



Public Fund Universe Analysis

City of Milwaukee Employees' Retirement System

Period Ending June 30, 2020

Fund Number: 105



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. Notably, in April 2019, RVK received a Greenwich *Quality Leader Award* for a second consecutive year.

MISSION STATEMENT

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

STRATEGIC INVESTMENT ADVICE AND AN EXPLICIT NO CONFLICTS OF INTEREST POLICY

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
- **4** offices - Portland, Boise, Chicago, New York
- **\$1+** trillion Full-Retainer AUA
- **80+** Investment Professionals
- **50+** Advanced Degrees and Certifications
- **100%** Employee Ownership
- **100%** Revenue Derived from Client Fees
- **100%** Non-Discretionary Services

GENERAL CONSULTING SERVICES

- 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

- 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:

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503-221-4200

Alameda County Employees' Retirement Association

Arlington County Employees' Retirement System

California State Teachers' Retirement System

City of Fresno Employees Retirement Systems

City of Jacksonville Police and Fire Retirement Fund

City of Milwaukee Employees' Retirement System (Fund No. 105)

City of Plano Retirement Security Plan

Colorado Public Employees' Retirement Association

Fire and Police Pension Association of Colorado

Fresno County Employees' Retirement Association

Imperial County Employees' Retirement System

Kansas City, Missouri Employees' Retirement System

Kern County Employees' Retirement Association

Los Angeles Fire and Police Pension System

Marin County Employees' Retirement Association

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

Police Retirement System of Kansas City, Missouri

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

Anchorage Police & Fire Retirement System

Baltimore City Employees' Retirement Systems

City of Austin Employees' Retirement System

City of Fresno Fire & Police Retirement System

City of Jacksonville Retirement System

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

Fort Worth Employees' Retirement Fund

Gila River Indian Community Retirement Plan

Iowa Public Employees' Retirement System

Kansas Public Employees' Retirement System

Los Angeles County Employees Retirement Association

Los Angeles Water & Power Employees Retirement Plan

Maryland State Retirement and Pension System

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

Orange County Employees' Retirement System

Public Employees Retirement Association of New Mexico

Sacramento County Employees' Retirement System

San Diego County Employees Retirement Association

San Mateo County Employees' Retirement Association

Sonoma County Employees' Retirement Association

State of Michigan Retirement Systems

Teachers' Retirement System of the State of Illinois

Texas Municipal Retirement System

Tulare County Employees' Retirement Association

West Virginia Investment Management Board

Wyoming Retirement System

Stanislaus County Employees' Retirement Association

State Teachers Retirement System of Ohio

Teachers' Retirement System of Kentucky

The Navajo Nation Retirement Plan

Virginia Retirement System

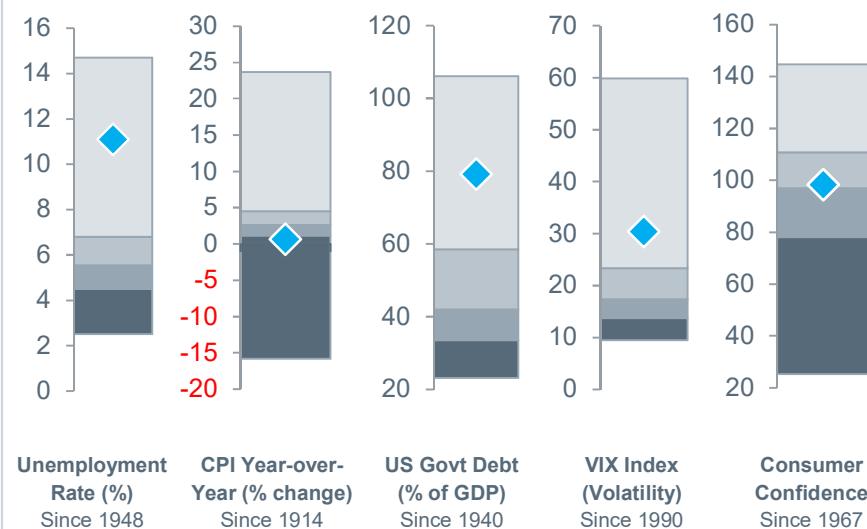
Wildlife Conservation Retirement System Oklahoma Wildlife

Second Quarter Economic Environment

Key Economic Indicators

The disconnect between investor risk appetite and on-the-ground economic conditions reached staggering levels during the second quarter, fueled in large part by a myriad of fiscal relief and liquidity reinforcing programs implemented by governments and global central banks. The S&P 500 returned 20.5%, bringing its YTD returns to -3.1%, as forward P/E ratios reached levels last seen during the dot-com era tech bubble. In general, the funding pressures markets experienced in the first quarter abated, as various programs enacted by the Federal Reserve proved successful in restoring normal capital markets activity amid the unprecedented economic shutdowns. While economic data generally pointed to a bottoming of global GDP growth during the month of April, the modest economic recoveries in May and June lagged significantly behind the "V" shaped recovery seen in the pricing of risk assets. The Atlanta Fed's popular GDPNow estimates for Q2-2020 growth in the US indicated a 36.8% annualized economic contraction. However, Q2 saw capital markets activity much more consistent with boom times. The NASDAQ and DJIA experienced their best quarters since 2001 and 1987, respectively, while US equity issuance hit a record of \$184 billion.

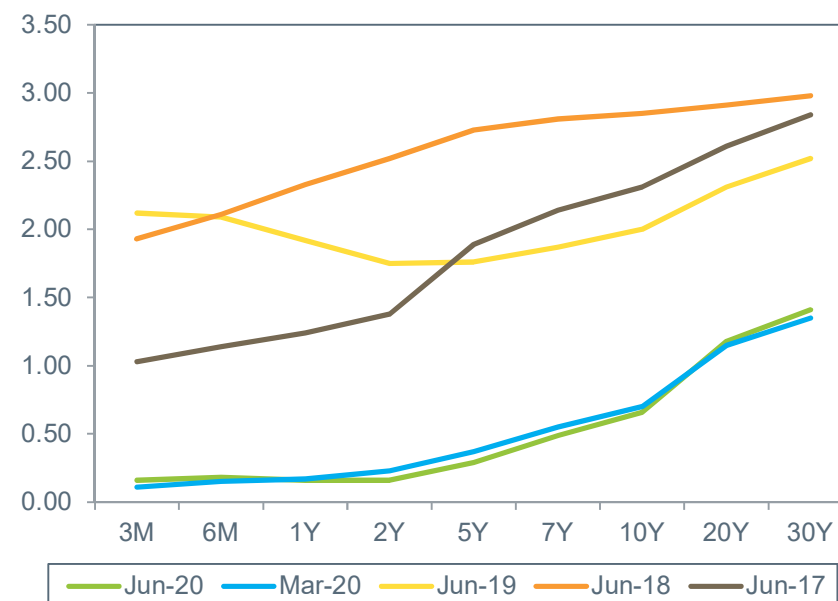
Key Economic Indicators



Economic Indicators	Jun-20	Mar-20	Jun-19	Jun-17	20 Yr
Federal Funds Rate (%)	0.08	0.08	2.40	1.06	1.65
Breakeven Infl. - 5 Yr (%)	1.17 ▲	0.53	1.54	1.66	1.82
Breakeven Infl. - 10 Yr (%)	1.34 ▲	0.93	1.70	1.74	2.01
CPI YoY (Headline) (%)	0.6 ▼	1.5	1.6	1.6	2.1
Unemployment Rate (%)	11.1 ▲	4.4	3.7	4.3	6.0
Real GDP YoY (%)	-9.5 ▼	0.3	2.0	2.2	1.9
PMI - Manufacturing	52.6 ▲	49.1	51.6	56.4	52.5
USD Total Wtd Idx	120.86 ▼	122.82	114.56	111.97	103.13
WTI Crude Oil per Barrel (\$)	39.3 ▲	20.5	58.5	46.0	62.1
Gold Spot per Oz (\$)	1,781 ▲	1,577	1,410	1,242	969

Market Performance (%)	QTD	CYTD	1 Yr	5 Yr	10 Yr
S&P 500 (Cap Wtd)	20.54	-3.08	7.51	10.73	13.99
Russell 2000	25.42	-12.98	-6.63	4.29	10.50
MSCI EAFE (Net)	14.88	-11.34	-5.13	2.05	5.73
MSCI EAFE SC (Net)	19.88	-13.11	-3.52	3.81	8.02
MSCI Emg Mkts (Net)	18.08	-9.78	-3.39	2.86	3.27
Bloomberg US Agg Bond	2.90	6.14	8.74	4.30	3.82
ICE BofAML 3 Mo US T-Bill	0.02	0.60	1.63	1.19	0.64
NCREIF ODCE (Gross)	-1.56	-0.60	2.22	7.31	10.80
FTSE NAREIT Eq REIT (TR)	11.82	-18.71	-13.04	4.06	9.05
HFRI FOF Comp	7.85	-1.62	0.44	1.49	2.79
Bloomberg Cmdty (TR)	5.08	-19.40	-17.38	-7.69	-5.82

Treasury Yield Curve (%)



Second Quarter Review

Broad Market

US equity markets rebounded sharply in Q2 despite weakening economic conditions and uncertainty around upcoming earnings releases. Much of the optimism was driven by trial data for COVID-19 vaccines and treatments combined with the phased openings of states across the country. The swift rally saw the S&P 500 index turn positive YTD, with QTD returns as high as 25.0% in early June before finishing Q2 up 20.5% and down -3.1% YTD.

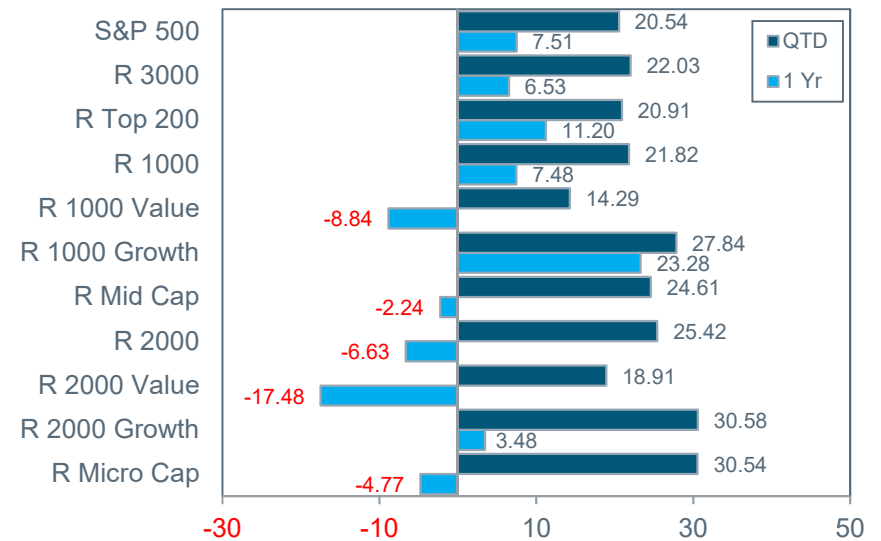
Market Cap

The strong performance was realized across all market caps, with smaller stocks faring best. The Russell 2000 and Mid Cap indexes returned 25.4% and 24.6%, respectively, while the Russell 1000 lagged behind its smaller-cap counterparts, finishing Q2 up 21.8%.

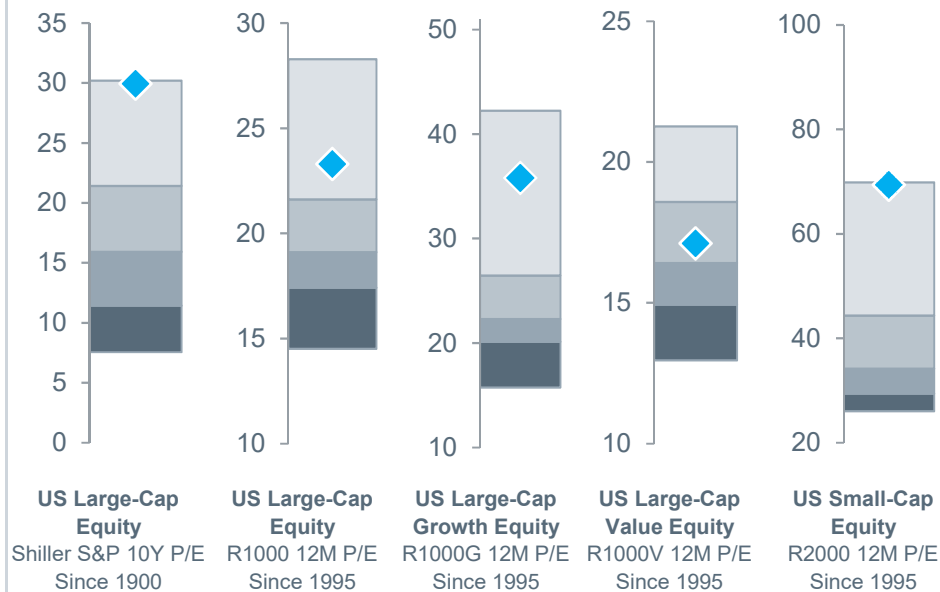
Style and Sector

Growth continued to outperform value by a significant margin during Q2 across all market caps. In addition, active managers generally struggled to keep up with their respective benchmarks in Q2.

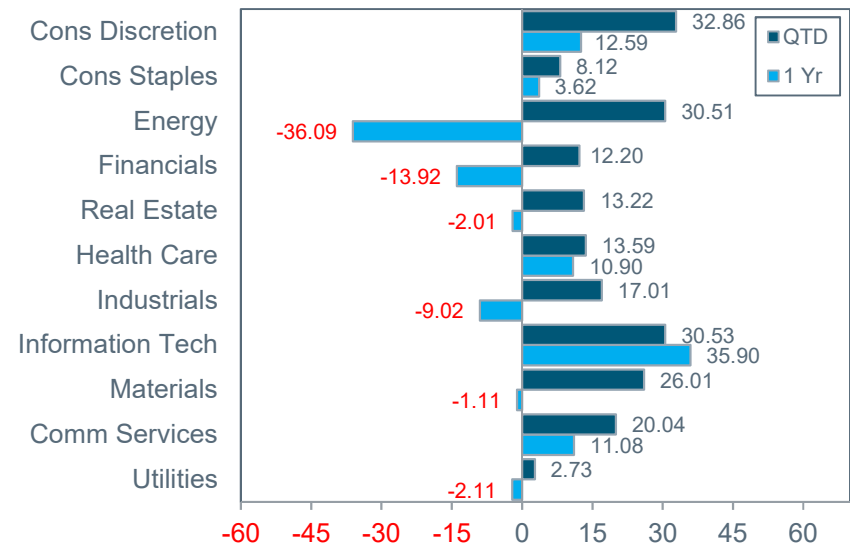
Style and Capitalization Market Performance (%)



Valuations



S&P 500 Index Sector Performance (%)



Second Quarter Review

Developed Markets

Developed international markets had a strong quarter, although they lagged both US and emerging markets. During Q2, value stocks underperformed growth, while small-cap stocks outperformed their larger counterparts. Each developed country index generated positive returns for the quarter and the vast majority saw double digit returns. Markets were bolstered by government programs, but the near-term macro outlook remains poor.

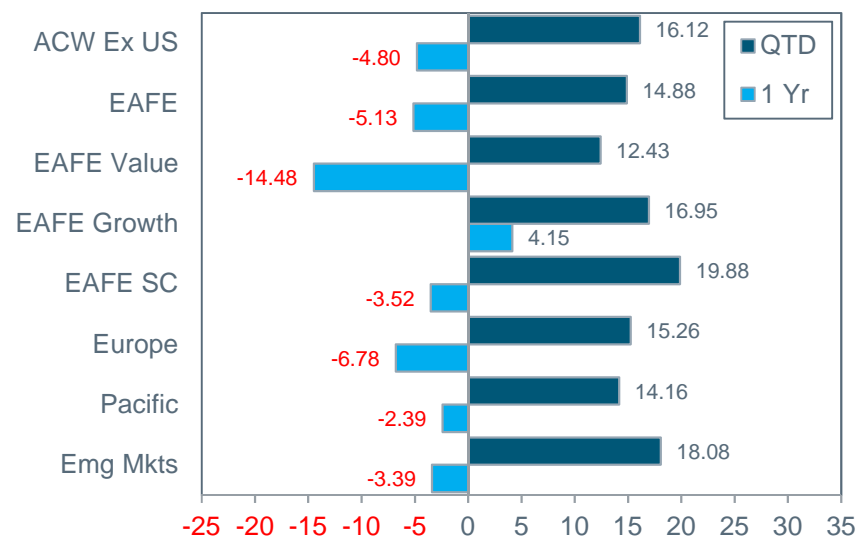
Emerging Markets

Emerging markets outpaced developed international, but lagged the US market. All emerging countries and broad sectors saw positive returns for the quarter. Latin America, a laggard in Q1, saw some mean reversion, with countries such as Brazil and Argentina leading the region higher.

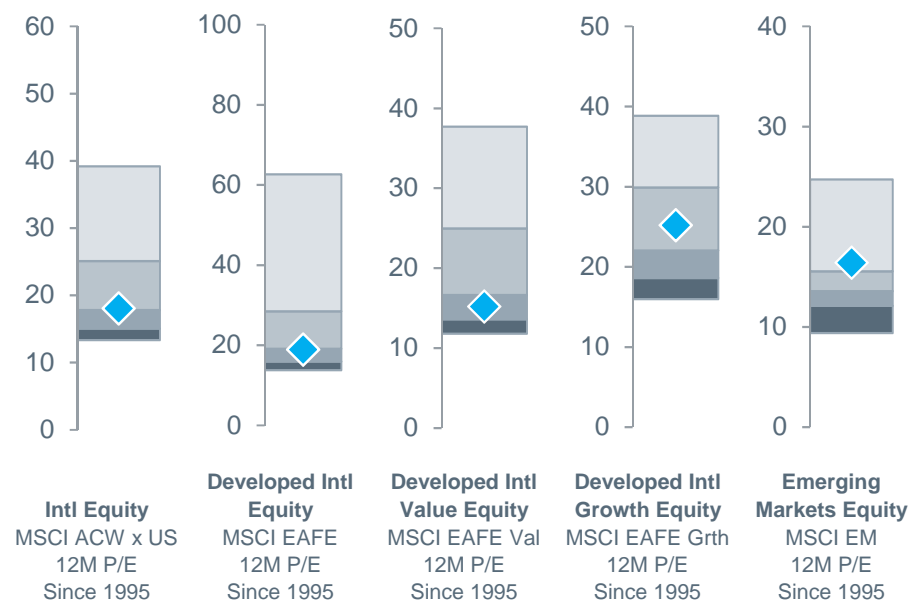
Market Cap & Style

In both developed international markets and emerging markets, value stocks continued to underperform growth, while small-cap stocks outperformed large-cap for the quarter.

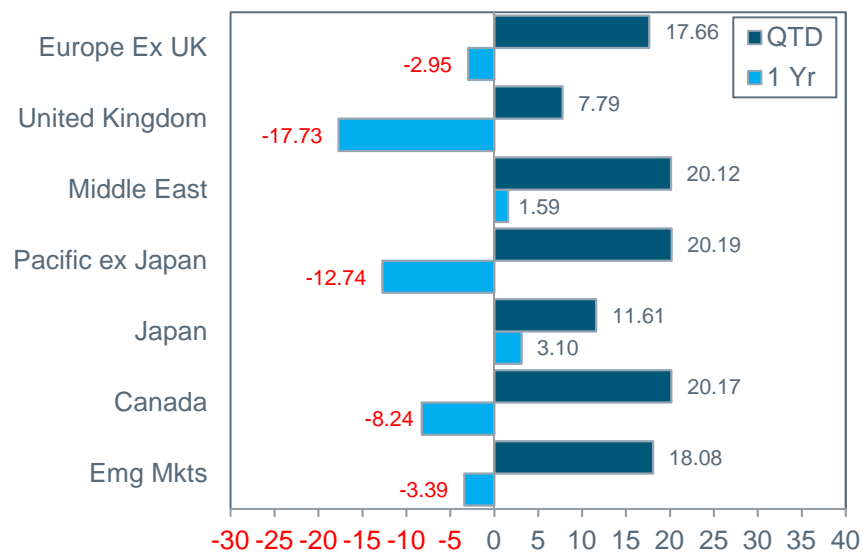
MSCI Style and Capitalization Market Performance (%)



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

A supportive Fed helped propel the beginning of a recovery that saw few periods of slowdown throughout the quarter. While a spike in COVID-19 cases threatened to disrupt the rally in June, a better-than-expected jobs report and the Fed's announcement of its plan to purchase corporate bonds helped the segment finish the quarter on a positive note.

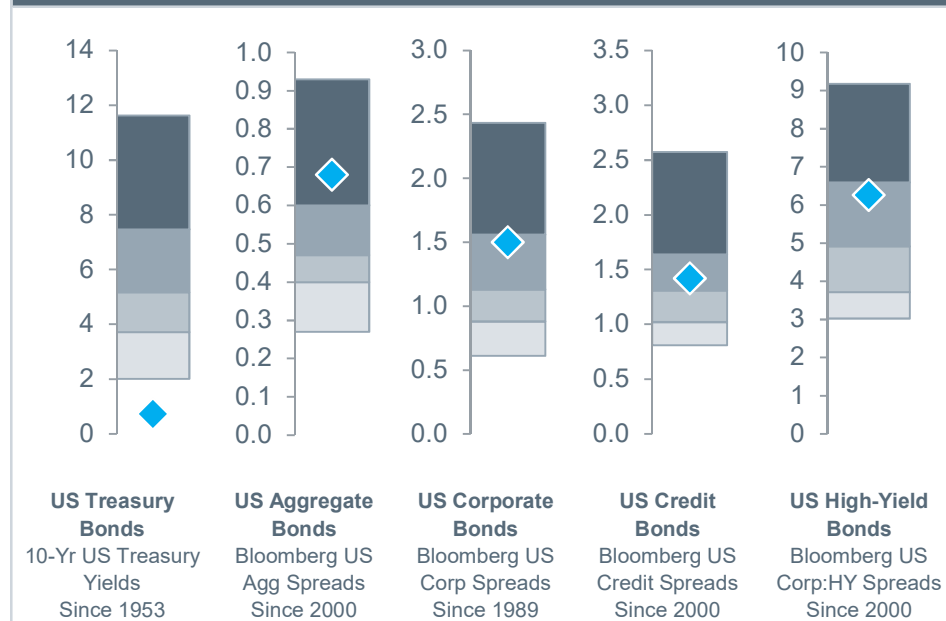
Credit Market

In contrast to Q1, investor appetite for risk returned, leading to a strong recovery in credit. Overall, the Bloomberg US Credit Index and US High Yield Index returned 8.2% and 10.2% in Q2, respectively.

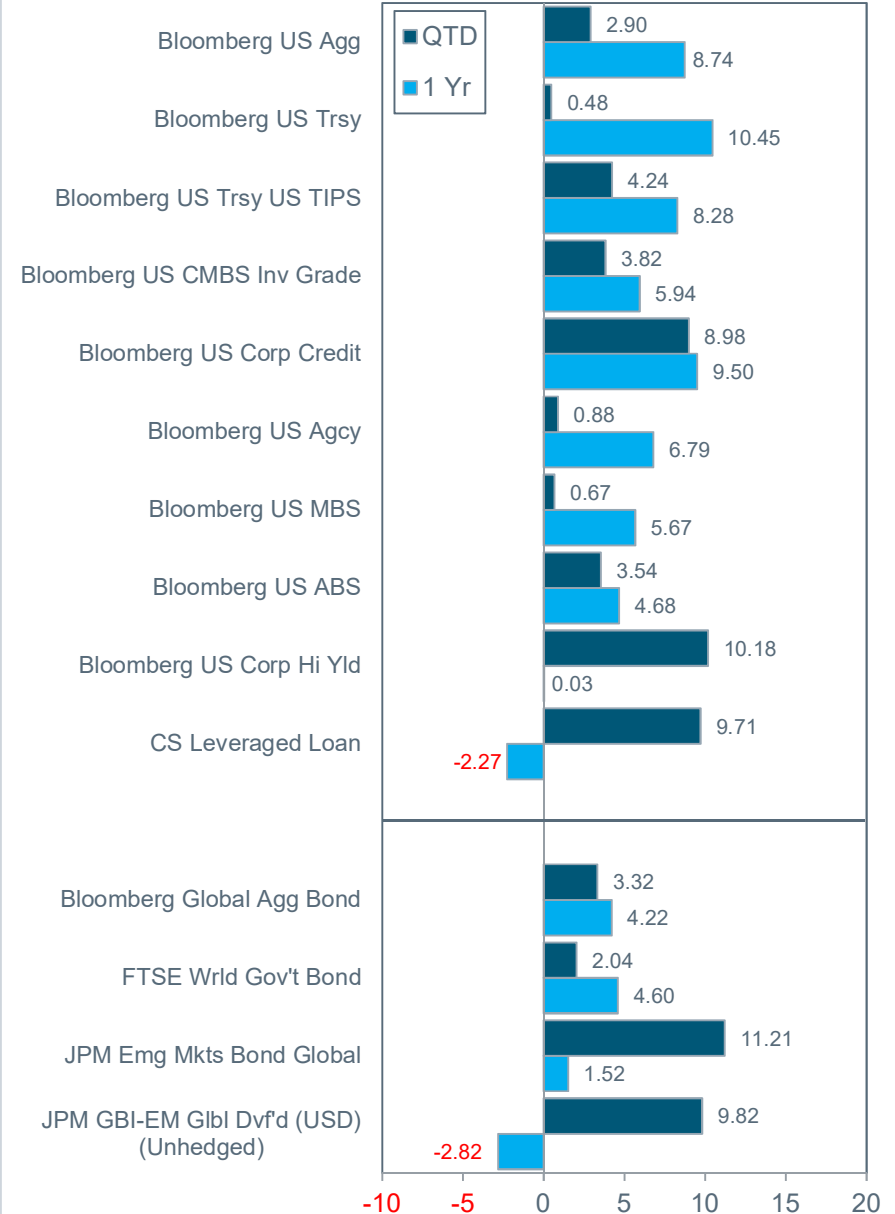
Emerging Market Debt

Emerging market debt enjoyed its own rally, erasing most of its losses of the first quarter. The JPMorgan EMBI Global Diversified Index returned 12.3%, with nearly every country in the index ending positive.

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

Broad hedge fund benchmarks indicate the industry recovered relatively well from Q1-2020 drawdowns. The HFRI Fund Weighted Composite Index is down just 3.5% YTD after a 9.0% gain in Q2, led higher by the HFRI Hedged Equity Index, which finished the quarter up 13.6%. Still, YTD the vast majority of hedge fund strategies remain at least marginally negative, with those that pursue event oriented and special situations strategies, particularly within credit markets, still off from 5.0% to 7.0% YTD on average.

General Market - Global Tactical Asset Allocation (GTAA)

GTAA managers largely provided positive absolute returns during Q2. Even with positive absolute returns, long-biased strategies reported mixed performance versus a static and less diversified blend of 60% US equity and 40% US fixed income. Long-biased strategies that had relatively weaker performance versus peers tended to have more exposure to EM equities which slightly underperformed US and other developed markets. Within EM equities, growth equities once again out-paced value by a significant margin, detracting from performance for managers.

Second Quarter Review - Real Assets

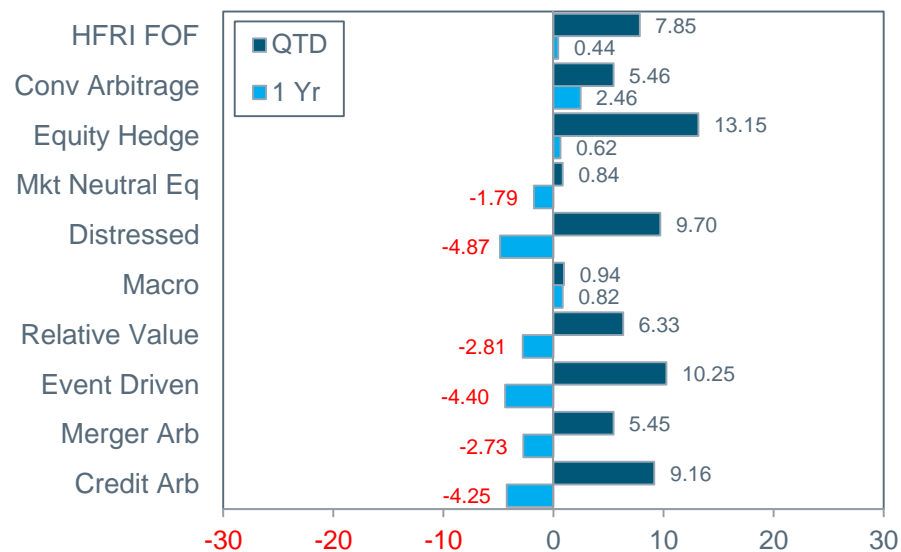
General Market - Diversified Inflation Strategies (DIS)

Performance across DIS managers RVK tracks was largely positive during Q2, ranging from the high single digits to the high teens. With the relatively strong performance across a number of risk assets, managers with larger TIPS allocations tended to underperform peers as generally riskier assets saw a bounce back from poor Q1 performance. These strategies also tended to hold higher relative allocations to commodities. Though commodities provided positive absolute returns in Q2, the asset class did not keep up with other parts of the market.

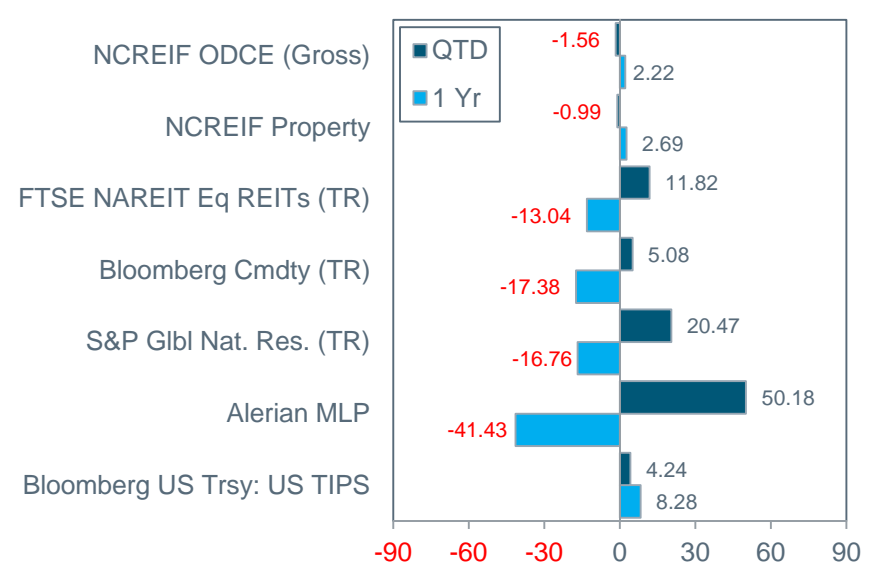
General Market - Real Estate

Core private real estate returned -1.6% during the second quarter, as reported by the NFI-ODCE Index, with the total return comprised of 0.9% from income and -2.5% from price appreciation. While the income component remained relatively healthy and in-line with historical levels, price appreciation experienced a further meaningful decrease from Q1. Investors in publicly traded real estate outperformed their private market counterparts by a wide margin.

