



City of Memphis 401(a) Plan

Analysis of Investment Performance

Quarter Ending December 31, 2023

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Vice President

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FINANCIAL MARKET CONDITIONS



IN REVIEW: QUARTER ENDING DECEMBER 31, 2023

A Synopsis of the Financial Market Environment

Quarter In Review: Global Equity Overview

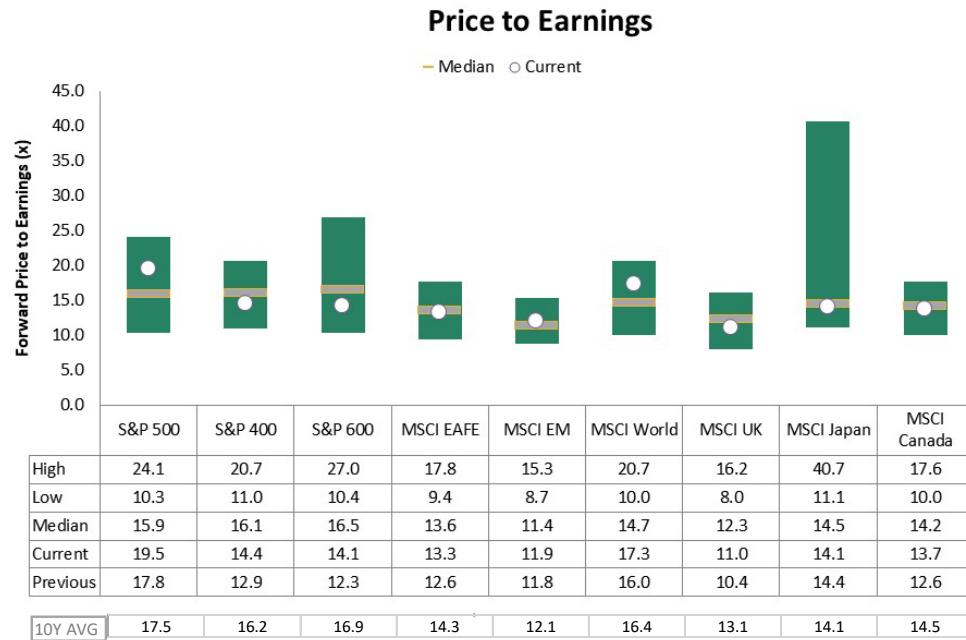
Equity Indices	QTD	YTD	1-Year	3-Year	5-Year	10-Year
S&P 500	11.69	26.29	26.29	10.00	15.69	12.03
MSCI Europe, Australasia and Far East (EAFE)*	10.42	18.24	18.24	4.02	8.16	4.28
MSCI Emerging Markets (EM)*	7.86	9.83	9.83	-5.08	3.68	2.66

All data in the table are percentages.

* Net dividends reinvested

Global Equity Performance and Valuations

- U.S. (+11.7%), Developed International (+10.4%), and Emerging Markets (+7.9%) all posted positive returns through the quarter ending December 31. Potential interest rate cuts for 2024 signaled by the U.S. Federal Reserve improved investor sentiment globally.
- For emerging markets, despite Latin America's (+17.6%) strong returns, lack of economic stimulus and the ongoing real estate crisis in China continued to hinder performance across the asset class, delivering lower returns than developed markets.
- Europe (+11.1%) and Japan (+8.2%) produced the highest returns for developed international markets, driven by increasing market expectations.
- On a price-to-earnings basis, U.S. mid (14.4x) and small cap (14.1x) valuations are up from the third quarter but remain at a relative discount to their 10-year averages (16.2x and 16.9x, respectively). International developed equities (13.3x) and emerging markets (11.9x) remain cheap to their 10-year average as well (14.3x and 12.1x, respectively). U.S. large cap valuations (19.5x) remain well above their long-term average (17.5x).



Data range is from 3/31/00-12/31/23. P/E ratios are forward 12 months.

Quarter In Review: U.S. Equity

U.S. Equity Indices	QTD	YTD	1-Year	3-Year	5-Year	10-Year
S&P 500	11.69	26.29	26.29	10.00	15.69	12.03
Russell 1000	11.96	26.53	26.53	8.97	15.52	11.80
Russell 1000 Growth	14.16	42.68	42.68	8.86	19.50	14.86
Russell 1000 Value	9.50	11.46	11.46	8.86	10.91	8.40
Russell 2000	14.03	16.93	16.93	2.22	9.97	7.16
Russell 2000 Growth	12.75	18.66	18.66	-3.50	9.22	7.16
Russell 2000 Value	15.26	14.65	14.65	7.94	10.00	6.76
Russell Midcap	12.82	17.23	17.23	5.92	12.68	9.42
Russell 3000	12.07	25.96	25.96	8.54	15.16	11.48

Performance

- U.S. equities, represented by the S&P 500, were up +11.7% for the quarter ending December 31. Investor optimism bounced back from the third quarter with expectations for imminent rate cuts by the Federal Reserve.
- Year-to-date, growth has outperformed value. During the quarter, large cap growth (+14.2%) outperformed large cap value (+9.5%). Continuing from last quarter small cap growth (+12.8%) lagged small cap value (+15.3%).
- Large cap stocks led the market for most of the year with the highly concentrated seven stocks of the S&P 500 driving outperformance, but mid (+12.8%) and small cap stocks (+14.0%) bounced back during the fourth quarter.
- Interest rate sensitive sectors including Real Estate (+18.8%), IT (+17.2%), and Financials (+14.0%) led the markets during the quarter. Energy (-6.9%) lagged the market as the only negative sector as crude oil prices weakened. For the year, IT (+57.8%), Communication Services (+55.8%), and Consumer Discretionary (+42.4%) were the highest performing sectors while Utilities (-7.1%) and Energy (-1.3%) were the only negative sectors.

All data in the tables are percentages.

S&P 500 Sector Returns	QTD	1-Year
Communication Services	10.95	55.80
Consumer Discretionary	12.42	42.41
Consumer Staples	5.54	0.52
Energy	-6.94	-1.33
Financials	14.03	12.15
Healthcare	6.41	2.06
Industrials	13.05	18.13
Information Technology	17.17	57.84
Materials	9.69	12.55
Real Estate	18.83	12.36
Utilities	8.56	-7.08

Quarter In Review: International Equity

MSCI International Equity Indices	QTD	YTD	1-Year	3-Year	5-Year	10-Year
World ex. U.S.	10.51	17.94	17.94	4.42	8.45	4.32
EAFE	10.42	18.24	18.24	4.02	8.16	4.28
EAFE Local Currency	4.96	16.16	16.16	8.64	9.49	6.61
Europe	11.05	19.89	19.89	5.80	9.09	4.13
Europe ex U.K.	12.34	21.69	21.69	4.91	9.83	4.74
U.K.	6.86	14.09	14.09	8.76	6.87	2.49
Japan	8.19	20.32	20.32	0.66	6.91	4.97
Pacific ex Japan	11.39	6.44	6.44	1.57	5.74	3.90

All data in the tables are percentages and net dividends reinvested.

Performance

- International developed markets slightly trailed the U.S. (+11.7%) during the fourth quarter in 2023, but still finished strong posting a 10.4% return over the quarter.
- Europe was uplifted by softer inflation numbers and increasing market expectations of a cease in future interest rate hikes, ending 2023 with a robust quarter (+11.1%). Similarly, U.K. equities were also up for the quarter ending December 31 (+6.9%) as small and mid cap domestic stocks outperformed.
- Japanese equities had one of its strongest years in recent memory, with an +8.2% gain during the last quarter. Investors continue to be bullish on the more favorable market and regulatory conditions in the country's capital markets. Pacific ex Japan equities ended the quarter +11.4% as technology stocks led the growth in Asian markets.
- It was a positive quarter for all sectors in International Developed equities with IT (+21.3%) and Materials (+17.1%) the strongest performers.

MSCI EAFE Sector Returns	QTD	1-Year
Communication Services	8.94	13.14
Consumer Discretionary	8.00	21.69
Consumer Staples	5.19	4.47
Energy	0.35	12.54
Financials	9.95	18.83
Healthcare	4.90	9.27
Industrials	14.31	27.62
Information Technology	21.31	36.41
Materials	17.07	19.91
Real Estate	14.89	9.07
Utilities	14.00	16.97

Quarter In Review: Emerging Market Equity

MSCI EM Equity Indices	QTD	YTD	1-Year	3-Year	5-Year	10-Year
Emerging Markets	7.86	9.83	9.83	-5.08	3.68	2.66
EM Local Currency	5.58	9.85	9.85	-2.53	5.42	5.21
Asia	6.71	7.76	7.76	-6.90	4.32	4.13
EMEA	8.37	8.19	8.19	-2.90	-0.32	-1.76
Latin America	17.55	32.71	32.71	9.93	6.11	2.11

All data in the tables are percentages and net dividends reinvested.

Performance

- Emerging Market equities (+7.9%) lagged U.S. (+11.7%) and International Developed equities (+10.4%) during the quarter ending December 31 as China continued to detract from the index.
- China continues to struggle as an ongoing real estate crisis, sentiment on weaker economic growth, and uncertainty in stimulus measures led to an underperforming quarter.
- Taiwan and Korea outperformed on technology related returns. India was also strong, backed by economic growth of 7%. Turkey was the worst performing index as inflation persists at over 60%. Latin America was the strongest region (+17.6%) as Brazil outperformed with an improving economy, including interest rate cuts in the end of the quarter.
- Technology (+17.8%) and Utilities (+12.8%) were the strongest sectors in Emerging Markets, with Real Estate being the only negative sector (-0.2%) during the quarter.

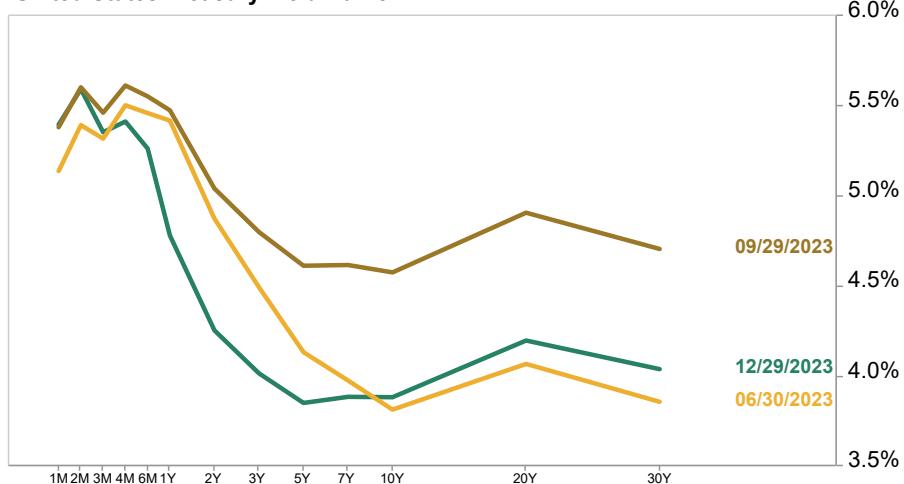
MSCI EM Sector Returns	QTD	1-Year
Communication Services	0.05	-1.10
Consumer Discretionary	0.83	-3.40
Consumer Staples	6.12	4.24
Energy	6.69	26.82
Financials	8.26	11.50
Healthcare	7.31	-1.29
Industrials	6.25	5.43
Information Technology	17.83	32.32
Materials	6.79	1.51
Real Estate	-0.21	-7.09
Utilities	12.77	1.95

Quarter In Review: Fixed Income Overview

Yield Curve

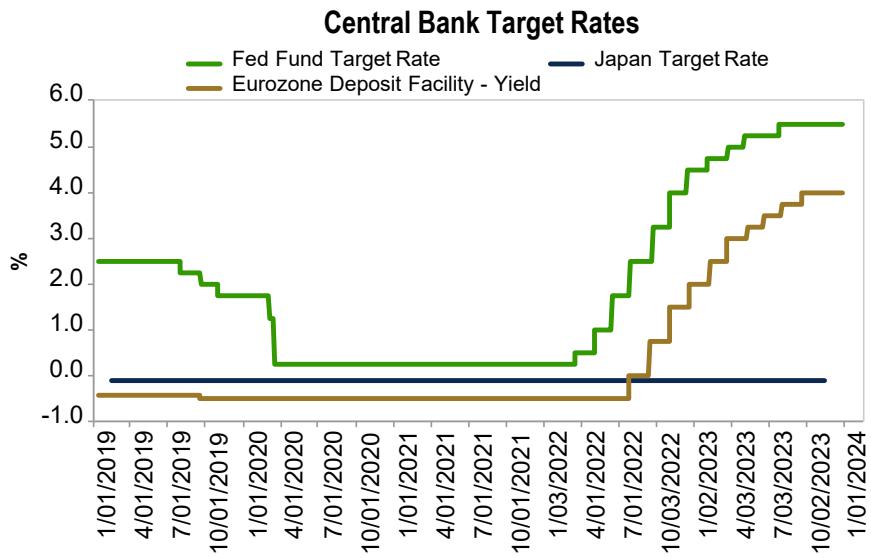
- Yields declined in intermediate to long-term maturities while the 1-Month T-Bill yield remained mostly unchanged. The interest rate curve further inverted compared to third quarter. The shift in the yield curve indicates that the market is pricing several rate cuts during 2024. The Federal Reserve continues its rate decision pause citing the need to hold rates higher for longer until inflation is conclusively moving towards the Fed's long-term target of 2%.
- Short-term yields declined the least, with the 3-Month T-Bill decreasing by 11 bps over the prior quarter.
- 2- and 3-year Treasury yields declined the most by 79 bps each, ending the quarter at 4.25% and 4.01%, respectively.

United States Treasury Yield Curve



Monetary Policies/Global Interest Rates

- Central bank deposit rates remained negative in Japan, while rates in Europe ended the quarter at 4.50% and rates in the United Kingdom ended the quarter at 5.25%.
- The U.S. policy rate is above those of the Eurozone, the United Kingdom and Japan, at 5.50%.



Interest Rates	Fed Funds Rate	EZ Deposit Facility Rate
Average	4.95	0.93
Max	20.00	4.00
Min	0.25	-0.50

Quarter In Review: U.S. Fixed Income

U.S. Fixed Income Indices*	QTD	YTD	1-Year	3-Year	5-Year	10-Year
U.S. Aggregate	6.82	5.53	5.53	-3.31	1.10	1.81
Government/Credit	6.63	5.72	5.72	-3.53	1.41	1.97
Government	5.62	4.09	4.09	-3.74	0.56	1.27
Investment Grade Credit	8.50	8.52	8.52	-3.29	2.63	2.95
Investment Grade CMBS	5.24	5.29	5.29	-2.41	1.60	2.11
U.S. Corporate High Yield	7.16	13.44	13.44	1.98	5.37	4.60
FTSE** 3-Month T-Bill	1.41	5.26	5.26	2.25	1.91	1.26
Hueler Stable Value	0.55	1.87	1.87	1.96	2.13	1.97

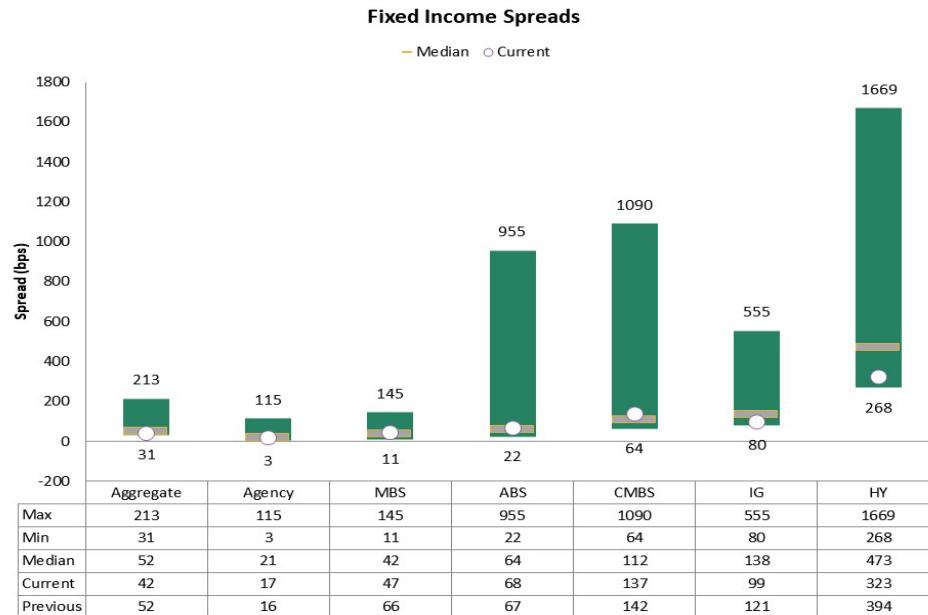
* Bloomberg Indices, unless otherwise noted.

** Formerly Citigroup. Citigroup's fixed income indices were purchased by London Stock Exchange Group (LSEG) and were rebranded to FTSE by July 31, 2018. FTSE Russell is a unit of LSEG's Information Services Division and a wholly owned subsidiary of LSEG.

All data in the table are percentages.

Performance and Spreads

- The U.S. Aggregate Index was positive during the fourth quarter. All sectors delivered positive quarterly returns.
- Investment Grade Credit had the strongest performance at +8.50% for the quarter. Cash experienced the weakest performance in the quarter ended December 31 (1.41%).
- For the quarter, Agency and ABS spreads slightly widened while the spreads on the US Aggregate Index, MBS, CMBS, IG Credit and High Yield narrowed. The largest change was in the High Yield sector with spreads narrowing by 71 basis points.



Quarter In Review: International Fixed Income

Global Fixed Income Indices	QTD	YTD	1-Year	3-Year	5-Year	10-Year
Bloomberg Global Aggregate	8.10	5.72	5.72	-5.51	-0.32	0.38
Bloomberg Global Aggregate (Hgd)	5.99	7.15	7.15	-2.11	1.40	2.41
FTSE Non-U.S. WGBI*	9.91	5.83	5.83	-9.35	-2.77	-1.26
FTSE Non-U.S. WGBI (Hgd)	5.95	8.02	8.02	-2.86	0.72	2.52
JPM EMBI Global Diversified**	9.16	11.09	11.09	-3.56	1.67	3.22
JPM GBI-EM Global Diversified***	8.07	12.70	12.70	-3.16	1.14	0.09

All data in the table are percentages.

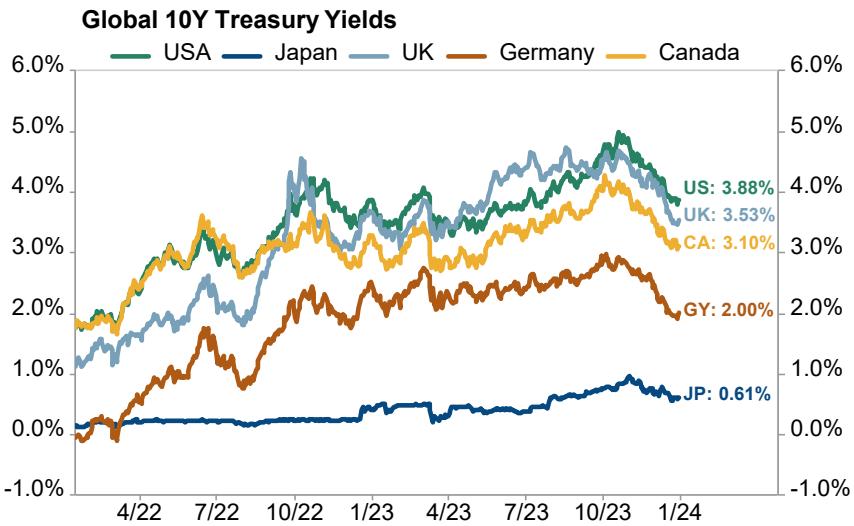
* Formerly Citigroup. The FTSE Non-U.S. World Government Bond Index (WGBI) measures the performance of fixed-rate, local currency, investment grade sovereign bonds excluding the U.S.

** The JP Morgan Emerging Market Bond Index (EMBI) Global Diversified index measures government bonds in hard currencies.

*** The JP Morgan Government Bond Index – Emerging Markets (GBI-EM) Global Diversified index measures government bonds in local currencies.

Global Performance and Yields

- Yields declined in most developed markets during the quarter. Both the ECB and the Bank of England kept policy rates unchanged during the fourth quarter as inflation remains the main concern in Europe and UK.
- Global central banks kept interest rates at record highs in anticipation of inflation resurgence.
- The U.S. dollar depreciated relative to the yen, British pound and Euro.
- Global returns were positive for the quarter ended December 31, with Non-U.S. sovereign bonds exhibiting the strongest performance.



401(a) TOTAL PLAN

City of Memphis 401(a) Retirement Plan

Plan Asset Allocation as of December 31, 2023

Fund Name	Number of Participants	Plan Assets	% of Total
<u>Stable Value/Fixed Options</u>		\$ 1,326,850	2.6%
Fixed Option	259	\$ 1,326,850	2.6%
<u>Bond Funds</u>		\$ 1,610,173	3.2%
PIMCO Total Return R	348	\$ 764,221	1.5%
TCW Total Return Bond Instl	249	\$ 784,783	1.6%
Delaware Ivy High Income	31	\$ 61,169	0.1%
<u>US Equity Funds</u>		\$ 5,155,006	10.2%
Parnassus Cor Eq Instl	304	\$ 811,101	1.6%
Vanguard Institutional Index	335	\$ 1,048,030	2.1%
Edgar Lomax Value	256	\$ 484,143	1.0%
Fidelity Contrafund	295	\$ 960,766	1.9%
Vanguard Mid Cap Index Admiral	268	\$ 617,894	1.2%
JPMorgan MidCap Value R6	229	\$ 223,045	0.4%
Eaton Vance Atlanta Capital SMID	64	\$ 127,884	0.3%
Neuberger Genesis Trust R6	219	\$ 240,574	0.5%
Harbor Small Cap Value	225	\$ 353,045	0.7%
Brown Capital Small Co Instl	227	\$ 288,525	0.6%
<u>International/Global Funds</u>		\$ 1,061,521	2.1%
AmerFunds EuroPacific Growth R6	223	\$ 418,862	0.8%
MFS International Value R3	294	\$ 432,545	0.9%
AmerFunds Global Insight R6	225	\$ 210,115	0.4%
<u>Real Estate Fund</u>		\$ 271,396	0.5%
Vanguard REIT Index Admiral	226	\$ 271,396	0.5%
<u>Target Date Funds</u>		\$ 41,040,009	81.3%
Vanguard Target Retirement 2020 Inv	112	\$ 1,247,201	2.5%
Vanguard Target Retirement 2025 Inv	198	\$ 3,436,052	6.8%
Vanguard Target Retirement 2030 Inv	327	\$ 4,680,925	9.3%
Vanguard Target Retirement 2035 Inv	337	\$ 4,169,689	8.3%
Vanguard Target Retirement 2040 Inv	299	\$ 4,134,440	8.2%
Vanguard Target Retirement 2045 Inv	351	\$ 4,830,856	9.6%
Vanguard Target Retirement 2050 Inv	425	\$ 5,489,310	10.9%
Vanguard Target Retirement 2055 Inv	574	\$ 6,422,947	12.7%
Vanguard Target Retirement 2060 Inv	946	\$ 6,102,413	12.1%
Vanguard Target Retirement 2065 Inv	84	\$ 78,370	0.2%
Vanguard Target Retirement 2070 Inv	18	\$ 24,791	0.0%
Vanguard Target Retirement Inc	55	\$ 423,016	0.8%
Totals		\$ 50,464,957	100.0%

City of Memphis 401(a) Retirement Plan

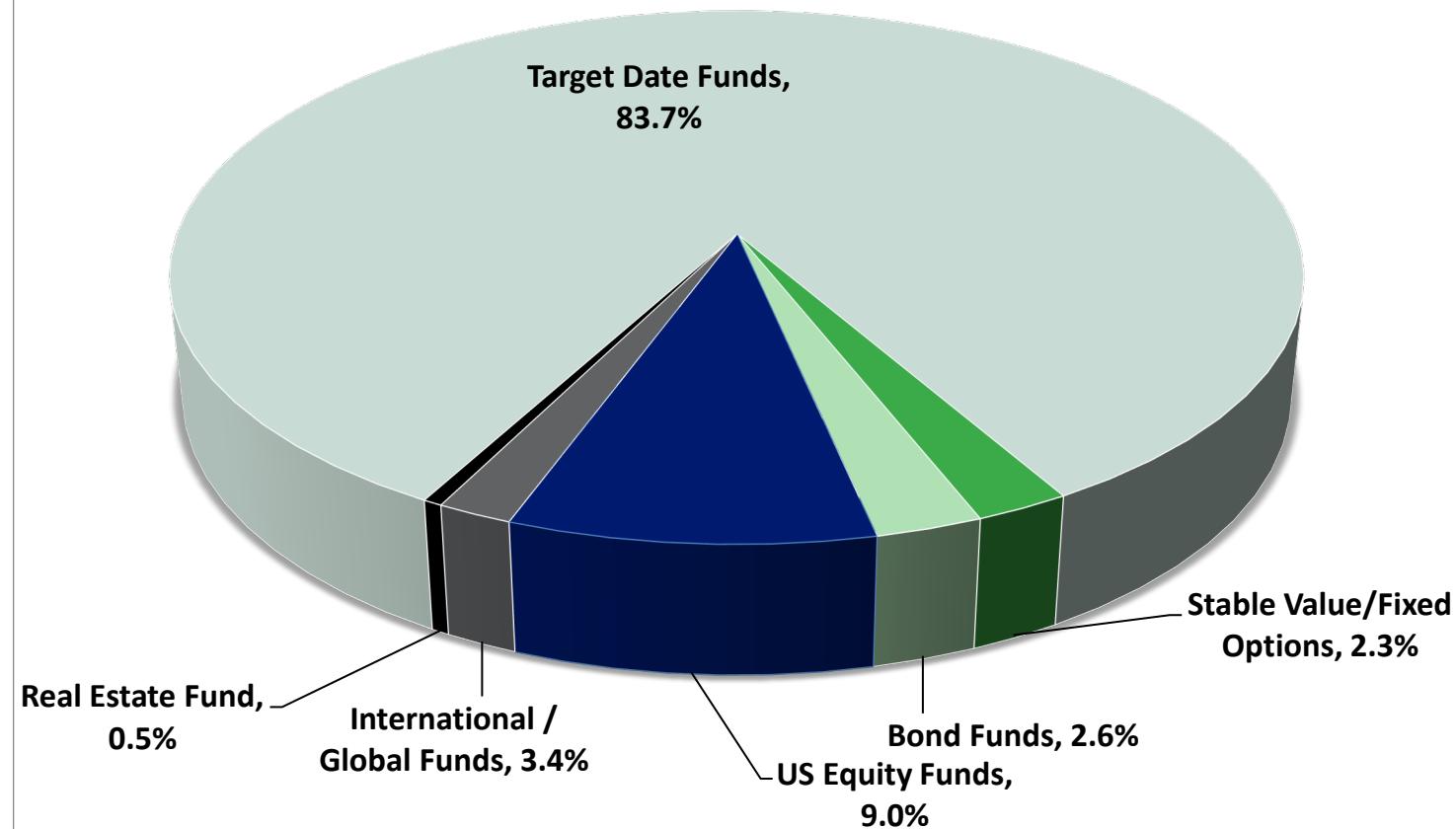
Plan Activity July 1, 2023 - December 31, 2023

Fund Name	Beg MV	Contributions	Exchanges	Distributions	Expenses	Other Activity	Gain/Loss	Ending MV
<u>Stable Value/Fixed Options</u>								
Fixed Option	\$ 1,411,878	\$ 113,165	\$ (36,927)	\$ (189,173)	\$ (392)	\$ -	\$ 28,299	\$ 1,326,850
<u>Bond Funds</u>								
PIMCO Total Return R	\$ 758,636	\$ 54,160	\$ 10,080	\$ (85,766)	\$ 453	\$ -	\$ 26,658	\$ 764,221
TCW Total Return Bond Instl	\$ 764,696	\$ 56,456	\$ 20,713	\$ (77,478)	\$ 448	\$ -	\$ 19,947	\$ 784,783
Delaware Ivy High Income	\$ 69,376	\$ 4,031	\$ (131)	\$ (16,121)	\$ (16)	\$ -	\$ 4,031	\$ 61,169
<u>US Equity Funds</u>								
Parnassus Cor Eq Instl	\$ 859,666	\$ 53,259	\$ (9,585)	\$ (157,680)	\$ 332	\$ -	\$ 65,109	\$ 811,101
Vanguard Institutional Index	\$ 1,197,340	\$ 92,721	\$ 12,585	\$ (339,569)	\$ 191	\$ -	\$ 84,761	\$ 1,048,030
Edgar Lomax Value	\$ 515,150	\$ 38,062	\$ (32,356)	\$ (73,322)	\$ 199	\$ -	\$ 36,411	\$ 484,143
Fidelity Contrafund	\$ 882,108	\$ 62,007	\$ 72,209	\$ (158,301)	\$ 279	\$ -	\$ 102,463	\$ 960,766
Vanguard Mid Cap Index Admiral	\$ 622,307	\$ 43,038	\$ (5,436)	\$ (80,077)	\$ 138	\$ -	\$ 37,924	\$ 617,894
JPMorgan MidCap Value R6	\$ 265,614	\$ 20,760	\$ (30,634)	\$ (47,849)	\$ 9	\$ -	\$ 15,145	\$ 223,045
Eaton Vance Atlanta Capital SMID	\$ 134,402	\$ 11,806	\$ 9,953	\$ (39,392)	\$ 27	\$ -	\$ 11,087	\$ 127,884
Neuberger Genesis Trust R6	\$ 263,278	\$ 17,464	\$ 2,716	\$ (48,872)	\$ 71	\$ -	\$ 5,918	\$ 240,574
Harbor Small Cap Value	\$ 373,662	\$ 27,461	\$ 2,286	\$ (69,690)	\$ 140	\$ -	\$ 19,186	\$ 353,045
Brown Capital Small Co Instl	\$ 307,350	\$ 23,327	\$ 3,625	\$ (49,200)	\$ 34	\$ -	\$ 3,389	\$ 288,525
<u>International/Global Equity Funds</u>								
AmerFunds EuroPacific Growth R6	\$ 458,853	\$ 34,313	\$ 7,832	\$ (95,597)	\$ 137	\$ -	\$ 13,324	\$ 418,862
MFS International Value R3	\$ 449,044	\$ 31,218	\$ 5,652	\$ (73,804)	\$ 217	\$ -	\$ 20,217	\$ 432,545
AmerFunds Global Insight R6	\$ 215,988	\$ 16,462	\$ 462	\$ (34,470)	\$ 62	\$ -	\$ 11,611	\$ 210,115
<u>Real Estate Fund</u>								
Vanguard REIT Index Admiral	\$ 288,732	\$ 24,784	\$ (6,113)	\$ (55,914)	\$ 37	\$ -	\$ 19,869	\$ 271,396
<u>Target Date Funds</u>								
Vanguard Target Retirement 2020 Inv	\$ 1,148,331	\$ 110,820	\$ 1,471	\$ (73,613)	\$ (962)	\$ -	\$ 61,153	\$ 1,247,201
Vanguard Target Retirement 2025 Inv	\$ 3,148,973	\$ 291,555	\$ 11	\$ (183,803)	\$ (1,921)	\$ -	\$ 181,238	\$ 3,436,052
Vanguard Target Retirement 2030 Inv	\$ 4,146,402	\$ 452,891	\$ (42)	\$ (183,504)	\$ (3,148)	\$ -	\$ 268,326	\$ 4,680,925
Vanguard Target Retirement 2035 Inv	\$ 3,896,805	\$ 462,544	\$ (936)	\$ (436,527)	\$ (3,661)	\$ -	\$ 251,463	\$ 4,169,689
Vanguard Target Retirement 2040 Inv	\$ 3,911,209	\$ 444,158	\$ (3,648)	\$ (473,419)	\$ (3,478)	\$ -	\$ 259,618	\$ 4,134,440
Vanguard Target Retirement 2045 Inv	\$ 5,613,203	\$ 609,699	\$ (5,433)	\$ (1,712,138)	\$ (4,828)	\$ -	\$ 330,353	\$ 4,830,856
Vanguard Target Retirement 2050 Inv	\$ 7,673,855	\$ 827,815	\$ 28,257	\$ (3,439,963)	\$ (6,739)	\$ -	\$ 406,086	\$ 5,489,310
Vanguard Target Retirement 2055 Inv	\$ 10,160,964	\$ 1,168,748	\$ (2,644)	\$ (5,381,147)	\$ (10,465)	\$ -	\$ 487,491	\$ 6,422,947
Vanguard Target Retirement 2060 Inv	\$ 10,510,034	\$ 2,017,562	\$ (54,902)	\$ (6,847,183)	\$ (18,283)	\$ -	\$ 495,186	\$ 6,102,413
Vanguard Target Retirement 2065 Inv	\$ -	\$ 99,822	\$ -	\$ (27,072)	\$ (663)	\$ -	\$ 6,284	\$ 78,370
Vanguard Target Retirement 2070 Inv	\$ -	\$ 12,108	\$ 10,881	\$ (219)	\$ (78)	\$ -	\$ 2,099	\$ 24,791
Vanguard Target Retirement Inc	\$ 419,722	\$ 37,848	\$ 52	\$ (51,699)	\$ (418)	\$ -	\$ 17,510	\$ 423,016
Totals	\$ 60,467,578	\$ 7,260,066	\$ 0	\$ (20,502,564)	\$ (52,279)	\$ -	\$ 3,292,156	\$ 50,464,957

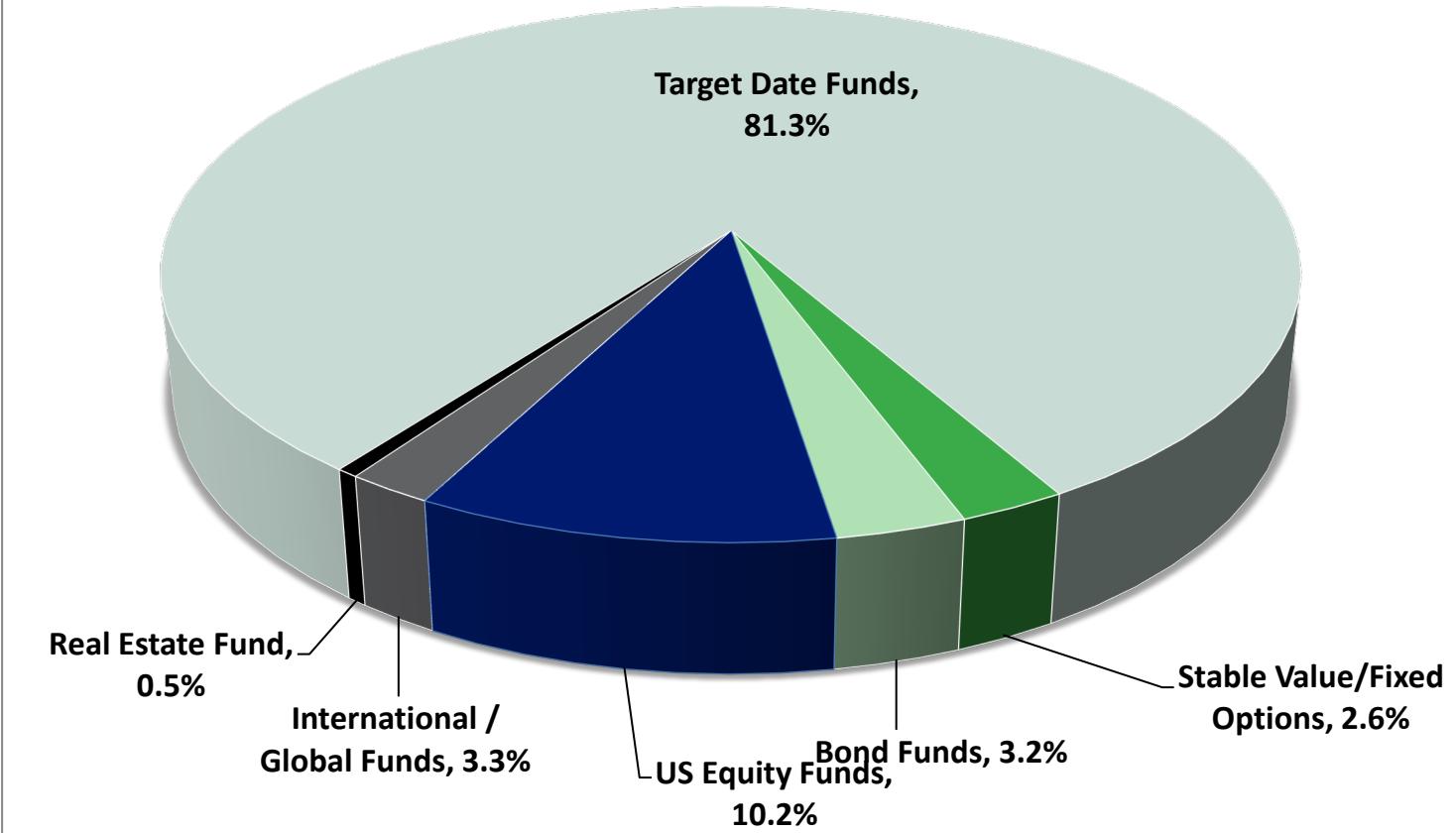
City of Memphis 401(a) Retirement Plan

Plan Asset Allocation as of December 31, 2023

Asset Allocation as of June 30, 2023



Asset Allocation as of December 31, 2023



Plan Assets as of June 30, 2023

Fund Name	Plan Assets	% of Total
Stable Value/Fixed Options	\$ 1,411,878	2.3%
Bond Funds	\$ 1,592,708	2.6%
US Equity Funds	\$ 5,420,877	9.0%
International/Global Funds	\$ 1,123,885	1.9%
Real Estate Fund	\$ 288,732	0.5%
Target Date Funds	\$ 50,629,498	83.7%
Totals	\$ 60,467,578	100.0%

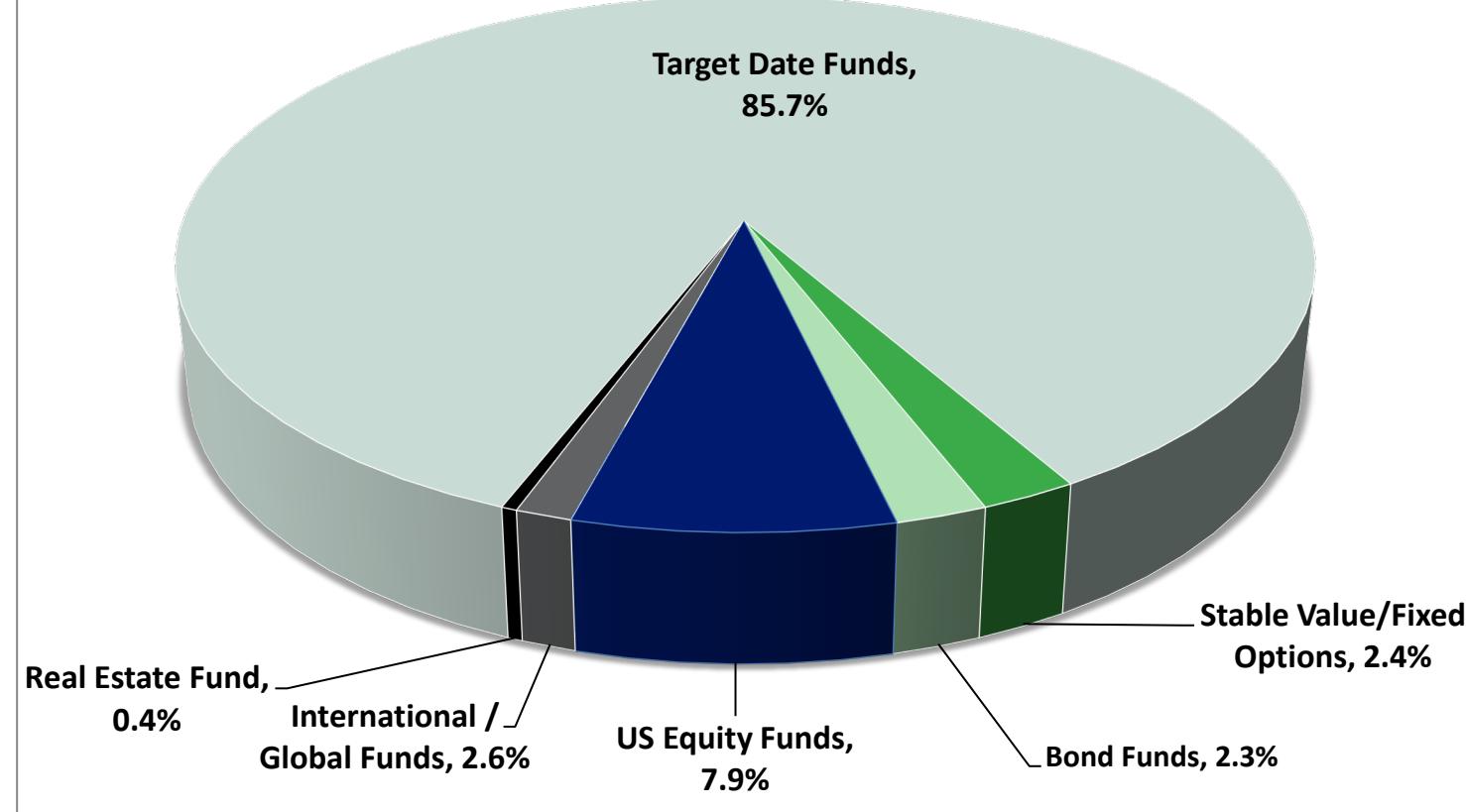
Plan Assets as of December 31, 2023

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Bond Funds	\$ 1,610,173	3.2%
US Equity Funds	\$ 5,155,006	10.2%
International/Global Funds	\$ 1,061,521	2.1%
Real Estate Fund	\$ 271,396	0.5%
Target Date Funds	\$ 41,040,009	81.3%
Totals	\$ 50,464,957	100.0%

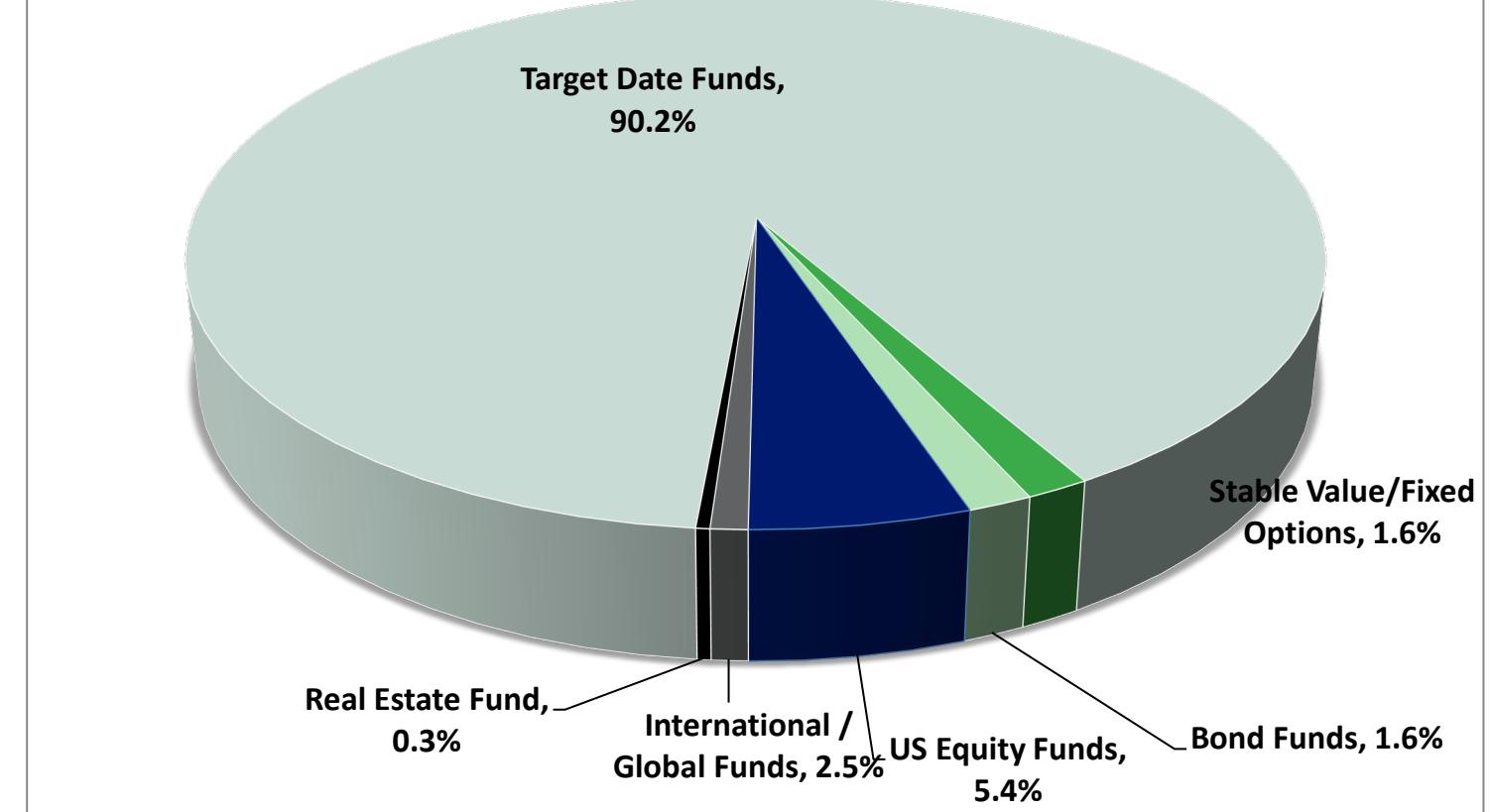
City of Memphis 401(a) Retirement Plan

Contributions as of December 31, 2023

Plan Contributions 1Q & 2Q 2023



Plan Contributions 3Q & 4Q 2023



Plan Contributions 1Q & 2Q 2023

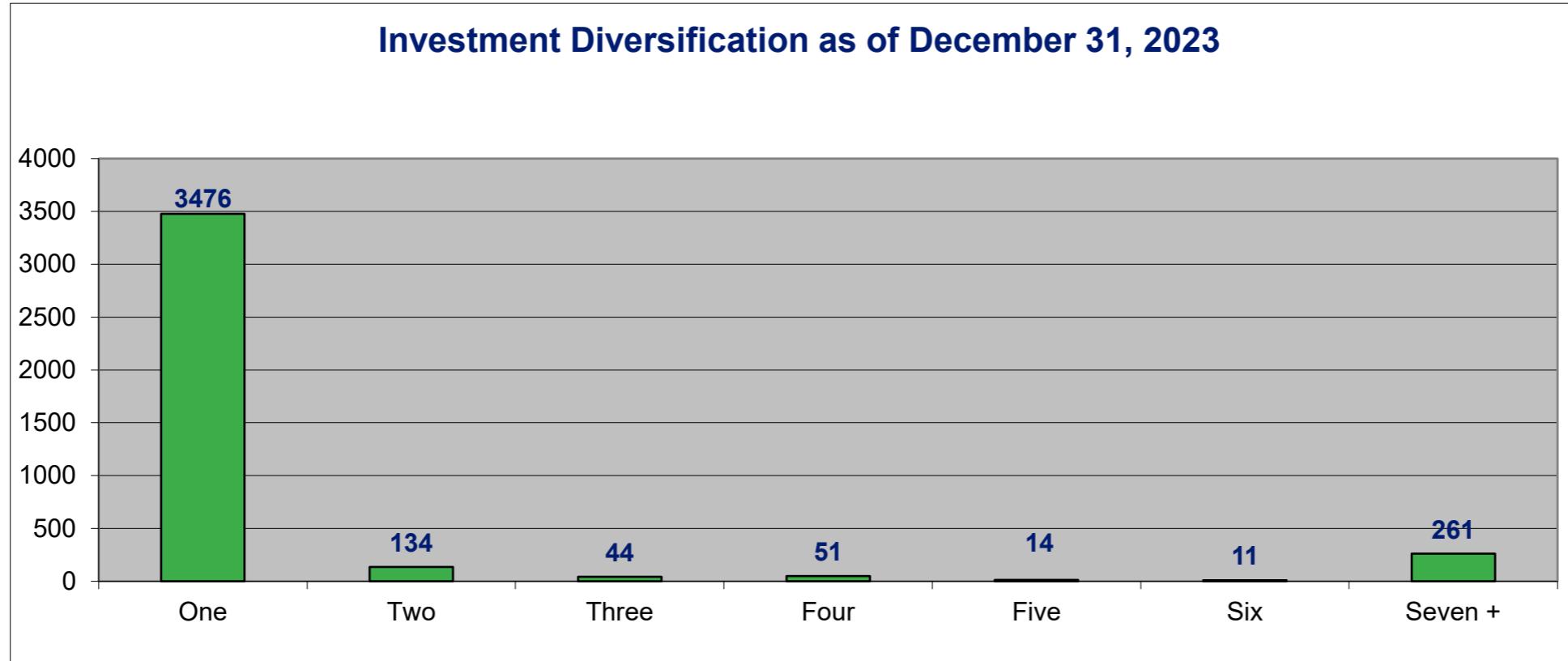
Fund Name	Plan Contributions	% of Total
Stable Value/Fixed Options	\$ 279,989	2.4%
Bond Funds	\$ 264,421	2.3%
US Equity Funds	\$ 921,797	7.9%
International/Global Funds	\$ 162,896	1.4%
Real Estate Fund	\$ 45,340	0.4%
Target Date Funds	\$ 10,042,597	85.7%
Totals	\$ 11,717,040	100.0%

Plan Contributions 3Q & 4Q 2023

Fund Name	Plan Contributions	% of Total
Stable Value/Fixed Options	\$ 113,165	1.6%
Bond Funds	\$ 114,648	1.6%
US Equity Funds	\$ 389,906	5.4%
International/Global Funds	\$ 65,532	0.9%
Real Estate Fund	\$ 24,784	0.3%
Target Date Funds	\$ 6,535,569	90.2%
Totals	\$ 7,243,604	100.0%

City of Memphis 401(a) Retirement Plan

Investment Diversification as of December 31, 2023



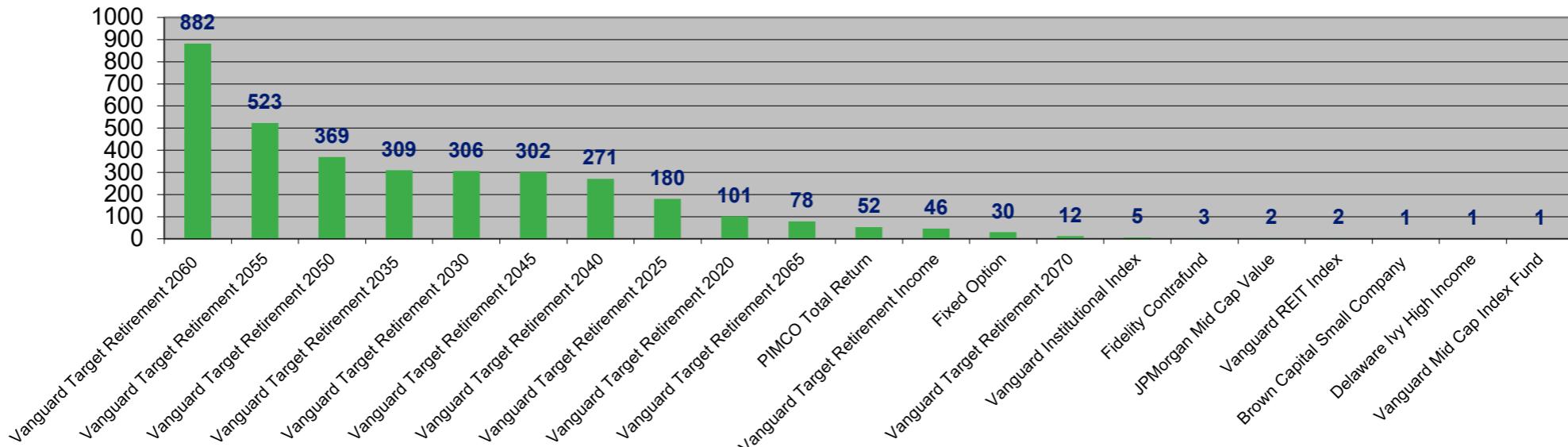
Number of Funds	No. of Participants	
One	3476	87.1%
Two	134	3.4%
Three	44	1.1%
Four	51	1.3%
Five	14	0.4%
Six	11	0.3%
Seven +	261	6.5%
Total	3991	100%

Note: Number of participants shown includes 401(a) MSCAA Plan Participants

City of Memphis 401(a) Retirement Plan

One Funders as of December 31, 2023

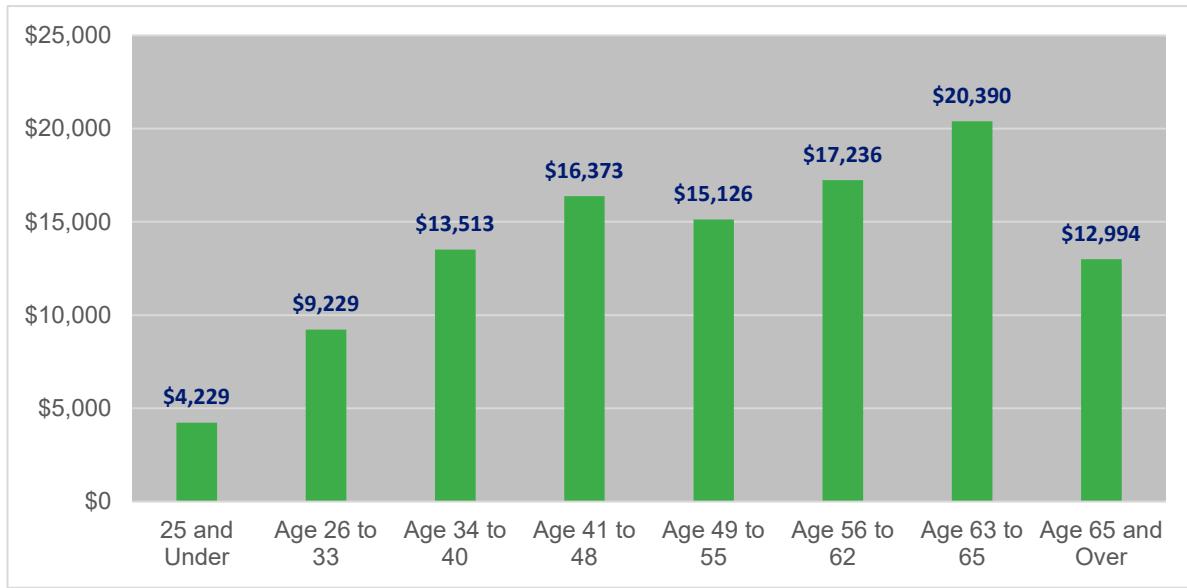
Participants with 100% Balance in One Fund



Number of Funds	No. of Participants	% of Participants
Vanguard Target Retirement 2060	882	25.4%
Vanguard Target Retirement 2055	523	15.0%
Vanguard Target Retirement 2050	369	10.6%
Vanguard Target Retirement 2035	309	8.9%
Vanguard Target Retirement 2030	306	8.8%
Vanguard Target Retirement 2045	302	8.7%
Vanguard Target Retirement 2040	271	7.8%
Vanguard Target Retirement 2025	180	5.2%
Vanguard Target Retirement 2020	101	2.9%
Vanguard Target Retirement 2065	78	2.2%
PIMCO Total Return	52	1.5%
Vanguard Target Retirement Income	46	1.3%
Fixed Option	30	0.9%
Vanguard Target Retirement 2070	12	0.3%
Vanguard Institutional Index	5	0.1%
Fidelity Contrafund	3	0.1%
JPMorgan Mid Cap Value	2	0.1%
Vanguard REIT Index	2	0.1%
Brown Capital Small Company	1	0.0%
Delaware Ivy High Income	1	0.0%
Vanguard Mid Cap Index Fund	1	0.0%
Total	3,476	100.0%

City of Memphis 401(a) Retirement Plan

Average Account Balance as of December 31, 2023



Age Range	No. of Participants	Average Account Balance
25 and Under	428	\$4,229
Age 26 to 33	1017	\$9,229
Age 34 to 40	728	\$13,513
Age 41 to 48	586	\$16,373
Age 49 to 55	510	\$15,126
Age 56 to 62	437	\$17,236
Age 63 to 65	120	\$20,390
Age 65 and Over	165	\$12,994
Total	3991	\$12,645

Note: Number of participants shown does not include MSCAA Plan Participants.

401(a) MSCAA Total Plan

City of Memphis 401(a) MSCAA Retirement Plan

Plan Asset Allocation as of December 31, 2023

Fund Name	Number of Participants	Plan Assets	% of Total
<u>Stable Value/Fixed Options</u>		\$ 107,454	2.0%
Fixed Option	30	\$ 107,454	2.0%
<u>Bond Funds</u>		\$ 249,800	4.7%
PIMCO Total Return Instl	31	\$ 120,800	2.3%
TCW Total Return Bond Instl	31	\$ 123,315	2.3%
Delaware Ivy High Income	2	\$ 5,684	0.1%
<u>US Equity Funds</u>		\$ 1,273,904	24.0%
Parnassus Cor Eq Instl	43	\$ 258,741	4.9%
Vanguard Institutional Index	42	\$ 229,746	4.3%
Edgar Lomax Value	37	\$ 124,458	2.3%
Fidelity Contrafund	42	\$ 181,328	3.4%
Vanguard Mid Cap Index Admiral	37	\$ 132,883	2.5%
JPMorgan MidCap Value Instl	41	\$ 86,197	1.6%
Eaton Vance Atlanta Capital SMID	7	\$ 15,863	0.3%
Neuberger Genesis Trust Instl	40	\$ 82,837	1.6%
Harbor Small Cap Value	37	\$ 98,123	1.8%
Brown Capital Small Co Instl	40	\$ 63,728	1.2%
<u>International/Global Funds</u>		\$ 278,542	5.2%
AmerFunds EuroPacific Growth R6	34	\$ 98,383	1.8%
MFS International Value R5	36	\$ 125,496	2.4%
AmerFunds Global Insight R6	36	\$ 54,663	1.0%
<u>Real Estate Fund</u>		\$ 62,929	1.2%
Vanguard REIT Index Admiral	35	\$ 62,929	1.2%
<u>Target Date Funds</u>		\$ 3,345,842	62.9%
Vanguard Target Retirement 2020 Inv	2	\$ 219,348	4.1%
Vanguard Target Retirement 2025 Inv	5	\$ 413,177	7.8%
Vanguard Target Retirement 2030 Inv	23	\$ 652,204	12.3%
Vanguard Target Retirement 2035 Inv	35	\$ 540,695	10.2%
Vanguard Target Retirement 2040 Inv	29	\$ 767,106	14.4%
Vanguard Target Retirement 2045 Inv	32	\$ 184,073	3.5%
Vanguard Target Retirement 2050 Inv	18	\$ 341,507	6.4%
Vanguard Target Retirement 2055 Inv	24	\$ 144,338	2.7%
Vanguard Target Retirement 2060 Inv	22	\$ 2,661	0.1%
Vanguard Target Retirement 2065 Inv	5	\$ 1,732	0.0%
Vanguard Target Retirement 2070 Inv	1	\$ 22,384	0.4%
Vanguard Target Retirement Income Inv	1	\$ 56,615	1.1%
Totals		\$ 5,318,471	100.0%

City of Memphis 401(a) MSCAA Retirement Plan

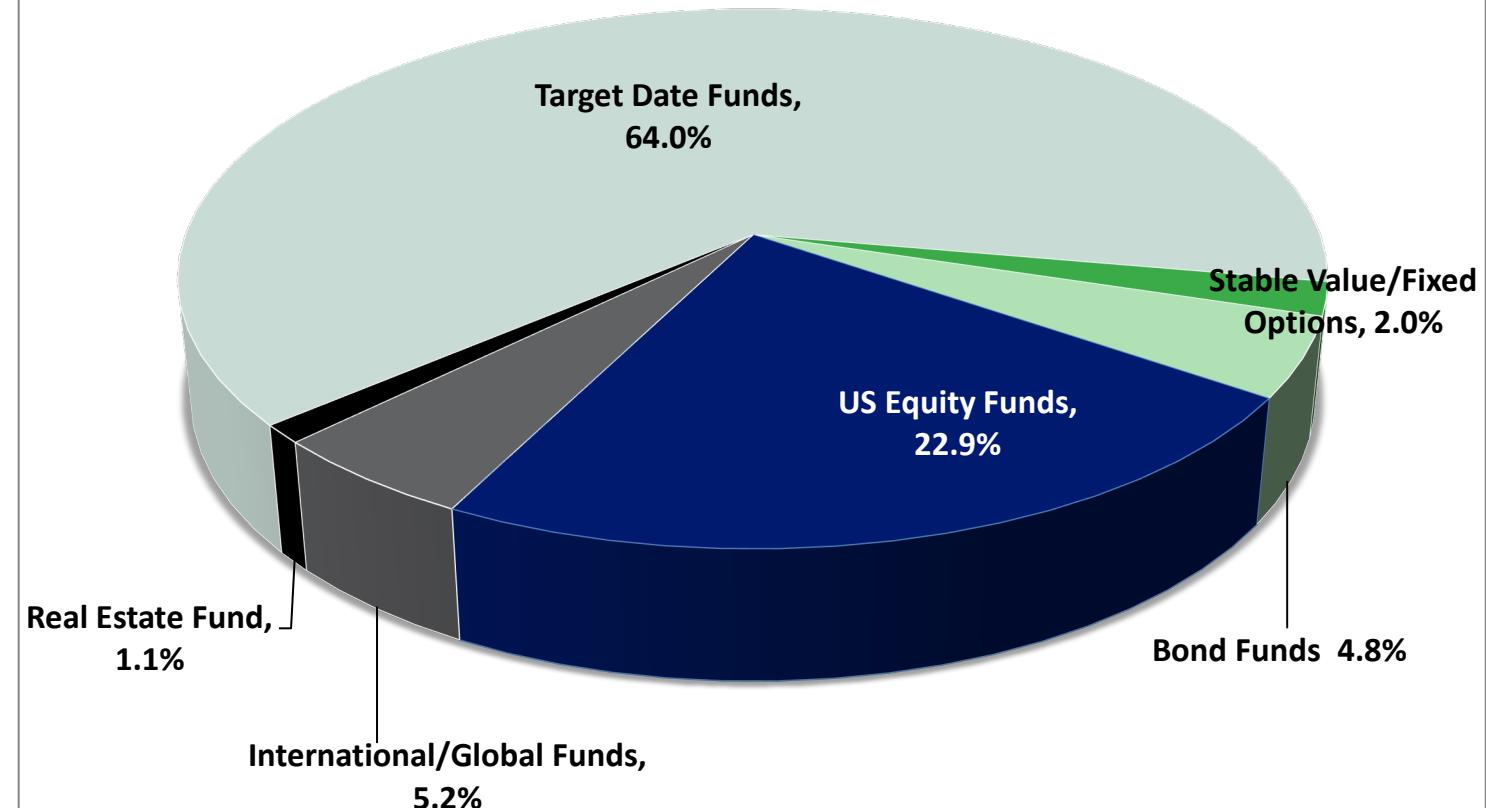
Plan Activity July 1, 2023 - December 31, 2023

Fund Name	Beg MV	Contributions	Exchanges	Distributions	Expenses	Other Activity	Gain/Loss	Ending MV
<u>Stable Value/Fixed Options</u>								
Fixed Option	\$ 105,562	\$ 5,586	\$ 19	\$ (5,775)	\$ (10)	\$ -	\$ 2,071	\$ 107,454
<u>Bond Funds</u>								
PIMCO Total Return R	\$ 121,880	\$ 9,487	\$ 2,674	\$ (17,499)	\$ 67	\$ -	\$ 4,192	\$ 120,800
TCW Total Return Bond Instl	\$ 125,822	\$ 8,960	\$ 4,530	\$ (19,220)	\$ 67	\$ -	\$ 3,157	\$ 123,315
Delaware Ivy High Income	\$ 4,968	\$ 348	\$ 18	\$ -	\$ 1	\$ -	\$ 350	\$ 5,684
<u>US Equity Funds</u>								
Parnassus Cor Eq Instl	\$ 246,240	\$ 17,317	\$ (5,732)	\$ (18,773)	\$ 75	\$ -	\$ 19,614	\$ 258,741
Vanguard Institutional Index	\$ 221,784	\$ 15,556	\$ (5,934)	\$ (18,838)	\$ 75	\$ -	\$ 17,103	\$ 229,746
Edgar Lomax Value	\$ 116,087	\$ 9,003	\$ 1,859	\$ (11,610)	\$ 51	\$ -	\$ 9,069	\$ 124,458
Fidelity Contrafund	\$ 178,743	\$ 11,687	\$ (6,532)	\$ (20,897)	\$ 42	\$ -	\$ 18,284	\$ 181,328
Vanguard Mid Cap Index Admiral	\$ 136,627	\$ 8,889	\$ (260)	\$ (20,622)	\$ 52	\$ -	\$ 8,197	\$ 132,883
JPMorgan MidCap Value R6	\$ 68,250	\$ 14,985	\$ (102)	\$ (2,847)	\$ (7)	\$ -	\$ 5,917	\$ 86,197
Eaton Vance Atlanta Capital SMID	\$ 12,534	\$ 2,084	\$ 23	\$ -	\$ 3	\$ -	\$ 1,220	\$ 15,863
Neuberger Genesis Trust R6	\$ 79,431	\$ 4,742	\$ 1,748	\$ (5,770)	\$ 21	\$ -	\$ 2,666	\$ 82,837
Harbor Small Cap Value	\$ 91,078	\$ 6,958	\$ 1,591	\$ (7,312)	\$ 33	\$ -	\$ 5,775	\$ 98,123
Brown Capital Small Co Instl	\$ 58,209	\$ 5,373	\$ 986	\$ (2,528)	\$ 12	\$ -	\$ 1,675	\$ 63,728
<u>International/Global Equity Funds</u>								
AmerFunds EuroPacific Growth R6	\$ 94,285	\$ 6,476	\$ 2,636	\$ (8,360)	\$ 40	\$ -	\$ 3,307	\$ 98,383
MFS International Value R4	\$ 126,605	\$ 8,819	\$ 2,476	\$ (17,958)	\$ 58	\$ -	\$ 5,496	\$ 125,496
AmerFunds Global Insight R6	\$ 51,874	\$ 3,789	\$ 320	\$ (4,247)	\$ 17	\$ -	\$ 2,909	\$ 54,663
<u>Real Estate Fund</u>								
Vanguard REIT Index Admiral	\$ 57,960	\$ 4,113	\$ 1,689	\$ (5,828)	\$ 25	\$ -	\$ 4,969	\$ 62,929
<u>Target Date Funds</u>								
Vanguard Target Retirement 2020 Inv	\$ 194,273	\$ 17,242	\$ 222	\$ (4,045)	\$ (71)	\$ -	\$ 11,727	\$ 219,348
Vanguard Target Retirement 2025 Inv	\$ 455,780	\$ 43,783	\$ (2,143)	\$ (106,132)	\$ (335)	\$ -	\$ 22,224	\$ 413,177
Vanguard Target Retirement 2030 Inv	\$ 613,110	\$ 69,475	\$ (88)	\$ (68,413)	\$ (521)	\$ -	\$ 38,642	\$ 652,204
Vanguard Target Retirement 2035 Inv	\$ 560,421	\$ 61,651	\$ -	\$ (114,965)	\$ (471)	\$ -	\$ 34,058	\$ 540,695
Vanguard Target Retirement 2040 Inv	\$ 663,315	\$ 92,078	\$ -	\$ (37,361)	\$ (497)	\$ -	\$ 49,570	\$ 767,106
Vanguard Target Retirement 2045 Inv	\$ 286,181	\$ 29,620	\$ -	\$ (140,907)	\$ (298)	\$ -	\$ 9,477	\$ 184,073
Vanguard Target Retirement 2050 Inv	\$ 355,669	\$ 43,061	\$ -	\$ (79,740)	\$ (357)	\$ -	\$ 22,874	\$ 341,507
Vanguard Target Retirement 2055 Inv	\$ 143,890	\$ 45,097	\$ -	\$ (55,174)	\$ (397)	\$ -	\$ 10,921	\$ 144,338
Vanguard Target Retirement 2060 Inv	\$ -	\$ 2,537	\$ -	\$ -	\$ (20)	\$ -	\$ 145	\$ 2,661
Vanguard Target Retirement 2065 Inv	\$ -	\$ 1,611	\$ -	\$ -	\$ (1)	\$ -	\$ 122	\$ 1,732
Vanguard Target Retirement 2070 Inv	\$ 21,388	\$ -	\$ -	\$ -	\$ (17)	\$ -	\$ 1,013	\$ 22,384
Vanguard Target Retirement Income Inv	\$ 83,514	\$ 5,537	\$ -	\$ (34,787)	\$ (42)	\$ -	\$ 2,393	\$ 56,615
Totals	\$ 5,275,483	\$ 555,863	\$ (0)	\$ (829,607)	\$ (2,404)	\$ -	\$ 319,136	\$ 5,318,471

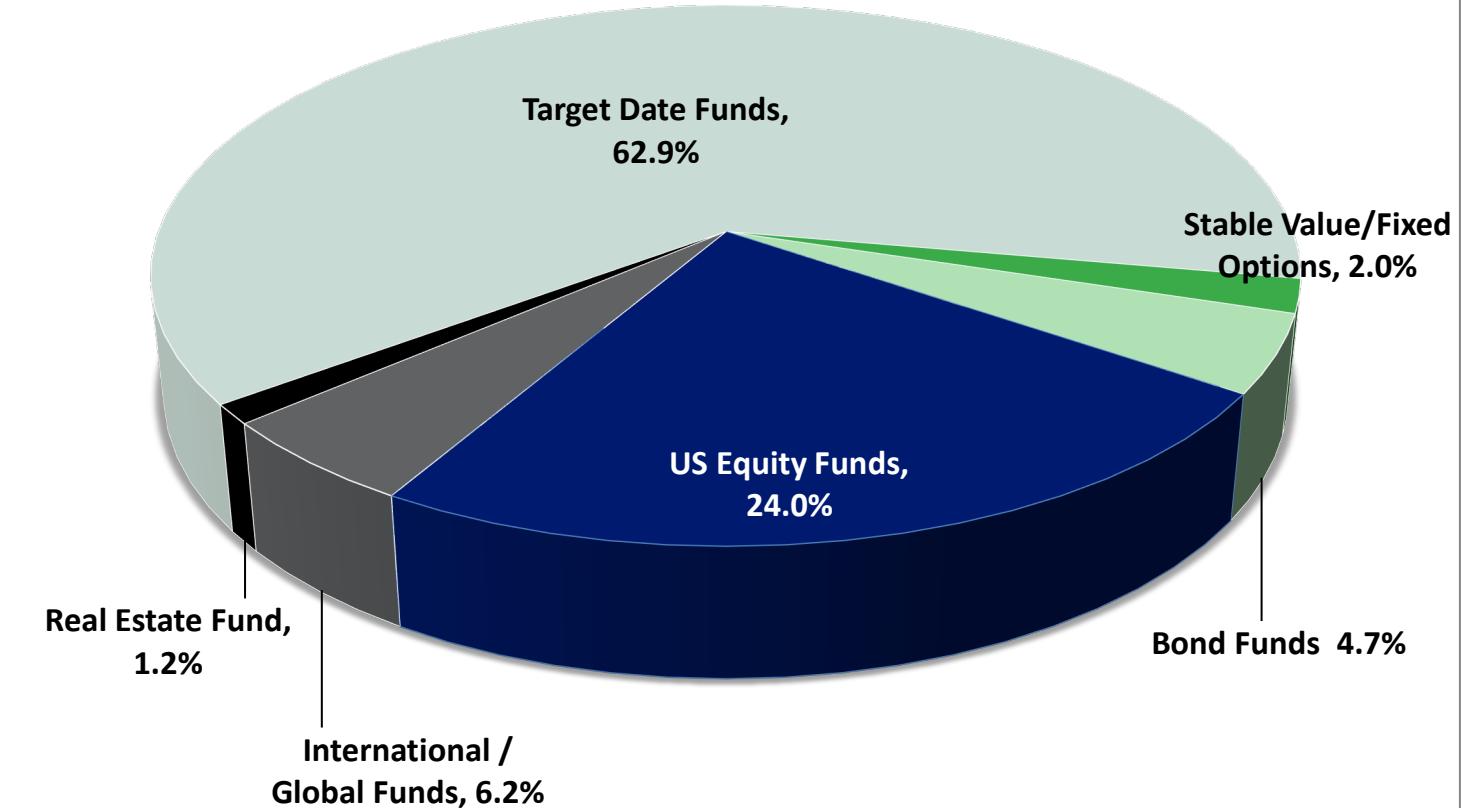
City of Memphis 401(a) MSCAA Retirement Plan

Plan Asset Allocation as of December 31, 2023

Asset Allocation as of June 30, 2023



Asset Allocation as of December 31, 2023



Plan Assets as of June 30, 2023

Fund Name	Plan Assets	% of Total
Stable Value/Fixed Options	\$ 105,562	2.0%
Bond Funds	\$ 252,669	4.8%
US Equity Funds	\$ 1,208,983	22.9%
International/Global Funds	\$ 272,765	5.2%
Real Estate Fund	\$ 57,960	1.1%
Target Date Funds	\$ 3,377,544	64.0%
Totals	\$ 5,275,483	100.0%

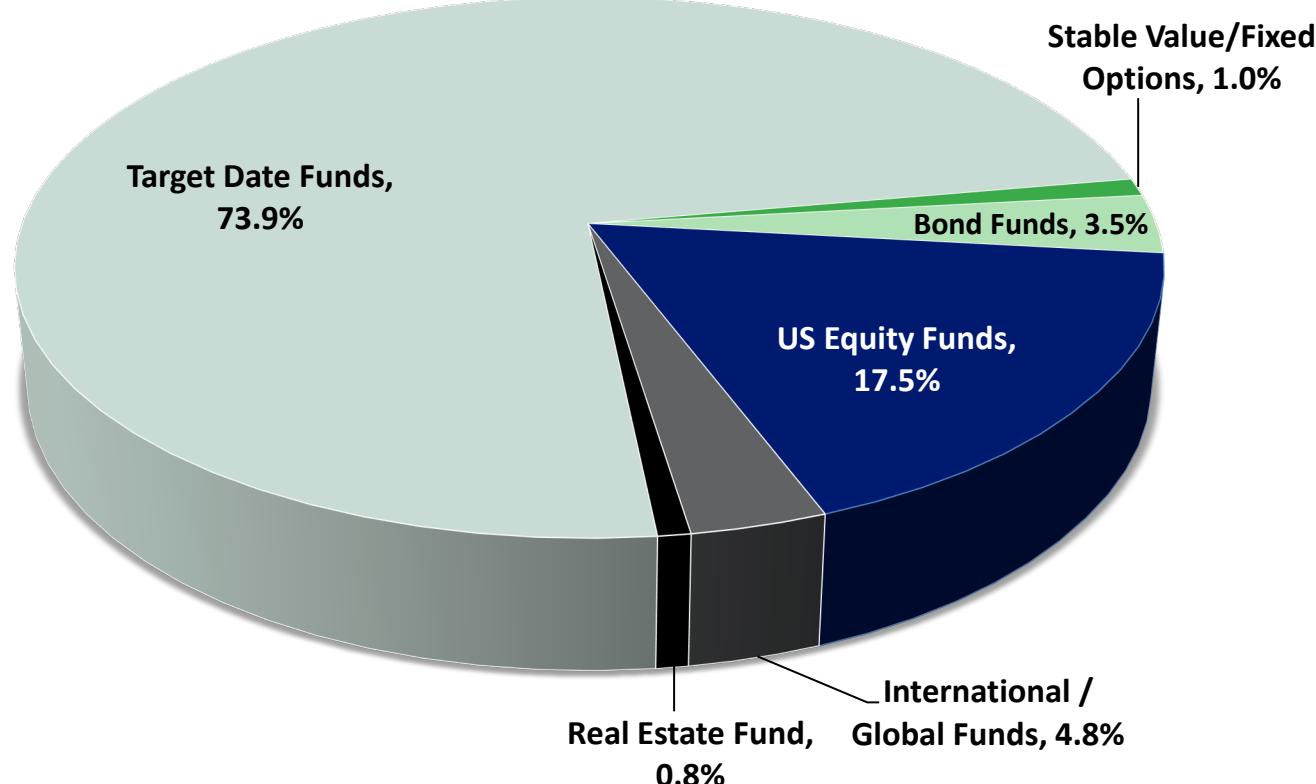
Plan Assets as of December 31, 2023

Fund Name	Plan Assets	% of Total
Stable Value/Fixed Options	\$ 107,454	2.0%
Bond Funds	\$ 249,800	4.7%
US Equity Funds	\$ 1,273,904	24.0%
International/Global Funds	\$ 278,542	5.2%
Real Estate Fund	\$ 62,929	1.2%
Target Date Funds	\$ 3,345,842	62.9%
Totals	\$ 5,318,471	100.0%

