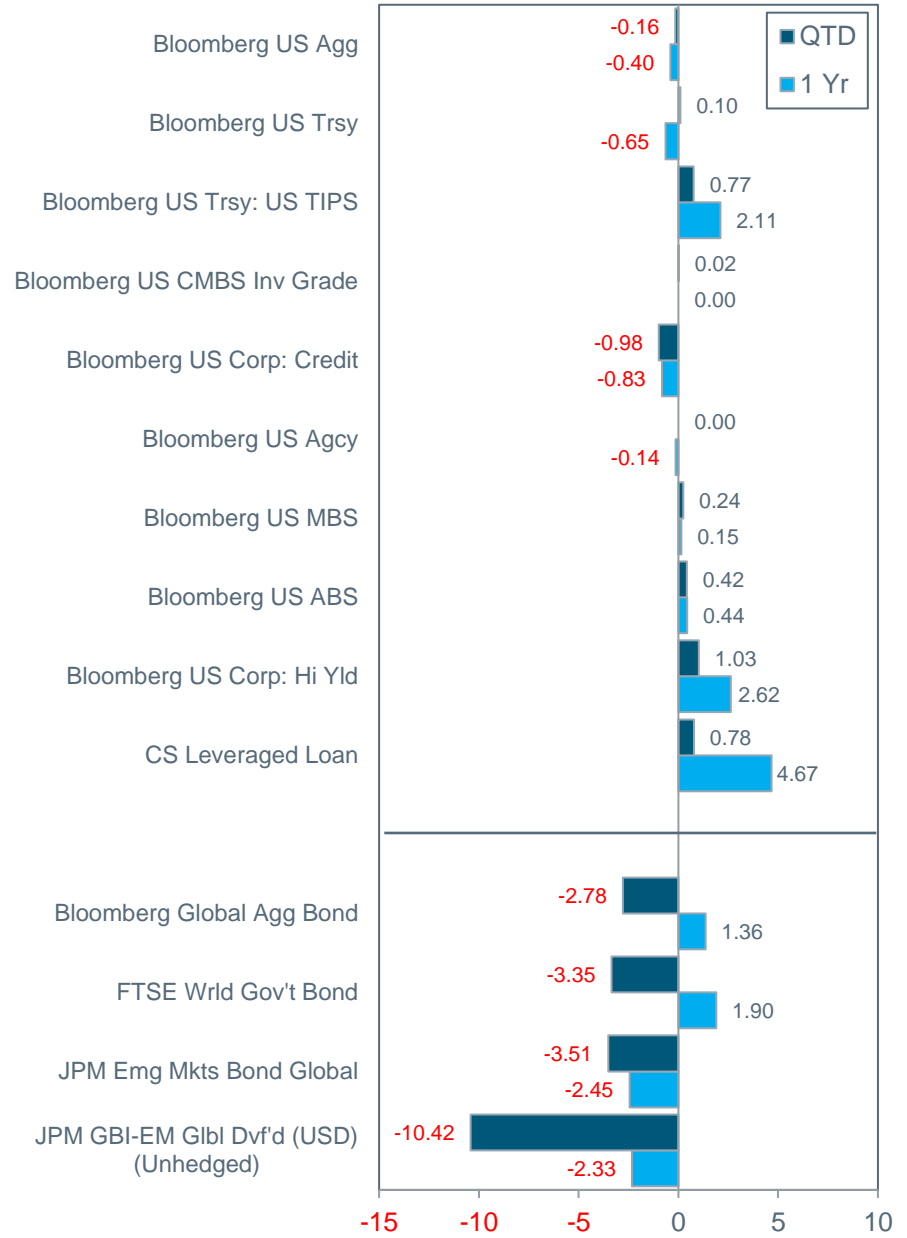
## Emerging Market Debt

The JP Morgan GBI-EM Global Diversified Index returned -10.42% for the quarter. Strengthening of the US dollar, turmoil in Turkey and Argentina, and escalating trade wars are all factors leading to a large loss in emerging market debt.

## 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.

### Second Quarter Review - Absolute Return

#### General Market - Hedge Funds

Hedge funds produced marginally positive returns during the second quarter, building on the gains realized in Q1. Most FoHF managers have lowered net exposures and rotated away from traditional strategies such as long/short equity in favor of more diversifying exposures. Managers that have significant systematic macro or managed futures exposure have suffered as those strategies remain largely negative year-to-date.

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

GTAA managers mostly provided negative returns in the second quarter and most dramatically underperformed a static, US-centric 60/40 portfolio of stocks and bonds. Globally-oriented managers that rely on fundamental value based investment processes have increasingly allocated to emerging markets exposures, which are believed to be undervalued across asset classes. This positioning was a significant detractor during the quarter, as strong gains in the US dollar resulted in added pressure to certain emerging economies, leading to a difficult quarter for emerging markets equities and currencies.

### Second Quarter Review - Real Assets

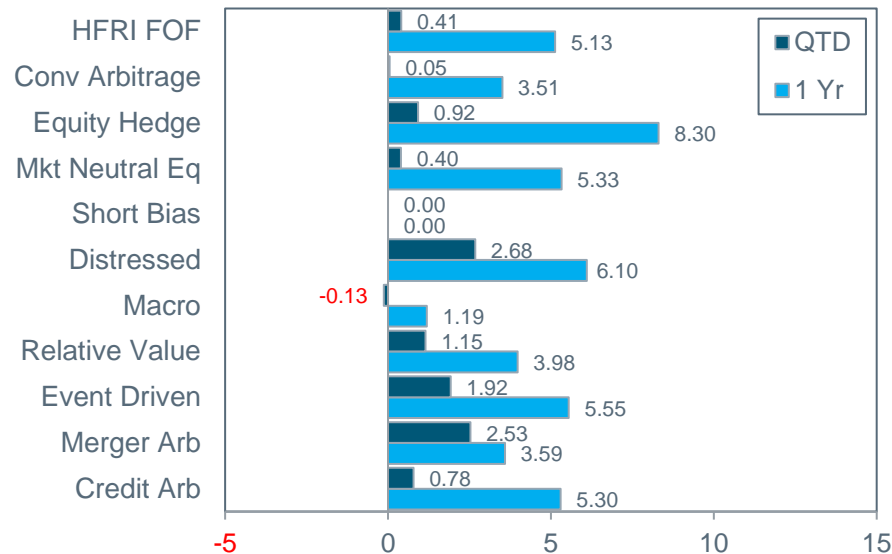
#### General Market - Diversified Inflation Strategies (DIS)

DIS portfolios mostly provided strong returns in Q2 as inflationary pressures persisted. Headline CPI increased to 2.90% YoY, and the spot price for West Texas Intermediate crude oil rose nearly 14% to \$74 per barrel over the quarter. In response, most other inflation-sensitive asset classes provided strong performance led by asset classes such as US REITs, energy related exposures in commodities, natural resources equities, MLPs, and global listed infrastructure.

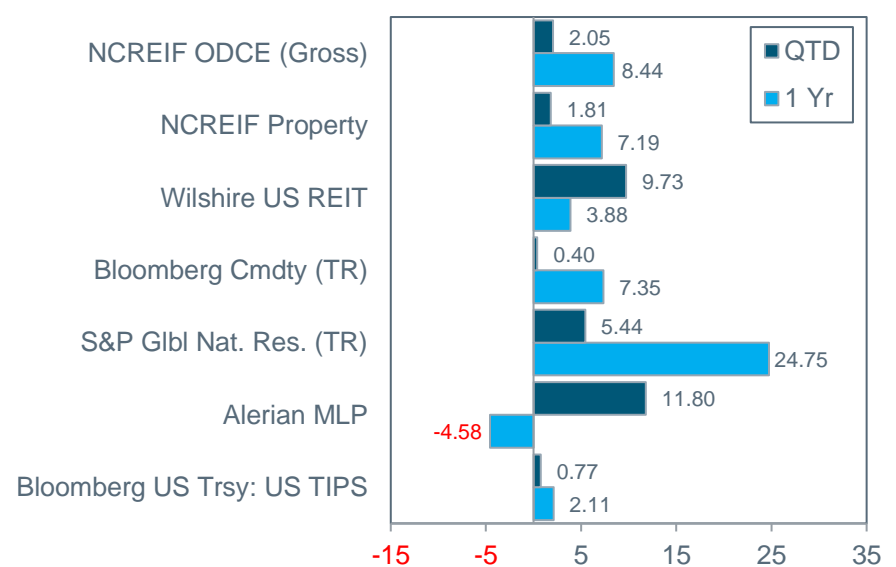
#### General Market - Real Estate

The core private real estate index, NCREIF-ODCE, returned 2.1% during Q2, with income and appreciation returns being about equal. This represented a slight decrease compared to last quarter's appreciation component of total return. Real estate valuations remain elevated, supported by continued strength in the overall economy with increases from personal consumption and business investment. The potential for increased discretionary spending by consumers due to the recent tax reform provides additional support for current valuations.

### HFRI Hedge Fund Performance (%)



### Real Asset Performance (%)

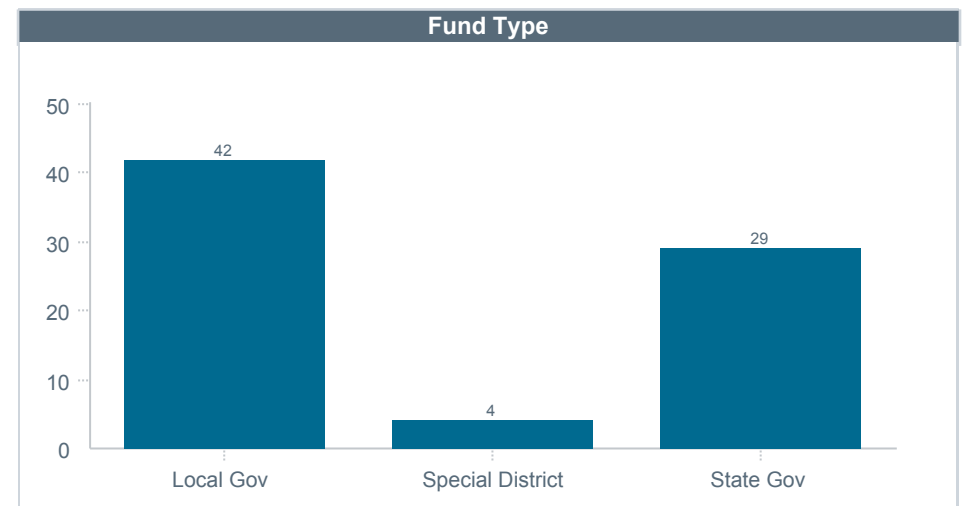
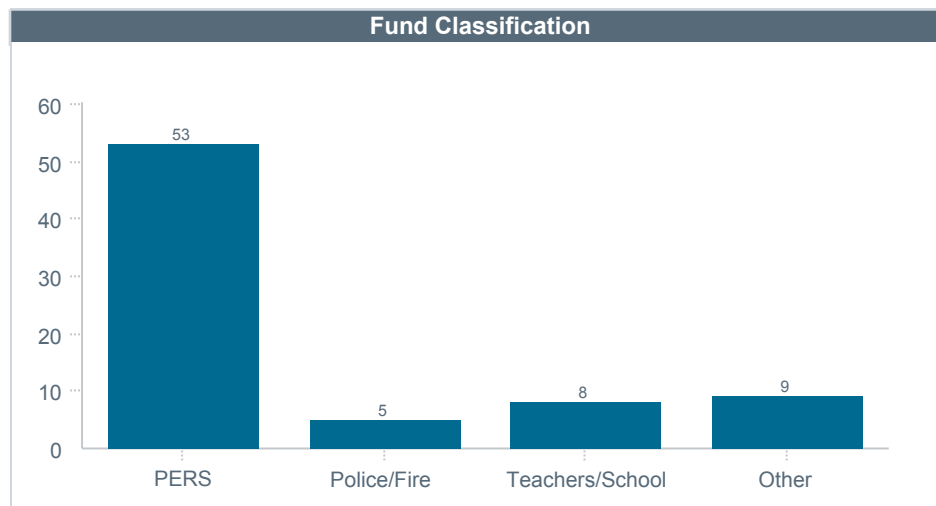
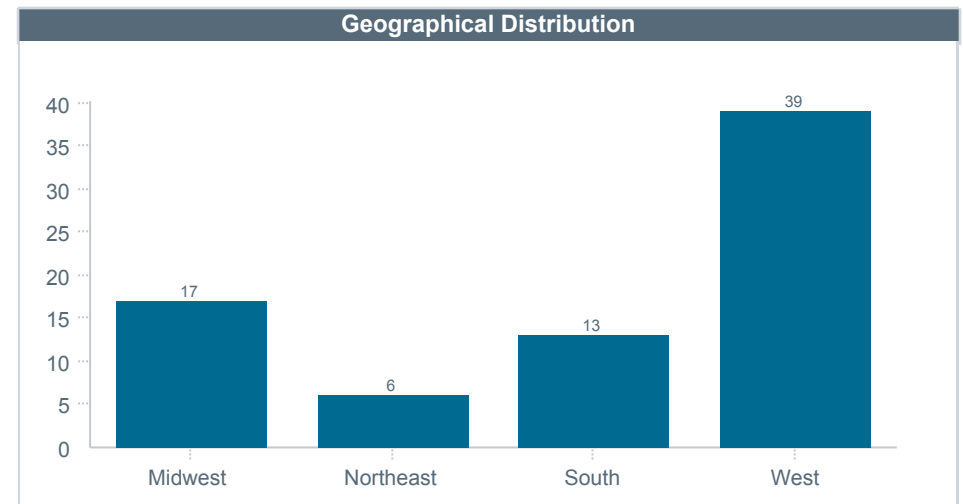
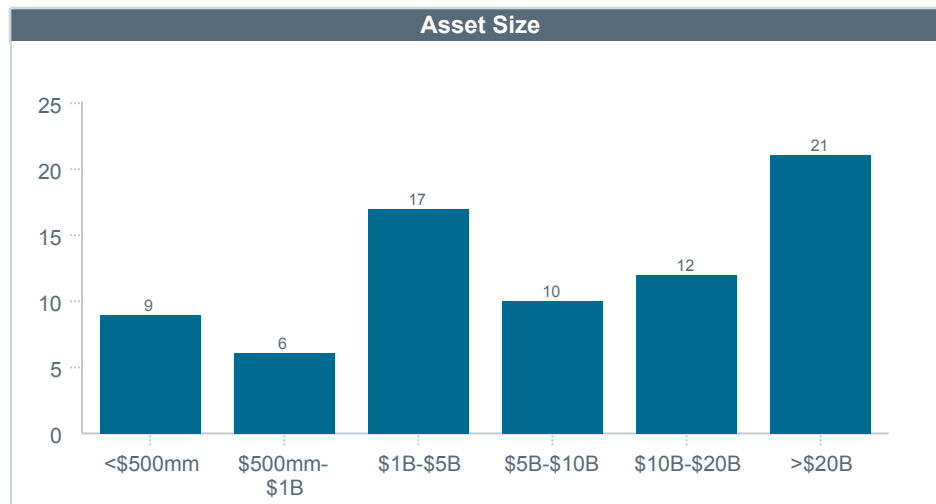


# Annual Asset Class Performance

As of June 30, 2018

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	YTD
<div>Best</div> <div>↑</div> <div>↓</div> <div>Worst</div>	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	37.28	7.66
	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	33.01	4.30
	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	25.03	2.65
	20.25	21.36	19.31	11.63	-2.35	31.78	18.88	9.24	17.32	22.78	12.50	1.38	11.77	21.83	1.52
	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	14.65	0.81
	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	10.71	0.68
	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	7.77	0.16
	10.88	5.34	11.86	6.60	-33.79	18.91	15.06	0.10	10.94	1.86	3.37	-0.81	6.67	7.62	0.00
	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	7.50	-0.02
	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	4.18	-1.33
	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	3.54	-1.62
	6.86	2.84	2.72	1.45	-43.38	1.92	6.31	-13.32	4.21	-8.61	-4.90	-4.47	1.00	3.01	-2.75
	4.34	2.74	2.07	-1.57	-47.01	0.21	5.70	-15.94	0.11	-8.83	-4.95	-14.92	0.51	1.70	-4.98
	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	0.86	-6.66
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	Bloombrg US Agg Bond - FI	Bloombrg US Corp: Hi Yield - FI	Bloombrg US Trsny: US TIPS - FI	Bloombrg US Gov/Credit: Lng - FI	NCREIF ODCE (Gross) - Real Estate	Wilshire US REIT - REITs	HFRI FOF Comp Index - ARS	Bloombrg Cmdty (TR) - Commod.	ICE BofAML 3 Mo T-Bill - Cash Equiv		

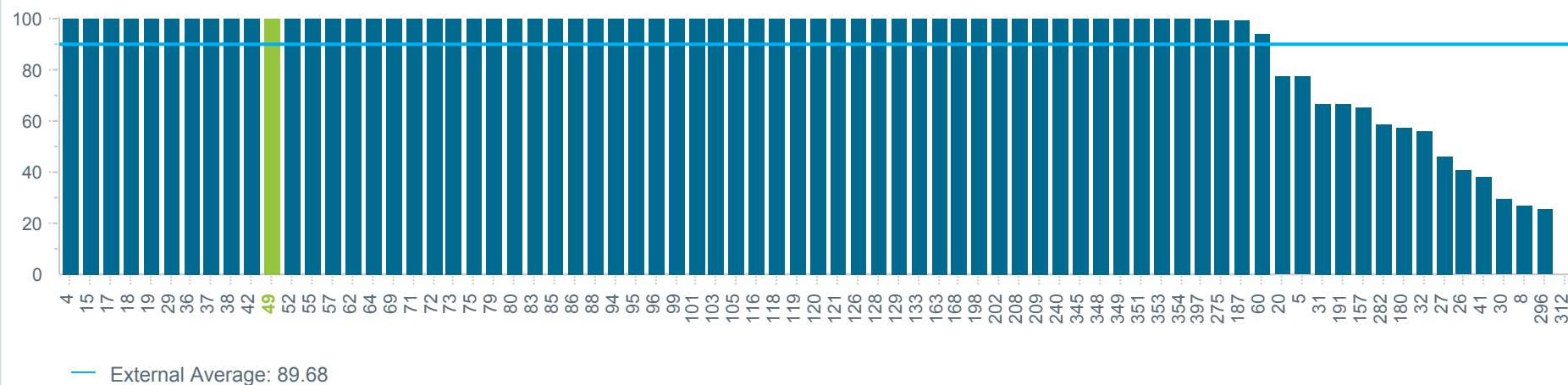
NCREIF ODCE (Gross) performance is reported quarterly; performance is shown N/A in interim-quarter months.



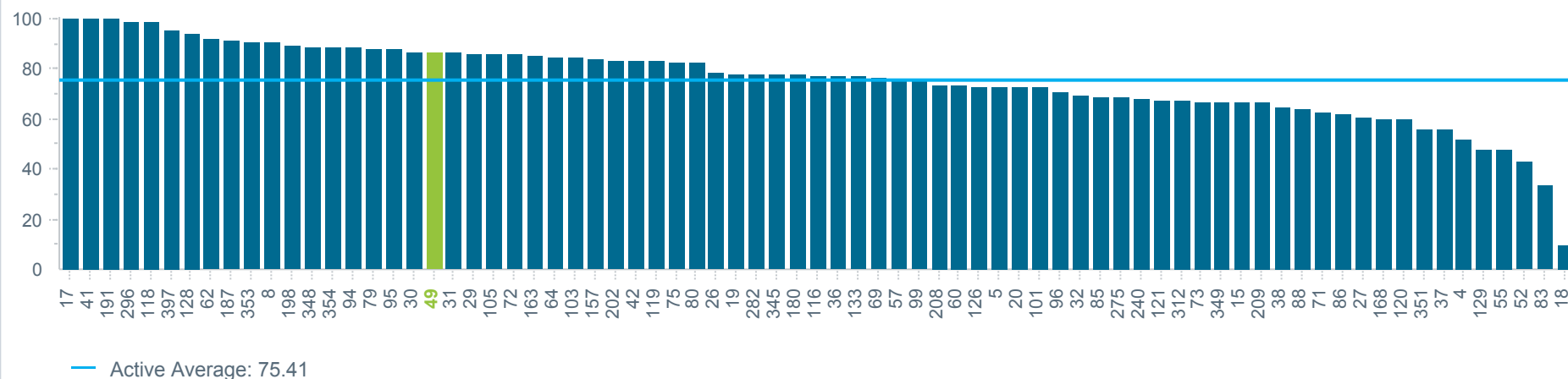
■ Universe: 75 funds



### External Management (%)



### Active Management (%)

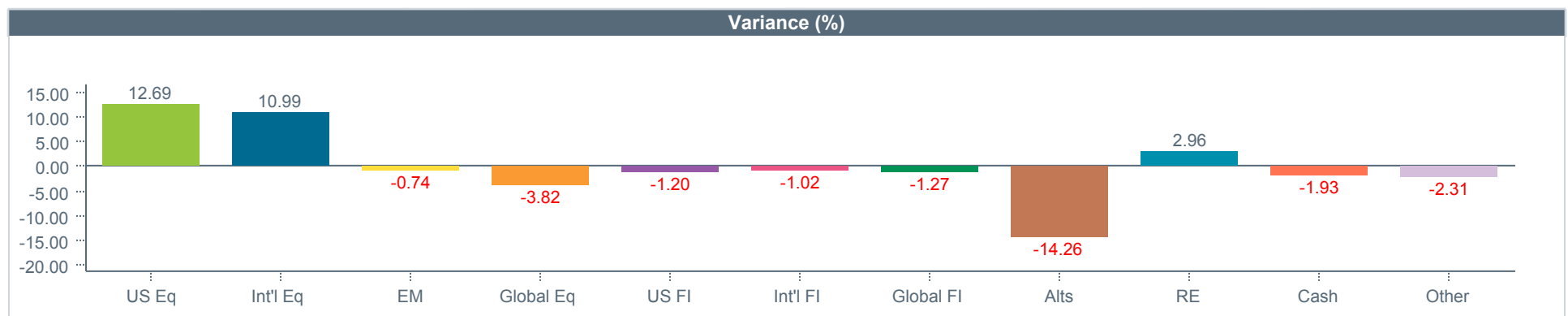
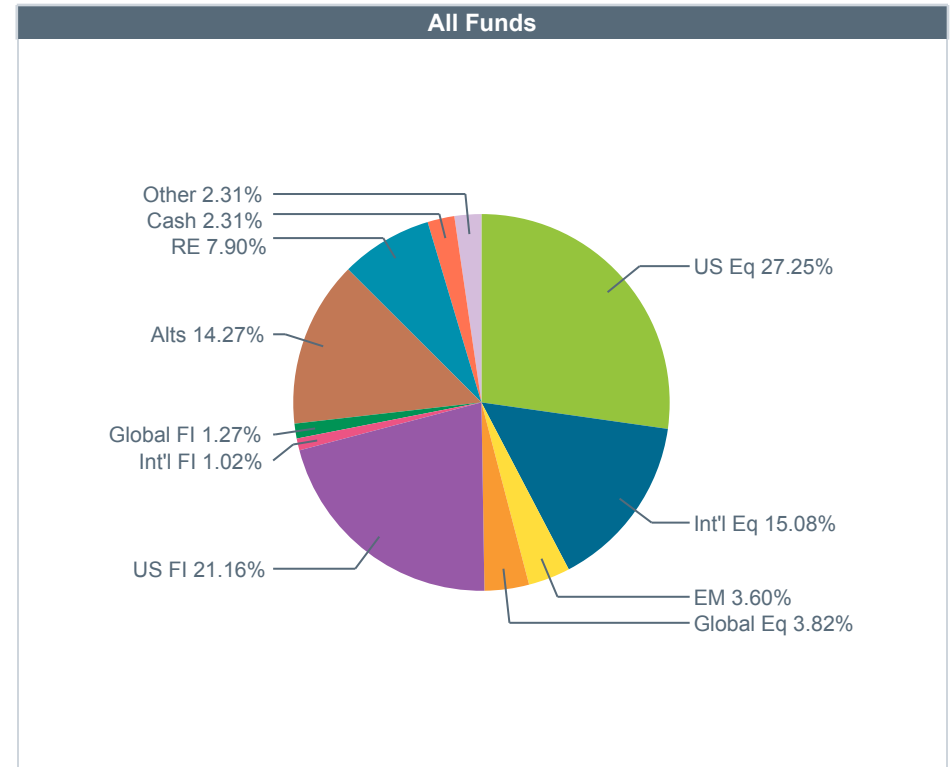
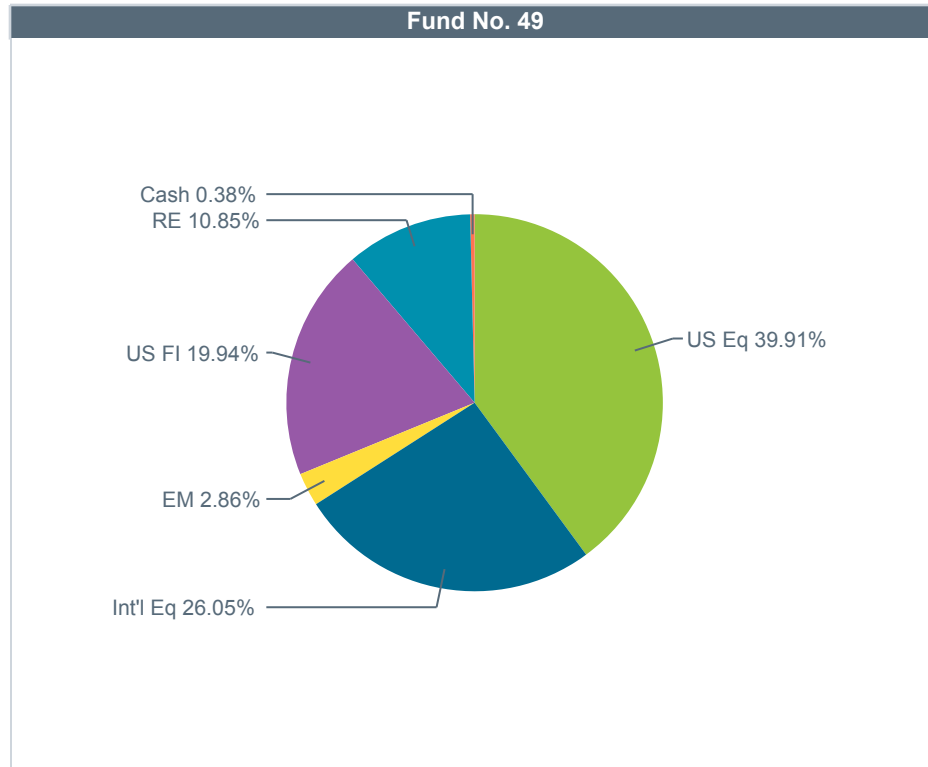


