

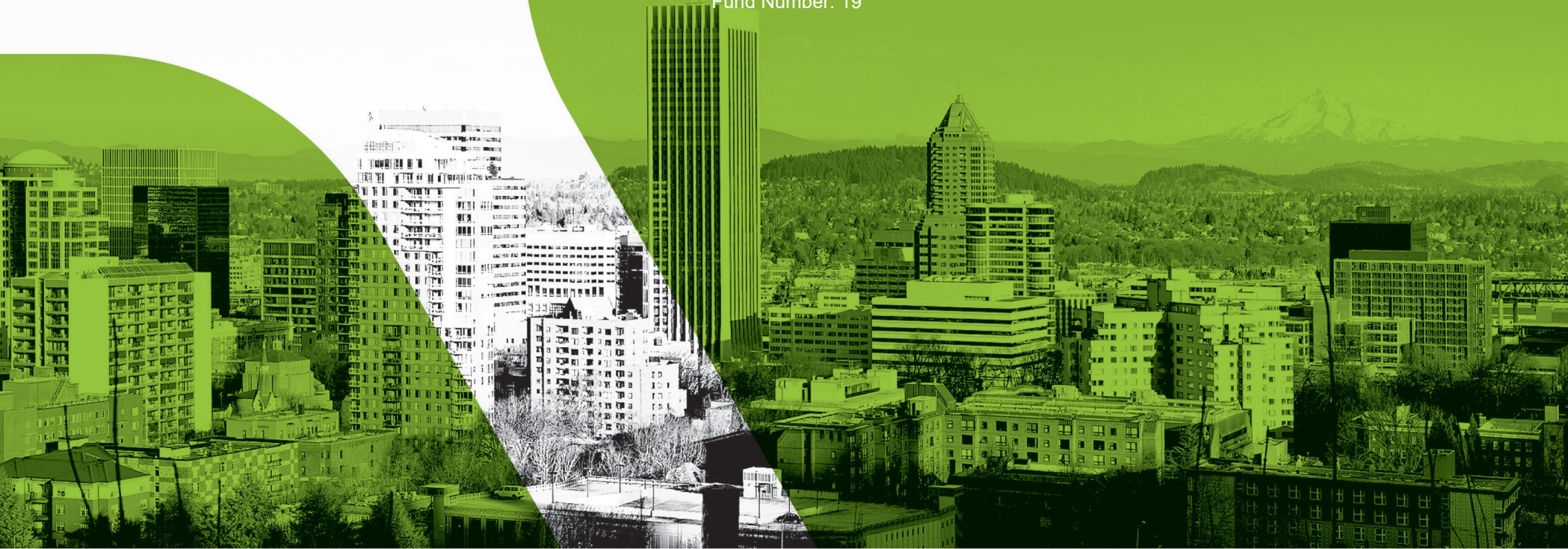


# Public Fund Universe Analysis

## Sample Fund

Period Ending December 31, 2022

Fund Number: 19



## OVERVIEW

RVK, Inc. (RVK) was founded in 1985 and is one of the largest independent and employee-owned investment consulting firms in the world, as reported by *Pensions & Investments Special Report – Consultants*. We provide strategic investment advice to institutional investors with pension plans, defined contribution plans, endowments & foundations, insurance pools, and special purpose funds. In April 2022, RVK was the *only* firm to receive a *Coalition Greenwich Quality Leader Award* for a fifth consecutive year. Coalition Greenwich issued an award on April 26, 2022 based on their July through October 2021 study. No direct or indirect compensation has been paid by RVK in connection with obtaining or using this award.

## MISSION STATEMENT

To provide unbiased investment advice and long-term solutions to institutional investors, based on our cornerstones of trust, client service, and professional expertise.

## STRATEGIC INVESTMENT ADVICE AND EXPLICIT NO-CONFLICTS-OF-INTEREST POLICY

RVK has built its investment consulting practice on the principles of integrity, investment expertise, 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 clients' needs.

## KEY TENETS OF OUR CULTURE



### **RVK BY THE NUMBERS**

- **37** Years of Business
- **4** offices - Portland, Boise, Chicago, New York
- **\$1** trillion Full-Retainer AUA
- **100+** 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
- ESG / Impact Investing Advice
- Client Education
- Special Projects

### **SPECIALTY CONSULTING SERVICES**

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- Custody, Recordkeeper, 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 Jacksonville Police and Fire Retirement Fund  
 City of Plano Other Post-Employment Benefits Trust  
 Civilian Employees' Retirement System of the Police Department of Kansas City, Missouri  
 Employees Retirement System of Texas  
 Gila River Indian Community Retirement Plan  
 Iowa Public Employees' Retirement System  
 Kansas Public Employees' Retirement System  
 Los Angeles Water & Power Employees Retirement Plan  
 Mendocino County Employees' Retirement Association  
 Montana Public Employees' Retirement System  
 Municipality of Anchorage Pre-Funding Program  
 New York State Common Retirement Fund  
 Ohio Public Employees' Retirement System  
 Oklahoma Law Enforcement Retirement System  
 Oklahoma Public Employees Retirement System  
 Oklahoma Uniform Retirement System for Justices and Judges  
 Orange County Employees' Retirement System  
 Pennsylvania State Employees' Retirement System  
 Public School and Education ERS of Missouri  
 San Diego City Employees' Retirement System  
 San Diego Transit Corporation Employees Retirement  
 Santa Barbara County Employees' Retirement System  
 South Dakota Retirement System  
 State Teachers Retirement System of Ohio  
 Teachers' Retirement System of the State of Illinois  
 The Navajo Nation Retirement Plan

Anchorage Police & Fire Retirement System  
 California State Teachers' Retirement System  
 City of Austin Employees' Retirement System  
 City of Jacksonville Retirement System  
 City of Plano Retirement Security Plan  
 Confederated Tribes of the Warm Springs Tribal Council Pension Fund

**Sample Fund (Fund No. 19)**

Imperial County Employees' Retirement System  
 Kansas City, Missouri Employees' Retirement System  
 Los Angeles Fire and Police Pension System  
 Marin County Employees' Retirement Association  
 Merced County Employees' Retirement Association  
 Montana Teachers' Retirement System  
 Nevada Public Employees' Retirement System  
 North Carolina Retirement System  
 Oklahoma Firefighters Pension and Retirement System  
 Oklahoma Police Pension and Retirement System  
 Oklahoma Teachers' Retirement System  
 Oklahoma Wildlife Conservation Retirement System  
 Pennsylvania Public School Employees' Retirement System  
 Police Retirement System of Kansas City, Missouri  
 Sacramento County Employees' Retirement System  
 San Diego County Employees Retirement Association  
 San Mateo County Employees' Retirement Association  
 Sonoma County Employees' Retirement Association  
 State of New Jersey Pension Fund  
 Teachers' Retirement System of Louisiana  
 Teachers' Retirement System of Kentucky



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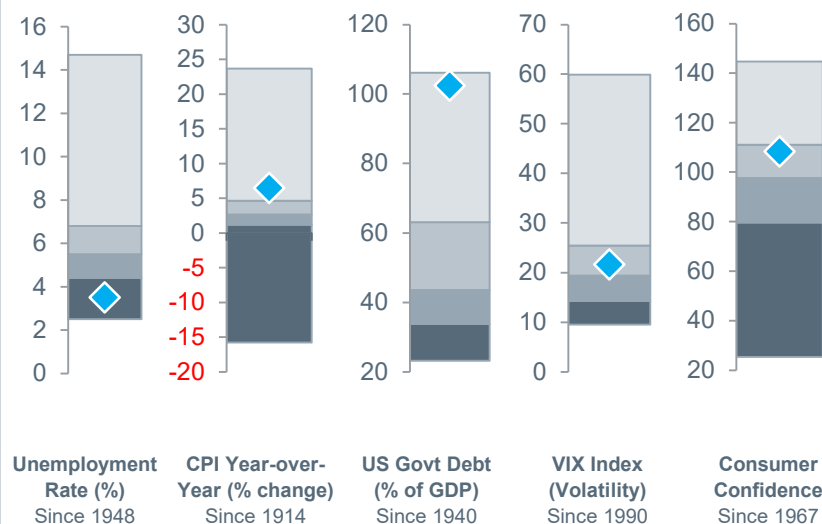
Virginia Retirement System  
Wyoming Retirement System

Vermont Pension Investment Committee  
West Virginia Investment Management Board

**Fourth Quarter Economic Environment**

In Q4, equity and fixed income markets delivered improved results while continuing to experience elevated volatility. However, positive quarterly returns came on the tail of a significantly negative year for many investors. Regarding economic conditions, the impact of tightening monetary policy and persistent inflation, combined with supply shocks and an energy crisis in Europe, are leading to increasing odds of a global recession in 2023. On a relatively positive note, recent data indicates that the inflationary environment is showing signs of abating. Notably, the US Consumer Price Index declined for a sixth straight month in December with a reading of 6.5%, the lowest level since October 2021. In December, the FOMC did slow the pace of policy rate hikes with a 50 basis point increase, following a series of four straight 75 basis point increases. Internationally, the war in Ukraine caused an energy price shock and trade tensions continue to test economic and political relationships across multiple regions. Within emerging markets, investor attention is focused on China with some pointing to signs of a softening stance toward pandemic restrictions as reason to be optimistic regarding the country's outlook. However, these views are countered with concerns over indications of social unrest and the consolidation of power around President Xi Jinping. With all this considered, global GDP growth forecasts continue to moderate with the OECD forecasting growth of 3.1% in 2022 with an expected decline to 2.2% global GDP growth in 2023.

**Key Economic Indicators**



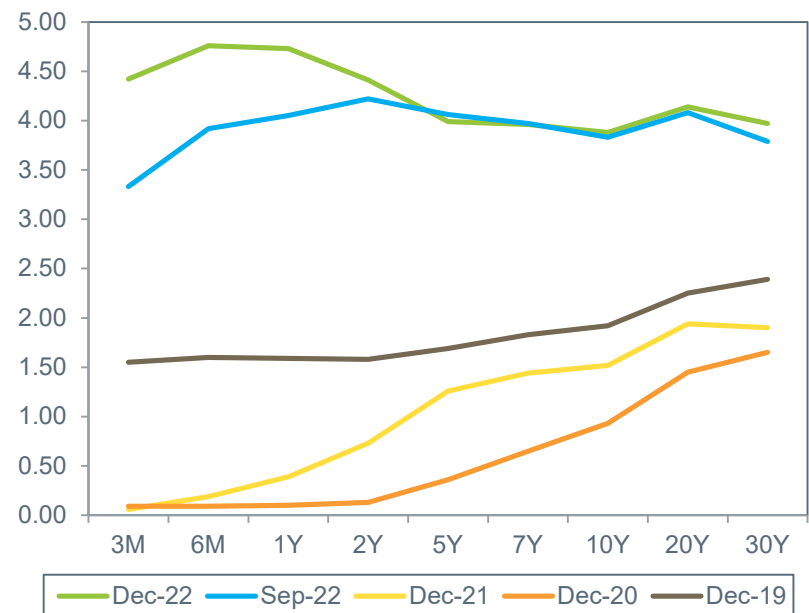
**Economic Indicators**

	Dec-22	Sep-22	Dec-21	Dec-19	20 Yr
Federal Funds Rate (%)	4.33 ▲	3.08	0.07	1.55	1.30
Breakeven Infl. - 5 Yr (%)	2.38 ▲	2.16	2.91	1.70	1.92
Breakeven Infl. - 10 Yr (%)	2.30 ▲	2.15	2.59	1.79	2.08
CPI YoY (Headline) (%)	6.5 ▼	8.2	7.0	2.3	2.5
Unemployment Rate (%)	3.5 —	3.5	3.9	3.6	6.0
Real GDP YoY (%)	1.0 ▼	1.8	5.7	2.6	2.0
PMI - Manufacturing	48.4 ▼	50.9	58.8	47.9	53.7
USD Total Wtd Idx	121.51 ▼	127.64	115.37	114.67	103.33
WTI Crude Oil per Barrel (\$)	80.3 ▲	79.5	75.2	61.1	67.9
Gold Spot per Oz (\$)	1,824 ▲	1,661	1,829	1,517	1,160

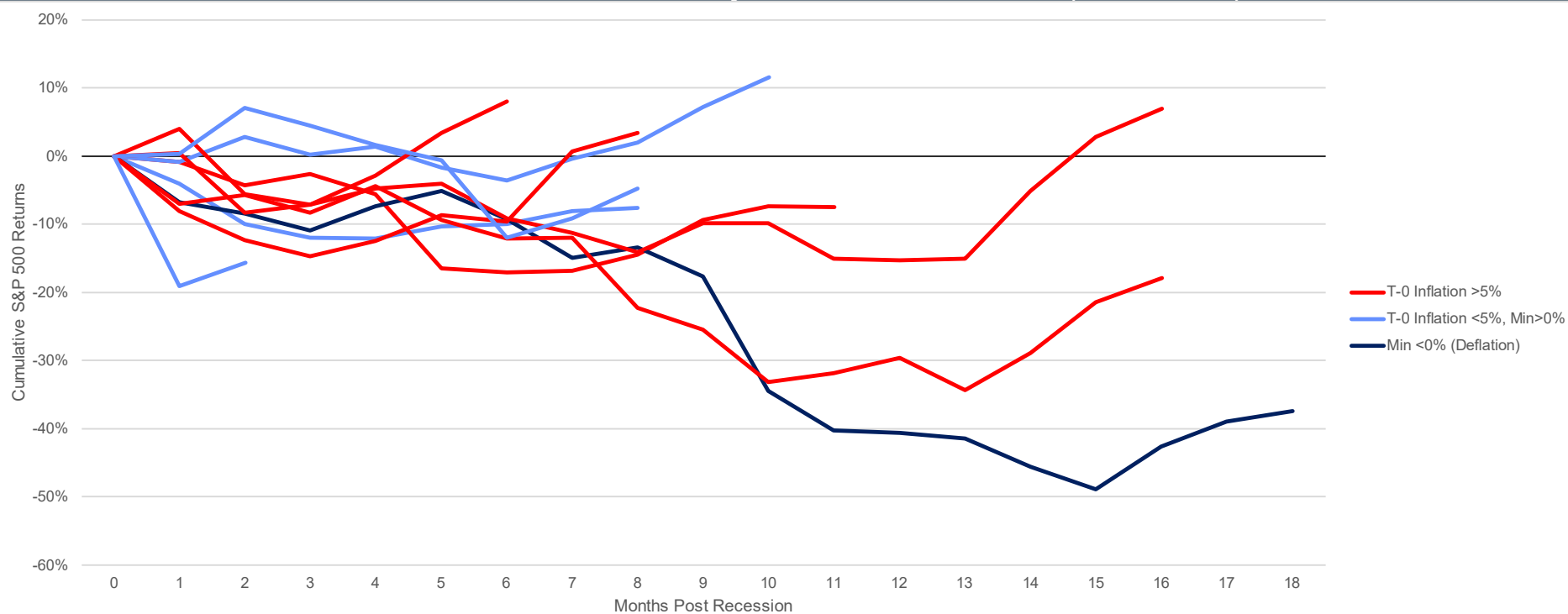
**Market Performance (%)**

	QTD	CYTD	1 Yr	5 Yr	10 Yr
S&P 500 (Cap Wtd)	7.56	-18.11	-18.11	9.42	12.56
Russell 2000	6.23	-20.44	-20.44	4.13	9.01
MSCI EAFE (Net)	17.34	-14.45	-14.45	1.54	4.67
MSCI EAFE SC (Net)	15.79	-21.39	-21.39	-0.05	6.21
MSCI Emg Mkts (Net)	9.70	-20.09	-20.09	-1.40	1.44
Bloomberg US Agg Bond	1.87	-13.01	-13.01	0.02	1.06
ICE BofAML 3 Mo US T-Bill	0.84	1.46	1.46	1.26	0.76
NCREIF ODCE (Gross)	-4.96	7.47	7.47	8.68	10.10
FTSE NAREIT Eq REIT (TR)	5.24	-24.37	-24.37	3.68	6.53
HFRI FOF Comp	1.79	-5.25	-5.25	3.02	3.51
Bloomberg Cmdty (TR)	2.22	16.09	16.09	6.44	-1.29

**Treasury Yield Curve (%)**



### S&P 500 Performance - Recessionary Periods and Inflation Levels (1957 - Present)



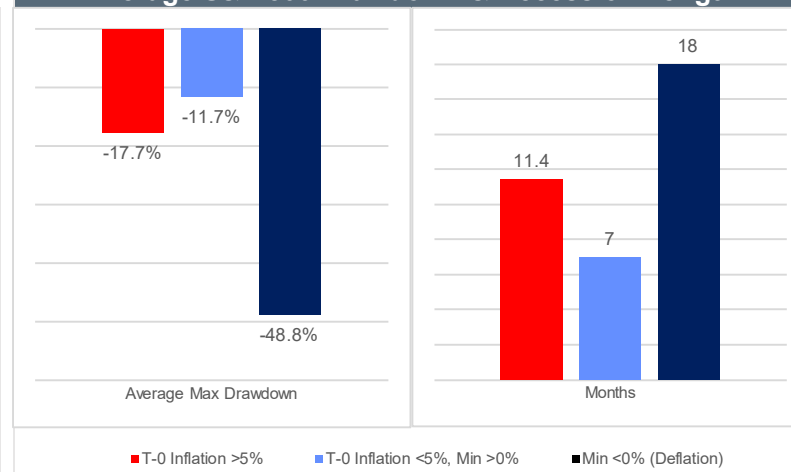
#### Recession Statistics

Start Date	Length Months	YoY CPI% @ T-0	Max YoY CPI%	Min YoY CPI%	Max Drawdown From T-0	Cumulative Return
9/30/1957	8	2.9	3.4	2.8	-12.0%	-7.6%
5/31/1960	10	1.6	1.6	0.9	-3.6%	11.6%
1/31/1970	11	5.9	5.9	5.0	-17.0%	-7.5%
12/31/1973	16	8.4	11.2	8.4	-34.2%	-17.9%
2/29/1980	6	13.0	13.5	12.1	-7.1%	8.0%
8/31/1981	16	9.9	9.9	4.1	-15.3%	7.0%
8/31/1990	8	5.5	6.0	4.6	-14.7%	3.4%
4/30/2001	8	3.0	3.0	1.7	-11.9%	-4.7%
1/31/2008	18	3.9	5.5	-2.0	-48.8%	-37.4%
3/31/2020	2	1.2	1.2	0.3	-19.1%	-15.7%

#### Averages

T-0 Inflation > 5%	11.4	8.5	9.3	6.8	-17.7%	-1.4%
T-0 Inflation < 5%, Min > 0%	7.0	2.2	2.3	1.4	-11.7%	-4.1%
Min < 0% (Deflation)	18.0	3.9	5.5	-2.0	-48.8%	-37.4%

#### Average S&P 500 Drawdown & Recession Length



Performance for each period begins where T-0 is equal to the start of an official recession and runs until the official end of the recession (as reported by the National Bureau of Economic Reporting). Inflation is measured as the YoY % change in CPI. T-0 = the official recession start date.

Max and Min refer to the maximum and minimum observed YoY CPI% change during the recessionary period.

Source: RVK calculations, based on data from S&P Dow Jones Indices and FRED Database.



Fourth Quarter Review

**Broad Market**

US equity markets experienced a decrease in volatility in Q4 with short term spikes around CPI release dates and Fed meetings. Returns were positive across market cap and style groups in Q4. The reversal to growth seen in Q3 was short-lived, as value stocks led growth by a wide margin in Q4. Energy had its best year on record with the S&P 500 Energy Index gaining 65.72%.

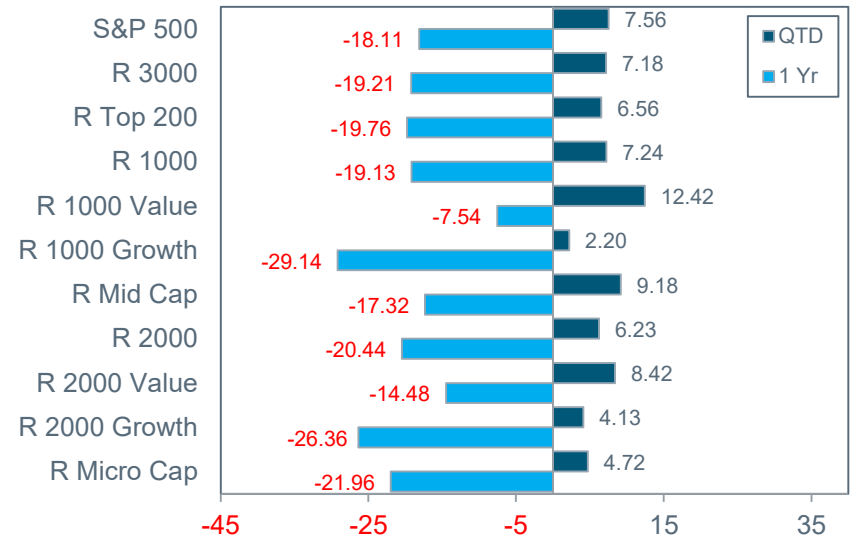
**Market Cap**

This year marks the worst performance of US equities across market cap groups since the GFC, and only the third time in the last 15 years that the Russell 3000 Index has generated negative returns.

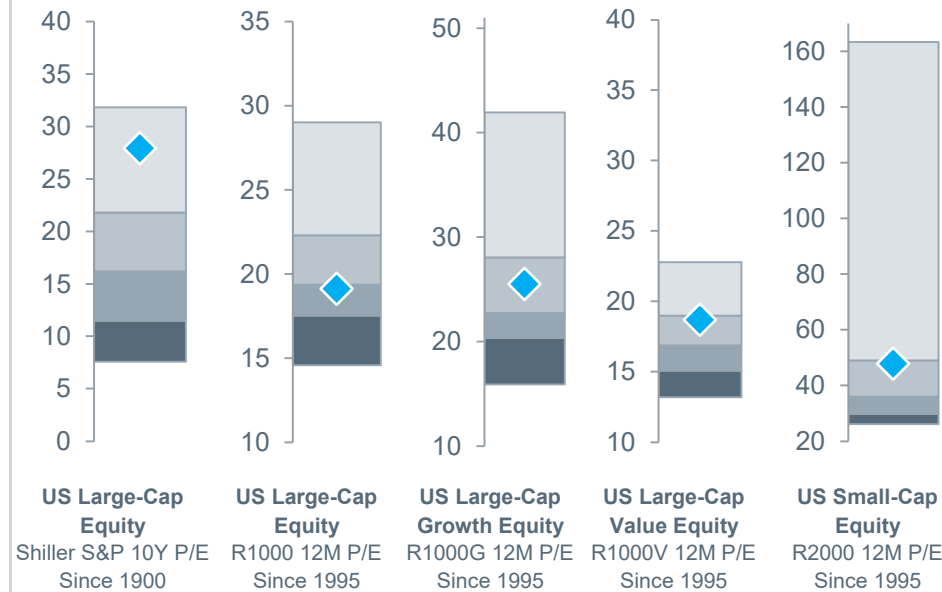
**Style and Sector**

Value-oriented managers had a higher success rate than core or growth managers in the small- and mid-cap spaces, while large-cap core and growth managers fared better than value managers. Growth managers across the market cap spectrum struggled to provide downside protection in 2022, while value and core managers were broadly successful.

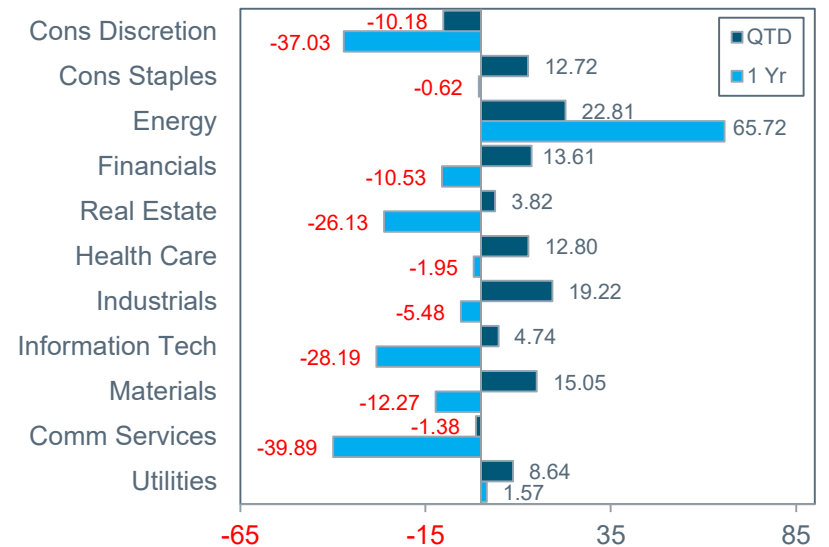
Style and Capitalization Market Performance (%)



Valuations



S&P 500 Index Sector Performance (%)



Valuation data courtesy of Bloomberg Professional Service and Robert J. Shiller, Irrational Exuberance, Second Edition (2000). P/E metrics shown represent the 5th through 95th percentiles to minimize the effect of outliers.





**Fourth Quarter Review**

**Developed Markets**

International developed markets meaningfully outperformed their domestic counterparts in Q4 with the MSCI EAFE Index realizing a 17.3% return for the period. Value stocks rebounded back into favor, outperforming growth in a reversal from the prior quarter, while large-cap continued its outperformance over small-cap stocks. Overall, market trends pointed to investors anticipating moderating inflation and easing of rate hikes despite the ongoing uncertainty led by the conflict in Ukraine and near-term recession fears.

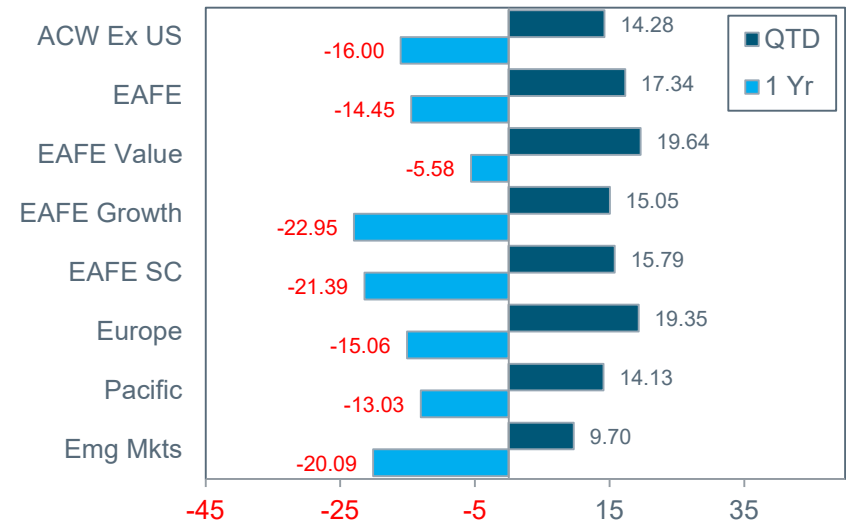
**Emerging Markets**

Emerging markets lagged behind developed during the quarter with the MSCI Emerging Markets Index finishing with a 9.7% return. Value stocks narrowly outperformed growth and large-cap beat small-cap.

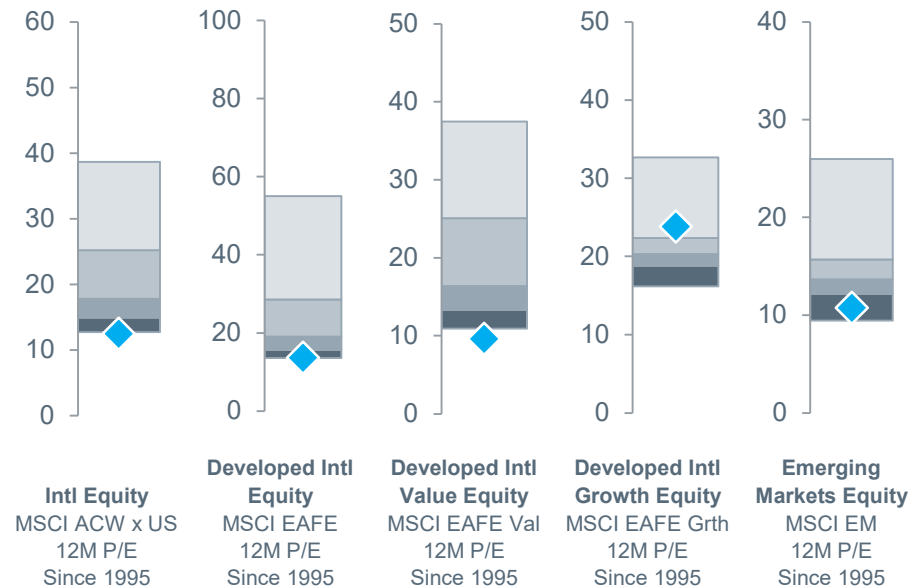
**Market Cap & Style**

The majority of active managers in emerging markets outperformed the index in Q4; however, active managers in international developed mostly underperformed.

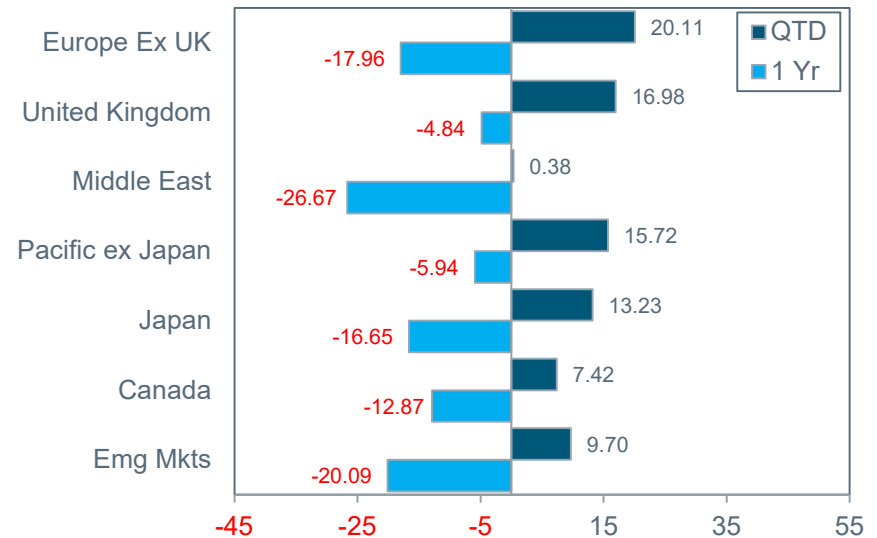
**MSCI Style and Capitalization Market Performance (%)**



**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.



**Fourth Quarter Review**

**Broad Market**

The Bloomberg US Aggregate Index finished Q4 with a return of 1.9%, capping off a decline of -13.0% in 2022, the most negative calendar year on record for the index. The year was defined by rising interest rates, as treasury yields rose 236 basis points from 1.5% to 3.9% as measured by the 10-year US Treasury yield. The Federal Reserve aggressively hiked the Federal Funds rate in response to persistent inflation over the course of the year.

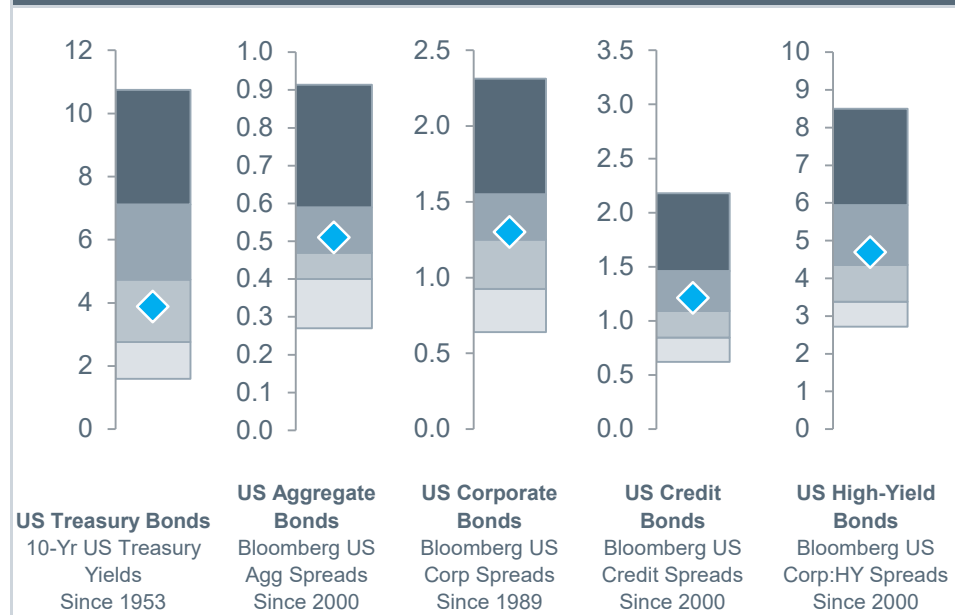
**Credit Market**

US investment grade corporate bonds rebounded in Q4 as low supply and softer Federal Reserve rhetoric bolstered credit markets. Non-investment grade corporate credit relatively outperformed investment grade over the year.