HFRI Hedge Fund Performance (%)



Real Asset Performance (%)

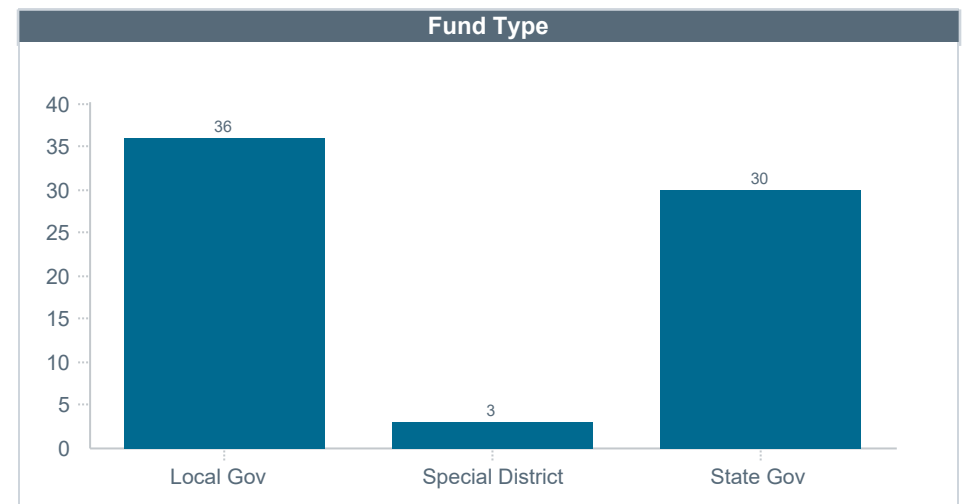
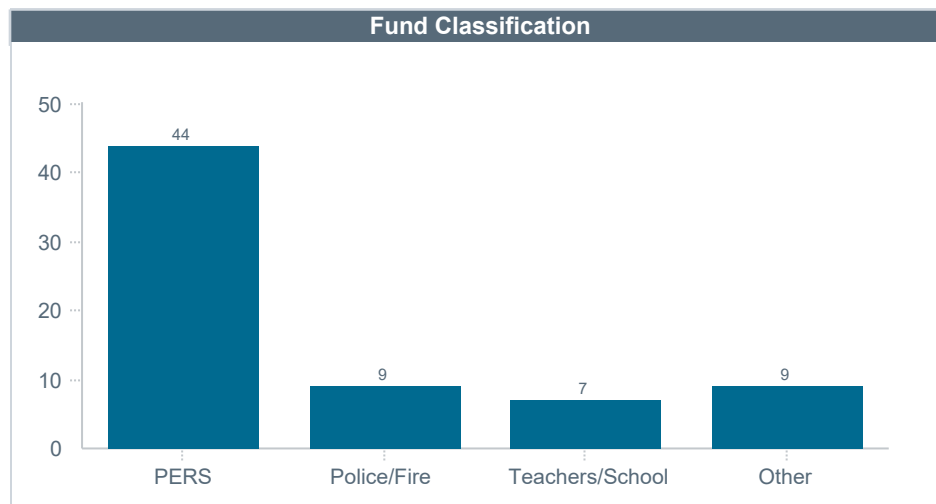
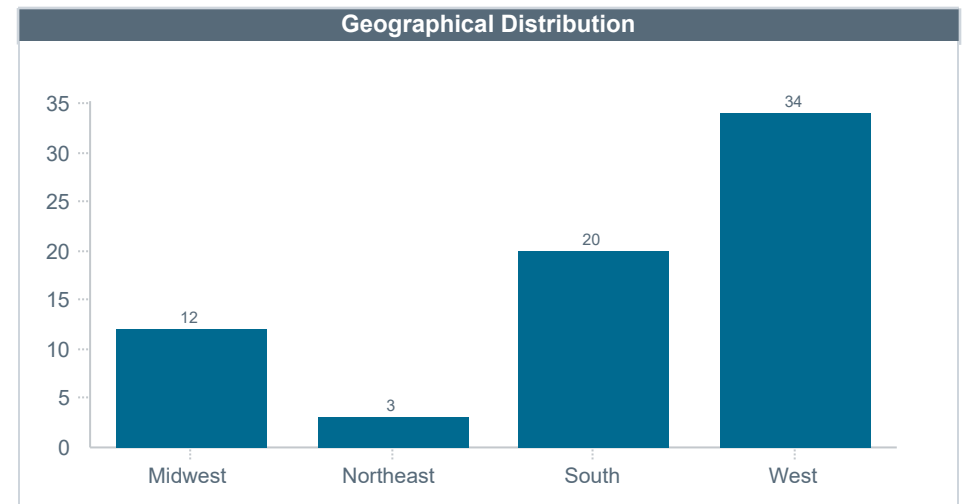
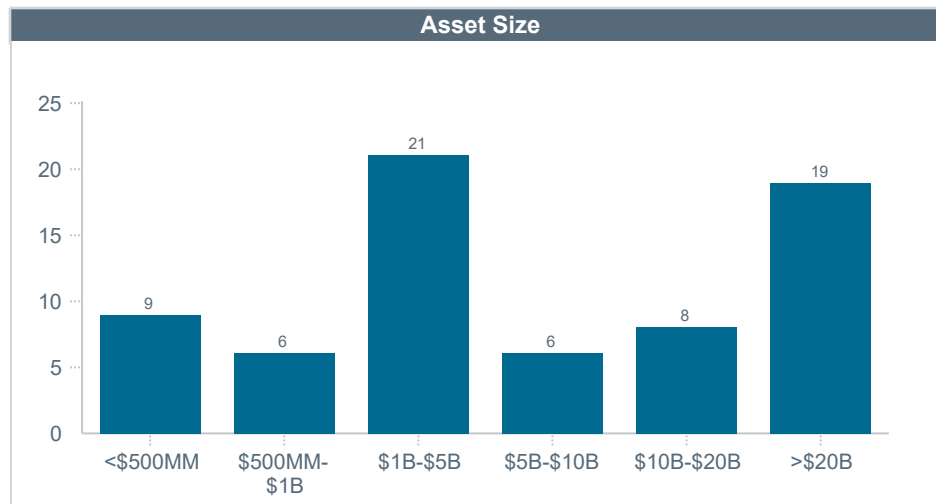


Annual Asset Class Performance

As of June 30, 2020

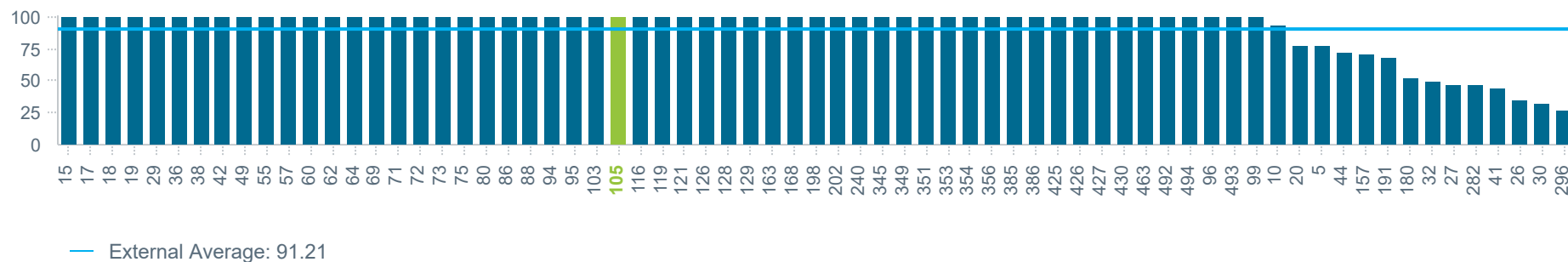
<div>Best</div> <div>↑</div> <div>↓</div> <div>Worst</div>	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	YTD
	35.03	39.38	8.44	78.51	27.94	22.49	20.00	38.82	30.14	15.02	21.31	37.28	8.35	31.49	12.82
	32.18	16.23	5.24	58.21	26.85	15.99	18.23	32.39	19.31	9.59	17.13	33.01	1.87	26.00	6.14
	26.34	15.97	2.06	46.78	22.04	13.56	18.06	29.30	13.69	3.20	11.96	25.03	0.01	25.53	6.01
	19.31	11.63	-2.35	31.78	18.88	8.29	17.32	22.78	12.50	1.38	11.77	21.83	-1.26	24.96	0.60
	18.37	11.17	-10.01	28.01	16.83	7.84	16.35	13.94	5.97	0.55	11.19	14.65	-2.08	22.01	-0.60
	16.32	10.25	-21.37	27.17	16.36	4.98	16.00	8.96	4.89	0.05	8.77	10.71	-4.02	19.59	-1.62
	15.79	6.97	-26.16	26.46	15.12	2.11	15.81	7.44	3.64	-0.27	8.52	7.77	-4.38	18.44	-3.08
	11.86	6.60	-33.79	18.91	15.06	0.10	10.94	2.47	3.37	-0.81	6.67	7.62	-4.62	14.32	-3.80
	10.39	5.49	-35.65	11.47	10.16	-4.18	8.78	0.07	2.45	-1.44	4.68	7.50	-4.68	8.72	-9.78
	4.85	5.00	-37.00	11.41	7.75	-5.72	6.98	-2.02	0.04	-3.30	2.65	5.23	-11.01	8.43	-11.34
	4.34	1.87	-37.74	5.93	6.54	-12.14	4.79	-2.60	-2.19	-4.41	2.18	3.54	-11.25	8.39	-12.98
	2.72	1.45	-43.38	1.92	6.31	-13.32	4.21	-8.61	-4.90	-4.47	1.00	3.01	-13.79	7.69	-13.11
	2.07	-1.57	-47.01	0.21	5.70	-15.94	0.11	-8.83	-4.95	-14.92	0.51	1.70	-14.58	5.34	-18.71
	0.49	-15.70	-53.33	-29.76	0.13	-18.42	-1.06	-9.52	-17.01	-24.66	0.33	0.86	-17.89	2.28	-19.40
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 Trsry 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 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.

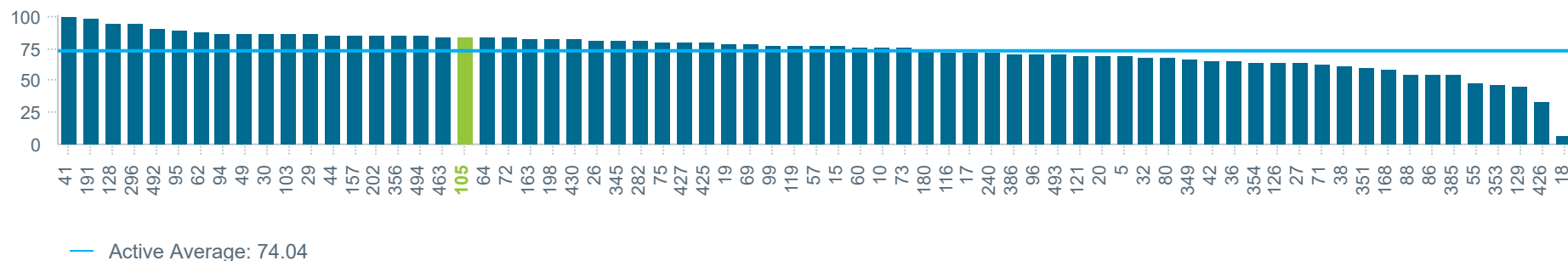


■ Universe: 69 funds

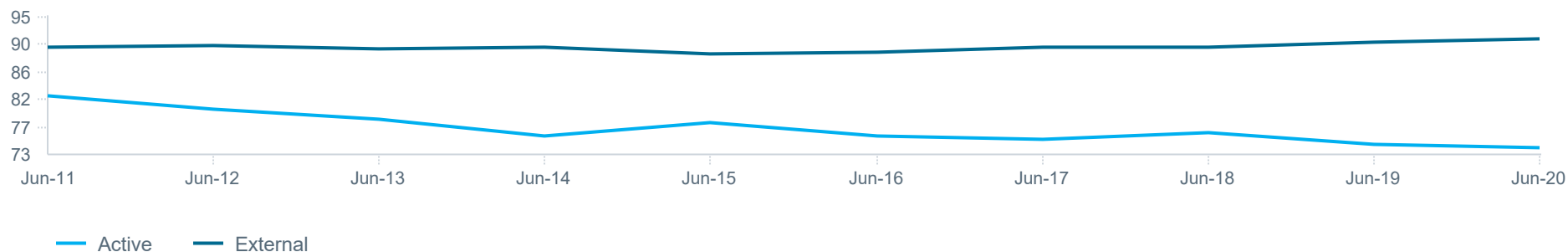
External Management (%)



Active Management (%)



Public Fund Universe Historical Average (%)

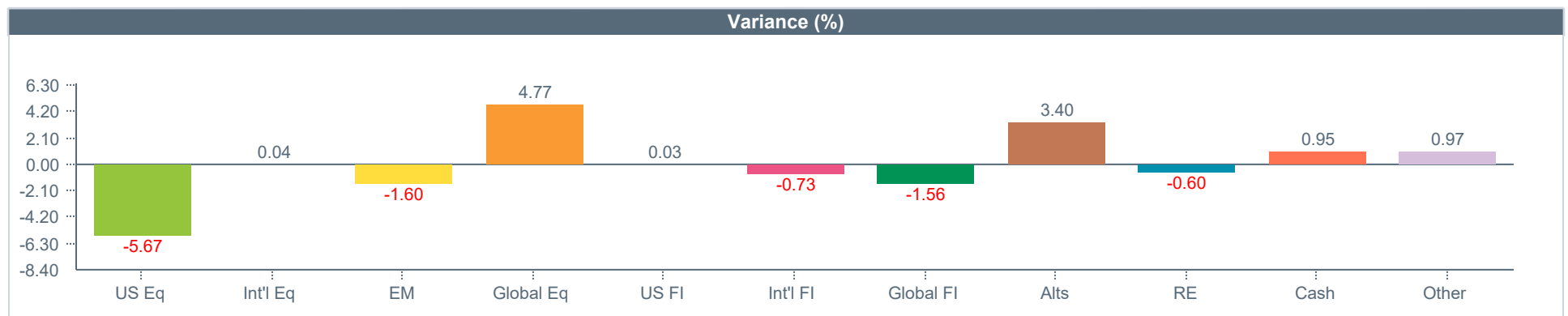
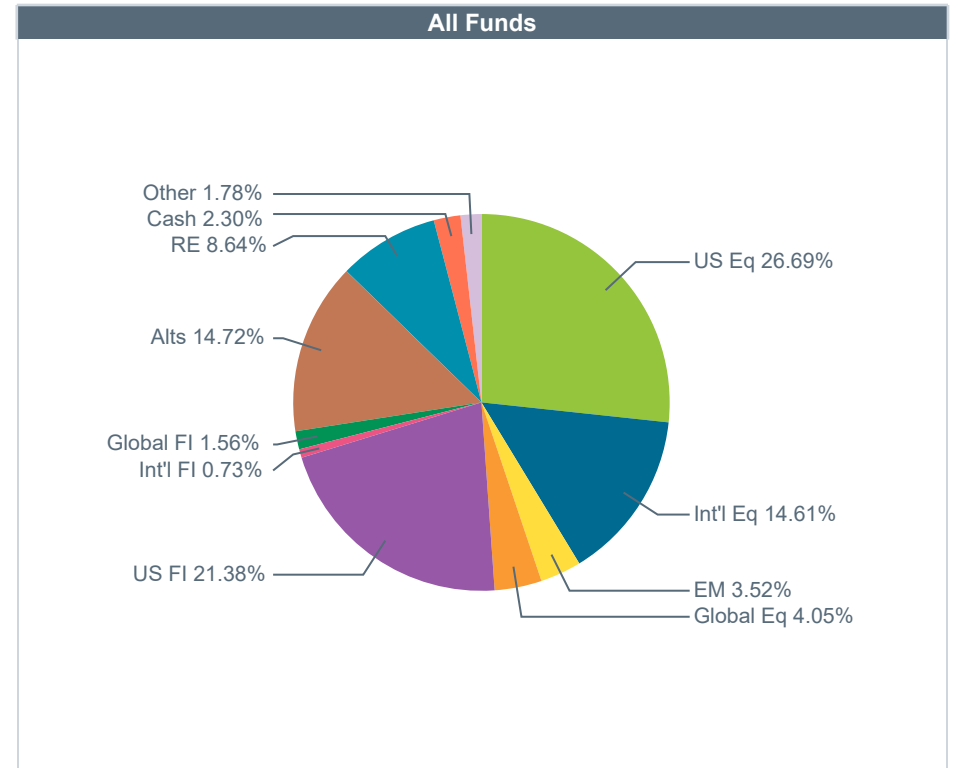
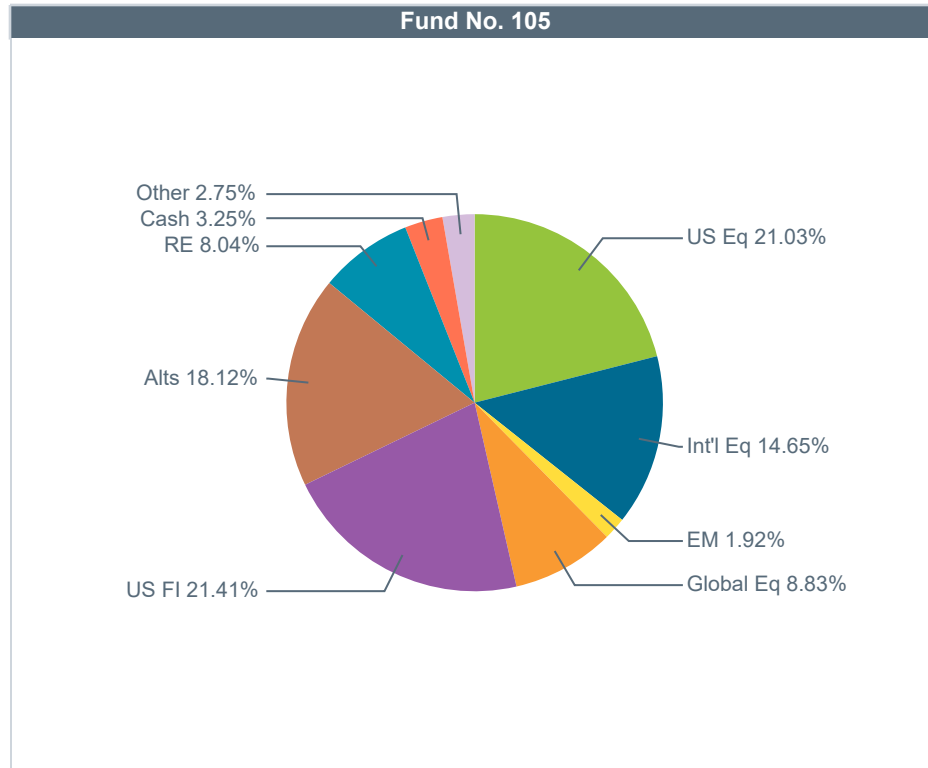


■ Fund No. 105

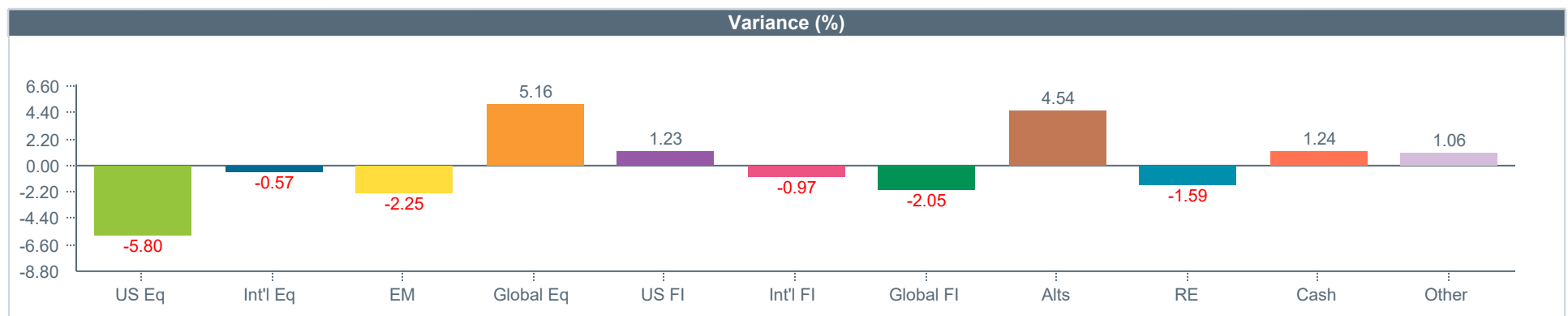
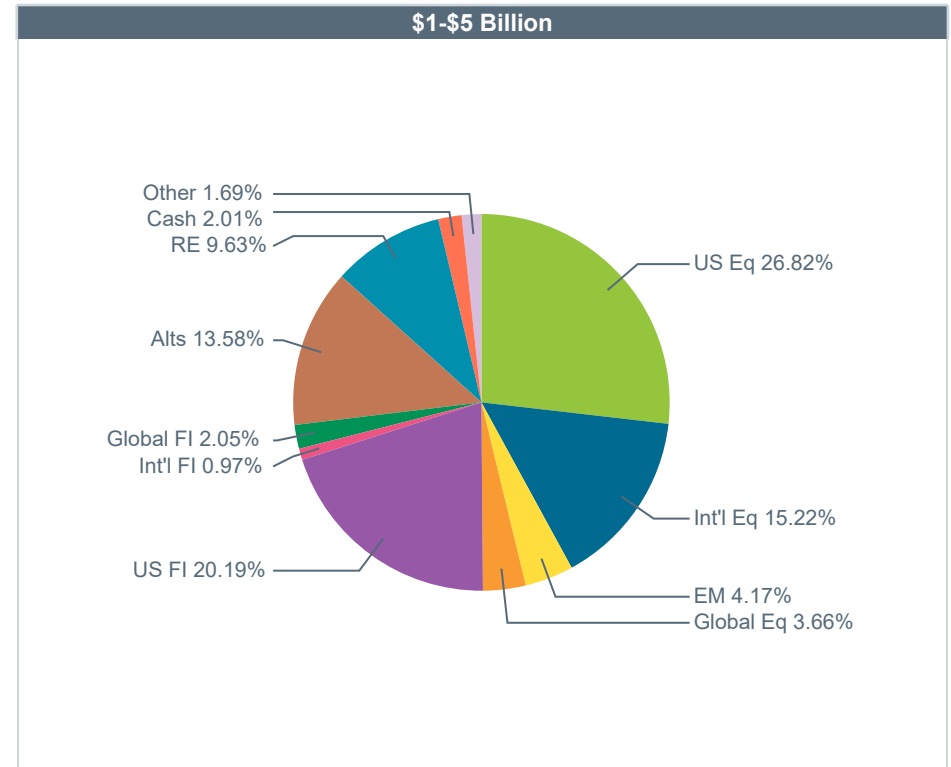
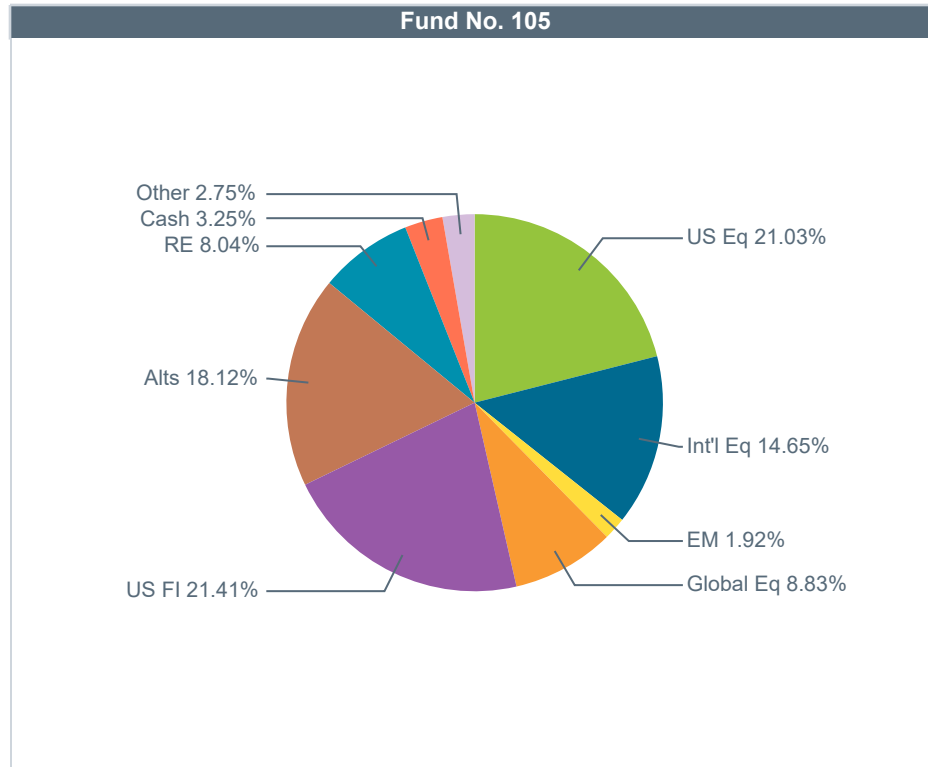
Asset Range	Actively Managed (%)	Passively Managed (%)	Externally Managed (%)	Internally Managed (%)
Over \$20B	73.75	26.25	74.25	25.75
\$10B-\$20B	70.97	29.03	90.86	9.14
\$5B-\$10B	74.47	25.53	96.32	3.68
\$1B-\$5B	77.53	22.47	98.93	1.07
\$500MM-\$1B	77.27	22.73	100.00	0.00
Under \$500MM	66.76	33.24	100.00	0.00
Fund No. 105	84.12	15.88	100.00	0.00

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

Portfolio (%)	Active Management		External Management	
	Public Fund Universe	Fund No. 105	Public Fund Universe	Fund No. 105
90 to 100	5	0	56	1
50 to 89	59	1	6	0
10 to 49	4	0	7	0
Less than 10	1	0	0	0
Total Funds Reporting	69	1	69	1

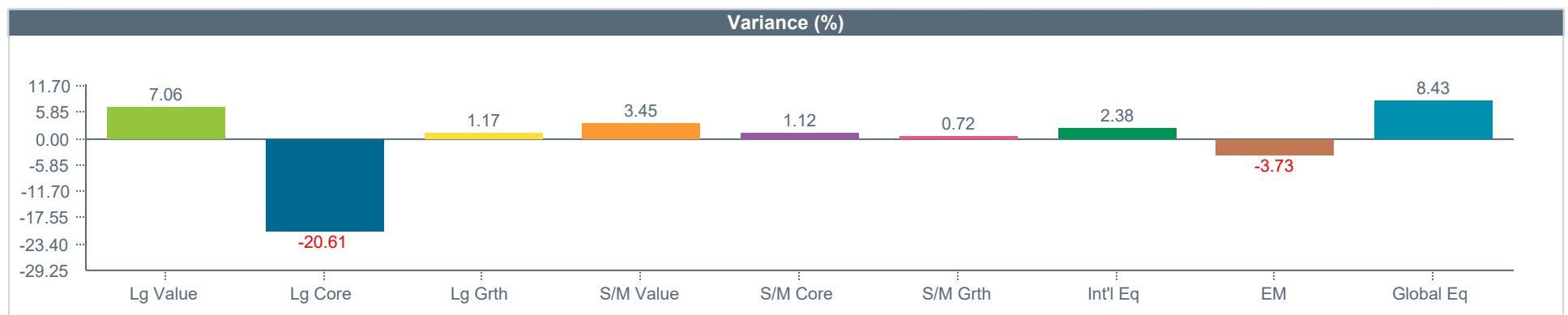
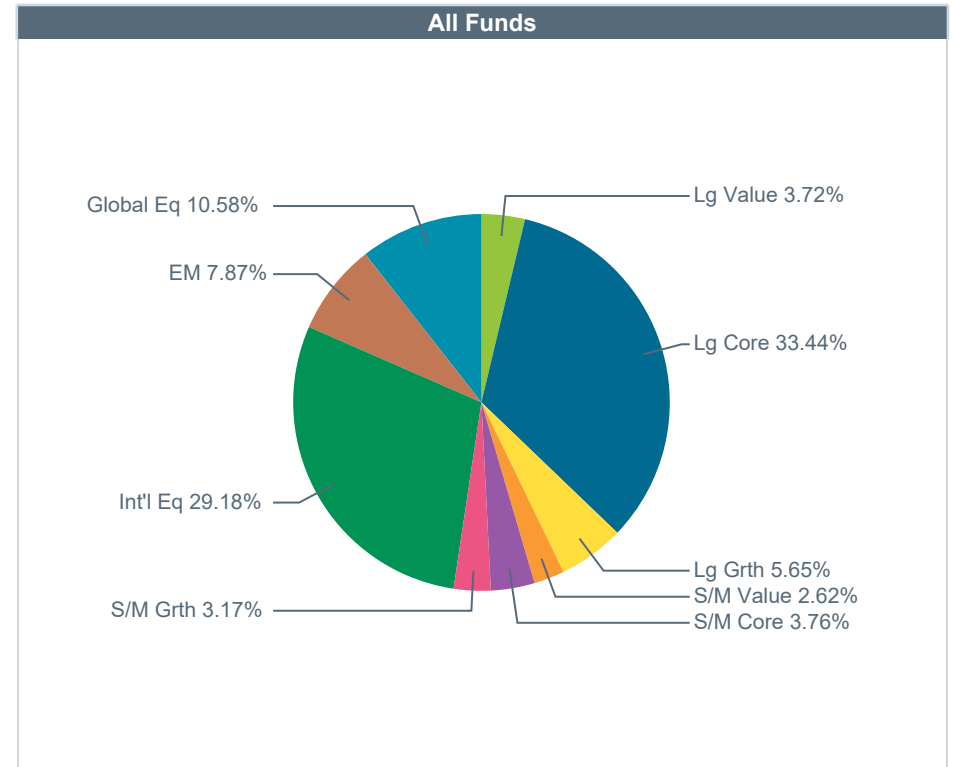
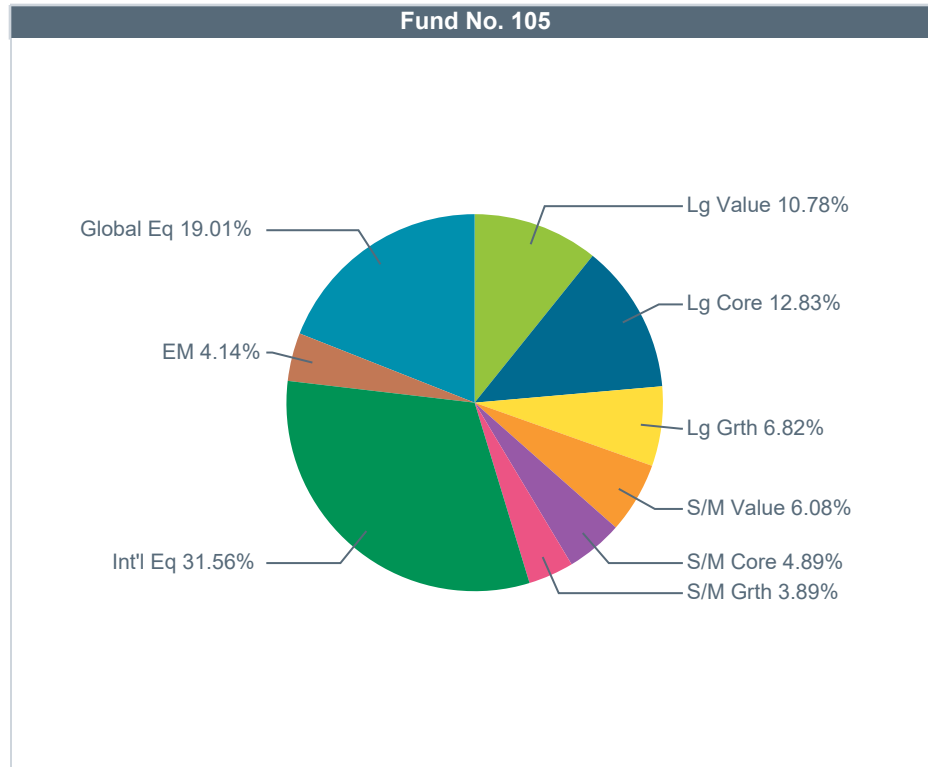


Allocations shown may not sum up to 100% exactly due to rounding.