■ Fund No. 49

Asset Range	Actively Managed (%)	Passively Managed (%)	Externally Managed (%)	Internally Managed (%)
Over \$20B	76.10	23.90	73.89	26.11
\$10B-\$20B	70.01	29.99	85.43	14.57
\$5B-\$10B	72.93	27.07	97.18	2.82
\$1B-\$5B	77.21	22.79	98.68	1.32
\$500mm-\$1B	73.15	26.85	99.94	0.06
Under \$500mm	81.84	18.16	100.00	0.00
<b>Fund No. 49</b>	<b>86.15</b>	<b>13.85</b>	<b>100.00</b>	<b>0.00</b>

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

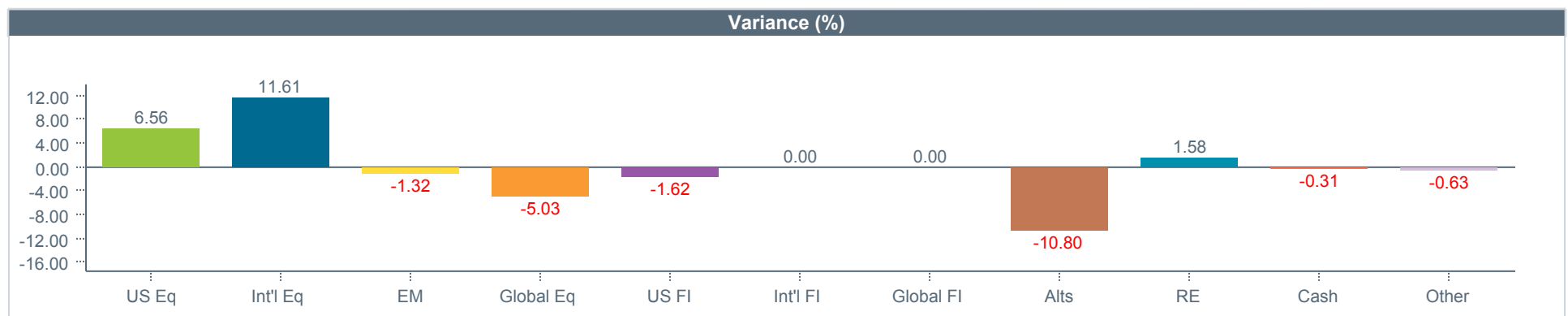
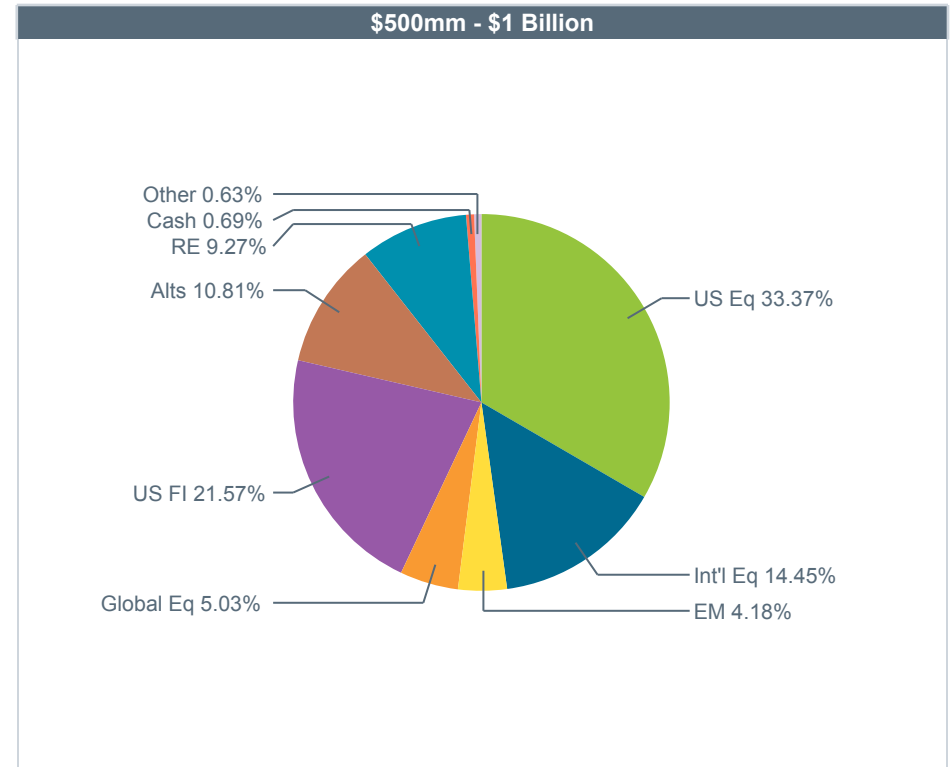
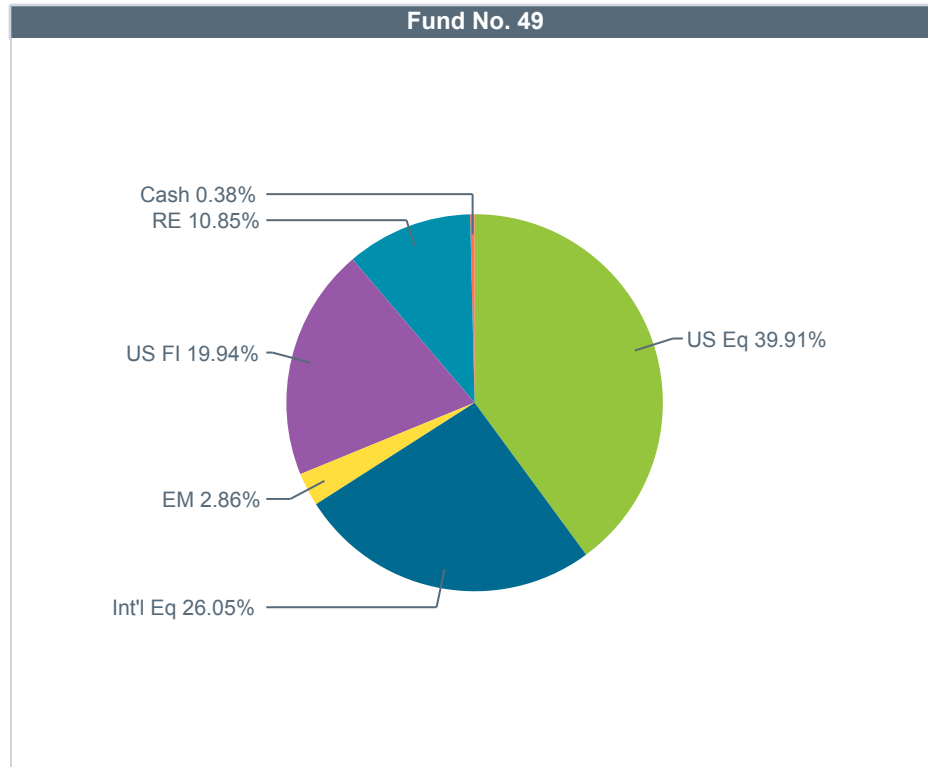
Portfolio (%)	Active Management		External Management	
	Public Fund Universe	Fund No. 49	Public Fund Universe	Fund No. 49
90 to 100	11	0	60	1
50 to 89	59	1	8	0
10 to 49	4	0	6	0
Less than 10	1	0	1	0
<b>Total Funds Reporting</b>	<b>75</b>	<b>1</b>	<b>75</b>	<b>1</b>



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

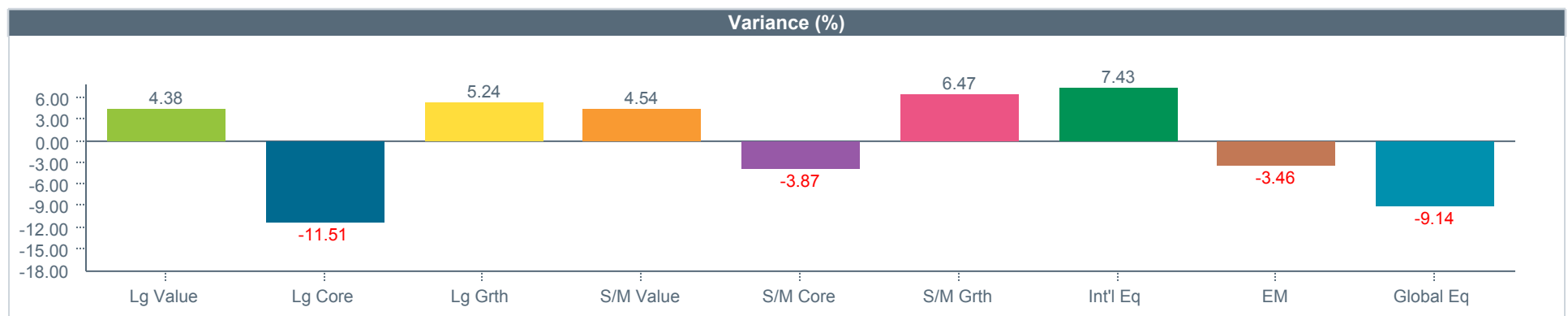
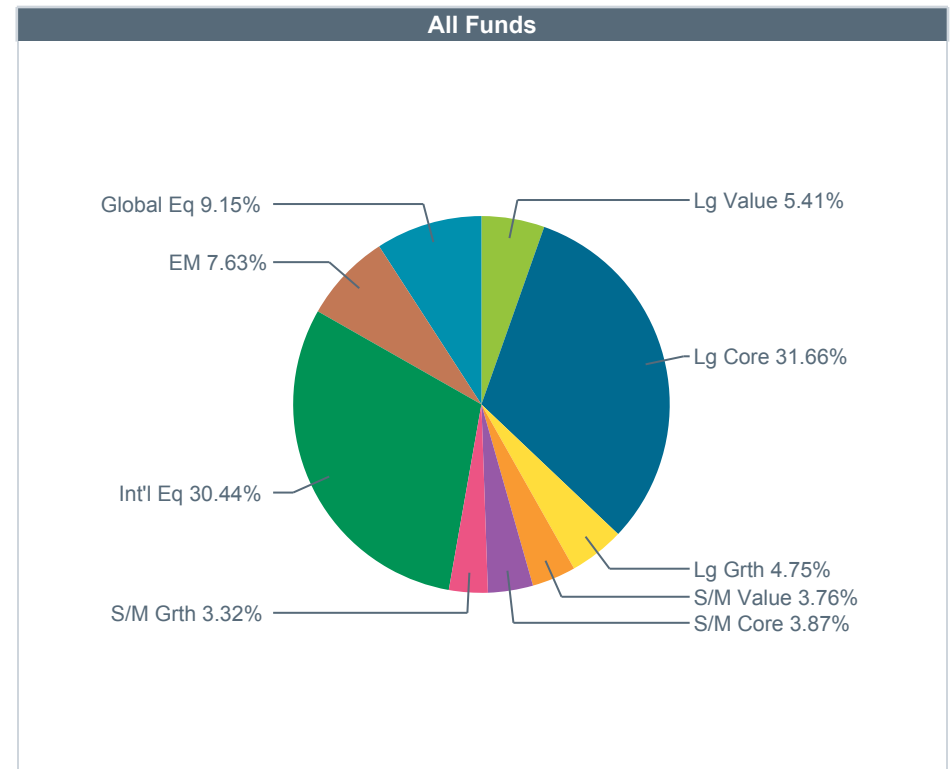
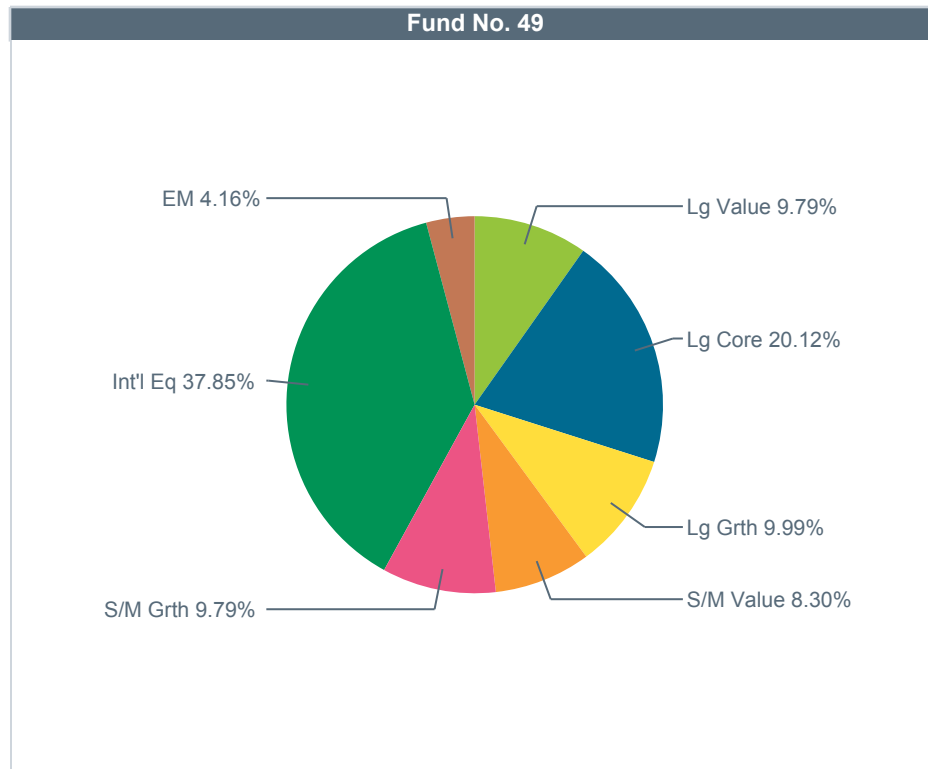
Asset Allocation  
Fund No. 49 vs. Average of Similar Size Funds

As of June 30, 2018



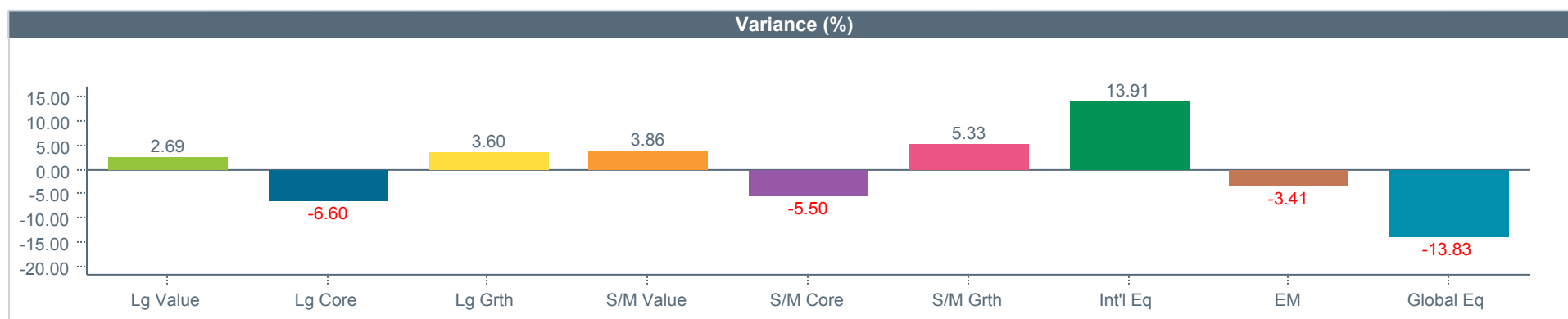
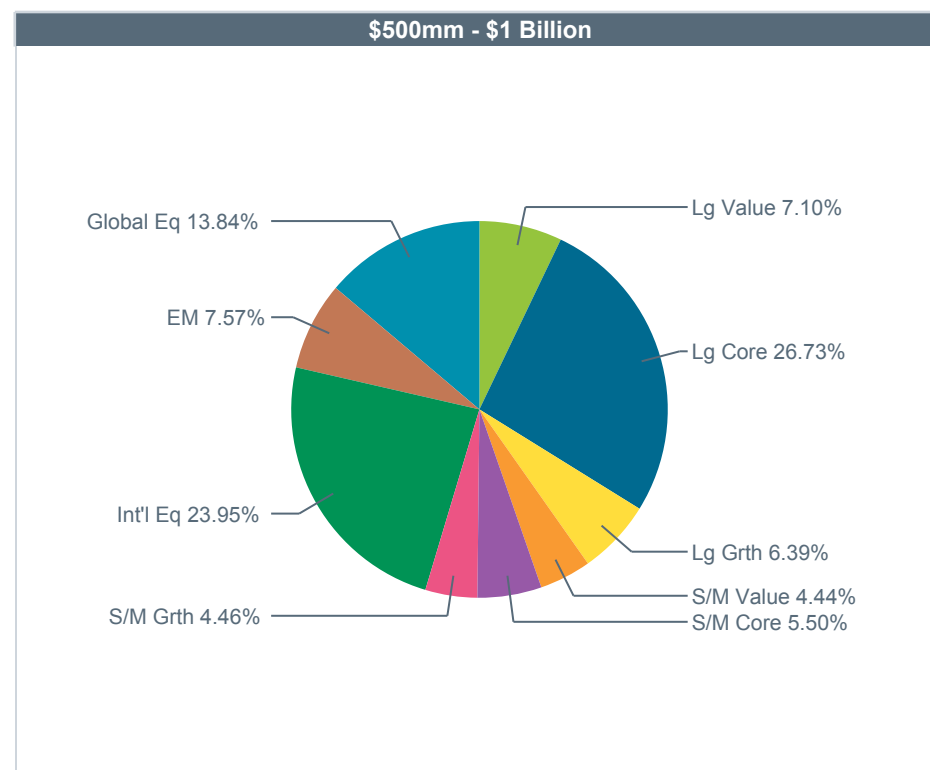
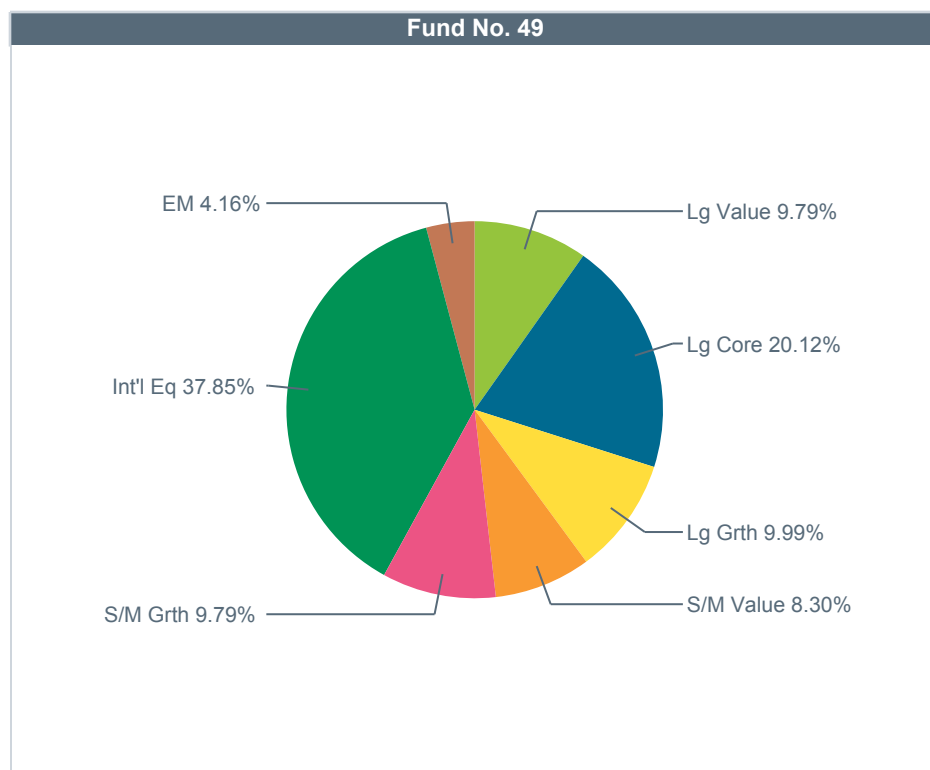
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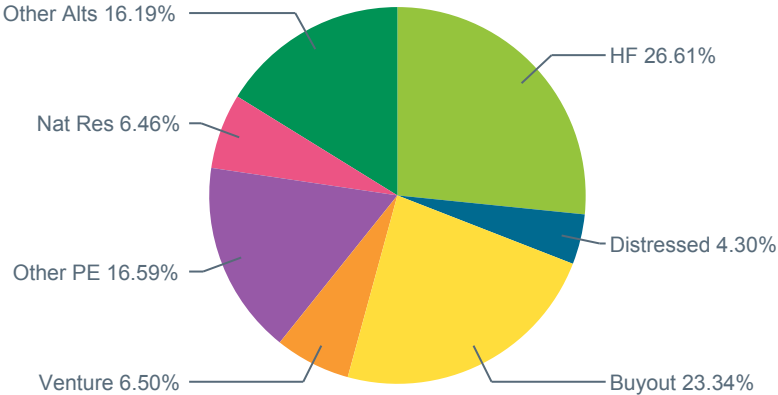


Allocations shown may not sum up to 100% exactly due to rounding.

Fund No. 49

Fund No. 49 does not have data for Alternatives Style Allocation

All Funds



Variance (%)

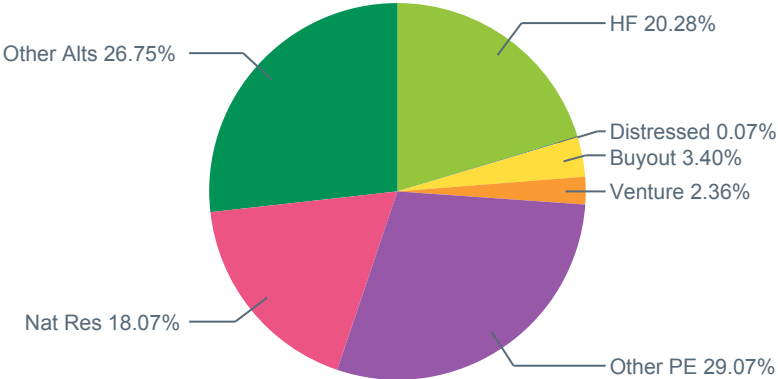
Fund No. 49 does not have data for Alternatives Style Allocation

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

Fund No. 49

Fund No. 49 does not have data for Alternatives Style Allocation

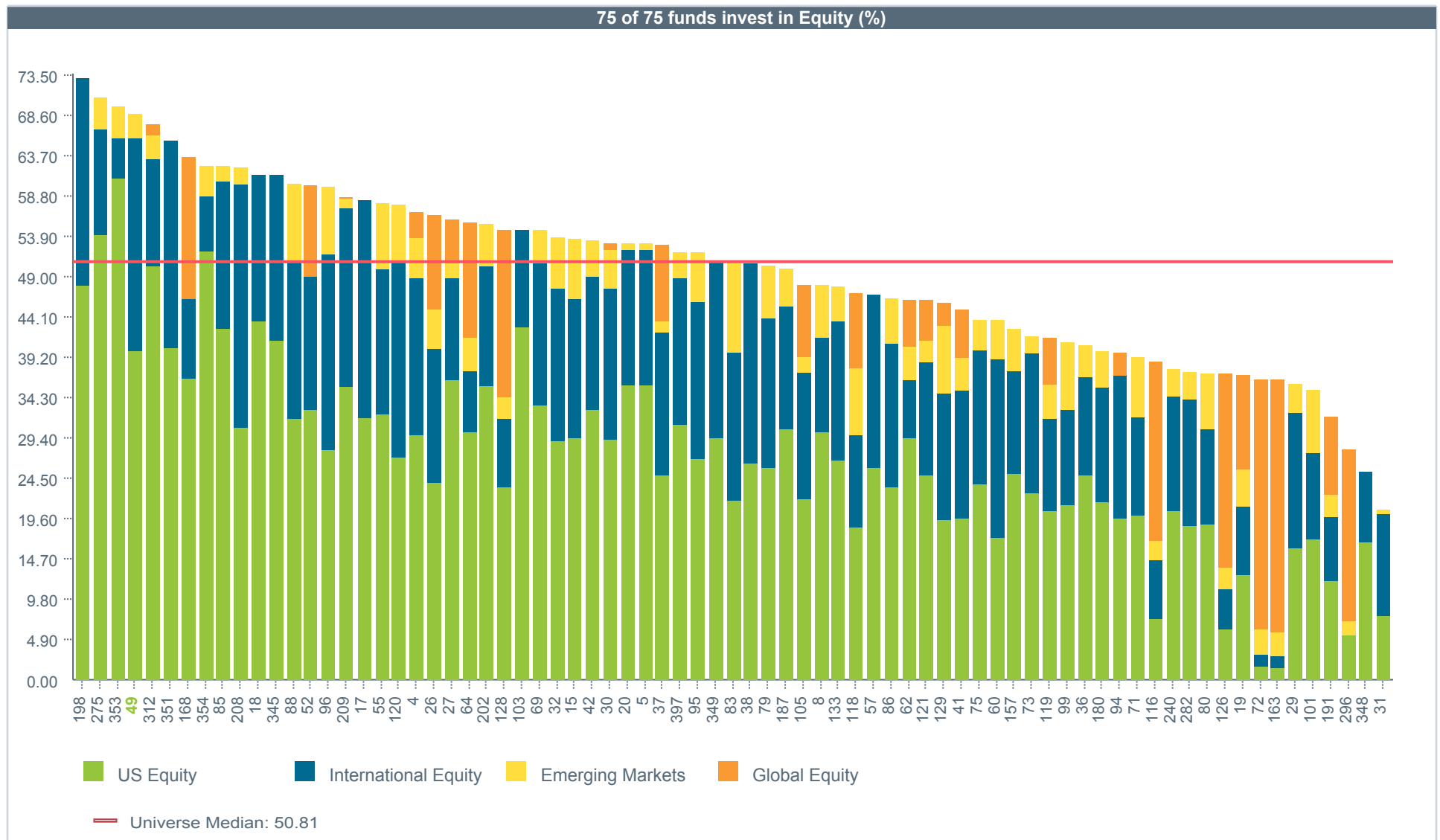
\$500mm - \$1 Billion

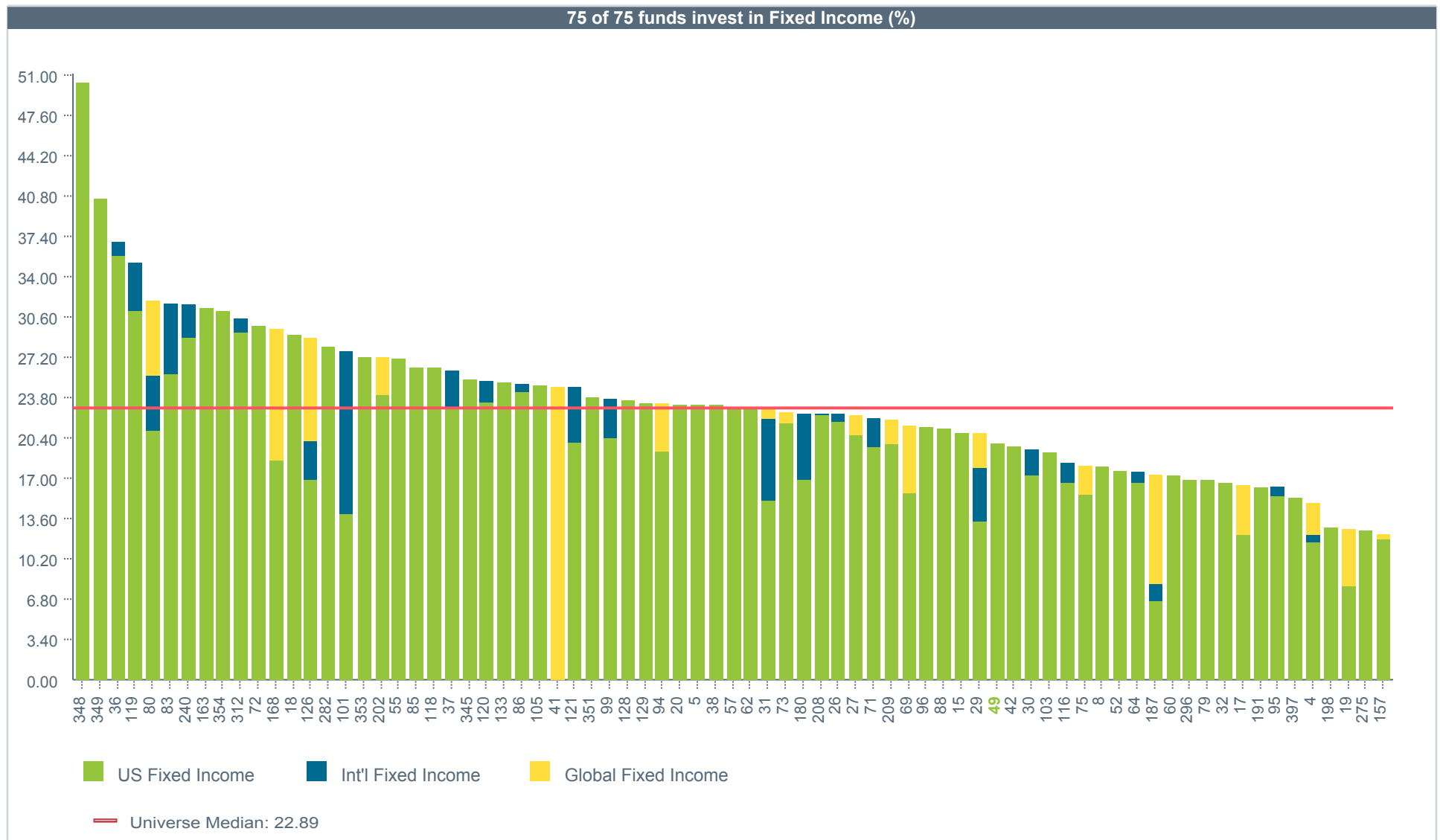


Variance (%)