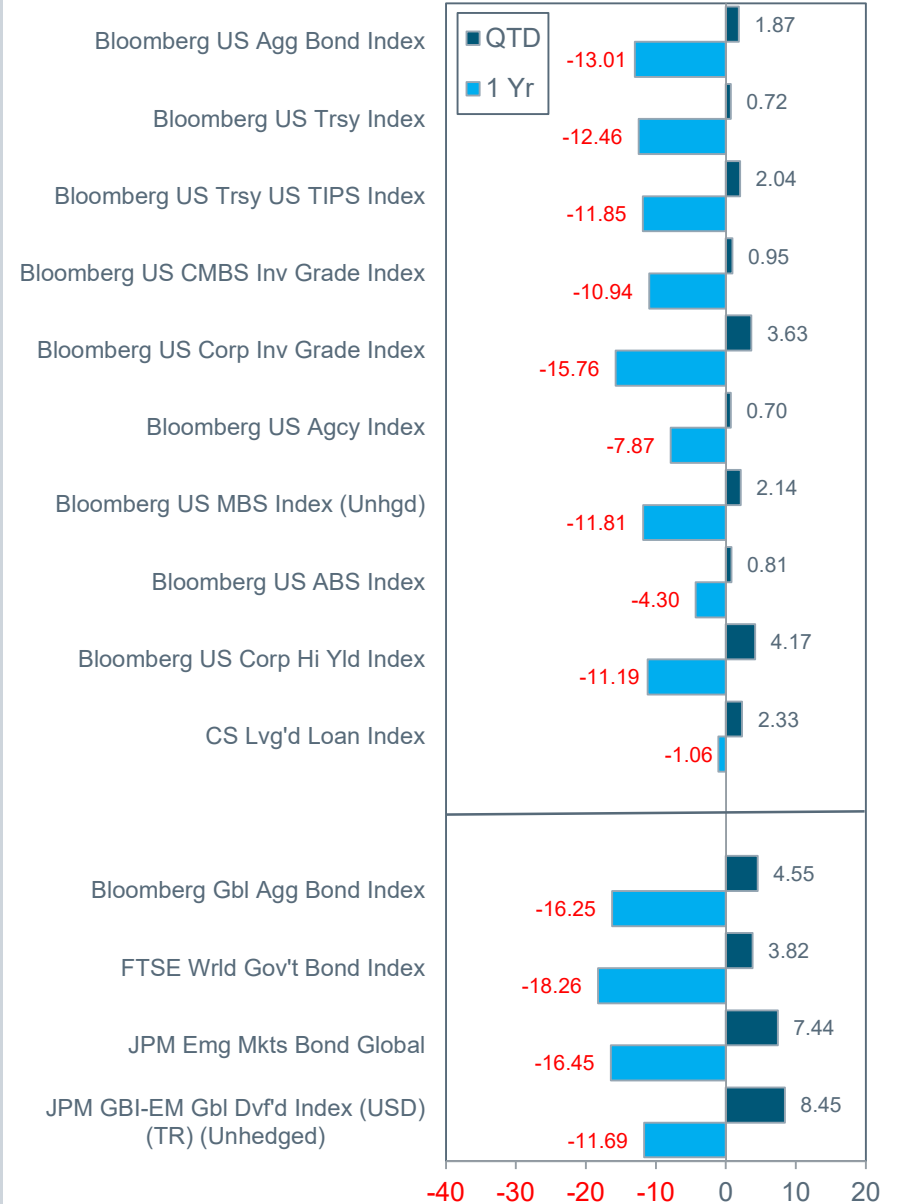
**Emerging Market Debt**

Conditions in global fixed income markets were defined by concerns over low growth, persistent inflation, rising interest rates, a strong US Dollar, and geopolitical conflict. The Bloomberg Global Aggregate Index returned 1.0% in Q4 and -11.2% in 2022, while the JPM EMBI Global Diversified returned 8.1% and -17.8% over these respective periods.

**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**

Despite a highly challenging market backdrop, hedge funds broadly delivered much-needed capital preservation to institutional investors. The year also ended on a strong note given most managers were reducing leverage and overall market exposure going into Q4. The HFRI Fund-Asset-Weighted Composite Index delivered an annual return of 1.0% while its Asset-Weighted counterpart ended the year at -4.0%.

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

Global Tactical Asset Allocation (GTAA) strategies that RVK follows closely posted significant gains with moderate dispersion to close an otherwise challenging year. Given a strong quarter for non-US equity, as well as value-oriented equity within the US, nearly all active managers with significant diversification outperformed a US centric blend of 60% equity and 40% fixed income. The top performing long-biased GTAA strategies were those who have included meaningful market neutral idiosyncratic relative valuation exposures. While those who moderately underperformed peers benefitted from a value bias despite maintaining US equity and fixed income exposures.

**Fourth Quarter Review - Real Assets**

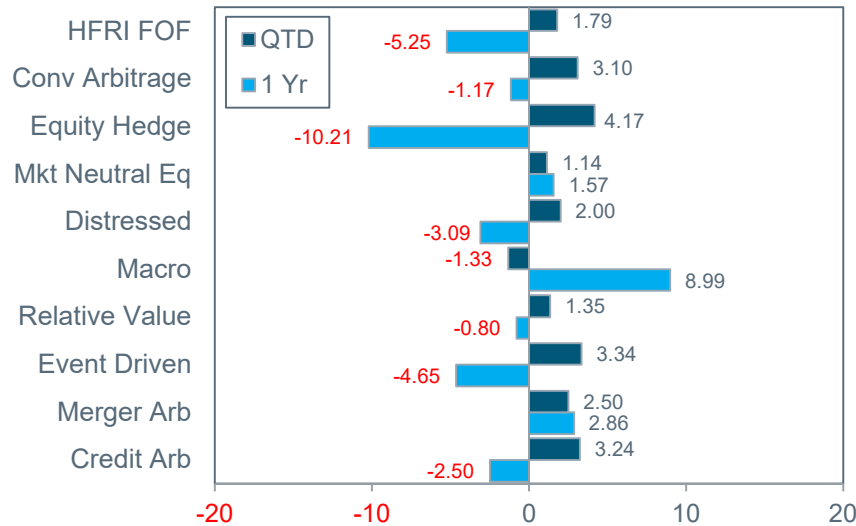
**General Market - Diversified Inflation Strategies (DIS)**

DIS managers tracked closely by RVK have outperformed a US-centric blend of 60% equity and 40% fixed income both year to date, and over the quarter. After responding positively to record inflationary pressures in Q1 of 2022, DIS posted losses in the second and third quarters that followed. Strong Q4 performance has materialized across the peer group, with those who rely on income-oriented investment processes and those who hold larger TIPS allocation lagging the group to a moderate degree.

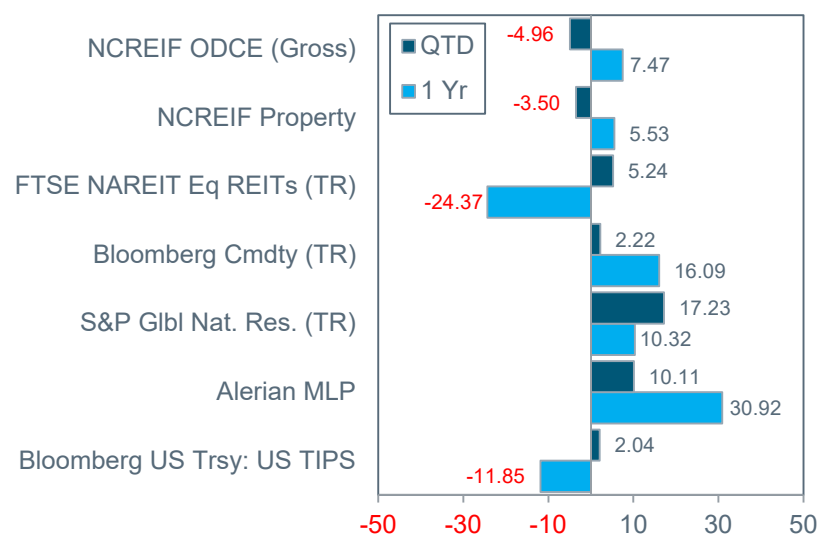
**General Market - Real Estate**

Core private real estate generated a negative return of -5.0% in Q4 (on a preliminary and gross of fee basis), as reported by the NFI-ODCE Index, with the total return comprising of 0.8% income and -5.8% price appreciation. Investors of publicly traded real estate significantly outperformed their private market counterparts by a meaningful margin. Publicly traded real estate delivered a fourth quarter total return of 4.5%, as measured by FTSE/NAREIT All REITs Index.

**HFRI Hedge Fund Performance (%)**



**Real Asset Performance (%)**



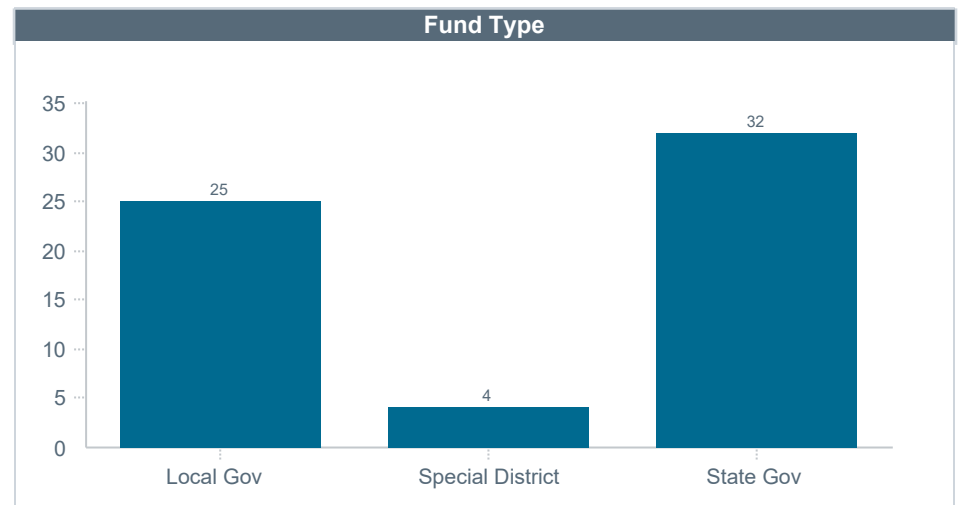
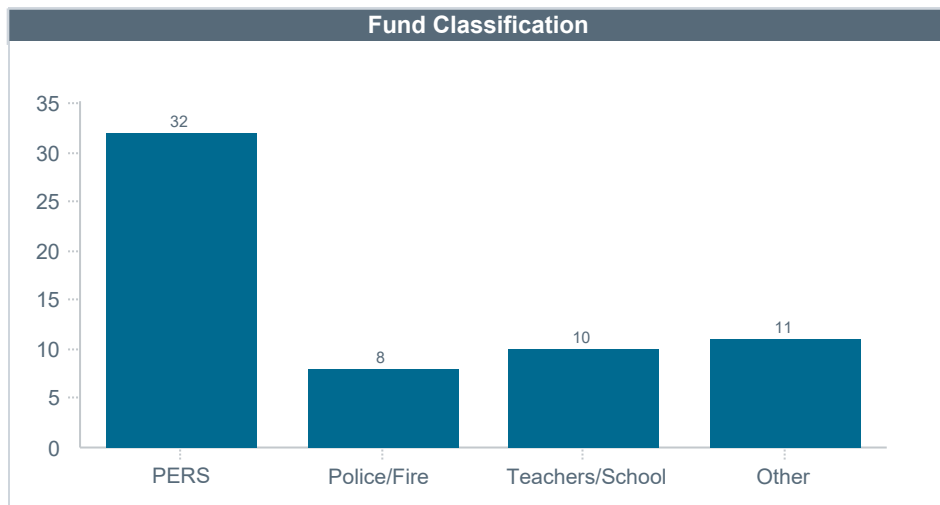
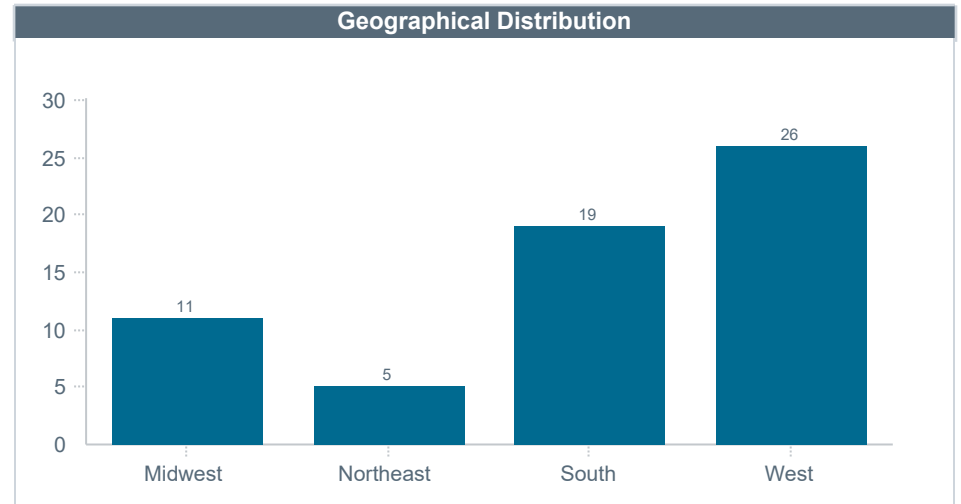
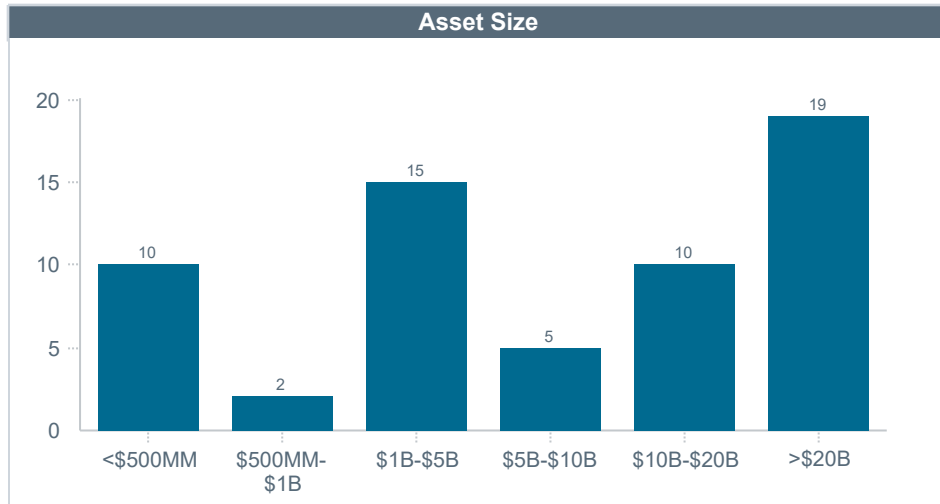
Annual Asset Class Performance

As of December 31, 2022

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	CYTD
Best	8.44	78.51	27.94	22.49	20.00	38.82	30.14	15.02	21.31	37.28	8.35	31.49	19.96	43.24	16.09
	5.24	58.21	26.85	15.99	18.23	32.39	19.31	9.59	17.13	33.01	1.87	26.00	18.40	28.71	7.47
	2.06	46.78	22.04	13.56	18.06	29.30	13.69	3.20	11.96	25.03	0.01	25.53	18.31	27.11	1.46
	-2.35	31.78	18.88	8.29	17.32	22.78	12.50	1.38	11.77	21.83	-1.26	24.96	16.12	22.17	-5.25
	-10.01	28.01	16.83	7.84	16.35	13.94	5.97	0.55	11.19	14.65	-2.08	22.01	12.34	14.82	-11.19
	-21.37	27.17	16.36	4.98	16.00	8.96	4.89	0.05	8.77	10.71	-4.02	19.59	10.99	11.26	-11.85
	-26.16	26.46	15.12	2.11	15.81	7.44	3.64	-0.27	8.52	7.77	-4.38	18.42	10.88	10.10	-13.01
	-33.79	18.91	15.06	0.10	10.94	2.47	3.37	-0.81	6.67	7.62	-4.62	14.32	7.82	6.17	-14.45
	-35.65	11.47	10.16	-4.18	8.78	0.07	2.45	-1.44	4.68	7.50	-4.68	8.72	7.51	5.96	-18.11
	-37.00	11.41	7.75	-5.72	6.98	-2.02	0.04	-3.30	2.65	5.23	-11.01	8.43	7.11	5.28	-20.09
	-37.74	5.93	6.54	-12.14	4.79	-2.60	-2.19	-4.41	2.18	3.54	-11.25	8.39	1.19	0.05	-20.44
	-43.33	1.92	6.31	-13.32	4.21	-8.61	-4.90	-4.47	1.00	3.01	-13.73	7.69	0.67	-1.55	-21.39
	-47.01	0.21	5.70	-15.94	0.11	-8.83	-4.95	-14.92	0.51	1.70	-14.57	5.34	-3.12	-2.52	-24.37
Worst	-53.33	-29.76	0.13	-18.42	-1.06	-9.52	-17.01	-24.66	0.33	0.86	-17.89	2.28	-8.00	-2.54	-27.09
	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 Trsy US TIPS - FI	Bloombrg US Gov Credit Lng - FI	NCREIF ODCE (Gross) - Real Estate	FTSE NAREIT Eq REITs Index (TR)	HFRI FOF Comp Index - ARS	Bloombrg Comdty (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.



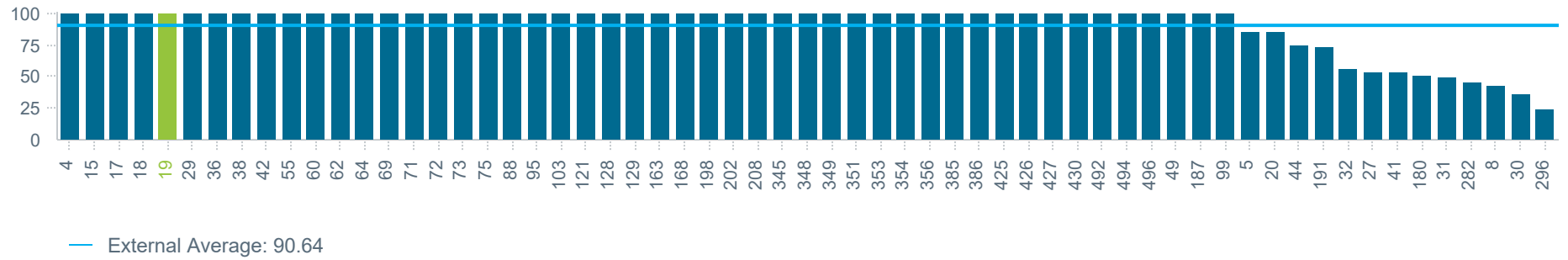


■ Universe: 61 funds

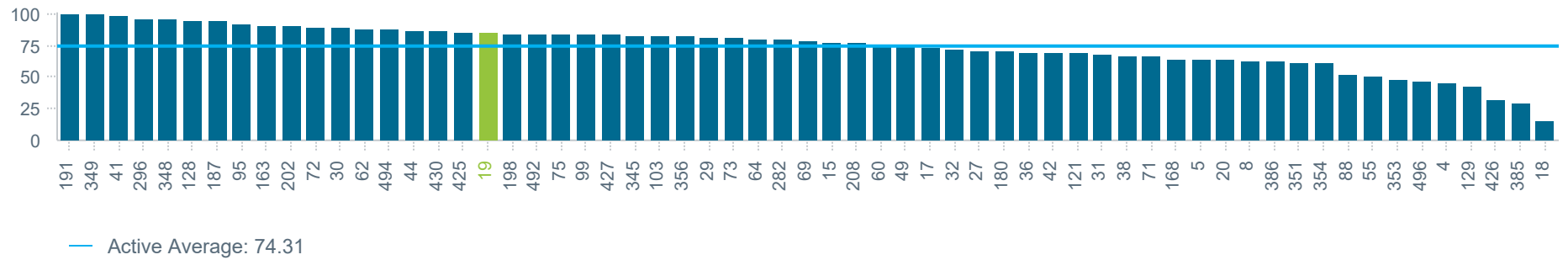




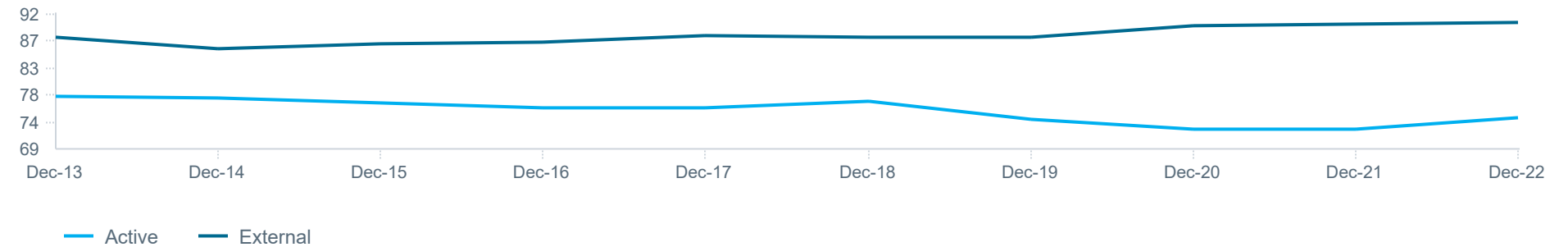
External Management (%)



Active Management (%)



Public Fund Universe Historical Average (%)



Fund No. 19

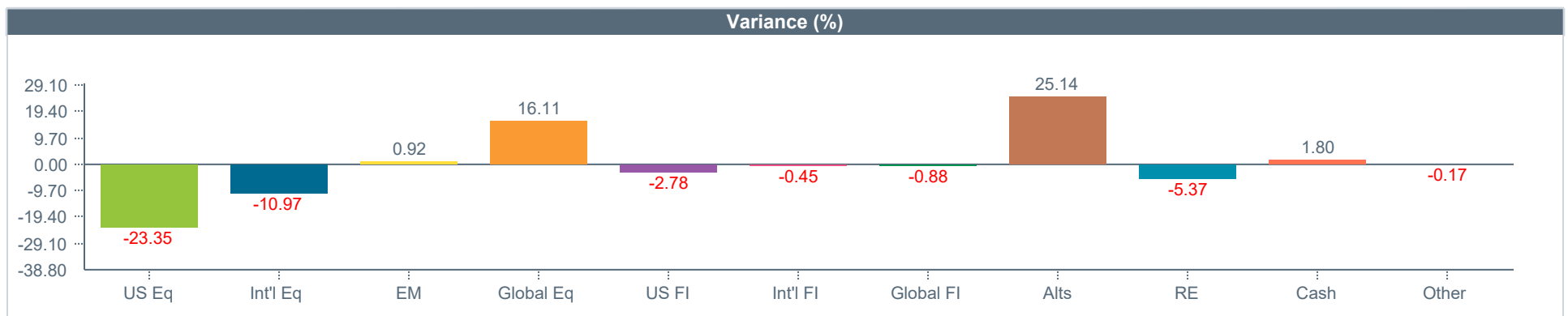
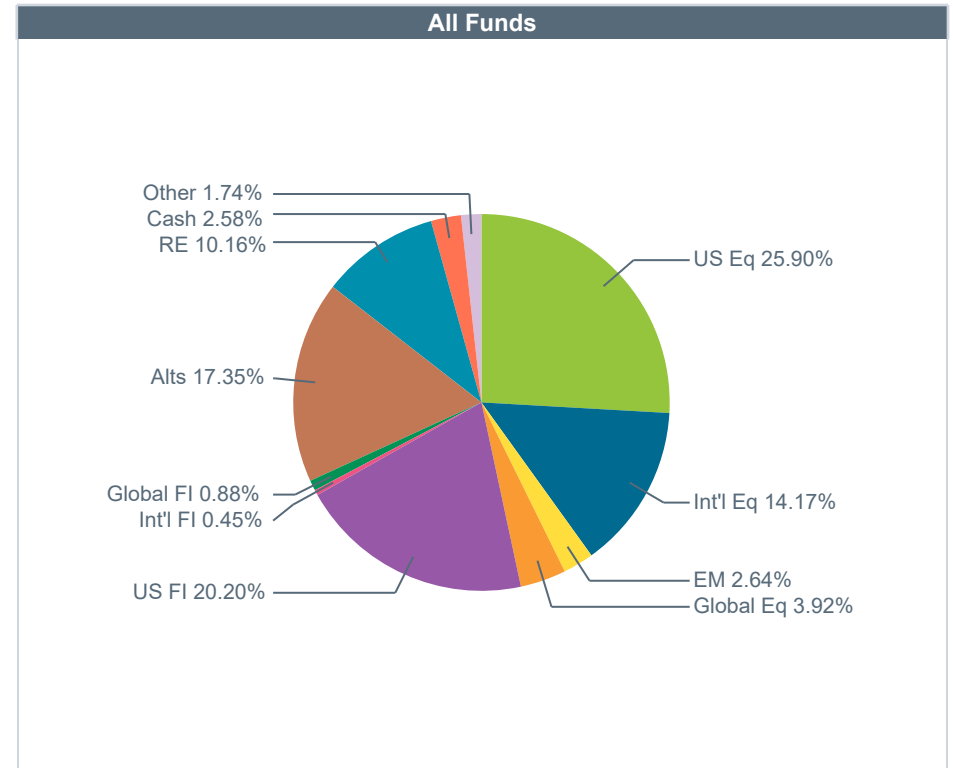
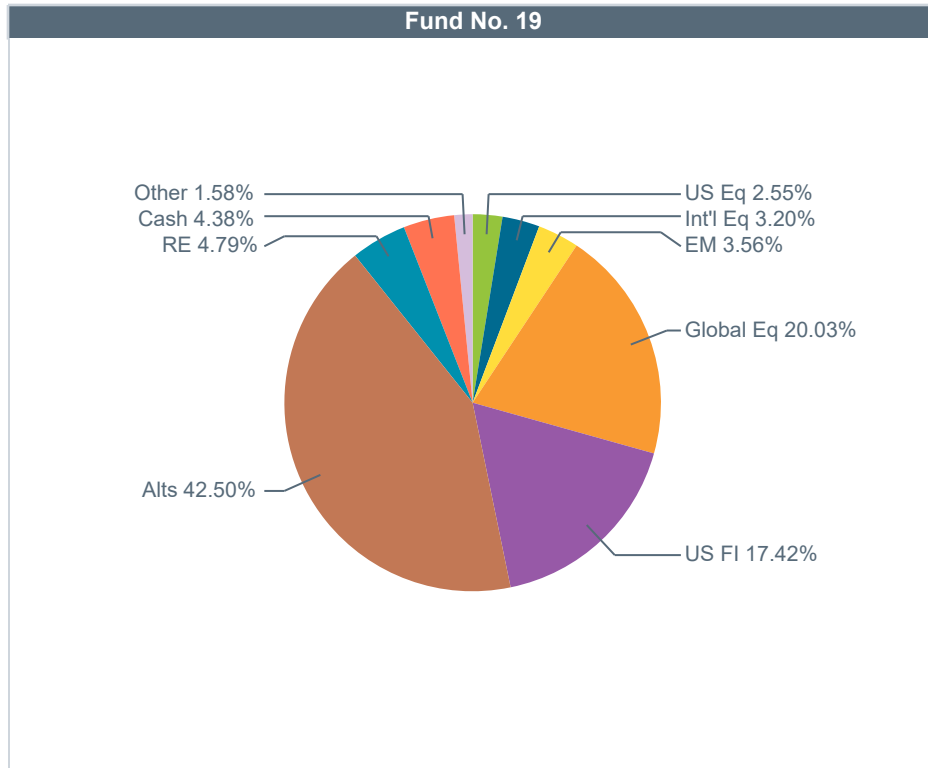


Asset Range	Actively Managed (%)	Passively Managed (%)	Externally Managed (%)	Internally Managed (%)
Over \$20B	73.52	26.48	75.50	24.50
\$10B-\$20B	71.82	28.18	92.42	7.58
\$5B-\$10B	70.73	29.27	97.10	2.90
\$1B-\$5B	77.02	22.98	99.02	0.98
\$500MM-\$1B	82.85	17.15	99.92	0.08
Under \$500MM	74.35	25.65	100.00	0.00
<b>Fund No. 19</b>	<b>85.35</b>	<b>14.65</b>	<b>100.00</b>	<b>0.00</b>