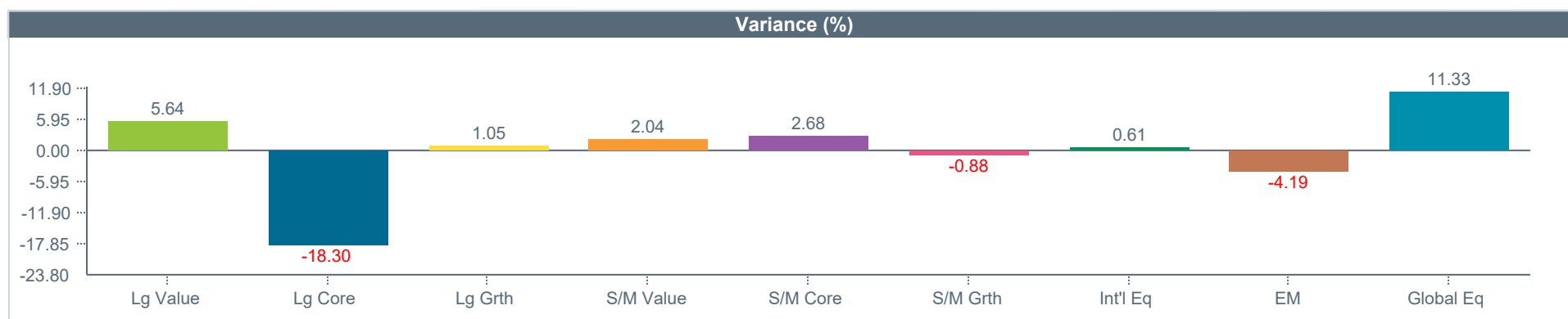
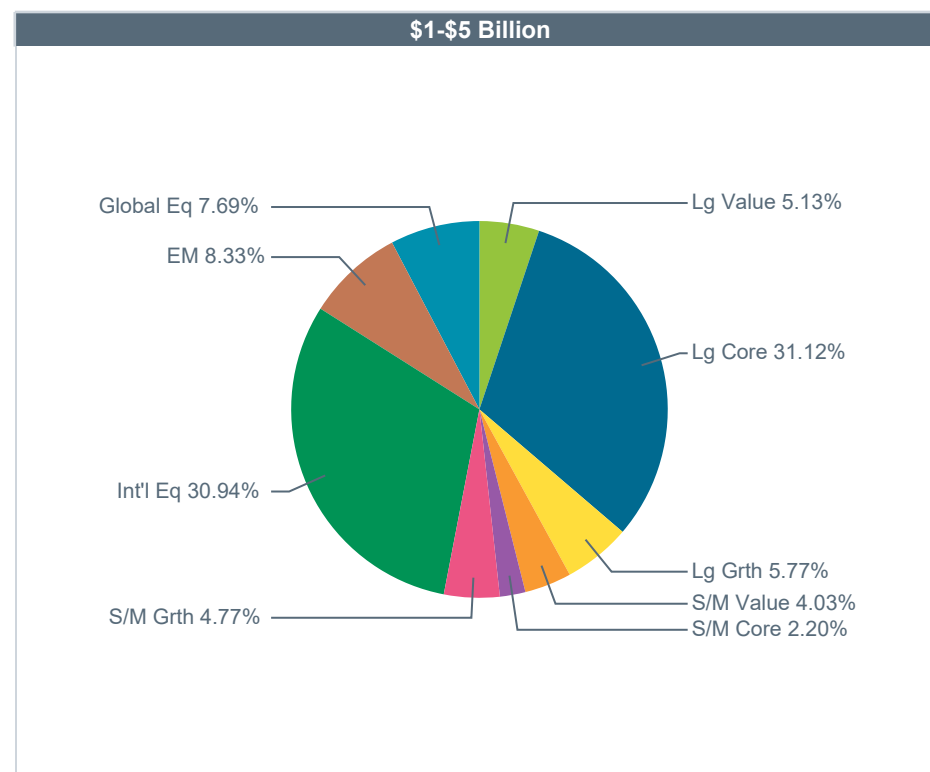
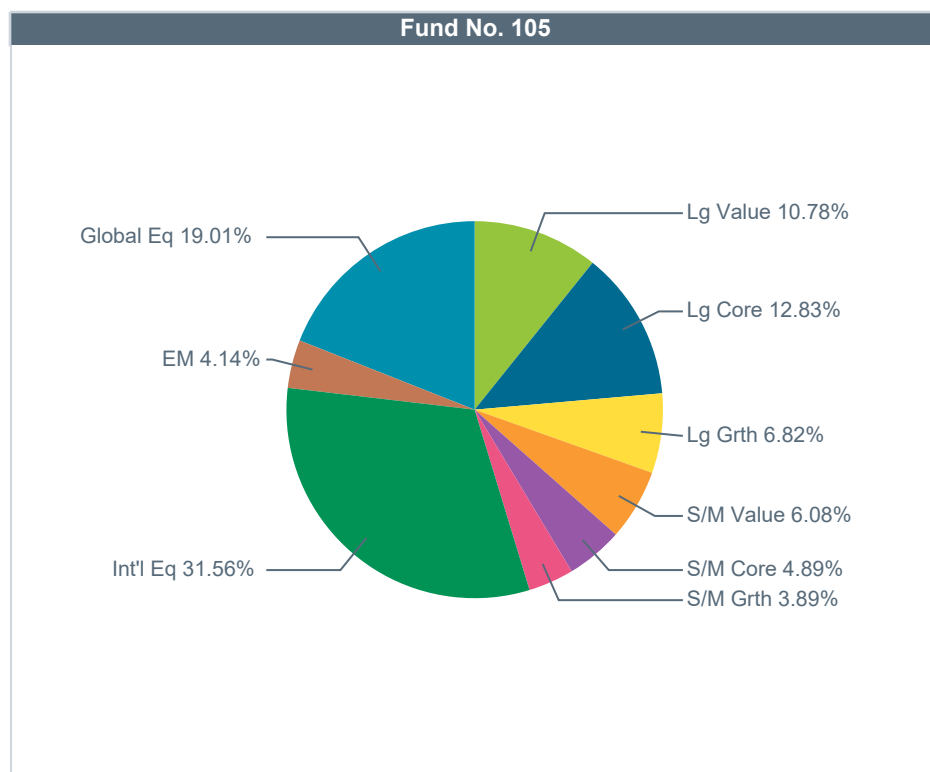
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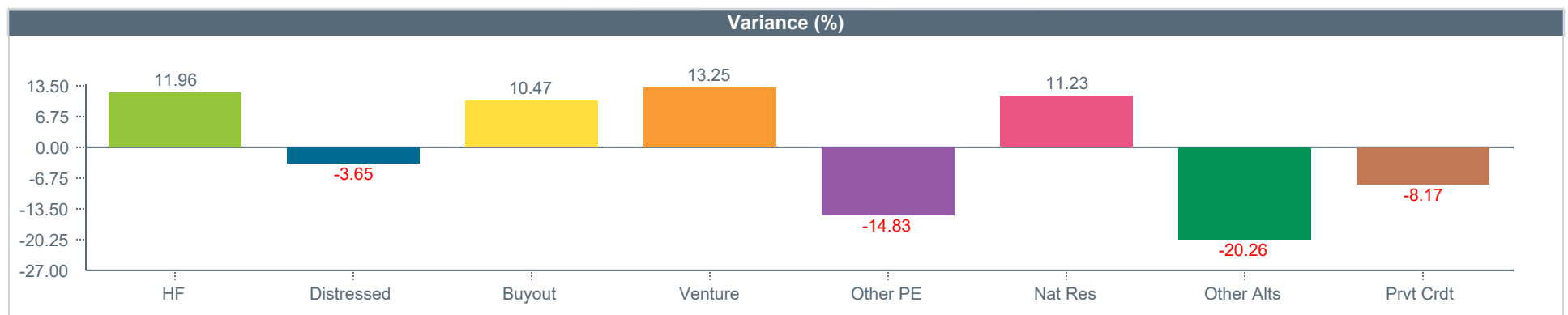
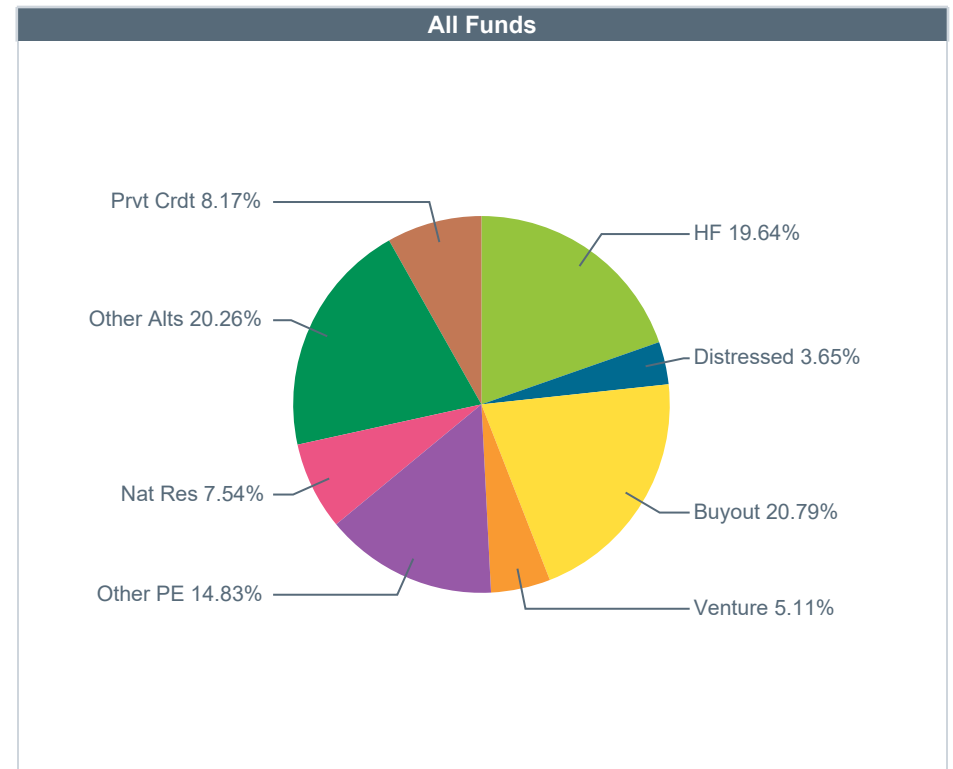
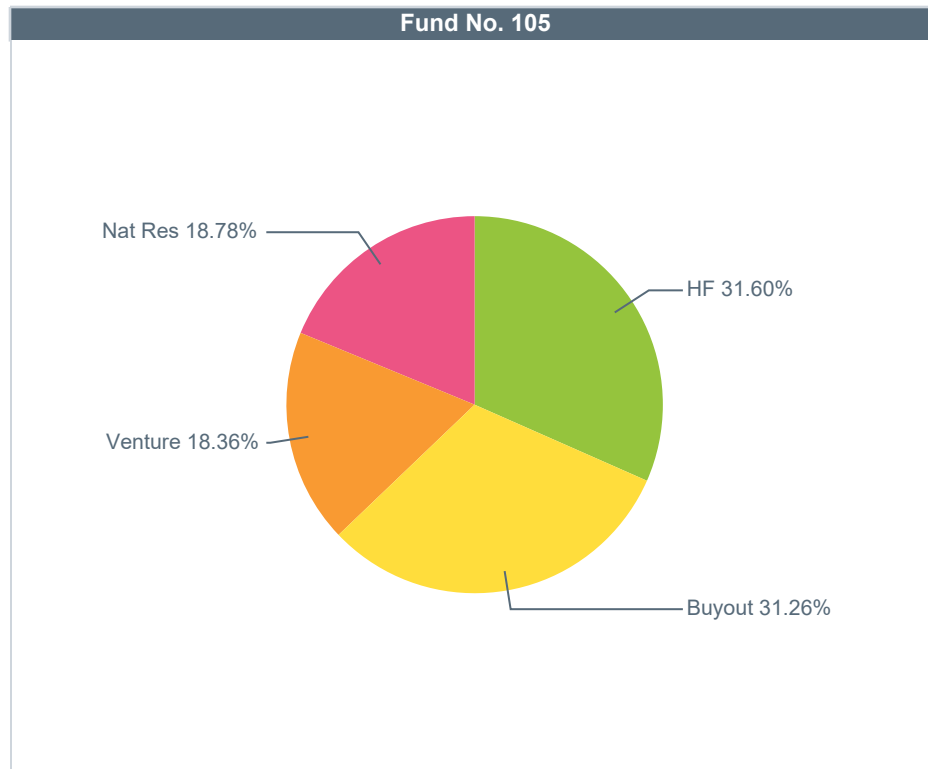
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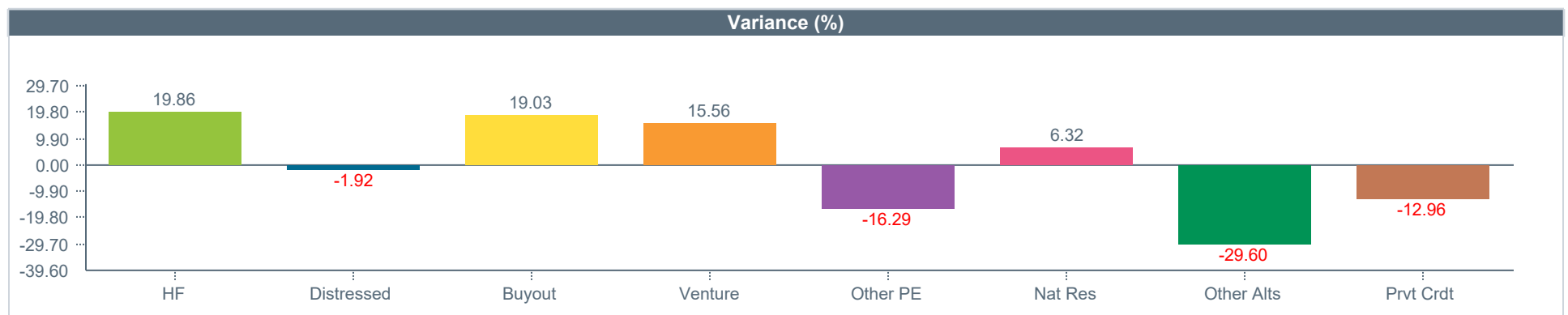
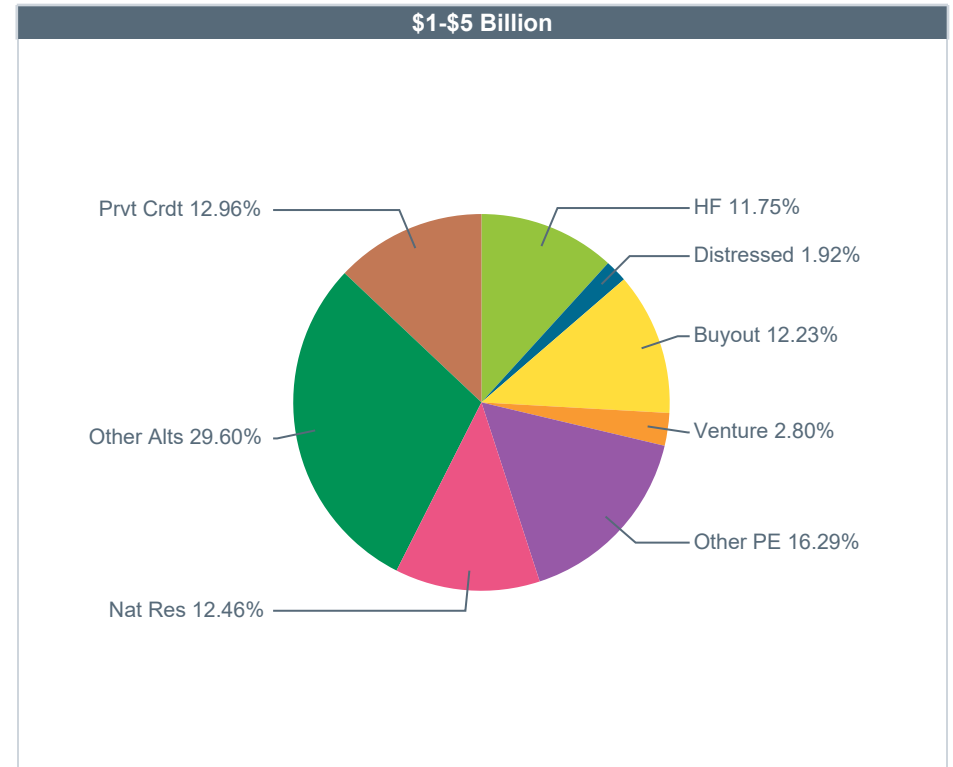
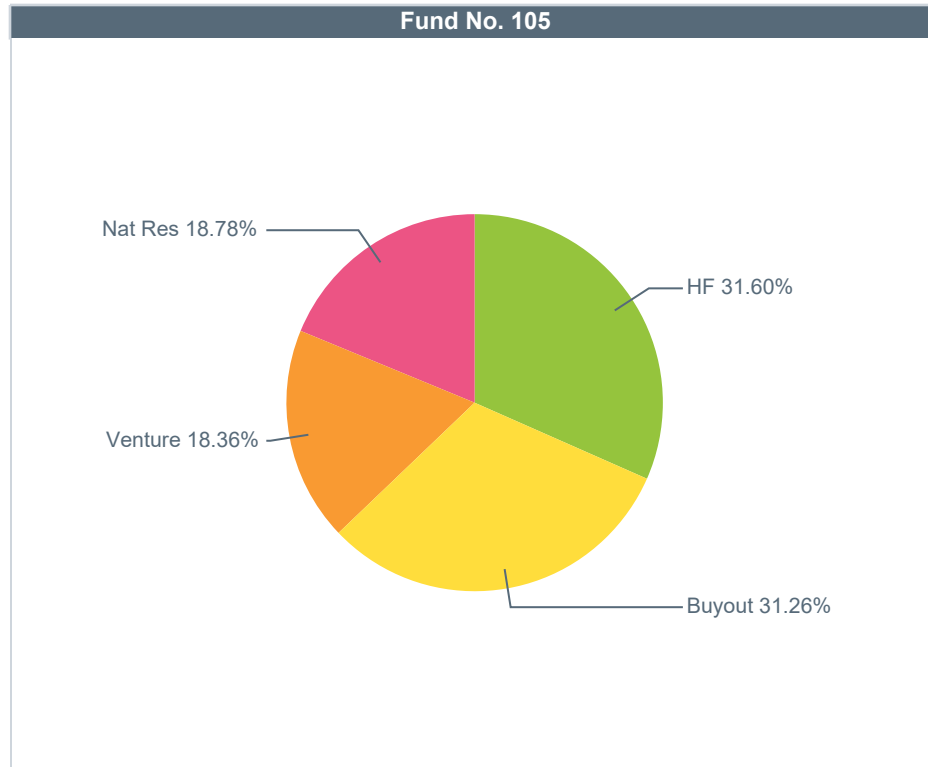


Allocations shown may not sum up to 100% exactly due to rounding.



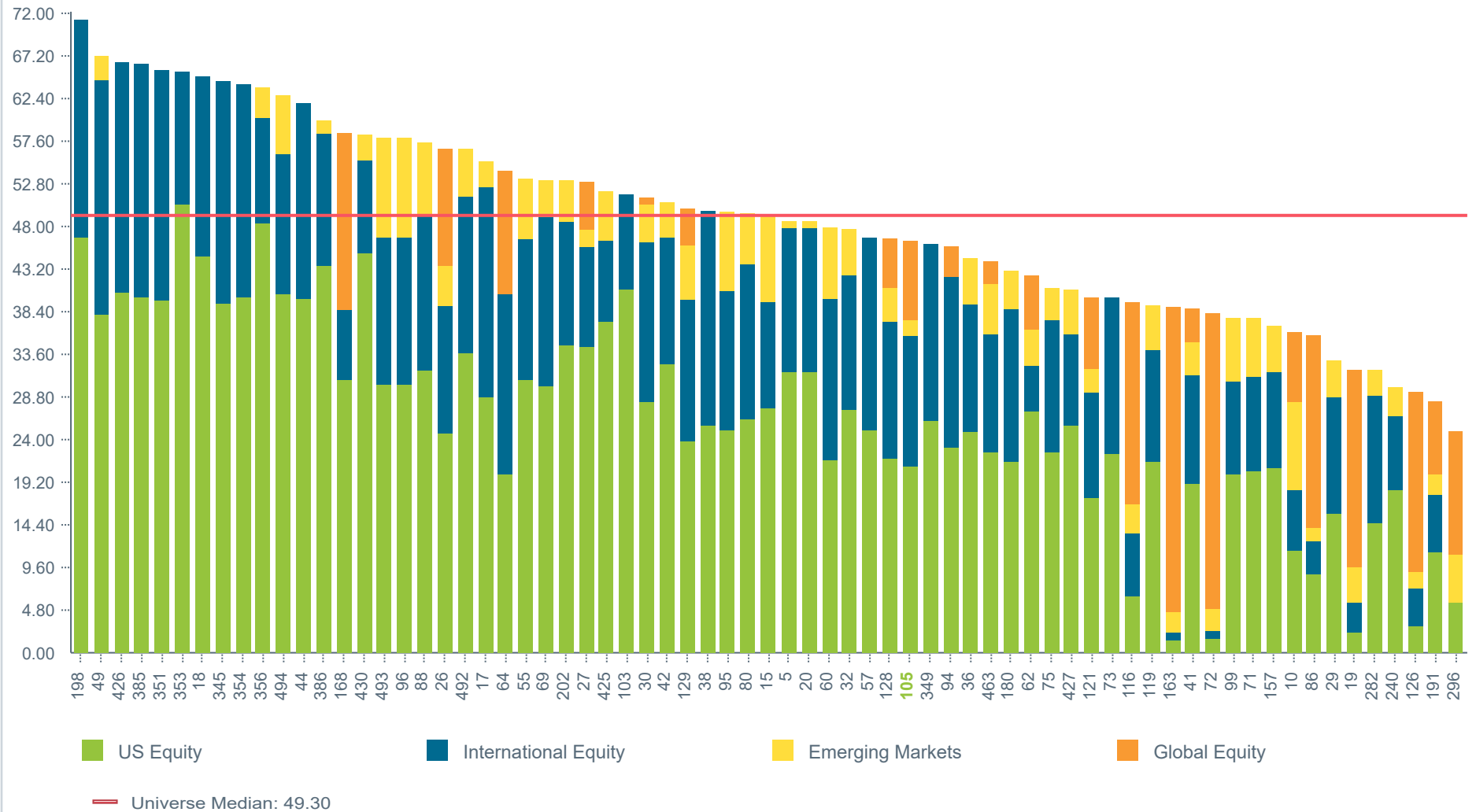


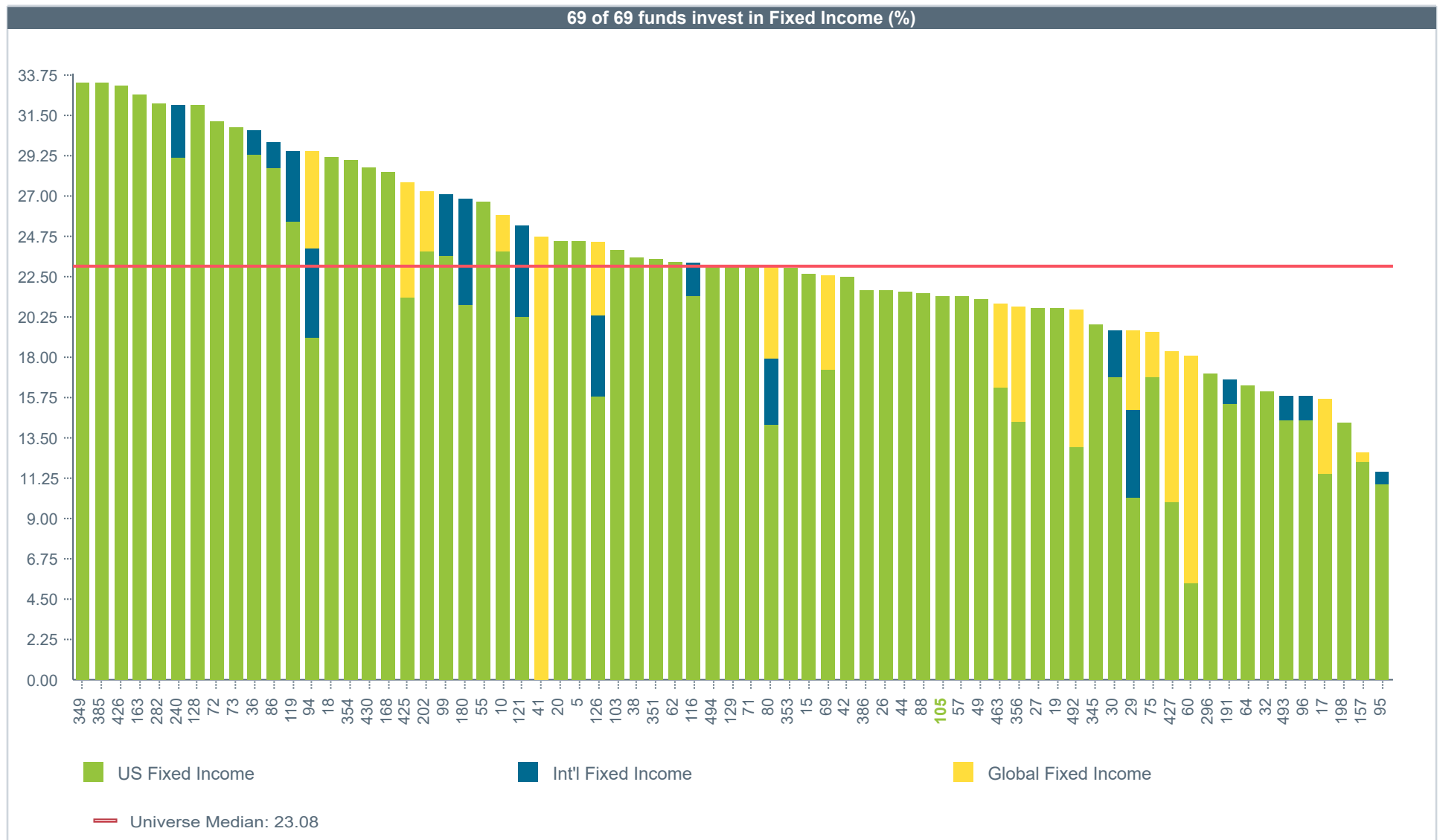
Allocations shown may not sum up to 100% exactly due to rounding.

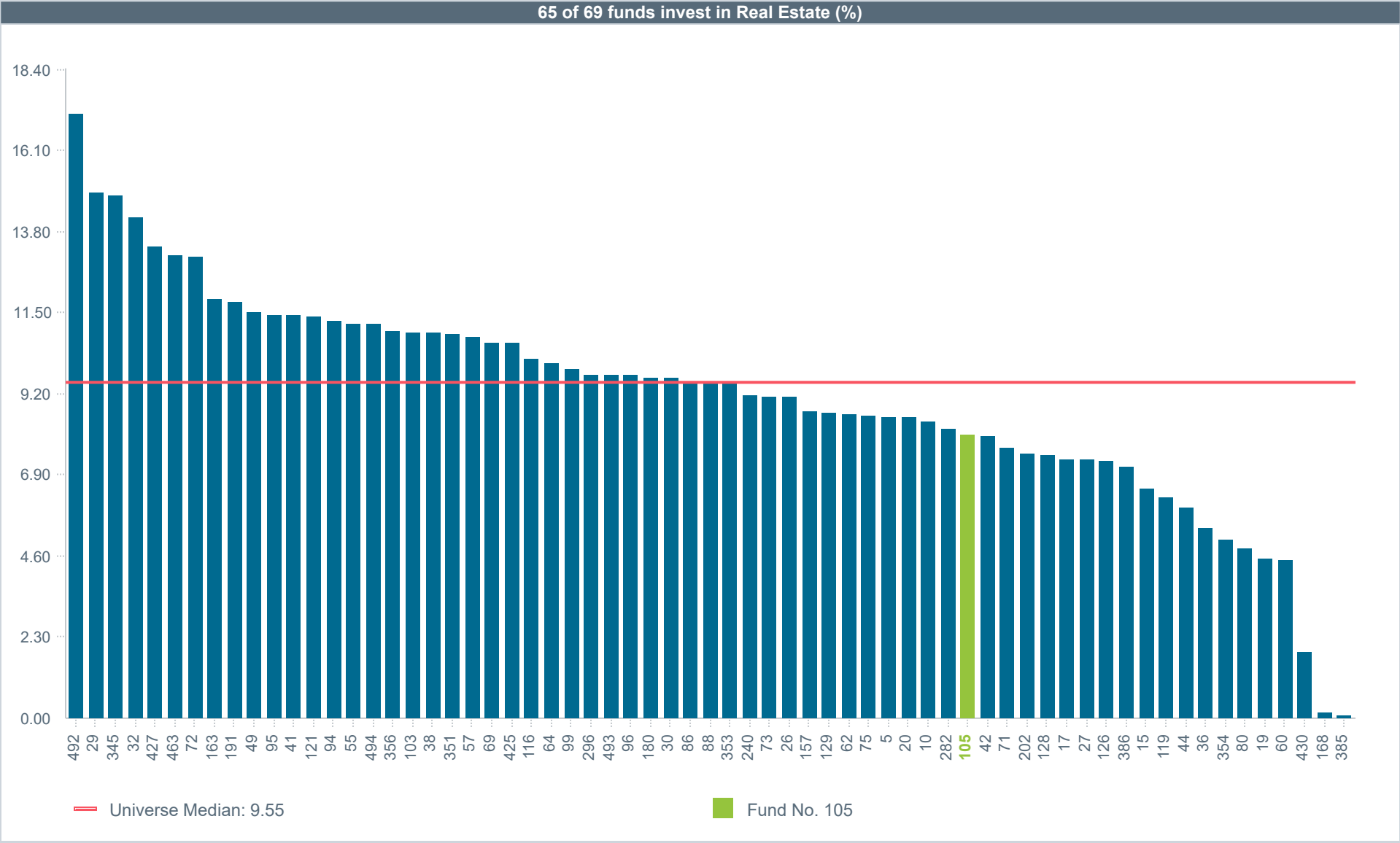


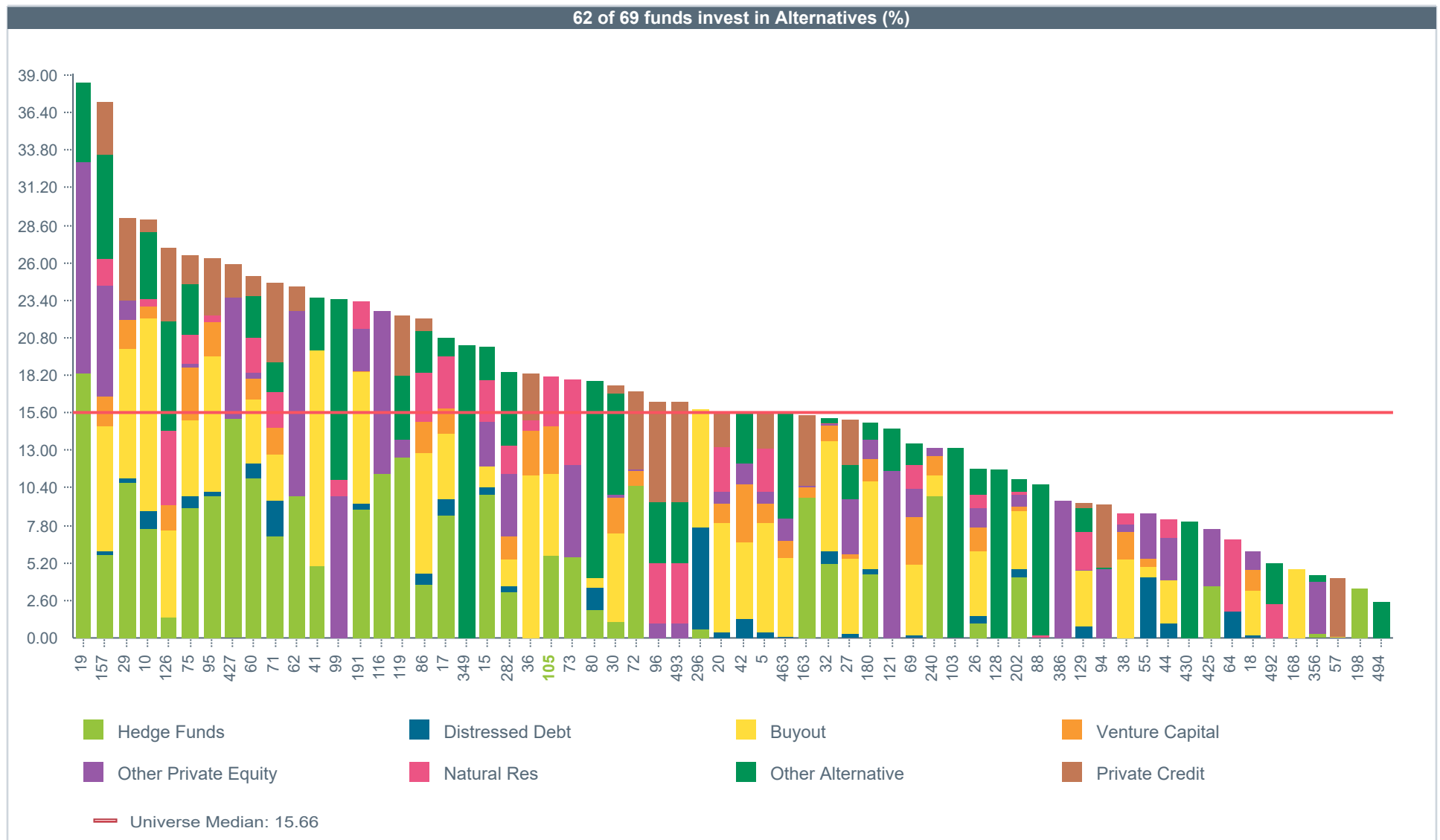
Allocations shown may not sum up to 100% exactly due to rounding.