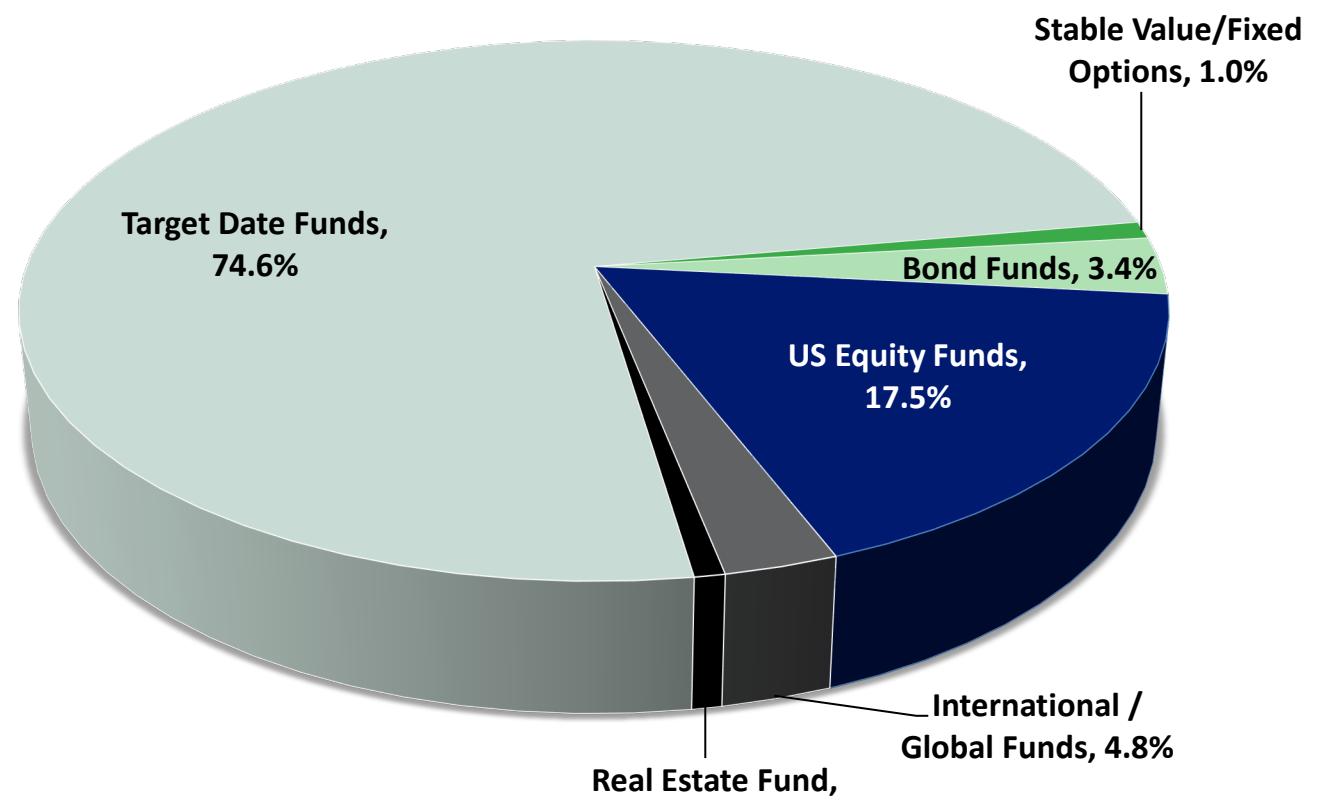
City of Memphis 401(a) MSCAA Retirement Plan

Contributions as of December 31, 2023

Plan Contributions 1Q & 2Q 2023



Plan Contributions 3Q & 4Q 2023



Plan Contributions 1Q & 2Q 2023

Fund Name	Plan Contributions	% of Total
Stable Value/Fixed Options	\$ 5,198	1.0%
Bond Funds	\$ 17,429	3.5%
US Equity Funds	\$ 87,324	17.5%
International/Global Funds	\$ 16,670	3.3%
Real Estate Fund	\$ 4,005	0.8%
Target Date Funds	\$ 369,176	73.9%
Totals	\$ 499,802	100.0%

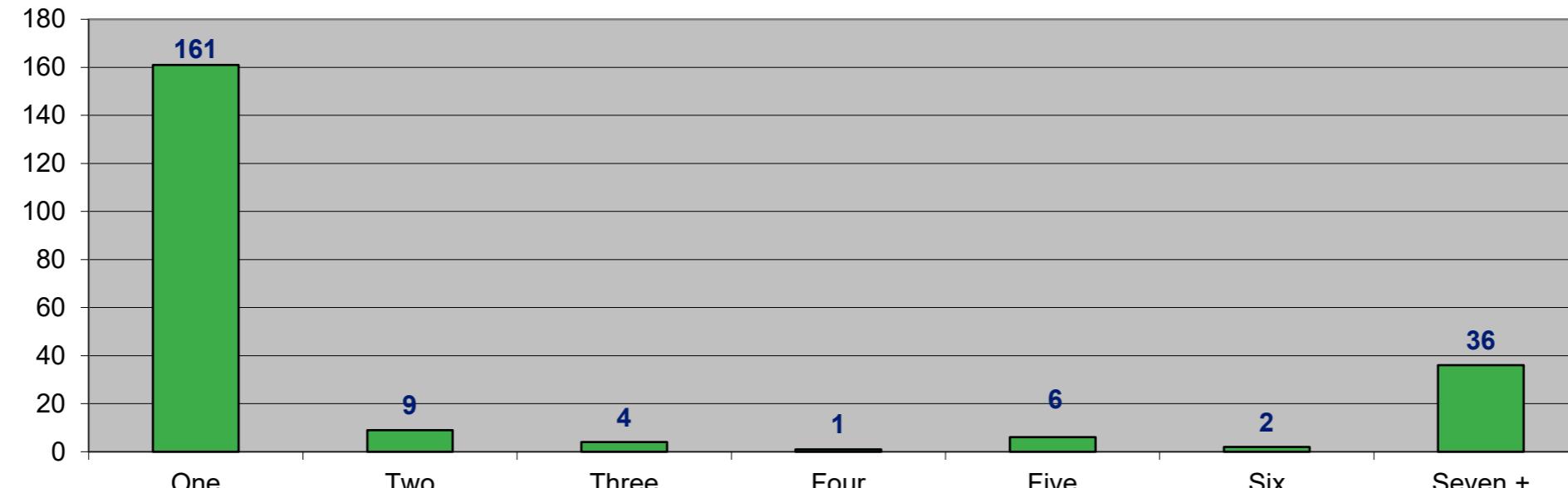
Plan Contributions 3Q & 4Q 2023

Fund Name	Plan Contributions	% of Total
Stable Value/Fixed Options	\$ 5,586	1.0%
Bond Funds	\$ 18,794	3.4%
US Equity Funds	\$ 96,593	17.5%
International/Global Funds	\$ 15,294	2.8%
Real Estate Fund	\$ 4,113	0.7%
Target Date Funds	\$ 411,692	74.6%
Totals	\$ 552,074	100.0%

City of Memphis 401(a) MSCAA Retirement Plan

Investment Diversification as of December 31, 2023

Investment Diversification as of December 31, 2023

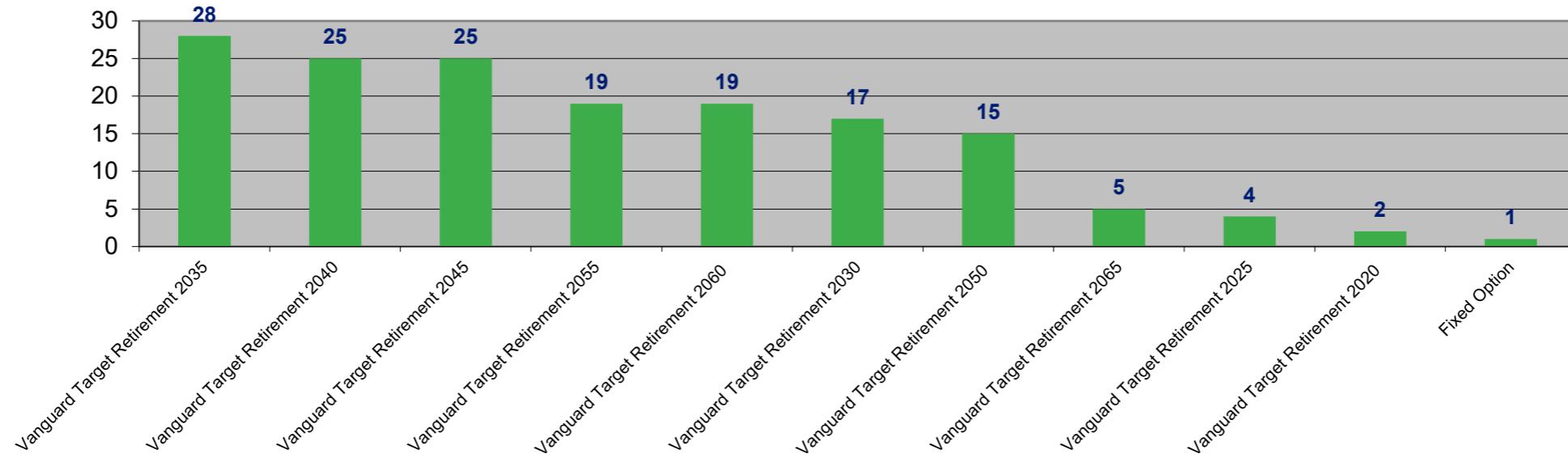


Number of Funds	No. of Participants	Percentage
One	161	73.5%
Two	9	4.1%
Three	4	1.8%
Four	1	0.5%
Five	6	2.7%
Six	2	0.9%
Seven +	36	16.4%
Total	219	100%

City of Memphis 401(a) MSCAA Retirement Plan

One Funders as of December 31, 2023

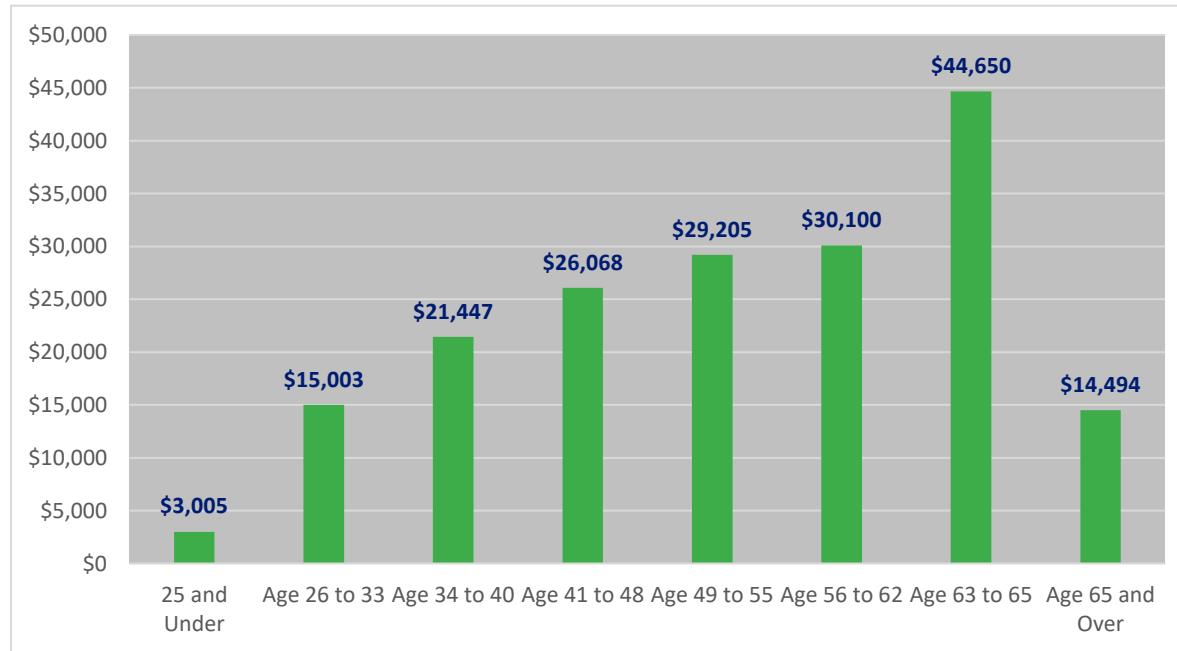
Participants with 100% Balance in One Fund



Number of Funds	No. of Participants	% of Participants
Vanguard Target Retirement 2035	28	17.4%
Vanguard Target Retirement 2040	25	15.5%
Vanguard Target Retirement 2045	25	15.5%
Vanguard Target Retirement 2055	19	11.8%
Vanguard Target Retirement 2060	19	11.8%
Vanguard Target Retirement 2030	17	10.6%
Vanguard Target Retirement 2050	15	9.3%
Vanguard Target Retirement 2065	5	3.1%
Vanguard Target Retirement 2025	4	2.5%
Vanguard Target Retirement 2020	2	1.2%
Fixed Option	1	0.6%
Vanguard Target Retirement Income	1	0.6%
Total	161	100.0%

City of Memphis 401(a) MSCAA Retirement Plan

Average Account Balance as of December 31, 2023



Age Range	No. of Participants	Average Account Balance
25 and Under	14	\$3,005
Age 26 to 33	26	\$15,003
Age 34 to 40	33	\$21,447
Age 41 to 48	51	\$26,068
Age 49 to 55	58	\$29,205
Age 56 to 62	30	\$30,100
Age 63 to 65	5	\$44,650
Age 65 and Over	2	\$14,494
Total	219	\$24,285

City of Memphis 401(a) Retirement Plan

Comparative Performance

As of December 31, 2023

	1 Quarter	Year To Date	1 Year	3 Years	5 Years	7 Years	10 Years	Expense Ratio
Fixed Option								
PIMCO Total Return	6.8	5.7	5.7	-3.8	0.7	1.0	1.3	1.1
<i>Blmbg. U.S. Aggregate</i>	6.8	5.5	5.5	-3.3	1.1	1.3	1.8	
IM U.S. Broad Market Core+ Fixed Income (MF) Median	6.9	6.3	6.3	-3.3	1.6	1.6	1.9	0.6
PIMCO Total Return Rank	60	76	76	75	90	86	88	
TCW Total Return Bond	7.9	5.0	5.0	-4.6	0.1	0.7	1.3	0.5
<i>Blmbg. U.S. Aggregate</i>	6.8	5.5	5.5	-3.3	1.1	1.3	1.8	
IM U.S. Broad Market Core+ Fixed Income (MF) Median	6.9	6.3	6.3	-3.3	1.6	1.6	1.9	0.6
TCW Total Return Bond Rank	7	91	91	96	99	93	87	
Delaware Ivy High Income Bond Fund	6.8	12.5	12.5	2.3	4.8	4.3		0.7
<i>FTSE High Yield Market Index</i>	6.9	13.5	13.5	2.1	5.3	4.4	4.4	
IM U.S. High Yield Bonds (MF) Median	6.6	12.2	12.2	1.6	4.7	3.8	3.7	0.8
Delaware Ivy High Income Bond Fund Rank	34	37	37	28	44	27		
Parnassus Core Equity	11.8	25.2	25.2	9.3	15.7	13.5	11.9	0.6
<i>S&P 500</i>	11.7	26.3	26.3	10.0	15.7	13.4	12.0	
IM U.S. Large Cap Core Equity (MF) Median	11.7	24.8	24.8	8.8	14.6	12.5	10.9	0.7
Parnassus Core Equity Rank	44	48	48	38	24	23	19	
Vanguard 500 Index Fund	11.7	26.2	26.2	10.0	15.7	13.4	12.0	0.0
<i>S&P 500</i>	11.7	26.3	26.3	10.0	15.7	13.4	12.0	
IM U.S. Large Cap Core Equity (MF) Median	11.7	24.8	24.8	8.8	14.6	12.5	10.9	0.7
Vanguard 500 Index Fund Rank	52	38	38	26	26	26	14	
Edgar Lomax Value Fund	8.8	5.2	5.2	9.6	8.8	8.5	8.5	0.7
<i>Russell 1000 Value Index</i>	9.5	11.5	11.5	8.9	10.9	8.3	8.4	
IM U.S. Large Cap Value Equity (MF) Median	9.6	12.6	12.6	9.6	11.8	9.3	8.7	0.8
Edgar Lomax Value Fund Rank	76	94	94	53	96	75	59	

Returns for periods greater than one year are annualized.

Returns are expressed as percentages.

*S&P MidCap 400 Index through May 16, 2003; MSCI US Mid Cap 450 Index through January 30, 2013; CRSP US Mid Cap Index thereafter.

* Performance prior to February 2012 represents the Y Share Class; February 2012 forward represents the I Share Class.

City of Memphis 401(a) Retirement Plan

Comparative Performance

As of December 31, 2023

	1 Quarter	Year To Date	1 Year	3 Years	5 Years	7 Years	10 Years	Expense Ratio
Fidelity Contrafund	11.4	39.3	39.3	7.5	16.5	15.7	12.8	0.6
Russell 1000 Growth Index	14.2	42.7	42.7	8.9	19.5	17.7	14.9	
IM U.S. Large Cap Growth Equity (MF) Median	14.1	40.8	40.8	5.7	16.4	15.3	12.6	0.8
Fidelity Contrafund Rank	94	62	62	25	49	42	45	
Vanguard Mid Cap Index	12.3	16.0	16.0	5.5	12.7	10.2	9.4	0.1
Mid Cap Index Blend*	12.3	16.0	16.0	5.5	12.7	10.2	9.4	
IM U.S. Mid Cap Core Equity (MF) Median	11.5	13.9	13.9	7.6	11.7	8.4	7.6	0.9
Vanguard Mid Cap Index Rank	41	33	33	83	28	14	11	
JP Morgan Mid Cap Value	12.2	11.4	11.4	10.0	11.1	7.9		0.7
Russell Midcap Value Index	12.1	12.7	12.7	8.4	11.2	7.8	8.3	
IM U.S. Mid Cap Value Equity (MF) Median	11.1	11.6	11.6	10.1	11.5	7.9	7.7	0.9
JP Morgan Mid Cap Value Rank	21	52	52	52	59	51		
Eaton Vance Atlanta Capital SMID	10.9	13.7	13.7	8.0	13.4	12.0	10.9	1.1
Russell 2500 Index	13.4	17.4	17.4	4.2	11.7	9.0	8.4	
IM U.S. SMID Cap Core Equity (MF) Median	11.5	15.3	15.3	7.3	11.1	7.5	7.4	1.0
Eaton Vance Atlanta Capital SMID Rank	63	66	66	39	10	3	1	
Neuberger Berman Genesis Trust	9.2	15.9	15.9	3.6	12.5	10.1	8.8	0.7
Russell 2000 Index	14.0	16.9	16.9	2.2	10.0	7.3	7.2	
IM U.S. Small Cap Equity (MF) Median	12.2	16.3	16.3	5.7	10.8	7.8	7.3	1.1
Neuberger Berman Genesis Trust Rank	91	54	54	60	22	19	12	
Harbor Small Cap Value Fund	11.5	15.1	15.1	6.1	11.7	8.6	8.6	0.9
Russell 2000 Value Index	15.3	14.6	14.6	7.9	10.0	6.1	6.8	
IM U.S. Small Cap Value Equity (MF) Median	13.3	16.6	16.6	11.3	11.6	7.0	6.8	1.1
Harbor Small Cap Value Fund Rank	81	64	64	99	49	15	9	

Returns for periods greater than one year are annualized.

Returns are expressed as percentages.

*S&P MidCap 400 Index through May 16, 2003; MSCI US Mid Cap 450 Index through January 30, 2013; CRSP US Mid Cap Index thereafter.

* Performance prior to February 2012 represents the Y Share Class; February 2012 forward represents the I Share Class.

City of Memphis 401(a) Retirement Plan

Comparative Performance

As of December 31, 2023

	1 Quarter	Year To Date	1 Year	3 Years	5 Years	7 Years	10 Years	Expense Ratio
Brown Capital Management Small Company	8.8	19.4	19.4	-10.7	6.0	8.1	7.6	1.1
Russell 2000 Growth Index	12.7	18.7	18.7	-3.5	9.2	8.1	7.2	
IM U.S. Small Cap Growth Equity (MF) Median	11.3	16.5	16.5	-2.3	10.5	9.6	7.6	1.1
Brown Capital Management Small Company Rank	89	23	23	93	96	72	50	
American Funds Europacific Growth Fund	10.4	16.1	16.1	-2.7	8.0	7.3	4.9	0.5
MSCI EAFE (Net)	10.4	18.2	18.2	4.0	8.2	6.9	4.3	
IM International Large Cap Core Equity (MF) Median	10.4	17.2	17.2	3.0	7.9	6.4	3.4	0.9
American Funds Europacific Growth Fund Rank	54	72	72	100	47	20	8	
MFS International Value	10.0	17.6	17.6	-0.2	8.5	8.1	6.8	1.0
MSCI EAFE Value Index (Net)	8.2	19.0	19.0	7.6	7.1	5.5	3.2	
IM International Value Equity (MF) Median	8.6	17.9	17.9	5.7	7.4	5.7	3.4	1.0
MFS International Value Rank	19	53	53	99	31	2	1	
American Funds Global Insight R6	11.3	18.6	18.6	4.6				0.5
MSCI World (Net)	11.4	23.8	23.8	7.3	12.8	10.7	8.6	
IM Global Large Cap Core Equity (MF) Median	11.3	19.3	19.3	4.8	11.2	10.2	7.7	0.9
American Funds Global Insight R6 Rank	45	59	59	59				
Vanguard REIT Index Admiral	18.1	11.8	11.8	5.0	7.3	5.0	7.4	0.1
Vanguard REIT Spliced Index	18.2	12.0	12.0	5.2	7.4	5.1	7.5	
IM Global Real Estate (MF) Median	14.9	11.0	11.0	1.5	4.3	3.7	4.2	1.1
Vanguard REIT Index Admiral Rank	3	30	30	3	7	21	1	
Vanguard Target Retirement Income	7.3	10.7	10.7	0.6	4.8	4.3	4.1	0.1
Vanguard Target Income Composite Index	7.3	10.8	10.8	0.8	5.1	4.6	4.3	
IM Mixed-Asset Target Today (MF) Median	7.6	10.6	10.6	0.5	4.8	4.3	3.8	0.6
Vanguard Target Retirement Income Rank	56	44	44	48	52	52	37	

Returns for periods greater than one year are annualized.

Returns are expressed as percentages.

*S&P MidCap 400 Index through May 16, 2003; MSCI US Mid Cap 450 Index through January 30, 2013; CRSP US Mid Cap Index thereafter.

* Performance prior to February 2012 represents the Y Share Class; February 2012 forward represents the I Share Class.

City of Memphis 401(a) Retirement Plan

Comparative Performance

As of December 31, 2023

	1 Quarter	Year To Date	1 Year	3 Years	5 Years	7 Years	10 Years	Expense Ratio
Vanguard Target Retirement 2020	8.0	12.5	12.5	1.5	6.6	6.0	5.5	0.1
<i>Vanguard Target 2020 Composite Index</i>	8.0	12.7	12.7	1.7	7.0	6.3	5.8	
IM Mixed-Asset Target 2020 (MF) Median	8.2	11.6	11.6	1.3	6.5	5.6	5.0	0.6
Vanguard Target Retirement 2020 Rank	66	27	27	44	37	23	12	
Vanguard Target Retirement 2025	8.9	14.5	14.5	2.0	7.6	6.8	6.1	0.1
<i>Vanguard Target 2025 Composite Index</i>	8.9	14.7	14.7	2.4	8.0	7.1	6.4	
IM Mixed-Asset Target 2025 (MF) Median	8.6	12.5	12.5	1.5	6.9	6.1	5.3	0.6
Vanguard Target Retirement 2025 Rank	29	5	5	25	22	17	7	
Vanguard Target Retirement 2030	9.5	16.0	16.0	2.7	8.4	7.5	6.6	0.1
<i>Vanguard Target 2030 Composite Index</i>	9.5	16.3	16.3	3.0	8.8	7.8	6.9	
IM Mixed-Asset Target 2030 (MF) Median	9.3	14.4	14.4	2.3	8.0	7.0	5.9	0.6
Vanguard Target Retirement 2030 Rank	36	5	5	32	32	25	13	
Vanguard Target Retirement 2035	9.8	17.1	17.1	3.3	9.2	8.1	7.1	0.1
<i>Vanguard Target 2035 Composite Index</i>	9.9	17.4	17.4	3.7	9.6	8.5	7.4	
IM Mixed-Asset Target 2035 (MF) Median	10.0	16.3	16.3	3.3	9.1	7.9	6.6	0.6
Vanguard Target Retirement 2035 Rank	62	24	24	46	47	36	25	
Vanguard Target Retirement 2040	10.2	18.3	18.3	4.0	10.0	8.8	7.5	0.1
<i>Vanguard Target 2040 Composite Index</i>	10.2	18.6	18.6	4.4	10.4	9.1	7.9	
IM Mixed-Asset Target 2040 (MF) Median	10.5	18.1	18.1	4.1	9.9	8.5	7.1	0.6
Vanguard Target Retirement 2040 Rank	73	45	45	57	46	33	27	
Vanguard Target Retirement 2045	10.6	19.5	19.5	4.7	10.8	9.3	7.9	0.1
<i>Vanguard Target 2045 Composite Index</i>	10.5	19.8	19.8	5.0	11.2	9.6	8.3	
IM Mixed-Asset Target 2045 (MF) Median	10.9	19.2	19.2	4.6	10.5	8.9	7.4	0.6
Vanguard Target Retirement 2045 Rank	67	38	38	48	36	28	20	

Returns for periods greater than one year are annualized.

Returns are expressed as percentages.

*S&P MidCap 400 Index through May 16, 2003; MSCI US Mid Cap 450 Index through January 30, 2013; CRSP US Mid Cap Index thereafter.

* Performance prior to February 2012 represents the Y Share Class; February 2012 forward represents the I Share Class.

City of Memphis 401(a) Retirement Plan

Comparative Performance

As of December 31, 2023

	1 Quarter	Year To Date	1 Year	3 Years	5 Years	7 Years	10 Years	Expense Ratio
Vanguard Target Retirement 2050	10.8	20.2	20.2	4.9	10.9	9.4	8.0	0.1
<i>Vanguard Target 2050 Composite Index</i>	10.8	20.5	20.5	5.3	11.4	9.8	8.3	
IM Mixed-Asset Target 2050 (MF) Median	11.0	19.8	19.8	4.7	10.7	9.1	7.4	0.6
Vanguard Target Retirement 2050 Rank	63	38	38	39	36	23	19	
Vanguard Target Retirement 2055	10.8	20.2	20.2	4.9	10.9	9.4	8.0	0.1
<i>Vanguard Target 2055 Composite Index</i>	10.8	20.5	20.5	5.3	11.4	9.8	8.3	
IM Mixed-Asset Target 2055 (MF) Median	11.1	19.9	19.9	4.8	10.7	9.1	7.6	0.6
Vanguard Target Retirement 2055 Rank	64	44	44	39	39	28	23	
Vanguard Target Retirement 2060	10.8	20.2	20.2	4.9	10.9	9.4	8.0	0.1
<i>Vanguard Target 2060 Composite Index</i>	10.8	20.5	20.5	5.3	11.4	9.8	8.3	
IM Mixed-Asset Target 2055 (MF) Median	11.1	19.9	19.9	4.8	10.7	9.1	7.6	0.6
Vanguard Target Retirement 2060 Rank	64	42	42	38	38	28	24	

Returns for periods greater than one year are annualized.

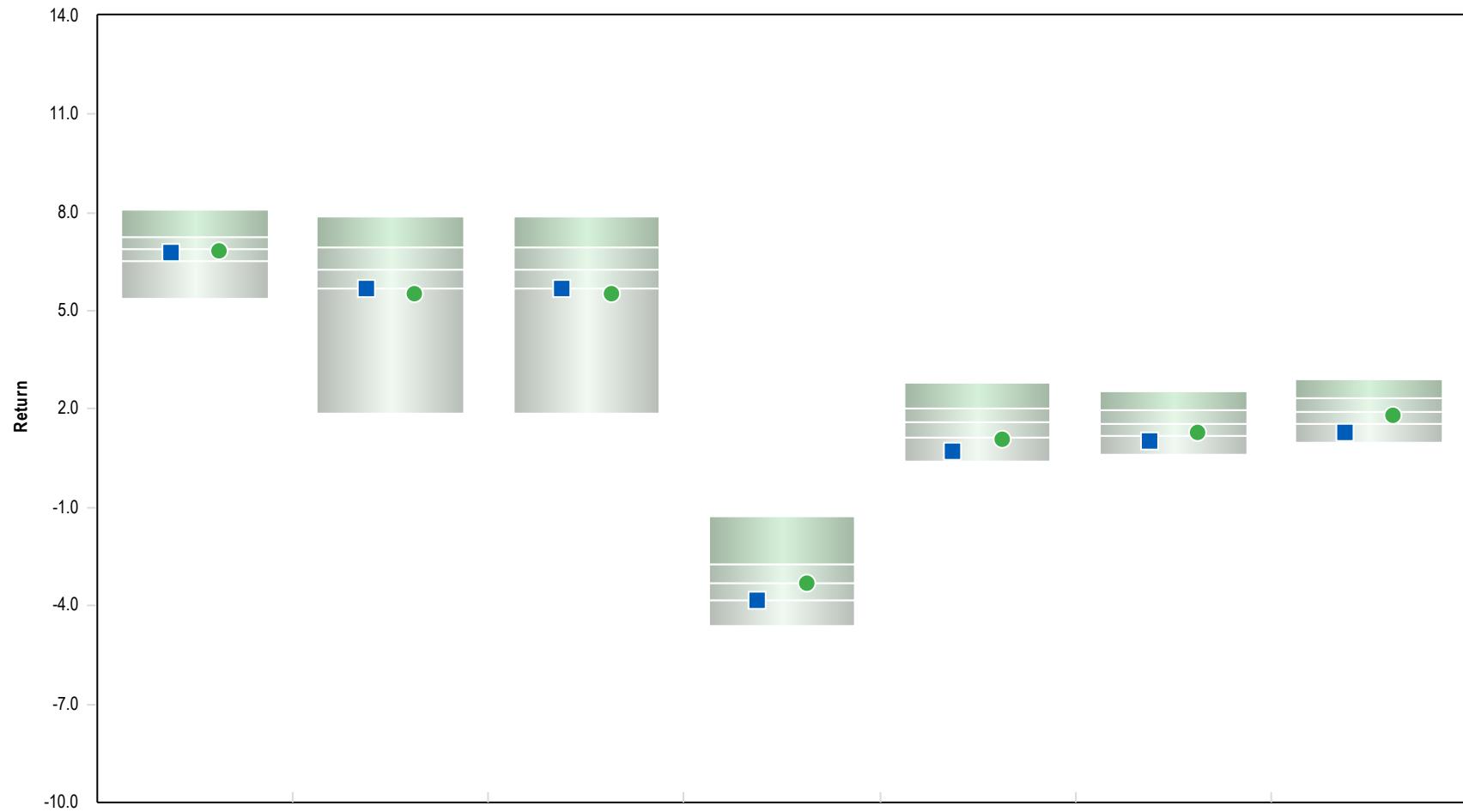
Returns are expressed as percentages.

*S&P MidCap 400 Index through May 16, 2003; MSCI US Mid Cap 450 Index through January 30, 2013; CRSP US Mid Cap Index thereafter.

* Performance prior to February 2012 represents the Y Share Class; February 2012 forward represents the I Share Class.

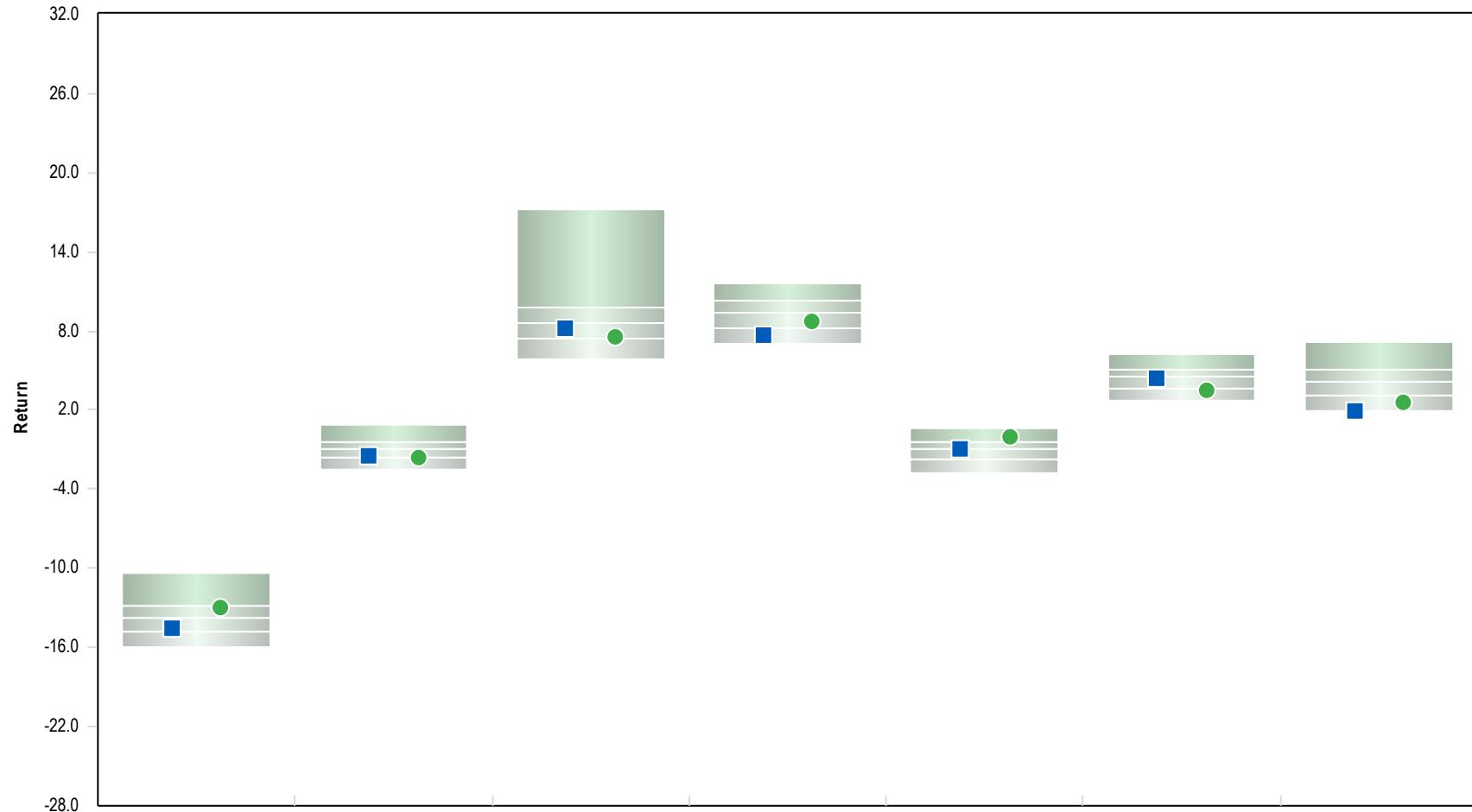
INVESTMENT OPTIONS

Peer Group Analysis - IM U.S. Broad Market Core+ Fixed Income (MF)



	1 Qtr	YTD	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
PIMCO Total Return	6.8 (60)	5.7 (76)	5.7 (76)	-3.8 (75)	0.7 (90)	1.0 (86)	1.3 (88)
Blmbg. U.S. Aggregate	6.8 (57)	5.5 (80)	5.5 (80)	-3.3 (50)	1.1 (77)	1.3 (71)	1.8 (58)
5th Percentile	8.1	7.9	7.9	-1.3	2.8	2.5	2.9
1st Quartile	7.3	6.9	6.9	-2.7	2.0	2.0	2.3
Median	6.9	6.3	6.3	-3.3	1.6	1.6	1.9
3rd Quartile	6.5	5.7	5.7	-3.8	1.1	1.2	1.6
95th Percentile	5.4	1.9	1.9	-4.6	0.4	0.6	1.0

Peer Group Analysis - IM U.S. Broad Market Core+ Fixed Income (MF)



	2022	2021	2020	2019	2018	2017	2016
PIMCO Total Return	-14.6 (71)	-1.4 (70)	8.2 (58)	7.6 (88)	-0.9 (47)	4.5 (52)	1.9 (96)
Bloomberg U.S. Aggregate	-13.0 (29)	-1.5 (74)	7.5 (73)	8.7 (65)	0.0 (17)	3.5 (78)	2.6 (84)

5th Percentile	-10.3	0.9	17.2	11.6	0.7	6.2	7.2
1st Quartile	-12.8	-0.4	9.7	10.3	-0.4	5.1	5.0
Median	-13.7	-0.9	8.6	9.3	-1.0	4.5	4.1
3rd Quartile	-14.8	-1.6	7.4	8.3	-1.7	3.6	3.1
95th Percentile	-16.0	-2.5	5.9	7.1	-2.7	2.7	2.0

Fund Information

Fund Name : PIMCO Funds: PIMCO Total Return Fund; Class R Shares
 Fund Family : PIMCO
 Ticker : PTRRX
 Inception Date : 12/31/2002
 Fund Assets : \$399 Million
 Portfolio Turnover : 377%

Portfolio Assets : \$58,627 Million
 Portfolio Manager : Team Managed
 PM Tenure :
 Fund Style : IM U.S. Broad Market Core+ Fixed Income (MF)
 Style Benchmark : Blmbg. U.S. Aggregate

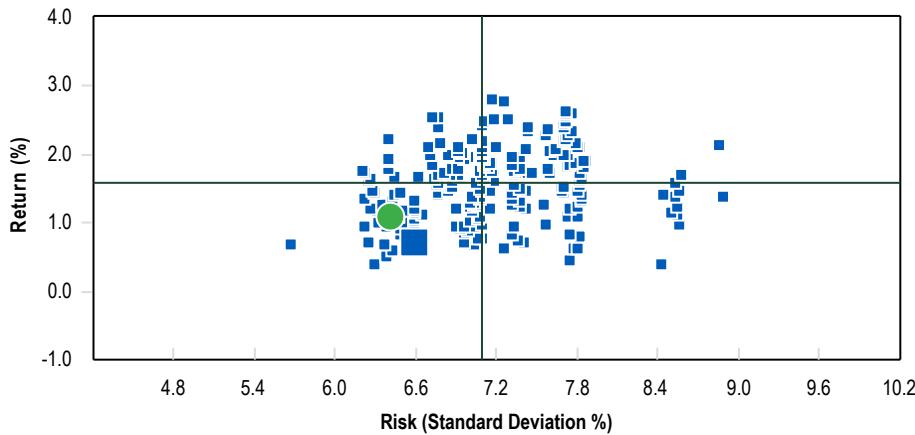
Fund Investment Policy

The Fund seeks maximum total return, consistent with preservation of capital and prudent investment management. The Fund seeks to achieve its investment objective by investing in a diversified portfolio of fixed income instruments. The average portfolio duration normally varies within a three-to-six year time frame.

Historical Statistics (01/01/19 - 12/31/23) *

	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Excess Risk	Inception Date
PIMCO Total Return	0.7	6.6	-0.1	-0.4	1.0	1.0	0.9	-0.4	6.4	04/01/2001
Blmbg. U.S. Aggregate	1.1	6.4	-0.1	0.0	1.0	1.0	0.0		6.2	04/01/2001
90 Day U.S. Treasury Bill	1.9	0.9		1.8	0.0	0.1	6.2	0.1	0.0	04/01/2001

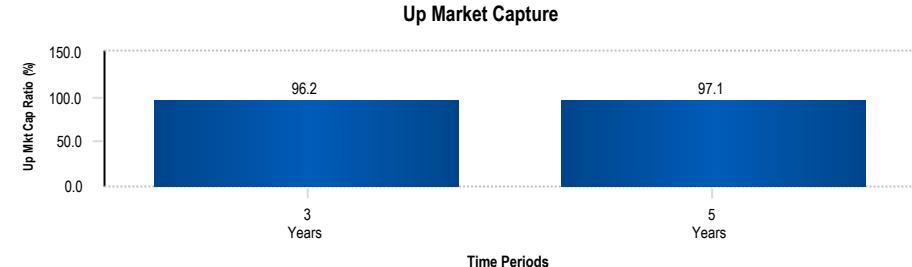
Peer Group Scattergram (01/01/19 to 12/31/23)



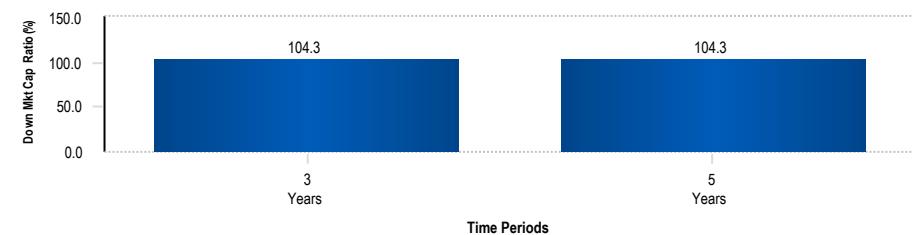
	Return	Standard Deviation
PIMCO Total Return	0.7	6.6
Blmbg. U.S. Aggregate	1.1	6.4
Median	1.6	7.1

* Quarterly periodicity used.

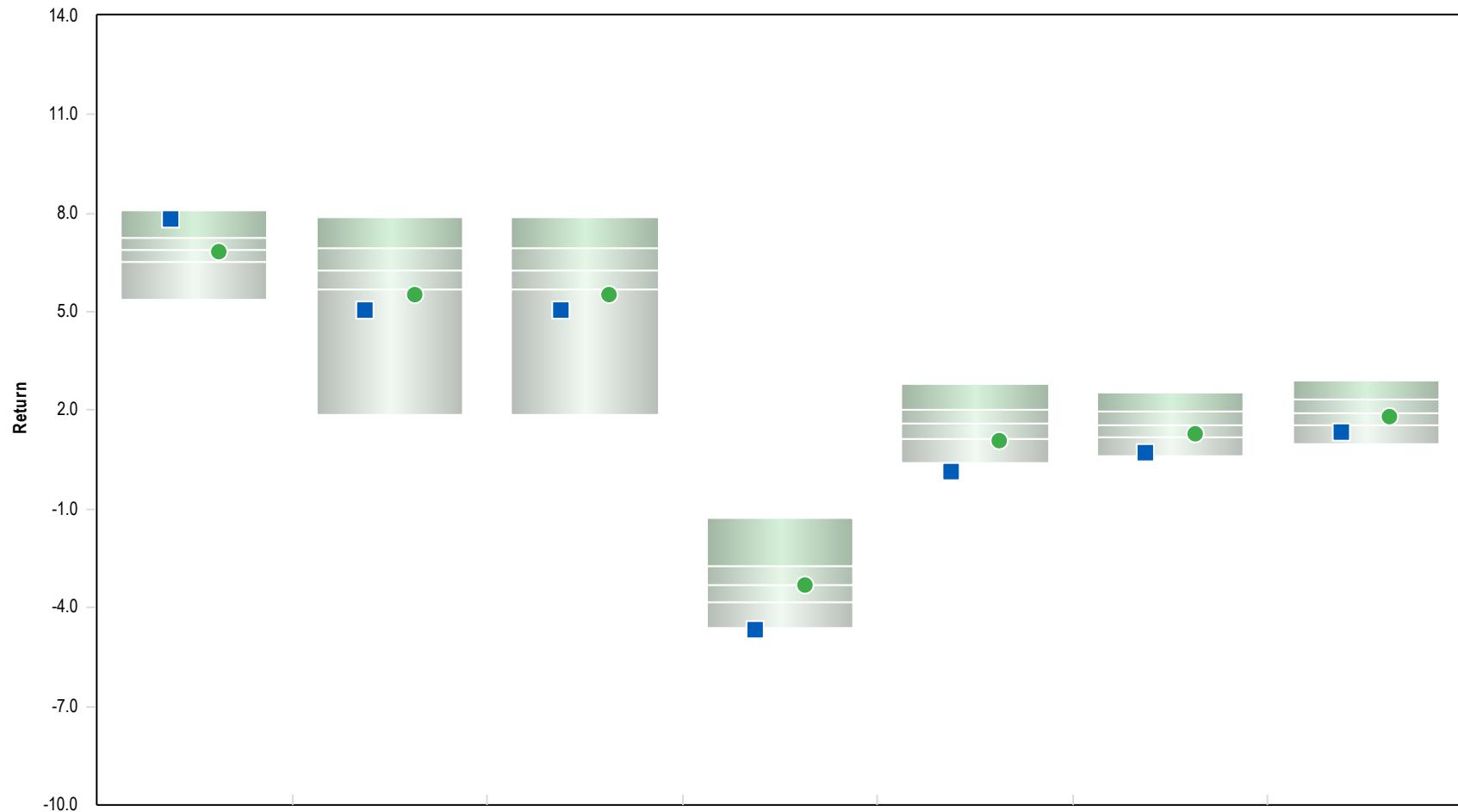
Up Down Market Capture



Down Market Capture



Peer Group Analysis - IM U.S. Broad Market Core+ Fixed Income (MF)



■ TCW Total Return Bond

● Blmbg. U.S. Aggregate

	1 Qtr	YTD	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
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TCW Total Return Bond	7.9 (7)	5.0 (91)	5.0 (91)	-4.6 (96)	0.1 (99)	0.7 (93)	1.3 (87)
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Blmbg. U.S. Aggregate	6.8 (57)	5.5 (80)	5.5 (80)	-3.3 (50)	1.1 (77)	1.3 (71)	1.8 (58)
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5th Percentile

5th Percentile	8.1	7.9	7.9	-1.3	2.8	2.5	2.9
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1st Quartile

1st Quartile	7.3	6.9	6.9	-2.7	2.0	2.0	2.3
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Median

Median	6.9	6.3	6.3	-3.3	1.6	1.6	1.9
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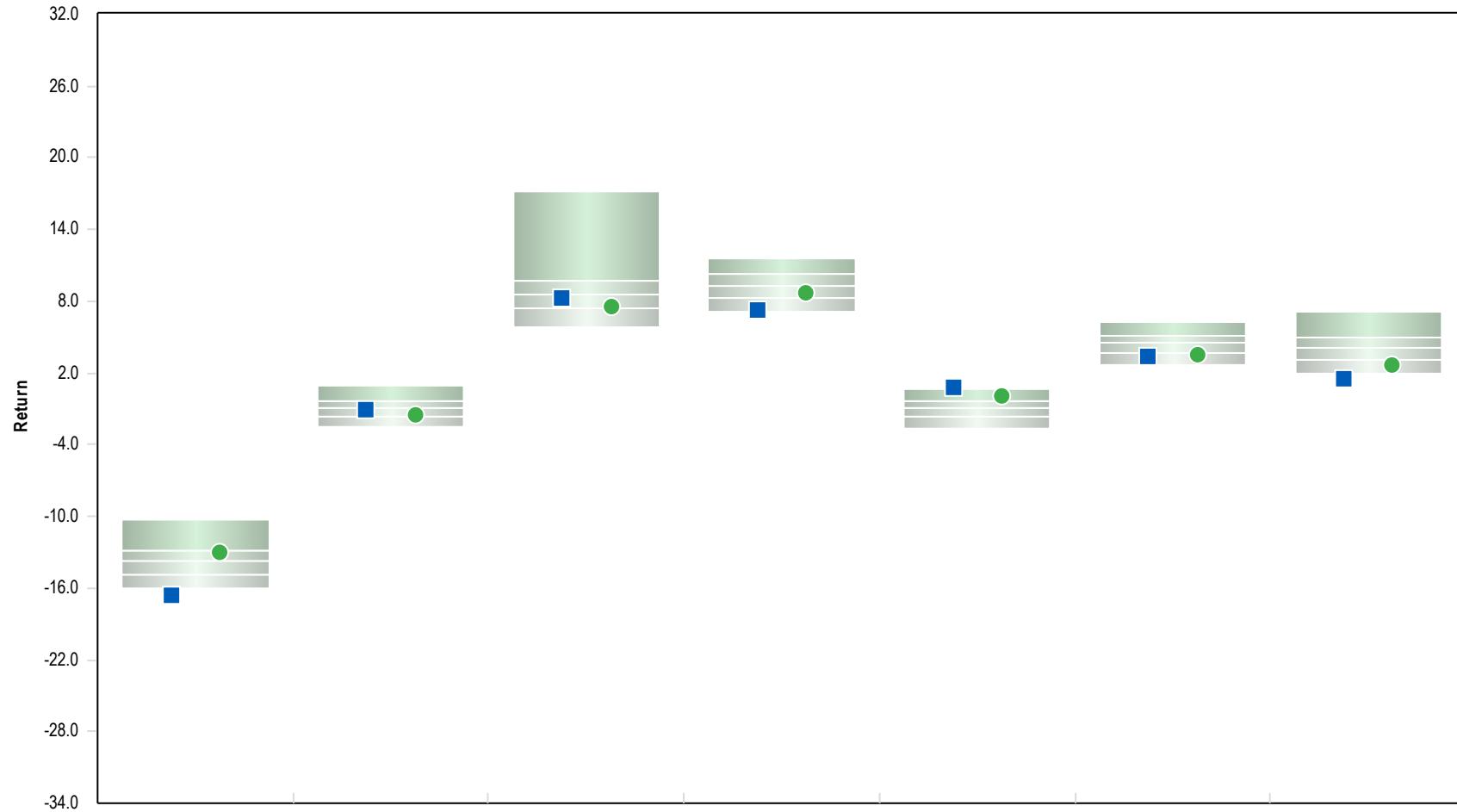
3rd Quartile

3rd Quartile	6.5	5.7	5.7	-3.8	1.1	1.2	1.6
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95th Percentile

95th Percentile	5.4	1.9	1.9	-4.6	0.4	0.6	1.0
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Peer Group Analysis - IM U.S. Broad Market Core+ Fixed Income (MF)



	2022	2021	2020	2019	2018	2017	2016
TCW Total Return Bond	-16.6 (98)	-1.1 (55)	8.3 (57)	7.3 (92)	0.8 (4)	3.4 (81)	1.5 (99)
Bloomberg U.S. Aggregate	-13.0 (29)	-1.5 (74)	7.5 (73)	8.7 (65)	0.0 (17)	3.5 (78)	2.6 (84)

5th Percentile	-10.3	0.9	17.2	11.6	0.7	6.2	7.2
1st Quartile	-12.8	-0.4	9.7	10.3	-0.4	5.1	5.0
Median	-13.7	-0.9	8.6	9.3	-1.0	4.5	4.1
3rd Quartile	-14.8	-1.6	7.4	8.3	-1.7	3.6	3.1
95th Percentile	-16.0	-2.5	5.9	7.1	-2.7	2.7	2.0

Fund Information

Fund Name :	TCW Funds, Inc: TCW Total Return Bond Fund; Class I Shares	Portfolio Assets :	\$2,543 Million
Fund Family :	TCW Funds	Portfolio Manager :	Crawford/Whalen/Gelderan
Ticker :	TGLMX	PM Tenure :	2020–2021–2023
Inception Date :	06/17/1993	Fund Style :	IM U.S. Broad Market Core+ Fixed Income (MF)
Fund Assets :	\$2,141 Million	Style Benchmark :	Blmbg. U.S. Aggregate
Portfolio Turnover :	387%		

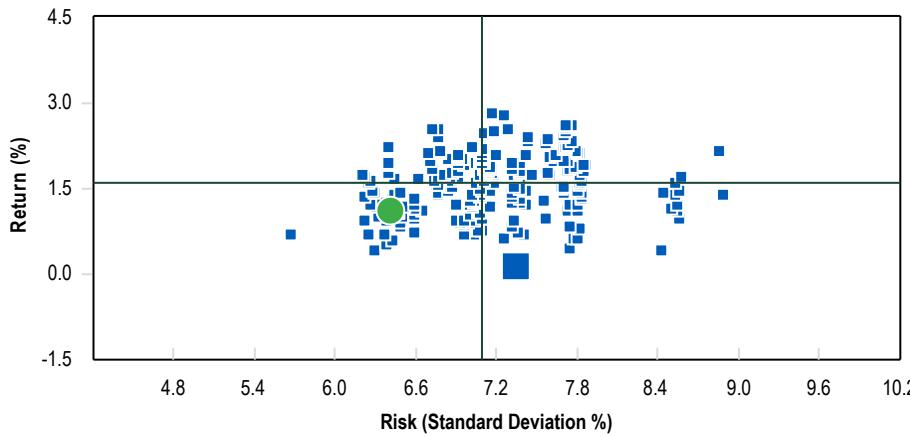
Fund Investment Policy

The Fund seeks to maximize current income and achieve above average total return consistent with prudent investment management over a full market cycle.

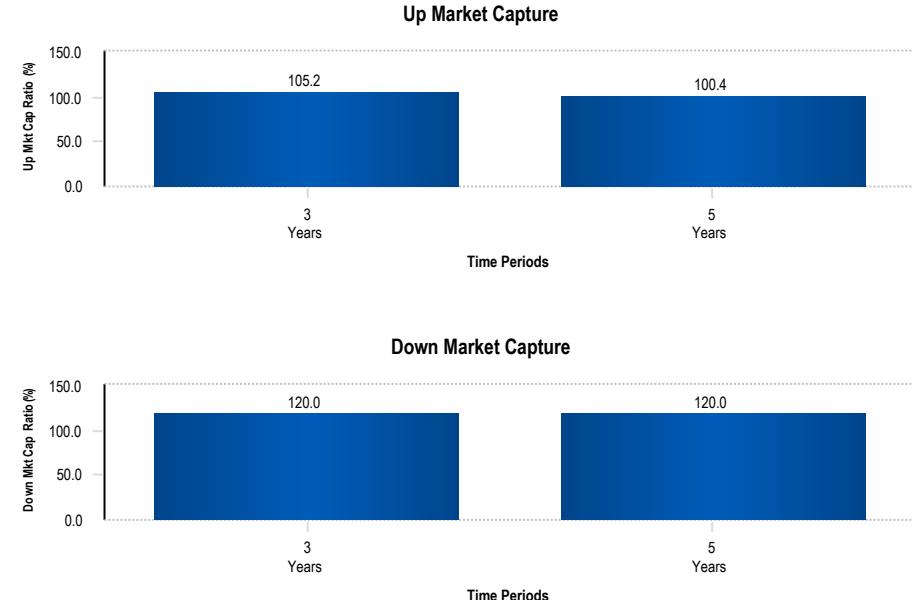
Historical Statistics (01/01/19 - 12/31/23) *

	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Excess Risk	Inception Date
TCW Total Return Bond	0.1	7.3	-0.2	-1.1	1.1	1.0	1.4	-0.6	7.1	07/01/1993
Blmbg. U.S. Aggregate	1.1	6.4	-0.1	0.0	1.0	1.0	0.0		6.2	07/01/1993
90 Day U.S. Treasury Bill	1.9	0.9		1.8	0.0	0.1	6.2	0.1	0.0	07/01/1993

Peer Group Scattergram (01/01/19 to 12/31/23)

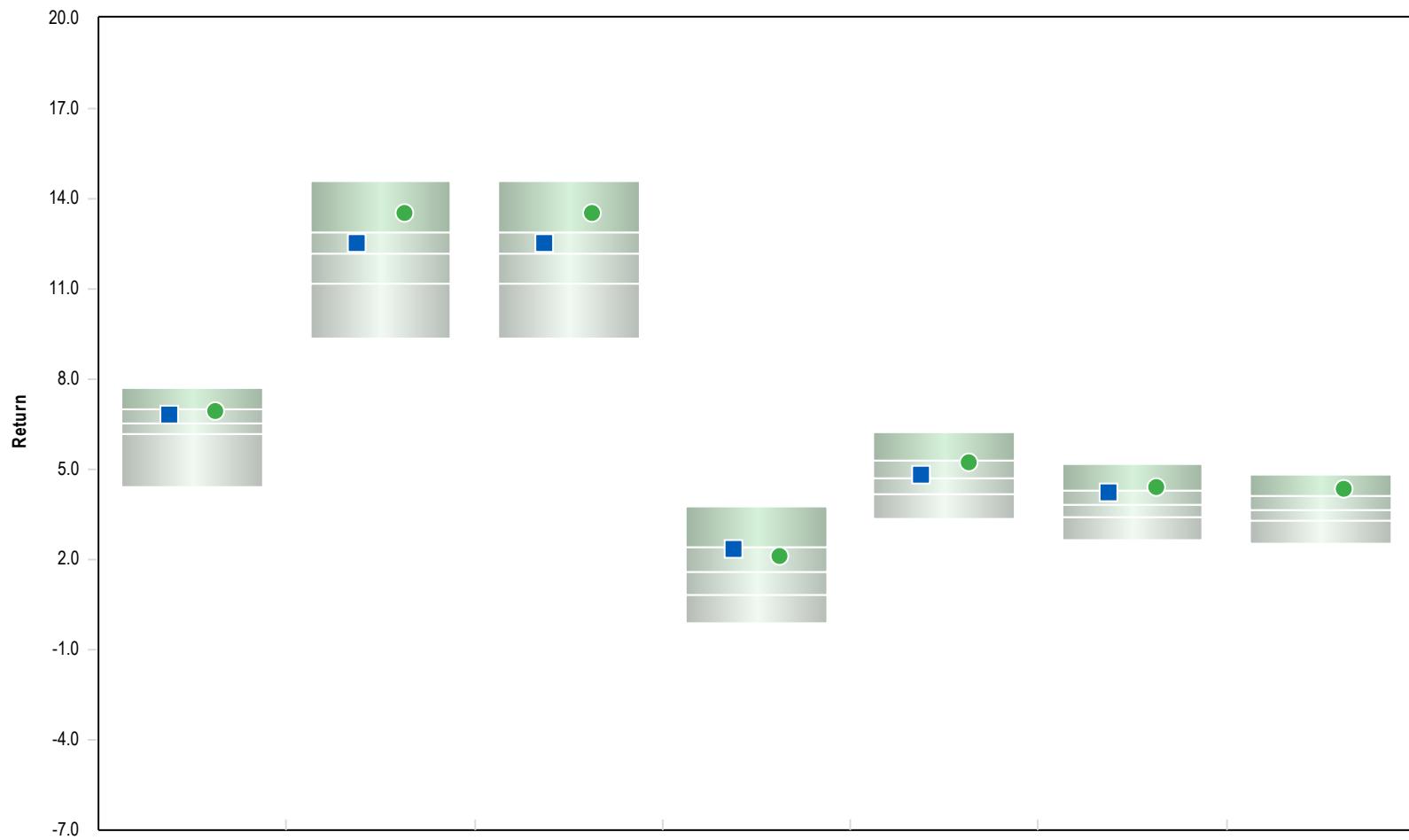


Up Down Market Capture



* Quarterly periodicity used.

Peer Group Analysis - IM U.S. High Yield Bonds (MF)



■ Delaware Ivy High Income Bond Fund

● FTSE High Yield Market Index

1 Qtr YTD 1 Yr 3 Yrs 5 Yrs 7 Yrs 10 Yrs

6.8 (34) 12.5 (37) 12.5 (37) 2.3 (28) 4.8 (44) 4.3 (27) 4.4 (16)

6.9 (28) 13.5 (13) 13.5 (13) 2.1 (33) 5.3 (29) 4.4 (21)

5th Percentile

7.7 14.6 14.6 3.7 6.2 5.2 4.8

1st Quartile

7.0 12.9 12.9 2.4 5.3 4.3 4.1

Median

6.6 12.2 12.2 1.6 4.7 3.8 3.7

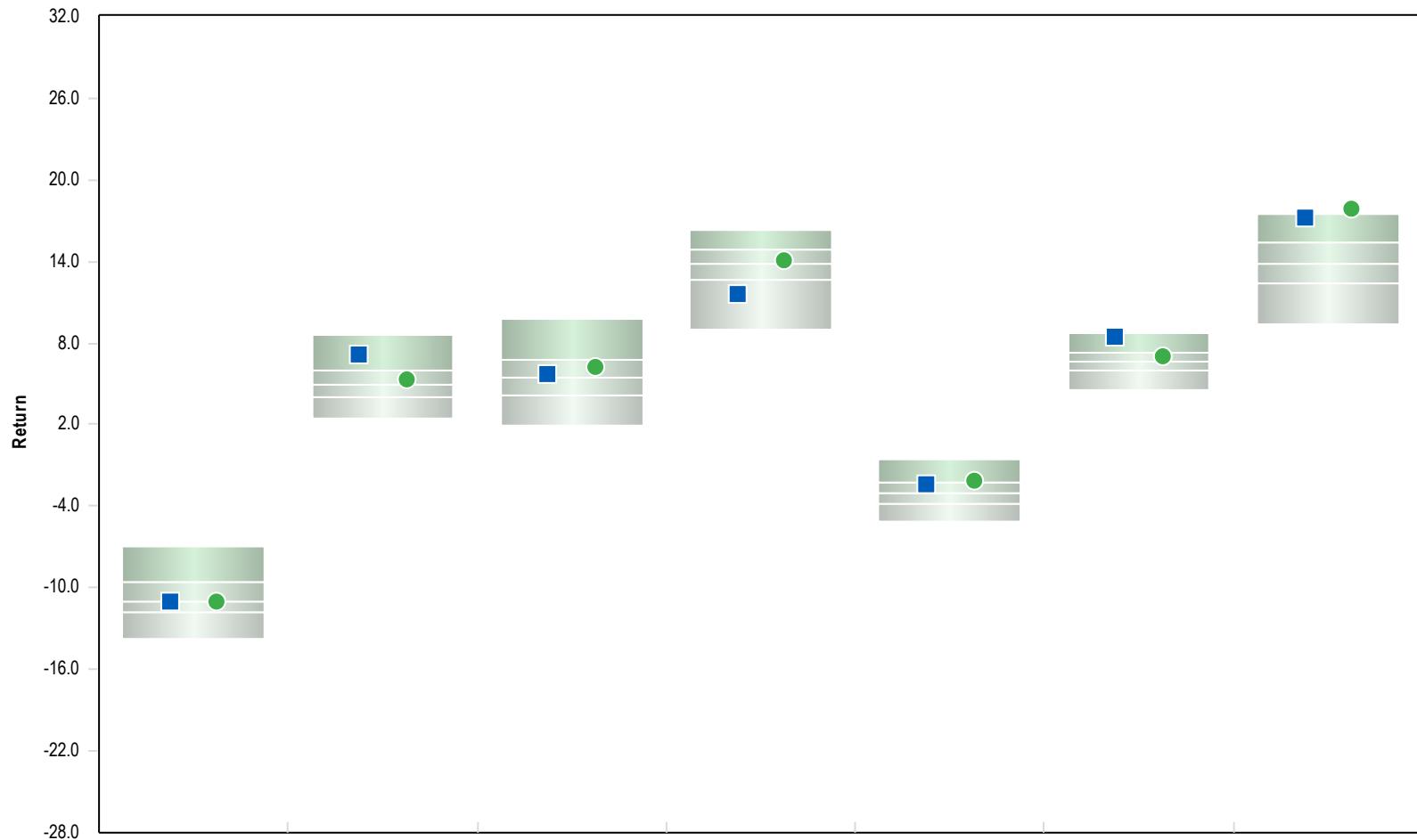
3rd Quartile

6.2 11.2 11.2 0.8 4.2 3.4 3.3

95th Percentile

4.4 9.4 9.4 -0.1 3.3 2.7 2.6

Peer Group Analysis - IM U.S. High Yield Bonds (MF)



■ Delaware Ivy High Income Bond Fund

● FTSE High Yield Market Index

	2022	2021	2020	2019	2018	2017	2016
-11.1 (53)	7.1 (12)	5.7 (44)	11.7 (86)	-2.3 (28)	8.4 (8)	17.3 (6)	
-11.0 (52)	5.4 (40)	6.3 (32)	14.1 (44)	-2.1 (23)	7.0 (34)	17.8 (4)	

5th Percentile

-7.0 8.6 9.8 16.3 -0.5 8.7 17.4

1st Quartile

-9.6 5.9 6.8 14.9 -2.2 7.3 15.5

Median

-11.0 4.9 5.4 13.8 -3.0 6.6 13.8

3rd Quartile

-11.8 4.0 4.2 12.6 -3.8 5.9 12.4

95th Percentile

-13.8 2.4 1.9 9.0 -5.2 4.6 9.4

Fund Information

Fund Name : Ivy Funds: Delaware Ivy High Income Fund; Class I Shares
 Fund Family : Macquarie Asset Management
 Ticker : IVHIX
 Inception Date : 04/02/2007
 Fund Assets : \$1,012 Million
 Portfolio Turnover : 50%

Portfolio Assets : \$2,404 Million
 Portfolio Manager : Brown/McCarthy/Bommi
 PM Tenure : 2021–2021–2023
 Fund Style : IM U.S. High Yield Bonds (MF)
 Style Benchmark : FTSE High Yield Market Index

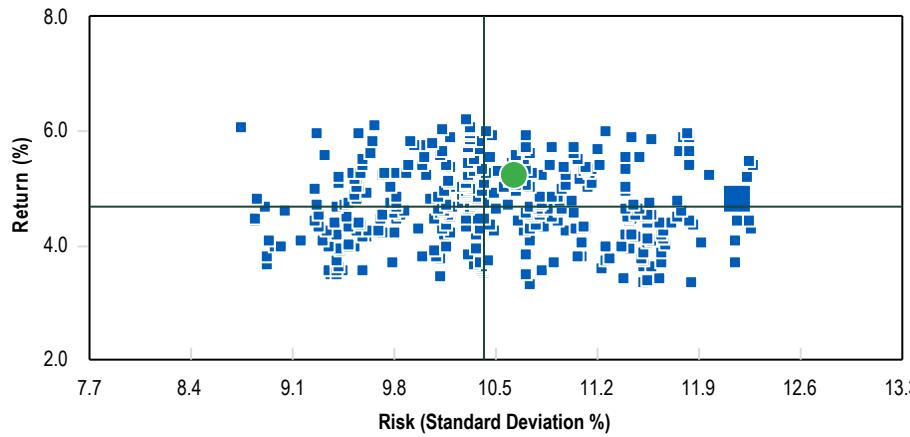
Fund Investment Policy

The Fund seeks a high level of current income as its primary goal and capital growth as a secondary goal when consistent with its primary goal. The Fund invests in high-yield, high-risk, fixed-income securities of U.S. issuers and may invest up to 20% of its total assets in common stock in order to seek capital growth.

Historical Statistics (01/01/19 - 12/31/23) *

	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Excess Risk	Inception Date
Delaware Ivy High Income Bond Fund	4.8	12.2	0.3	-0.9	1.1	1.0	2.7	-0.1	12.1	02/01/1996
FTSE High Yield Market Index	5.3	10.6	0.4	0.0	1.0	1.0	0.0		10.6	02/01/1996
90 Day U.S. Treasury Bill	1.9	0.9		1.8	0.0	0.0	10.6	-0.4	0.0	02/01/1996

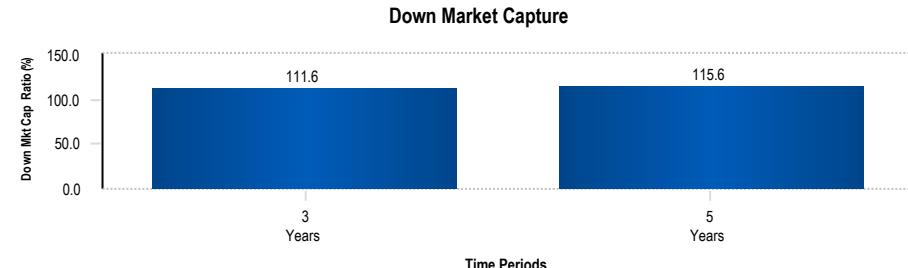
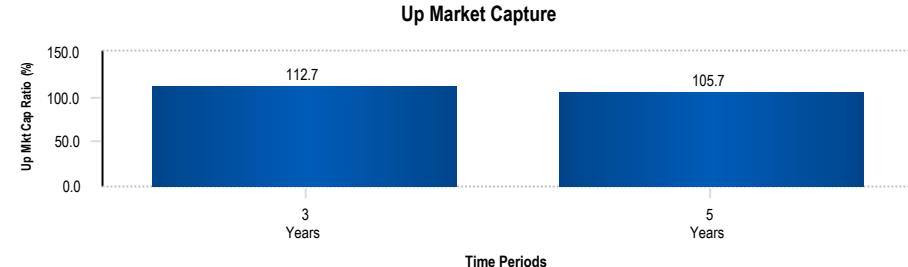
Peer Group Scattergram (01/01/19 to 12/31/23)



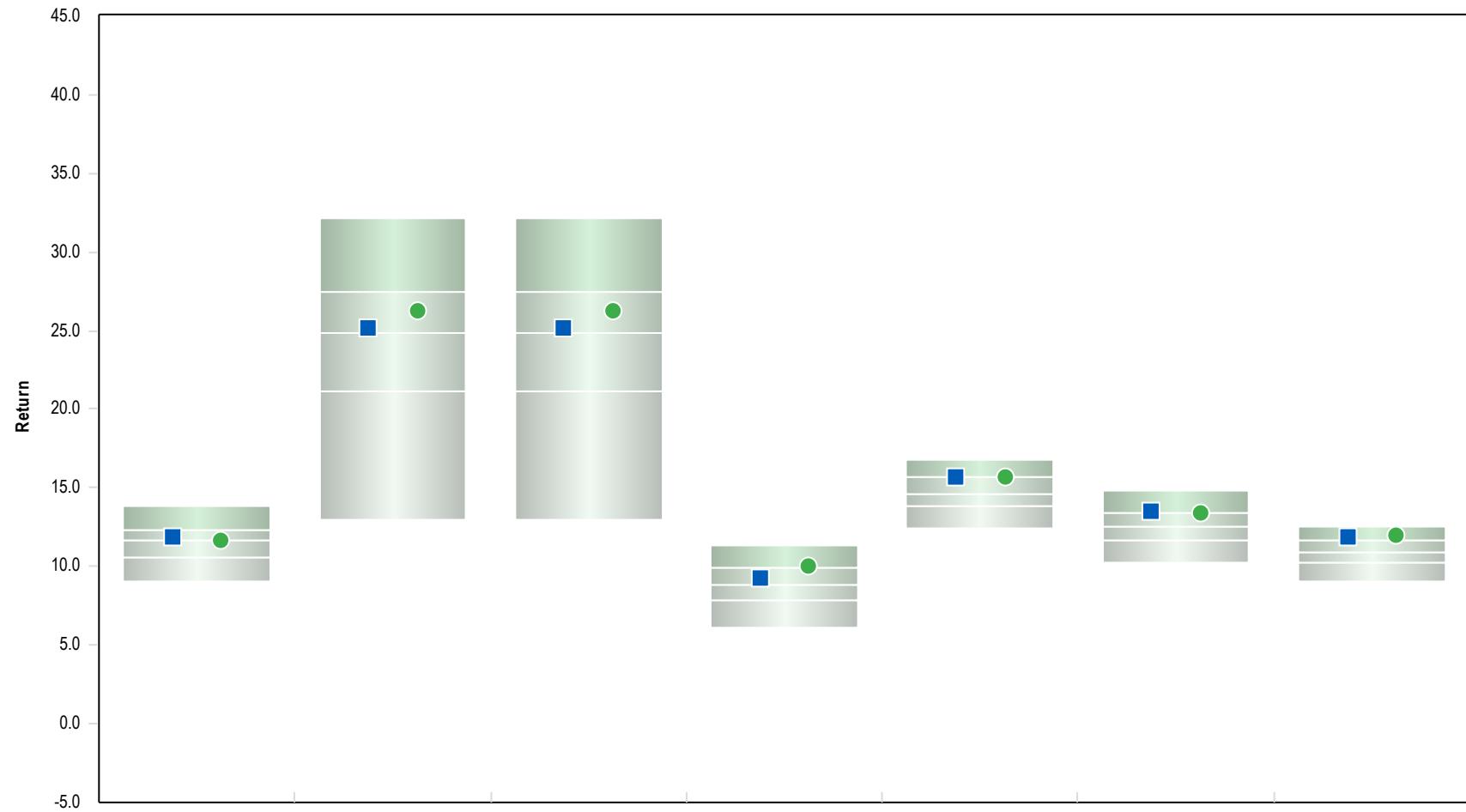
	Return	Standard Deviation
Delaware Ivy High Income Bond Fund	4.8	12.2
FTSE High Yield Market Index	5.3	10.6
Median	4.7	10.4

* Quarterly periodicity used.

Up Down Market Capture

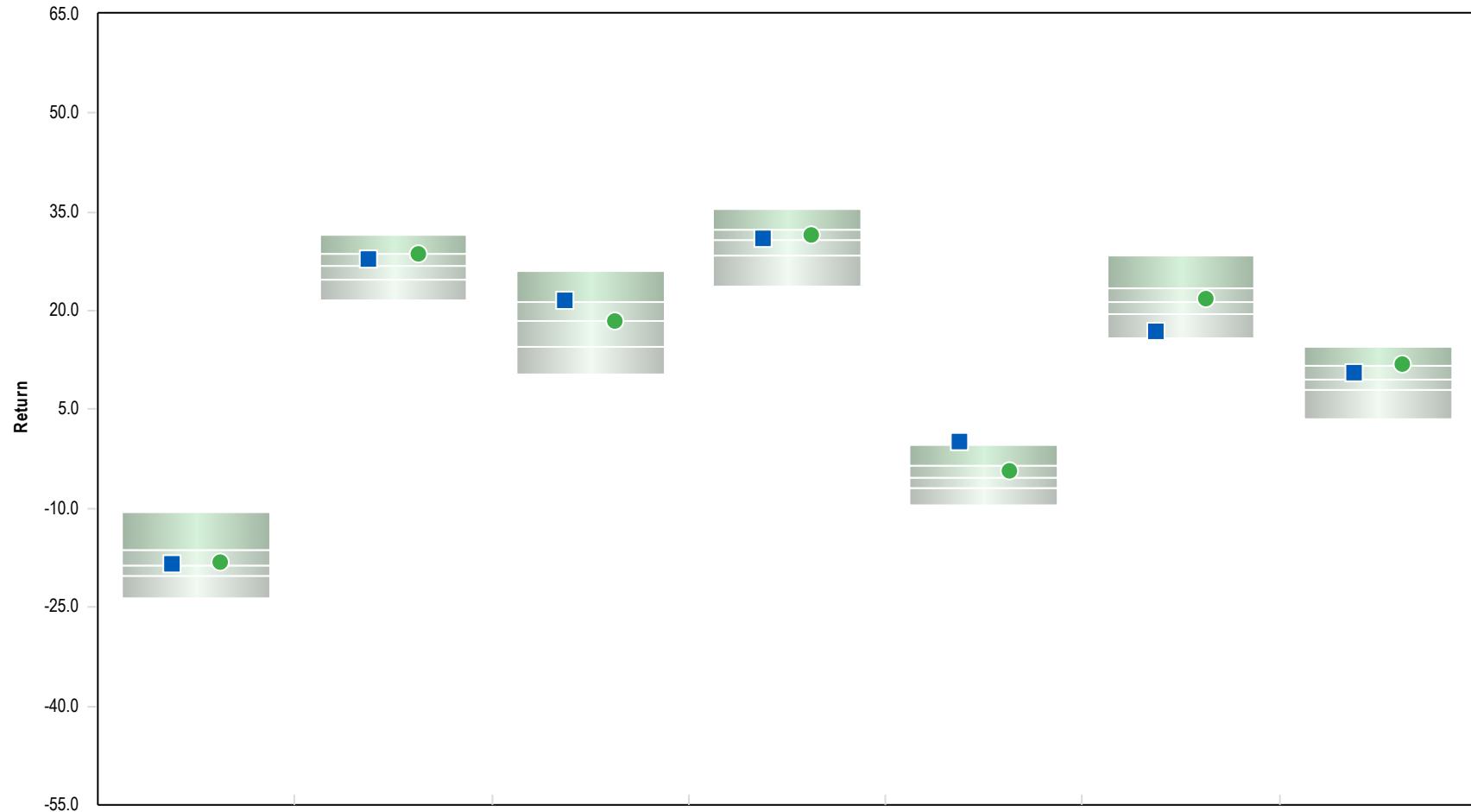


Peer Group Analysis - IM U.S. Large Cap Core Equity (MF)



	1 Qtr	YTD	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
Parnassus Core Equity	11.8 (44)	25.2 (48)	25.2 (48)	9.3 (38)	15.7 (24)	13.5 (23)	11.9 (19)
S&P 500	11.7 (51)	26.3 (37)	26.3 (37)	10.0 (25)	15.7 (25)	13.4 (26)	12.0 (13)
5th Percentile	13.9	32.1	32.1	11.4	16.8	14.8	12.5
1st Quartile	12.3	27.5	27.5	10.0	15.7	13.4	11.7
Median	11.7	24.8	24.8	8.8	14.6	12.5	10.9
3rd Quartile	10.5	21.1	21.1	7.8	13.8	11.7	10.3
95th Percentile	9.1	13.0	13.0	6.1	12.4	10.2	9.0

Peer Group Analysis - IM U.S. Large Cap Core Equity (MF)



■ Parnassus Core Equity

● S&P 500

2022

2021

2020

2019

2018

2017

2016

-18.4 (48)

27.8 (36)

21.5 (25)

31.0 (47)

0.1 (4)

16.8 (91)

10.6 (38)

-18.1 (45)

28.7 (25)

18.4 (50)

31.5 (36)

-4.4 (32)

21.8 (45)

12.0 (20)

5th Percentile

-10.5

31.5

26.0

35.6

-0.4

28.3

14.5

1st Quartile

-16.3

28.7

21.3

32.3

-3.6

23.5

11.6

Median

-18.7

26.9

18.4

30.7

-5.4

21.5

9.7

3rd Quartile

-20.2

24.7

14.6

28.3

-6.8

19.5

7.9

95th Percentile

-23.5

21.6

10.3

23.8

-9.6

15.8

3.5

Fund Information

Fund Name :	Parnassus Income Funds: Parnassus Core Equity Fund; Institutional Shares	Portfolio Assets :	\$27,806 Million
Fund Family :	Parnassus Investments	Portfolio Manager :	Ahlsten/Allen/Choi
Ticker :	PRILX	PM Tenure :	2006–2012–2022
Inception Date :	04/28/2006	Fund Style :	IM U.S. Large Cap Core Equity (MF)
Fund Assets :	\$14,871 Million	Style Benchmark :	S&P 500
Portfolio Turnover :	40%		

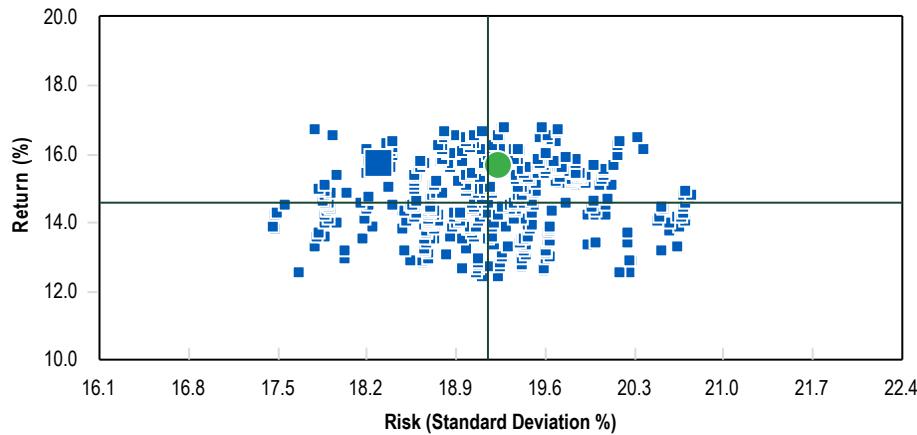
Fund Investment Policy

The Fund seeks both capital appreciation and current income. Under normal circumstances, the Fund will invest a minimum of 80% of its net assets plus any borrowings in equity securities. At least 75% of the Funds total assets will normally be invested in equity securities that pay interest or dividends.