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

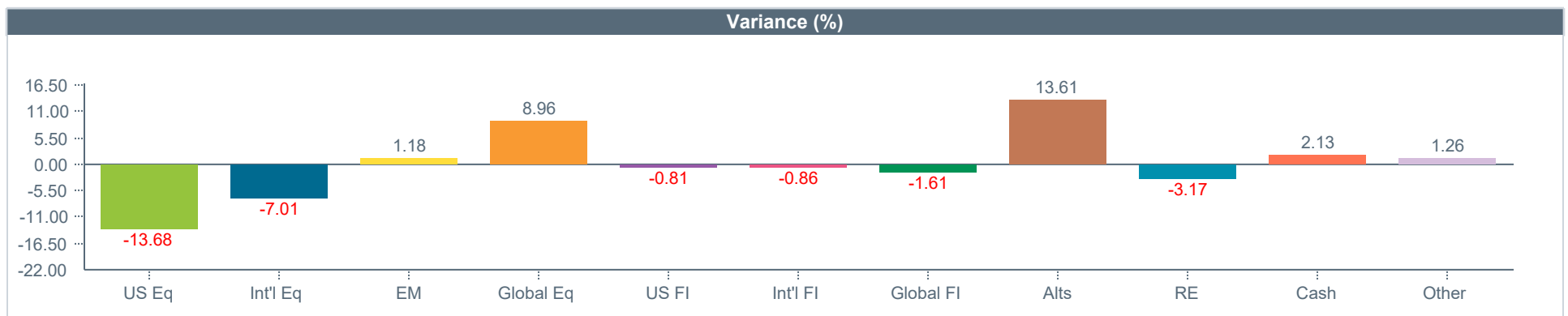
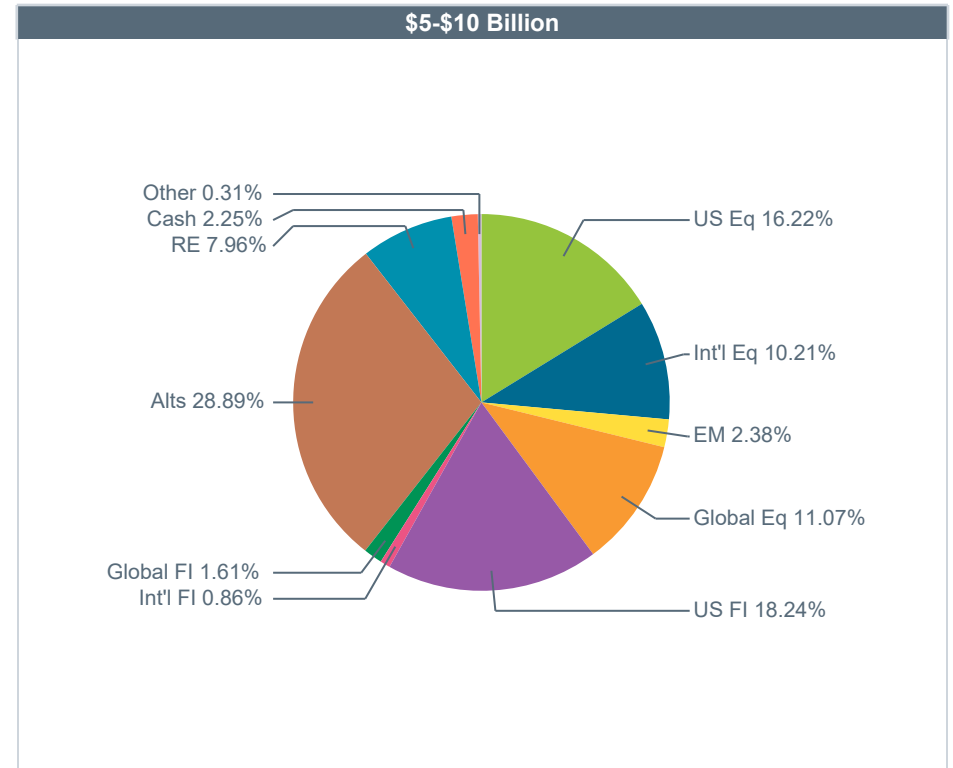
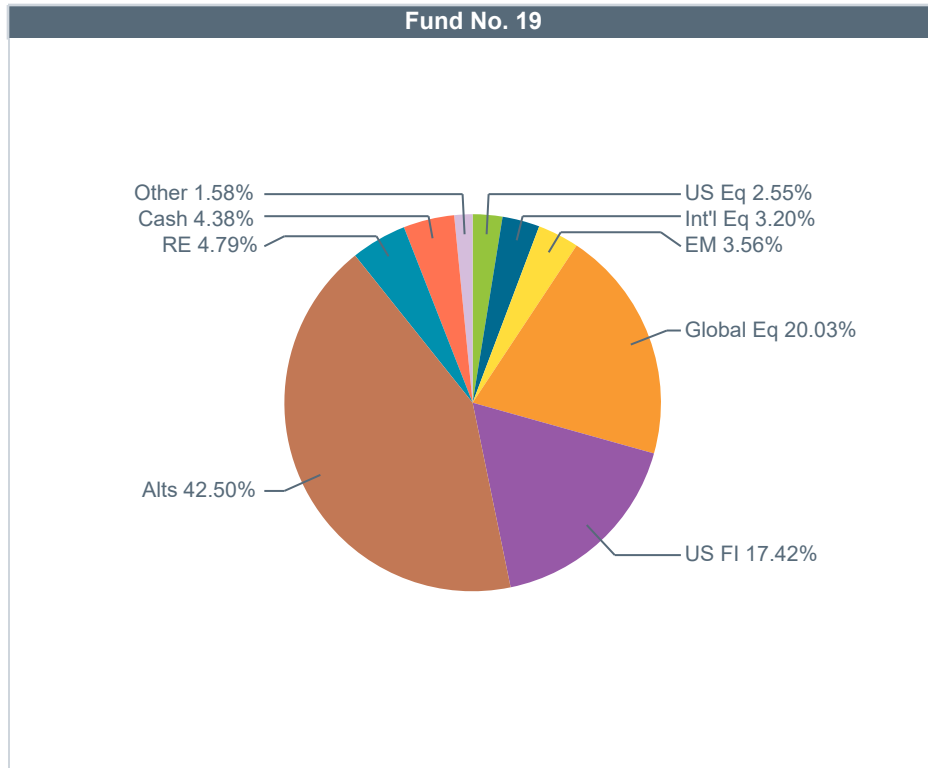
Portfolio (%)	Active Management		External Management	
	Public Fund Universe	Fund No. 19	Public Fund Universe	Fund No. 19
90 to 100	11	0	48	1
50 to 89	43	1	8	0
10 to 49	7	0	5	0
Less than 10	0	0	0	0
<b>Total Funds Reporting</b>	<b>61</b>	<b>1</b>	<b>61</b>	<b>1</b>





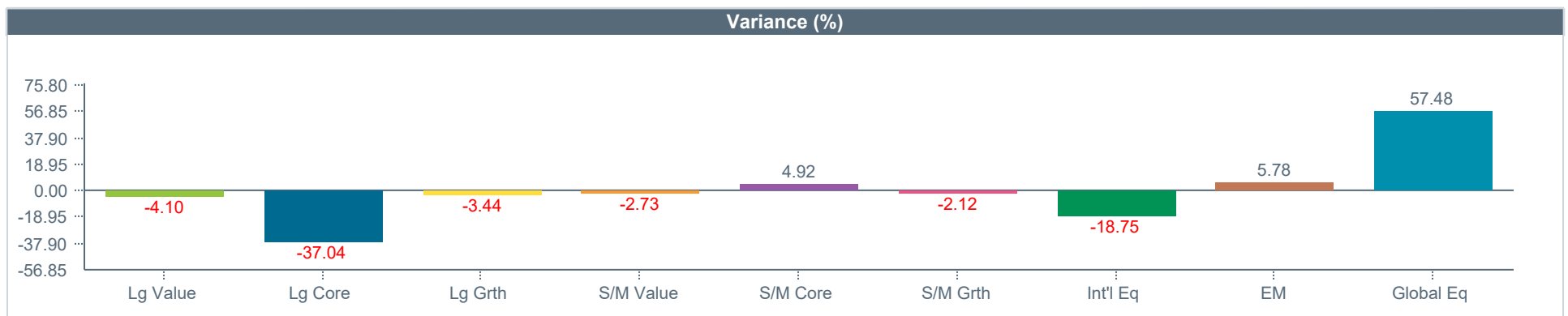
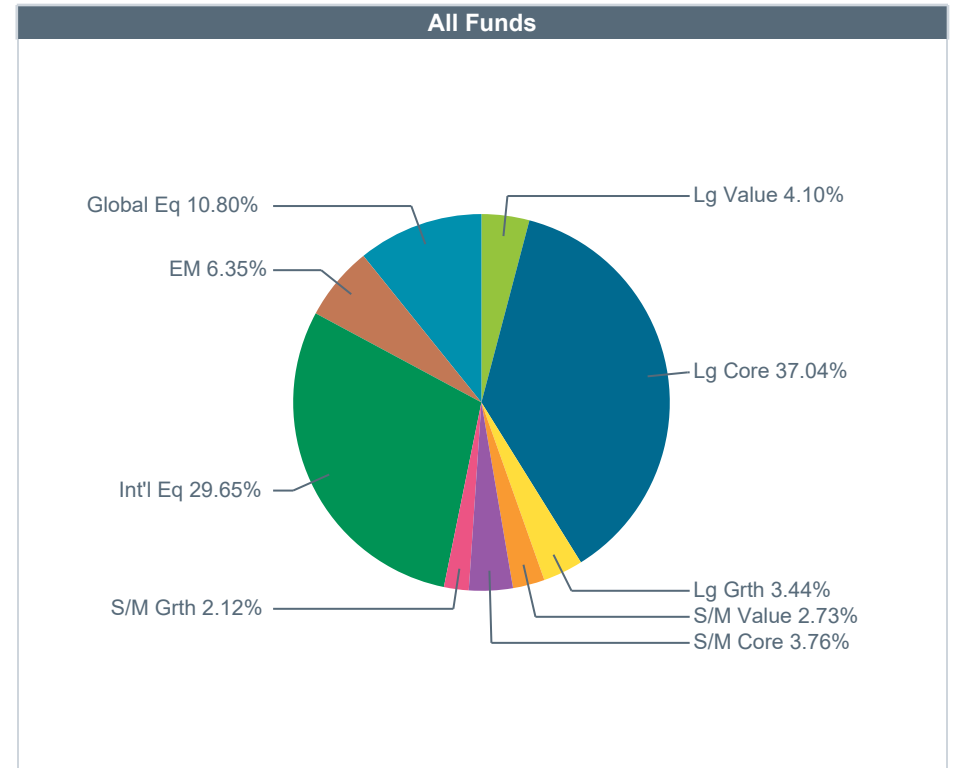
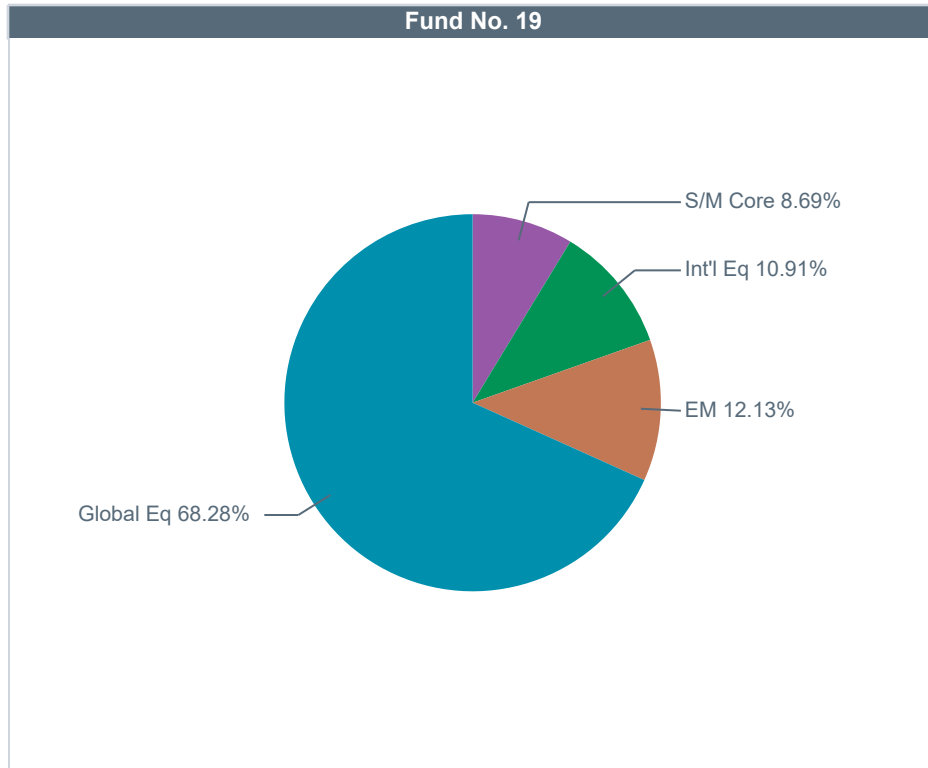
Allocations shown may not sum up to 100% exactly due to rounding.





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

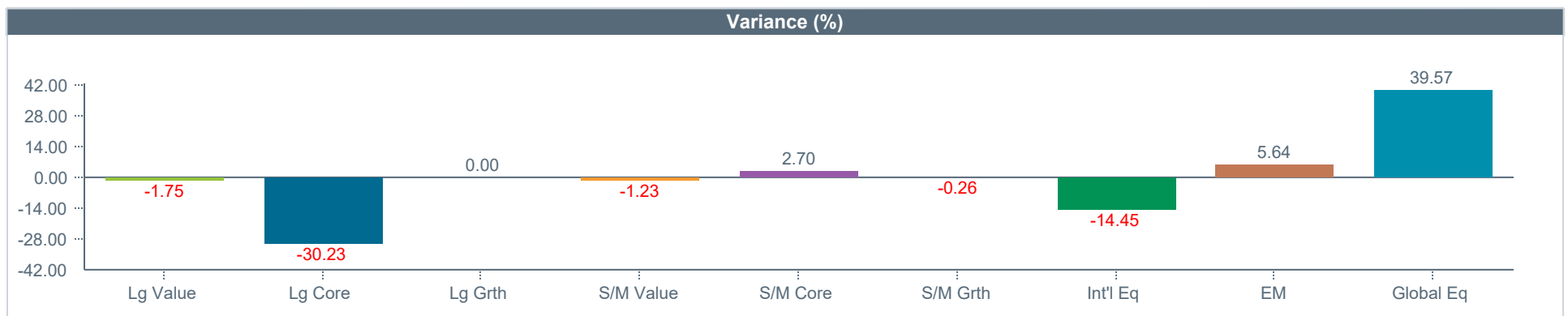
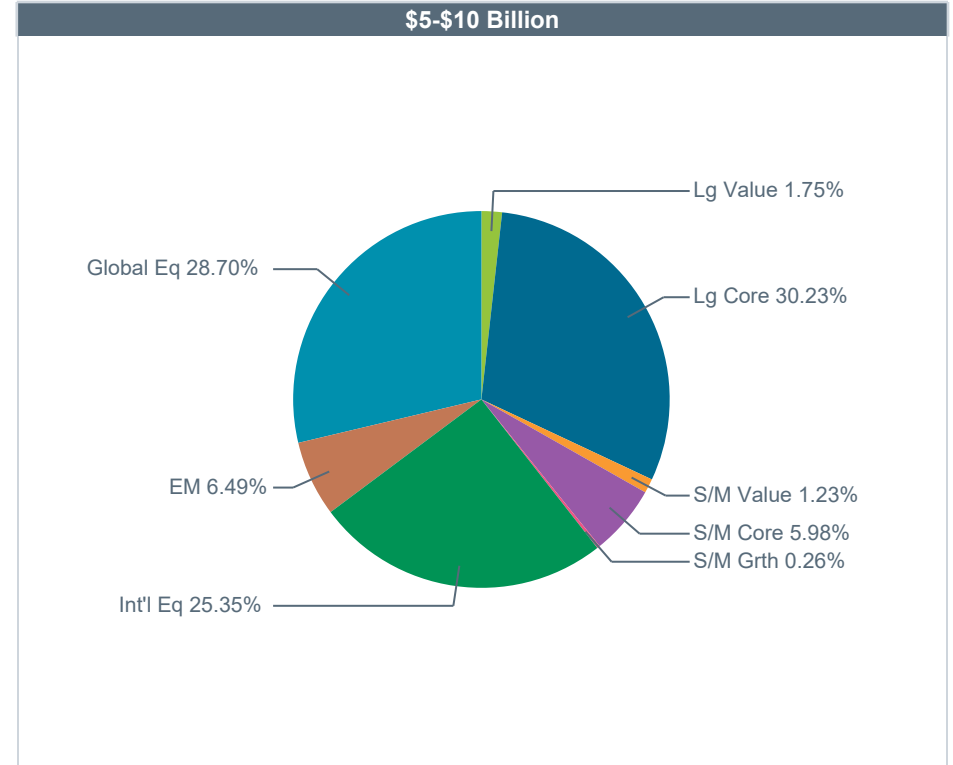
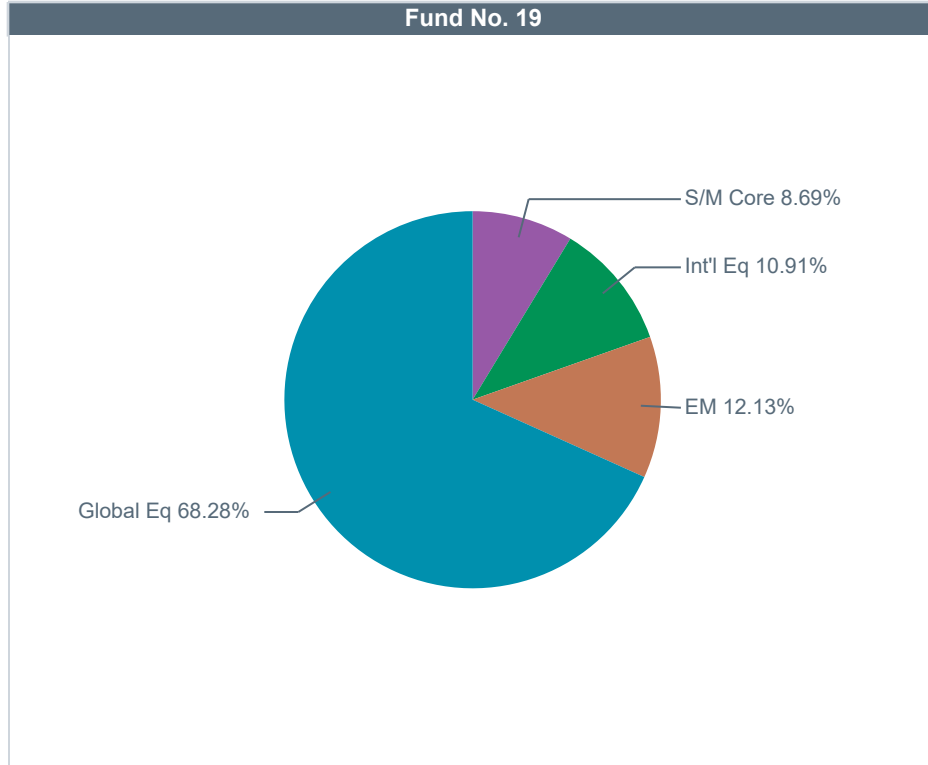




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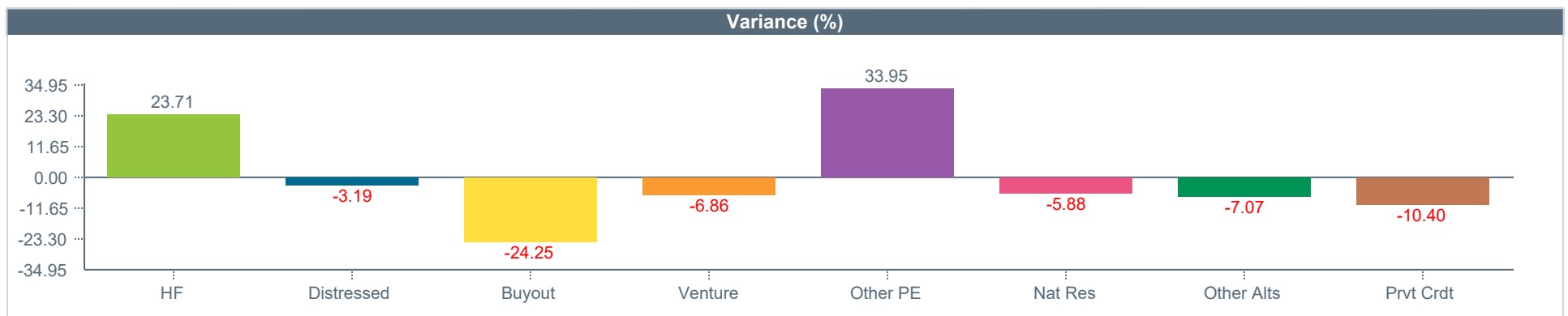
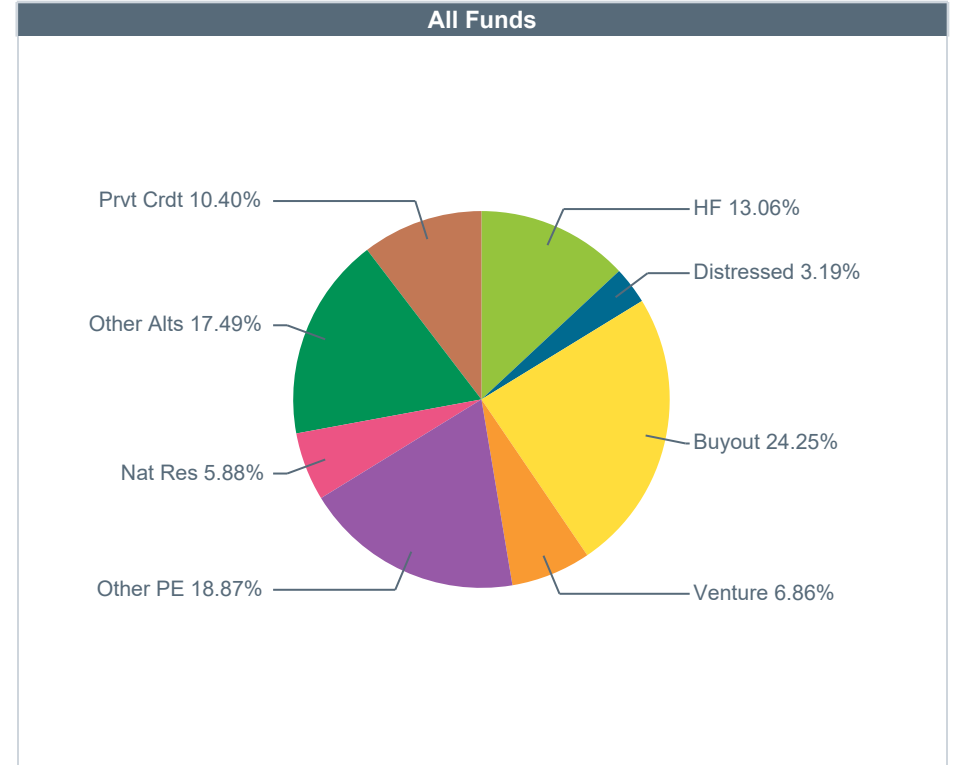
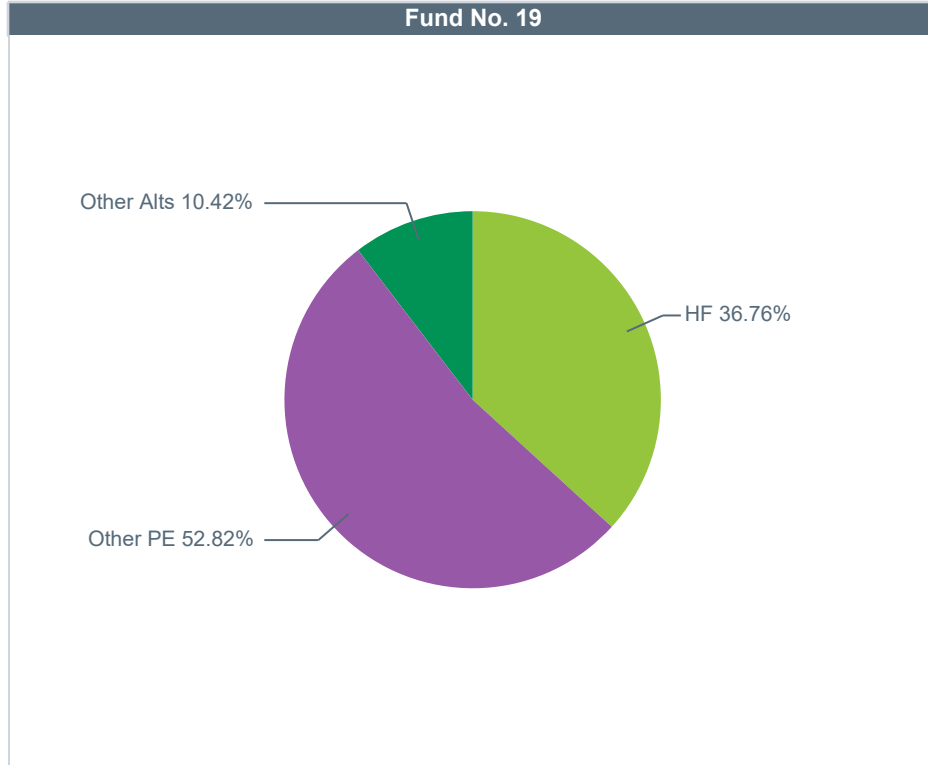






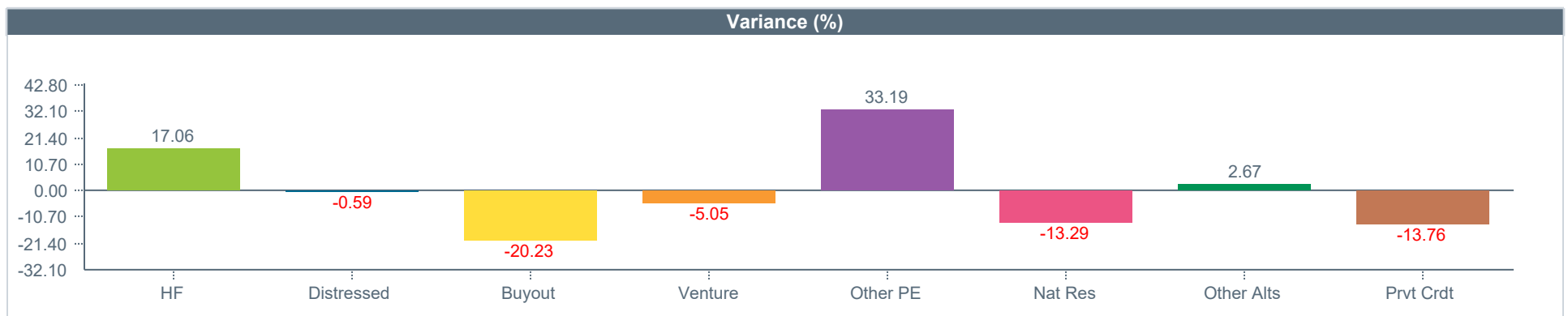
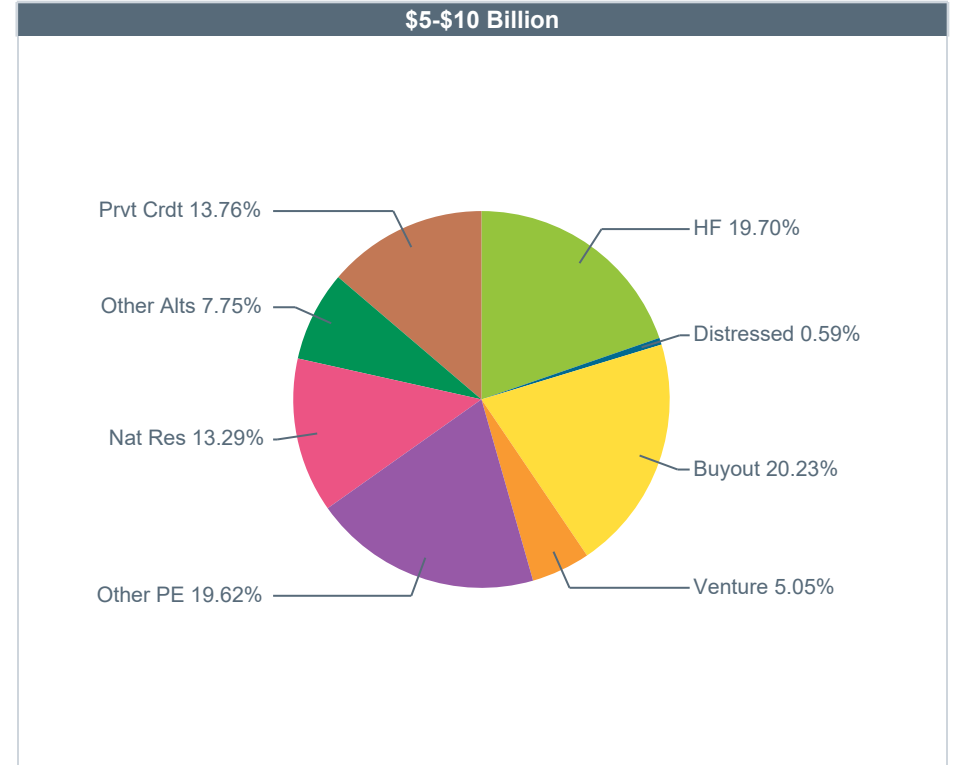
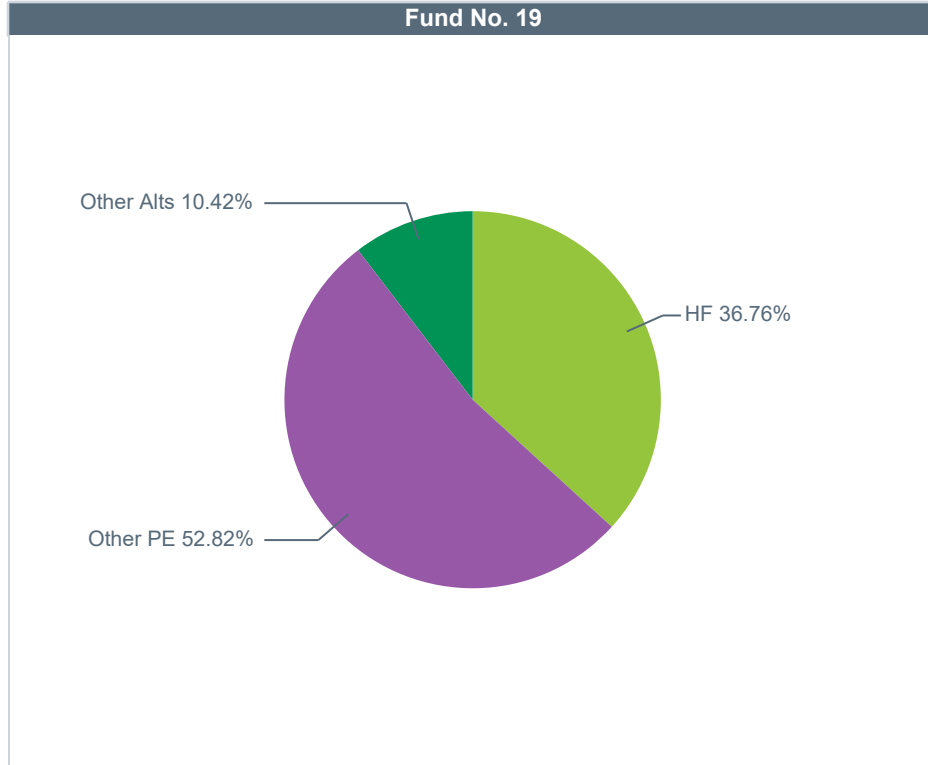
Allocations shown may not sum up to 100% exactly due to rounding.