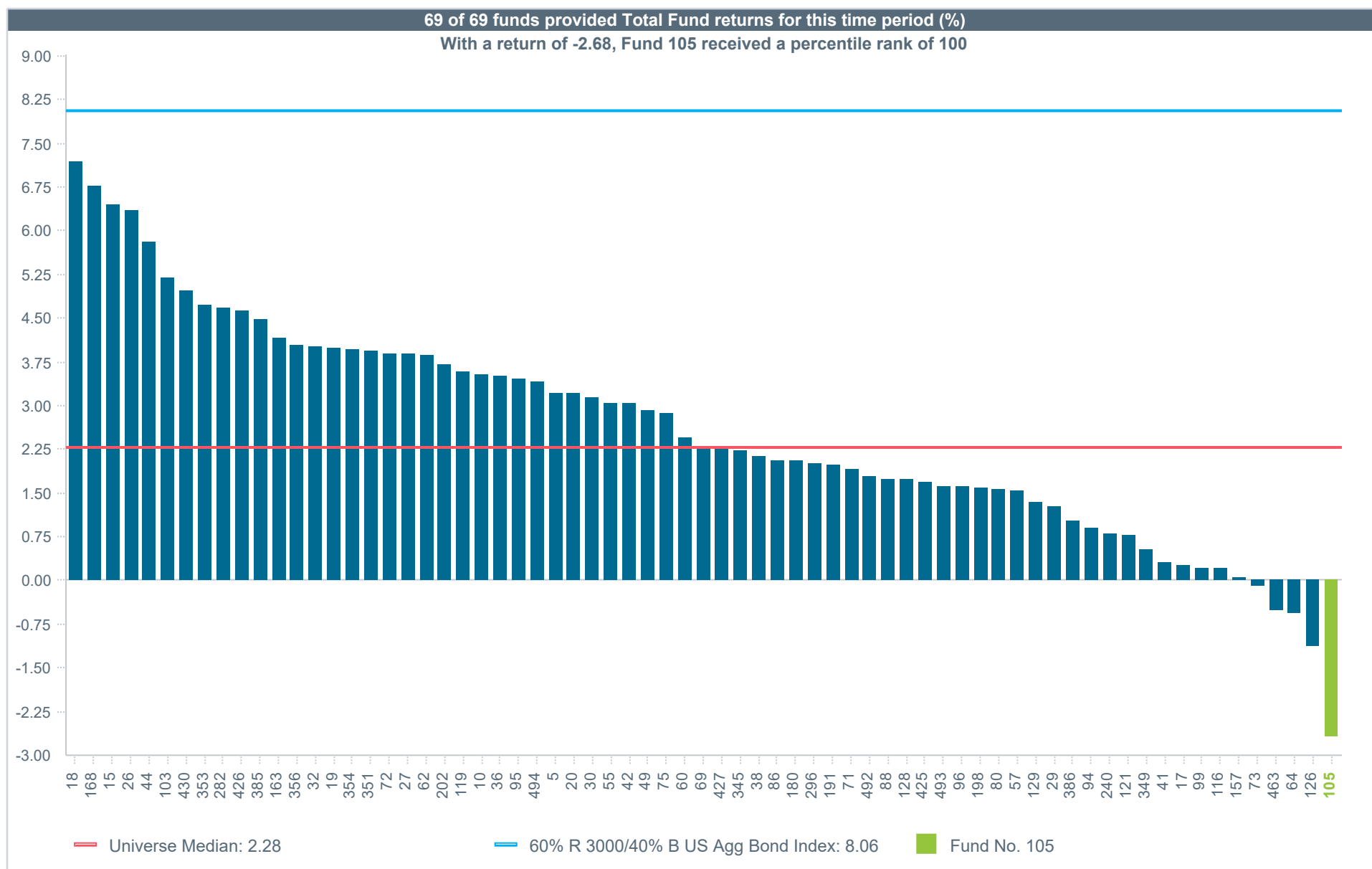
69 of 69 funds invest in Equity (%)





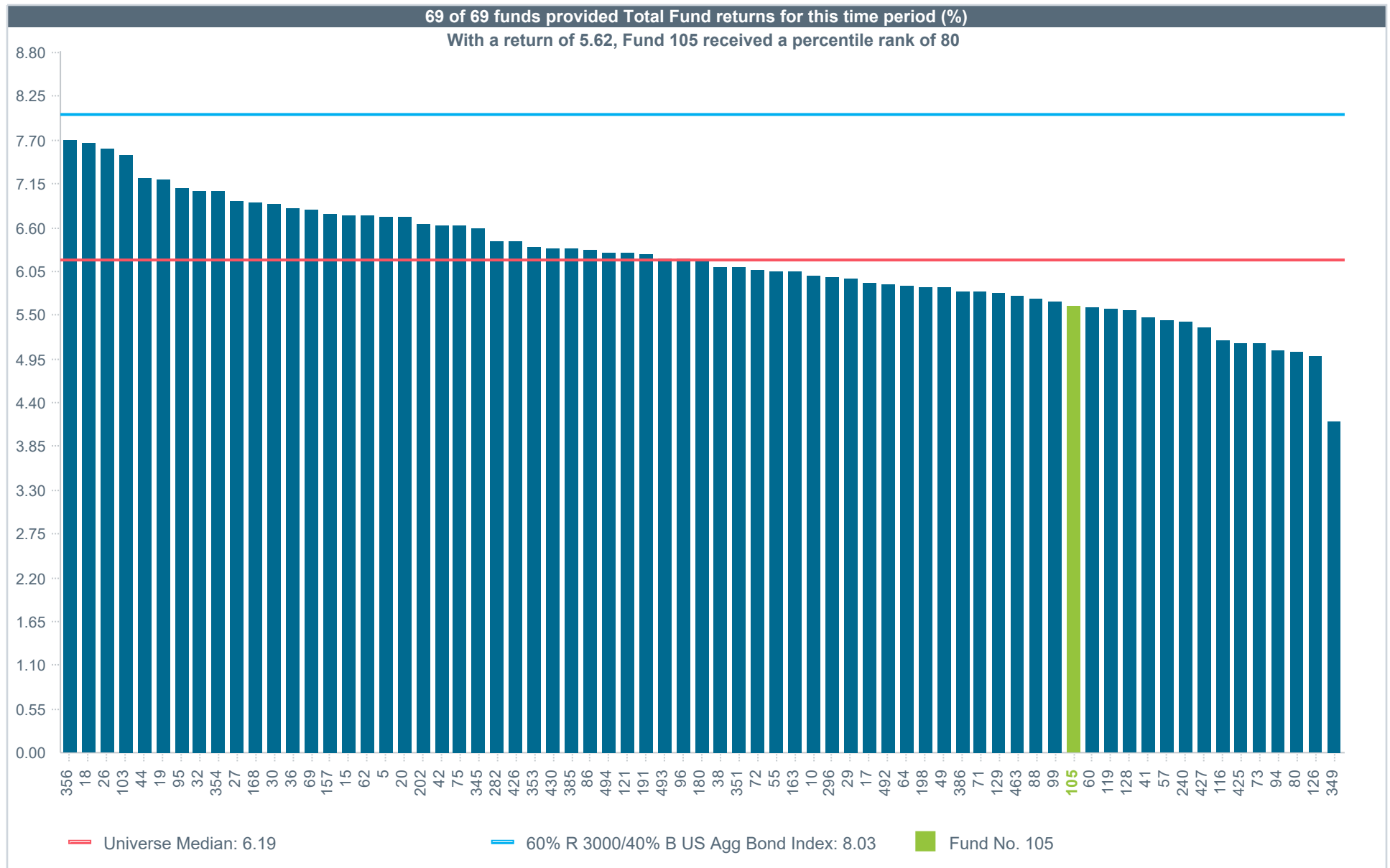




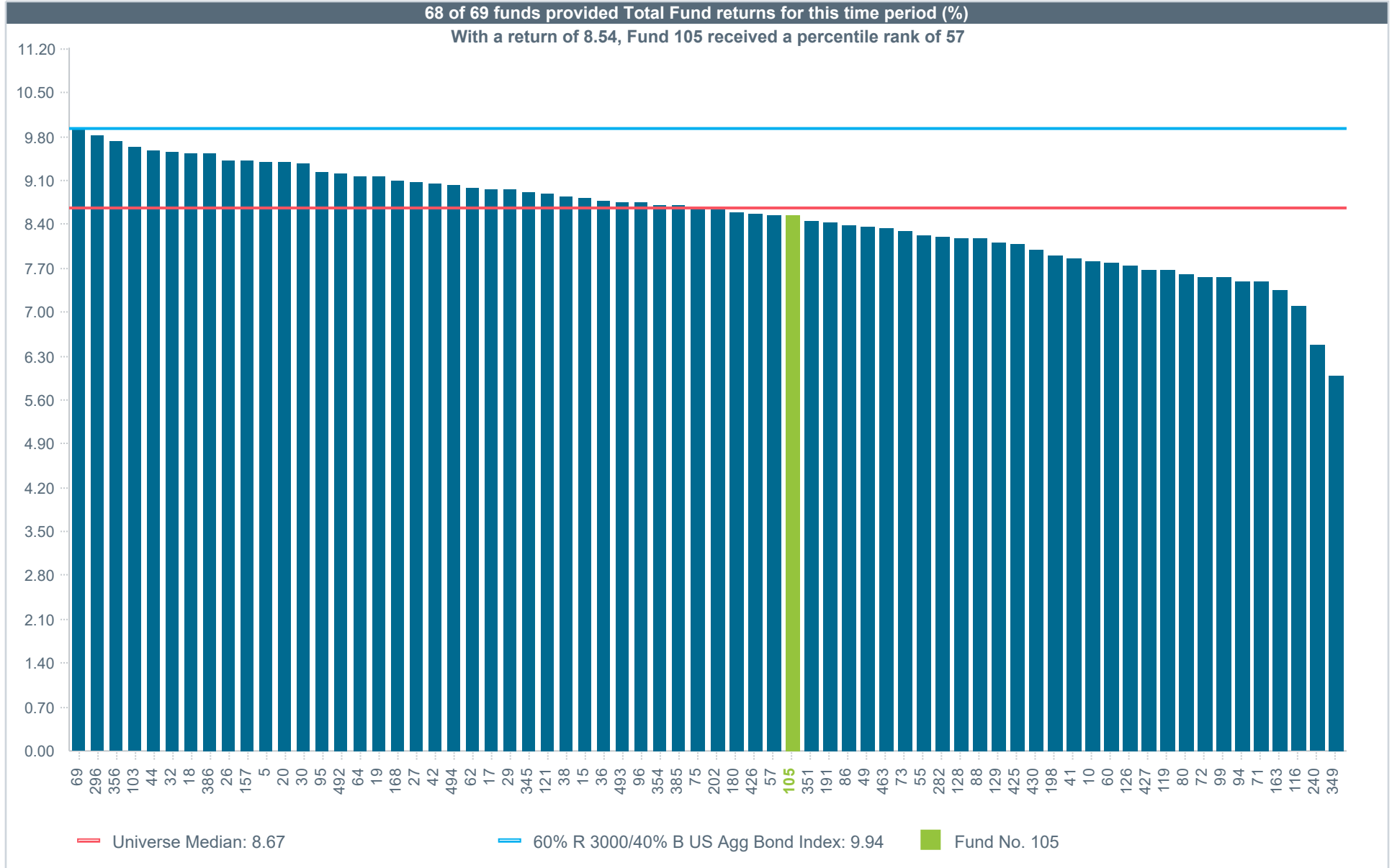


Funds with less history than the specified time period will not appear in the chart.





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

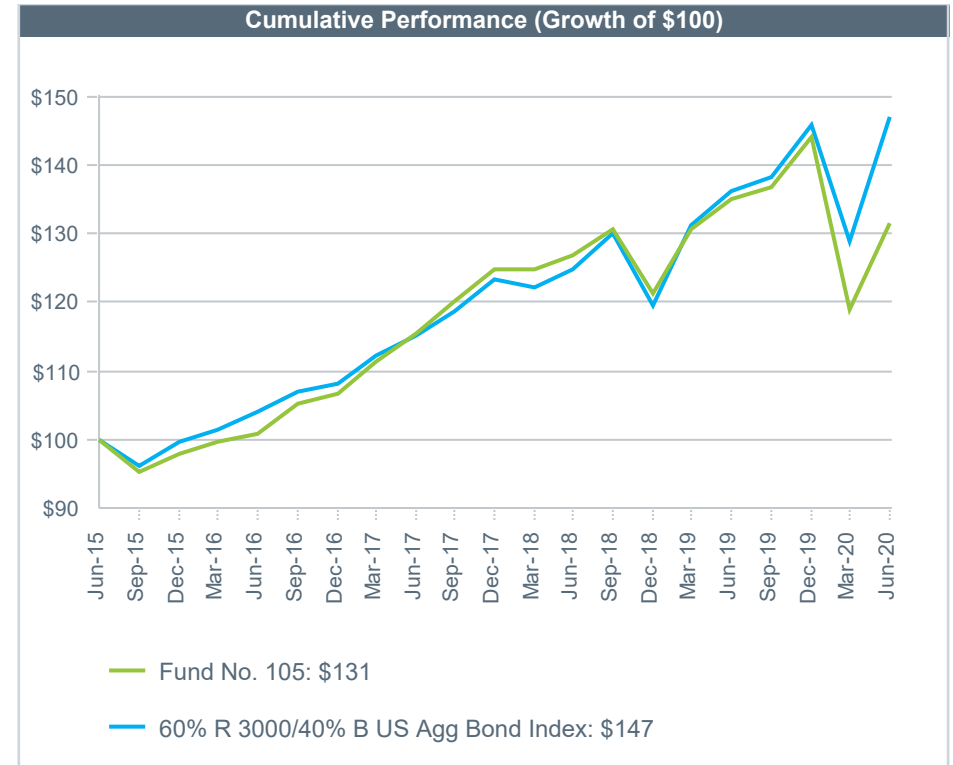
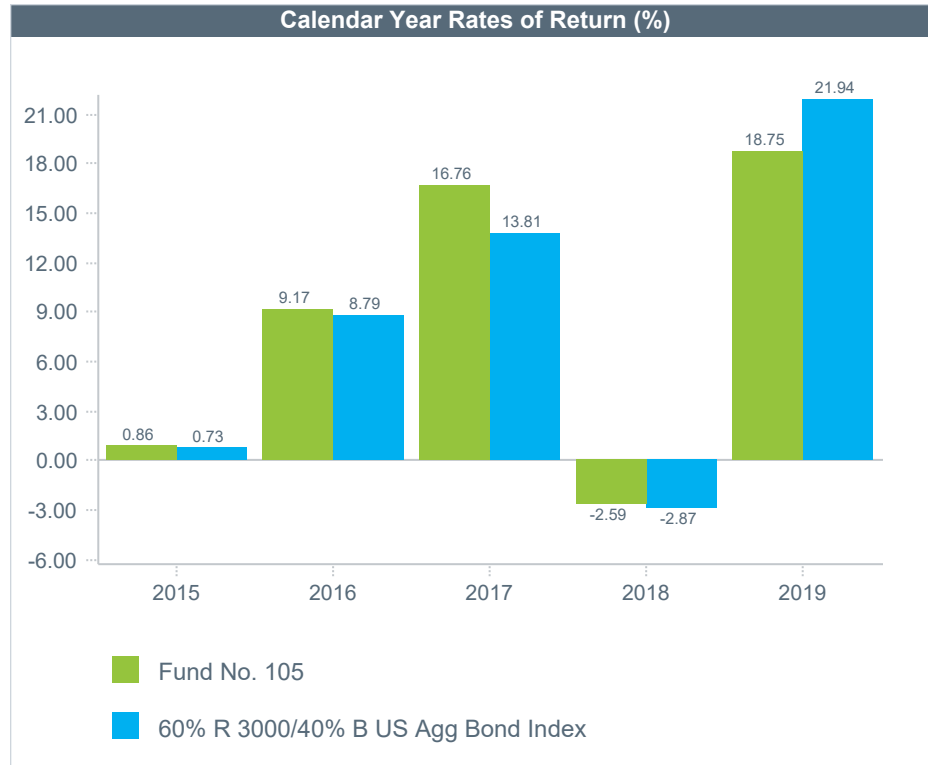


Funds with less history than the specified time period will not appear in the chart.



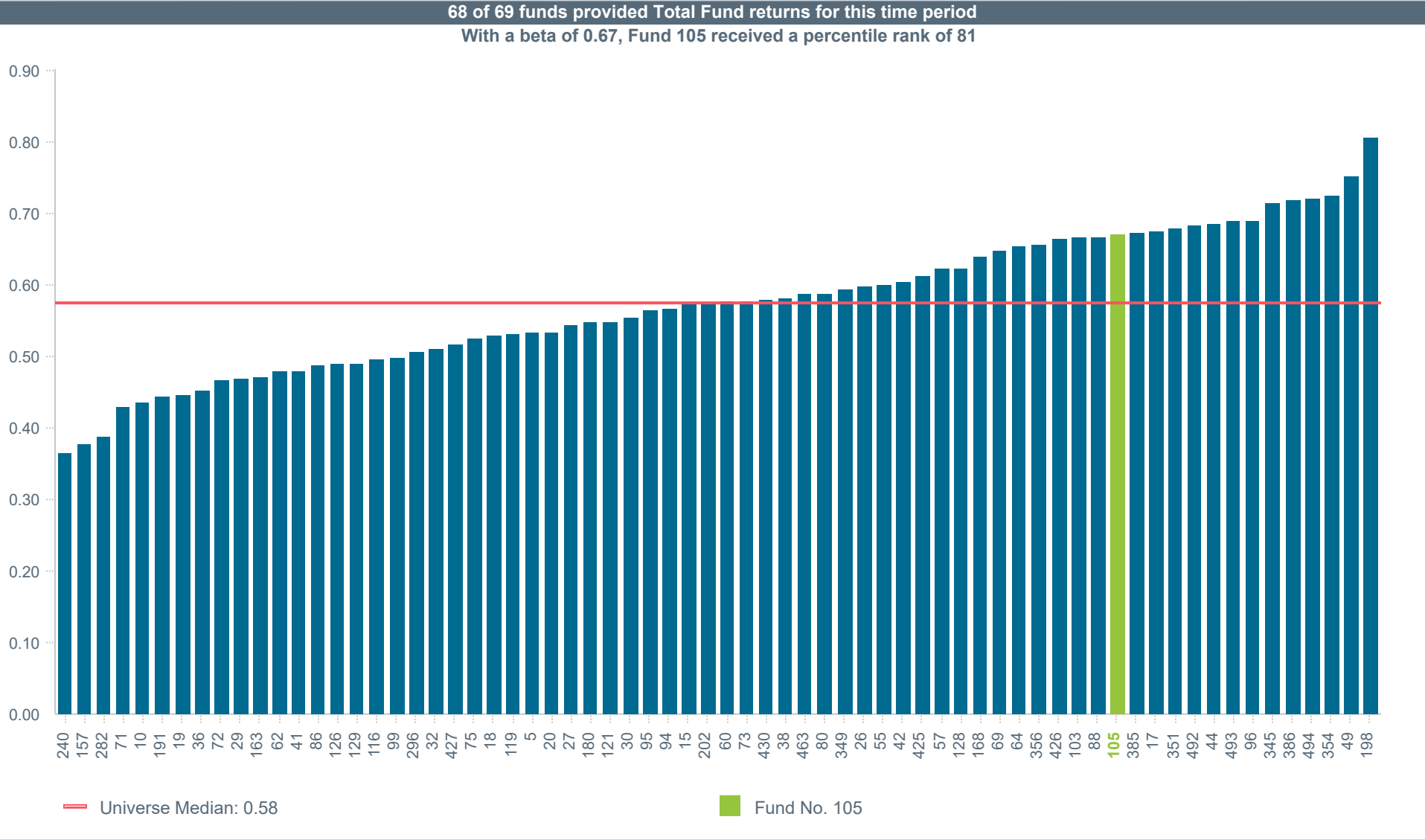
Total Return - Total Fund
Fund No. 105 vs. 60% R 3000/40% B US Agg Bond Index

As of June 30, 2020



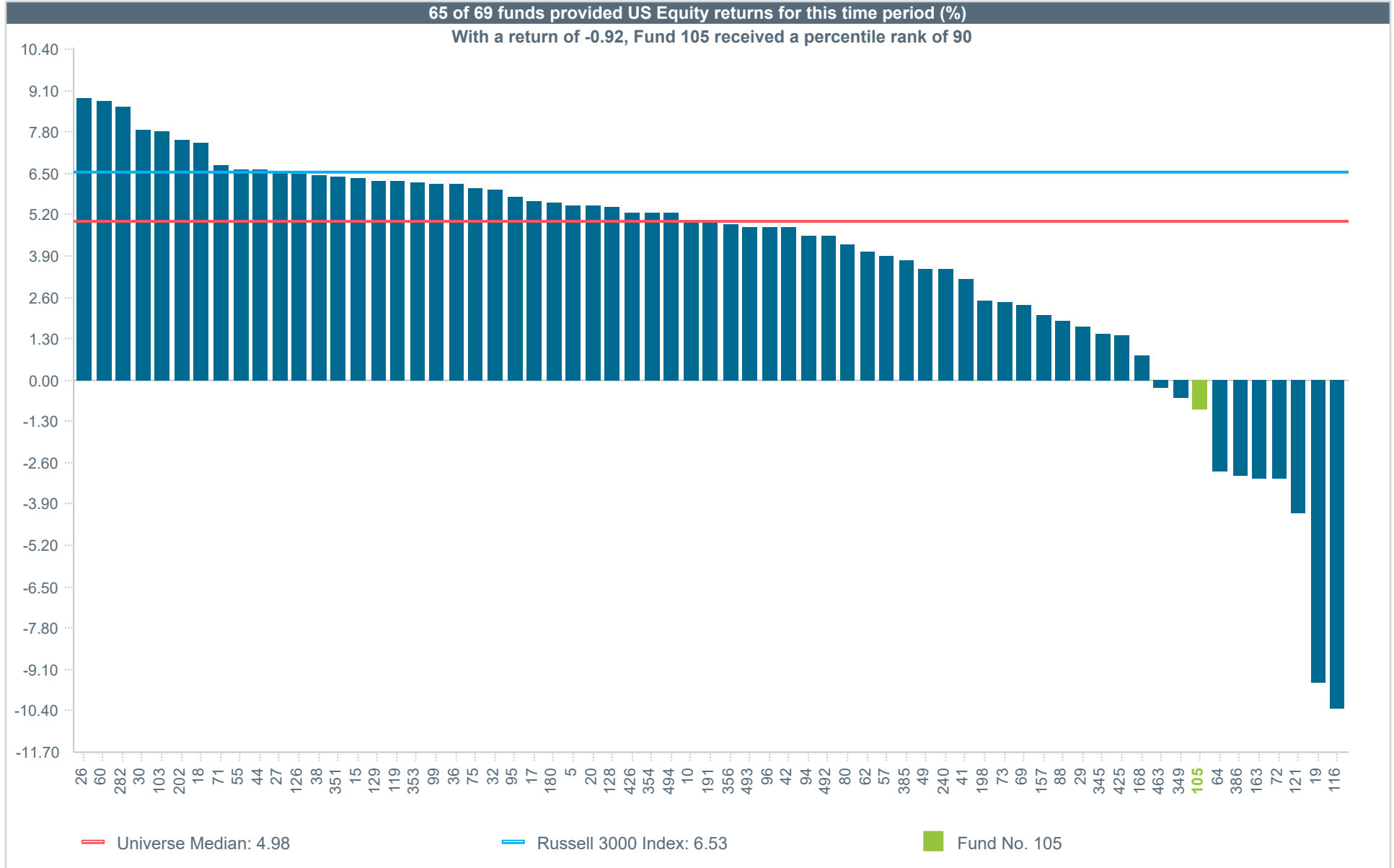
Annualized Returns (%)			
	1 Year	3 Years	5 Years
Fund No. 105	-2.68	4.39	5.62
60% R 3000/40% B US Agg Bond Index	8.06	8.55	8.03
Variance	-10.74	-4.16	-2.41



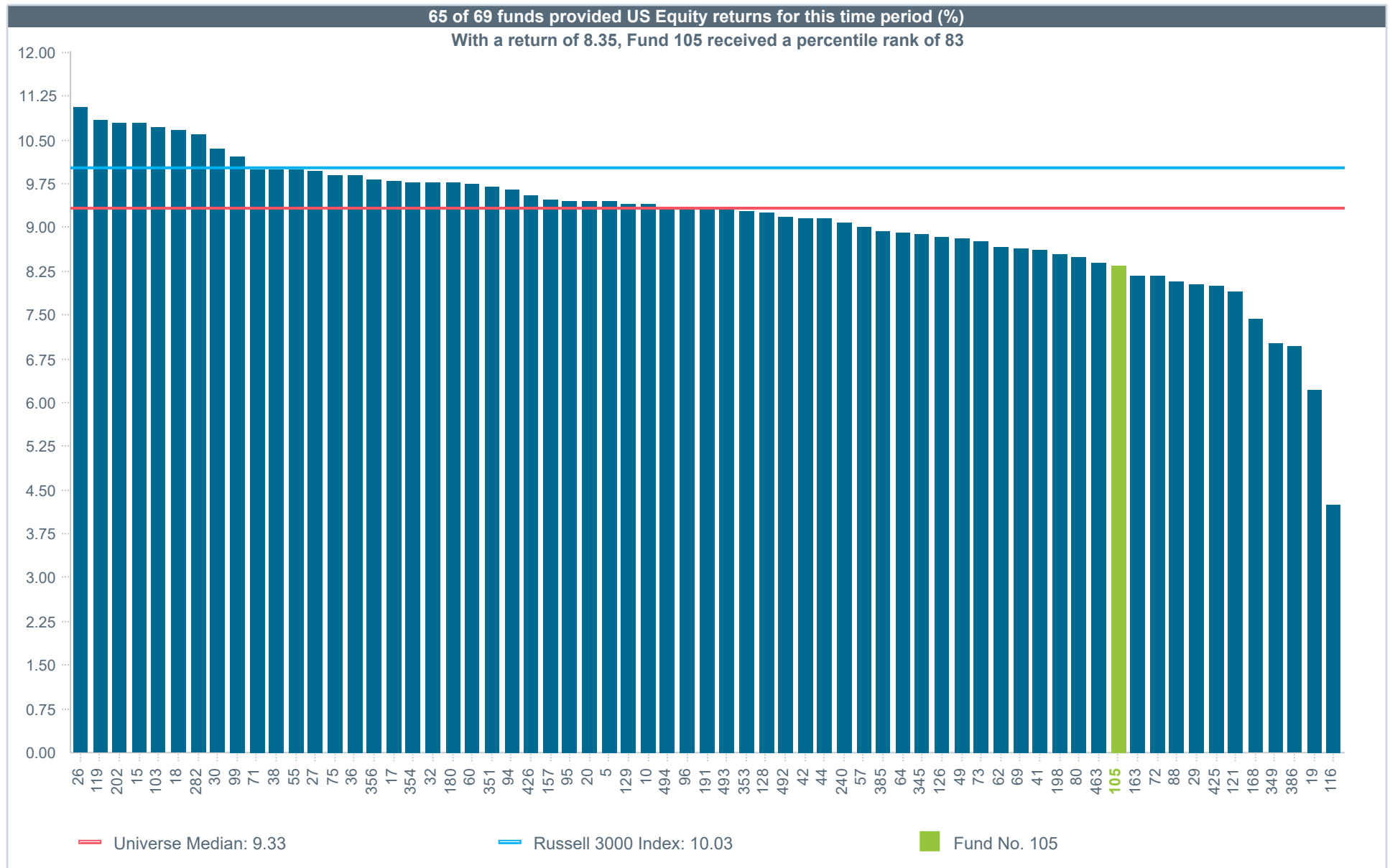


Funds with less history than the specified time period will not appear in the chart. Benchmark used is the S&P 500 Index (Cap Wtd).



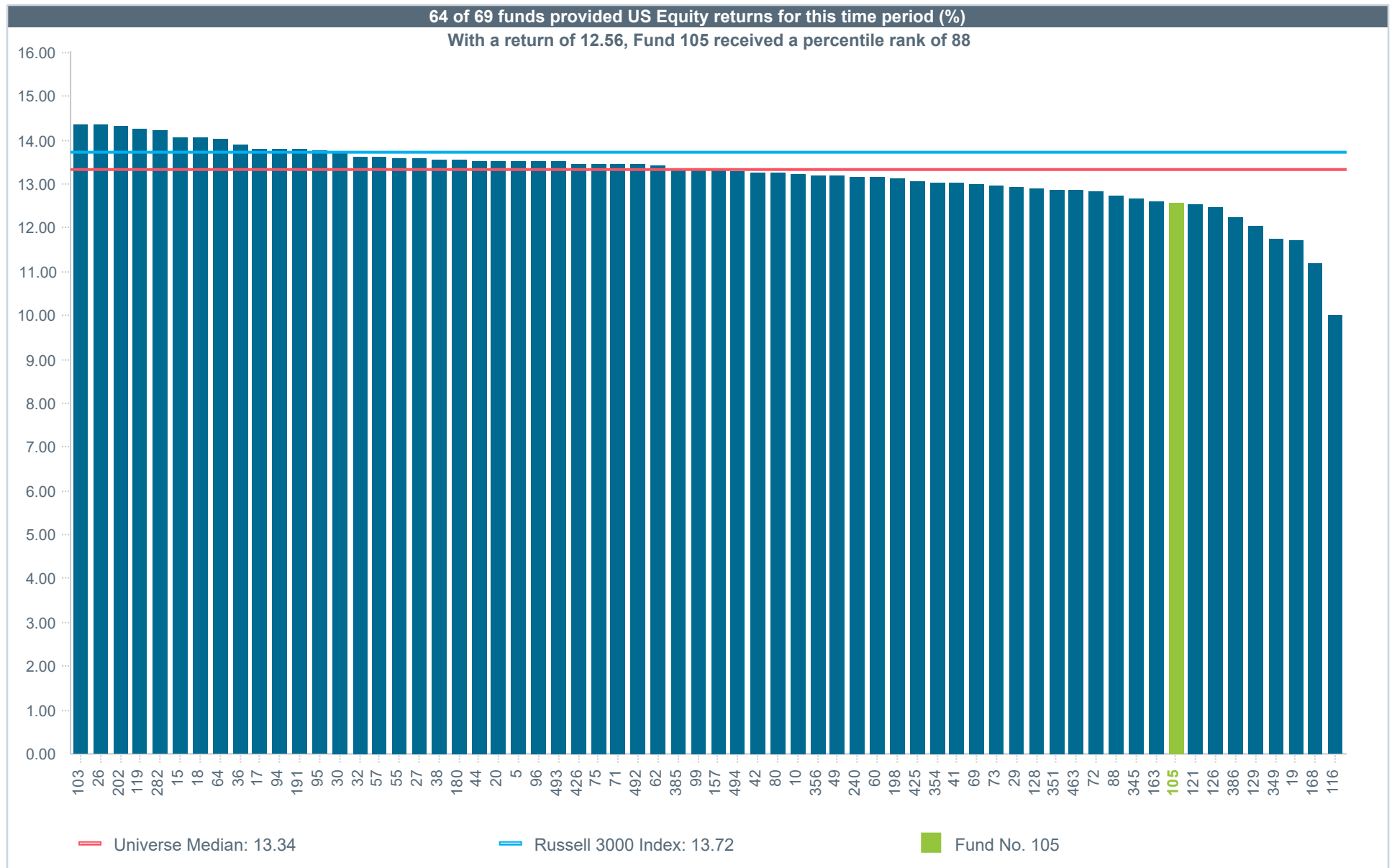


Funds with less history than the specified time period will not appear in the chart.