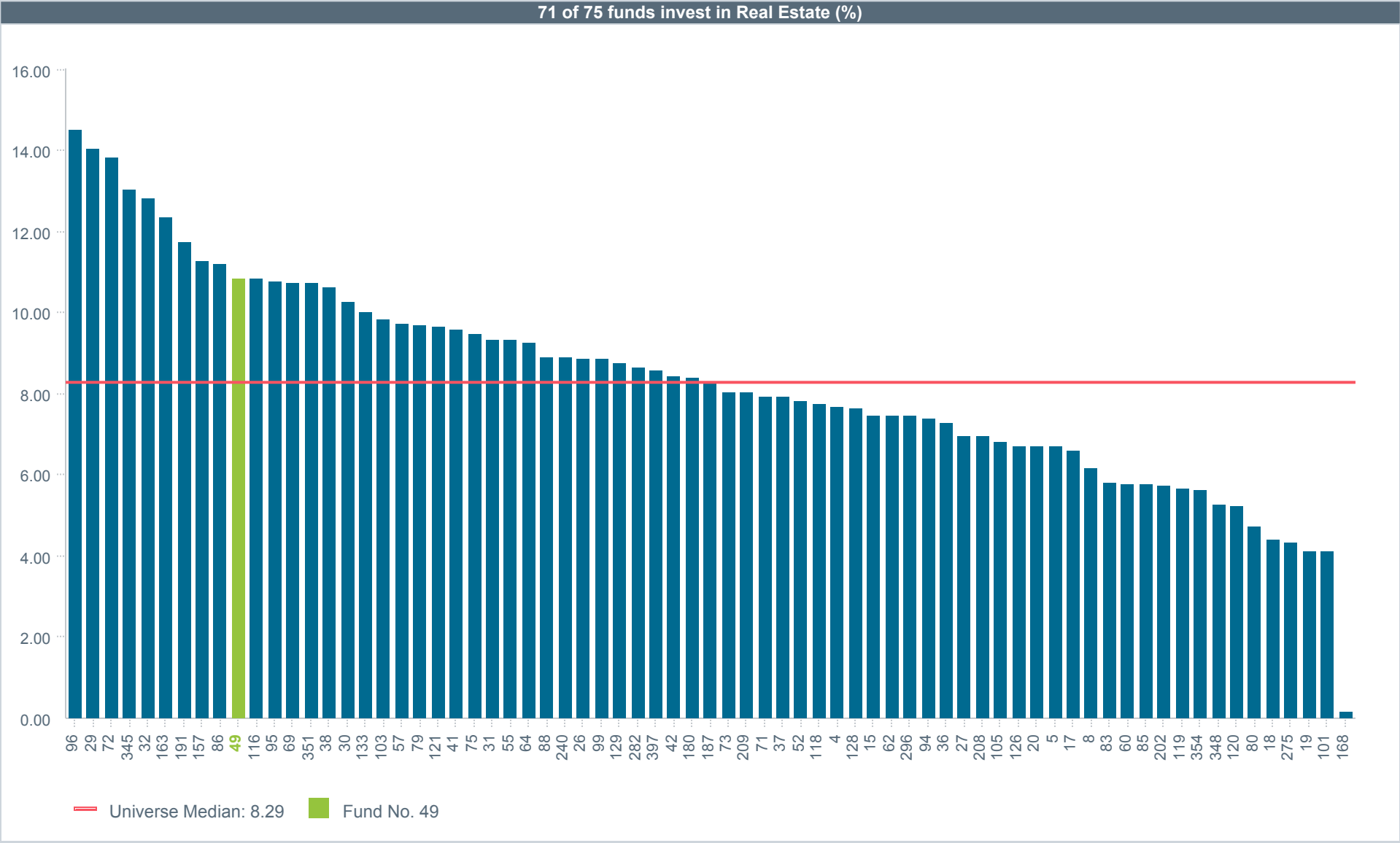
Fund No. 49 does not have data for Alternatives Style Allocation

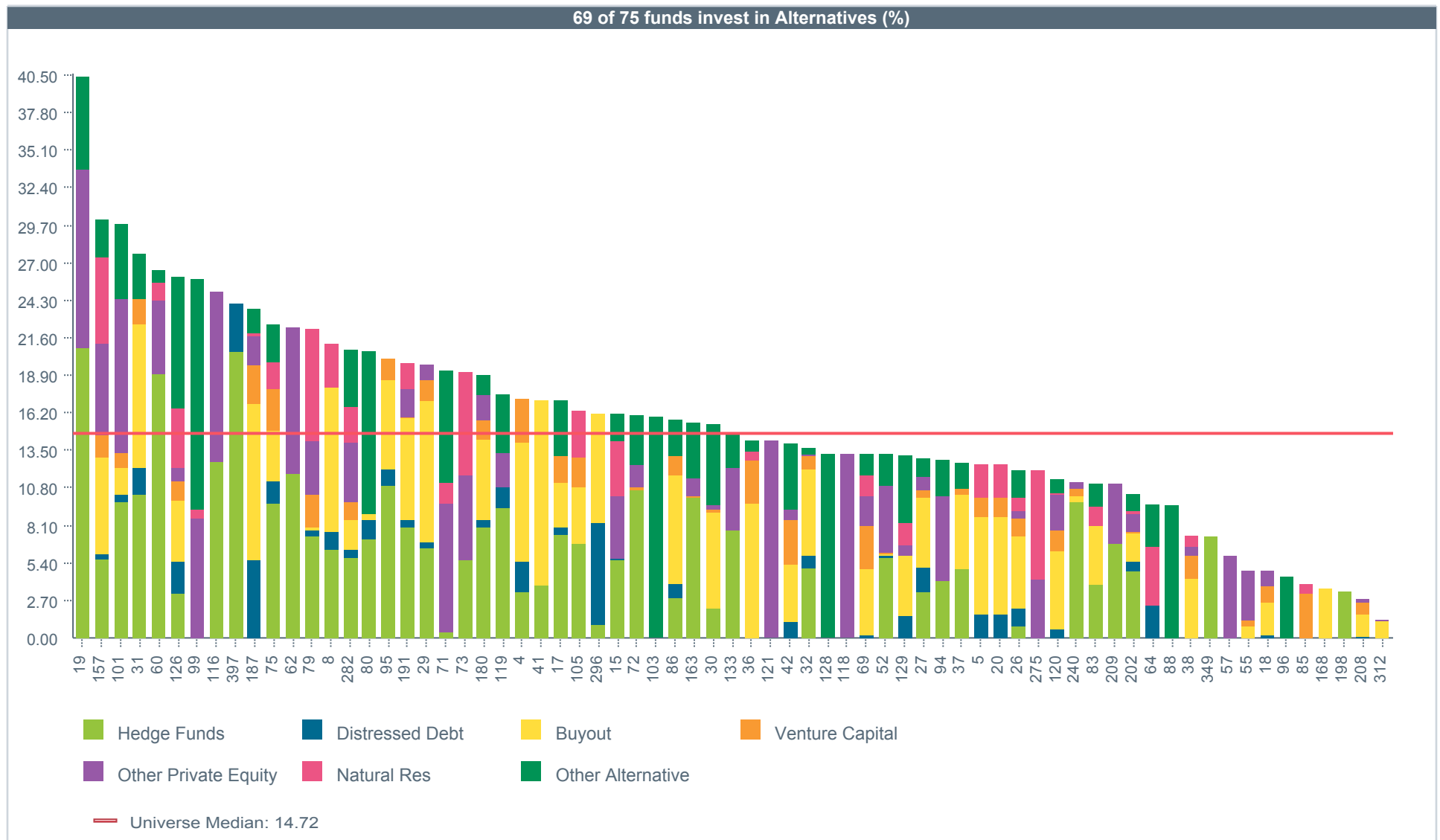
Allocations shown may not sum up to 100% exactly due to rounding.

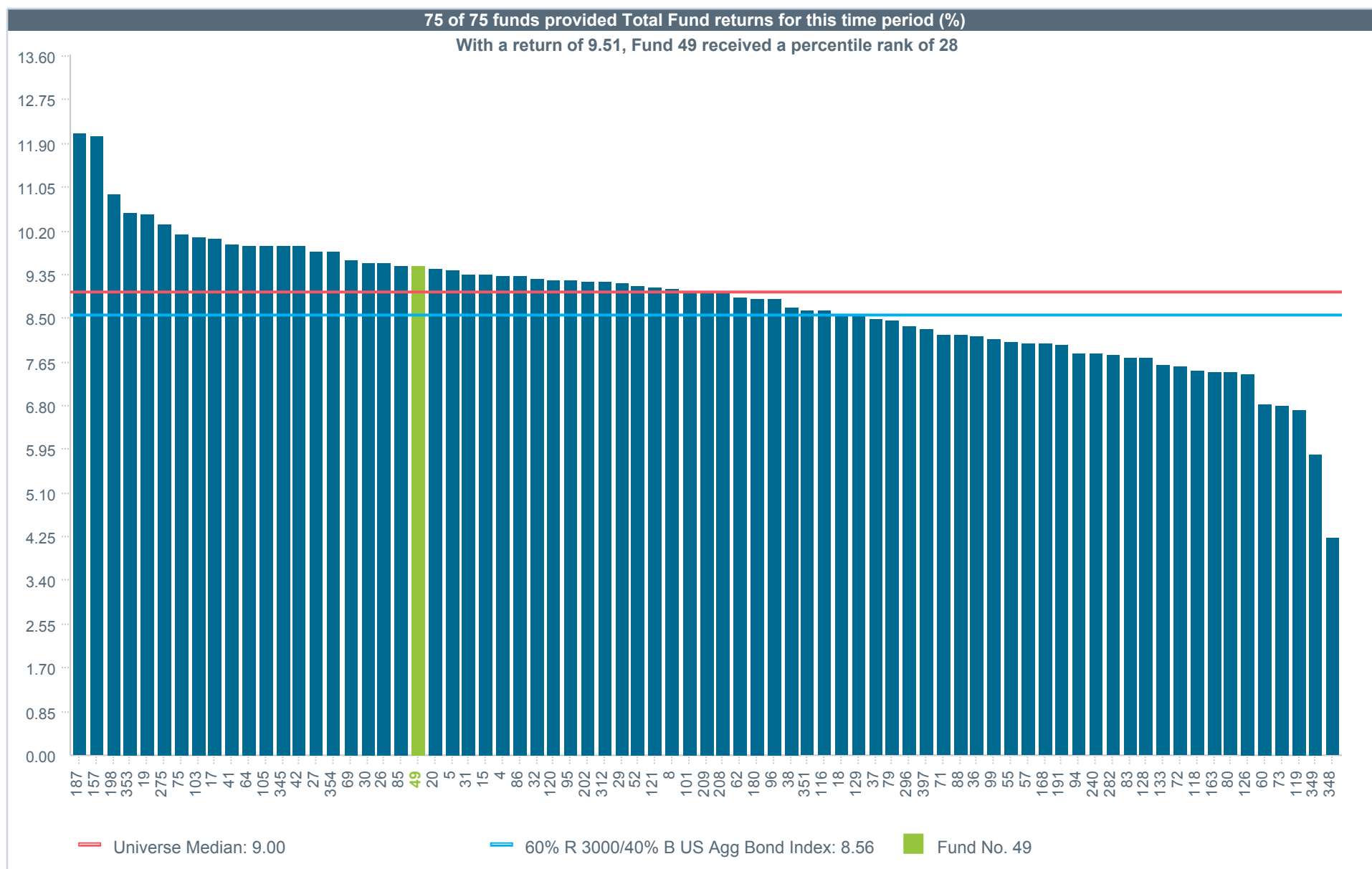




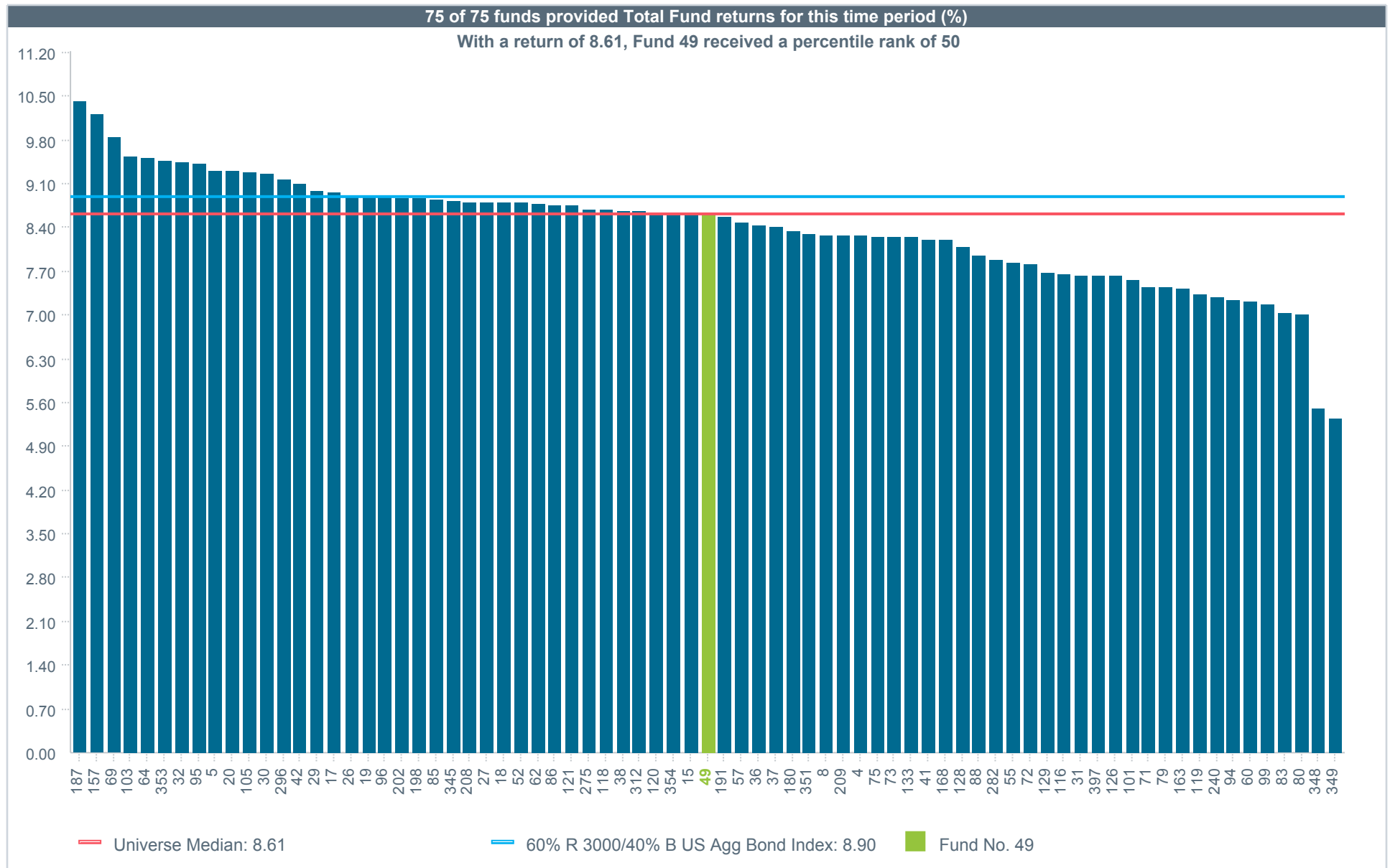






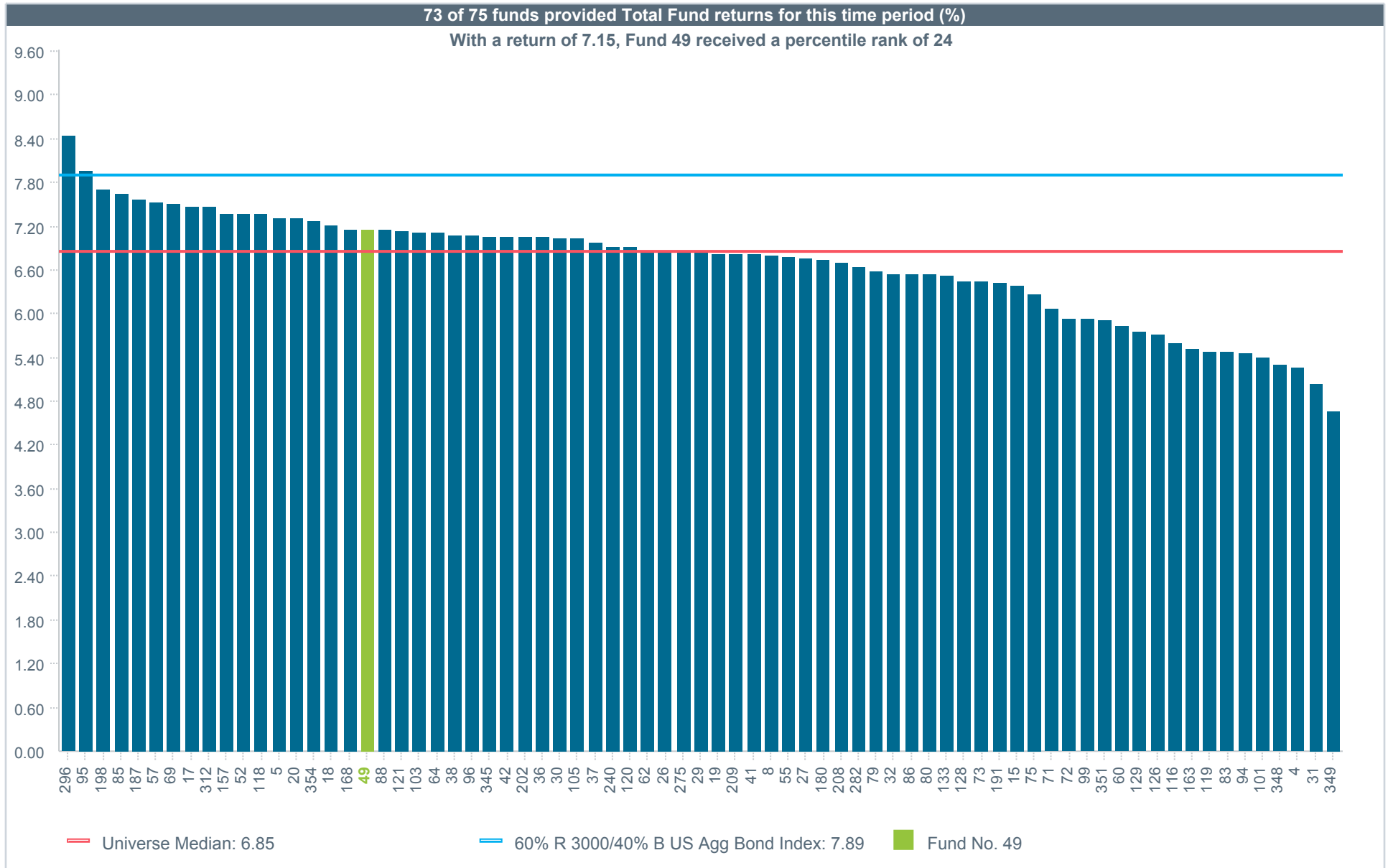


Funds with less history than the specified time period will not appear in the chart.



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





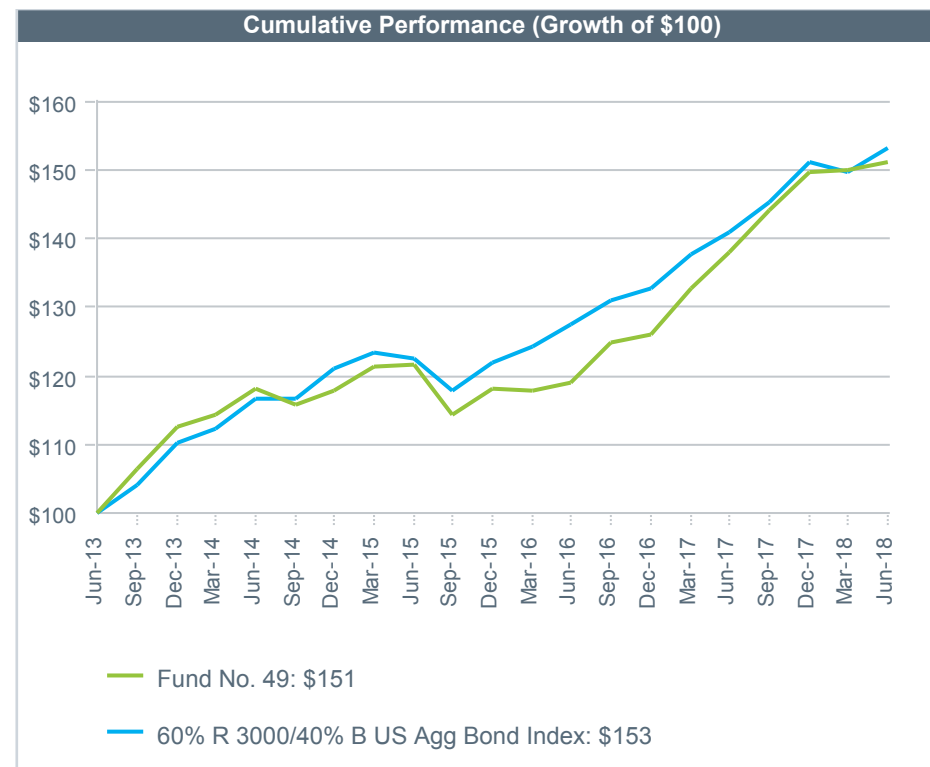
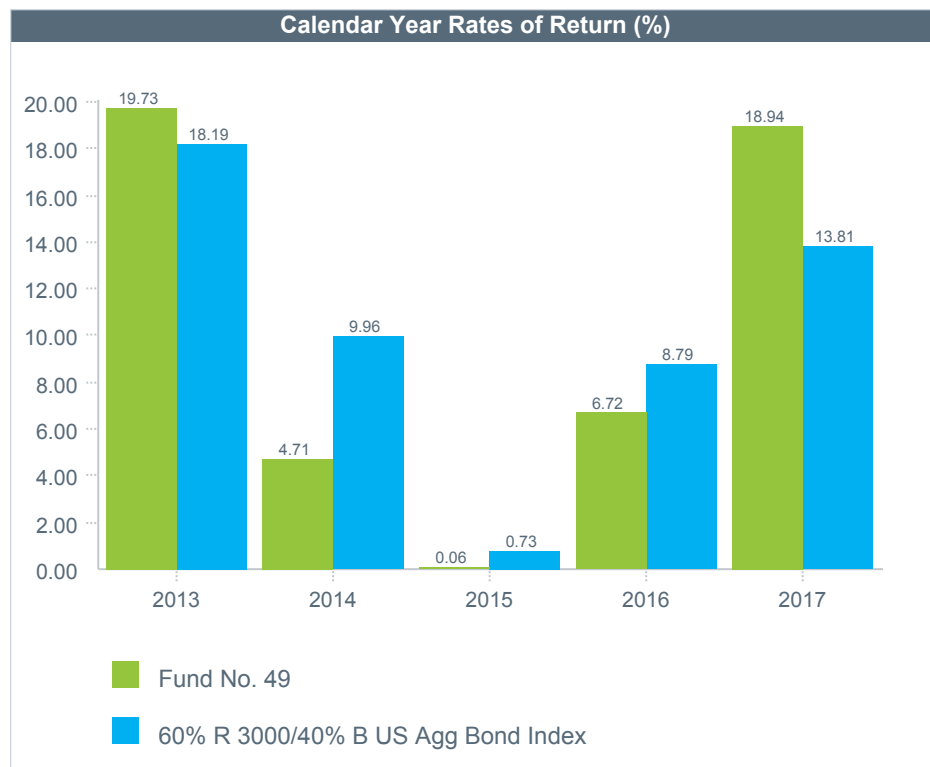
Funds with less history than the specified time period will not appear in the chart.





