
Retirement Board of Allegheny County

Investment Performance Review
Period Ending June 30, 2024

MARINER

2nd Quarter 2024 Market Environment

The Economy

- The US Federal Reserve (the Fed) continued on its stable trajectory, holding rates steady during the second quarter. Capital markets have struggled to accurately predict the pace and timing of future Fed actions, resulting in an up and down quarter. In its press release for the June meeting, the Fed continued to assert that “In considering any adjustments to the target range for the federal funds rate, the Committee will carefully assess incoming data, the evolving outlook, and the balance of risks.”
- The Fed’s prolonged pause in its rate-hiking cycle and the insertion of the word “any” in its December press release provided capital markets hope that the Fed may pivot in its stance and begin reducing rates to a less restrictive level in 2024. The Fed’s published June “Dot Plot” revised expectations from three quarter-point rate cuts during the year to just one quarter-point rate cut. If this projection were to materialize, it would result in the first rate cut since the COVID pandemic in 2020.
- Growth in the US labor market continued in June, as nonfarm payrolls increased by 206,000 while unemployment rose slightly from 3.8% at the end of the first quarter to 4.1% at the end of the second quarter. Federal Reserve Chair Jerome Powell has maintained that “an unexpected weakening in the labor market could also warrant a policy response,” later defining unexpected weakening as something that would occur outside of their general forecasts.

Equity (Domestic and International)

- US equity results were mixed for the quarter, with large-capitalization (cap) stocks strongly outpacing small-cap stocks. As market participants continue to revise projections of future Fed actions, they sought safety among large-cap stocks due to these companies lessened dependence on external financing. The S&P 500 Index rose a solid 4.3% for the quarter, but ended a two-quarter streak of double-digit gains.
- Large-cap equity benchmarks continue to experience top-heavy concentration among a limited number of stocks. The top 10 stocks in the S&P 500 Index make up nearly 36% of the index’s weight as of June 2024. Year-to-date, these 10 stocks have contributed to more than 60% of the benchmark’s total return.
- International stocks also continued to experience growth during the second quarter, but results were muted by a strengthening US Dollar (USD). USD performance of international stocks lagged local currency (LCL) returns in most regions for the quarter, albeit to varying degrees.

Fixed Income

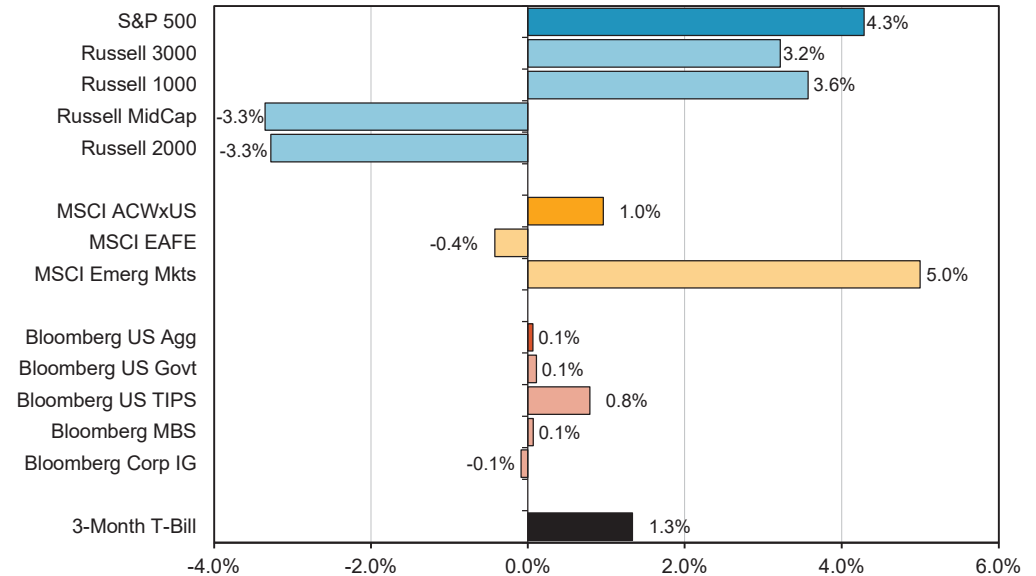
- Fixed-income markets remained largely steady during the quarter. While sticky inflation numbers and a robust job market prompted the Fed to keep the fed funds rate unchanged during the quarter, this lack of action also tempered expectations for the number of potential rate cuts in 2024.
- High-yield bonds outperformed investment-grade issues for the quarter, largely due to higher coupons. The high-yield index edged out the Bloomberg US Aggregate Bond Index, the bellwether bond benchmark, due to relative stability in both the yield curve and economic conditions.
- Global bonds continue to lag the domestic bond market, with the Bloomberg US Aggregate Bond Index outpacing the Global Aggregate ex-US Index by 2.2% for the quarter. The return gap between the two benchmarks continues to widen as the domestic index has outperformed the global index by 3.3% year-to-date.

Market Themes

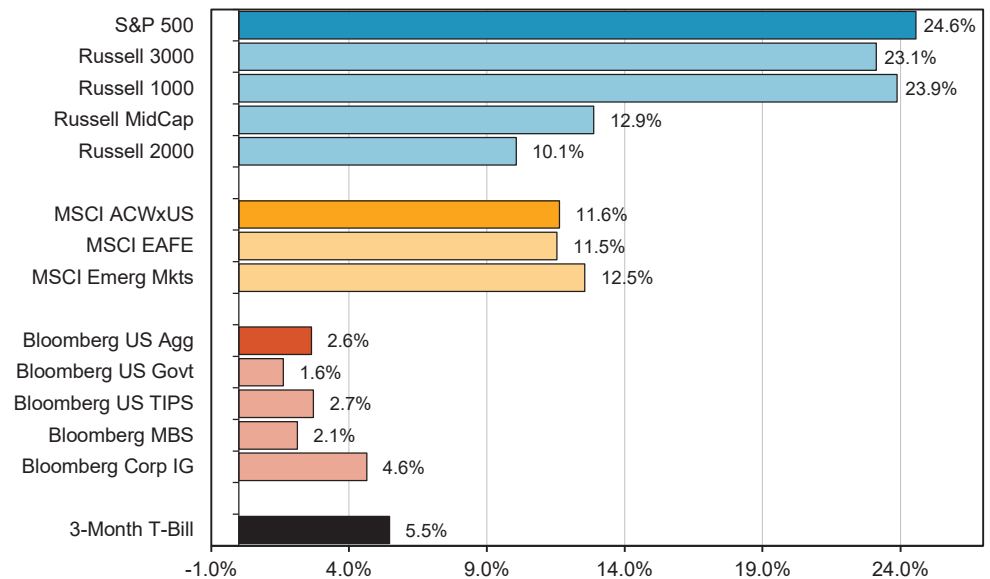
- Domestic and international equity markets posted strong results in the second quarter. Continuing their robust 2023 run, large-cap growth sectors continued to outpace their value counterparts in 2024, and by a wider margin than the prior year. The brief increased breadth markets experienced during of the first quarter did not continue during the second quarter, and so once again, large-cap growth stocks were the best-performing US asset category.
- Central banks remained vigilant in their stances to bring inflation under control. While inflation readings remain stubbornly elevated, signs of stable-to-cooling price pressures have shown up in most regions around the world. Domestically, job growth has slowed from a pace of 300,000+ month-over-month growth to just over 200,000 net new jobs.
- Policy rates were stable across most developed markets as central banks continued their tight monetary stances. Expectations of looser monetary policy have been frustrated by mixed economic data and central banks’ inaction so far this year.
- Ongoing military conflicts coupled with global economic uncertainty continue to act as headwinds to international market results. While global disruptions from the Russia-Ukraine conflict seemed to subside during the quarter, the proxy war in the Middle East has spread to other countries in the region and unsettled shipping channels globally.

- Performance in the domestic equity markets was disparate during the second quarter. After a more encouraging showing last quarter, where markets broadened out in terms of strength, large-cap stocks once again surged ahead while smaller-cap stocks weakened slightly. For the period, the large-cap S&P 500 and Russell 1000 indexes posted returns of 4.3% and 3.6%, respectively. The broad-cap Russell 3000 index lagged slightly, returning a more modest 3.2%. Outside of large-cap issues, the Russell Mid Cap and Russell 2000 indexes both experienced equivalent pullbacks during the quarter, with each benchmark returning -3.3%.
- International developed market equities were muted during the quarter. The MSCI ACWI ex US Index posted a modest 1.0% gain for the quarter, while the MSCI EAFE Index fell slightly, posting a return of -0.4% in USD terms. International emerging market (EM) equities posting a 5.0% return for the quarter, outpacing the performance of their developed market counterparts. Much of the solid performance in the EM region was attributed to a bounce back in China, Taiwan, and Singapore, each posting strong USD results during the quarter.
- Most broad fixed-income indexes rose slightly during the second quarter of 2024. The Bloomberg US Aggregate Index returned 0.1% for the quarter, while investment-grade corporate bonds slid -0.1%. The TIPS market was the best-performing sector during the quarter, outpacing the rest of the domestic fixed-income categories with a return of 0.8%.
- Large-cap US equity indexes have been a performance juggernaut over the trailing 12 months. The S&P 500 Index has gained 24.6% while the Russell 1000 Index was nearly as strong with a return of 23.9%. The weakest performing class of domestic equities for the year was the small-cap Russell 2000 Index, which still posted a double-digit return of 10.1% over the last 12 months.
- International markets also showcased healthy performance for the one-year trailing period. The MSCI EM Index was the best international performer, returning 12.5%, while the MSCI EAFE and MSCI ACWI ex US indexes posted returns of 11.5% and 11.6%, respectively.
- Bond markets posted positive but muted results for the trailing one-year period which substantially lagged equity benchmark results. Investment-grade corporate bonds led the way, up by 4.6% for the year. Meanwhile, Treasuries lagged, returning just 1.6% over the period. The bellwether fixed-income benchmark, the Bloomberg US Aggregate Bond Index, returned a mild 2.6% for the year.

Quarter Performance

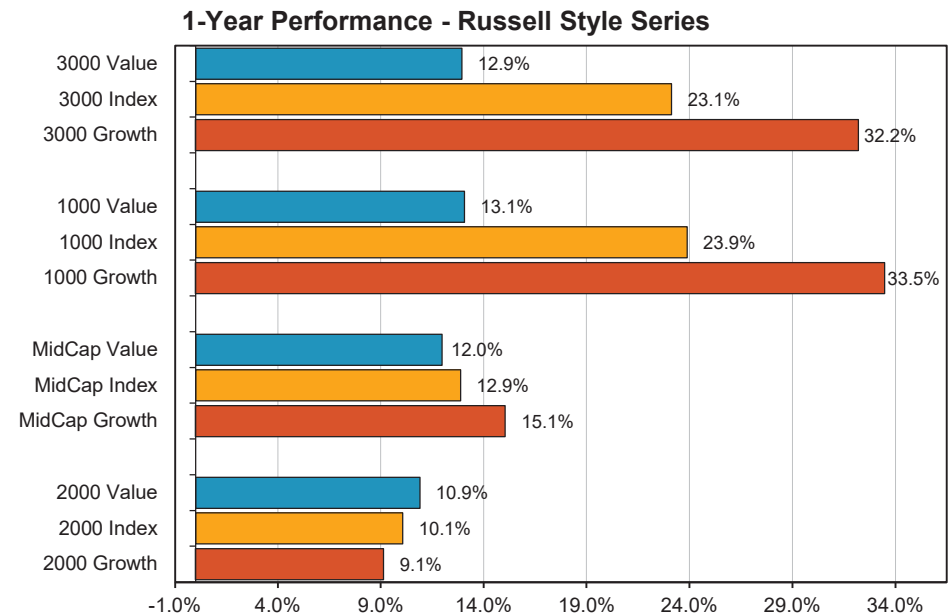
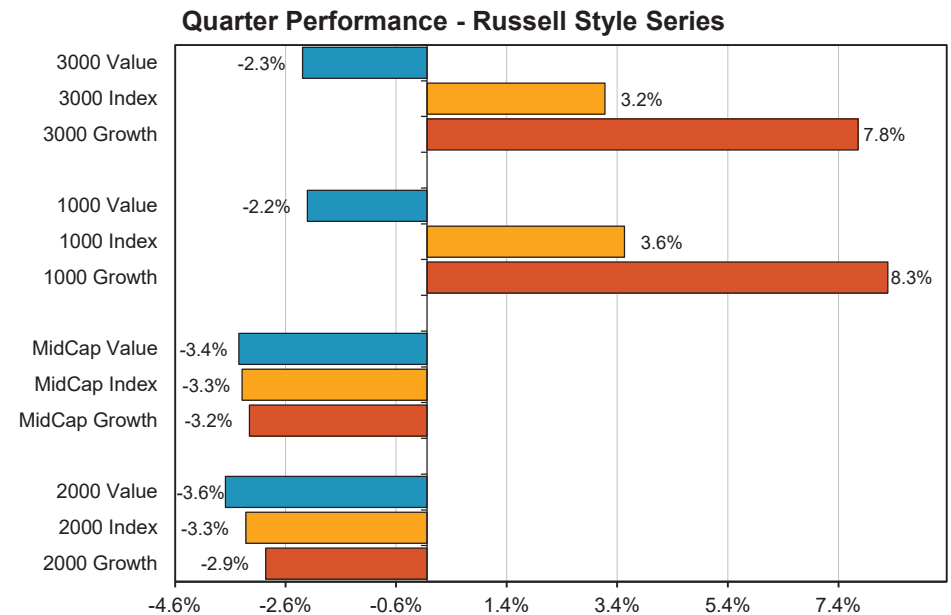


1-Year Performance



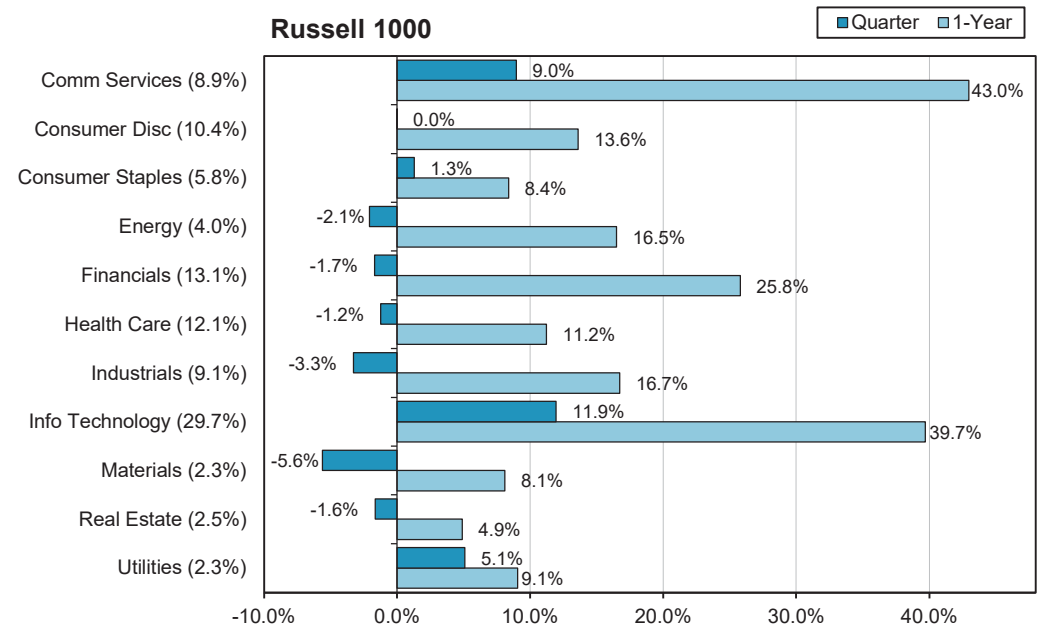
Source: Investment Metrics

- Domestic equity benchmarks posted mixed absolute results for the second quarter, but growth stocks outpaced their value counterparts at each capitalization level. The best-performing area of the equity market continues to be large-cap growth with the Russell 1000 Growth Index returning 8.3% for the quarter. The worst-performing segment of the domestic equity market for the second consecutive quarter was small-cap value with the Russell 2000 Value index falling -3.6% for the quarter. From a capitalization perspective, large-cap stocks once again led their small-cap counterparts, with the Russell 1000 Index returning 3.2% and the Russell 2000 Index falling by -3.3%.
- The market's growth-led rally continued during the quarter, and this disparity was most visible in large-cap style performance, with the Russell 1000 Growth Index outpacing the Russell 1000 Value Index by double digits (10.1%). While mid-cap and small-cap growth fell in absolute terms for the quarter, the mid- and small-cap growth indexes held up slightly better than their value counterparts. This quarter's results followed the theme of large-cap growth stocks being the best-performing segment of the domestic equity market over the past several years.
- For the year the Russell 1000 Growth Index returned an impressive 33.5%, leading the way among style and market capitalization classifications. Much of this strong performance has been attributable to the emergence of the "Magnificent 7" stocks, which have dominated the large-cap indexes over the past several years. The seven biggest stocks in the Russell 1000 Index contributed more than 70% of the index's total performance in the trailing 12-month period.
- The weakest performing index for the year was the Russell 2000 Growth, which still posted a solid return of 9.1%.
- The dominance of growth sectors is evident in the chart with the broad-cap, large-cap, and mid-cap benchmarks handily outperforming the core and value indexes for the trailing one-year period. The performance gap between the Russell 1000 Growth Index and the Russell 1000 Value Index was a staggering 20.4% for the year while the mid-cap growth index edged past the mid-cap value index by just 3.1%. Small-cap stocks bucked the growth-dominance trend with the Russell 2000 Value Index posting a return of 10.9% versus a return of 9.1% for the Russell 2000 Growth Index.

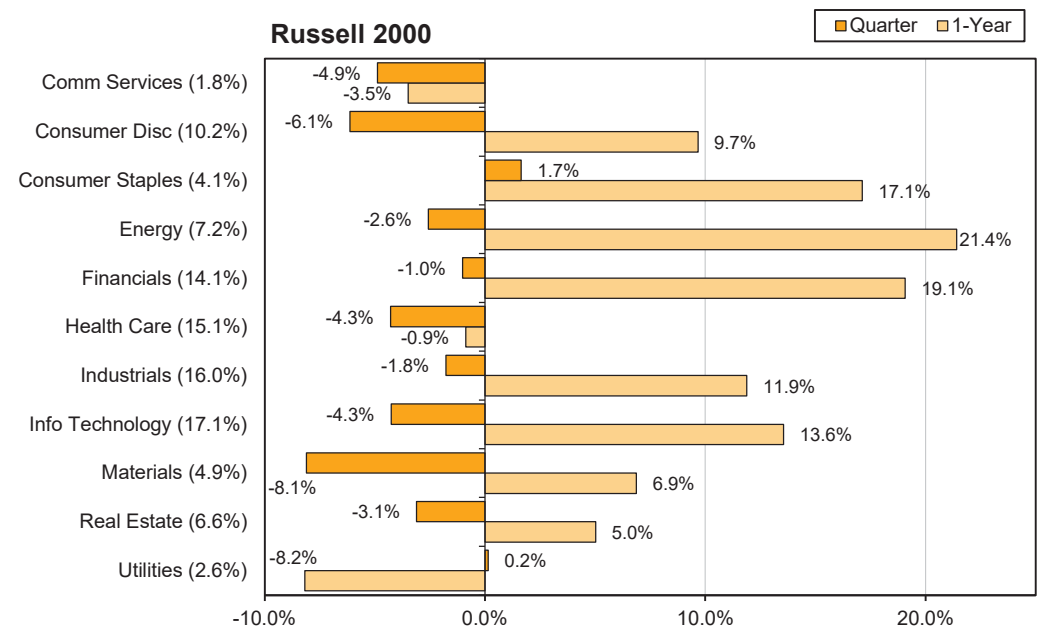


Source: Investment Metrics

- Economic sector performance was choppy during the second quarter. This quarter broke the preceding trend of broader participation in the equity market's rally. Only five of the 11 economic sectors posted positive absolute returns for the quarter, with information technology (11.9%), communication services (9.0%), and utilities (5.1%) leading the way.
- In contrast, full-year results were more consistent as all 11 economic sectors finished the year in positive territory. Of the 11 sectors, three (communication services, up 43.0%; information technology, up 39.7%; and financials, up 25.8%) were up by more than 25.0% for the past year. With their more than 40% combined weight in the benchmark, these three sectors were also the only ones to outpace the Russell 1000 Index's return of 23.9%. Despite solid positive performance, utilities (up 9.1%), consumer staples (8.4%), materials (8.1%), consumer staples (8.4%), and real estate (4.9%) were all relative detractors for the year with their single-digit returns.



- Nine of the 11 small-cap economic sectors lost value during the quarter. Consumer staples (up 1.7%), and utilities (0.2%) were the only two sectors to post gains for the quarter. Materials was the worst-performing sector posting a loss of -8.1% for the quarter. While not always the case, small-cap stocks generally have greater dependence on liquidity and access to capital which can lead to lagging performance relative to large-cap stocks during periods of restrictive monetary policy.
- Similar to large-cap sector performance, eight of the 11 small-cap sectors were positive over the trailing one-year period. Energy posted the strongest sector performance with a return of 21.4%, followed closely by the financials sector return of 19.1%. Consumer staples (up 17.1%), information technology (13.6%), and industrials (11.9%) each produced double-digit results for the period. Three sectors (communication services, health care, and utilities) posted negative results during the period.



Source: Morningstar Direct
 As a result of the GICS classification changes on 9/28/2018 and certain associated reporting limitations, sector performance represents backward looking performance for the prior year of each sector's current constituency, post creation of the Communication Services sector.

The Market Environment
Top 10 Index Weights & Quarterly Performance for the Russell 1000 & 2000
As of June 30, 2024

Top 10 Weighted Stocks				
Russell 1000	Weight	1-Qtr Return	1-Year Return	Sector
Microsoft Corp	6.7%	6.4%	32.3%	Information Technology
Apple Inc	6.2%	23.0%	9.2%	Information Technology
NVIDIA Corp	5.9%	36.7%	192.1%	Information Technology
Amazon.com Inc	3.5%	7.1%	48.2%	Consumer Discretionary
Meta Platforms Inc Class A	2.2%	3.9%	76.1%	Communication Services
Alphabet Inc Class A	2.2%	20.8%	52.3%	Communication Services
Alphabet Inc Class C	1.9%	20.6%	51.8%	Communication Services
Eli Lilly and Co	1.5%	16.6%	94.5%	Health Care
Berkshire Hathaway Inc Class B	1.5%	21.5%	88.4%	Financials
Broadcom Inc	1.4%	-3.3%	19.3%	Information Technology

Top 10 Performing Stocks (by Quarter)				
Russell 1000	Weight	1-Qtr Return	1-Year Return	Sector
GameStop Corp Class A	0.0%	97.2%	1.8%	Consumer Discretionary
Petco Health and Wellness Co	0.0%	65.8%	-57.5%	Consumer Discretionary
Alnylam Pharmaceuticals Inc	0.1%	62.6%	27.9%	Health Care
United Therapeutics Corp	0.0%	38.7%	44.3%	Health Care
Cirrus Logic Inc	0.0%	37.9%	57.6%	Information Technology
NCR Atleos Corp	0.0%	36.8%	N/A	Financials
NVIDIA Corp	5.9%	36.7%	192.1%	Information Technology
AMC Entertainment	0.0%	33.9%	-87.2%	Communication Services
First Solar Inc	0.0%	33.6%	18.6%	Information Technology
Cava Group Inc	0.0%	32.4%	126.5%	Consumer Discretionary

Bottom 10 Performing Stocks (by Quarter)				
Russell 1000	Weight	1-Qtr Return	1-Year Return	Sector
Ginkgo Bioworks Holdings Inc	0.0%	-71.2%	-82.0%	Materials
Hertz Global Holdings Inc	0.0%	-54.9%	-80.8%	Industrials
10x Genomics Inc	0.0%	-48.2%	-65.2%	Health Care
DoubleVerify Holdings Inc	0.0%	-44.6%	-50.0%	Information Technology
UiPath Inc Class A	0.0%	-44.1%	-23.5%	Information Technology
Walgreens Boots Alliance Inc	0.0%	-43.5%	-54.6%	Consumer Staples
Fortrea Holdings Inc	0.0%	-41.9%	-31.4%	Health Care
Five Below Inc	0.0%	-39.9%	-44.6%	Consumer Discretionary
Leggett & Platt Inc	0.0%	-39.9%	-58.8%	Consumer Discretionary
Unity Software Inc Ordinary Shares	0.0%	-39.1%	-62.6%	Information Technology

Top 10 Weighted Stocks				
Russell 2000	Weight	1-Qtr Return	1-Year Return	Sector
Super Micro Computer Inc	1.6%	-18.9%	228.7%	Information Technology
MicroStrategy Inc Class A	0.8%	-19.2%	302.3%	Information Technology
Carvana Co Class A	0.5%	46.4%	396.6%	Consumer Discretionary
e.l.f. Beauty Inc	0.4%	7.5%	84.5%	Consumer Staples
Comfort Systems USA Inc	0.4%	-4.2%	86.0%	Industrials
Onto Innovation Inc	0.4%	21.3%	88.5%	Information Technology
FTAI Aviation Ltd	0.4%	54.0%	234.2%	Industrials
Light & Wonder Inc Ordinary Shares	0.4%	2.7%	52.5%	Consumer Discretionary
Insmed Inc	0.4%	147.0%	217.5%	Health Care
Fabrinet	0.4%	29.5%	88.5%	Information Technology

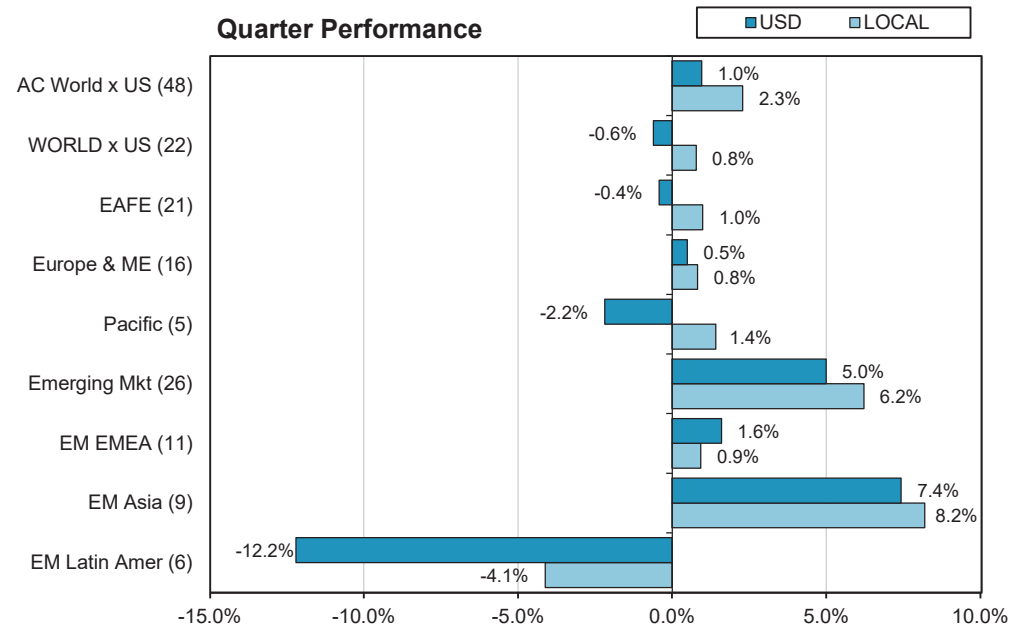
Top 10 Performing Stocks (by Quarter)				
Russell 2000	Weight	1-Qtr Return	1-Year Return	Sector
AST SpaceMobile Inc Ordinary Shares	0.1%	300.3%	147.0%	Communication Services
Emergent BioSolutions Inc	0.0%	169.6%	-7.2%	Health Care
Novavax Inc	0.1%	164.9%	70.4%	Health Care
Rent the Runway Inc Class A	0.0%	154.3%	-55.6%	Consumer Discretionary
Insmed Inc	0.4%	147.0%	217.5%	Health Care
Innodata Inc	0.0%	124.7%	30.9%	Industrials
NuScale Power Corp Class A	0.0%	120.2%	71.9%	Industrials
TransMedics Group Inc	0.2%	103.7%	79.4%	Health Care
Vital Farms Inc Ordinary Shares	0.1%	101.2%	290.1%	Consumer Staples
Matterport Inc Ordinary Shares	0.0%	97.8%	41.9%	Information Technology

Bottom 10 Performing Stocks (by Quarter)				
Russell 2000	Weight	1-Qtr Return	1-Year Return	Sector
Aerovate Therapeutics Inc	0.0%	-94.4%	-90.3%	Health Care
Marinus Pharmaceuticals Inc	0.0%	-87.1%	-89.2%	Health Care
Cerence Inc Ordinary Shares	0.0%	-82.0%	-90.3%	Information Technology
Velo3D Inc	0.0%	-79.2%	-95.6%	Industrials
Akoustis Technologies Inc	0.0%	-77.7%	-95.9%	Information Technology
Gritstone Bio Inc	0.0%	-76.0%	-68.3%	Health Care
Ovid Therapeutics Inc	0.0%	-74.8%	-76.5%	Health Care
Maxeon Solar Technologies Ltd	0.0%	-74.4%	-97.0%	Information Technology
Zentalis Pharmaceuticals Inc	0.0%	-74.0%	-85.5%	Health Care
Nikola Corp	0.0%	-73.8%	-80.2%	Industrials

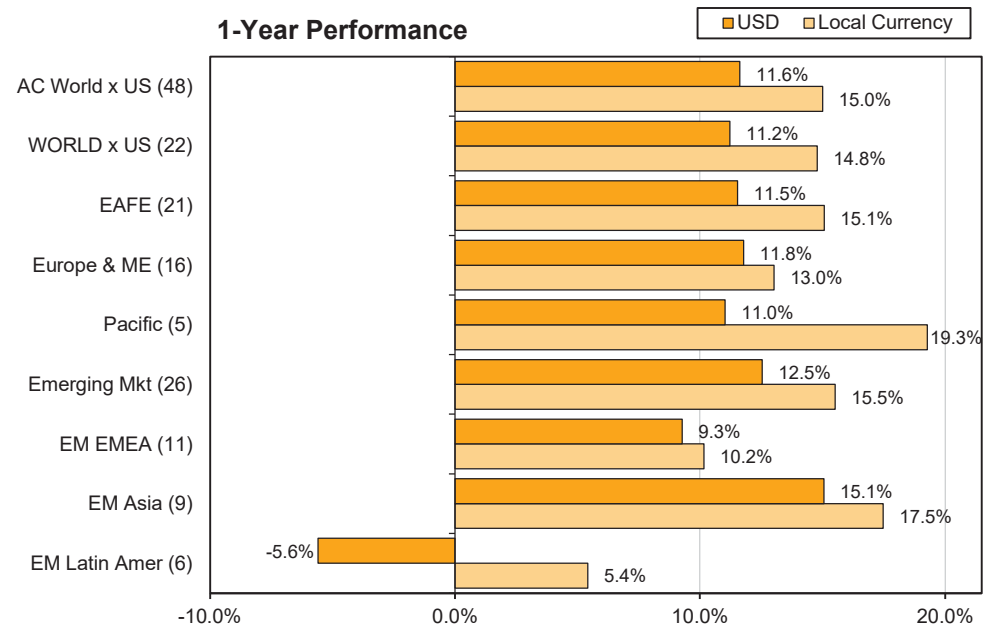
Source: Morningstar Direct

- Results among the broad international equity indexes were mixed during the quarter, echoing the performance of major domestic indexes. The strengthening USD relative to many major currencies during the quarter was a detractor to the USD performance of regional benchmark returns across most regions. The developed-market MSCI EAFE Index returned a muted 1.0% in LCL terms but fell -0.4% in USD terms. The MSCI Emerging Markets Index was the best-performing broad index and rose by 5.0% in USD and 6.2% in LCL terms for the quarter.
- Latin America continued to struggle during the quarter in both USD and LCL terms. The cyclical demand for commodity exports in the region has resulted in greater volatility due to ongoing uncertainty over central bank policies and future global demand.
- The heaviest-weighted country in the emerging market index (China) rebounded 7.1% during the quarter. The Chinese economy grew at a rate of 5.2% in 2023, lower than its pre-pandemic rate of 6.0% and has been a headwind for performance. Troubles in the commercial property and banking sectors have also created challenges for growth in the region. Despite the additive performance in the region, the Chinese banking sector underwent heavy consolidation during the second quarter amid regional bank failures across the country.
- Much like domestic markets, trailing one-year results for international developed and emerging markets benchmarks were strong. Higher LCL versus USD returns for most international benchmarks demonstrate the USD's strength over the trailing one-year period.
- Most broad and regional indexes were positive for the trailing 12 months in both USD and LCL terms. The sole exception was EM Latin America, where USD strength turned the region's positive LCL performance negative in USD terms. In LCL terms, the MSCI Pacific Index led the way with a return of 19.3% for the trailing year. USD returns for the region were still strong but returned a more muted 11.0%. The EM Asia regional index posted the strongest relative USD performance, returning 15.1% over the trailing 12 months.

Quarter Performance



1-Year Performance



Source: MSCI Global Index Monitor (Returns are Net)

The Market Environment
US Dollar International Index Attribution & Country Detail
As of June 30, 2024

MSCI - EAFE	Sector Weight	Quarter Return	1-Year Return
Communication Services	4.1%	0.5%	10.1%
Consumer Discretionary	11.5%	-9.0%	0.1%
Consumer Staples	8.5%	-1.6%	-6.8%
Energy	4.1%	1.3%	15.9%
Financials	20.0%	3.3%	24.2%
Health Care	13.5%	4.7%	11.5%
Industrials	16.9%	-0.8%	15.0%
Information Technology	9.5%	0.2%	24.1%
Materials	6.7%	-3.2%	8.5%
Real Estate	2.0%	-6.7%	7.6%
Utilities	3.1%	0.8%	-0.6%
Total	100.0%	-0.4%	11.5%

MSCI - ACWixUS	Sector Weight	Quarter Return	1-Year Return
Communication Services	5.3%	4.0%	5.7%
Consumer Discretionary	11.1%	-4.8%	1.9%
Consumer Staples	7.2%	-1.7%	-5.9%
Energy	5.5%	1.3%	18.9%
Financials	21.7%	2.6%	18.7%
Health Care	9.5%	3.8%	10.0%
Industrials	13.7%	-0.5%	13.1%
Information Technology	14.0%	5.2%	28.3%
Materials	7.1%	-1.9%	5.1%
Real Estate	1.8%	-4.7%	4.5%
Utilities	3.1%	2.2%	3.7%
Total	100.0%	1.0%	11.6%

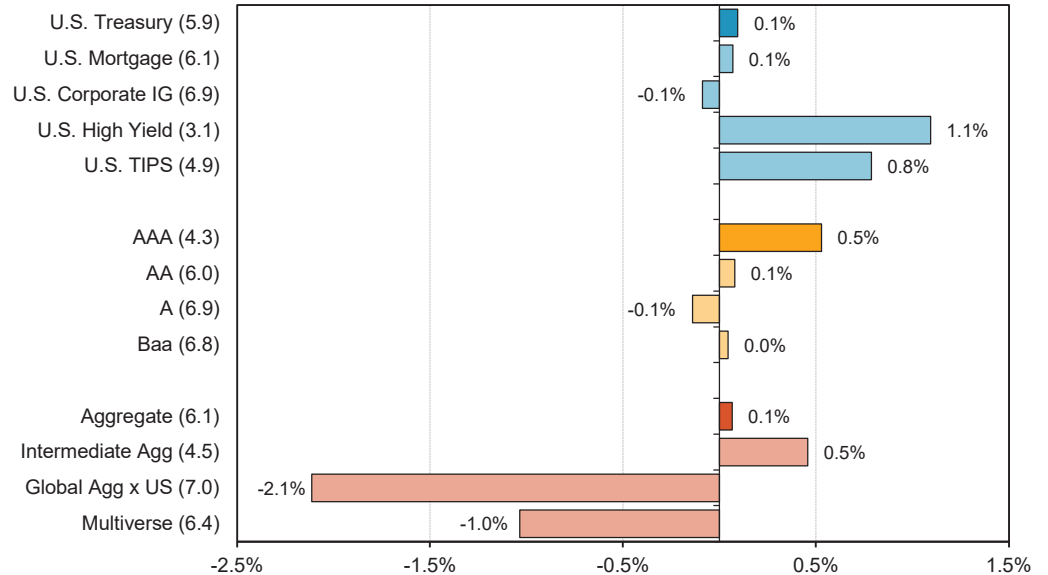
MSCI - Emerging Mkt	Sector Weight	Quarter Return	1-Year Return
Communication Services	8.9%	8.2%	2.7%
Consumer Discretionary	12.3%	5.1%	6.3%
Consumer Staples	5.2%	-3.0%	-5.7%
Energy	5.2%	3.3%	25.2%
Financials	21.9%	3.5%	12.6%
Health Care	3.2%	-4.3%	-2.8%
Industrials	6.9%	4.0%	6.9%
Information Technology	25.1%	11.3%	34.2%
Materials	6.9%	-1.8%	-3.1%
Real Estate	1.5%	2.8%	-4.1%
Utilities	3.0%	6.2%	20.3%
Total	100.0%	5.0%	12.5%

Country	MSCI-EAFE Weight	MSCI-ACWixUS Weight	Quarter Return	1-Year Return
Japan	22.7%	14.4%	-4.3%	13.2%
United Kingdom	14.9%	9.5%	3.7%	12.5%
France	11.2%	7.1%	-7.5%	0.5%
Switzerland	9.7%	6.2%	3.1%	6.1%
Germany	8.7%	5.5%	-1.4%	10.1%
Australia	7.5%	4.8%	1.6%	14.1%
Netherlands	5.4%	3.4%	5.0%	25.6%
Denmark	4.0%	2.5%	7.5%	42.1%
Sweden	3.2%	2.1%	2.2%	18.2%
Italy	2.7%	1.7%	-3.4%	21.3%
Spain	2.7%	1.7%	-1.6%	15.0%
Hong Kong	1.8%	1.1%	1.0%	-18.0%
Singapore	1.4%	0.9%	8.9%	13.5%
Finland	1.0%	0.6%	3.0%	1.7%
Belgium	1.0%	0.6%	0.9%	9.0%
Israel	0.7%	0.5%	-4.2%	23.6%
Norway	0.6%	0.4%	6.6%	14.2%
Ireland	0.3%	0.2%	-0.8%	12.5%
Portugal	0.2%	0.1%	8.5%	-6.4%
Austria	0.2%	0.1%	7.1%	17.9%
New Zealand	0.2%	0.1%	3.2%	3.7%
Total EAFE Countries	100.0%	63.6%	-0.4%	11.5%
Canada	7.4%	7.4%	-2.1%	8.6%
Total Developed Countries	71.0%	71.0%	-0.6%	11.2%
China		7.3%	7.1%	-1.6%
Taiwan		5.6%	15.1%	40.7%
India		5.6%	10.2%	34.4%
Korea		3.5%	-1.2%	8.1%
Brazil		1.2%	-12.2%	-7.7%
Saudi Arabia		1.1%	-7.4%	0.9%
South Africa		0.9%	12.3%	12.3%
Mexico		0.6%	-16.1%	-6.5%
Indonesia		0.5%	-12.4%	-11.8%
Malaysia		0.4%	4.4%	17.5%
Thailand		0.4%	-4.8%	-13.3%
United Arab Emirates		0.3%	-2.3%	0.8%
Poland		0.3%	6.1%	32.4%
Turkey		0.2%	21.4%	62.1%
Qatar		0.2%	-0.3%	0.7%
Kuwait		0.2%	-2.8%	2.2%
Philippines		0.1%	-10.7%	-3.1%
Greece		0.1%	-1.2%	9.6%
Chile		0.1%	-1.3%	-9.3%
Peru		0.1%	2.0%	40.0%
Hungary		0.1%	9.2%	29.0%
Czech Republic		0.0%	6.3%	3.5%
Colombia		0.0%	-4.6%	26.7%
Egypt		0.0%	-4.2%	-4.8%
Total Emerging Countries	29.0%	29.0%	5.0%	12.5%
Total ACWixUS Countries	100.0%	100.0%	1.0%	11.6%

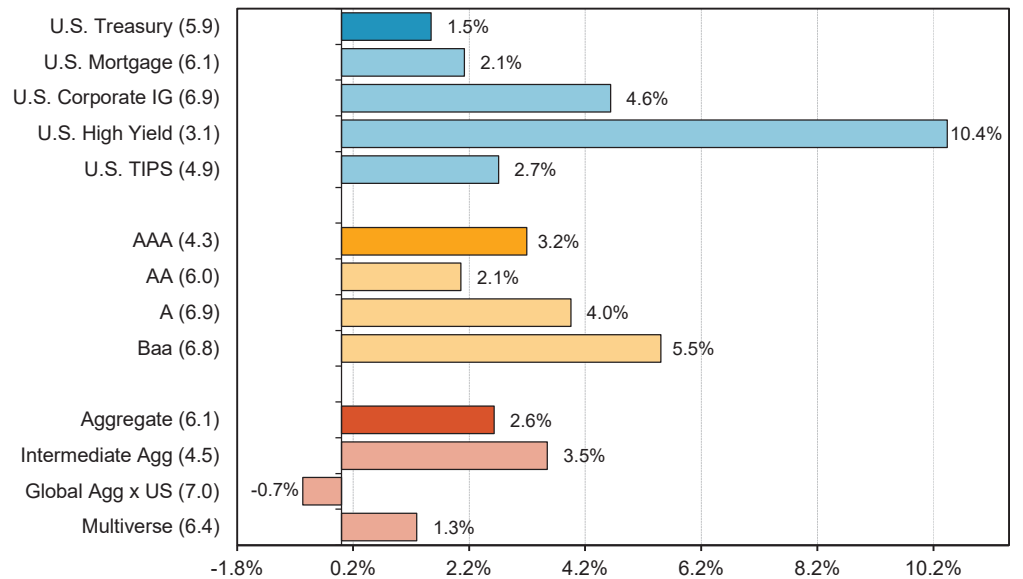
Source: Morningstar Direct, MSCI Global Index Monitor (Returns are Net in USD)
As a result of the GICS classification changes on 9/28/2018 and certain associated reporting limitations, sector performance represents backward looking performance for the prior year of each sector's current constituency, post creation of the Communication Services sector.

- Fixed-income markets fell in a relatively tight range for the quarter with many domestic sectors returning less than 0.5%. Yields remained at elevated levels as the Federal Reserve maintained its restrictive policy stance. If market expectations hold and the Fed begins to cut rates in 2024, to the extent any cuts lower yields across the curve, it will provide a jolt to bondholder performance since bond prices move in the opposite direction of yields.
- The Bloomberg US Aggregate Bond Index had a mixed quarter of performance made up of a large drawdown in April followed by smaller recoveries in May and June that combined for an index return of 0.1%. Performance across the investment-grade index's segments for the quarter was similarly muted with the Bloomberg US Corporate Investment Grade Index returning -0.1% and the US Mortgage Index gaining 0.1%.
- Outside of the Aggregate index's sub-components, high-yield bonds continued to rise, posting a return of 1.1%, boosted by the higher coupon income, and US TIPS climbed 0.8% for the quarter. The Bloomberg Global Aggregate ex-US Index returned -2.1% for the quarter with USD strength exerting downward pressure on performance. This global performance lagged domestic fixed-income indexes as well as the multiverse benchmark's return of -1.0%.
- Over the trailing one-year period, the Bloomberg US Aggregate Bond Index managed a 2.6% return. The benchmark's sub-components also posted positive performance over the trailing 12 months with the Bloomberg US Corporate Investment Grade Index rising 4.6% and the US Mortgage Index posting a more modest 2.1% return. US TIPS and high-yield corporate bonds, which are excluded from the aggregate index, each posted gains in the trailing year with returns of 2.7% and 10.4%, respectively. In addition to their higher coupons, high-yield bonds benefited from generally shorter duration than investment-grade corporate debt. This lower duration acted as a tailwind for high-yield bonds as interest rates rose during the trailing year.
- Among credit qualities, lower-quality bonds (both investment grade and non-investment grade) have outperformed higher-quality bonds due to both their higher yields, which contribute to higher interest payments, and narrowing credit spreads over the last year.
- Performance for non-US bonds was negative for the trailing year with the Bloomberg Global Aggregate ex-US Index falling -0.7%. With foreign central banks largely tracking the Fed's tight monetary stance, the negative performance of global bonds is largely attributable to USD strength over the last year.