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



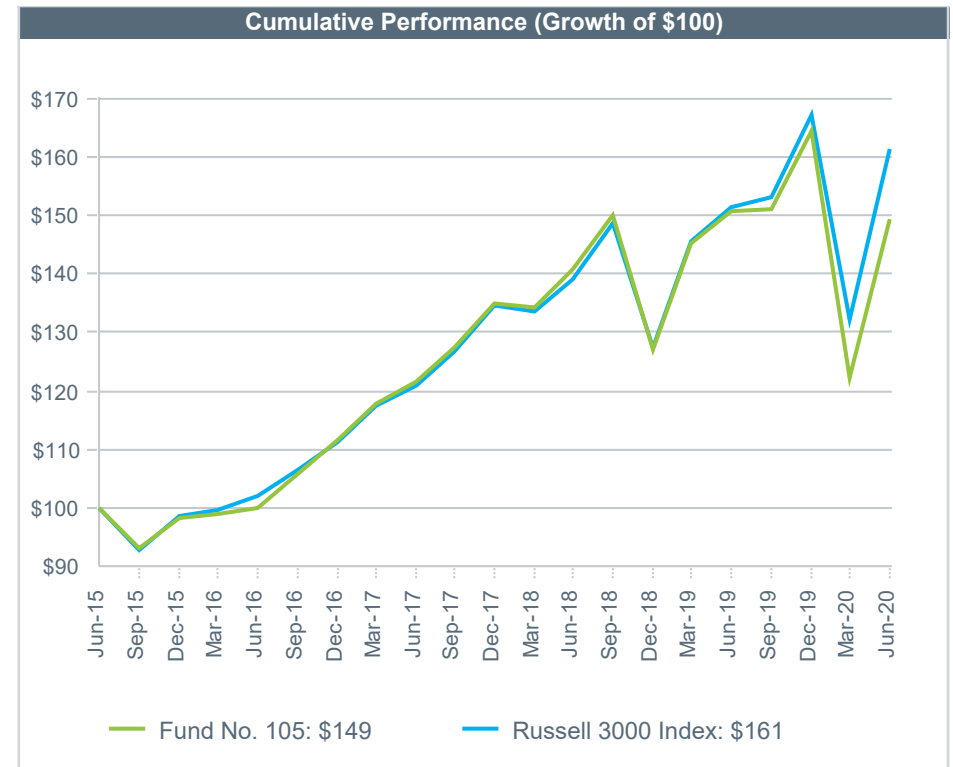
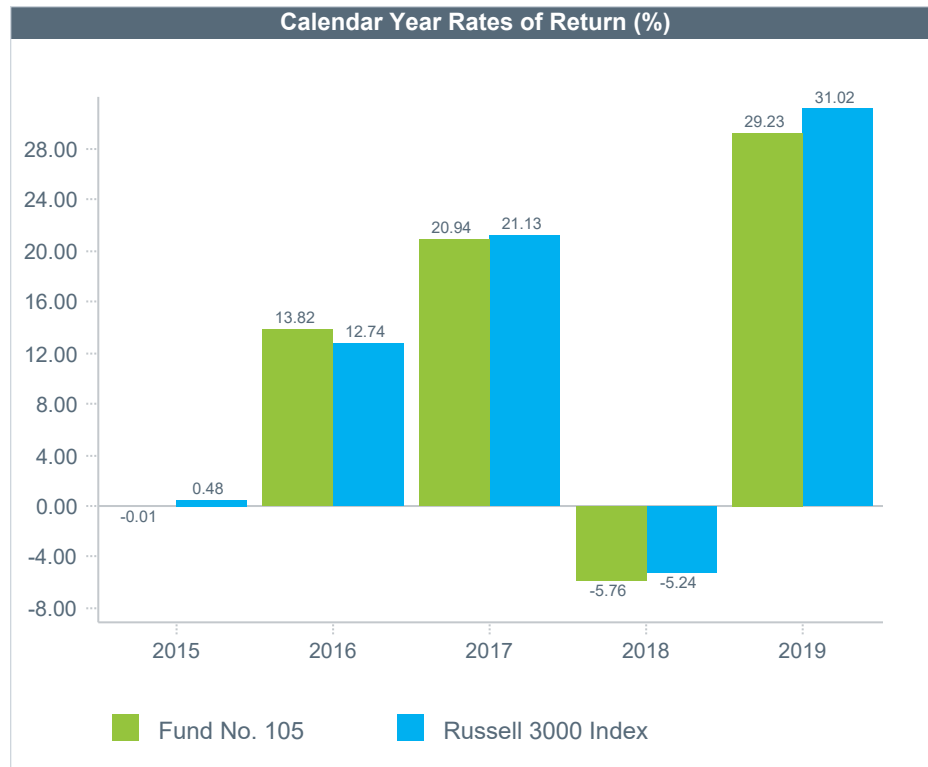


Funds with less history than the specified time period will not appear in the chart.



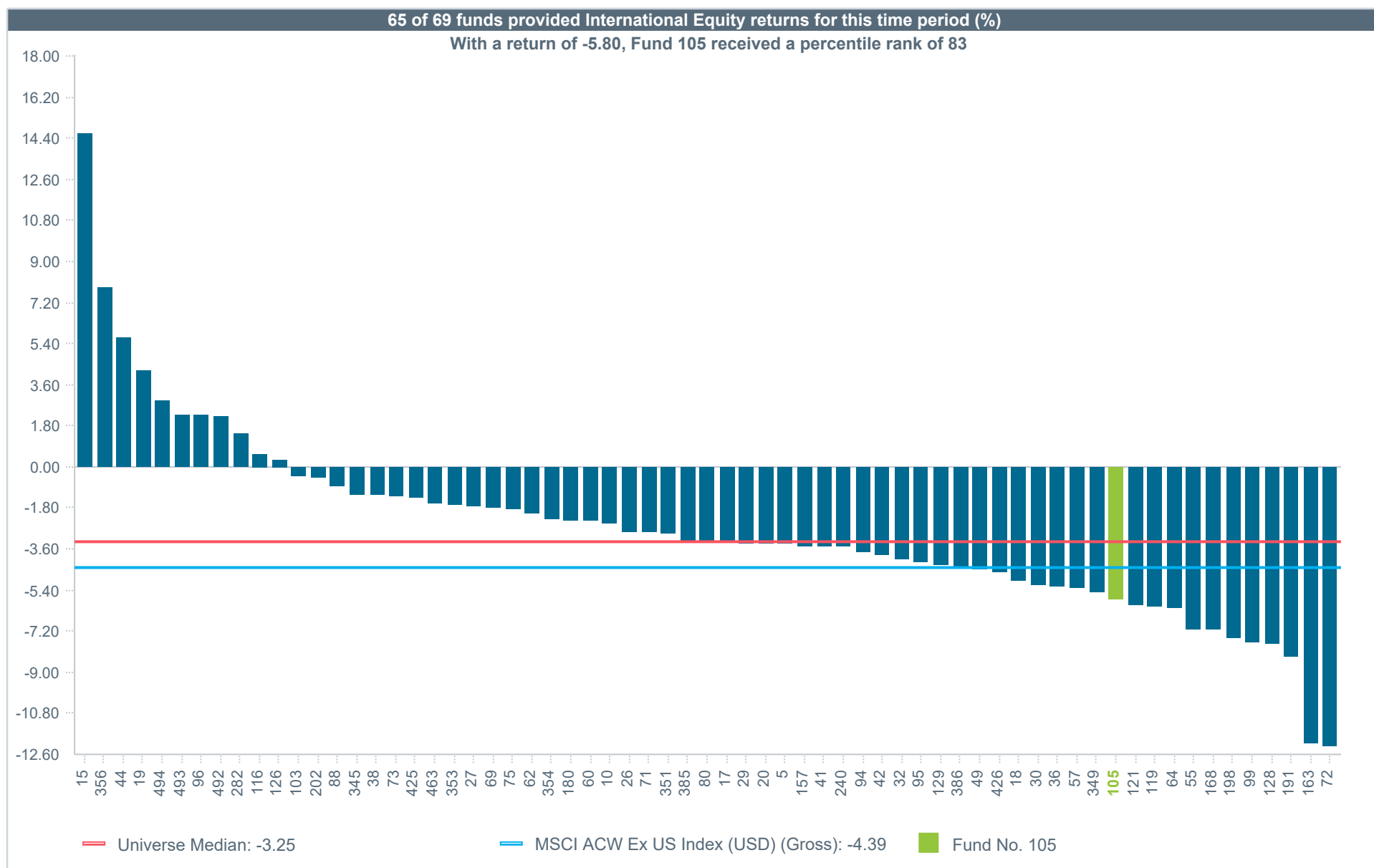
Total Return - US Equity
Fund No. 105 vs. Russell 3000 Index

As of June 30, 2020



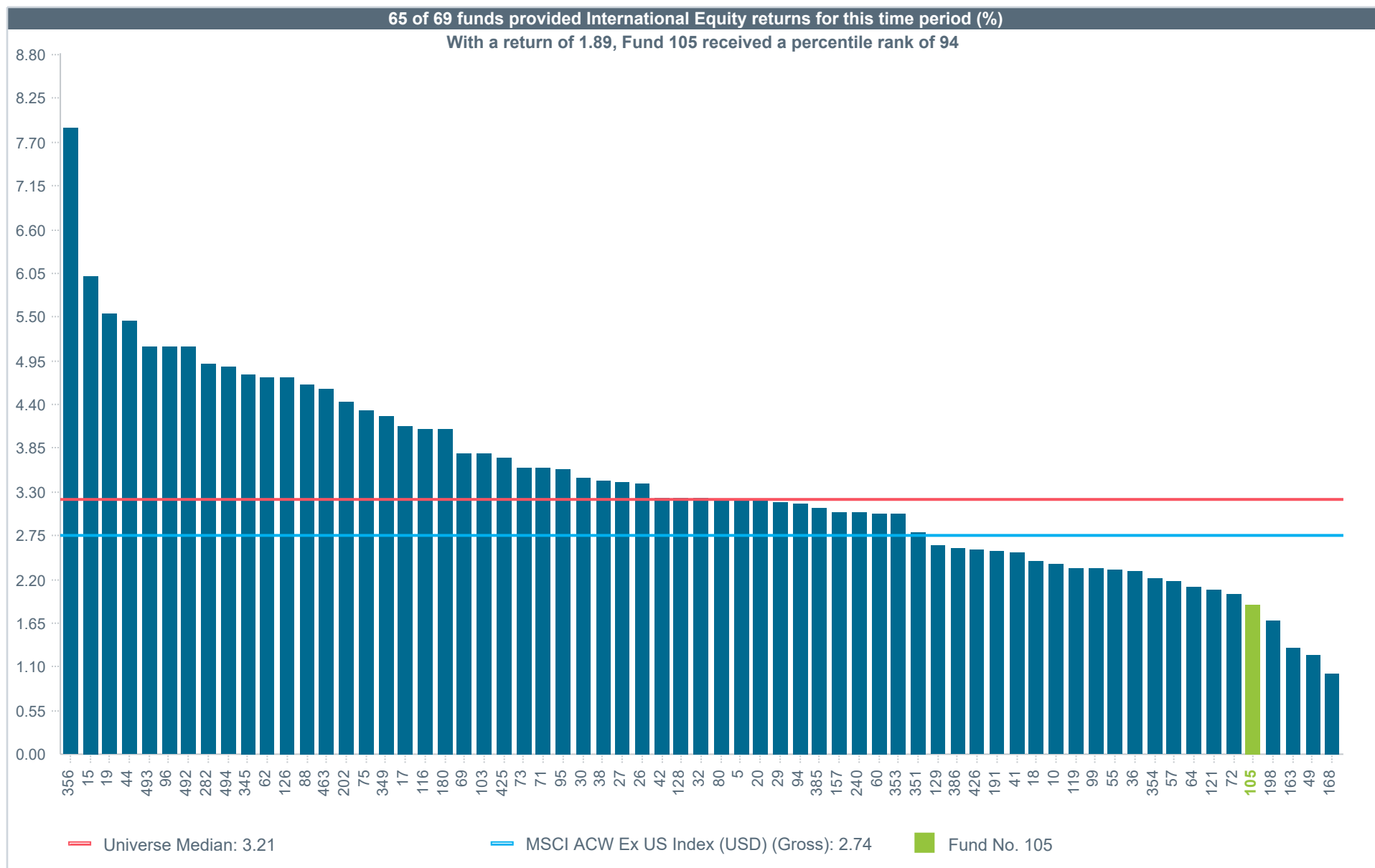
Annualized Returns (%)			
	1 Year	3 Years	5 Years
Fund No. 105	-0.92	7.11	8.35
Russell 3000 Index	6.53	10.04	10.03
Variance	-7.45	-2.93	-1.68





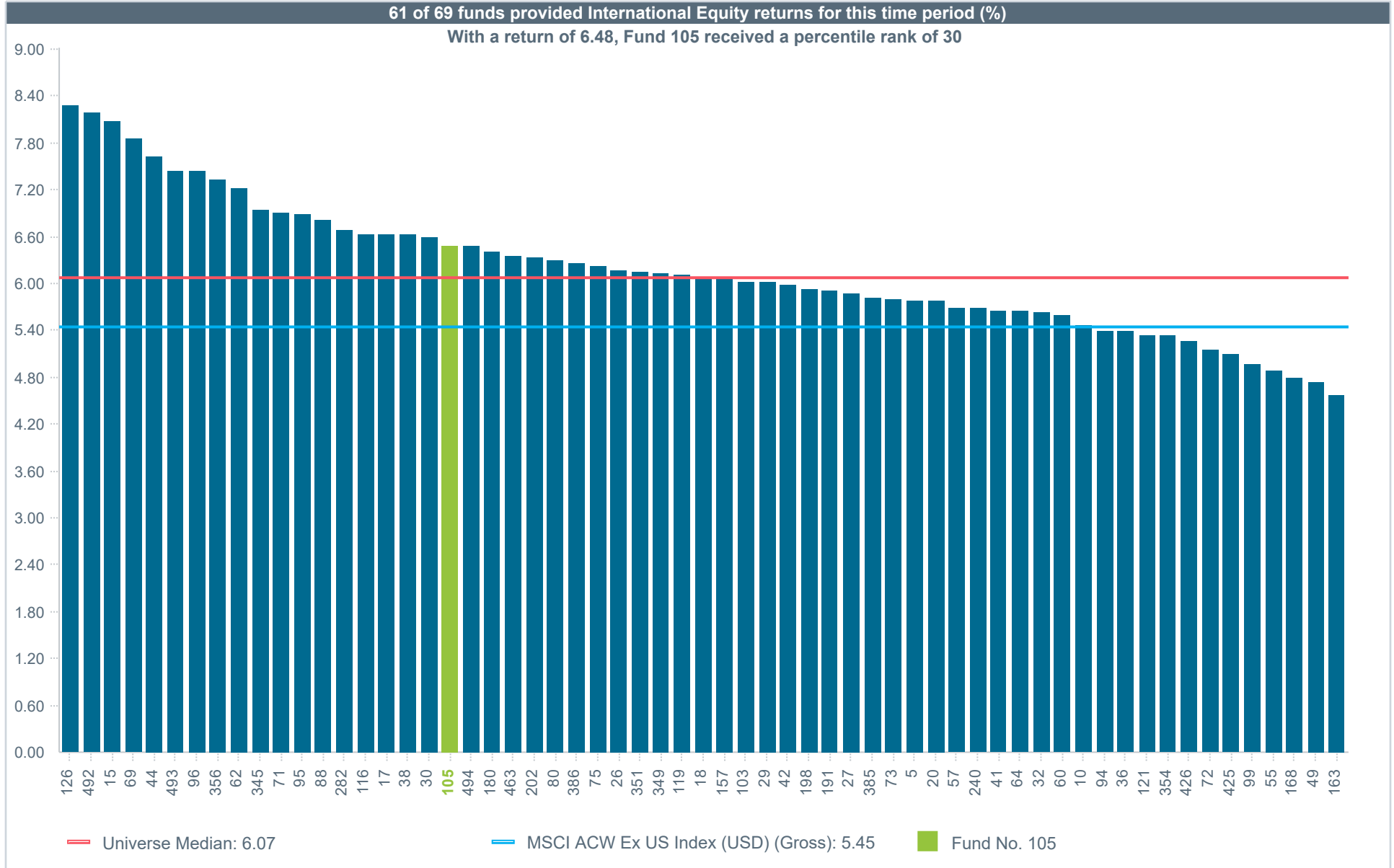
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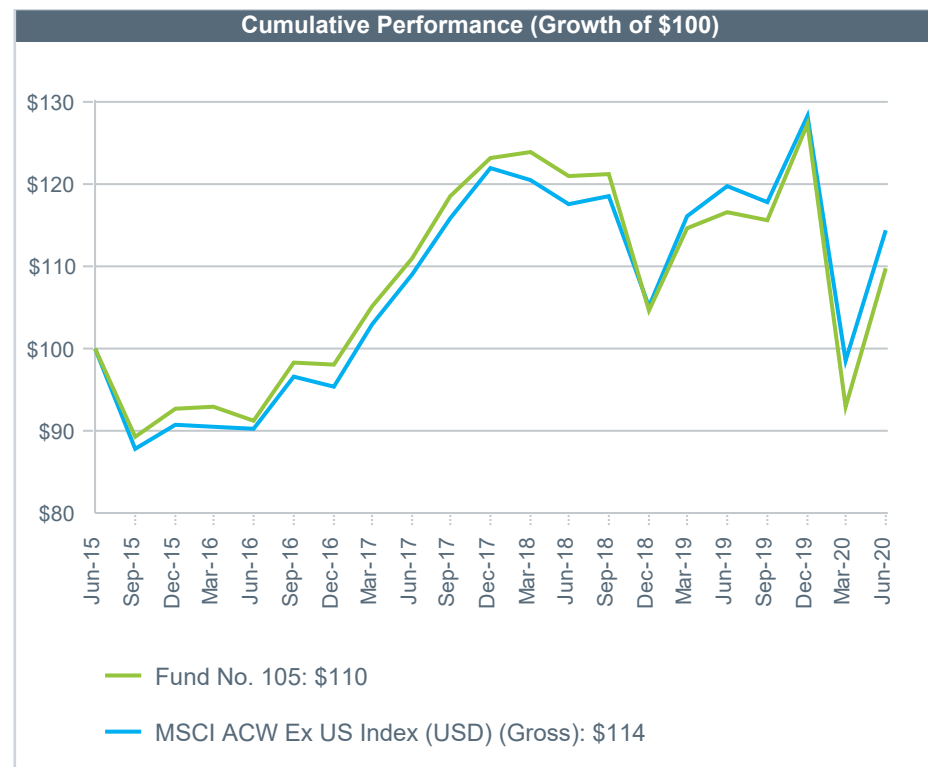
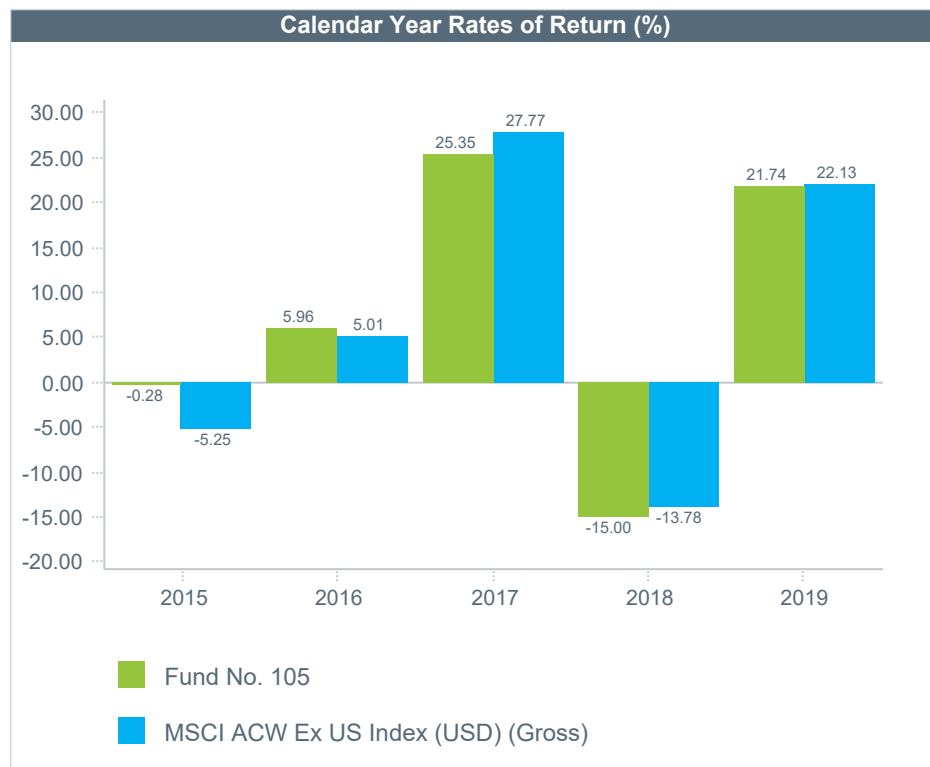


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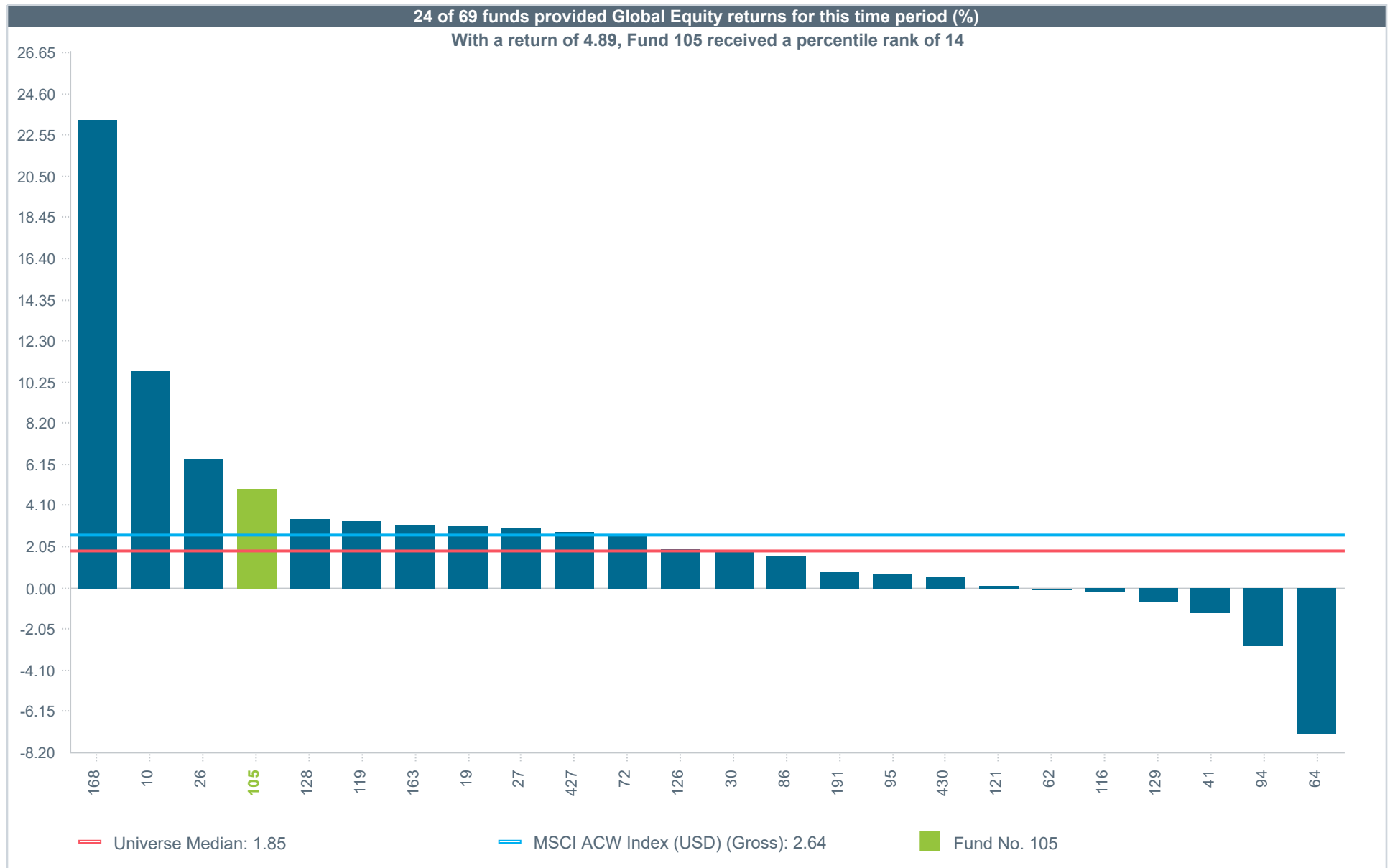
Total Return - International Equity
Fund No. 105 vs. MSCI ACW Ex US Index (USD) (Gross)

As of June 30, 2020

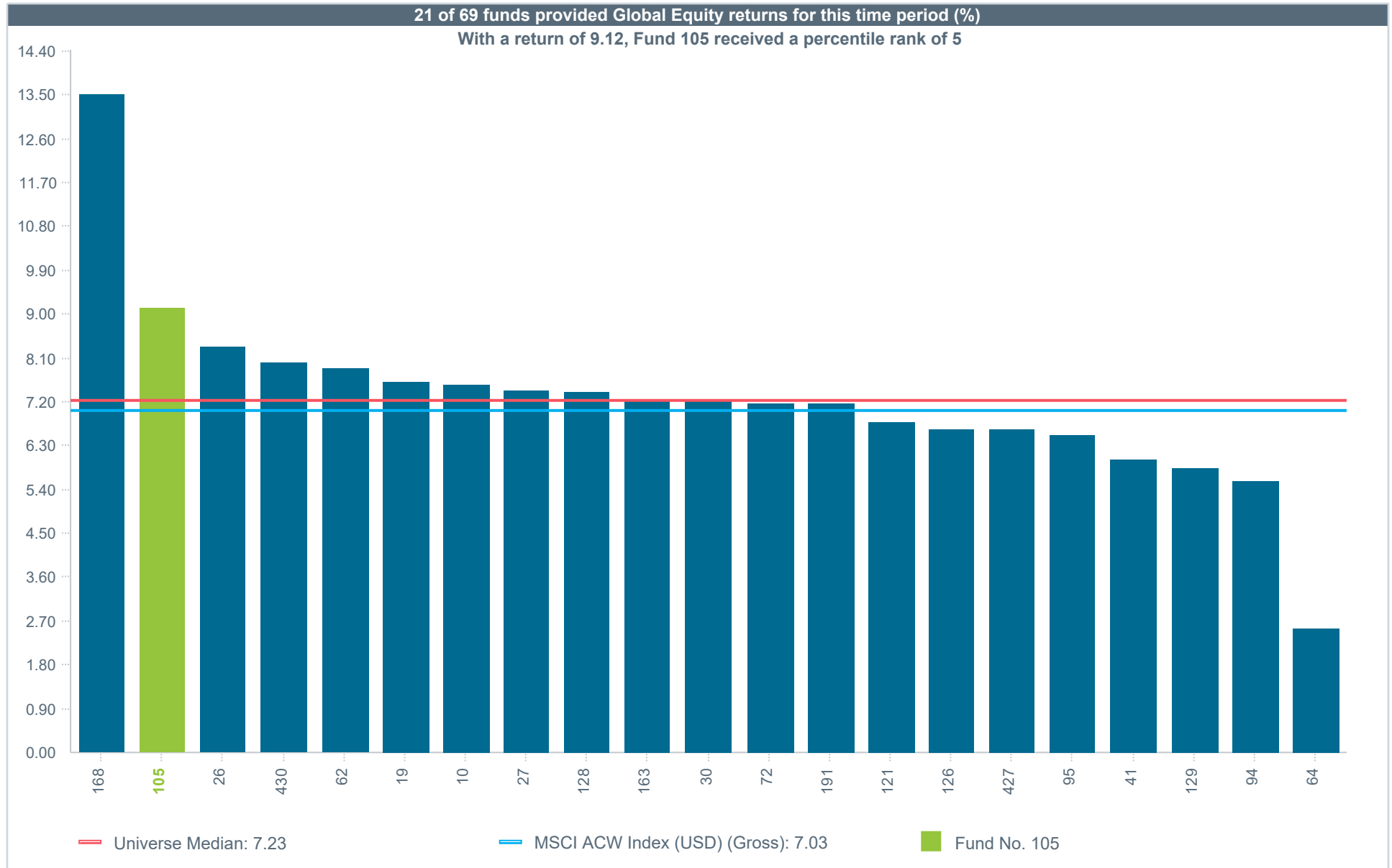


Annualized Returns (%)			
	1 Year	3 Years	5 Years
Fund No. 105	-5.80	-0.32	1.89
MSCI ACW Ex US Index (USD) (Gross)	-4.39	1.61	2.74
Variance	-1.41	-1.93	-0.85



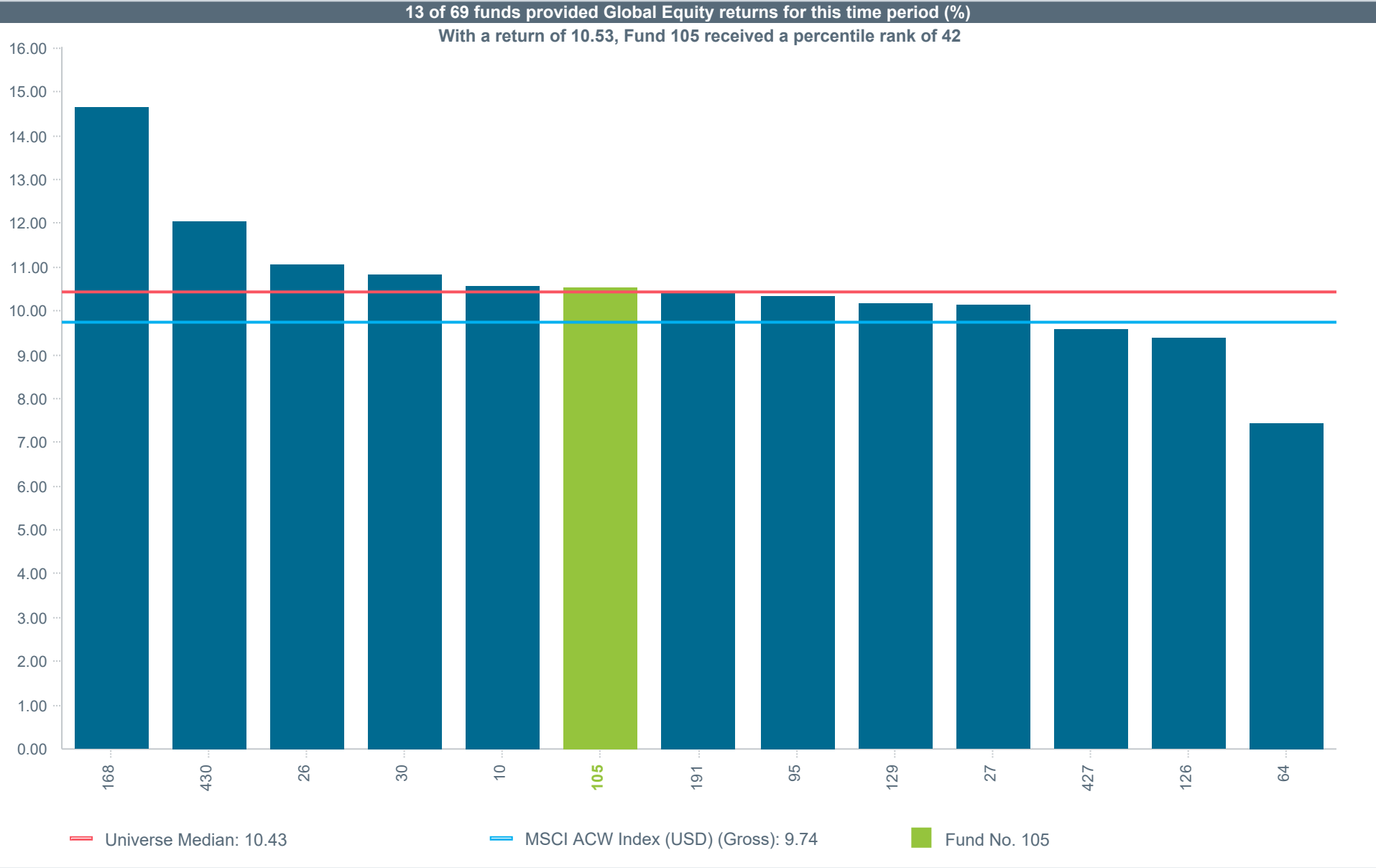


Funds with less history than the specified time period will not appear in the chart.