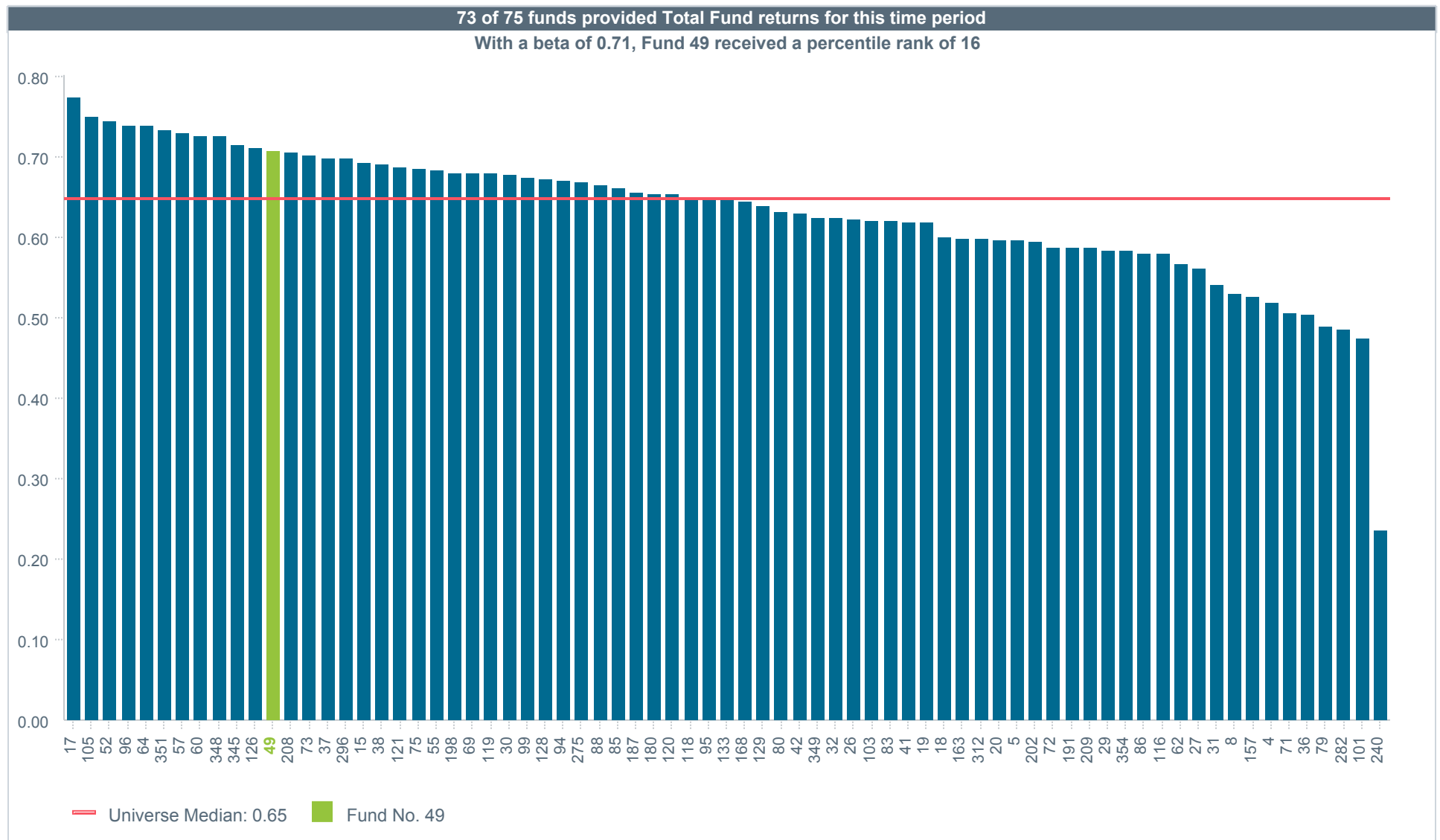
**Total Return - Total Fund**  
**Fund No. 49 vs. 60% R 3000/40% B US Agg Bond Index**

As of June 30, 2018



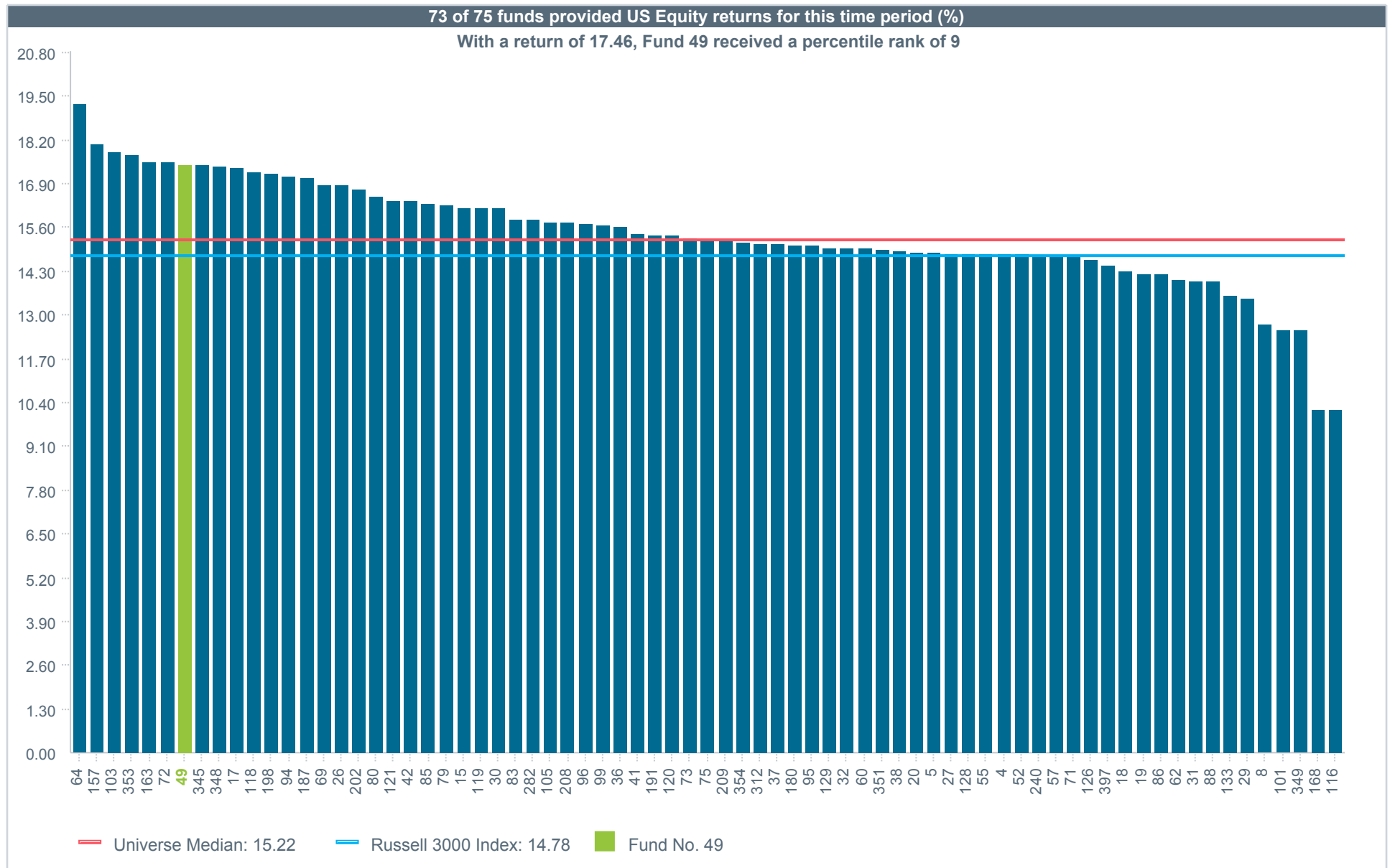
Annualized Returns (%)			
	1 Year	3 Years	5 Years
Fund No. 49	9.51	7.48	8.61
60% R 3000/40% B US Agg Bond Index	8.56	7.69	8.90
Variance	0.95	-0.21	-0.29



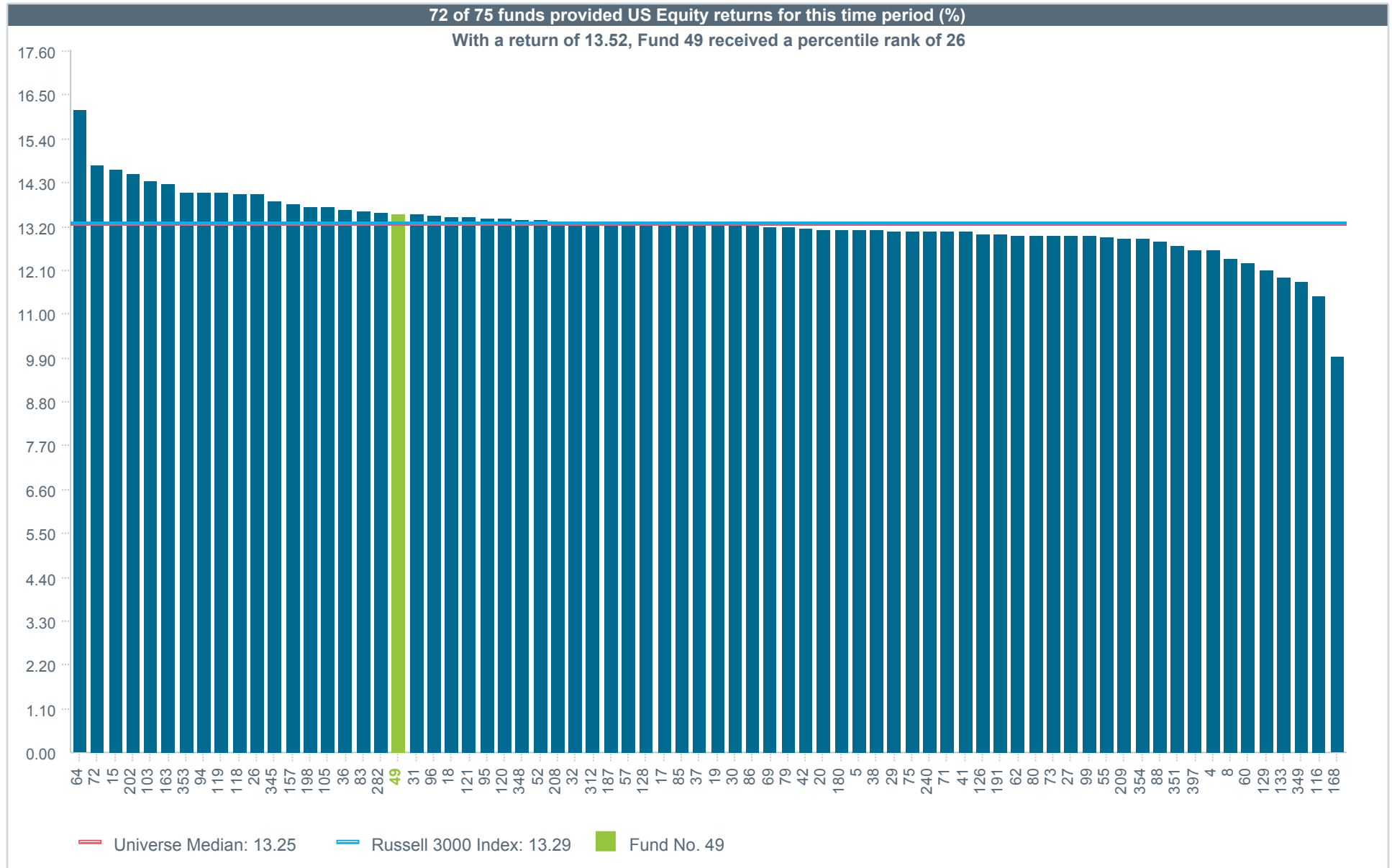


Funds with less history than the specified time period will not appear in the chart. Benchmark used is the S&P 500 Index (Cap Wtd).



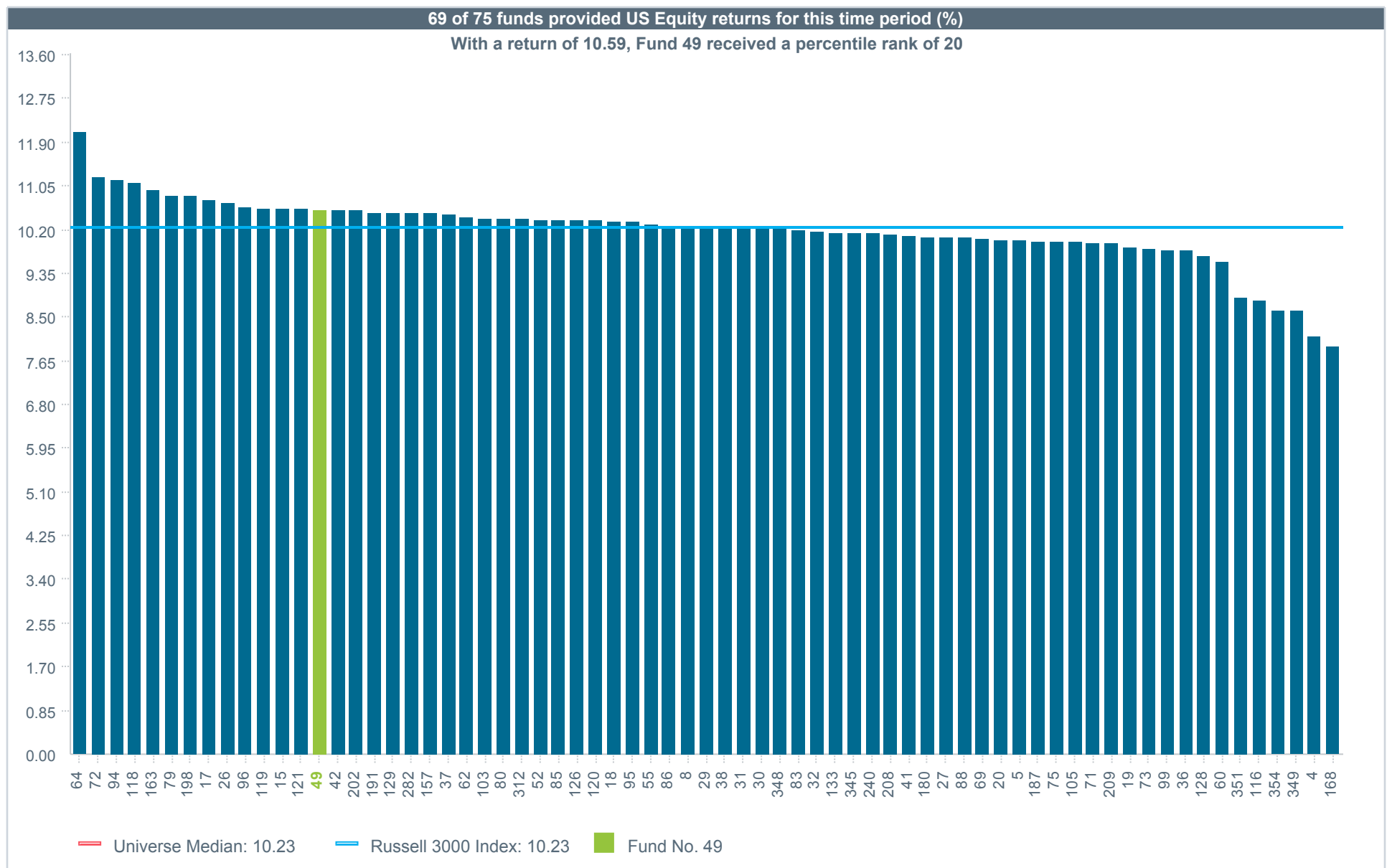


Funds with less history than the specified time period will not appear in the chart.



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

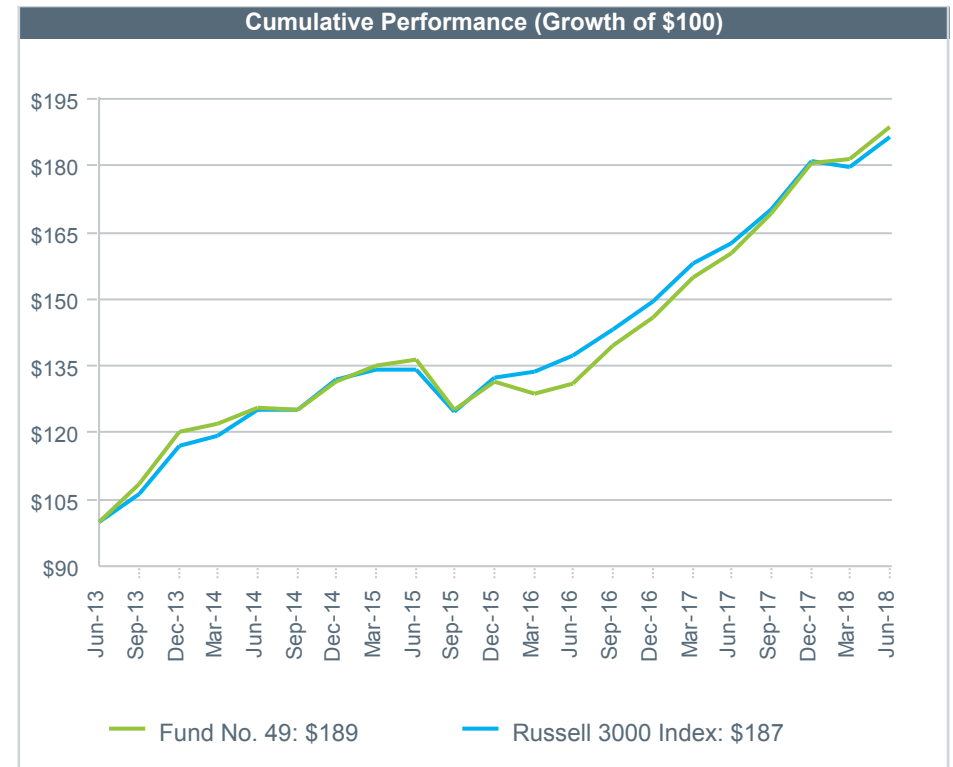
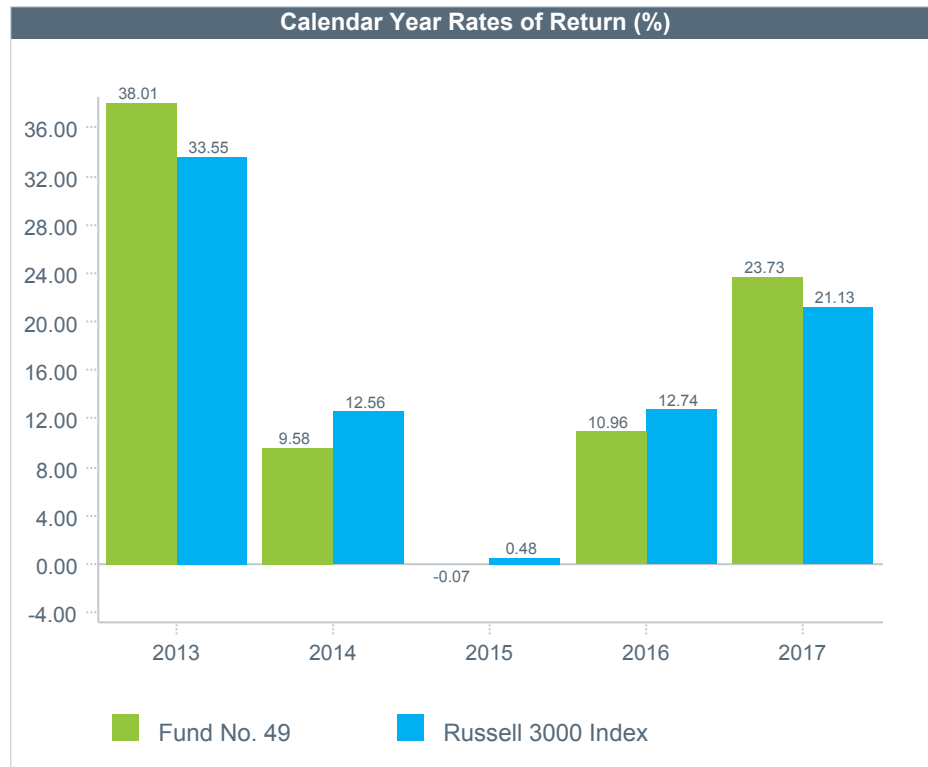




Funds with less history than the specified time period will not appear in the chart.

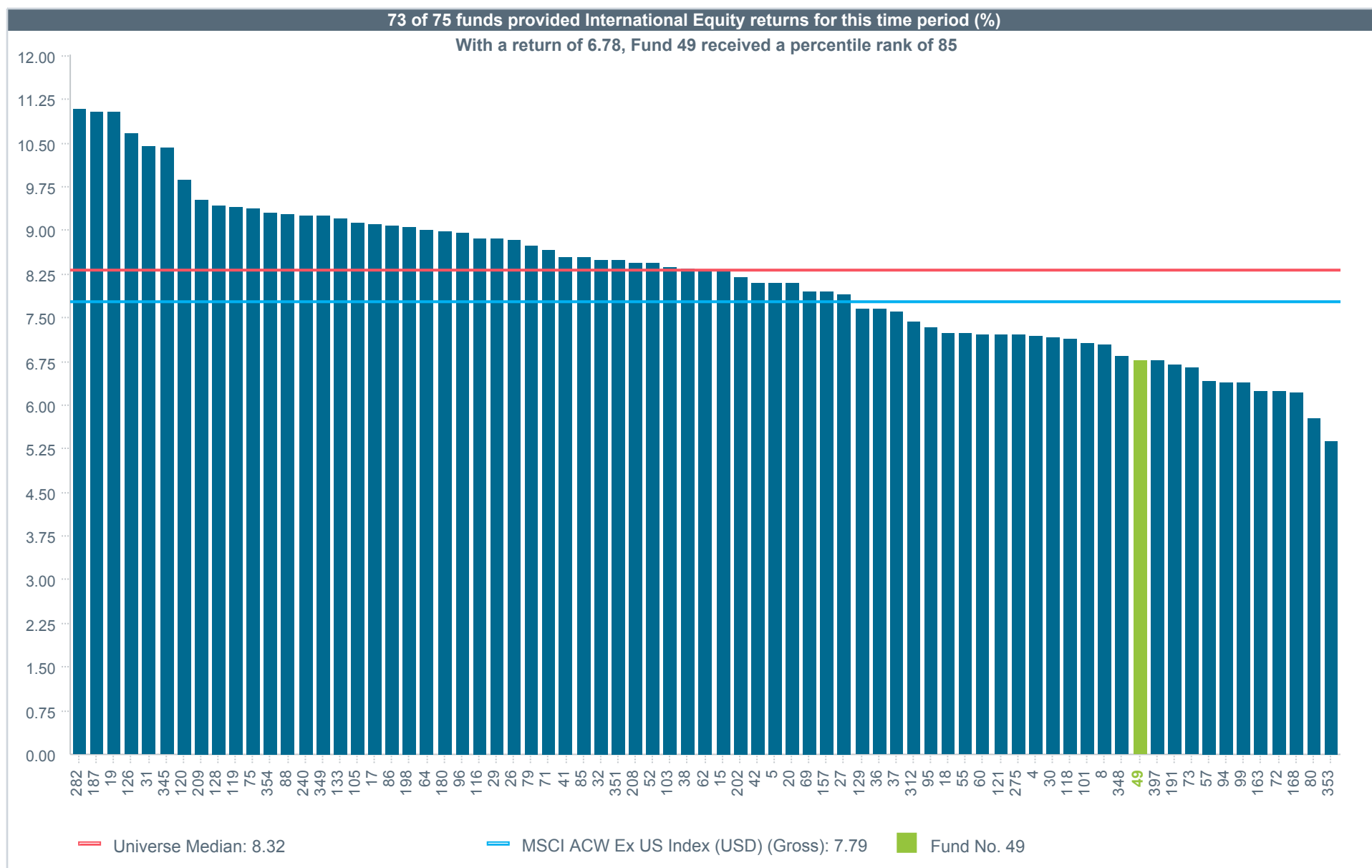
**Total Return - US Equity**  
**Fund No. 49 vs. Russell 3000 Index**

As of June 30, 2018



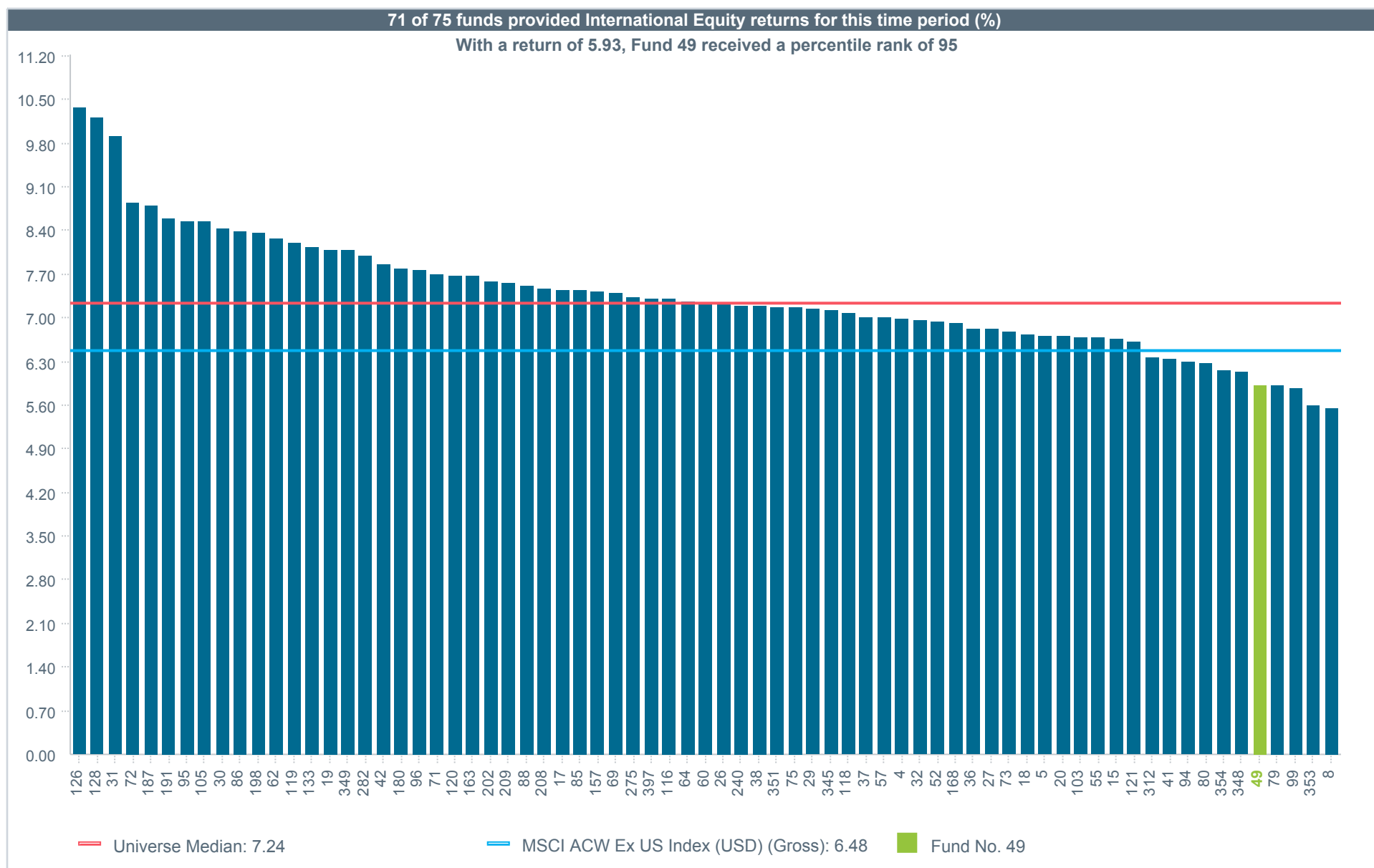
Annualized Returns (%)			
	1 Year	3 Years	5 Years
Fund No. 49	17.46	11.38	13.52
Russell 3000 Index	14.78	11.58	13.29
Variance	2.68	-0.20	0.23