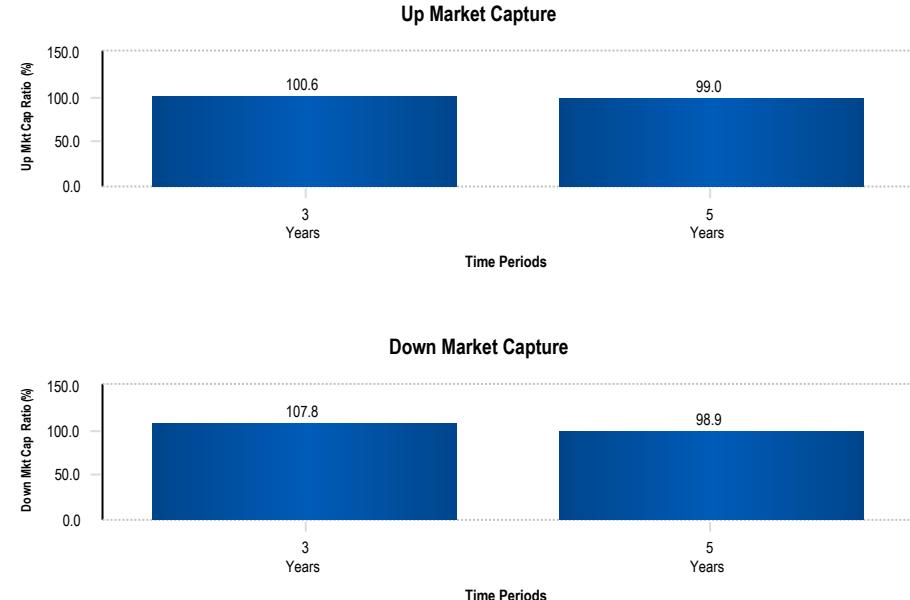
Historical Statistics (01/01/19 - 12/31/23) *

	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Excess Risk	Inception Date
Parnassus Core Equity	15.7	18.3	0.8	0.9	0.9	1.0	3.1	0.0	18.3	05/01/2006
S&P 500	15.7	19.2	0.8	0.0	1.0	1.0	0.0		19.3	05/01/2006
90 Day U.S. Treasury Bill	1.9	0.9		1.9	0.0	0.0	19.3	-0.8	0.0	05/01/2006

Peer Group Scattergram (01/01/19 to 12/31/23)

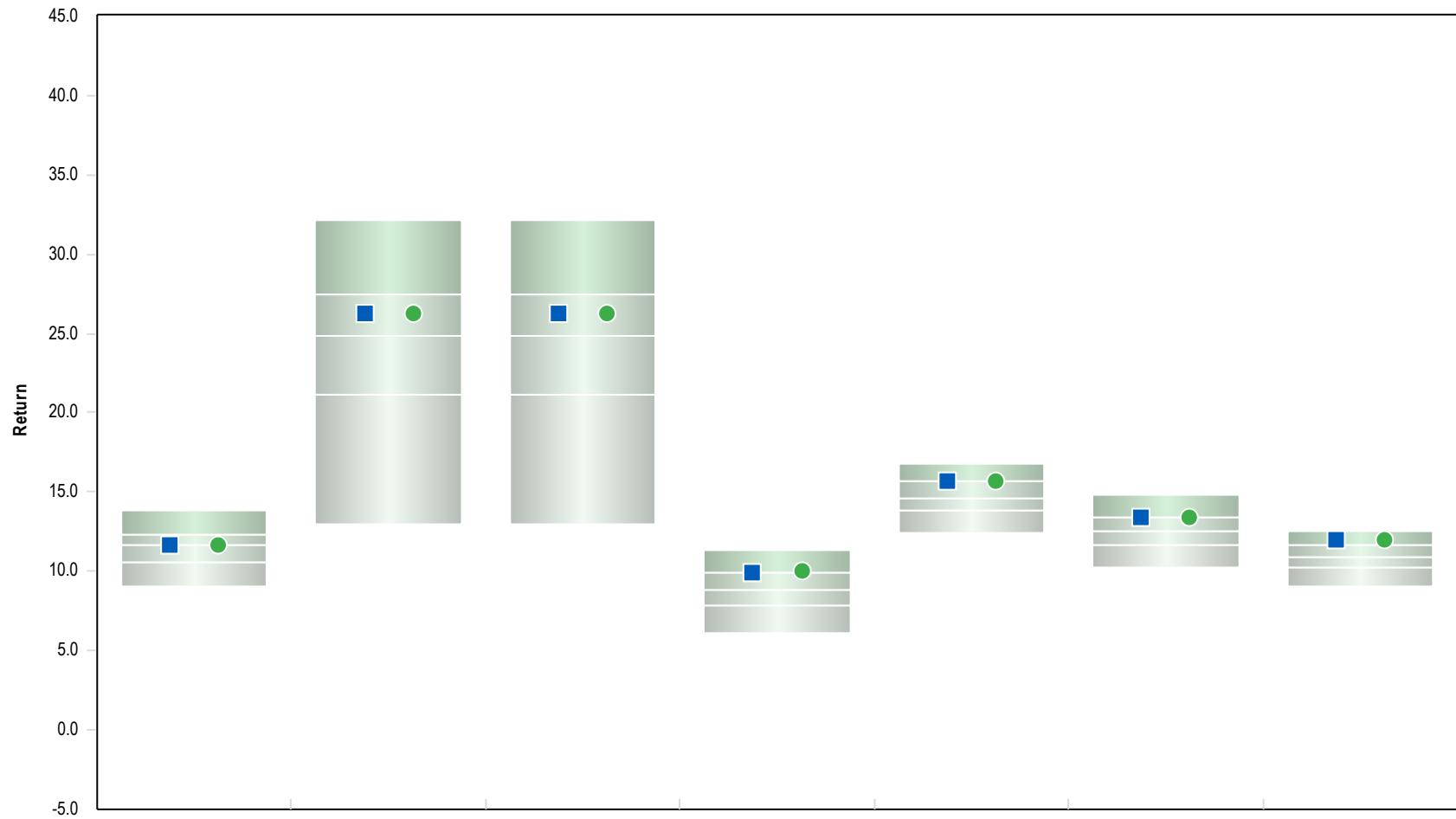


Up Down Market Capture



* Quarterly periodicity used.

Peer Group Analysis - IM U.S. Large Cap Core Equity (MF)



■ Vanguard 500 Index Fund

● S&P 500

1 Qtr

11.7 (52)

YTD

26.2 (38)

1 Yr

26.2 (38)

3 Yrs

10.0 (26)

5 Yrs

15.7 (26)

7 Yrs

13.4 (26)

10 Yrs

12.0 (14)

5th Percentile

13.9

32.1

32.1

11.4

16.8

14.8

12.5

1st Quartile

12.3

27.5

27.5

10.0

15.7

13.4

11.7

Median

11.7

24.8

24.8

8.8

14.6

12.5

10.9

3rd Quartile

10.5

21.1

21.1

7.8

13.8

11.7

10.3

95th Percentile

9.1

13.0

13.0

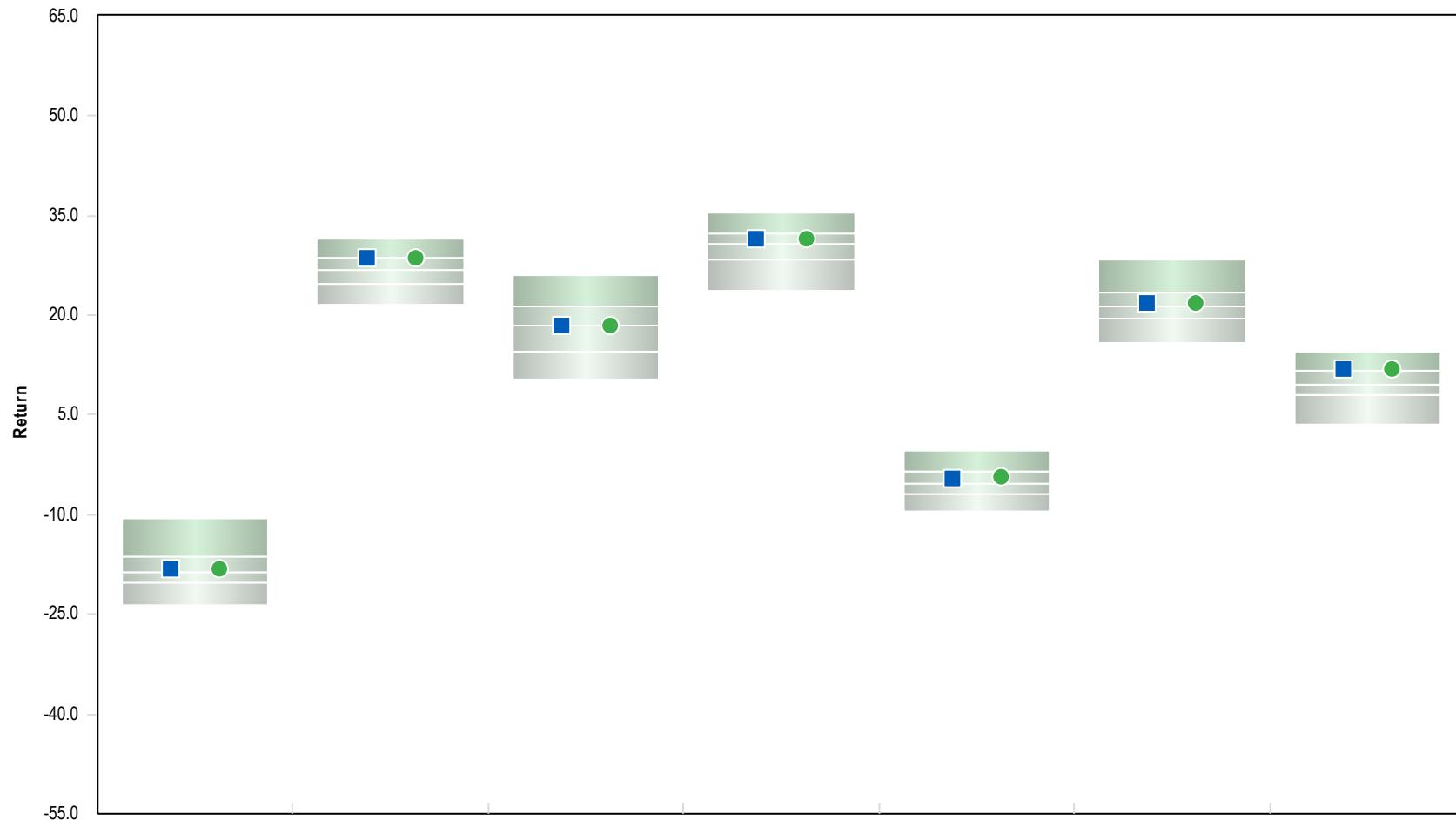
6.1

12.4

10.2

9.0

Peer Group Analysis - IM U.S. Large Cap Core Equity (MF)



	2022	2021	2020	2019	2018	2017	2016
Vanguard 500 Index Fund	-18.1 (46)	28.7 (26)	18.4 (50)	31.5 (37)	-4.4 (32)	21.8 (45)	11.9 (20)
S&P 500	-18.1 (45)	28.7 (25)	18.4 (50)	31.5 (36)	-4.4 (32)	21.8 (45)	12.0 (20)

5th Percentile	-10.5	31.5	26.0	35.6	-0.4	28.3	14.5
1st Quartile	-16.3	28.7	21.3	32.3	-3.6	23.5	11.6
Median	-18.7	26.9	18.4	30.7	-5.4	21.5	9.7
3rd Quartile	-20.2	24.7	14.6	28.3	-6.8	19.5	7.9
95th Percentile	-23.5	21.6	10.3	23.8	-9.6	15.8	3.5

Fund Information

Fund Name :	Vanguard Institutional Index Fund: Vanguard Institutional Index Fund; Institutional Shares	Portfolio Assets :	\$256,299 Million
Fund Family :	Vanguard	Portfolio Manager :	Louie/Birkett
Ticker :	VINIX	PM Tenure :	2017–2023
Inception Date :	07/31/1990	Fund Style :	IM U.S. Large Cap Core Equity (MF)
Fund Assets :	\$108,748 Million	Style Benchmark :	S&P 500
Portfolio Turnover :	3%		

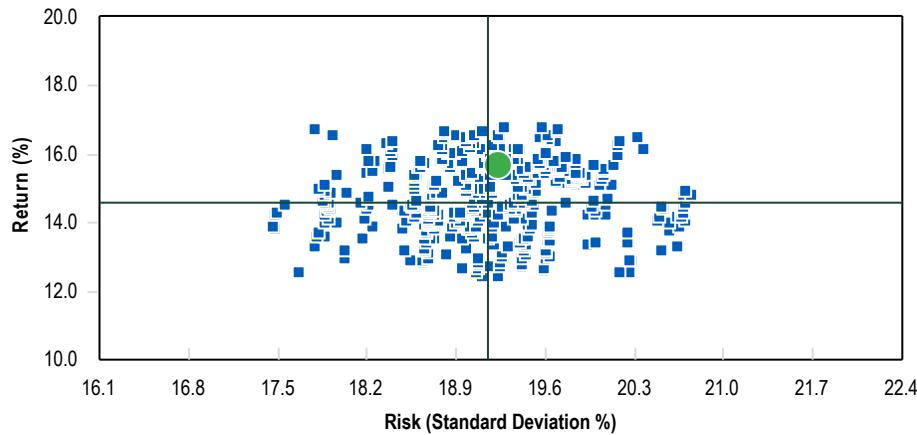
Fund Investment Policy

The Fund seeks to track the performance of the S&P 500 index, a benchmark that measures the investment return of large-capitalization stocks.

Historical Statistics (01/01/19 - 12/31/23) *

	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Excess Risk	Inception Date
Vanguard 500 Index Fund	15.7	19.2	0.8	0.0	1.0	1.0	0.0	-2.4	19.3	09/01/1976
S&P 500	15.7	19.2	0.8	0.0	1.0	1.0	0.0	0.0	19.3	09/01/1976
90 Day U.S. Treasury Bill	1.9	0.9		1.9	0.0	0.0	19.3	-0.8	0.0	09/01/1976

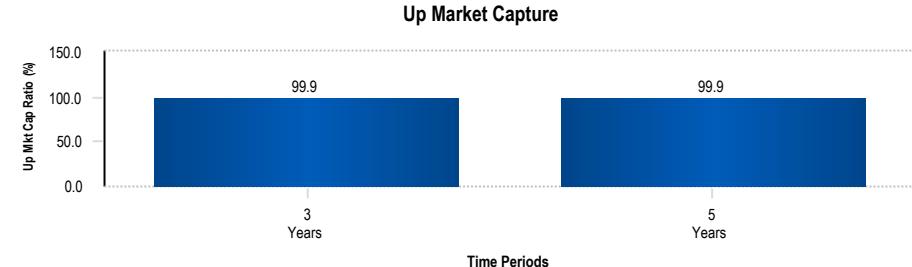
Peer Group Scattergram (01/01/19 to 12/31/23)



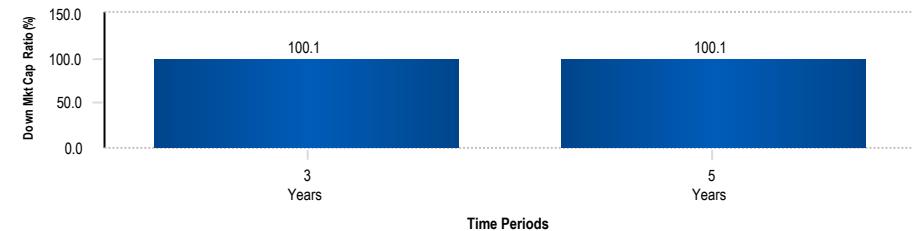
	Return	Standard Deviation
Vanguard 500 Index Fund	15.7	19.2
S&P 500	15.7	19.2
Median	14.6	19.2

* Quarterly periodicity used.

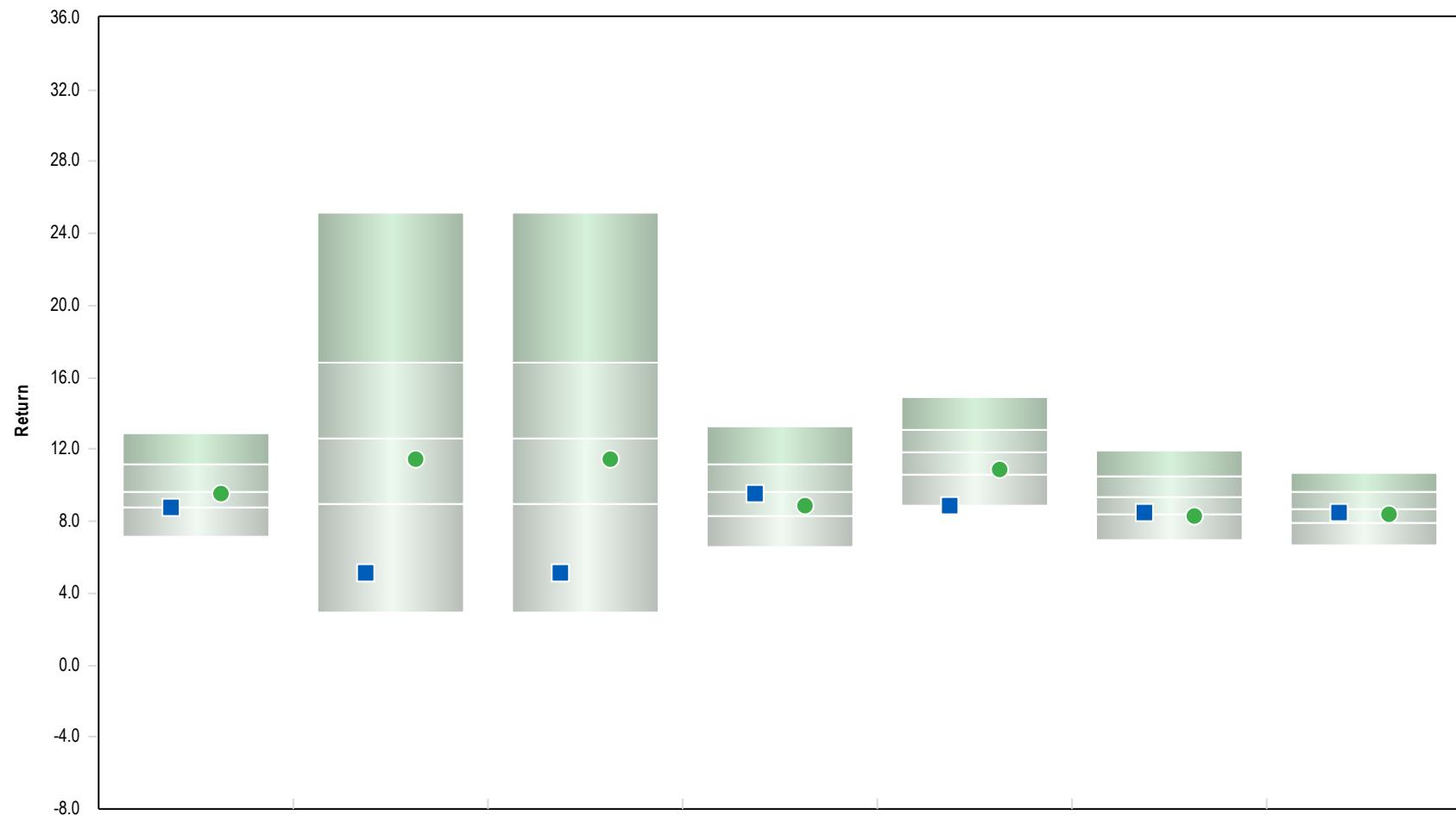
Up Down Market Capture



Down Market Capture



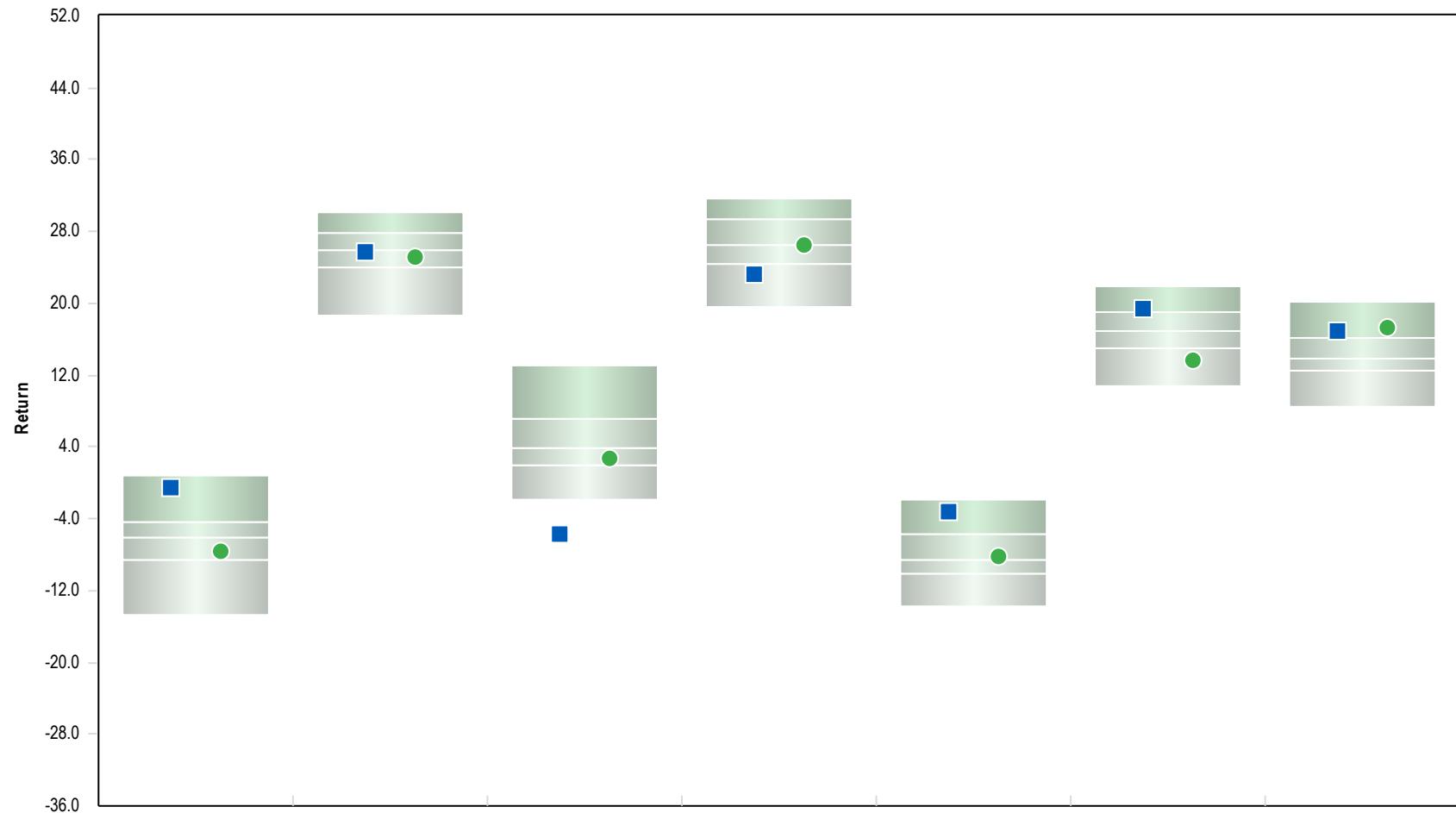
Peer Group Analysis - IM U.S. Large Cap Value Equity (MF)



■ Edgar Lomax Value Fund
● Russell 1000 Value Index

	1 Qtr	YTD	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
5th Percentile	12.9	25.2	25.2	13.3	14.9	12.0	10.7
1st Quartile	11.2	16.9	16.9	11.2	13.1	10.5	9.6
Median	9.6	12.6	12.6	9.6	11.8	9.3	8.7
3rd Quartile	8.8	9.0	9.0	8.3	10.6	8.4	7.9
95th Percentile	7.1	2.9	2.9	6.6	8.9	7.0	6.7

Peer Group Analysis - IM U.S. Large Cap Value Equity (MF)



■ Edgar Lomax Value Fund
● Russell 1000 Value Index

5th Percentile	0.8	30.2	13.0	31.7	-1.8	21.9	20.2
1st Quartile	-4.3	27.8	7.1	29.4	-5.8	18.9	16.1
Median	-6.1	26.0	3.8	26.5	-8.6	17.0	13.8
3rd Quartile	-8.6	24.0	1.9	24.4	-10.1	15.0	12.4
95th Percentile	-14.7	18.7	-1.8	19.6	-13.8	10.8	8.5

Fund Information

Fund Name : Advisors Series Trust: Edgar Lomax Value Fund
 Fund Family : Edgar Lomax Company
 Ticker : LOMAX
 Inception Date : 12/12/1997
 Fund Assets : \$91 Million
 Portfolio Turnover : 40%

Portfolio Assets : \$91 Million
 Portfolio Manager : Eley/Murray
 PM Tenure : 1997–2019
 Fund Style : IM U.S. Large Cap Value Equity (MF)
 Style Benchmark : Russell 1000 Value Index

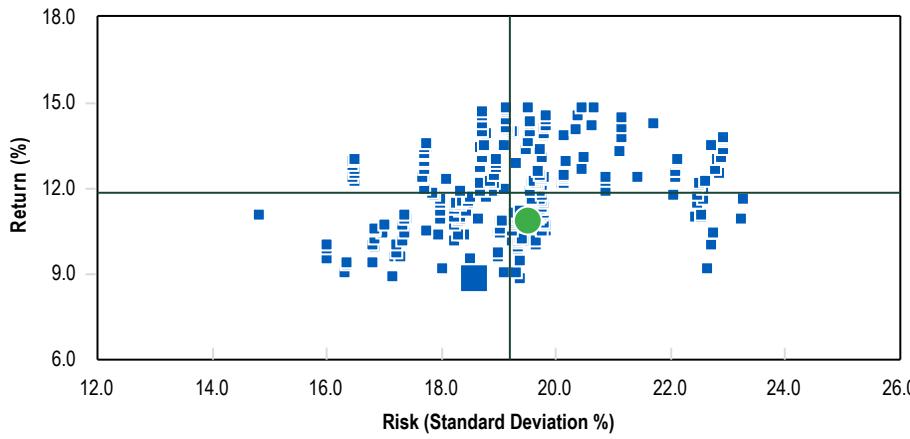
Fund Investment Policy

The Fund seeks long-term capital growth while providing some income. The Advisor uses a disciplined approach to select stocks for the Fund's portfolio that it believes are undervalued and have prospects for continued consistent growth. The Fund invests primarily in large, well-recognized companies.

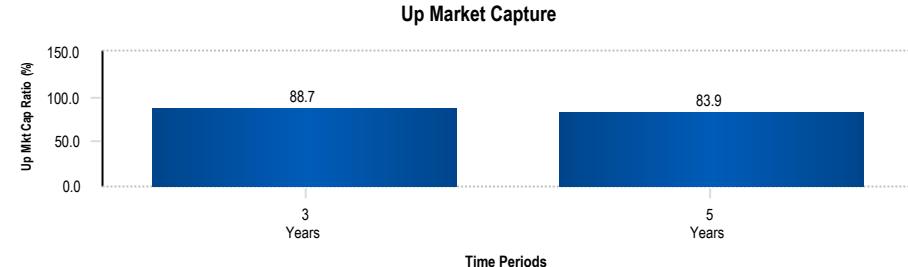
Historical Statistics (01/01/19 - 12/31/23) *

	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Excess Risk	Inception Date
Edgar Lomax Value Fund	8.8	18.6	0.5	-1.1	0.9	0.9	4.9	-0.4	18.7	02/01/2002
Russell 1000 Value Index	10.9	19.5	0.5	0.0	1.0	1.0	0.0		19.6	02/01/2002
90 Day U.S. Treasury Bill	1.9	0.9		1.9	0.0	0.0	19.6	-0.5	0.0	02/01/2002

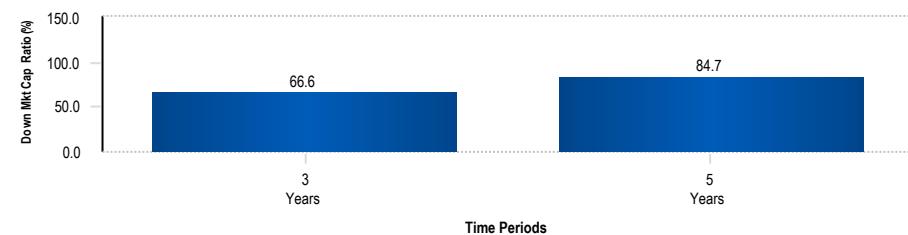
Peer Group Scattergram (01/01/19 to 12/31/23)



Up Down Market Capture

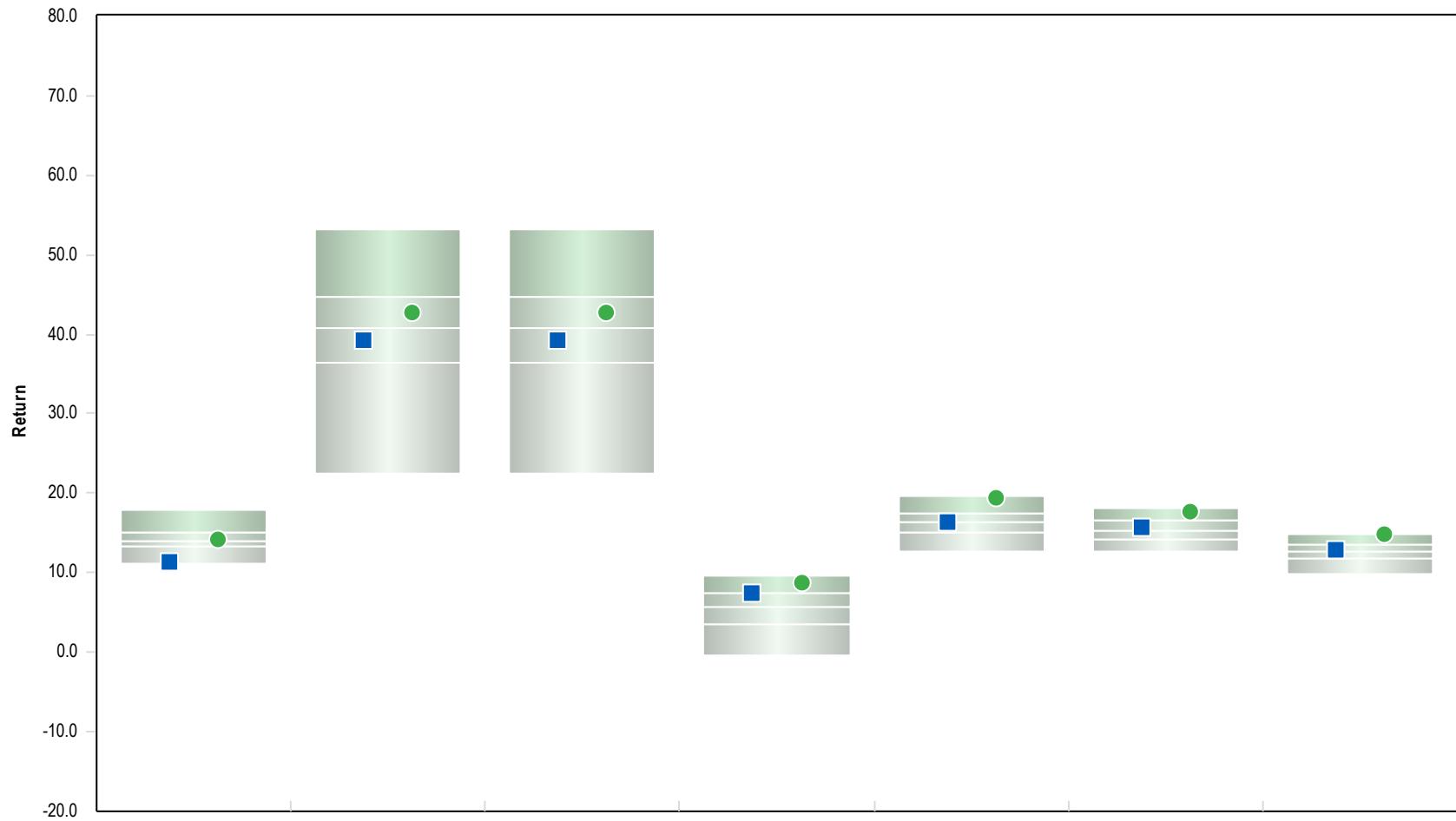


Down Market Capture



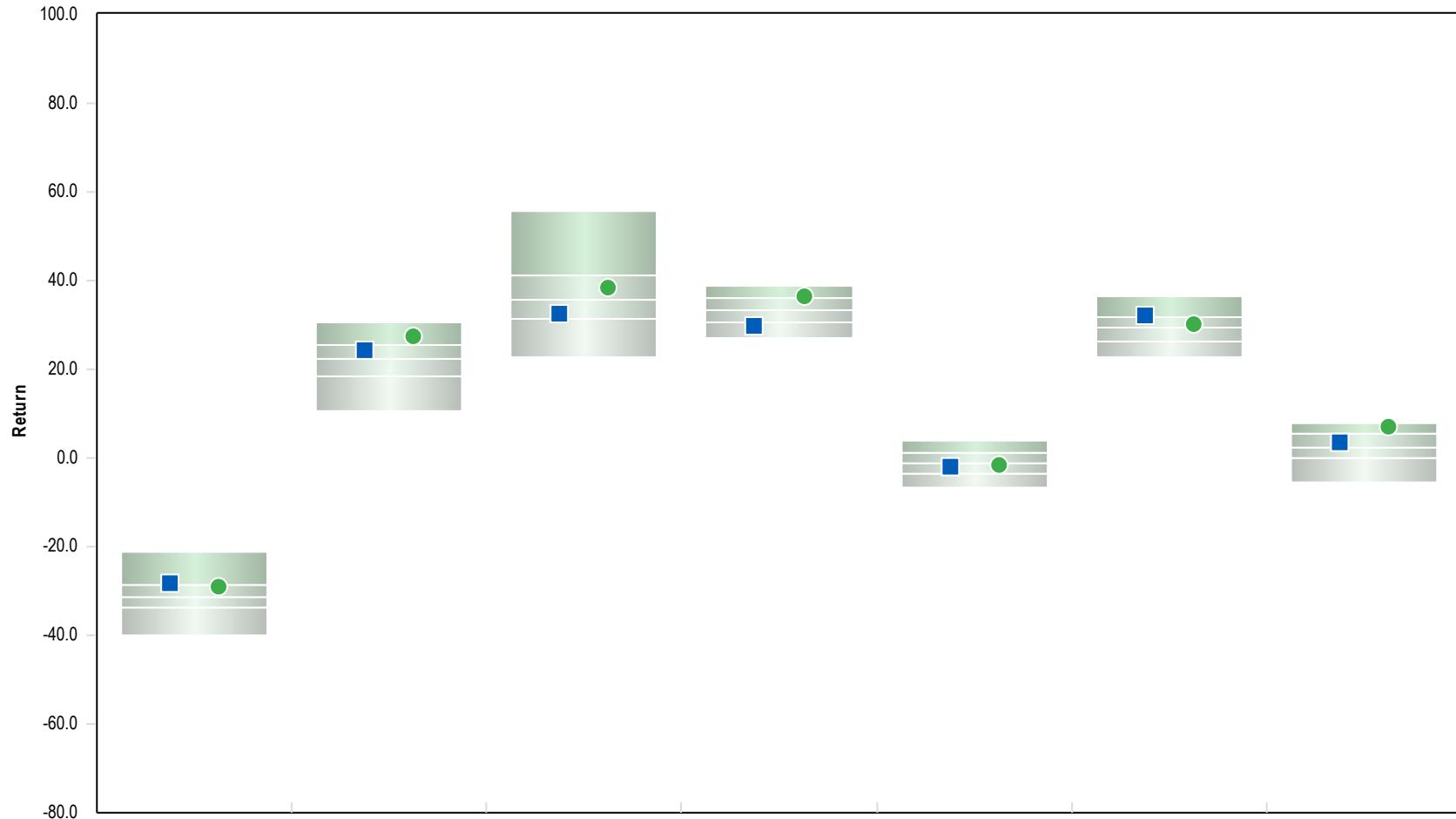
* Quarterly periodicity used.

Peer Group Analysis - IM U.S. Large Cap Growth Equity (MF)



	1 Qtr	YTD	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
Fidelity Contrafund	11.4 (94)	39.3 (62)	39.3 (62)	7.5 (25)	16.5 (49)	15.7 (42)	12.8 (45)
Russell 1000 Growth Index	14.2 (48)	42.7 (37)	42.7 (37)	8.9 (12)	19.5 (7)	17.7 (10)	14.9 (4)
5th Percentile	17.8	53.1	53.1	9.7	19.7	18.2	14.8
1st Quartile	15.0	44.6	44.6	7.5	17.5	16.5	13.5
Median	14.1	40.8	40.8	5.7	16.4	15.3	12.6
3rd Quartile	13.4	36.4	36.4	3.6	15.1	14.3	11.7
95th Percentile	11.2	22.5	22.5	-0.4	12.7	12.7	9.8

Peer Group Analysis - IM U.S. Large Cap Growth Equity (MF)



	2022	2021	2020	2019	2018	2017	2016
Fidelity Contrafund	-28.3 (23)	24.4 (32)	32.6 (69)	30.0 (81)	-2.1 (61)	32.2 (22)	3.4 (40)
Russell 1000 Growth Index	-29.1 (27)	27.6 (17)	38.5 (34)	36.4 (19)	-1.5 (54)	30.2 (39)	7.1 (10)

5th Percentile	-21.3	30.5	55.6	38.7	4.0	36.3	7.9
1st Quartile	-28.8	25.6	41.2	35.9	1.2	31.7	5.3
Median	-31.3	22.4	35.6	33.3	-1.2	29.3	2.2
3rd Quartile	-33.9	18.4	31.2	30.7	-3.6	26.4	0.0
95th Percentile	-39.9	10.6	22.6	27.0	-6.6	22.7	-5.3

Fund Information

Fund Name :	Fidelity Contrafund	Portfolio Assets :	\$116,904 Million
Fund Family :	Fidelity Investments	Portfolio Manager :	William Danoff
Ticker :	FCNTX	PM Tenure :	1990
Inception Date :	05/17/1967	Fund Style :	IM U.S. Large Cap Growth Equity (MF)
Fund Assets :	\$107,025 Million	Style Benchmark :	Russell 1000 Growth Index
Portfolio Turnover :	25%		

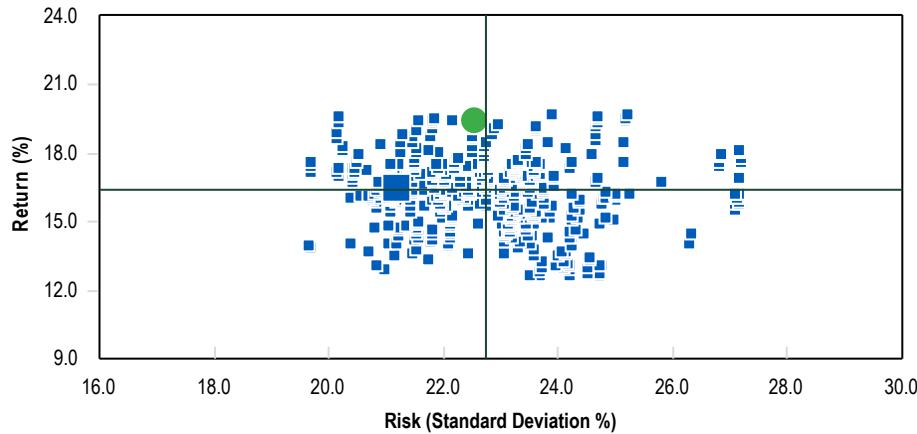
Fund Investment Policy

The Fund seeks capital appreciation. The Fund seeks to achieve its investment objective by investing in securities of companies whose value it believes is not fully recognized by the public. The Fund normally invests primarily in common stocks and may invest in both domestic and foreign issuers.

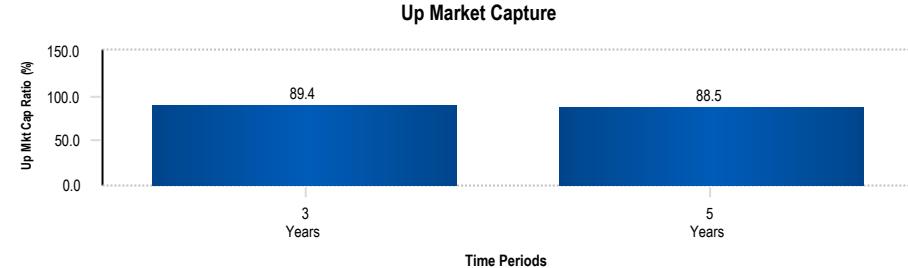
Historical Statistics (01/01/19 - 12/31/23) *

	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Excess Risk	Inception Date
Fidelity Contrafund	16.5	21.2	0.8	-1.5	0.9	1.0	3.6	-0.8	21.1	01/01/1993
Russell 1000 Growth Index	19.5	22.5	0.8	0.0	1.0	1.0	0.0		22.5	01/01/1993
90 Day U.S. Treasury Bill	1.9	0.9		1.8	0.0	0.0	22.5	-0.8	0.0	01/01/1993

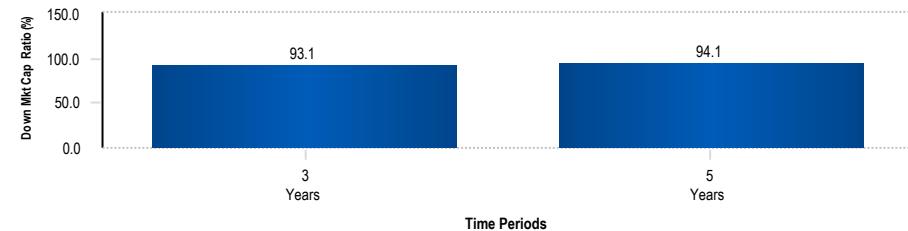
Peer Group Scattergram (01/01/19 to 12/31/23)



Up Down Market Capture

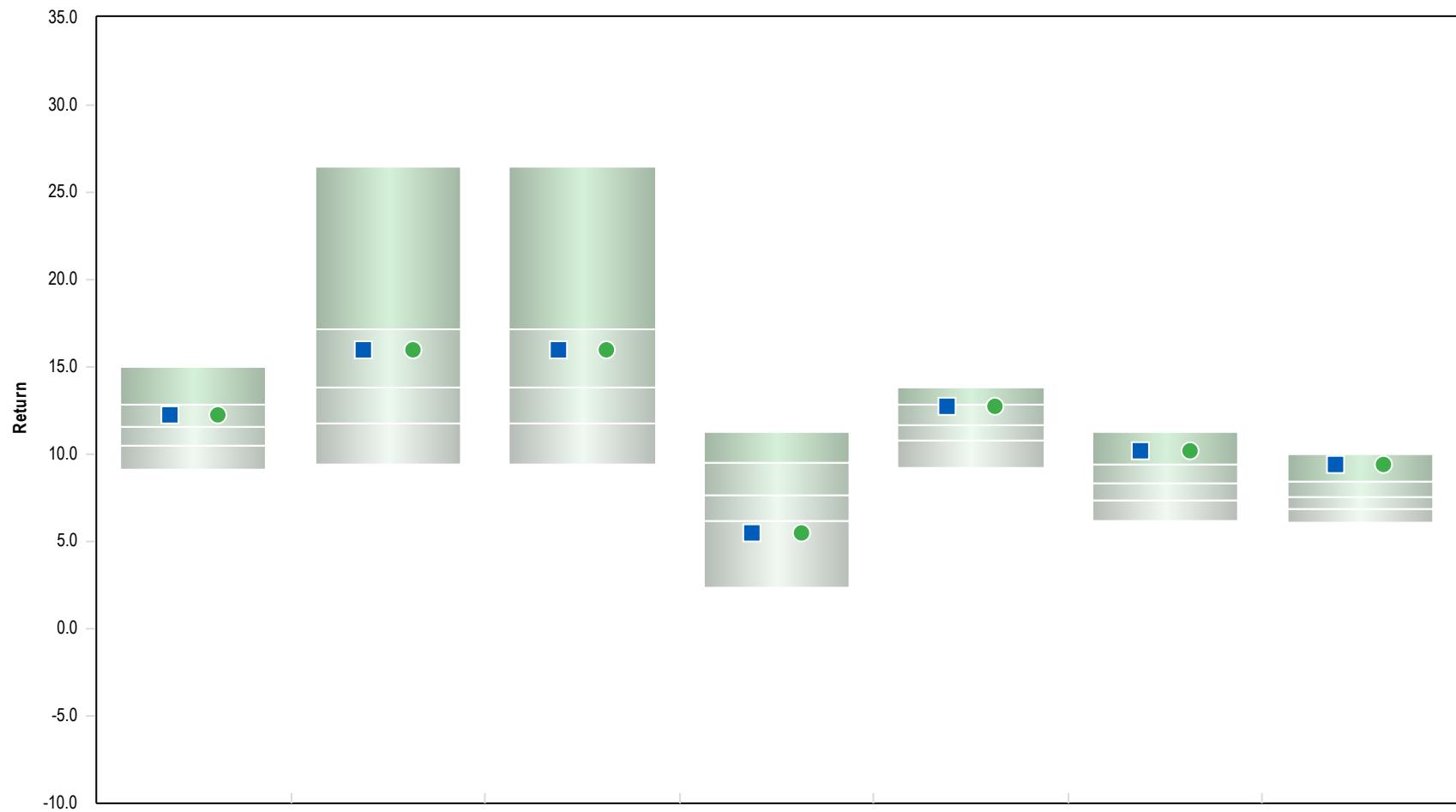


Down Market Capture



* Quarterly periodicity used.

Peer Group Analysis - IM U.S. Mid Cap Core Equity (MF)



■ Vanguard Md Cap Index

1 Qtr

12.3 (41)

YTD

16.0 (33)

1 Yr

16.0 (33)

3 Yrs

5.5 (83)

5 Yrs

12.7 (28)

7 Yrs

10.2 (14)

10 Yrs

9.4 (11)

● Mid Cap Index Blend*

12.3 (41)

16.0 (33)

16.0 (33)

5.5 (83)

12.7 (27)

10.2 (14)

9.4 (11)

5th Percentile

15.0

26.5

26.5

11.3

13.8

11.3

10.0

1st Quartile

12.8

17.2

17.2

9.5

12.8

9.4

8.4

Median

11.5

13.9

13.9

7.6

11.7

8.4

7.6

3rd Quartile

10.5

11.8

11.8

6.2

10.8

7.4

6.9

95th Percentile

9.2

9.4

9.4

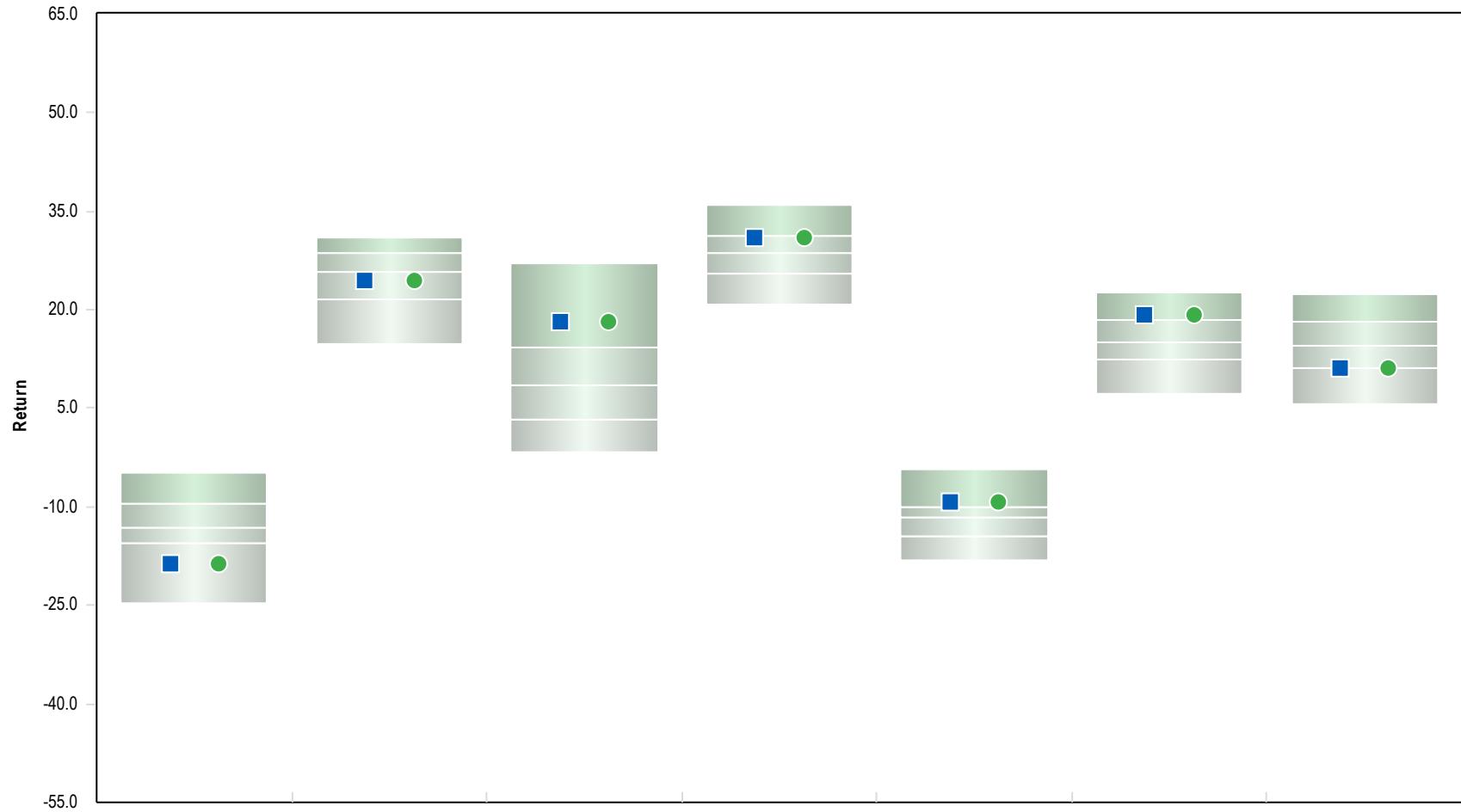
2.3

9.2

6.2

6.1

Peer Group Analysis - IM U.S. Mid Cap Core Equity (MF)



■ Vanguard Md Cap Index

● Mid Cap Index Blend*

2022 2021 2020 2019 2018 2017 2016

-18.7 (93) 24.5 (60) 18.2 (15) 31.0 (27) -9.2 (22) 19.3 (19) 11.2 (76)

-18.7 (93) 24.5 (60) 18.2 (15) 31.1 (27) -9.2 (22) 19.3 (19) 11.2 (76)

5th Percentile

-4.8 31.0 27.0 35.9 -4.3 22.8 22.5

1st Quartile

-9.5 28.7 14.2 31.3 -10.0 18.5 18.2

Median

-13.2 25.7 8.4 28.6 -11.6 14.9 14.5

3rd Quartile

-15.5 21.5 3.2 25.6 -14.5 12.4 11.3

95th Percentile

-24.8 14.8 -1.6 20.8 -18.2 7.3 5.8

Fund Information

Fund Name :	Vanguard Index Funds: Vanguard Mid-Cap Index Fund; Admiral Shares	Portfolio Assets :	\$153,727 Million
Fund Family :	Vanguard	Portfolio Manager :	Khan/Denis/Choi
Ticker :	VIMAX	PM Tenure :	2021–2023–2023
Inception Date :	11/12/2001	Fund Style :	IM U.S. Mid Cap Core Equity (MF)
Fund Assets :	\$53,835 Million	Style Benchmark :	Mid Cap Index Blend*
Portfolio Turnover :	12%		

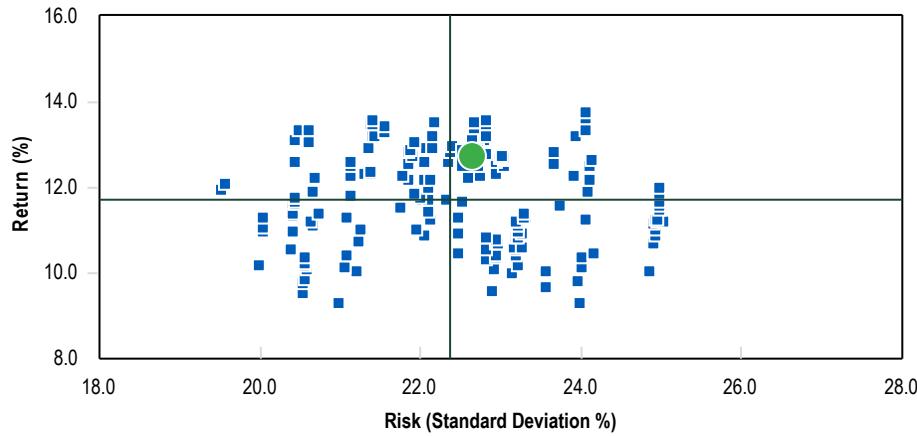
Fund Investment Policy

The Fund seeks to track the performance of a benchmark index that measures the investment return of mid-capitalization stocks.

Historical Statistics (01/01/19 - 12/31/23) *

	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Excess Risk	Inception Date
Vanguard Md Cap Index	12.7	22.6	0.6	0.0	1.0	1.0	0.0	-1.1	22.7	12/01/2001
Mid Cap Index Blend*	12.7	22.6	0.6	0.0	1.0	1.0	0.0	-1.1	22.7	12/01/2001
90 Day U.S. Treasury Bill	1.9	0.9		1.9	0.0	0.0	22.7	-0.6	0.0	12/01/2001

Peer Group Scattergram (01/01/19 to 12/31/23)

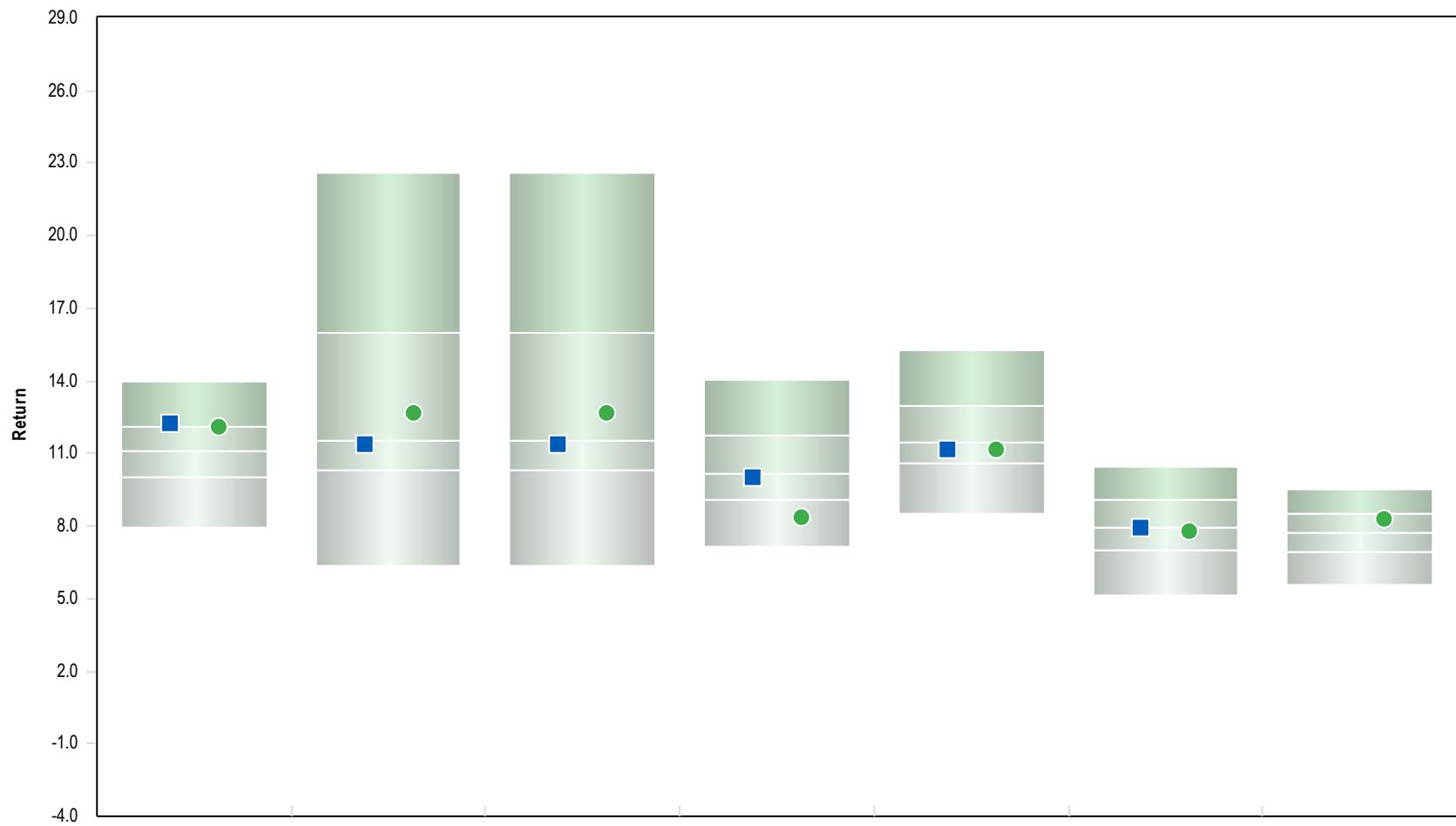


Up Down Market Capture



* Quarterly periodicity used.

Peer Group Analysis - IM U.S. Mid Cap Value Equity (MF)



	1 Qtr	YTD	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
JP Morgan Mid Cap Value	12.2 (21)	11.4 (52)	11.4 (52)	10.0 (52)	11.1 (59)	7.9 (51)	
Russell Midcap Value Index	12.1 (27)	12.7 (40)	12.7 (40)	8.4 (85)	11.2 (59)	7.8 (55)	8.3 (36)
5th Percentile	14.0	22.6	22.6	14.0	15.2	10.4	9.5
1st Quartile	12.1	16.0	16.0	11.8	13.0	9.0	8.5
Median	11.1	11.6	11.6	10.1	11.5	7.9	7.7
3rd Quartile	10.0	10.3	10.3	9.1	10.6	7.0	6.9
95th Percentile	7.9	6.4	6.4	7.2	8.5	5.1	5.6

Peer Group Analysis - IM U.S. Mid Cap Value Equity (MF)



■ JP Morgan Mid Cap Value
● Russell Midcap Value Index

	2022	2021	2020	2019	2018	2017	2016
5th Percentile	-8.0 (50)	30.1 (41)	0.4 (72)	26.7 (53)	-11.7 (23)	13.7 (48)	20.0 (29)
1st Quartile	-12.0 (95)	28.3 (58)	5.0 (33)	27.1 (46)	-12.3 (27)	13.3 (55)	

5th Percentile	-2.5	35.4	9.4	31.3	-8.6	18.0	24.3
1st Quartile	-5.8	32.0	6.1	29.5	-11.9	15.8	20.4
Median	-8.0	28.8	2.5	26.8	-13.8	13.6	16.2
3rd Quartile	-9.6	26.5	0.3	24.3	-17.5	11.5	14.2
95th Percentile	-12.1	23.5	-6.2	18.7	-20.6	8.3	10.3

Fund Information

Fund Name :	JP Morgan Fleming Mutual Fund Group, Inc: JPMorgan Mid Cap Value Fund; Class R6 Shares	Portfolio Assets :	\$13,209 Million
Fund Family :	JP Morgan Asset Management	Portfolio Manager :	Simon/Playford
Ticker :	JMVYX	PM Tenure :	2016–2016
Inception Date :	09/09/2016	Fund Style :	IM U.S. Mid Cap Value Equity (MF)
Fund Assets :	\$4,183 Million	Style Benchmark :	Russell Midcap Value Index

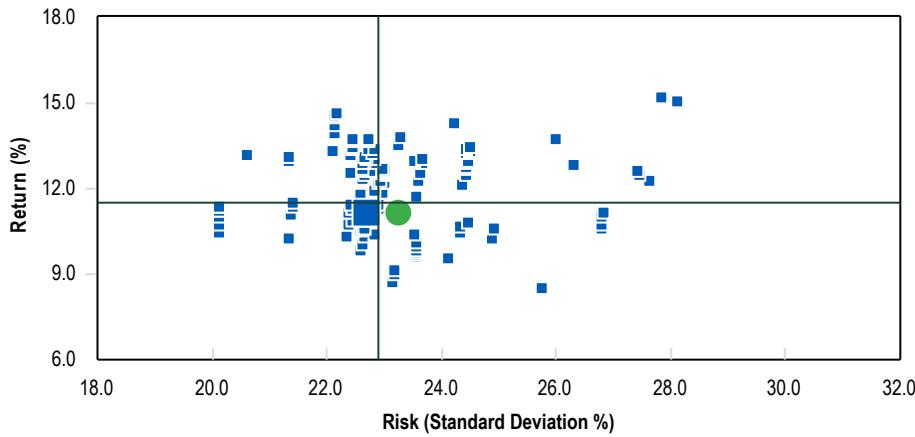
Fund Investment Policy

The Fund seeks growth through common stocks of issuers with above average growth potential. Under normal circumstances, the Fund invests at least 80% of its assets in equity securities of mid cap companies.

Historical Statistics (01/01/19 - 12/31/23)*

	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Excess Risk	Inception Date
JP Morgan Mid Cap Value	11.1	22.7	0.5	0.2	1.0	1.0	2.2	-0.1	22.8	09/01/2007
Russell Midcap Value Index	11.2	23.2	0.5	0.0	1.0	1.0	0.0		23.4	09/01/2007
90 Day U.S. Treasury Bill	1.9	0.9		1.9	0.0	0.0	23.4	-0.5	0.0	09/01/2007

Peer Group Scattergram (01/01/19 to 12/31/23)



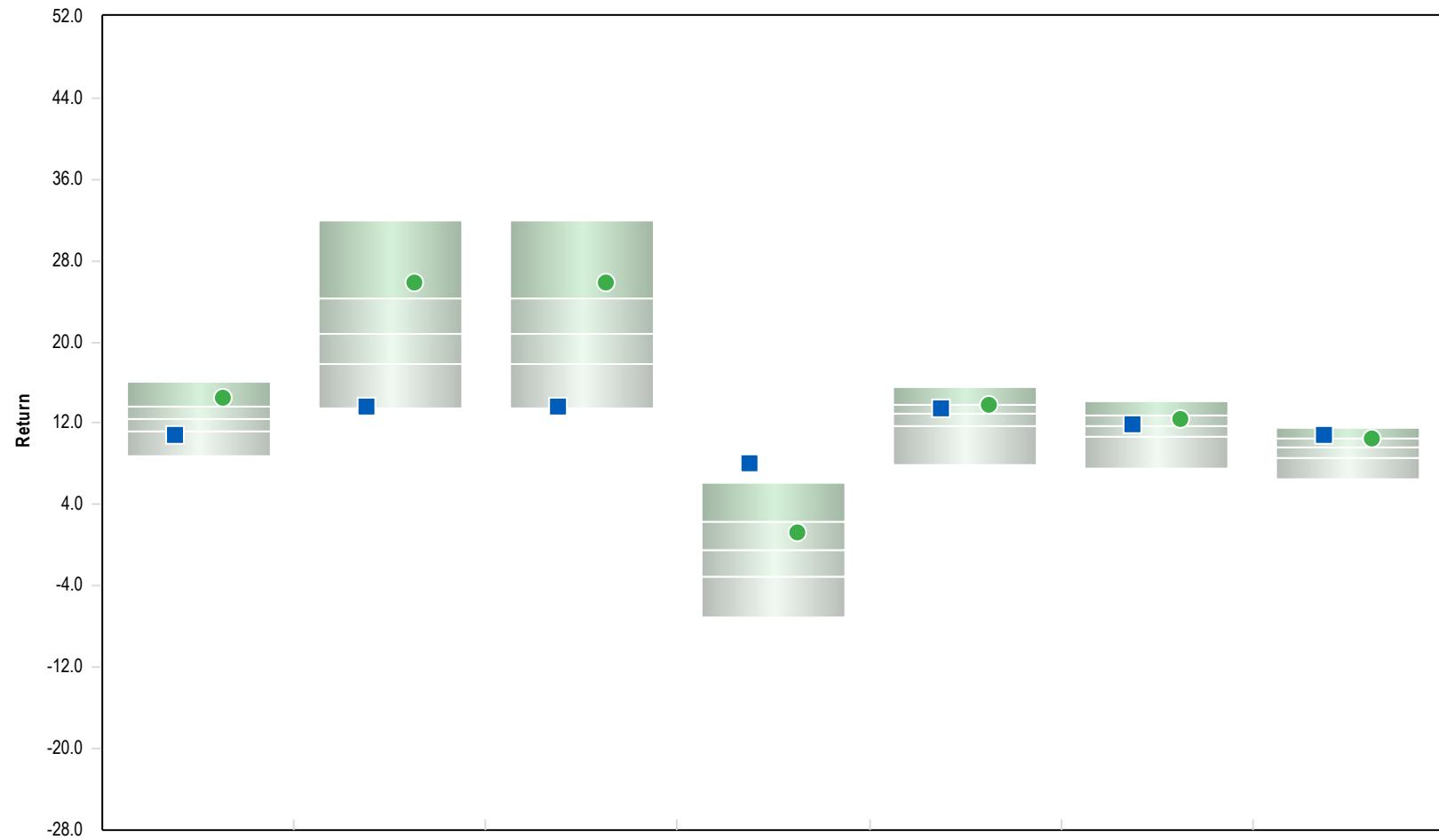
	Return	Standard Deviation
JP Morgan Mid Cap Value	11.1	22.7
Russell Midcap Value Index	11.2	23.2
Median	11.5	22.9

* Quarterly periodicity used.

Up Down Market Capture



Peer Group Analysis - IM U.S. Mid Cap Growth Equity (MF)

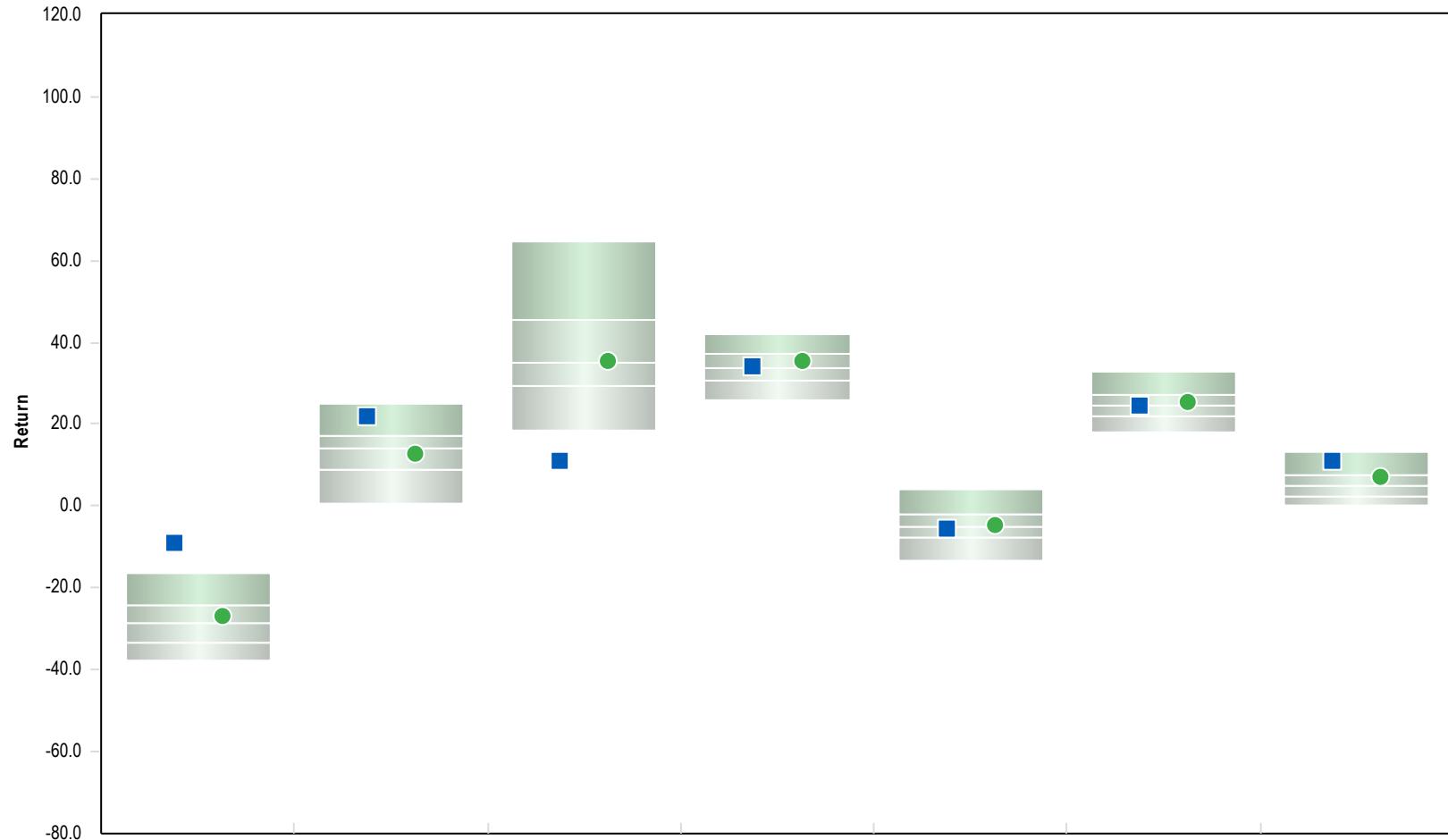


■ Eaton Vance Atlanta Capital SMID
 ● Russell Midcap Growth Index

	1 Qtr	YTD	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
Eaton Vance Atlanta Capital SMID	10.9 (77)	13.7 (95)	13.7 (95)	8.0 (3)	13.4 (34)	12.0 (44)	10.9 (16)
Russell Midcap Growth Index	14.5 (15)	25.9 (16)	25.9 (16)	1.3 (36)	13.8 (25)	12.5 (32)	10.6 (25)

5th Percentile	16.0	31.9	31.9	6.2	15.6	14.1	11.5
1st Quartile	13.7	24.3	24.3	2.3	13.8	12.8	10.5
Median	12.5	20.8	20.8	-0.4	12.9	11.7	9.7
3rd Quartile	11.2	17.9	17.9	-3.0	11.8	10.7	8.6
95th Percentile	8.7	13.5	13.5	-7.2	8.0	7.5	6.5

Peer Group Analysis - IM U.S. Mid Cap Growth Equity (MF)



■ Eaton Vance Atlanta Capital SMID

● Russell Midcap Growth Index

	2022	2021	2020	2019	2018	2017	2016
Eaton Vance Atlanta Capital SMID	-9.0 (1)	21.9 (14)	11.0 (99)	34.1 (48)	-5.6 (58)	24.4 (56)	11.0 (15)
Russell Midcap Growth Index	-26.7 (38)	12.7 (60)	35.6 (46)	35.5 (34)	-4.8 (47)	25.3 (41)	7.3 (26)

5th Percentile

-16.3 24.9 64.6 42.0 4.2 32.8 13.1

1st Quartile

-24.3 17.3 45.6 37.3 -2.0 27.0 7.5

Median

-28.8 14.2 34.9 33.9 -5.0 24.7 4.8

3rd Quartile

-33.2 9.1 29.4 30.5 -7.9 22.2 2.2

95th Percentile

-37.6 0.8 18.3 25.8 -13.3 18.2 0.1

Fund Information

Fund Name :	Eaton Vance Growth Trust: Eaton Vance Atlanta Capital SMID-Cap Fund; Class A Shares	Portfolio Assets :	\$12,216 Million
Fund Family :	Eaton Vance	Portfolio Manager :	Bell IV/Reed/Hereford
Ticker :	EAASX	PM Tenure :	2004--2003-2004
Inception Date :	11/28/2003	Fund Style :	IM U.S. Mid Cap Growth Equity (MF)
Fund Assets :	\$987 Million	Style Benchmark :	Russell Midcap Growth Index
Portfolio Turnover :	14%		

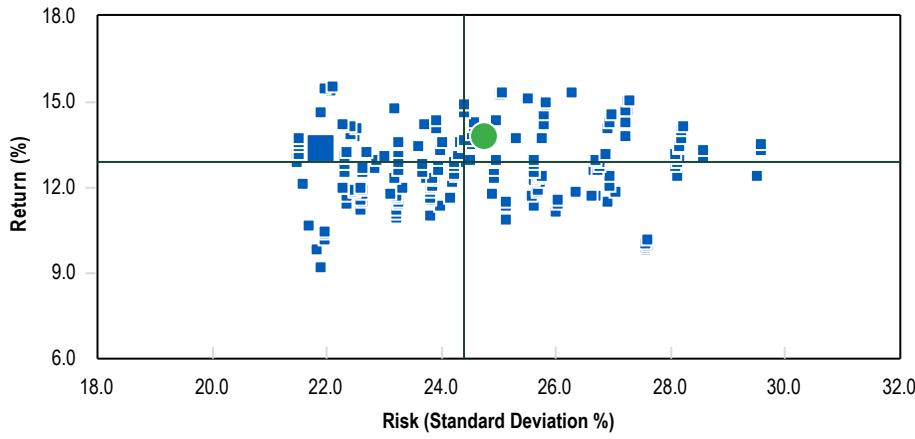
Fund Investment Policy

The Fund seeks long-term capital growth. Invests primarily in common stocks of companies with small market capitalizations. The Fund will normally invest in companies having market capitalizations within the range of companies comprising the Russell 2000 stock index.

Historical Statistics (01/01/19 - 12/31/23) *

	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Excess Risk	Inception Date
Eaton Vance Atlanta Capital SMID	13.4	21.9	0.6	2.6	0.8	0.8	11.4	-0.1	22.0	08/01/2014
Russell Midcap Growth Index	13.8	24.8	0.6	0.0	1.0	1.0	0.0		24.7	08/01/2014
90 Day U.S. Treasury Bill	1.9	0.9		1.9	0.0	0.0	24.7	-0.6	0.0	08/01/2014

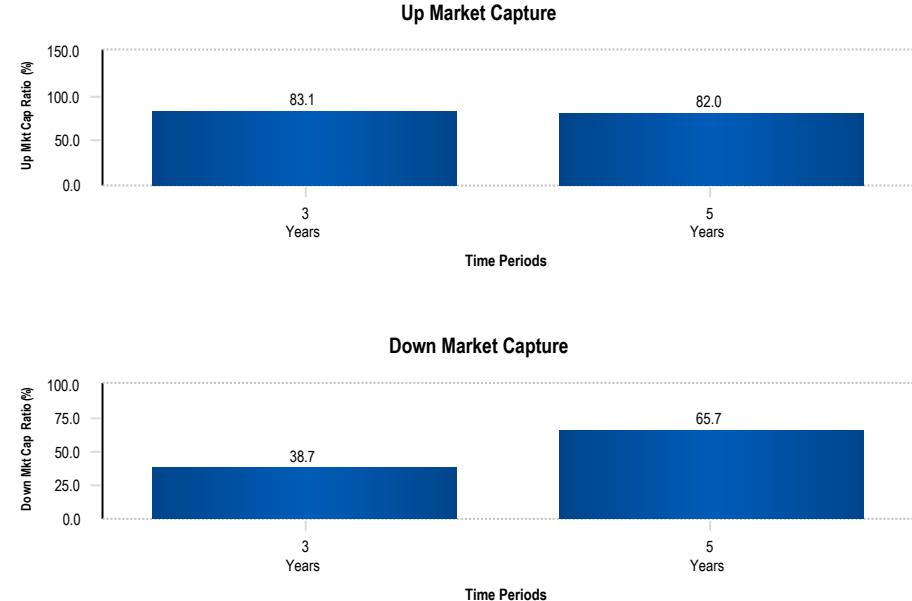
Peer Group Scattergram (01/01/19 to 12/31/23)



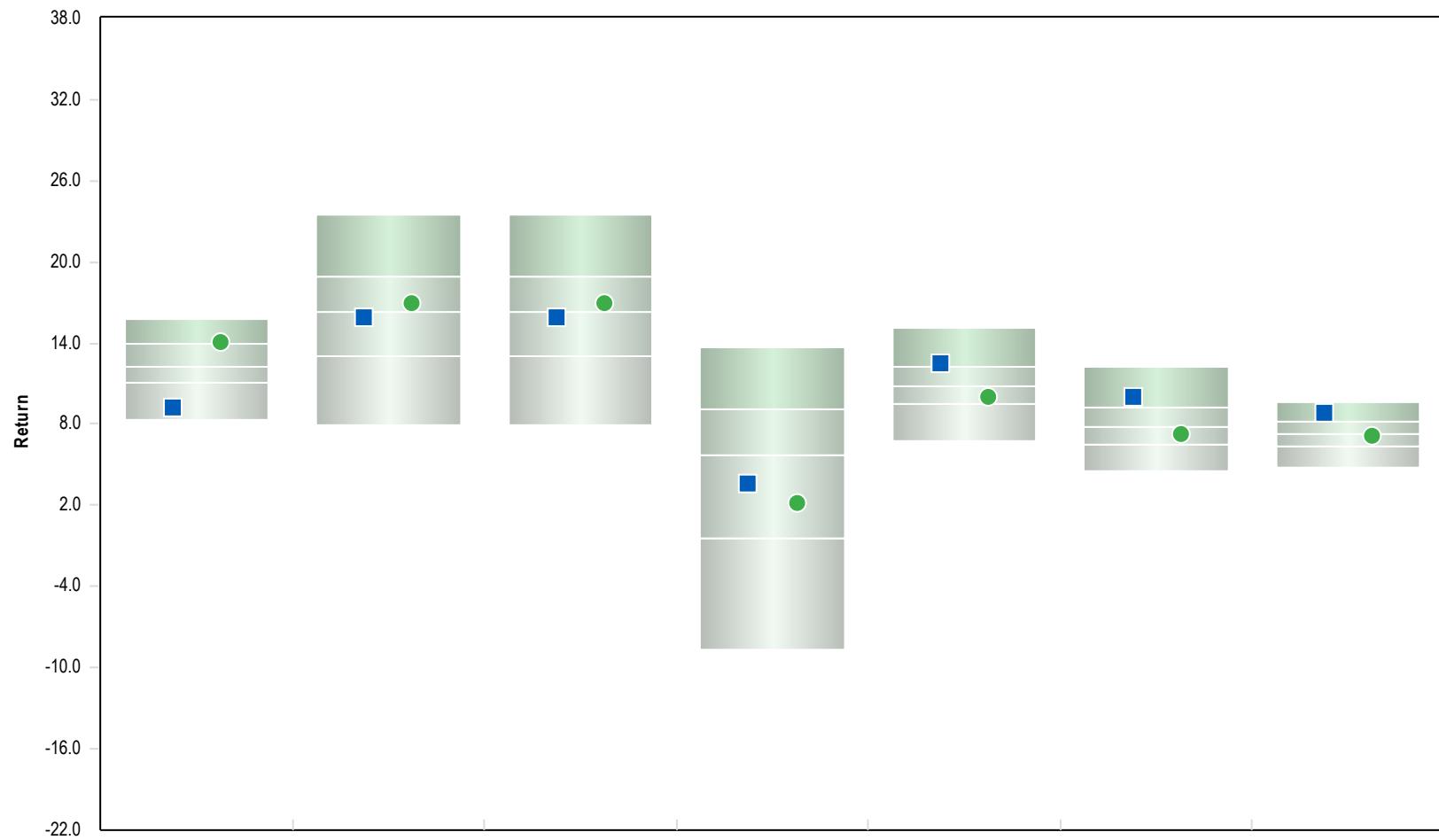
	Return	Standard Deviation
Eaton Vance Atlanta Capital SMID	13.4	21.9
Russell Midcap Growth Index	13.8	24.8
Median	12.9	24.4

* Quarterly periodicity used.