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



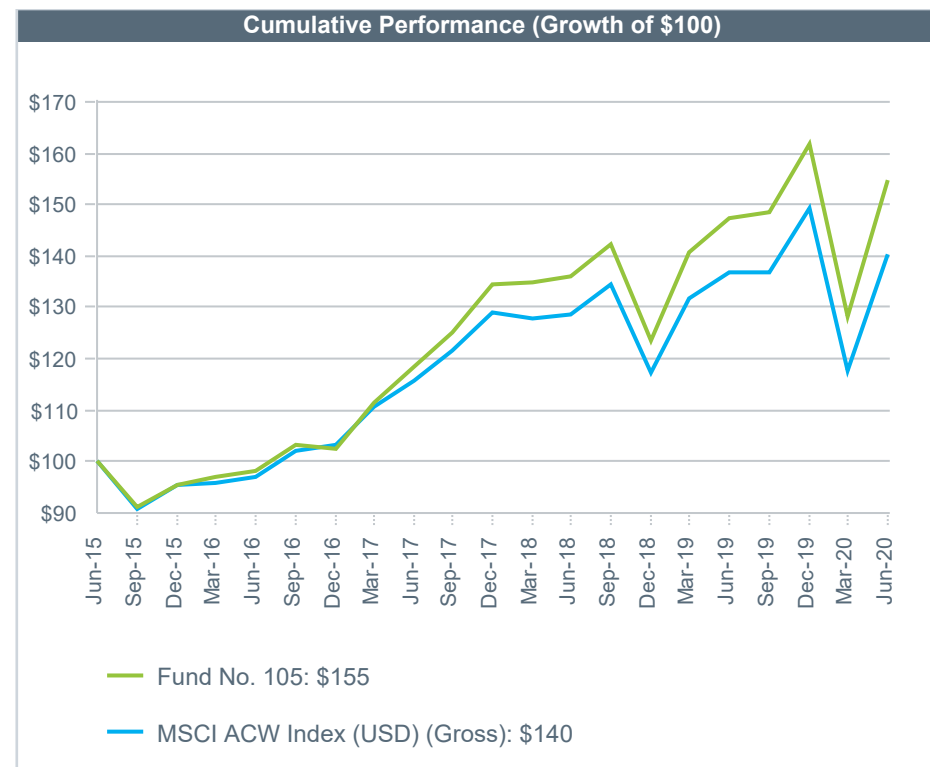
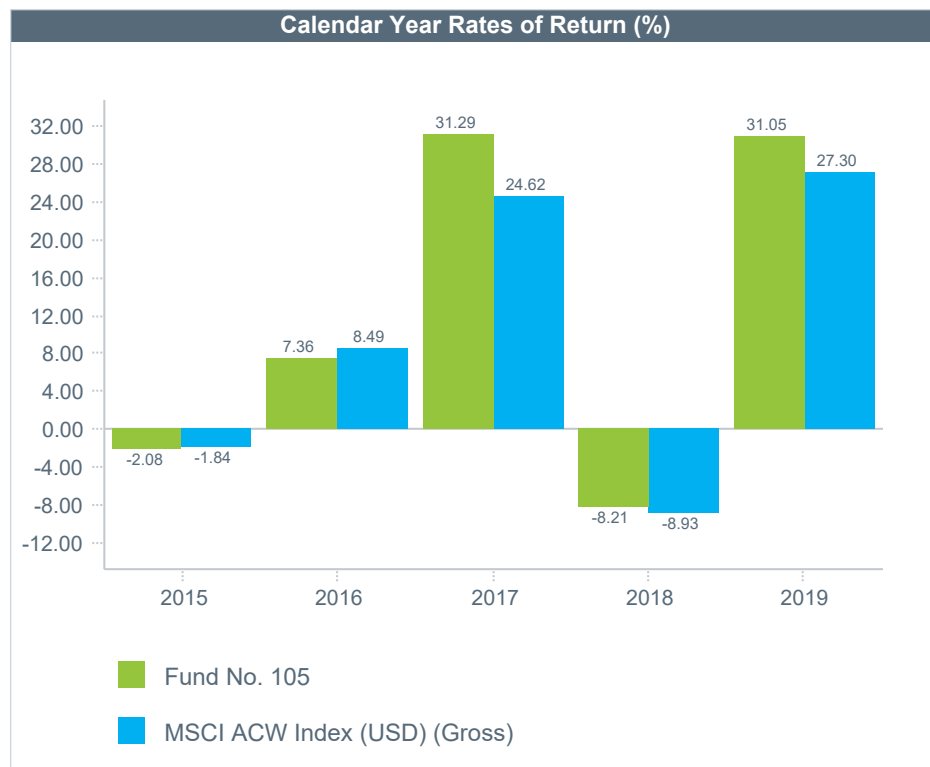


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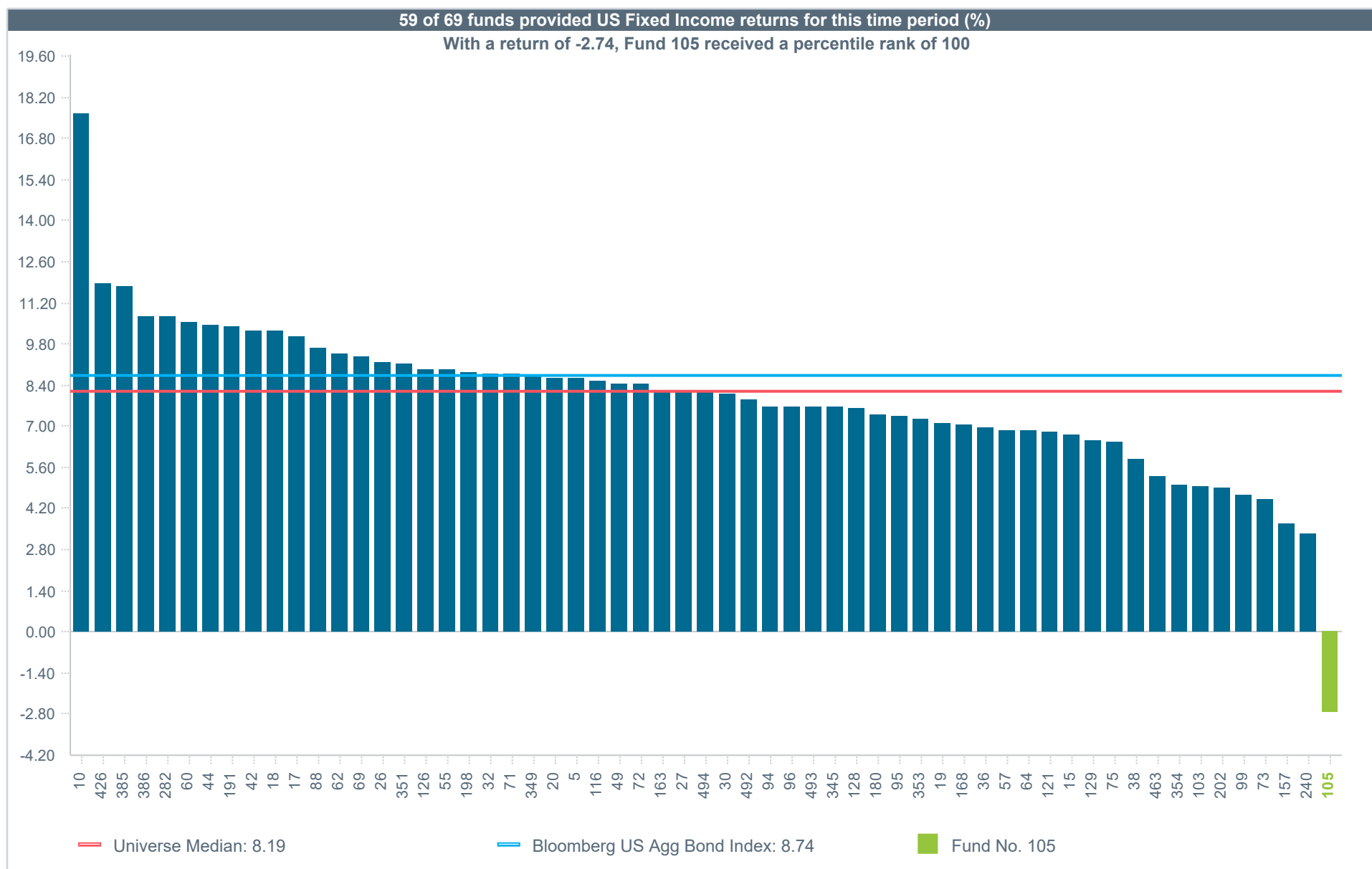
Total Return - Global Equity
Fund No. 105 vs. MSCI ACW Index (USD) (Gross)

As of June 30, 2020



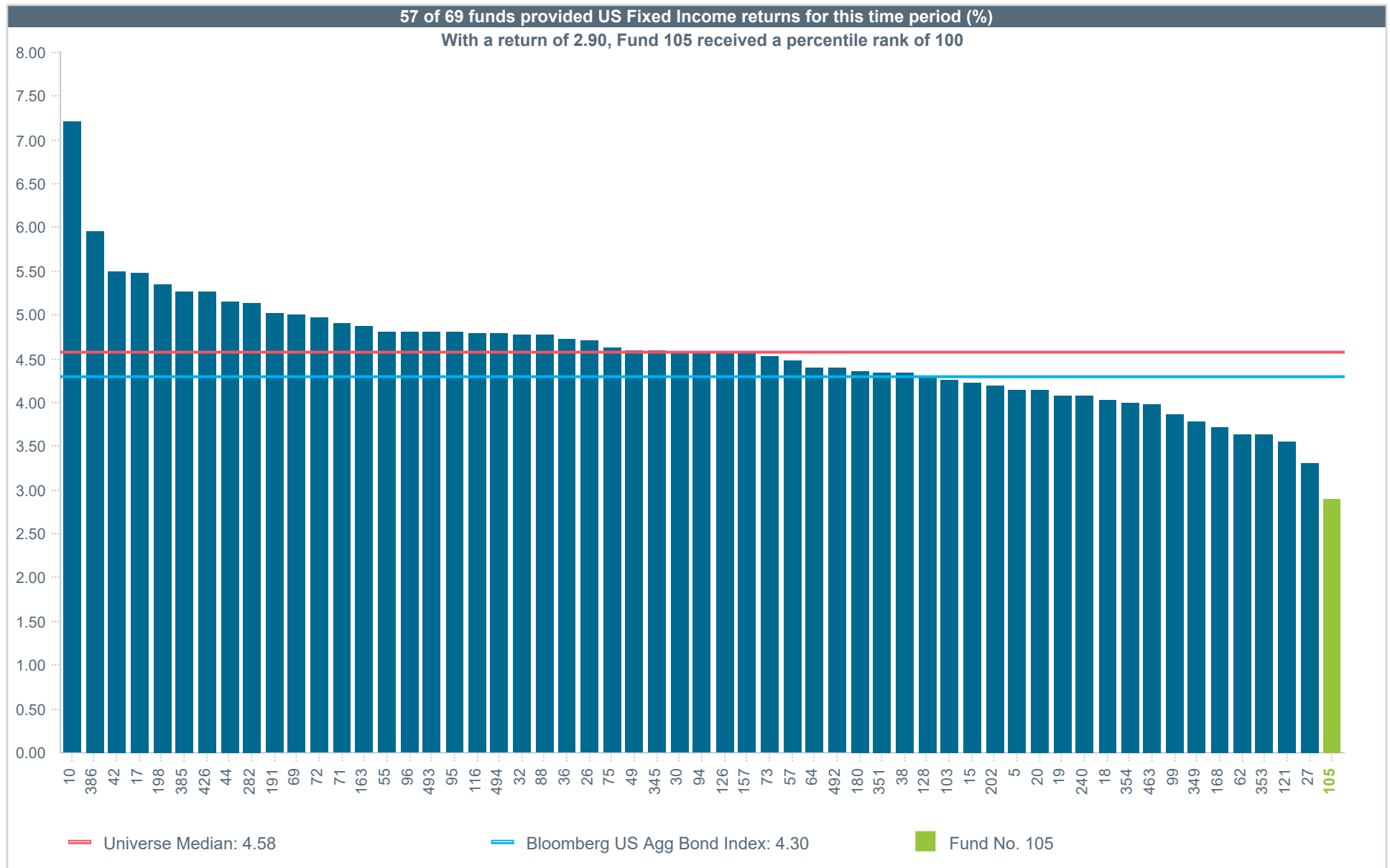
Annualized Returns (%)			
	1 Year	3 Years	5 Years
Fund No. 105	4.89	9.24	9.12
MSCI ACW Index (USD) (Gross)	2.64	6.70	7.03
Variance	2.25	2.54	2.09





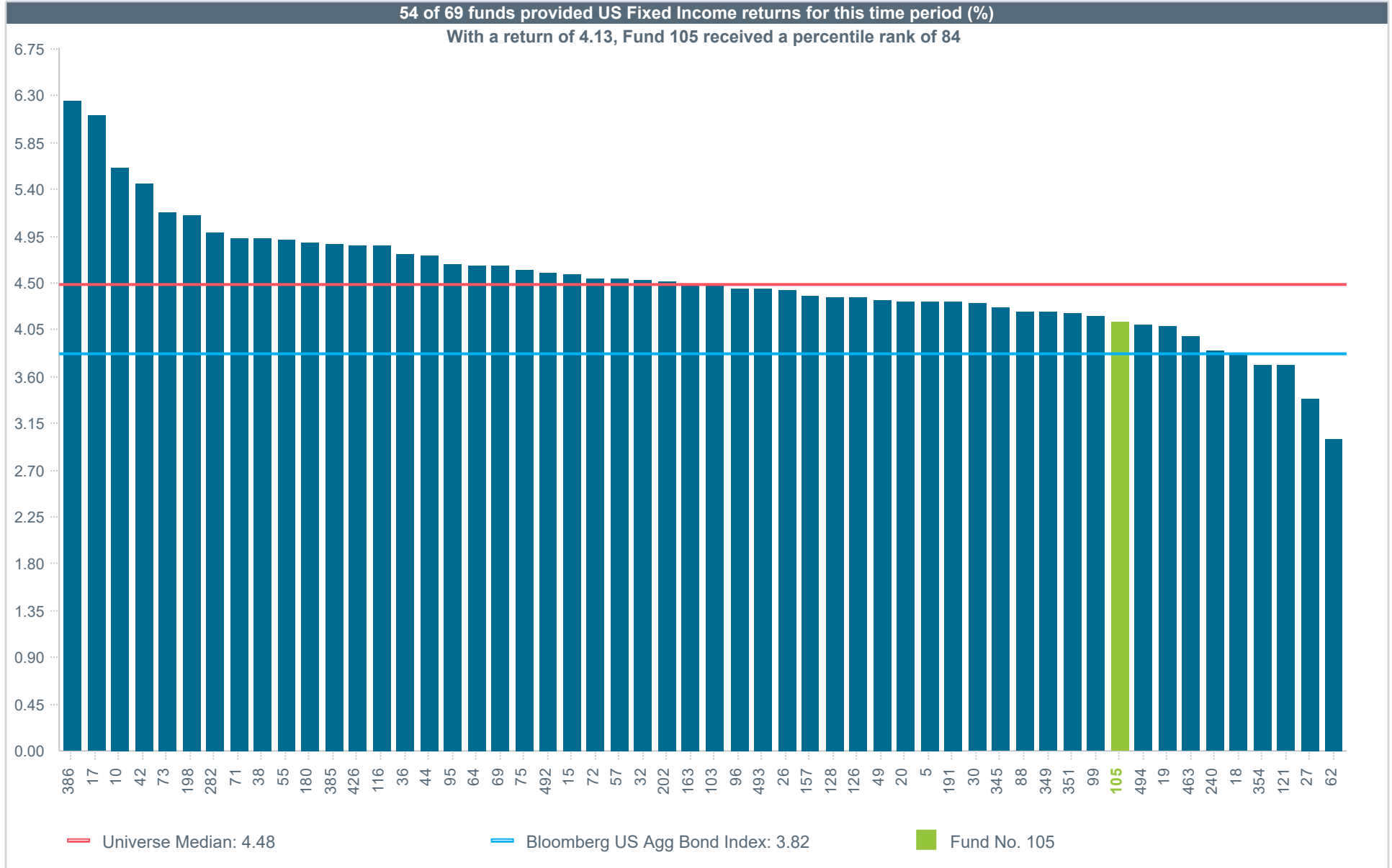
Funds with less history than the specified time period will not appear in the chart.





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

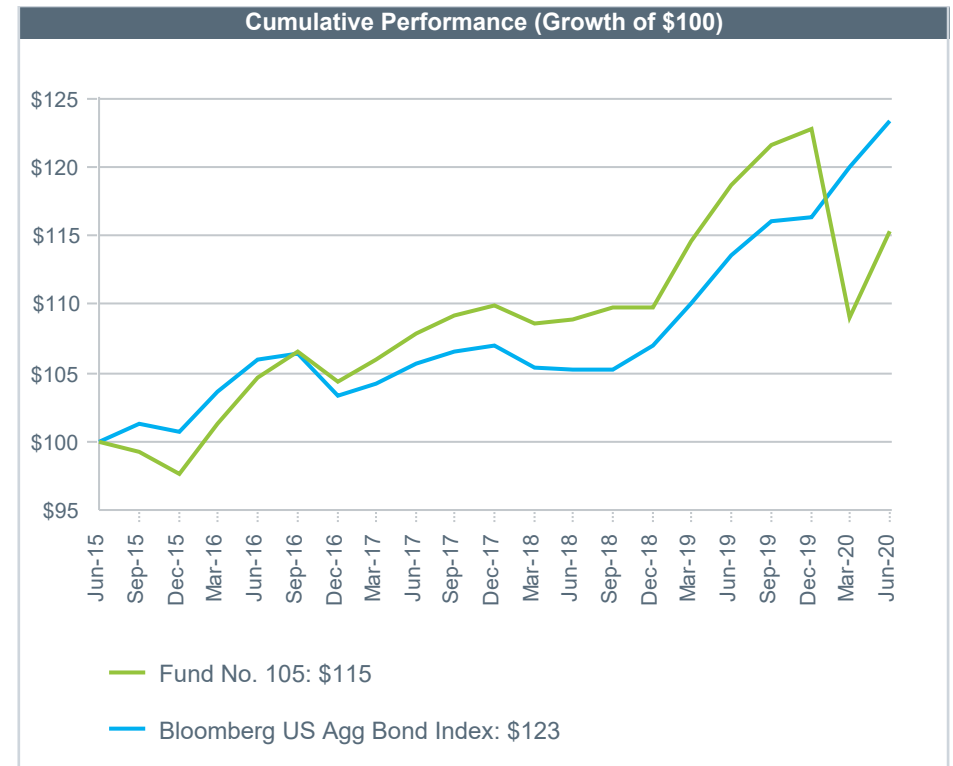
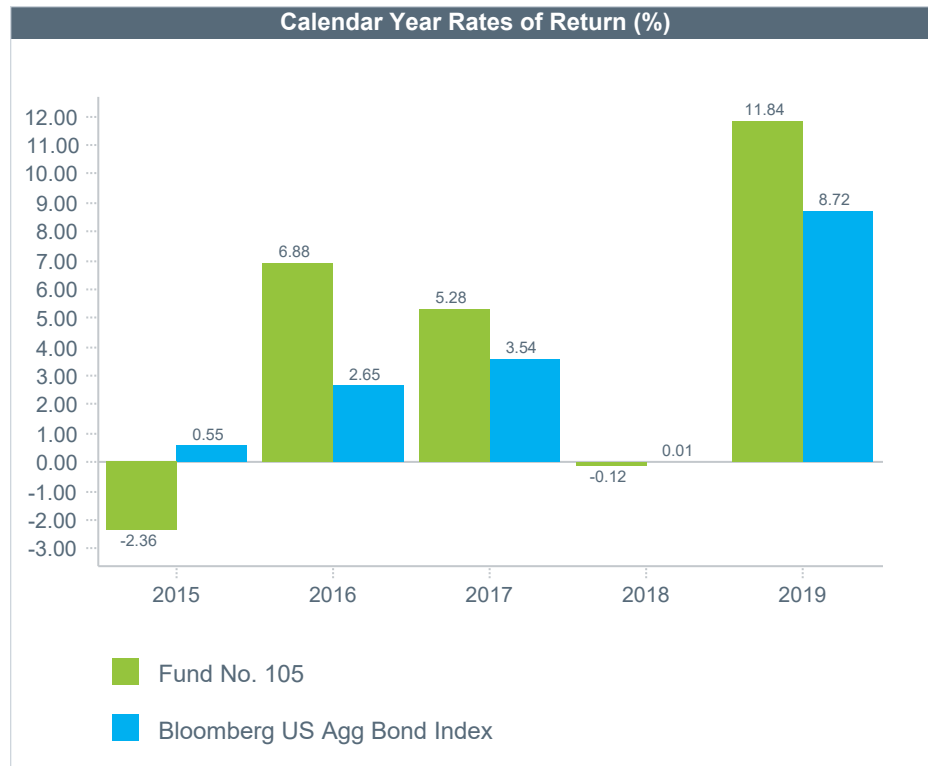




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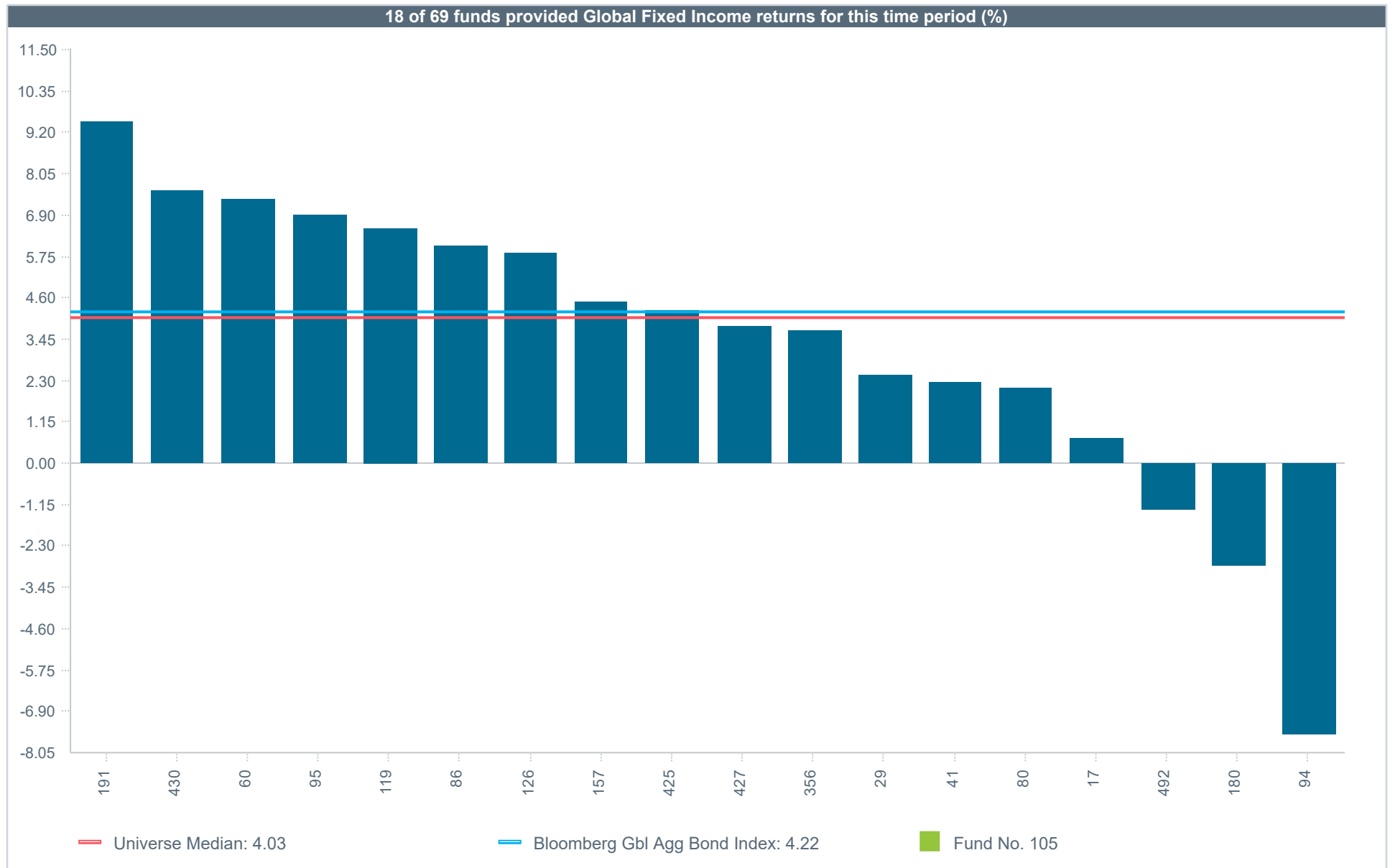
Total Return - US Fixed Income
Fund No. 105 vs. Bloomberg US Agg Bond Index

As of June 30, 2020



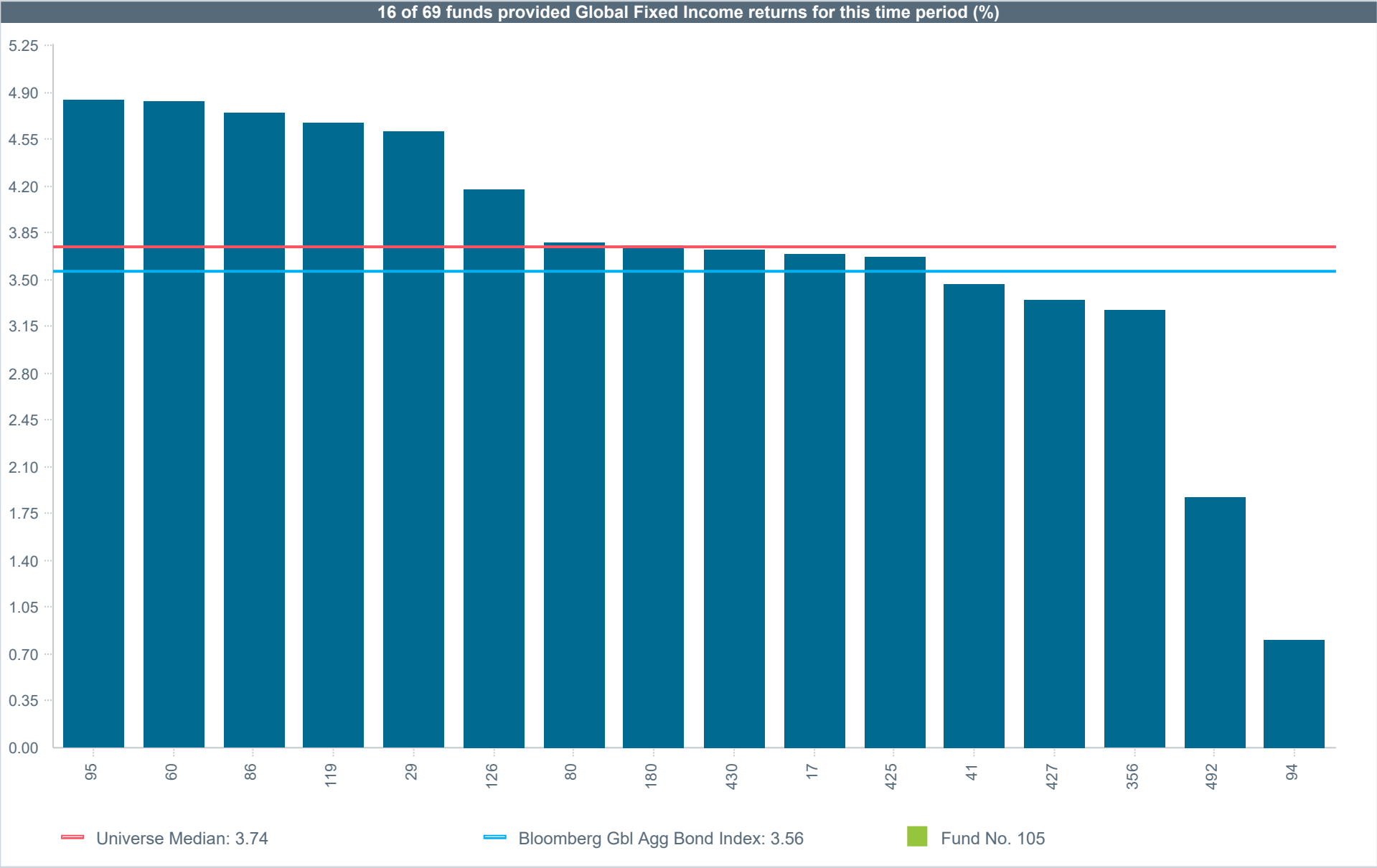
Annualized Returns (%)			
	1 Year	3 Years	5 Years
Fund No. 105	-2.74	2.25	2.90
Bloomberg US Agg Bond Index	8.74	5.32	4.30
Variance	-11.48	-3.07	-1.40





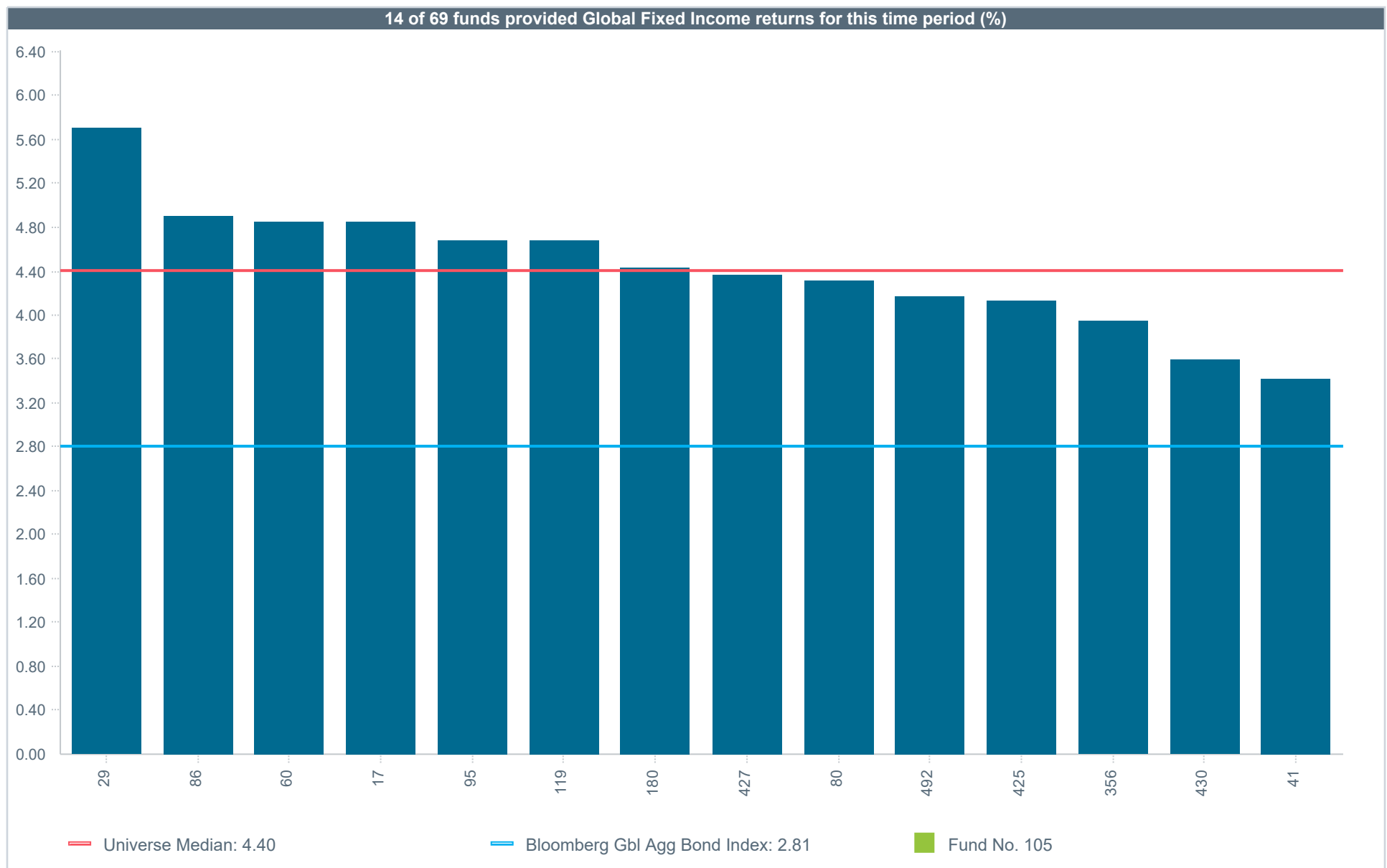
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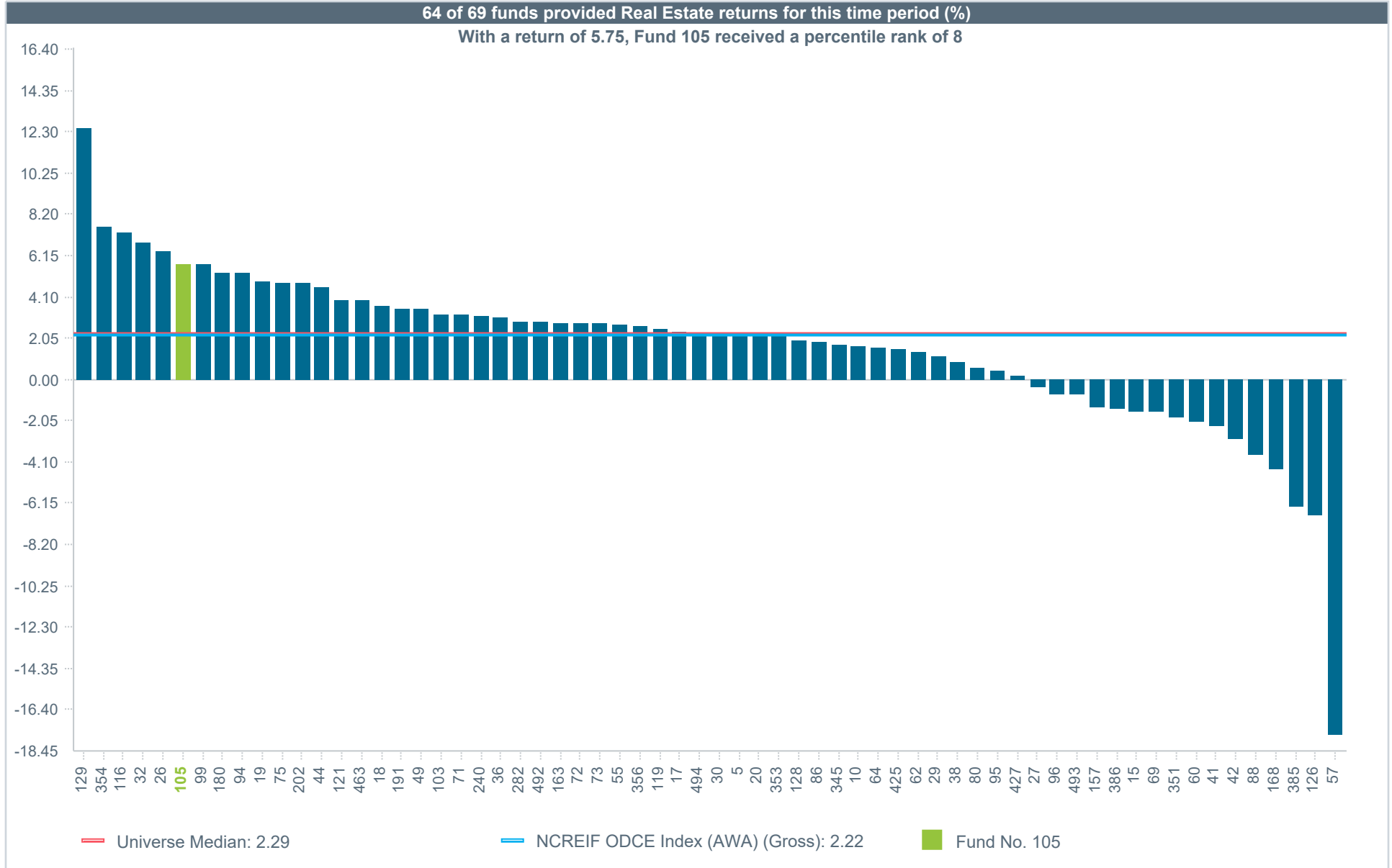