Quarter Performance



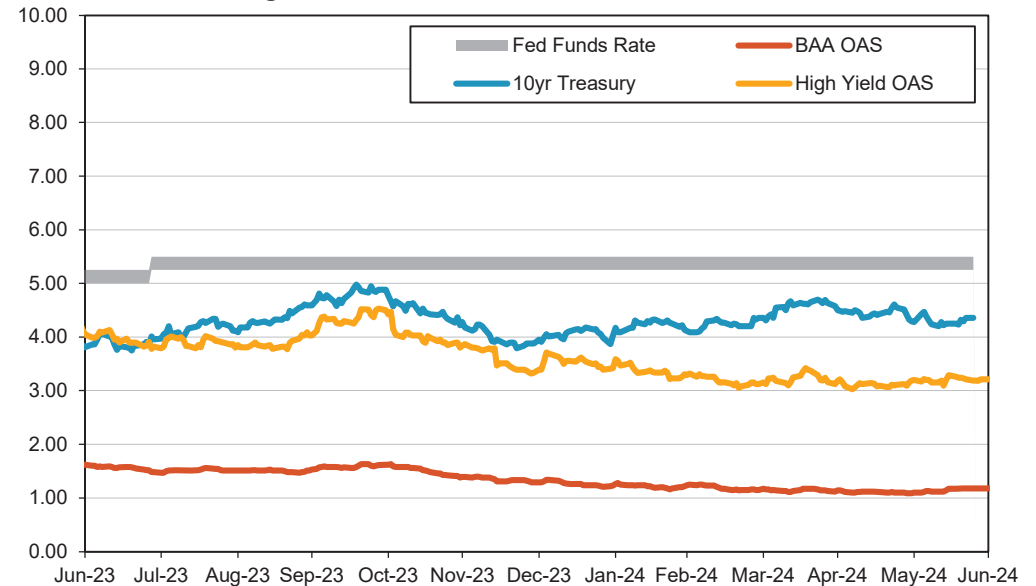
1-Year Performance



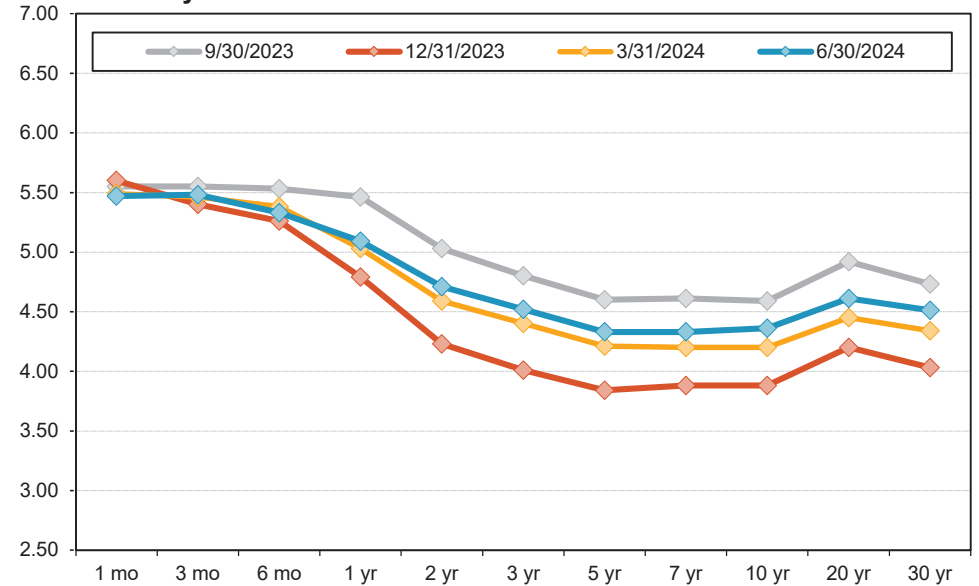
Source: Bloomberg

- The gray band across the graph illustrates the current fed funds target rate range over the last 12 months. During the second quarter, the Federal Open Market Committee (FOMC) continued to hold fed funds rates steady in the 5.25%-5.50% target range. The last rate increase in the current cycle occurred at the FOMC's July 2023 meeting. While the FOMC's press releases have continued to push economic data-dependent outcomes, the language used to describe economic conditions in these releases has also softened, resulting in market expectations that the next rate action by the FOMC will likely be a cut. The CME FedWatch tool, which forecasts rates based on Fed Fund futures pricing, currently shows a greater than 90% probability of a 0.25% rate decrease at the FOMC September meeting. Fed officials and market participants continue to express concern that leaving rates at their current levels for an extended period could tip the US economy into a recession. However, inflation remains above the FOMC's long-term 2.0% target level. Additionally, the FOMC continues to remove liquidity from the market by allowing bonds held on its balance sheet to mature without reinvesting principal payments.
- The yield on the US 10-year Treasury (blue line of the top chart) remained stable, opening the quarter at 4.33% and finishing June at a yield of 4.36%. The stability of the benchmark rate reflects the stability of the Federal Reserve's policy stance and the persistently high level of inflation throughout the economy. The 10-year Treasury benchmark's rate peaked in October 2023, cresting at a yield of just under 5.00% before pulling back in the remainder of the year.
- The red line in the top chart shows the Option Adjusted Spread (OAS) for BAA-rated corporate bonds. This measure quantifies the additional yield premium that investors require to purchase and hold non-US Treasury issues with the lowest investment grade rating. During the quarter, the yield spread was relatively unchanged, beginning the quarter at 1.18% and finishing June at 1.17%. The spread measure narrowed over the trailing 12-month period after concerns about the regional banking sector during March 2023 caused credit spreads to spike. High-yield OAS spreads (represented by the orange line in the top chart) have also remained relatively unchanged, rising by just 0.07%. The spread measures' stability results from steady economic growth, stable monetary policy, and falling inflation readings.
- The lower graph provides a snapshot of the US Treasury yield curve at the end of each of the last four quarters. The yield curve has been inverted for each of the last four quarter-end readings on the graph and for most of last two years. Historically, a persistent yield curve inversion has been a precursor of an economic recession within six to 24 months.

1-Year Trailing Market Rates



Treasury Yield Curve



Source: US Department of Treasury, FRED (Federal Reserve of St. Louis)

[CME FedWatch Tool - CME Group](#)

[Effective Federal Funds Rate - FEDERAL RESERVE BANK of NEW YORK \(newyorkfed.org\)](#)

[ICE BofA US High Yield Index Option-Adjusted Spread \(BAMLH0A0HYM2\) | FRED | St. Louis Fed \(stlouisfed.org\)](#)

[When will the Federal Reserve start cutting interest rates? | J.P. Morgan Asset Management \(jpmorgan.com\)](#)

[Resource Center | U.S. Department of the Treasury](#)

[China's Economy Limpes Into 2024 – WSJ](#)

[Support Site - Global Index Lens: Index Returns – MSCI](#)

[Federal Reserve issues FOMC statement](#)

[Transcript of Chair Powell's Press Conference -- June 12, 2024 \(federalreserve.gov\)](#)

[U.S. Treasurys: investors look to inflation data due in week ahead \(cnbc.com\)](#)

[Yen drops to 38-year low, U.S. dollar slumps after weak data \(cnbc.com\)](#)

[Jobs report June 2024: \(cnbc.com\)](#)

[The Fed - June 12, 2024: FOMC Projections materials, accessible version \(federalreserve.gov\)](#)

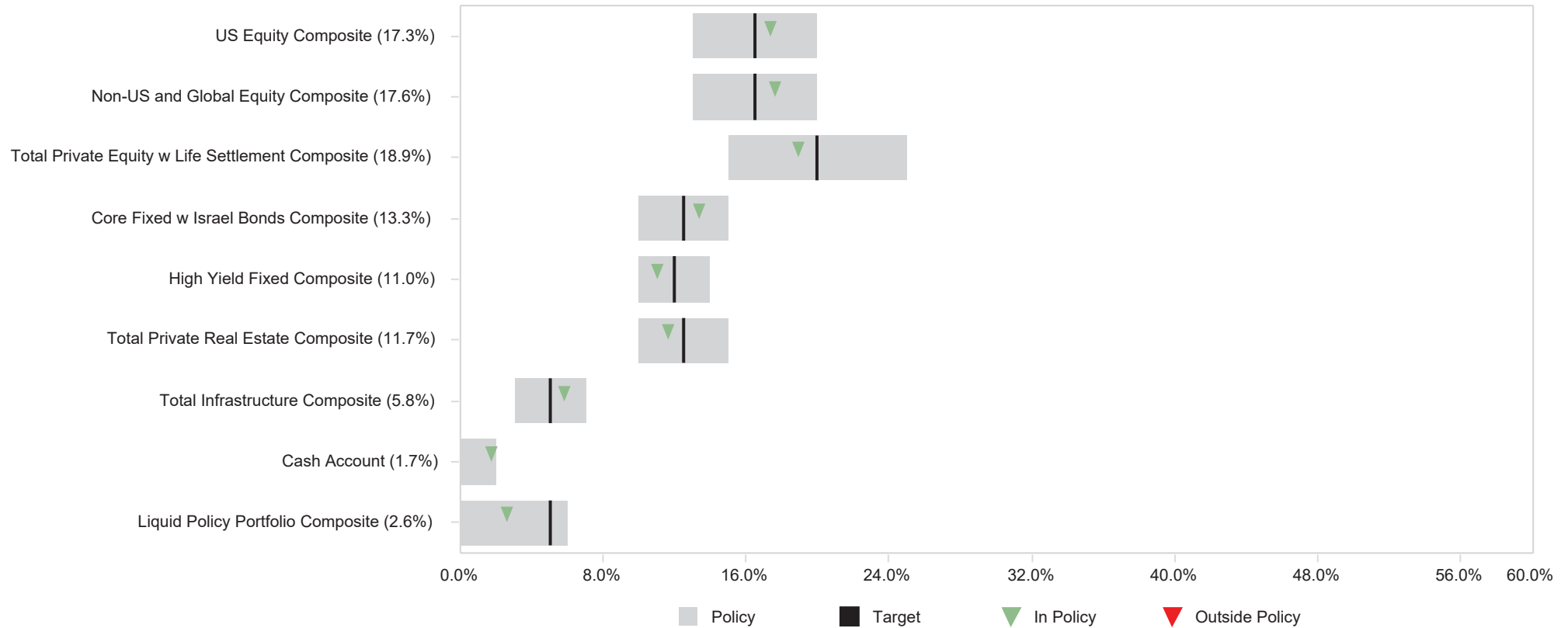
[The Federal Reserve's latest dot plot, explained – and what it says about interest rates | Bankrate](#)

[Top 25 Stocks in the S&P 500 By Index Weight for July 2024 \(investopedia.com\)](#)

[Will Small-Cap Stocks Ever Catch Up? | Morningstar](#)

[Why Chinese banks are now vanishing \(economist.com\)](#)

Executive Summary



Asset Allocation Compliance

	Asset Allocation \$	Current Allocation (%)	Minimum Allocation (%)	Maximum Allocation (%)	Target Allocation (%)
Total Fund	949,052,157	100.0	N/A	N/A	100.0
US Equity Composite	164,553,308	17.3	13.0	20.0	16.5
Non-US and Global Equity Composite	166,985,639	17.6	13.0	20.0	16.5
Total Private Equity w Life Settlement Composite	179,725,943	18.9	15.0	25.0	20.0
Core Fixed w Israel Bonds Composite	126,557,003	13.3	10.0	15.0	12.5
High Yield Fixed Composite	104,804,813	11.0	10.0	14.0	12.0
Total Private Real Estate Composite	110,697,620	11.7	10.0	15.0	12.5
Total Infrastructure Composite	55,092,767	5.8	3.0	7.0	5.0
Cash Account	16,141,185	1.7	0.0	2.0	0.0
Liquid Policy Portfolio Composite	24,493,879	2.6	0.0	6.0	5.0

Asset Allocation includes assets of the Emerging, Minority, and Women owned Investment Manager Program. The Investment Policy Statement for the Retirement Board of Allegheny County allows for the Pension's asset allocation to temporarily fall outside of the stated policy ranges due to market fluctuations and the Pension's short-term cash flow needs. Recommendations are provided by the Pension's investment consultant regarding rebalancing of the Pension's asset allocation.

**Historical Asset Allocation
Total Fund**

As of June 30, 2024

Asset Allocation Attributes	Jun-2024		Mar-2024		Dec-2023		Sep-2023	
	(\$)	%	(\$)	%	(\$)	%	(\$)	%
	Total Fund	949,052,157	100.00	952,523,692	100.00	943,662,706	100.00	908,471,269
US Equity Composite	164,553,308	17.34	170,102,665	17.86	153,372,809	16.25	155,716,195	17.14
SSgA S&P 500 Index	80,963,265	8.53	77,636,356	8.15	70,229,043	7.44	72,278,179	7.96
Fragasso Large Core (EMWO)	85,961	0.01	5,924,098	0.62	5,353,872	0.57	6,264,782	0.69
Twin Capital Enhanced Equity	40,886,101	4.31	39,254,235	4.12	35,097,633	3.72	36,160,056	3.98
Vesper U.S. Large Cap Short-Term Reversal Strategy ETF (UTRN) (EMWO)	1,108,282	0.12	1,101,905	0.12	1,005,642	0.11	945,545	0.10
Earnest Small Value	13,792,652	1.45	13,772,427	1.45	13,185,712	1.40	13,779,559	1.52
Emerald Advisors Small Cap	14,696,539	1.55	14,205,558	1.49	13,421,305	1.42	12,635,738	1.39
Emerald Advisors All Cap (EMWO)	6,189,313	0.65	5,696,463	0.60	5,236,915	0.55	5,912,191	0.65
Etho (EMWO)	1,888,513	0.20	1,954,995	0.21	1,858,330	0.20	1,672,854	0.18
CIM Small Cap (EMWO)	4,873	0.00	5,463,839	0.57	5,462,901	0.58	4,798,315	0.53
Cookson Peirce (EMWO)	2,915,192	0.31	2,938,839	0.31	2,521,456	0.27	1,268,976	0.14
Stoneridge Dynamic Small Cap Equity (EMWO)	2,022,618	0.21	2,153,948	0.23	-	0.00	-	0.00
Non US Equity Composite	166,985,639	17.59	165,343,197	17.36	157,622,677	16.70	150,941,350	16.61
SSgA ACWI ex US	40,759,597	4.29	40,356,545	4.24	38,529,278	4.08	35,115,435	3.87
Baillie Gifford Intl Equity	51,093,400	5.38	50,804,261	5.33	49,012,988	5.19	51,776,833	5.70
FIAM Select International Equity	34,693,607	3.66	34,128,462	3.58	32,181,853	3.41	29,387,526	3.23
Segall, Bryant & Hamill	40,439,035	4.26	40,053,928	4.21	37,898,559	4.02	34,661,556	3.82
Core Fixed w Israel Bonds Composite	126,557,003	13.34	125,528,553	13.18	125,417,770	13.29	117,847,579	12.97
C S McKee	35,800,703	3.77	35,658,366	3.74	35,805,449	3.79	33,328,533	3.67
Federated Core Broad	28,180,457	2.97	28,045,829	2.94	28,180,717	2.99	26,352,669	2.90
CIM Investment Mgmt	28,391,802	2.99	28,191,165	2.96	28,195,379	2.99	26,862,216	2.96
Emstone Partners (EMWO)	5,346,032	0.56	5,309,136	0.56	5,312,352	0.56	5,076,803	0.56
Gridiron Capital Fixed Income	14,288,033	1.51	14,115,110	1.48	13,916,812	1.47	12,886,293	1.42
Gridiron Capital Multi-Asset (EMWO)	3,813,026	0.40	3,777,068	0.40	3,591,988	0.38	3,289,478	0.36
FNB (EMWO)	2,757,511	0.29	2,738,459	0.29	2,743,377	0.29	2,625,960	0.29
Israel Bonds	7,979,440	0.84	7,693,419	0.81	7,671,694	0.81	7,425,626	0.82
High Yield Fixed Composite	104,804,813	11.04	103,736,869	10.89	114,254,535	12.11	108,209,836	11.91
Oaktree High Yield	47,834,486	5.04	47,950,243	5.03	58,133,996	6.16	55,363,141	6.09
Federated High Yield	56,758,764	5.98	55,446,731	5.82	55,542,082	5.89	52,111,441	5.74
Sound Point	211,563	0.02	339,895	0.04	578,457	0.06	735,254	0.08

**Historical Asset Allocation
Total Fund**

As of June 30, 2024

	Jun-2024		Mar-2024		Dec-2023		Sep-2023	
	(\$)	%	(\$)	%	(\$)	%	(\$)	%
Real Estate Composite	110,697,620	11.66	112,166,535	11.78	113,914,822	12.07	117,818,884	12.97
Morgan Stanley Prime Property Fund	70,514,156	7.43	72,478,383	7.61	75,886,765	8.04	79,531,068	8.75
Oaktree Real Estate	4,189,191	0.44	4,410,407	0.46	4,460,197	0.47	4,630,582	0.51
ERECT Fund II (EMWO)	11,044,326	1.16	10,608,326	1.11	10,685,217	1.13	10,419,289	1.15
Washington Alliance (EMWO)	14,102,045	1.49	14,406,923	1.51	14,251,558	1.51	14,515,764	1.60
Washington Alliance II (EMWO)	3,582,553	0.38	3,719,973	0.39	2,277,864	0.24	2,214,415	0.24
Siguler Guff Distressed RE	5,263,660	0.55	5,264,274	0.55	5,370,011	0.57	5,807,139	0.64
Artemis Real Estate Partners Fund IV	2,001,689	0.21	1,278,249	0.13	983,210	0.10	700,627	0.08
Infrastructure Composite	55,092,767	5.81	54,594,600	5.73	54,283,203	5.75	53,472,903	5.89
JP Morgan Infrastructure Fund (IIF Hedged)	28,091,787	2.96	27,856,605	2.92	27,307,032	2.89	27,188,223	2.99
IFM Global Infrastructure LP	27,000,980	2.85	26,737,995	2.81	26,976,171	2.86	26,284,679	2.89
Private Equity Composite	171,778,320	18.10	174,309,064	18.30	179,222,215	18.99	182,264,889	20.06
Life Settlement Composite	7,947,622	0.84	9,063,293	0.95	9,656,163	1.02	9,764,633	1.07
Liquid Policy Portfolio Composite	24,493,879	2.58	29,337,435	3.08	25,308,313	2.68	2,036,334	0.22
BlackRock Liquidity iShares Public Pension Fund	24,493,879	2.58	29,337,435	3.08	25,308,313	2.68	2,036,334	0.22
Cash Account	16,141,185	1.70	8,341,481	0.88	10,610,198	1.12	10,398,665	1.14

Financial Reconciliation
Total Fund
1 Quarter Ending June 30, 2024

Financial Reconciliation	Market Value 04/01/2024	Net Flows	Return On Investment	Market Value 06/30/2024
Total Fund	952,523,692	-14,249,887	11,286,812	949,052,157
SSgA S&P 500 Index	77,636,356	-	3,326,909	80,963,265
Fragasso Large Core (EMWO)	5,924,098	-5,829,132	-9,005	85,961
Twin Capital Enhanced Equity	39,254,235	34,450	1,631,786	40,886,101
Vesper U.S. Large Cap Short-Term Reversal Strategy ETF (UTRN) (EMWO)	1,101,905	-	6,376	1,108,282
Earnest Small Value	13,772,427	31,852	20,225	13,792,652
Emerald Advisors Small Cap	14,205,558	27,045	490,981	14,696,539
Emerald Advisors All Cap (EMWO)	5,696,463	8,769	492,850	6,189,313
Etho (EMWO)	1,954,995	-4,498	-61,984	1,888,513
CIM Small Cap (EMWO)	5,463,839	-5,372,883	-81,124	4,873
Cookson Peirce (EMWO)	2,938,839	3,598	-23,647	2,915,192
Stoneridge Dynamic Small Cap Equity (EMWO)	2,153,948	3,019	-131,330	2,022,618
US Equity Composite	170,102,665	-11,097,781	5,662,037	164,553,308
SSgA ACWI ex US	40,356,545	-	403,052	40,759,597
Baillie Gifford Intl Equity	50,804,261	-	289,139	51,093,400
FIAM Select International Equity	34,128,462	-	565,145	34,693,607
Segall, Bryant & Hamill	40,053,928	61,809	385,107	40,439,035
Non US Equity Composite	165,343,197	61,809	1,642,443	166,985,639
C S McKee	35,658,366	20,585	142,337	35,800,703
Federated Core Broad	28,045,829	19,919	134,628	28,180,457
CIM Investment Mgmt	28,191,165	17,745	200,637	28,391,802
Emstone Partners (EMWO)	5,309,136	2,630	36,896	5,346,032
Gridiron Capital Fixed Income	14,115,110	22,825	172,923	14,288,033
Gridiron Capital Multi-Asset (EMWO)	3,777,068	7,013	35,957	3,813,026
FNB (EMWO)	2,738,459	2,388	19,052	2,757,511
Israel Bonds	7,693,419	3,888	286,020	7,979,440
Core Fixed w Israel Bonds Composite	125,528,553	96,993	1,028,451	126,557,003
Oaktree High Yield	47,950,243	-820,345	775,830	47,834,486
Federated High Yield	55,446,731	-	1,312,033	56,758,764
Sound Point	339,895	-124,312	-4,020	211,563
High Yield Fixed Composite	103,736,869	-944,657	2,083,842	104,804,813

Financial Reconciliation
Total Fund
1 Quarter Ending June 30, 2024

	Market Value 04/01/2024	Net Flows	Return On Investment	Market Value 06/30/2024
Morgan Stanley Prime Property Fund	72,478,383	-1,835,624	-128,603	70,514,156
Oaktree Real Estate	4,410,407	-	-221,216	4,189,191
ERECT Fund II (EMWO)	10,608,326	-	436,000	11,044,326
Washington Alliance (EMWO)	14,406,923	-304,878	-	14,102,045
Washington Alliance II (EMWO)	3,719,973	-137,420	-	3,582,553
Siguler Guff Distressed RE	5,264,274	-614	-	5,263,660
Artemis Real Estate Partners Fund IV	1,278,249	835,838	-	2,001,689
Real Estate Composite	112,166,535	-1,442,699	86,181	110,697,620
Infrastructure Composite	54,594,600	-395,033	944,831	55,092,767
JP Morgan Infrastructure Fund (IIF Hedged)	27,856,605	-395,033	630,215	28,091,787
IFM Global Infrastructure LP	26,737,995	-	314,617	27,000,980
Private Equity Composite	174,309,064	-2,537,280	6,536	171,778,320
Life Settlement Composite	9,063,293	-615,977	-499,694	7,947,622
BlackRock Liquidity iShares Public Pension Fund	29,337,435	-5,000,000	156,445	24,493,879
Liquid Policy Portfolio Composite	29,337,435	-5,000,000	156,445	24,493,879
Cash Account	8,341,481	7,624,737	175,739	16,141,185

Financial Reconciliation
Total Fund
Year To Date Ending June 30, 2024

Financial Reconciliation	Market Value 01/01/2024	Net Flows	Income	Return On Investment	Market Value 06/30/2024
Total Fund	943,662,706	-26,459,453	152,500	32,856,203	949,052,157
SSgA S&P 500 Index	70,229,043	-	-	10,734,221	80,963,265
Fragasso Large Core (EMWO)	5,353,872	-5,820,739	-5,613	561,222	85,961
Twin Capital Enhanced Equity	35,097,633	67,498	-13,897	5,788,278	40,886,101
Vesper U.S. Large Cap Short-Term Reversal Strategy ETF (UTRN) (EMWO)	1,005,642	-	-	102,639	1,108,282
Earnest Small Value	13,185,712	62,923	-100	606,941	13,792,652
Emerald Advisors Small Cap	13,421,305	54,359	2,009	1,274,228	14,696,539
Emerald Advisors All Cap (EMWO)	5,236,915	17,067	-1,333	952,362	6,189,313
Etho (EMWO)	1,858,330	-4,498	-	34,681	1,888,513
CIM Small Cap (EMWO)	5,462,901	-5,362,763	-5,183	-80,615	4,873
Cookson Peirce (EMWO)	2,521,456	7,102	-1,467	393,736	2,915,192
Stoneridge Dynamic Small Cap Equity (EMWO)	-	2,003,019	1,352	22,618	2,022,618
US Equity Composite	153,372,809	-8,976,033	-24,233	20,390,312	164,553,308
SSgA ACWI ex US	38,529,278	-	-	2,230,319	40,759,597
Baillie Gifford Intl Equity	49,012,988	-	-	2,080,412	51,093,400
FIAM Select International Equity	32,181,853	26,624	-	2,511,754	34,693,607
Segall, Bryant & Hamill	37,898,559	121,662	-	2,540,476	40,439,035
Non US Equity Composite	157,622,677	148,286	-	9,362,962	166,985,639
C S McKee	35,805,449	41,089	7,165	-4,746	35,800,703
Federated Core Broad	28,180,717	39,757	2,495	-260	28,180,457
CIM Investment Mgmt	28,195,379	35,364	68,979	196,423	28,391,802
Emstone Partners (EMWO)	5,312,352	5,261	867	33,680	5,346,032
Gridiron Capital Fixed Income	13,916,812	45,637	-62,728	371,221	14,288,033
Gridiron Capital Multi-Asset (EMWO)	3,591,988	13,937	-369	221,037	3,813,026
FNB (EMWO)	2,743,377	4,777	7	14,133	2,757,511
Israel Bonds	7,671,694	7,738	145,892	307,745	7,979,440
Core Fixed w Israel Bonds Composite	125,417,770	193,561	162,310	1,139,234	126,557,003
Oaktree High Yield	58,133,996	-11,621,815	-	1,462,332	47,834,486
Federated High Yield	55,542,082	-	-	1,216,681	56,758,764
Sound Point	578,457	-382,460	-	15,566	211,563
High Yield Fixed Composite	114,254,535	-12,004,275	-	2,694,579	104,804,813

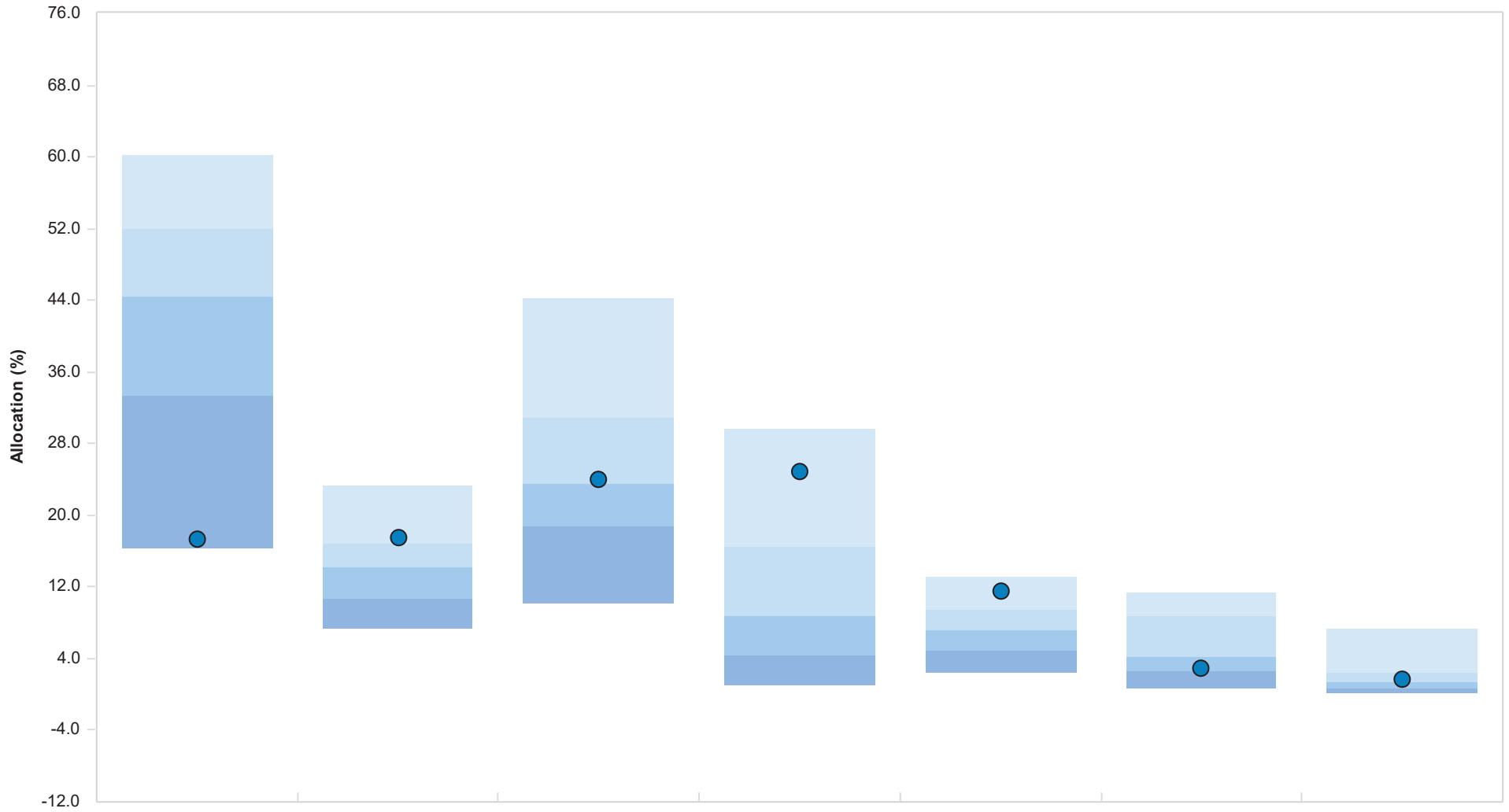
Financial Reconciliation

Total Fund

Year To Date Ending June 30, 2024

	Market Value 01/01/2024	Net Flows	Income	Return On Investment	Market Value 06/30/2024
Morgan Stanley Prime Property Fund	75,886,765	-4,223,697	-	-1,148,911	70,514,156
Oaktree Real Estate	4,460,197	-	-	-271,006	4,189,191
ERECT Fund II (EMWO)	10,685,217	-	-	359,110	11,044,326
Washington Alliance (EMWO)	14,251,558	-304,878	-	155,365	14,102,045
Washington Alliance II (EMWO)	2,277,864	1,210,869	-	93,820	3,582,553
Siguler Guff Distressed RE	5,370,011	-1,229	-	-105,123	5,263,660
Artemis Real Estate Partners Fund IV	983,210	1,163,292	-	42,790	2,001,689
Real Estate Composite	113,914,822	-2,155,644	-	-873,955	110,697,620
Infrastructure Composite	54,283,203	-581,439	-	1,493,569	55,092,767
JP Morgan Infrastructure Fund (IIF Hedged)	27,307,032	-581,439	-	1,366,194	28,091,787
IFM Global Infrastructure LP	26,976,171	-	-	127,375	27,000,980
Private Equity Composite	179,222,215	-4,510,995	-	-2,932,900	171,778,320
Life Settlement Composite	9,656,163	-1,342,307	-	-366,233	7,947,622
BlackRock Liquidity iShares Public Pension Fund	25,308,313	-2,500,000	-	1,685,566	24,493,879
Liquid Policy Portfolio Composite	25,308,313	-2,500,000	-	1,685,566	24,493,879
MLP Composite	-	-	-	-	-
Cash Account	10,610,198	5,269,394	14,423	263,068	16,141,185

Plan Sponsor TF Asset Allocation vs. All Public DB Plans



	US Equity	Global ex-US Equity	US Fixed	Alternatives	Total Real Estate	Global TAA	Cash & Equivalents
● Total Fund	17.34 (95)	17.59 (22)	23.98 (48)	24.95 (9)	11.45 (11)	2.98 (63)	1.70 (42)
5th Percentile	60.16	23.22	44.21	29.63	13.17	11.42	7.32
1st Quartile	51.92	16.75	30.85	16.54	9.38	8.66	2.49
Median	44.46	14.25	23.53	8.65	7.20	4.13	1.34
3rd Quartile	33.30	10.72	18.70	4.37	4.80	2.54	0.68
95th Percentile	16.34	7.32	10.18	0.96	2.32	0.70	0.12

Asset Allocation & Performance	Allocation		Performance(%)							
	Market Value \$	%	MTH	QTR	YTD	1 YR	3 YR	5 YR	Inception	Inception Date
Total Fund	949,052,157	100.0	0.62	1.15	3.43	7.25	2.08	5.72	7.11	12/1993
Total Fund Policy Index			0.63	0.84	3.03	6.40	2.38	6.14	7.26	
US Equity Composite	164,553,308	17.3	2.82	3.61	13.36	21.74	7.40	13.23	9.53	11/1993
FT Wilshire 5000 Total Market TR Index			3.14	3.31	13.58	23.15	8.37	14.41	10.30	
Non US Equity Composite	166,985,639	17.6	-1.00	0.96	5.85	11.41	-1.58	5.51	5.05	01/2001
Non US Equity Policy Index			-0.10	0.96	5.69	11.62	0.46	5.74	4.38	
Core Fixed w Israel Bonds Composite*	126,557,003	13.3	1.35	0.74	0.75	4.68	-1.41	1.11	6.29	01/1983
Blmbg. U.S. Aggregate Index			0.95	0.07	-0.71	2.63	-3.02	-0.23	6.18	
High Yield Fixed Composite	104,804,813	11.0	1.07	1.94	2.47	10.09	1.95	3.99	6.04	04/2008
FTSE High Yield Market Capped Index			0.99	1.20	2.83	10.66	1.90	3.73	6.35	
Real Estate Composite	110,697,620	11.7	0.08	-0.02	-0.92	-1.97	3.38	3.80	7.74	04/2003
NCREIF Fund Index-ODCE (VW) (Net)			-0.67	-0.67	-3.23	-10.00	1.02	2.27	6.02	
Total Infrastructure Composite	55,092,767	5.8	1.08	1.64	2.58	7.38	N/A	N/A	9.08	07/2022
CPI + 3%			0.19	1.01	2.90	6.06	8.12	7.29	6.10	
Total Private Equity w Life Settlement Composite*	179,725,943	18.9	-0.41	-0.27	-1.76	-2.06	1.86	7.26	6.74	04/2003
Total Private Equity Policy Index			-0.41	-0.27	-1.76	-2.06	2.11	7.72	6.84	
Liquid Policy Portfolio Composite	24,493,879	2.6	0.91	0.78	5.26	12.19	2.67	N/A	4.65	03/2021
Liquid Policy Benchmark			1.14	1.18	5.66	12.44	2.64	N/A	4.60	
Cash Account	16,141,185	1.7	0.44	1.48	2.83	5.64	3.59	2.56	1.42	01/2012
90 Day U.S. Treasury Bill			0.41	1.32	2.63	5.40	3.03	2.16	1.21	

* All returns prior to March 2021 are from the original Core Fixed Composite and the Private Equity Composite, respectively. All returns from March 2021 and forward are from the composites inclusive of the Israel Bonds and Life Settlement funds, respectively. ERECT fund added to Real Estate composite in October 2020.

Asset Allocation & Performance	Allocation		Performance(%)						
	Market Value \$	%	QTR	YTD	1 YR	3 YR	5 YR	Inception	Inception Date
Total Fund	949,052,157	100.0	1.15	3.43	7.25	2.08	5.72	7.11	12/1993
Total Fund Policy Index			0.84	3.03	6.40	2.38	6.14	7.26	
US Equity Composite	164,553,308	17.3	3.61	13.36	21.74	7.40	13.23	9.53	11/1993
FT Wilshire 5000 Total Market TR Index			3.31	13.58	23.15	8.37	14.41	10.30	
SSgA S&P 500 Index	80,963,265	8.5	4.29	15.28	24.56	9.98	15.06	10.06	11/2007
S&P 500 Index			4.28	15.29	24.56	10.01	15.05	10.02	
Fragasso Large Core (EMWO)	85,961	0.0	3.91	14.81	23.89	5.68	10.65	11.68	09/2012
S&P 500 Index			4.28	15.29	24.56	10.01	15.05	14.29	
Twin Capital Enhanced Equity	40,886,101	4.3	4.07	16.30	25.72	9.99	14.50	10.22	01/2006
S&P 500 Index			4.28	15.29	24.56	10.01	15.05	10.47	
Vesper U.S. Large Cap Short-Term Reversal Strategy ETF (UTRN) (EMWO)	1,108,282	0.1	0.58	10.21	9.53	N/A	N/A	-2.92	01/2022
S&P 500 Index			4.28	15.29	24.56	10.01	15.05	7.29	
Earnest Small Value	13,792,652	1.5	-0.08	4.13	10.58	3.47	9.20	12.22	06/2009
Russell 2000 Value Index			-3.64	-0.85	10.90	-0.53	7.07	10.51	
Emerald Advisors Small Cap	14,696,539	1.5	3.27	9.09	14.24	-1.23	7.88	10.20	11/2004
Russell 2000 Growth Index			-2.92	4.44	9.14	-4.86	6.17	8.57	
Emerald Advisors All Cap (EMWO)	6,189,313	0.7	8.50	17.85	26.19	5.78	18.60	16.35	10/2015
Russell 3000 Growth Index			7.80	19.90	32.22	10.33	18.55	17.65	
Etho (EMWO)	1,888,513	0.2	-3.17	1.87	7.49	-1.02	8.56	10.74	08/2016
S&P 500 Index			4.28	15.29	24.56	10.01	15.05	14.37	
Cookson Peirce (EMWO)	2,915,192	0.3	-0.93	15.34	17.67	9.75	11.38	13.62	12/2018
Russell 3000 Index			3.22	13.56	23.12	8.05	14.14	14.07	
Stoneridge Dynamic Small Cap Equity (EMWO)	2,022,618	0.2	-6.24	N/A	N/A	N/A	N/A	-0.77	02/2024
Russell 2000 Growth Index			-2.92	4.44	9.14	-4.86	6.17	7.90	
CIM Small Cap (EMWO)	4,873	0.0							
Non US Equity Composite	166,985,639	17.6	0.96	5.85	11.41	-1.58	5.51	5.05	01/2001
Non US Equity Policy Index			0.96	5.69	11.62	0.46	5.74	4.38	
SSgA ACWI ex US	40,759,597	4.3	1.00	5.79	11.69	0.61	5.87	4.62	05/2015
MSCI AC World ex USA (Net)			0.96	5.69	11.62	0.46	5.55	4.31	

ERECT fund added to Real Estate composite in October 2020.

Asset Allocation & Performance

Total Fund

As of June 30, 2024

	Allocation		Performance(%)						
	Market Value \$	%	QTR	YTD	1 YR	3 YR	5 YR	Inception	Inception Date
Baillie Gifford Intl Equity MSCI AC World ex USA (Net)	51,093,400	5.4	0.57 0.96	4.24 5.69	7.57 11.62	-6.01 0.46	4.09 5.55	7.28 5.58	08/2009
FIAM Select International Equity FIAM Policy Index	34,693,607	3.7	1.66 0.96	7.72 5.69	12.21 11.62	0.36 0.46	6.84 5.55	4.79 4.31	01/2001
Segall, Bryant & Hamill MSCI EAFE Small Cap (net) Index	40,439,035	4.3	0.81 -1.84	6.38 0.51	17.11 7.78	2.74 -3.35	5.62 4.19	4.47 4.76	05/2015
Core Fixed w Israel Bonds Composite*	126,557,003	13.3	0.74	0.75	4.68	-1.41	1.11	6.29	01/1983
Blmbg. U.S. Aggregate Index			0.07	-0.71	2.63	-3.02	-0.23	6.18	
C S McKee Blmbg. U.S. Aggregate Index	35,800,703	3.8	0.34 0.07	-0.13 -0.71	3.93 2.63	-2.48 -3.02	0.31 -0.23	6.56 6.18	01/1983
Federated Core Broad Blmbg. U.S. Aggregate Index	28,180,457	3.0	0.41 0.07	-0.14 -0.71	3.42 2.63	-2.34 -3.02	1.12 -0.23	3.82 3.01	09/2006
CIM Investment Mgmt Bloomberg Intermediate US Govt/Credit Idx	28,391,802	3.0	0.65 0.64	0.57 0.49	4.68 4.19	-0.84 -1.18	0.88 0.71	2.67 2.94	11/2005
Emstone Partners (EMWO) Emstone Policy Index	5,346,032	0.6	0.65 0.67	0.53 0.65	4.24 4.72	-1.19 -1.03	0.28 0.93	1.24 1.77	08/2015
Gridiron Capital Fixed Income Blmbg. U.S. Aggregate Index	14,288,033	1.5	1.06 0.07	2.33 -0.71	6.88 2.63	0.98 -3.02	3.12 -0.23	3.22 1.09	02/2017
Gridiron Capital Multi-Asset (EMWO) HFRI FoF Composite Lagged	3,813,026	0.4	0.76 0.62	5.76 4.83	12.58 8.71	3.03 2.13	6.74 4.82	6.77 5.11	02/2019
FNB (EMWO) Bloomberg Intermed Aggregate Index	2,757,511	0.3	0.61 0.46	0.34 0.04	3.66 3.55	-1.24 -1.77	0.69 0.22	1.21 1.05	07/2017
Israel Bonds	7,979,440	0.8	3.67	3.91	5.90	1.71	2.03	2.59	01/2012
High Yield Fixed Composite	104,804,813	11.0	1.94	2.47	10.09	1.95	3.99	6.04	04/2008
FTSE High Yield Market Capped Index			1.20	2.83	10.66	1.90	3.73	6.35	
Oaktree High Yield FTSE High Yield Market Capped Index	47,834,486	5.0	1.47 1.20	2.77 2.83	10.58 10.66	2.44 1.90	4.09 3.73	5.83 6.35	04/2008
Federated High Yield Blmbg. U.S. High Yield - 2% Issuer Cap	56,758,764	6.0	2.37 1.09	2.19 2.58	9.62 10.43	1.34 1.64	3.94 3.90	4.19 4.22	07/2017

* All returns prior to March 2021 are from the original Core Fixed Composite. All returns March 2021 and forward are from the composite inclusive of the Israel Bonds. ERECT fund added to Real Estate composite in October 2020.

	Allocation		Performance(%)						
	Market Value \$	%	QTR	YTD	1 YR	3 YR	5 YR	Inception	Inception Date
Sound Point	211,563	0.0	-1.77	4.15	9.77	2.60	3.21	4.07	08/2013
Credit Suisse Leveraged Loan Index			1.87	4.44	11.04	5.97	5.36	4.69	
Real Estate Composite	110,697,620	11.7	-0.02	-0.92	-1.97	3.38	3.80	7.74	04/2003
NCREIF Fund Index-ODCE (VW) (Net)			-0.67	-3.23	-10.00	1.02	2.27	6.02	
Morgan Stanley Prime Property Fund	70,514,156	7.4	-0.18	-1.52	-3.91	4.48	4.49	7.82	04/2003
NCREIF Fund Index-ODCE (VW) (Net)			-0.67	-3.23	-10.00	1.02	2.27	6.02	
Oaktree Real Estate	4,189,191	0.4	-5.02	-6.08	-8.73	-10.29	-7.31	0.96	08/2013
ERECT (EMWO)	11,044,326	1.2	4.11	3.36	4.81	2.12	3.15	5.83	09/2010
CPI - All Urban Consumers (SA)			0.26	1.40	2.98	4.97	4.17	2.65	
Washington Alliance (EMWO)	14,102,045	1.5	0.00	1.09	10.07	6.81	8.17	11.41	08/2013
Washington Alliance II (EMWO)	3,582,553	0.4	0.00	2.59	13.24	19.71	N/A	13.27	03/2020
Siguler Guff Distressed RE	5,263,660	0.6	0.00	-1.96	-12.48	-5.41	-2.45	3.02	03/2014
Artemis Real Estate Partners Fund IV	2,001,689	0.2	-6.91	-9.69	-21.09	N/A	N/A	-31.93	01/2023
Total Infrastructure Composite	55,092,767	5.8	1.64	2.58	7.38	N/A	N/A	9.08	07/2022
CPI + 3%			1.01	2.90	6.06	8.12	7.29	6.10	
JP Morgan Infrastructure Fund (IIF Hedged)	28,091,787	3.0	2.28	5.05	11.16	N/A	N/A	10.72	07/2022
CPI + 3%			1.01	2.90	6.06	8.12	7.29	6.10	
IFM Global Infrastructure LP	27,000,980	2.8	0.98	0.09	3.61	N/A	N/A	5.66	02/2023
CPI + 3%			1.01	2.90	6.06	8.12	7.29	6.05	
Private Equity Composite	171,778,320	18.1	0.01	-1.64	-1.90	2.14	7.62	6.82	04/2003
Private Equity Policy Index			0.01	-1.64	-1.90	2.14	7.62	6.82	
Life Settlement Composite	7,947,622	0.8	-5.91	-4.55	-5.47	-2.15	-3.76	4.02	09/2009
Liquid Policy Portfolio Composite	24,493,879	2.6	0.78	5.26	12.19	2.67	N/A	4.65	03/2021
Liquid Policy Benchmark			1.18	5.66	12.44	2.64	N/A	4.60	
BlackRock Liquidity iShares Public Pension Fund	24,493,879	2.6	0.78	5.26	12.19	2.67	N/A	4.11	04/2021
Liquid Policy Benchmark			1.18	5.66	12.44	2.64	N/A	4.09	
Cash Account	16,141,185	1.7	1.48	2.83	5.64	3.59	2.56	1.42	01/2012

ERECT fund added to Real Estate composite in October 2020.