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

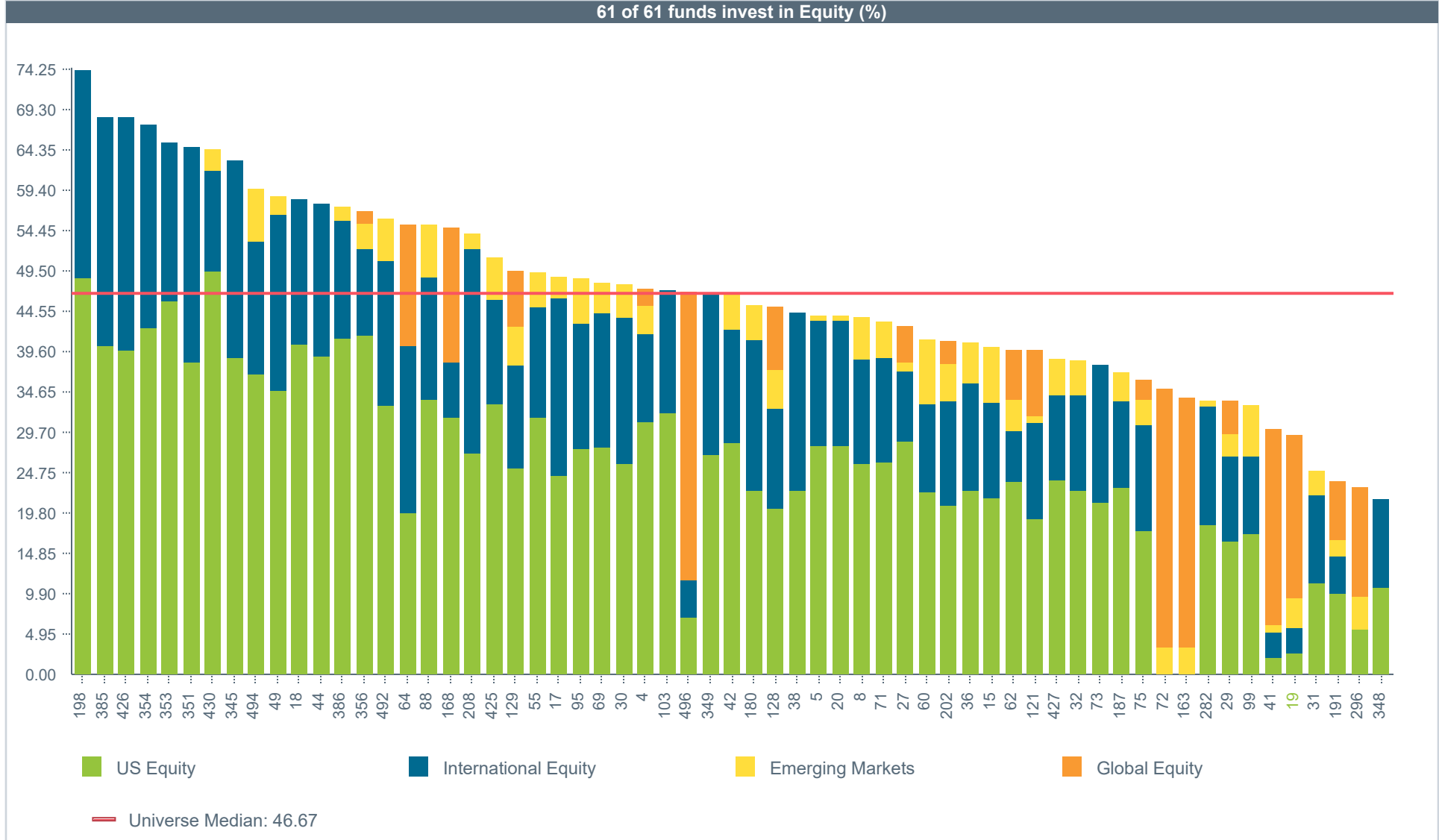




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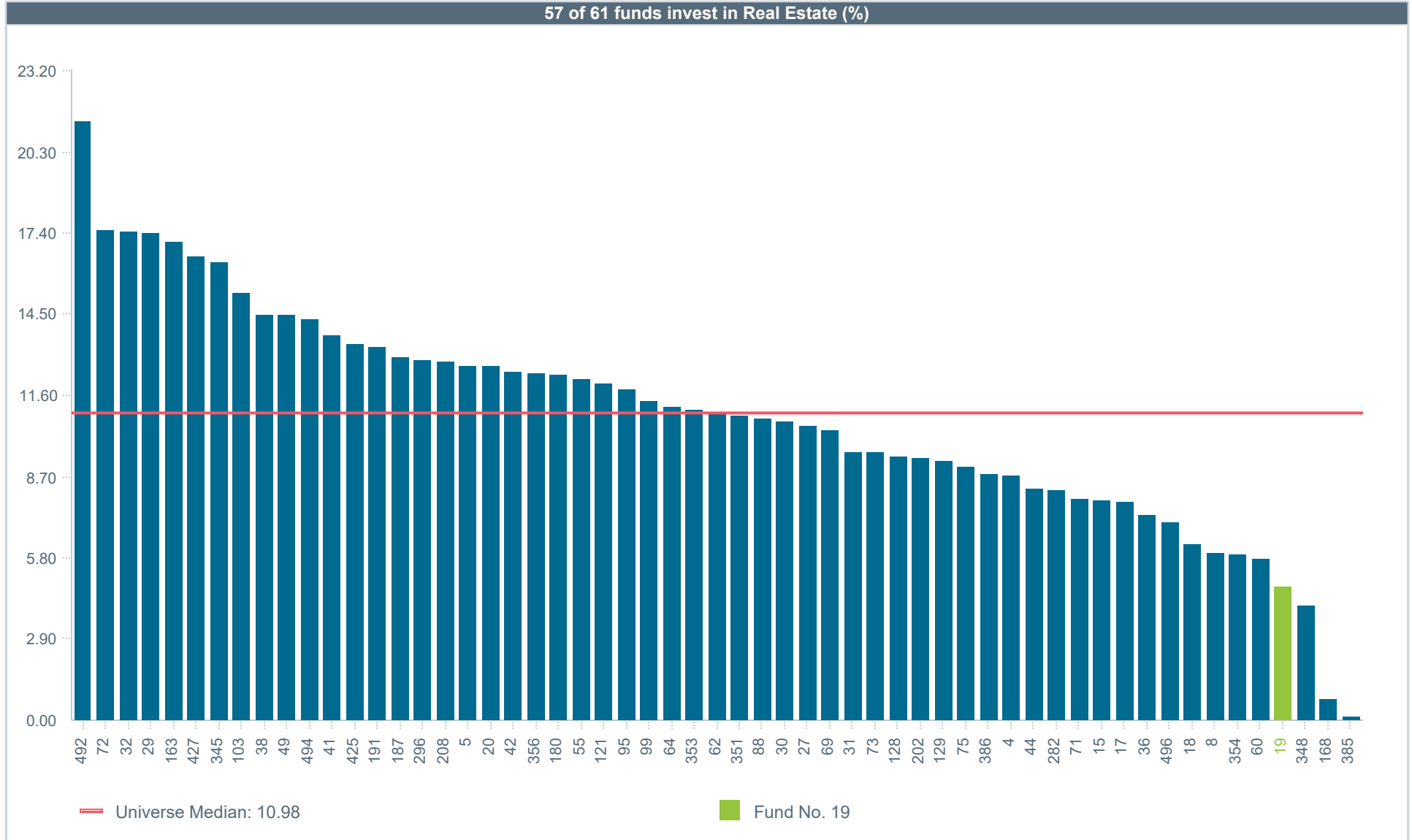


61 of 61 funds invest in Equity (%)

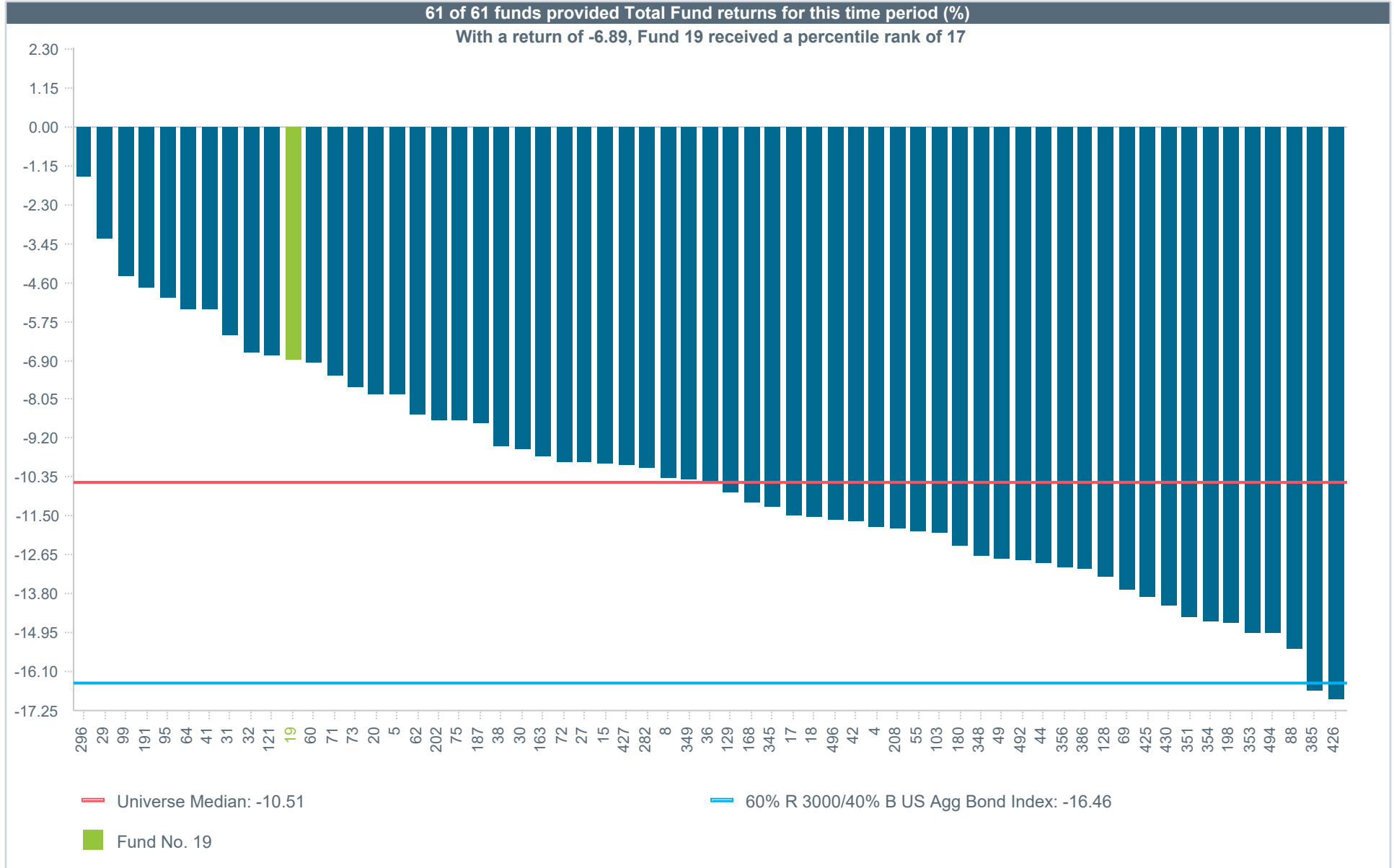






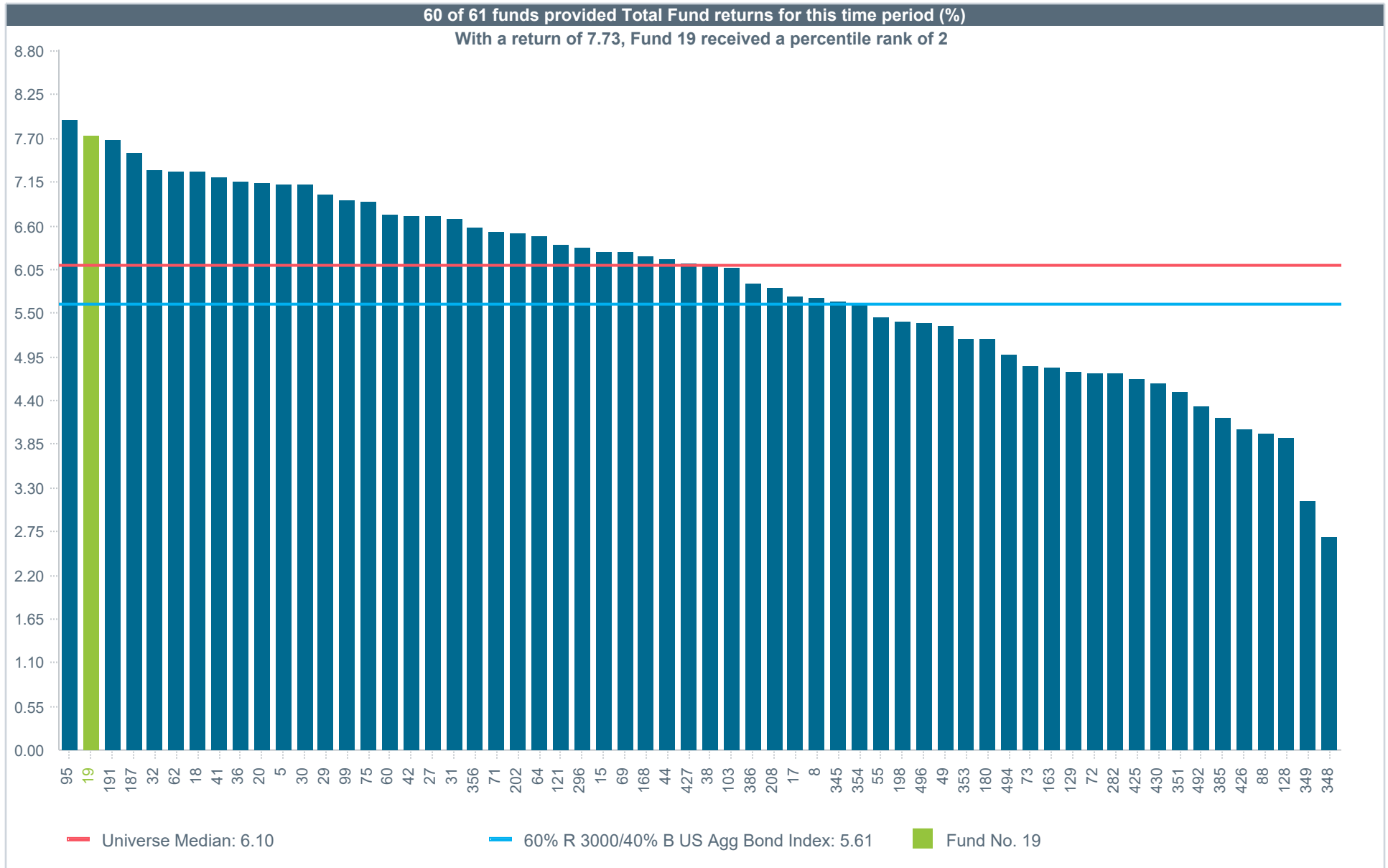






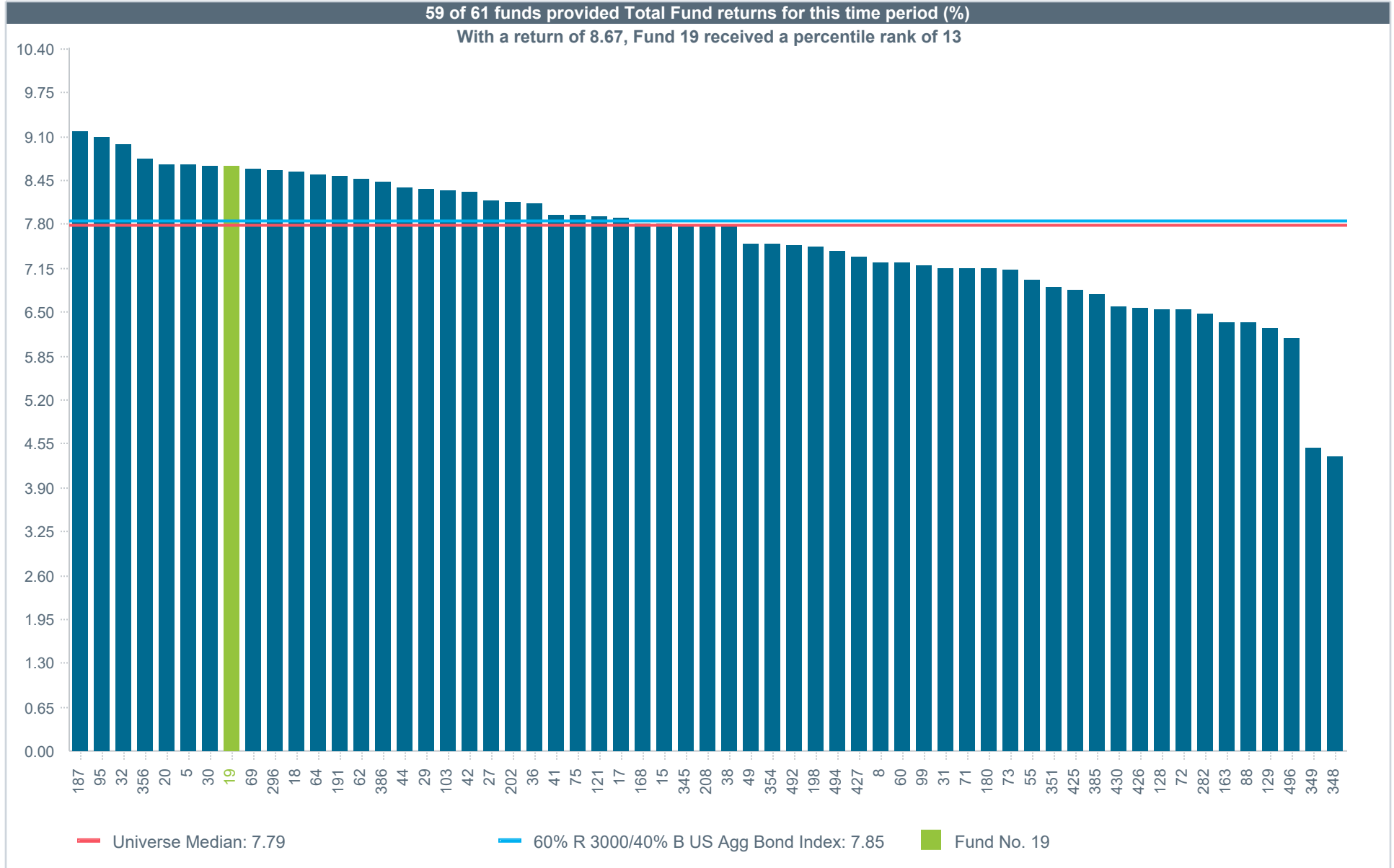
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Funds with less history than the specified time period will not appear in the chart.





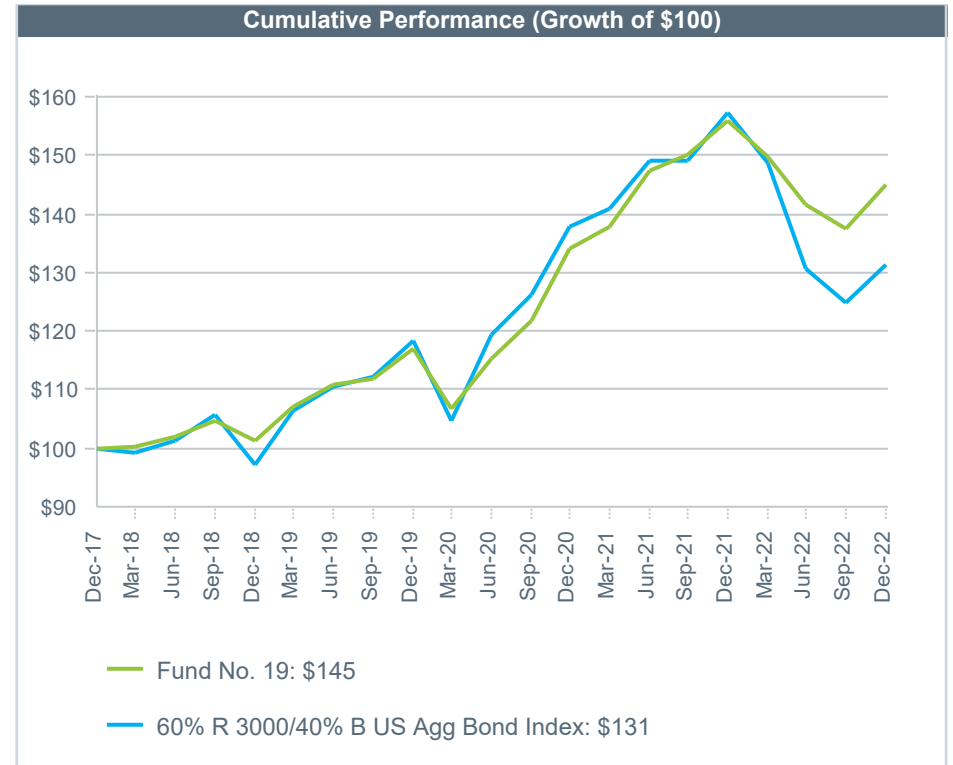
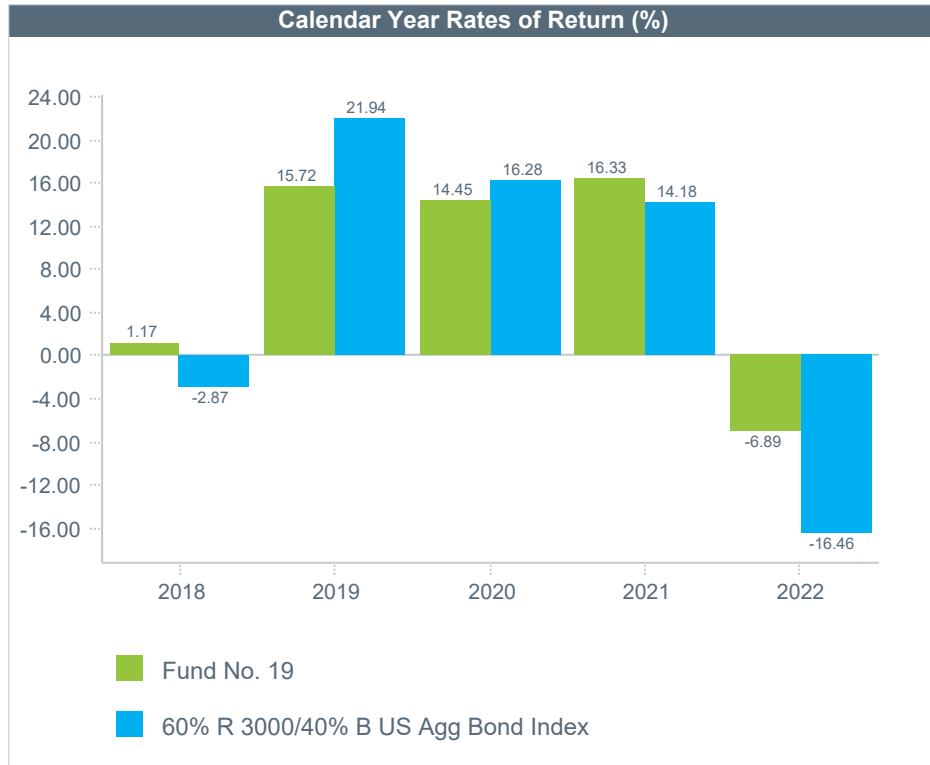
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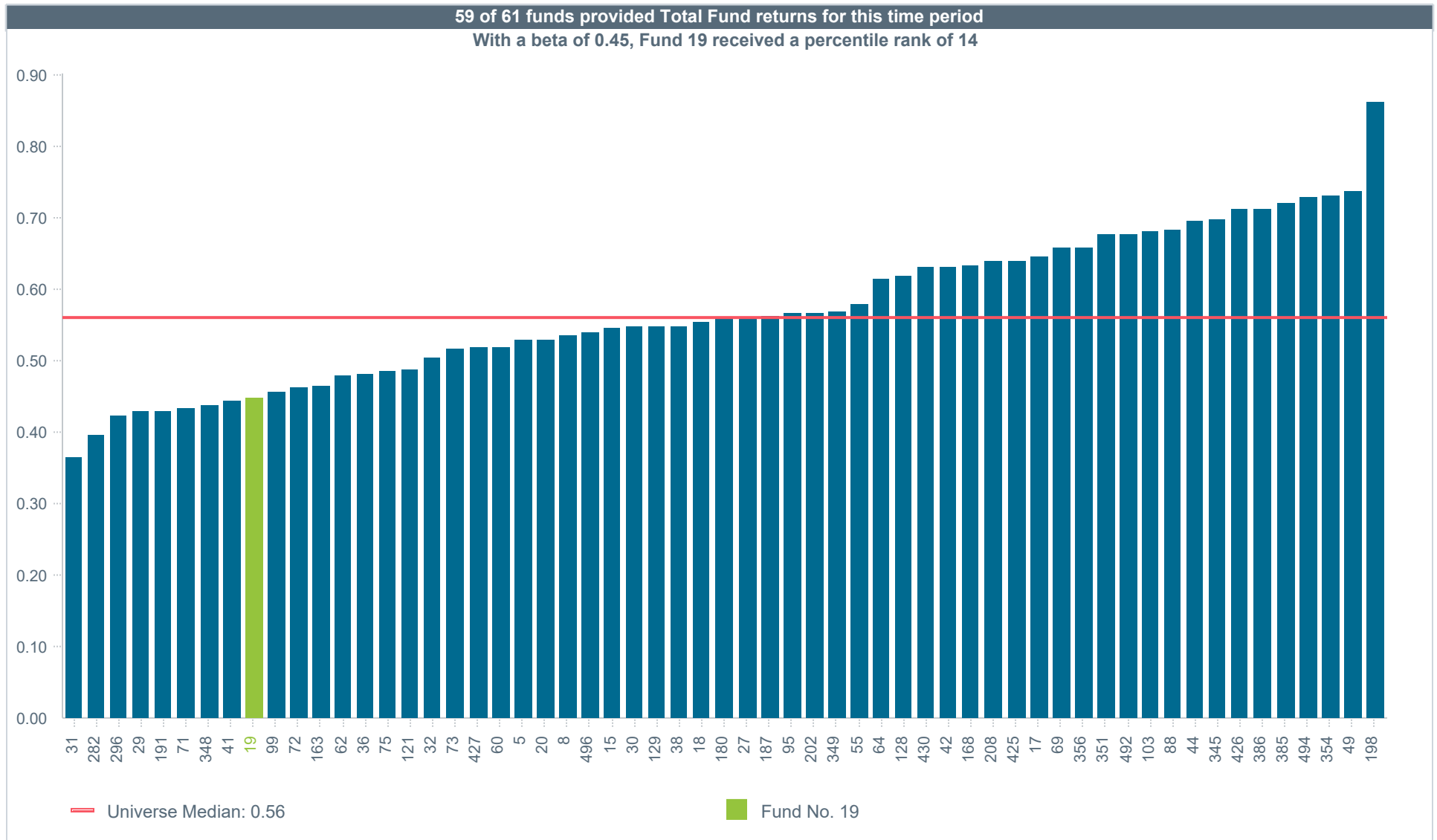
**Total Return - Total Fund**  
**Fund No. 19 vs. 60% R 3000/40% B US Agg Bond Index**

As of December 31, 2022



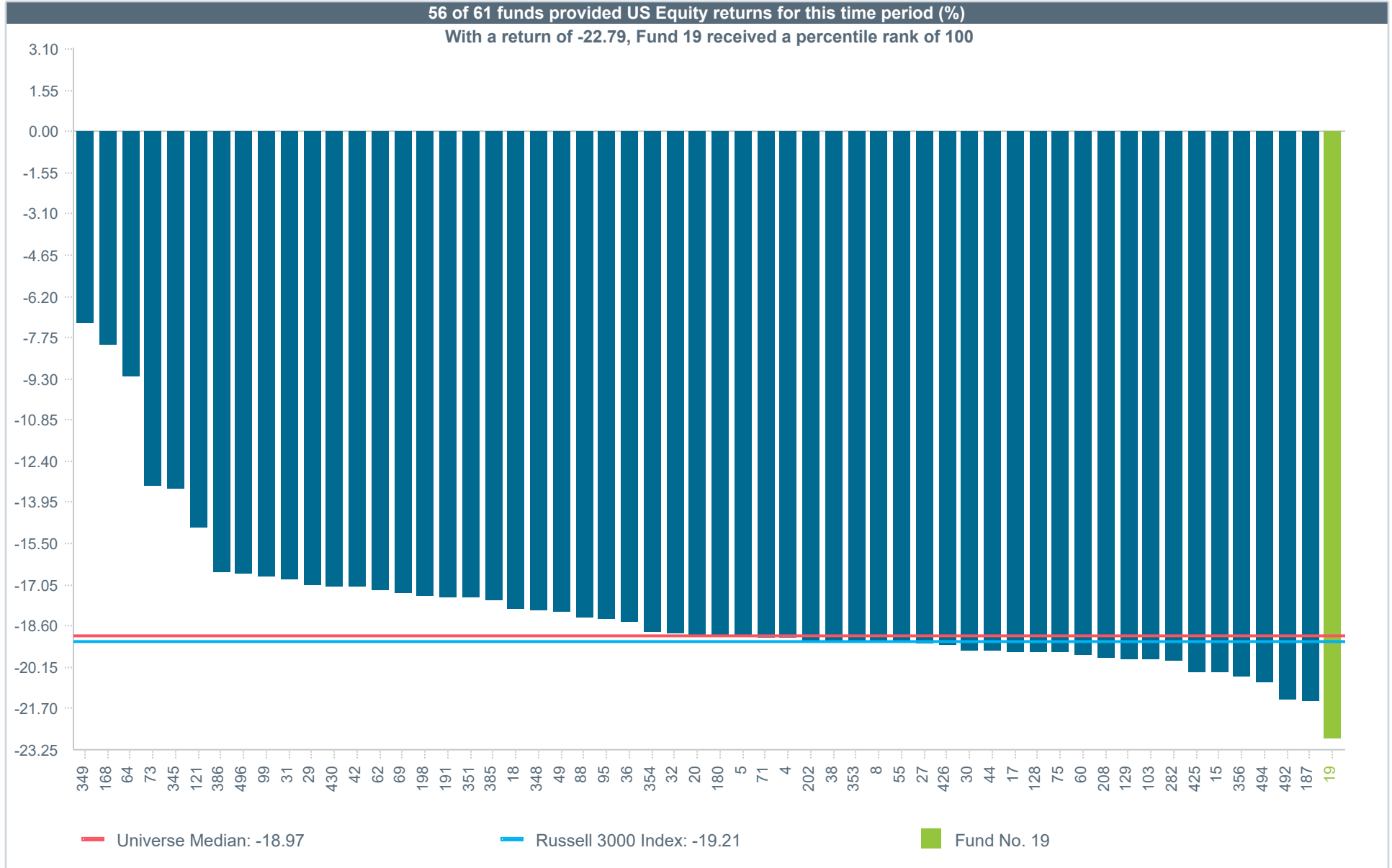
<b>Annualized Returns (%)</b>			
	<b>1 Year</b>	<b>3 Years</b>	<b>5 Years</b>
Fund No. 19	-6.89	7.42	7.73
60% R 3000/40% B US Agg Bond Index	-16.46	3.52	5.61
Variance	9.57	3.90	2.12





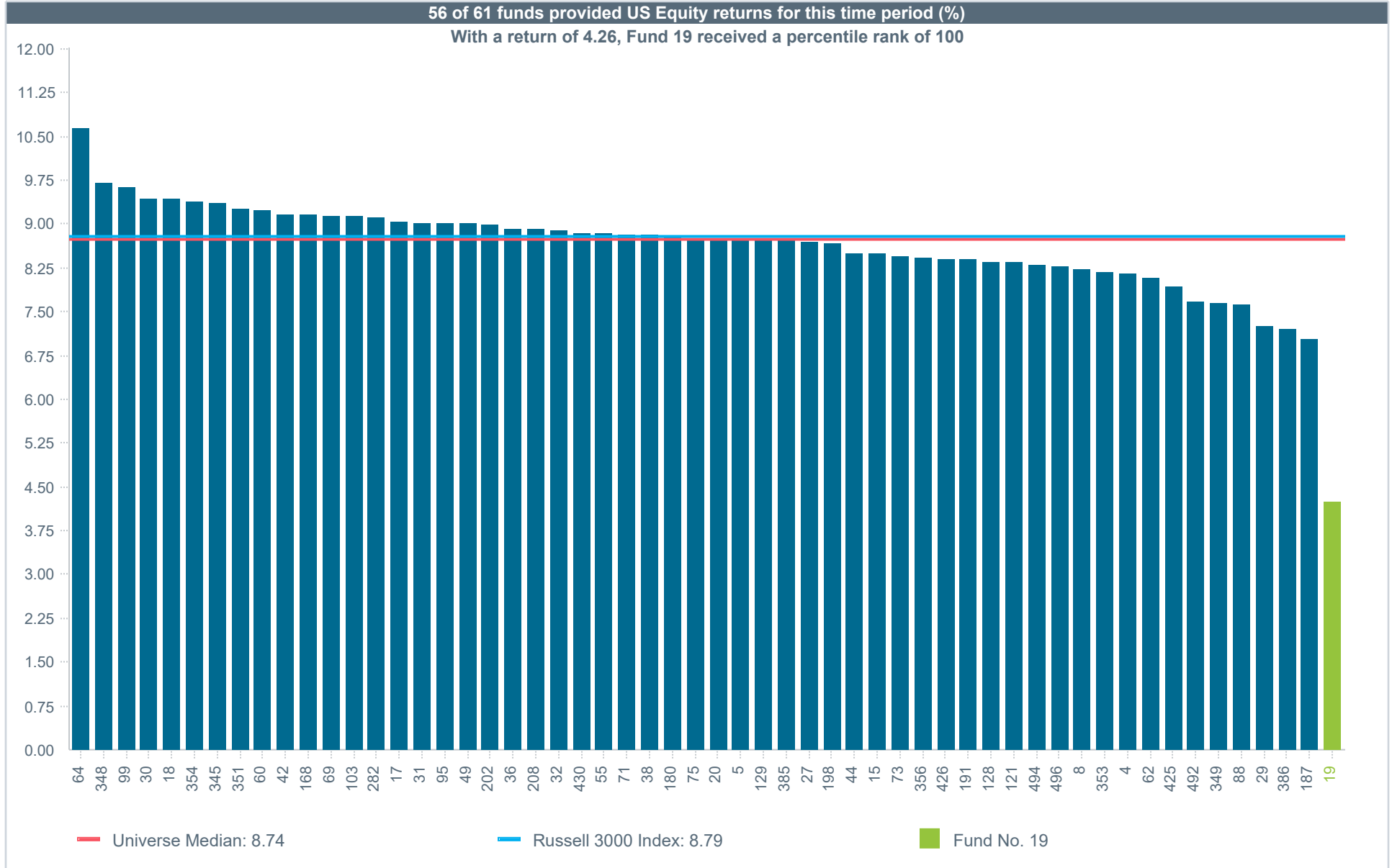
Funds with less history than the specified time period will not appear in the chart. Benchmark used is the S&P 500 Index (Cap Wtd).