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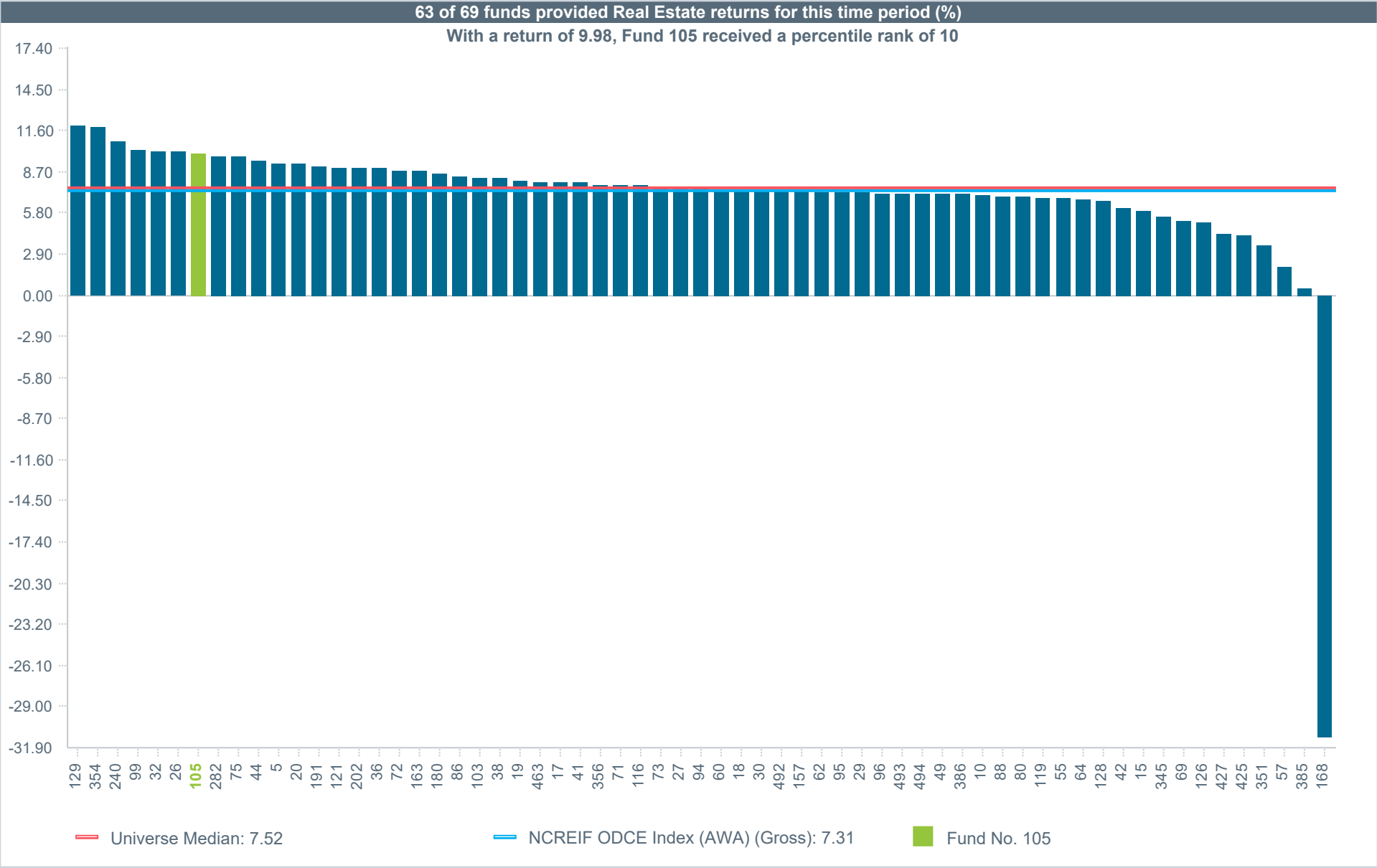


Calendar Year Rates of Return (%)	Cumulative Performance (Growth of \$100)
Fund No. 105 does not have return data for Global Fixed Income	

Annualized Returns (%)			
	1 Year	3 Years	5 Years
Fund No. 105	N/A	N/A	N/A
Bloomberg Gbl Agg Bond Index	N/A	N/A	N/A
Variance	N/A	N/A	N/A

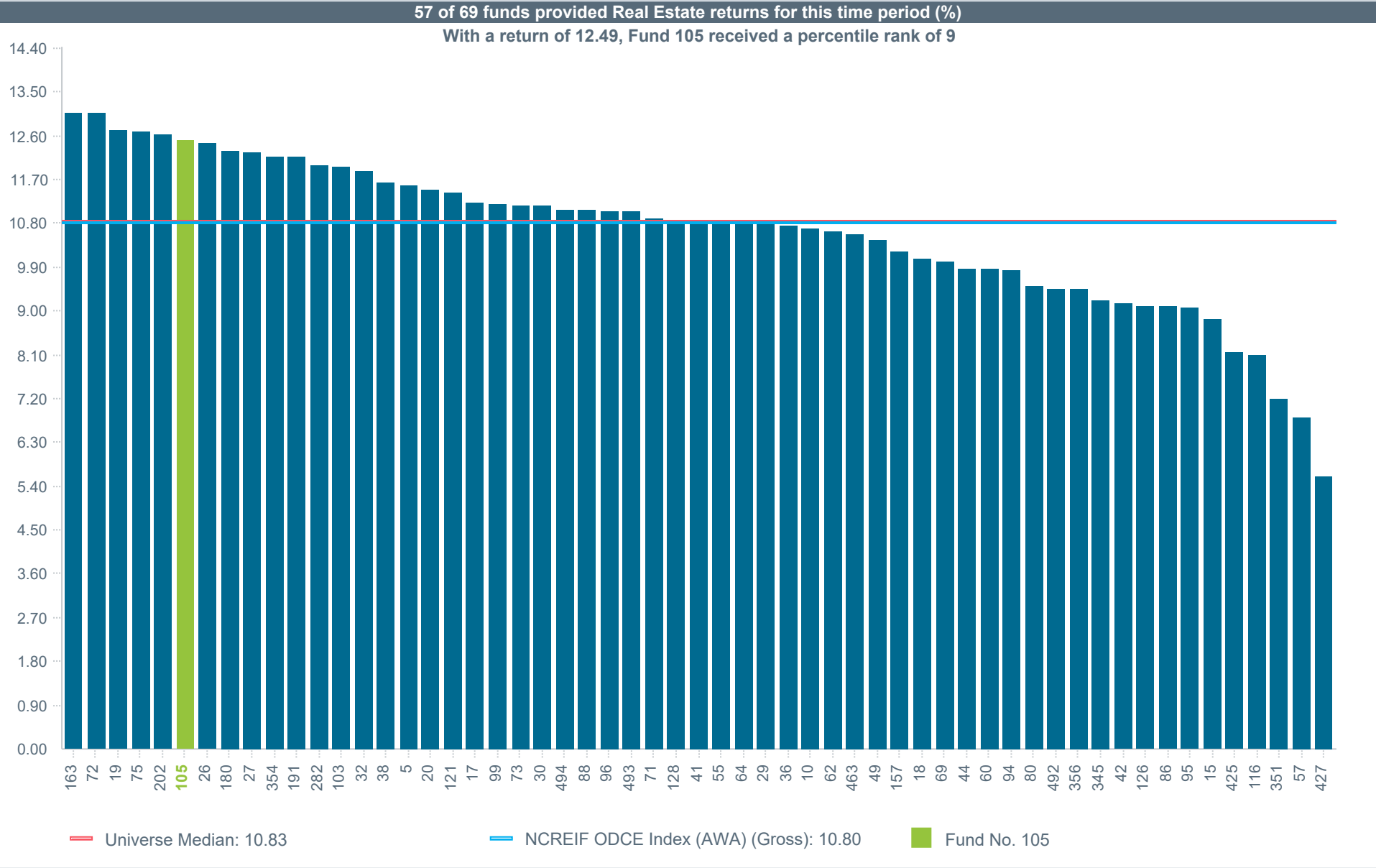


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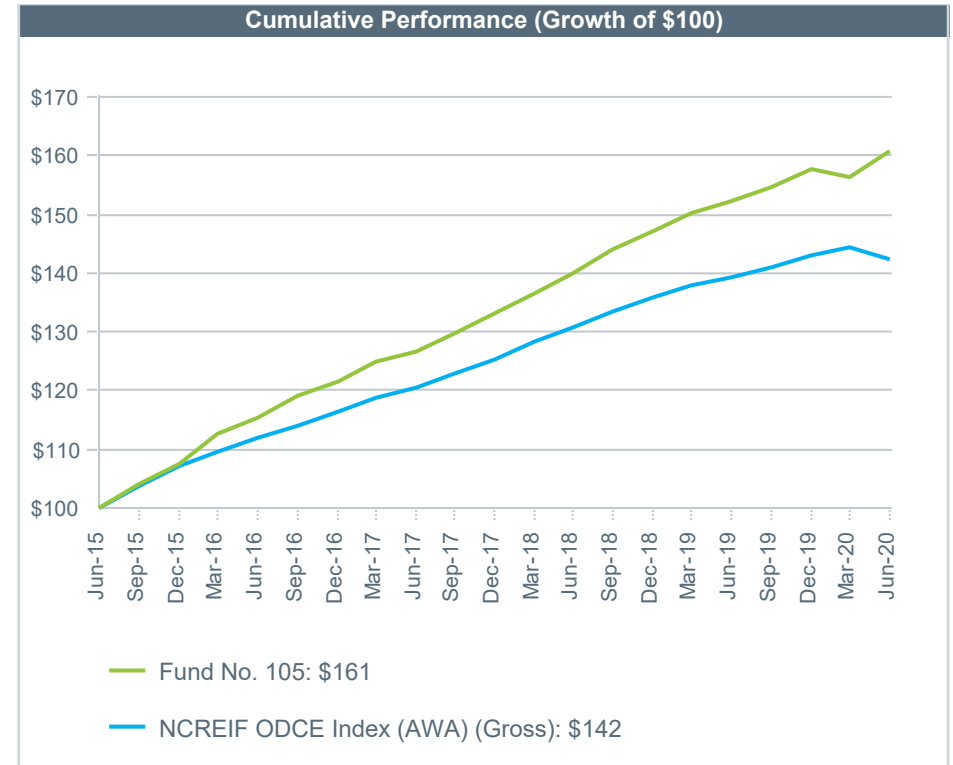
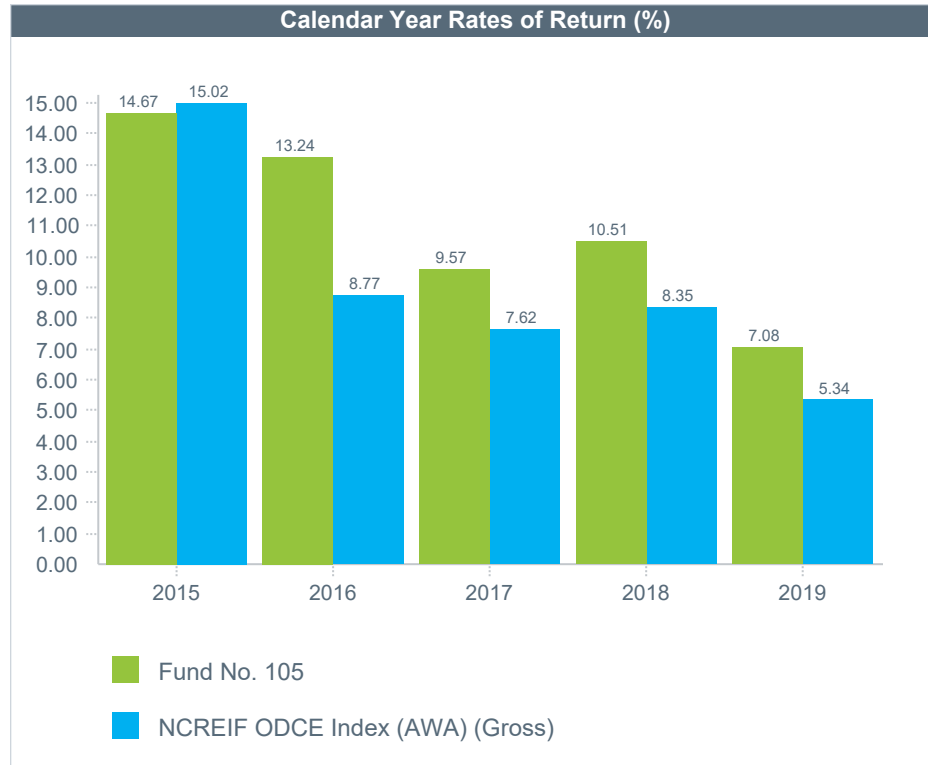


Funds with less history than the specified time period will not appear in the chart.



Total Return - Real Estate
Fund No. 105 vs. NCREIF ODCE Index (AWA) (Gross)

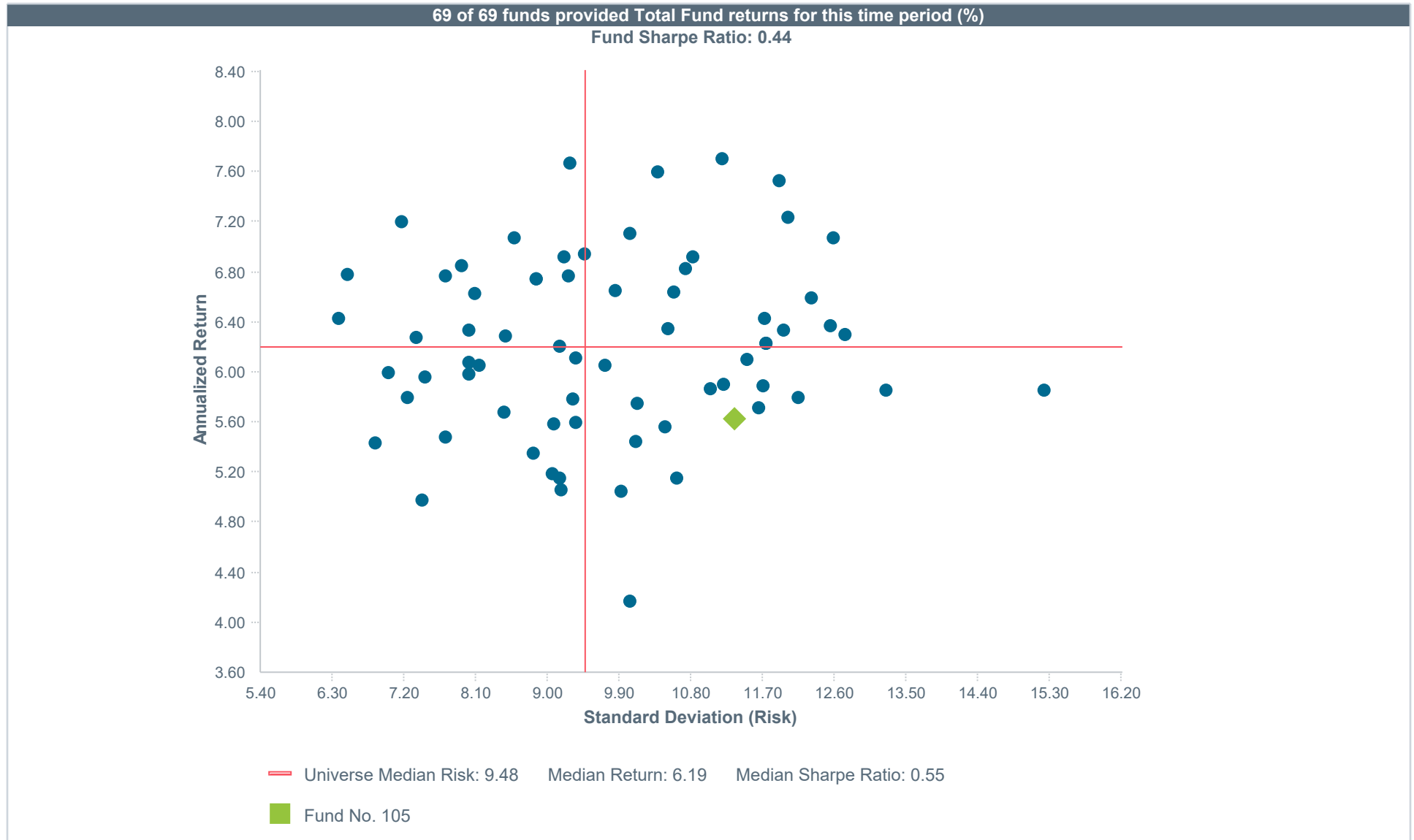
As of June 30, 2020



Annualized Returns (%)			
	1 Year	3 Years	5 Years
Fund No. 105	5.75	8.33	9.98
NCREIF ODCE Index (AWA) (Gross)	2.22	5.66	7.31
Variance	3.53	2.67	2.67



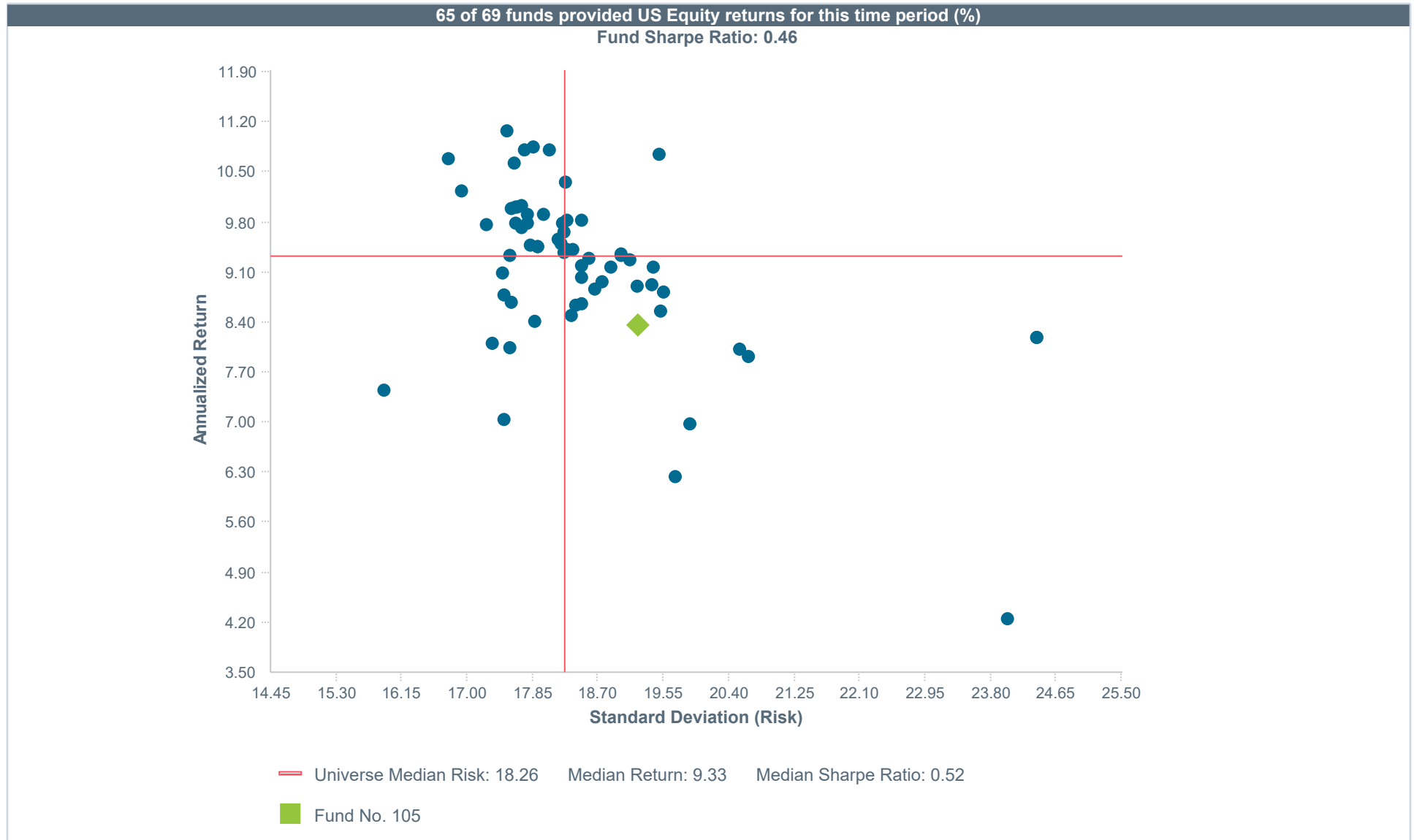
5 Year Annualized Total Fund Returns vs. Standard Deviation



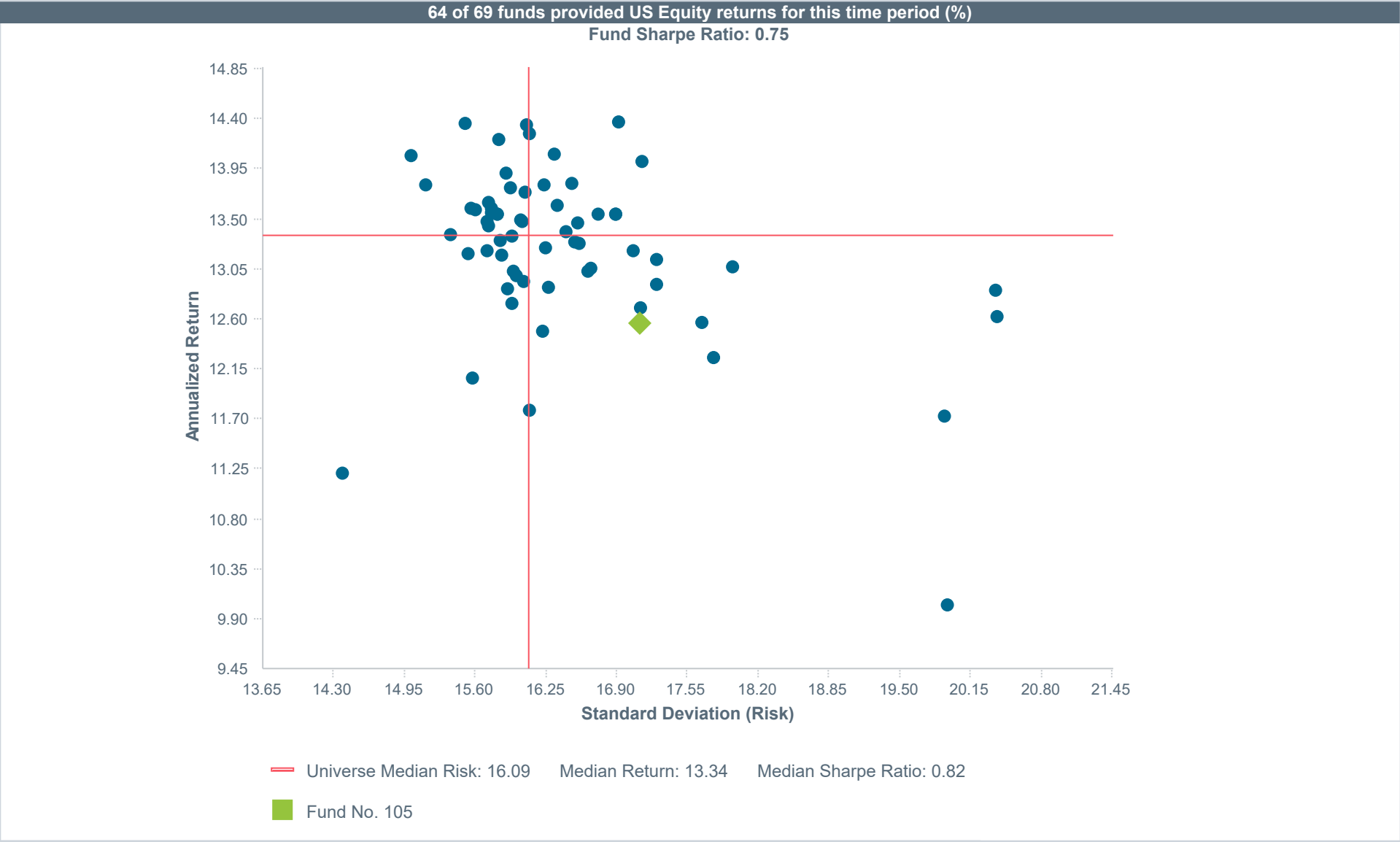
Funds with less history than the specified time period will not appear in the chart.



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.

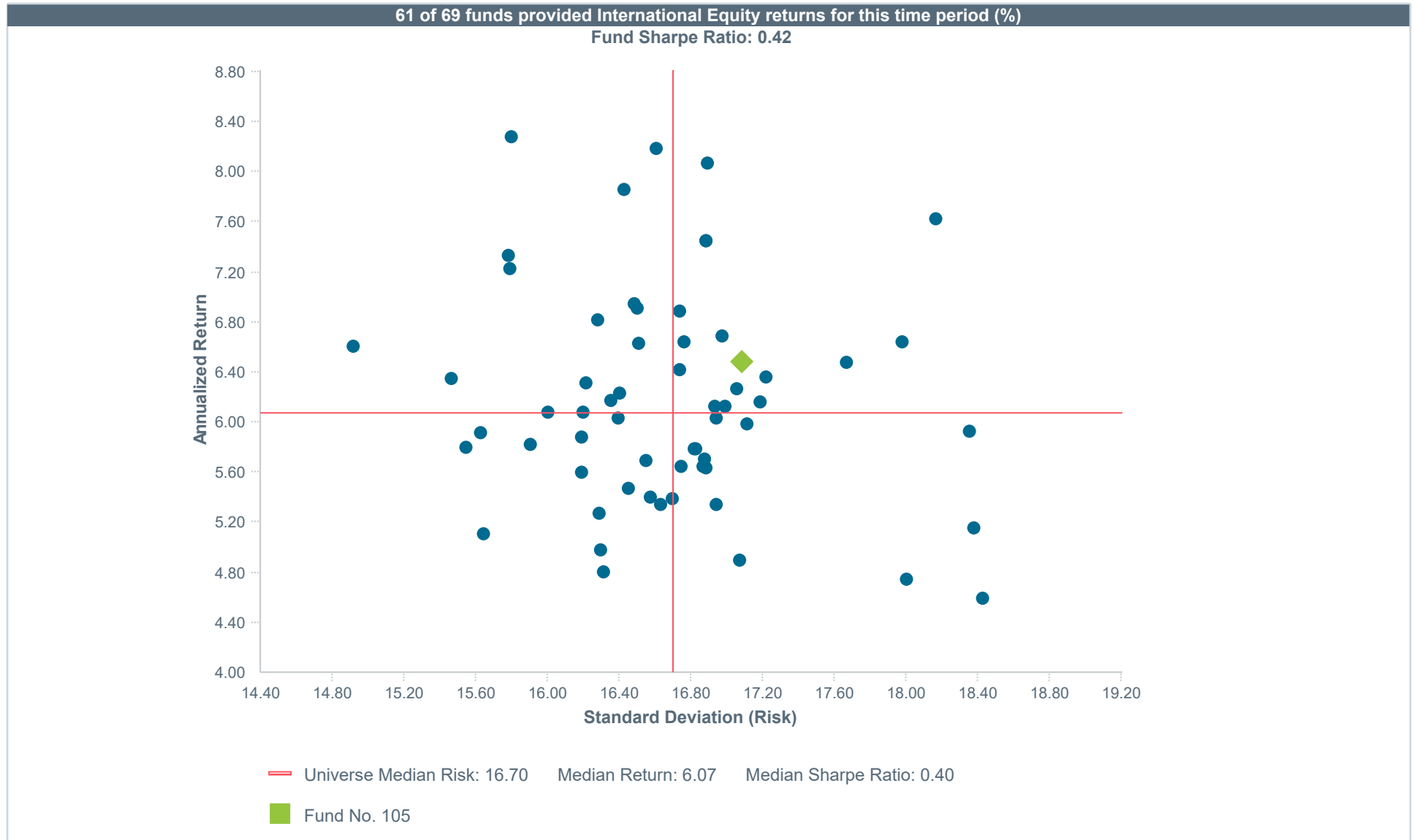


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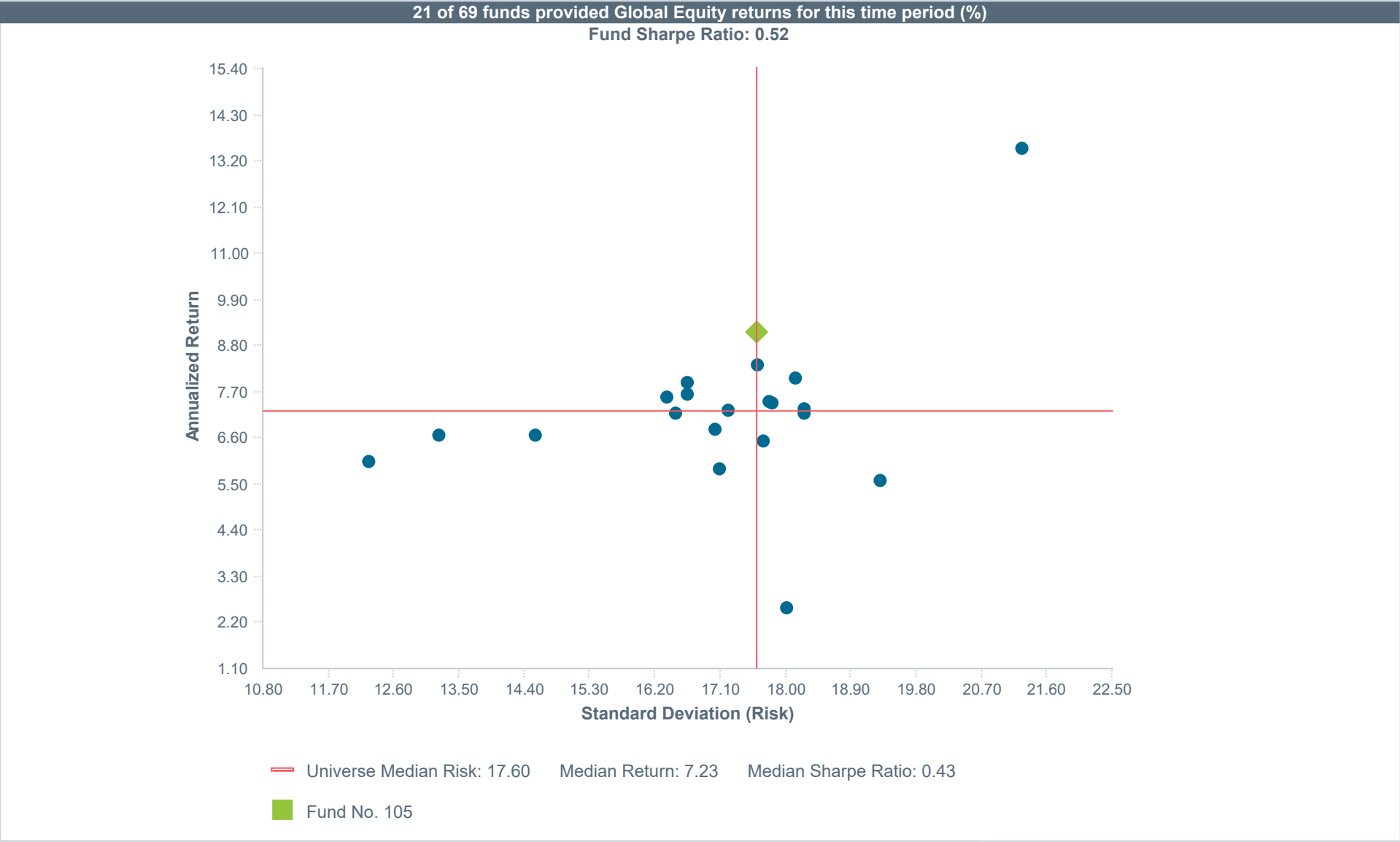