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

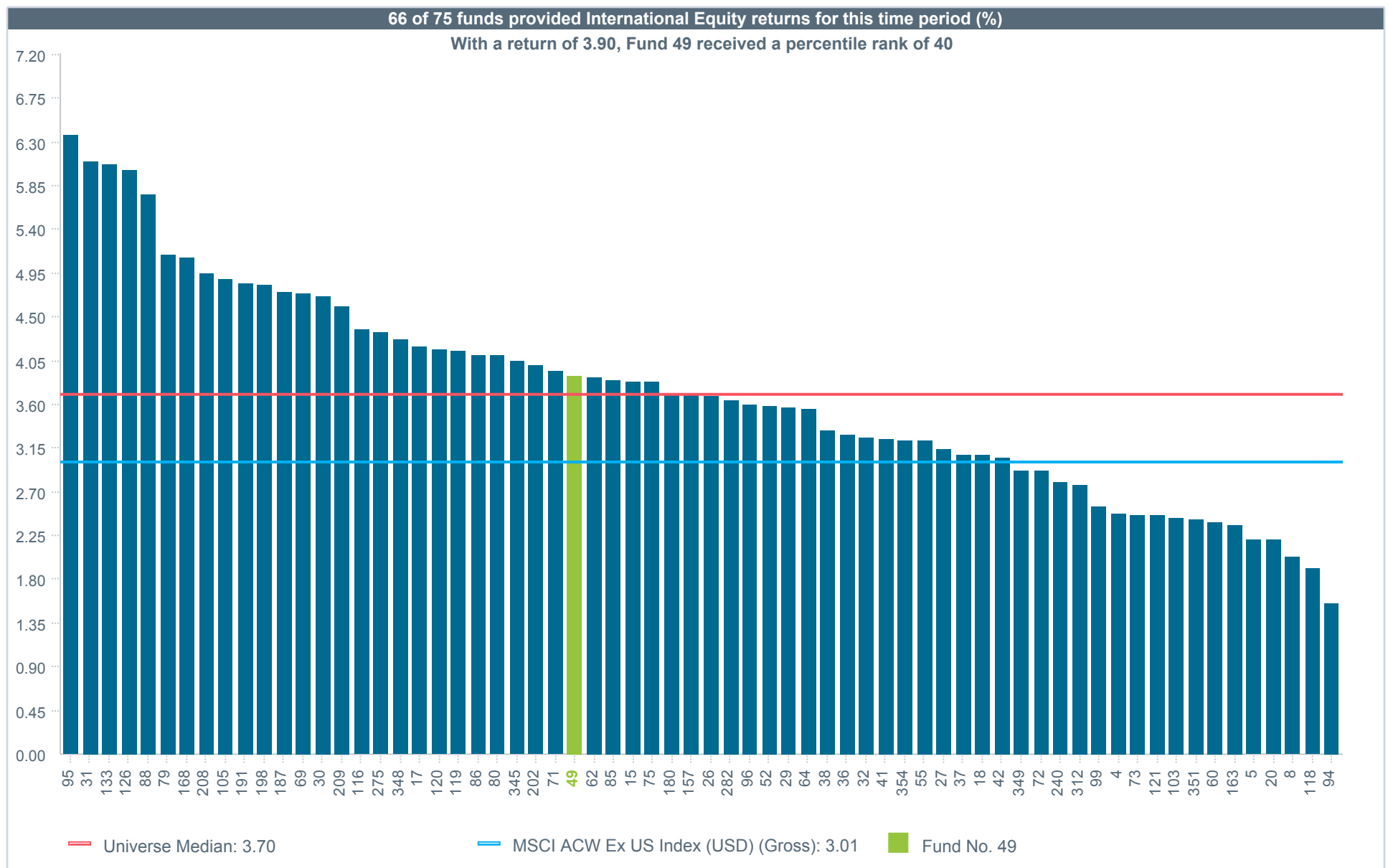




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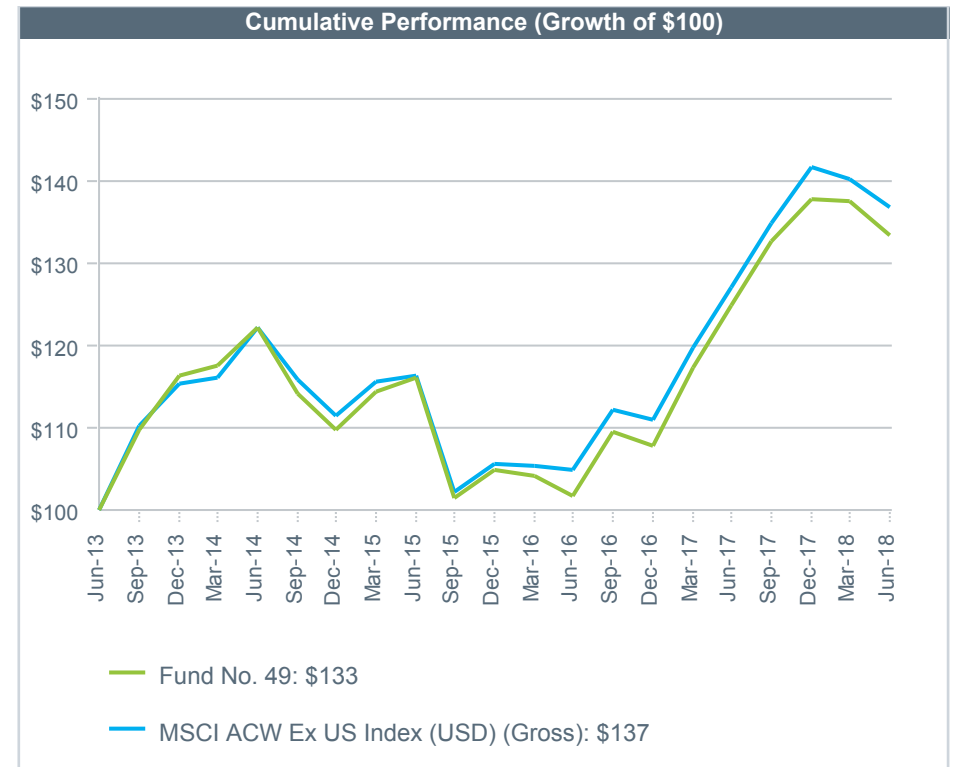
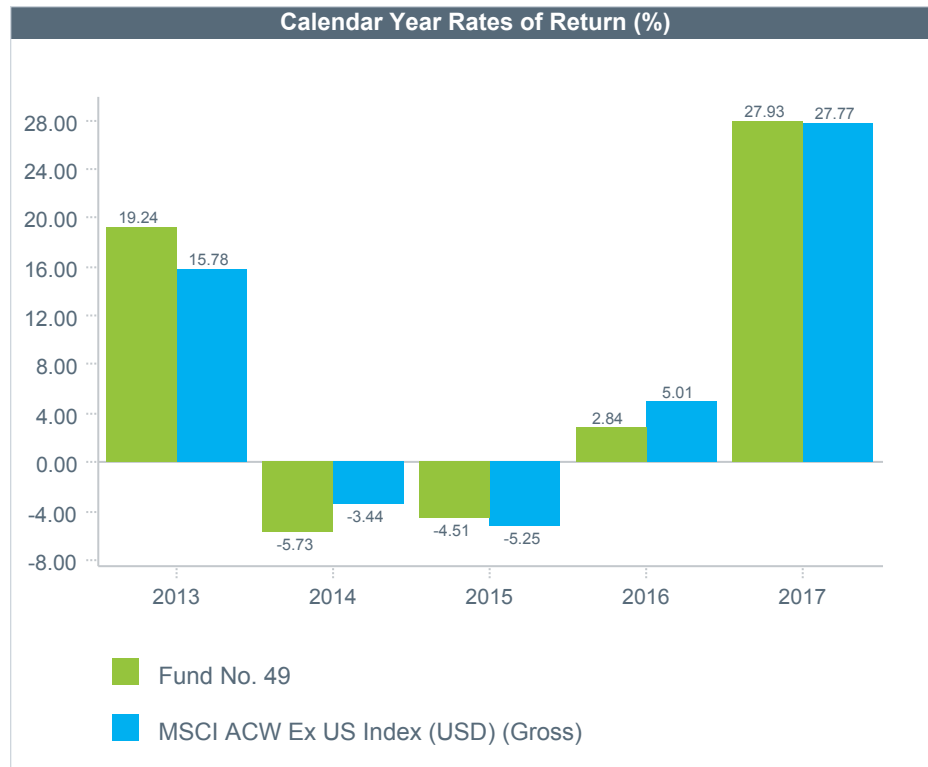


Funds with less history than the specified time period will not appear in the chart.



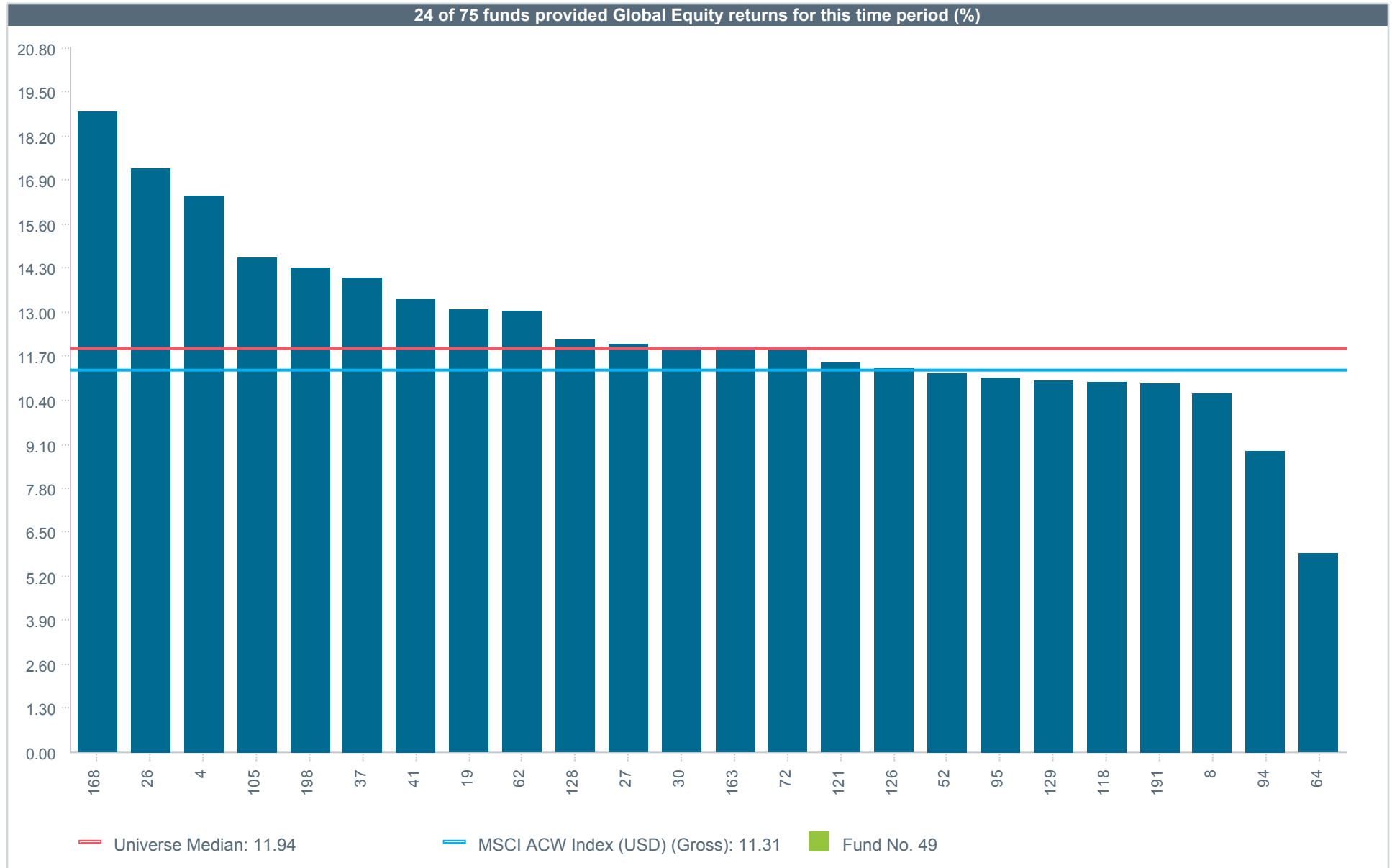
**Total Return - International Equity**  
**Fund No. 49 vs. MSCI ACW Ex US Index (USD) (Gross)**

As of June 30, 2018

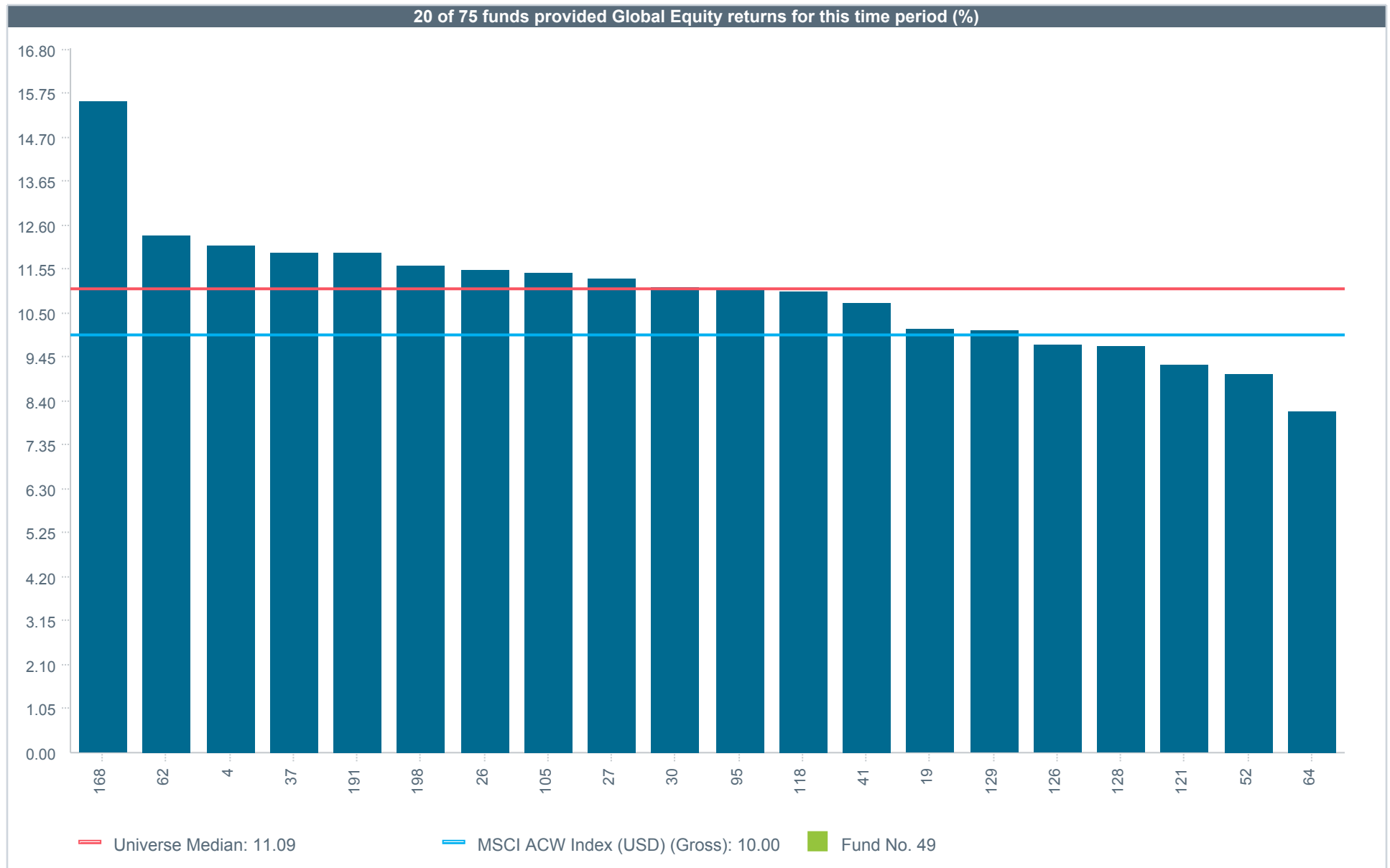


Annualized Returns (%)			
	1 Year	3 Years	5 Years
Fund No. 49	6.78	4.76	5.93
MSCI ACW Ex US Index (USD) (Gross)	7.79	5.56	6.48
Variance	-1.01	-0.80	-0.55



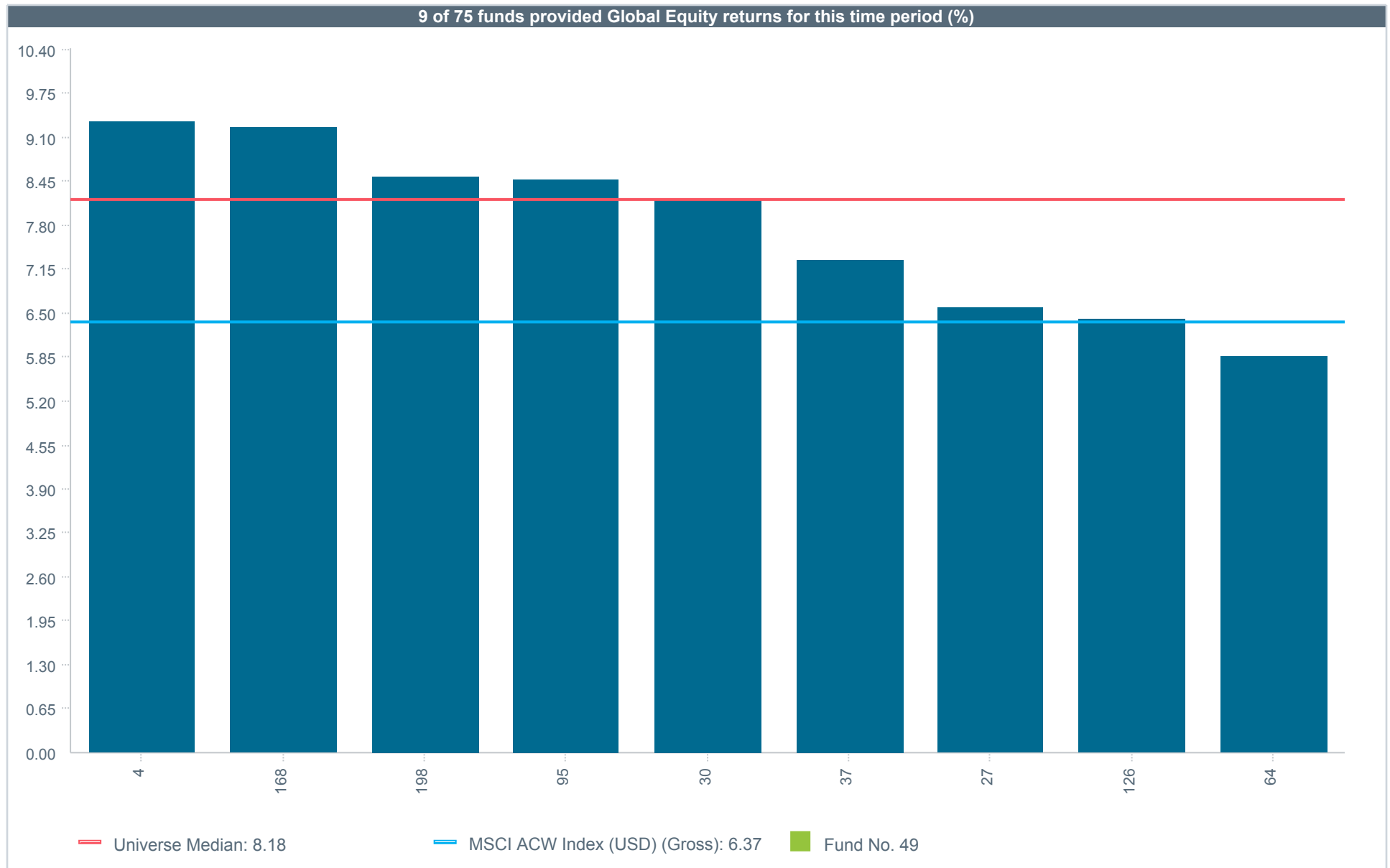


Funds with less history than the specified time period will not appear in the chart.



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

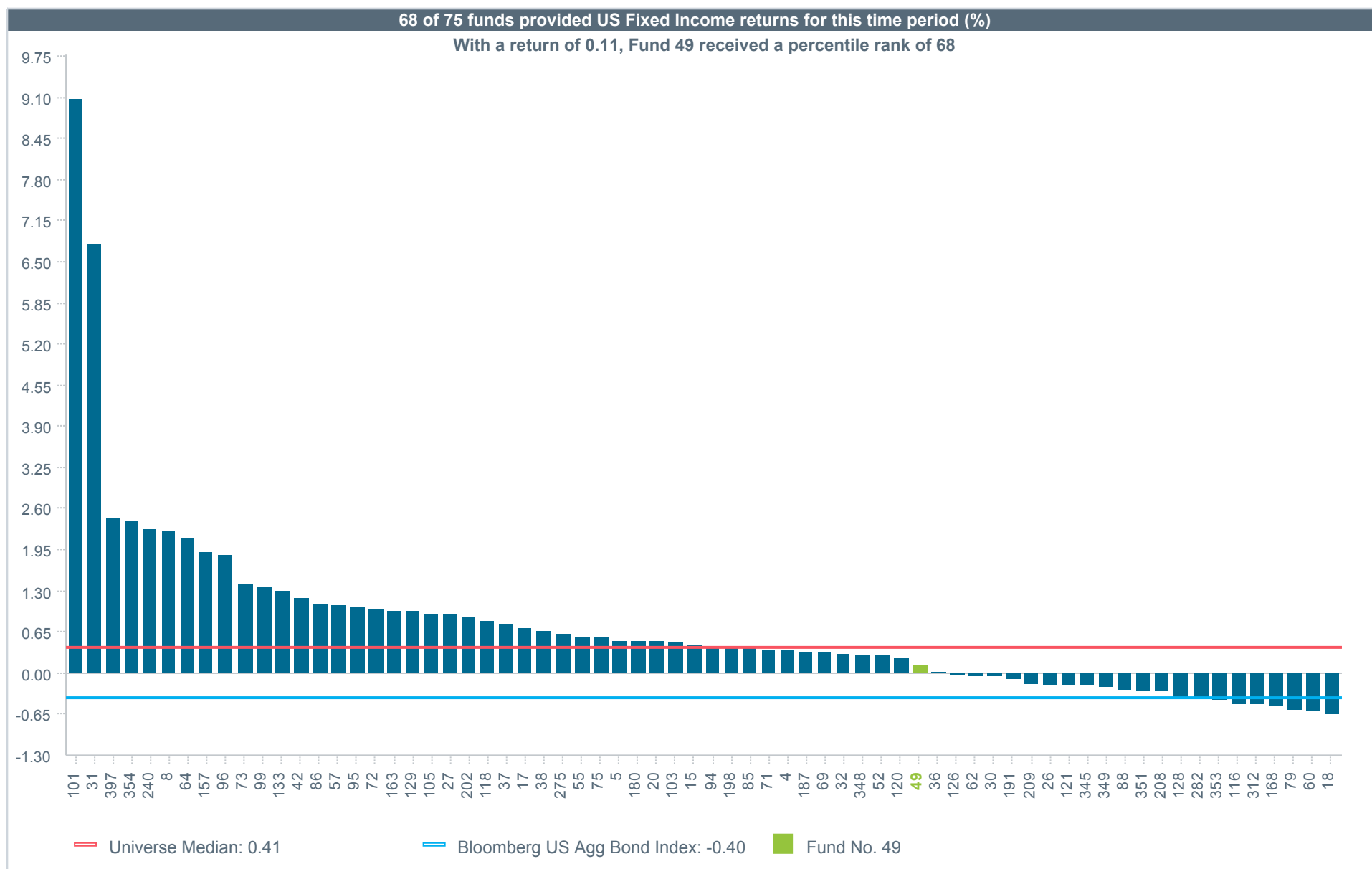




Funds with less history than the specified time period will not appear in the chart.