Comparative Performance - IRR
Private Real Estate Accounts
As of June 30, 2024

Comparative Performance - IRR							
	1 YR	3 YR	5 YR	7 YR	Inception	Inception Date	
Oaktree Real Estate NEW	-8.52	-10.76	-7.43	-2.59	4.28	09/18/2013	
Siguler Guff Distressed RE	-12.45	-3.97	-1.04	6.39	5.72	06/30/2014	
Washington Alliance (EMWO)	10.13	6.99	8.31	12.17	12.79	03/31/2014	
Washington Alliance II (EMWO)	11.49	16.95	N/A	N/A	12.86	03/13/2020	
Artemis Real Estate Partners Fund IV	-21.12	N/A	N/A	N/A	-21.36	12/31/2022	

Allegheny County ERS Probation Policy - Executive Summary

Manager	Current Status	Comments
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US Equity

Twin Capital Enhanced Equity	Satisfactory	
Earnest Small Value	Satisfactory	
Emerald Advisors Small Cap	Satisfactory	

International Equity

Baillie Gifford International Equity	Watch List	Manager is underperforming the benchmark and ranking below the median of peer in 1,3 and 5 year time periods
FIAM Select Intyernational Equity	Satisfactory	
Segall, Bryant & Hamill	Satisfactory	

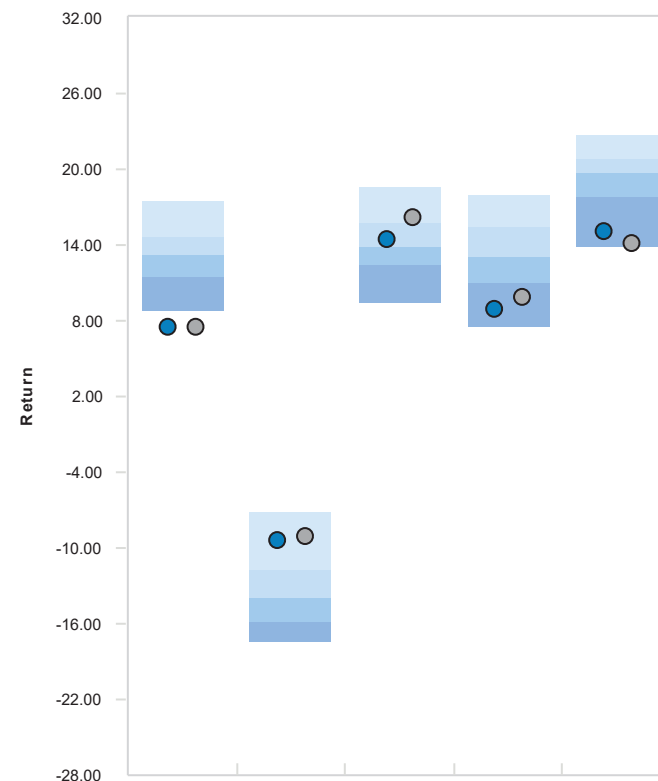
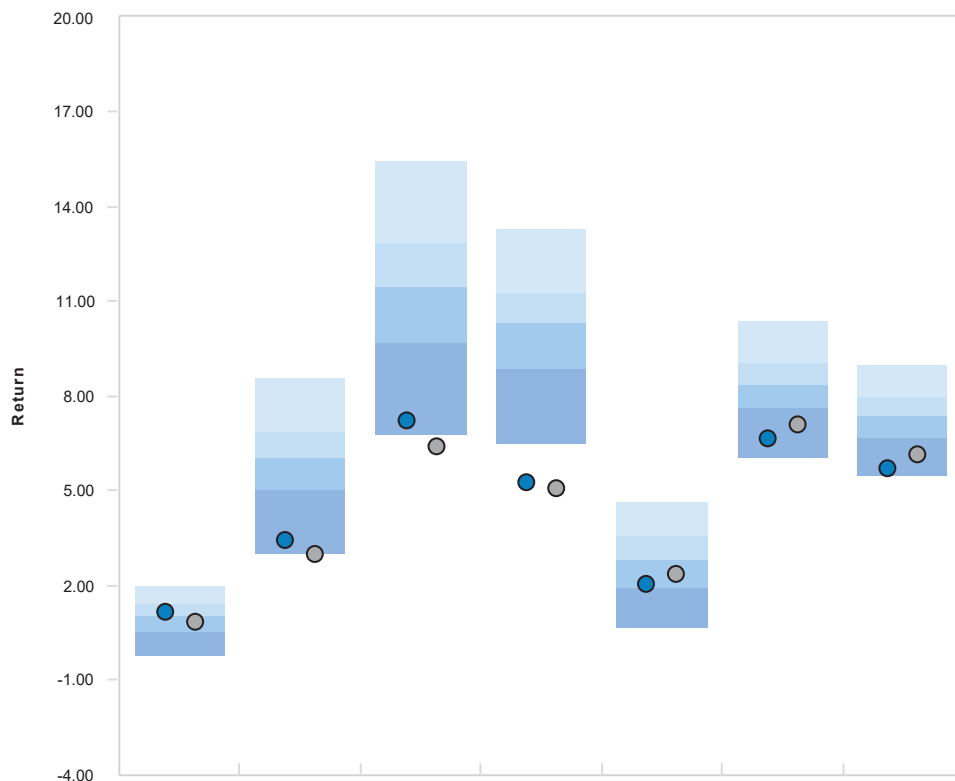
Fixed Income

C S McKee	Satisfactory	
Federated Core Bond	Satisfactory	
CIM Investment Management	Satisfactory	
Gridiron Capital Fixed Income	Satisfactory	
Oaktree High Yield	Satisfactory	
Federated High Yield	Monitor	Manager is underperforming the benchmark and ranking below the median of peer in 1 and 3 year time periods

Compliance Legend

Satisfactory	The manager is meeting the performance criteria set forth in the current IPS.
Monitor	The manager is on Monitor status if the one- and three-year annualized returns are below the benchmark and ranks below the median peer group.
Watch List	The manager is on Watch List status if the one-, three-, and fire-year annualized returns are below the benchmark and ranks below the median peer group.

Plan Sponsor Peer Group Analysis - All Public DB Plans



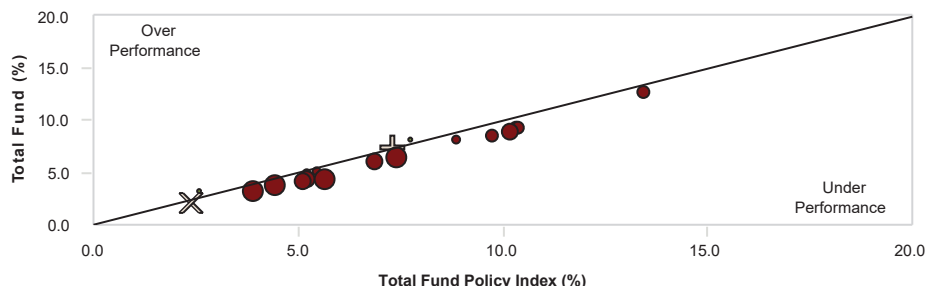
	QTR	FYTD	1 YR	2 YR	3 YR	4 YR	5 YR
● Total Fund	1.15 (44)	3.43 (94)	7.25 (94)	5.28 (98)	2.08 (72)	6.70 (91)	5.72 (92)
● Total Fund Policy Index	0.84 (62)	3.03 (95)	6.40 (97)	5.09 (99)	2.38 (63)	7.13 (84)	6.14 (86)
Median	1.03	6.04	11.47	10.34	2.80	8.39	7.34

	2023	2022	2021	2020	2019
● Total Fund	7.48 (98)	-9.32 (11)	14.48 (41)	8.93 (91)	15.16 (92)
● Total Fund Policy Index	7.59 (98)	-9.01 (9)	16.27 (18)	9.82 (86)	14.24 (95)
Median	13.28	-13.87	13.91	13.00	19.66

Comparative Performance

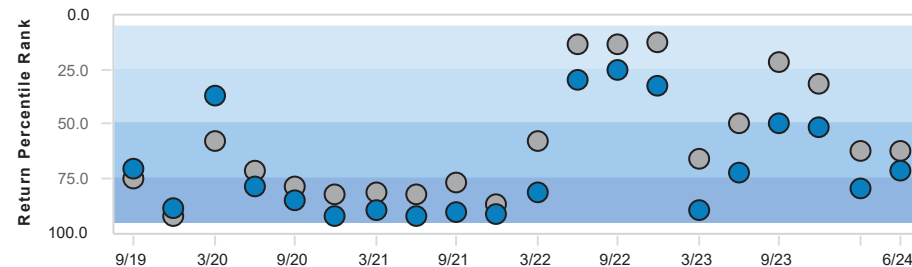
	1 Qtr Ending Mar-2024	1 Qtr Ending Dec-2023	1 Qtr Ending Sep-2023	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022
Total Fund	2.25	5.45	-1.66	1.43	2.19	3.52
Total Fund Policy Index	2.18	5.15	-1.80	1.55	2.60	3.60

3 Yr Rolling Under/Over Performance - 5 Years



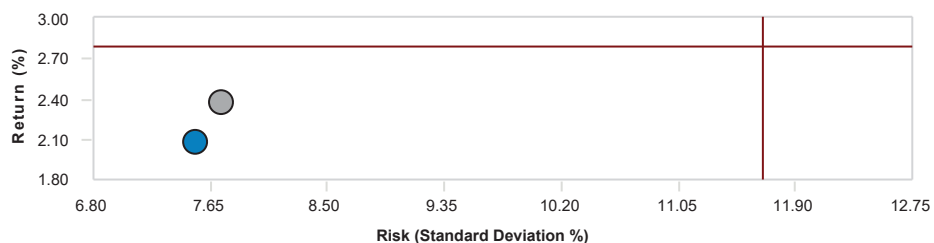
- Over Performance
- Under Performance
- ⊕ Earliest Date
- ⊗ Latest Date

3 Yr Rolling Percentile Ranking - 5 Years



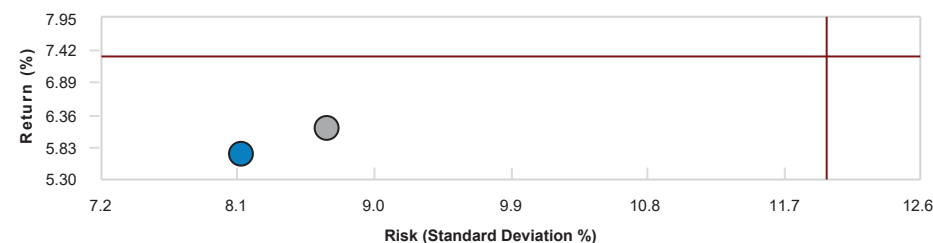
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
● Total Fund	20	1 (5%)	4 (20%)	4 (20%)	11 (55%)
● Total Fund Policy Index	20	4 (20%)	2 (10%)	7 (35%)	7 (35%)

Peer Group Scattergram - 3 Years



	Return	Standard Deviation
● Total Fund	2.08	7.54
● Total Fund Policy Index	2.38	7.73
— Median	2.80	11.66

Peer Group Scattergram - 5 Years



	Return	Standard Deviation
● Total Fund	5.72	8.12
● Total Fund Policy Index	6.14	8.69
— Median	7.34	11.99

Historical Statistics - 3 Years

	Tracking Error	Up Market Capture	Down Market Capture	Alpha	Information Ratio	Sharpe Ratio	Beta	Downside Risk
Total Fund	0.79	97.60	100.06	-0.23	-0.40	-0.09	0.97	5.10
Total Fund Policy Index	0.00	100.00	100.00	0.00	N/A	-0.04	1.00	5.20

Historical Statistics - 5 Years

	Tracking Error	Up Market Capture	Down Market Capture	Alpha	Information Ratio	Sharpe Ratio	Beta	Downside Risk
Total Fund	1.22	95.83	97.81	0.03	-0.36	0.46	0.93	5.41
Total Fund Policy Index	0.00	100.00	100.00	0.00	N/A	0.48	1.00	5.66

Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	9.98	17.61	0.46	99.94	8	100.04	4
Index	10.01	17.61	0.47	100.00	8	100.00	4

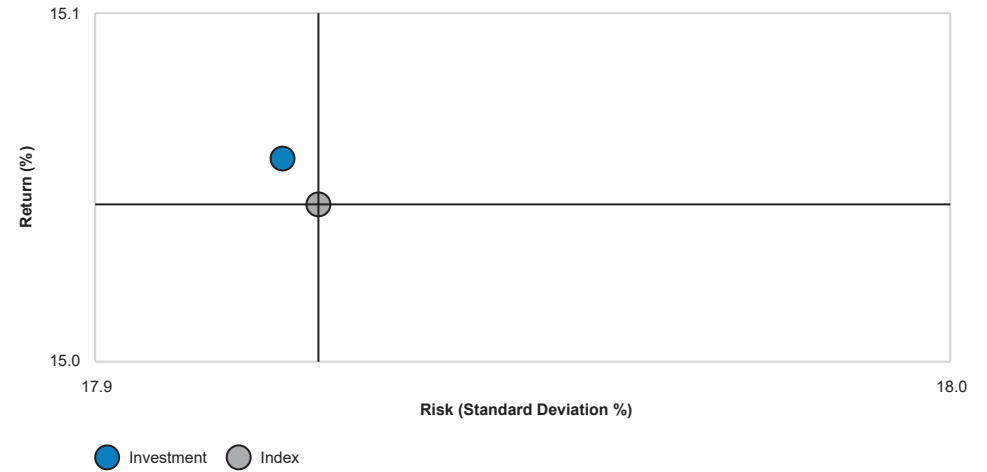
Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	15.06	17.92	0.76	99.99	15	99.93	5
Index	15.05	17.93	0.76	100.00	15	100.00	5

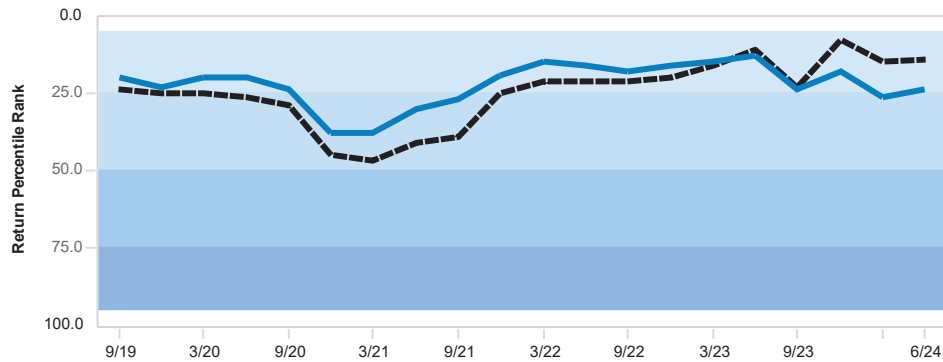
Risk and Return 3 Years



Risk and Return 5 Years

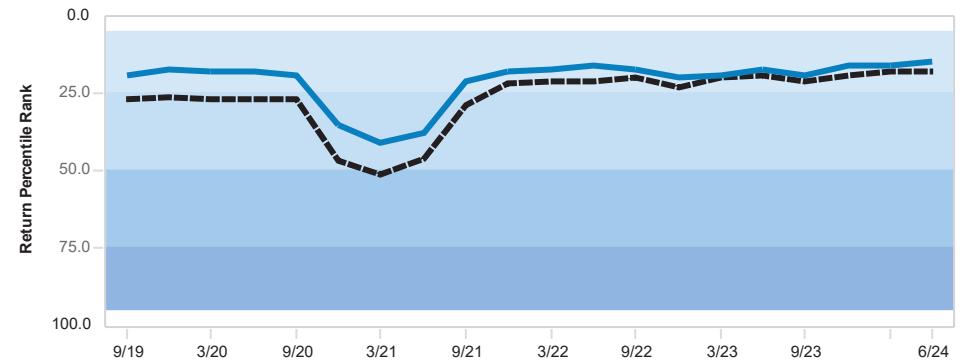


3 Year Rolling Percentile Rank IM U.S. Large Cap Index Equity (SA+CF)



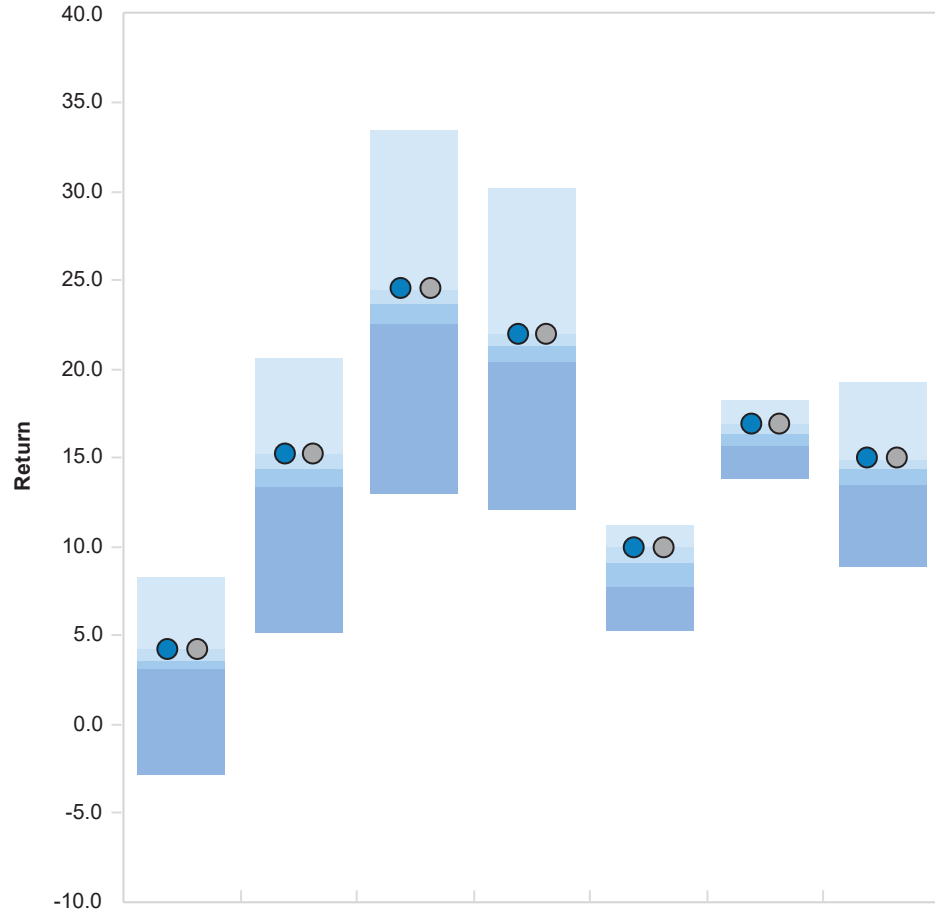
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	15 (75%)	5 (25%)	0 (0%)	0 (0%)
Index	20	14 (70%)	6 (30%)	0 (0%)	0 (0%)

5 Year Rolling Percentile Rank IM U.S. Large Cap Index Equity (SA+CF)



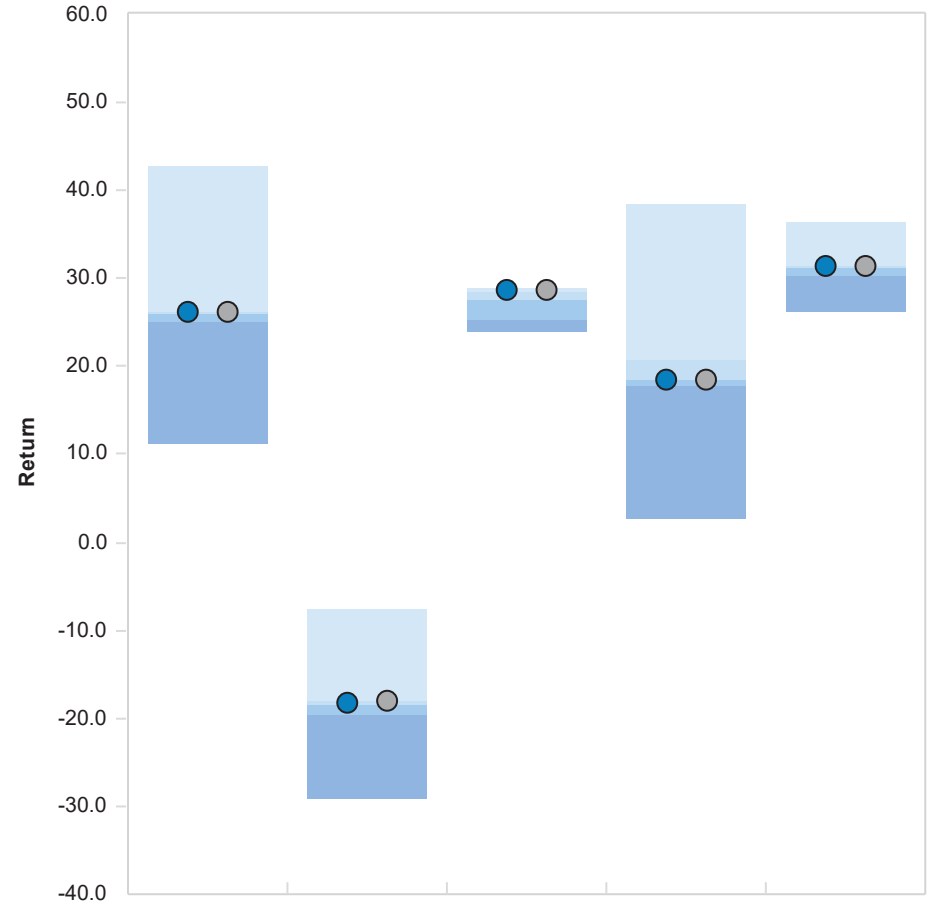
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	17 (85%)	3 (15%)	0 (0%)	0 (0%)
Index	20	11 (55%)	8 (40%)	1 (5%)	0 (0%)

Peer Group Analysis - IM U.S. Large Cap Index Equity (SA+CF)



	QTR	YTD	1 YR	2 YR	3 YR	4 YR	5 YR
● Investment	4.29 (13)	15.28 (15)	24.56 (16)	22.02 (23)	9.98 (24)	17.01 (18)	15.06 (15)
● Index	4.28 (15)	15.29 (12)	24.56 (16)	22.05 (13)	10.01 (14)	17.01 (18)	15.05 (18)
Median	3.63	14.34	23.70	21.34	9.06	16.41	14.42

Peer Group Analysis - IM U.S. Large Cap Index Equity (SA+CF)



	2023	2022	2021	2020	2019
● Investment	26.25 (33)	-18.12 (33)	28.65 (19)	18.53 (48)	31.54 (18)
● Index	26.29 (22)	-18.11 (28)	28.71 (10)	18.40 (55)	31.49 (27)
Median	25.97	-18.42	27.48	18.45	31.12

Comparative Performance

	1 Qtr Ending Mar-2024	1 Qtr Ending Dec-2023	1 Qtr Ending Sep-2023	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022
Investment	10.55 (23)	11.69 (55)	-3.27 (44)	8.74 (26)	7.47 (38)	7.56 (25)
Index	10.56 (13)	11.69 (55)	-3.27 (54)	8.74 (17)	7.50 (17)	7.56 (24)
Median	10.30	11.78	-3.27	8.55	7.41	7.39

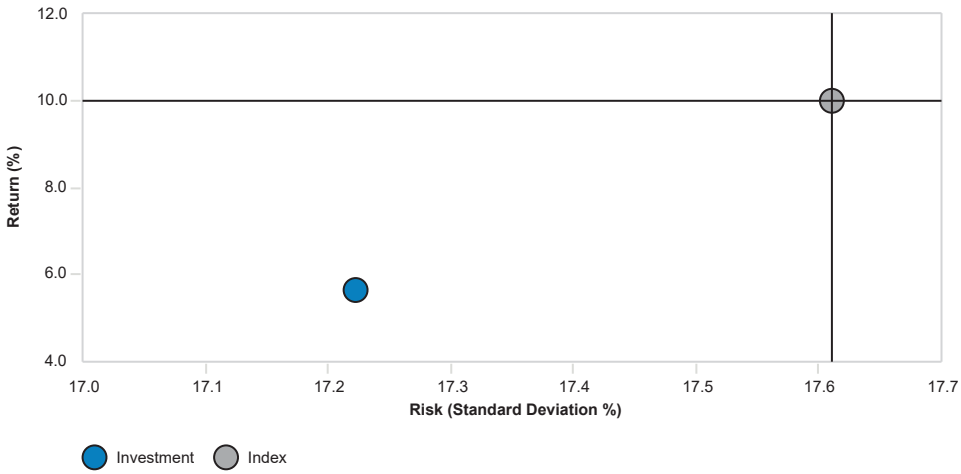
Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	5.68	17.22	0.24	87.82	8	100.65	4
Index	10.01	17.61	0.47	100.00	8	100.00	4

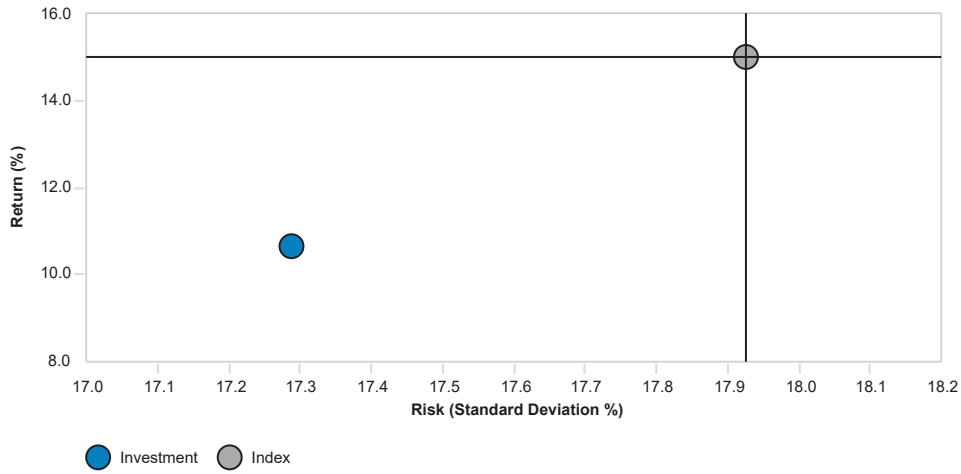
Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	10.65	17.29	0.55	88.00	15	99.48	5
Index	15.05	17.93	0.76	100.00	15	100.00	5

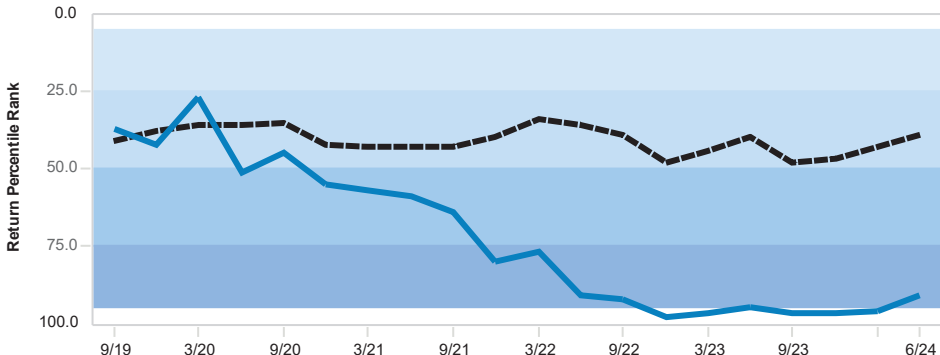
Risk and Return 3 Years



Risk and Return 5 Years

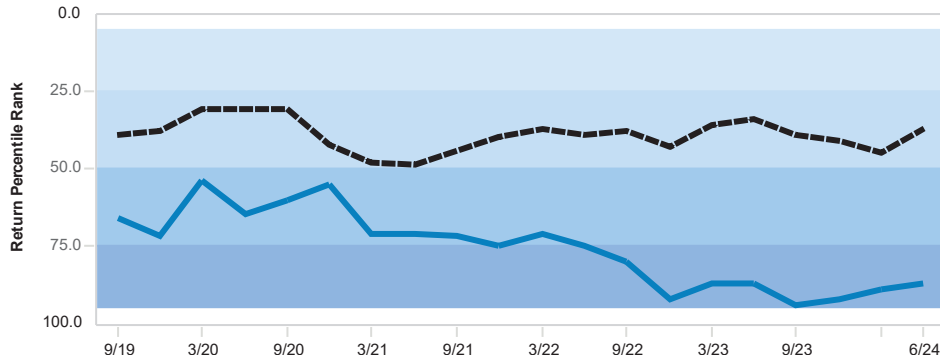


3 Year Rolling Percentile Rank IM U.S. Large Cap Core Equity (SA+CF)



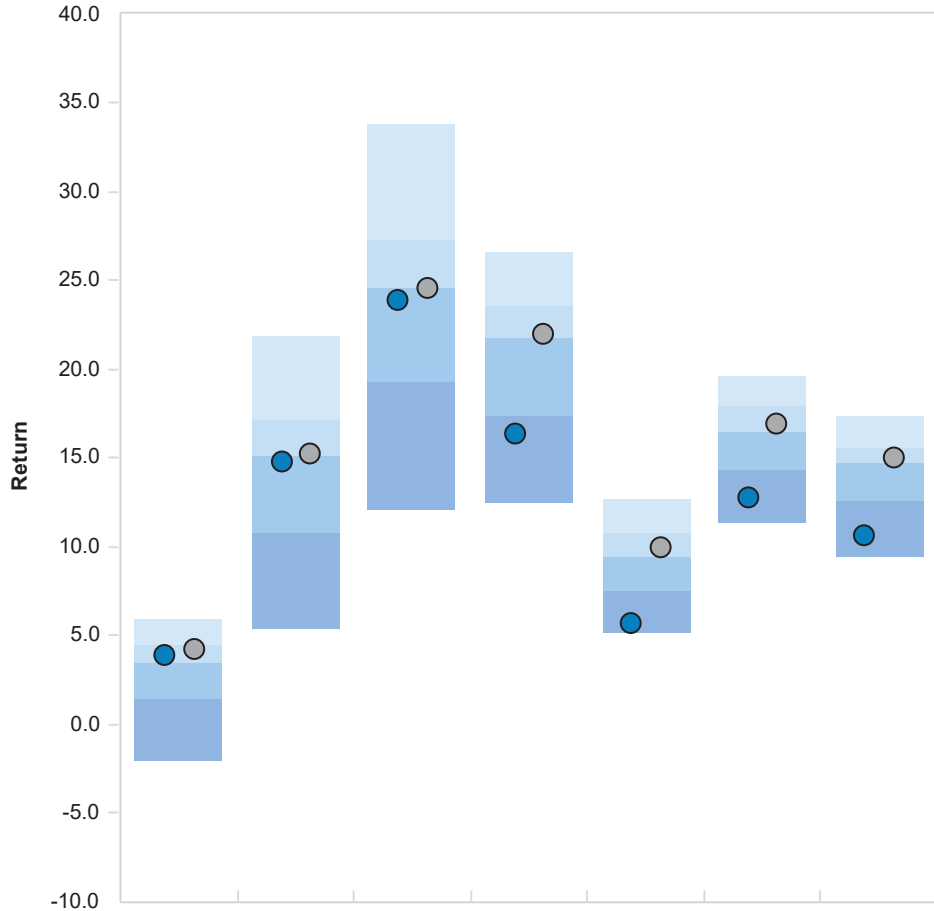
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	0 (0%)	4 (20%)	5 (25%)	11 (55%)
Index	20	0 (0%)	20 (100%)	0 (0%)	0 (0%)

5 Year Rolling Percentile Rank IM U.S. Large Cap Core Equity (SA+CF)



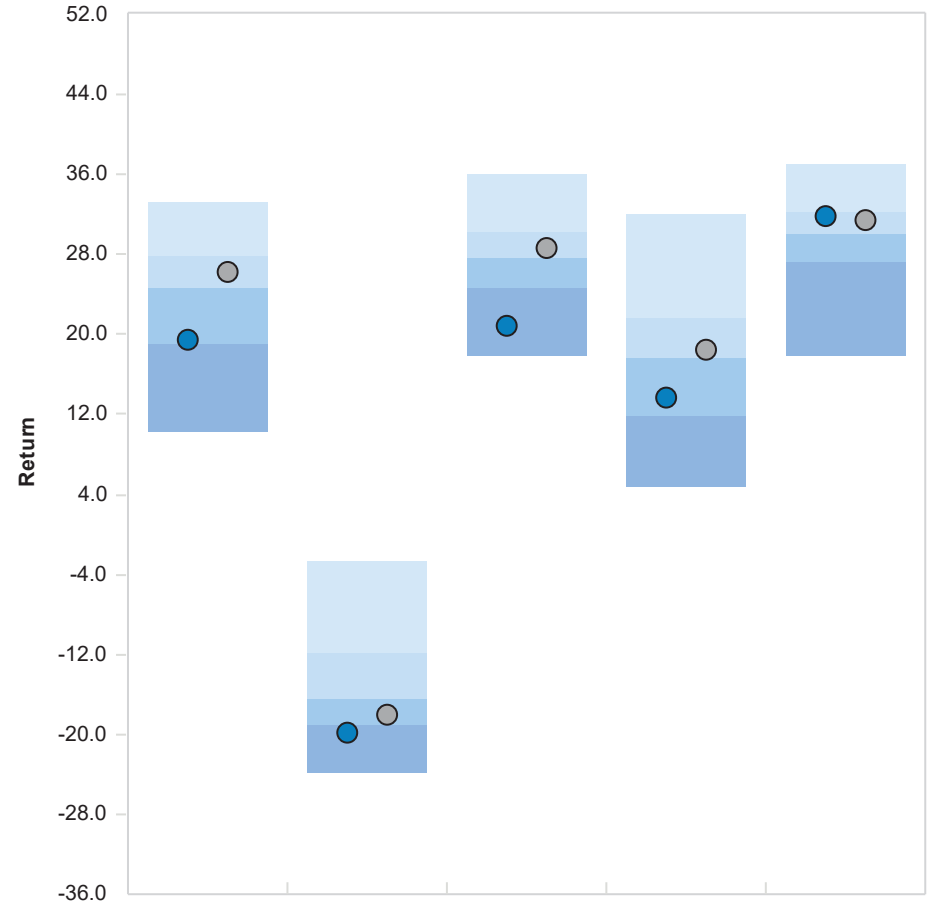
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	0 (0%)	0 (0%)	12 (60%)	8 (40%)
Index	20	0 (0%)	20 (100%)	0 (0%)	0 (0%)

Peer Group Analysis - IM U.S. Large Cap Core Equity (SA+CF)



	QTR	YTD	1 YR	2 YR	3 YR	4 YR	5 YR
● Investment	3.91 (45)	14.81 (54)	23.89 (58)	16.41 (79)	5.68 (91)	12.84 (89)	10.65 (87)
● Index	4.28 (35)	15.29 (47)	24.56 (53)	22.05 (45)	10.01 (39)	17.01 (38)	15.05 (37)
Median	3.44	15.15	24.63	21.82	9.44	16.50	14.68

Peer Group Analysis - IM U.S. Large Cap Core Equity (SA+CF)



	2023	2022	2021	2020	2019
● Investment	19.40 (74)	-19.85 (85)	20.79 (89)	13.61 (69)	31.87 (30)
● Index	26.29 (37)	-18.11 (67)	28.71 (37)	18.40 (45)	31.49 (34)
Median	24.67	-16.49	27.71	17.65	30.11

Comparative Performance

	1 Qtr Ending Mar-2024	1 Qtr Ending Dec-2023	1 Qtr Ending Sep-2023	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022
Investment	10.49 (57)	12.38 (28)	-3.98 (85)	5.37 (81)	5.01 (69)	5.66 (89)
Index	10.56 (54)	11.69 (46)	-3.27 (74)	8.74 (30)	7.50 (26)	7.56 (62)
Median	10.84	11.61	-2.80	7.88	6.40	7.94

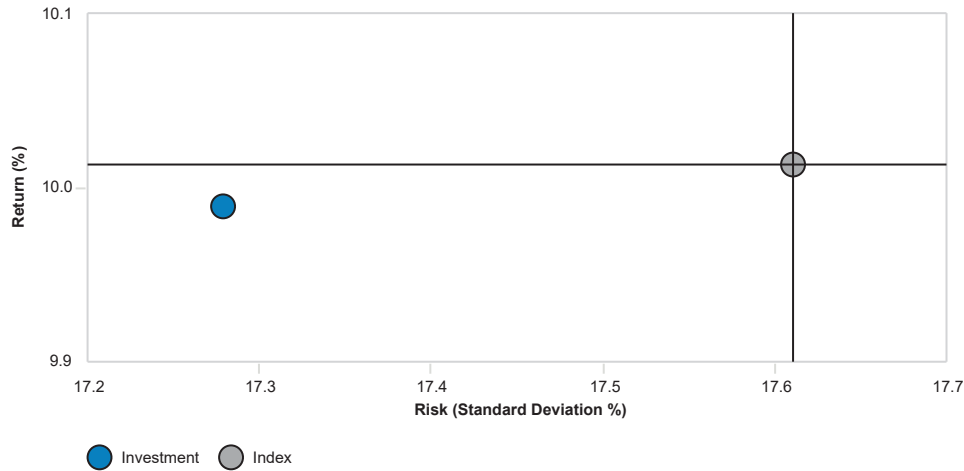
Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	9.99	17.28	0.47	98.53	8	98.13	4
Index	10.01	17.61	0.47	100.00	8	100.00	4

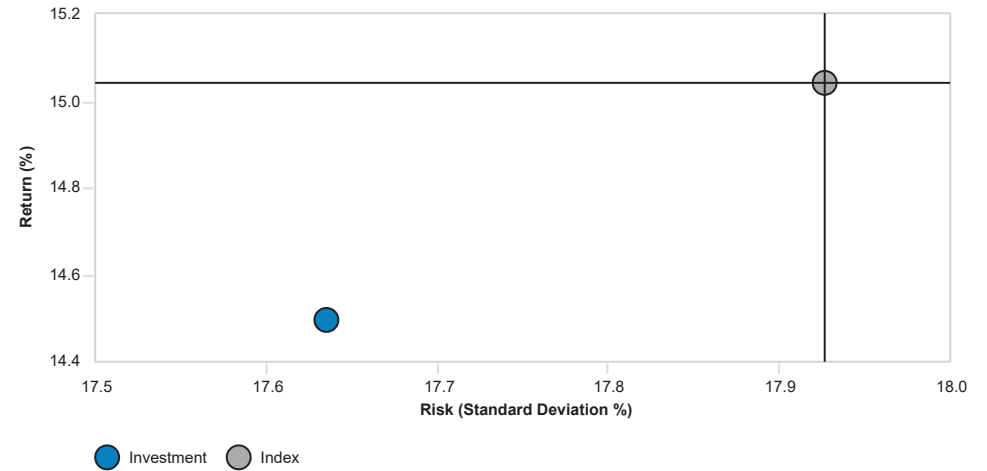
Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	14.50	17.64	0.74	97.93	15	99.02	5
Index	15.05	17.93	0.76	100.00	15	100.00	5

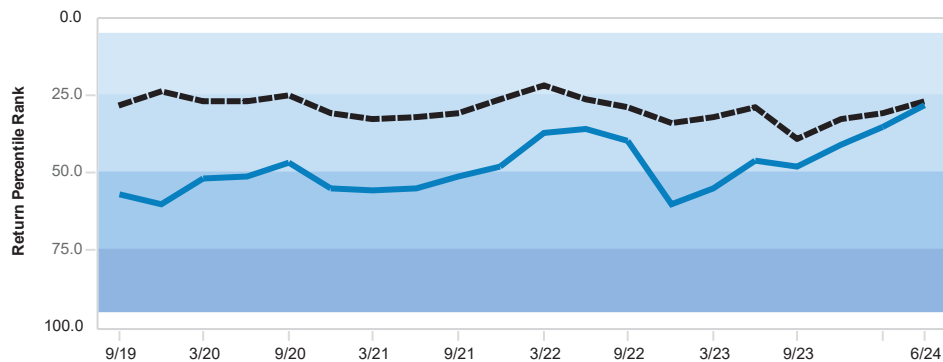
Risk and Return 3 Years



Risk and Return 5 Years

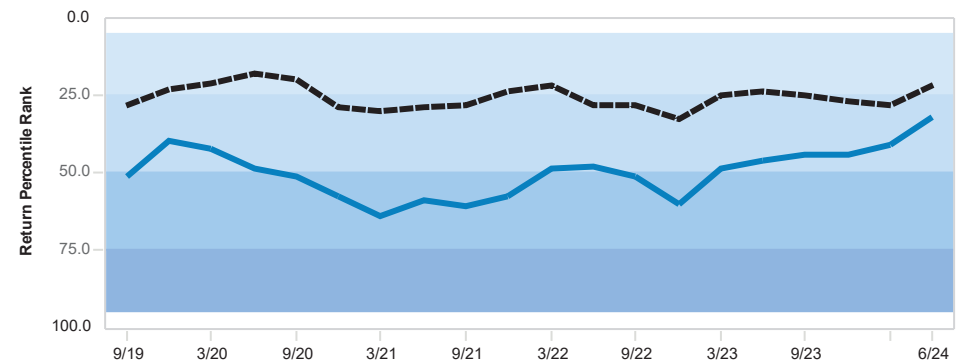


3 Year Rolling Percentile Rank IM U.S. Large Cap Core Equity (SA+CF)



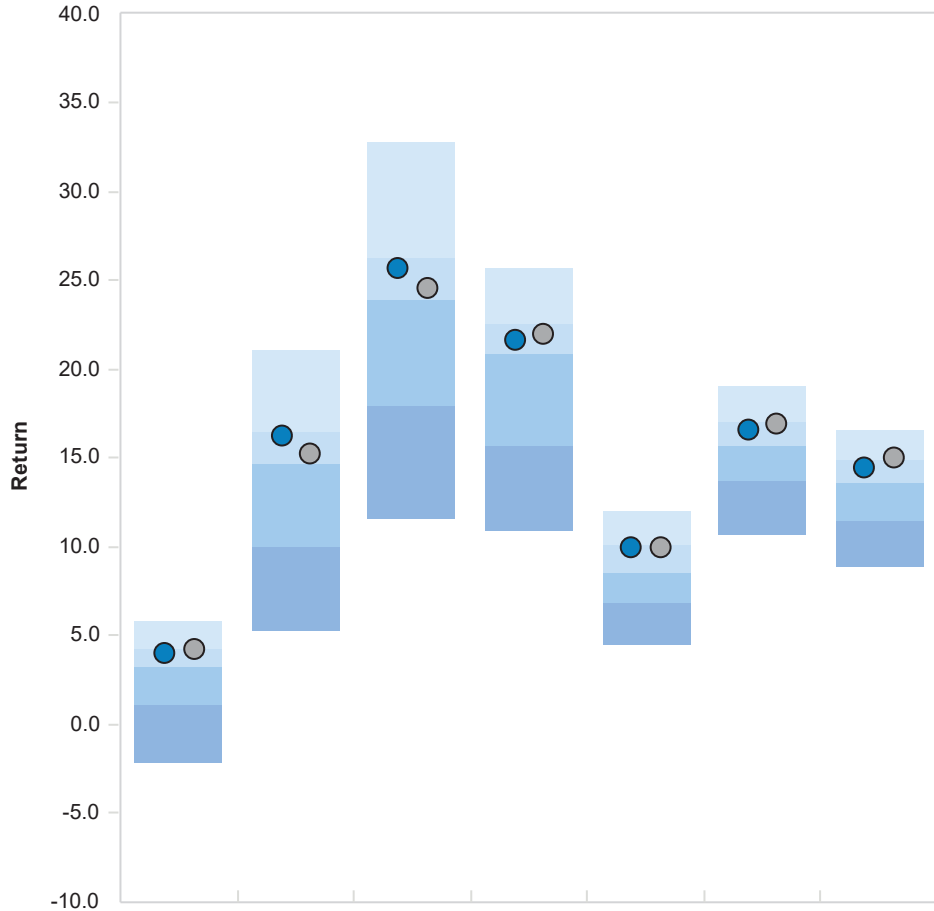
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	0 (0%)	10 (50%)	10 (50%)	0 (0%)
Index	20	3 (15%)	17 (85%)	0 (0%)	0 (0%)

5 Year Rolling Percentile Rank IM U.S. Large Cap Core Equity (SA+CF)



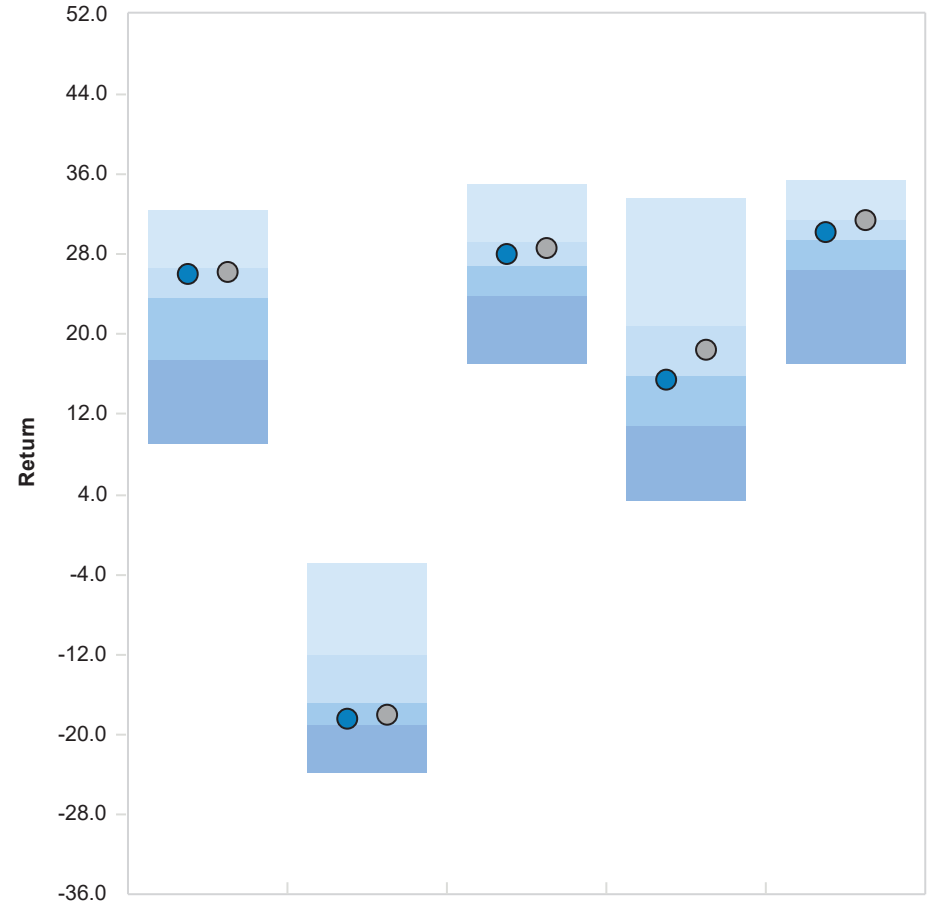
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	0 (0%)	11 (55%)	9 (45%)	0 (0%)
Index	20	10 (50%)	10 (50%)	0 (0%)	0 (0%)