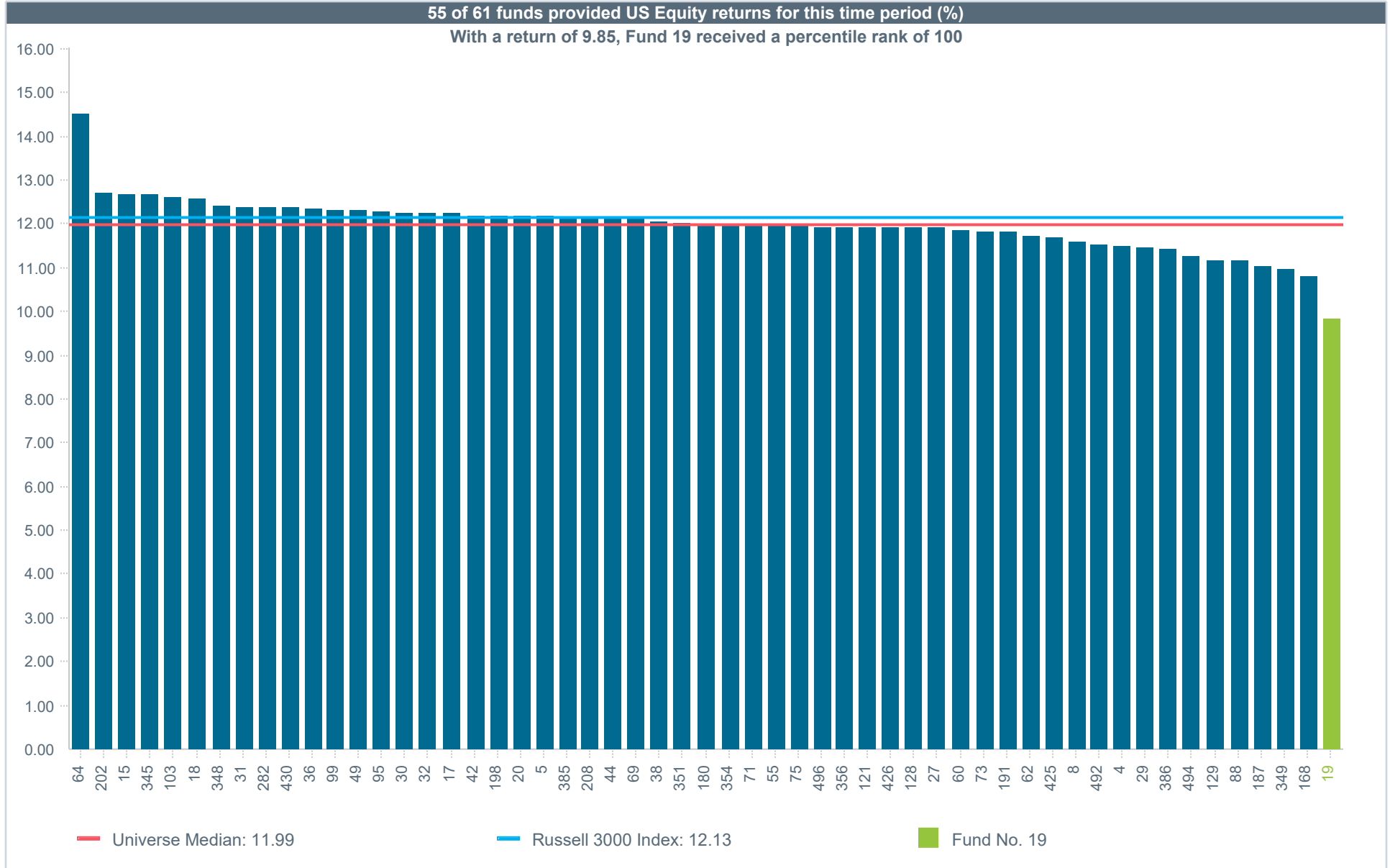
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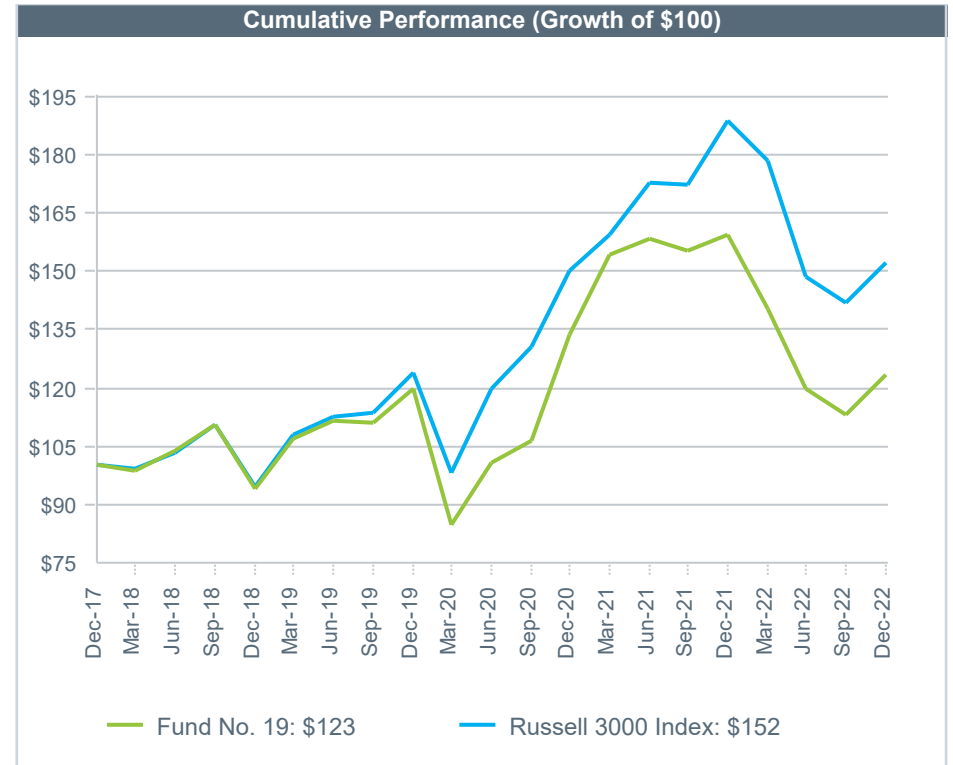
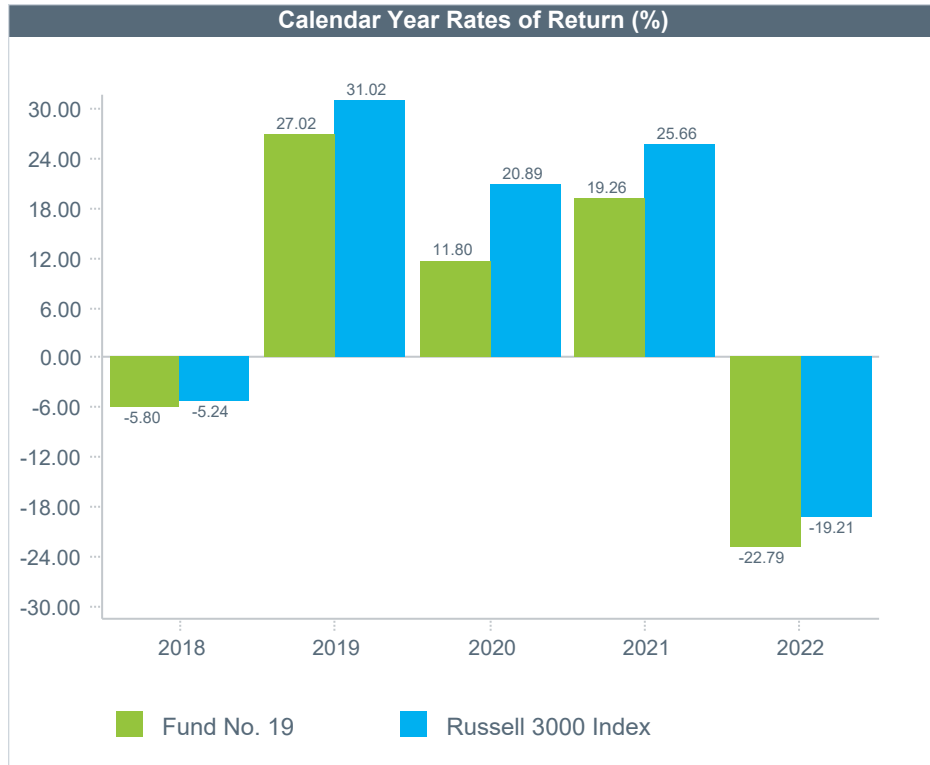
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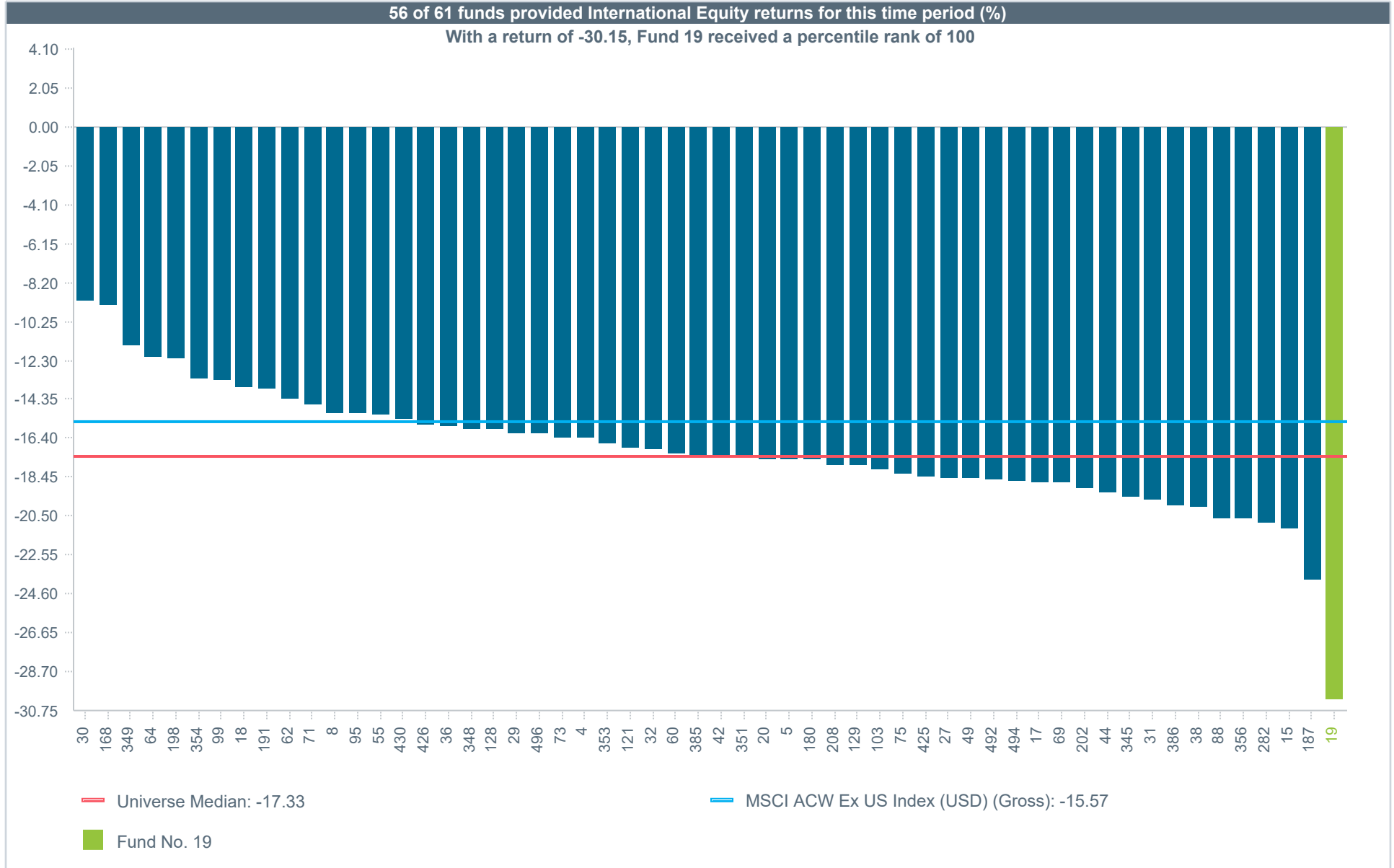




### Annualized Returns (%)

	1 Year	3 Years	5 Years
Fund No. 19	-22.79	0.97	4.26
Russell 3000 Index	-19.21	7.07	8.79
Variance	-3.58	-6.10	-4.53

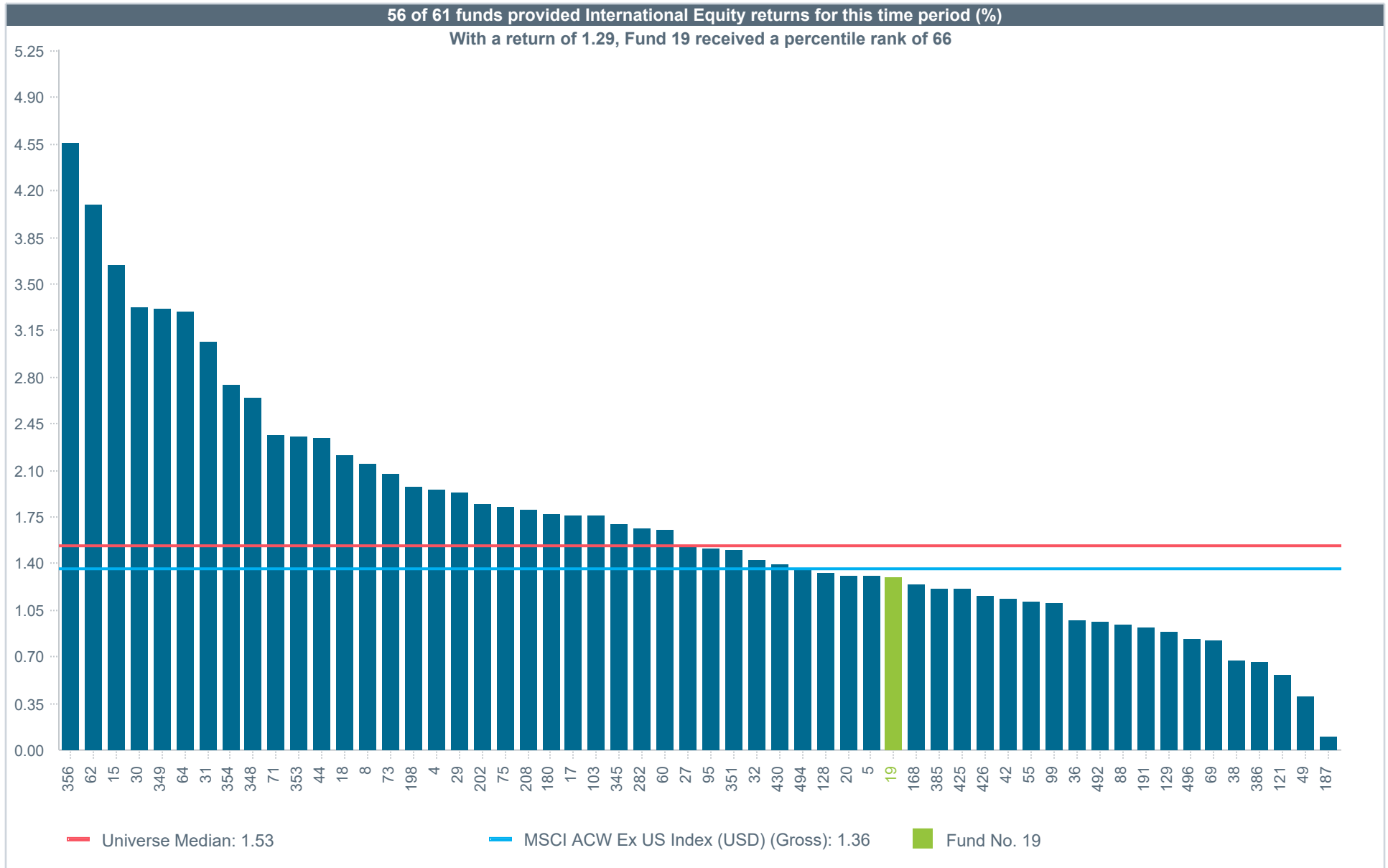




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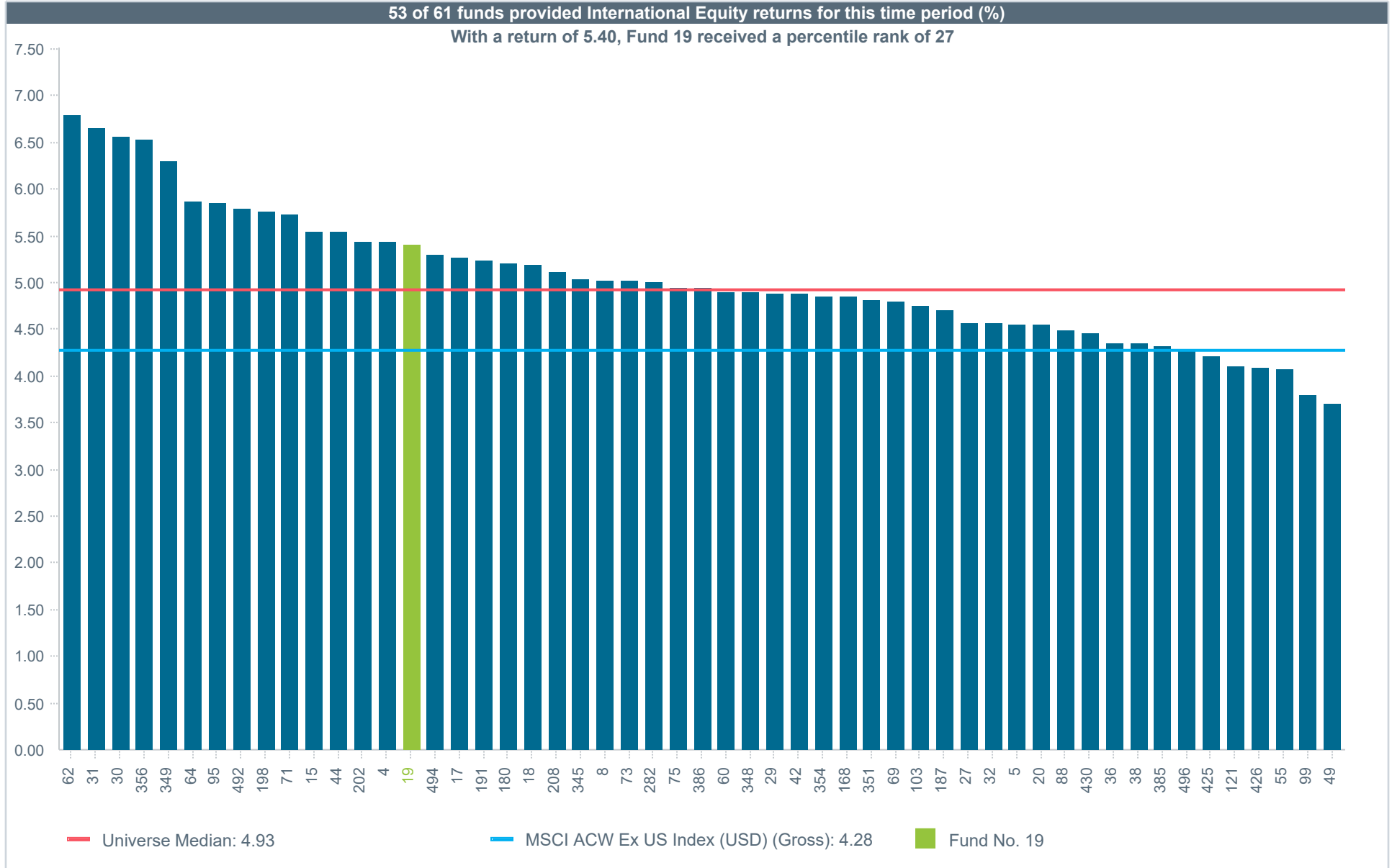






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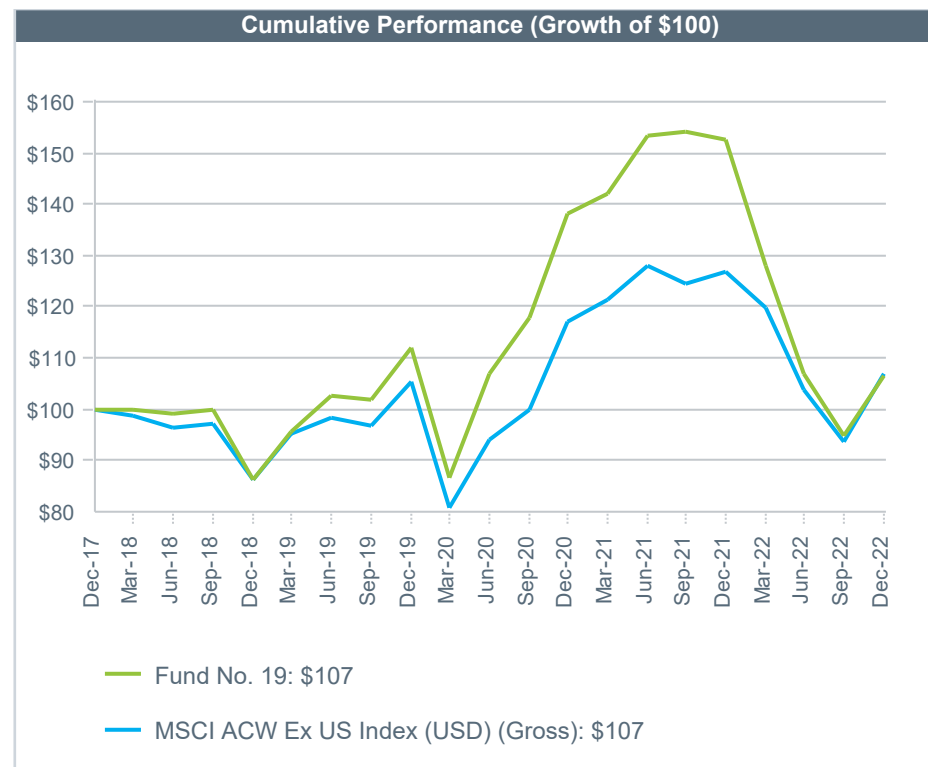
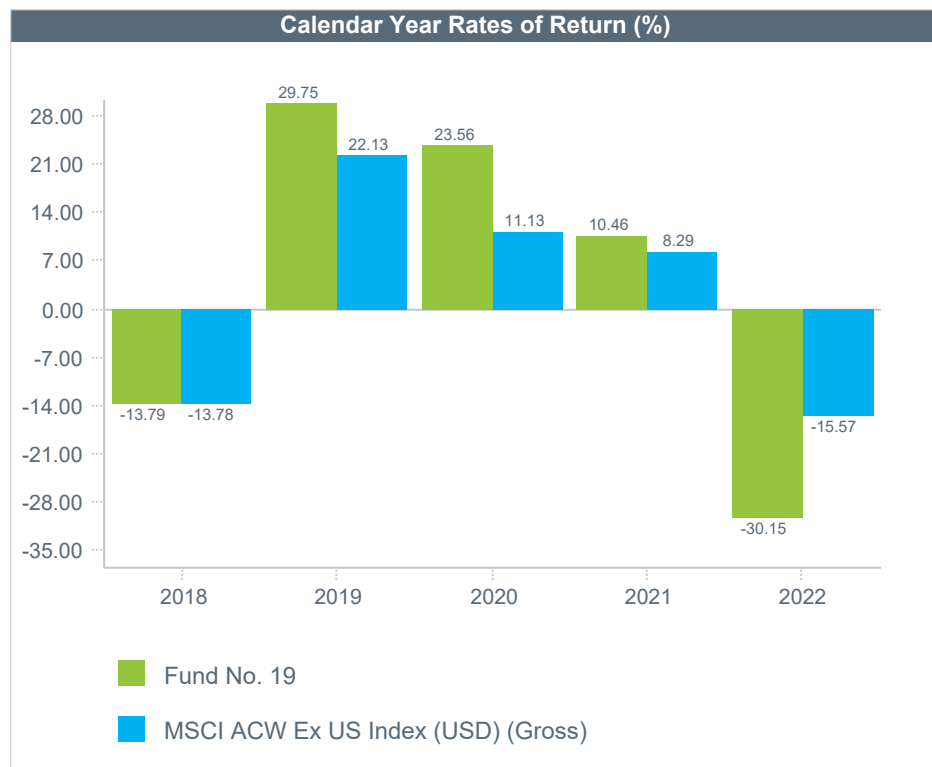


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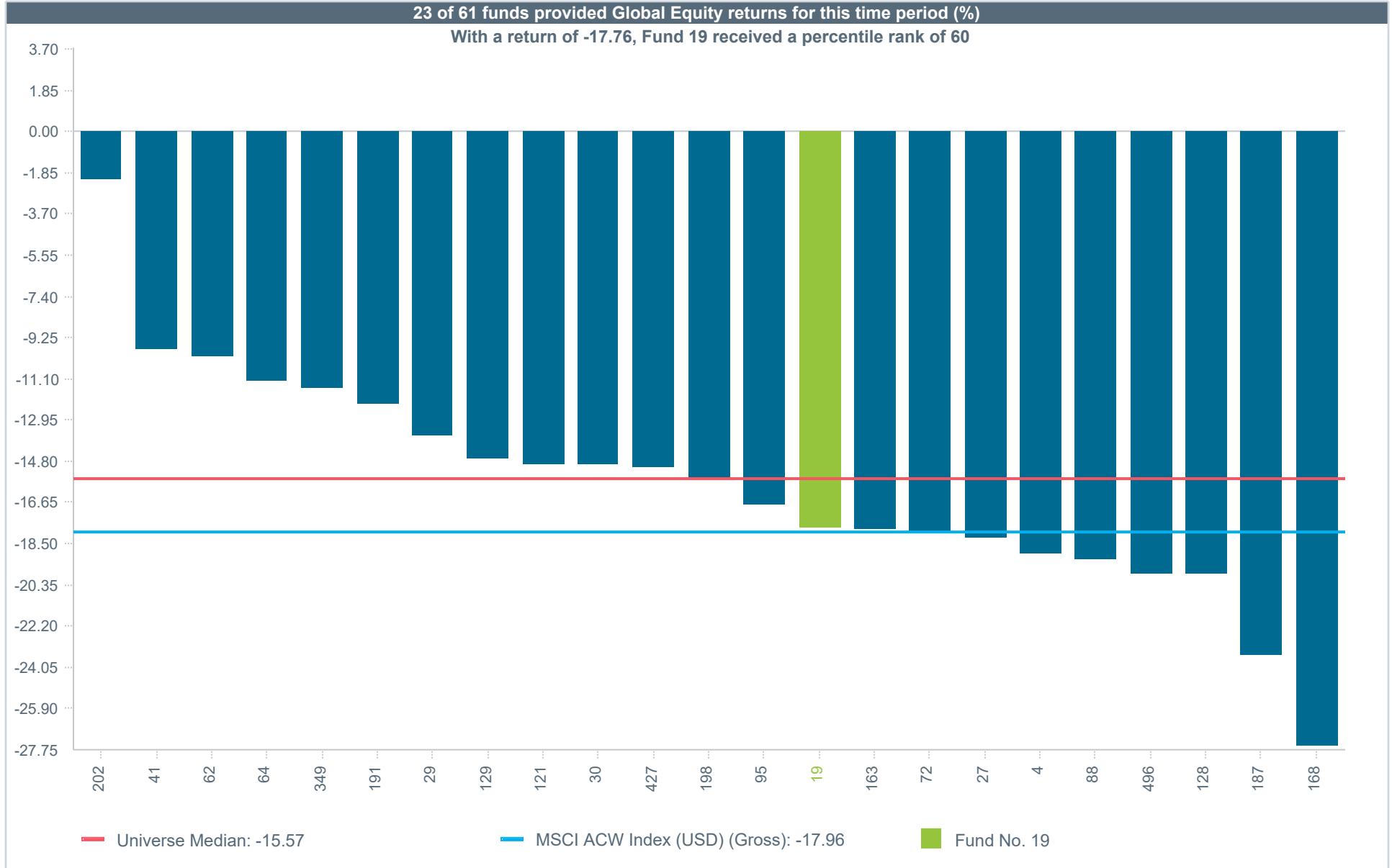
**Total Return - International Equity**  
**Fund No. 19 vs. MSCI ACW Ex US Index (USD) (Gross)**

As of December 31, 2022



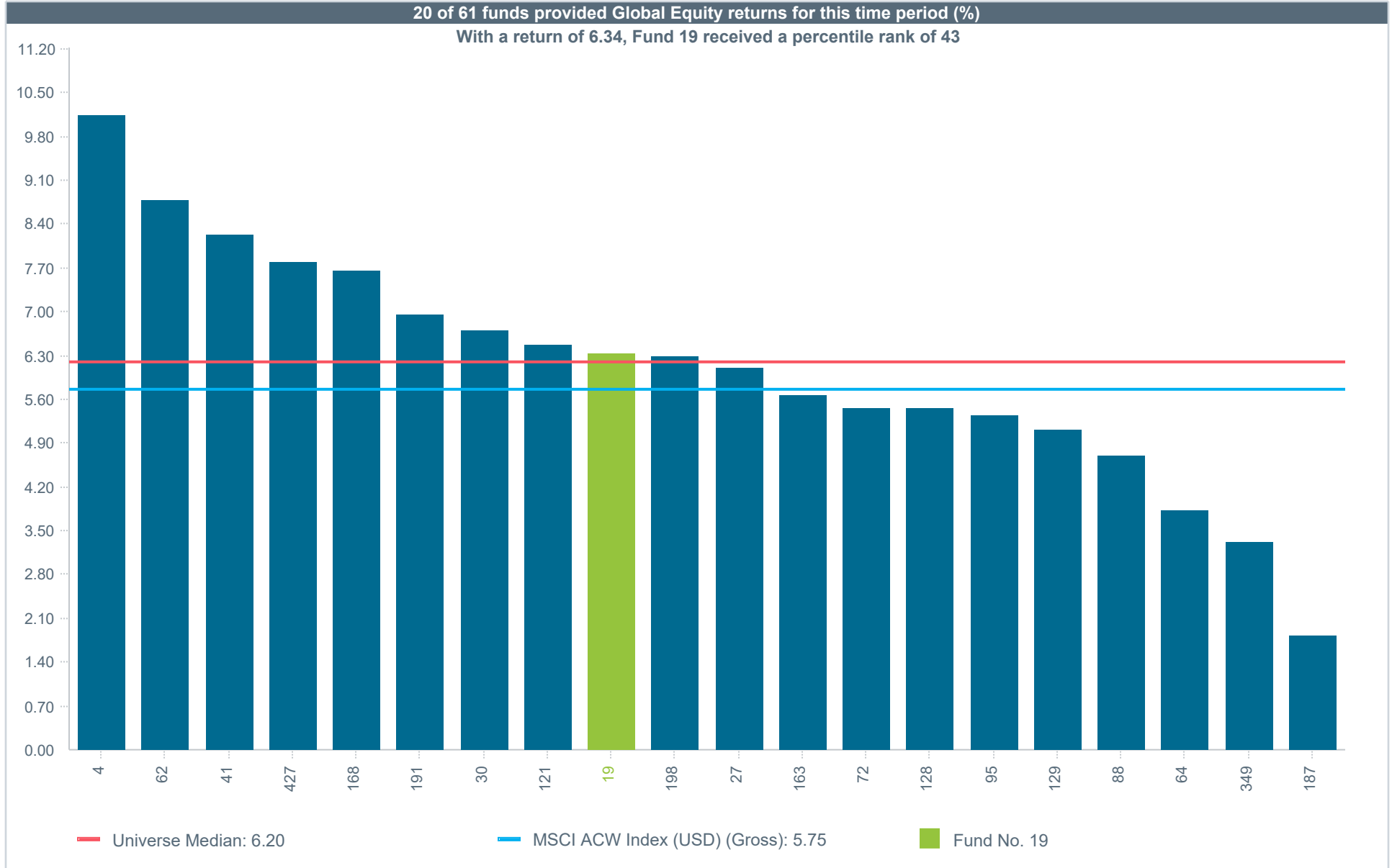
Annualized Returns (%)			
	1 Year	3 Years	5 Years
Fund No. 19	-30.15	-1.58	1.29
MSCI ACW Ex US Index (USD) (Gross)	-15.57	0.53	1.36
Variance	-14.58	-2.11	-0.07





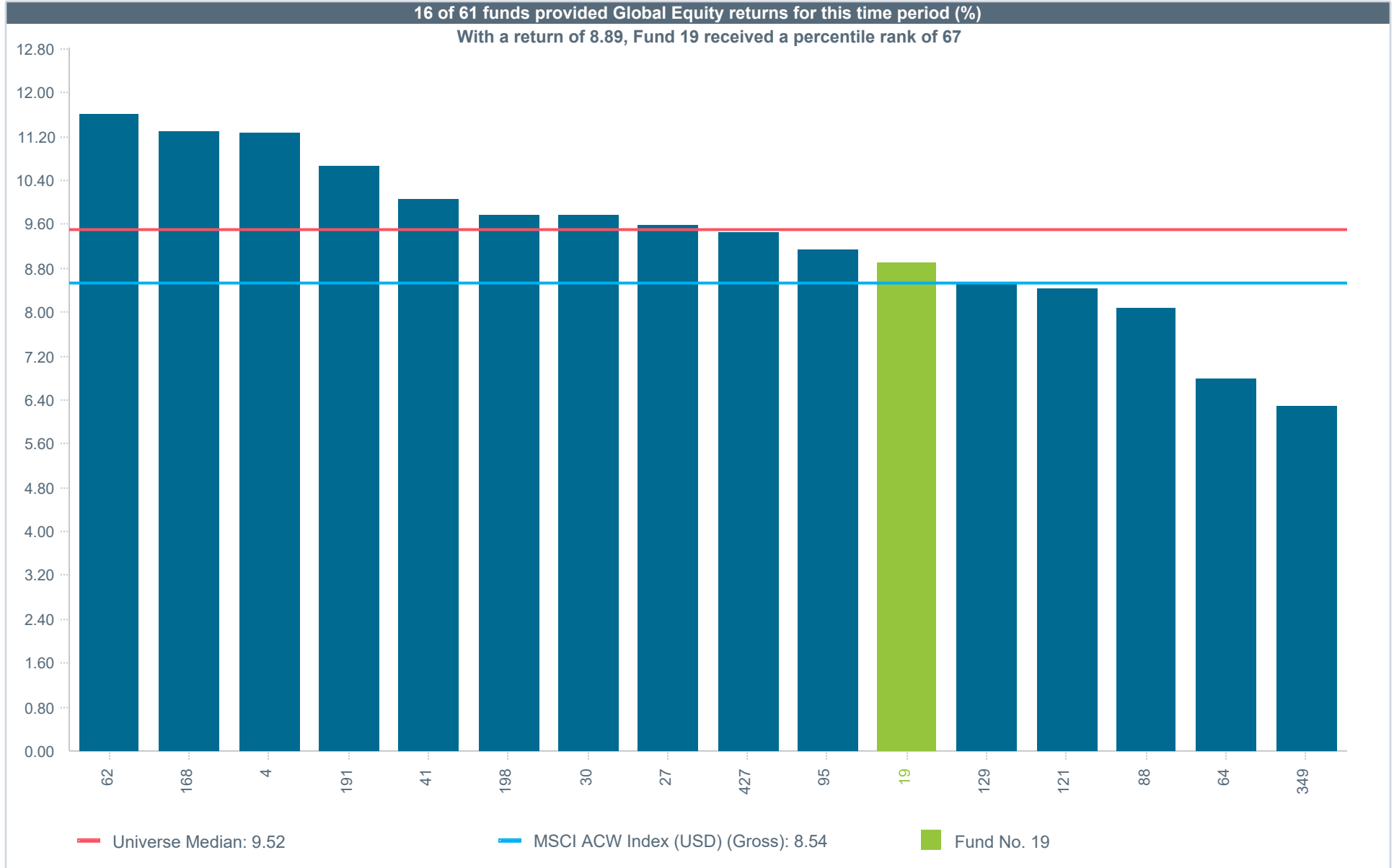
Funds with less history than the specified time period will not appear in the chart.