Up Down Market Capture



Peer Group Analysis - IM U.S. Small Cap Equity (MF)



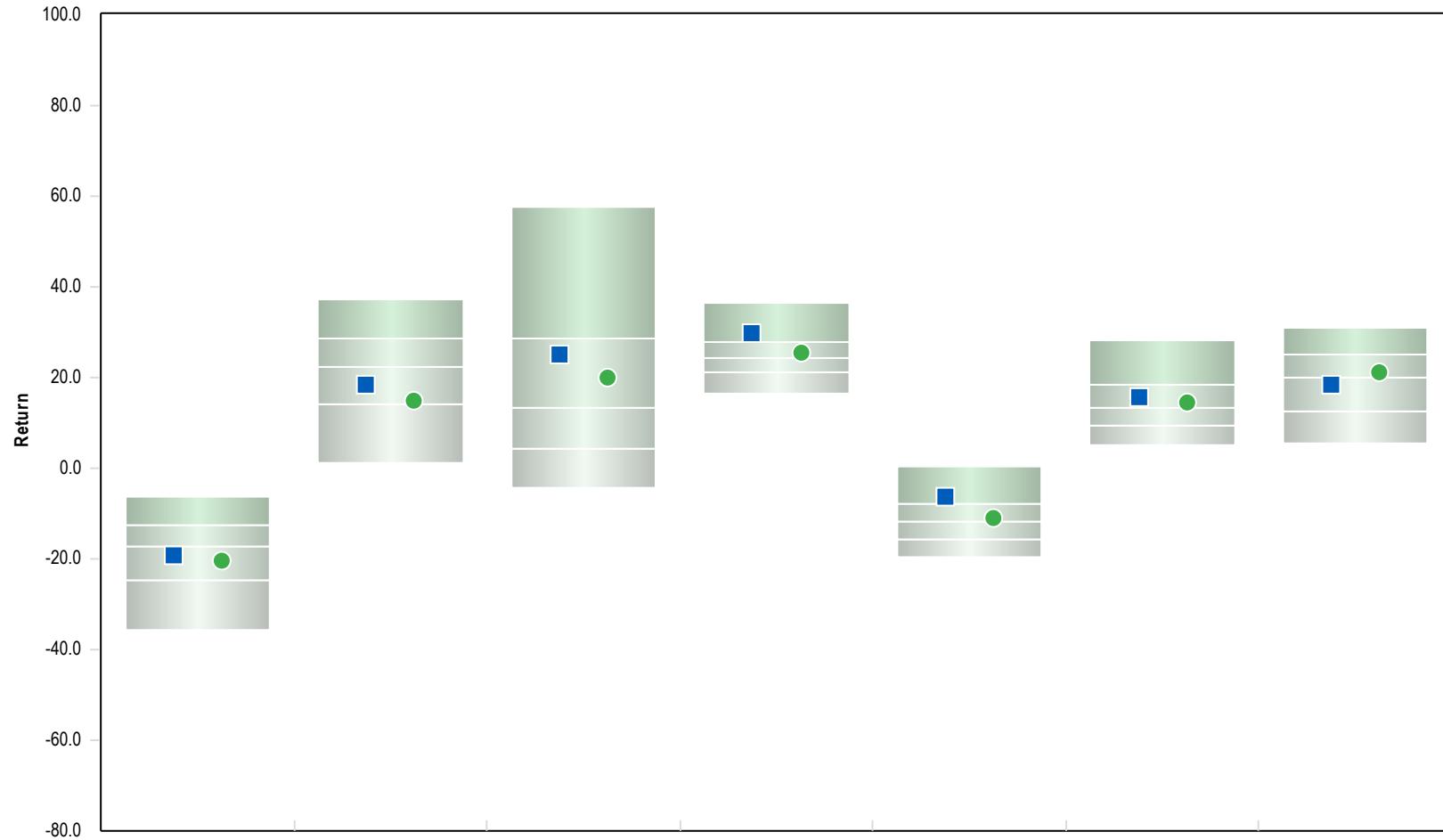
■ Neuberger Berman Genesis Trust

● Russell 2000 Index

	1 Qtr	YTD	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
Neuberger Berman Genesis Trust	9.2 (91)	15.9 (54)	15.9 (54)	3.6 (60)	12.5 (22)	10.1 (19)	8.8 (12)
Russell 2000 Index	14.0 (23)	16.9 (43)	16.9 (43)	2.2 (66)	10.0 (67)	7.3 (59)	7.2 (55)

5th Percentile	15.8	23.5	23.5	13.7	15.1	12.3	9.6
1st Quartile	13.9	18.9	18.9	9.2	12.2	9.2	8.2
Median	12.2	16.3	16.3	5.7	10.8	7.8	7.3
3rd Quartile	11.0	13.1	13.1	-0.5	9.4	6.5	6.3
95th Percentile	8.3	8.0	8.0	-8.6	6.8	4.6	4.8

Peer Group Analysis - IM U.S. Small Cap Equity (MF)



■ Neuberger Berman Genesis Trust

● Russell 2000 Index

	2022	2021	2020	2019	2018	2017	2016
Neuberger Berman Genesis Trust	-19.0 (58)	18.5 (63)	25.2 (31)	29.8 (19)	-6.4 (22)	15.9 (32)	18.4 (60)
Russell 2000 Index	-20.4 (64)	14.8 (71)	20.0 (37)	25.5 (40)	-11.0 (44)	14.6 (39)	21.3 (43)

5th Percentile

-6.2 37.4 57.8 36.6 0.6 28.1 31.1

1st Quartile

-12.6 28.8 28.8 27.9 -7.8 18.2 25.0

Median

-17.2 22.4 13.3 24.4 -11.9 13.2 20.2

3rd Quartile

-24.9 14.0 4.5 21.2 -15.5 9.5 12.6

95th Percentile

-35.9 1.3 -4.3 16.5 -19.5 5.1 5.3

Fund Information

Fund Name :	Neuberger Berman Equity Funds: Neuberger Berman Genesis Fund; Class R6 Shares	Portfolio Assets :	\$10,283 Million
Fund Family :	Neuberger Berman	Portfolio Manager :	Spiegel/D'Alelio/Reiner
Ticker :	NRGSX	PM Tenure :	2015--2013--2013
Inception Date :	03/15/2013	Fund Style :	IM U.S. Small Cap Equity (MF)
Fund Assets :	\$4,740 Million	Style Benchmark :	Russell 2000 Index
Portfolio Turnover :	17%		

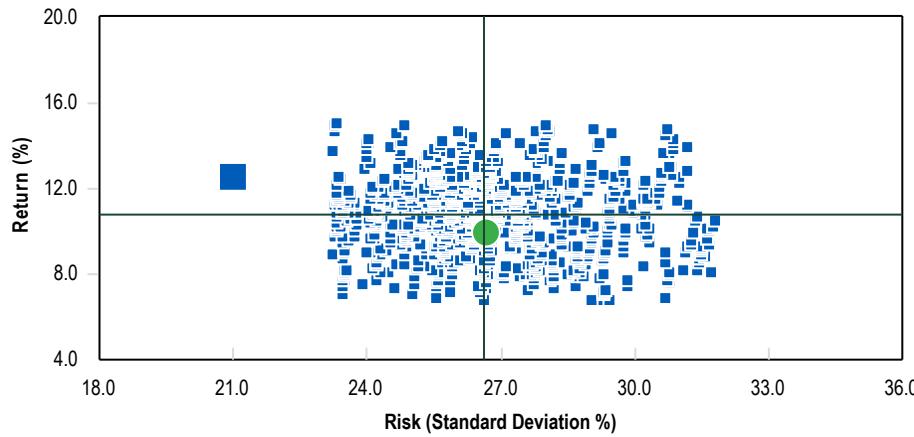
Fund Investment Policy

The Fund seeks capital appreciation through investment in common stock of companies with small market capitalization, which it defines as those with a total market value of no more than \$1.5 billion at the time the Fund first invests in them.

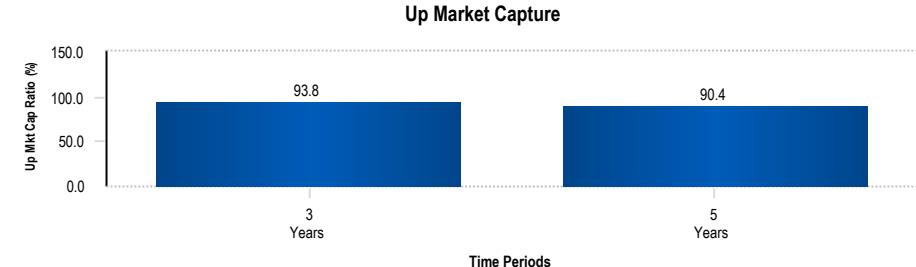
Historical Statistics (01/01/19 - 12/31/23) *

	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Excess Risk	Inception Date
Neuberger Berman Genesis Trust	12.5	21.0	0.6	4.3	0.7	0.9	9.3	0.1	21.1	05/01/2001
Russell 2000 Index	10.0	26.6	0.4	0.0	1.0	1.0	0.0		26.7	05/01/2001
90 Day U.S. Treasury Bill	1.9	0.9		1.9	0.0	0.0	26.7	-0.4	0.0	05/01/2001

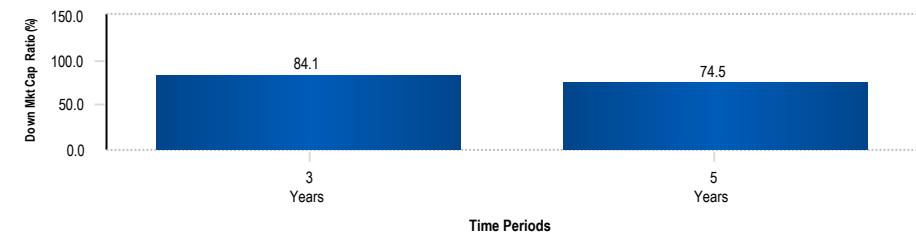
Peer Group Scattergram (01/01/19 to 12/31/23)



Up Down Market Capture

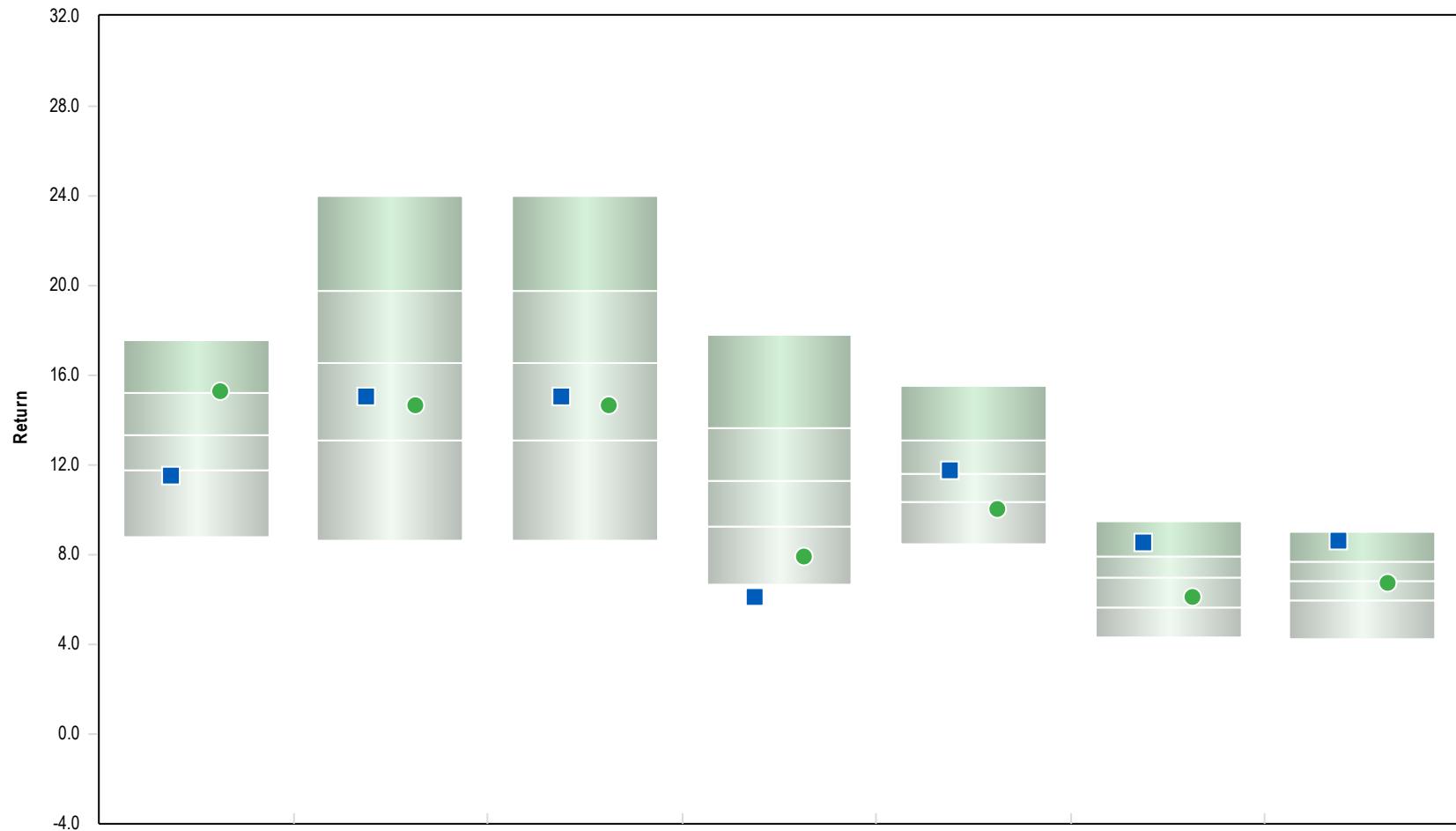


Down Market Capture



* Quarterly periodicity used.

Peer Group Analysis - IM U.S. Small Cap Value Equity (MF)

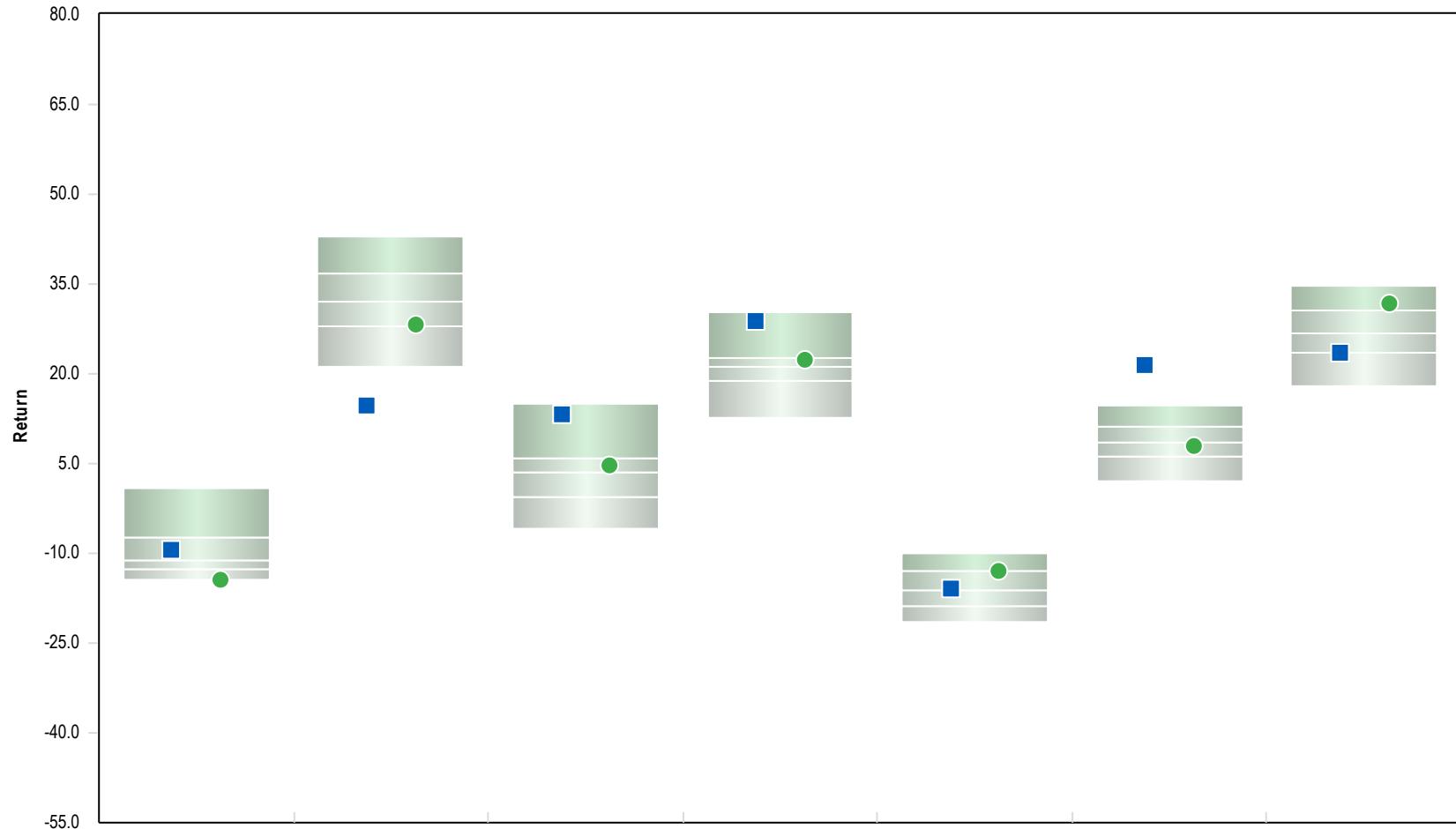


■ Harbor Small Cap Value Fund
● Russell 2000 Value Index

	1 Qtr	YTD	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
Harbor Small Cap Value Fund	11.5 (81)	15.1 (63)	15.1 (63)	6.1 (99)	11.7 (49)	8.6 (15)	8.6 (9)
Russell 2000 Value Index	15.3 (24)	14.6 (69)	14.6 (69)	7.9 (91)	10.0 (81)	6.1 (68)	6.8 (55)

5th Percentile	17.6	24.0	24.0	17.8	15.5	9.5	9.1
1st Quartile	15.2	19.8	19.8	13.6	13.1	7.9	7.7
Median	13.3	16.6	16.6	11.3	11.6	7.0	6.8
3rd Quartile	11.8	13.1	13.1	9.3	10.4	5.7	6.0
95th Percentile	8.8	8.6	8.6	6.7	8.5	4.3	4.2

Peer Group Analysis - IM U.S. Small Cap Value Equity (MF)



	2022	2021	2020	2019	2018	2017	2016
Harbor Small Cap Value Fund	-9.5 (41)	14.7 (99)	13.1 (6)	29.0 (6)	-16.0 (49)	21.6 (1)	23.5 (76)
Russell 2000 Value Index	-14.5 (96)	28.3 (73)	4.6 (35)	22.4 (28)	-12.9 (23)	7.8 (60)	31.7 (16)

5th Percentile	0.8	43.0	14.9	30.2	-10.1	14.8	34.6
1st Quartile	-7.4	36.9	5.8	22.6	-13.1	11.3	30.5
Median	-11.1	32.0	3.6	21.1	-16.1	8.5	26.7
3rd Quartile	-12.7	28.1	-0.5	18.8	-18.7	6.2	23.6
95th Percentile	-14.3	21.2	-6.0	12.6	-21.4	2.2	17.9

Fund Information

Fund Name :	Harbor Funds: Harbor Small Cap Value Fund; Institutional Class Shares	Portfolio Assets :	\$2,143 Million
Fund Family :	Harbor Funds	Portfolio Manager :	Paul E. Viera
Ticker :	HASCX	PM Tenure :	2001
Inception Date :	12/14/2001	Fund Style :	IM U.S. Small Cap Value Equity (MF)
Fund Assets :	\$1,481 Million	Style Benchmark :	Russell 2000 Value Index
Portfolio Turnover :	15%		

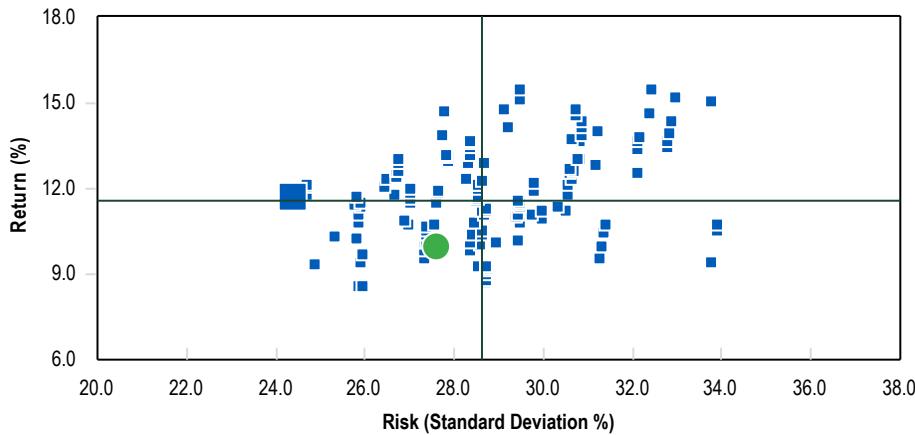
Fund Investment Policy

The Fund seeks long-term total return. The Fund invests primarily in equity securities, principally common and preferred stocks, of small cap companies. Small cap companies as those with market capitalizations that fall within the range of the Russell 2000 Index.

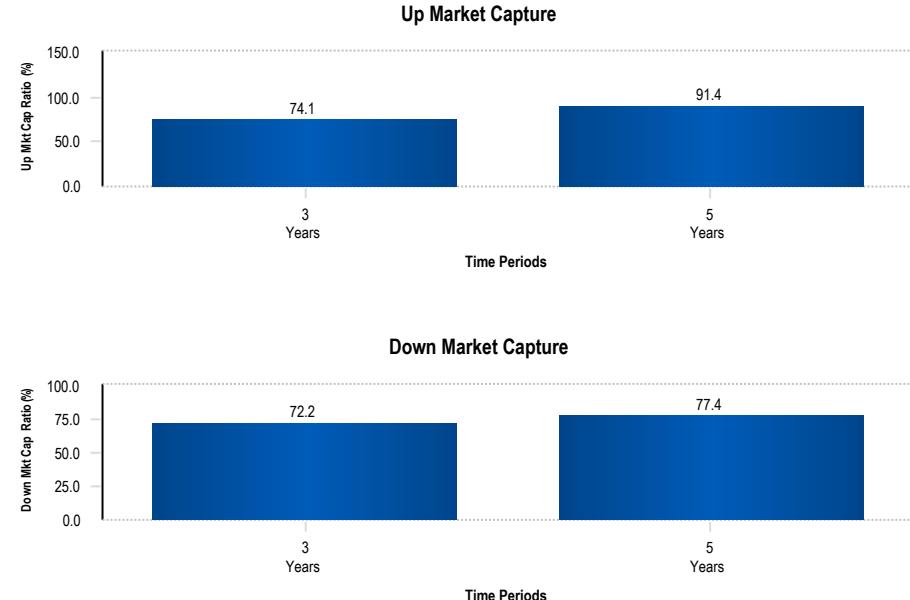
Historical Statistics (01/01/19 - 12/31/23) *

	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Excess Risk	Inception Date
Harbor Small Cap Value Fund	11.7	24.4	0.5	2.6	0.9	0.9	6.8	0.1	24.5	01/01/2002
Russell 2000 Value Index	10.0	27.6	0.4	0.0	1.0	1.0	0.0		27.7	01/01/2002
90 Day U.S. Treasury Bill	1.9	0.9		1.9	0.0	0.0	27.7	-0.4	0.0	01/01/2002

Peer Group Scattergram (01/01/19 to 12/31/23)

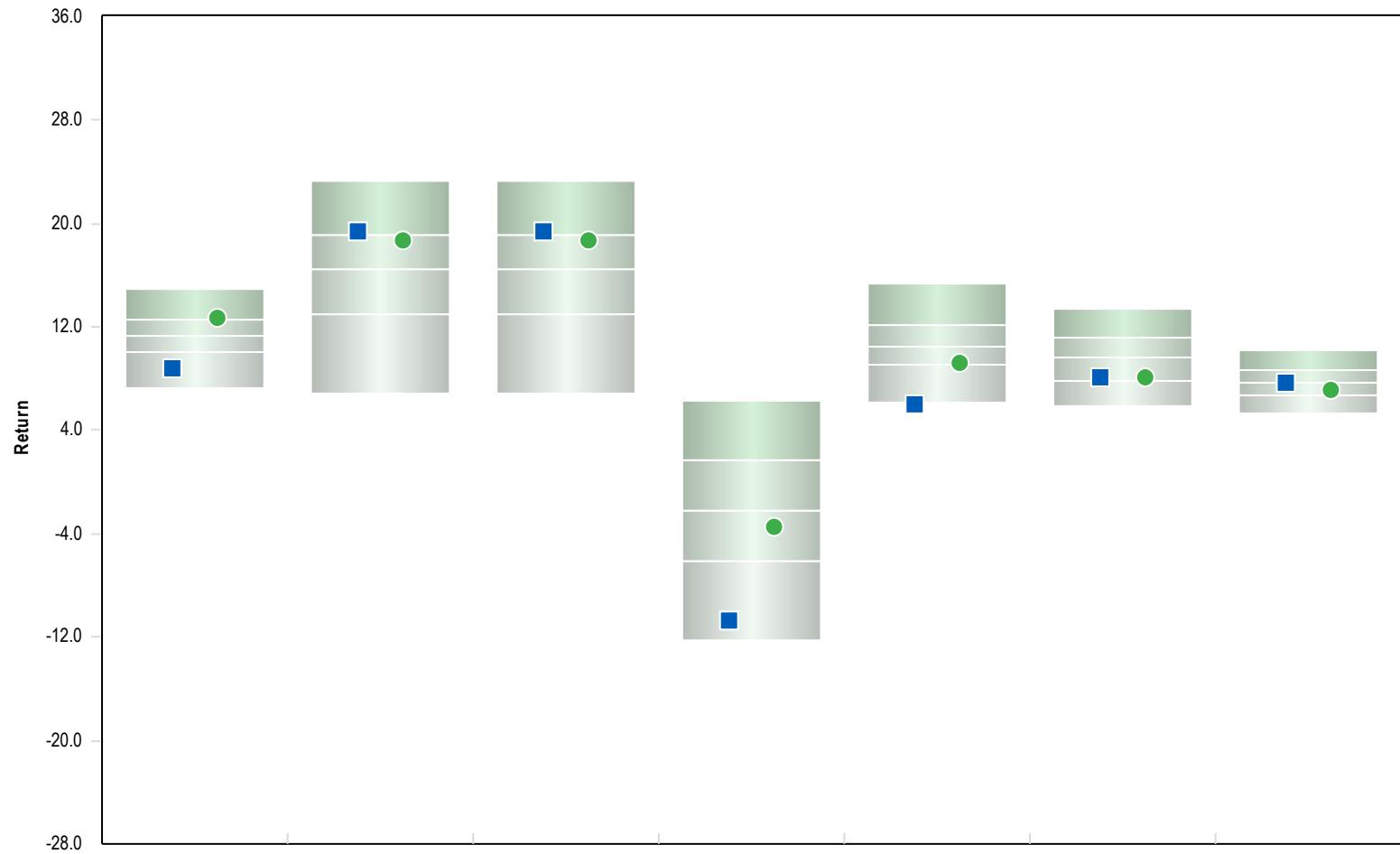


Up Down Market Capture



* Quarterly periodicity used.

Peer Group Analysis - IM U.S. Small Cap Growth Equity (MF)



■ Brown Capital Management Small Company

● Russell 2000 Growth Index

	1 Qtr	YTD	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
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Brown Capital Management Small Company	8.8 (89)	19.4 (23)	19.4 (23)	-10.7 (93)	6.0 (96)	8.1 (72)	7.6 (50)
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Russell 2000 Growth Index	12.7 (21)	18.7 (30)	18.7 (30)	-3.5 (61)	9.2 (74)	8.1 (73)	7.2 (65)
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5th Percentile

5th Percentile	14.9	23.3	23.3	6.3	15.4	13.3	10.2
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1st Quartile

1st Quartile	12.5	19.1	19.1	1.6	12.2	11.2	8.7
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Median

Median	11.3	16.5	16.5	-2.3	10.5	9.6	7.6
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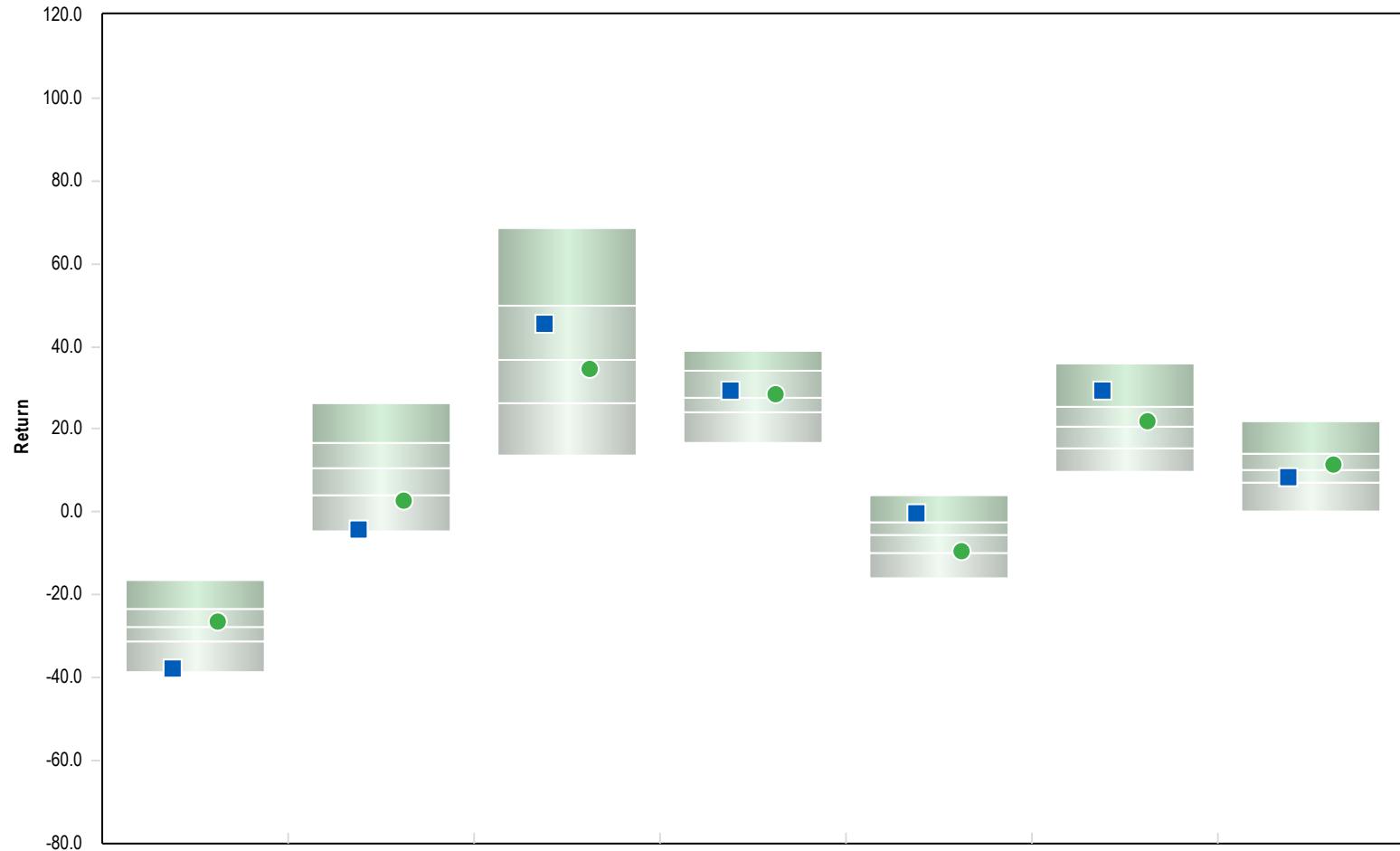
3rd Quartile

3rd Quartile	10.1	13.0	13.0	-6.1	9.1	7.9	6.7
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95th Percentile

95th Percentile	7.2	6.8	6.8	-12.3	6.2	5.9	5.3
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Peer Group Analysis - IM U.S. Small Cap Growth Equity (MF)



■ Brown Capital Management Small Company

● Russell 2000 Growth Index

	2022	2021	2020	2019	2018	2017	2016
Brown Capital Management Small Company	-37.9 (95)	-4.0 (95)	45.5 (30)	29.5 (43)	-0.5 (17)	29.2 (12)	8.6 (62)
Russell 2000 Growth Index	-26.4 (44)	2.8 (82)	34.6 (56)	28.5 (47)	-9.3 (73)	22.2 (43)	11.3 (43)

Fund Information

Fund Name :	Brown Capital Management Mutual Funds: Brown Capital Management Small Company Fund; Institutional Share	Portfolio Assets :	\$3,462 Million
Fund Family :	Brown Capital	Portfolio Manager :	Team Managed
Ticker :	BCSSX	PM Tenure :	
Inception Date :	12/15/2011	Fund Style :	IM U.S. Small Cap Growth Equity (MF)
Fund Assets :	\$2,746 Million	Style Benchmark :	Russell 2000 Growth Index

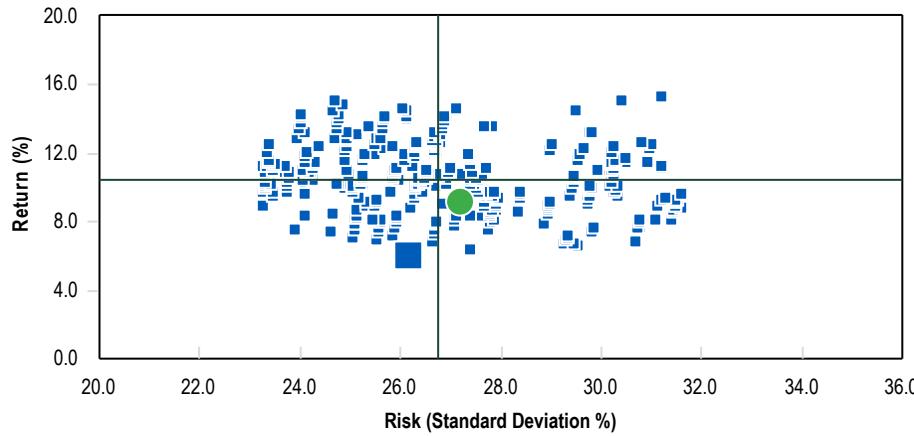
Fund Investment Policy

The Fund seeks long-term capital appreciation and current income is a secondary consideration in selecting portfolio investments. The Fund invests primarily in a portfolio of equity securities of companies that have a market capitalization of between \$1 billion and \$10 billion at the time of purchase.

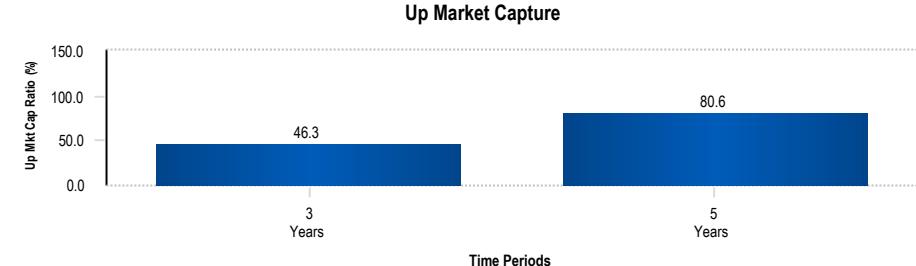
Historical Statistics (01/01/19 - 12/31/23) *

	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Excess Risk	Inception Date
Brown Capital Management Small Company	6.0	26.1	0.3	-2.0	0.9	0.9	10.4	-0.3	26.1	09/01/1999
Russell 2000 Growth Index	9.2	27.2	0.4	0.0	1.0	1.0	0.0		27.2	09/01/1999
90 Day U.S. Treasury Bill	1.9	0.9		1.9	0.0	0.0	27.2	-0.4	0.0	09/01/1999

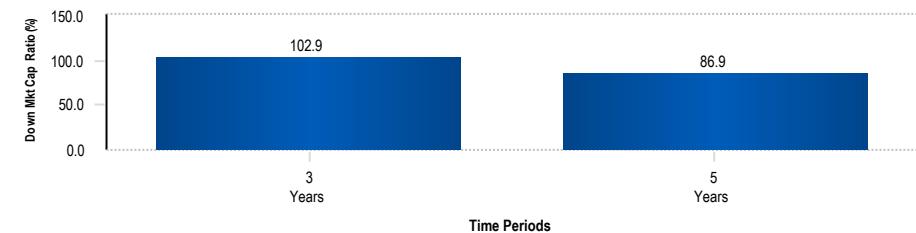
Peer Group Scattergram (01/01/19 to 12/31/23)



Up Down Market Capture

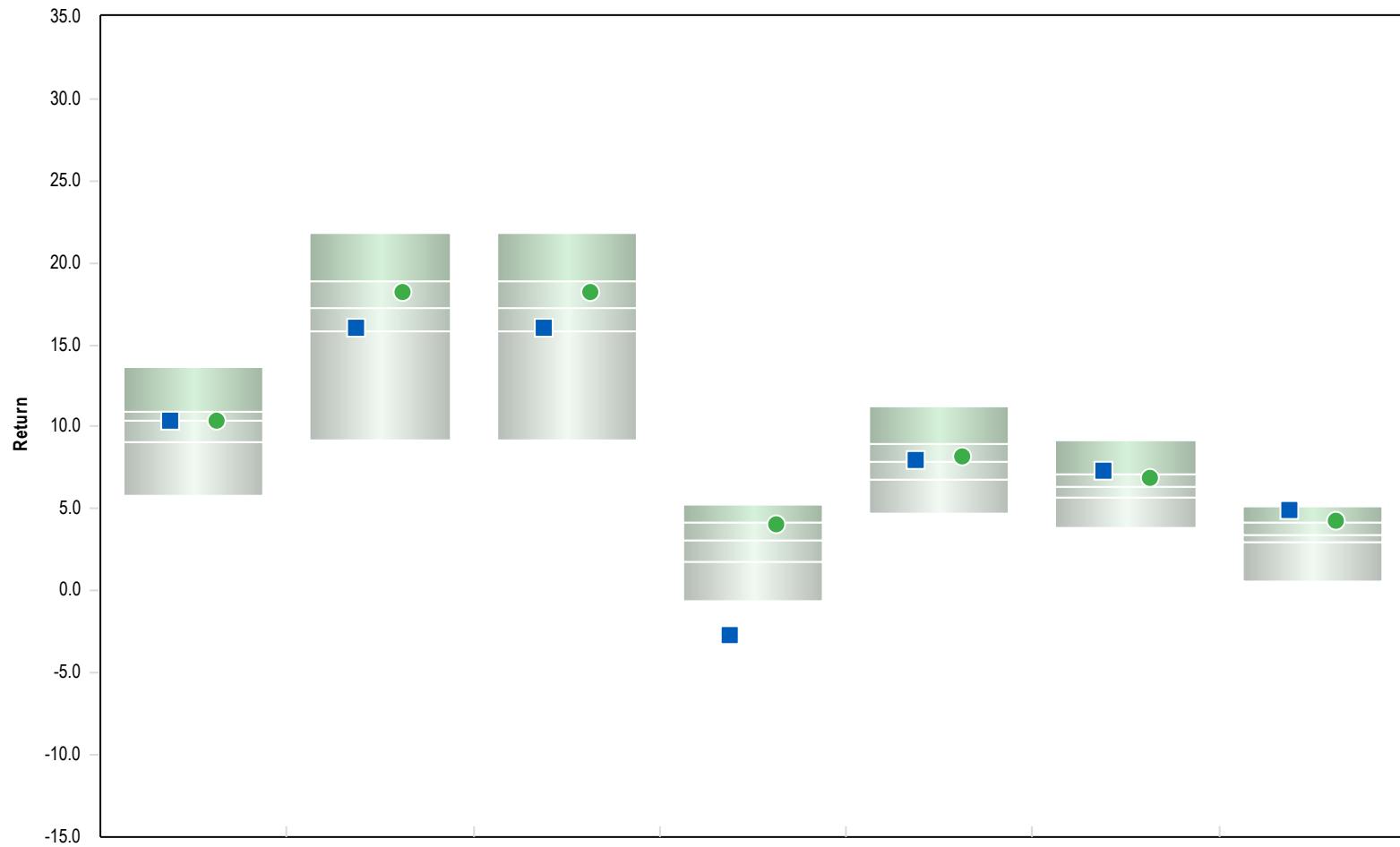


Down Market Capture



* Quarterly periodicity used.

Peer Group Analysis - IM International Large Cap Core Equity (MF)



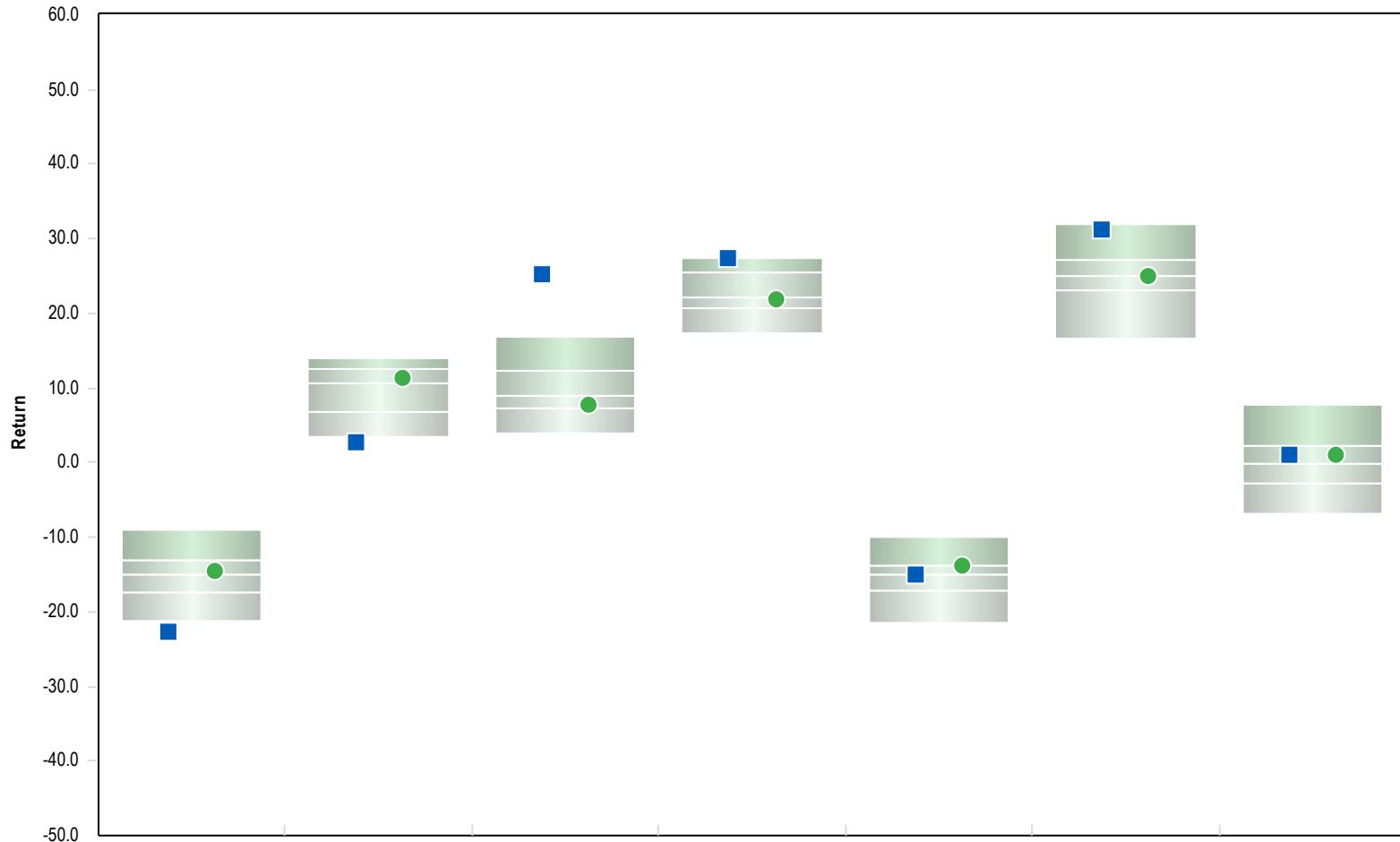
■ American Funds Europacific Growth Fund

● MSCI EAFE (Net)

	1 Qtr	YTD	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
American Funds Europacific Growth Fund	10.4 (54)	16.1 (72)	16.1 (72)	-2.7 (100)	8.0 (47)	7.3 (20)	4.9 (8)
MSCI EAFE (Net)	10.4 (50)	18.2 (34)	18.2 (34)	4.0 (32)	8.2 (45)	6.9 (32)	4.3 (23)

5th Percentile	13.7	21.8	21.8	5.2	11.2	9.2	5.1
1st Quartile	10.9	18.9	18.9	4.2	9.0	7.1	4.2
Median	10.4	17.2	17.2	3.0	7.9	6.4	3.4
3rd Quartile	9.1	15.8	15.8	1.7	6.8	5.7	3.0
95th Percentile	5.8	9.2	9.2	-0.6	4.7	3.9	0.6

Peer Group Analysis - IM International Large Cap Core Equity (MF)



■ American Funds Europacific Growth Fund

● MSCI EAFE (Net)

2022

-22.7 (100)

2021

2.8 (96)

2020

25.3 (1)

2019

27.4 (4)

2018

-14.9 (49)

2017

31.2 (10)

2016

1.0 (37)

5th Percentile

-9.0

13.9

16.8

27.4

-9.9

32.0

7.7

1st Quartile

-13.1

12.4

12.4

25.6

-13.8

27.2

2.2

Median

-15.1

10.7

9.1

22.1

-15.0

25.0

0.0

3rd Quartile

-17.4

6.7

7.3

20.7

-17.2

23.2

-2.7

95th Percentile

-21.1

3.4

3.9

17.4

-21.4

16.6

-6.9

Fund Information

Fund Name :	EuroPacific Growth Fund; Class R6 Shares	Portfolio Assets :	\$131,119 Million
Fund Family :	Capital Group/American Funds	Portfolio Manager :	Team Managed
Ticker :	RERGX	PM Tenure :	
Inception Date :	05/01/2009	Fund Style :	IM International Large Cap Core Equity (MF)
Fund Assets :	\$63,331 Million	Style Benchmark :	MSCI EAFE (Net)
Portfolio Turnover :	34%		

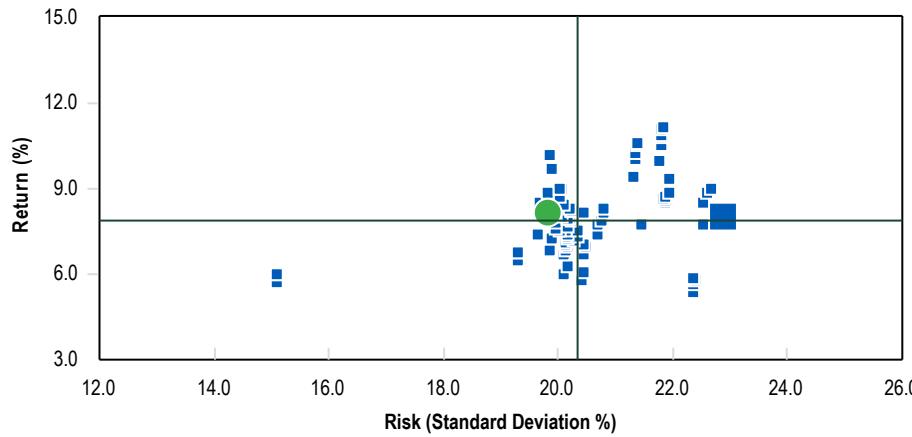
Fund Investment Policy

The Fund seeks to provide long-term growth of capital. The Fund will invest its net assets in securities of issuers in Europe and the Pacific Basin. It will be considered part of Europe if it is part of the MSCI European indexes, and part of the Pacific Basin if any of its borders touches the Pacific Ocean.

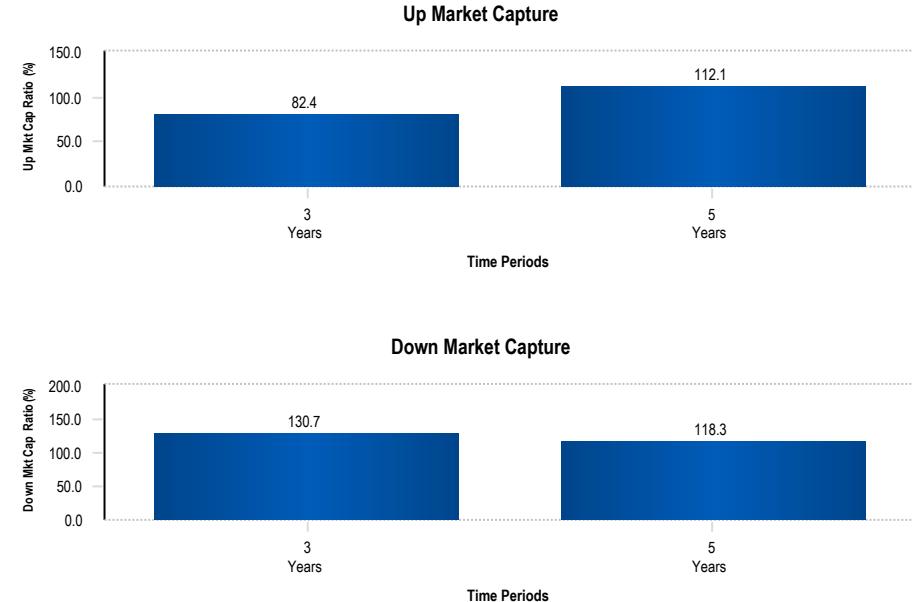
Historical Statistics (01/01/19 - 12/31/23) *

	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Excess Risk	Inception Date
American Funds Europacific Growth Fund	8.0	22.9	0.4	-0.6	1.1	0.9	6.5	0.1	22.9	07/01/2002
MSCI EAFE (Net)	8.2	19.8	0.4	0.0	1.0	1.0	0.0		19.8	07/01/2002
90 Day U.S. Treasury Bill	1.9	0.9		1.9	0.0	0.0	19.8	-0.4	0.0	07/01/2002

Peer Group Scattergram (01/01/19 to 12/31/23)

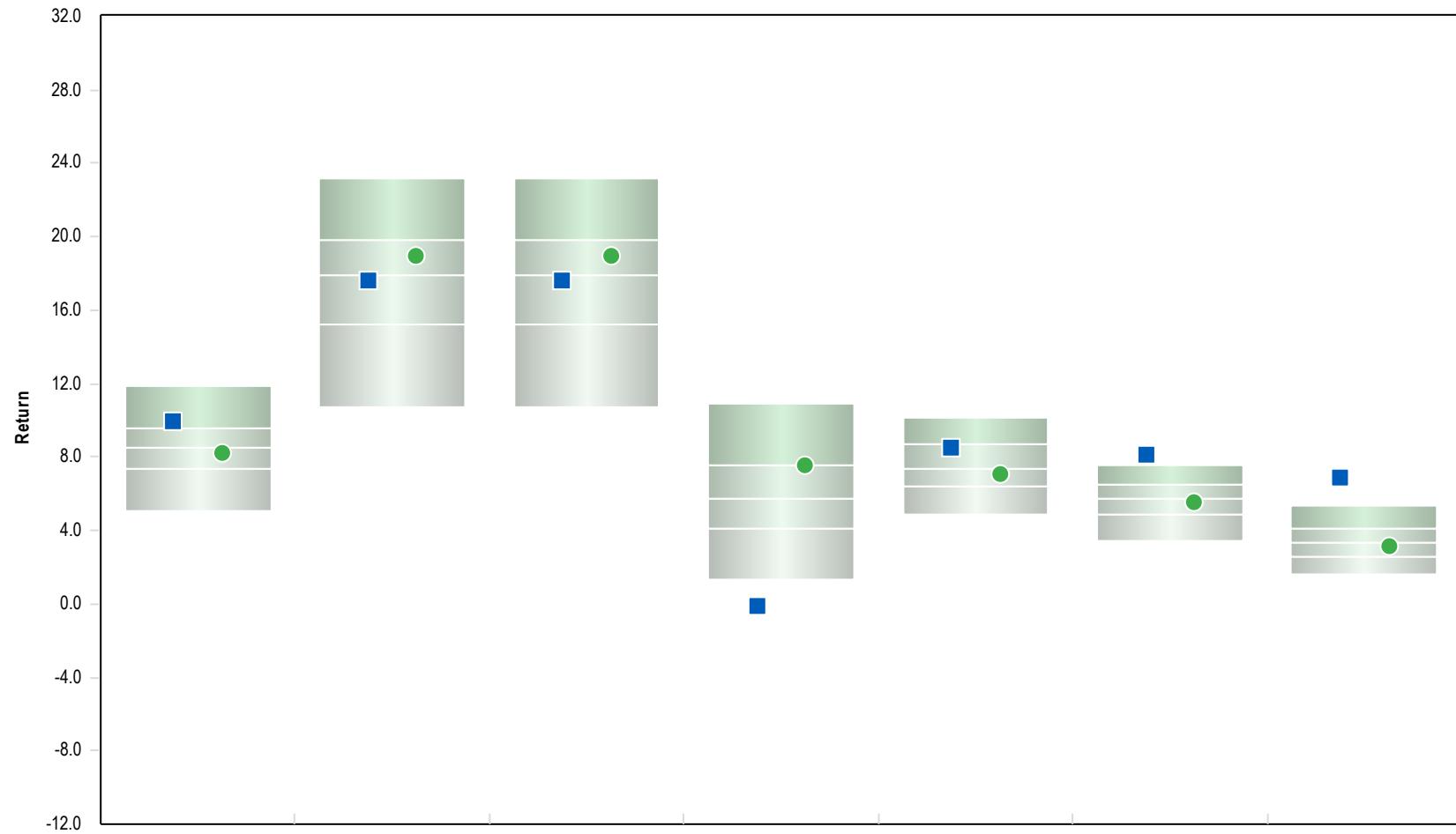


Up Down Market Capture



* Quarterly periodicity used.

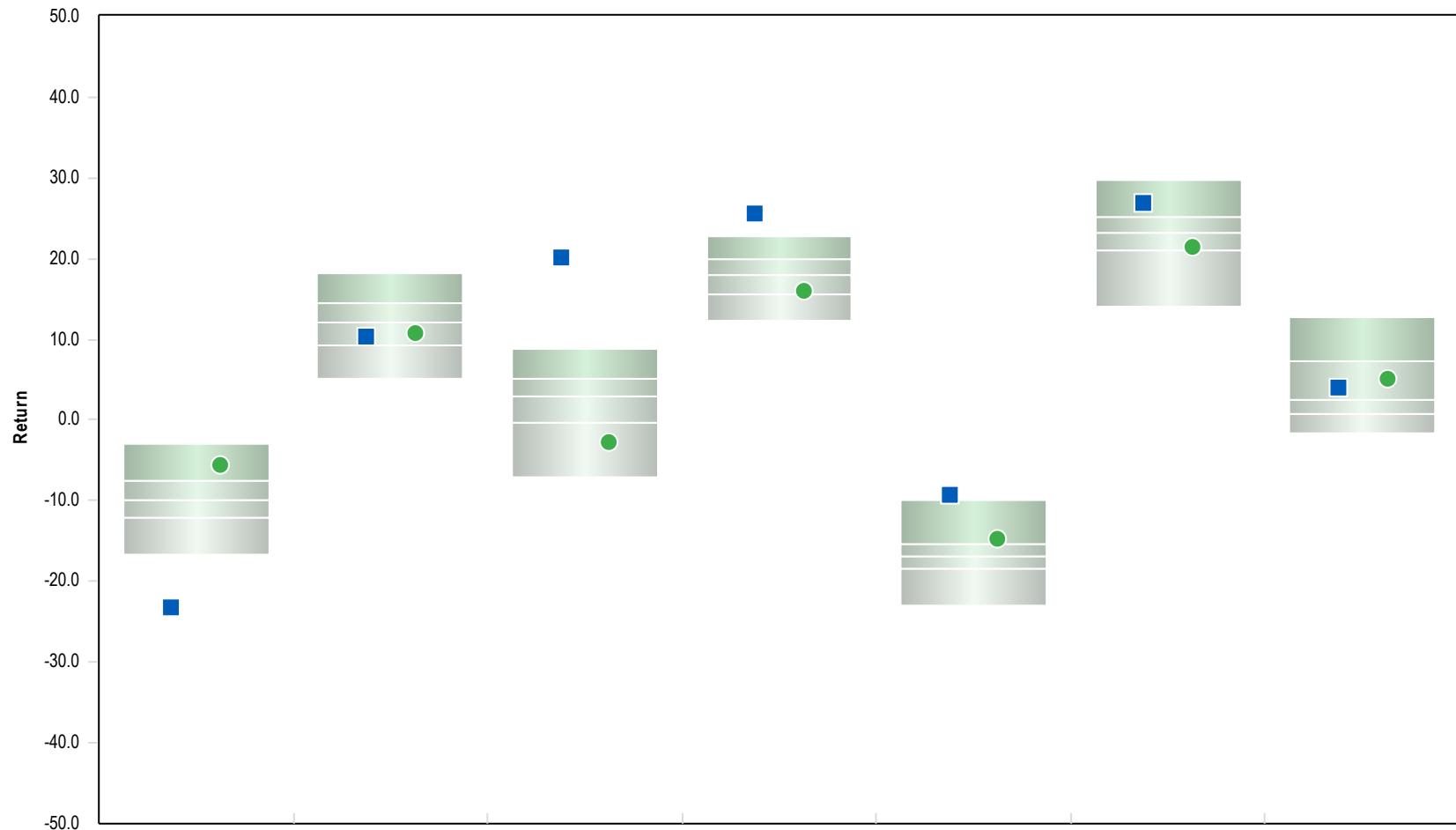
Peer Group Analysis - IM International Value Equity (MF)



	1 Qtr	YTD	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
MFS International Value	10.0 (19)	17.6 (53)	17.6 (53)	-0.2 (99)	8.5 (31)	8.1 (2)	6.8 (1)
MSCI EAFE Value Index (Net)	8.2 (58)	19.0 (39)	19.0 (39)	7.6 (26)	7.1 (60)	5.5 (58)	3.2 (57)

5th Percentile	11.9	23.1	23.1	10.9	10.1	7.5	5.4
1st Quartile	9.6	19.8	19.8	7.6	8.7	6.5	4.1
Median	8.6	17.9	17.9	5.7	7.4	5.7	3.4
3rd Quartile	7.4	15.2	15.2	4.1	6.4	4.9	2.6
95th Percentile	5.0	10.7	10.7	1.3	4.8	3.4	1.6

Peer Group Analysis - IM International Value Equity (MF)



	2022	2021	2020	2019	2018	2017	2016
MFS International Value	-23.3 (100)	10.3 (66)	20.2 (1)	25.6 (1)	-9.2 (3)	26.8 (15)	4.0 (36)
MSCI EAFE Value Index (Net)	-5.6 (15)	10.9 (59)	-2.6 (85)	16.1 (71)	-14.8 (19)	21.4 (71)	5.0 (30)

5th Percentile	-2.9	18.1	8.7	22.8	-9.9	29.7	12.8
1st Quartile	-7.6	14.6	5.2	20.0	-15.3	25.2	7.3
Median	-10.0	12.1	2.9	17.9	-16.9	23.3	2.5
3rd Quartile	-12.1	9.3	-0.3	15.7	-18.3	21.0	0.8
95th Percentile	-16.7	5.1	-7.1	12.3	-23.0	14.0	-1.7

Fund Information

Fund Name :	MFS Series Trust X: MFS International Intrinsic Value Fund; Class R3 Shares	Portfolio Assets :	\$21,148 Million
Fund Family :	MFS	Portfolio Manager :	Stone/Evans
Ticker :	MINGX	PM Tenure :	2008–2020
Inception Date :	10/01/2008	Fund Style :	IM International Value Equity (MF)
Fund Assets :	\$787 Million	Style Benchmark :	MSCI EAFE Value Index (Net)
Portfolio Turnover :	19%		

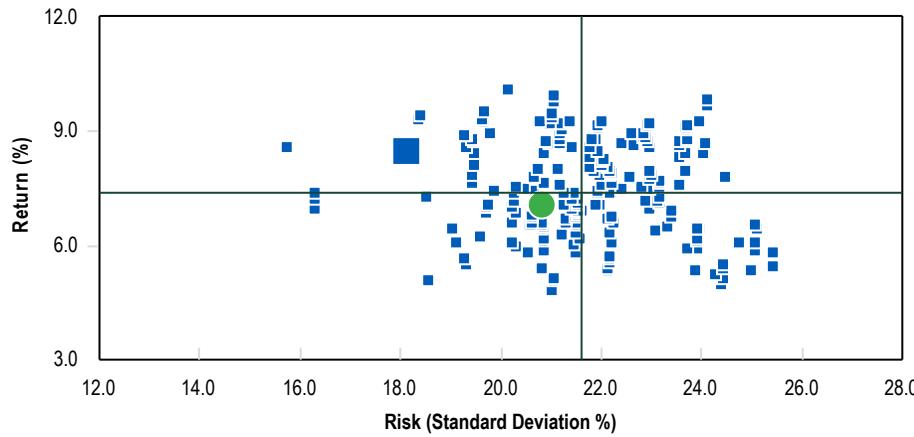
Fund Investment Policy

The Fund seeks capital appreciation and current income by investing, under normal conditions, at least 65 percent of its total assets in equity and fixed income securities of issuers whose principal activities are outside the U.S.

Historical Statistics (01/01/19 - 12/31/23) *

	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Excess Risk	Inception Date
MFS International Value	8.5	18.1	0.4	3.6	0.7	0.6	12.8	0.1	18.0	06/01/2006
MSCI EAFE Value Index (Net)	7.1	20.8	0.4	0.0	1.0	1.0	0.0		20.8	06/01/2006
90 Day U.S. Treasury Bill	1.9	0.9		1.9	0.0	0.0	20.8	-0.4	0.0	06/01/2006

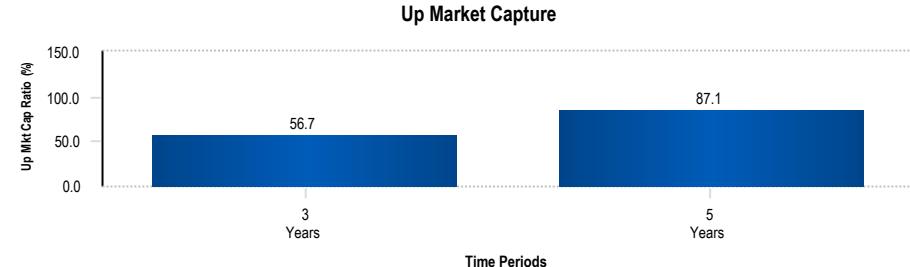
Peer Group Scattergram (01/01/19 to 12/31/23)



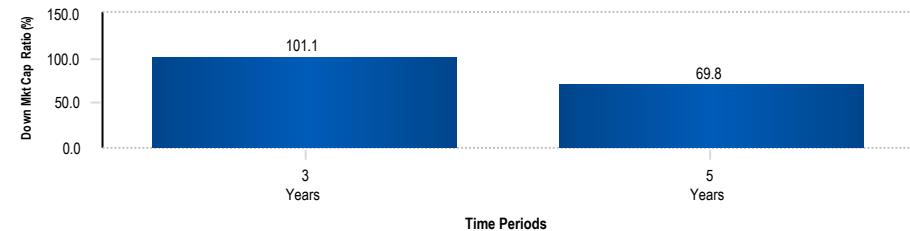
	Return	Standard Deviation
MFS International Value	8.5	18.1
MSCI EAFE Value Index (Net)	7.1	20.8
Median	7.4	21.6

* Quarterly periodicity used.

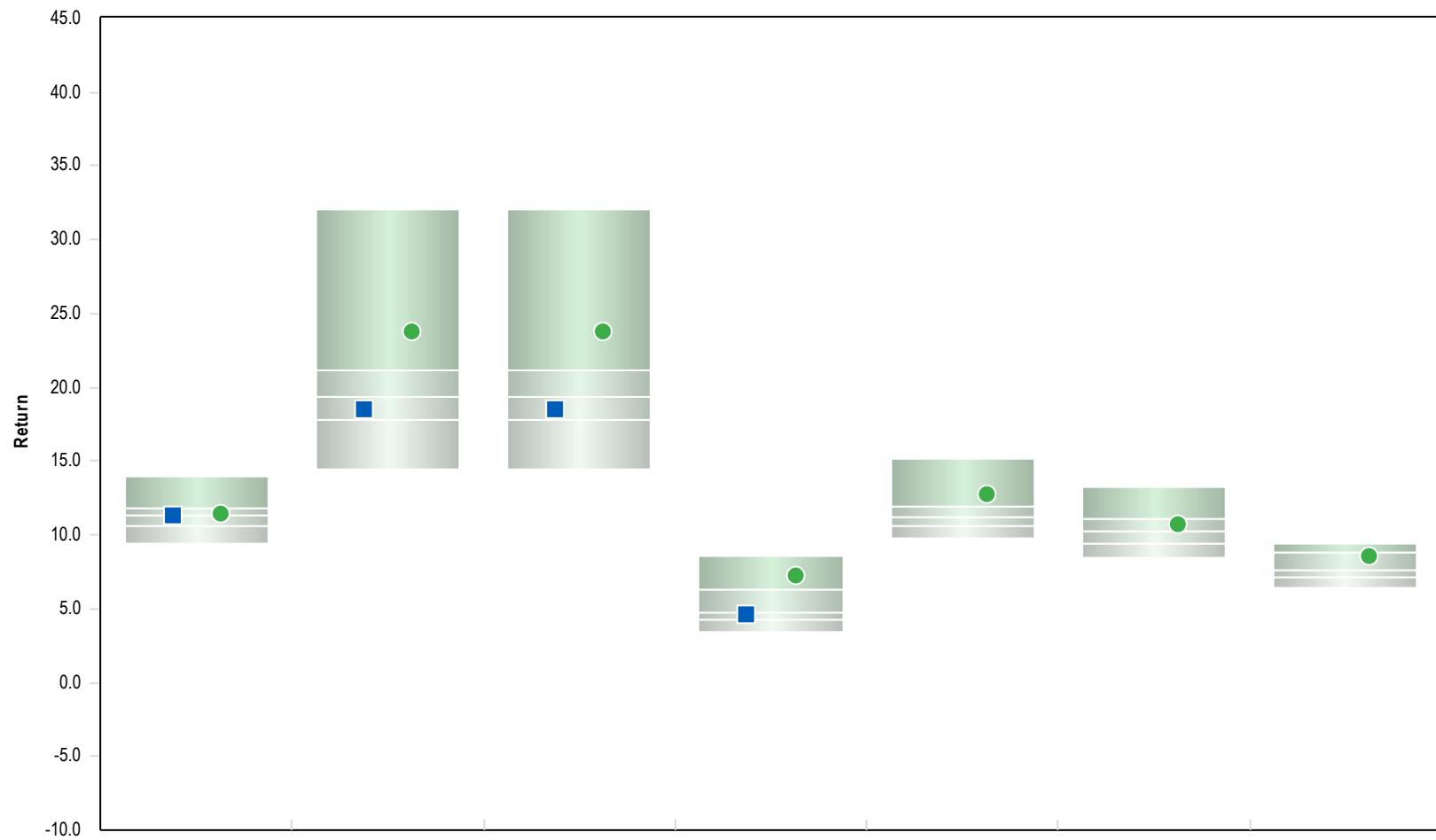
Up Down Market Capture



Down Market Capture



Peer Group Analysis - IM Global Large Cap Core Equity (MF)



■ American Funds Global Insight R6

● MSCI World (Net)

	1 Qtr	YTD	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
American Funds Global Insight R6	11.3 (45)	18.6 (59)	18.6 (59)	4.6 (59)	12.8 (16)	10.7 (35)	8.6 (32)
MSCI World (Net)	11.4 (42)	23.8 (17)	23.8 (17)	7.3 (18)	—	—	—

5th Percentile

14.0 32.1 32.1 8.6 15.1 13.2 9.4

1st Quartile

11.9 21.1 21.1 6.3 12.0 11.1 8.8

Median

11.3 19.4 19.4 4.8 11.2 10.2 7.7

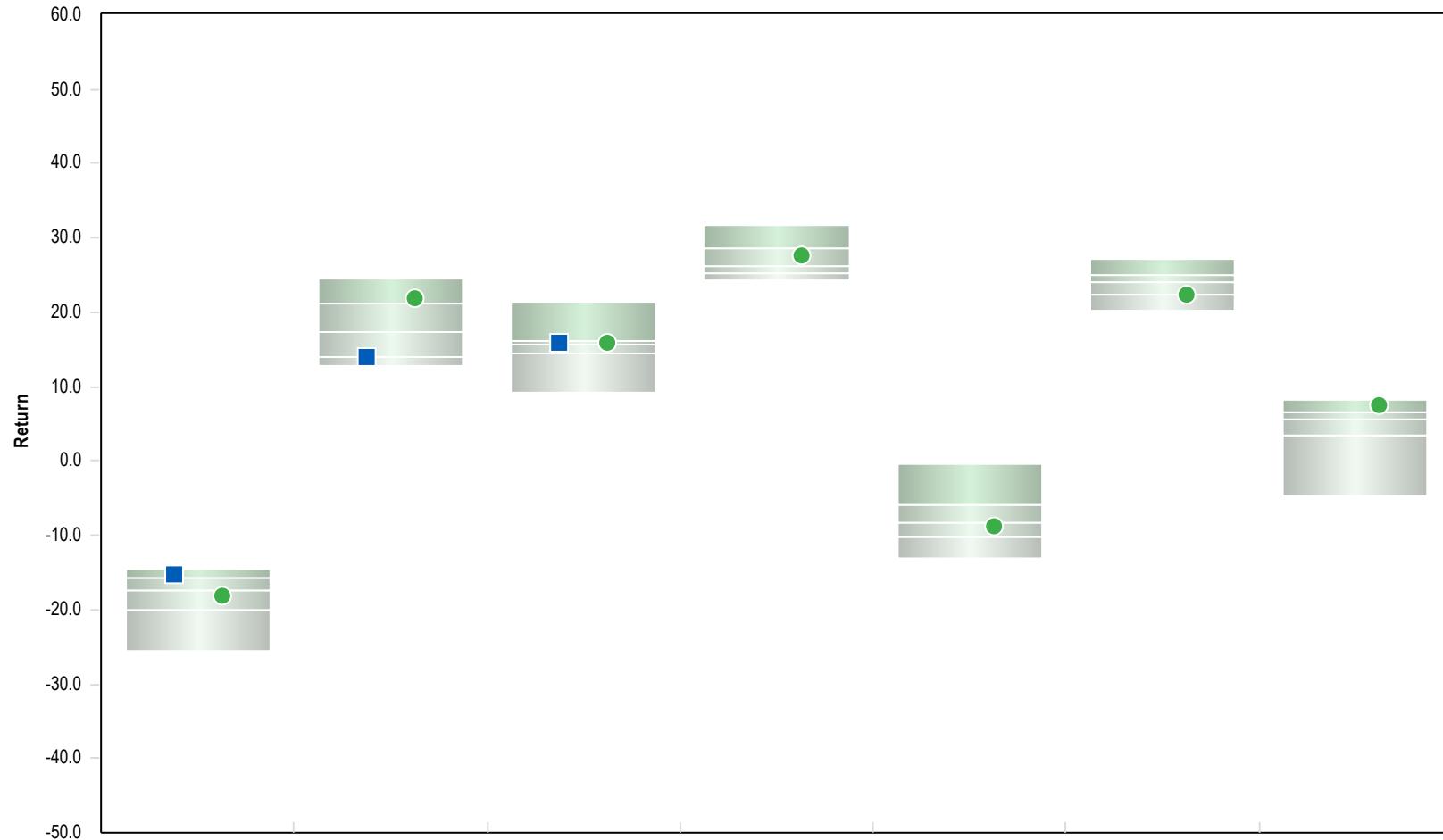
3rd Quartile

10.6 17.8 17.8 4.3 10.6 9.4 7.2

95th Percentile

9.4 14.5 14.5 3.5 9.8 8.4 6.4

Peer Group Analysis - IM Global Large Cap Core Equity (MF)



	2022	2021	2020	2019	2018	2017	2016
American Funds Global Insight R6	-15.2 (11)	13.9 (74)	16.0 (33)	27.7 (39)	-8.7 (58)	22.4 (76)	7.5 (13)
MSCI World (Net)	-18.1 (68)	21.8 (23)	15.9 (36)	27.7 (39)	-8.7 (58)	22.4 (76)	7.5 (13)

5th Percentile	-14.5	24.5	21.5	31.7	-0.4	27.3	8.3
1st Quartile	-15.8	21.1	16.1	28.7	-6.0	24.9	6.5
Median	-17.4	17.3	15.6	26.1	-8.4	24.0	5.6
3rd Quartile	-20.1	13.9	14.5	25.3	-10.1	22.5	3.4
95th Percentile	-25.4	12.7	9.3	24.3	-13.2	20.3	-4.6

Fund Information

Fund Name :	American Funds Global Insight Fund; Class R-6 Shares	Portfolio Assets :	\$10,280 Million
Fund Family :	Capital Group/American Funds	Portfolio Manager :	Team Managed
Ticker :	RGLGX	PM Tenure :	
Inception Date :	11/08/2019	Fund Style :	IM Global Large Cap Core Equity (MF)
Fund Assets :	\$8,579 Million	Style Benchmark :	MSCI World (Net)
Portfolio Turnover :	20%		

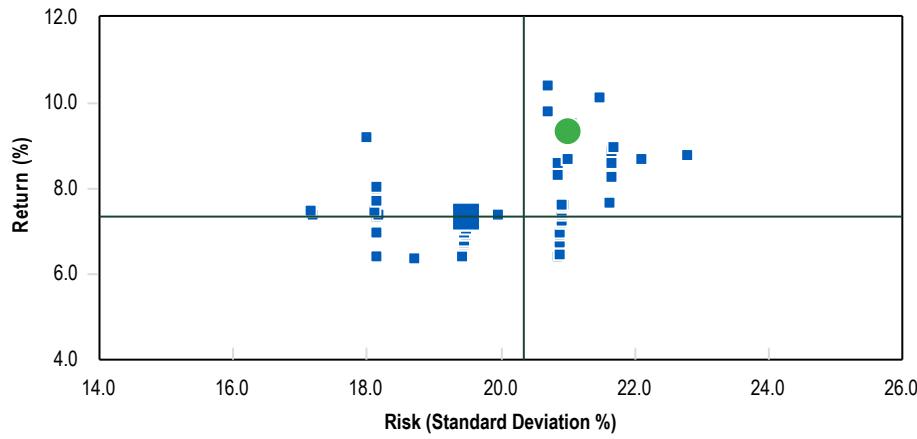
Fund Investment Policy

The Fund seeks to provide prudent growth of capital and conservation of principal. The Fund invests in common stocks of issuers around the world that the adviser believes have the potential for growth, many of which have the potential to pay dividends. It will invest at least 80% of net assets in equity-type securities.