Peer Group Analysis - IM U.S. Large Cap Core Equity (SA+CF)



	QTR	YTD	1 YR	2 YR	3 YR	4 YR	5 YR
● Investment	4.07 (34)	16.30 (30)	25.72 (31)	21.63 (39)	9.99 (28)	16.61 (32)	14.50 (32)
● Index	4.28 (25)	15.29 (40)	24.56 (41)	22.05 (31)	10.01 (27)	17.01 (27)	15.05 (22)
Median	3.21	14.69	23.92	20.86	8.58	15.68	13.65

Peer Group Analysis - IM U.S. Large Cap Core Equity (SA+CF)



	2023	2022	2021	2020	2019
● Investment	26.07 (32)	-18.40 (66)	28.13 (37)	15.56 (53)	30.24 (39)
● Index	26.29 (29)	-18.11 (61)	28.71 (29)	18.40 (41)	31.49 (26)
Median	23.76	-16.91	26.87	15.94	29.49

Comparative Performance

	1 Qtr Ending Mar-2024	1 Qtr Ending Dec-2023	1 Qtr Ending Sep-2023	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022
Investment	11.75 (34)	11.40 (54)	-2.96 (49)	8.92 (22)	7.07 (35)	6.18 (84)
Index	10.56 (51)	11.69 (43)	-3.27 (66)	8.74 (24)	7.50 (22)	7.56 (58)
Median	10.56	11.49	-2.99	7.62	6.21	7.88

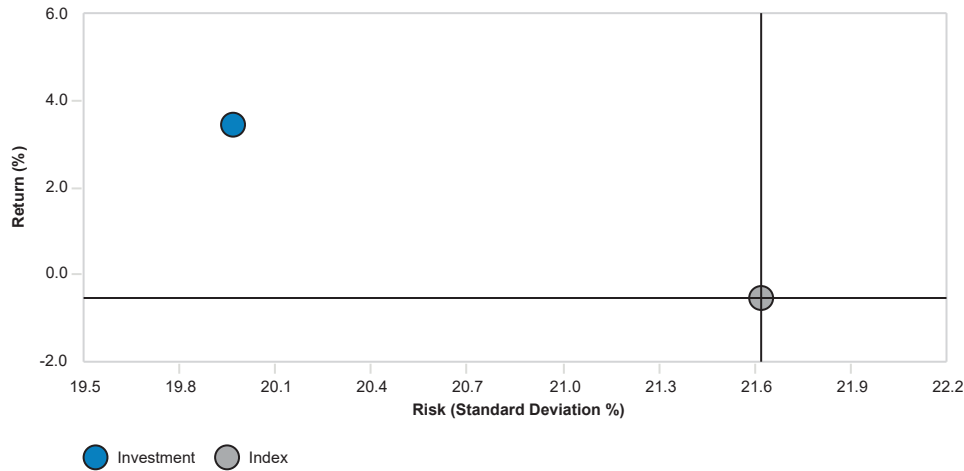
Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	3.47	19.97	0.12	95.90	6	84.29	6
Index	-0.53	21.62	-0.06	100.00	5	100.00	7

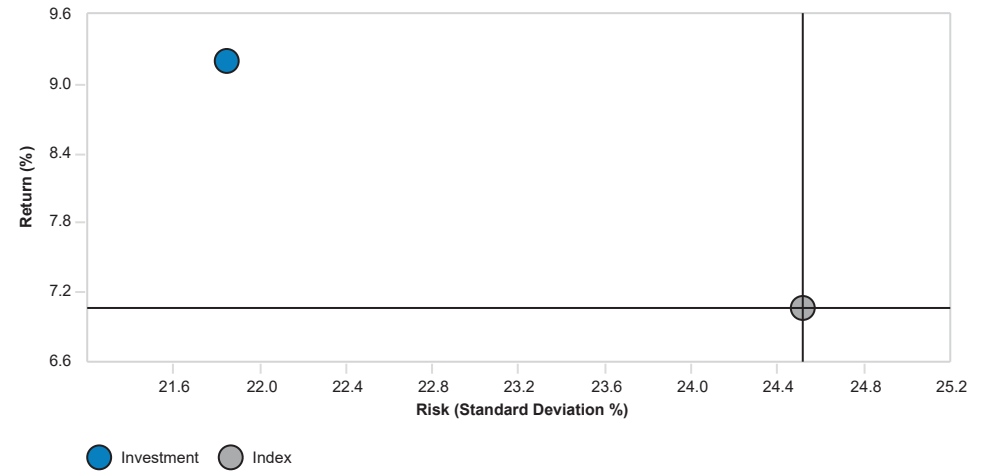
Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	9.20	21.85	0.41	91.34	12	83.94	8
Index	7.07	24.51	0.32	100.00	11	100.00	9

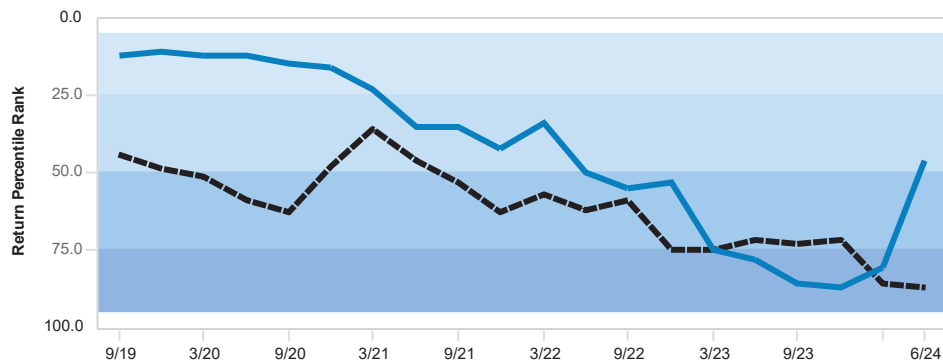
Risk and Return 3 Years



Risk and Return 5 Years

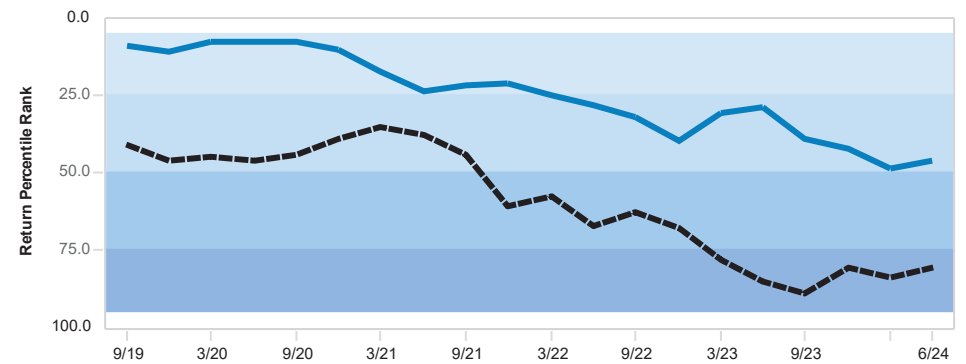


3 Year Rolling Percentile Rank IM U.S. Small Cap Value Equity (SA+CF)



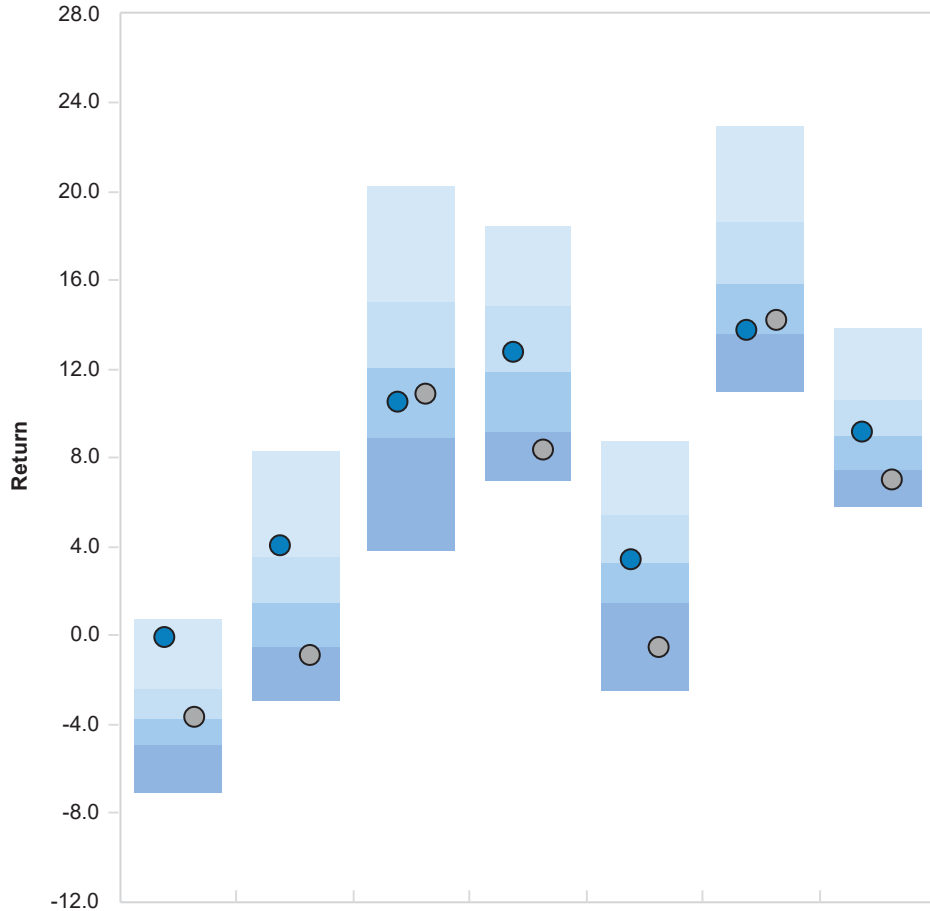
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	7 (35%)	6 (30%)	3 (15%)	4 (20%)
Index	20	0 (0%)	5 (25%)	13 (65%)	2 (10%)

5 Year Rolling Percentile Rank IM U.S. Small Cap Value Equity (SA+CF)



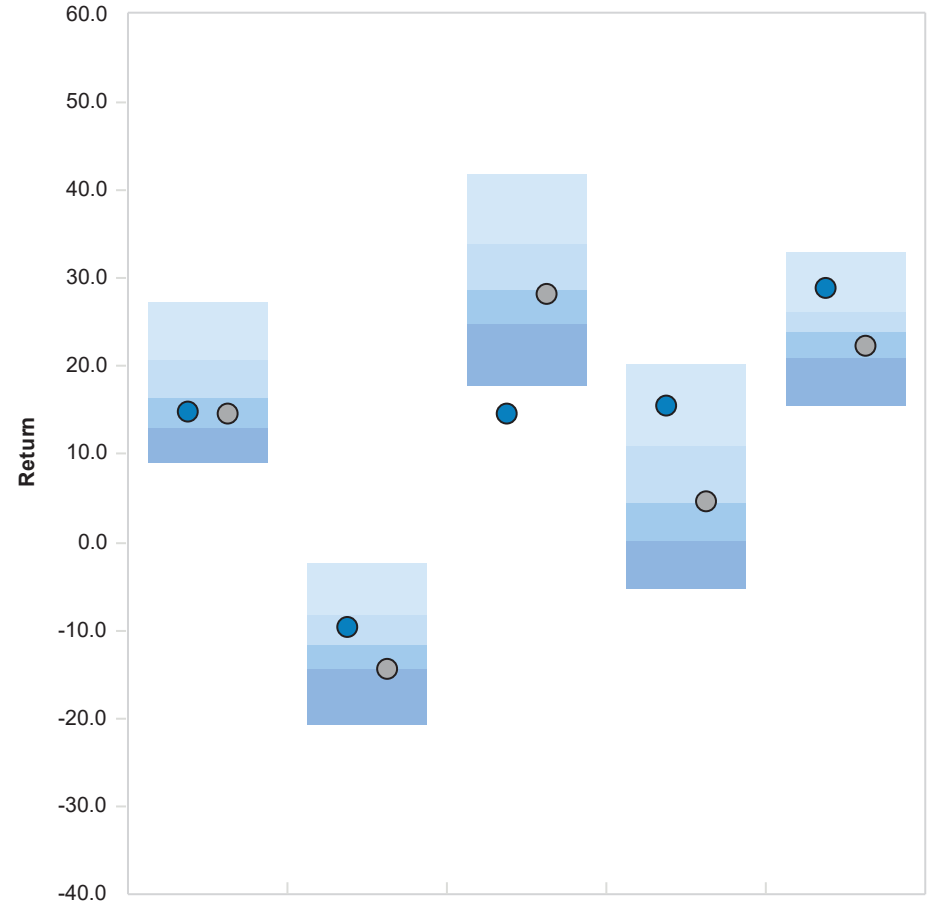
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	11 (55%)	9 (45%)	0 (0%)	0 (0%)
Index	20	0 (0%)	9 (45%)	5 (25%)	6 (30%)

Peer Group Analysis - IM U.S. Small Cap Value Equity (SA+CF)



	QTR	YTD	1 YR	2 YR	3 YR	4 YR	5 YR
● Investment	-0.08 (7)	4.13 (21)	10.58 (60)	12.76 (41)	3.47 (46)	13.75 (74)	9.20 (46)
● Index	-3.64 (49)	-0.85 (80)	10.90 (57)	8.42 (85)	-0.53 (87)	14.28 (68)	7.07 (81)
Median	-3.71	1.49	12.07	11.87	3.24	15.83	9.07

Peer Group Analysis - IM U.S. Small Cap Value Equity (SA+CF)



	2023	2022	2021	2020	2019
● Investment	14.94 (62)	-9.57 (32)	14.64 (98)	15.50 (14)	28.89 (13)
● Index	14.65 (65)	-14.48 (76)	28.27 (53)	4.63 (50)	22.39 (66)
Median	16.40	-11.57	28.76	4.42	24.00

Comparative Performance

	1 Qtr Ending Mar-2024	1 Qtr Ending Dec-2023	1 Qtr Ending Sep-2023	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022
Investment	4.21 (67)	11.27 (73)	-4.56 (84)	2.69 (75)	5.40 (18)	10.97 (48)
Index	2.90 (89)	15.26 (13)	-2.96 (56)	3.18 (67)	-0.66 (86)	8.42 (82)
Median	5.03	12.80	-2.66	3.85	1.97	10.86

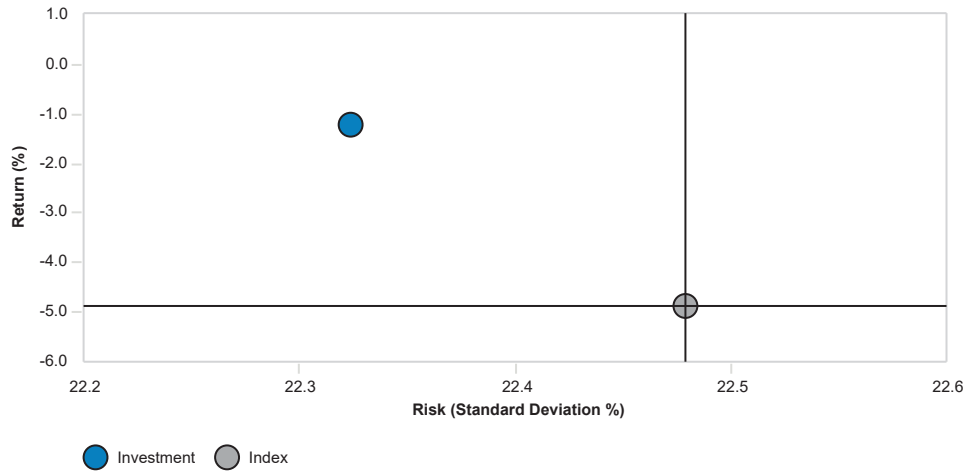
Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	-1.23	22.32	-0.08	106.73	7	94.86	5
Index	-4.86	22.48	-0.24	100.00	7	100.00	5

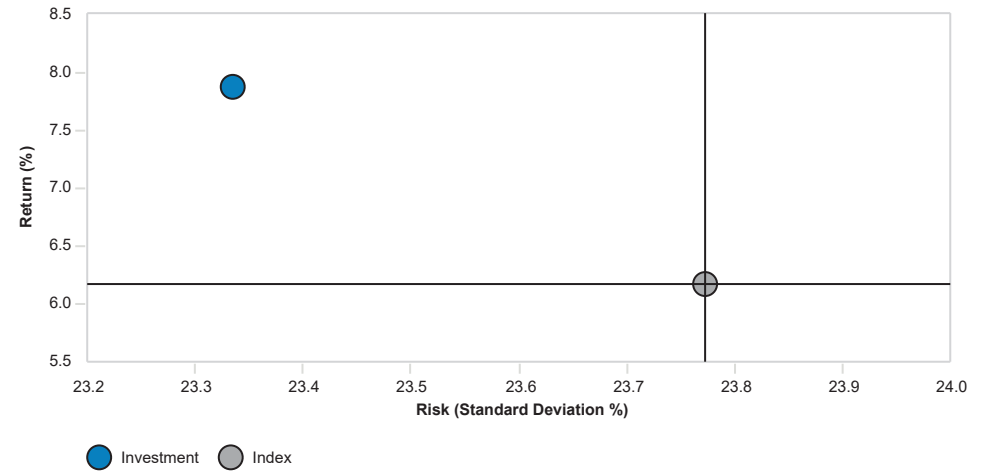
Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	7.88	23.34	0.35	102.40	13	97.70	7
Index	6.17	23.77	0.28	100.00	13	100.00	7

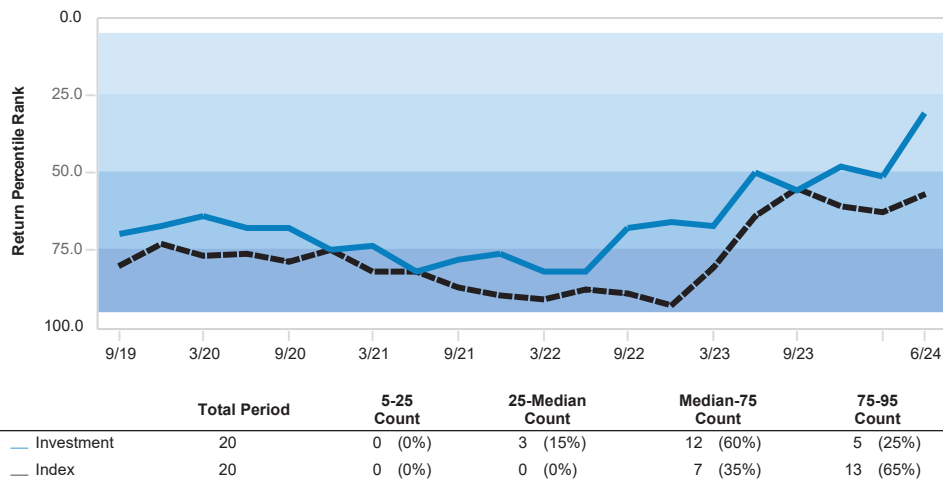
Risk and Return 3 Years



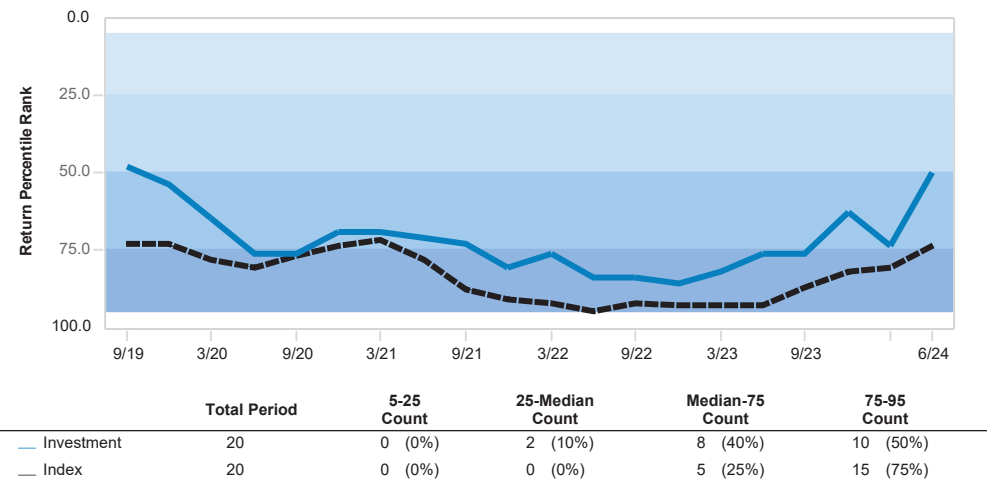
Risk and Return 5 Years



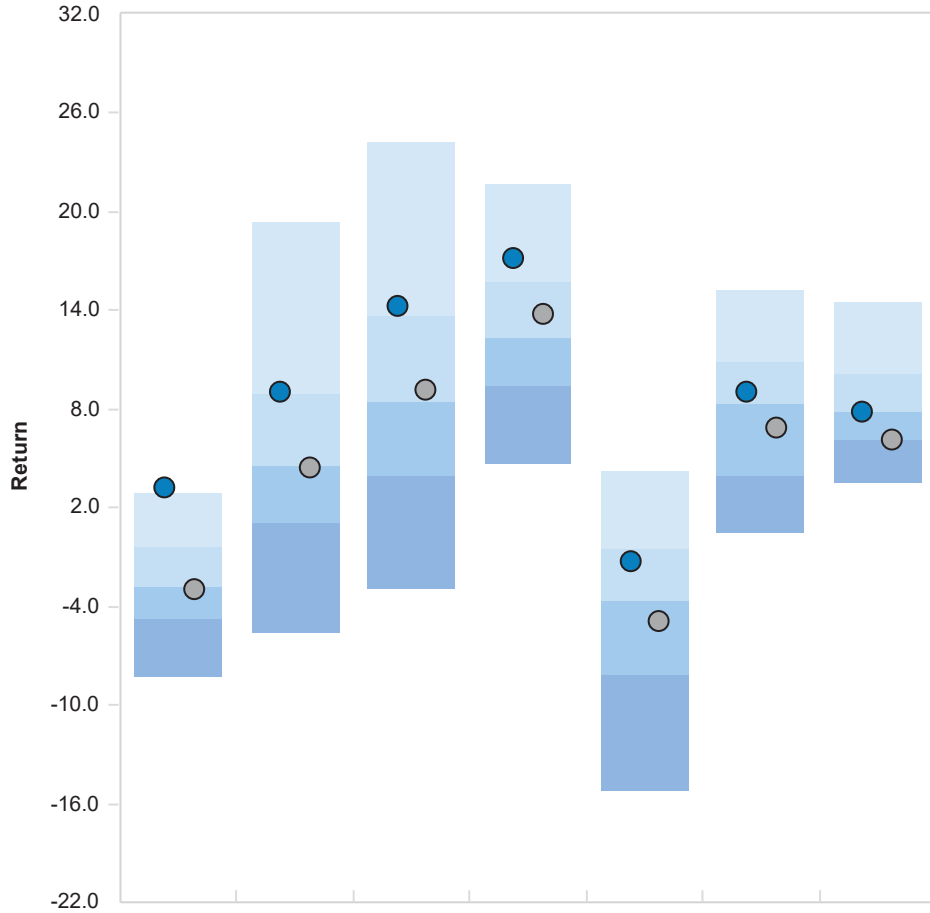
3 Year Rolling Percentile Rank IM U.S. Small Cap Growth Equity (SA+CF)



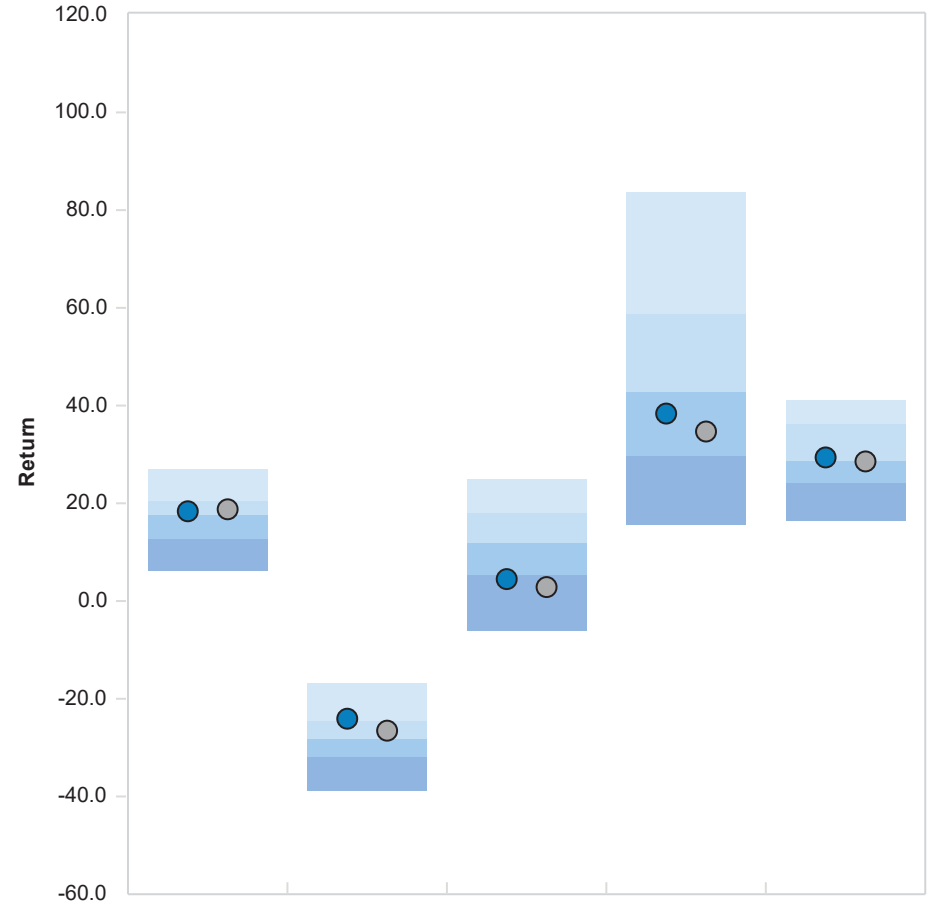
5 Year Rolling Percentile Rank IM U.S. Small Cap Growth Equity (SA+CF)



Peer Group Analysis - IM U.S. Small Cap Growth Equity (SA+CF)



Peer Group Analysis - IM U.S. Small Cap Growth Equity (SA+CF)



	QTR	YTD	1 YR	2 YR	3 YR	4 YR	5 YR
Investment	3.27 (3)	9.09 (24)	14.24 (24)	17.18 (21)	-1.23 (31)	9.04 (38)	7.88 (50)
Index	-2.92 (53)	4.44 (53)	9.14 (49)	13.74 (40)	-4.86 (57)	6.85 (59)	6.17 (74)
Median	-2.77	4.60	8.46	12.38	-3.63	8.34	7.83

	2023	2022	2021	2020	2019
Investment	18.35 (42)	-24.18 (23)	4.32 (80)	38.53 (60)	29.23 (49)
Index	18.66 (40)	-26.36 (36)	2.83 (83)	34.63 (67)	28.48 (51)
Median	17.44	-28.26	11.67	43.04	28.66

Comparative Performance

	1 Qtr Ending Mar-2024	1 Qtr Ending Dec-2023	1 Qtr Ending Sep-2023	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022
Investment	5.64 (67)	14.67 (8)	-8.68 (79)	8.68 (11)	3.99 (84)	6.55 (21)
Index	7.58 (45)	12.75 (18)	-7.32 (64)	7.05 (26)	6.07 (66)	4.13 (53)
Median	7.06	10.70	-6.80	5.67	7.06	4.30

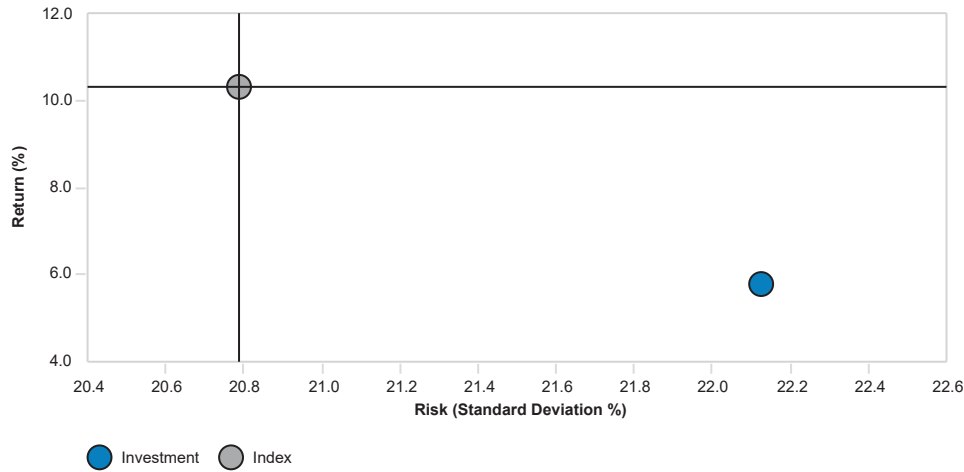
Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	5.78	22.13	0.23	92.25	6	104.14	6
Index	10.33	20.79	0.44	100.00	8	100.00	4

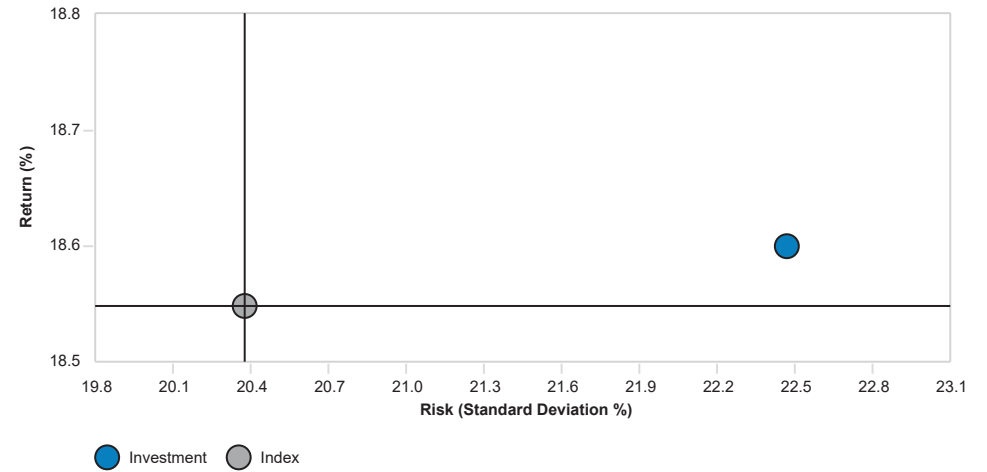
Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	18.60	22.47	0.78	102.76	12	102.97	8
Index	18.55	20.38	0.84	100.00	15	100.00	5

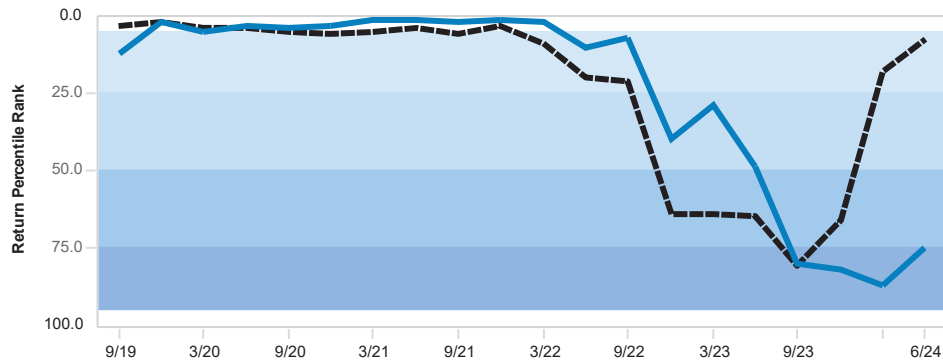
Risk and Return 3 Years



Risk and Return 5 Years

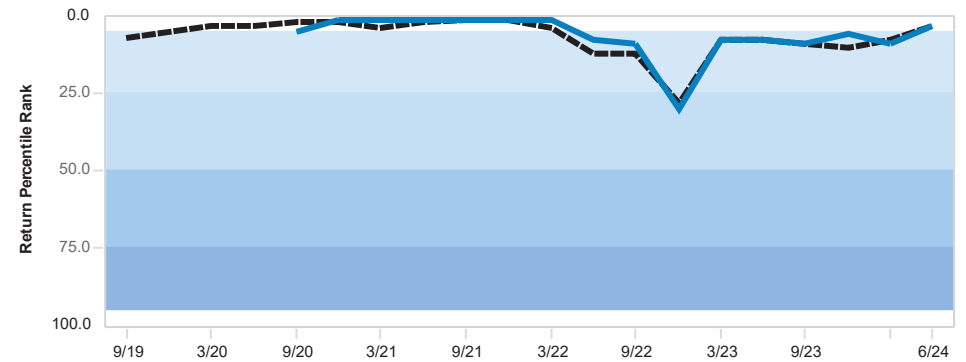


3 Year Rolling Percentile Rank IM U.S. All Cap Core Equity (SA+CF)



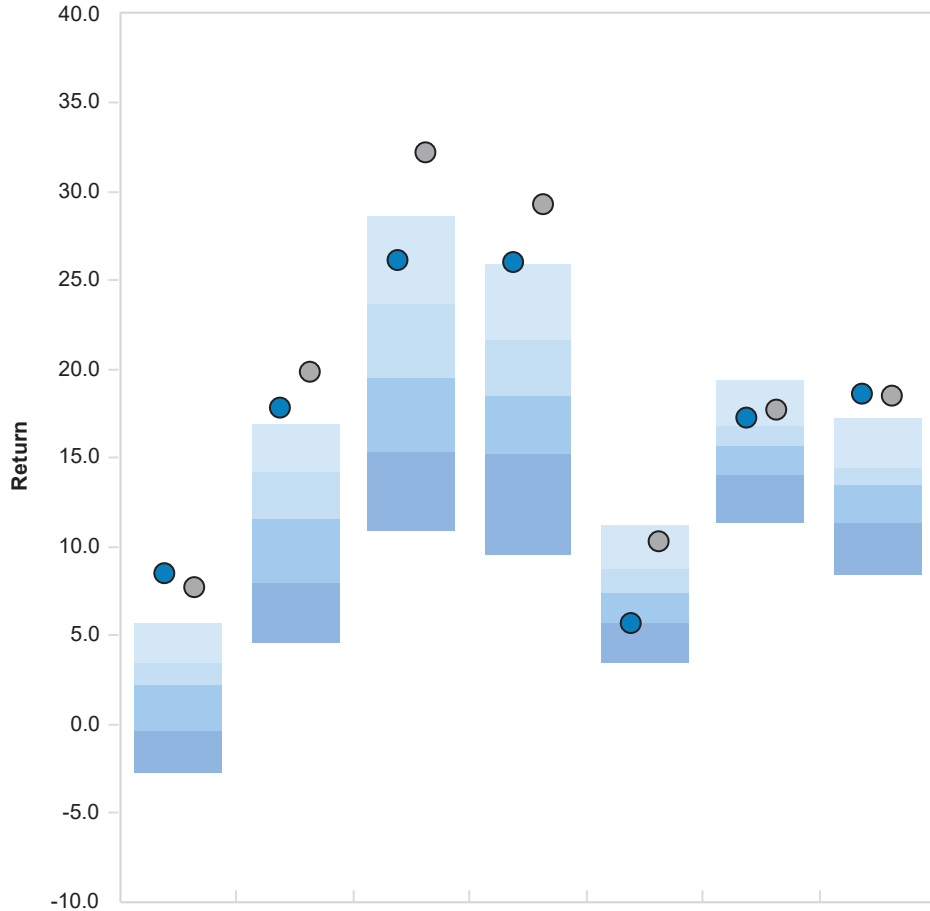
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	13 (65%)	3 (15%)	1 (5%)	3 (15%)
Index	20	15 (75%)	0 (0%)	4 (20%)	1 (5%)

5 Year Rolling Percentile Rank IM U.S. All Cap Core Equity (SA+CF)

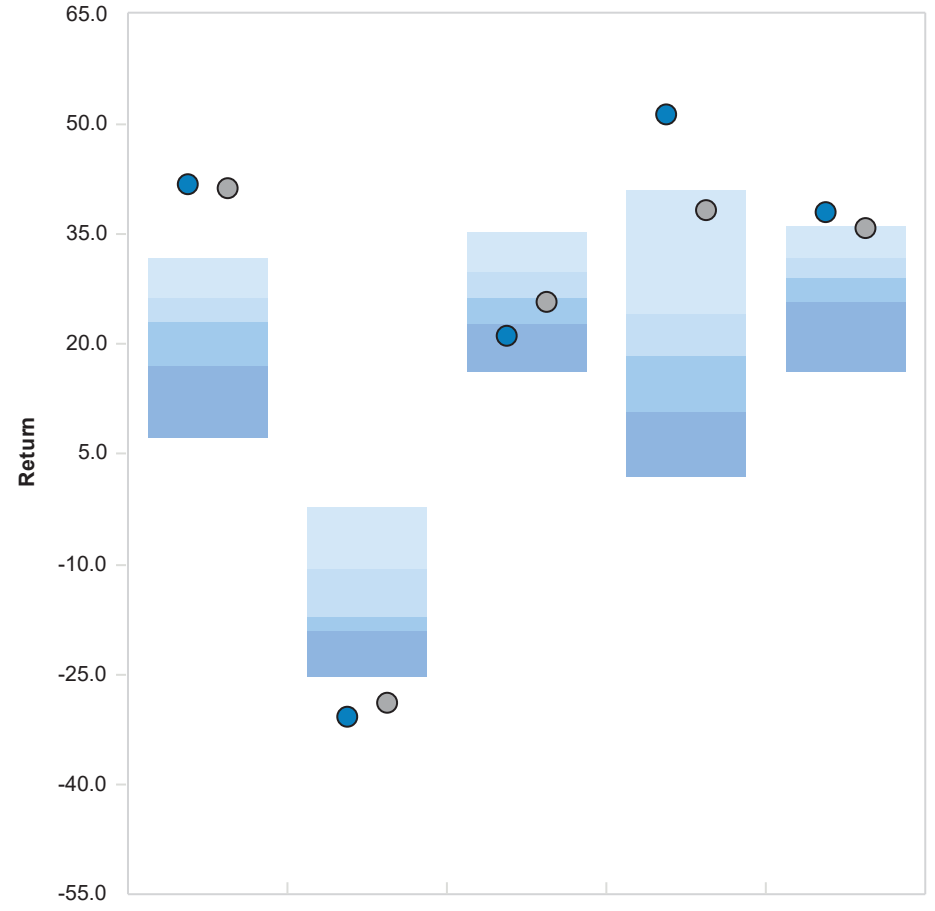


	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	16	15 (94%)	1 (6%)	0 (0%)	0 (0%)
Index	20	19 (95%)	1 (5%)	0 (0%)	0 (0%)

Peer Group Analysis - IM U.S. All Cap Core Equity (SA+CF)



Peer Group Analysis - IM U.S. All Cap Core Equity (SA+CF)



	QTR	YTD	1 YR	2 YR	3 YR	4 YR	5 YR
Investment	8.50 (1)	17.85 (4)	26.19 (10)	26.11 (5)	5.78 (75)	17.34 (16)	18.60 (3)
Index	7.80 (1)	19.90 (3)	32.22 (2)	29.38 (2)	10.33 (8)	17.71 (12)	18.55 (3)
Median	2.21	11.53	19.61	18.53	7.39	15.71	13.46

	2023	2022	2021	2020	2019
Investment	41.96 (1)	-30.72 (100)	21.32 (81)	51.29 (2)	38.03 (2)
Index	41.21 (1)	-28.97 (99)	25.85 (55)	38.26 (9)	35.85 (6)
Median	23.01	-17.21	26.27	18.60	29.22

Comparative Performance

	1 Qtr Ending Mar-2024	1 Qtr Ending Dec-2023	1 Qtr Ending Sep-2023	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022
Investment	8.62 (73)	11.73 (50)	-4.17 (81)	14.58 (1)	15.71 (1)	-1.15 (100)
Index	11.23 (27)	14.09 (7)	-3.34 (61)	12.47 (1)	13.85 (2)	2.31 (100)
Median	9.92	11.70	-3.22	6.76	6.05	8.67

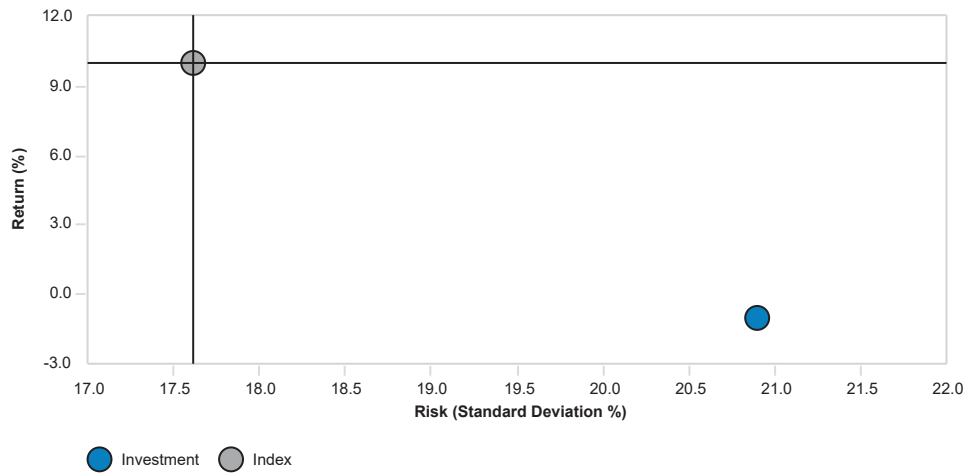
Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	-1.02	20.90	-0.09	87.46	6	127.37	6
Index	10.01	17.61	0.47	100.00	8	100.00	4

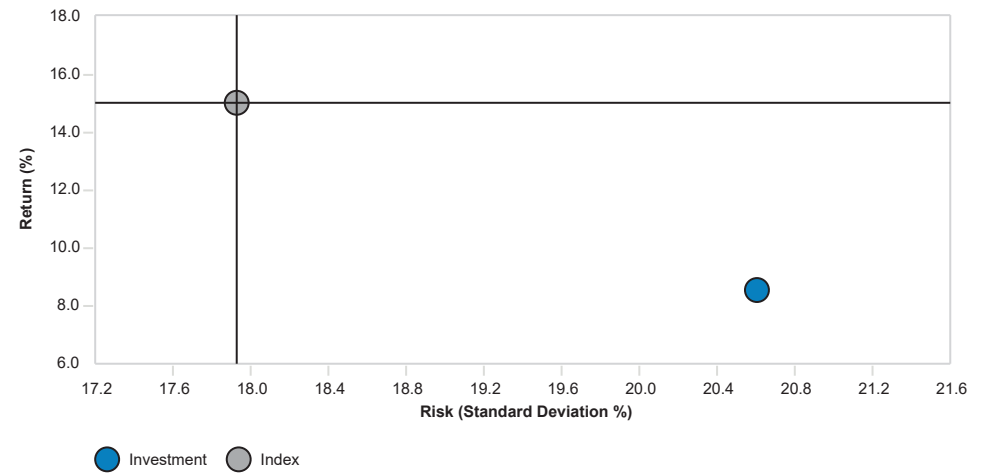
Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	8.56	20.61	0.40	92.98	13	115.42	7
Index	15.05	17.93	0.76	100.00	15	100.00	5