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



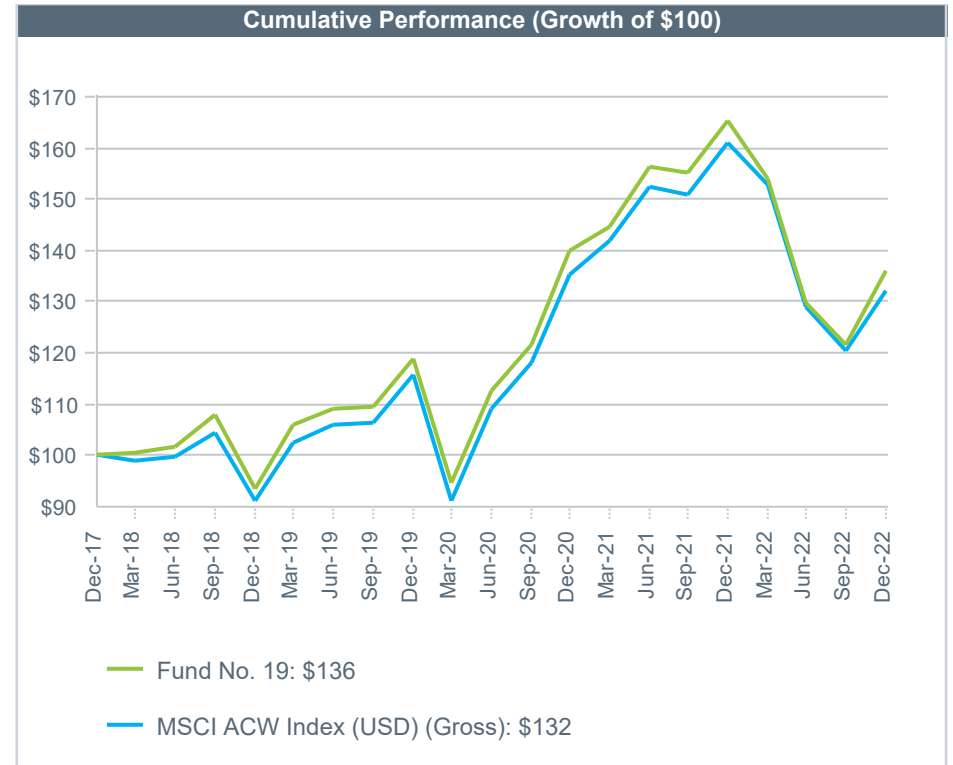
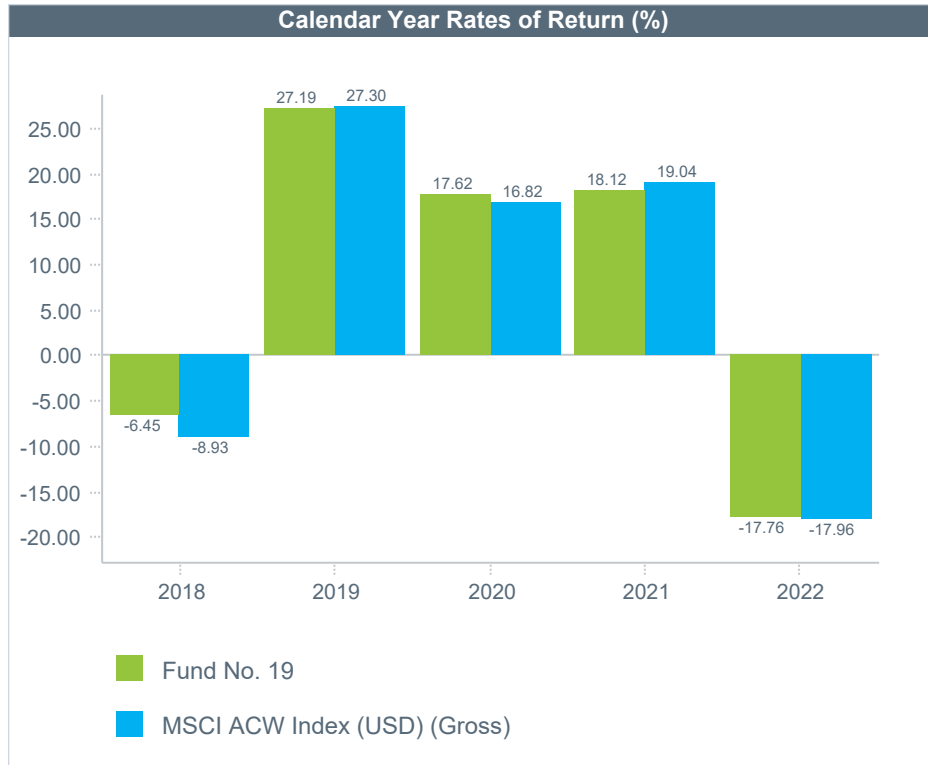


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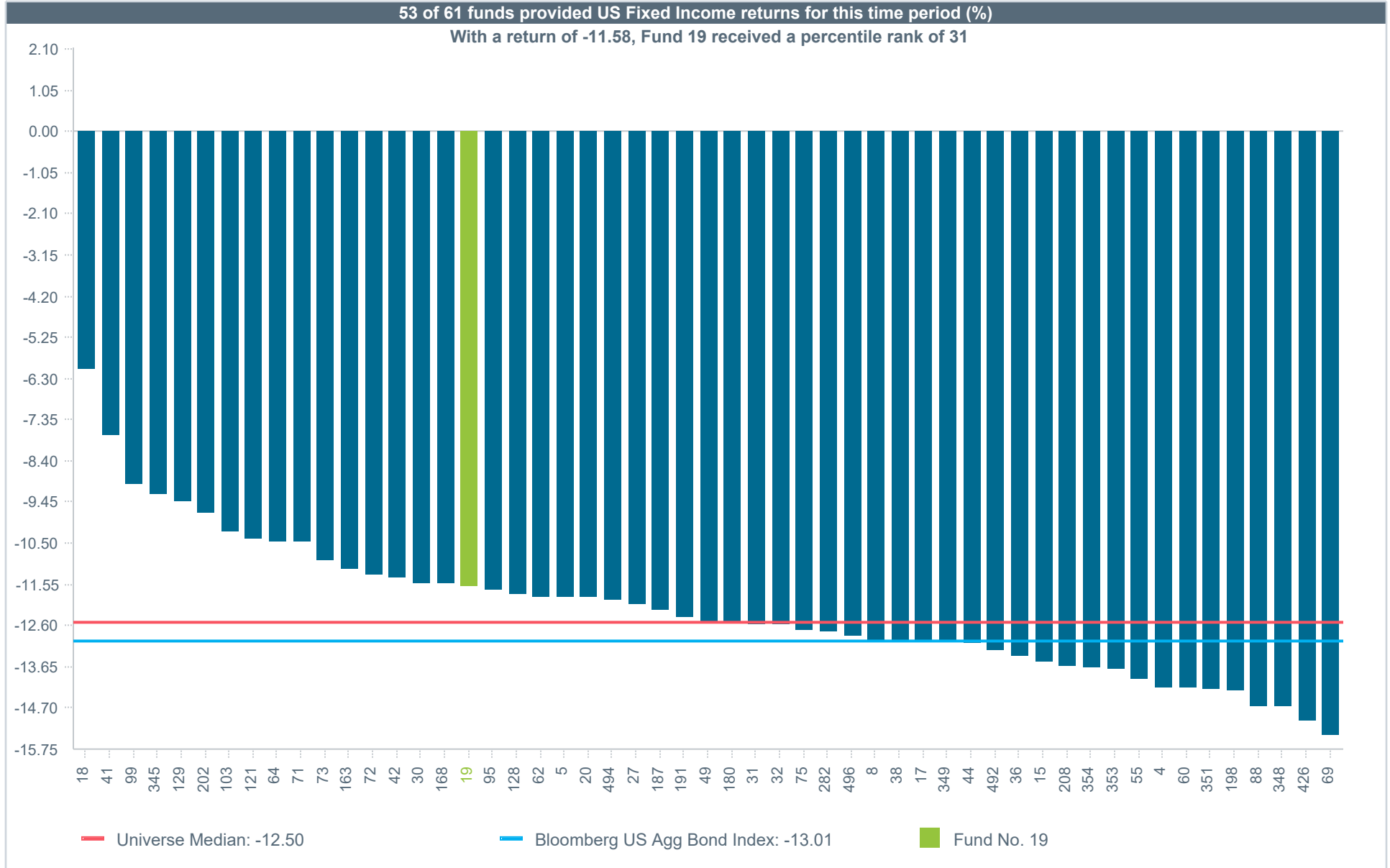
**Total Return - Global Equity**  
**Fund No. 19 vs. MSCI ACW Index (USD) (Gross)**

As of December 31, 2022



<b>Annualized Returns (%)</b>			
	<b>1 Year</b>	<b>3 Years</b>	<b>5 Years</b>
Fund No. 19	<b>-17.76</b>	4.54	6.34
MSCI ACW Index (USD) (Gross)	<b>-17.96</b>	4.49	5.75
Variance	0.20	0.05	0.59

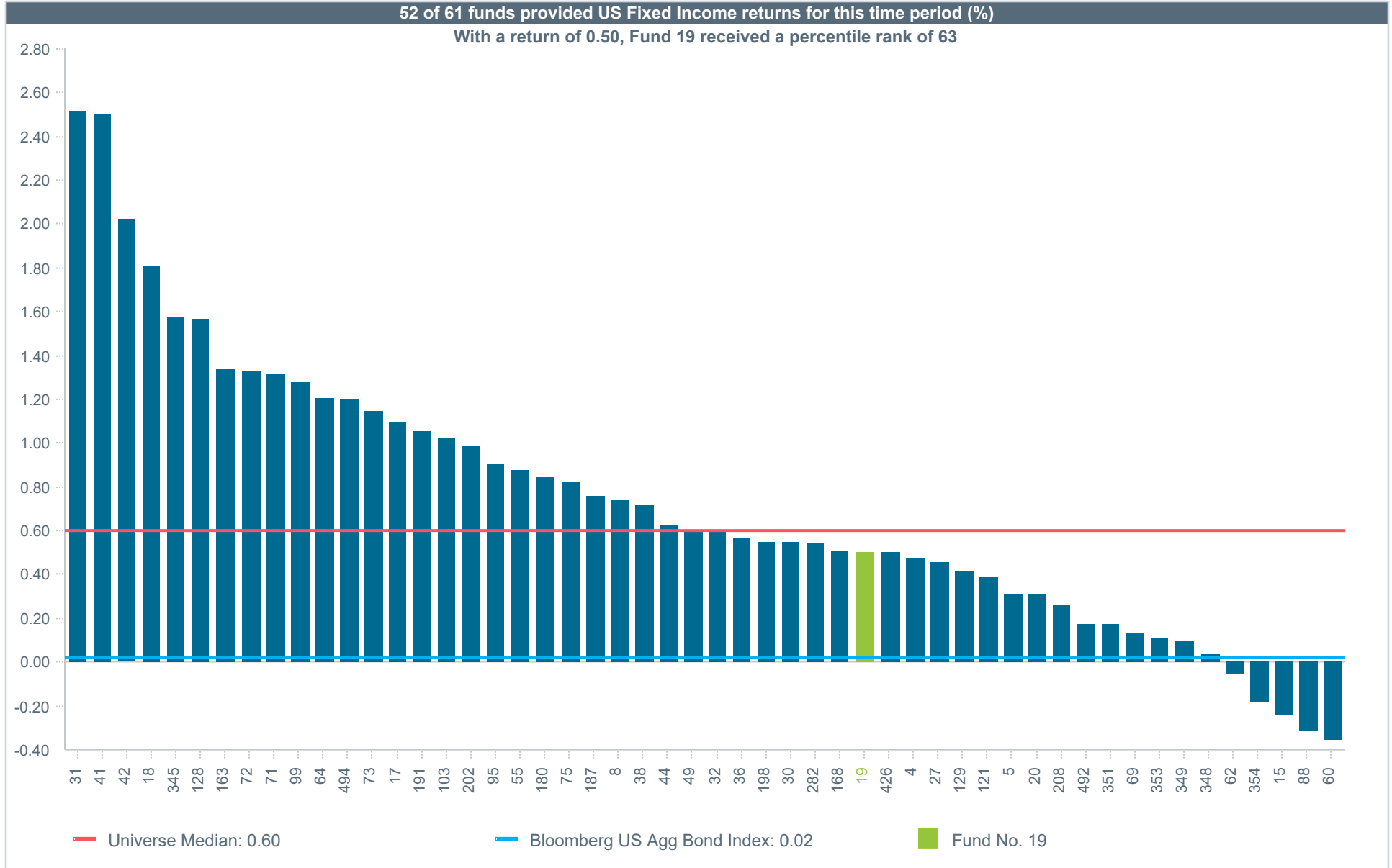




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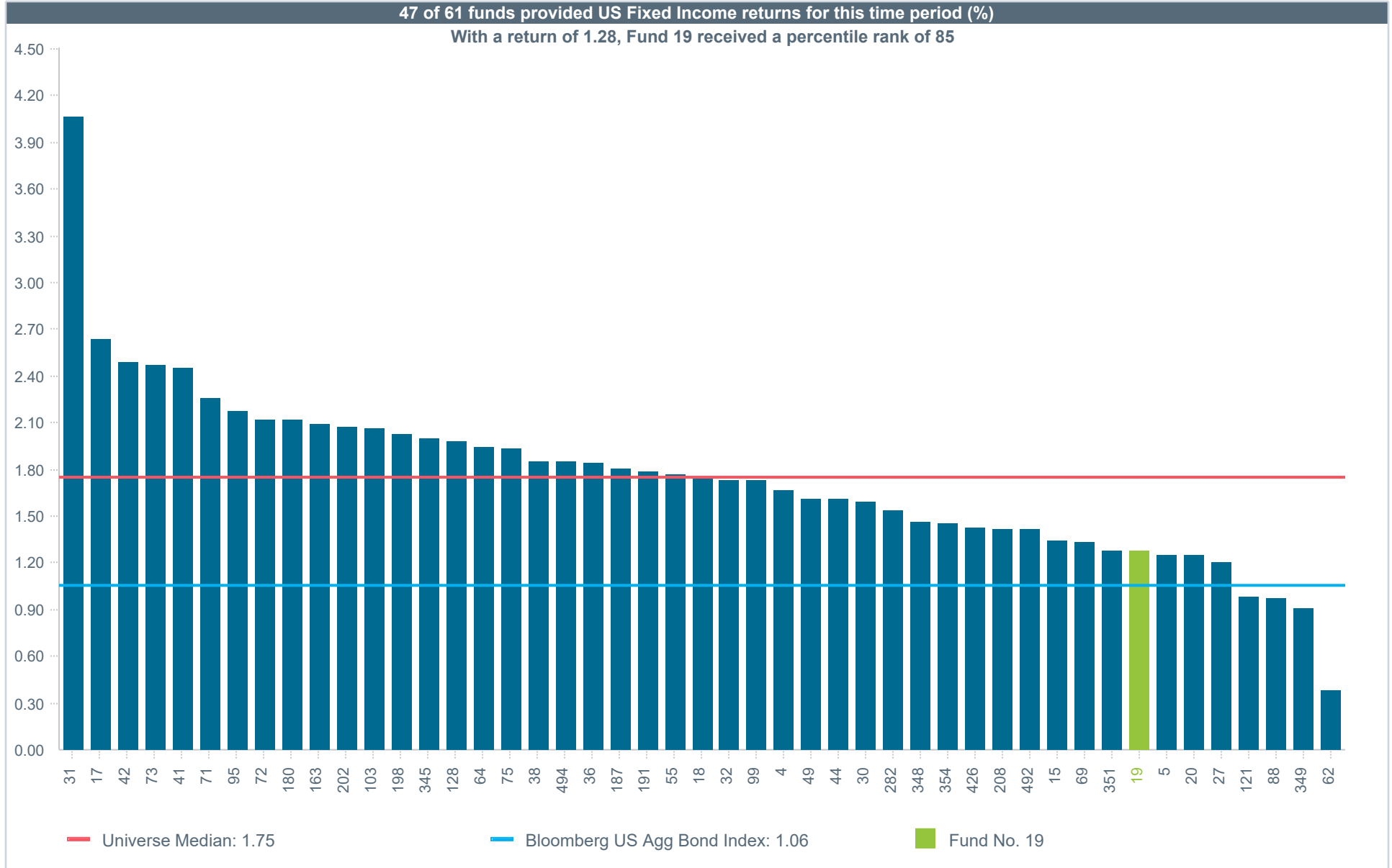






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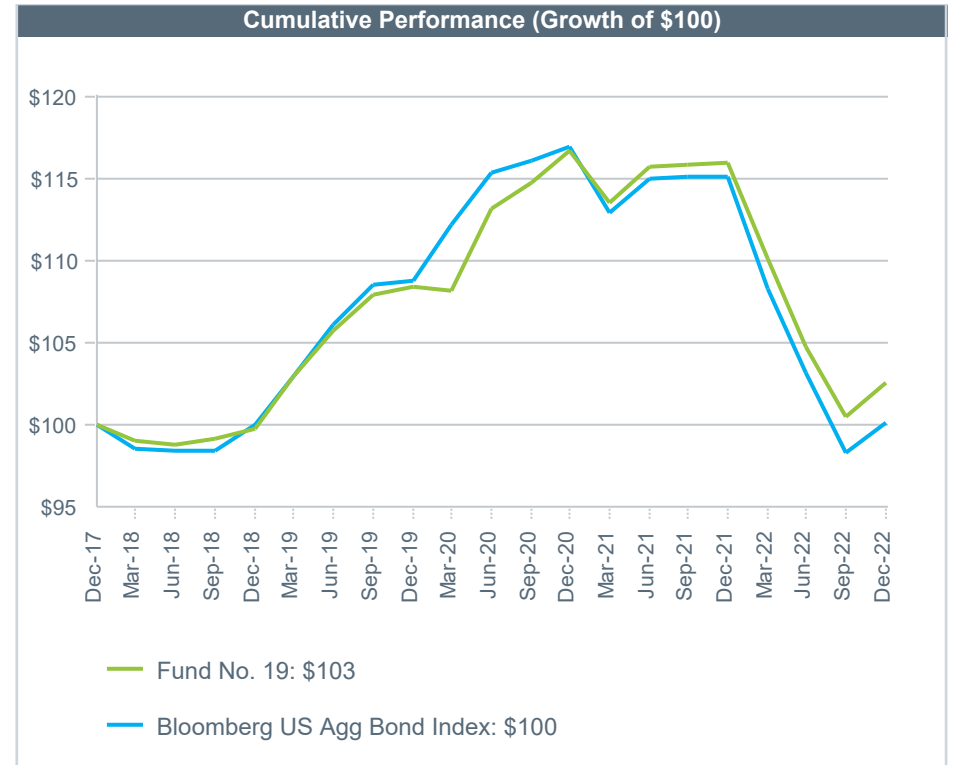
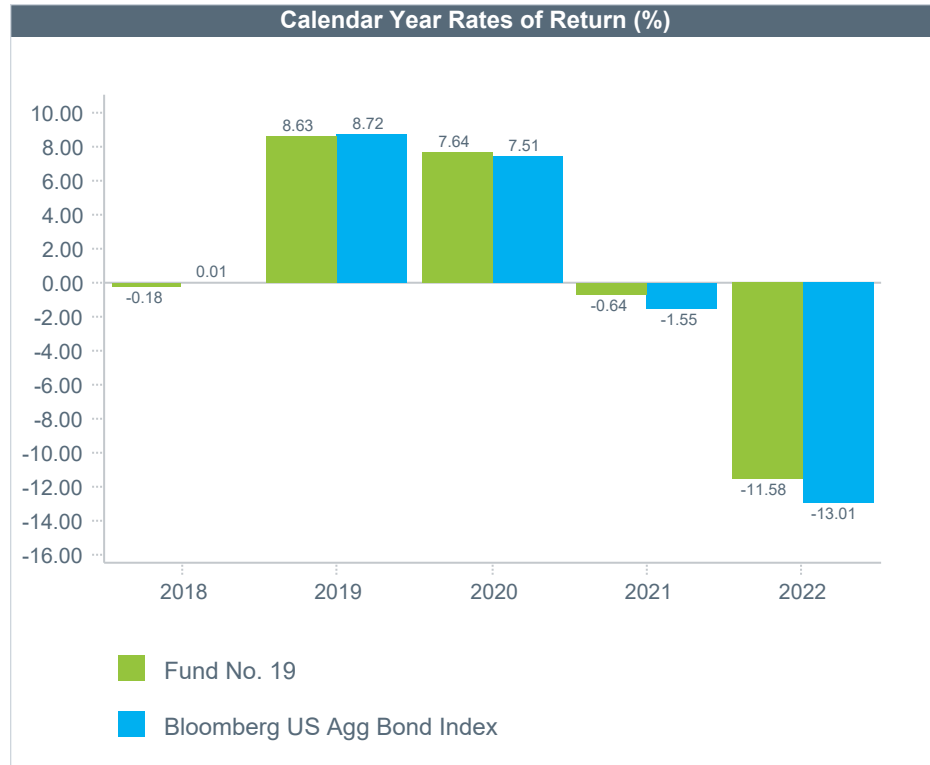


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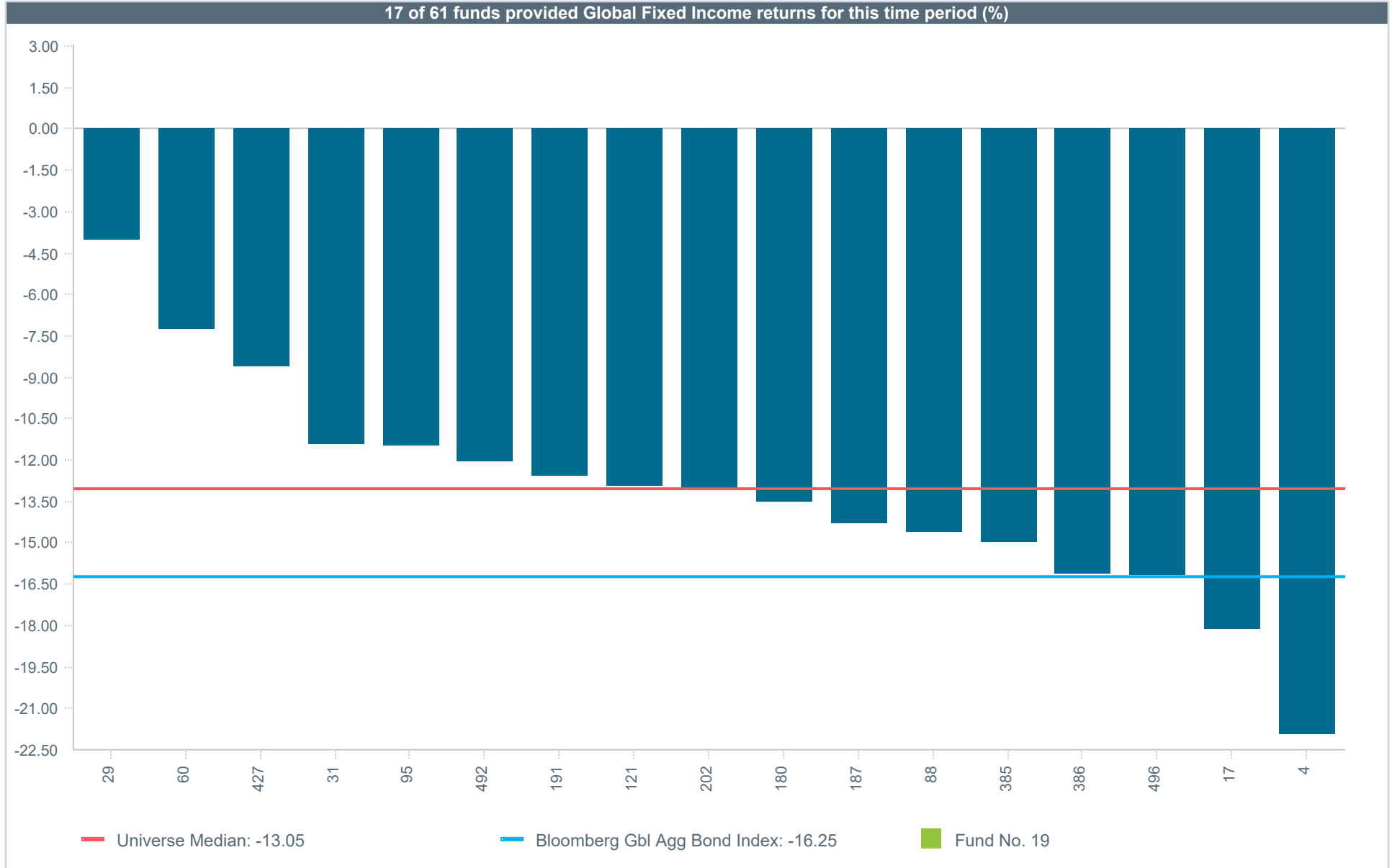
Total Return - US Fixed Income  
Fund No. 19 vs. Bloomberg US Agg Bond Index

As of December 31, 2022



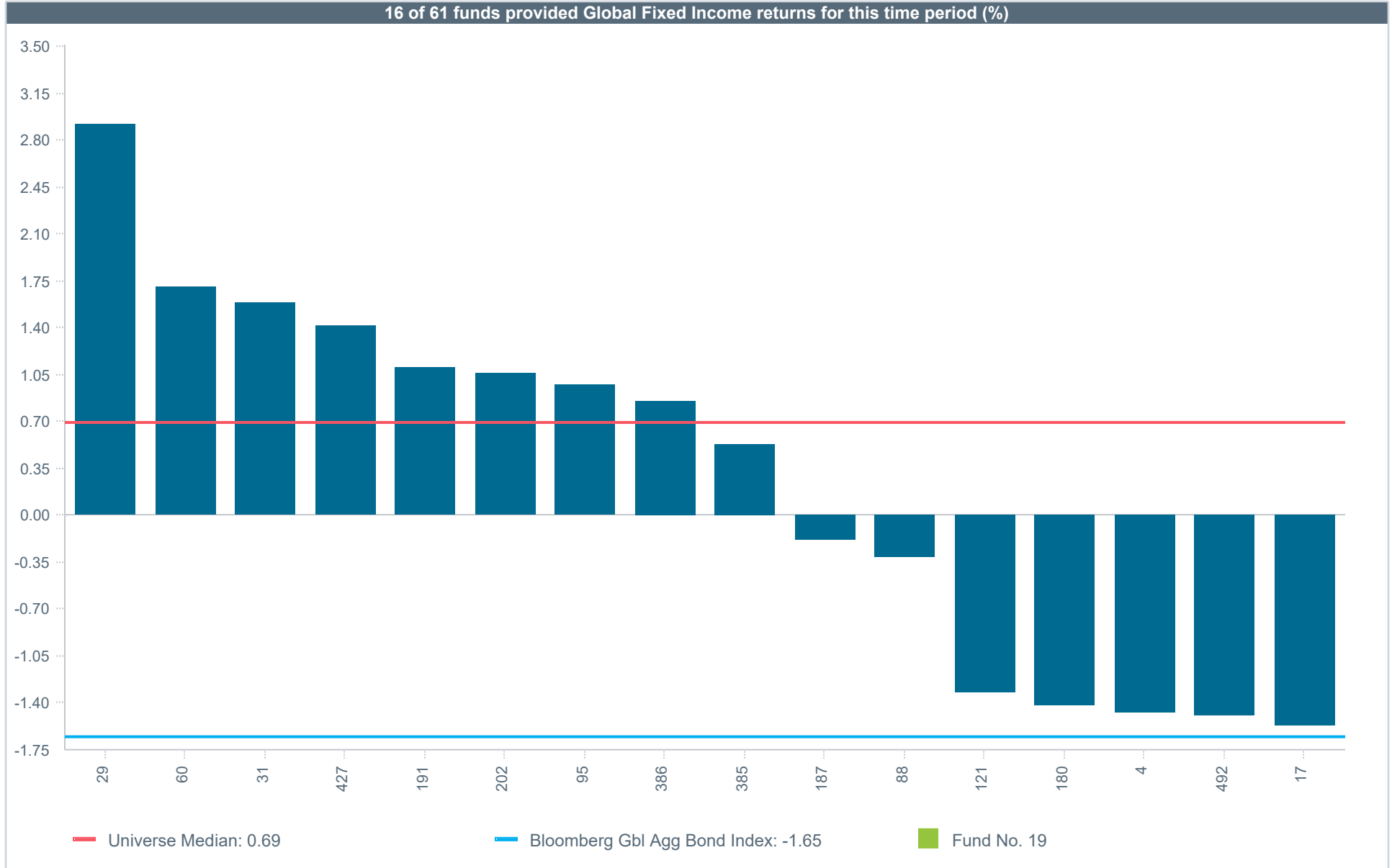
Annualized Returns (%)			
	1 Year	3 Years	5 Years
Fund No. 19	-11.58	-1.85	0.50
Bloomberg US Agg Bond Index	-13.01	-2.71	0.02
Variance	1.43	0.86	0.48