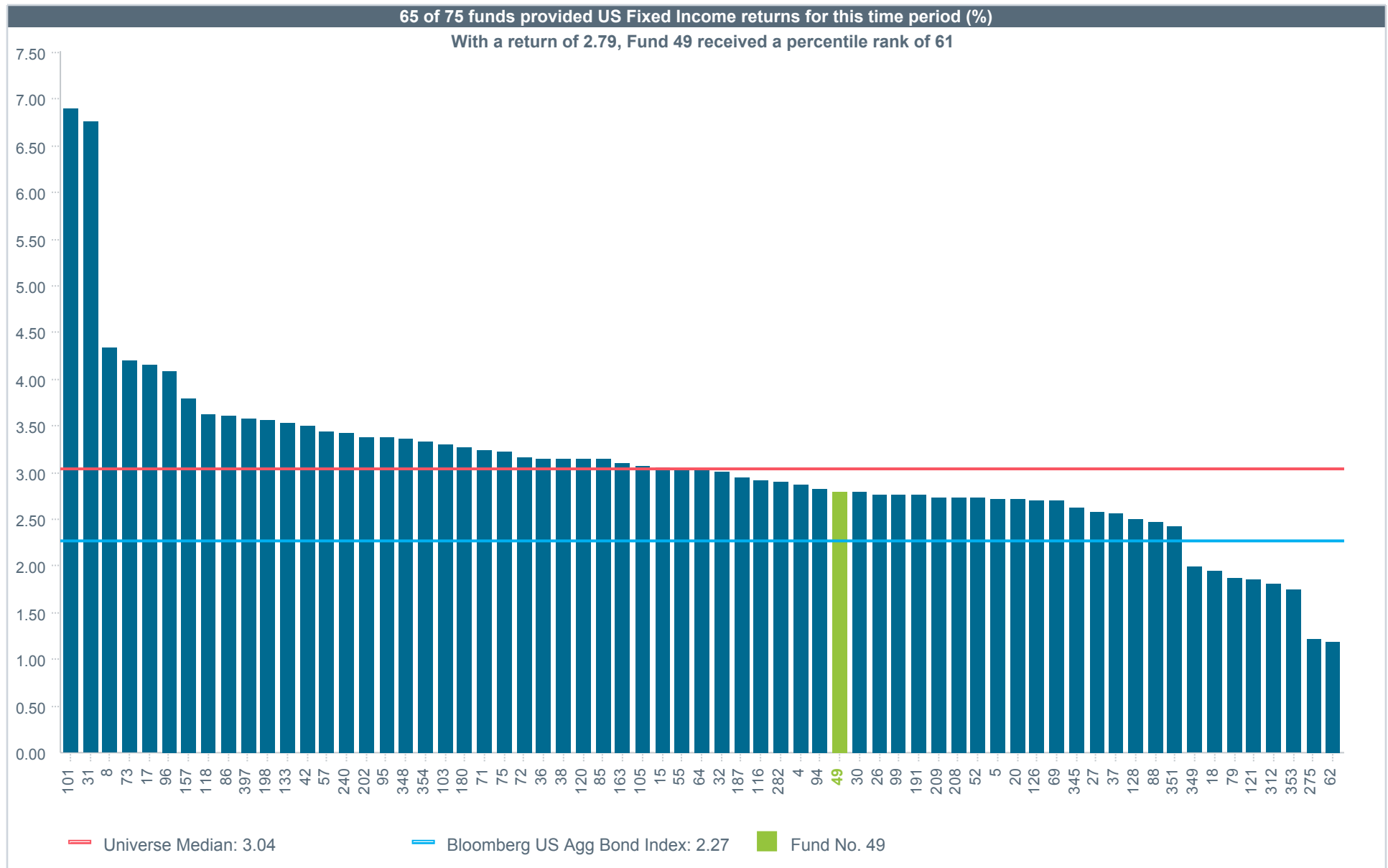
Calendar Year Rates of Return (%)	Cumulative Performance (Growth of \$100)
Fund No. 49 does not have return data for Global Equity	

Annualized Returns (%)			
	1 Year	3 Years	5 Years
Fund No. 49	N/A	N/A	N/A
MSCI ACW Index (USD) (Gross)	N/A	N/A	N/A
Variance	N/A	N/A	N/A



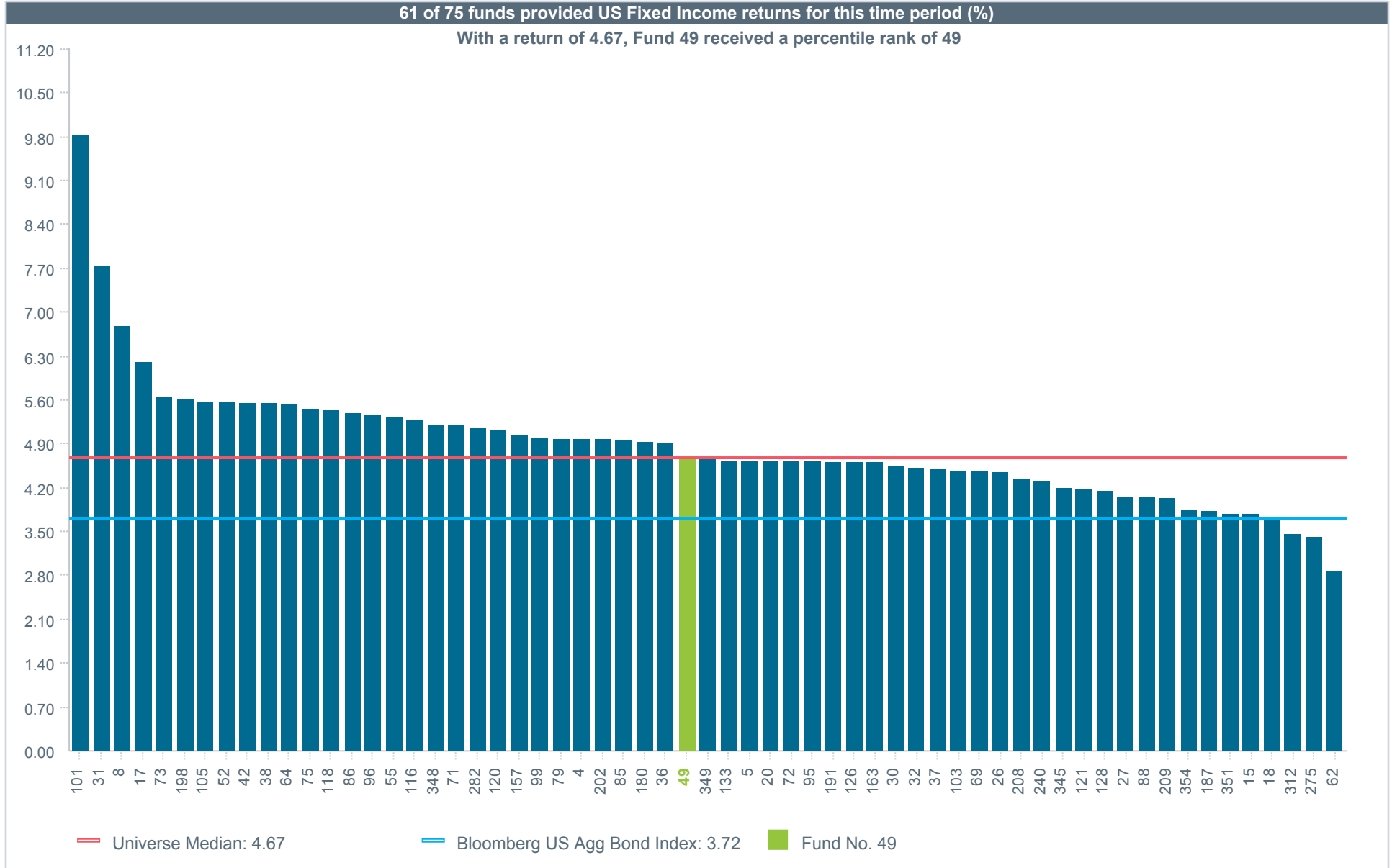
Funds with less history than the specified time period will not appear in the chart.





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

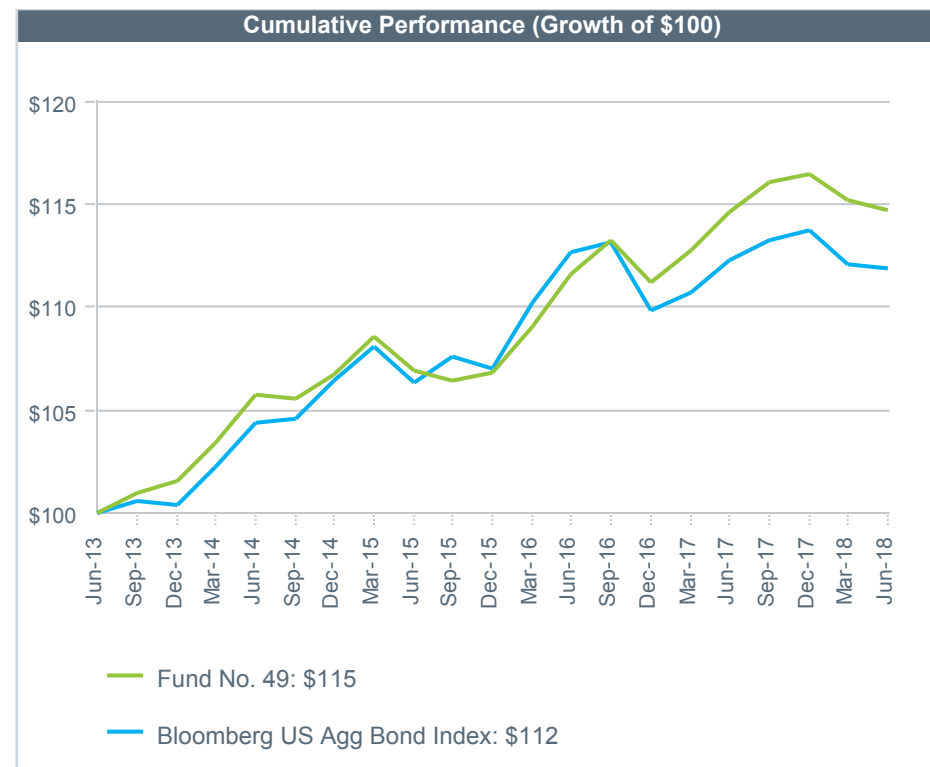
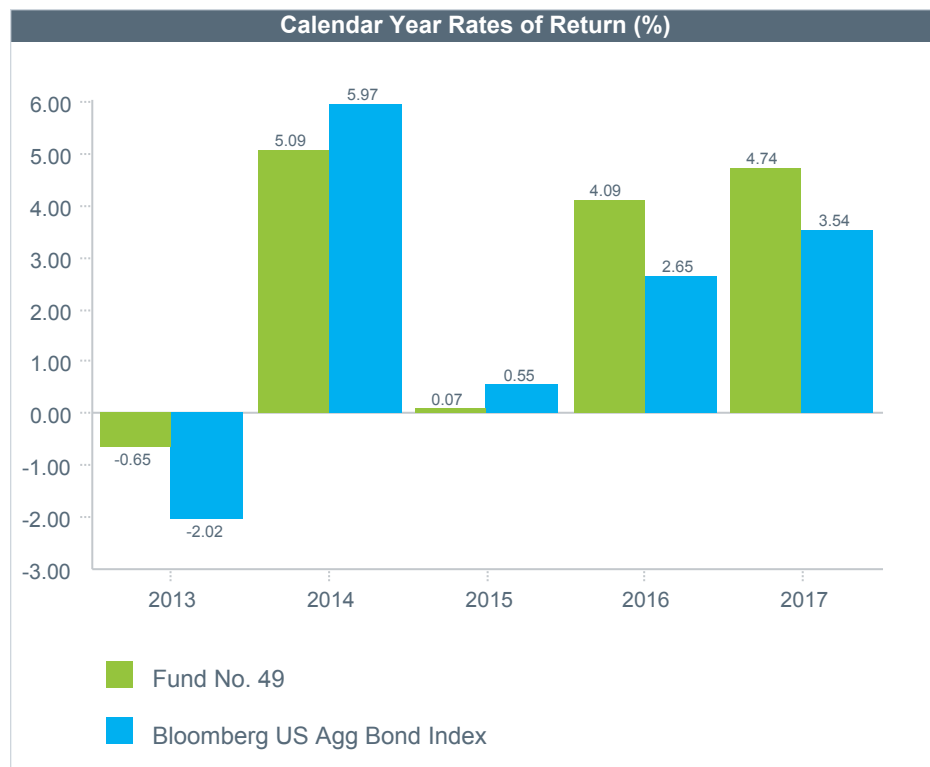




Funds with less history than the specified time period will not appear in the chart.

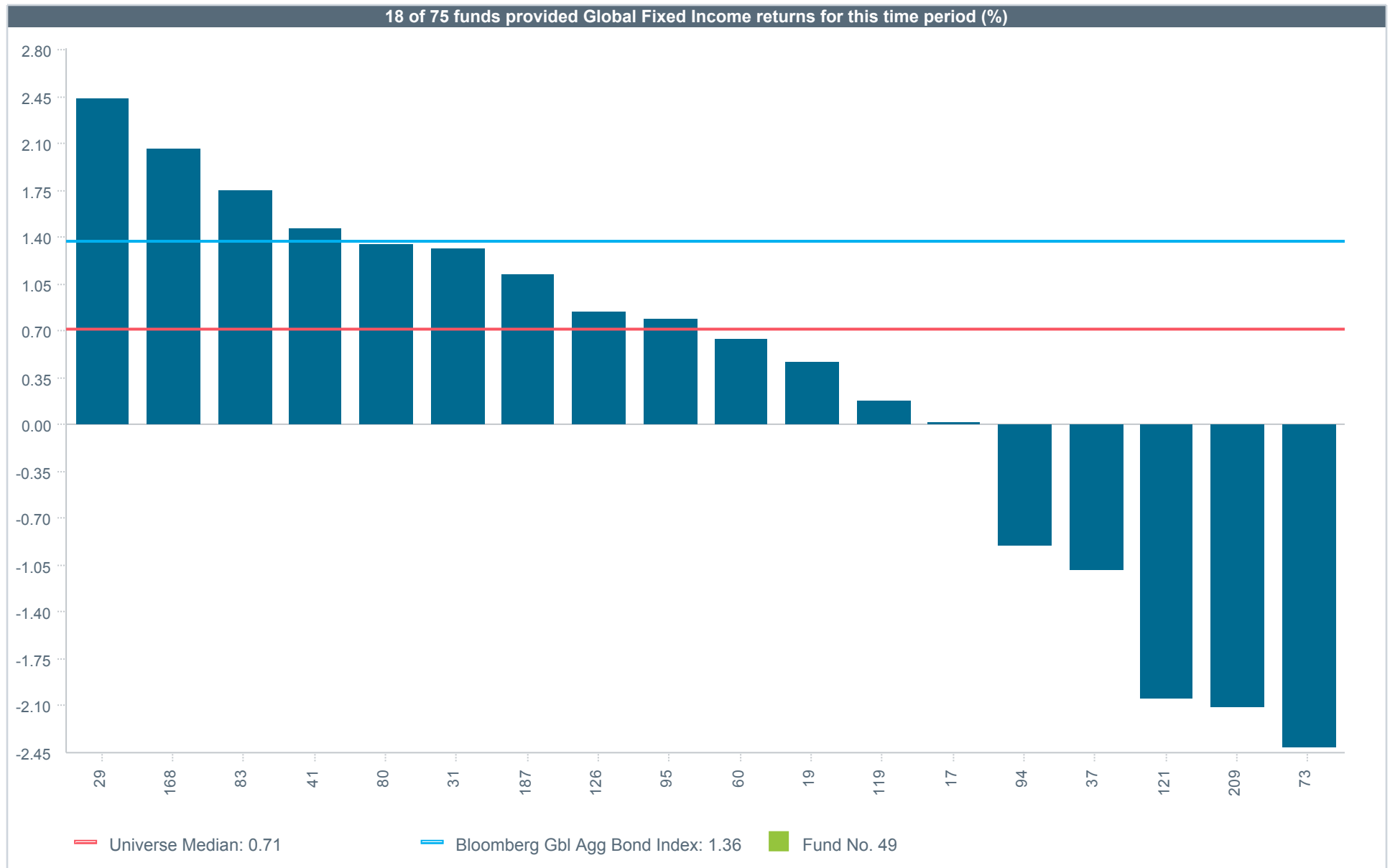
**Total Return - US Fixed Income**  
**Fund No. 49 vs. Bloomberg US Agg Bond Index**

As of June 30, 2018

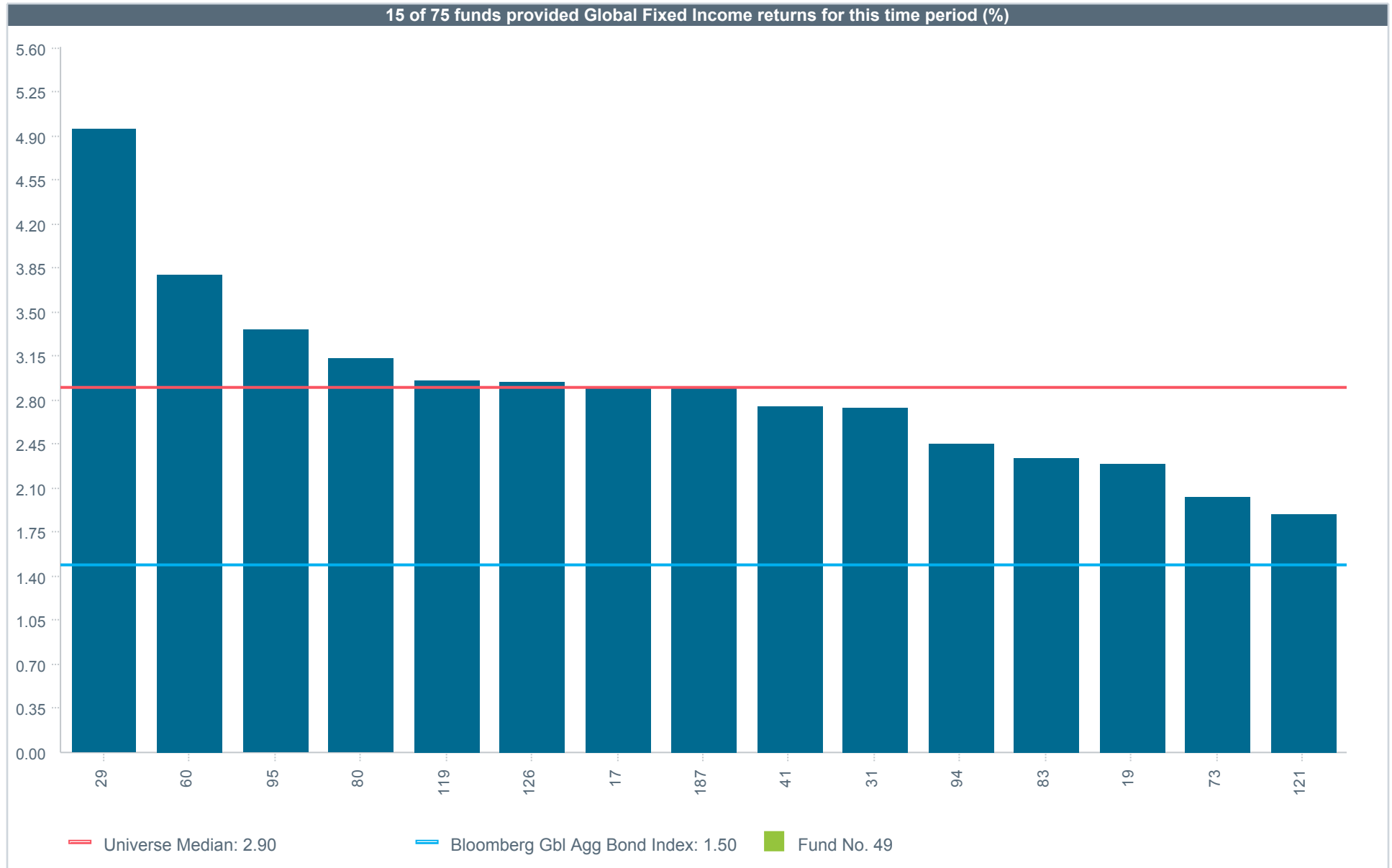


Annualized Returns (%)			
	1 Year	3 Years	5 Years
Fund No. 49	0.11	2.37	2.79
Bloomberg US Agg Bond Index	-0.40	1.72	2.27
Variance	0.51	0.65	0.52

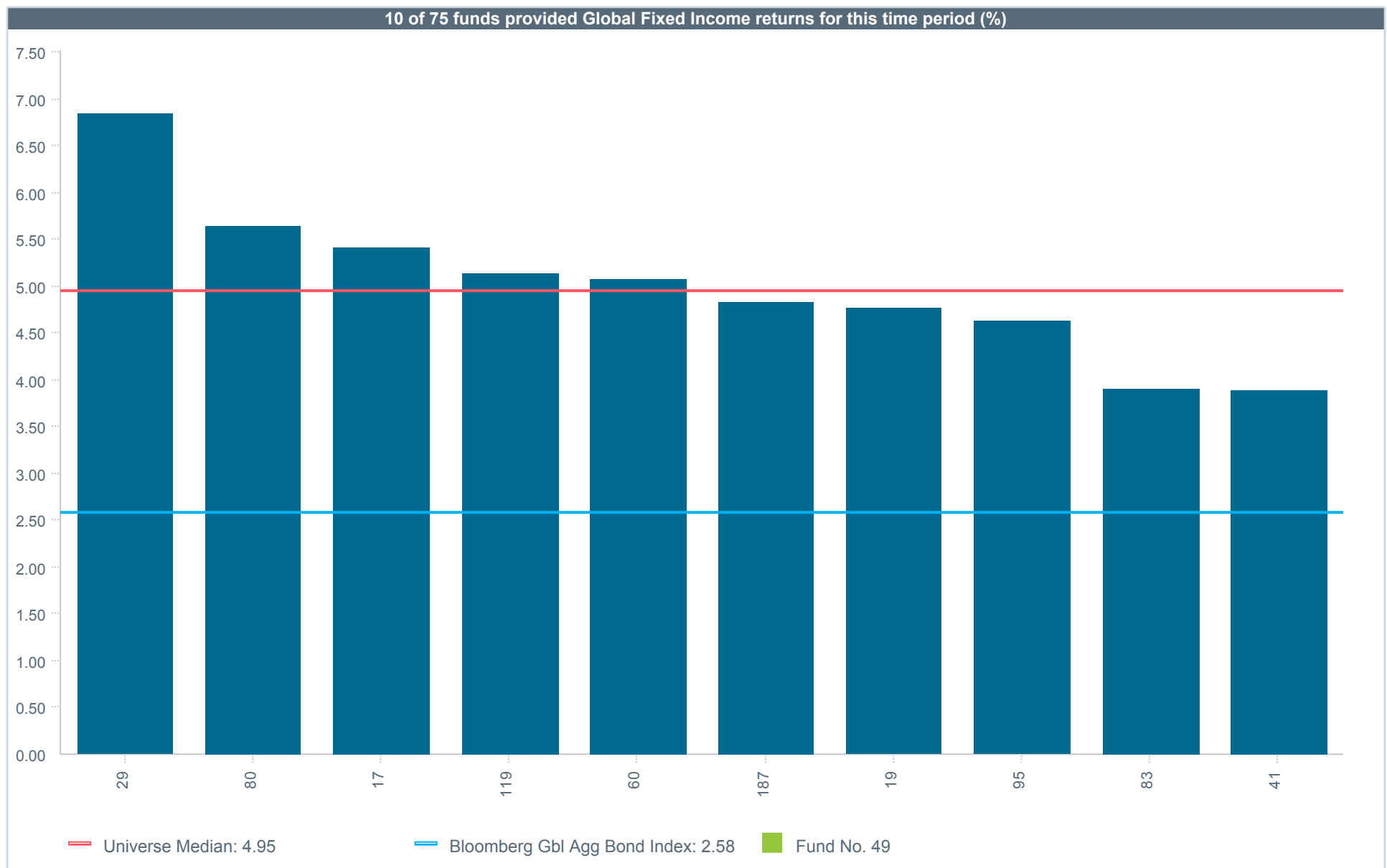




Funds with less history than the specified time period will not appear in the chart.



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

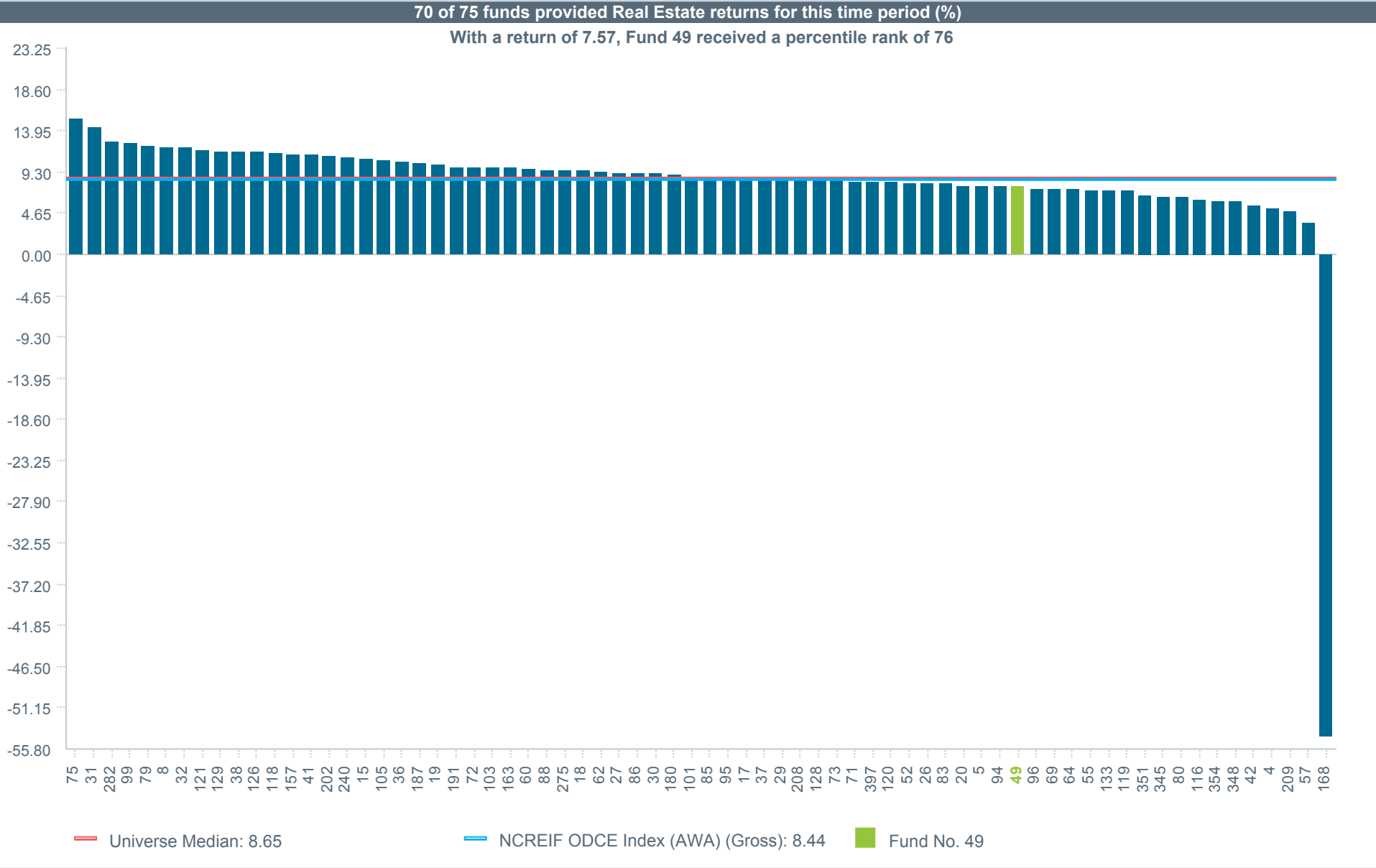


Funds with less history than the specified time period will not appear in the chart.