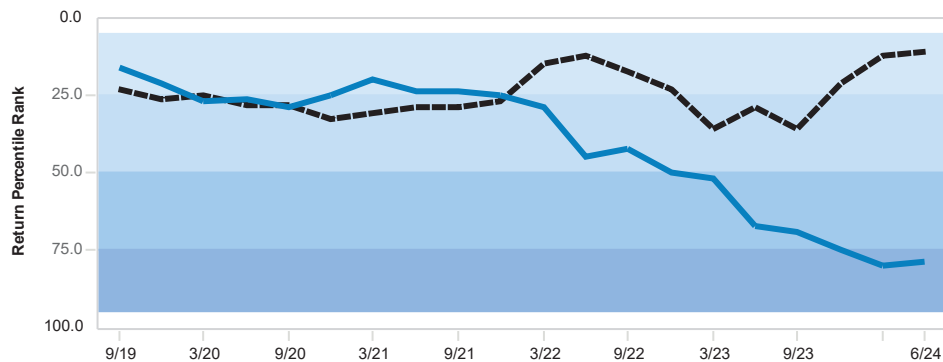
Risk and Return 3 Years



Risk and Return 5 Years

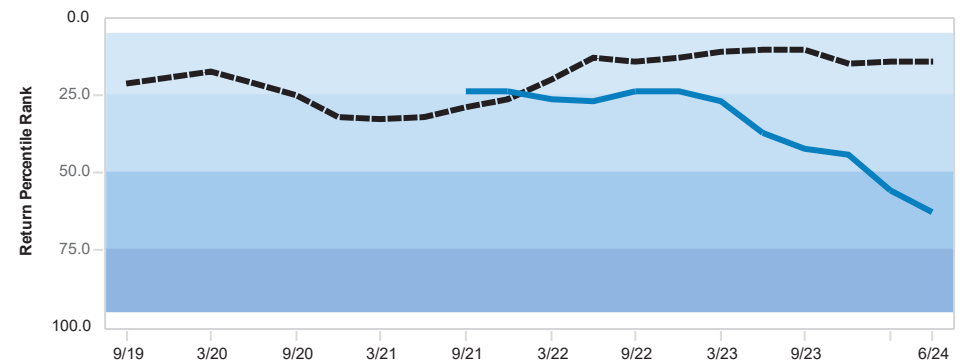


3 Year Rolling Percentile Rank IM U.S. Equity (MF)



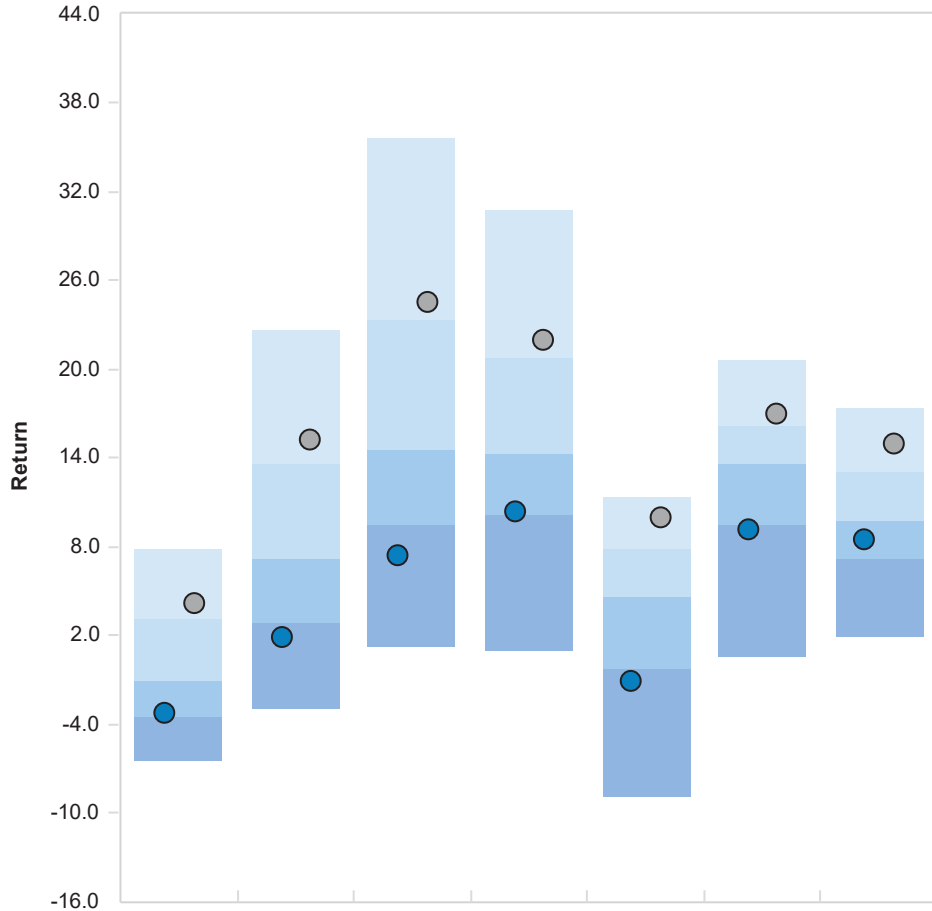
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	7 (35%)	7 (35%)	4 (20%)	2 (10%)
Index	20	9 (45%)	11 (55%)	0 (0%)	0 (0%)

5 Year Rolling Percentile Rank IM U.S. Equity (MF)



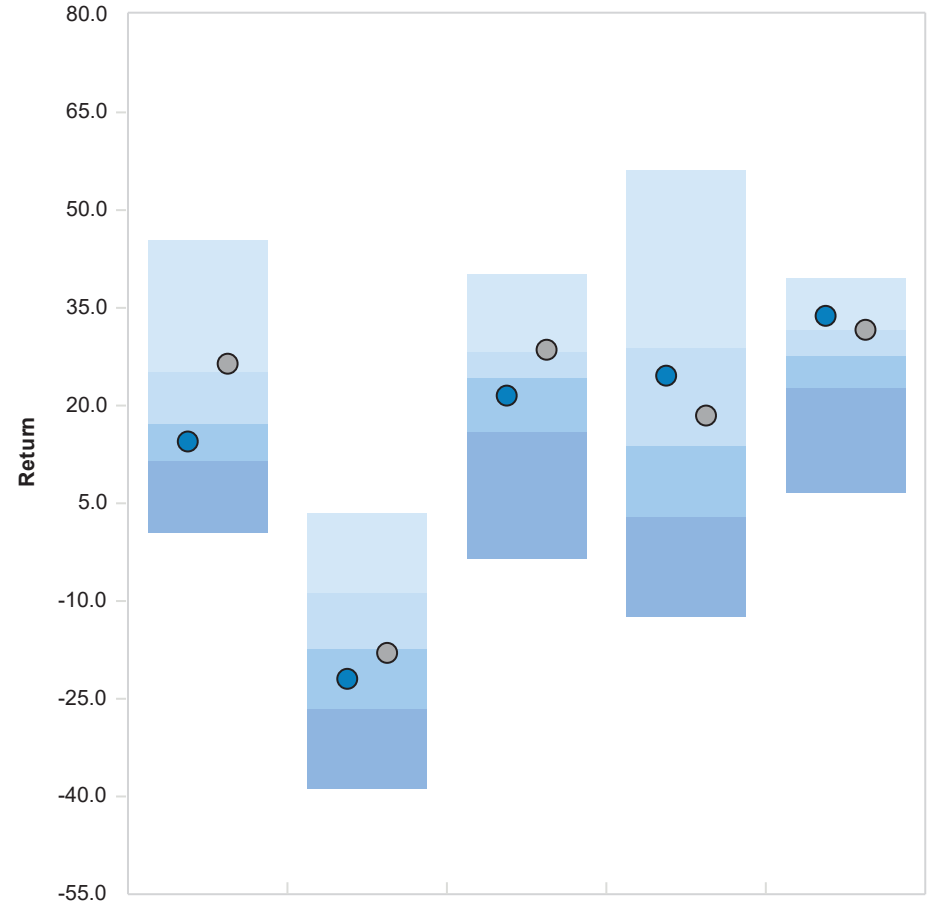
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	12	4 (33%)	6 (50%)	2 (17%)	0 (0%)
Index	20	15 (75%)	5 (25%)	0 (0%)	0 (0%)

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



	QTR	YTD	1 YR	2 YR	3 YR	4 YR	5 YR
● Investment	-3.17 (73)	1.87 (80)	7.49 (83)	10.37 (74)	-1.02 (79)	9.18 (77)	8.56 (63)
● Index	4.28 (18)	15.29 (19)	24.56 (22)	22.05 (20)	10.01 (11)	17.01 (18)	15.05 (14)
Median	-1.03	7.20	14.60	14.28	4.58	13.71	9.71

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



	2023	2022	2021	2020	2019
● Investment	14.41 (62)	-22.02 (66)	21.48 (62)	24.65 (30)	33.89 (17)
● Index	26.29 (22)	-18.11 (53)	28.71 (24)	18.40 (41)	31.49 (27)
Median	17.19	-17.24	24.22	14.00	27.51

Comparative Performance

	1 Qtr Ending Mar-2024	1 Qtr Ending Dec-2023	1 Qtr Ending Sep-2023	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022
Investment	5.20 (81)	11.95 (46)	-5.74 (79)	2.42 (82)	5.86 (41)	7.41 (58)
Index	10.56 (31)	11.69 (50)	-3.27 (42)	8.74 (20)	7.50 (27)	7.56 (56)
Median	8.78	11.68	-3.67	5.16	4.30	8.34

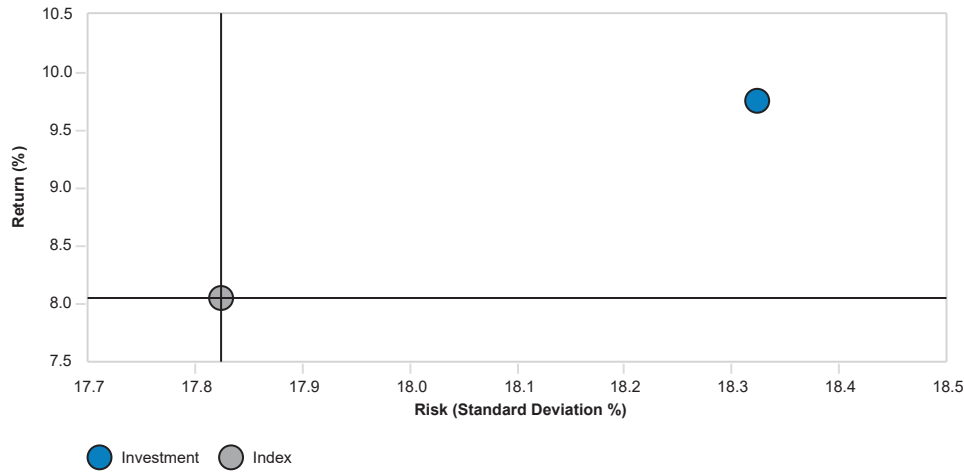
Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	9.75	18.32	0.44	97.98	7	89.70	5
Index	8.05	17.82	0.36	100.00	7	100.00	5

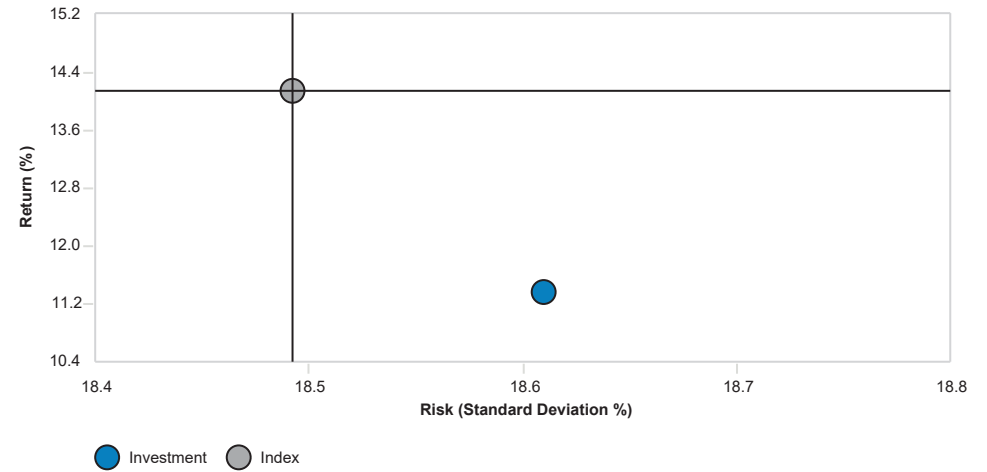
Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	11.38	18.61	0.56	88.55	13	92.39	7
Index	14.14	18.49	0.70	100.00	14	100.00	6

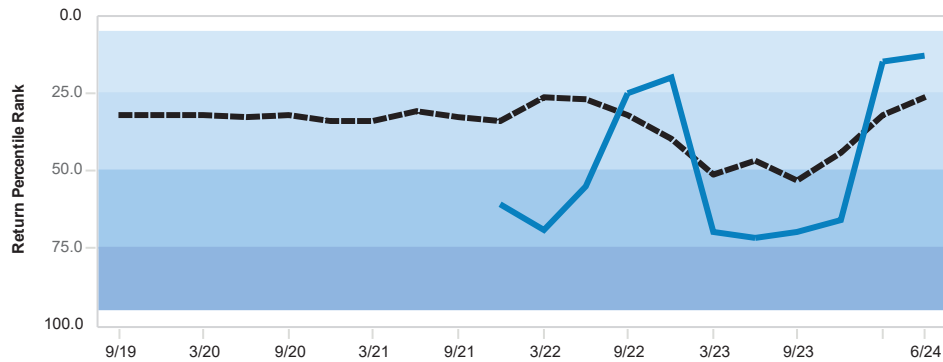
Risk and Return 3 Years



Risk and Return 5 Years

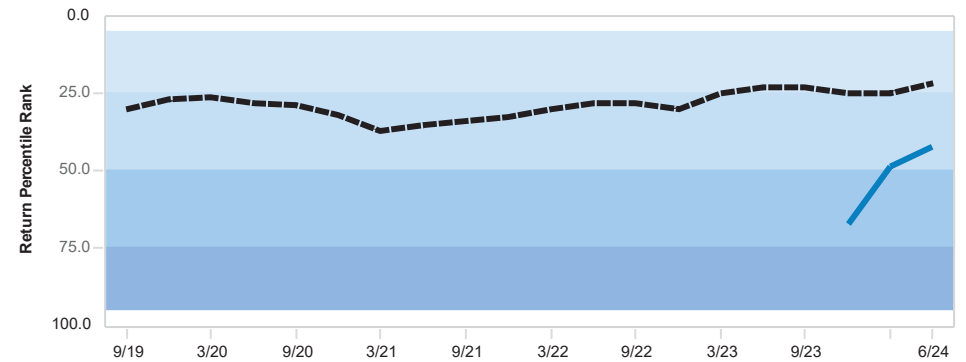


3 Year Rolling Percentile Rank IM U.S. Equity (SA+CF)



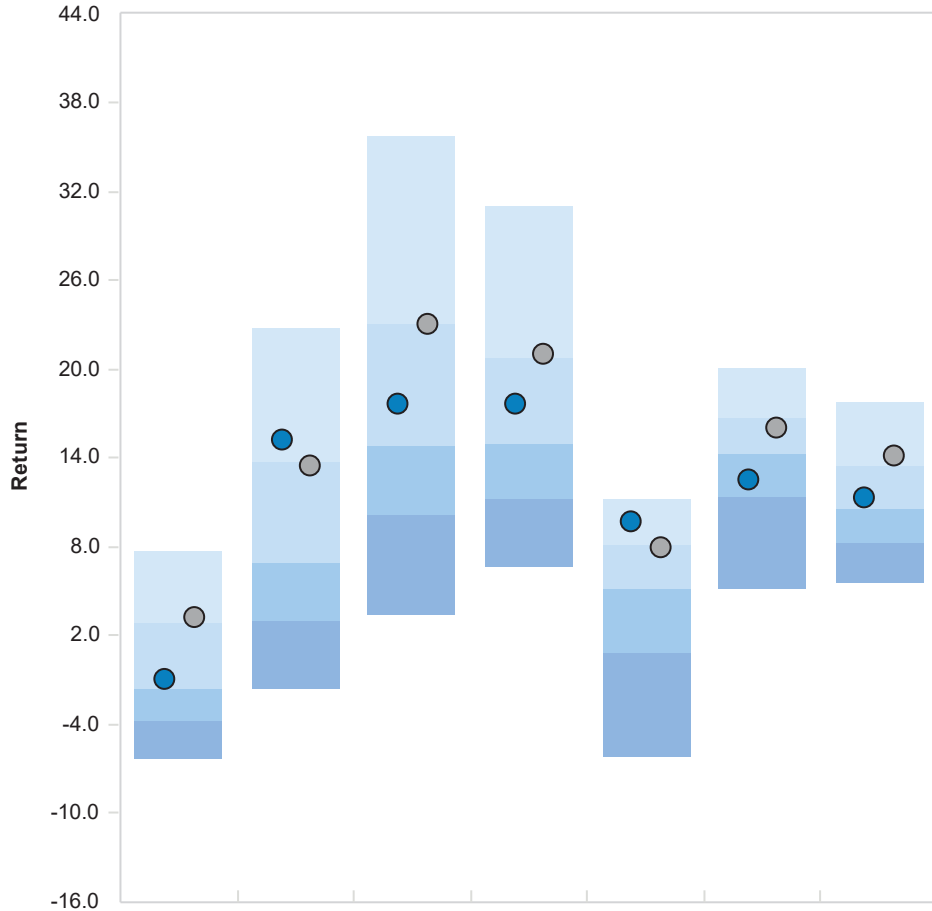
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	11	4 (36%)	0 (0%)	7 (64%)	0 (0%)
Index	20	0 (0%)	18 (90%)	2 (10%)	0 (0%)

5 Year Rolling Percentile Rank IM U.S. Equity (SA+CF)



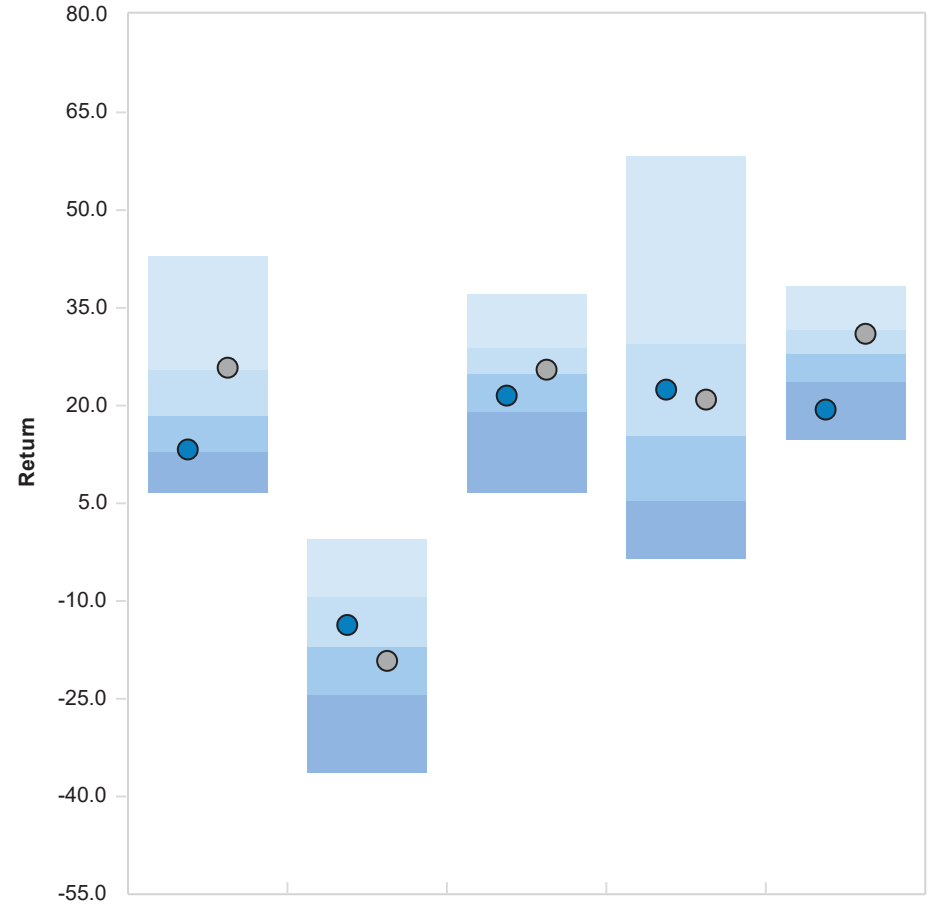
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	3	0 (0%)	2 (67%)	1 (33%)	0 (0%)
Index	20	6 (30%)	14 (70%)	0 (0%)	0 (0%)

Peer Group Analysis - IM U.S. Equity (SA+CF)



	QTR	YTD	1 YR	2 YR	3 YR	4 YR	5 YR
● Investment	-0.93 (45)	15.34 (19)	17.67 (38)	17.69 (35)	9.75 (13)	12.53 (66)	11.38 (42)
● Index	3.22 (23)	13.56 (26)	23.12 (25)	21.02 (24)	8.05 (26)	16.13 (33)	14.14 (22)
Median	-1.51	6.90	14.93	14.98	5.17	14.35	10.52

Peer Group Analysis - IM U.S. Equity (SA+CF)



	2023	2022	2021	2020	2019
● Investment	13.37 (75)	-13.59 (39)	21.59 (68)	22.31 (35)	19.24 (90)
● Index	25.96 (24)	-19.21 (62)	25.66 (46)	20.89 (37)	31.02 (31)
Median	18.52	-17.02	25.02	15.55	28.07

Comparative Performance

	1 Qtr Ending Mar-2024	1 Qtr Ending Dec-2023	1 Qtr Ending Sep-2023	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022
Investment	16.41 (3)	9.56 (79)	-6.88 (91)	9.04 (19)	1.90 (75)	7.60 (58)
Index	10.02 (39)	12.07 (44)	-3.25 (45)	8.39 (26)	7.18 (32)	7.18 (65)
Median	8.98	11.71	-3.42	5.53	4.85	8.46

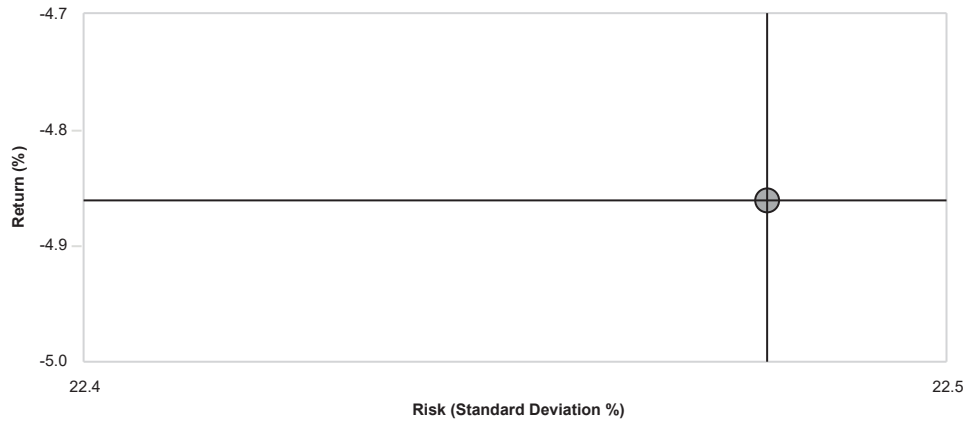
Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Index	-4.86	22.48	-0.24	100.00	7	100.00	5

Historical Statistics 5 Years

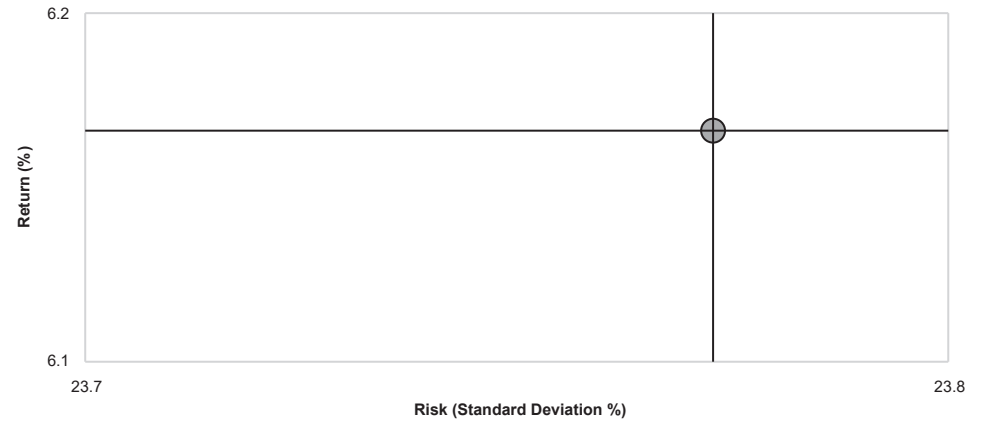
	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Index	6.17	23.77	0.28	100.00	13	100.00	7

Risk and Return 3 Years



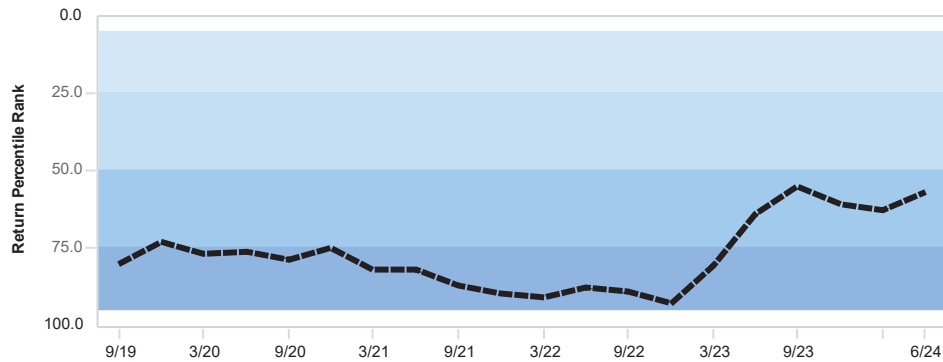
● Investment ● Index

Risk and Return 5 Years



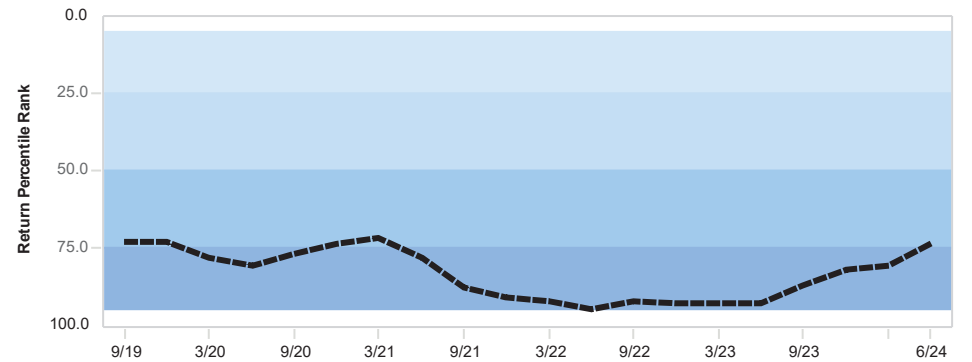
● Investment ● Index

3 Year Rolling Percentile Rank IM U.S. Small Cap Growth Equity (SA+CF)



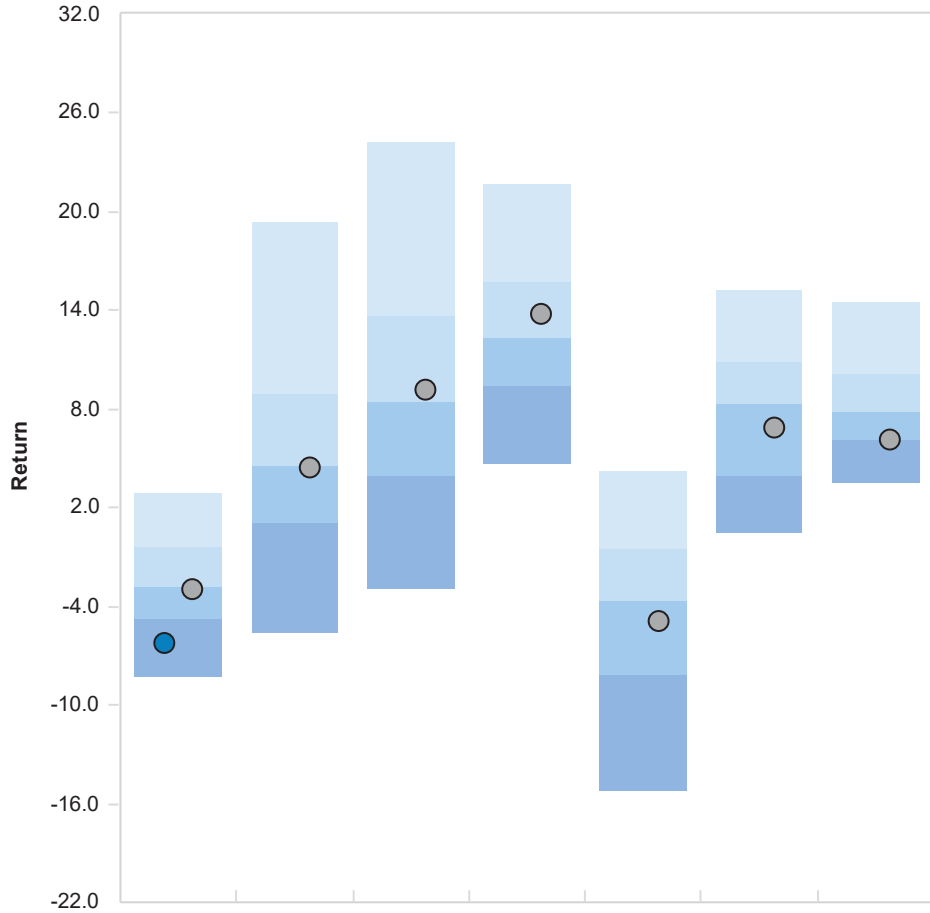
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	0	0	0	0	0
Index	20	0 (0%)	0 (0%)	7 (35%)	13 (65%)

5 Year Rolling Percentile Rank IM U.S. Small Cap Growth Equity (SA+CF)

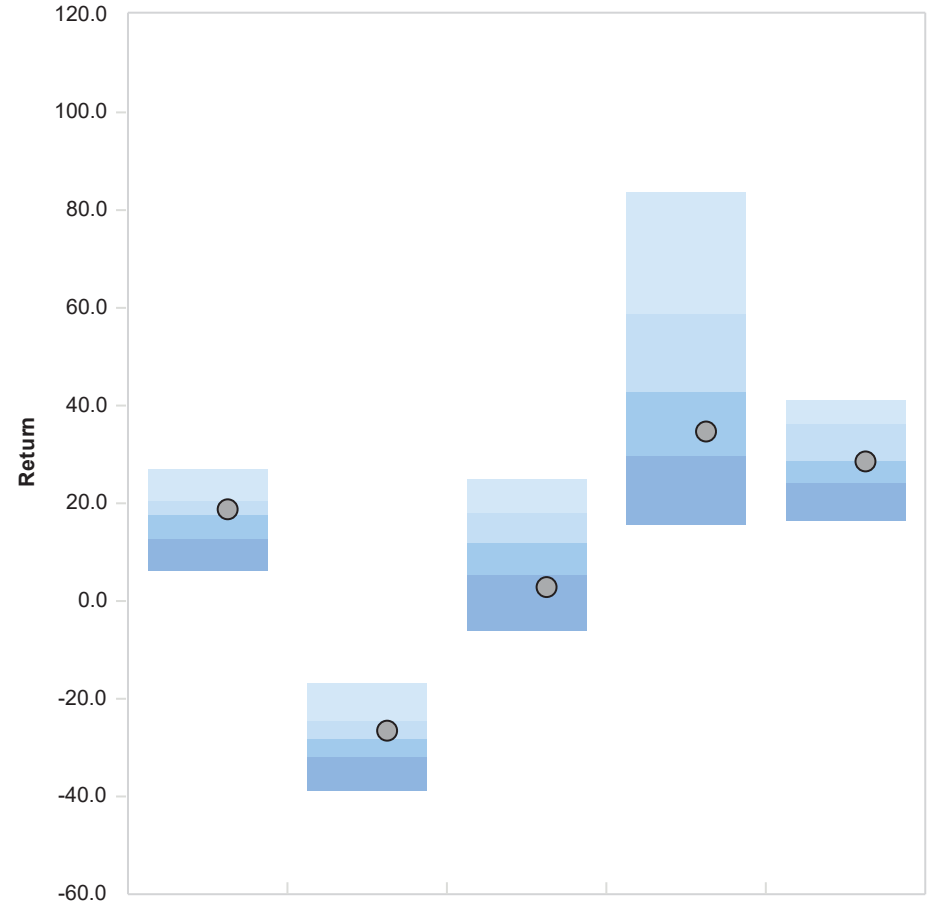


	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	0	0	0	0	0
Index	20	0 (0%)	0 (0%)	5 (25%)	15 (75%)

Peer Group Analysis - IM U.S. Small Cap Growth Equity (SA+CF)



Peer Group Analysis - IM U.S. Small Cap Growth Equity (SA+CF)



Comparative Performance

	1 Qtr Ending Mar-2024	1 Qtr Ending Dec-2023	1 Qtr Ending Sep-2023	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022
Investment	N/A	N/A	N/A	N/A	N/A	N/A
Index	7.58 (45)	12.75 (18)	-7.32 (64)	7.05 (26)	6.07 (66)	4.13 (53)
Median	7.06	10.70	-6.80	5.67	7.06	4.30

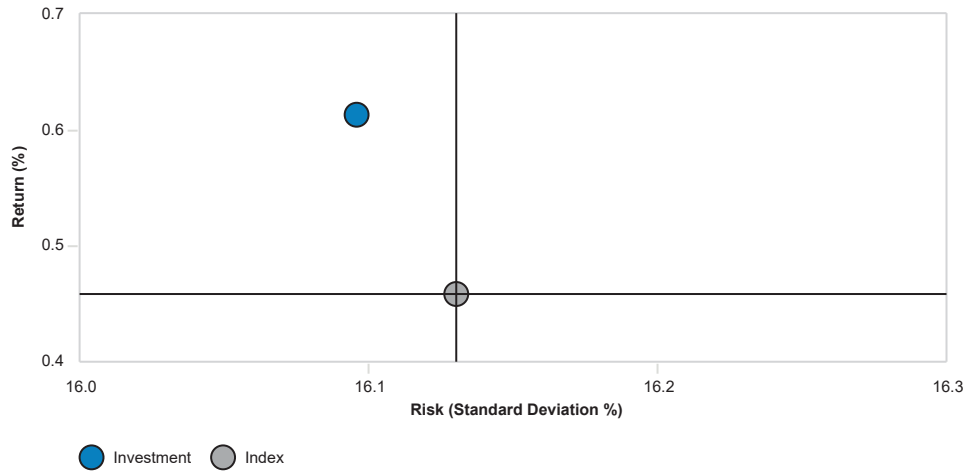
Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	0.61	16.10	-0.07	100.56	7	99.93	5
Index	0.46	16.13	-0.08	100.00	7	100.00	5

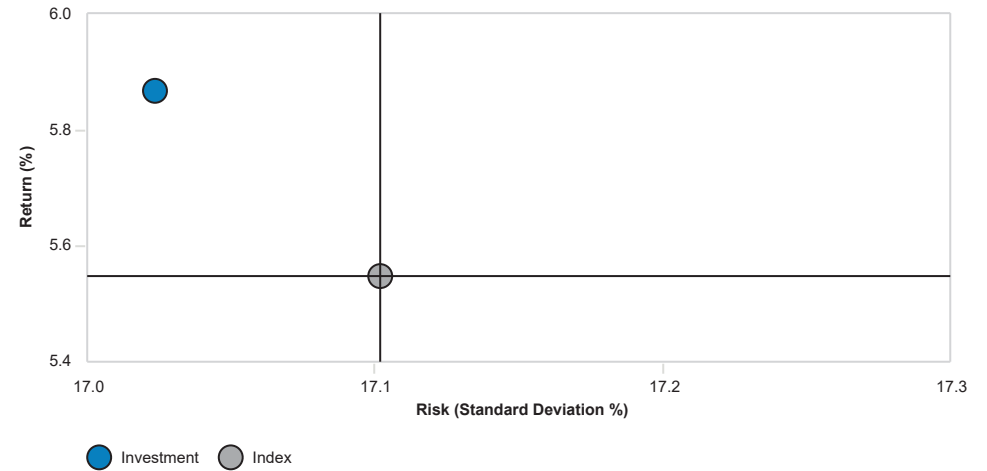
Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	5.87	17.02	0.30	100.26	13	98.89	7
Index	5.55	17.10	0.28	100.00	13	100.00	7

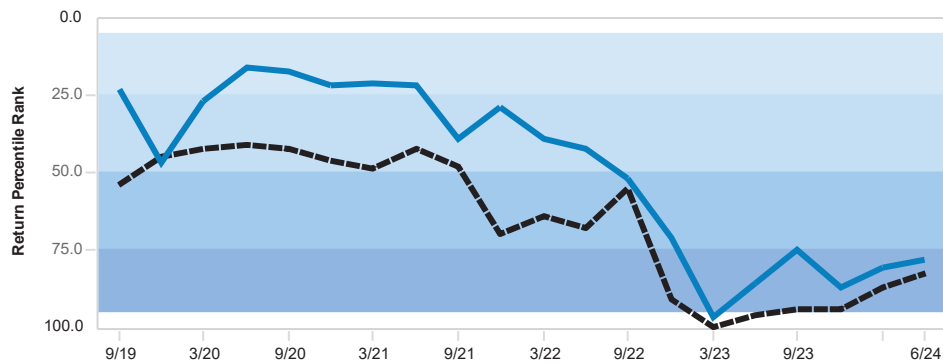
Risk and Return 3 Years



Risk and Return 5 Years

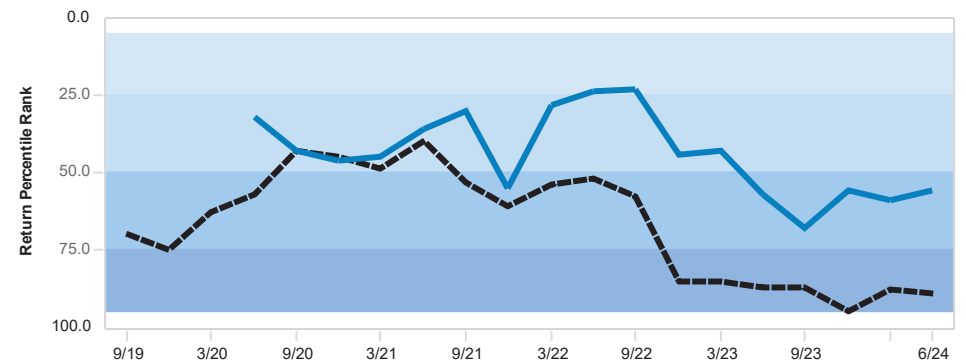


3 Year Rolling Percentile Rank IM Enhanced and Indexed International Equity (SA+CF)



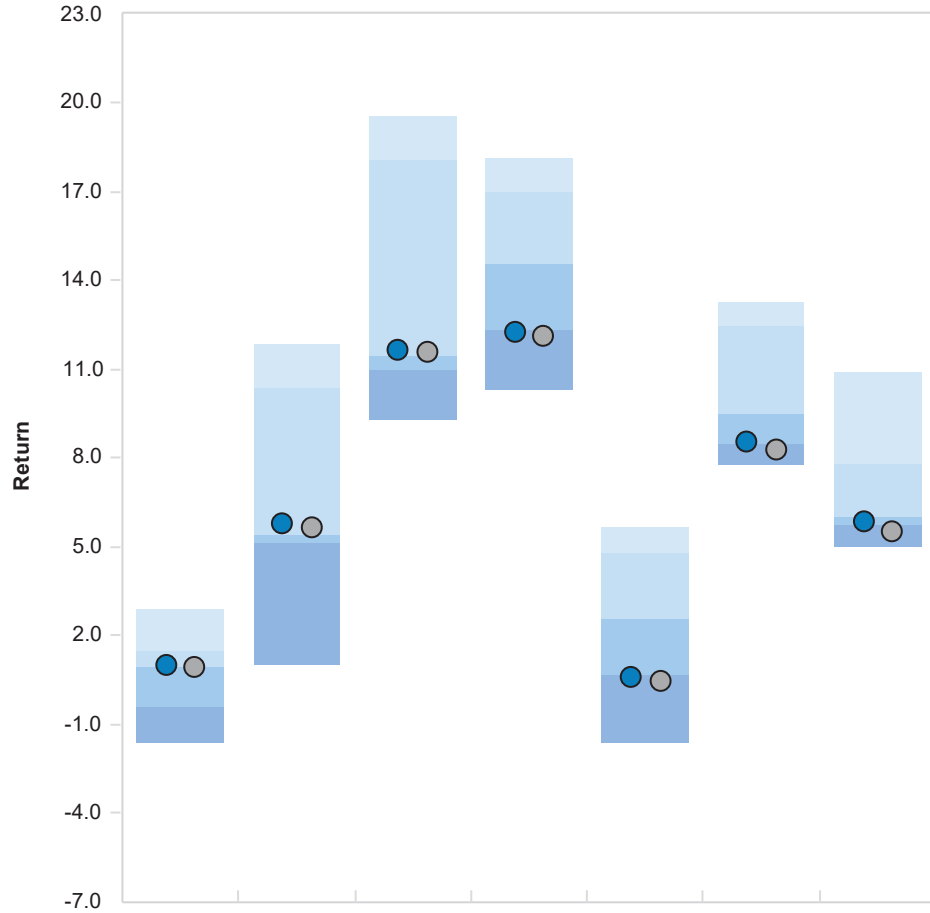
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	6 (30%)	6 (30%)	3 (15%)	5 (25%)
Index	20	0 (0%)	8 (40%)	5 (25%)	7 (35%)

5 Year Rolling Percentile Rank IM Enhanced and Indexed International Equity (SA+CF)



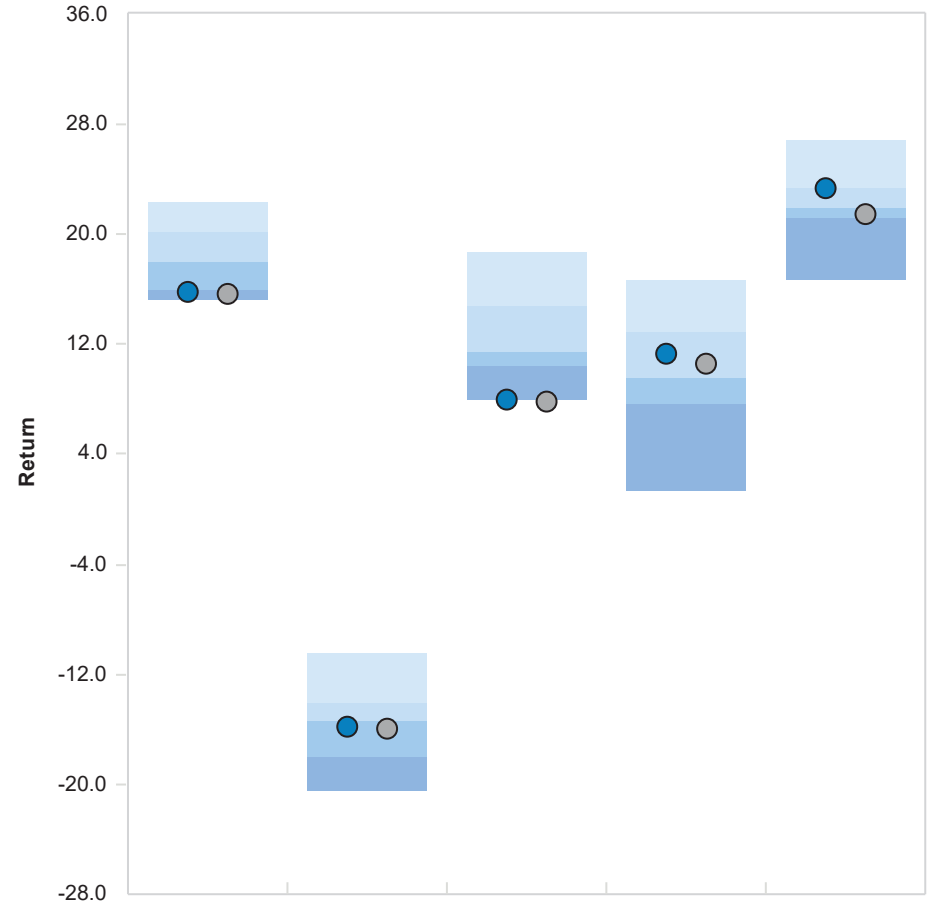
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	17	2 (12%)	9 (53%)	6 (35%)	0 (0%)
Index	20	0 (0%)	4 (20%)	9 (45%)	7 (35%)

Peer Group Analysis - IM Enhanced and Indexed International Equity (SA+CF)



	QTR	YTD	1 YR	2 YR	3 YR	4 YR	5 YR
● Investment	1.00 (31)	5.79 (31)	11.69 (44)	12.28 (79)	0.61 (78)	8.54 (74)	5.87 (56)
● Index	0.96 (46)	5.69 (45)	11.62 (47)	12.17 (82)	0.46 (83)	8.31 (93)	5.55 (89)
Median	0.94	5.40	11.46	14.56	2.56	9.52	6.03

Peer Group Analysis - IM Enhanced and Indexed International Equity (SA+CF)



	2023	2022	2021	2020	2019
● Investment	15.79 (88)	-15.81 (59)	7.96 (99)	11.27 (36)	23.42 (25)
● Index	15.62 (89)	-16.00 (60)	7.82 (100)	10.65 (49)	21.51 (67)
Median	17.94	-15.32	11.44	9.53	21.86

Comparative Performance

	1 Qtr Ending Mar-2024	1 Qtr Ending Dec-2023	1 Qtr Ending Sep-2023	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022
Investment	4.74 (67)	9.72 (83)	-3.77 (56)	2.54 (91)	6.96 (72)	14.24 (69)
Index	4.69 (70)	9.75 (74)	-3.77 (56)	2.44 (94)	6.87 (75)	14.28 (68)
Median	5.55	10.39	-3.73	3.12	7.26	15.65