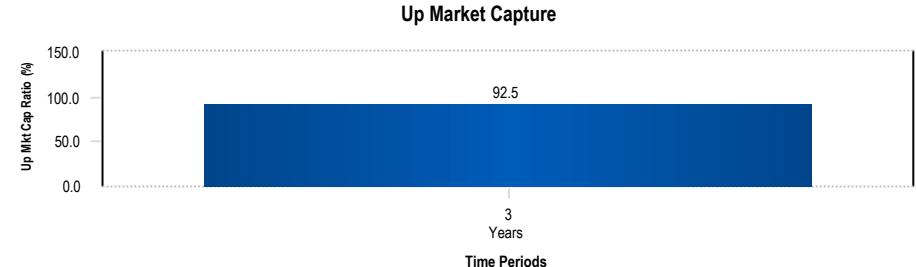
Historical Statistics (12/01/19 - 12/31/23) *

	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Excess Risk	Inception Date
American Funds Global Insight R6										12/01/2019
MSCI World (Net)	10.9	20.5	0.5	0.0	1.0	1.0	0.0		20.6	12/01/2019
90 Day U.S. Treasury Bill	1.8	1.0		1.8	0.0	0.0	20.6	-0.5	0.0	12/01/2019

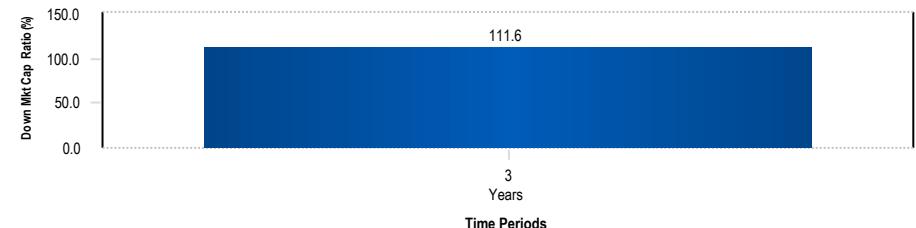
Peer Group Scattergram (01/01/20 to 12/31/23)



Up Down Market Capture

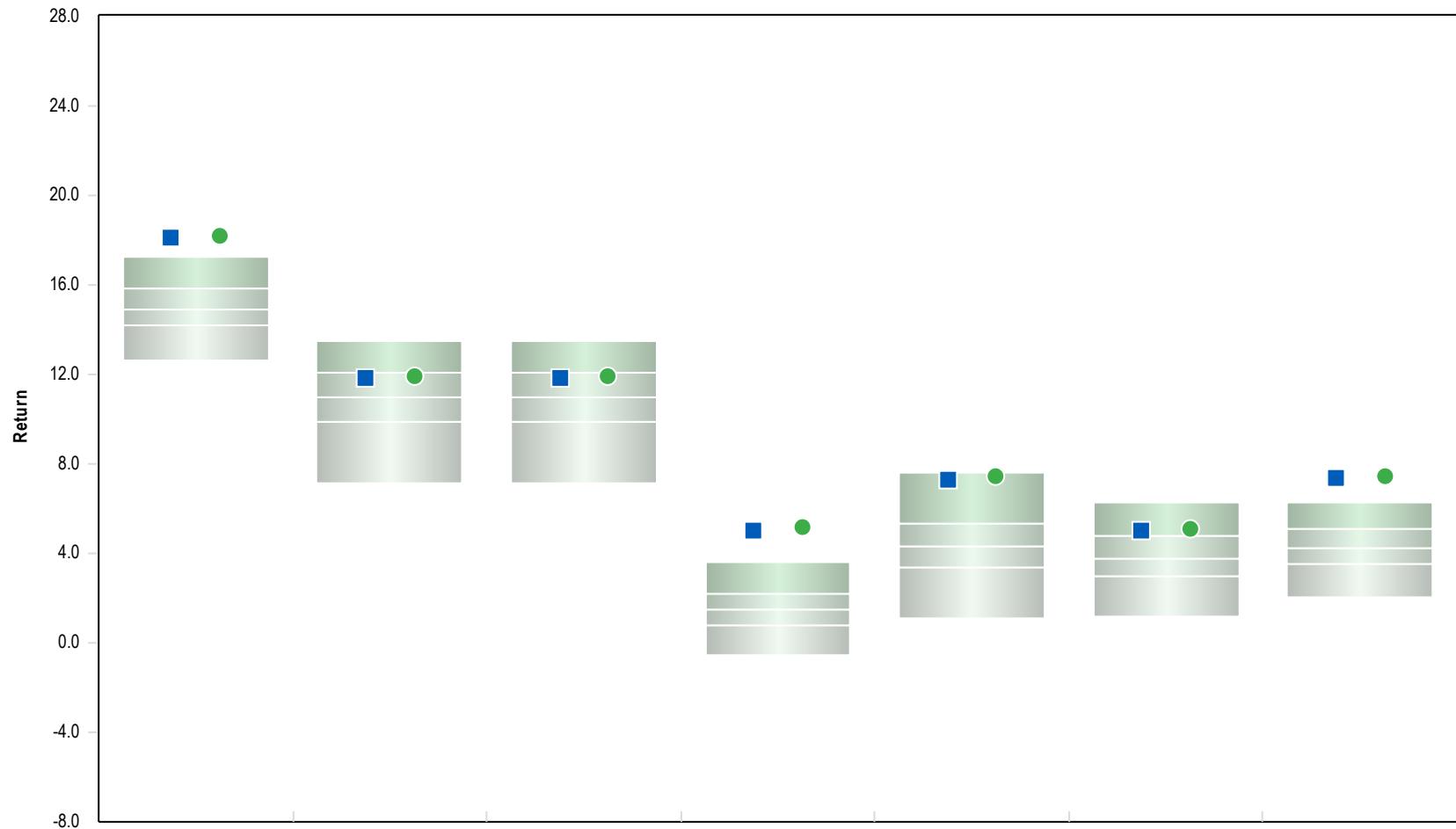


Down Market Capture



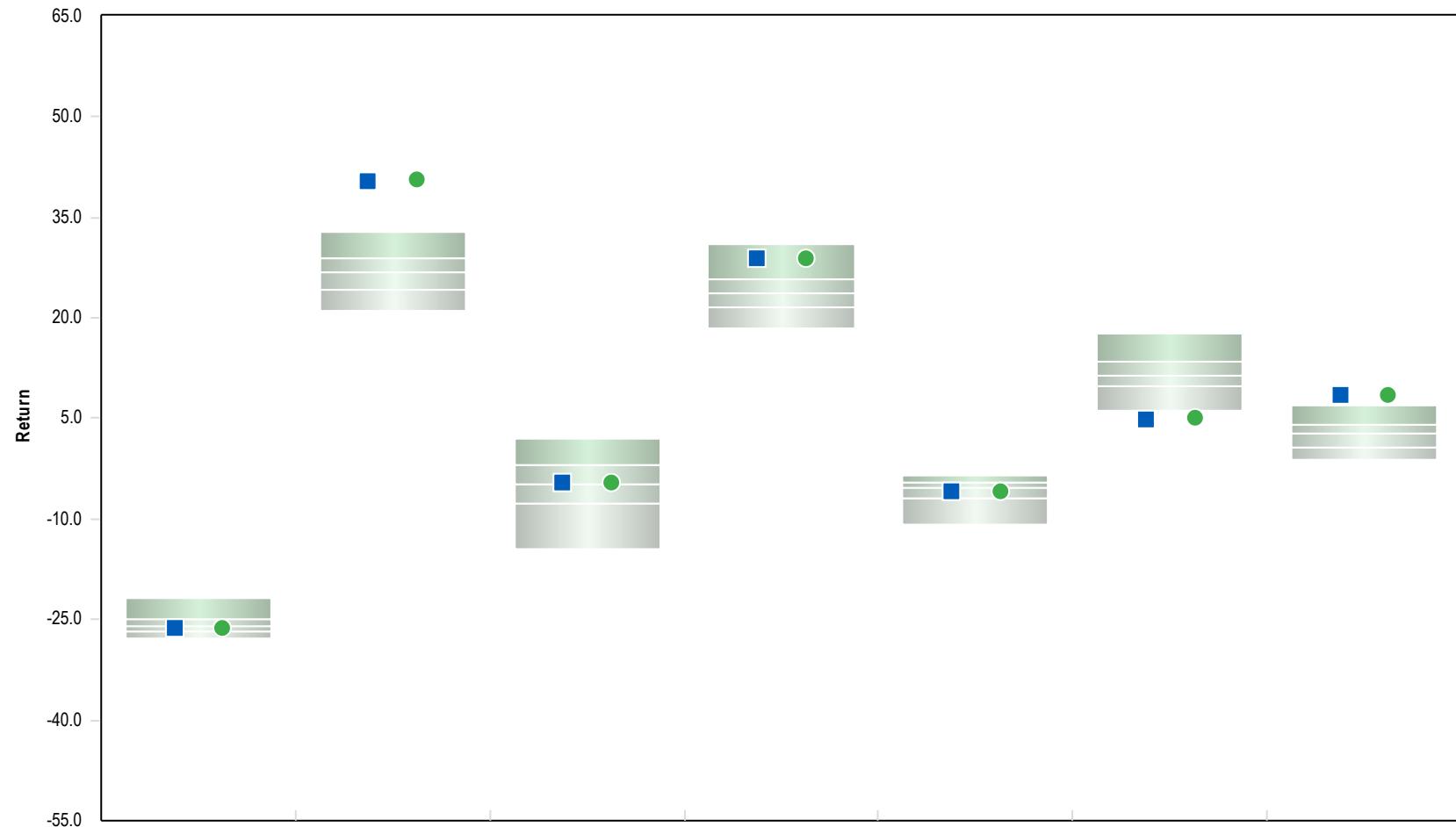
* Quarterly periodicity used.

Peer Group Analysis - IM Global Real Estate (MF)



	1 Qtr	YTD	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
Vanguard REIT Index	18.1 (3)	11.8 (30)	11.8 (30)	5.0 (3)	7.3 (7)	5.0 (21)	7.4 (1)
Vanguard REIT Spliced Index	18.2 (3)	12.0 (27)	12.0 (27)	5.2 (3)	7.4 (7)	5.1 (21)	7.5 (1)
5th Percentile	17.3	13.5	13.5	3.6	7.6	6.3	6.3
1st Quartile	15.8	12.1	12.1	2.2	5.4	4.8	5.1
Median	14.9	11.0	11.0	1.5	4.3	3.7	4.2
3rd Quartile	14.2	9.9	9.9	0.8	3.4	3.0	3.5
95th Percentile	12.6	7.1	7.1	-0.5	1.1	1.2	2.0

Peer Group Analysis - IM Global Real Estate (MF)



	2022	2021	2020	2019	2018	2017	2016
Vanguard REIT Index	-26.2 (59)	40.4 (1)	-4.7 (48)	28.9 (16)	-5.9 (61)	4.9 (98)	8.5 (1)
Vanguard REIT Spliced Index	-26.1 (57)	40.6 (1)	-4.6 (47)	29.0 (16)	-5.9 (59)	5.1 (98)	8.6 (1)

5th Percentile	-21.9	32.8	2.1	30.9	-3.6	17.6	6.9
1st Quartile	-24.9	29.0	-1.9	25.8	-4.6	13.4	4.2
Median	-25.9	26.9	-4.8	23.6	-5.5	11.5	2.8
3rd Quartile	-26.9	24.3	-7.6	21.6	-7.0	9.8	0.8
95th Percentile	-27.8	21.1	-14.4	18.4	-10.8	6.3	-1.2

Fund Information

Fund Name :	Vanguard Specialized Funds: Vanguard Real Estate Index Fund; Admiral Shares	Portfolio Assets :	\$64,084 Million
Fund Family :	Vanguard	Portfolio Manager :	O'Reilly/Neiman
Ticker :	VGSLX	PM Tenure :	2001–2016
Inception Date :	11/12/2001	Fund Style :	IM Global Real Estate (MF)
Fund Assets :	\$19,480 Million	Style Benchmark :	Vanguard REIT Spliced Index
Portfolio Turnover :	7%		

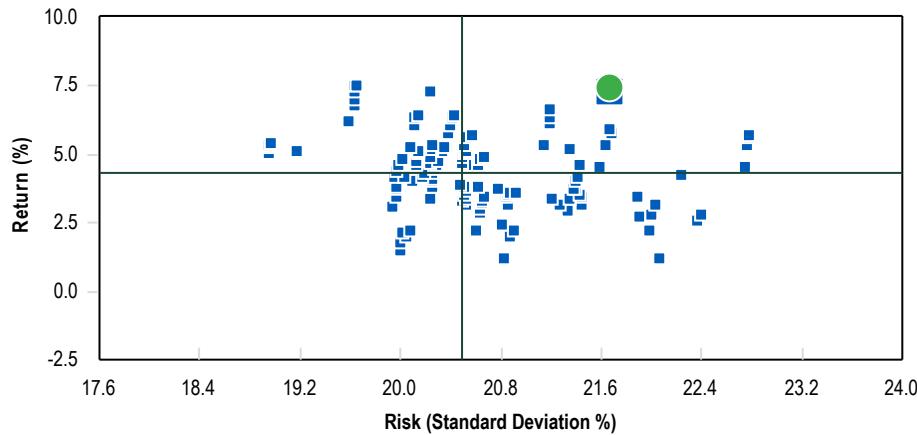
Fund Investment Policy

The Fund seeks to provide a high level of income and moderate long-term capital appreciation by tracking the performance of a benchmark index that measures the performance of publicly traded equity REITs and other real estate-related investments. The Fund employs indexing to track the performance of the Index.

Historical Statistics (01/01/19 - 12/31/23)*

	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Excess Risk	Inception Date
Vanguard REIT Index	7.3	21.7	0.4	-0.1	1.0	1.0	0.0	-4.9	21.7	12/01/2001
Vanguard REIT Spliced Index	7.4	21.7	0.4	0.0	1.0	1.0	0.0	0.0	21.7	12/01/2001
90 Day U.S. Treasury Bill	1.9	0.9		1.9	0.0	0.0	21.7	-0.4	0.0	12/01/2001

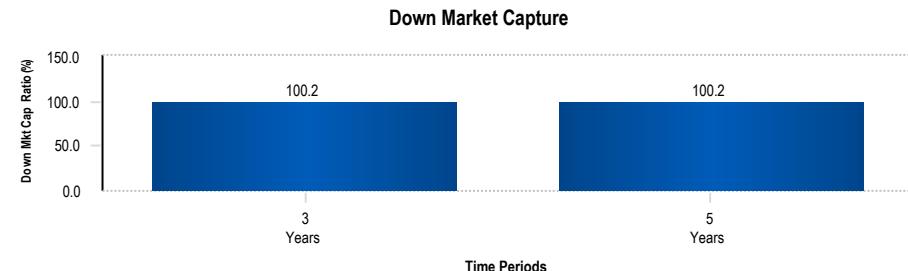
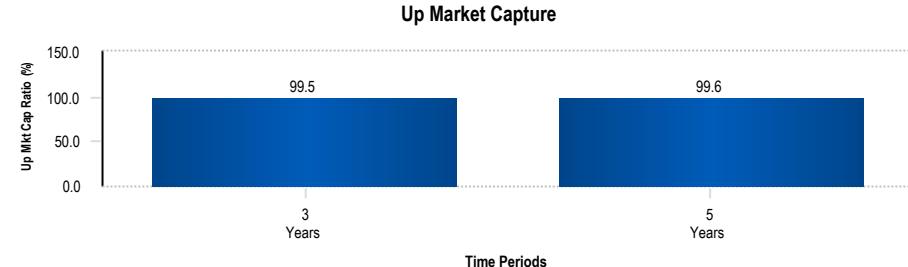
Peer Group Scattergram (01/01/19 to 12/31/23)



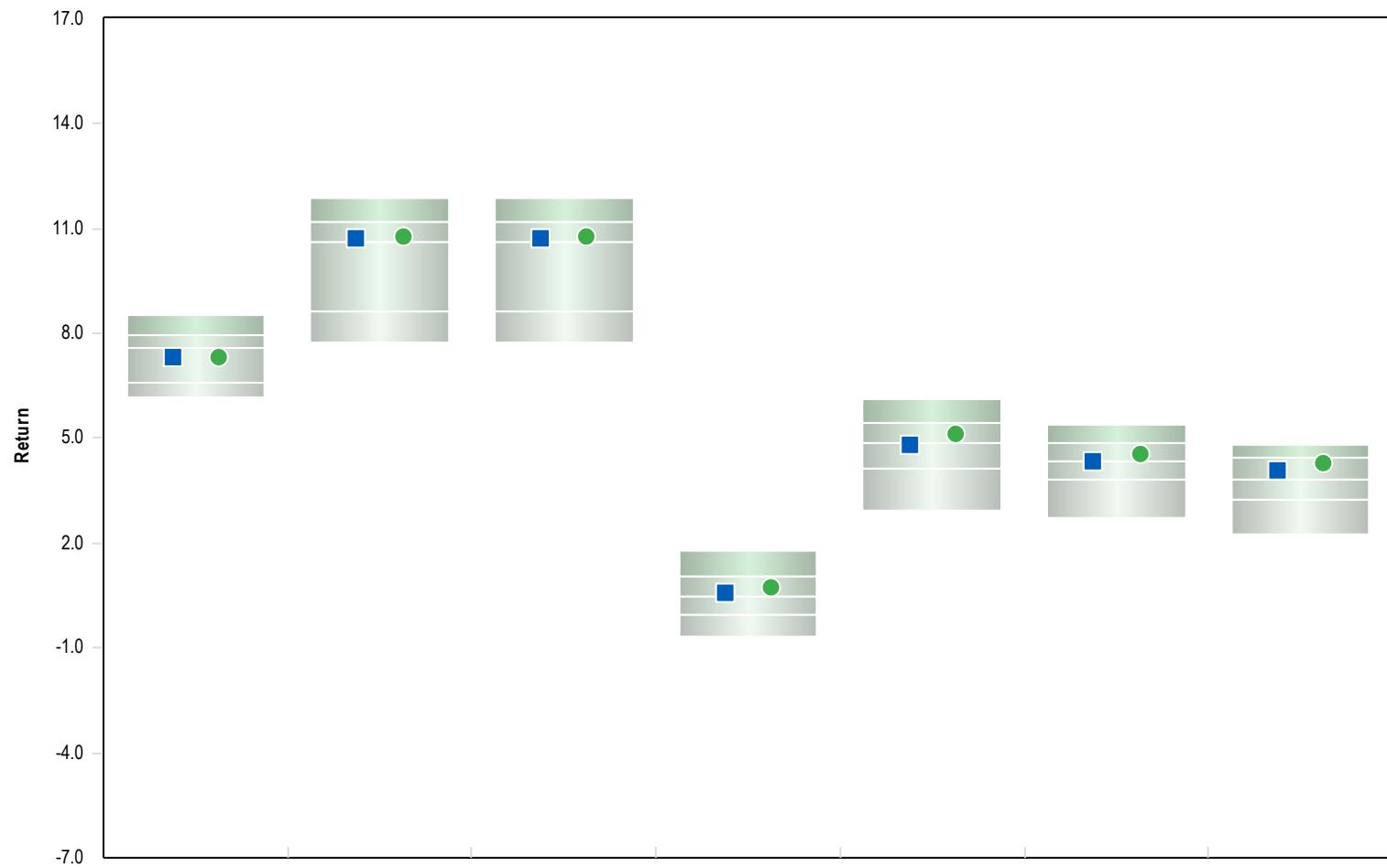
	Return	Standard Deviation
Vanguard REIT Index	7.3	21.7
Vanguard REIT Spliced Index	7.4	21.7
Median	4.3	20.5

* Quarterly periodicity used.

Up Down Market Capture



Peer Group Analysis - IM Mixed-Asset Target Today (MF)



■ Vanguard Target Retirement Income Investment

● Vanguard Target Income Composite Index

1 Qtr YTD 1 Yr 3 Yrs 5 Yrs 7 Yrs 10 Yrs

7.3 (56) 10.7 (44) 10.7 (44) 0.6 (48) 4.8 (52) 4.3 (52) 4.1 (37)

7.3 (56) 10.8 (41) 10.8 (41) 0.8 (36) 5.1 (36) 4.6 (36) 4.3 (28)

5th Percentile

8.5 11.9 11.9 1.8 6.1 5.4 4.8

1st Quartile

8.0 11.2 11.2 1.0 5.4 4.9 4.4

Median

7.6 10.6 10.6 0.5 4.8 4.3 3.8

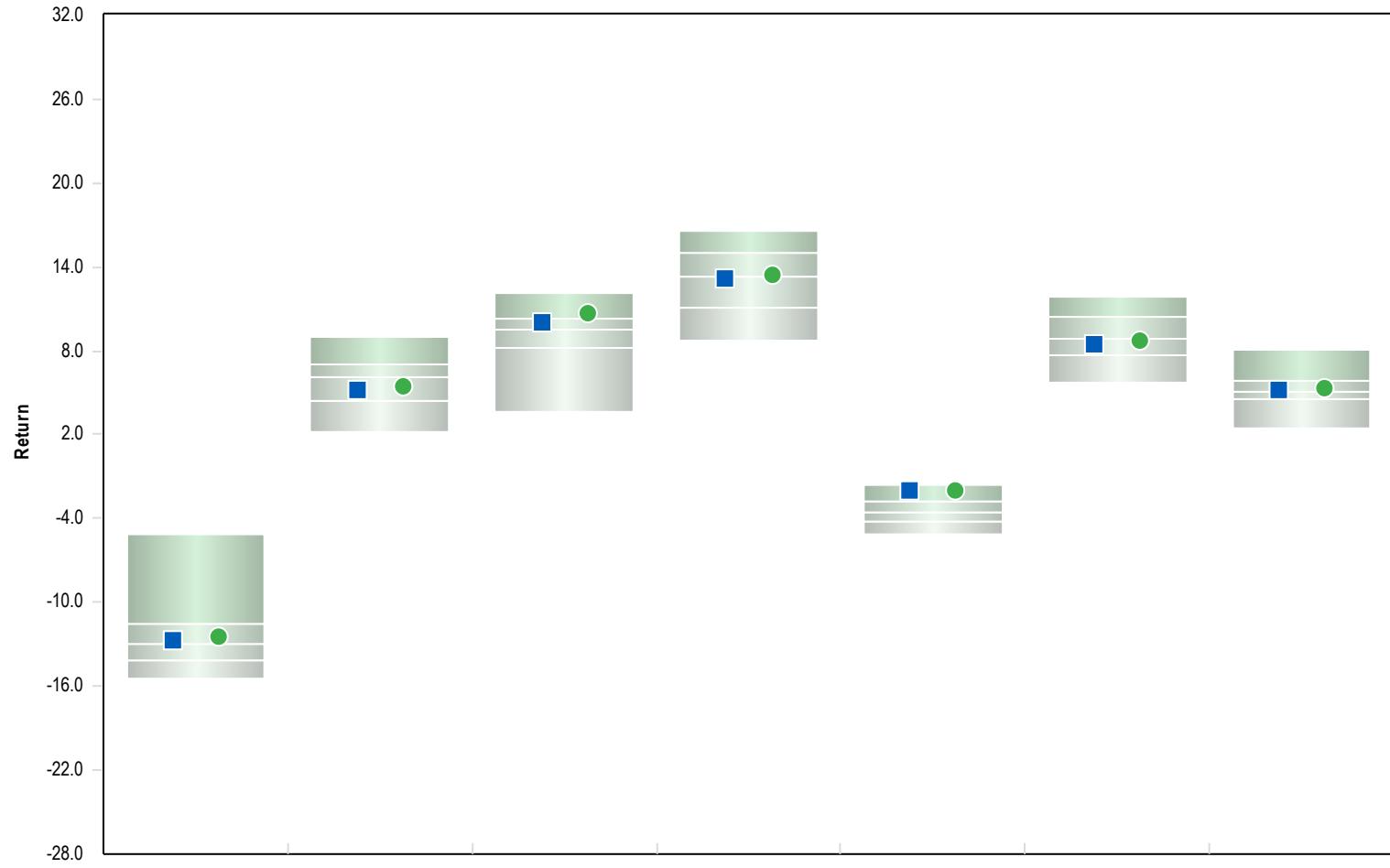
3rd Quartile

6.6 8.6 8.6 -0.1 4.1 3.8 3.3

95th Percentile

6.2 7.8 7.8 -0.7 3.0 2.7 2.3

Peer Group Analysis - IM Mixed-Asset Target Today (MF)



■ Vanguard Target Retirement Income Investment

● Vanguard Target Income Composite Index

	2022	2021	2020	2019	2018	2017	2016
Vanguard Target Retirement Income Investment	-12.7 (49)	5.2 (69)	10.0 (34)	13.2 (56)	-2.0 (11)	8.5 (61)	5.3 (46)
Vanguard Target Income Composite Index	-12.4 (41)	5.4 (66)	10.7 (20)	13.4 (50)	-2.0 (9)	8.7 (55)	5.4 (39)

5th Percentile

5th Percentile	-5.2	9.0	12.2	16.6	-1.6	11.9	8.1
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1st Quartile

1st Quartile	-11.6	7.1	10.2	15.0	-2.8	10.4	5.9
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Median

Median	-12.9	6.2	9.5	13.3	-3.6	8.9	5.1
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3rd Quartile

3rd Quartile	-14.2	4.4	8.2	11.1	-4.3	7.7	4.5
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95th Percentile

95th Percentile	-15.5	2.2	3.7	8.8	-5.1	5.7	2.5
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Fund Information

Fund Name :	Vanguard Chester Funds: Vanguard Target Retirement Income Fund; Investor Class Shares	Portfolio Assets :	\$35,681 Million
Fund Family :	Vanguard	Portfolio Manager :	Team Managed
Ticker :	VTINX	PM Tenure :	
Inception Date :	10/27/2003	Fund Style :	IM Mixed-Asset Target Today (MF)
Fund Assets :	\$35,681 Million	Style Benchmark :	Vanguard Target Income Composite Index

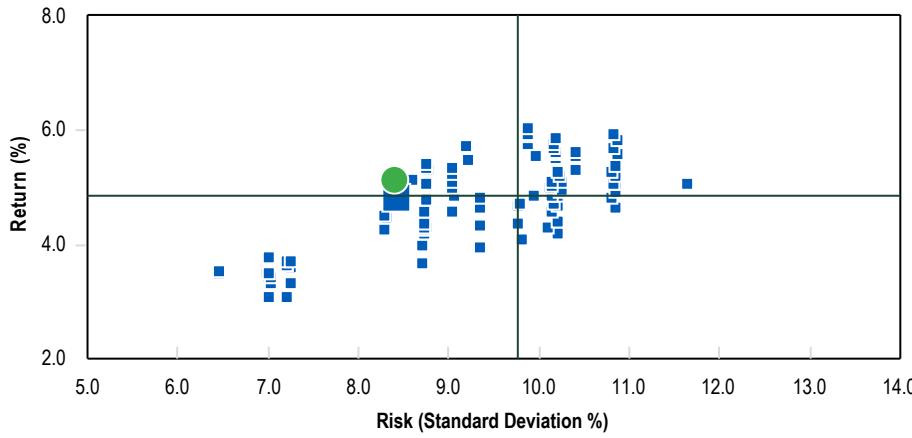
Fund Investment Policy

The Fund seeks to provide current income and some capital appreciation. The Fund invests in other Vanguard mutual funds according to an asset allocation strategy designed for investors currently in retirement.

Historical Statistics (01/01/19 - 12/31/23) *

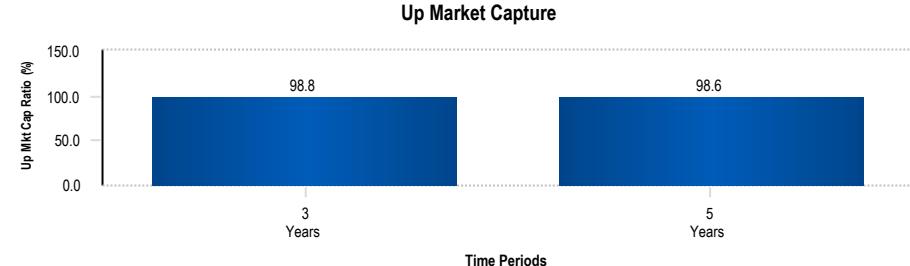
	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Excess Risk	Inception Date
Vanguard Target Retirement Income Investment	4.8	8.4	0.4	-0.3	1.0	1.0	0.2	-1.3	8.3	11/01/2003
Vanguard Target Income Composite Index	5.1	8.4	0.4	0.0	1.0	1.0	0.0		8.3	11/01/2003
90 Day U.S. Treasury Bill	1.9	0.9		1.8	0.0	0.0	8.3	-0.4	0.0	11/01/2003

Peer Group Scattergram (01/01/19 to 12/31/23)

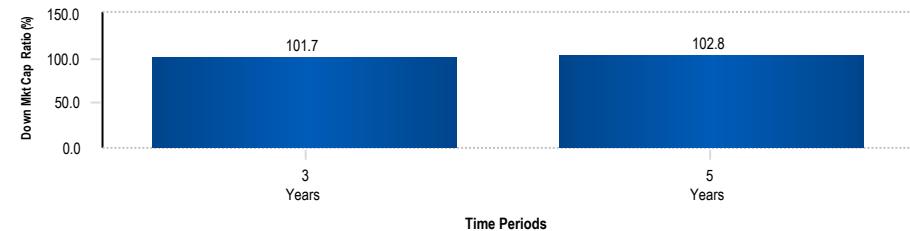


- Vanguard Target Retirement Income Investment
- Vanguard Target Income Composite Index
- Median

Up Down Market Capture

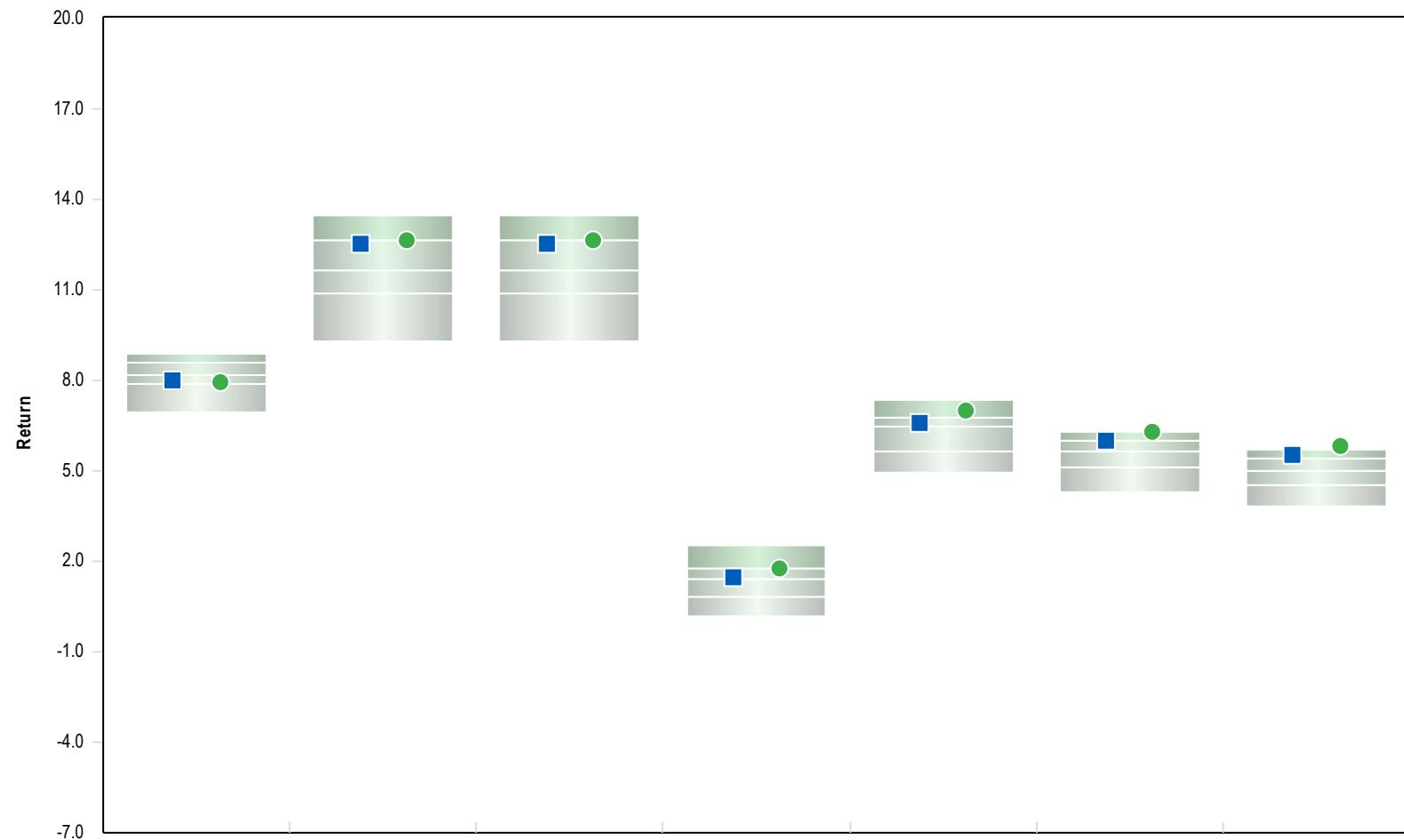


Down Market Capture



* Quarterly periodicity used.

Peer Group Analysis - IM Mixed-Asset Target 2020 (MF)



■ Vanguard Target Retirement 2020
● Vanguard Target 2020 Composite Index

	1 Qtr	YTD	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
Vanguard Target Retirement 2020	8.0 (66)	12.5 (27)	12.5 (27)	1.5 (45)	6.6 (38)	6.0 (23)	5.5 (12)
Vanguard Target 2020 Composite Index	8.0 (68)	12.7 (25)	12.7 (25)	1.7 (27)	7.0 (10)	6.3 (5)	5.8 (2)

5th Percentile	8.9	13.5	13.5	2.5	7.4	6.3	5.7
1st Quartile	8.6	12.6	12.6	1.8	6.8	6.0	5.4
Median	8.2	11.6	11.6	1.4	6.5	5.6	5.0
3rd Quartile	7.9	10.9	10.9	0.8	5.6	5.1	4.5
95th Percentile	7.0	9.3	9.3	0.2	4.9	4.3	3.9

Peer Group Analysis - IM Mixed-Asset Target 2020 (MF)



■ Vanguard Target Retirement 2020
● Vanguard Target 2020 Composite Index

	2022	2021	2020	2019	2018	2017	2016
Vanguard Target Retirement 2020	-14.2 (43)	8.2 (67)	12.0 (36)	17.6 (24)	-4.2 (44)	14.1 (14)	6.9 (31)
Vanguard Target 2020 Composite Index	-13.8 (34)	8.4 (60)	12.8 (21)	17.9 (20)	-4.1 (40)	14.2 (11)	7.2 (25)

5th Percentile	-11.3	10.7	13.6	18.7	-2.8	15.1	8.6
1st Quartile	-13.2	9.6	12.7	17.6	-3.8	13.7	7.2
Median	-14.4	8.7	10.9	16.0	-4.5	12.7	6.4
3rd Quartile	-15.1	7.4	9.4	14.7	-5.4	10.8	5.5
95th Percentile	-16.6	5.6	6.0	10.0	-6.5	7.5	3.3

Fund Information

Fund Name :	Vanguard Chester Funds: Vanguard Target Retirement 2020 Fund; Investor Class Shares	Portfolio Assets :	\$38,097 Million
Fund Family :	Vanguard	Portfolio Manager :	Team Managed
Ticker :	VTWNX	PM Tenure :	
Inception Date :	06/07/2006	Fund Style :	IM Mixed-Asset Target 2020 (MF)
Fund Assets :	\$38,097 Million	Style Benchmark :	Vanguard Target 2020 Composite Index
Portfolio Turnover :	3%		

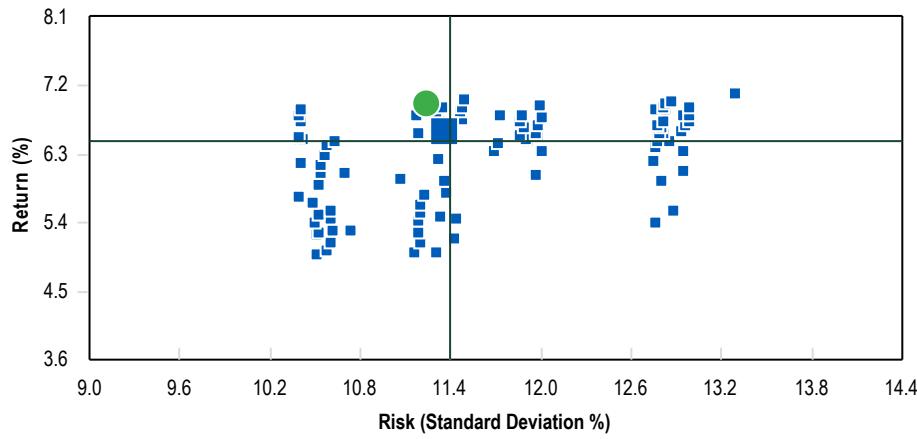
Fund Investment Policy

The Fund seeks to provide capital appreciation and current income consistent with its current asset allocation. The Fund invests in other Vanguard mutual funds according to an asset allocation strategy designed for investors planning to retire and leave the workforce in or within a few years of 2020.

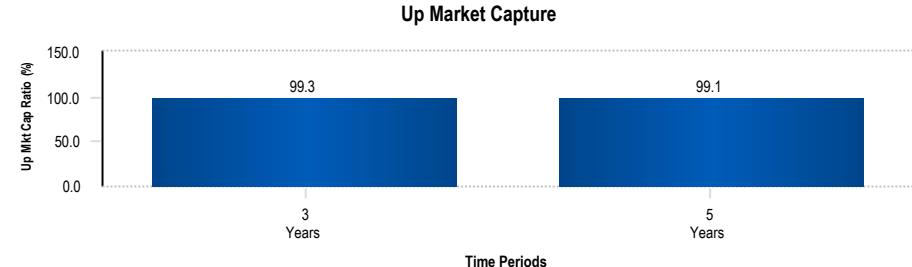
Historical Statistics (01/01/19 - 12/31/23) *

	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Excess Risk	Inception Date
Vanguard Target Retirement 2020	6.6	11.4	0.5	-0.4	1.0	1.0	0.2	-1.4	11.3	07/01/2006
Vanguard Target 2020 Composite Index	7.0	11.2	0.5	0.0	1.0	1.0	0.0		11.2	07/01/2006
90 Day U.S. Treasury Bill	1.9	0.9		1.8	0.0	0.0	11.2	-0.5	0.0	07/01/2006

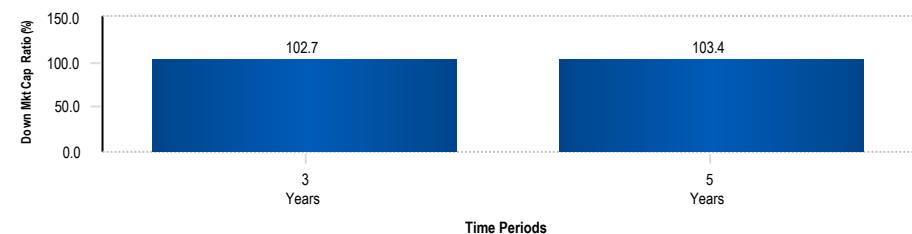
Peer Group Scattergram (01/01/19 to 12/31/23)



Up Down Market Capture



Down Market Capture



* Quarterly periodicity used.

Peer Group Analysis - IM Mixed-Asset Target 2025 (MF)

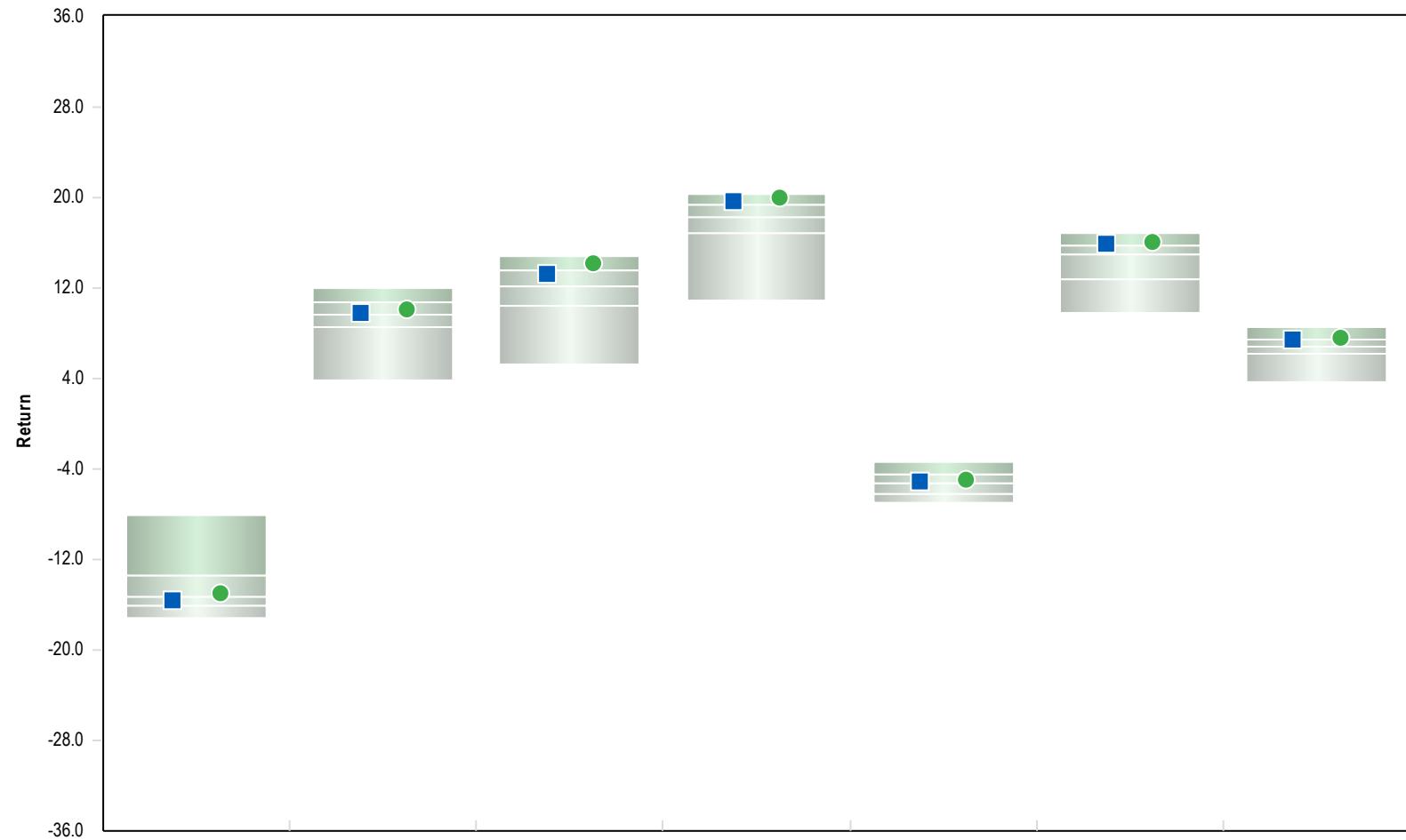


■ Vanguard Target Retirement 2025
● Vanguard Target 2025 Composite Index

	1 Qtr	YTD	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
Vanguard Target Retirement 2025	8.9 (29)	14.5 (5)	14.5 (5)	2.0 (26)	7.6 (22)	6.8 (17)	6.1 (7)
Vanguard Target 2025 Composite Index	8.9 (30)	14.7 (2)	14.7 (2)	2.4 (12)	8.0 (4)	7.1 (4)	6.4 (2)

5th Percentile	9.4	14.4	14.4	2.8	7.9	7.1	6.3
1st Quartile	8.9	13.5	13.5	2.0	7.5	6.6	5.8
Median	8.6	12.5	12.5	1.6	6.9	6.1	5.3
3rd Quartile	8.1	11.3	11.3	1.2	6.4	5.6	4.8
95th Percentile	6.3	8.9	8.9	0.2	3.7	3.3	3.3

Peer Group Analysis - IM Mixed-Asset Target 2025 (MF)



■ Vanguard Target Retirement 2025
● Vanguard Target 2025 Composite Index

5th Percentile	-8.1	12.0	14.8	20.4	-3.4	16.9	8.5
1st Quartile	-13.4	10.7	13.6	19.3	-4.4	15.8	7.5
Median	-15.3	9.7	12.1	18.2	-5.2	14.9	6.9
3rd Quartile	-16.0	8.6	10.5	16.9	-6.2	12.7	6.1
95th Percentile	-17.2	3.9	5.3	10.9	-7.1	9.8	3.6

Fund Information

Fund Name :	Vanguard Chester Funds: Vanguard Target Retirement 2025 Fund; Investor Class Shares	Portfolio Assets :	\$73,951 Million
Fund Family :	Vanguard	Portfolio Manager :	Team Managed
Ticker :	VTVVX	PM Tenure :	
Inception Date :	10/27/2003	Fund Style :	IM Mixed-Asset Target 2025 (MF)
Fund Assets :	\$73,951 Million	Style Benchmark :	Vanguard Target 2025 Composite Index
Portfolio Turnover :	6%		

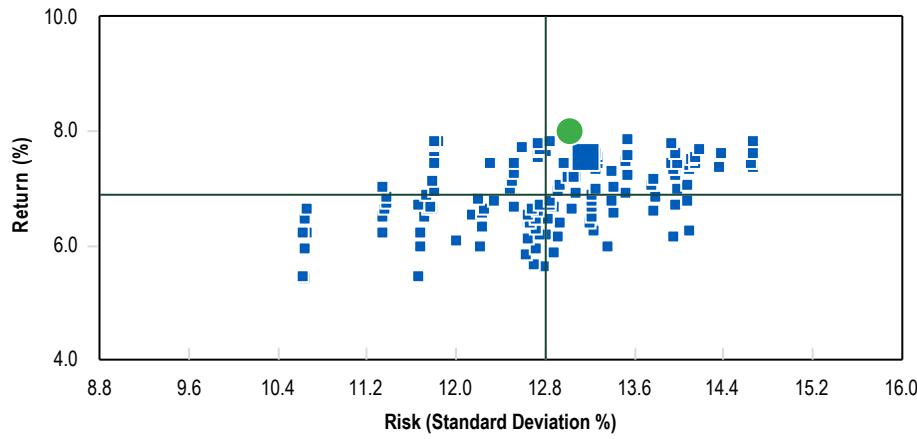
Fund Investment Policy

The Fund seeks to provide capital appreciation and current income consistent with its current asset allocation. The Fund invests in other Vanguard mutual funds according to an asset allocation strategy designed for investors planning to retire and leave the workforce in or within a few years of 2025.

Historical Statistics (01/01/19 - 12/31/23) *

	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Excess Risk	Inception Date
Vanguard Target Retirement 2025	7.6	13.2	0.5	-0.5	1.0	1.0	0.3	-1.5	13.1	11/01/2003
Vanguard Target 2025 Composite Index	8.0	13.0	0.5	0.0	1.0	1.0	0.0		13.0	11/01/2003
90 Day U.S. Treasury Bill	1.9	0.9		1.9	0.0	0.0	13.0	-0.5	0.0	11/01/2003

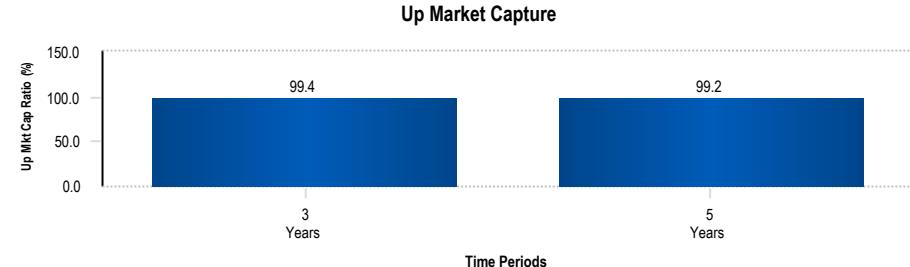
Peer Group Scattergram (01/01/19 to 12/31/23)



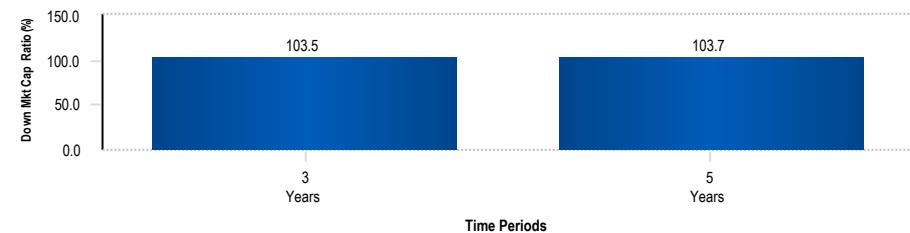
■ Vanguard Target Retirement 2025	Return	Standard Deviation
● Vanguard Target 2025 Composite Index	8.0	13.0
— Median	6.9	12.8

* Quarterly periodicity used.

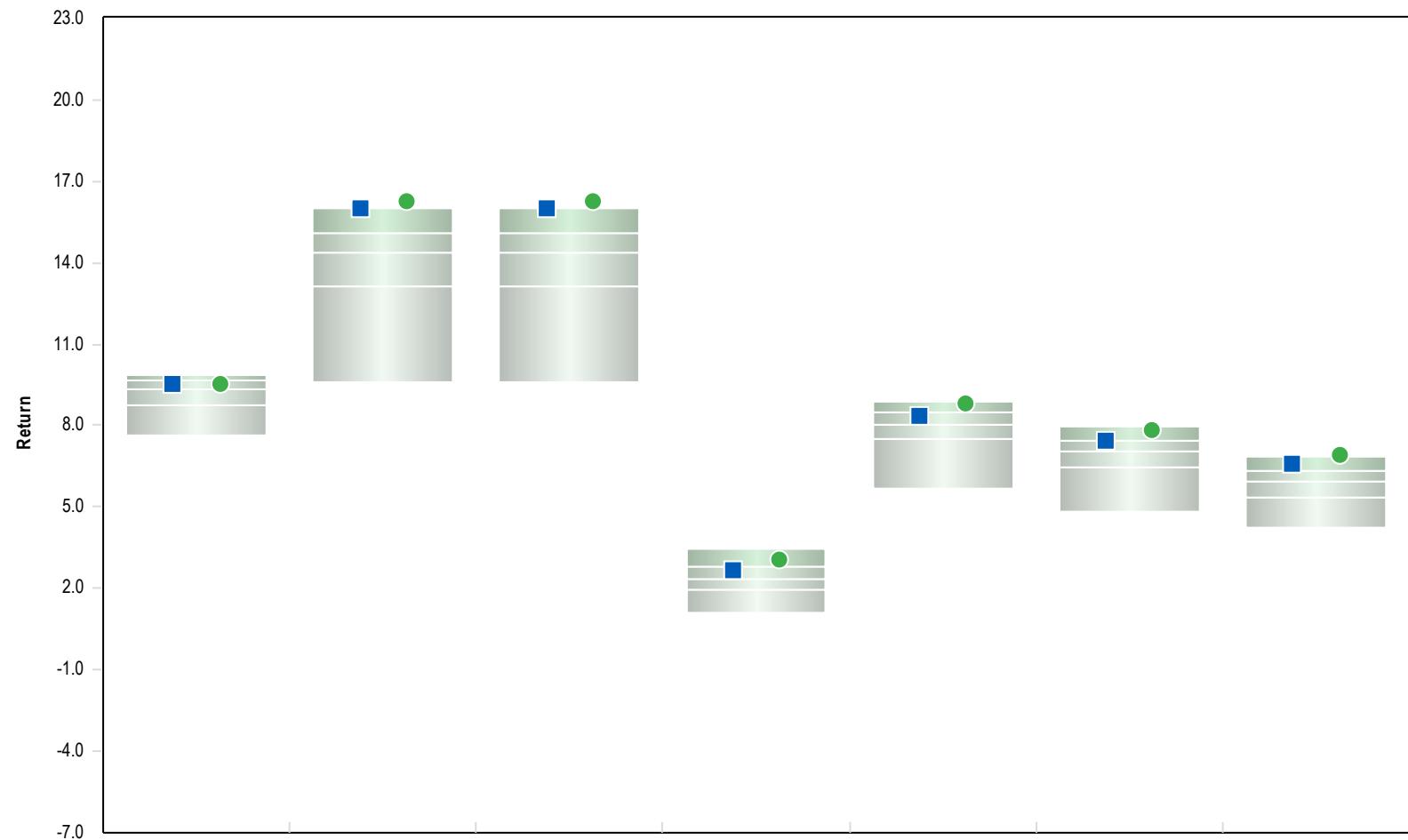
Up Down Market Capture



Down Market Capture



Peer Group Analysis - IM Mixed-Asset Target 2030 (MF)

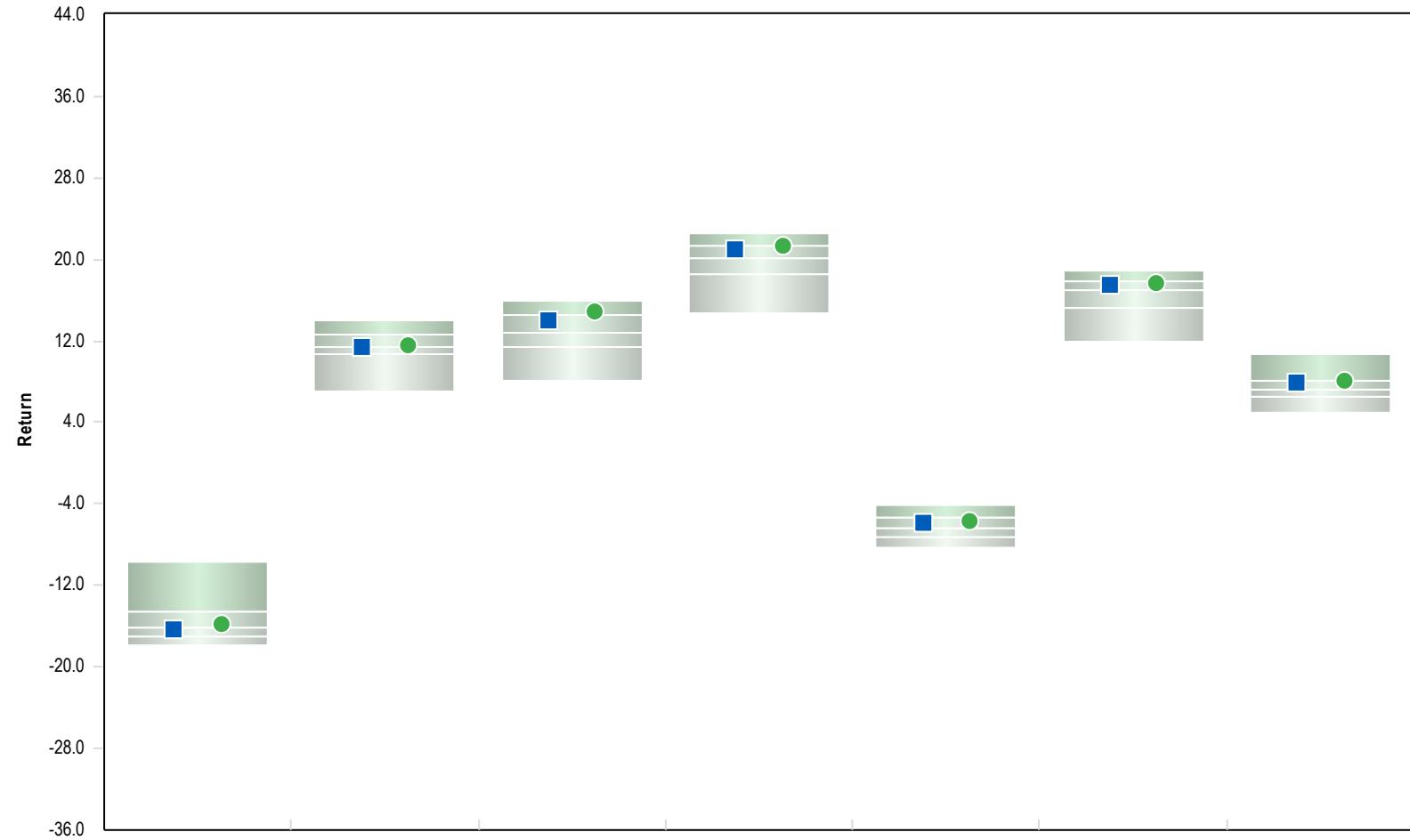


■ Vanguard Target Retirement 2030
● Vanguard Target 2030 Composite Index

	1 Qtr	YTD	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
Vanguard Target Retirement 2030	9.5 (36)	16.0 (5)	16.0 (5)	2.7 (32)	8.4 (32)	7.5 (25)	6.6 (13)
Vanguard Target 2030 Composite Index	9.5 (38)	16.3 (5)	16.3 (5)	3.0 (17)	8.8 (7)	7.8 (9)	6.9 (4)

5th Percentile	9.8	16.0	16.0	3.4	8.9	8.0	6.9
1st Quartile	9.7	15.1	15.1	2.8	8.5	7.4	6.3
Median	9.3	14.4	14.4	2.3	8.0	7.0	5.9
3rd Quartile	8.7	13.1	13.1	1.9	7.5	6.5	5.4
95th Percentile	7.6	9.6	9.6	1.1	5.7	4.8	4.3

Peer Group Analysis - IM Mixed-Asset Target 2030 (MF)



	2022	2021	2020	2019	2018	2017	2016
Vanguard Target Retirement 2030	-16.3 (51)	11.4 (52)	14.1 (35)	21.1 (32)	-5.9 (38)	17.5 (34)	7.9 (32)
Vanguard Target 2030 Composite Index	-15.7 (41)	11.7 (44)	15.0 (18)	21.3 (26)	-5.7 (35)	17.7 (30)	8.1 (26)

5th Percentile	-9.6	14.0	15.9	22.5	-4.2	18.8	10.7
1st Quartile	-14.6	12.6	14.5	21.3	-5.4	17.8	8.1
Median	-16.2	11.5	12.9	20.1	-6.3	16.9	7.3
3rd Quartile	-16.9	10.8	11.3	18.6	-7.2	15.2	6.5
95th Percentile	-17.8	7.0	8.0	14.6	-8.2	11.9	4.9

Fund Information

Fund Name :	Vanguard Chester Funds: Vanguard Target Retirement 2030 Fund; Investor Class Shares	Portfolio Assets :	\$84,829 Million
Fund Family :	Vanguard	Portfolio Manager :	Team Managed
Ticker :	VTHRX	PM Tenure :	
Inception Date :	06/07/2006	Fund Style :	IM Mixed-Asset Target 2030 (MF)
Fund Assets :	\$84,829 Million	Style Benchmark :	Vanguard Target 2030 Composite Index
Portfolio Turnover :	3%		

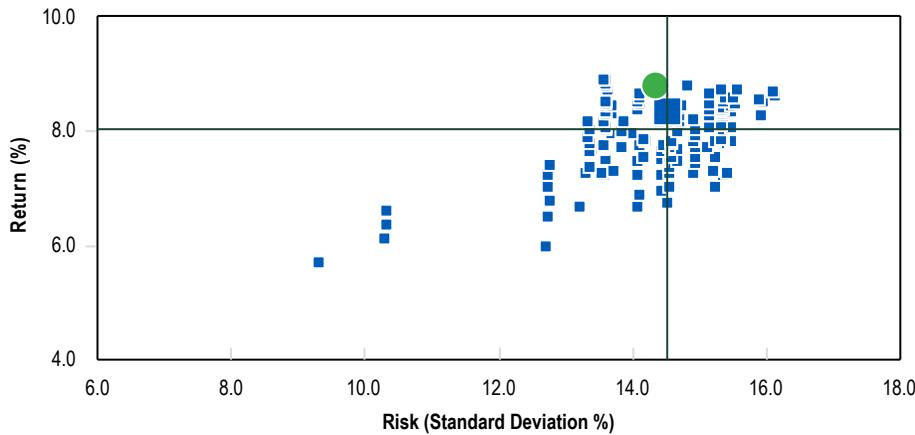
Fund Investment Policy

The Fund seeks to provide capital appreciation and current income consistent with its current asset allocation. The Fund invests in other Vanguard mutual funds according to an asset allocation strategy designed for investors planning to retire and leave the workforce in or within a few years of 2030.

Historical Statistics (01/01/19 - 12/31/23) *

	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Excess Risk	Inception Date
Vanguard Target Retirement 2030	8.4	14.5	0.5	-0.5	1.0	1.0	0.3	-1.3	14.5	07/01/2006
Vanguard Target 2030 Composite Index	8.8	14.3	0.5	0.0	1.0	1.0	0.0		14.3	07/01/2006
90 Day U.S. Treasury Bill	1.9	0.9		1.9	0.0	0.0	14.3	-0.5	0.0	07/01/2006

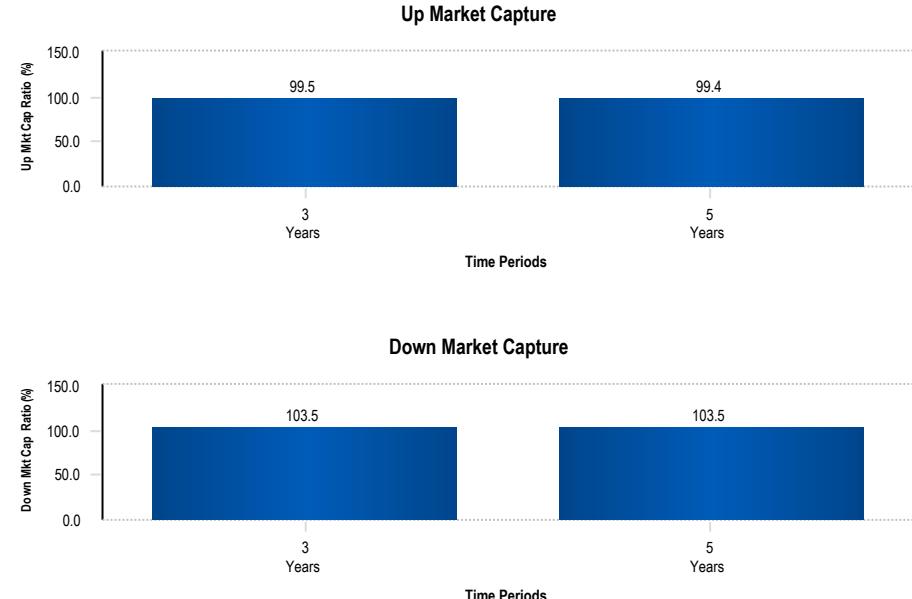
Peer Group Scattergram (01/01/19 to 12/31/23)



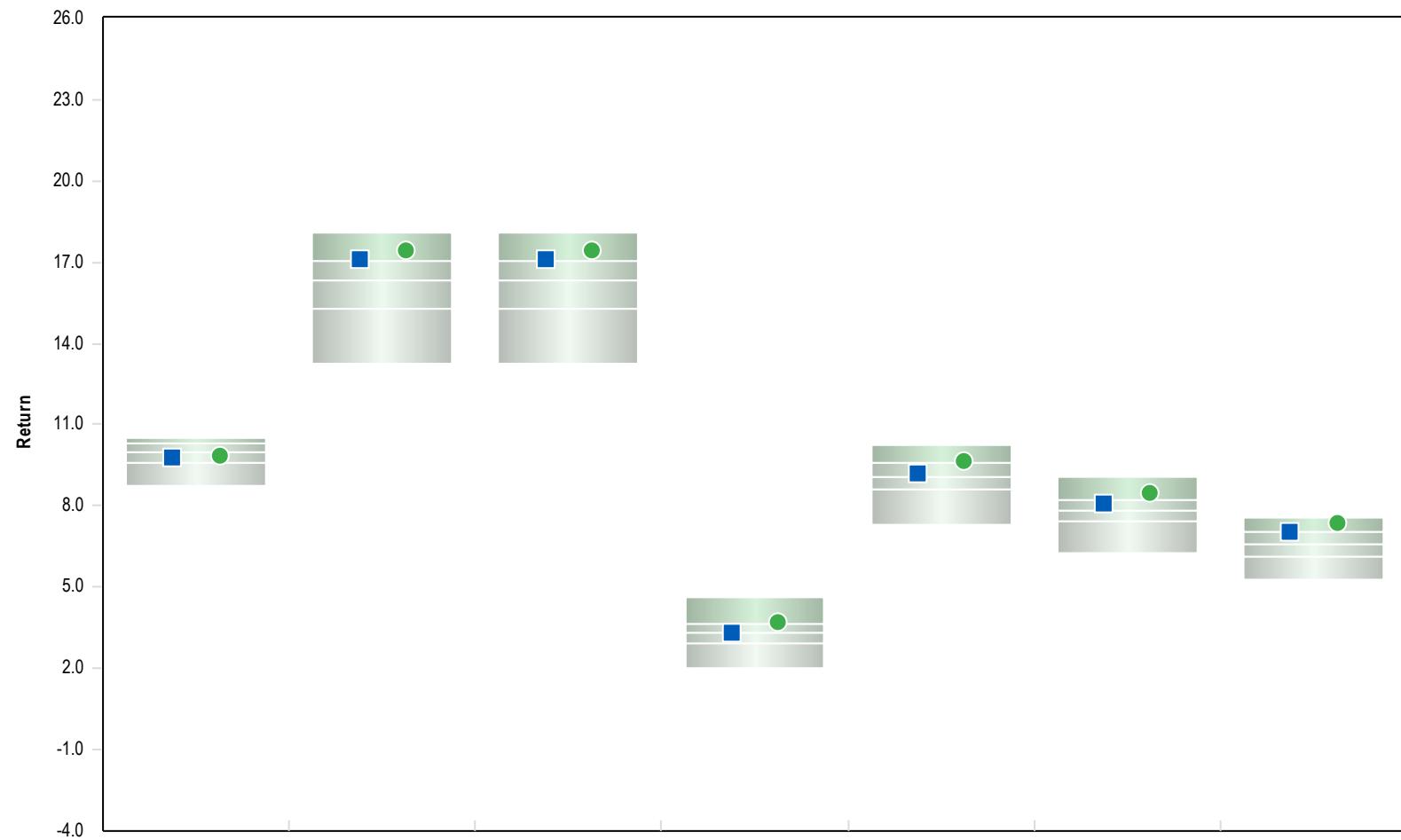
	Return	Standard Deviation
Vanguard Target Retirement 2030	8.4	14.5
Vanguard Target 2030 Composite Index	8.8	14.3
Median	8.0	14.5

* Quarterly periodicity used.

Up Down Market Capture



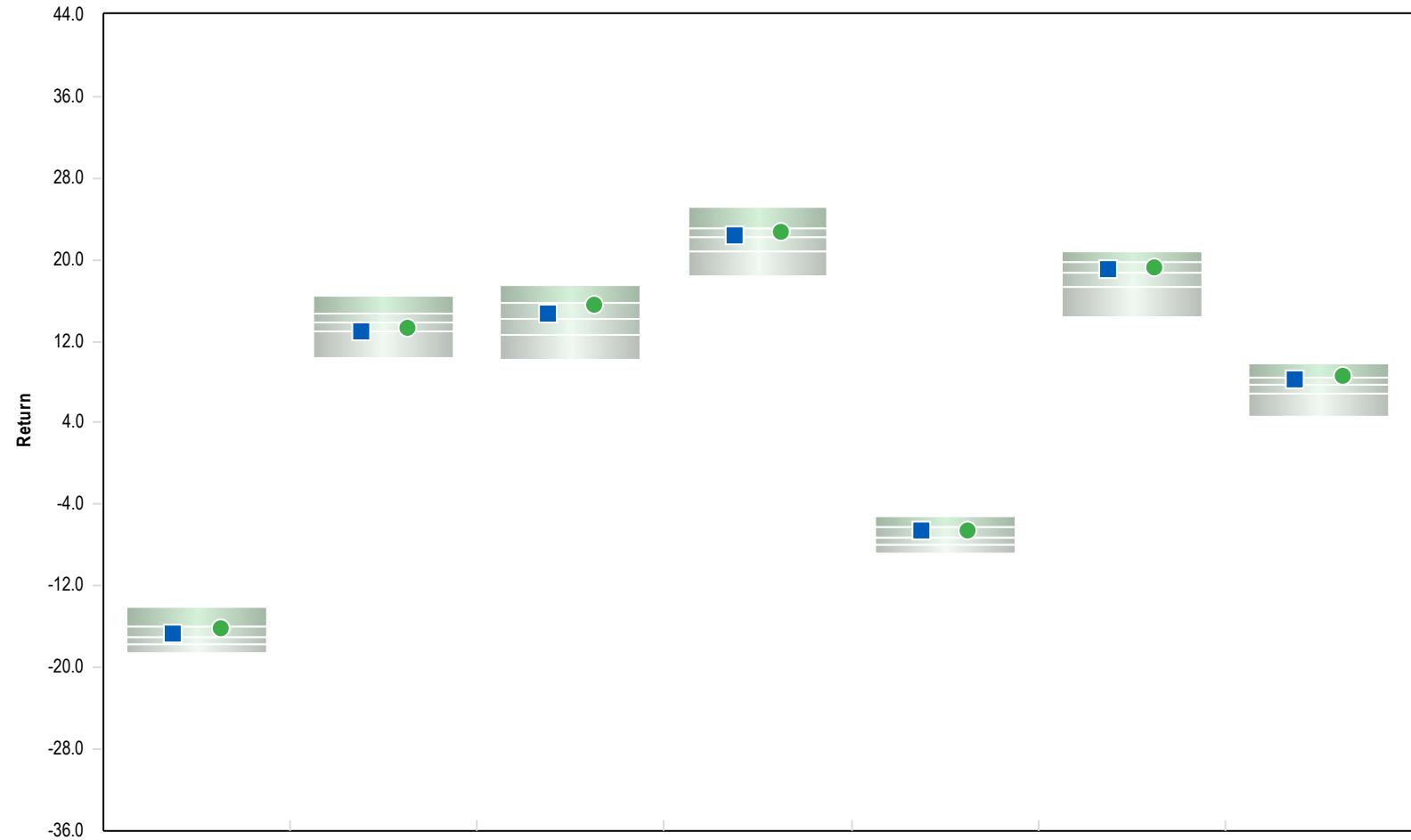
Peer Group Analysis - IM Mixed-Asset Target 2035 (MF)



■ Vanguard Target Retirement 2035
● Vanguard Target 2035 Composite Index

	1 Qtr	YTD	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
5th Percentile	10.5	18.1	18.1	4.6	10.2	9.0	7.6
1st Quartile	10.3	17.0	17.0	3.6	9.6	8.3	7.0
Median	10.0	16.3	16.3	3.3	9.1	7.9	6.6
3rd Quartile	9.6	15.3	15.3	2.9	8.6	7.5	6.1
95th Percentile	8.7	13.3	13.3	2.0	7.3	6.3	5.3

Peer Group Analysis - IM Mixed-Asset Target 2035 (MF)



	2022	2021	2020	2019	2018	2017	2016
Vanguard Target Retirement 2035	-16.6 (42)	13.0 (76)	14.8 (43)	22.4 (45)	-6.6 (33)	19.1 (41)	8.3 (35)
Vanguard Target 2035 Composite Index	-16.1 (29)	13.2 (68)	15.7 (27)	22.8 (37)	-6.5 (30)	19.2 (38)	8.6 (24)

5th Percentile	-14.0	16.5	17.6	25.2	-5.2	20.9	9.8
1st Quartile	-15.9	14.6	15.8	23.1	-6.2	19.7	8.5
Median	-17.0	13.8	14.1	22.3	-7.3	18.7	7.7
3rd Quartile	-17.8	13.0	12.7	20.9	-7.9	17.3	6.9
95th Percentile	-18.6	10.3	10.2	18.3	-8.9	14.4	4.5

Fund Information

Fund Name :	Vanguard Chester Funds: Vanguard Target Retirement 2035 Fund; Investor Class Shares	Portfolio Assets :	\$86,329 Million
Fund Family :	Vanguard	Portfolio Manager :	Team Managed
Ticker :	VTTHX	PM Tenure :	
Inception Date :	10/27/2003	Fund Style :	IM Mixed-Asset Target 2035 (MF)
Fund Assets :	\$86,329 Million	Style Benchmark :	Vanguard Target 2035 Composite Index
Portfolio Turnover :	1%		

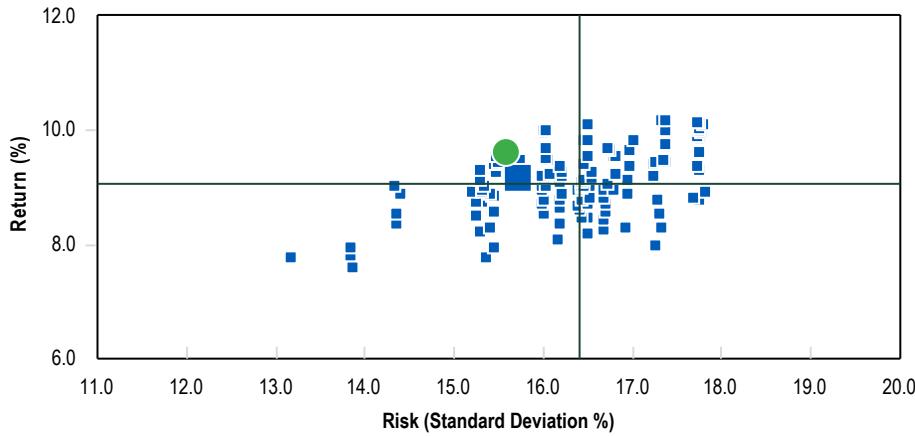
Fund Investment Policy

The Fund seeks to provide capital appreciation and current income consistent with its current asset allocation. The Fund invests in other Vanguard mutual funds according to an asset allocation strategy designed for investors planning to retire and leave the workforce in or within a few years of 2035.

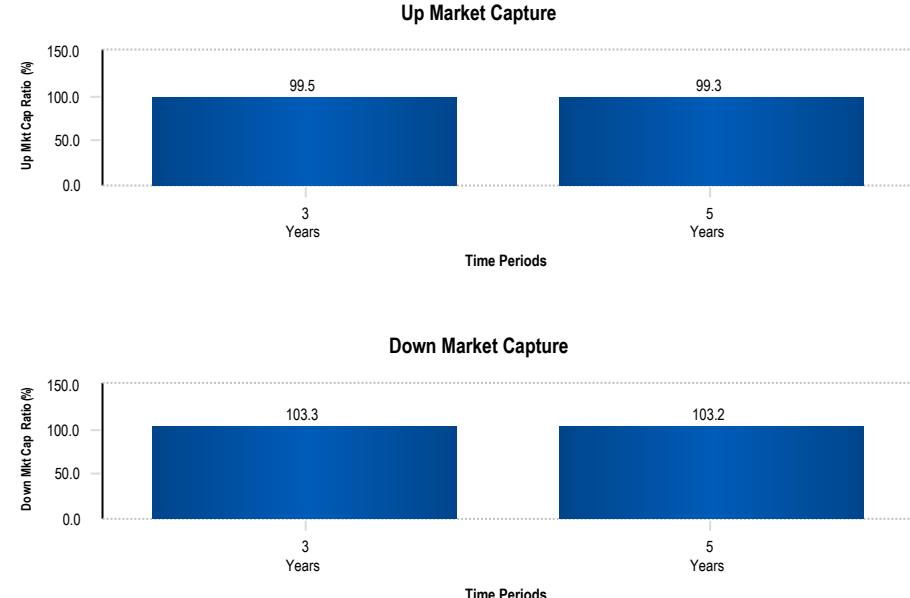
Historical Statistics (01/01/19 - 12/31/23) *

	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Excess Risk	Inception Date
Vanguard Target Retirement 2035	9.2	15.7	0.5	-0.5	1.0	1.0	0.3	-1.3	15.7	11/01/2003
Vanguard Target 2035 Composite Index	9.6	15.6	0.6	0.0	1.0	1.0	0.0		15.6	11/01/2003
90 Day U.S. Treasury Bill	1.9	0.9		1.9	0.0	0.0	15.6	-0.6	0.0	11/01/2003

Peer Group Scattergram (01/01/19 to 12/31/23)

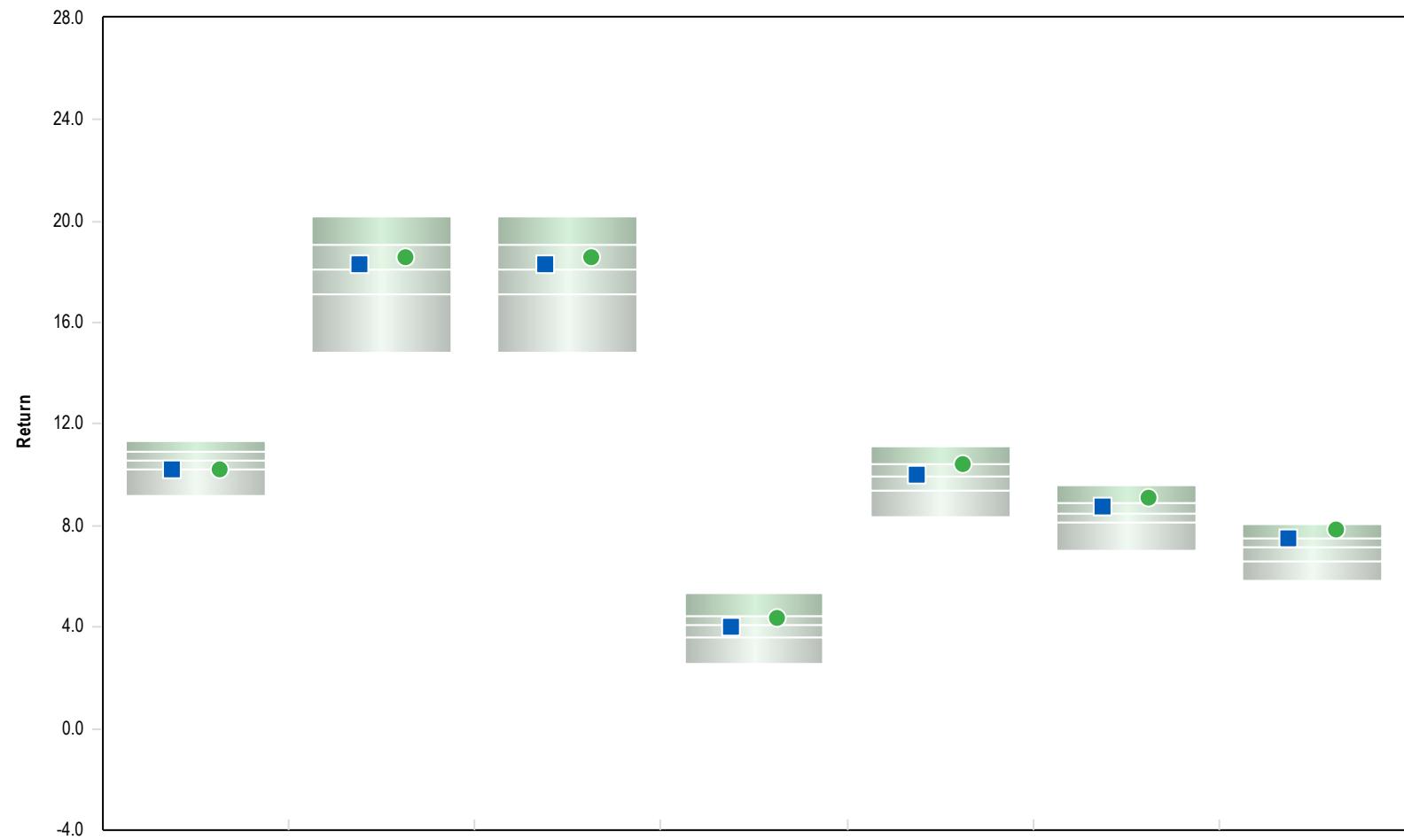


Up Down Market Capture



* Quarterly periodicity used.