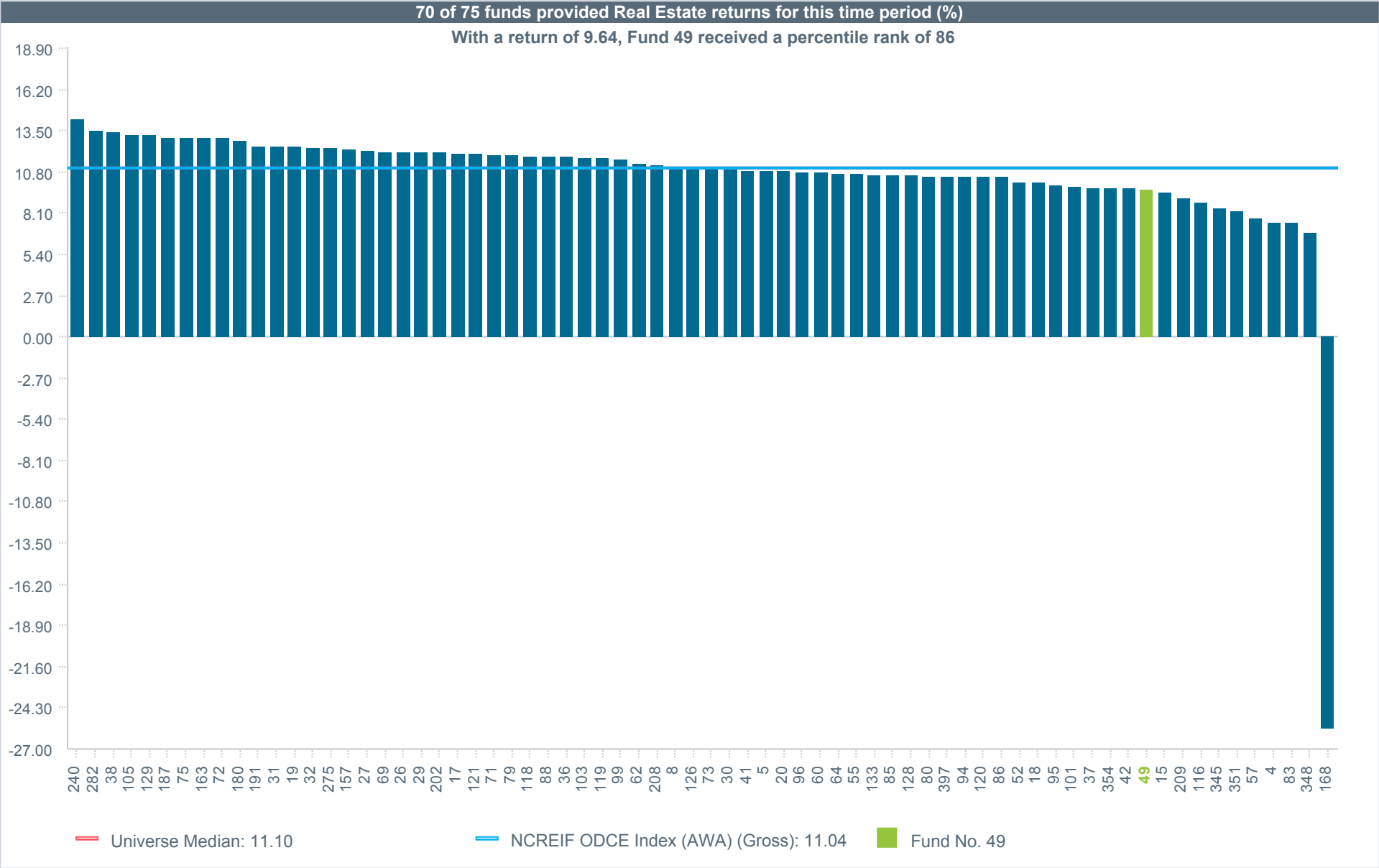
Calendar Year Rates of Return (%)	Cumulative Performance (Growth of \$100)
Fund No. 49 does not have return data for Global Fixed Income	

Annualized Returns (%)			
	1 Year	3 Years	5 Years
Fund No. 49	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.

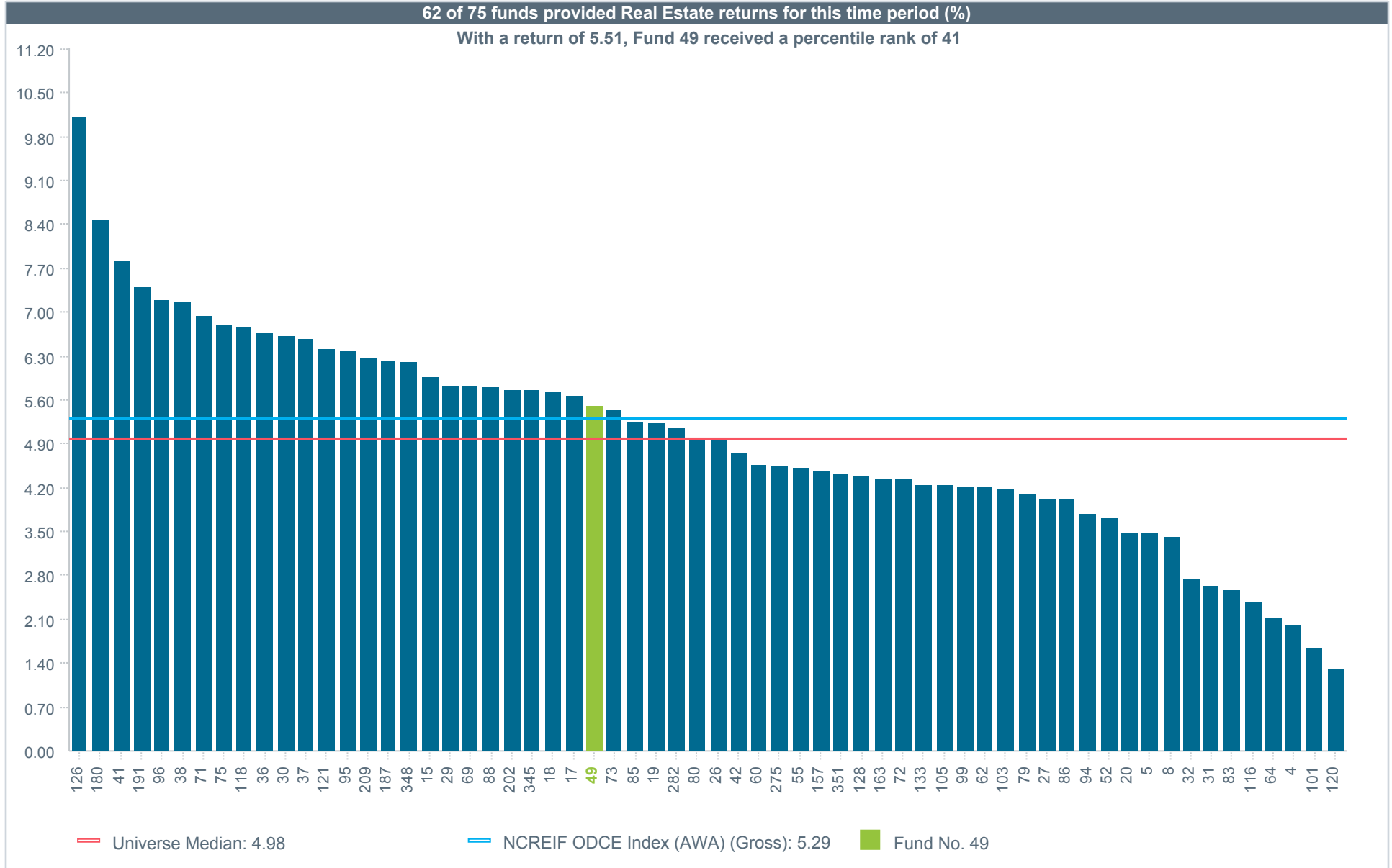




Funds with less history than the specified time period will not appear in the chart.



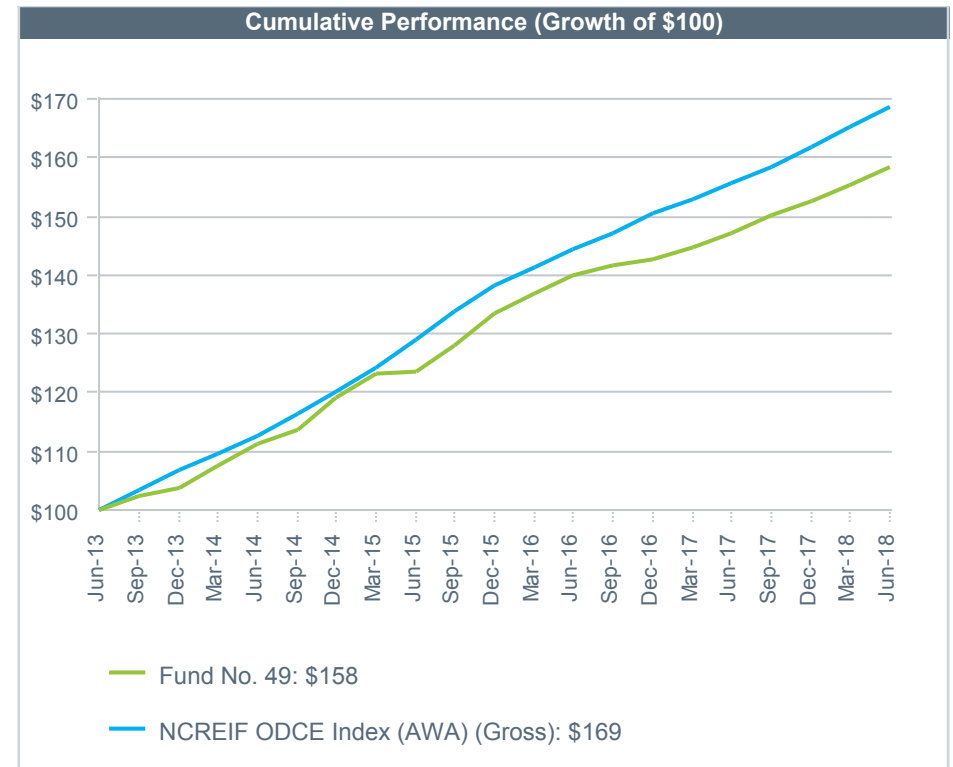
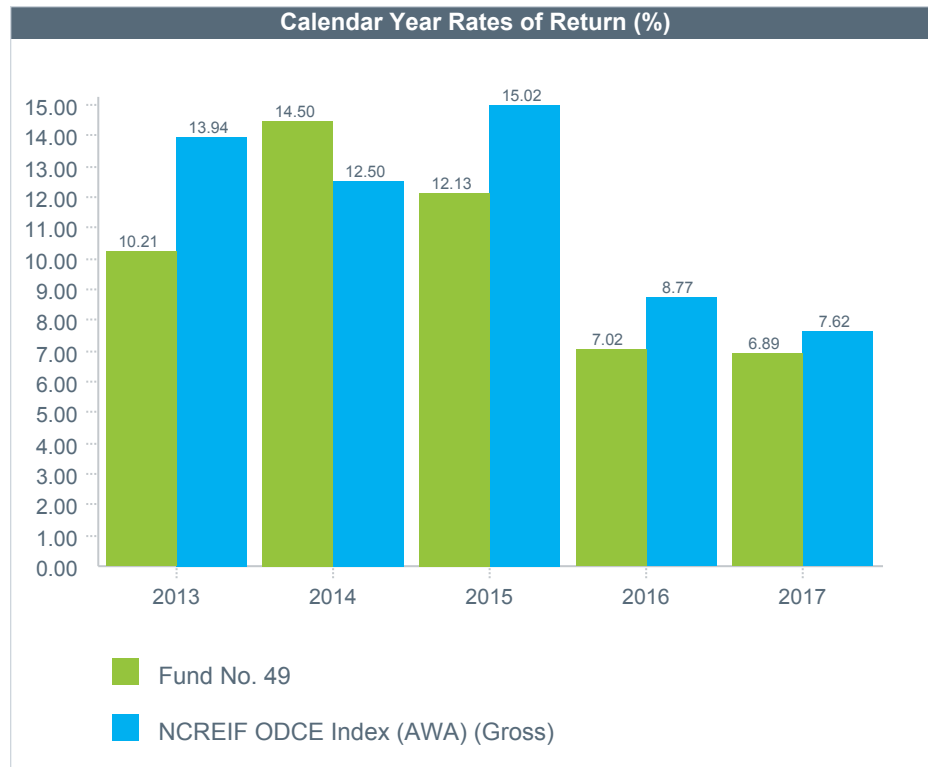




Funds with less history than the specified time period will not appear in the chart.

**Total Return - Real Estate**  
**Fund No. 49 vs. NCREIF ODCE Index (AWA) (Gross)**

As of June 30, 2018



Annualized Returns (%)			
	1 Year	3 Years	5 Years
Fund No. 49	7.57	8.64	9.64
NCREIF ODCE Index (AWA) (Gross)	8.44	9.37	11.04
Variance	-0.87	-0.73	-1.40



5 Year Annualized Total Fund Returns vs. Standard Deviation



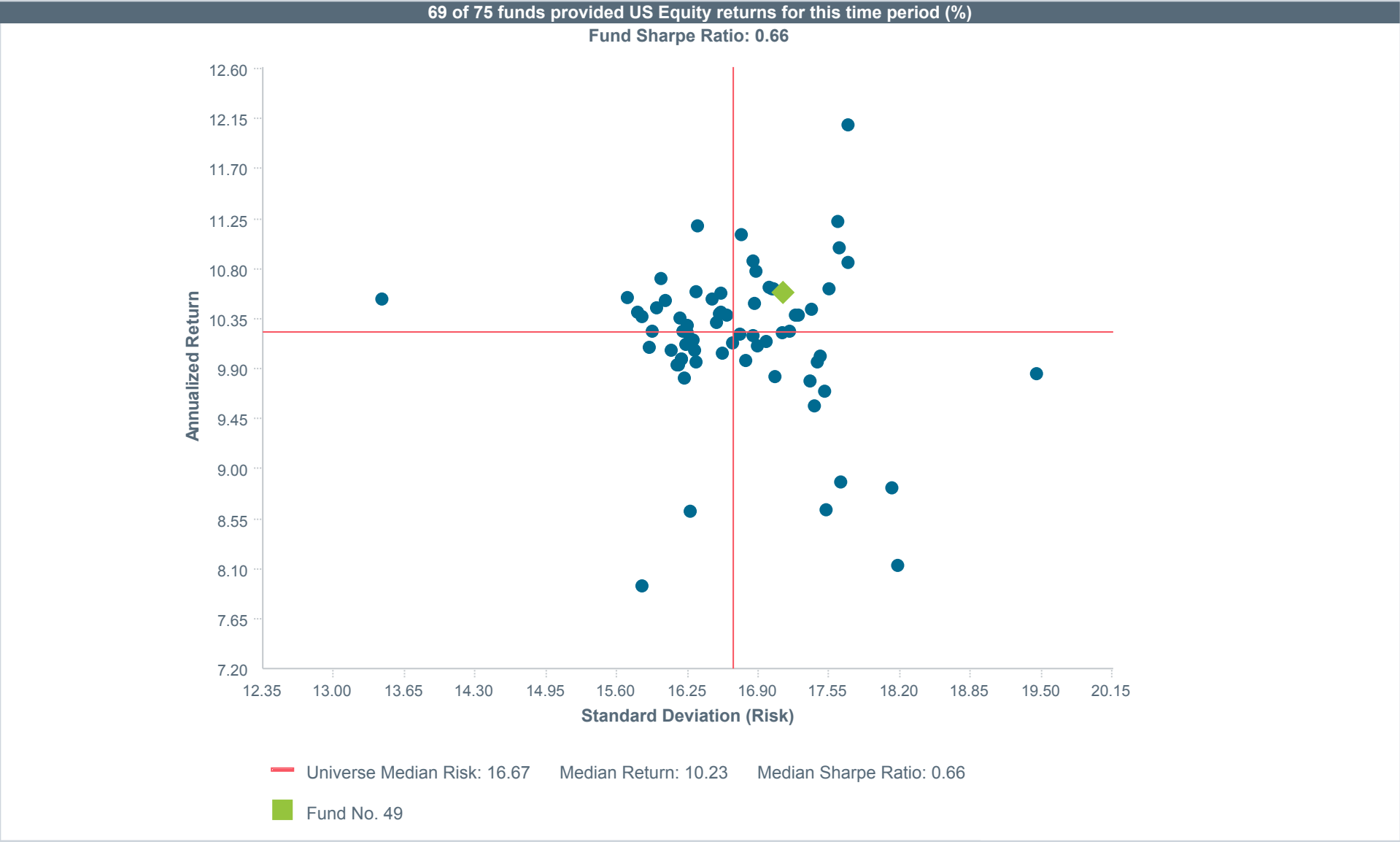
Funds with less history than the specified time period will not appear in the chart.



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.



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

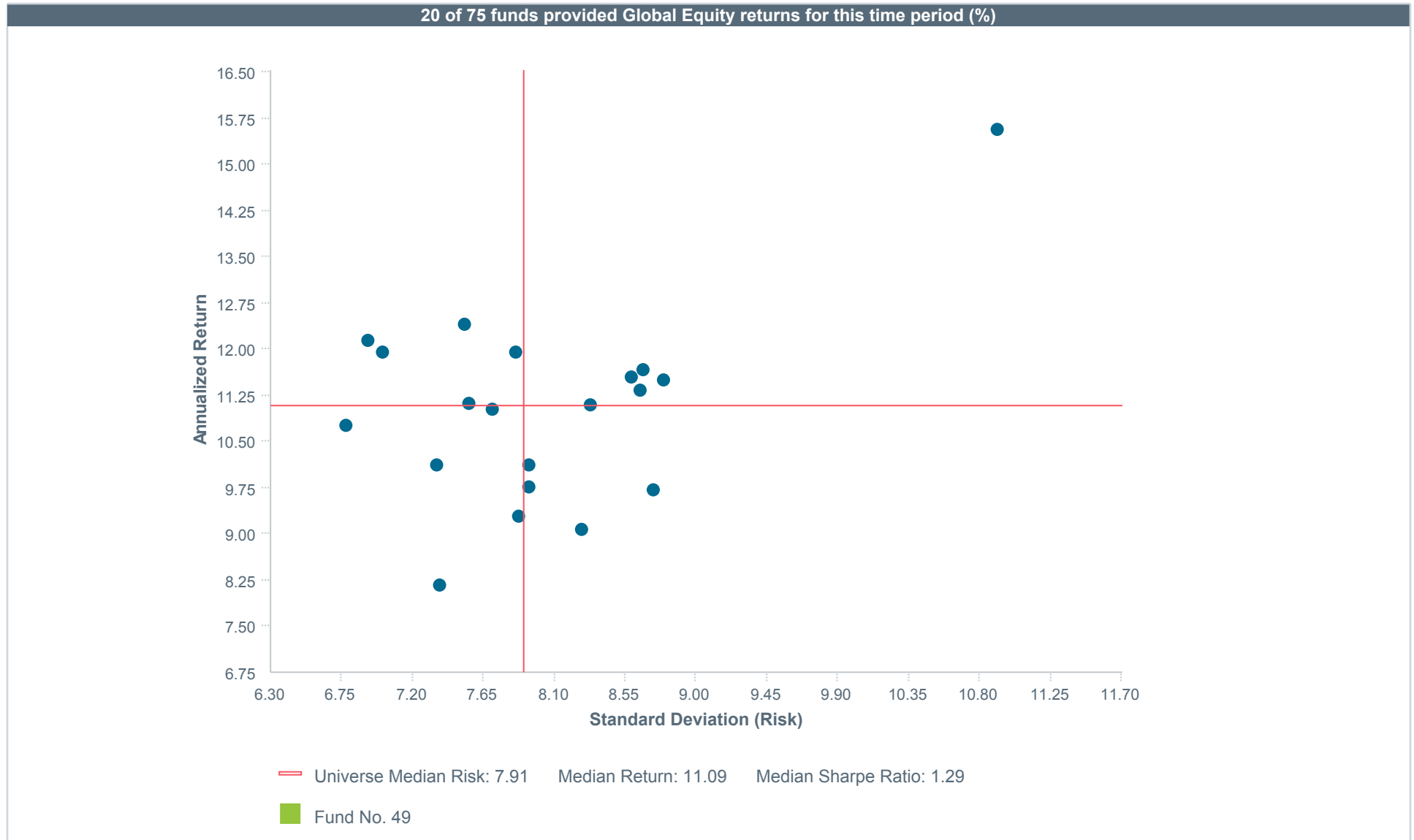


Funds with less history than the specified time period will not appear in the chart.

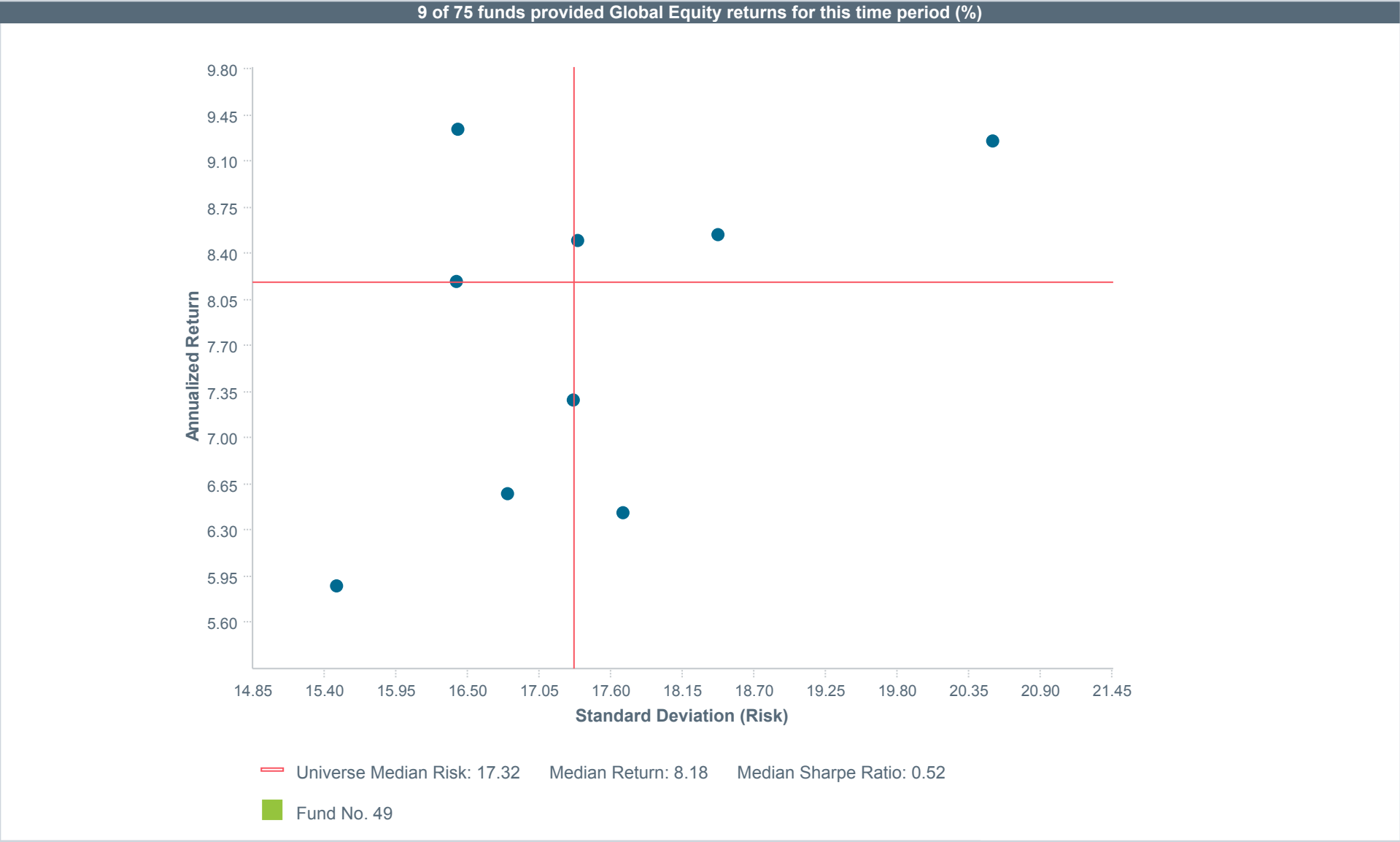


Funds with less history than the specified time period will not appear in the chart.





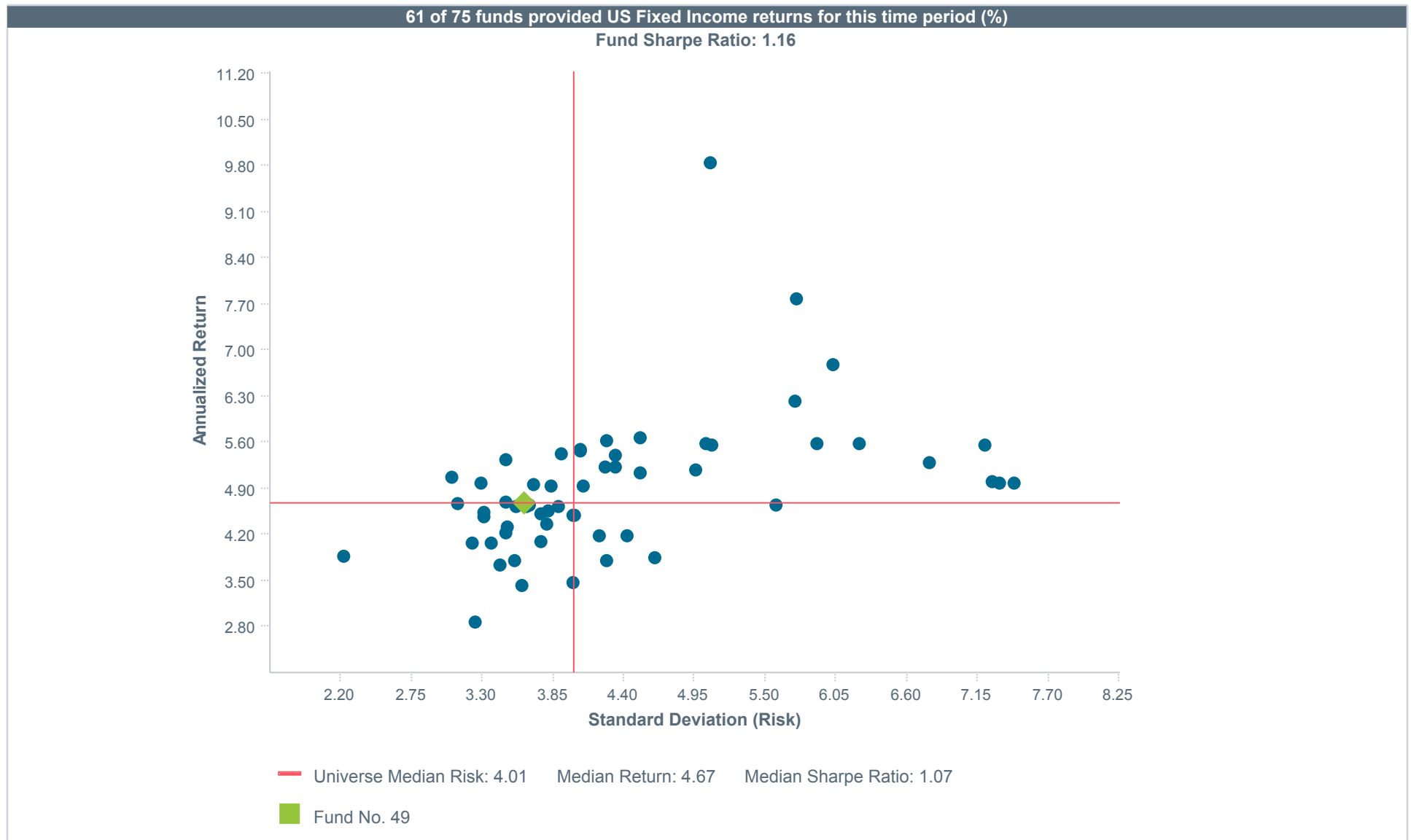
Funds with less history than the specified time period will not appear in the chart.