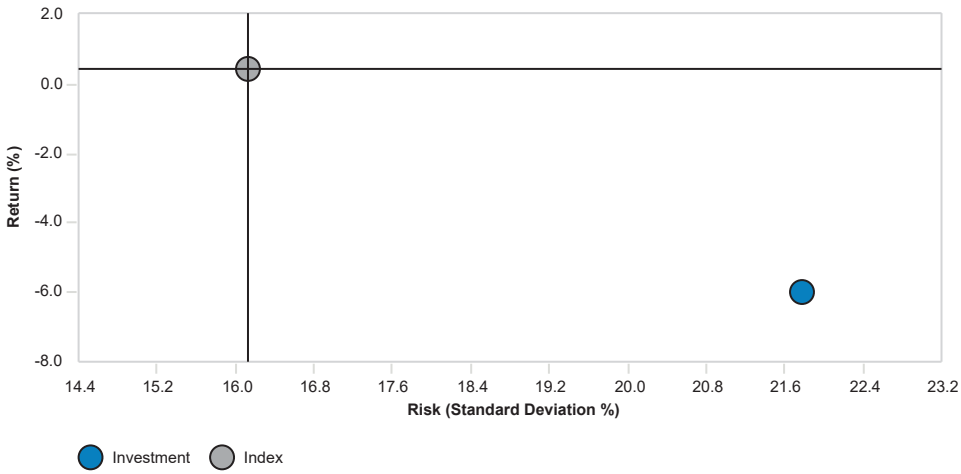
Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	-6.01	21.77	-0.32	116.78	6	143.73	6
Index	0.46	16.13	-0.08	100.00	7	100.00	5

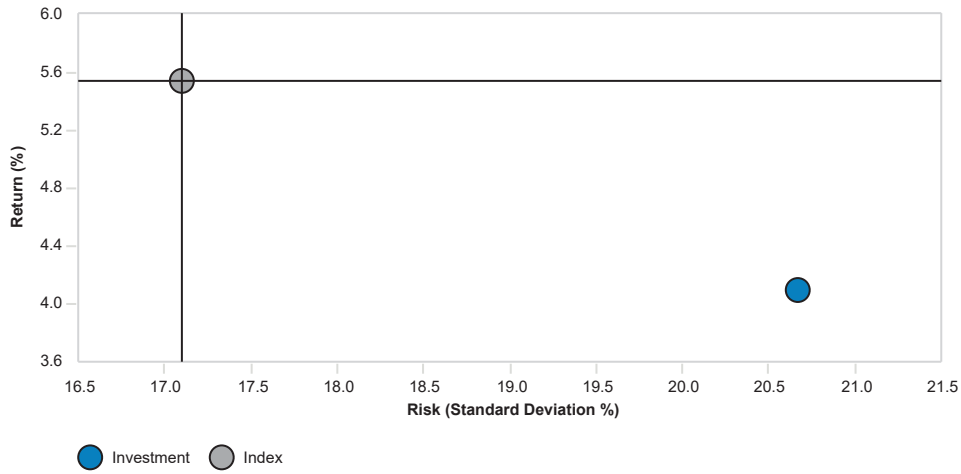
Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	4.09	20.67	0.19	113.65	12	122.00	8
Index	5.55	17.10	0.28	100.00	13	100.00	7

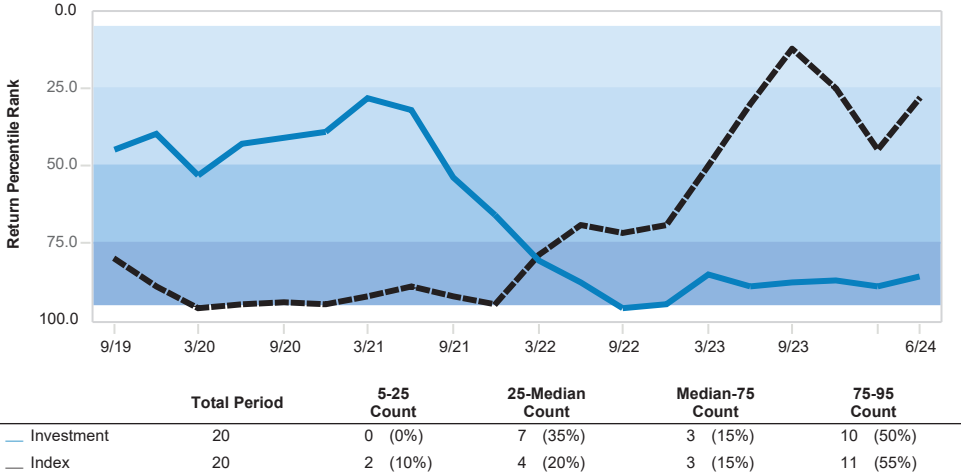
Risk and Return 3 Years



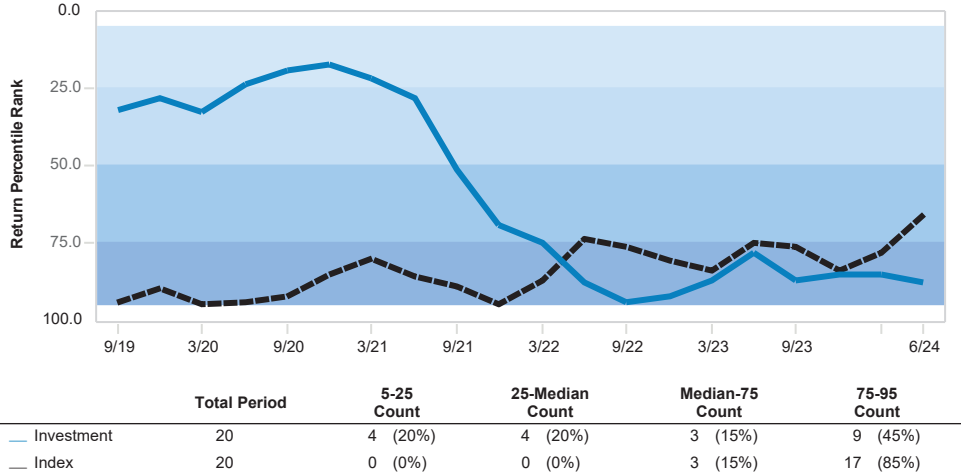
Risk and Return 5 Years



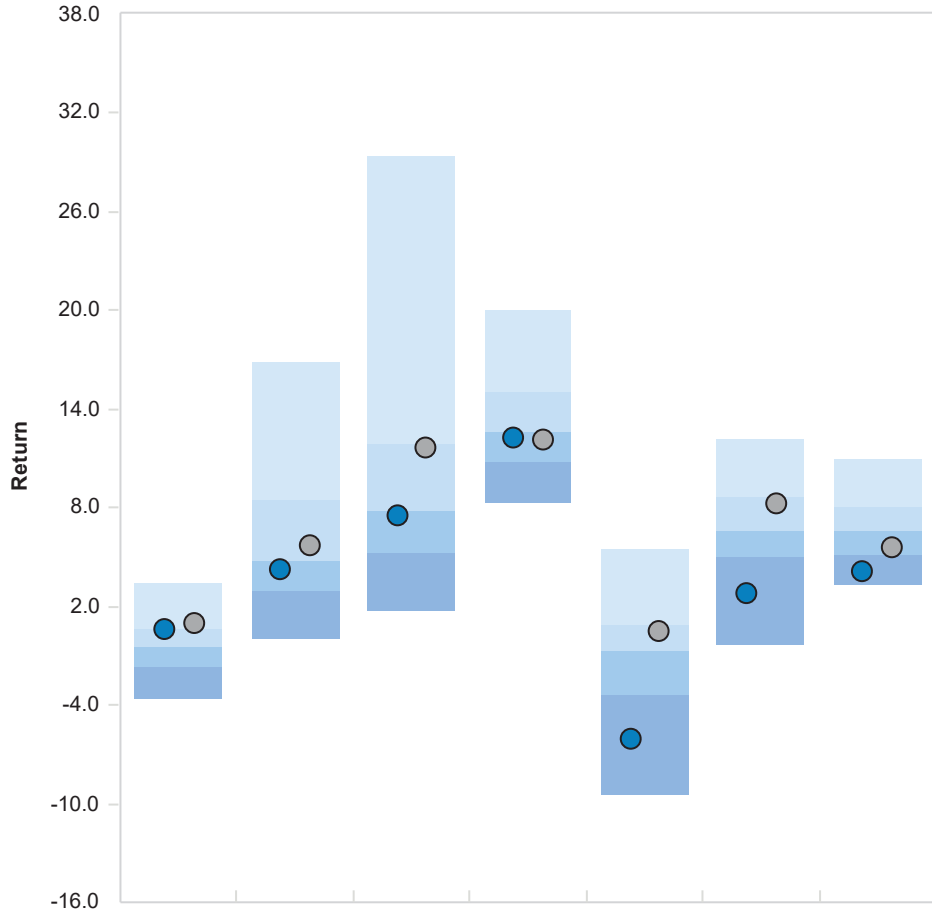
3 Year Rolling Percentile Rank IM International Large Cap Growth Equity (SA+CF)



5 Year Rolling Percentile Rank IM International Large Cap Growth Equity (SA+CF)

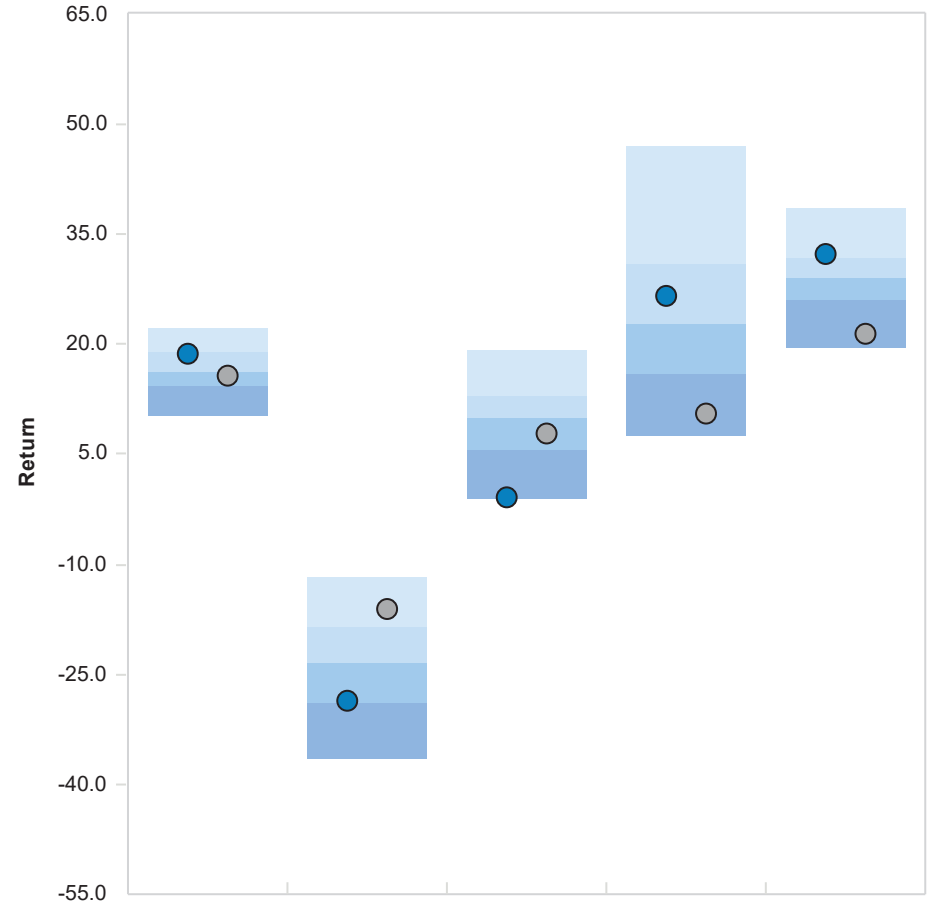


Peer Group Analysis - IM International Large Cap Growth Equity (SA+CF)



	QTR	YTD	1 YR	2 YR	3 YR	4 YR	5 YR
● Investment	0.57 (26)	4.24 (56)	7.57 (51)	12.29 (55)	-6.01 (86)	2.76 (88)	4.09 (88)
● Index	0.96 (24)	5.69 (44)	11.62 (26)	12.17 (57)	0.46 (28)	8.31 (29)	5.55 (66)
Median	-0.50	4.74	7.77	12.62	-0.66	6.52	6.56

Peer Group Analysis - IM International Large Cap Growth Equity (SA+CF)



	2023	2022	2021	2020	2019
● Investment	18.71 (27)	-28.64 (74)	-0.72 (95)	26.60 (39)	32.23 (21)
● Index	15.62 (58)	-16.00 (15)	7.82 (67)	10.65 (90)	21.51 (93)
Median	16.39	-23.43	10.07	22.81	28.99

Comparative Performance

	1 Qtr Ending Mar-2024	1 Qtr Ending Dec-2023	1 Qtr Ending Sep-2023	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022
Investment	3.65 (82)	15.23 (8)	-10.45 (85)	1.77 (74)	13.05 (8)	15.28 (25)
Index	4.69 (67)	9.75 (82)	-3.77 (9)	2.44 (59)	6.87 (92)	14.28 (43)
Median	5.54	11.84	-7.56	2.78	9.49	13.93

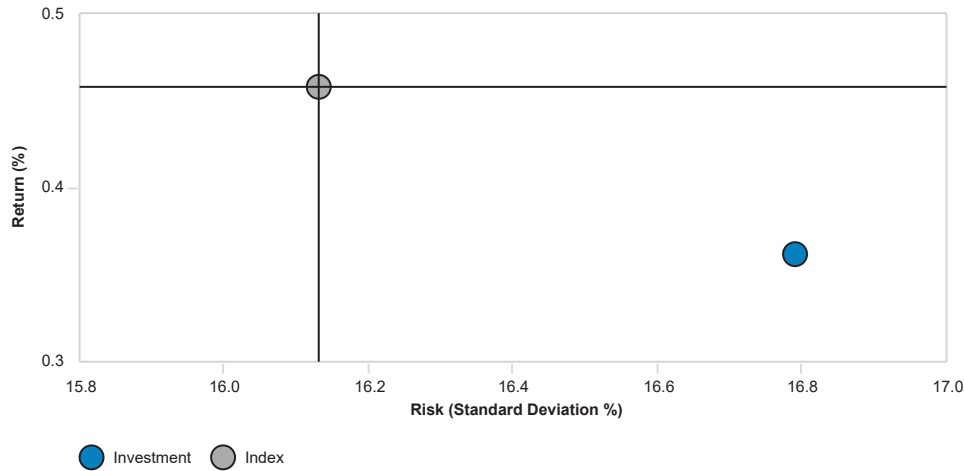
Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	0.36	16.79	-0.07	105.54	7	105.96	5
Index	0.46	16.13	-0.08	100.00	7	100.00	5

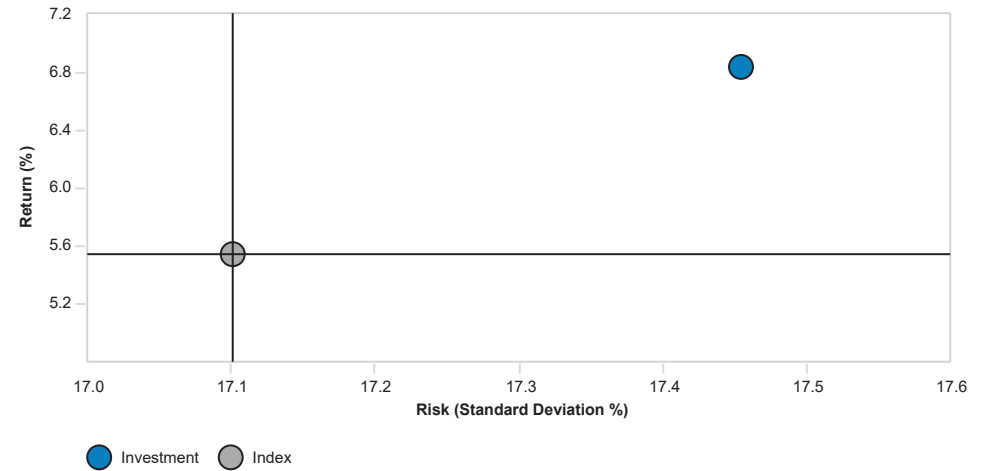
Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	6.84	17.46	0.34	105.17	13	100.54	7
Index	5.55	17.10	0.28	100.00	13	100.00	7

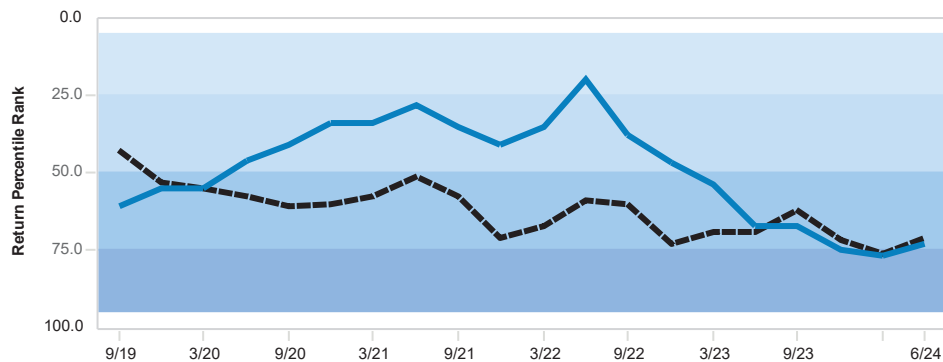
Risk and Return 3 Years



Risk and Return 5 Years

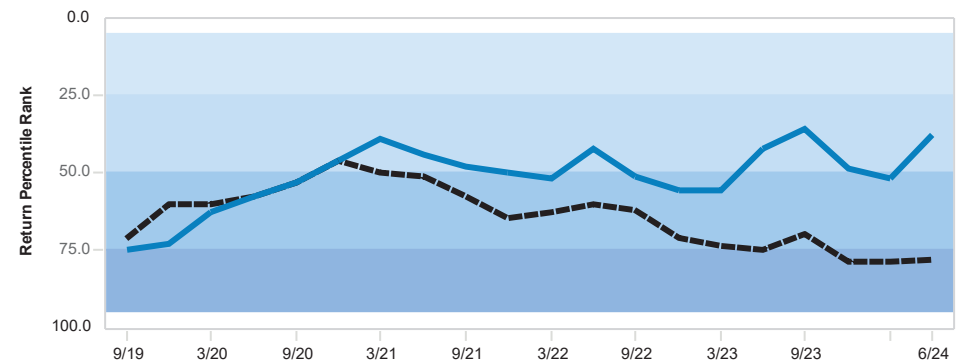


3 Year Rolling Percentile Rank IM International Large Cap Core Equity (SA+CF)



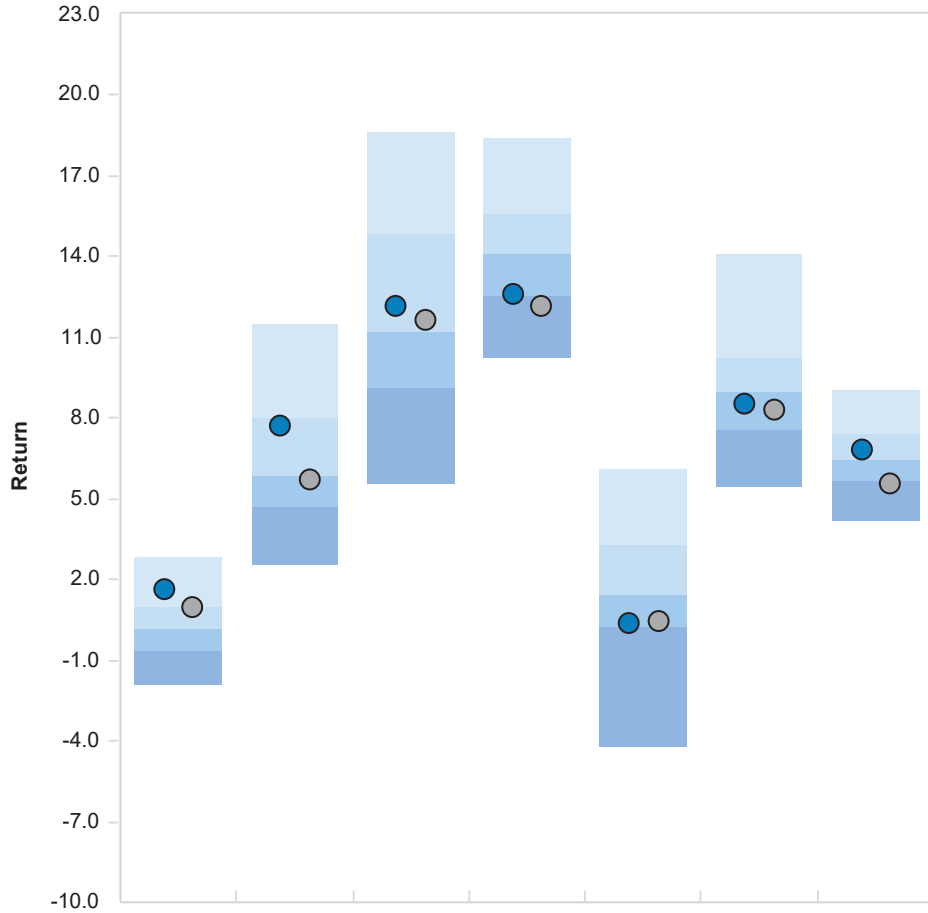
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	1 (5%)	10 (50%)	8 (40%)	1 (5%)
Index	20	0 (0%)	1 (5%)	18 (90%)	1 (5%)

5 Year Rolling Percentile Rank IM International Large Cap Core Equity (SA+CF)



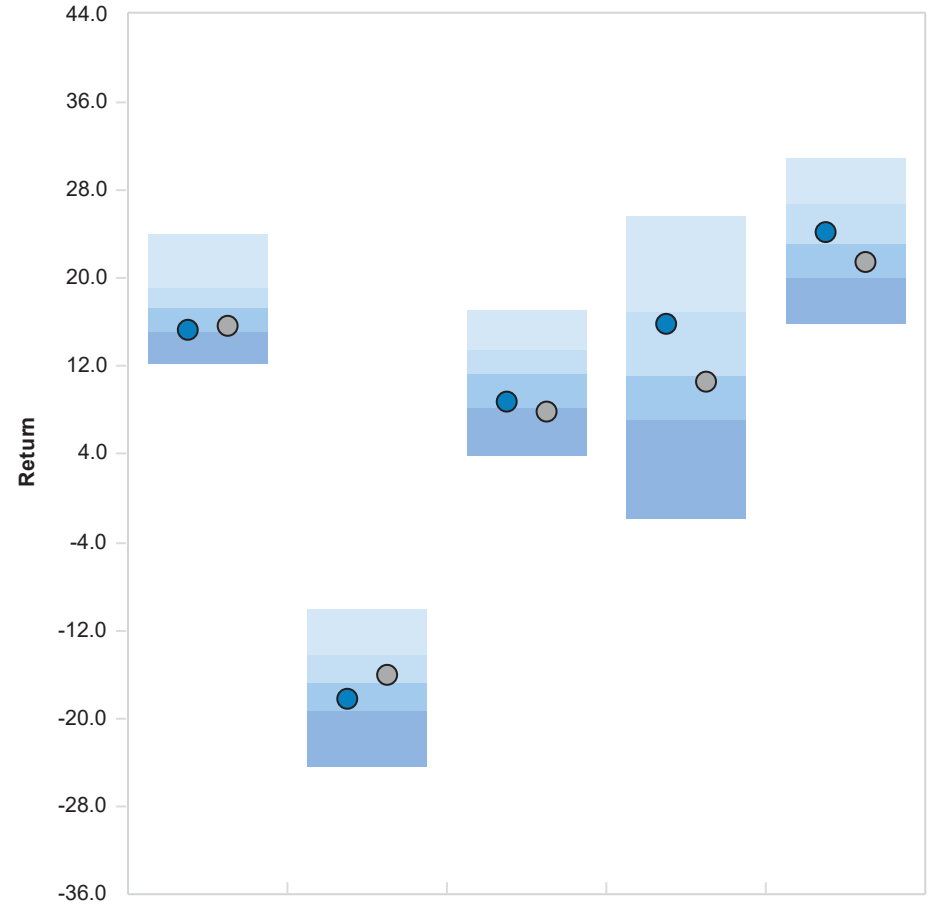
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	0 (0%)	10 (50%)	10 (50%)	0 (0%)
Index	20	0 (0%)	2 (10%)	15 (75%)	3 (15%)

Peer Group Analysis - IM International Large Cap Core Equity (SA+CF)



	QTR	YTD	1 YR	2 YR	3 YR	4 YR	5 YR
● Investment	1.66 (12)	7.72 (29)	12.21 (41)	12.64 (73)	0.36 (73)	8.54 (59)	6.84 (38)
● Index	0.96 (27)	5.69 (52)	11.62 (46)	12.17 (81)	0.46 (71)	8.31 (63)	5.55 (78)
Median	0.18	5.88	11.23	14.10	1.41	8.95	6.44

Peer Group Analysis - IM International Large Cap Core Equity (SA+CF)



	2023	2022	2021	2020	2019
● Investment	15.33 (74)	-18.13 (65)	8.78 (72)	15.83 (32)	24.24 (40)
● Index	15.62 (73)	-16.00 (43)	7.82 (79)	10.65 (56)	21.51 (64)
Median	17.34	-16.76	11.29	11.16	23.08

Comparative Performance

	1 Qtr Ending Mar-2024	1 Qtr Ending Dec-2023	1 Qtr Ending Sep-2023	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022
Investment	5.97 (52)	9.42 (71)	-4.81 (50)	3.01 (59)	7.48 (68)	14.00 (80)
Index	4.69 (79)	9.75 (66)	-3.77 (36)	2.44 (77)	6.87 (77)	14.28 (76)
Median	5.99	10.35	-4.84	3.19	8.17	15.47

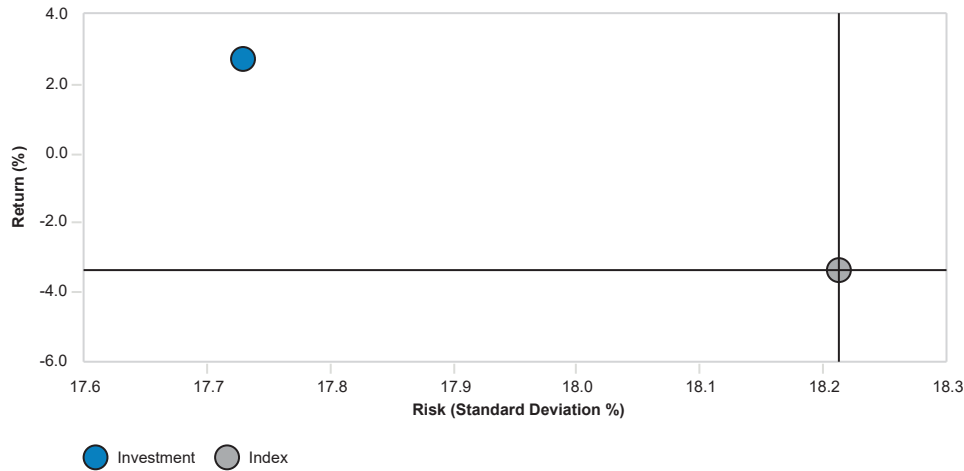
Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	2.74	17.73	0.07	102.33	8	79.61	4
Index	-3.35	18.21	-0.26	100.00	7	100.00	5

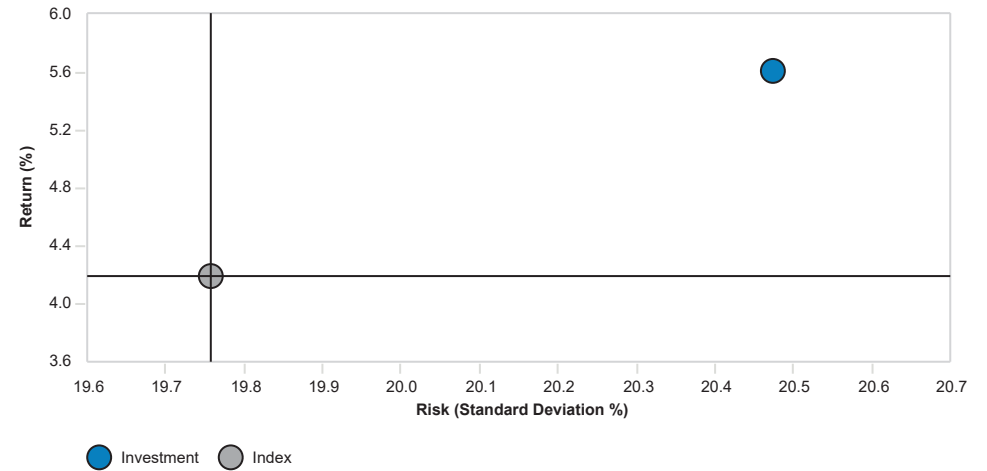
Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	5.62	20.47	0.27	101.20	14	94.97	6
Index	4.19	19.76	0.20	100.00	13	100.00	7

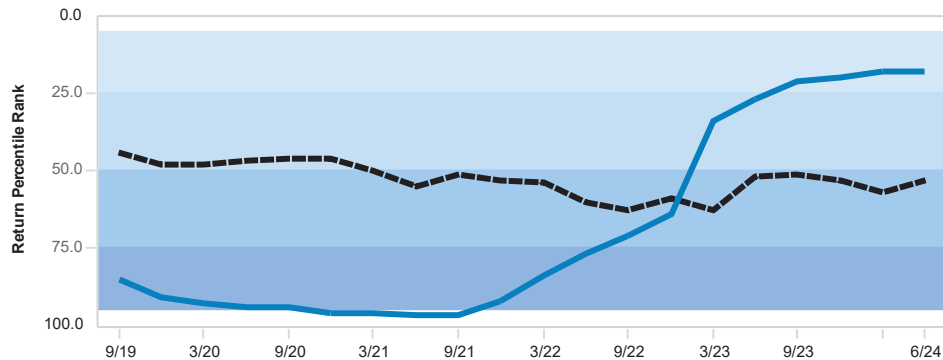
Risk and Return 3 Years



Risk and Return 5 Years

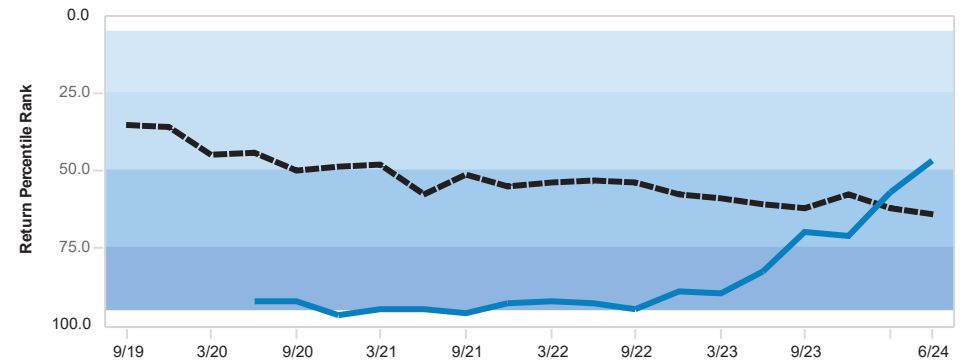


3 Year Rolling Percentile Rank IM International Small Cap Equity (SA+CF)



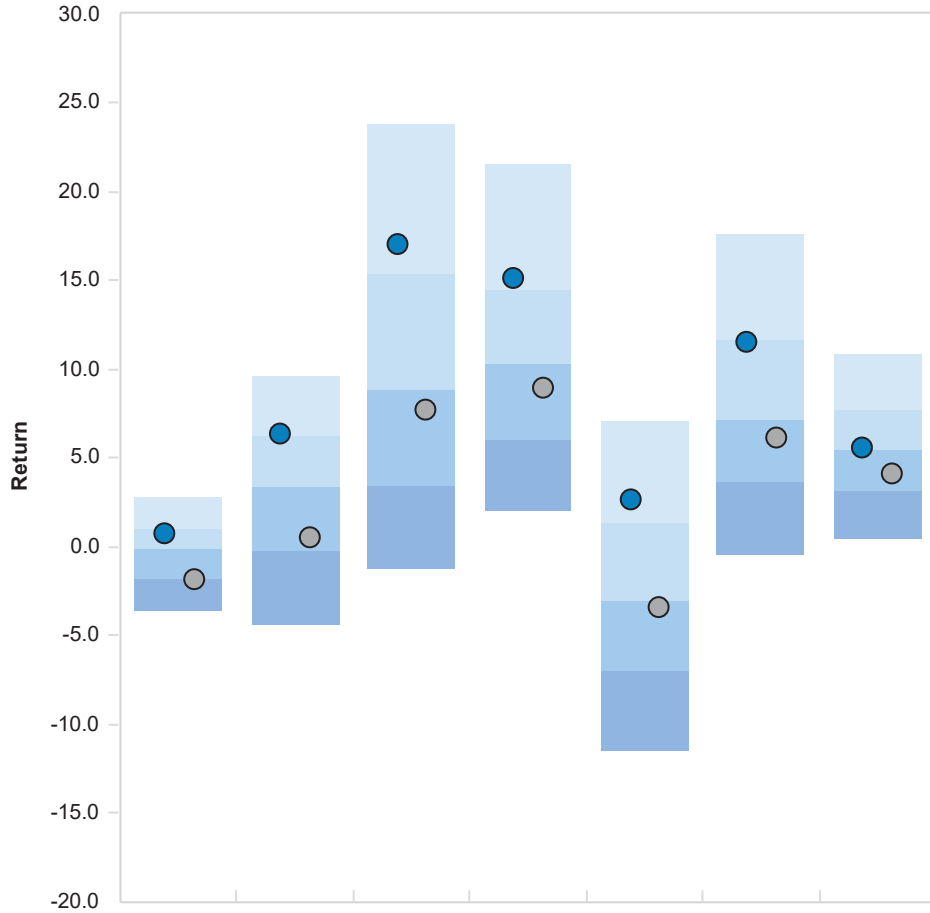
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	4 (20%)	2 (10%)	2 (10%)	12 (60%)
Index	20	0 (0%)	7 (35%)	13 (65%)	0 (0%)

5 Year Rolling Percentile Rank IM International Small Cap Equity (SA+CF)



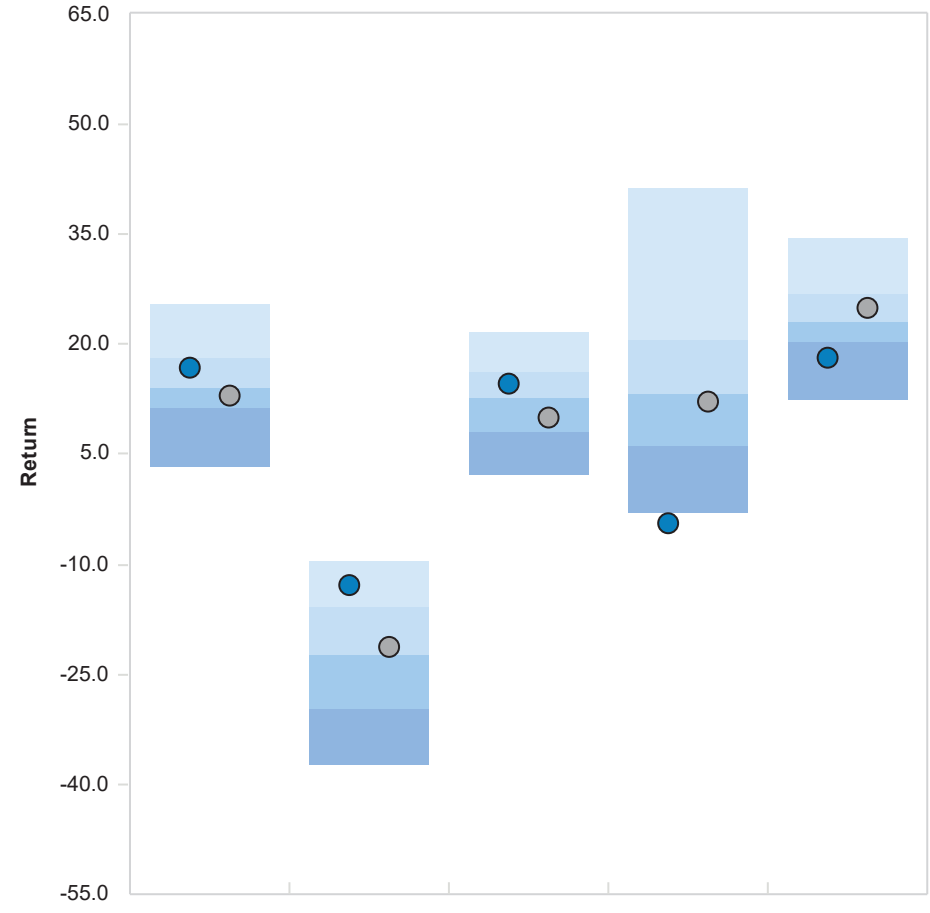
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	17	0 (0%)	1 (6%)	3 (18%)	13 (76%)
Index	20	0 (0%)	7 (35%)	13 (65%)	0 (0%)

Peer Group Analysis - IM International Small Cap Equity (SA+CF)



	QTR	YTD	1 YR	2 YR	3 YR	4 YR	5 YR
● Investment	0.81 (30)	6.38 (21)	17.11 (20)	15.19 (17)	2.74 (18)	11.62 (26)	5.62 (47)
● Index	-1.84 (76)	0.51 (67)	7.78 (55)	8.97 (62)	-3.35 (53)	6.22 (54)	4.19 (64)
Median	-0.15	3.38	8.92	10.33	-2.99	7.24	5.56

Peer Group Analysis - IM International Small Cap Equity (SA+CF)



	2023	2022	2021	2020	2019
● Investment	16.91 (32)	-12.84 (17)	14.56 (33)	-4.29 (96)	18.21 (82)
● Index	13.16 (63)	-21.39 (47)	10.10 (67)	12.34 (53)	24.96 (34)
Median	14.12	-22.27	12.86	13.42	23.23

Comparative Performance

	1 Qtr Ending Mar-2024	1 Qtr Ending Dec-2023	1 Qtr Ending Sep-2023	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022
Investment	5.53 (32)	9.18 (82)	0.83 (10)	0.65 (55)	5.52 (63)	17.35 (30)
Index	2.40 (59)	11.14 (35)	-3.51 (42)	0.58 (56)	4.92 (73)	15.79 (48)
Median	3.85	10.57	-4.02	0.81	6.13	15.74

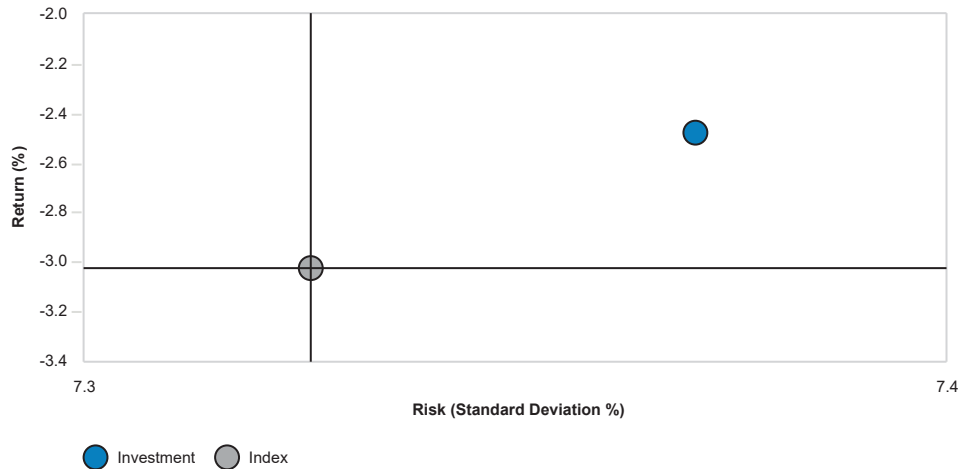
Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	-2.48	7.37	-0.72	100.03	4	95.15	8
Index	-3.02	7.33	-0.81	100.00	6	100.00	6

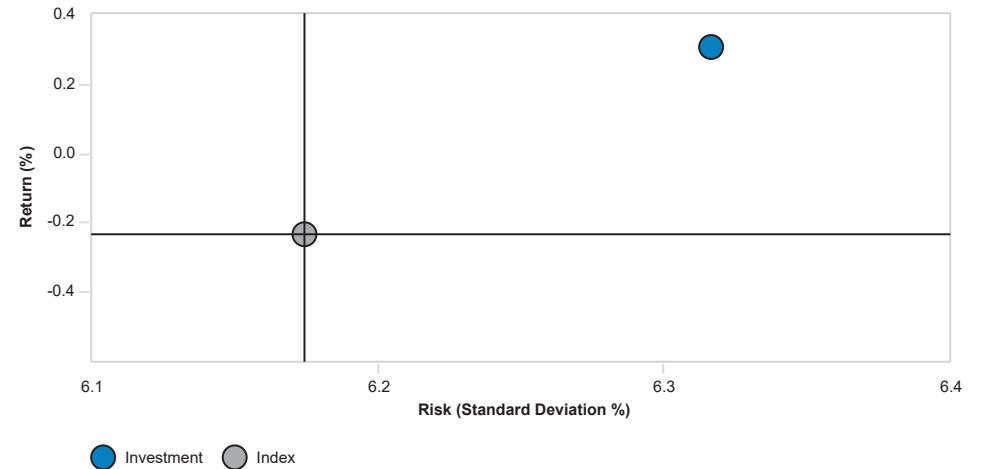
Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	0.31	6.32	-0.26	104.87	11	98.11	9
Index	-0.23	6.17	-0.36	100.00	13	100.00	7

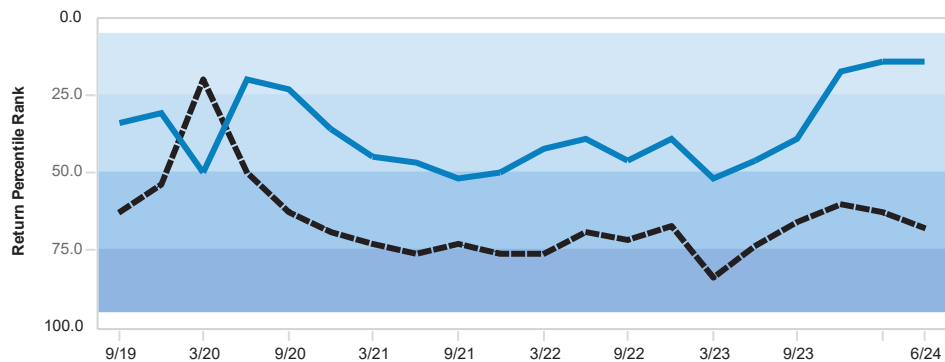
Risk and Return 3 Years



Risk and Return 5 Years

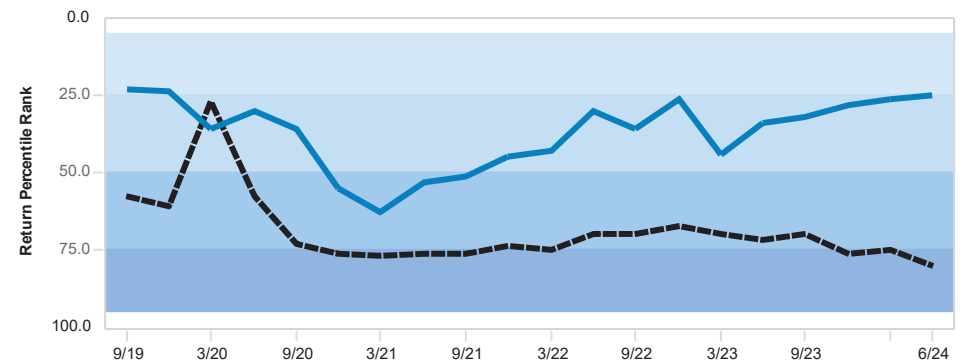


3 Year Rolling Percentile Rank IM U.S. Broad Market Core Fixed Income (SA+CF)



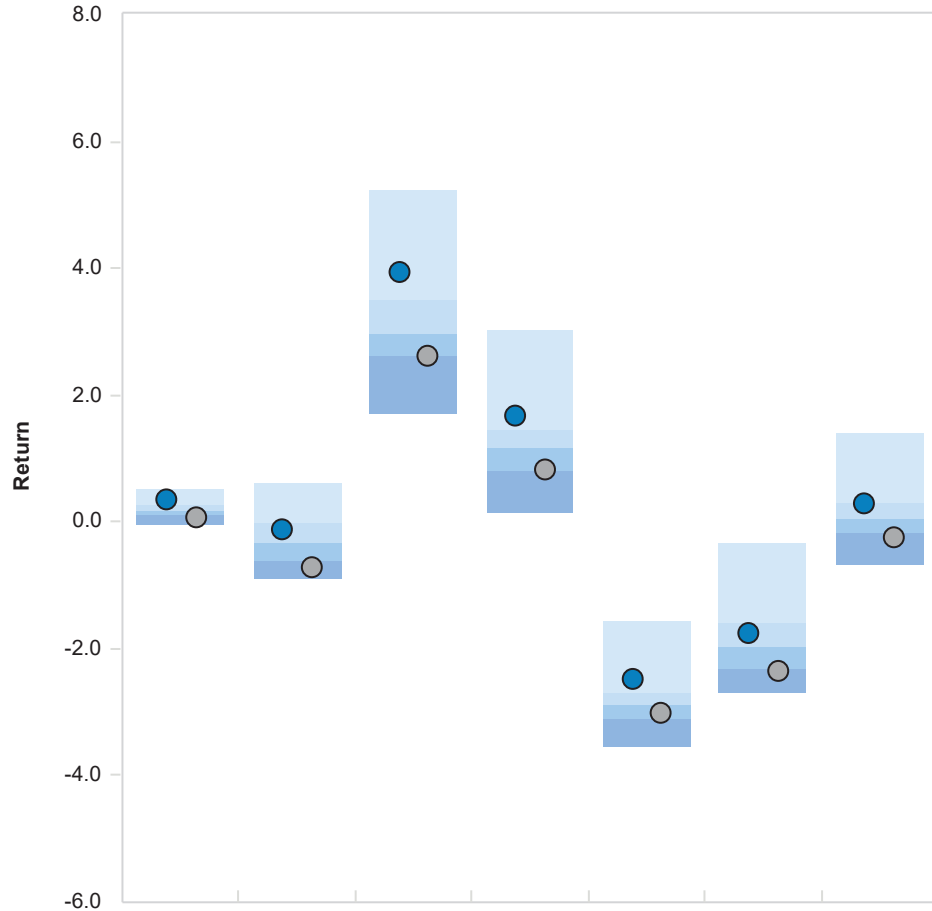
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	5 (25%)	13 (65%)	2 (10%)	0 (0%)
Index	20	1 (5%)	1 (5%)	14 (70%)	4 (20%)