Peer Group Analysis - IM Mixed-Asset Target 2040 (MF)

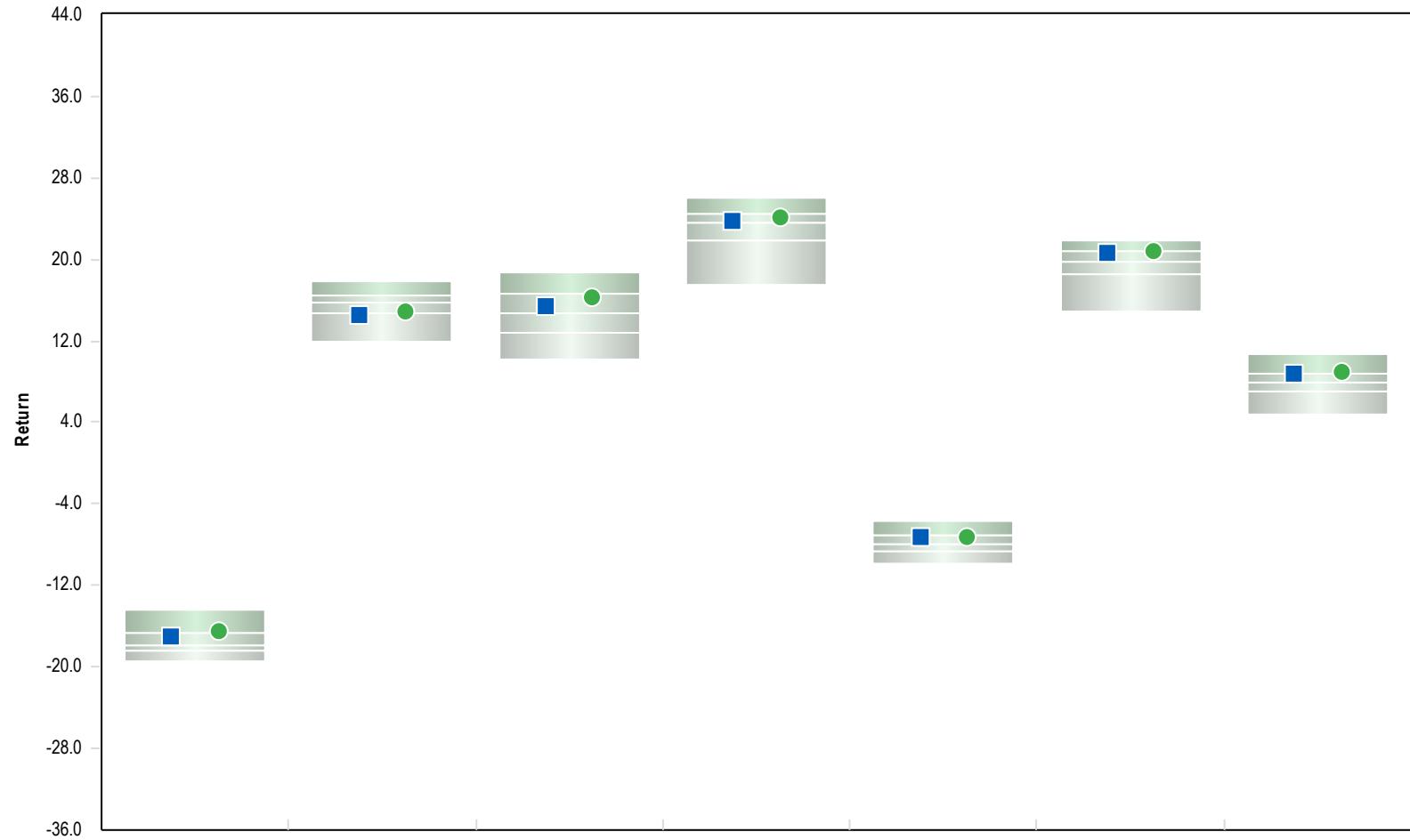


■ Vanguard Target Retirement 2040
● Vanguard Target 2040 Composite Index

	1 Qtr	YTD	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
Vanguard Target Retirement 2040	10.2 (73)	18.3 (45)	18.3 (45)	4.0 (57)	10.0 (46)	8.8 (33)	7.5 (27)
Vanguard Target 2040 Composite Index	10.2 (76)	18.6 (40)	18.6 (40)	4.4 (30)	10.4 (25)	9.1 (17)	7.9 (10)

5th Percentile	11.3	20.2	20.2	5.4	11.1	9.6	8.1
1st Quartile	10.9	19.1	19.1	4.4	10.4	8.9	7.5
Median	10.5	18.1	18.1	4.1	9.9	8.5	7.1
3rd Quartile	10.2	17.1	17.1	3.6	9.4	8.1	6.6
95th Percentile	9.2	14.8	14.8	2.5	8.3	7.0	5.8

Peer Group Analysis - IM Mixed-Asset Target 2040 (MF)



	2022	2021	2020	2019	2018	2017	2016
Vanguard Target Retirement 2040	-17.0 (33)	14.6 (80)	15.5 (39)	23.9 (44)	-7.3 (32)	20.7 (28)	8.7 (26)
Vanguard Target 2040 Composite Index	-16.5 (22)	14.8 (72)	16.3 (30)	24.2 (36)	-7.2 (29)	20.9 (23)	9.0 (20)

5th Percentile	-14.4	17.8	18.7	26.1	-5.6	21.8	10.8
1st Quartile	-16.7	16.4	16.7	24.5	-7.1	20.8	8.7
Median	-17.9	15.7	14.7	23.6	-8.0	19.7	8.0
3rd Quartile	-18.4	14.7	12.8	21.9	-8.7	18.5	7.0
95th Percentile	-19.4	11.9	10.1	17.5	-9.8	14.9	4.8

Fund Information

Fund Name :	Vanguard Chester Funds: Vanguard Target Retirement 2040 Fund; Investor Class Shares	Portfolio Assets :	\$75,757 Million
Fund Family :	Vanguard	Portfolio Manager :	Team Managed
Ticker :	VFORX	PM Tenure :	
Inception Date :	06/07/2006	Fund Style :	IM Mixed-Asset Target 2040 (MF)
Fund Assets :	\$75,757 Million	Style Benchmark :	Vanguard Target 2040 Composite Index
Portfolio Turnover :	1%		

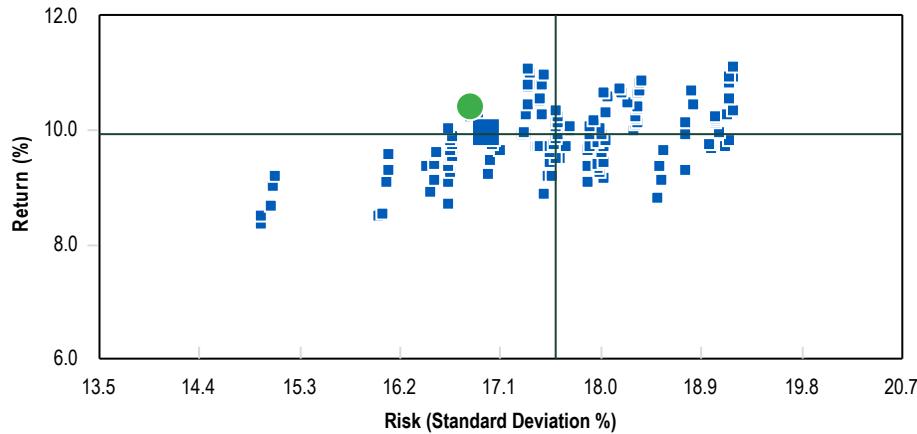
Fund Investment Policy

The Fund seeks to provide capital appreciation and current income consistent with its current asset allocation. The Fund invests in other Vanguard mutual funds according to an asset allocation strategy designed for investors planning to retire and leave the workforce in or within a few years of 2040.

Historical Statistics (01/01/19 - 12/31/23) *

	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Excess Risk	Inception Date
Vanguard Target Retirement 2040	10.0	17.0	0.5	-0.5	1.0	1.0	0.3	-1.1	17.0	07/01/2006
Vanguard Target 2040 Composite Index	10.4	16.8	0.6	0.0	1.0	1.0	0.0		16.8	07/01/2006
90 Day U.S. Treasury Bill	1.9	0.9		1.9	0.0	0.0	16.8	-0.6	0.0	07/01/2006

Peer Group Scattergram (01/01/19 to 12/31/23)

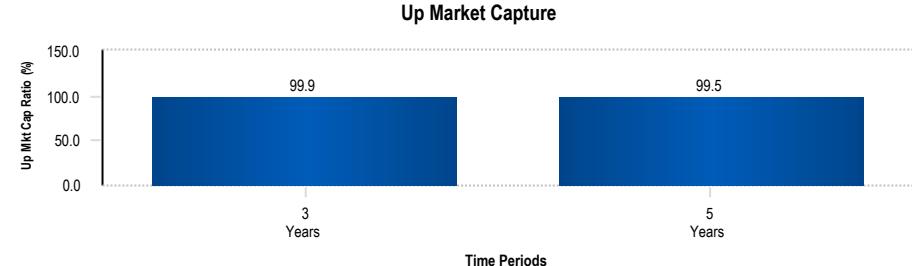


- Vanguard Target Retirement 2040
- Vanguard Target 2040 Composite Index
- Median

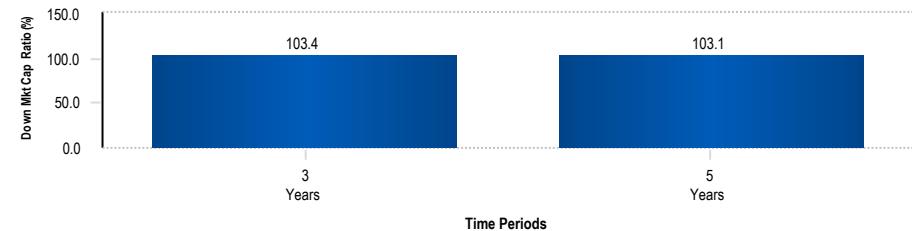
	Return	Standard Deviation
Vanguard Target Retirement 2040	10.0	17.0
Vanguard Target 2040 Composite Index	10.4	16.8
Median	9.9	17.6

* Quarterly periodicity used.

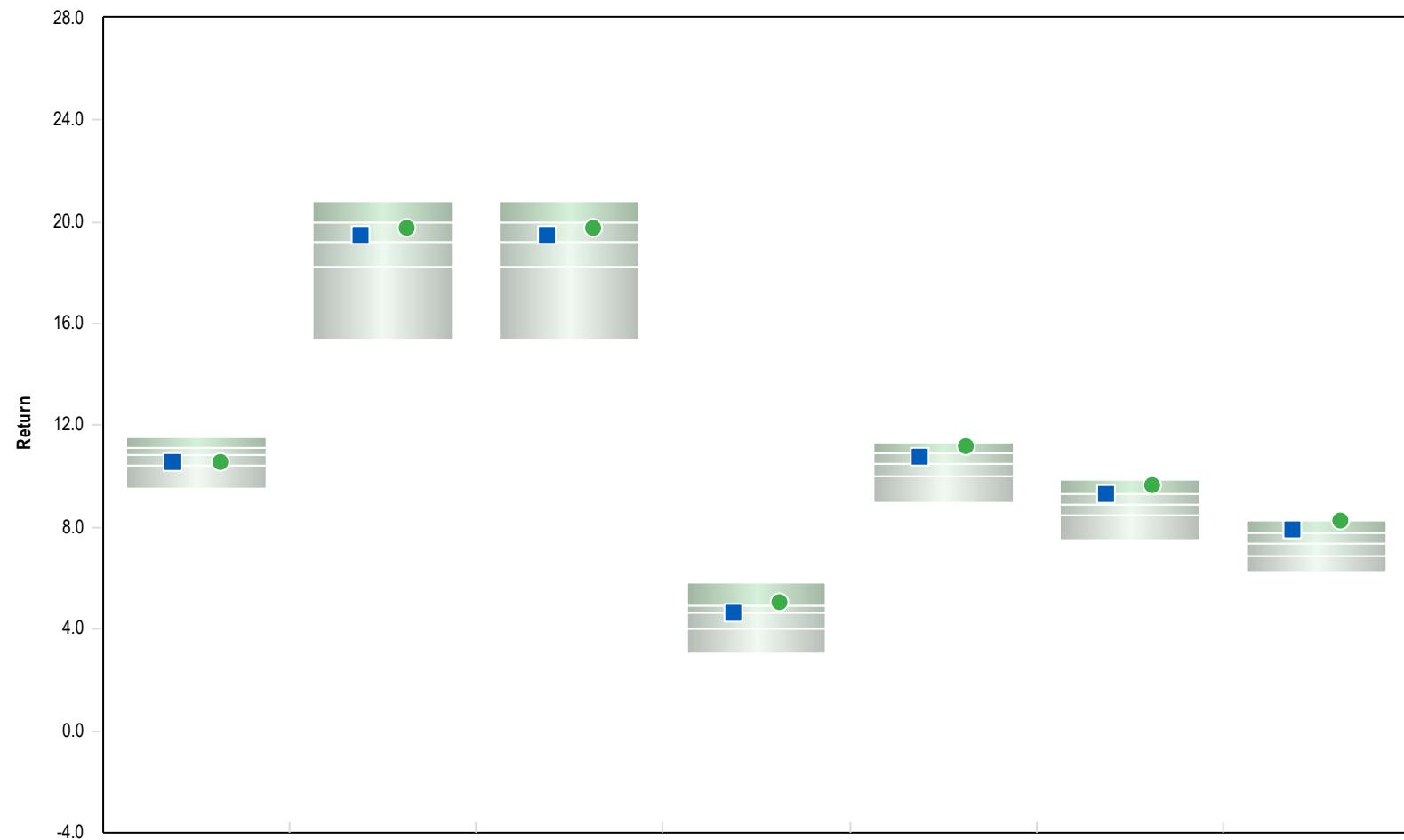
Up Down Market Capture



Down Market Capture



Peer Group Analysis - IM Mixed-Asset Target 2045 (MF)

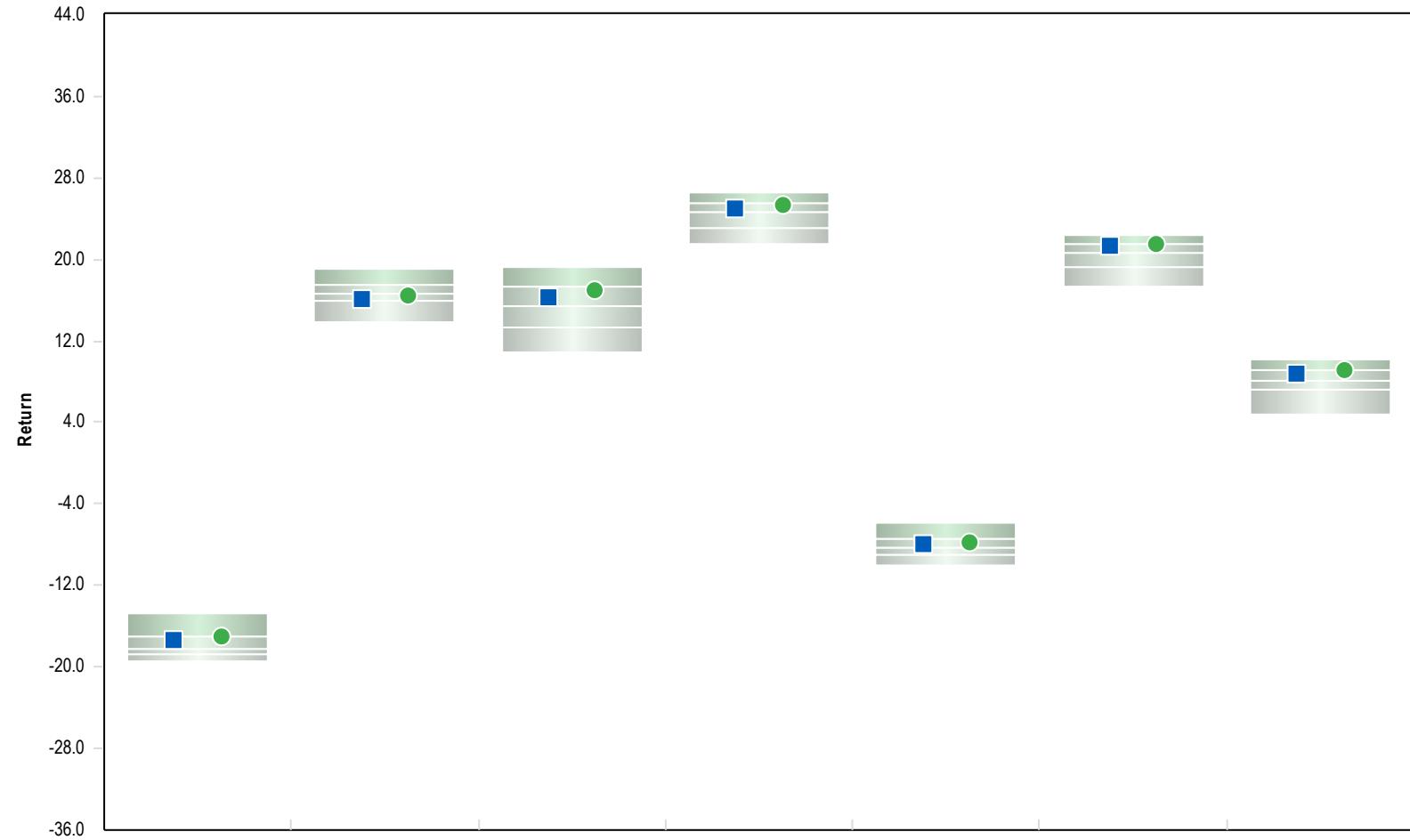


■ Vanguard Target Retirement 2045
● Vanguard Target 2045 Composite Index

	1 Qtr	YTD	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
Vanguard Target Retirement 2045	10.6 (68)	19.5 (38)	19.5 (38)	4.7 (48)	10.8 (36)	9.3 (28)	7.9 (20)
Vanguard Target 2045 Composite Index	10.5 (71)	19.8 (32)	19.8 (32)	5.0 (24)	11.2 (14)	9.6 (11)	8.3 (6)

5th Percentile	11.5	20.8	20.8	5.8	11.3	9.9	8.3
1st Quartile	11.2	20.0	20.0	5.0	10.9	9.3	7.8
Median	10.9	19.2	19.2	4.6	10.5	8.9	7.4
3rd Quartile	10.4	18.2	18.2	4.1	10.0	8.5	6.9
95th Percentile	9.5	15.4	15.4	3.1	9.0	7.5	6.2

Peer Group Analysis - IM Mixed-Asset Target 2045 (MF)



	2022	2021	2020	2019	2018	2017	2016
Vanguard Target Retirement 2045	-17.4 (32)	16.2 (65)	16.3 (37)	24.9 (38)	-7.9 (41)	21.4 (26)	8.9 (30)
Vanguard Target 2045 Composite Index	-16.9 (24)	16.4 (56)	17.0 (29)	25.4 (28)	-7.8 (37)	21.5 (21)	9.1 (22)

5th Percentile	-14.7	19.0	19.2	26.7	-5.9	22.5	10.2
1st Quartile	-17.0	17.5	17.3	25.4	-7.4	21.4	9.1
Median	-18.2	16.7	15.4	24.6	-8.2	20.6	8.1
3rd Quartile	-18.8	15.9	13.3	23.1	-9.0	19.3	7.1
95th Percentile	-19.5	13.9	10.9	21.5	-10.0	17.4	4.7

Fund Information

Fund Name :	Vanguard Chester Funds: Vanguard Target Retirement 2045 Fund; Investor Class Shares	Portfolio Assets :	\$72,507 Million
Fund Family :	Vanguard	Portfolio Manager :	Team Managed
Ticker :	VTIVX	PM Tenure :	
Inception Date :	10/27/2003	Fund Style :	IM Mixed-Asset Target 2045 (MF)
Fund Assets :	\$72,507 Million	Style Benchmark :	Vanguard Target 2045 Composite Index
Portfolio Turnover :	1%		

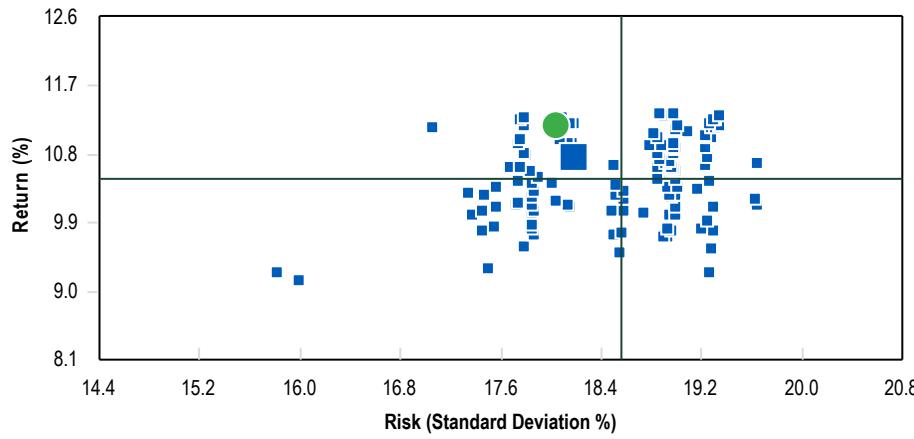
Fund Investment Policy

The Fund seeks to provide capital appreciation and current income consistent with its current asset allocation. The Fund invests in other Vanguard mutual funds according to an asset allocation strategy designed for investors planning to retire and leave the workforce in or within a few years of 2045.

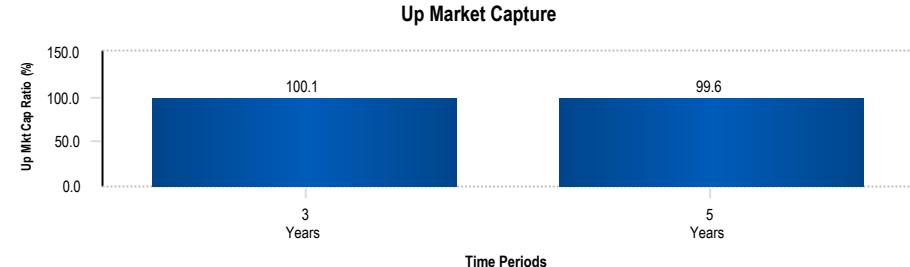
Historical Statistics (01/01/19 - 12/31/23) *

	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Excess Risk	Inception Date
Vanguard Target Retirement 2045	10.8	18.2	0.6	-0.5	1.0	1.0	0.4	-1.0	18.2	11/01/2003
Vanguard Target 2045 Composite Index	11.2	18.0	0.6	0.0	1.0	1.0	0.0		18.0	11/01/2003
90 Day U.S. Treasury Bill	1.9	0.9		1.9	0.0	0.0	18.0	-0.6	0.0	11/01/2003

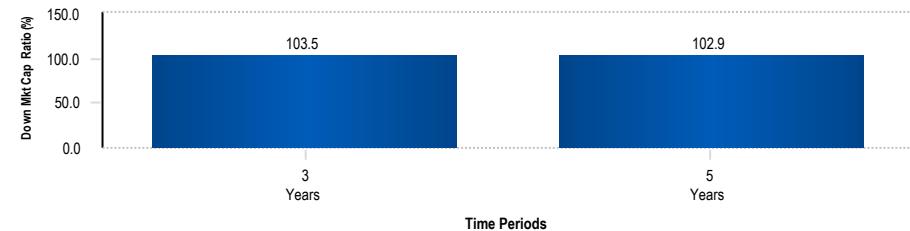
Peer Group Scattergram (01/01/19 to 12/31/23)



Up Down Market Capture

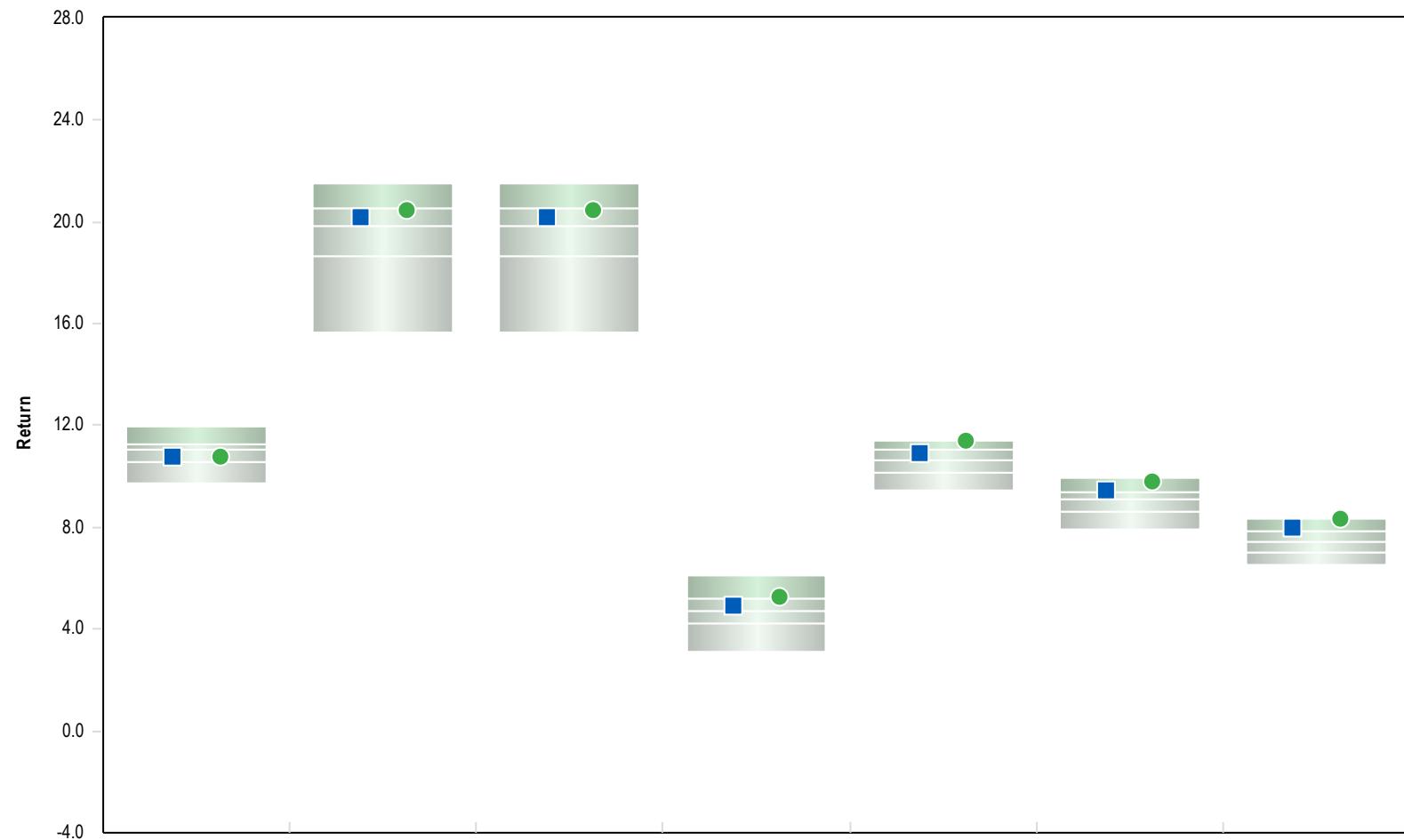


Down Market Capture



* Quarterly periodicity used.

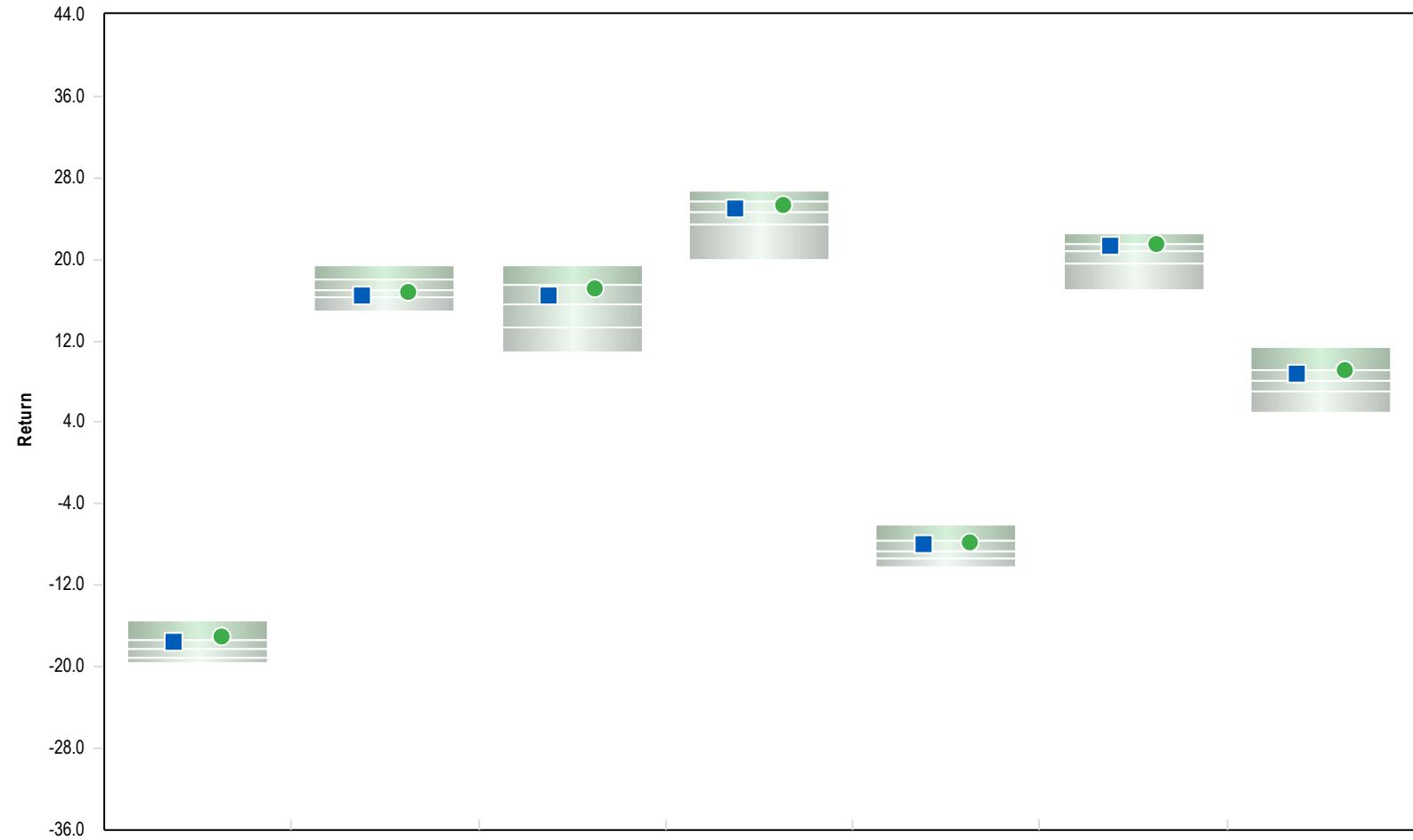
Peer Group Analysis - IM Mixed-Asset Target 2050 (MF)



■ Vanguard Target Retirement 2050
● Vanguard Target 2050 Composite Index

	1 Qtr	YTD	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
5th Percentile	11.9	21.5	21.5	6.1	11.4	10.0	8.4
1st Quartile	11.3	20.5	20.5	5.2	11.1	9.4	7.9
Median	11.0	19.8	19.8	4.7	10.7	9.1	7.4
3rd Quartile	10.6	18.6	18.6	4.2	10.2	8.6	7.0
95th Percentile	9.8	15.7	15.7	3.1	9.5	7.9	6.5

Peer Group Analysis - IM Mixed-Asset Target 2050 (MF)



	2022	2021	2020	2019	2018	2017	2016
Vanguard Target Retirement 2050	-17.5 (30)	16.4 (70)	16.4 (37)	25.0 (41)	-7.9 (34)	21.4 (33)	8.9 (32)
Vanguard Target 2050 Composite Index	-17.1 (20)	16.8 (59)	17.2 (29)	25.4 (30)	-7.8 (27)	21.5 (26)	9.1 (26)

5th Percentile	-15.4	19.5	19.5	26.7	-5.9	22.6	11.4
1st Quartile	-17.3	18.0	17.4	25.6	-7.6	21.6	9.2
Median	-18.3	17.0	15.5	24.7	-8.6	20.8	8.1
3rd Quartile	-19.1	16.2	13.3	23.4	-9.3	19.6	7.1
95th Percentile	-19.6	14.9	10.9	19.9	-10.2	16.9	4.9

Fund Information

Fund Name :	Vanguard Chester Funds: Vanguard Target Retirement 2050 Fund; Investor Class Shares	Portfolio Assets :	\$59,982 Million
Fund Family :	Vanguard	Portfolio Manager :	Team Managed
Ticker :	VFIFX	PM Tenure :	
Inception Date :	06/07/2006	Fund Style :	IM Mixed-Asset Target 2050 (MF)
Fund Assets :	\$59,982 Million	Style Benchmark :	Vanguard Target 2050 Composite Index
Portfolio Turnover :	2%		

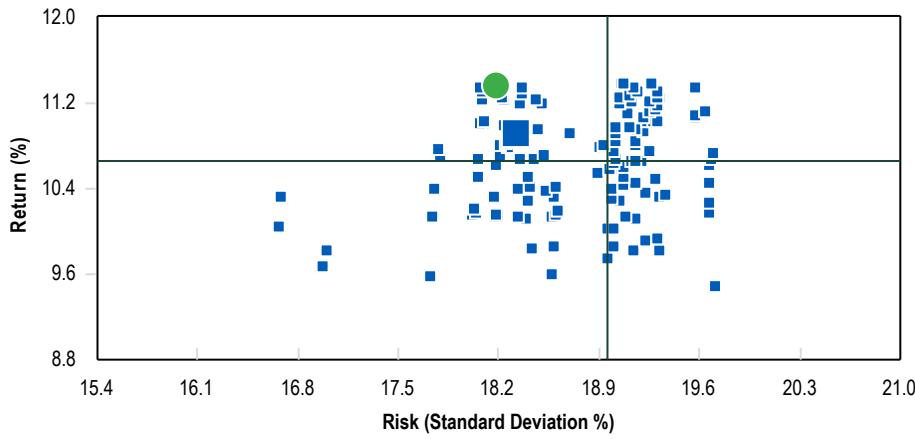
Fund Investment Policy

The Fund seeks to provide capital appreciation and current income consistent with its current asset allocation. The Fund invests in other Vanguard mutual funds according to an asset allocation strategy designed for investors planning to retire and leave the workforce in or within a few years of 2050.

Historical Statistics (01/01/19 - 12/31/23) *

	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Excess Risk	Inception Date
Vanguard Target Retirement 2050	10.9	18.3	0.6	-0.5	1.0	1.0	0.4	-1.0	18.3	07/01/2006
Vanguard Target 2050 Composite Index	11.4	18.2	0.6	0.0	1.0	1.0	0.0		18.2	07/01/2006
90 Day U.S. Treasury Bill	1.9	0.9		1.9	0.0	0.0	18.2	-0.6	0.0	07/01/2006

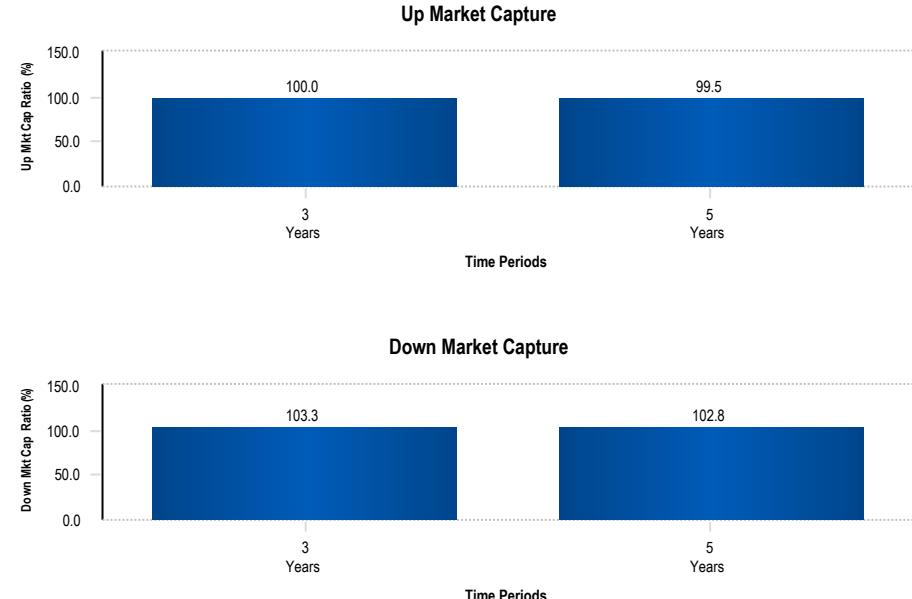
Peer Group Scattergram (01/01/19 to 12/31/23)



- Vanguard Target Retirement 2050
- Vanguard Target 2050 Composite Index
- Median

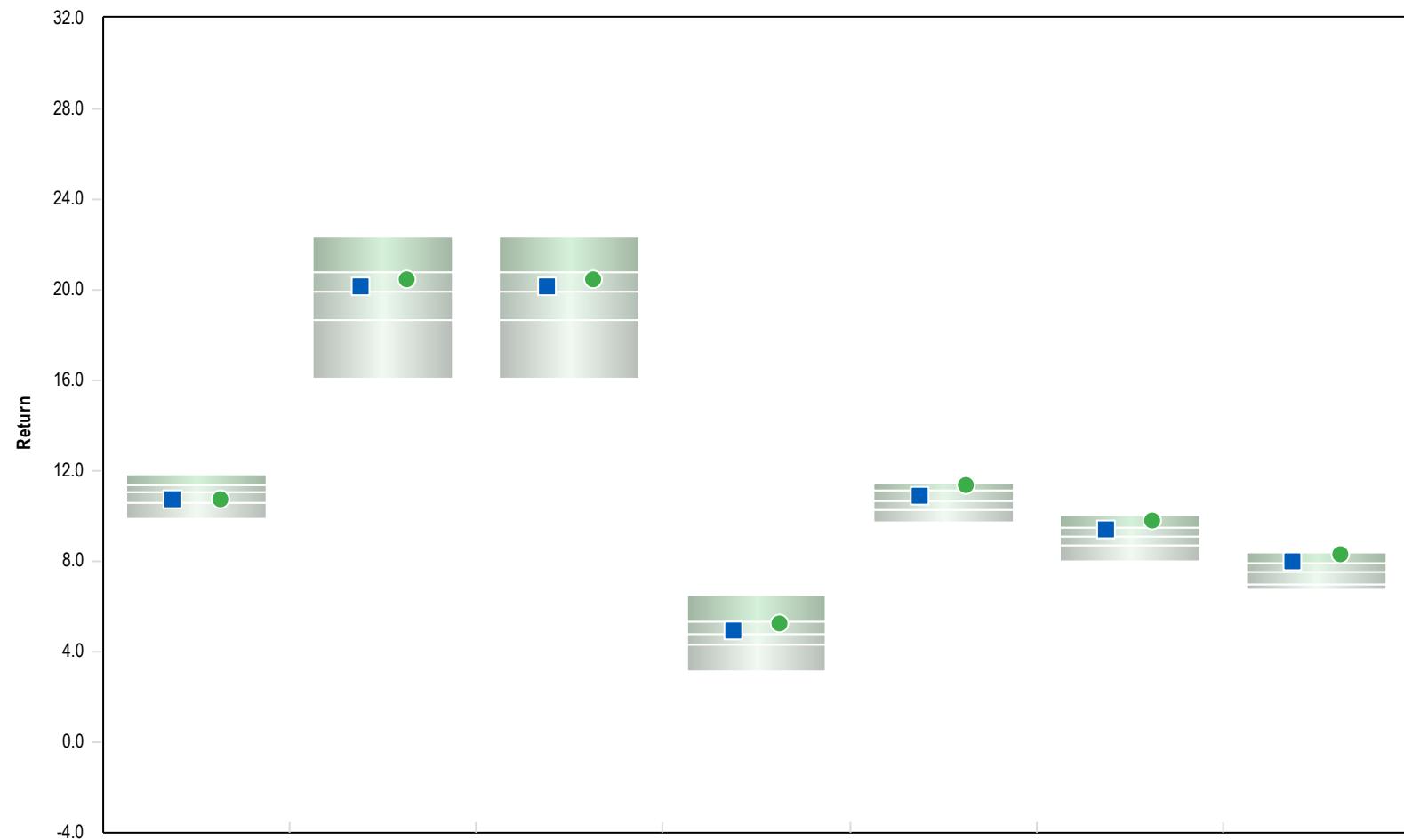
	Return	Standard Deviation
Vanguard Target Retirement 2050	10.9	18.3
Vanguard Target 2050 Composite Index	11.4	18.2
Median	10.7	19.0

Up Down Market Capture



* Quarterly periodicity used.

Peer Group Analysis - IM Mixed-Asset Target 2055+ (MF)

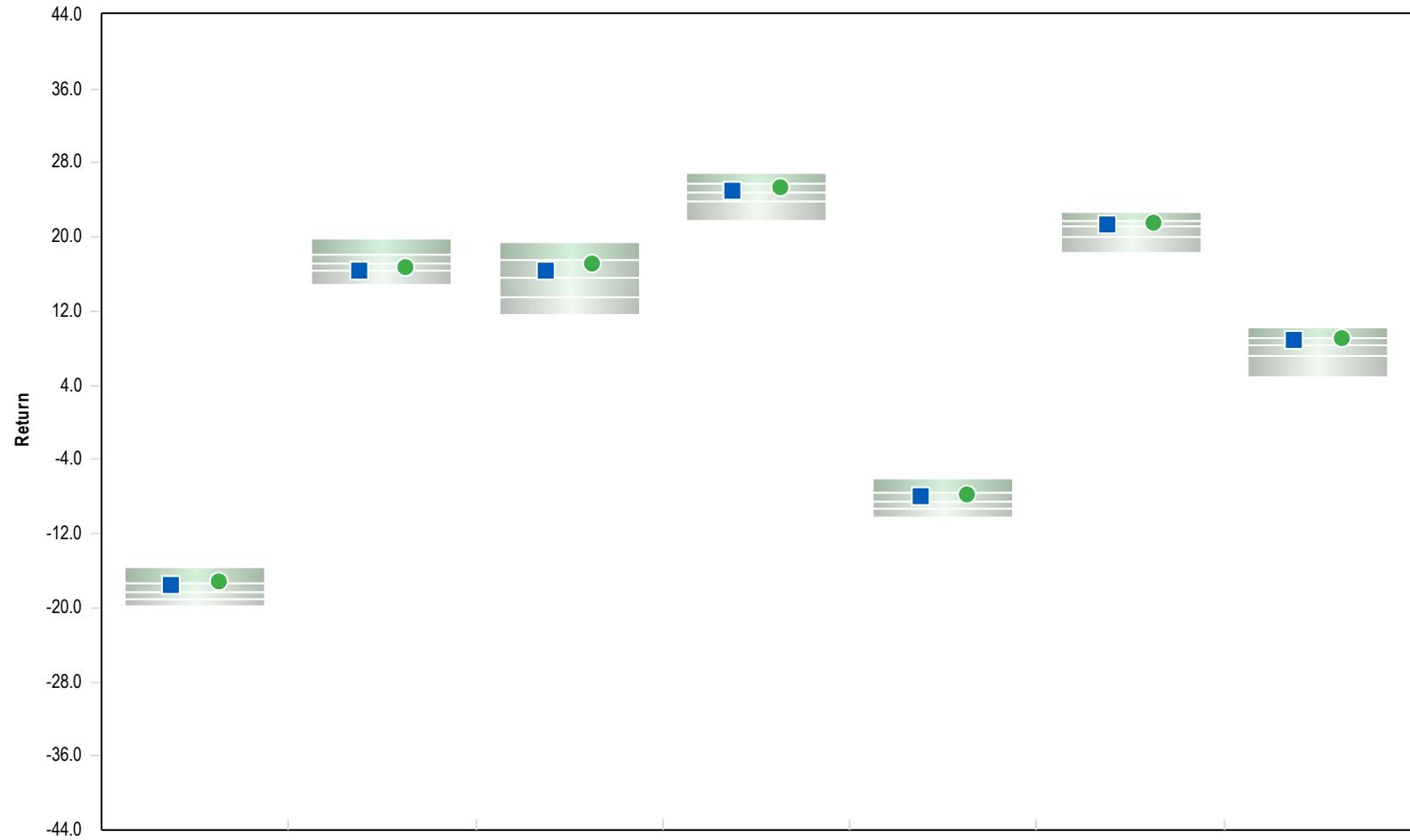


■ Vanguard Target Retirement 2055
● Vanguard Target 2055 Composite Index

	1 Qtr	YTD	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
Vanguard Target Retirement 2055	10.8 (65)	20.2 (44)	20.2 (44)	4.9 (39)	10.9 (39)	9.4 (28)	8.0 (23)
Vanguard Target 2055 Composite Index	10.8 (65)	20.5 (36)	20.5 (36)	5.3 (27)	11.4 (10)	9.8 (15)	8.3 (9)

5th Percentile	11.9	22.3	22.3	6.5	11.4	10.0	8.4
1st Quartile	11.4	20.8	20.8	5.3	11.2	9.5	8.0
Median	11.1	19.9	19.9	4.8	10.7	9.1	7.6
3rd Quartile	10.6	18.7	18.7	4.3	10.3	8.7	7.0
95th Percentile	9.9	16.0	16.0	3.1	9.7	8.0	6.8

Peer Group Analysis - IM Mixed-Asset Target 2055+ (MF)



■ Vanguard Target Retirement 2055
● Vanguard Target 2055 Composite Index

	2022	2021	2020	2019	2018	2017	2016
5th Percentile	-15.6	19.8	19.5	26.9	-6.0	22.6	10.2
1st Quartile	-17.4	18.2	17.6	25.9	-7.6	21.8	9.1
Median	-18.3	17.2	15.6	24.8	-8.5	21.1	8.2
3rd Quartile	-19.1	16.4	13.4	23.8	-9.3	20.0	7.2
95th Percentile	-19.8	14.9	11.6	21.7	-10.3	18.3	4.9

Fund Information

Fund Name :	Vanguard Chester Funds: Vanguard Target Retirement 2055 Fund; Investor Class Shares	Portfolio Assets :	\$39,201 Million
Fund Family :	Vanguard	Portfolio Manager :	Team Managed
Ticker :	VFFVX	PM Tenure :	
Inception Date :	08/18/2010	Fund Style :	IM Mixed-Asset Target 2055+ (MF)
Fund Assets :	\$39,201 Million	Style Benchmark :	Vanguard Target 2055 Composite Index
Portfolio Turnover :	1%		

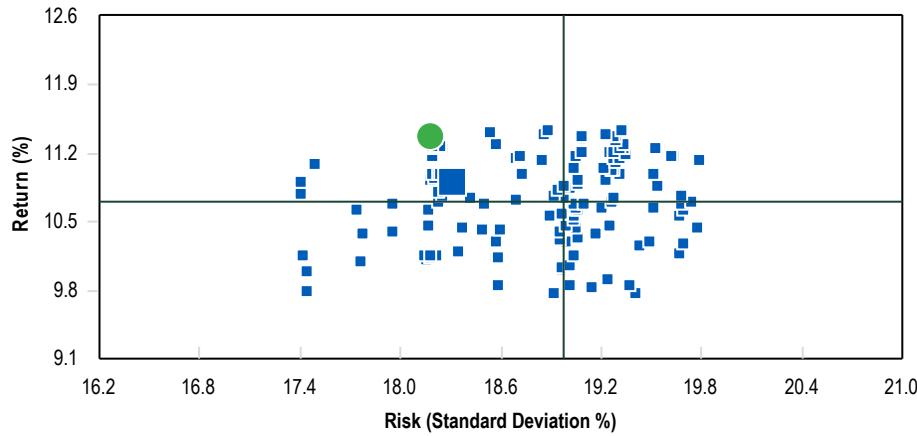
Fund Investment Policy

The Fund seeks to provide capital appreciation and current income consistent with its current asset allocation. The Fund invests in other Vanguard mutual funds according to an asset allocation strategy designed for investors planning to retire and leave the workforce in or within a few years of 2055.

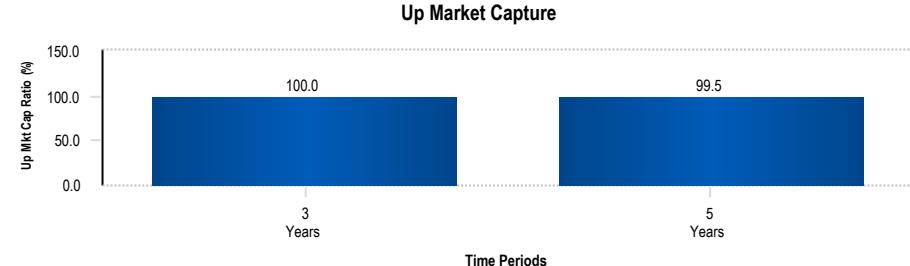
Historical Statistics (01/01/19 - 12/31/23) *

	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Excess Risk	Inception Date
Vanguard Target Retirement 2055	10.9	18.3	0.6	-0.5	1.0	1.0	0.4	-1.0	18.3	09/01/2010
Vanguard Target 2055 Composite Index	11.4	18.2	0.6	0.0	1.0	1.0	0.0		18.2	09/01/2010
90 Day U.S. Treasury Bill	1.9	0.9		1.9	0.0	0.0	18.2	-0.6	0.0	09/01/2010

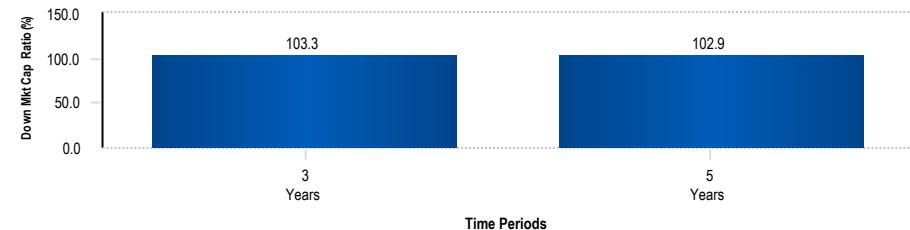
Peer Group Scattergram (01/01/19 to 12/31/23)



Up Down Market Capture

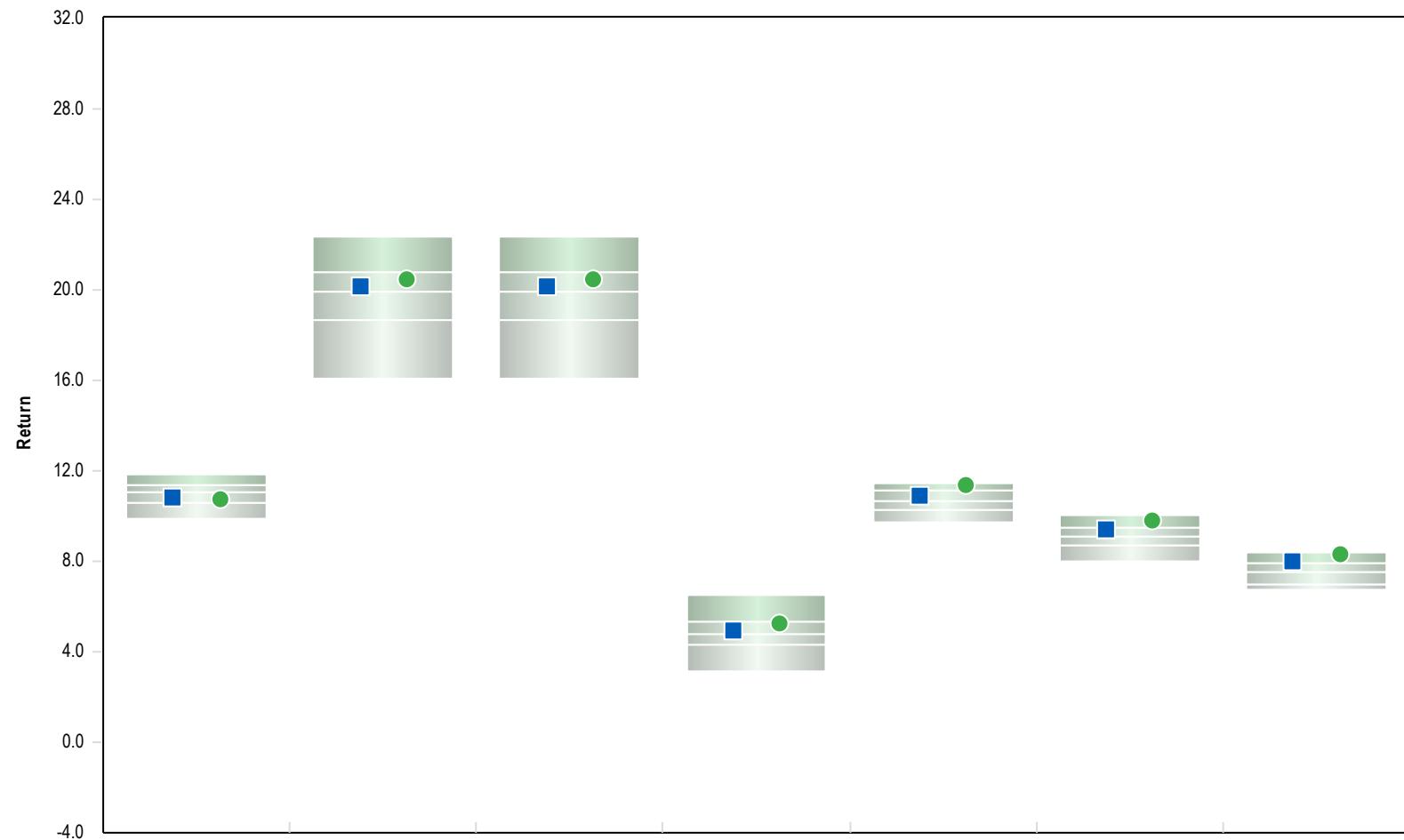


Down Market Capture



* Quarterly periodicity used.

Peer Group Analysis - IM Mixed-Asset Target 2055 (MF)

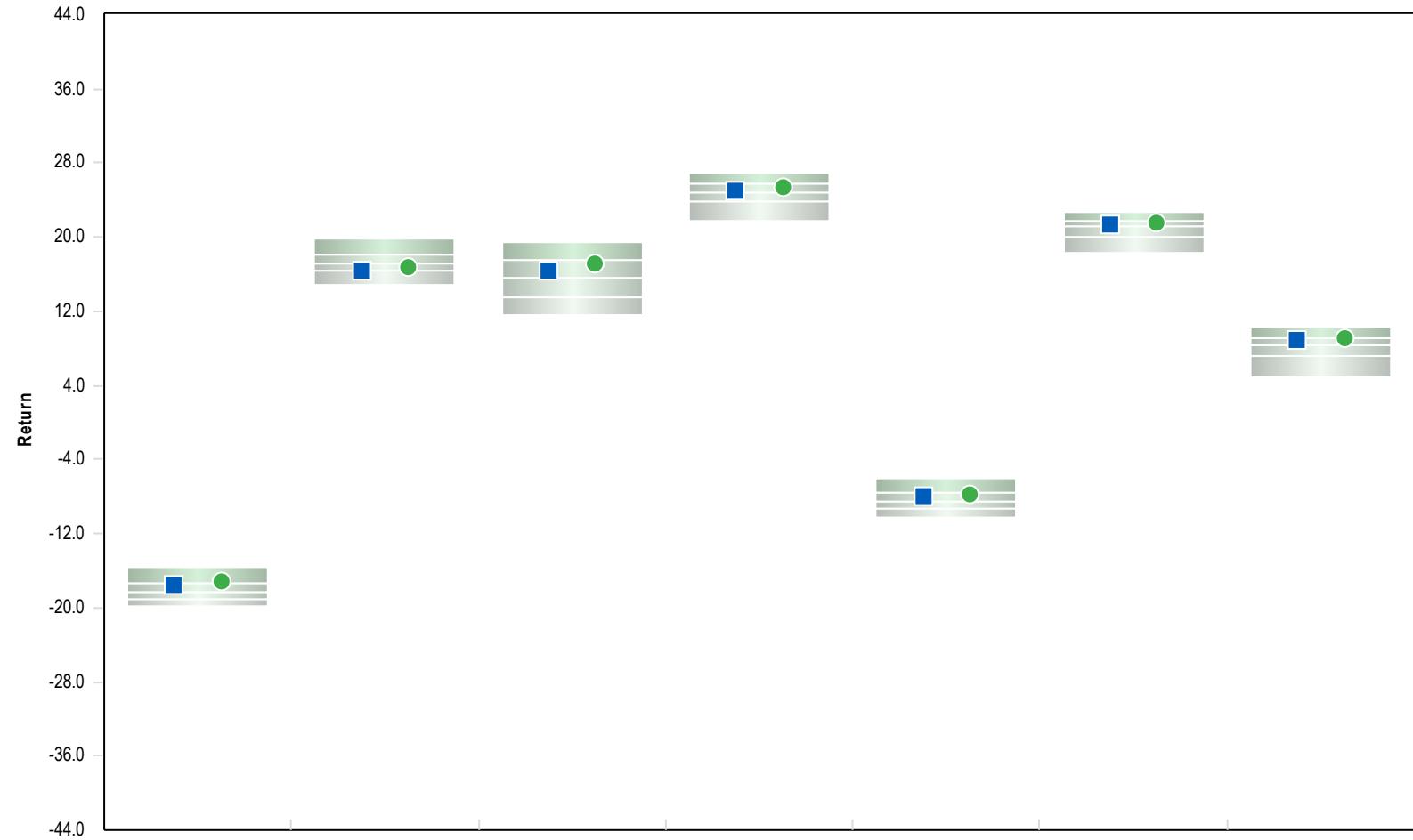


■ Vanguard Target Retirement 2060
● Vanguard Target 2060 Composite Index

	1 Qtr	YTD	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
Vanguard Target Retirement 2060	10.8 (65)	20.2 (42)	20.2 (42)	4.9 (38)	10.9 (38)	9.4 (28)	8.0 (24)
Vanguard Target 2060 Composite Index	10.8 (65)	20.5 (36)	20.5 (36)	5.3 (27)	11.4 (10)	9.8 (15)	8.3 (9)

5th Percentile	11.9	22.3	22.3	6.5	11.4	10.0	8.4
1st Quartile	11.4	20.8	20.8	5.3	11.2	9.5	8.0
Median	11.1	19.9	19.9	4.8	10.7	9.1	7.6
3rd Quartile	10.6	18.7	18.7	4.3	10.3	8.7	7.0
95th Percentile	9.9	16.0	16.0	3.1	9.7	8.0	6.8

Peer Group Analysis - IM Mixed-Asset Target 2055 (MF)



■ Vanguard Target Retirement 2060
● Vanguard Target 2060 Composite Index

5th Percentile	-15.6	19.8	19.5	26.9	-6.0	22.6	10.2
1st Quartile	-17.4	18.2	17.6	25.9	-7.6	21.8	9.1
Median	-18.3	17.2	15.6	24.8	-8.5	21.1	8.2
3rd Quartile	-19.1	16.4	13.4	23.8	-9.3	20.0	7.2
95th Percentile	-19.8	14.9	11.6	21.7	-10.3	18.3	4.9

Fund Information

Fund Name :	Vanguard Chester Funds: Vanguard Target Retirement 2060 Fund; Investor Class Shares	Portfolio Assets :	\$22,579 Million
Fund Family :	Vanguard	Portfolio Manager :	Team Managed
Ticker :	VTTSX	PM Tenure :	
Inception Date :	01/19/2012	Fund Style :	IM Mixed-Asset Target 2055 (MF)
Fund Assets :	\$22,579 Million	Style Benchmark :	Vanguard Target 2060 Composite Index
Portfolio Turnover :	1%		

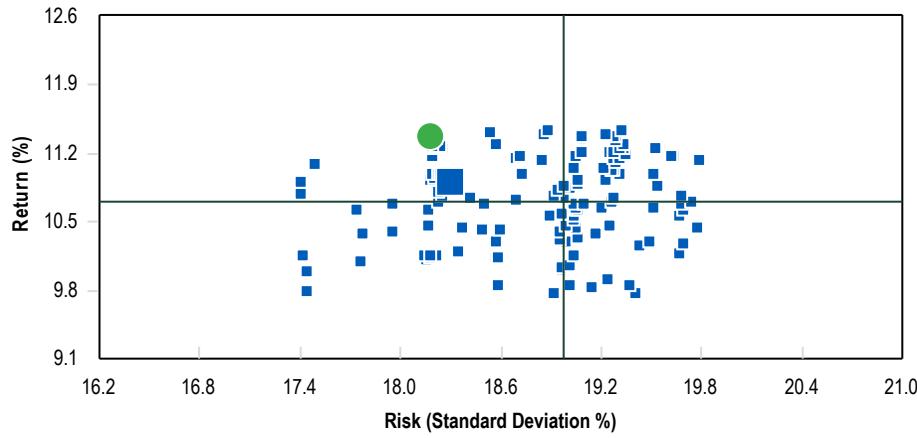
Fund Investment Policy

The Fund seeks to provide capital appreciation and current income consistent with its current asset allocation. The Fund invests in other Vanguard mutual funds according to an asset allocation strategy designed for investors planning to retire and leave the workforce in or within a few years of 2060.

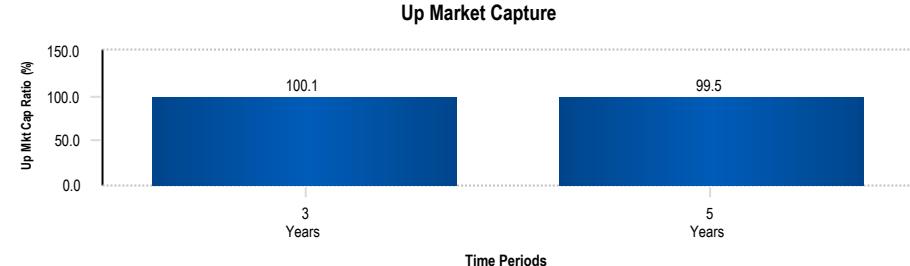
Historical Statistics (01/01/19 - 12/31/23) *

	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Excess Risk	Inception Date
Vanguard Target Retirement 2060	10.9	18.3	0.6	-0.5	1.0	1.0	0.4	-1.0	18.3	02/01/2012
Vanguard Target 2060 Composite Index	11.4	18.2	0.6	0.0	1.0	1.0	0.0		18.2	02/01/2012
90 Day U.S. Treasury Bill	1.9	0.9		1.9	0.0	0.0	18.2	-0.6	0.0	02/01/2012

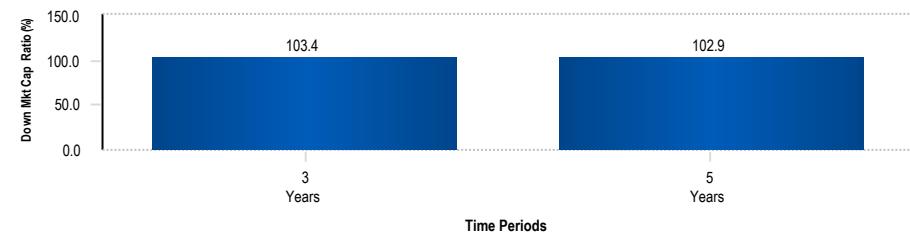
Peer Group Scattergram (01/01/19 to 12/31/23)



Up Down Market Capture

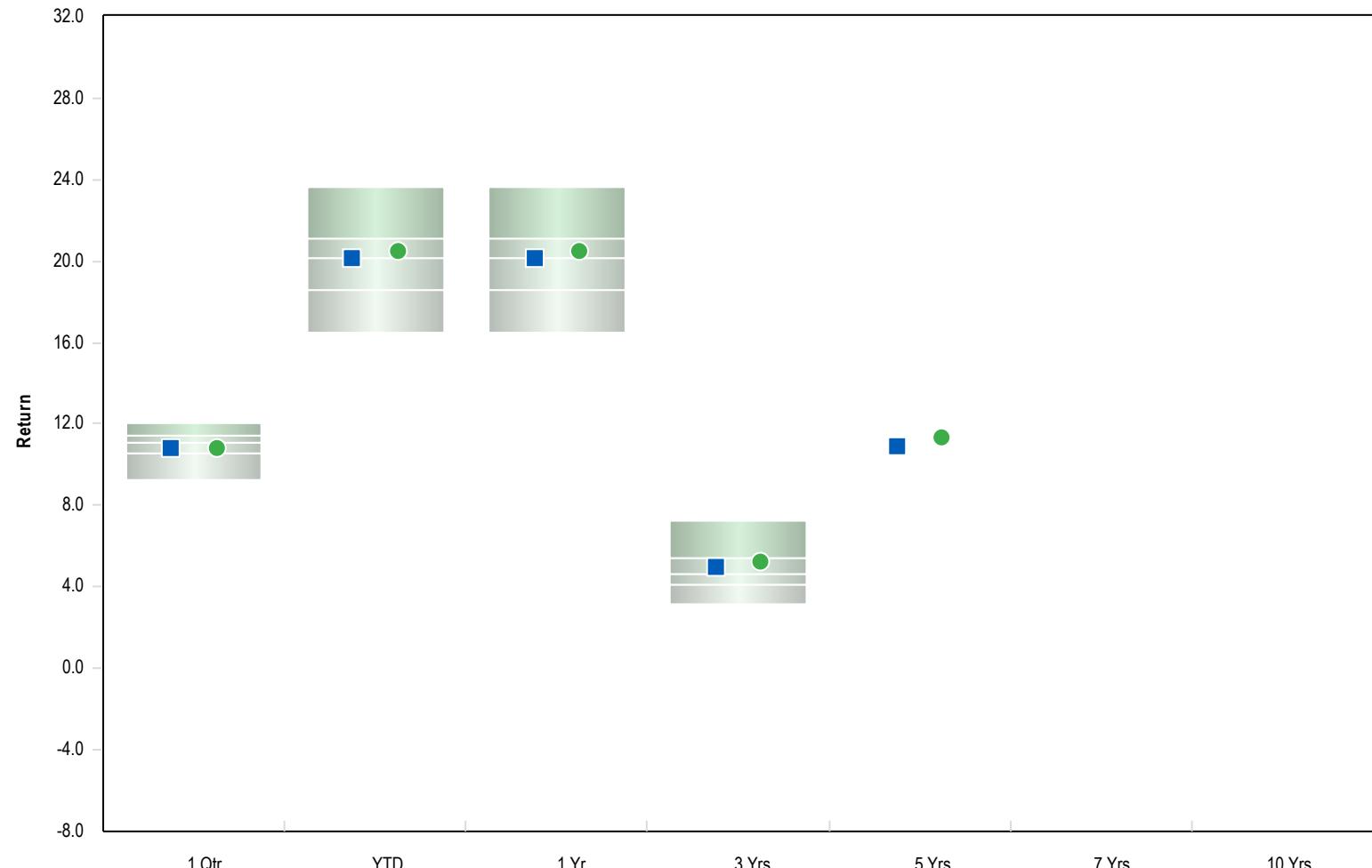


Down Market Capture



* Quarterly periodicity used.

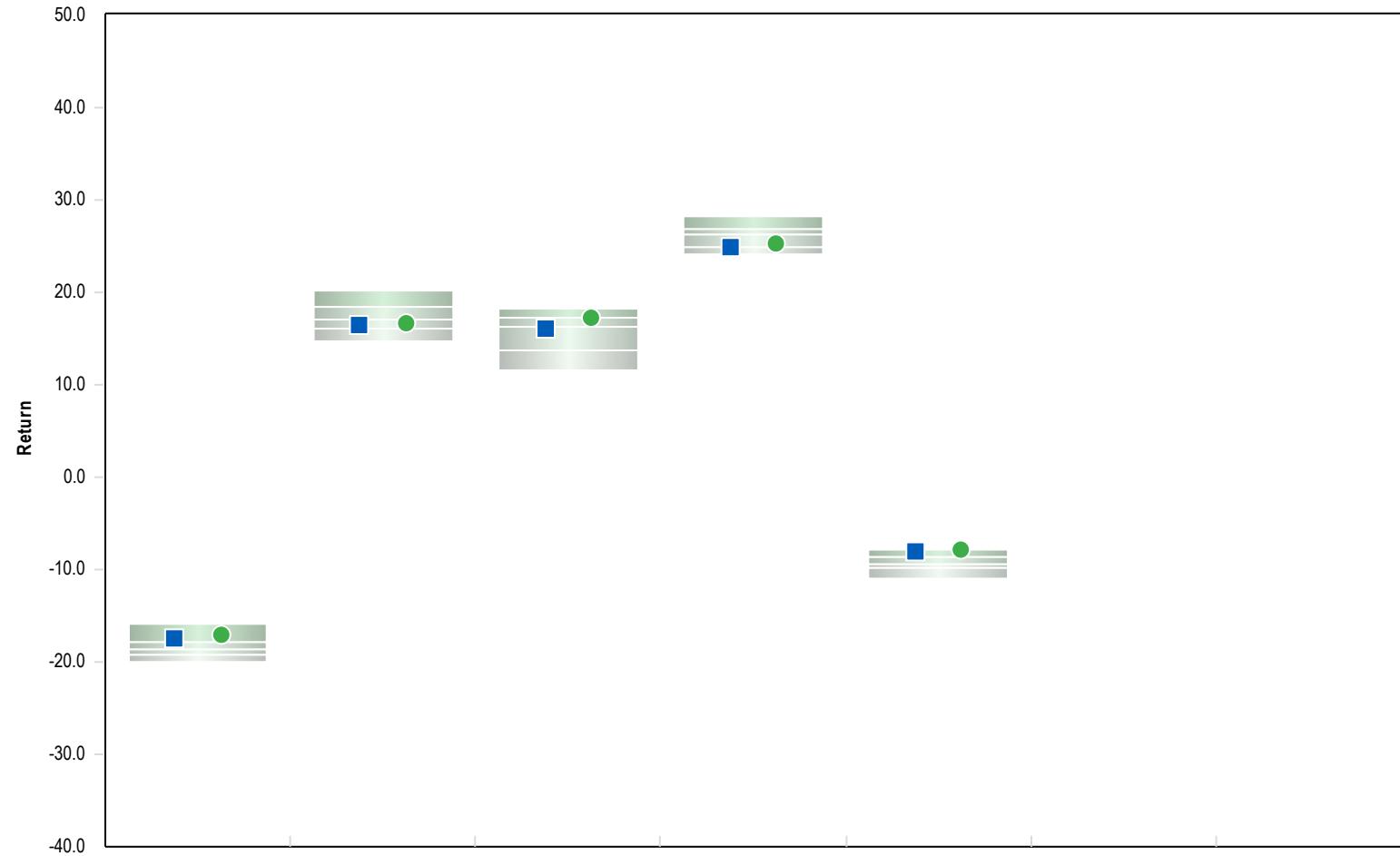
Peer Group Analysis - IM Mixed-Asset Target 2065+ (MF)



■ Vanguard Target Retirement 2065
● Vanguard Target 2065 Composite Index (Net)

	1 Qtr	YTD	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
5th Percentile	12.1	23.6	23.6	7.2			
1st Quartile	11.5	21.1	21.1	5.4			
Median	11.1	20.2	20.2	4.6			
3rd Quartile	10.5	18.6	18.6	4.1			
95th Percentile	9.3	16.5	16.5	3.2			

Peer Group Analysis - IM Mixed-Asset Target 2065+ (MF)



■ Vanguard Target Retirement 2065
● Vanguard Target 2065 Composite Index (Net)

	2022	2021	2020	2019	2018	2017	2016
Vanguard Target Retirement 2065	-17.4 (19)	16.5 (66)	16.2 (54)	25.0 (63)	-7.9 (7)		
Vanguard Target 2065 Composite Index (Net)	-17.1 (18)	16.8 (61)	17.2 (27)	25.4 (56)	-7.8 (1)		

5th Percentile	-15.9	20.2	18.2	28.2	-7.9		
1st Quartile	-17.9	18.5	17.3	26.9	-8.7		
Median	-18.6	17.1	16.2	26.3	-9.4		
3rd Quartile	-19.2	16.0	13.8	24.8	-9.8		
95th Percentile	-19.9	14.7	11.5	24.1	-10.9		

Fund Information

Fund Name :	Vanguard Chester Funds: Vanguard Target Retirement 2065 Fund; Investor Class Shares	Portfolio Assets :	\$5,718 Million
Fund Family :	Vanguard	Portfolio Manager :	Team Managed
Ticker :	VLXVX	PM Tenure :	
Inception Date :	07/12/2017	Fund Style :	IM Mixed-Asset Target 2065+ (MF)
Fund Assets :	\$5,718 Million	Style Benchmark :	Vanguard Target 2065 Composite Index (Net)
Portfolio Turnover :	1%		

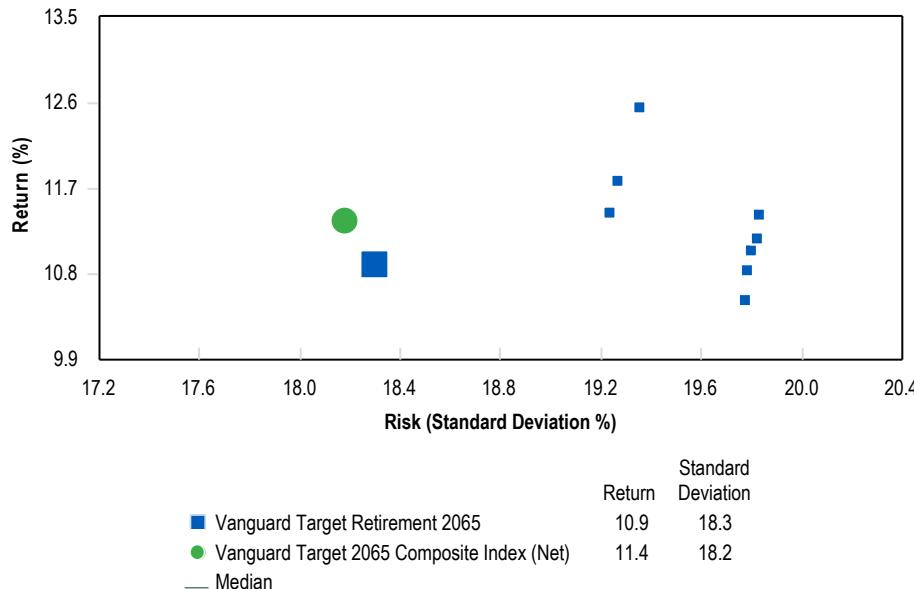
Fund Investment Policy

The Fund seeks to provide capital appreciation and current income consistent with its current asset allocation. The Fund invests in other Vanguard mutual funds according to an asset allocation strategy designed for investors planning to retire and leave the workforce in or within a few years of 2065.

Historical Statistics (01/01/19 - 12/31/23) *

	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Excess Risk	Inception Date
Vanguard Target Retirement 2065	10.9	18.3	0.6	-0.5	1.0	1.0	0.4	-1.1	18.3	08/01/2017
Vanguard Target 2065 Composite Index (Net)	11.4	18.2	0.6	0.0	1.0	1.0	0.0		18.2	08/01/2017
90 Day U.S. Treasury Bill	1.9	0.9		1.9	0.0	0.0	18.2	-0.6	0.0	08/01/2017

Peer Group Scattergram (01/01/19 to 12/31/23)

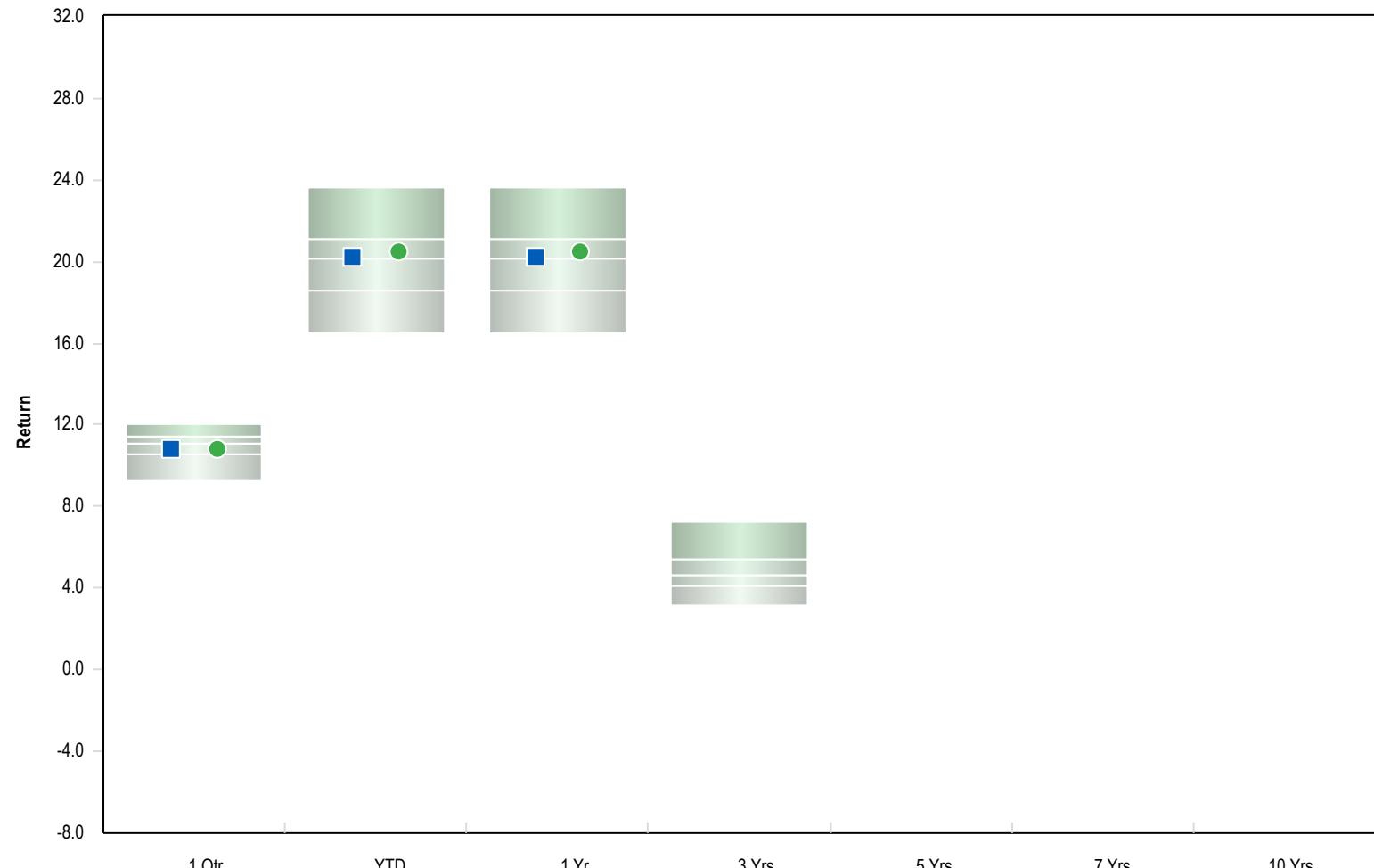


Up Down Market Capture



* Quarterly periodicity used.