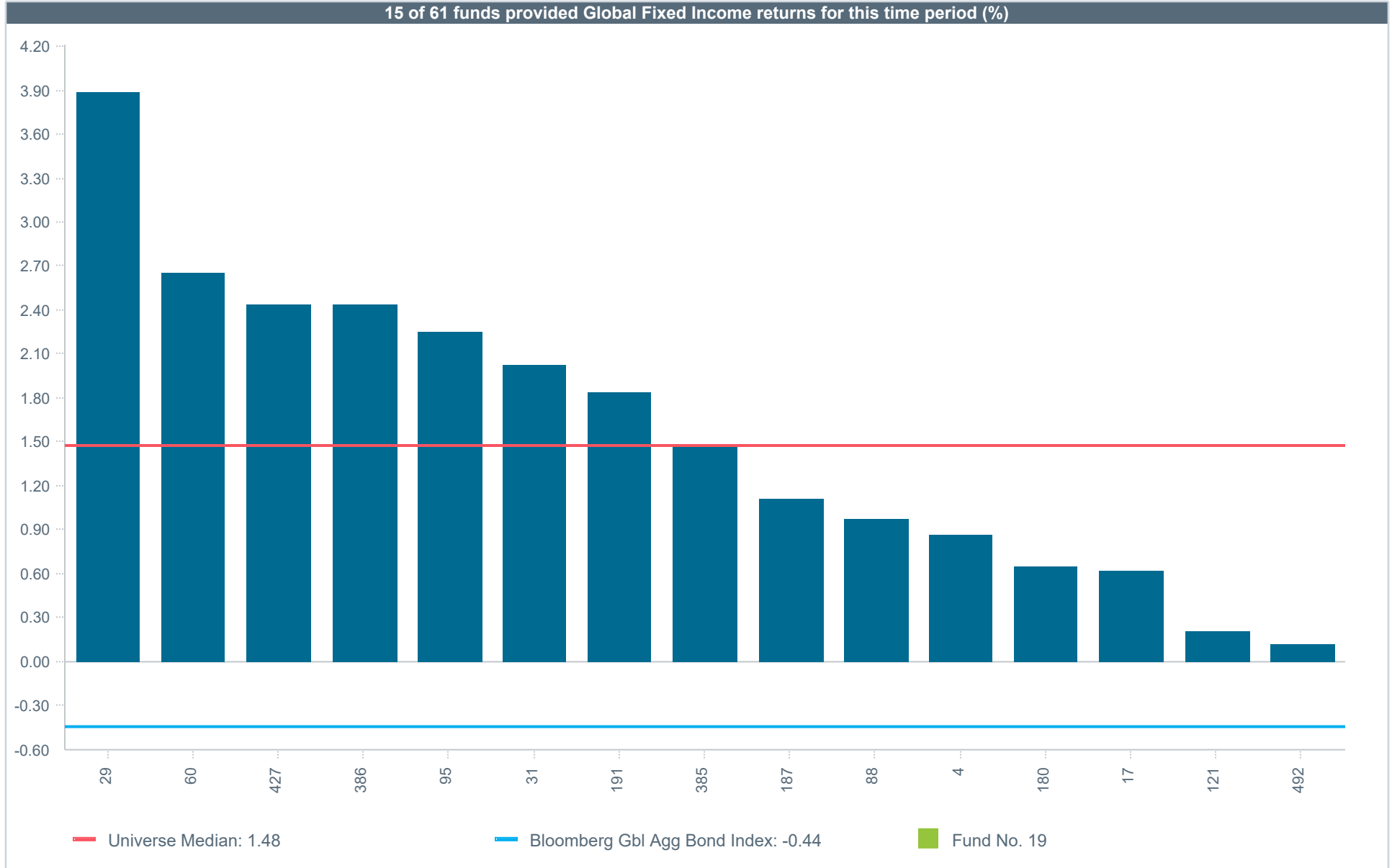
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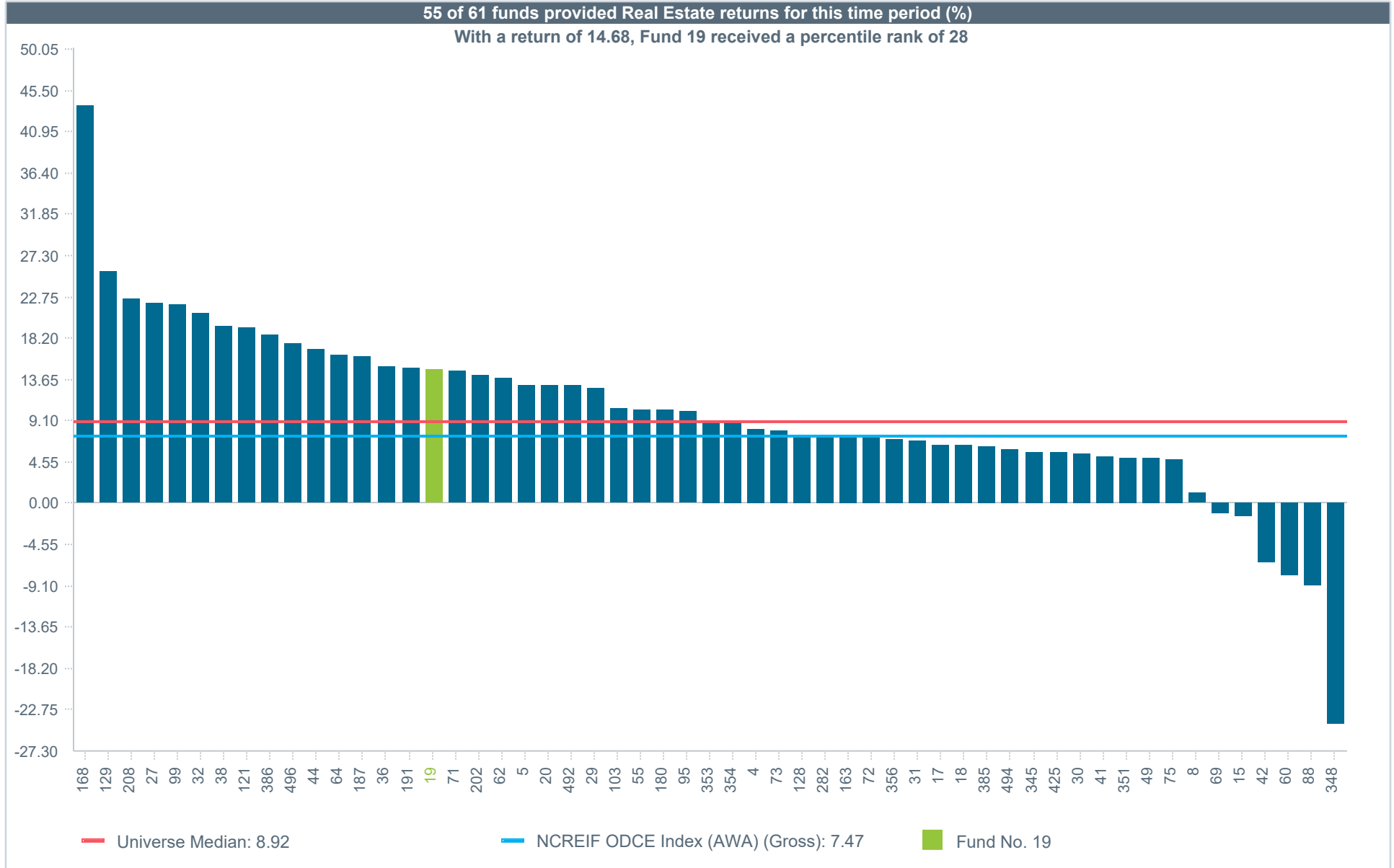
Funds with less history than the specified time period will not appear in the chart.



Calendar Year Rates of Return (%)	Cumulative Performance (Growth of \$100)
<p>Fund No. 19 does not have return data for Global Fixed Income</p>	

Annualized Returns (%)			
	1 Year	3 Years	5 Years
Fund No. 19	N/A	N/A	N/A
Bloomberg Gbl Agg Bond Index	N/A	N/A	N/A
Variance	N/A	N/A	N/A

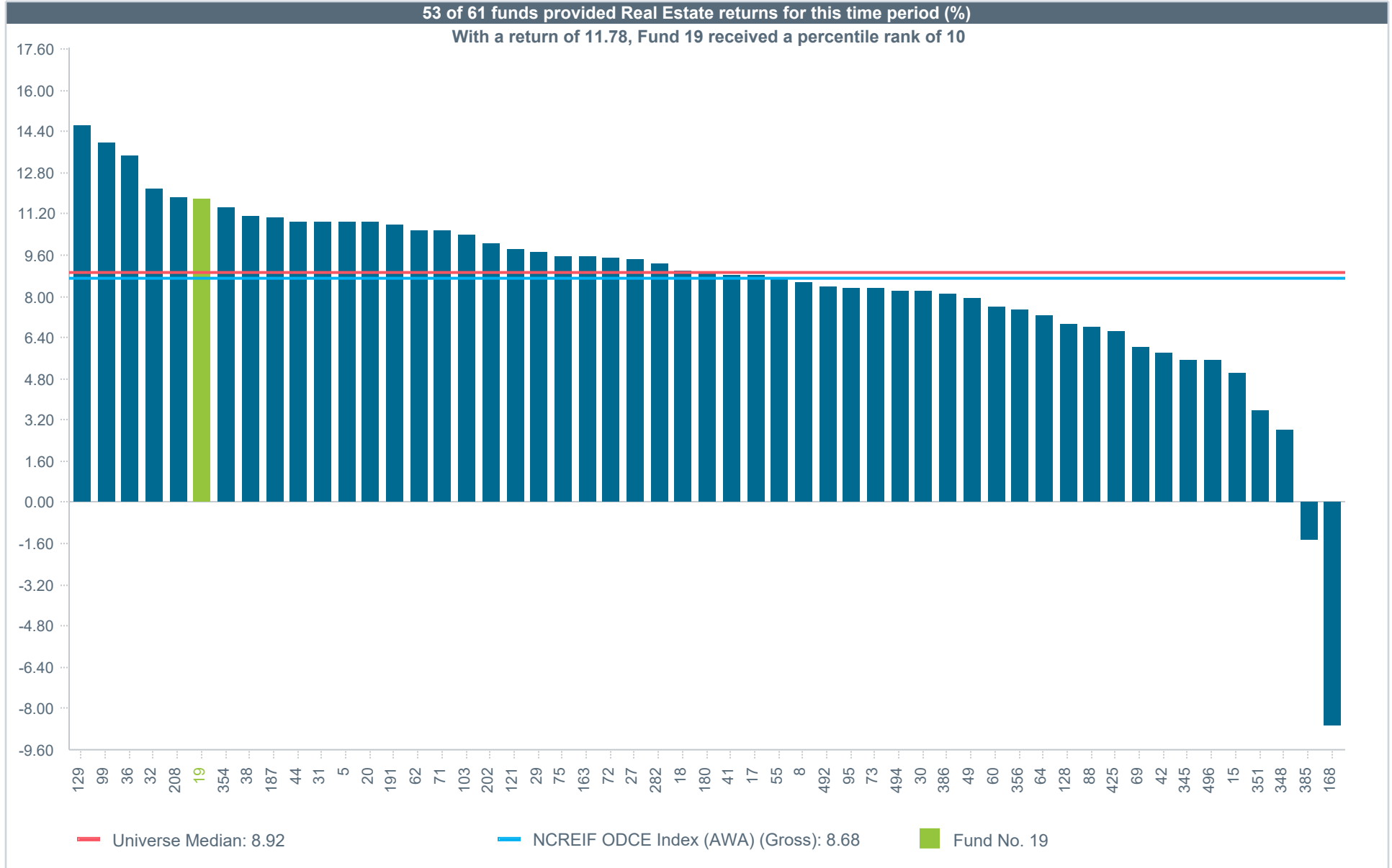




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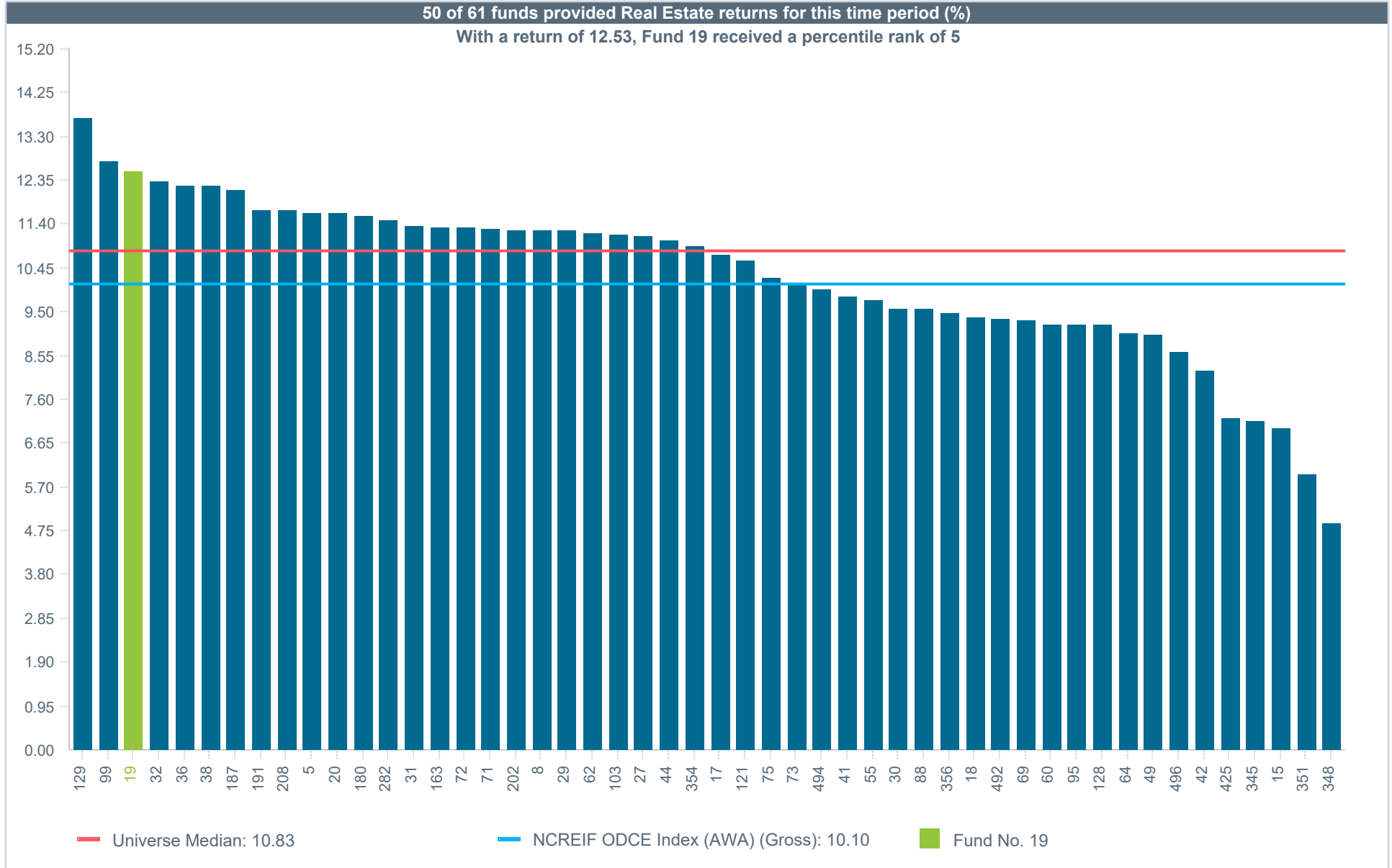






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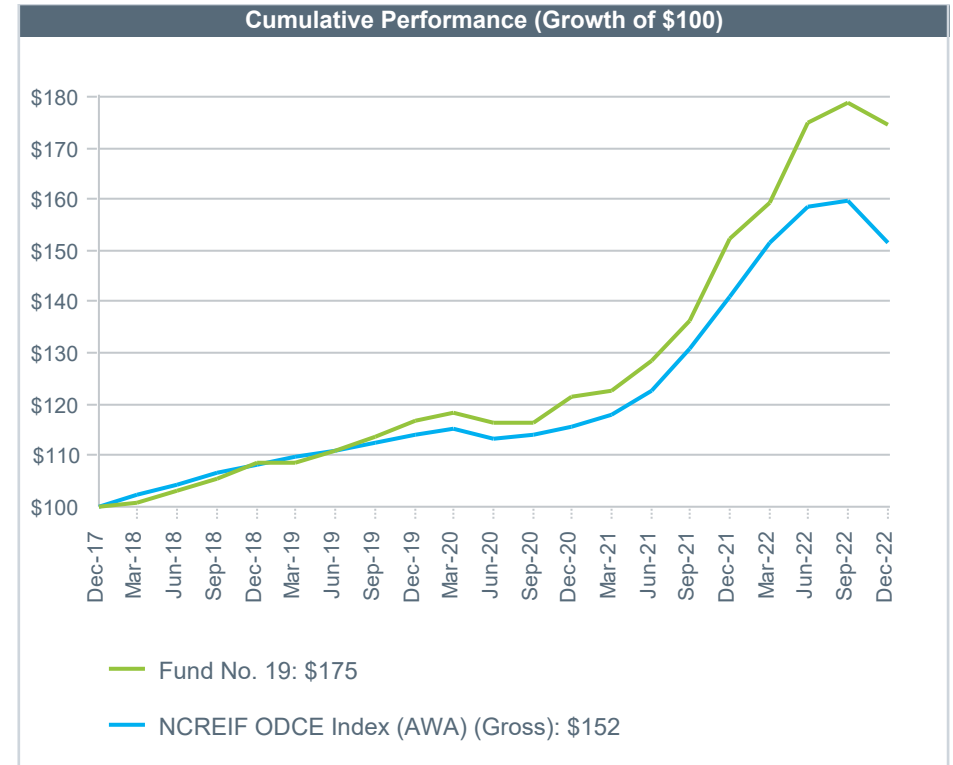
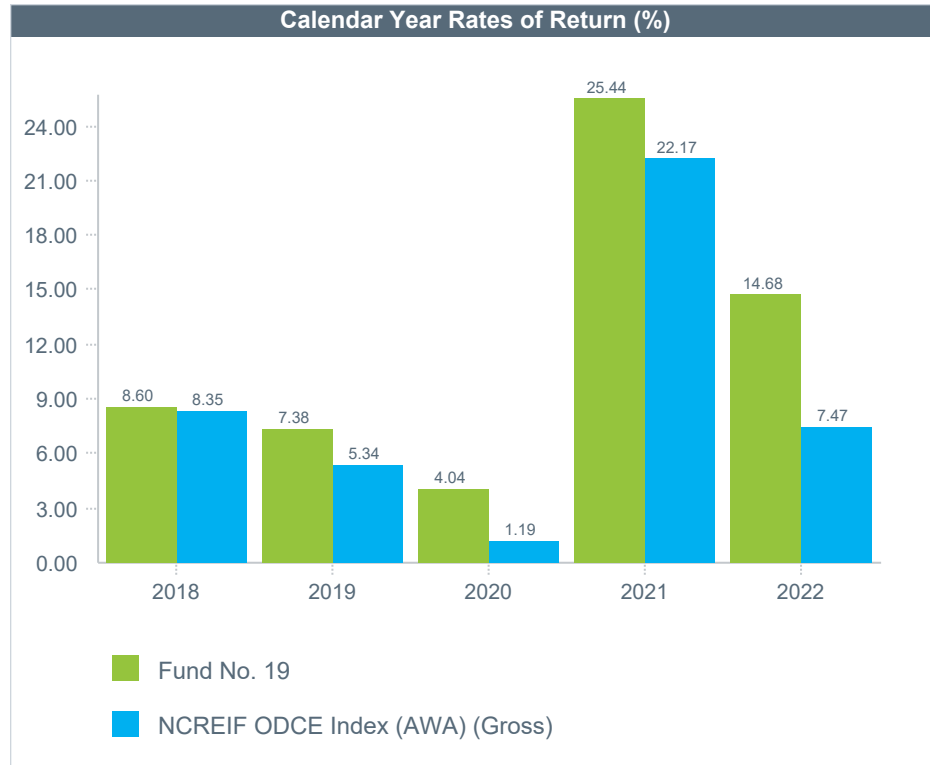


Funds with less history than the specified time period will not appear in the chart.



**Total Return - Real Estate**  
**Fund No. 19 vs. NCREIF ODCE Index (AWA) (Gross)**

As of December 31, 2022

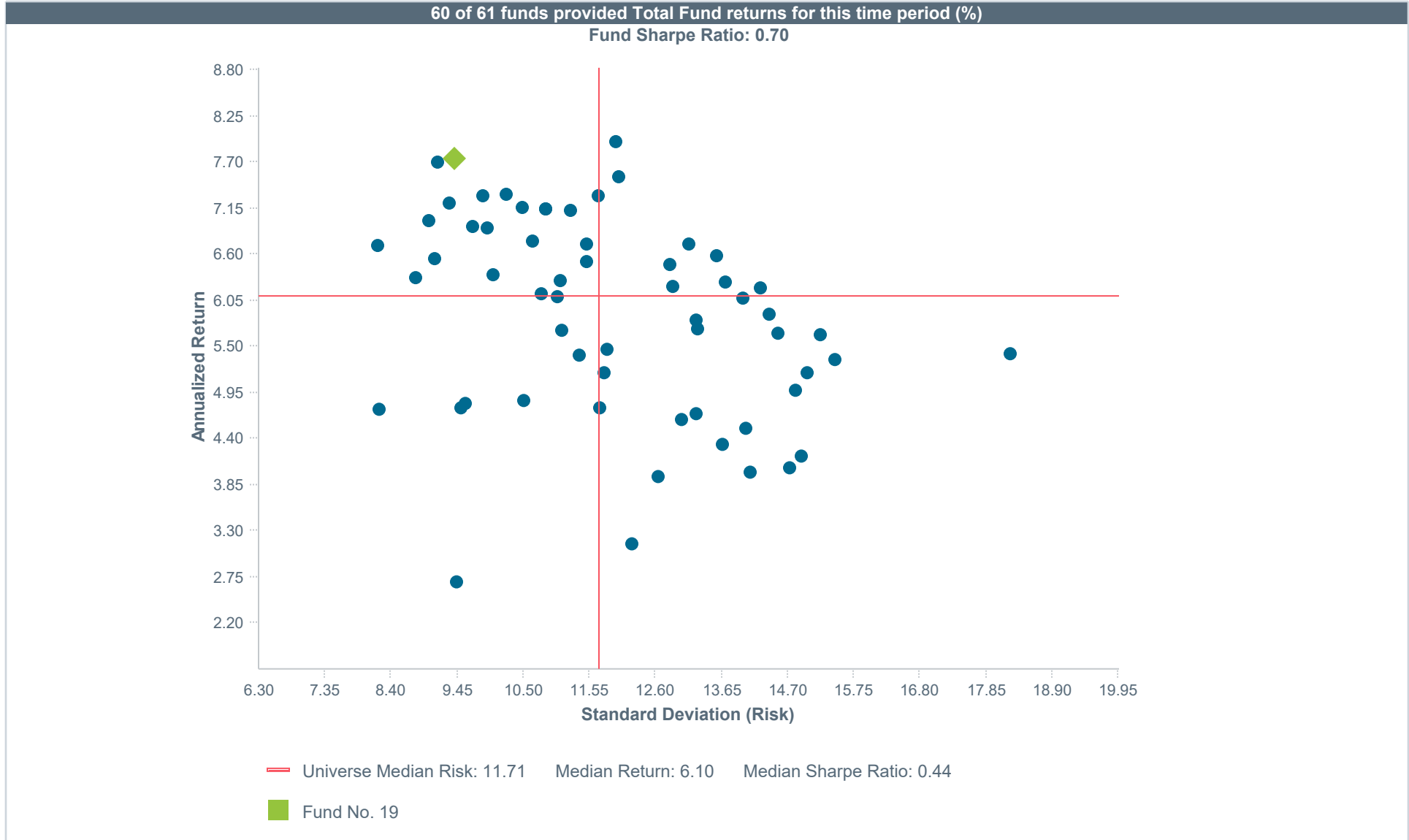


**Annualized Returns (%)**

	1 Year	3 Years	5 Years
Fund No. 19	14.68	14.39	11.78
NCREIF ODCE Index (AWA) (Gross)	7.47	9.93	8.68
Variance	7.21	4.46	3.10



5 Year Annualized Total Fund Returns vs. Standard Deviation



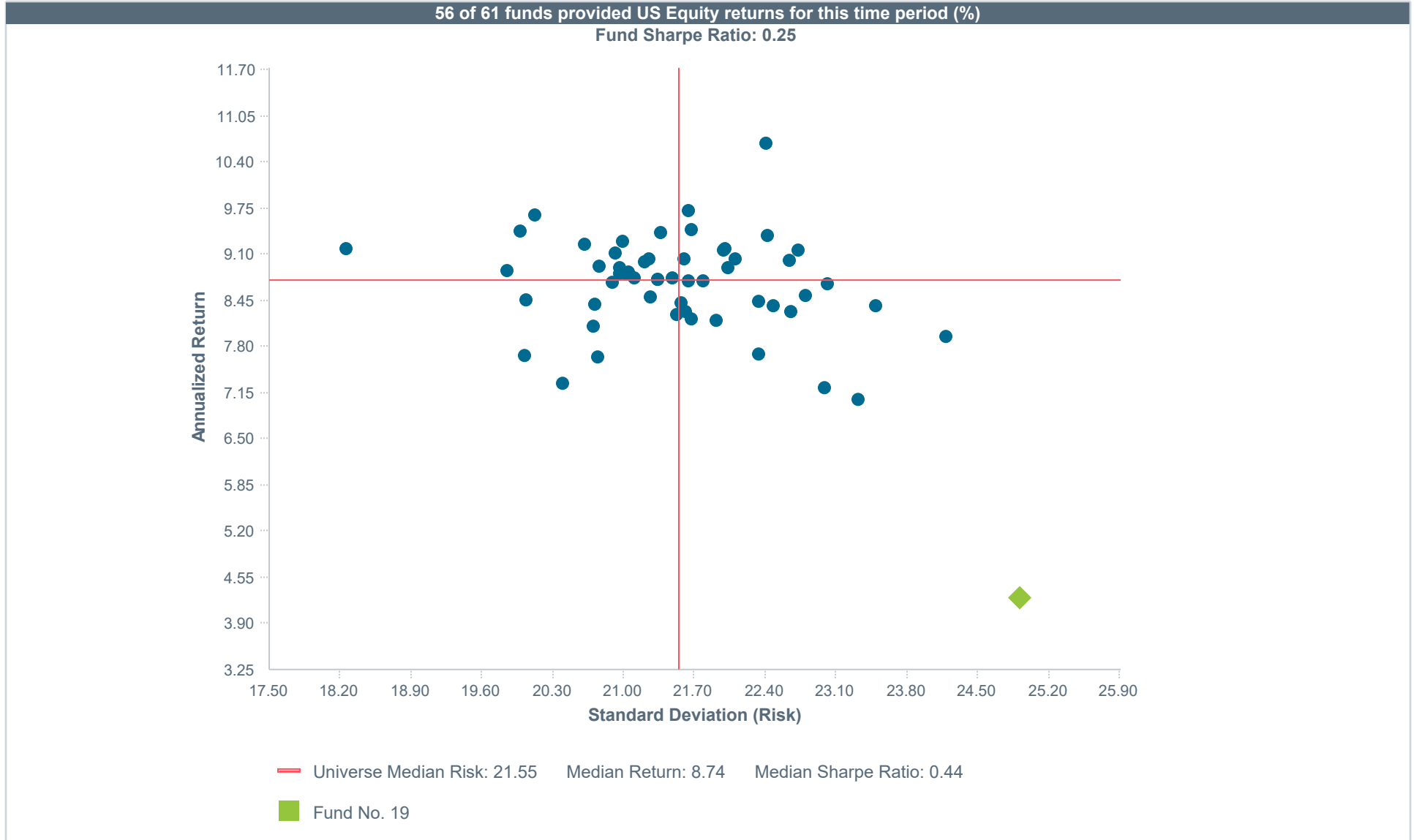
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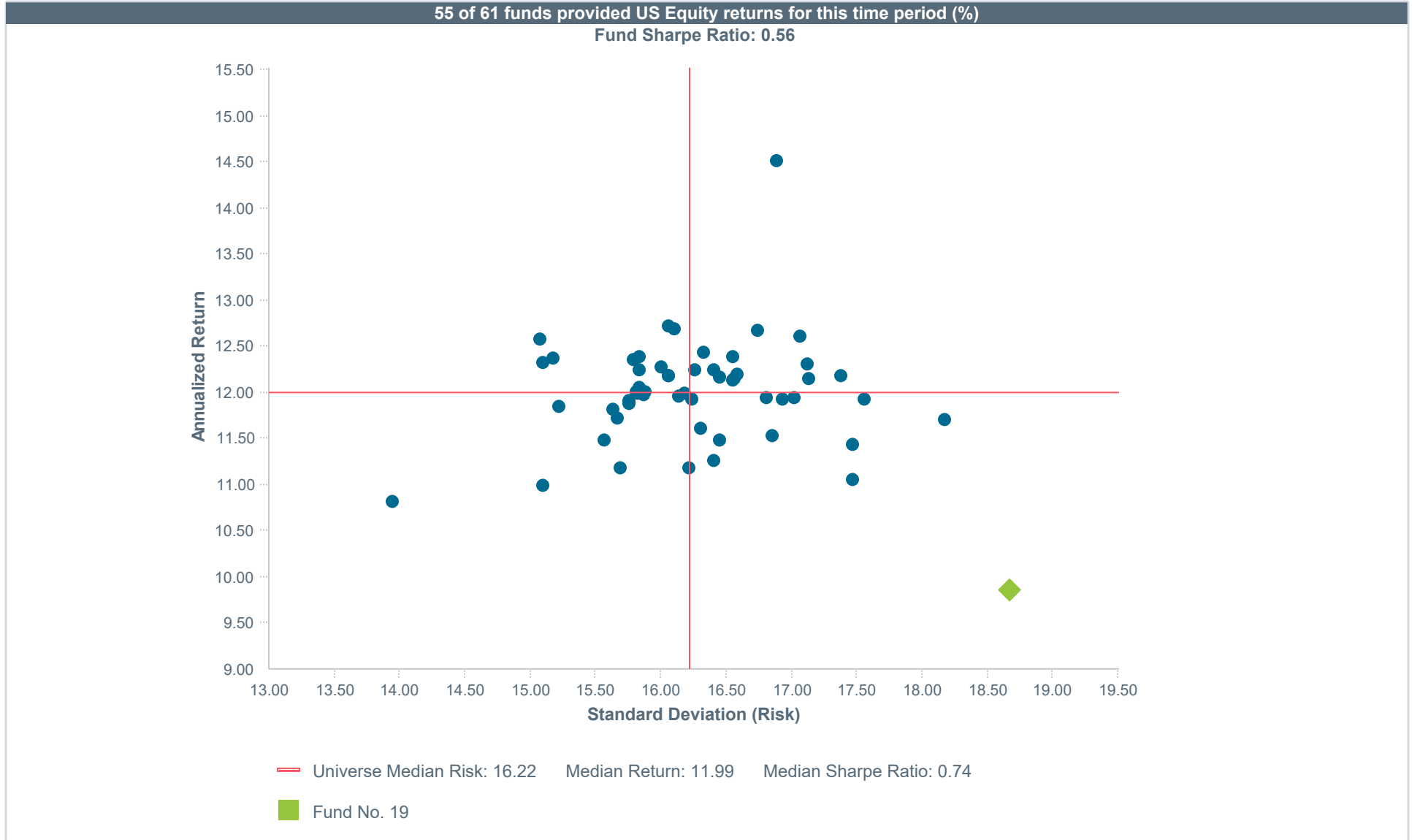
Funds with less history than the specified time period will not appear in the chart.