5 Year Rolling Percentile Rank IM U.S. Broad Market Core Fixed Income (SA+CF)



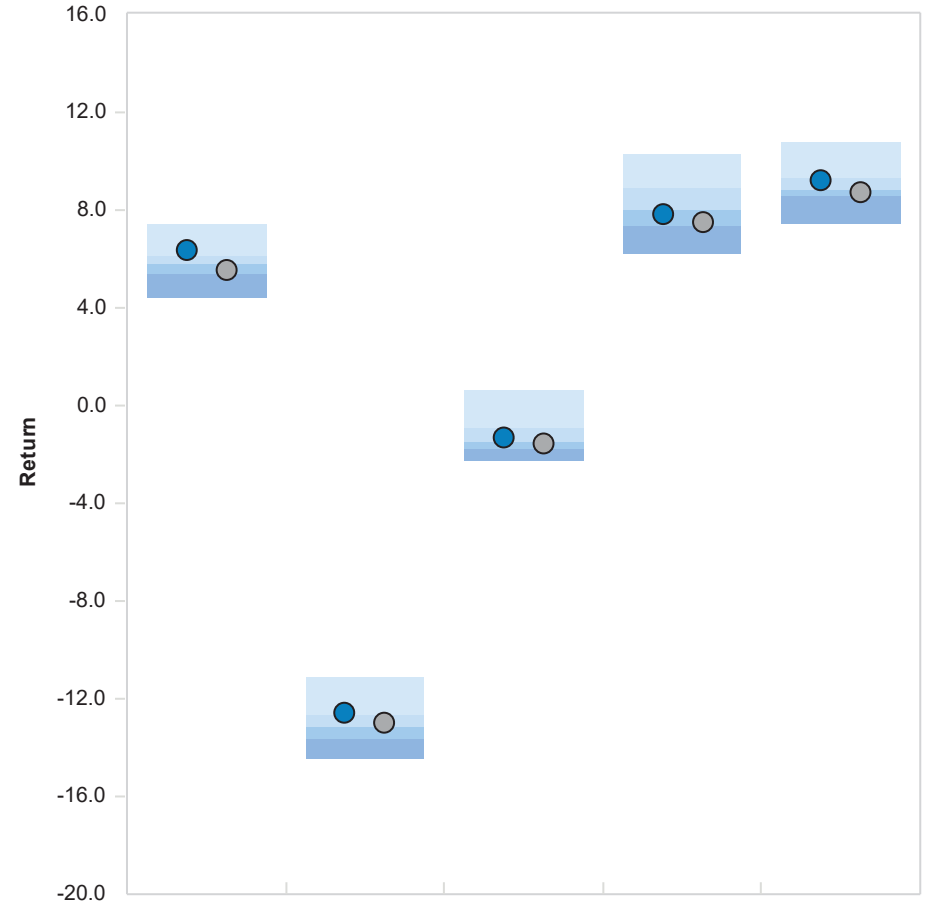
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	3 (15%)	13 (65%)	4 (20%)	0 (0%)
Index	20	0 (0%)	1 (5%)	13 (65%)	6 (30%)

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



	QTR	YTD	1 YR	2 YR	3 YR	4 YR	5 YR
● Investment	0.34 (13)	-0.13 (31)	3.93 (14)	1.69 (18)	-2.48 (14)	-1.76 (31)	0.31 (25)
● Index	0.07 (84)	-0.71 (84)	2.63 (74)	0.83 (72)	-3.02 (68)	-2.36 (77)	-0.23 (80)
Median	0.17	-0.33	2.96	1.17	-2.89	-1.97	0.05

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



	2023	2022	2021	2020	2019
● Investment	6.36 (16)	-12.60 (24)	-1.29 (43)	7.87 (53)	9.18 (33)
● Index	5.53 (68)	-13.01 (37)	-1.55 (54)	7.51 (68)	8.72 (65)
Median	5.81	-13.13	-1.47	8.03	8.82

Comparative Performance

	1 Qtr Ending Mar-2024	1 Qtr Ending Dec-2023	1 Qtr Ending Sep-2023	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022
Investment	-0.47 (43)	7.37 (6)	-3.08 (36)	-0.25 (6)	2.47 (97)	2.23 (7)
Index	-0.78 (81)	6.82 (43)	-3.23 (61)	-0.84 (66)	2.96 (72)	1.87 (35)
Median	-0.52	6.76	-3.17	-0.78	3.12	1.72

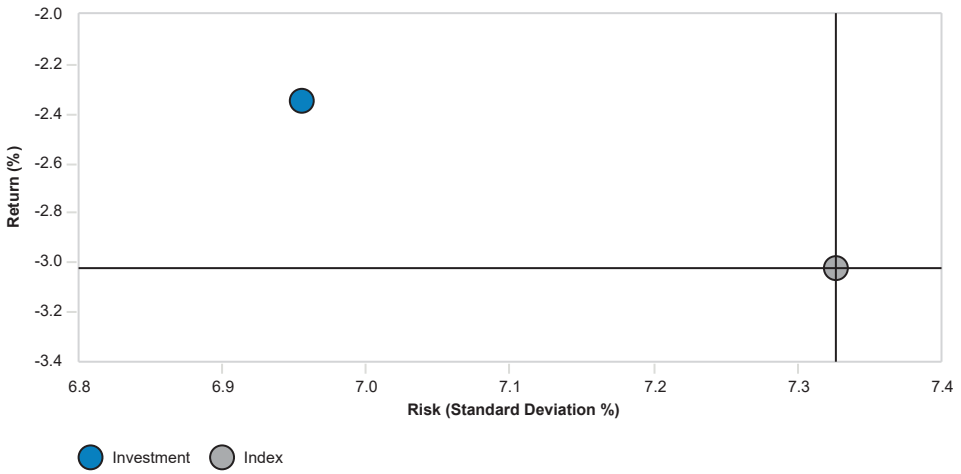
Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	-2.34	6.96	-0.75	94.75	6	90.23	6
Index	-3.02	7.33	-0.81	100.00	6	100.00	6

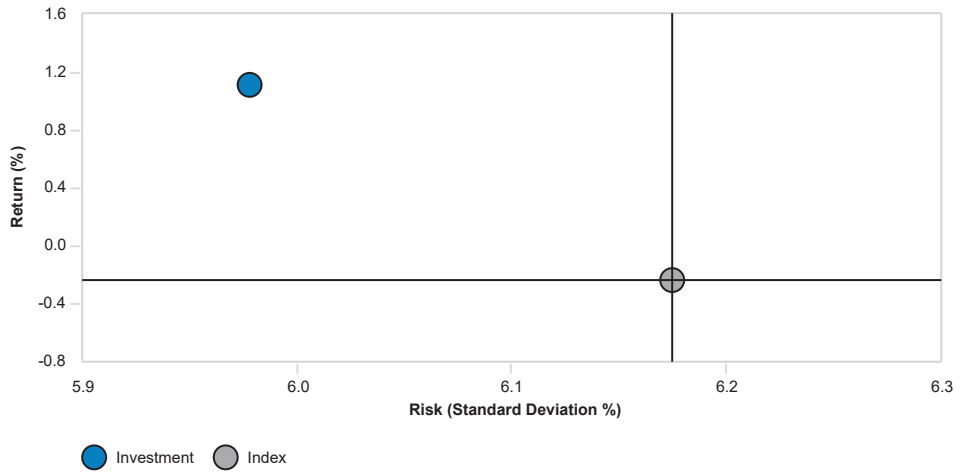
Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	1.12	5.98	-0.14	104.85	13	88.47	7
Index	-0.23	6.17	-0.36	100.00	13	100.00	7

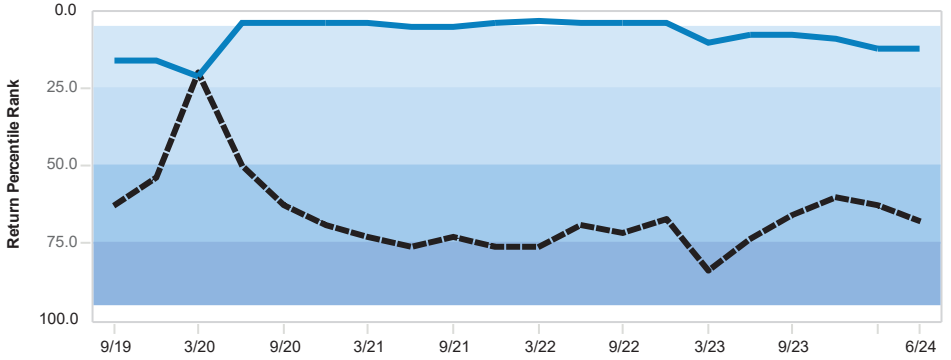
Risk and Return 3 Years



Risk and Return 5 Years

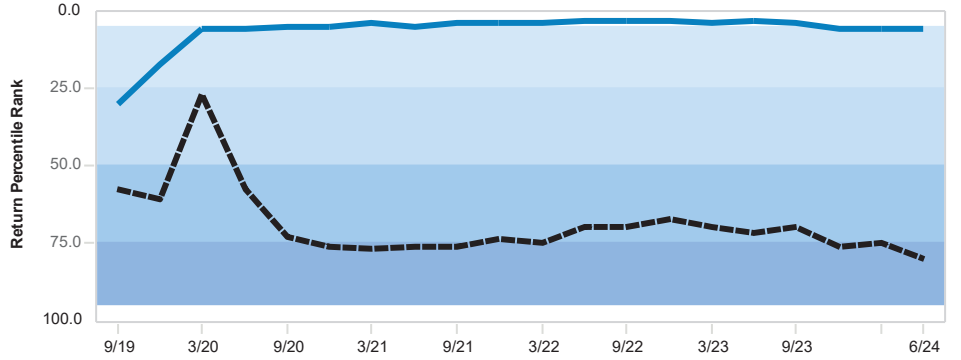


3 Year Rolling Percentile Rank IM U.S. Broad Market Core Fixed Income (SA+CF)



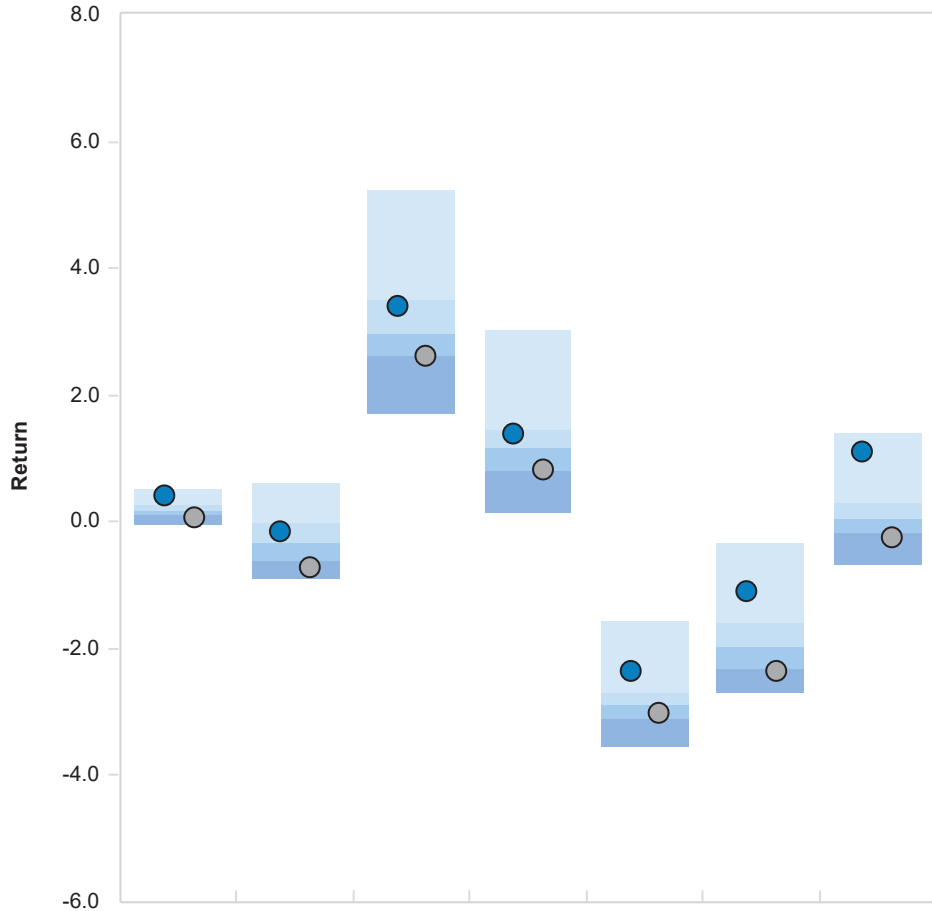
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	20 (100%)	0 (0%)	0 (0%)	0 (0%)
Index	20	1 (5%)	1 (5%)	14 (70%)	4 (20%)

5 Year Rolling Percentile Rank IM U.S. Broad Market Core Fixed Income (SA+CF)



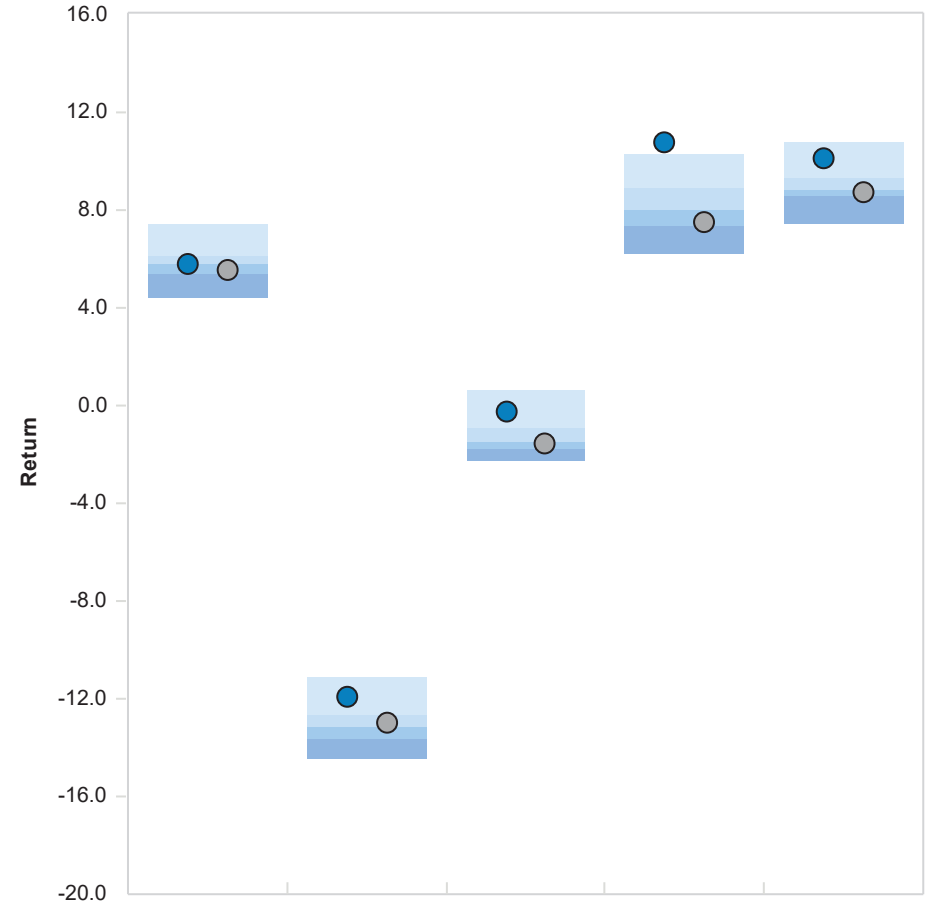
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	19 (95%)	1 (5%)	0 (0%)	0 (0%)
Index	20	0 (0%)	1 (5%)	13 (65%)	6 (30%)

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



	QTR	YTD	1 YR	2 YR	3 YR	4 YR	5 YR
● Investment	0.41 (8)	-0.14 (33)	3.42 (30)	1.39 (31)	-2.34 (12)	-1.11 (11)	1.12 (6)
● Index	0.07 (84)	-0.71 (84)	2.63 (74)	0.83 (72)	-3.02 (68)	-2.36 (77)	-0.23 (80)
Median	0.17	-0.33	2.96	1.17	-2.89	-1.97	0.05

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



	2023	2022	2021	2020	2019
● Investment	5.79 (52)	-11.92 (12)	-0.25 (8)	10.80 (3)	10.15 (8)
● Index	5.53 (68)	-13.01 (37)	-1.55 (54)	7.51 (68)	8.72 (65)
Median	5.81	-13.13	-1.47	8.03	8.82

Comparative Performance

	1 Qtr Ending Mar-2024	1 Qtr Ending Dec-2023	1 Qtr Ending Sep-2023	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022
Investment	-0.55 (52)	6.86 (36)	-3.08 (36)	-0.51 (14)	2.66 (95)	1.80 (44)
Index	-0.78 (81)	6.82 (43)	-3.23 (61)	-0.84 (66)	2.96 (72)	1.87 (35)
Median	-0.52	6.76	-3.17	-0.78	3.12	1.72

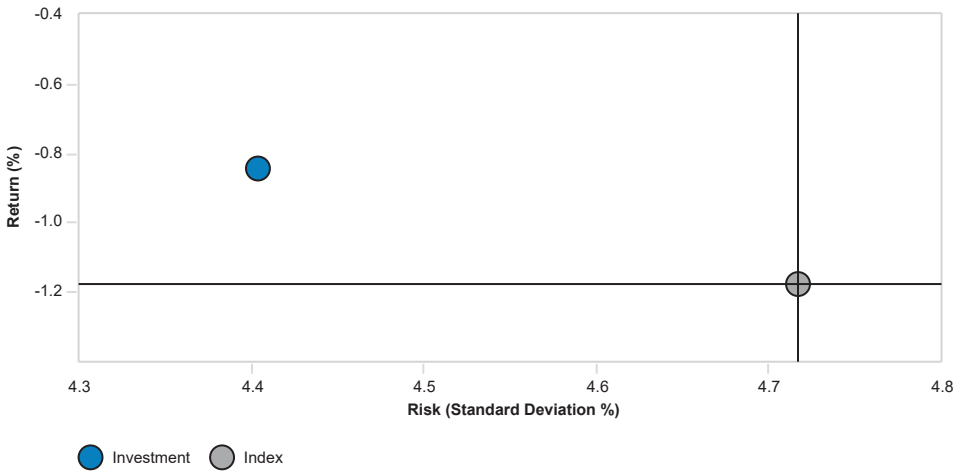
Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	-0.84	4.40	-0.88	93.98	4	90.36	8
Index	-1.18	4.72	-0.89	100.00	5	100.00	7

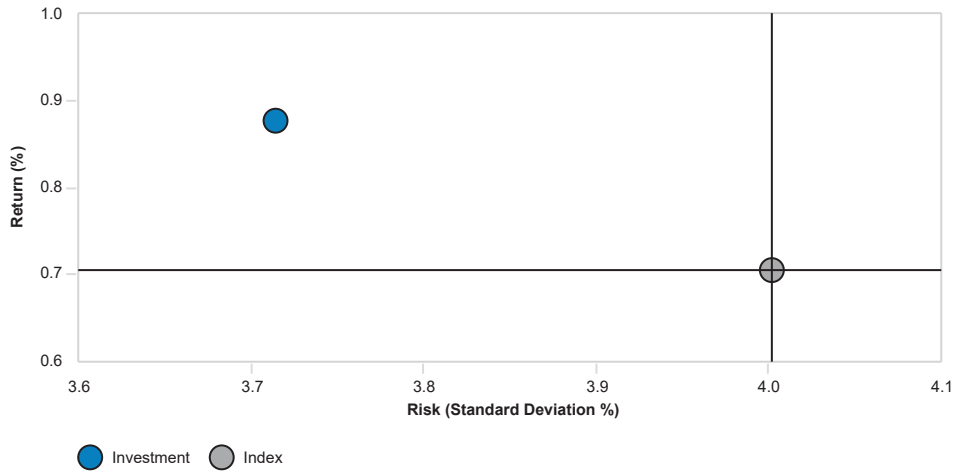
Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	0.88	3.71	-0.33	92.04	11	87.53	9
Index	0.71	4.00	-0.34	100.00	12	100.00	8

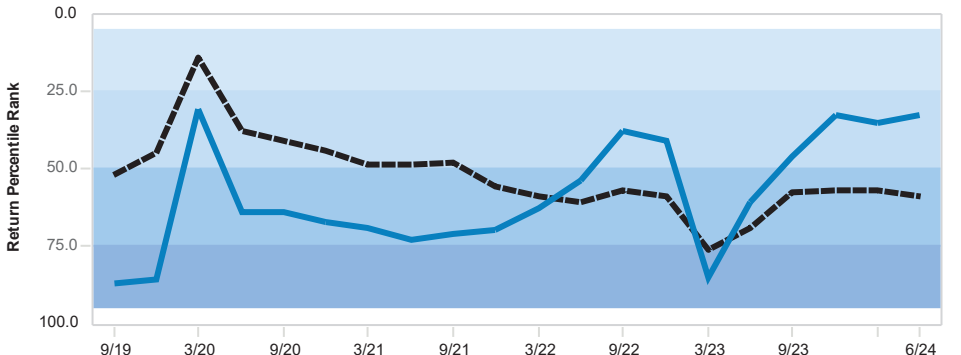
Risk and Return 3 Years



Risk and Return 5 Years

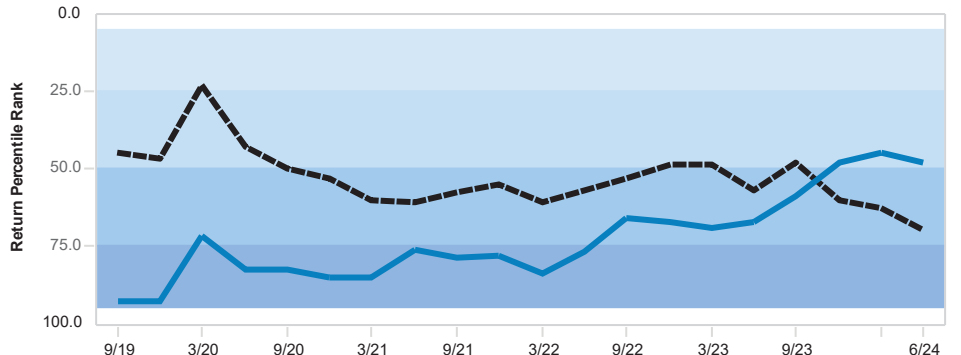


3 Year Rolling Percentile Rank IM U.S. Intermediate Duration (SA+CF)



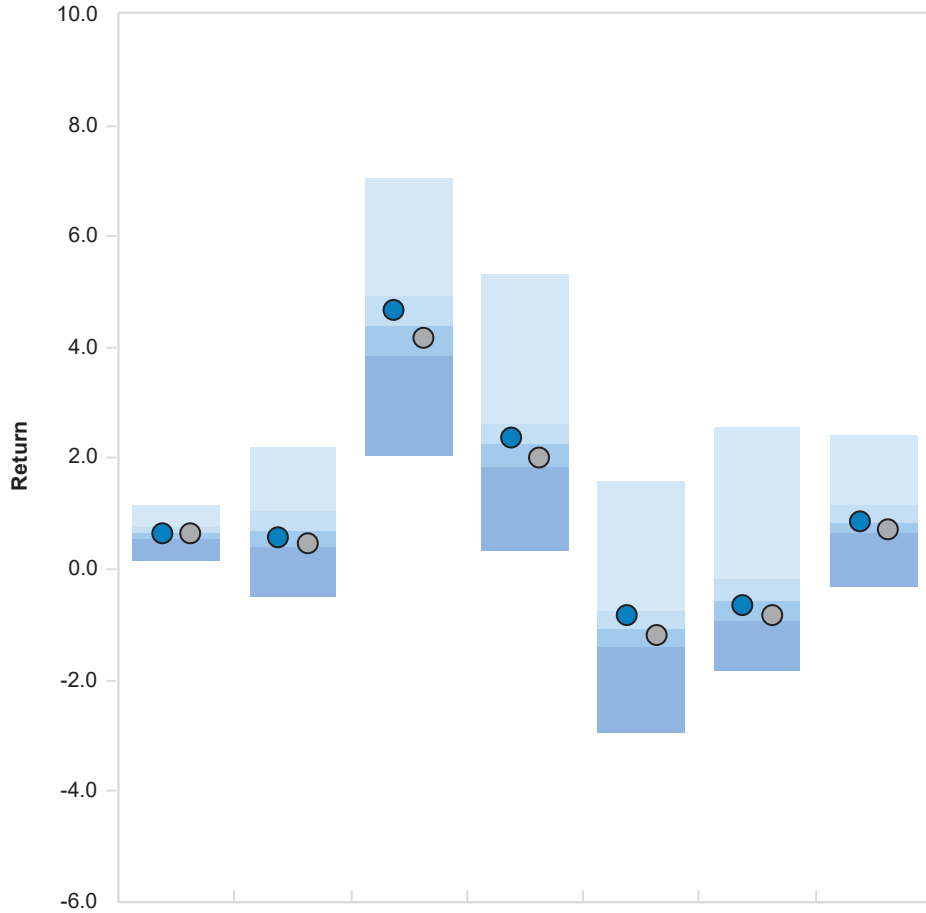
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	0 (0%)	7 (35%)	10 (50%)	3 (15%)
Index	20	1 (5%)	7 (35%)	11 (55%)	1 (5%)

5 Year Rolling Percentile Rank IM U.S. Intermediate Duration (SA+CF)

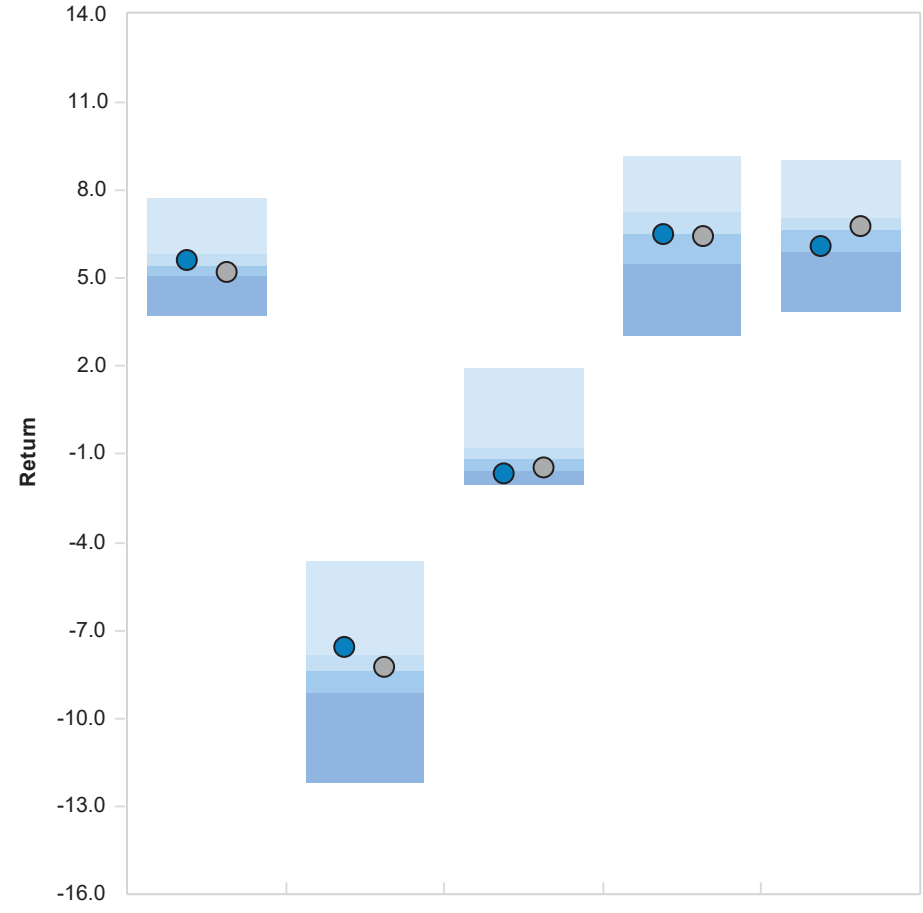


	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	0 (0%)	3 (15%)	6 (30%)	11 (55%)
Index	20	1 (5%)	7 (35%)	12 (60%)	0 (0%)

Peer Group Analysis - IM U.S. Intermediate Duration (SA+CF)



Peer Group Analysis - IM U.S. Intermediate Duration (SA+CF)



	QTR	YTD	1 YR	2 YR	3 YR	4 YR	5 YR
Investment	0.65 (51)	0.57 (58)	4.68 (36)	2.39 (41)	-0.84 (33)	-0.63 (56)	0.88 (48)
Index	0.64 (52)	0.49 (67)	4.19 (59)	2.03 (65)	-1.18 (59)	-0.84 (70)	0.71 (70)
Median	0.65	0.67	4.39	2.27	-1.09	-0.58	0.84

	2023	2022	2021	2020	2019
Investment	5.62 (37)	-7.55 (21)	-1.65 (82)	6.52 (49)	6.11 (71)
Index	5.24 (67)	-8.24 (42)	-1.44 (66)	6.43 (54)	6.80 (42)
Median	5.41	-8.39	-1.19	6.49	6.66

Comparative Performance

	1 Qtr Ending Mar-2024	1 Qtr Ending Dec-2023	1 Qtr Ending Sep-2023	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022
Investment	-0.08 (63)	4.90 (39)	-0.77 (31)	-0.45 (36)	1.92 (84)	1.53 (46)
Index	-0.15 (74)	4.56 (62)	-0.83 (37)	-0.81 (79)	2.33 (50)	1.54 (45)
Median	0.05	4.66	-0.94	-0.57	2.33	1.49

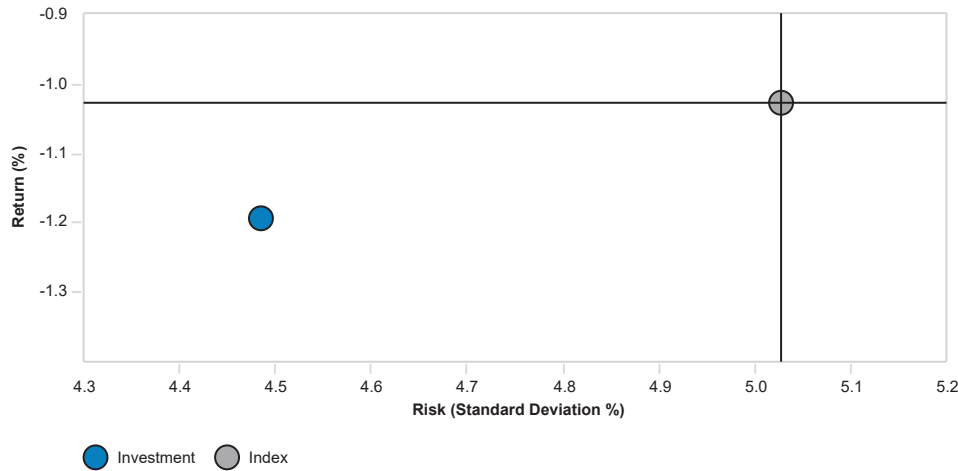
Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	-1.19	4.48	-0.95	88.01	4	92.05	8
Index	-1.03	5.03	-0.80	100.00	5	100.00	7

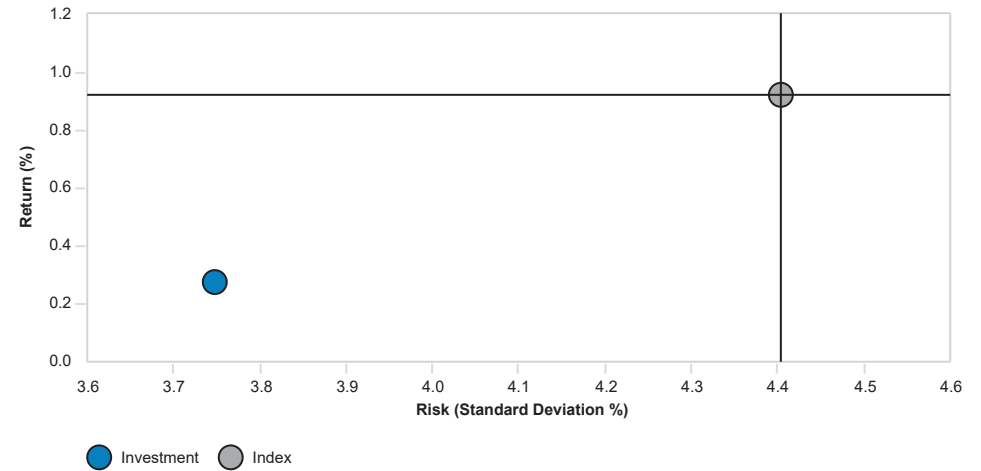
Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	0.28	3.75	-0.49	79.18	10	87.66	10
Index	0.93	4.40	-0.26	100.00	12	100.00	8

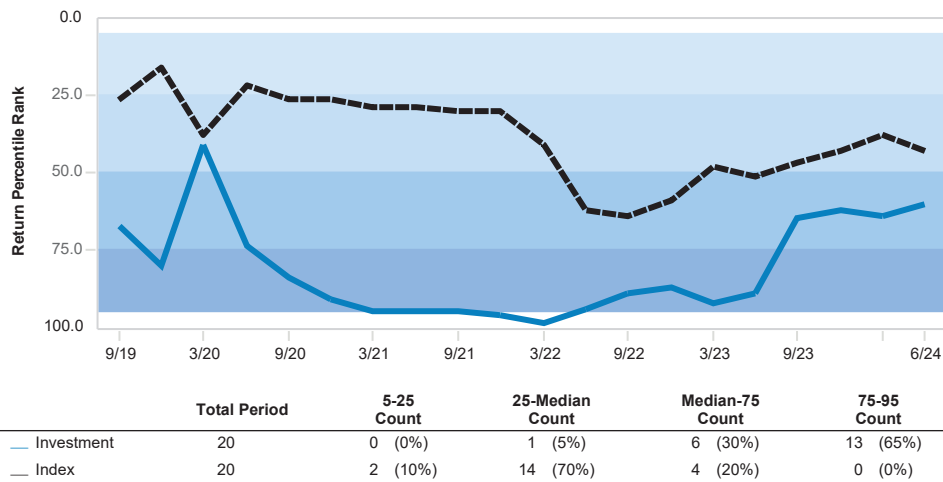
Risk and Return 3 Years



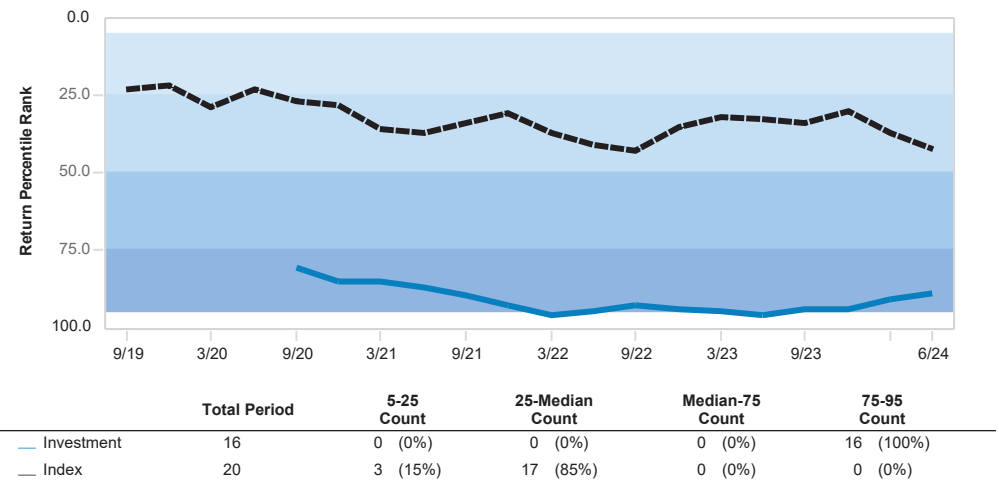
Risk and Return 5 Years



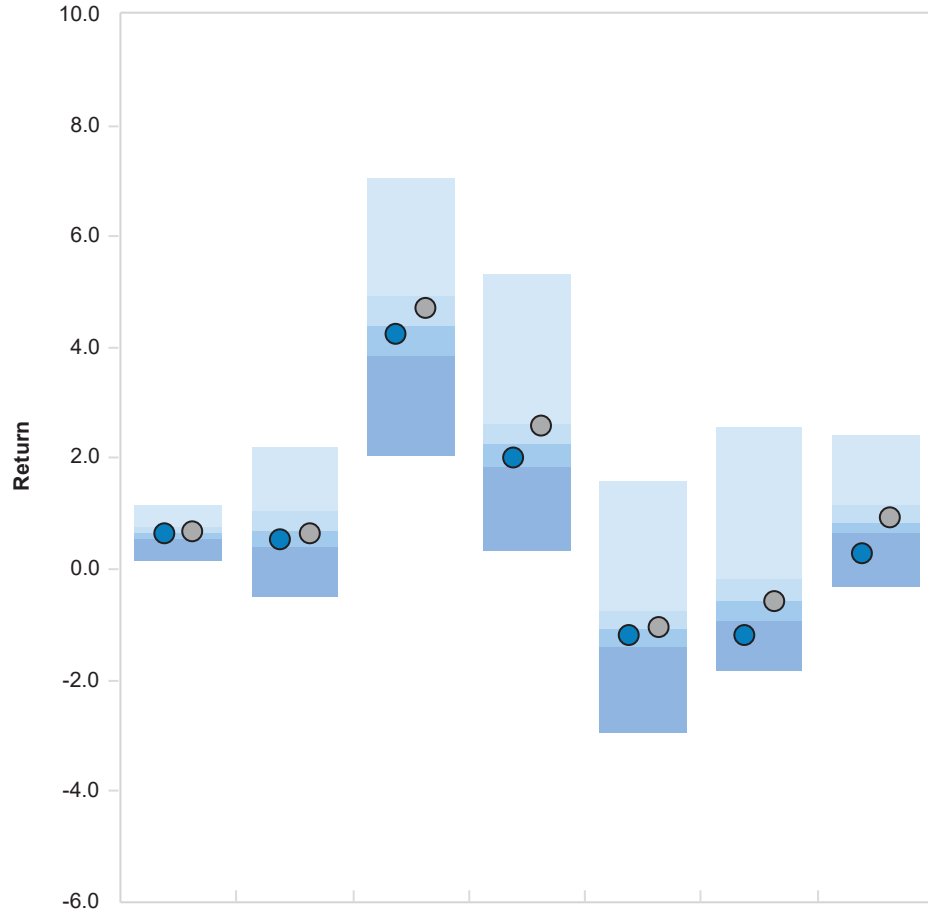
3 Year Rolling Percentile Rank IM U.S. Intermediate Duration (SA+CF)



5 Year Rolling Percentile Rank IM U.S. Intermediate Duration (SA+CF)

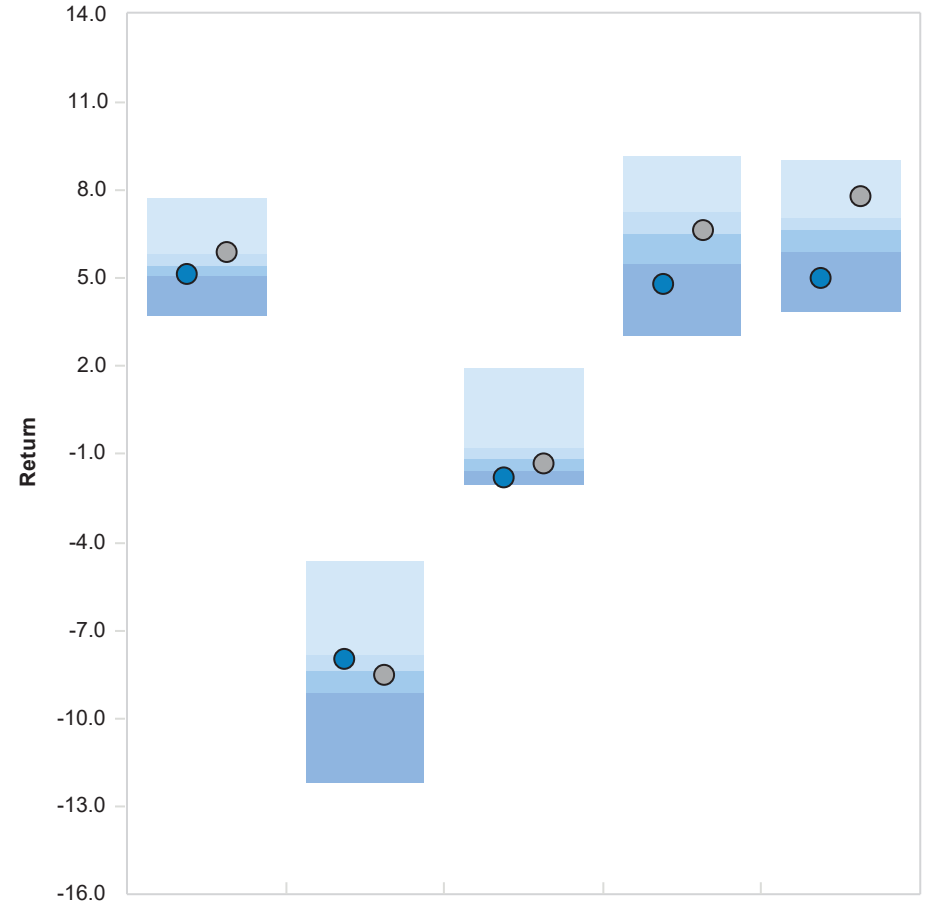


Peer Group Analysis - IM U.S. Intermediate Duration (SA+CF)



	QTR	YTD	1 YR	2 YR	3 YR	4 YR	5 YR
● Investment	0.65 (52)	0.53 (63)	4.24 (55)	2.01 (67)	-1.19 (60)	-1.18 (86)	0.28 (89)
● Index	0.67 (47)	0.65 (52)	4.72 (35)	2.61 (28)	-1.03 (43)	-0.55 (46)	0.93 (42)
Median	0.65	0.67	4.39	2.27	-1.09	-0.58	0.84

Peer Group Analysis - IM U.S. Intermediate Duration (SA+CF)



	2023	2022	2021	2020	2019
● Investment	5.13 (73)	-8.01 (32)	-1.80 (89)	4.79 (88)	5.02 (90)
● Index	5.88 (24)	-8.55 (58)	-1.29 (59)	6.62 (47)	7.78 (13)
Median	5.41	-8.39	-1.19	6.49	6.66

Comparative Performance

	1 Qtr Ending Mar-2024	1 Qtr Ending Dec-2023	1 Qtr Ending Sep-2023	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022
Investment	-0.11 (70)	4.59 (58)	-0.86 (39)	-0.71 (65)	2.11 (75)	1.40 (65)
Index	-0.02 (57)	4.95 (37)	-0.87 (39)	-0.61 (54)	2.39 (42)	1.91 (16)
Median	0.05	4.66	-0.94	-0.57	2.33	1.49

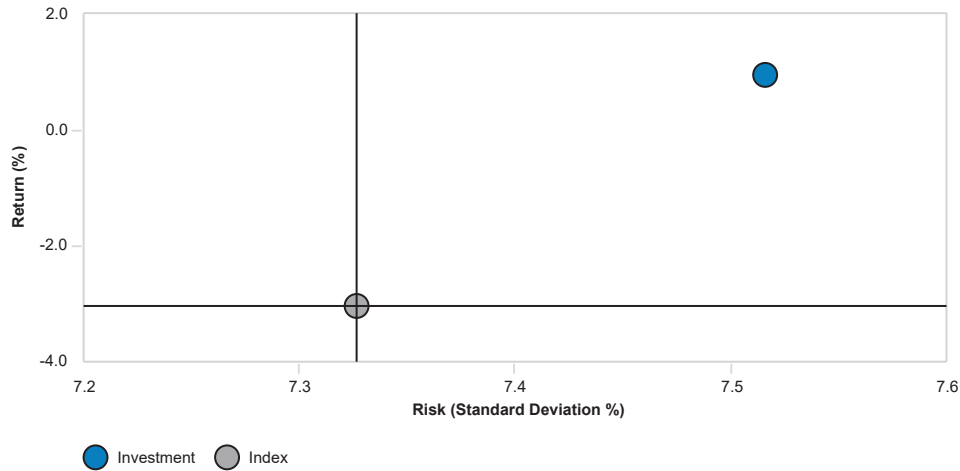
Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	0.98	7.52	-0.23	95.57	7	61.59	5
Index	-3.02	7.33	-0.81	100.00	6	100.00	6