Peer Group Analysis - IM Mixed-Asset Target 2065+ (MF)

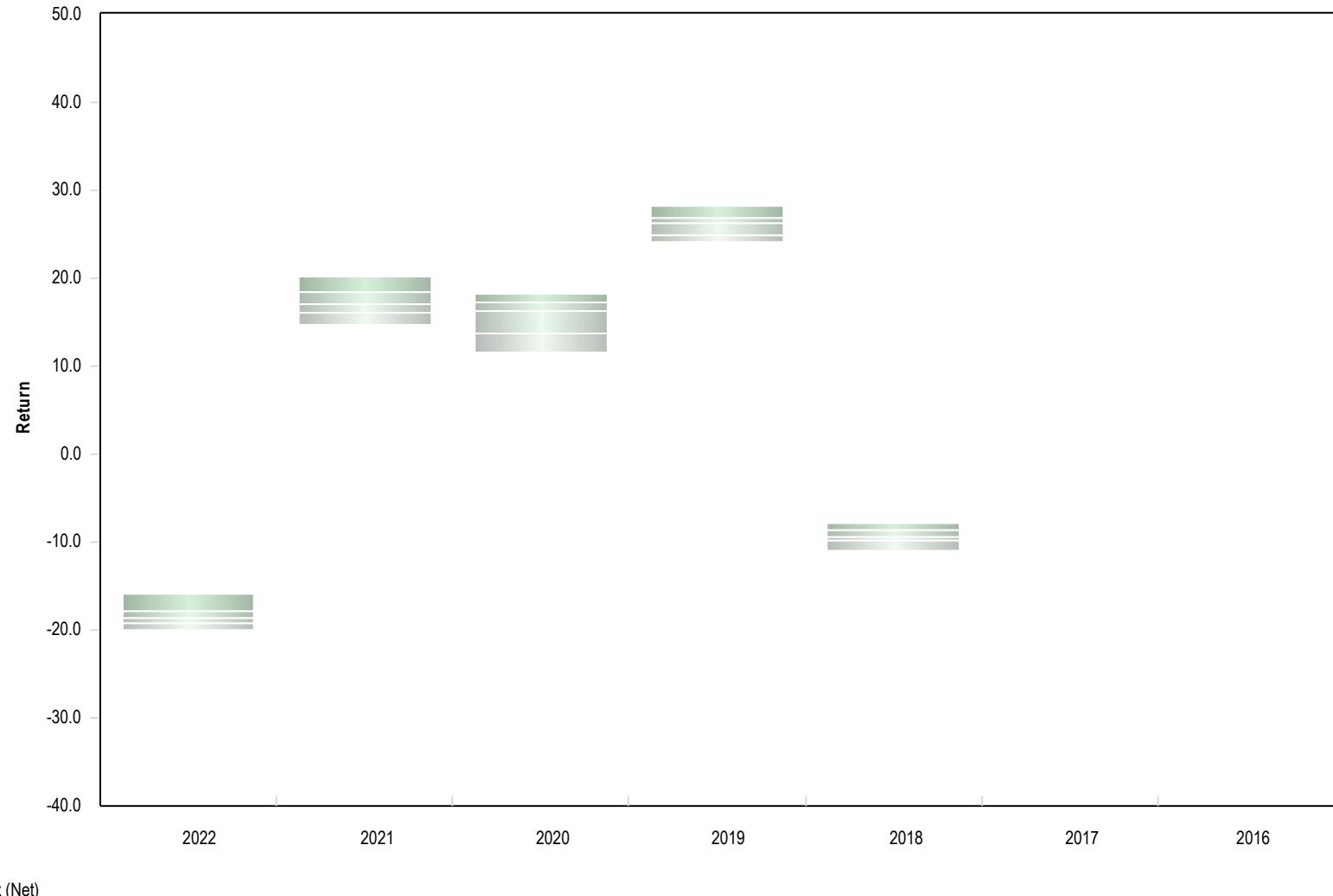


■ Vanguard Target Retirement 2070
● Vanguard Target 2070 Composite Index (Net)

	1 Qtr	YTD	1 Yr
Vanguard Target Retirement 2070	10.8 (63)	20.2 (49)	20.2 (49)
Vanguard Target 2070 Composite Index (Net)	10.8 (64)	20.5 (42)	20.5 (42)

	1 Qtr	YTD	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
5th Percentile	12.1	23.6	23.6	7.2			
1st Quartile	11.5	21.1	21.1	5.4			
Median	11.1	20.2	20.2	4.6			
3rd Quartile	10.5	18.6	18.6	4.1			
95th Percentile	9.3	16.5	16.5	3.2			

Peer Group Analysis - IM Mixed-Asset Target 2065+ (MF)



- Vanguard Target Retirement 2070
- Vanguard Target 2070 Composite Index (Net)

5th Percentile	-15.9	20.2	18.2	28.2	-7.9
1st Quartile	-17.9	18.5	17.3	26.9	-8.7
Median	-18.6	17.1	16.2	26.3	-9.4
3rd Quartile	-19.2	16.0	13.8	24.8	-9.8
95th Percentile	-19.9	14.7	11.5	24.1	-10.9

Fund Information

Fund Name :	Vanguard Chester Funds: Vanguard Target Retirement 2070 Fund; Investor Class Shares	Portfolio Assets :	\$394 Million
Fund Family :	Vanguard	Portfolio Manager :	Coleman/Nejman
Ticker :	VSVNX	PM Tenure :	2022–2022
Inception Date :	06/28/2022	Fund Style :	IM Mixed-Asset Target 2065+ (MF)
Fund Assets :	\$394 Million	Style Benchmark :	Vanguard Target 2070 Composite Index (Net)
Portfolio Turnover :	2%		

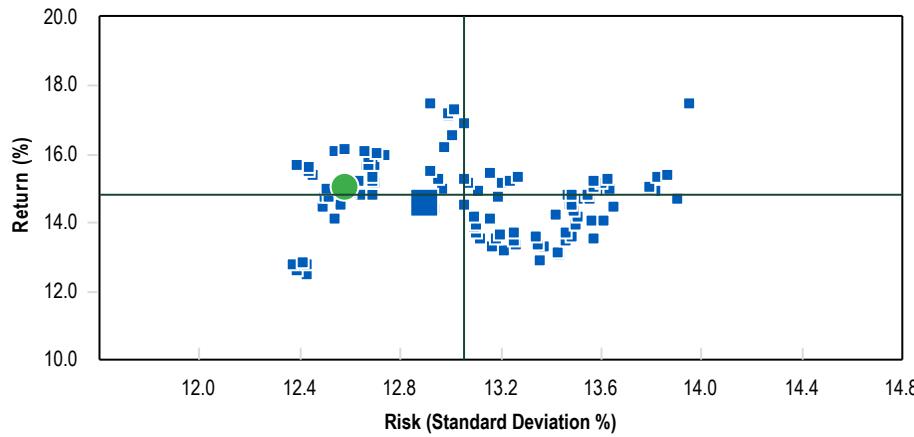
Fund Investment Policy

The Fund seeks to provide capital appreciation and current income consistent with its current asset allocation. The Fund invests in other Vanguard mutual funds according to an asset allocation strategy designed for investors planning to retire and leave the workforce in or within a few years of 2070.

Historical Statistics (07/01/22 - 12/31/23) *

	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Excess Risk	Inception Date
Vanguard Target Retirement 2070	14.6	12.9	0.8	-0.7	1.0	1.0	0.3	-1.0	12.6	07/01/2022
Vanguard Target 2070 Composite Index (Net)	15.0	12.6	0.9	0.0	1.0	1.0	0.0	0.0	12.3	07/01/2022
90 Day U.S. Treasury Bill	4.2	0.6		3.9	0.0	0.2	12.3	-0.9	0.0	07/01/2022

Peer Group Scattergram (07/01/22 to 12/31/23)



Up Down Market Capture

No data found.

	Return	Standard Deviation
Vanguard Target Retirement 2070	14.6	12.9
Vanguard Target 2070 Composite Index (Net)	15.0	12.6
Median	14.8	13.1

* Quarterly periodicity used.

S3 RATING REPORT

City of Memphis 457 Retirement Plan

S3 Reports as of December 31, 2023

Scoring System Summary

Ticker	Fund Name	Fund Category	Mar-2023	Jun-2023	Sep-2023	Dec-2023
PTTRX	PIMCO Total Return R	Intermediate-Term Bond	C	C	C	C
TGLMX	TCW Total Return Bond I	Intermediate-Term Bond	B	C	B	C
IVHIX	Delaware Ivy High Income	High Yield Bond	C	B	B	C
PRLX	Parnassus Core Equity Institutional	Large Blend	A	A	A	A
VINIX	Vanguard 500 Index	Large Blend	A	A	A	B
LOMAX	Edgar Lomax Value	Large Value	A	A	A	A
FCNTX	Fidelity Contrafund	Large Growth	A	A	A	A
VIMAX	Vanguard Mid Cap Index Adm	Mid-Cap Blend	A	A	A	A
FLMVX	JPMorgan Mid Cap Value R6	Mid-Cap Value	A	A	A	A
ERASX	Eaton Vance Atlanta Capital SMID	SMID-Cap	B	B	B	A
NBGIX	Neuberger Berman Genesis R6	Small Growth	A	A	A	A
HASCX	Harbor Small Cap Value	Small Value	A	A	A	A
BCSIX	Brown Capital Mgmt Small Co Inv	Small Growth	A	A	A	A
RERGX	American Funds Europacific Growth R6	Foreign Large Growth	A	A	A	A
MINJX	MFS International Value R3	Foreign Large Blend	A	A	A	A
OGLIX	American Funds Global Insight R6	World Stock	A	A	A	A
VGSLX	Vanguard REIT Index Adm	Real Estate	B	B	B	B
VTWNX	Vanguard Target Retirement 2020	Target Date 2020	A	A	A	A
VTTVX	Vanguard Target Retirement 2025	Target Date 2025	A	A	A	A
VTHRX	Vanguard Target Retirement 2030	Target Date 2030	A	A	A	A
VTTHX	Vanguard Target Retirement 2035	Target Date 2035	A	A	A	A
VFORX	Vanguard Target Retirement 2040	Target Date 2040	A	A	A	A
VTIVX	Vanguard Target Retirement 2045	Target Date 2045	A	A	A	A
VFIFX	Vanguard Target Retirement 2050	Target Date 2050	A	A	A	A
VFFVX	Vanguard Target Retirement 2055	Target Date 2055	A	A	A	A
VTTSX	Vanguard Target Retirement 2060	Target Date 2060+	A	A	A	A
VTTSX	Vanguard Target Retirement 2060	Target Date 2060+	A	A	A	A
VLVX	Vanguard Target Retirement 2065	Target Date 2065	A	A	A	A
VSVNX	Vanguard Target Retirement 2070	Target Date 2065+	N/A	N/A	N/A	N/A
VTINX	Vanguard Target Retirement Income	Target Date Retirement	A	A	A	A

PIMCO Total Return R

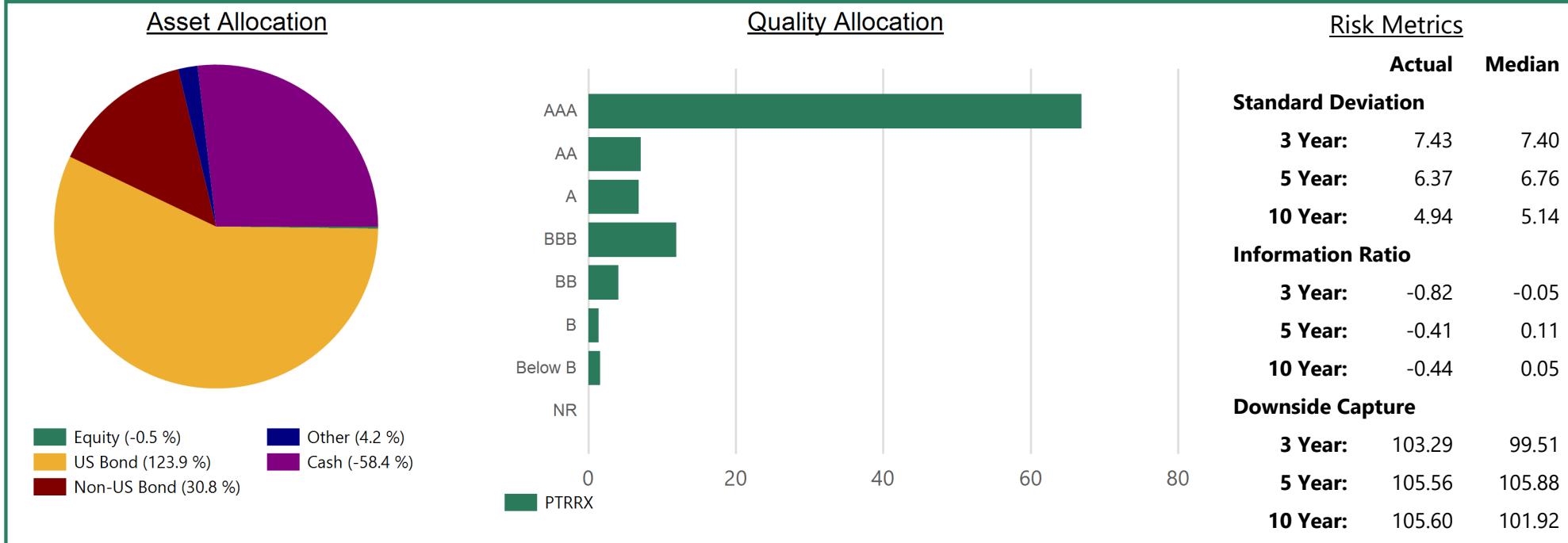
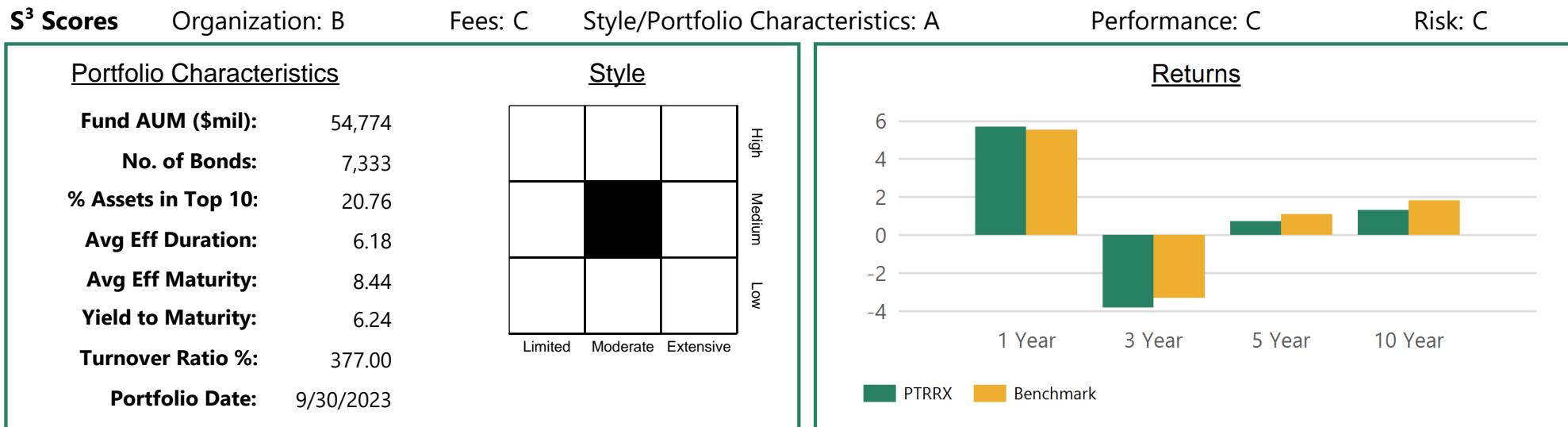
Segal Score

Ticker: PTRRX
Expense Ratio: 1.08

Category: Intermediate Core-Plus Bond
Benchmark: Bloomberg US Agg Bond

Subcategory: Intermediate Investment Grade (4-6)
Inception Date: 5/11/1987

C



TCW Total Return Bond I

Segal Score

C

Ticker: TGLMX

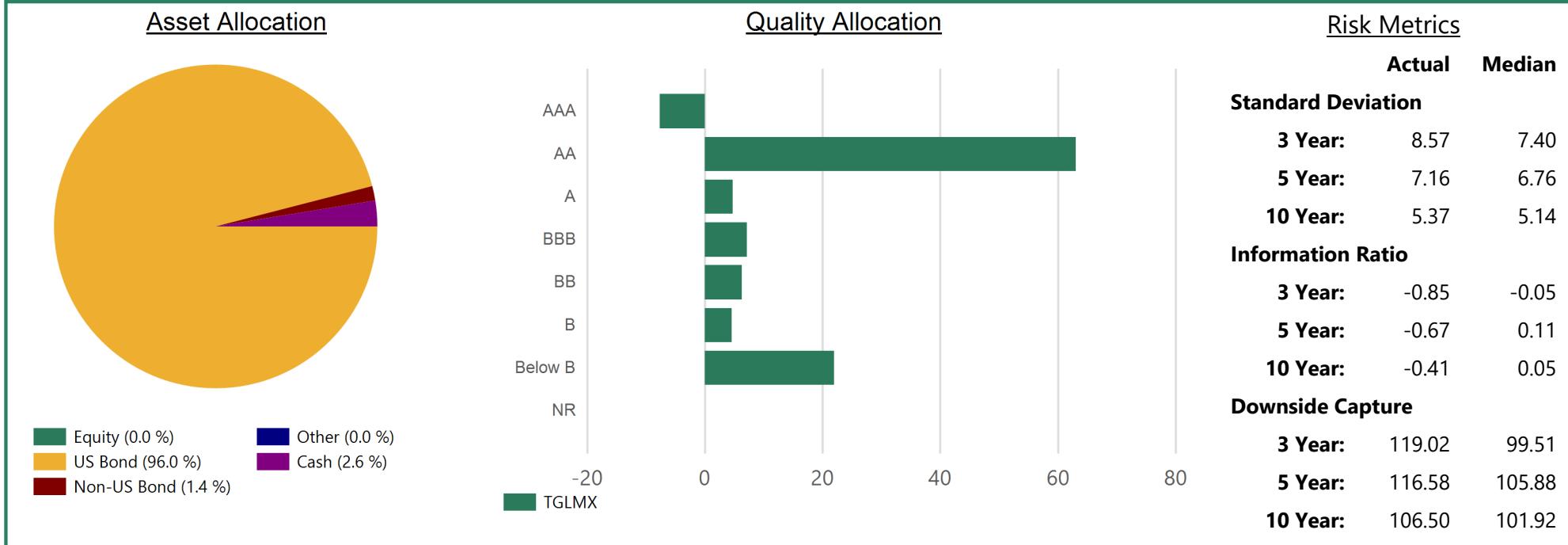
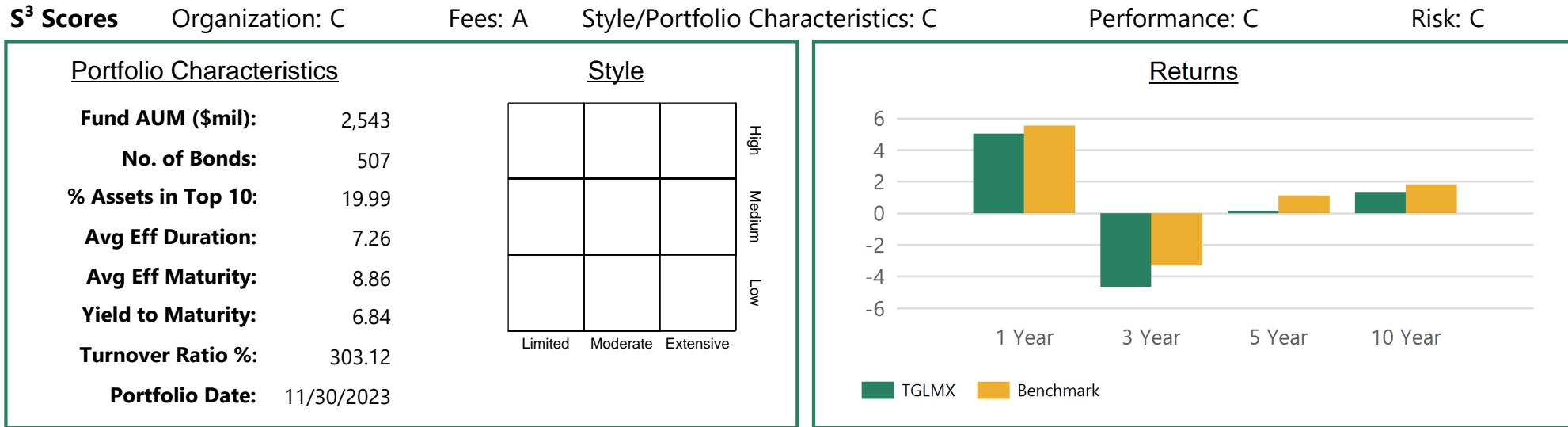
Category: Intermediate Core-Plus Bond

Expense Ratio: 0.49

Benchmark: Bloomberg US Agg Bond

Subcategory: Mortgage-Backed

Inception Date: 6/17/1993



Delaware Ivy High Income Fund Class I

Segal Score

C

Ticker: IVHIX

Category: High Yield Bond

Expense Ratio: 0.72

Benchmark: ICE BofA US High Yield

Subcategory: High Yield Bond

Inception Date: 7/31/1997

S³ Scores

Organization: C

Fees: B

Style/Portfolio Characteristics: B

Performance: A

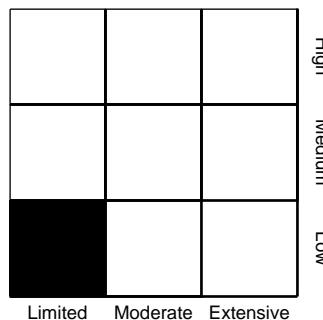
Risk: B

Portfolio Characteristics

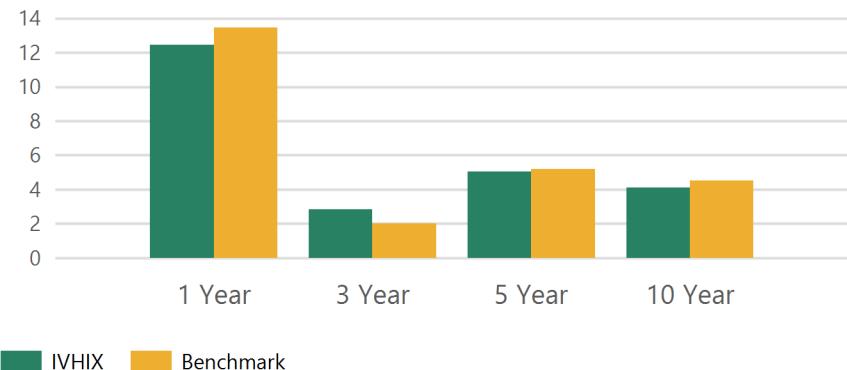
Fund AUM (\$mil):	2,395
No. of Bonds:	183
% Assets in Top 10:	13.26
Avg Eff Duration:	3.27
Avg Eff Maturity:	6.74
Yield to Maturity:	9.47
Turnover Ratio %:	50.00

Portfolio Date: 11/30/2023

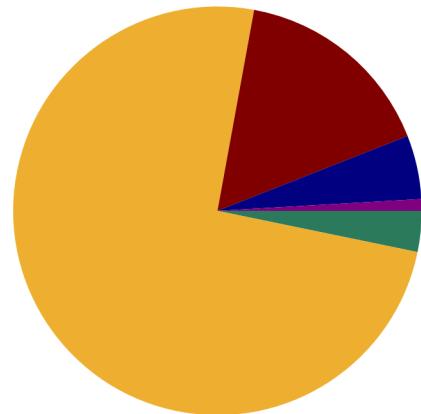
Style



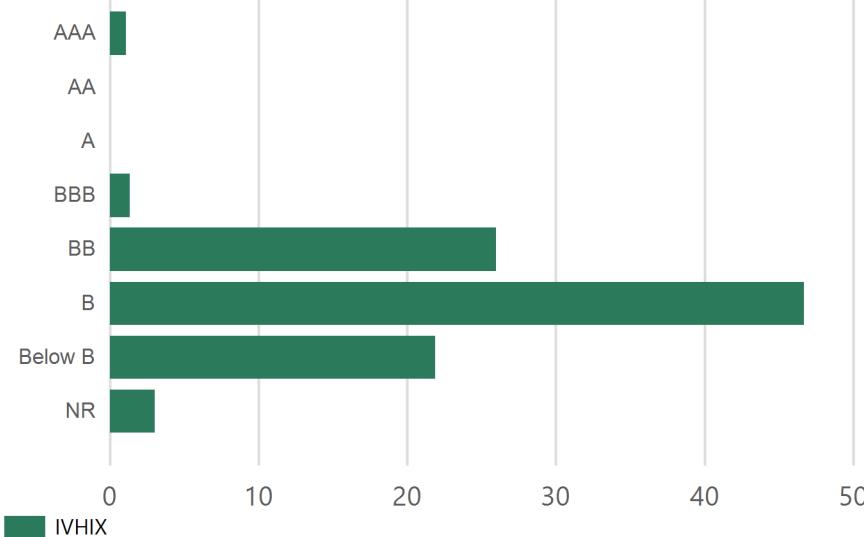
Returns



Asset Allocation



Quality Allocation



Risk Metrics

Actual Median

Standard Deviation

3 Year:	9.03	8.21
5 Year:	10.83	9.46
10 Year:	8.55	7.51

Information Ratio

3 Year:	0.31	-0.22
5 Year:	-0.05	-0.27
10 Year:	-0.17	-0.39

Downside Capture

3 Year:	88.05	96.46
5 Year:	98.84	97.22
10 Year:	99.99	97.47

Parnassus Core Equity Institutional

Segal Score

A

Ticker: PRILX

Category: Large Blend

Expense Ratio: 0.61

Benchmark: S&P 500

Subcategory: Large Core

Inception Date: 8/31/1992

S³ Scores

Organization: A

Fees: A

Style/Portfolio Characteristics: A

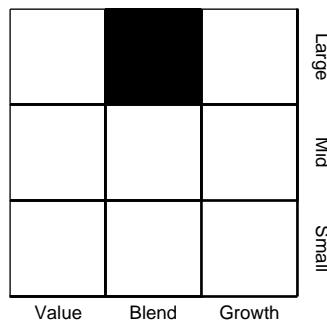
Performance: A

Risk: A

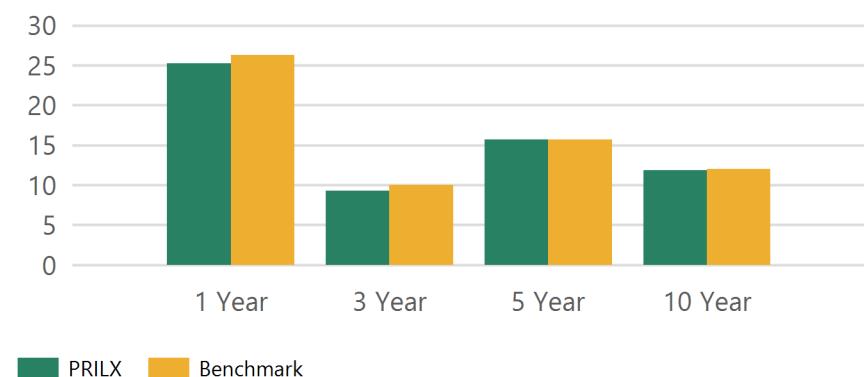
Portfolio Characteristics

Fund AUM (\$mil):	27,806
No. of Stocks:	40
% Assets in Top 10:	41.81
Avg Market Cap (\$mil):	210,407.11
P/E Ratio (TTM)(Long):	24.75
P/B Ratio (TTM)(Long):	4.57
Turnover Ratio %:	39.63
Portfolio Date:	12/31/2023

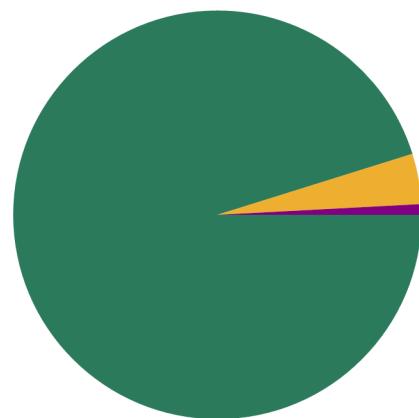
Style



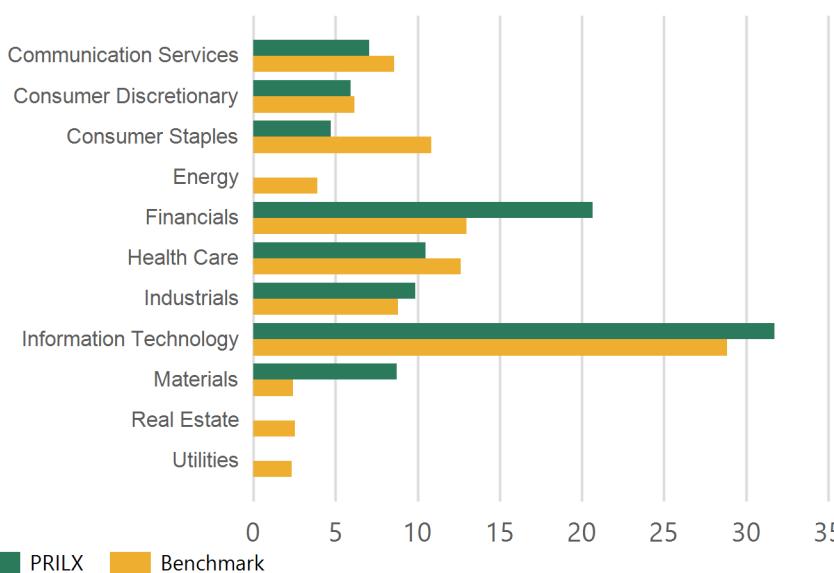
Returns



Asset Allocation



Sector Allocation



Risk Metrics

Actual Median

Standard Deviation

3 Year:	17.32	17.43
5 Year:	17.25	18.52
10 Year:	14.10	15.21

Information Ratio

3 Year:	-0.29	-0.38
5 Year:	0.01	-0.38
10 Year:	-0.05	-0.44

Downside Capture

3 Year:	99.41	98.83
5 Year:	90.63	100.20
10 Year:	90.07	101.11

Vanguard Institutional Index I

Segal Score

B

Ticker: VINIX

Category: Large Blend

Expense Ratio: 0.04

Benchmark: S&P 500

Subcategory: S&P 500 Tracking

Inception Date: 7/31/1990

S³ Scores

Organization: C

Fees: A

Style/Portfolio Characteristics: B

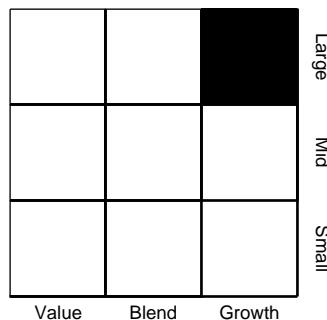
Performance: A

Risk: C

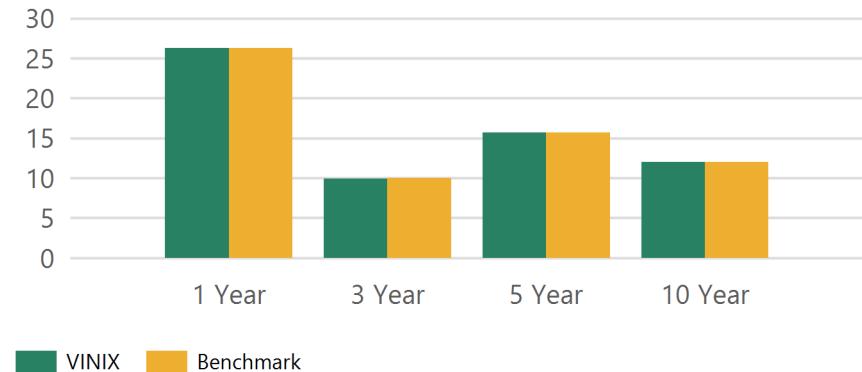
Portfolio Characteristics

Fund AUM (\$mil):	265,415
No. of Stocks:	503
% Assets in Top 10:	30.83
Avg Market Cap (\$mil):	241,720.80
P/E Ratio (TTM)(Long):	23.61
P/B Ratio (TTM)(Long):	4.19
Turnover Ratio %:	3.00
Portfolio Date:	12/31/2023

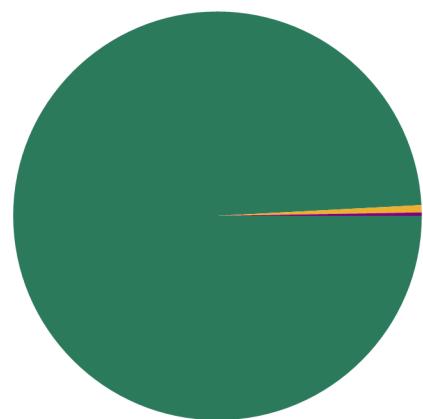
Style



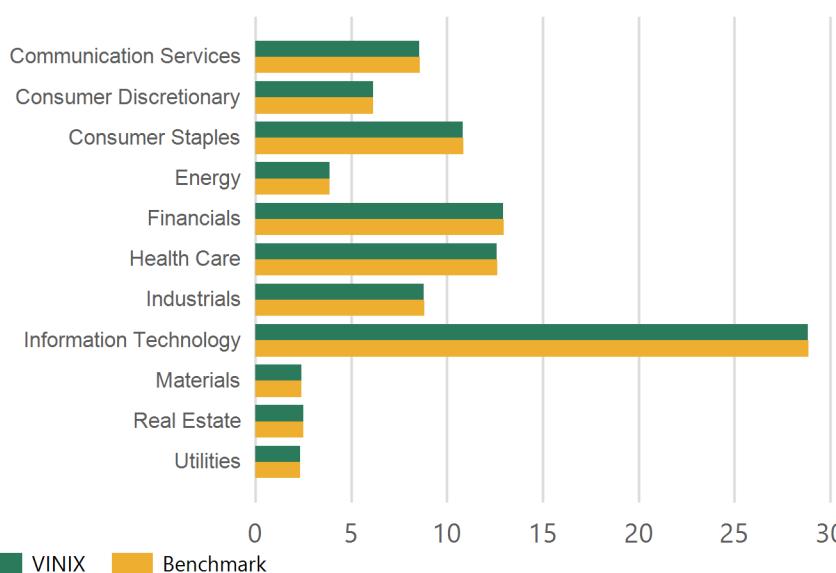
Returns



Asset Allocation



Sector Allocation



Risk Metrics

Actual Median

Standard Deviation

3 Year:	17.54	17.43
5 Year:	18.52	18.52
10 Year:	15.19	15.21

Information Ratio

3 Year:	-4.44	-0.38
5 Year:	-2.27	-0.38
10 Year:	-2.75	-0.44

Downside Capture

3 Year:	100.07	98.83
5 Year:	100.05	100.20
10 Year:	100.06	101.11

Edgar Lomax Value

Segal Score

A

Ticker: LOMAX

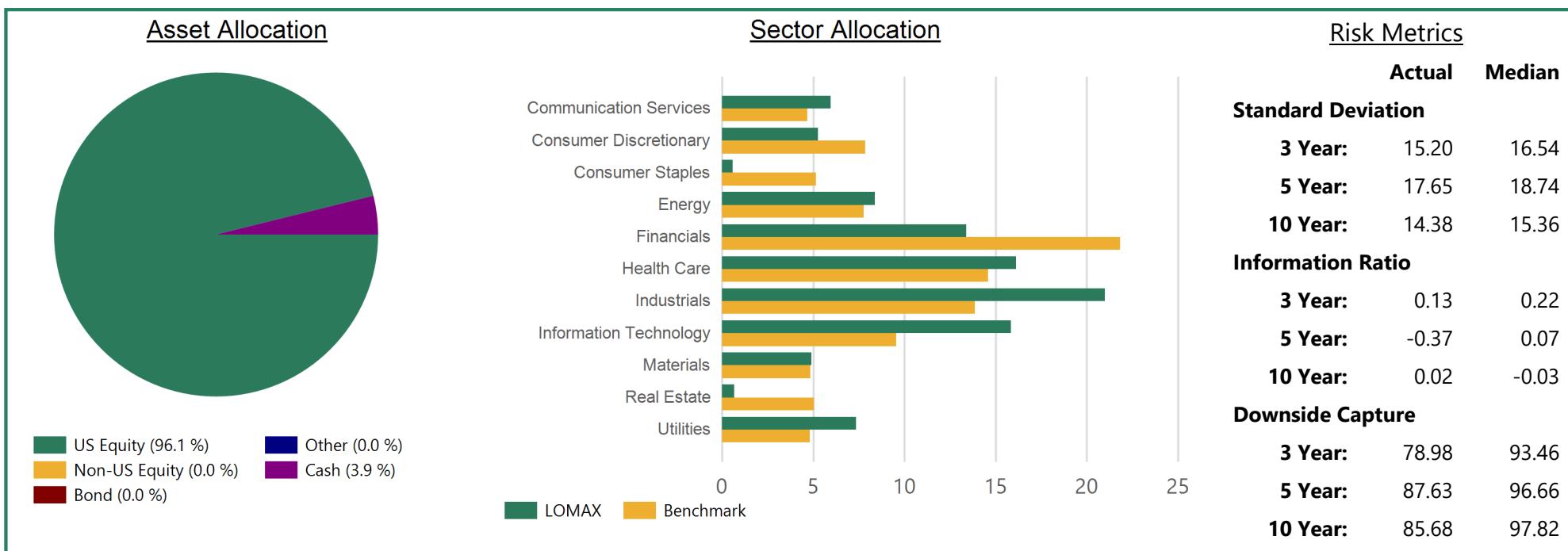
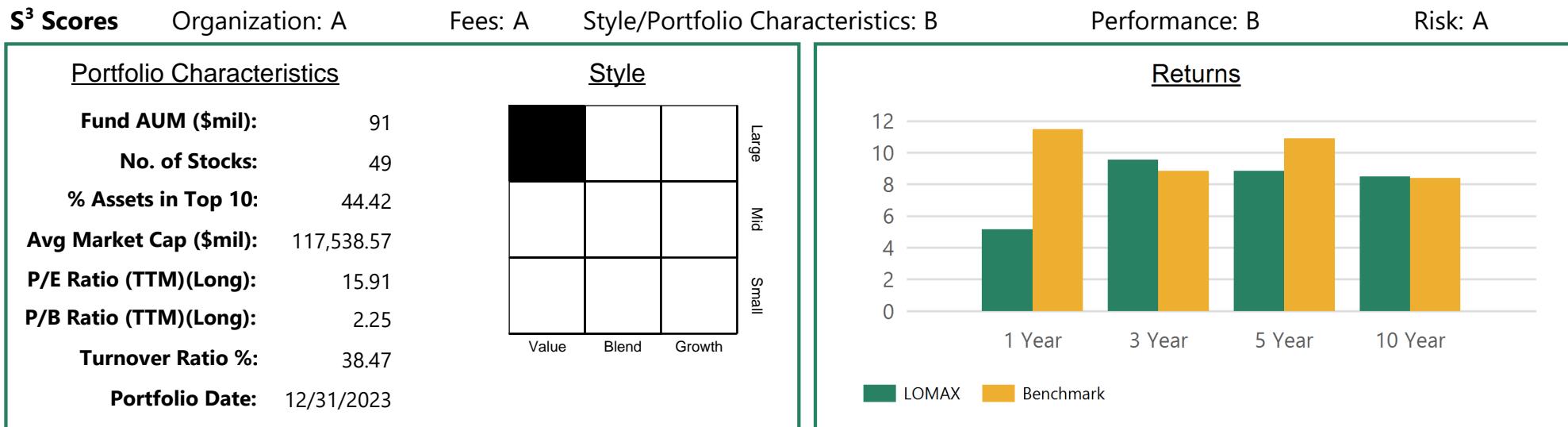
Category: Large Value

Expense Ratio: 0.70

Benchmark: Russell 1000 Value

Subcategory: Giant Value

Inception Date: 12/12/1997



Fidelity® Contrafund®

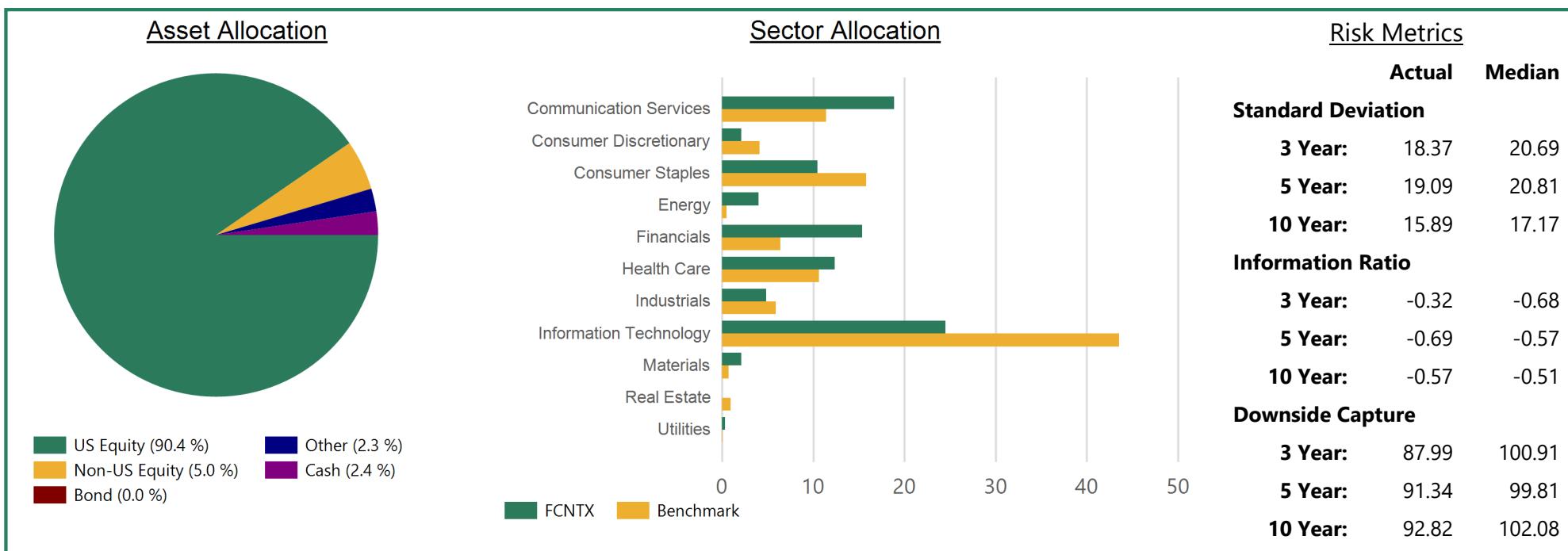
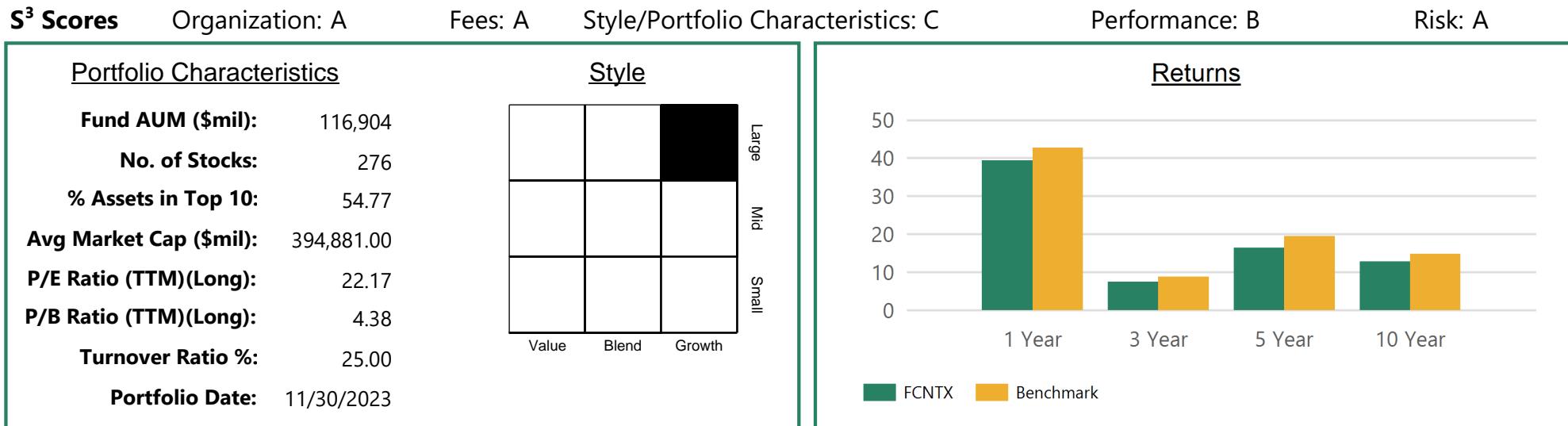
Segal Score

Ticker: FCNTX
Expense Ratio: 0.55

Category: Large Growth
Benchmark: Russell 1000 Growth

Subcategory: Large Core Growth
Inception Date: 5/17/1967

A



Vanguard Mid Cap Index Admiral

Segal Score

A

Ticker: VIMAX

Category: Mid-Cap Blend

Expense Ratio: 0.05

Benchmark: Russell Mid Cap

Subcategory: Mid Core

Inception Date: 5/21/1998

S³ Scores

Organization: C

Fees: A

Style/Portfolio Characteristics: A

Performance: A

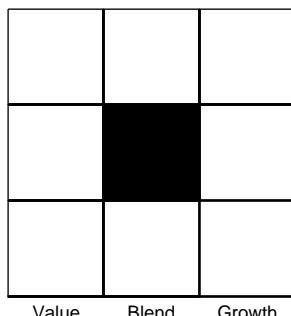
Risk: A

Portfolio Characteristics

Fund AUM (\$mil): 155,462

Style

No. of Stocks: 333



% Assets in Top 10: 7.52

Large
Mid
Small

Avg Market Cap (\$mil): 27,666.99

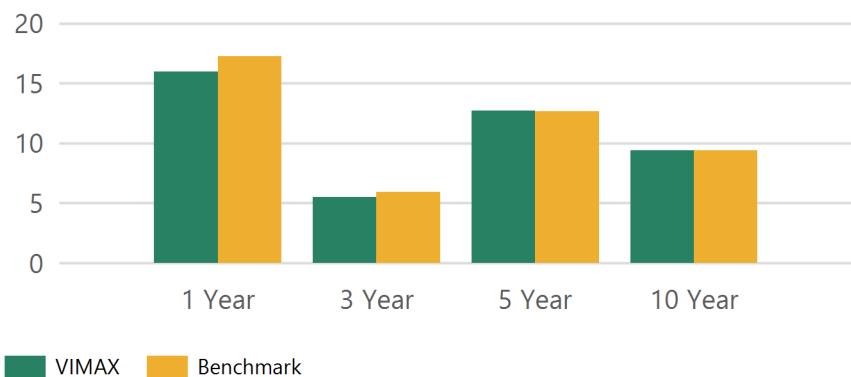
P/E Ratio (TTM)(Long): 20.42

P/B Ratio (TTM)(Long): 2.95

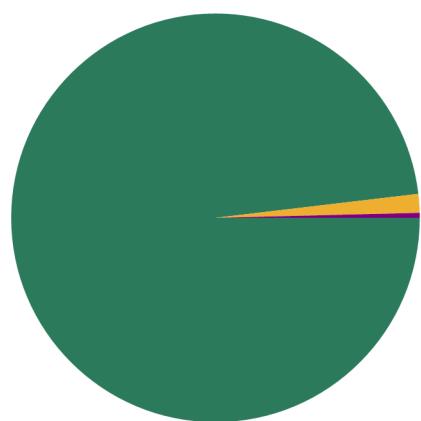
Turnover Ratio %: 12.00

Portfolio Date: 12/31/2023

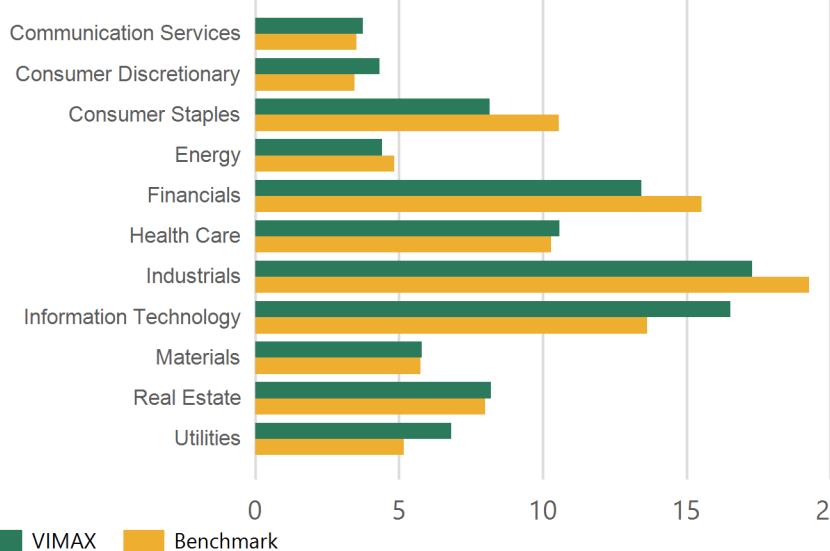
Returns



Asset Allocation



Sector Allocation



Risk Metrics

Actual Median

Standard Deviation

Period	Actual	Median
3 Year	19.20	19.03
5 Year	21.13	21.14
10 Year	17.04	17.24

Information Ratio

Period	Actual	Median
3 Year	-0.29	0.19
5 Year	0.02	-0.11
10 Year	-0.01	-0.22

Downside Capture

Period	Actual	Median
3 Year	99.91	94.47
5 Year	98.04	99.71
10 Year	98.39	100.63

JPMorgan Mid Cap Value R6

Segal Score

A

Ticker: JMVYX

Category: Mid-Cap Value

Expense Ratio: 0.65

Benchmark: Russell Mid Cap Value

Subcategory: Mid Core Value

Inception Date: 11/13/1997

S³ Scores

Organization: A

Fees: A

Style/Portfolio Characteristics: B

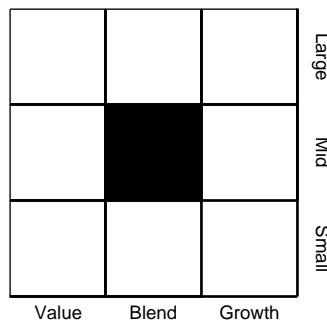
Performance: B

Risk: A

Portfolio Characteristics

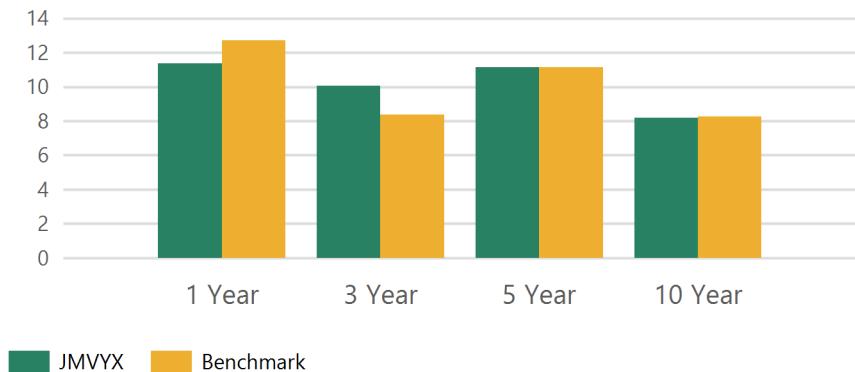
Fund AUM (\$mil):	13,202
No. of Stocks:	100
% Assets in Top 10:	17.33
Avg Market Cap (\$mil):	15,622.36
P/E Ratio (TTM)(Long):	14.73
P/B Ratio (TTM)(Long):	2.14
Turnover Ratio %:	12.00
Portfolio Date:	11/30/2023

Style

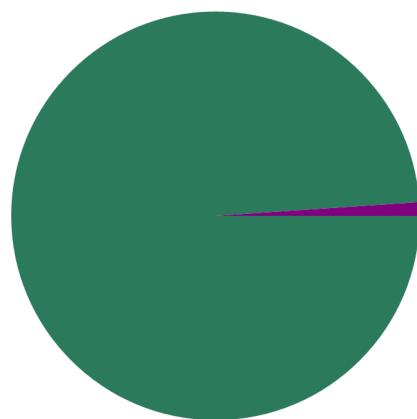


Value Blend Growth

Returns

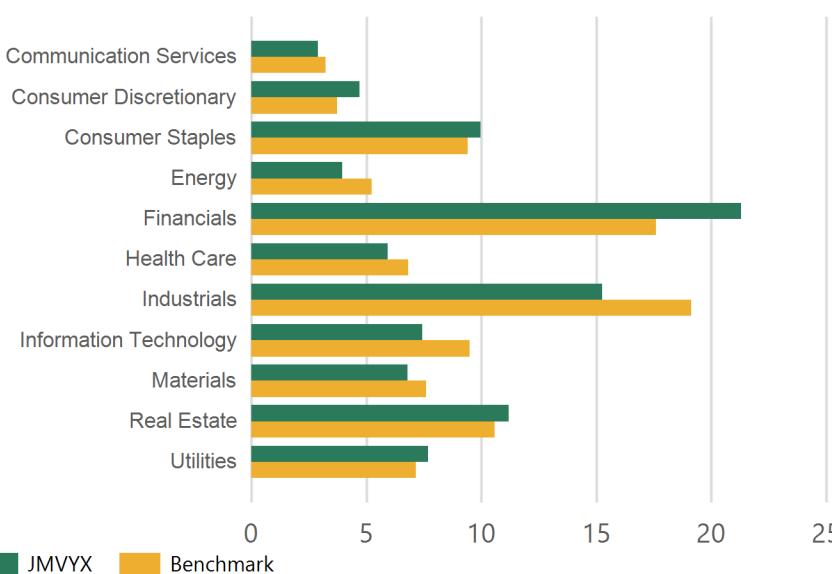


Asset Allocation



US Equity (98.9 %)
Non-US Equity (0.0 %)
Bond (0.0 %)
Cash (1.1 %)
Other (0.0 %)

Sector Allocation



JMVYX Benchmark

Risk Metrics

Actual Median

Standard Deviation

3 Year:	18.21	18.87
5 Year:	21.21	22.02
10 Year:	16.87	17.95

Information Ratio

3 Year:	0.69	0.40
5 Year:	-0.01	0.03
10 Year:	-0.04	-0.13

Downside Capture

3 Year:	86.88	89.84
5 Year:	92.55	95.72
10 Year:	92.12	100.13

Eaton Vance Atlanta Capital SMID-Cap A

Segal Score

A

Ticker: EAASX

Category: Mid-Cap Blend

Expense Ratio: 1.14

Benchmark: Russell Mid Cap

Subcategory: Mid Core

Inception Date: 4/30/2002

S³ Scores

Organization: A

Fees: C

Style/Portfolio Characteristics: B

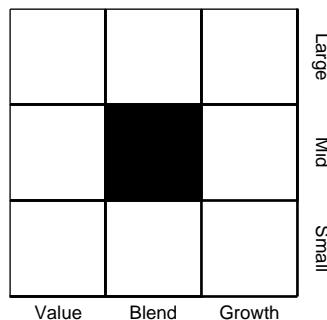
Performance: B

Risk: A

Portfolio Characteristics

Fund AUM (\$mil):	12,216
No. of Stocks:	53
% Assets in Top 10:	32.62
Avg Market Cap (\$mil):	10,592.03
P/E Ratio (TTM)(Long):	21.50
P/B Ratio (TTM)(Long):	3.24
Turnover Ratio %:	14.00
Portfolio Date:	11/30/2023

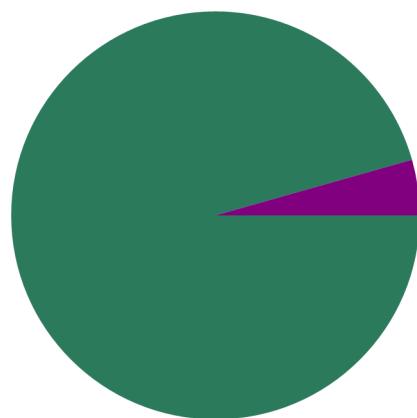
Style



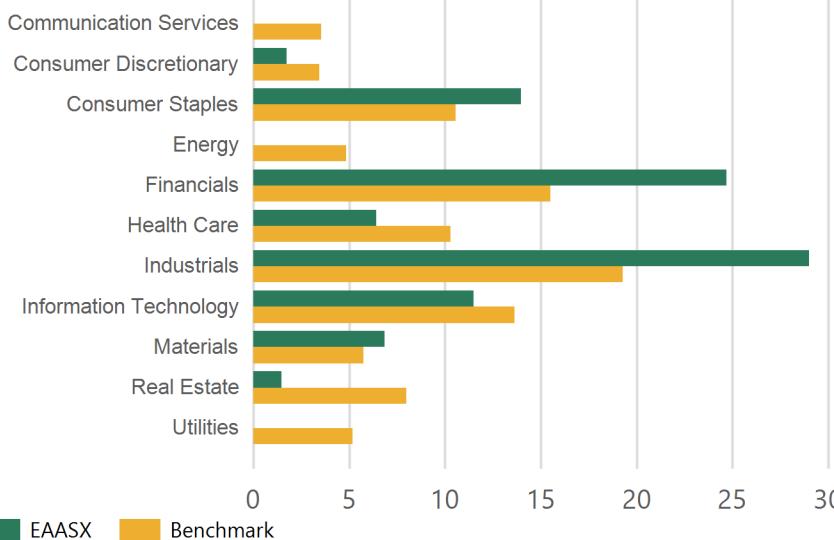
Returns



Asset Allocation



Sector Allocation



Risk Metrics

Actual Median

Standard Deviation

3 Year:	17.69	19.03
5 Year:	20.07	21.14
10 Year:	16.69	17.24

Information Ratio

3 Year:	0.41	0.19
5 Year:	0.12	-0.11
10 Year:	0.26	-0.22

Downside Capture

3 Year:	87.04	94.47
5 Year:	89.62	99.71
10 Year:	93.17	100.63

Neuberger Berman Genesis R6

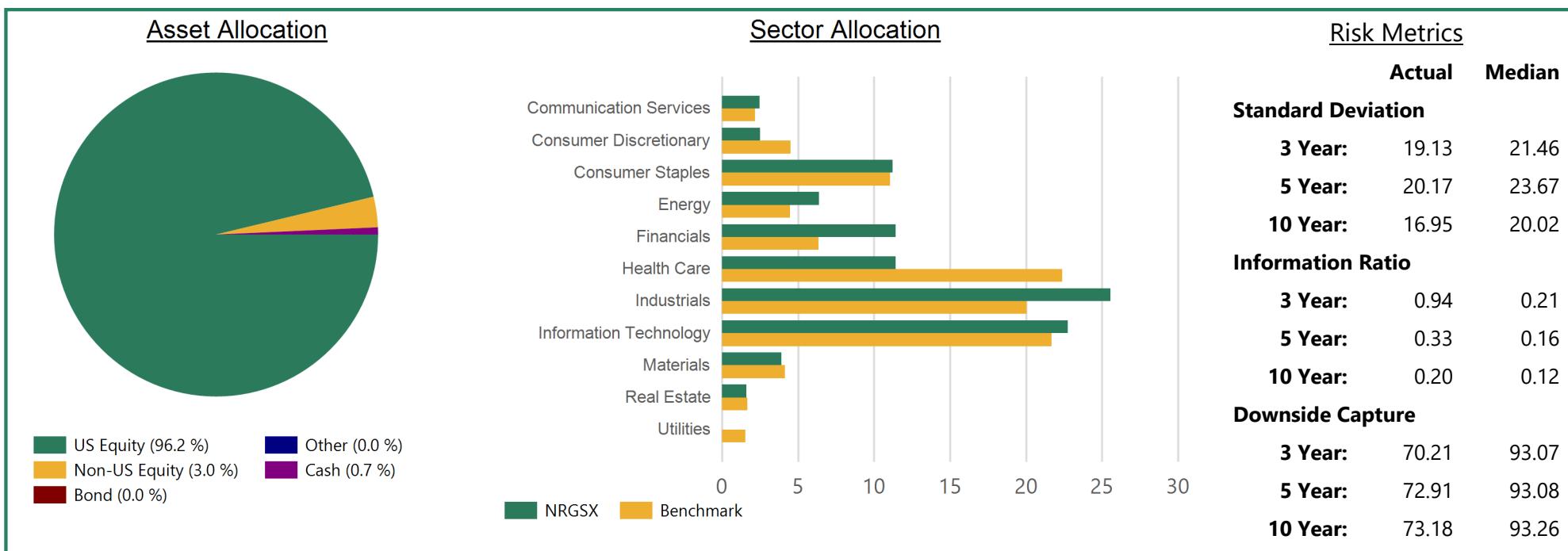
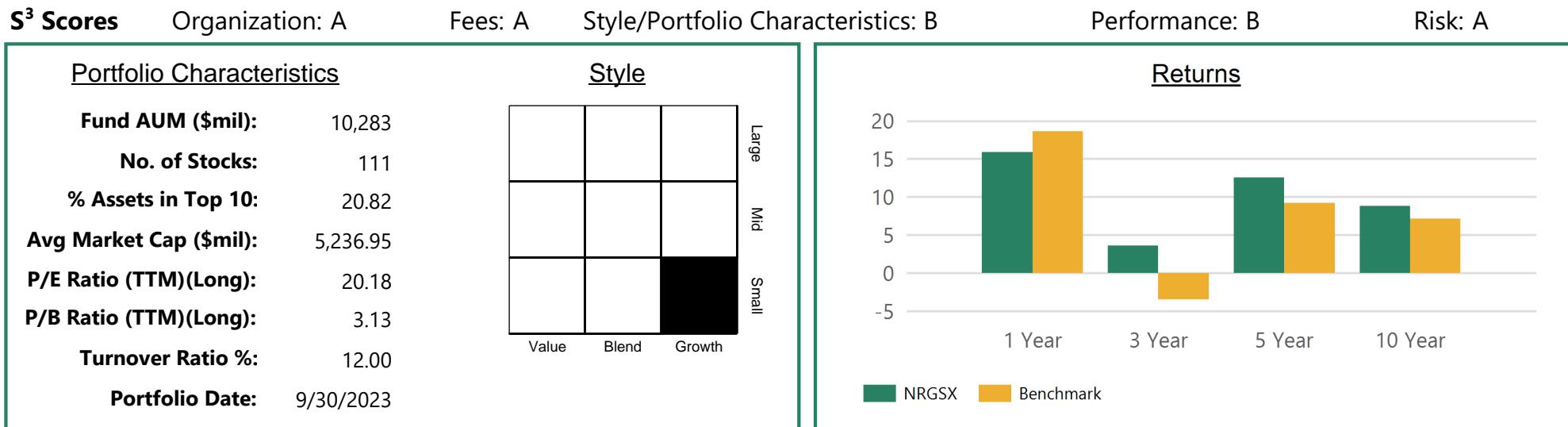
Segal Score

Ticker: NRGSX
Expense Ratio: 0.74

Category: Small Growth
Benchmark: Russell 2000 Growth

Subcategory: Small Core Growth
Inception Date: 9/27/1988

A



Harbor Small Cap Value Instl

Segal Score

A

Ticker: HASCX

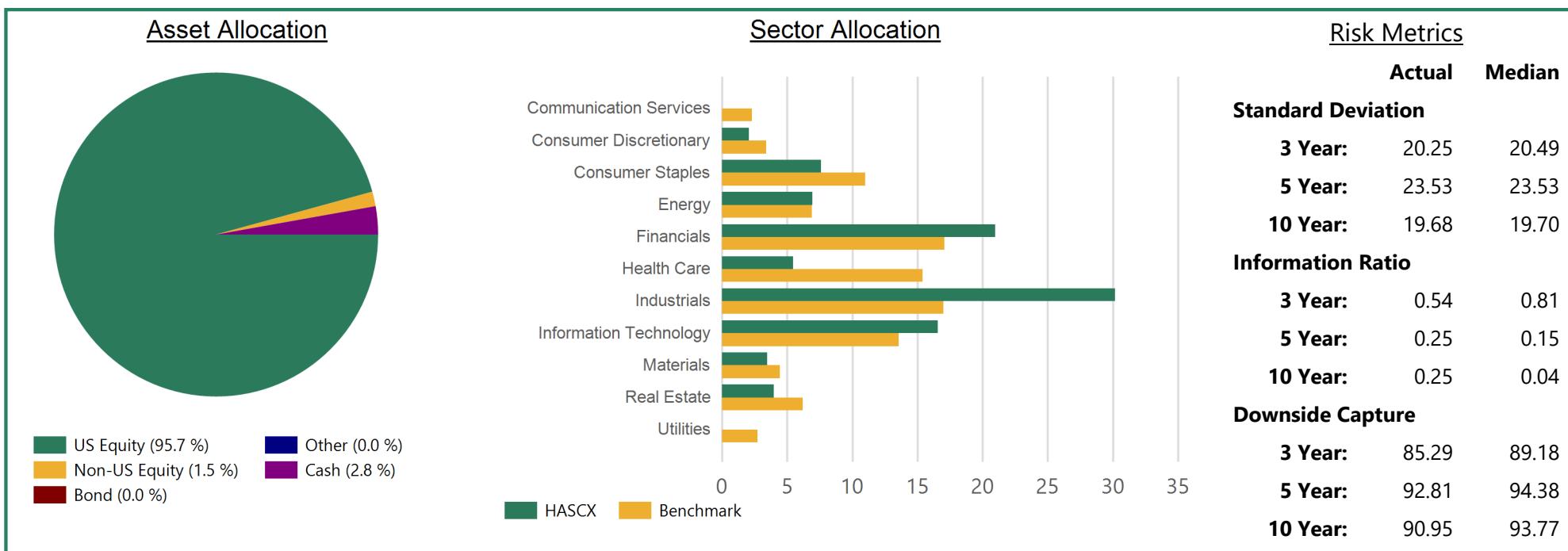
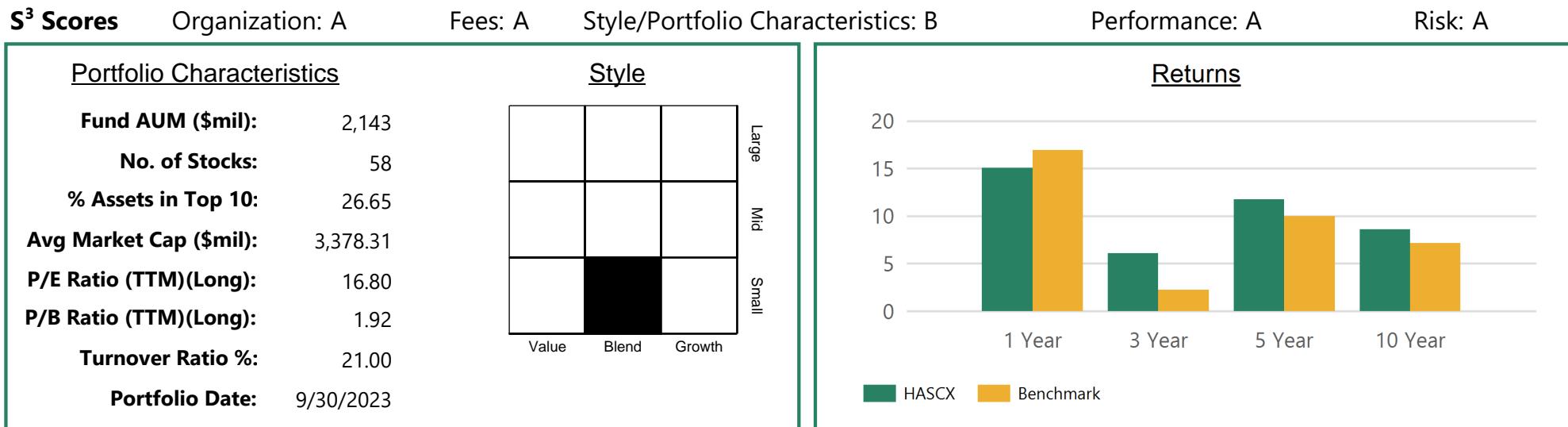
Category: Small Blend

Expense Ratio: 0.88

Benchmark: Russell 2000

Subcategory: Small Core

Inception Date: 12/14/2001



Brown Capital Mgmt Small Co Instl

Segal Score

A

Ticker: BCSSX

Category: Small Growth

Expense Ratio: 1.08

Benchmark: Russell 2000 Growth

Subcategory: Small High Growth

Inception Date: 7/23/1992

S³ Scores

Organization: A

Fees: B

Style/Portfolio Characteristics: A

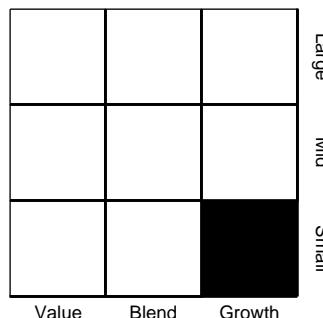
Performance: A

Risk: C

Portfolio Characteristics

Fund AUM (\$mil):	3,462
No. of Stocks:	38
% Assets in Top 10:	48.68
Avg Market Cap (\$mil):	5,753.23
P/E Ratio (TTM)(Long):	49.46
P/B Ratio (TTM)(Long):	4.92
Turnover Ratio %:	22.00
Portfolio Date:	9/30/2023

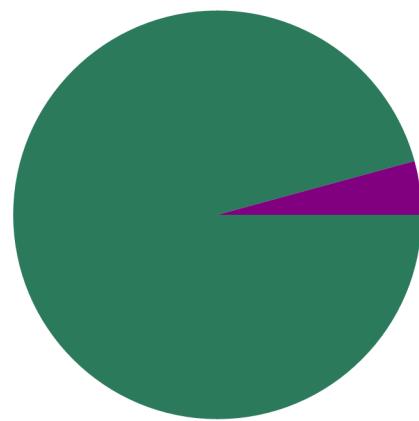
Style



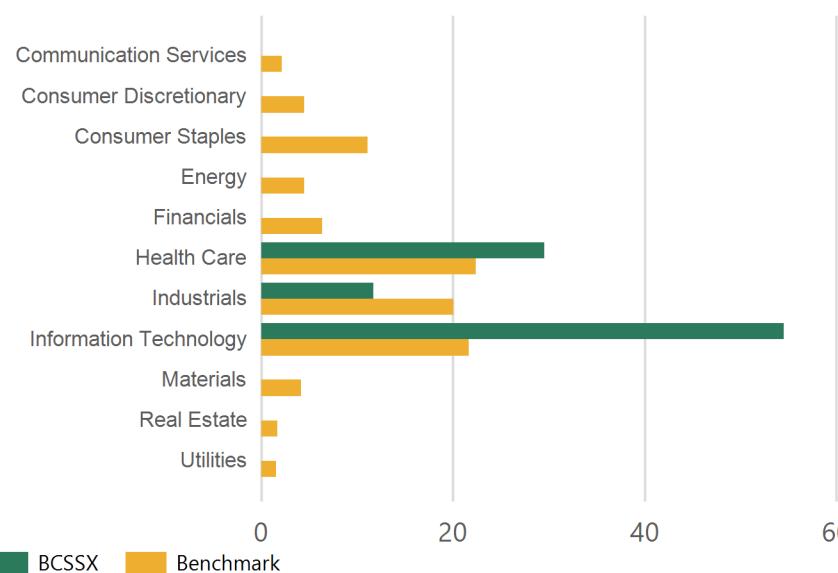
Returns



Asset Allocation



Sector Allocation



Risk Metrics

Actual Median

Standard Deviation

3 Year:	22.68	21.46
5 Year:	23.84	23.67
10 Year:	20.73	20.02

Information Ratio

3 Year:	-0.89	0.21
5 Year:	-0.27	0.16
10 Year:	0.05	0.12

Downside Capture

3 Year:	111.56	93.07
5 Year:	97.63	93.08
10 Year:	90.94	93.26

American Funds Europacific Growth R6

Segal Score

A

Ticker: RERGX

Category: Foreign Large Growth

Expense Ratio: 0.47

Benchmark: MSCI EAFE Growth

Subcategory: Foreign Large Growth

Inception Date: 4/16/1984

S³ Scores

Organization: A

Fees: A

Style/Portfolio Characteristics: A

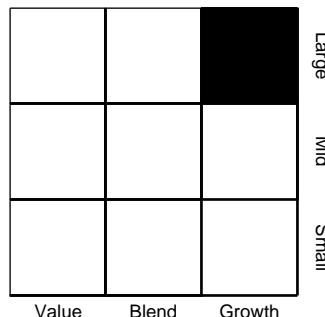
Performance: B

Risk: B

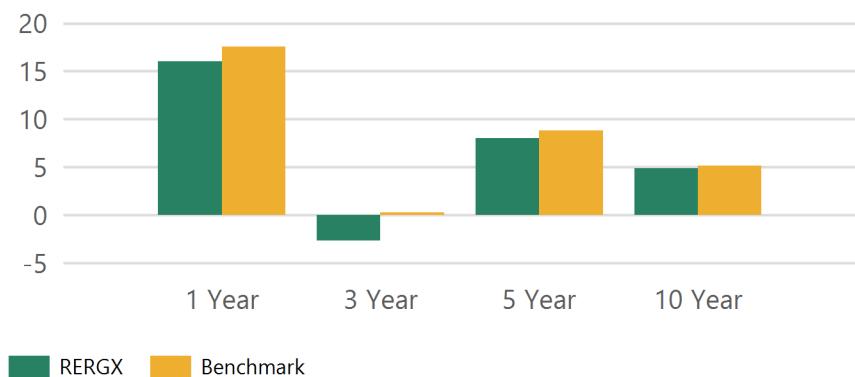
Portfolio Characteristics

Fund AUM (\$mil):	135,839
No. of Stocks:	343
% Assets in Top 10:	22.47
Avg Market Cap (\$mil):	56,542.32
P/E Ratio (TTM)(Long):	18.39
P/B Ratio (TTM)(Long):	2.79
Turnover Ratio %:	34.00
Portfolio Date:	9/30/2023