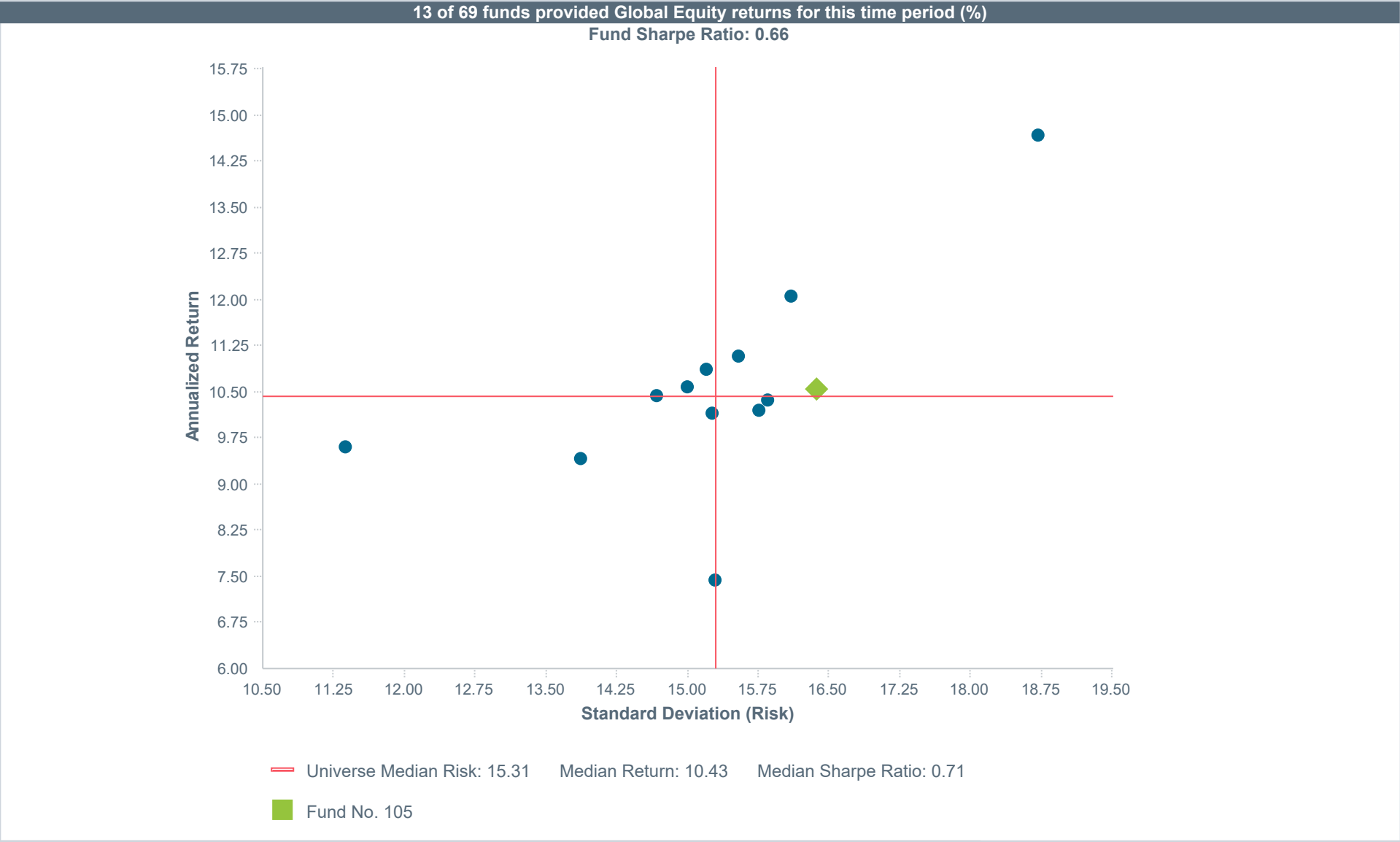
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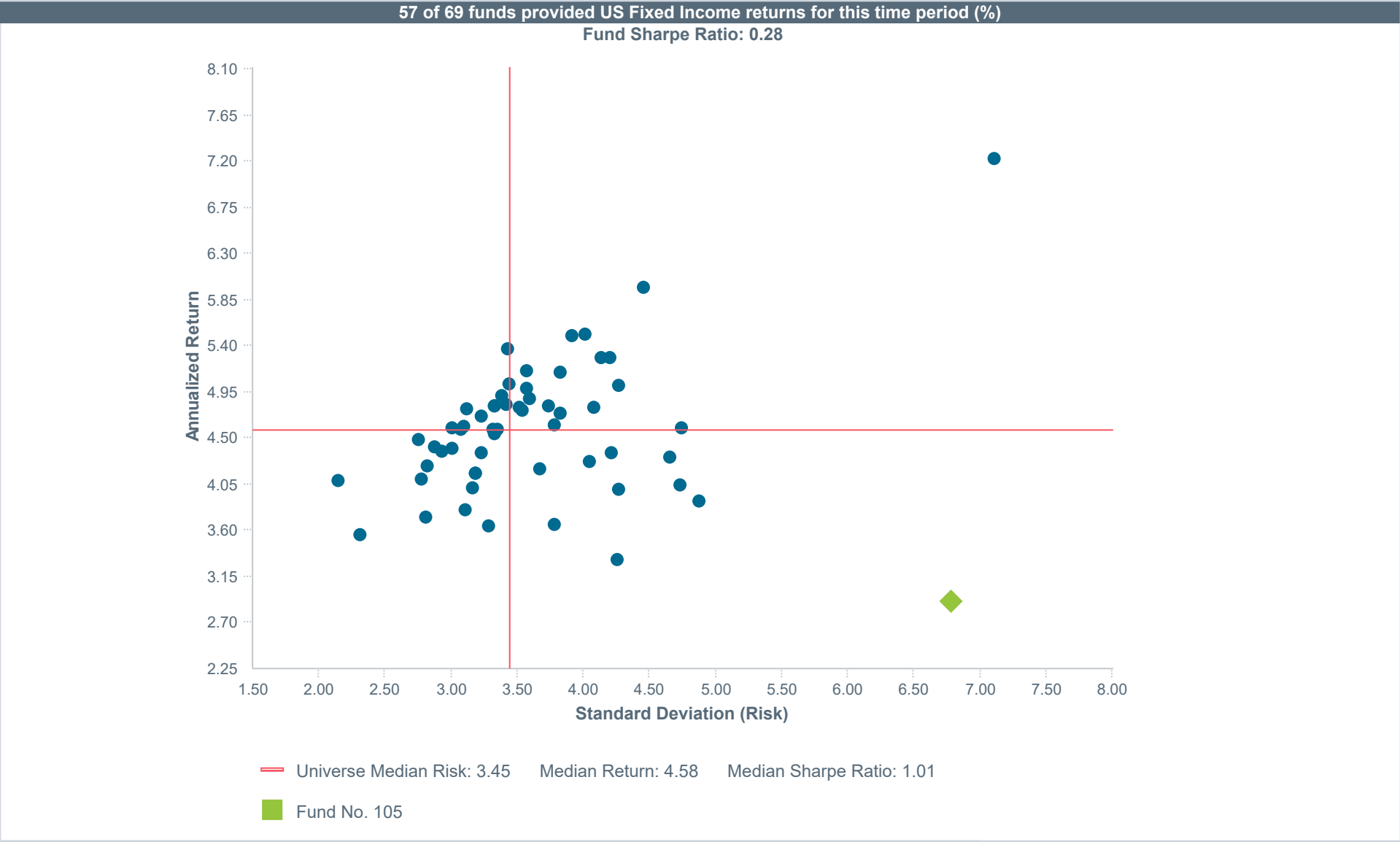
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Funds with less history than the specified time period will not appear in the chart.



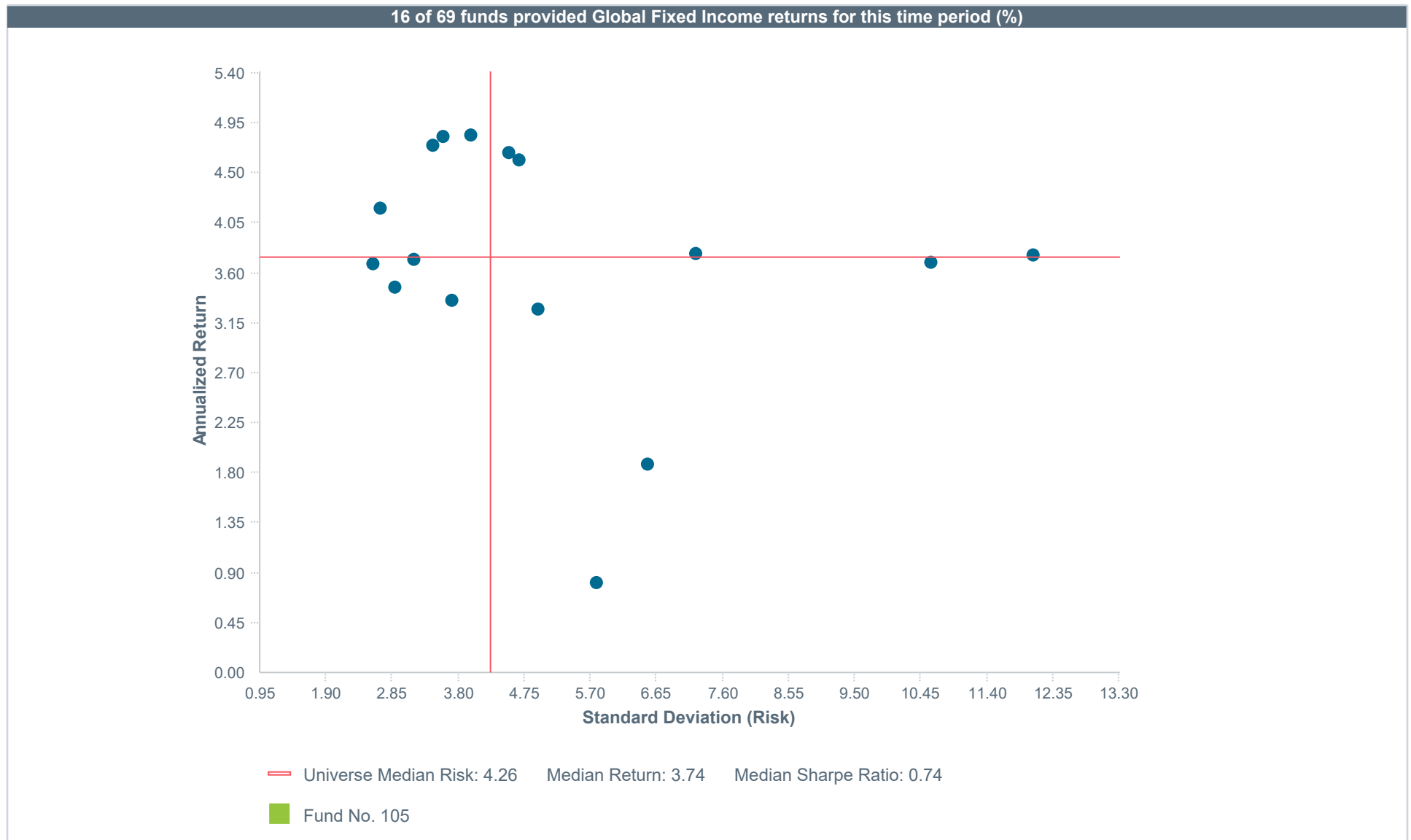
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Funds with less history than the specified time period will not appear in the chart.

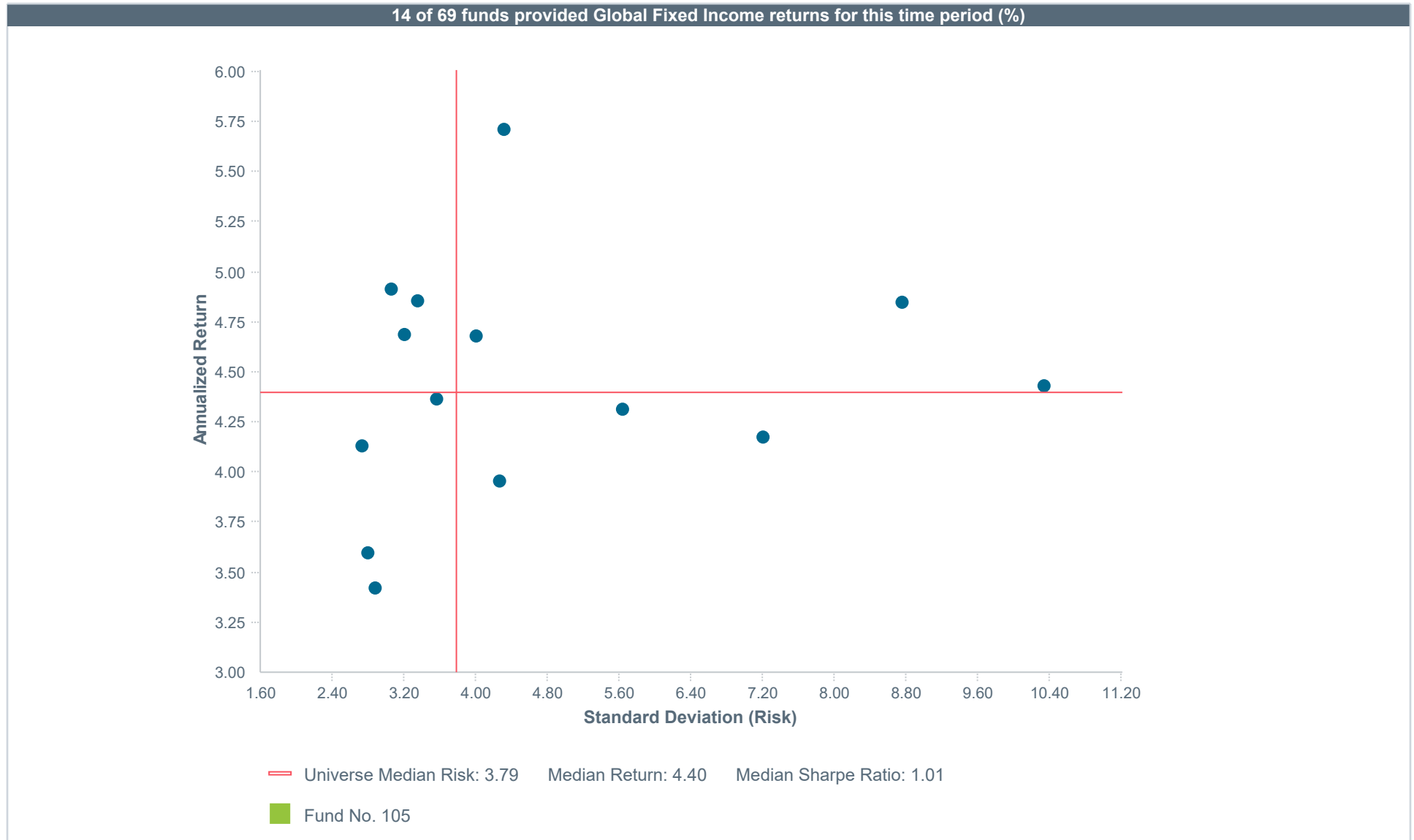


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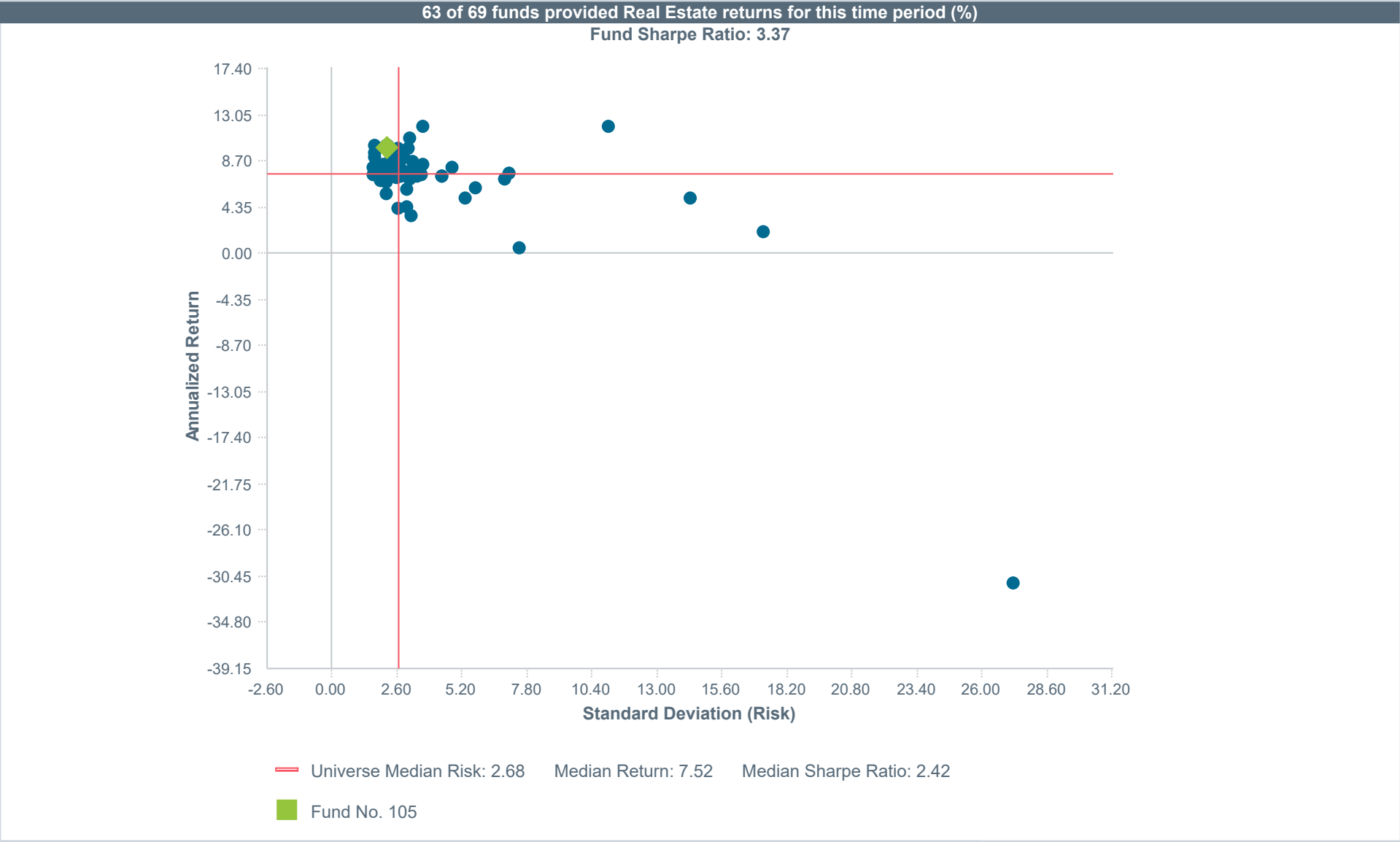


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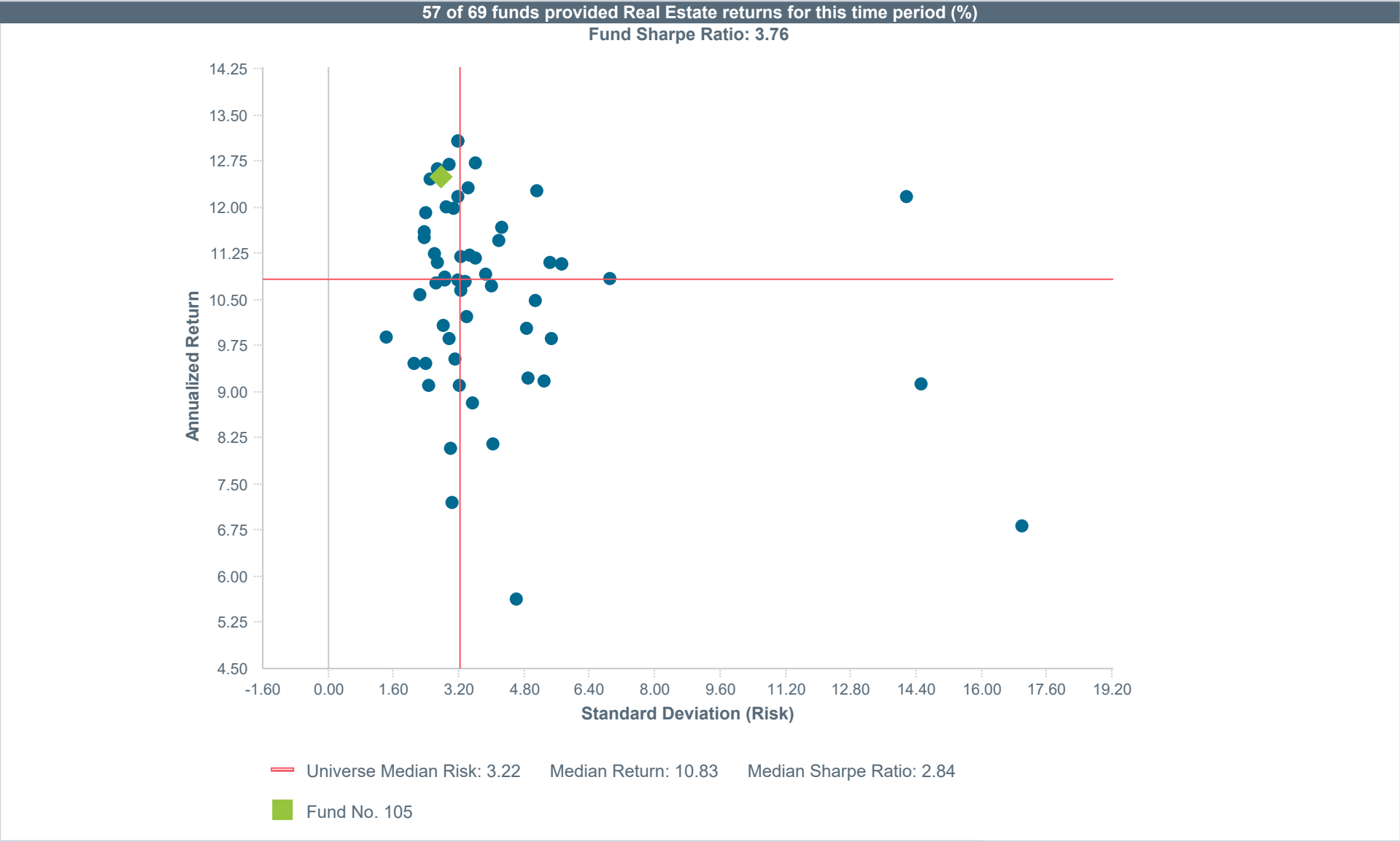
10 Year Annualized Global Fixed Income Returns vs. Standard Deviation



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.

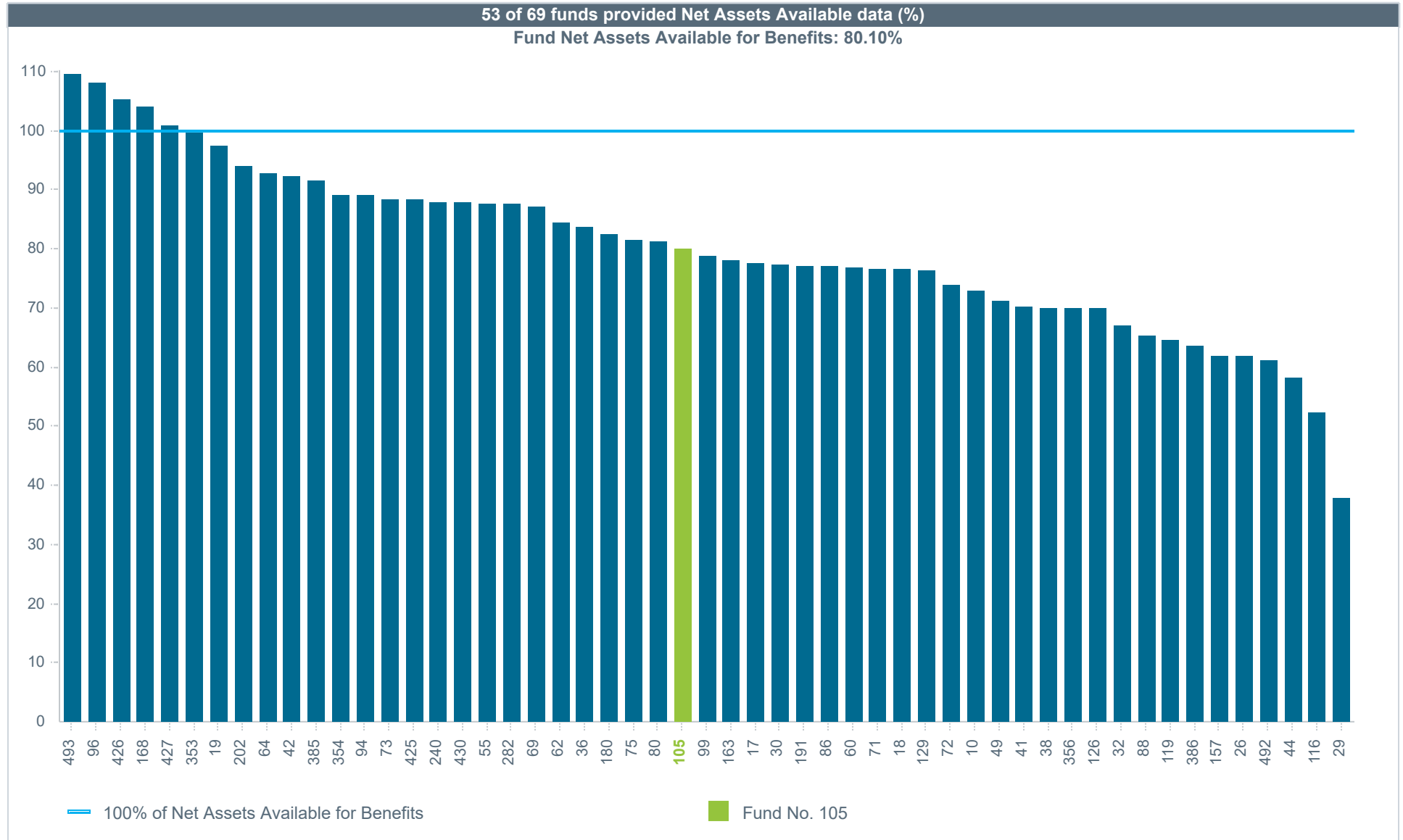


Funds with less history than the specified time period will not appear in the chart.



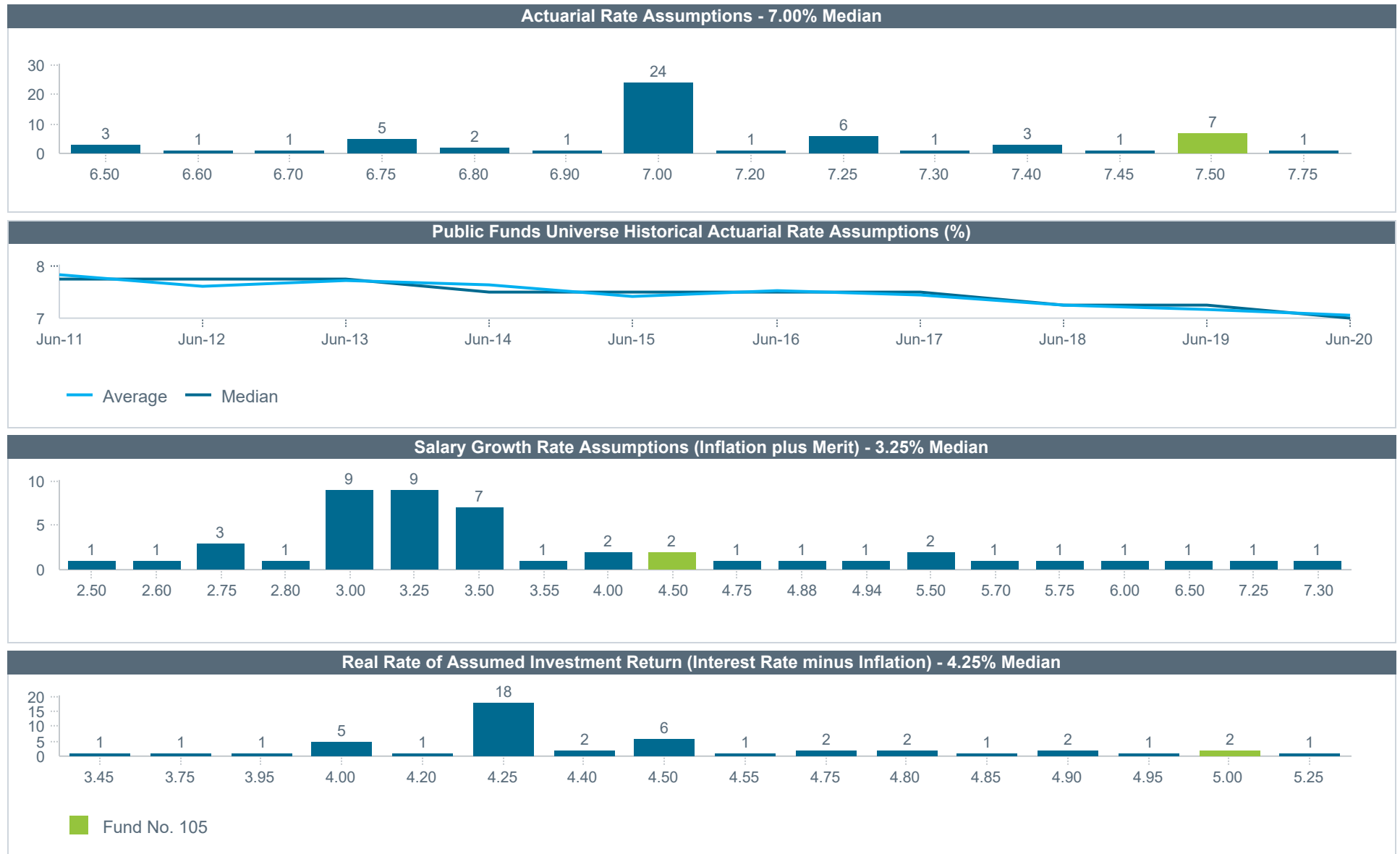
Net Assets Available For Benefits
Expressed as a Percentage of the Pension Benefit Obligation

As of June 30, 2020



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 69 participants in the 2020 Q2 Public Fund Report, 44 participants provided a response to the Overlay Survey. Of those participants, 21 are currently using a form of overlay, 3 are considering evaluating a form of overlay, and 20 are not currently using or considering evaluating any form of overlay.

Q2. Of the 21 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:

- 38 % Manage foreign currency risk
- 24 % Generate alpha
- 0 % Match Plan liabilities more closely (either as part of an explicit or conceptual framework)
- 0 % Express a view on US Dollar
- 0 % Manage market risk within an LDI construct
- 29 % Tactical asset allocation
- 62 % Cash equitization
- 67 % Rebalancing management
- 29 % Transition management
- 10 % Other

Q3. Of the 9 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:

- 56 % Static hedge ratio
- 33 % Dynamic hedging program where manager varies the hedge ratio
- 22 % 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
- 5 responses indicated 50 % hedge on Developed Equity exposure
- 1 response indicated 65 % hedge on Developed Equity exposure
- 2 responses indicated 50 % hedge on International Equity exposure
- 1 response indicated 65 % hedge on International Equity exposure

Supplemental Questions

Q1. Of the 42 respondents, the methods of Private Equity reporting are distributed as follows:

- 31 % Valuations and cash flows are updated and reflected as received by custodian
- 7 % Reported on a 1 month lag to account for additional valuations and cash flow activity
- 62 % Reported on a 1 quarter lag to account for most all valuations and cash flow activity

Q2. Of the 44 respondents, the methods of Private Real Estate reporting are distributed as follows:

- 41 % Valuations and cash flows are updated and reflected as received by custodian
- 7 % Reported on a 1 month lag to account for additional valuations and cash flow activity
- 52 % Reported on a 1 quarter lag to account for most all valuations and cash flow activity

Q3. Of the 42 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:

- 21 % Answered 'Yes' - valuations are restated
- 79 % Answered 'No' - valuations are not restated

Q4. Of the 41 respondents, the responses to whether or not a third party risk software provider is used are distributed as follows:

- 37 % Answered 'Yes'
- 63 % Answered 'No'

Miscellaneous Comments

- Performance shown is gross of fees, with the exception of the following:
 - Funds 8, 31, 49, 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 June 2019 and June 2020.
 - 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.

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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