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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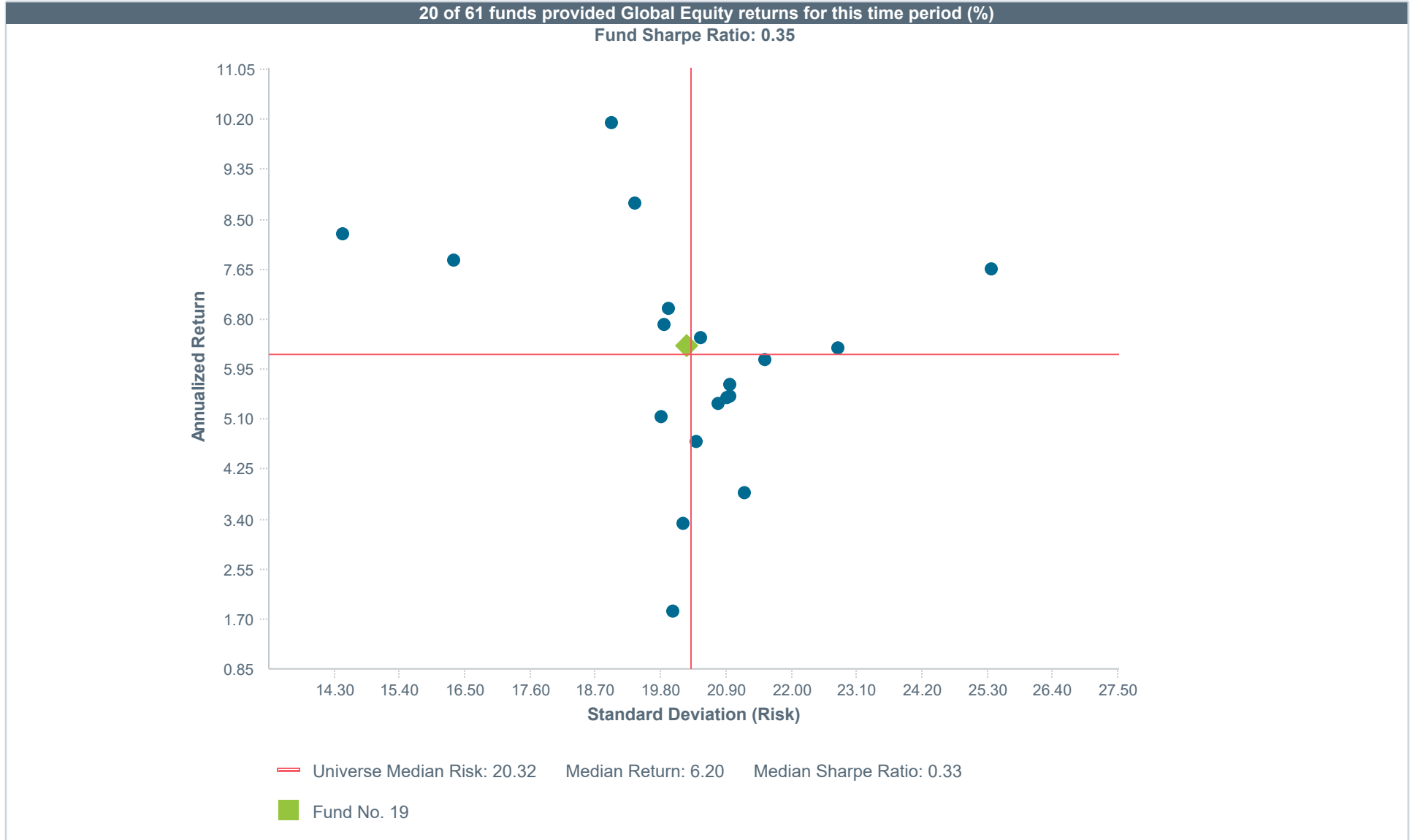






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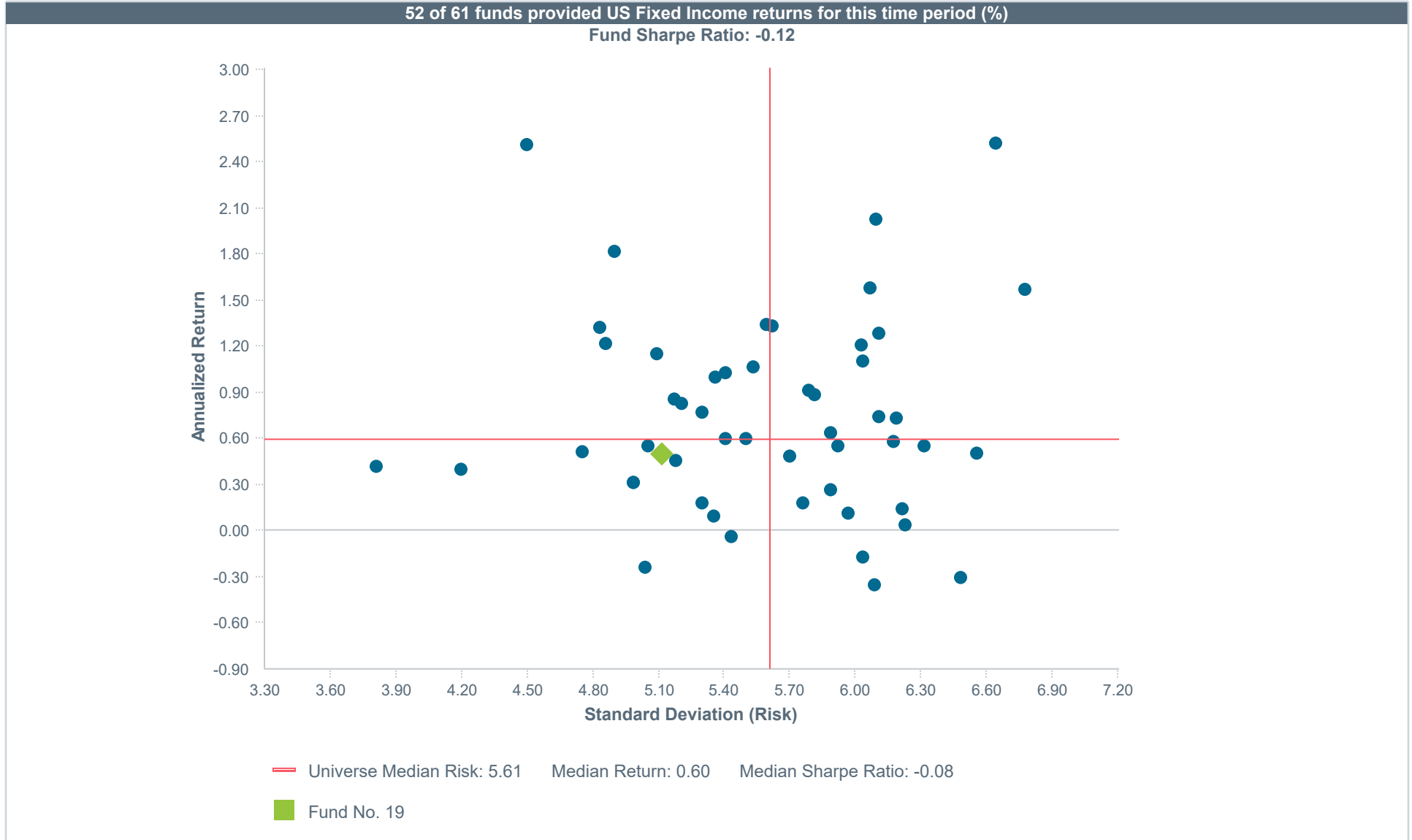
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Funds with less history than the specified time period will not appear in the chart.





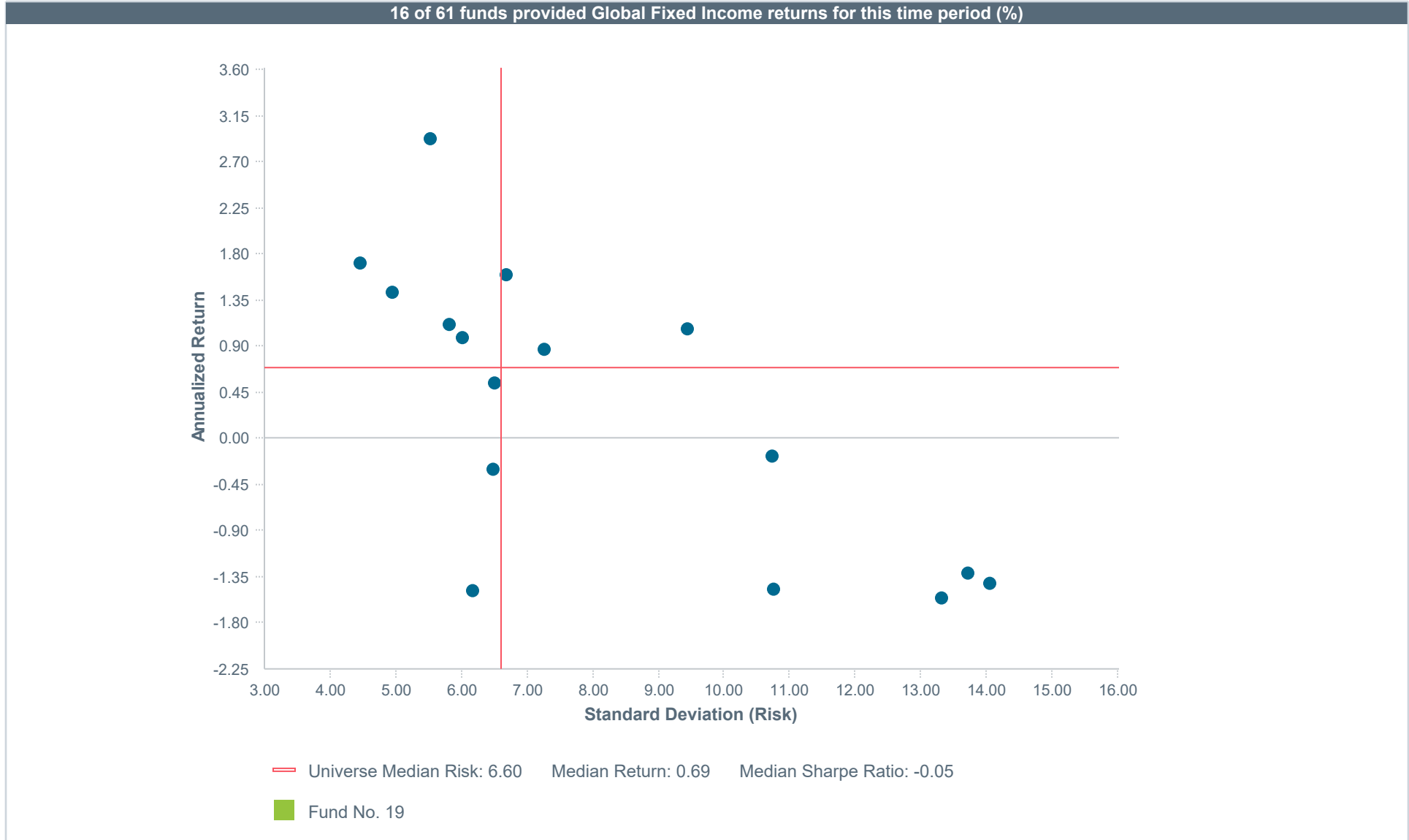
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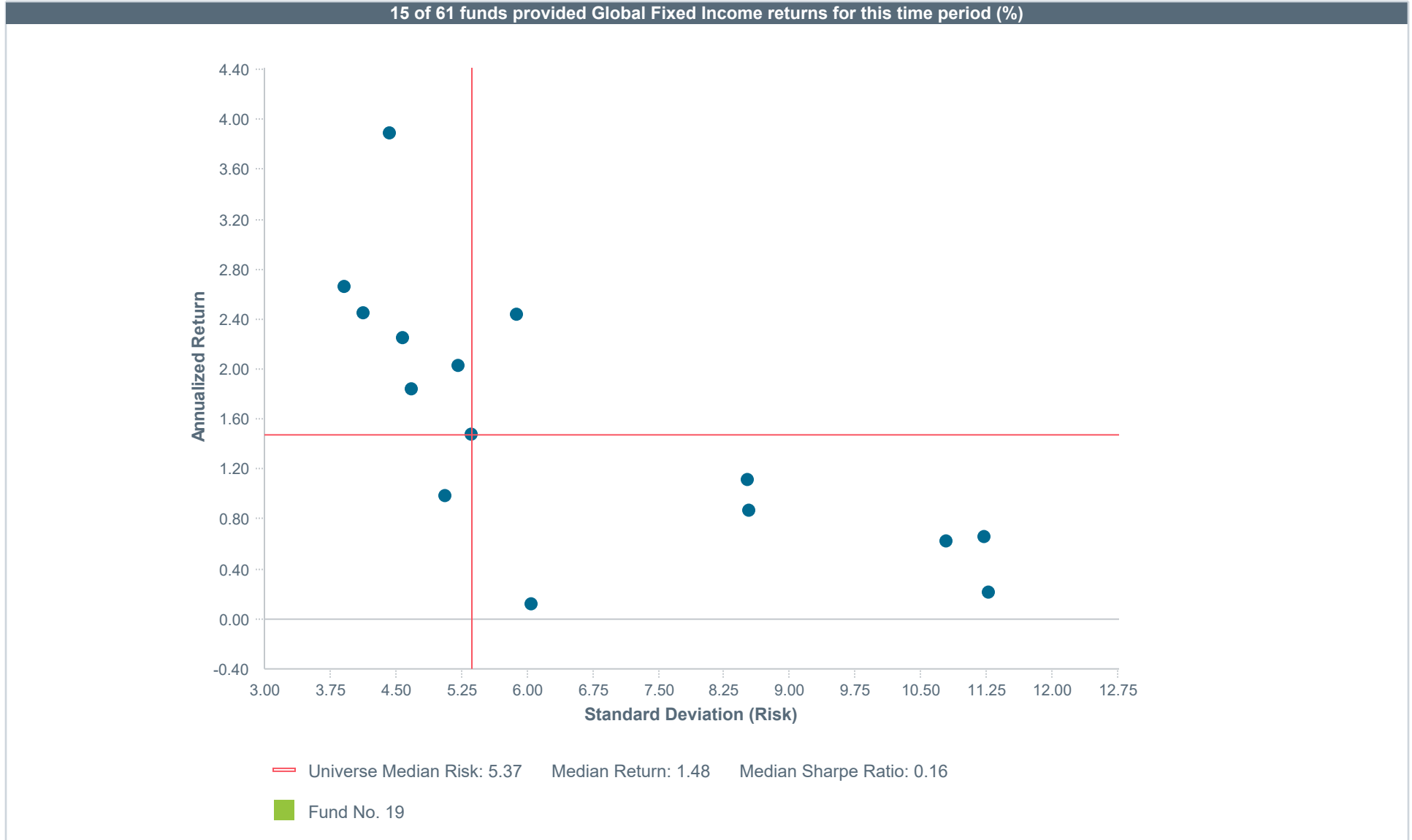
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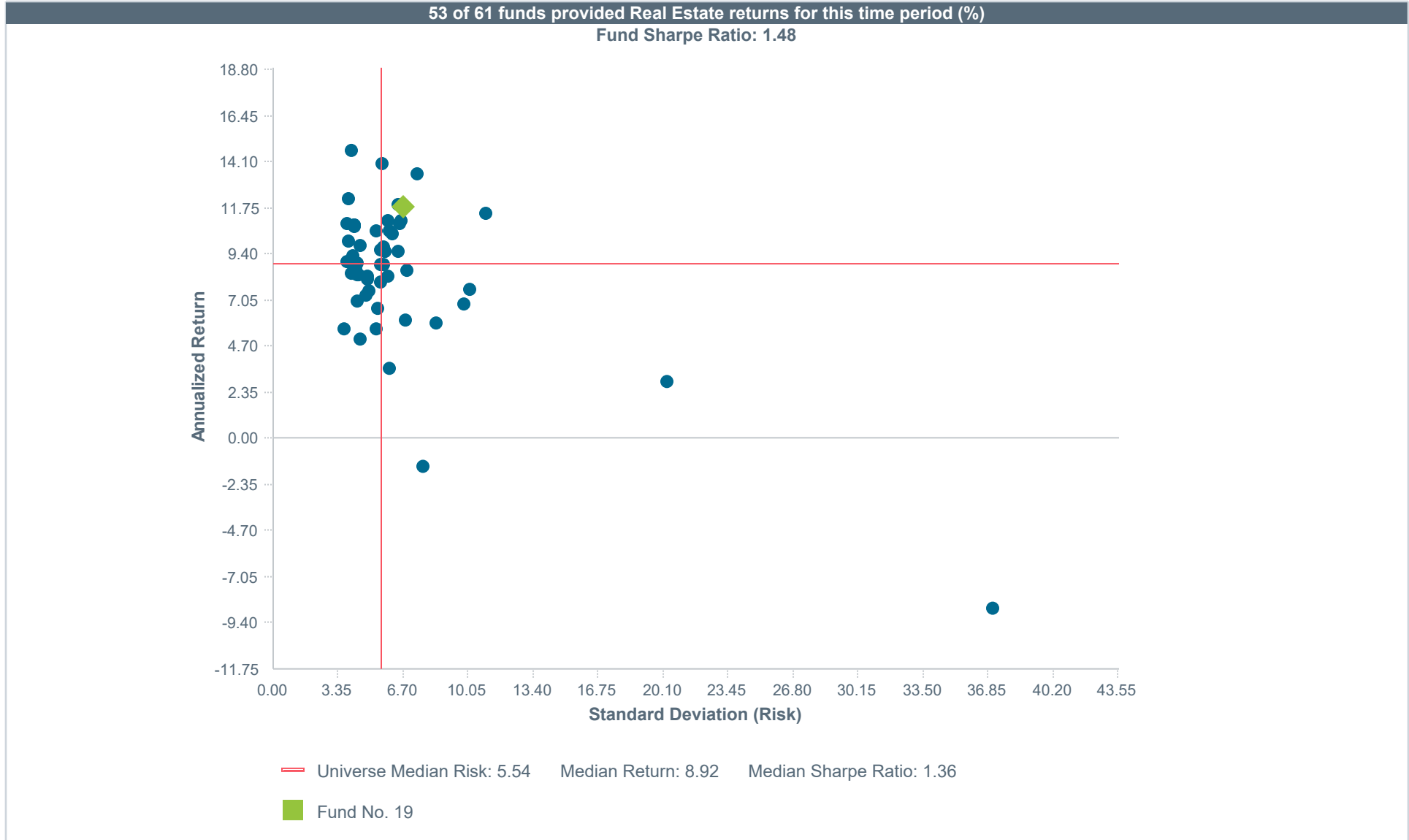




Funds with less history than the specified time period will not appear in the chart.



5 Year Annualized Real Estate Returns vs. Standard Deviation



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





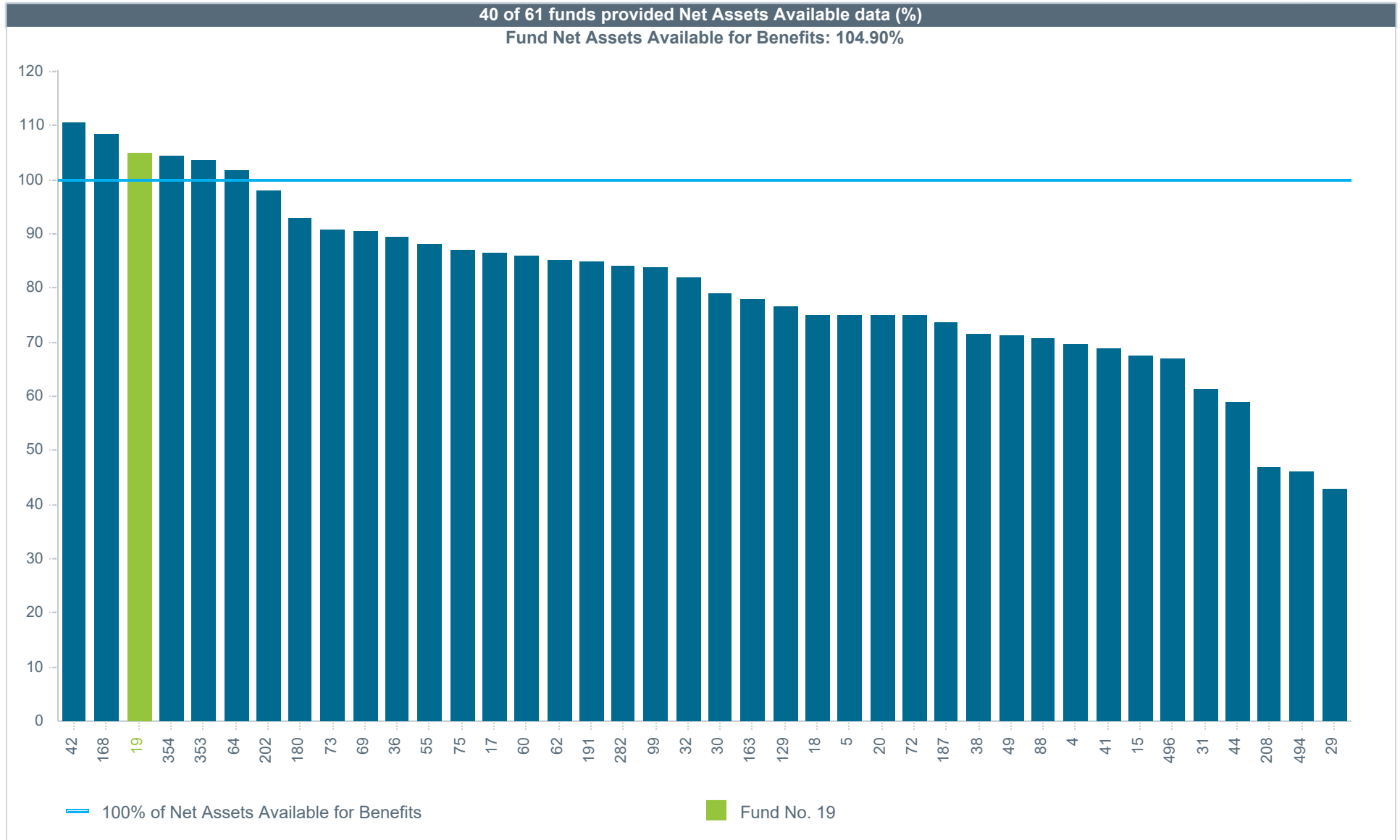


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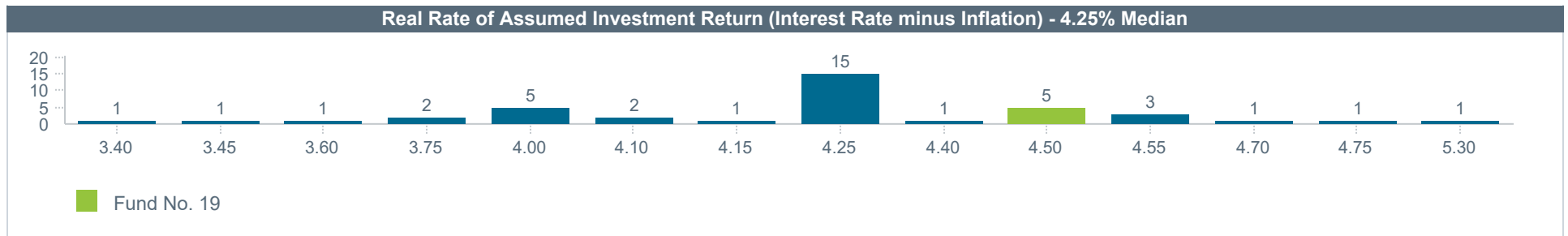
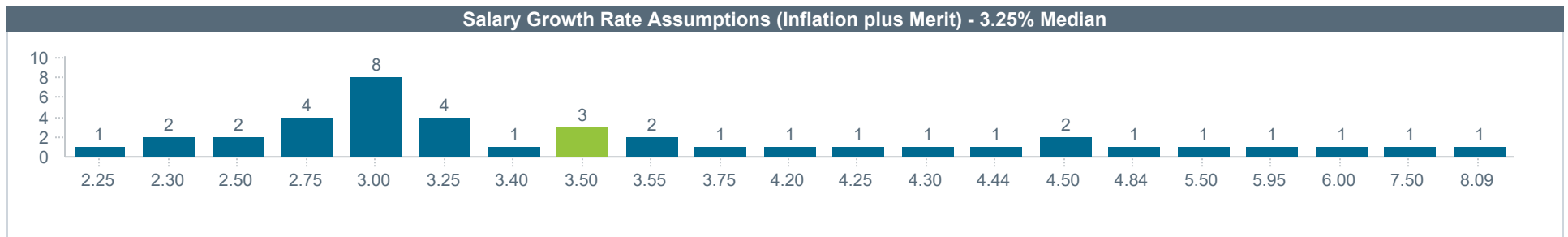
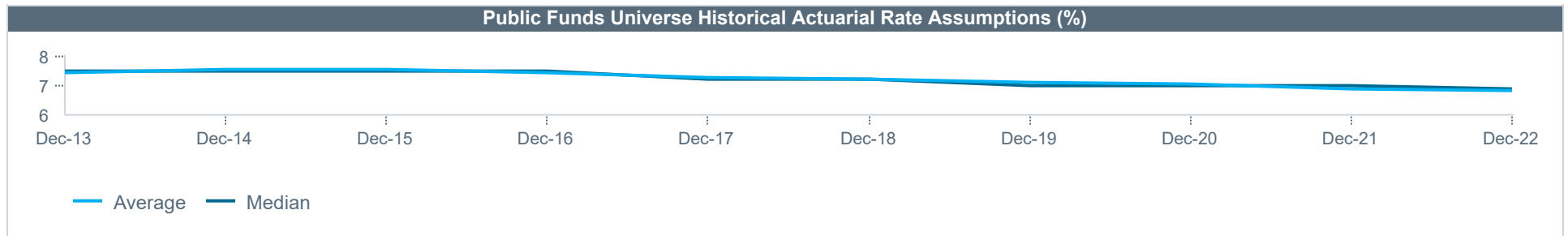
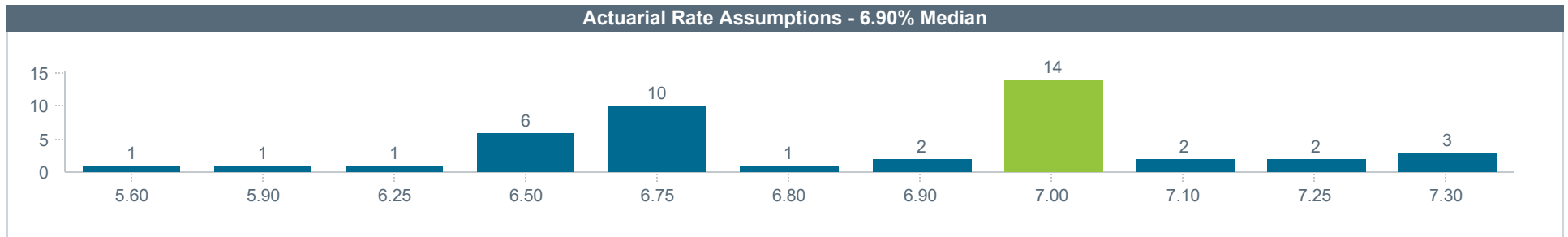
**Net Assets Available For Benefits**  
**Expressed as a Percentage of the Pension Benefit Obligation**

As of December 31, 2022



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 61 participants in the 2022 Q4 Public Fund Report, 38 participants provided a response to the Overlay Survey. Of those participants, 17 are currently using a form of overlay, 1 is considering evaluating a form of overlay, and 20 are not currently using or considering evaluating any form of overlay.

Q2. Of the 16 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 % Manage foreign currency risk
- 25 % Generate alpha
- 0 % Match Plan liabilities more closely (either as part of an explicit or conceptual framework)
- 6 % Express a view on US Dollar
- 0 % Manage market risk within an LDI construct
- 25 % Tactical asset allocation
- 56 % Cash equitization
- 56 % Rebalancing management
- 19 % Transition management
- 13 % Other

Q3. Of the 8 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:

- 50 % Static hedge ratio
- 25 % Dynamic hedging program where manager varies the hedge ratio
- 25 % Alpha generating currency manager focused on absolute return

Q4. Of the 6 participants that provided a response to the Overlay Survey and indicated use of a hedge ratio on a currency program, the responses are distributed as follows:

- 1 response indicated 25 % hedge on All Equities
- 1 response indicated 50 % hedge on All foreign currency exposure in the Fund
- 4 responses indicated 50 % hedge on Developed Equity exposure
- 1 response indicated 65 % hedge on Developed Equity exposure
- 1 response indicated 75 % hedge on Developed Equity exposure
- 2 responses indicated 50 % hedge on International Equity exposure
- 1 response indicated 65 % hedge on International Equity exposure
- 1 response indicated 50 % hedge on Other



## Supplemental Questions

Q1. Of the 38 respondents, the methods of Private Equity reporting are distributed as follows:

- 37 % Valuations and cash flows are updated and reflected as received by custodian
- 8 % Reported on a 1 month lag to account for additional valuations and cash flow activity
- 55 % Reported on a 1 quarter lag to account for most all valuations and cash flow activity

Q2. Of the 43 respondents, the methods of Private Real Estate reporting are distributed as follows:

- 44 % Valuations and cash flows are updated and reflected as received by custodian
- 9 % Reported on a 1 month lag to account for additional valuations and cash flow activity
- 47 % Reported on a 1 quarter lag to account for most all valuations and cash flow activity

Q3. Of the 37 respondents, the responses to whether or not Private Equity and/or Private Real Estate valuations are restated once final valuations are received from the managers are distributed as follows:

- 19 % Answered 'Yes' - valuations are restated
- 81 % Answered 'No' - valuations are not restated

Q4. Of the 35 respondents, the responses to whether or not a third party risk software provider is used are distributed as follows:

- 26 % Answered 'Yes'
- 74 % Answered 'No'

**Miscellaneous Comments**

- Performance shown is gross of fees, with the exception of the following:
  - Funds 8, 31, 49, 60, 350, and 351: Performance shown is net of fees.
  - Funds 4, 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 Benefits includes funding percentage valuation as of dates between December 2021 and December 2022.
  - Fund 96: Net Assets Available for Benefits shown is the higher funded ratio for one of two commingled systems reported by the fund.
- Allocations shown reflect dedicated managers/mandates rather than actual exposure, with the exception of the following:
  - Funds 29, 86, and 119: Performance shown for Global Fixed Income includes US and Non-US Fixed Income funds.
  - Fund 121: Performance shown for Global Fixed Income includes Non-US Fixed Income funds.
  - Funds 4, 42, 64, 99, 202, and 240: Performance shown for US Fixed Income includes US and Non-US Fixed Income funds.

**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. Calculation is based on quarterly periodicity.

**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. Calculation is based on quarterly periodicity.

**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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