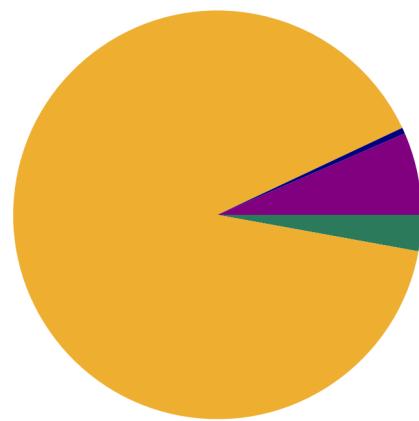
Style



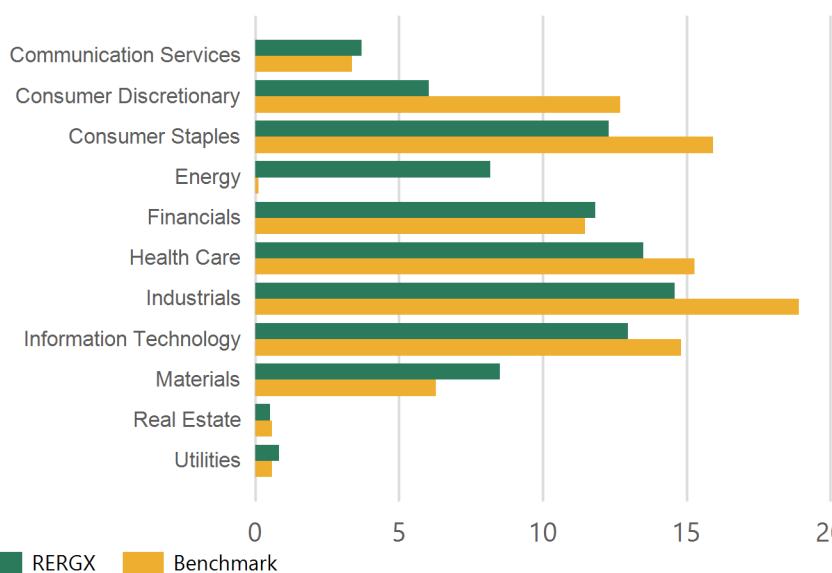
Returns



Asset Allocation



Sector Allocation



Risk Metrics

Actual Median

Standard Deviation

3 Year:	17.92	19.38
5 Year:	19.23	19.23
10 Year:	15.76	15.97

Information Ratio

3 Year:	-0.72	-0.57
5 Year:	-0.12	-0.10
10 Year:	-0.05	-0.08

Downside Capture

3 Year:	94.10	99.93
5 Year:	102.53	102.36
10 Year:	97.53	99.30

MFS International Intrinsic Value R3

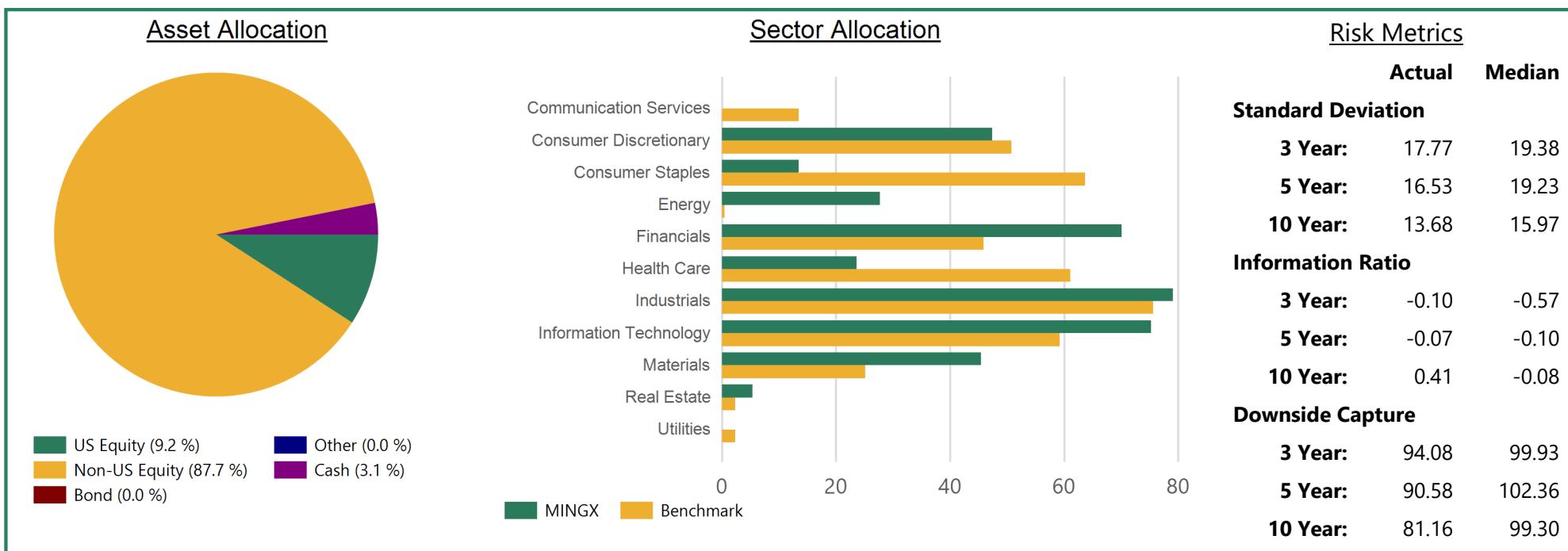
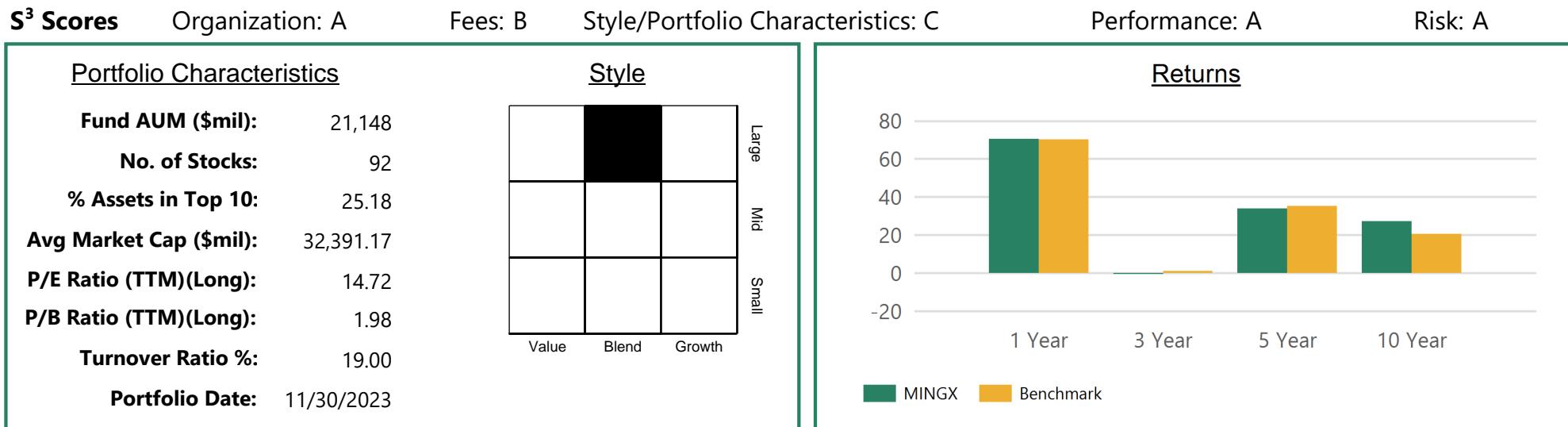
Segal Score

Ticker: MINGX
Expense Ratio: 1.03

Category: Foreign Large Growth
Benchmark: MSCI EAFE Growth

Subcategory: Foreign Large Growth
Inception Date: 10/24/1995

A



American Funds Global Insight R-6

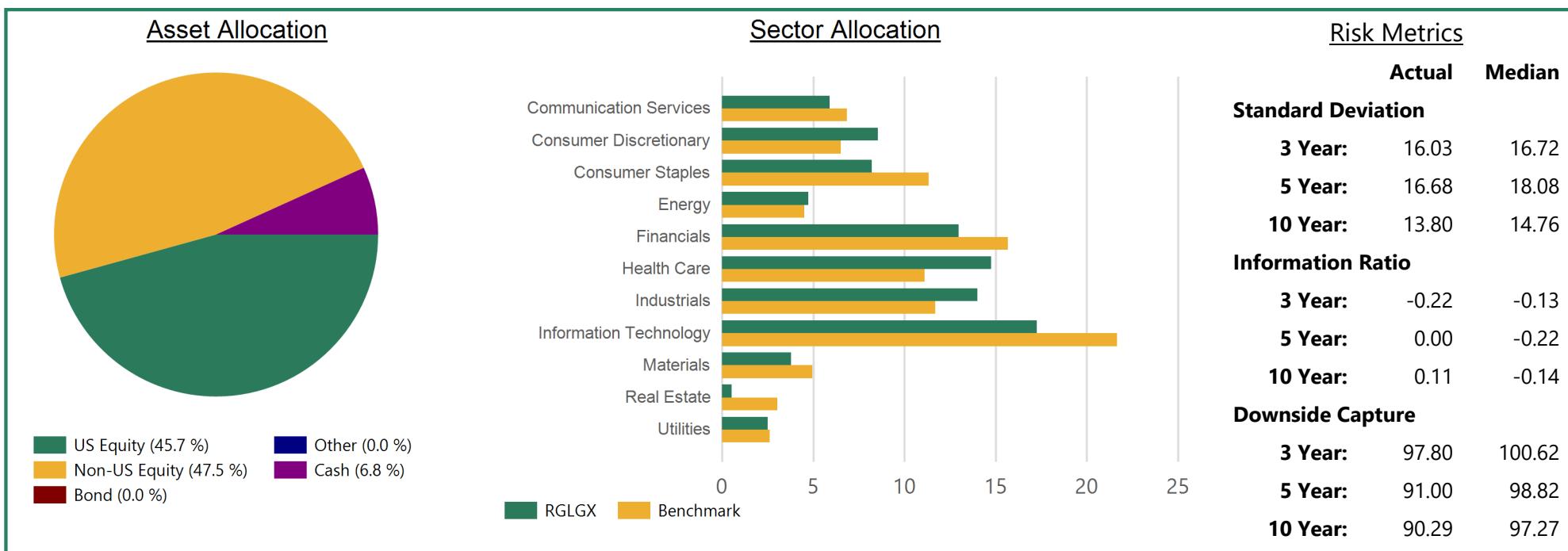
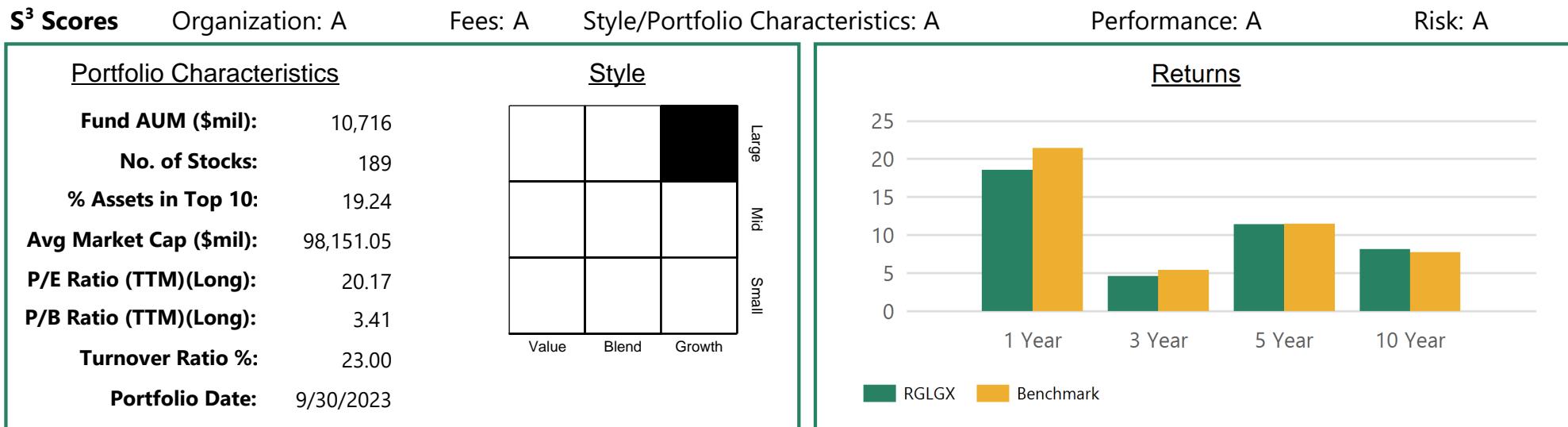
Segal Score

Ticker: RGLGX
Expense Ratio: 0.46

Category: Global Large-Stock Blend
Benchmark: MSCI ACWI All Cap

Subcategory: World Large Core
Inception Date: 4/1/2011

A



Vanguard Real Estate Index Admiral

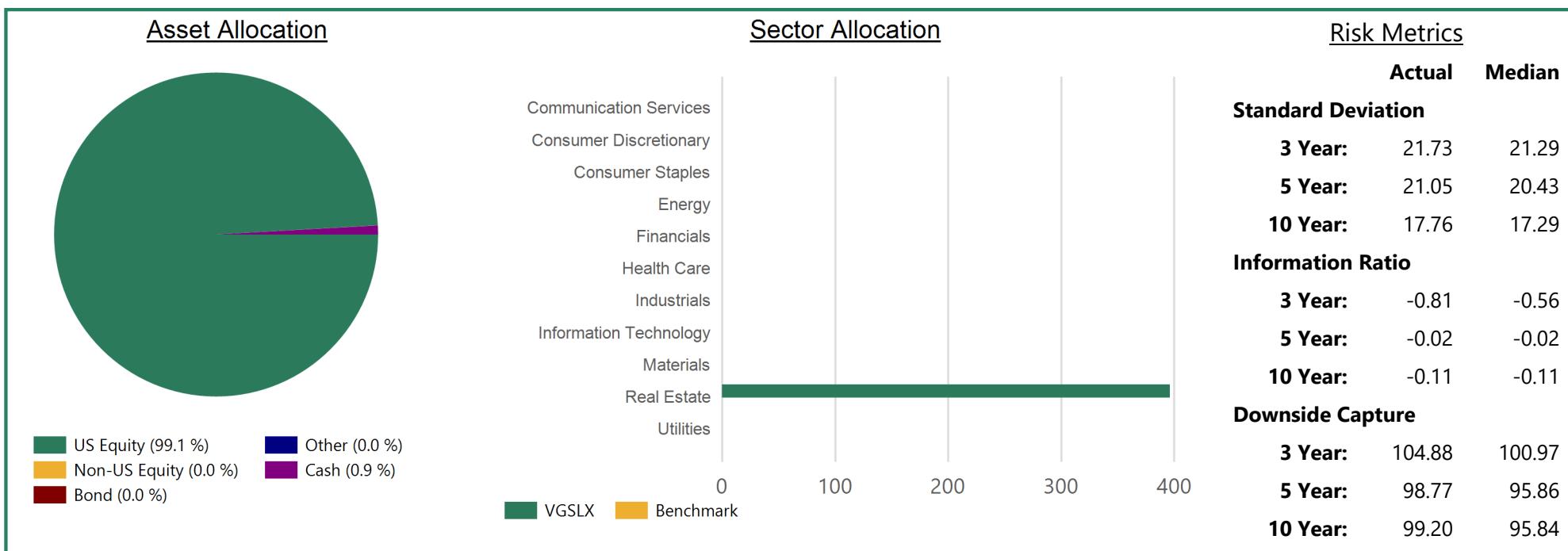
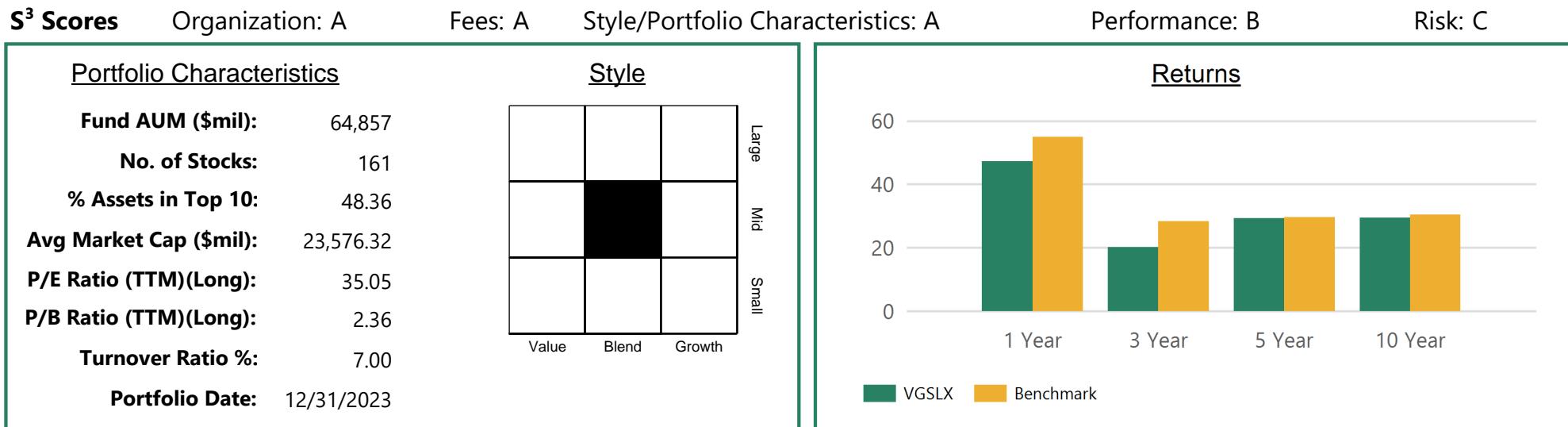
Segal Score

Ticker: VGSLX
Expense Ratio: 0.12

Category: Real Estate
Benchmark: MSCI US REIT

Subcategory: Domestic Real Estate
Inception Date: 5/13/1996

B



Vanguard Target Retirement 2020 Fund

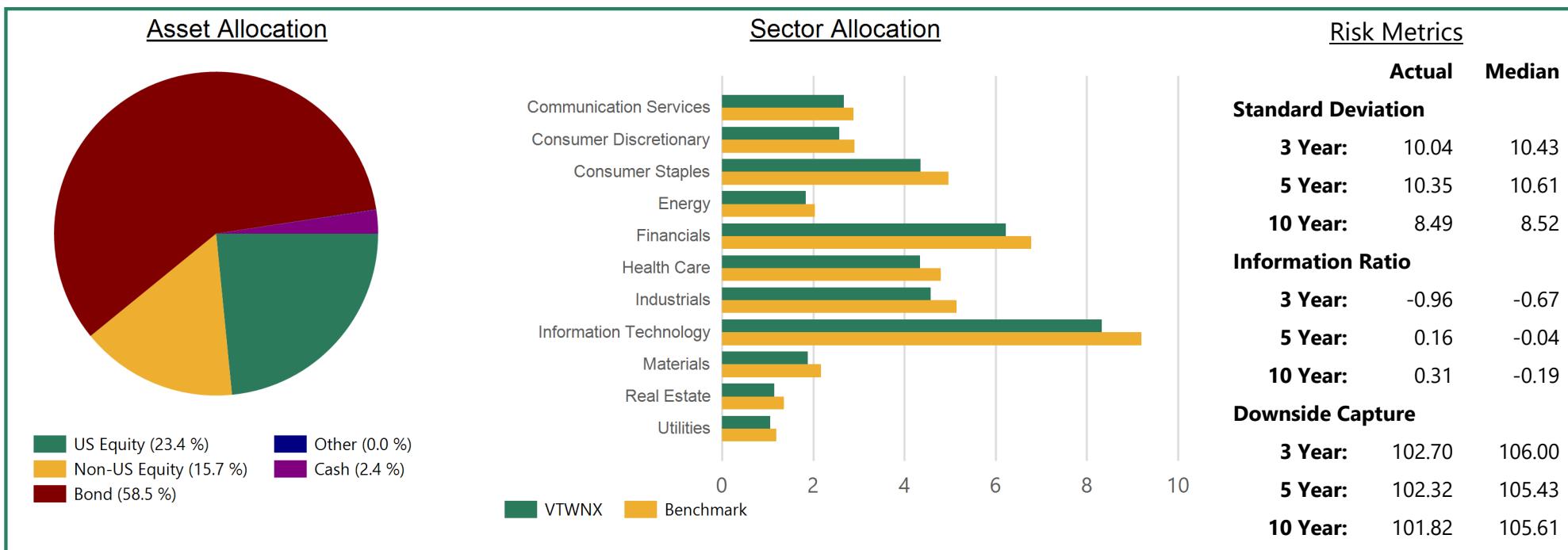
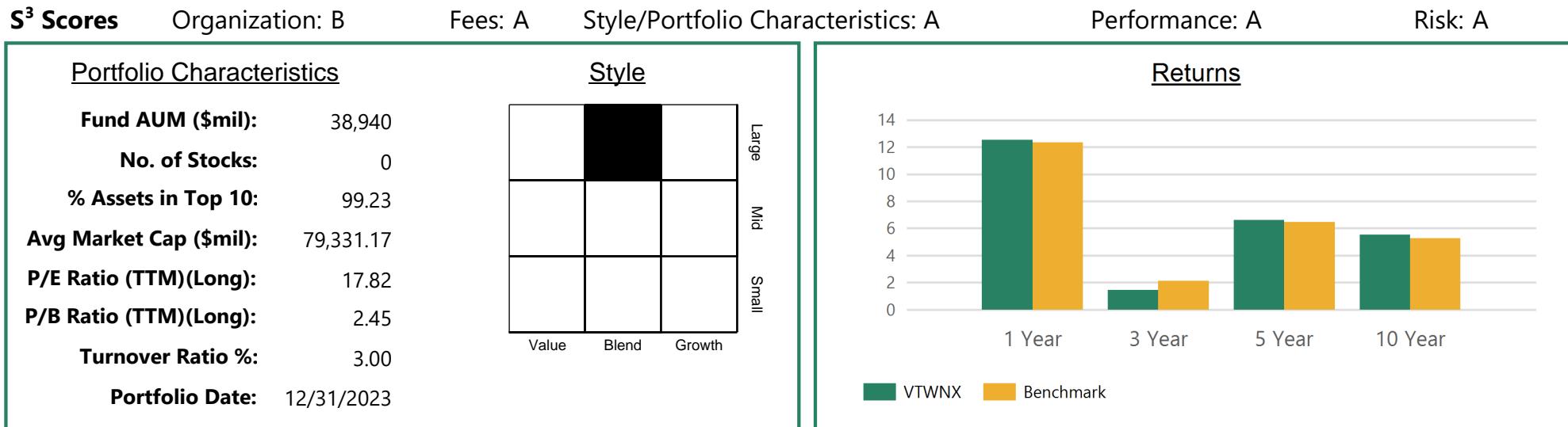
Segal Score

Ticker: VTNWX
Expense Ratio: 0.08

Category: Target-Date 2020
Benchmark: S&P Target Date 2020

Subcategory: Target Date 2016-2020 Moderate
Inception Date: 6/7/2006

A



Vanguard Target Retirement 2025 Fund

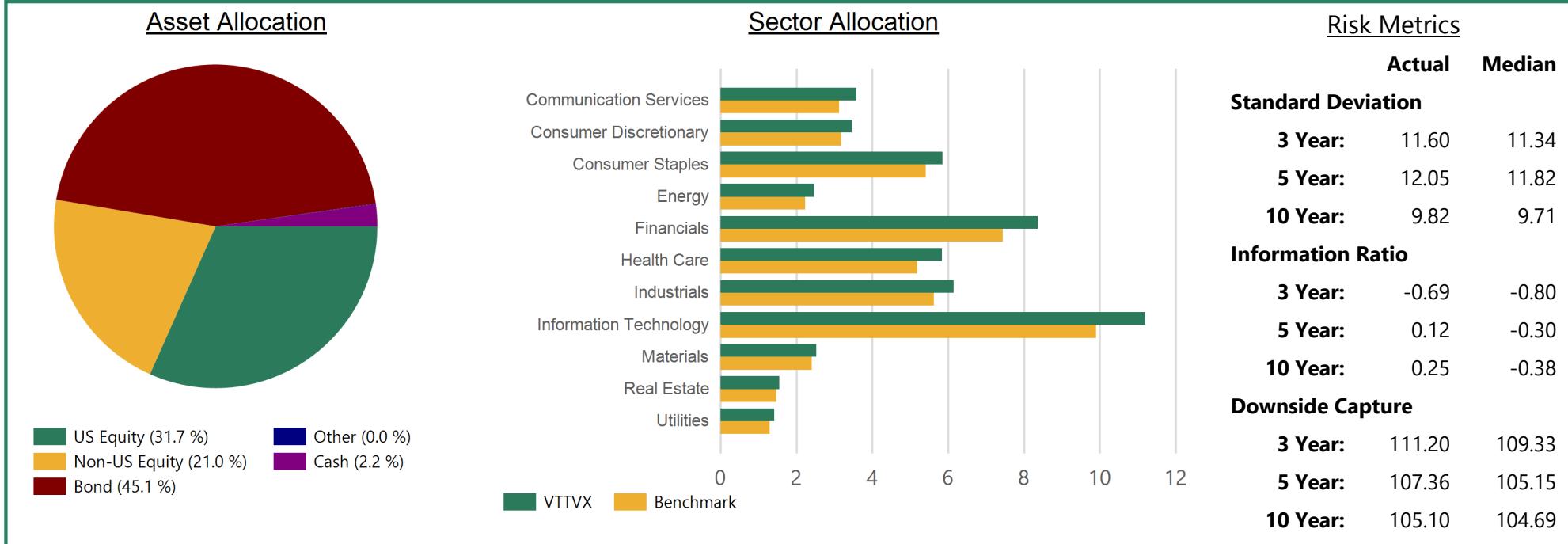
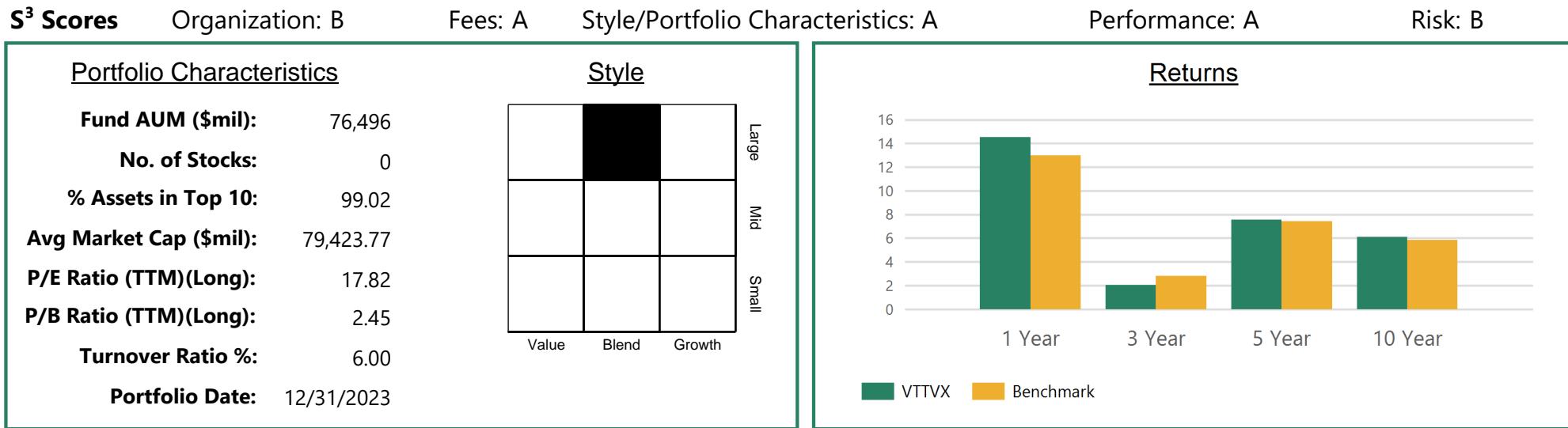
Segal Score

Ticker: VTTVX
Expense Ratio: 0.08

Category: Target-Date 2025
Benchmark: S&P Target Date 2025

Subcategory: Target Date 2021-2025 Moderate
Inception Date: 10/27/2003

A



Vanguard Target Retirement 2030 Fund

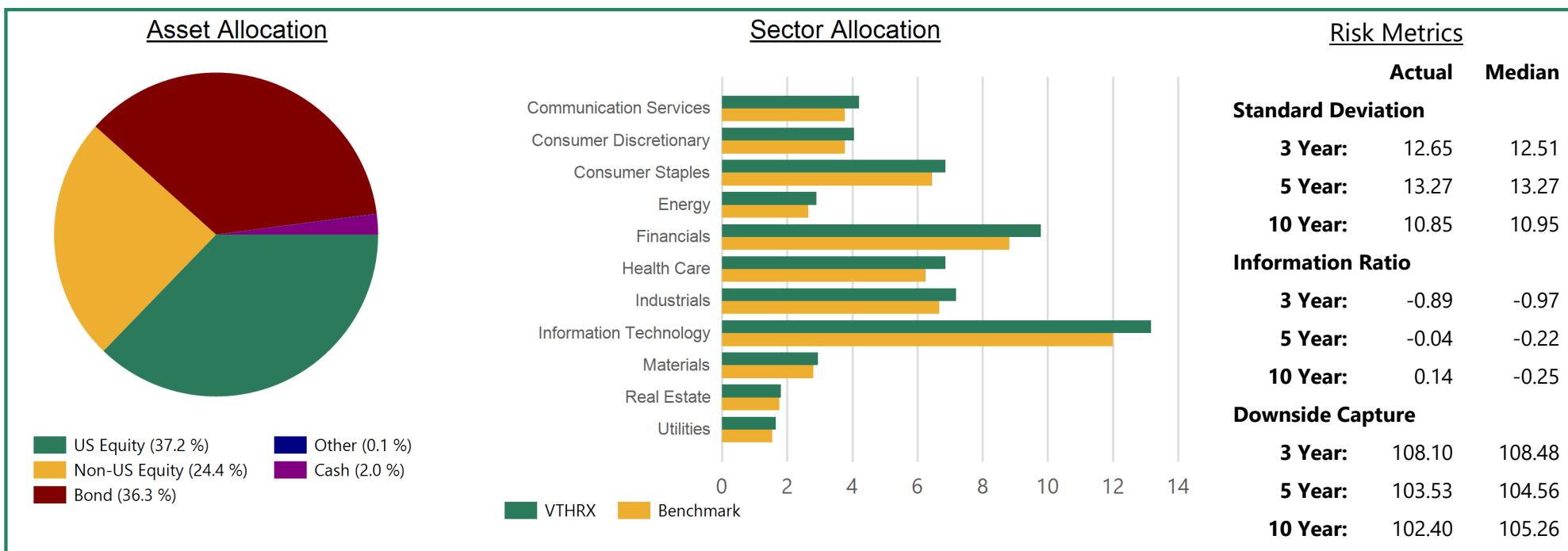
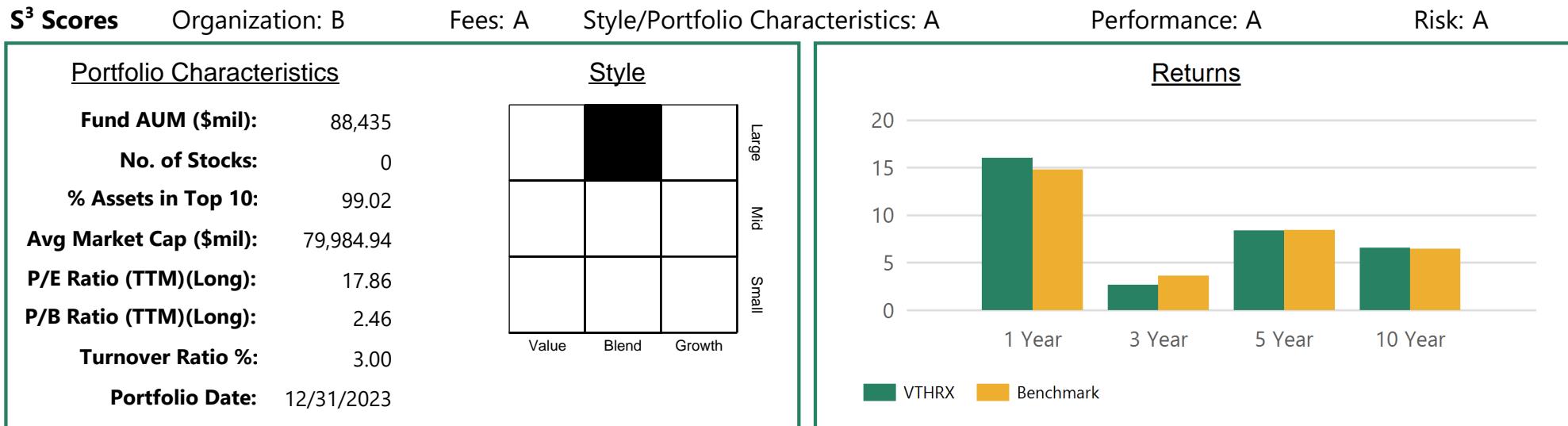
Segal Score

Ticker: VTHRX
Expense Ratio: 0.08

Category: Target-Date 2030
Benchmark: S&P Target Date 2030

Subcategory: Target Date 2026-2030 Moderate
Inception Date: 6/7/2006

A



Vanguard Target Retirement 2035 Fund

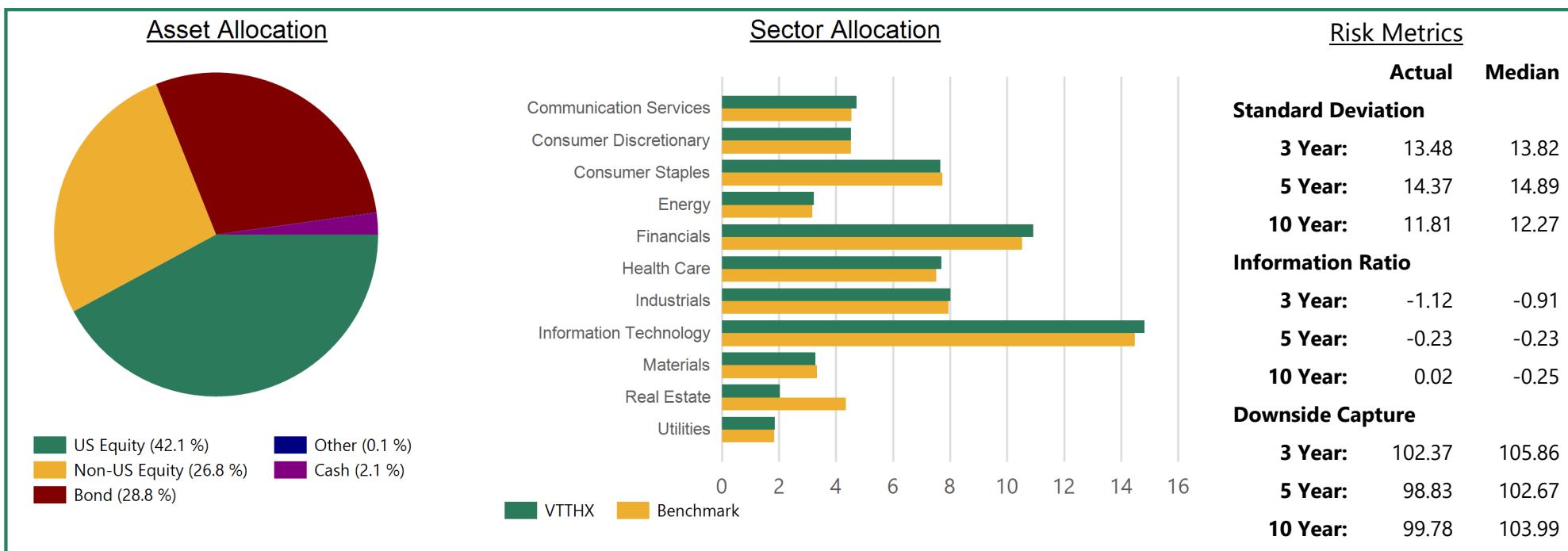
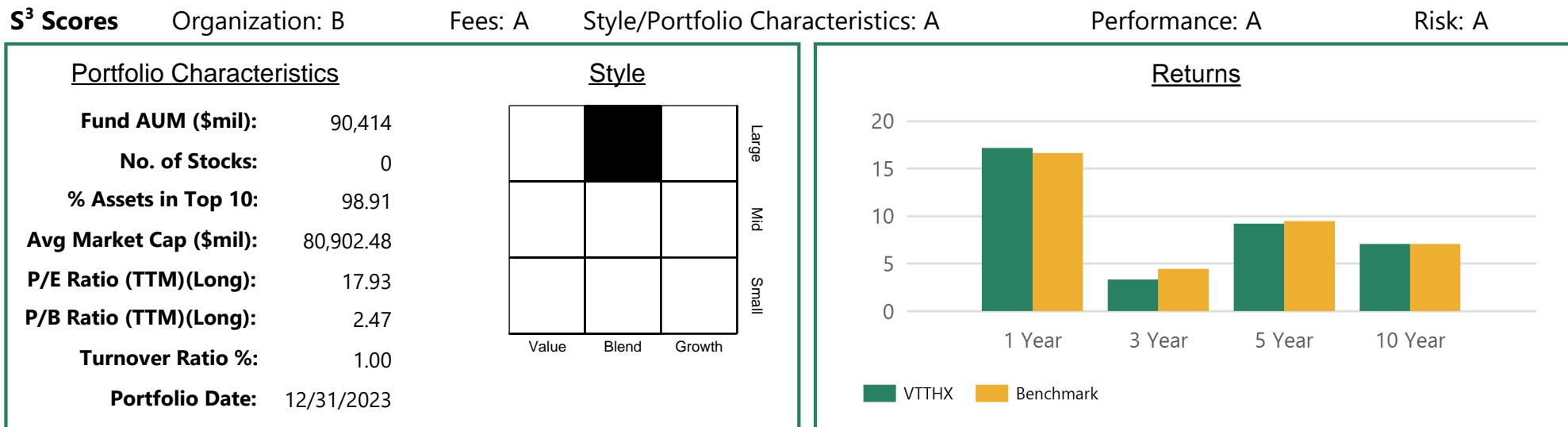
Segal Score

Ticker: VTTHX
Expense Ratio: 0.08

Category: Target-Date 2035
Benchmark: S&P Target Date 2035

Subcategory: Target Date 2031-2035 Moderate
Inception Date: 10/27/2003

A



Vanguard Target Retirement 2040 Fund

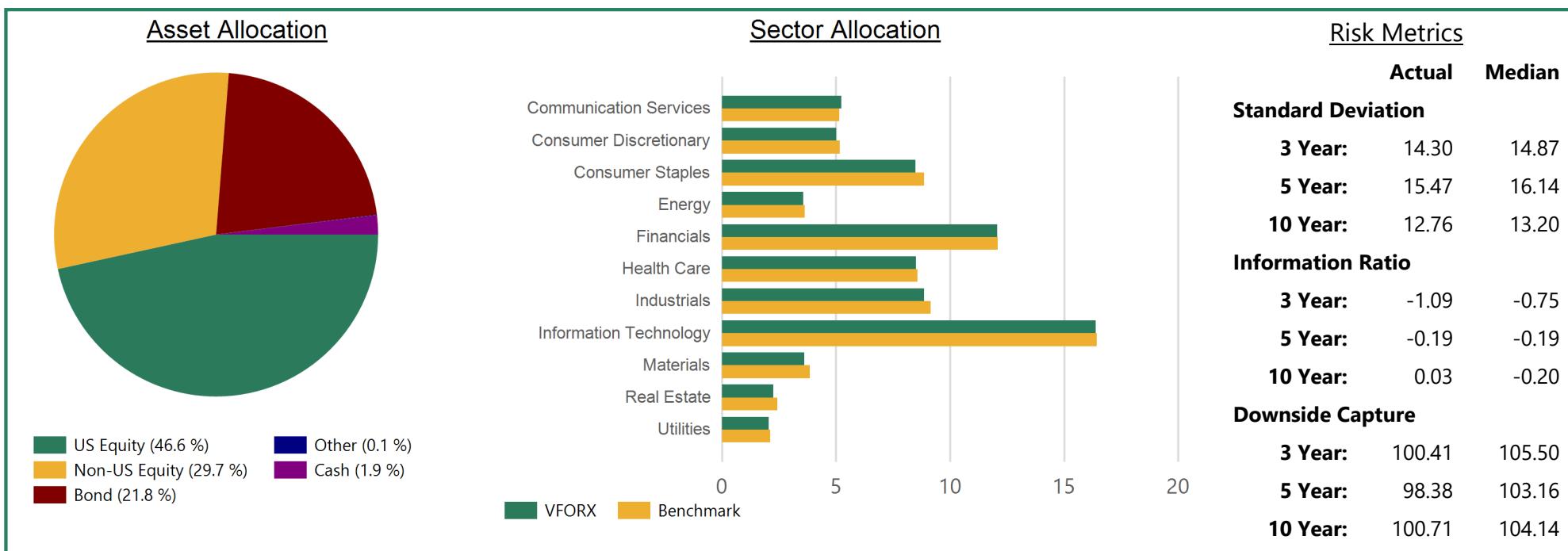
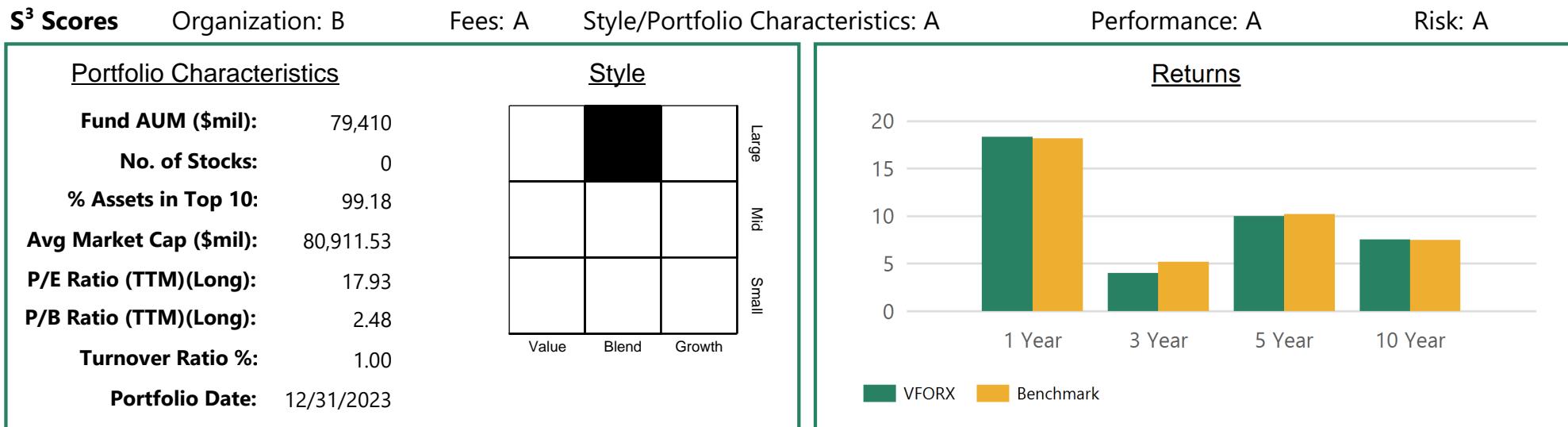
Segal Score

Ticker: VFORX
Expense Ratio: 0.08

Category: Target-Date 2040
Benchmark: S&P Target Date 2040

Subcategory: Target Date 2036-2040 Moderate
Inception Date: 6/7/2006

A



Vanguard Target Retirement 2045 Fund

Segal Score

Ticker: VTIVX

Category: Target-Date 2045

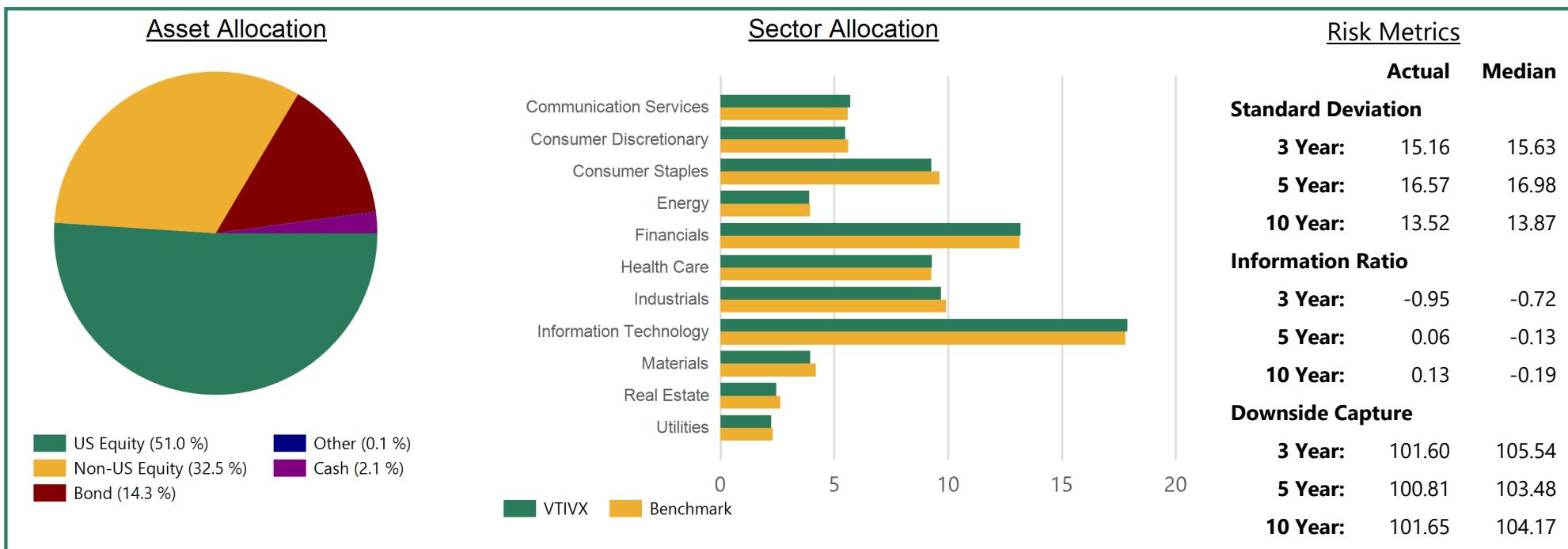
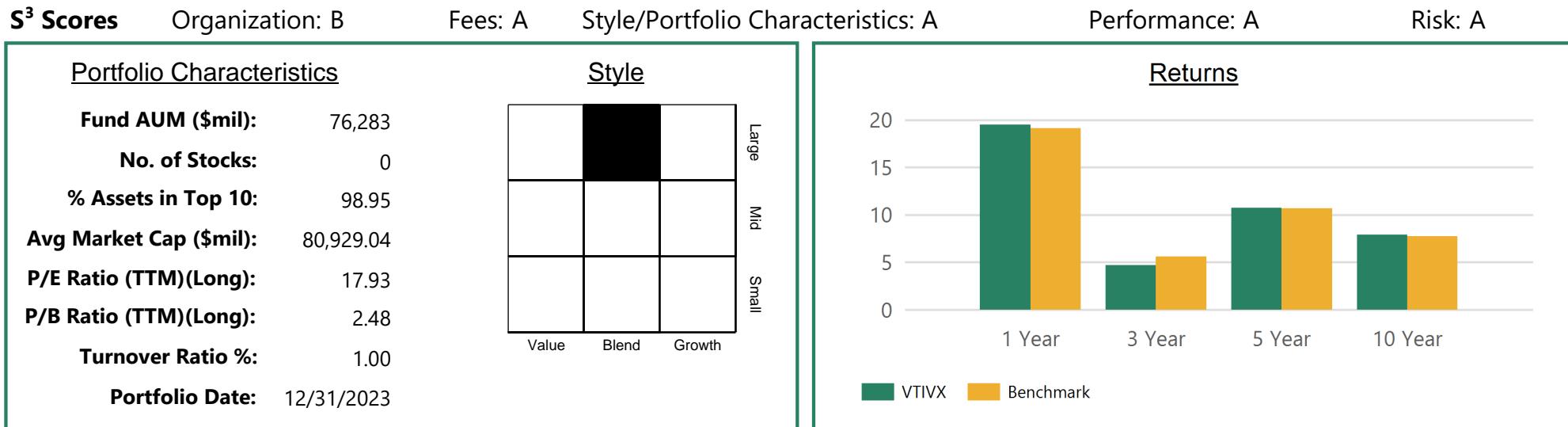
Expense Ratio: 0.08

Benchmark: S&P Target Date 2045

Subcategory: Target Date 2041-2045 Moderate

Inception Date: 10/27/2003

A



Vanguard Target Retirement 2050 Fund

Segal Score

Ticker: VFIFX

Category: Target-Date 2050

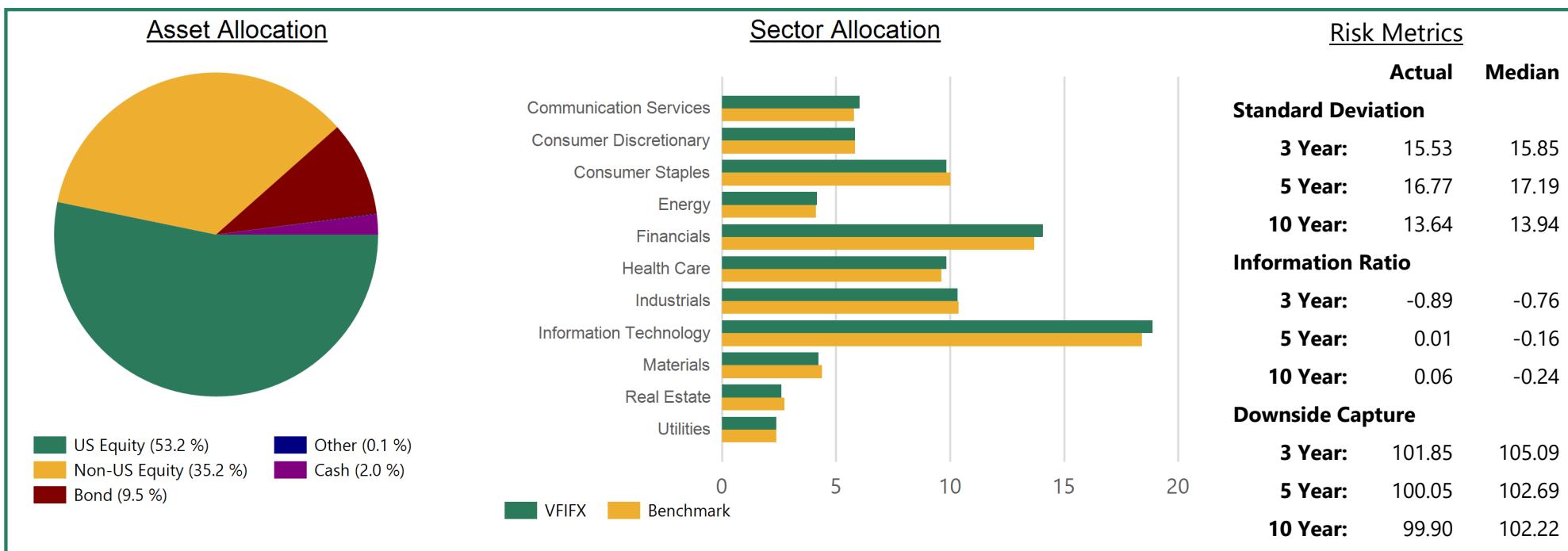
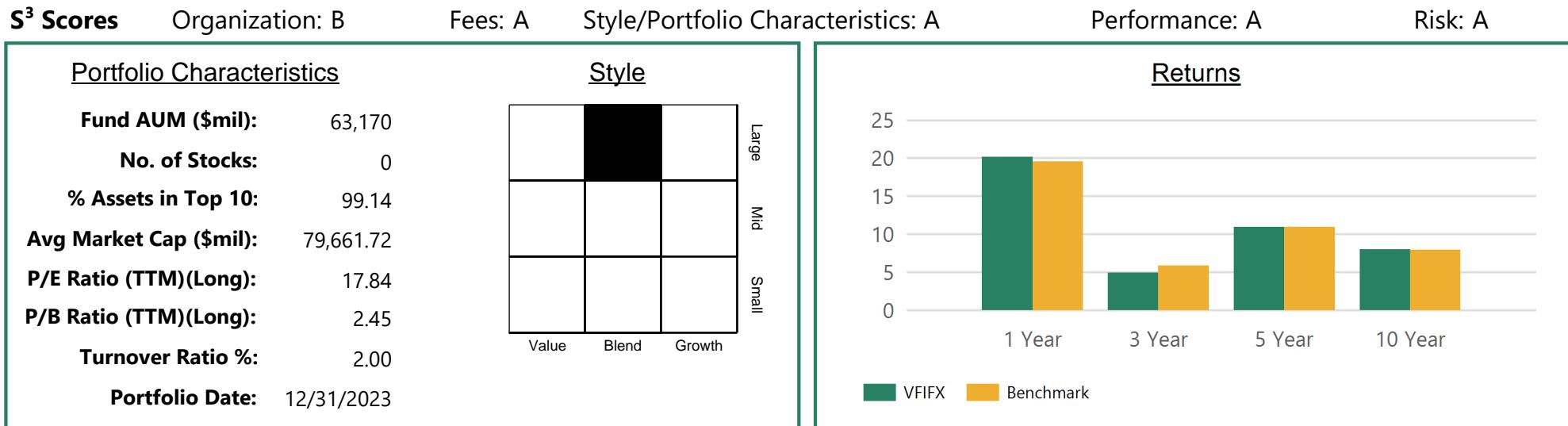
Expense Ratio: 0.08

Benchmark: S&P Target Date 2050

Subcategory: Target Date 2050+ Moderate

Inception Date: 6/7/2006

A



Vanguard Target Retirement 2055 Fund

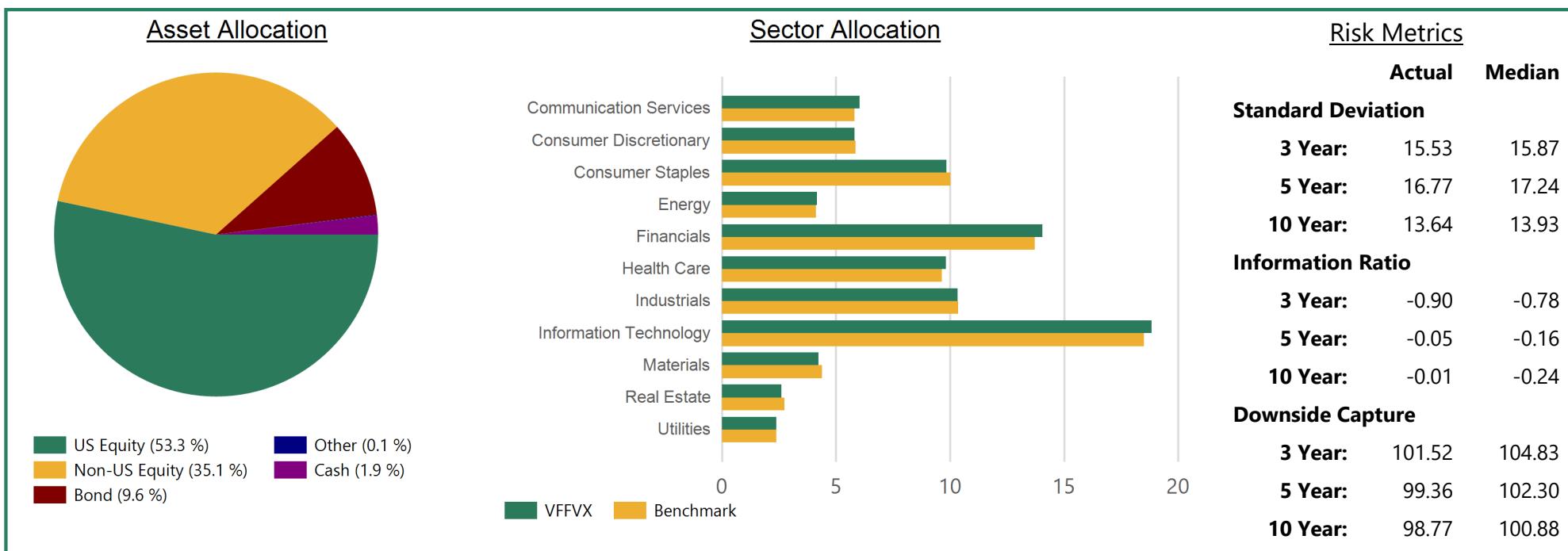
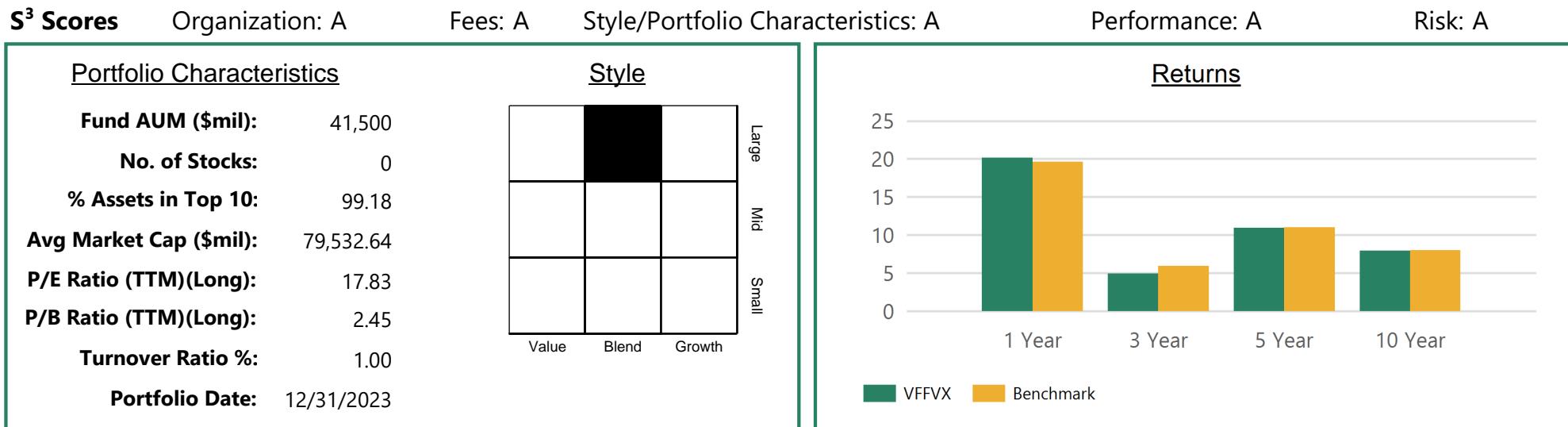
Segal Score

Ticker: VFFVX
Expense Ratio: 0.08

Category: Target-Date 2055
Benchmark: S&P Target Date 2055

Subcategory: Target Date 2050+ Moderate
Inception Date: 8/18/2010

A



Vanguard Target Retirement 2060 Fund

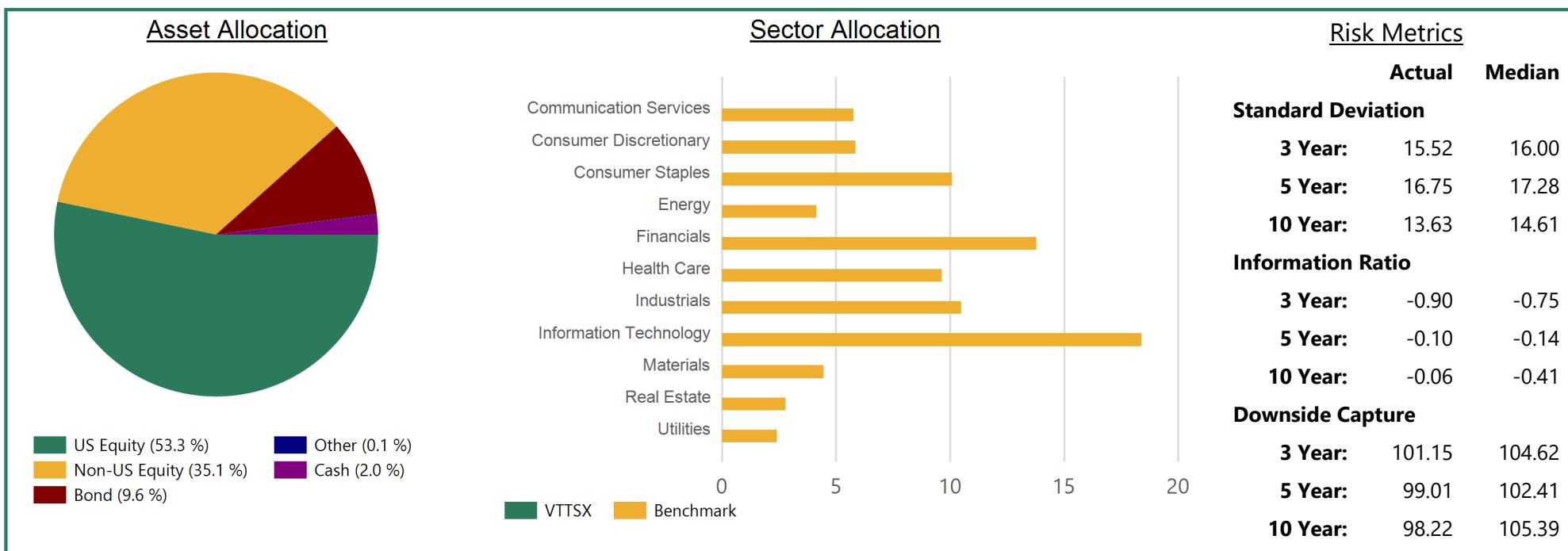
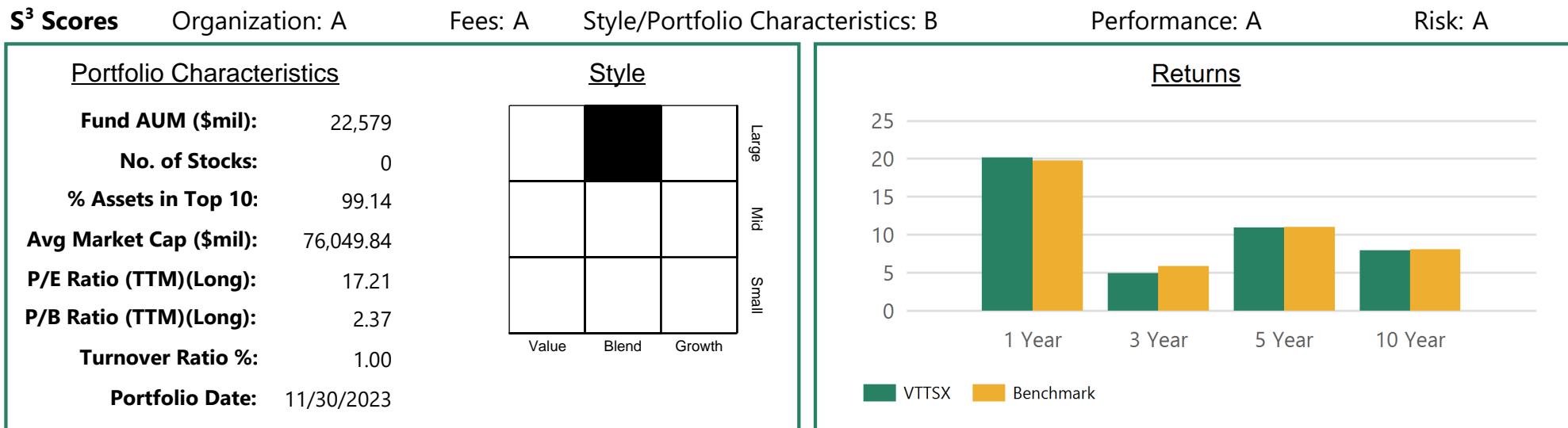
Segal Score

Ticker: VTTSX
Expense Ratio: 0.08

Category: Target-Date 2060
Benchmark: S&P Target Date 2060

Subcategory: Target Date 2050+ Moderate
Inception Date: 1/19/2012

A



Vanguard Target Retirement 2065 Fund

Segal Score

A

Ticker: VLXVX

Category: Target-Date 2065+

Expense Ratio: 0.08

Benchmark: S&P Target Date 2065+

Subcategory: Target Date 2050+ Moderate

Inception Date: 7/12/2017

S³ Scores

Organization: A

Fees: A

Style/Portfolio Characteristics: A

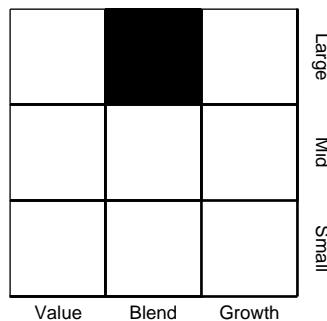
Performance: C

Risk: A

Portfolio Characteristics

Fund AUM (\$mil):	6,143
No. of Stocks:	0
% Assets in Top 10:	98.91
Avg Market Cap (\$mil):	79,517.18
P/E Ratio (TTM)(Long):	17.83
P/B Ratio (TTM)(Long):	2.45
Turnover Ratio %:	1.00
Portfolio Date:	12/31/2023

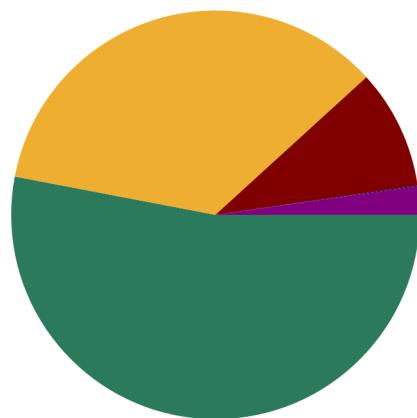
Style



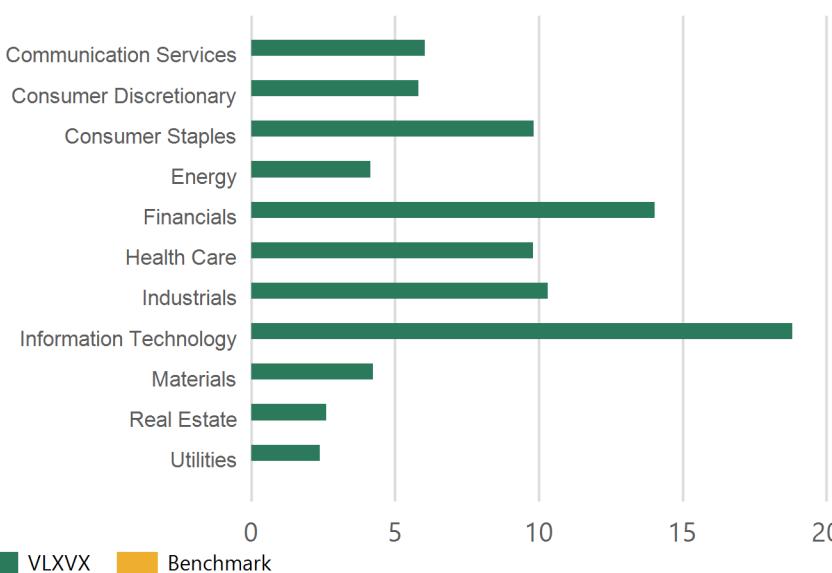
Returns



Asset Allocation



Sector Allocation



Risk Metrics

Actual Median

Standard Deviation

3 Year:	15.52	16.24
5 Year:	16.77	17.87

10 Year:

Information Ratio

3 Year:	-1.02	-0.80
5 Year:	-0.16	-0.02

10 Year:

Downside Capture

3 Year:	101.29	106.14
5 Year:	99.17	105.58

10 Year:

VLXVX Benchmark

Vanguard Target Retirement 2070 Fund

Segal Score

NA

Ticker: VSVNX

Category: Target-Date 2065+

Expense Ratio: 0.08

Benchmark: S&P Target Date 2065+

Subcategory: Target Date 2050+ Moderate

Inception Date: 6/28/2022

S³ Scores

Organization: C

Fees: A

Style/Portfolio Characteristics: A

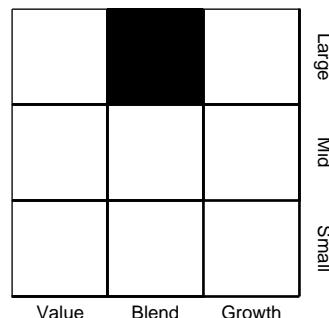
Performance: A

Risk: C

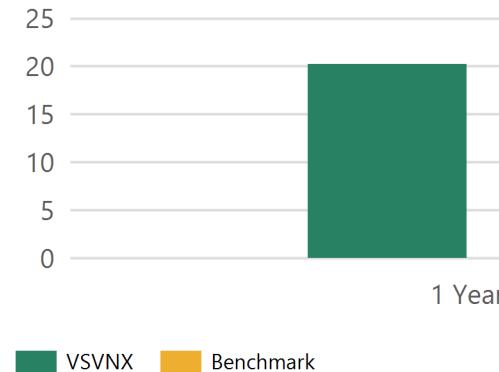
Portfolio Characteristics

Fund AUM (\$mil):	460
No. of Stocks:	0
% Assets in Top 10:	99.61
Avg Market Cap (\$mil):	79,829.21
P/E Ratio (TTM)(Long):	17.85
P/B Ratio (TTM)(Long):	2.46
Turnover Ratio %:	2.00
Portfolio Date:	12/31/2023

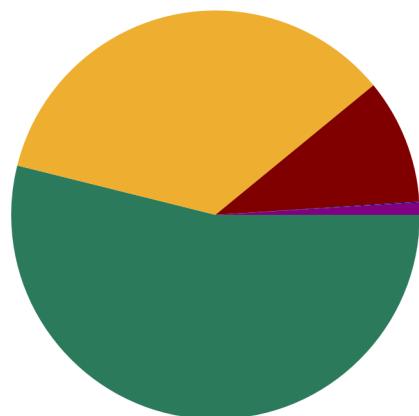
Style



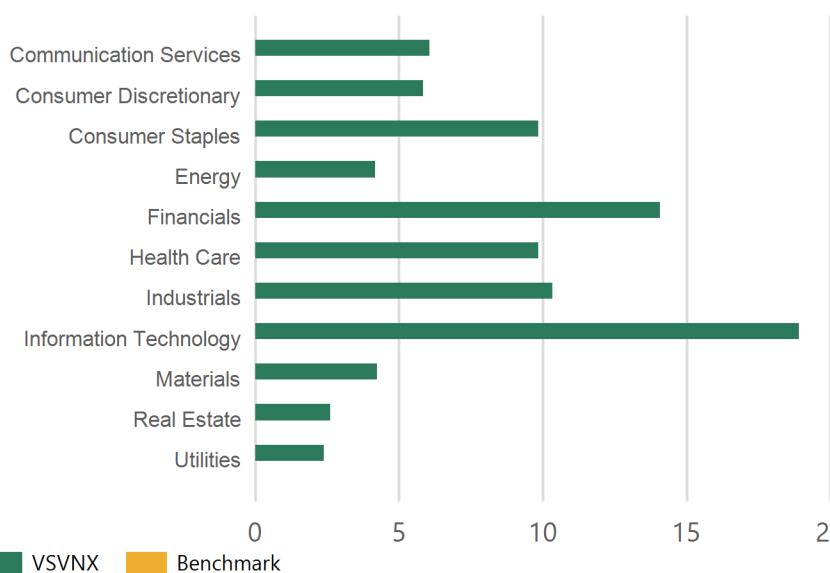
Returns



Asset Allocation



Sector Allocation



Risk Metrics

Actual Median

Standard Deviation

3 Year:	16.24
5 Year:	17.87
10 Year:	

Information Ratio

3 Year:	-0.80
5 Year:	-0.02
10 Year:	

Downside Capture

3 Year:	106.14
5 Year:	105.58
10 Year:	

█ US Equity (53.9 %)
█ Non-US Equity (35.2 %)
█ Bond (9.9 %)
█ Other (0.1 %)
█ Cash (1.0 %)

█ VSVNX █ Benchmark

Vanguard Target Retirement Income Fund

Segal Score

Ticker: VTINX

Category: Target-Date Retirement

Subcategory: Target Date Retirement Income
Moderate

A

Expense Ratio: 0.08

Benchmark: S&P Target Date Retirement Income

Inception Date: 10/27/2003

S³ Scores

Organization: B

Fees: A

Style/Portfolio Characteristics: A

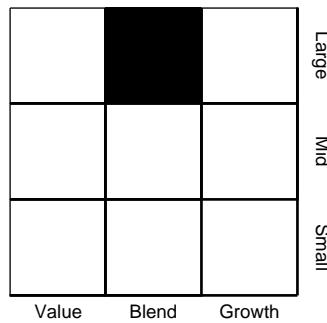
Performance: A

Risk: A

Portfolio Characteristics

Fund AUM (\$mil):	36,504
No. of Stocks:	0
% Assets in Top 10:	99.31
Avg Market Cap (\$mil):	79,291.15
P/E Ratio (TTM)(Long):	17.81
P/B Ratio (TTM)(Long):	2.45
Turnover Ratio %:	4.00
Portfolio Date:	12/31/2023

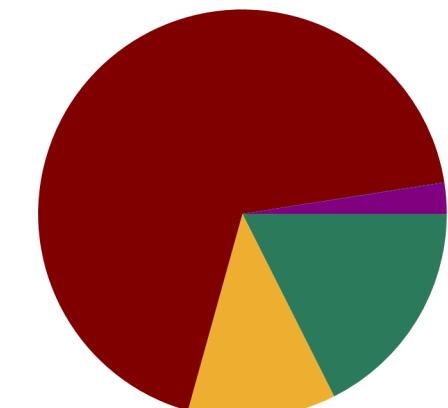
Style



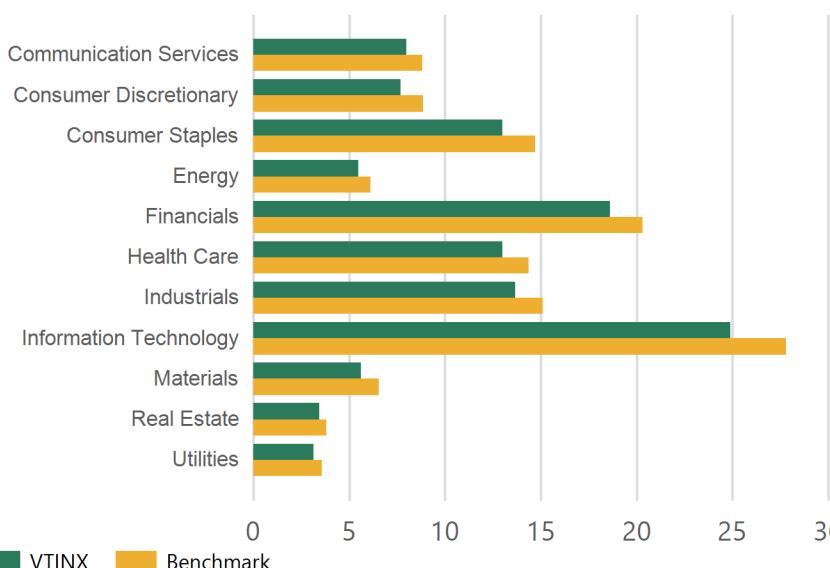
Returns



Asset Allocation



Sector Allocation



Risk Metrics

Actual Median

Standard Deviation

3 Year:	8.48	9.02
5 Year:	7.93	8.63
10 Year:	6.10	6.61

Information Ratio

3 Year:	-0.64	-0.45
5 Year:	-0.09	-0.16
10 Year:	0.17	-0.28

Downside Capture

3 Year:	106.23	113.91
5 Year:	102.40	110.91
10 Year:	98.89	114.30

For Active Funds:

Grade		Action
A	Above Average	No Action
B	Above Average	No Action
C	Average	Closely Monitor
D	Watch List	Fund Alert
F	Immediate Action	Terminate
NA	< that 3 years of history	Check share class and inception date

For Index Funds:

Grade		Action
A	Satisfactory	No Action
B	Satisfactory	No Action
C	Satisfactory	No Action
D	Immediate Action	Terminate
F	Immediate Action	Terminate
NA	< that 3 years of history	Check share class and inception date

FUND EXPENSE RATIOS

City of Memphis 401(a) Retirement Plan

Plan Fees as of December 31, 2023

Investment Option	Account Value as of 12/31/23	Revenue Share Payment (%)	Revenue Share Payment (\$)	Mutual Fund Expense Ratio (%)	Mutual Fund Total Expense (\$)	Net Participant Expense (%)
AmerFunds EuroPacific Growth Fund(R) - Class R6	\$ 418,862	0.00%	\$ -	0.47%	\$ 1,969	0.47%
AmerFunds Global Insight R6	\$ 210,115	0.00%	\$ -	0.46%	\$ 967	0.46%
Brown Capital Management Small Company Fund (The) - Inst	\$ 288,525	0.00%	\$ -	1.08%	\$ 3,116	1.05%
Eaton Vance Atlanta Capital SMID Class A	\$ 127,884	0.50%	\$ 639	1.14%	\$ 1,458	0.64%
Edgar Lomax Value Fund	\$ 484,143	0.40%	\$ 1,937	0.70%	\$ 3,389	0.30%
Fidelity Contrafund	\$ 960,766	0.25%	\$ 2,402	0.55%	\$ 5,284	0.30%
Harbor Small Cap Value	\$ 353,045	0.10%	\$ 353	0.88%	\$ 3,107	0.78%
JPMorgan Mid Cap Value Fund - R6	\$ 223,045	0.00%	\$ -	0.65%	\$ 1,450	0.65%
MFS International Value Fund - Class R3	\$ 432,545	0.50%	\$ 2,163	1.03%	\$ 4,455	0.47%
Neuberger Berman Genesis Fund - R6	\$ 240,574	0.00%	\$ -	0.74%	\$ 1,780	0.74%
Parnassus Core Equity Fund - Institutional Shares	\$ 811,101	0.10%	\$ 811	0.61%	\$ 4,948	0.51%
PIMCO Total Return Fund - R Shares	\$ 764,221	0.70%	\$ 5,350	1.08%	\$ 8,254	0.35%
TCW Total Return Bond Institutional Shares	\$ 784,783	0.10%	\$ 785	0.49%	\$ 3,845	0.39%
Vanguard Institutional Index	\$ 1,048,030	0.00%	\$ -	0.035%	\$ 367	0.04%
Vanguard Mid-Cap Index Fund - Admiral Shares	\$ 617,894	0.00%	\$ -	0.05%	\$ 309	0.05%
Vanguard REIT Index Fund Admiral Shares	\$ 271,396	0.00%	\$ -	0.12%	\$ 326	0.12%
Vanguard Target Retirement 2020 Fund - Investor Shares	\$ 1,247,201	0.00%	\$ -	0.08%	\$ 998	0.08%
Vanguard Target Retirement 2025 Fund - Investor Shares	\$ 3,436,052	0.00%	\$ -	0.08%	\$ 2,749	0.08%
Vanguard Target Retirement 2030 Fund - Investor Shares	\$ 4,680,925	0.00%	\$ -	0.08%	\$ 3,745	0.08%
Vanguard Target Retirement 2035 Fund - Investor Shares	\$ 4,169,689	0.00%	\$ -	0.08%	\$ 3,336	0.08%
Vanguard Target Retirement 2040 Fund - Investor Shares	\$ 4,134,440	0.00%	\$ -	0.08%	\$ 3,308	0.08%
Vanguard Target Retirement 2045 Fund - Investor Shares	\$ 4,830,856	0.00%	\$ -	0.08%	\$ 3,865	0.08%
Vanguard Target Retirement 2050 Fund - Investor Shares	\$ 5,489,310	0.00%	\$ -	0.08%	\$ 4,391	0.08%
Vanguard Target Retirement 2055 Fund - Investor Shares	\$ 6,422,947	0.00%	\$ -	0.08%	\$ 5,138	0.08%
Vanguard Target Retirement 2060 Fund - Investor Shares	\$ 6,102,413	0.00%	\$ -	0.08%	\$ 4,882	0.08%
Vanguard Target Retirement 2065 Fund - Investor Shares	\$ 78,370	0.00%	\$ -	0.08%	\$ 63	0.08%
Vanguard Target Retirement 2070 Fund - Investor Shares	\$ 24,791	0.00%	\$ -	0.08%	\$ 20	0.08%
Vanguard Target Retirement Income Inv	\$ 423,016	0.00%	\$ -	0.08%	\$ 338	0.08%
Delaware Ivy High Income	\$ 61,169	0.00%	\$ -	0.63%	\$ 385	0.60%
Subtotal of Non-Fixed Investment Options	\$ 49,138,106	0.03%	\$ 14,439	0.16%	\$ 78,240	

Fixed Option (SAGIC)	\$ 1,326,850	0.00%	\$ -	0.42%	\$ 5,573
TOTAL OF ALL INVESTMENT OPTIONS	\$ 50,464,957	0.03%	\$ 14,439	0.17%	\$ 83,813
TOTAL ANNUAL PLAN COST		0.03%		0.17%	

All Funds
Average Expense Ratio
Weighted Average Expense Ratio
Weighted Revenue Sharing
Plan Revenue Requirement*

* Plan Revenue Requirement is currently 4 bps. Any amount collected over 4 bps is reimbursed to the Plan.

The Plan moved to fee leveling in June 2022. The Plan Revenue Requirement will remain at 4 bps, however; revenue sharing from individual fund options will no longer be used to pay for Plan expenses.

Plan expenses will be paid using a flat basis point fee.

Note: The data used in this report for expense ratios and revenue sharing amount was provided by MassMutual as of 12/31/23