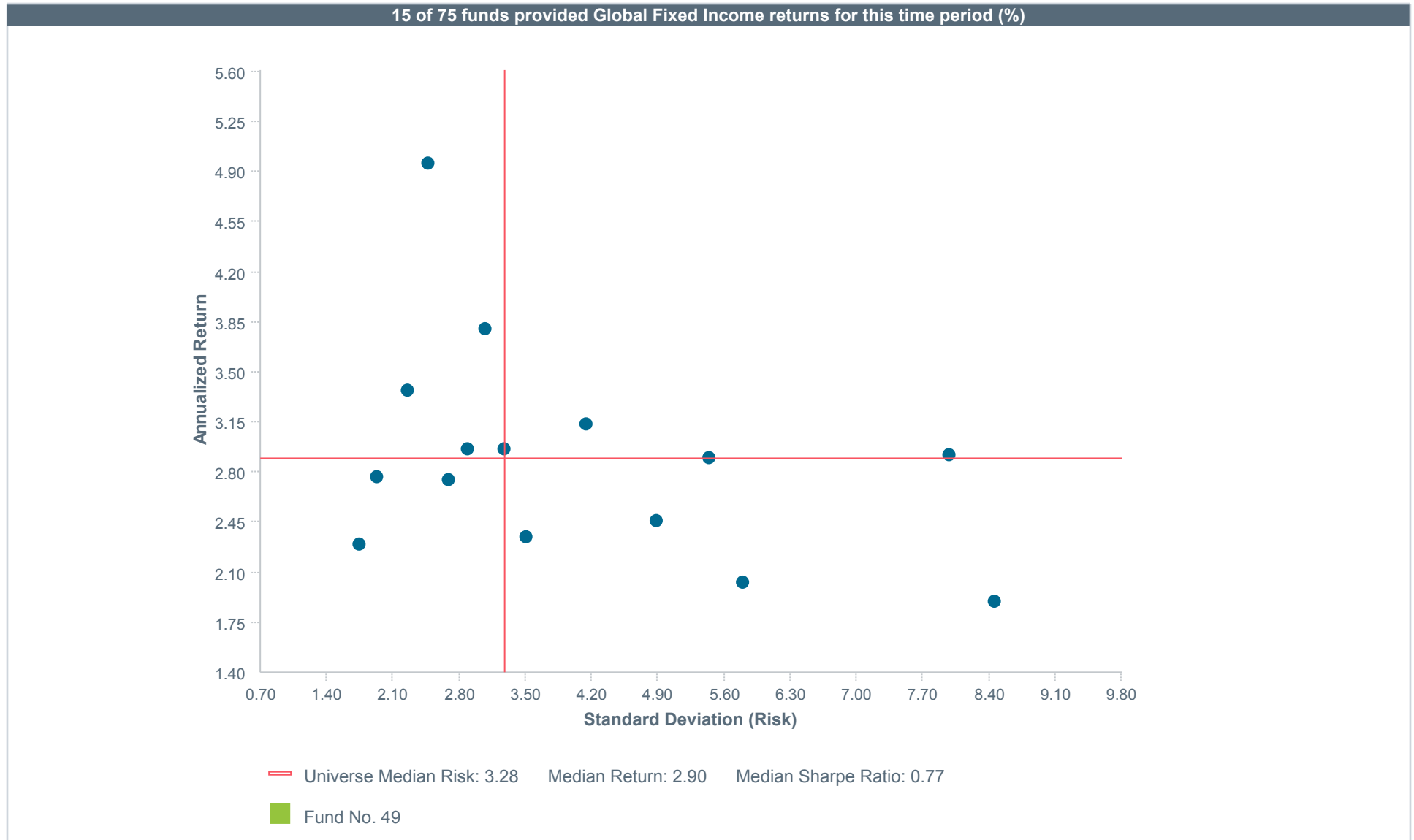
Funds with less history than the specified time period will not appear in the chart.



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

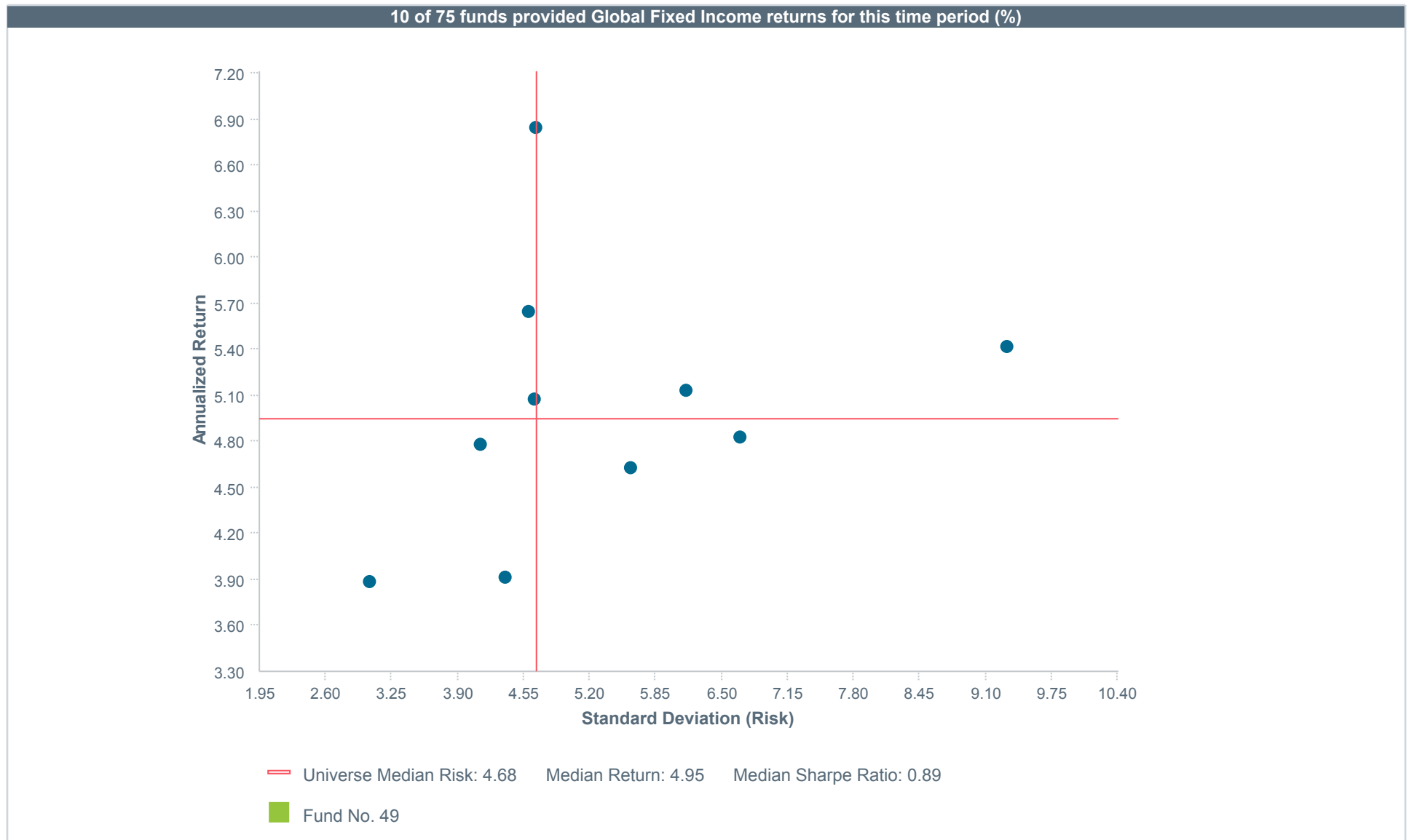


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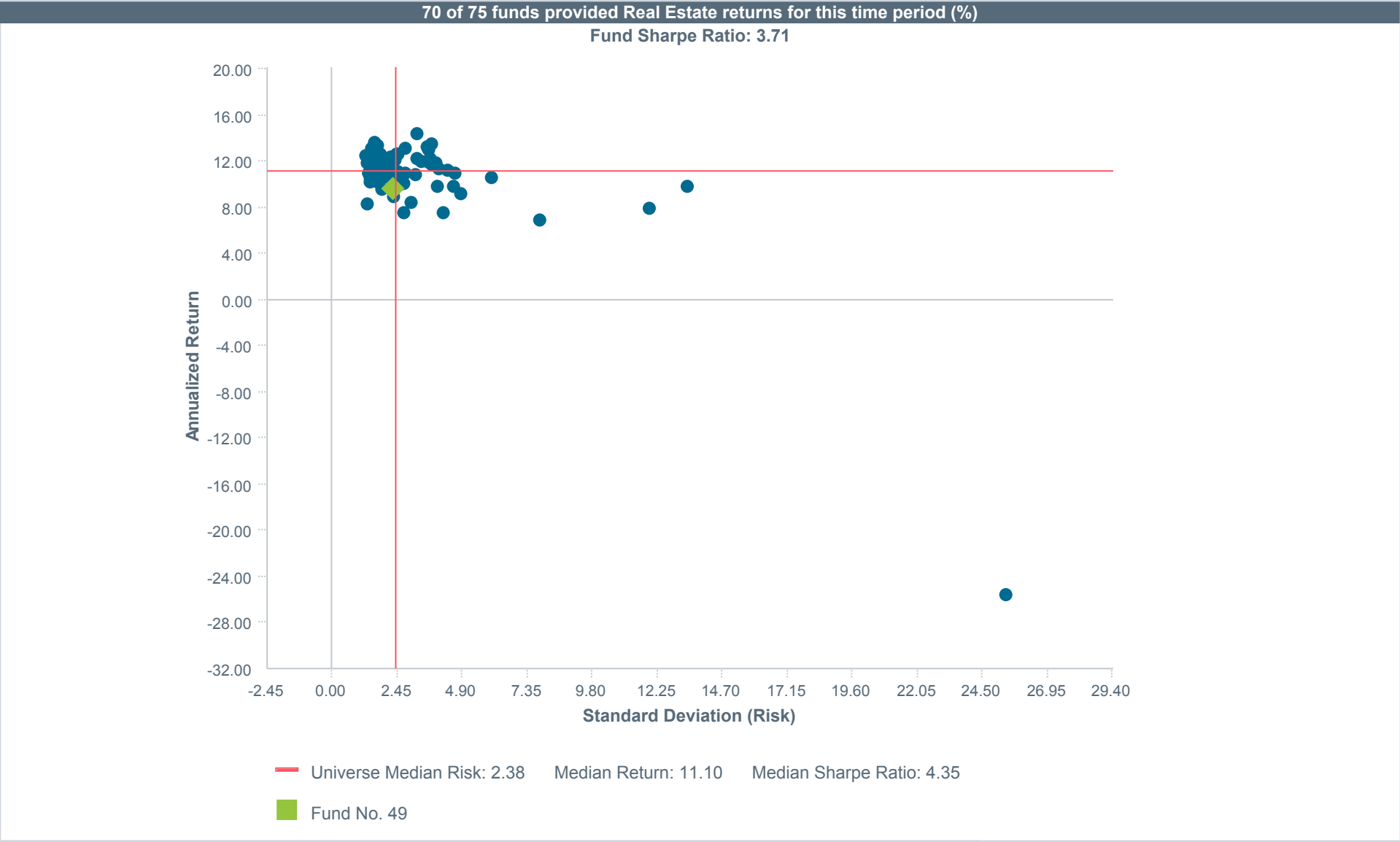


Funds with less history than the specified time period will not appear in the chart.

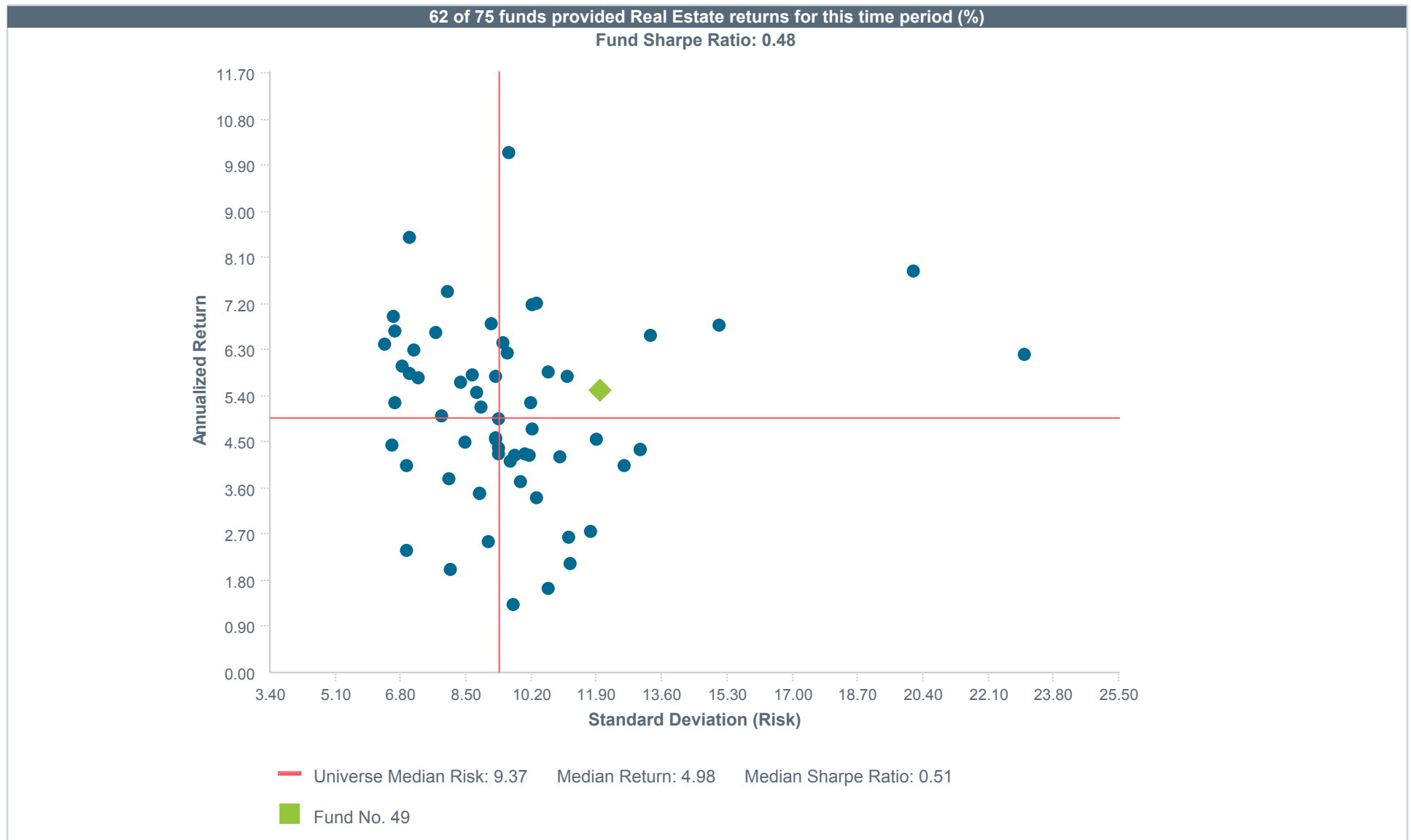
10 Year Annualized Global Fixed Income Returns vs. Standard Deviation



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.

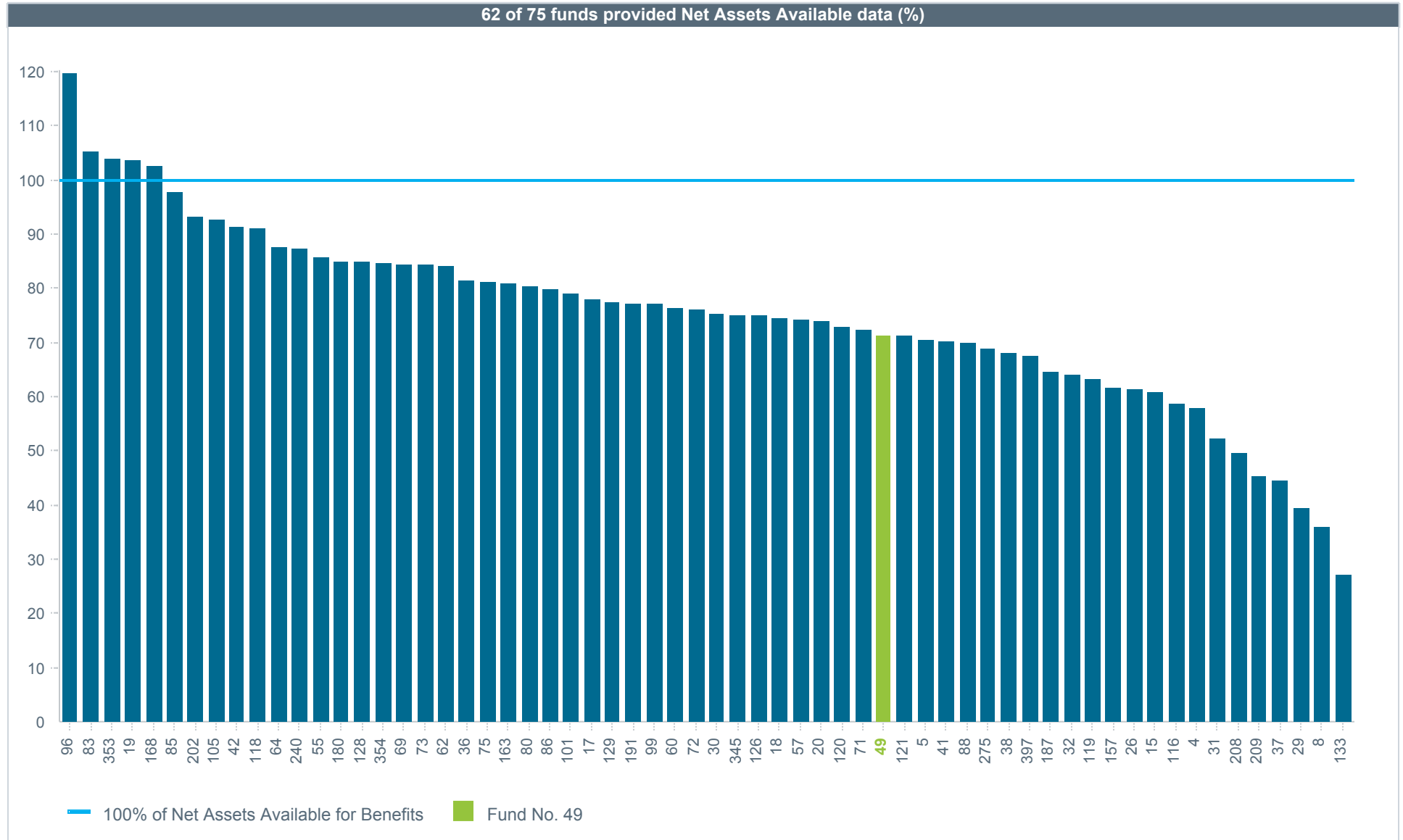


Funds with less history than the specified time period will not appear in the chart.



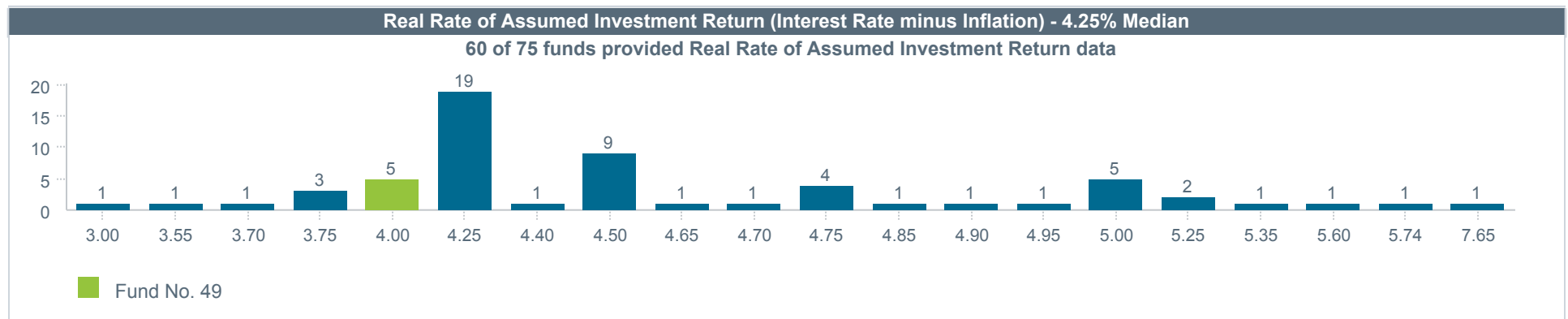
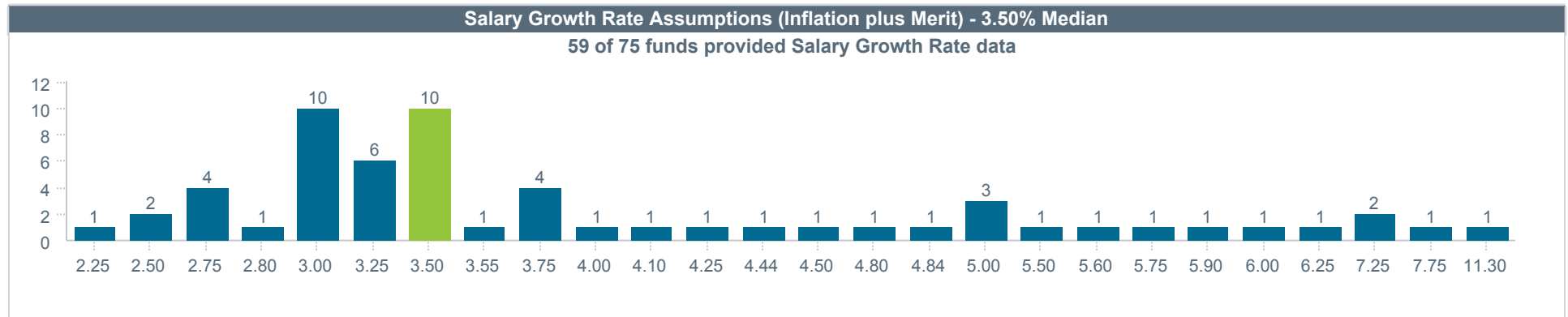
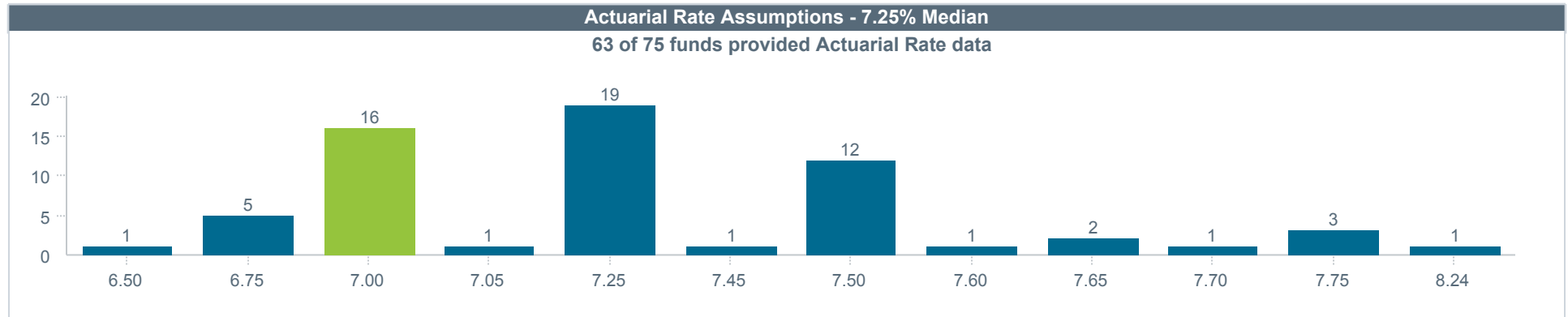
**Net Assets Available For Benefits**  
Expressed as a Percentage of the Pension Benefit Obligation

As of June 30, 2018



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





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

### Overlay Survey Summary

Q1. Of the 75 participants in the 2018 Q2 Public Fund Report, 57 participants provided a response to the Overlay Survey. Of those participants, 27 answered 'Yes', 4 answered 'Yes, considering', and 26 answered 'No'.

Q2. Of the 29 participants that provided a response to the Overlay Survey and have exposure to an overlay manager or managers, the purposes of the overlay programs are distributed as follows:

- 31.03 % Manage foreign currency risk
- 31.03 % Generate alpha
- 0.00 % Match Plan liabilities more closely (either as part of an explicit or conceptual framework)
- 3.45 % Express a view on US Dollar
- 0.00 % Manage market risk within an LDI construct
- 13.79 % Tactical asset allocation
- 48.28 % Cash equitization
- 51.72 % Rebalancing management
- 27.59 % Transition management
- 0.00 % Other

Q3. Of the 11 participants that provided a response to the Overlay Survey and have exposure to a currency manager or managers, the program structures are distributed as follows:

- 54.55 % Static hedge ratio
- 36.36 % Dynamic hedging program where manager varies the hedge ratio
- 27.27 % Alpha generating currency manager focused on absolute return

Q4. Of the 6 respondents that indicated use of a hedge ratio on a currency program, the responses are distributed as follows:

- 3 responses indicated 50.00 % hedge on Developed Equity exposure
- 1 response indicated 75.00 % hedge on Developed Equity exposure
- 1 response indicated 25.00 % hedge on All Equities
- 1 response indicated 50.00 % hedge on Other - 50% hedged/50% unhedged currency benchmark

**Miscellaneous Comments**

- Performance shown is gross of fees, with the exception of the following:
  - **Funds 8, 31, 49, 350, 351, and 397:** Performance shown is net of fees.
  - **Funds 5 and 20:** Performance shown is net of fees, except for Total Fund performance.
  - **Funds 55, 75, and 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 June 2017 and June 2018.
- Allocations shown reflect dedicated managers/mandates rather than actual exposure, with the exception of the following:
  - **Funds 29, and 119:** Performance shown for Global Fixed Income includes US and Non-US exposure.
  - **Fund 121:** Performance shown for Global Fixed Income includes Non-US exposure.
  - **Funds 4, 42, 64, and 240:** 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., ICE BofAML 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.

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