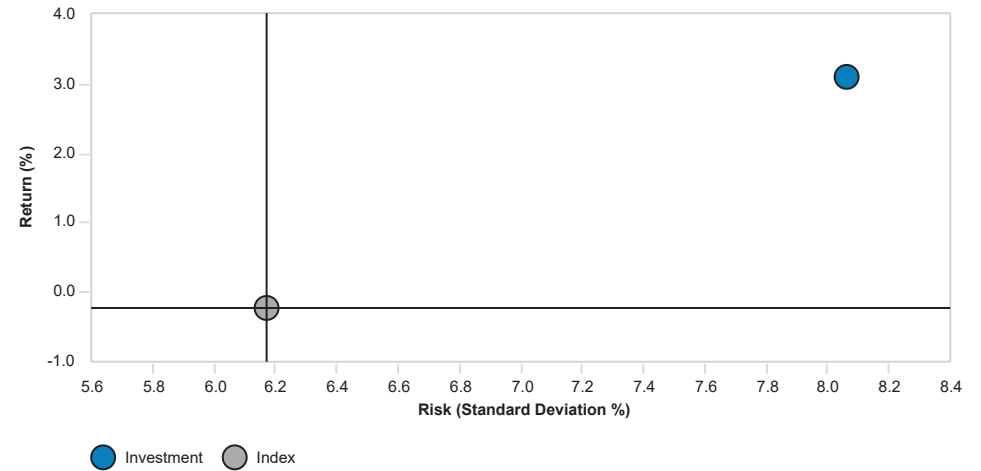
Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	3.12	8.06	0.16	110.47	14	68.11	6
Index	-0.23	6.17	-0.36	100.00	13	100.00	7

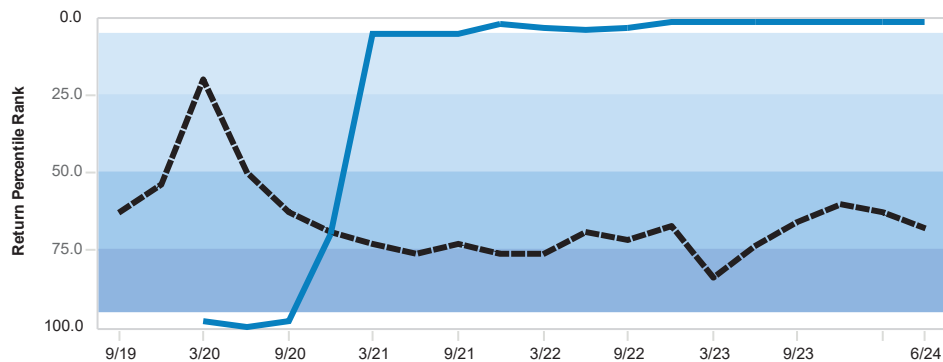
Risk and Return 3 Years



Risk and Return 5 Years

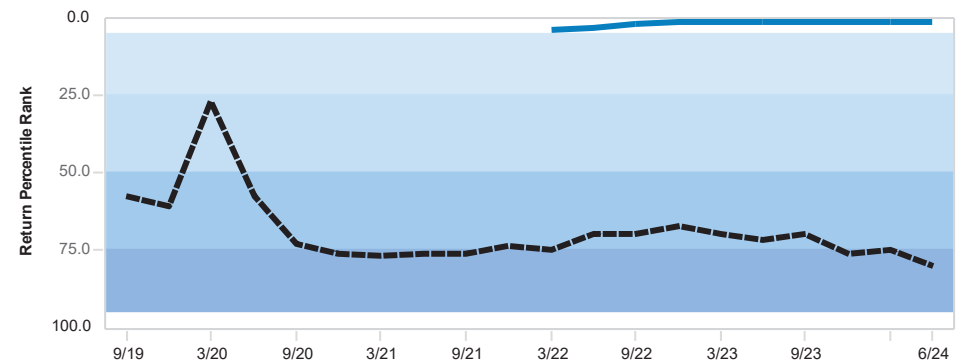


3 Year Rolling Percentile Rank IM U.S. Broad Market Core Fixed Income (SA+CF)



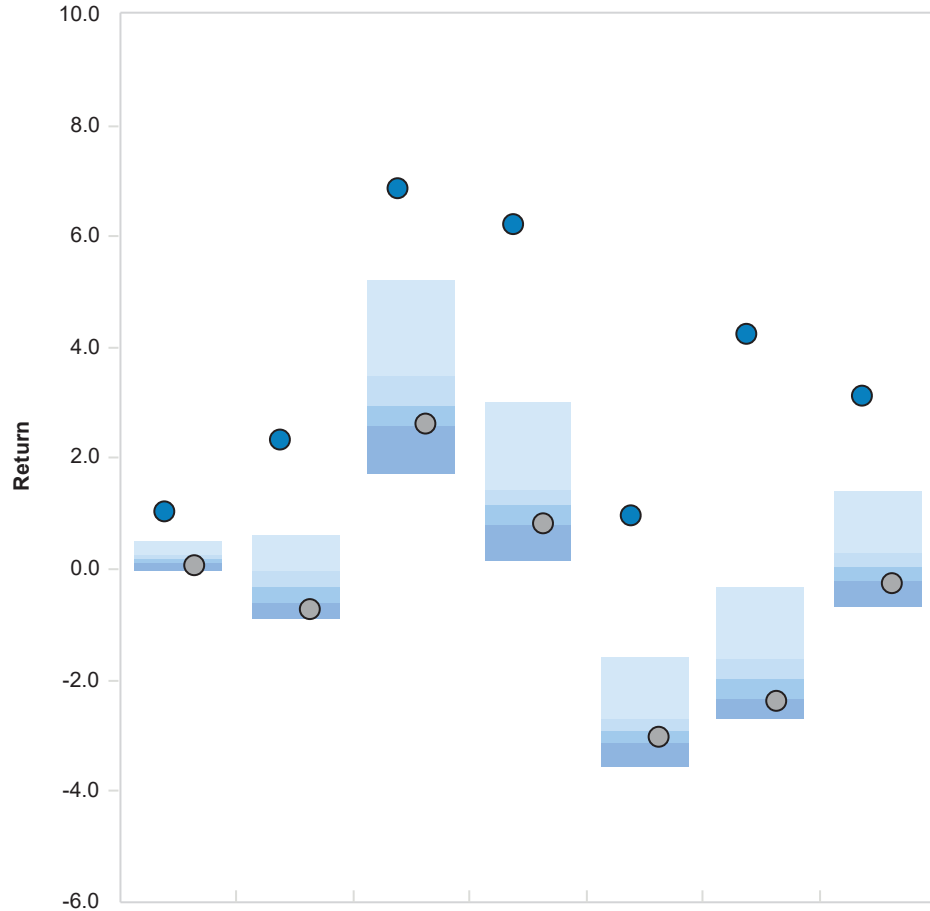
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	18	14 (78%)	0 (0%)	1 (6%)	3 (17%)
Index	20	1 (5%)	1 (5%)	14 (70%)	4 (20%)

5 Year Rolling Percentile Rank IM U.S. Broad Market Core Fixed Income (SA+CF)



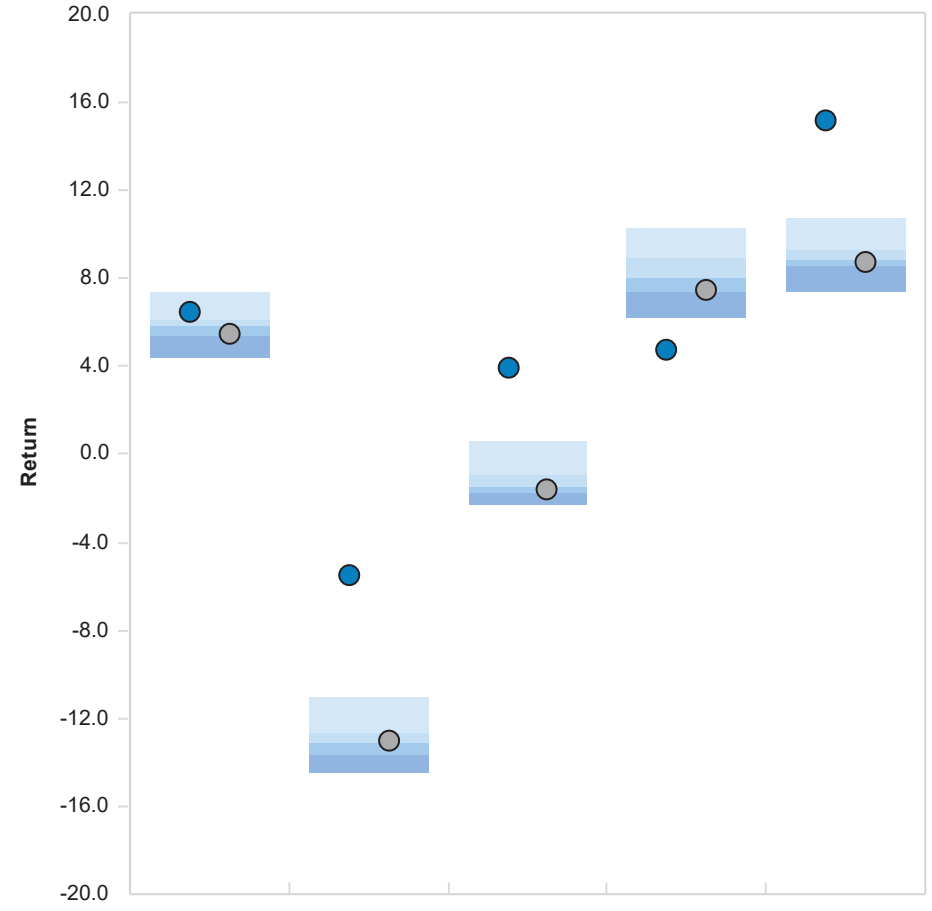
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	10	10 (100%)	0 (0%)	0 (0%)	0 (0%)
Index	20	0 (0%)	1 (5%)	13 (65%)	6 (30%)

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



	QTR	YTD	1 YR	2 YR	3 YR	4 YR	5 YR
● Investment	1.06 (1)	2.33 (1)	6.88 (2)	6.21 (1)	0.98 (1)	4.26 (1)	3.12 (1)
● Index	0.07 (84)	-0.71 (84)	2.63 (74)	0.83 (72)	-3.02 (68)	-2.36 (77)	-0.23 (80)
Median	0.17	-0.33	2.96	1.17	-2.89	-1.97	0.05

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



	2023	2022	2021	2020	2019
● Investment	6.50 (14)	-5.53 (1)	3.95 (1)	4.78 (99)	15.16 (1)
● Index	5.53 (68)	-13.01 (37)	-1.55 (54)	7.51 (68)	8.72 (65)
Median	5.81	-13.13	-1.47	8.03	8.82

Comparative Performance

	1 Qtr Ending Mar-2024	1 Qtr Ending Dec-2023	1 Qtr Ending Sep-2023	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022
Investment	1.26 (2)	7.82 (3)	-3.13 (46)	0.52 (3)	1.43 (99)	6.25 (1)
Index	-0.78 (81)	6.82 (43)	-3.23 (61)	-0.84 (66)	2.96 (72)	1.87 (35)
Median	-0.52	6.76	-3.17	-0.78	3.12	1.72

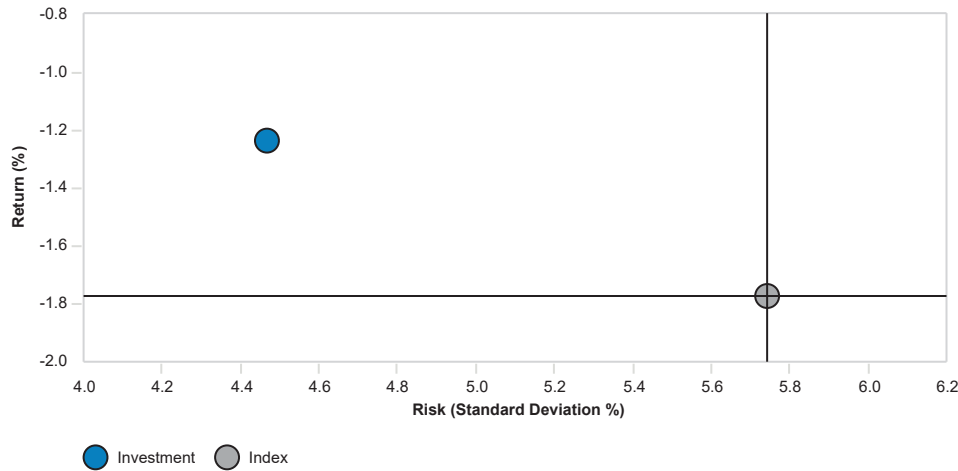
Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	-1.24	4.47	-0.96	81.01	4	79.10	8
Index	-1.77	5.74	-0.82	100.00	5	100.00	7

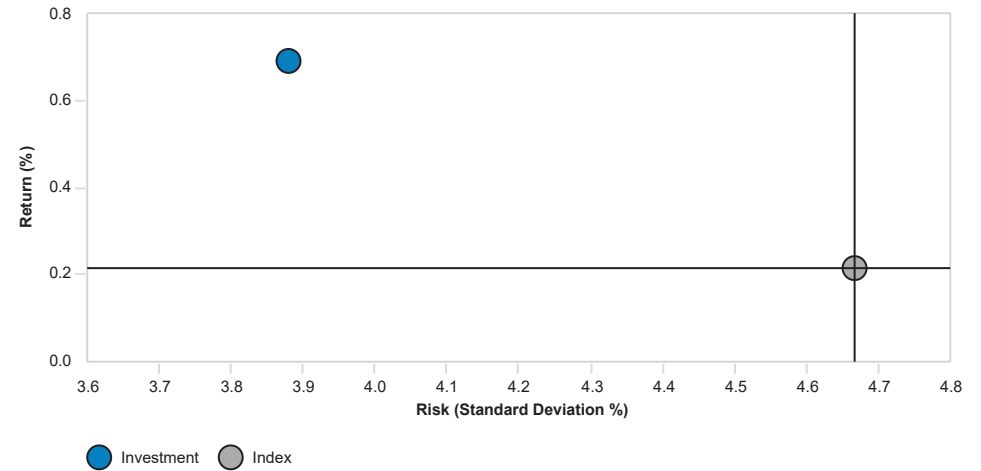
Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	0.69	3.88	-0.36	93.10	11	85.01	9
Index	0.22	4.67	-0.39	100.00	12	100.00	8

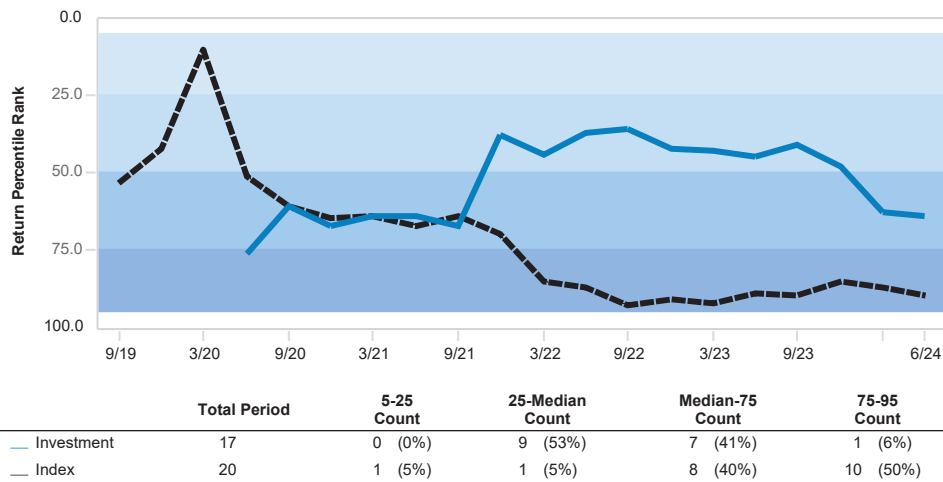
Risk and Return 3 Years



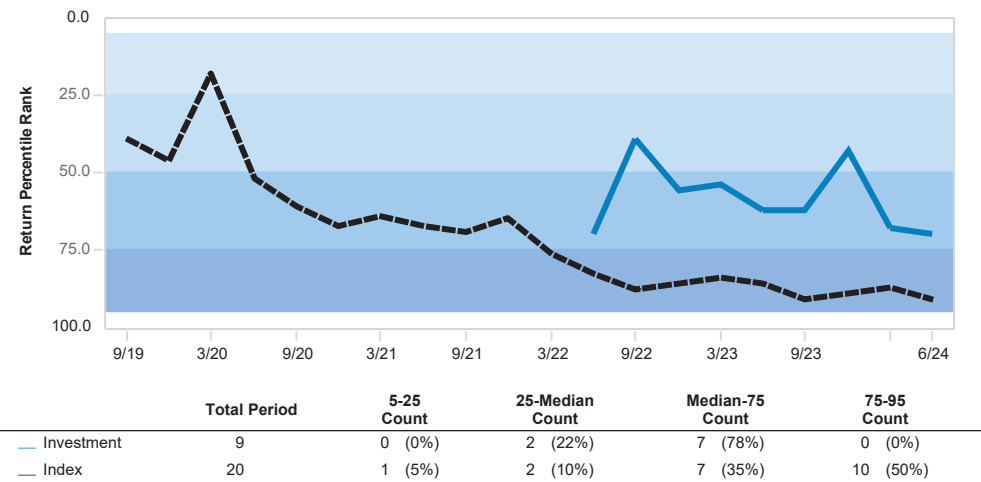
Risk and Return 5 Years



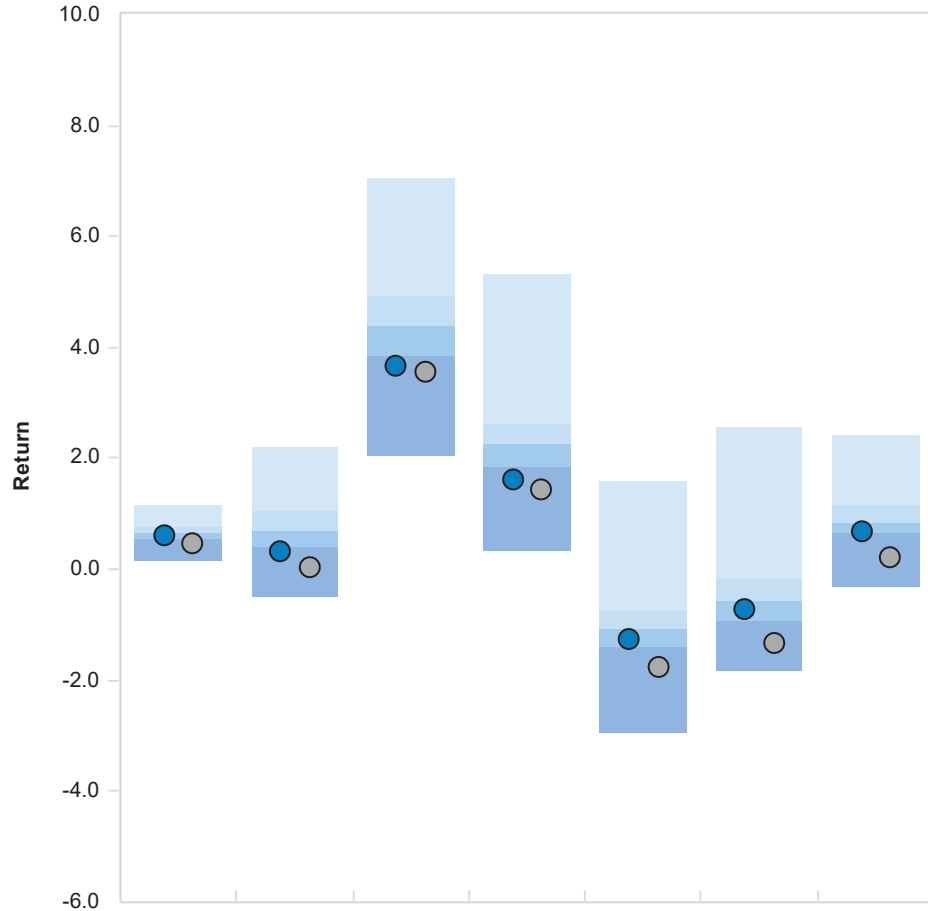
3 Year Rolling Percentile Rank IM U.S. Intermediate Duration (SA+CF)



5 Year Rolling Percentile Rank IM U.S. Intermediate Duration (SA+CF)

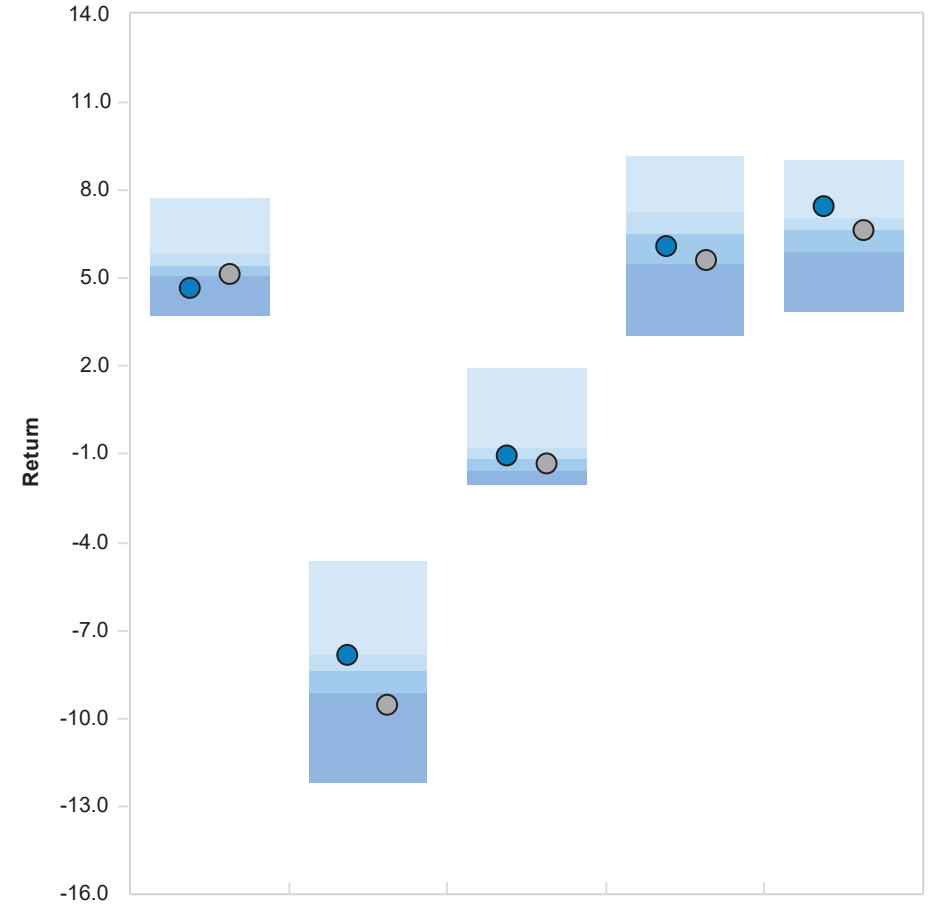


Peer Group Analysis - IM U.S. Intermediate Duration (SA+CF)



	QTR	YTD	1 YR	2 YR	3 YR	4 YR	5 YR
● Investment	0.61 (60)	0.34 (81)	3.66 (81)	1.63 (82)	-1.24 (64)	-0.71 (60)	0.69 (70)
● Index	0.46 (84)	0.04 (89)	3.55 (82)	1.45 (87)	-1.77 (90)	-1.32 (91)	0.22 (91)
Median	0.65	0.67	4.39	2.27	-1.09	-0.58	0.84

Peer Group Analysis - IM U.S. Intermediate Duration (SA+CF)



	2023	2022	2021	2020	2019
● Investment	4.66 (87)	-7.85 (25)	-1.04 (35)	6.13 (65)	7.47 (17)
● Index	5.18 (70)	-9.51 (86)	-1.29 (59)	5.60 (74)	6.67 (50)
Median	5.41	-8.39	-1.19	6.49	6.66

Comparative Performance

	1 Qtr Ending Mar-2024	1 Qtr Ending Dec-2023	1 Qtr Ending Sep-2023	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022
Investment	-0.27 (84)	4.38 (77)	-1.03 (58)	-0.98 (89)	2.31 (54)	1.26 (74)
Index	-0.42 (91)	5.50 (23)	-1.89 (85)	-0.75 (71)	2.39 (42)	1.72 (29)
Median	0.05	4.66	-0.94	-0.57	2.33	1.49

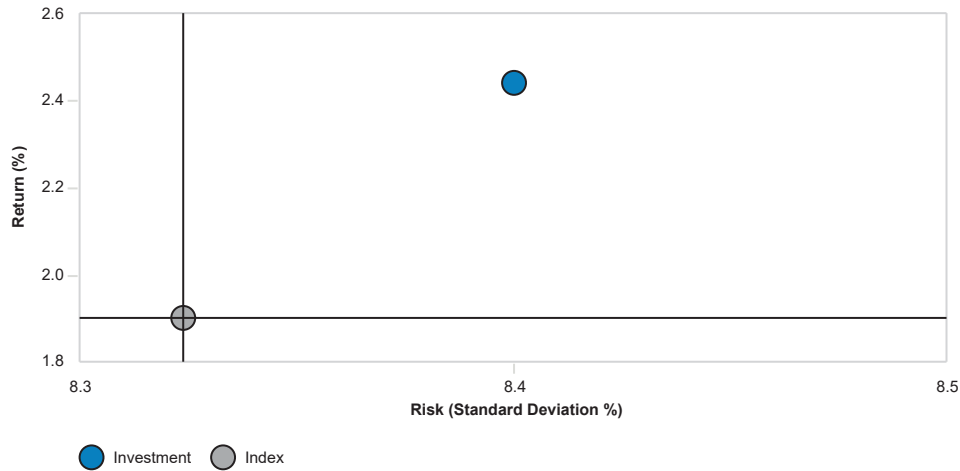
Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	2.44	8.40	-0.03	103.51	9	98.65	3
Index	1.90	8.32	-0.09	100.00	9	100.00	3

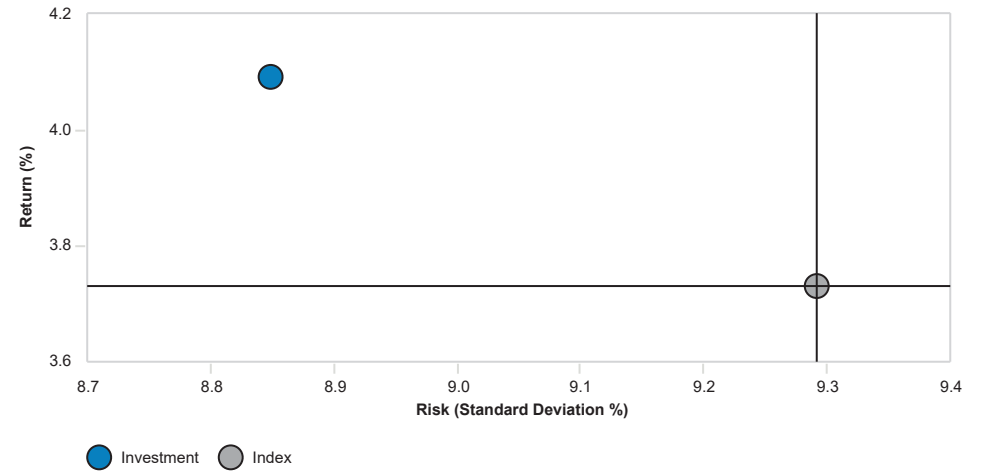
Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	4.09	8.85	0.26	99.67	16	95.98	4
Index	3.73	9.29	0.21	100.00	16	100.00	4

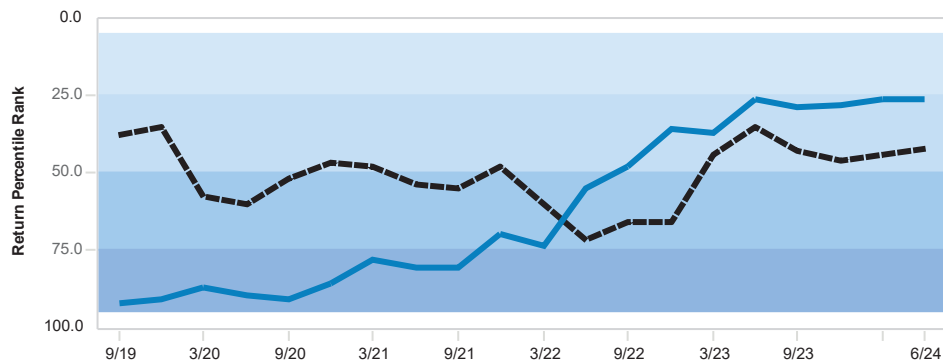
Risk and Return 3 Years



Risk and Return 5 Years

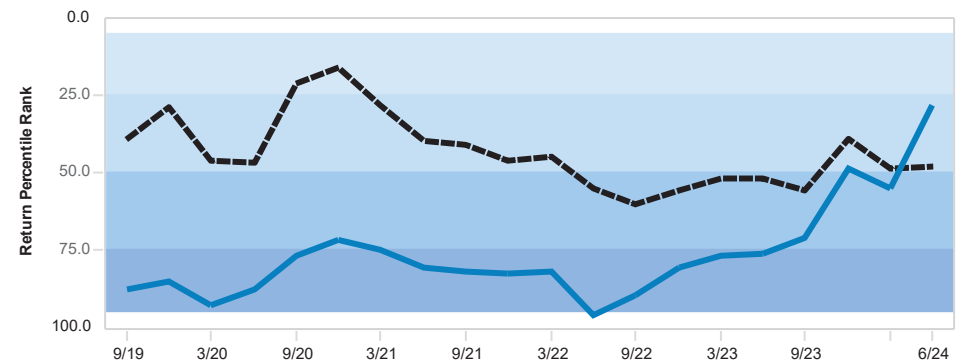


3 Year Rolling Percentile Rank IM U.S. High Yield Bonds (SA+CF)



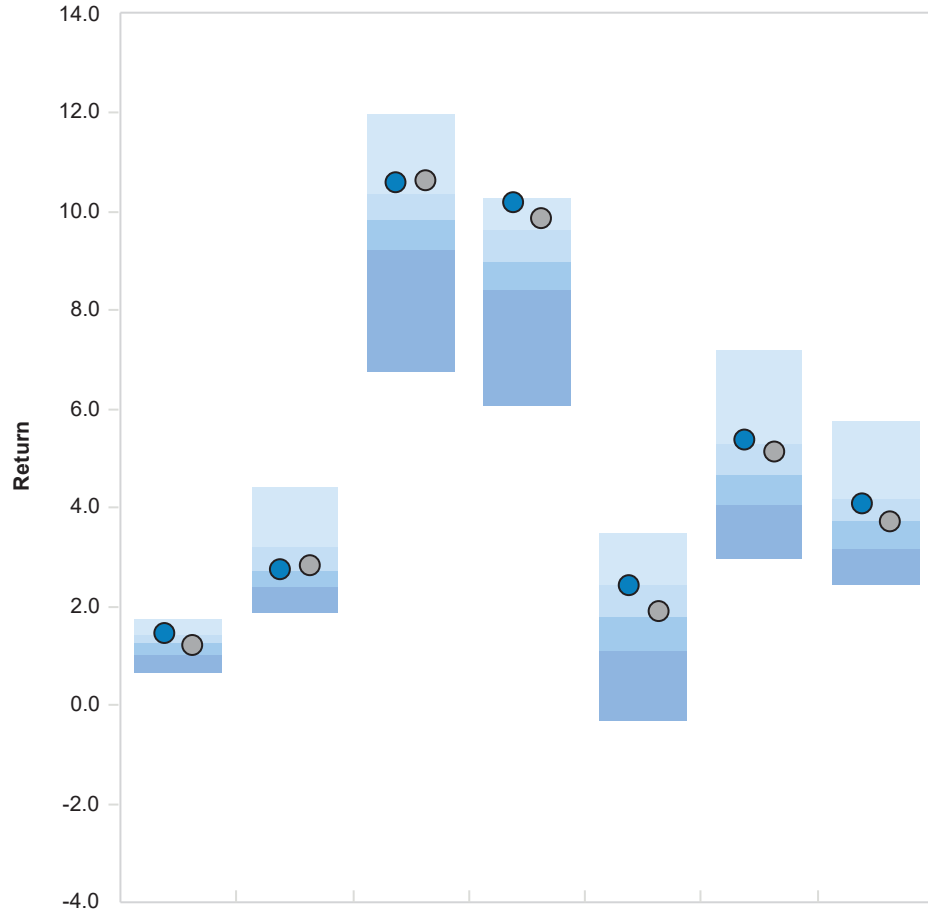
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	0 (0%)	8 (40%)	3 (15%)	9 (45%)
Index	20	0 (0%)	11 (55%)	9 (45%)	0 (0%)

5 Year Rolling Percentile Rank IM U.S. High Yield Bonds (SA+CF)



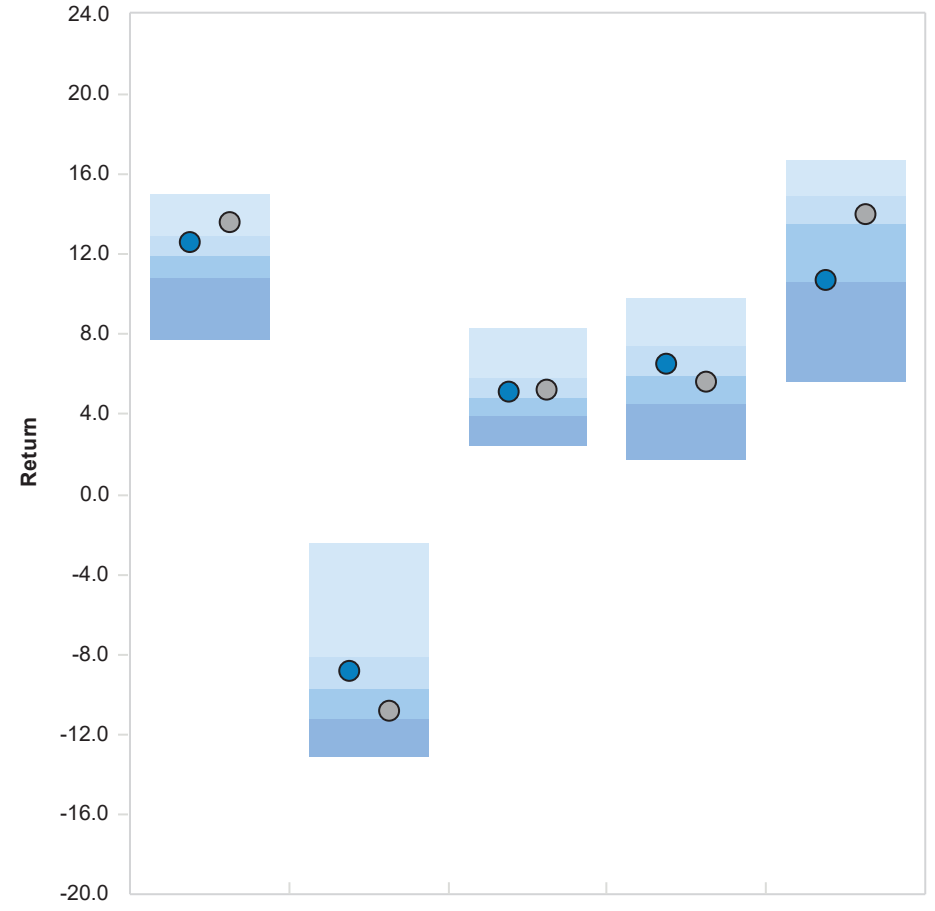
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	0 (0%)	2 (10%)	4 (20%)	14 (70%)
Index	20	2 (10%)	12 (60%)	6 (30%)	0 (0%)

Peer Group Analysis - IM U.S. High Yield Bonds (SA+CF)



	QTR	YTD	1 YR	2 YR	3 YR	4 YR	5 YR
● Investment	1.47 (23)	2.77 (50)	10.58 (18)	10.18 (8)	2.44 (26)	5.39 (22)	4.09 (28)
● Index	1.20 (56)	2.83 (47)	10.66 (16)	9.89 (15)	1.90 (42)	5.14 (31)	3.73 (48)
Median	1.25	2.72	9.84	9.00	1.79	4.67	3.72

Peer Group Analysis - IM U.S. High Yield Bonds (SA+CF)



	2023	2022	2021	2020	2019
● Investment	12.67 (32)	-8.86 (35)	5.15 (43)	6.53 (43)	10.71 (75)
● Index	13.61 (11)	-10.85 (69)	5.22 (42)	5.60 (63)	14.05 (43)
Median	11.93	-9.77	4.88	5.95	13.56

Comparative Performance

	1 Qtr Ending Mar-2024	1 Qtr Ending Dec-2023	1 Qtr Ending Sep-2023	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022
Investment	1.28 (71)	6.73 (34)	0.81 (32)	1.78 (24)	2.88 (73)	5.18 (2)
Index	1.61 (43)	6.90 (22)	0.67 (42)	1.87 (19)	3.62 (27)	4.03 (46)
Median	1.51	6.37	0.57	1.46	3.24	3.94

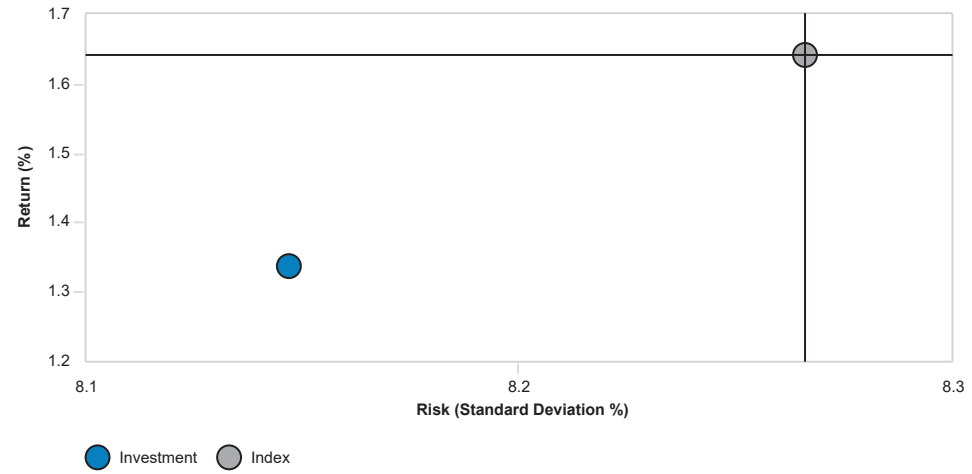
Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	1.34	8.15	-0.17	95.09	8	97.32	4
Index	1.64	8.27	-0.13	100.00	9	100.00	3

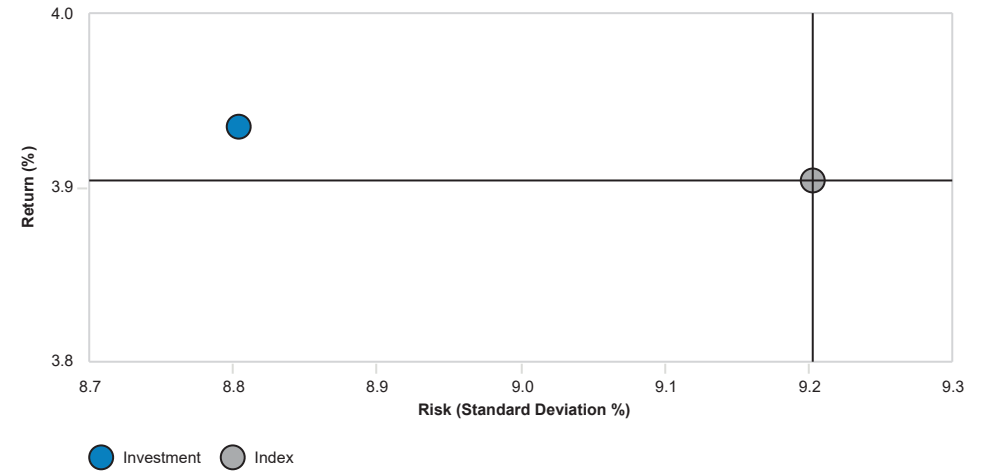
Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	3.94	8.80	0.24	96.68	15	95.13	5
Index	3.90	9.20	0.23	100.00	16	100.00	4

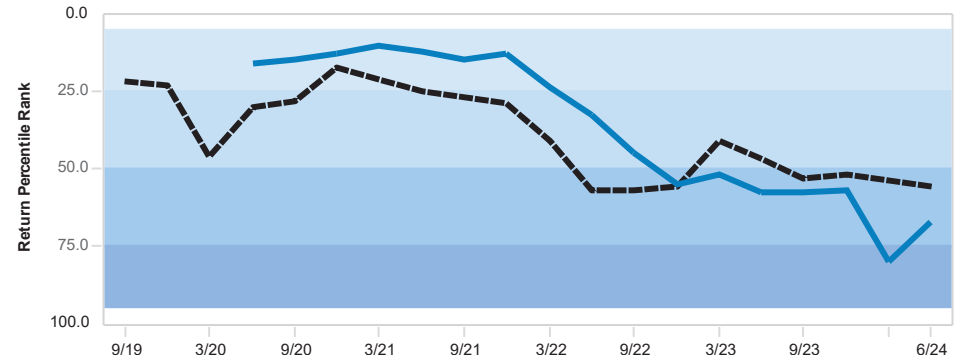
Risk and Return 3 Years



Risk and Return 5 Years

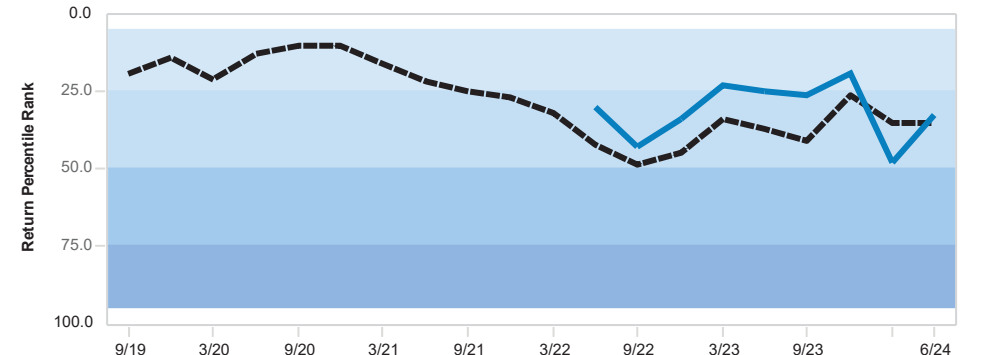


3 Year Rolling Percentile Rank IM U.S. High Yield Bonds (SA+CF)



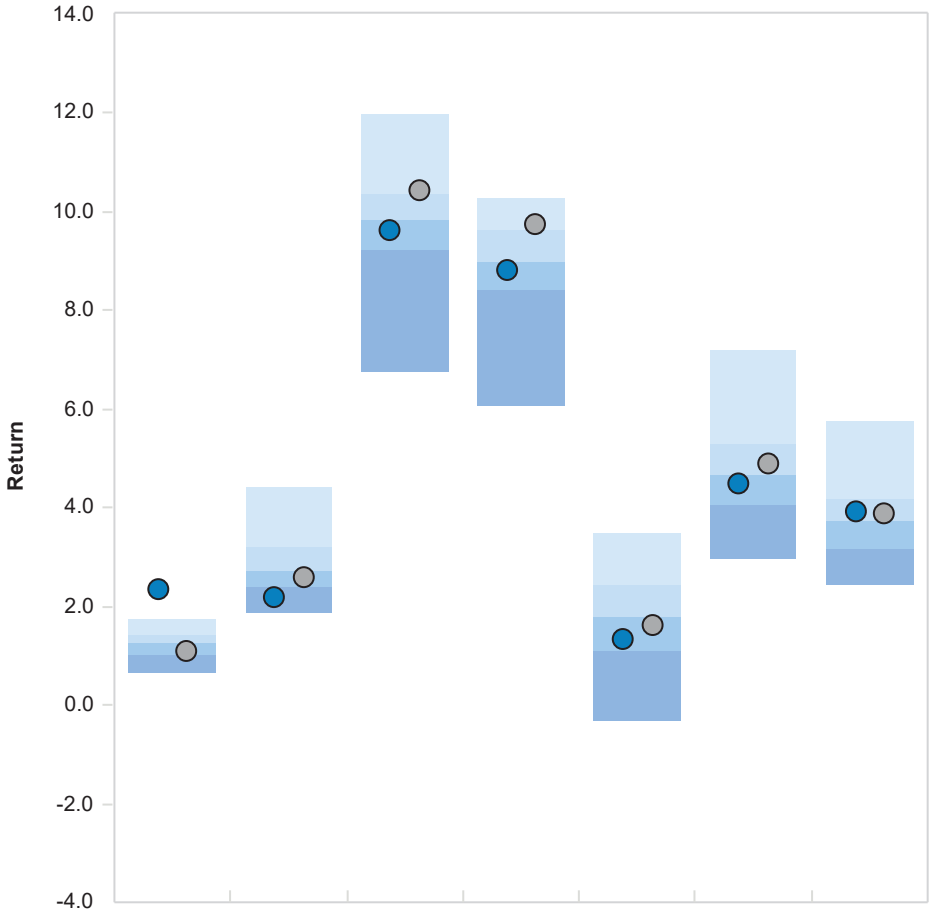
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	17	8 (47%)	2 (12%)	6 (35%)	1 (6%)
Index	20	5 (25%)	8 (40%)	7 (35%)	0 (0%)

5 Year Rolling Percentile Rank IM U.S. High Yield Bonds (SA+CF)



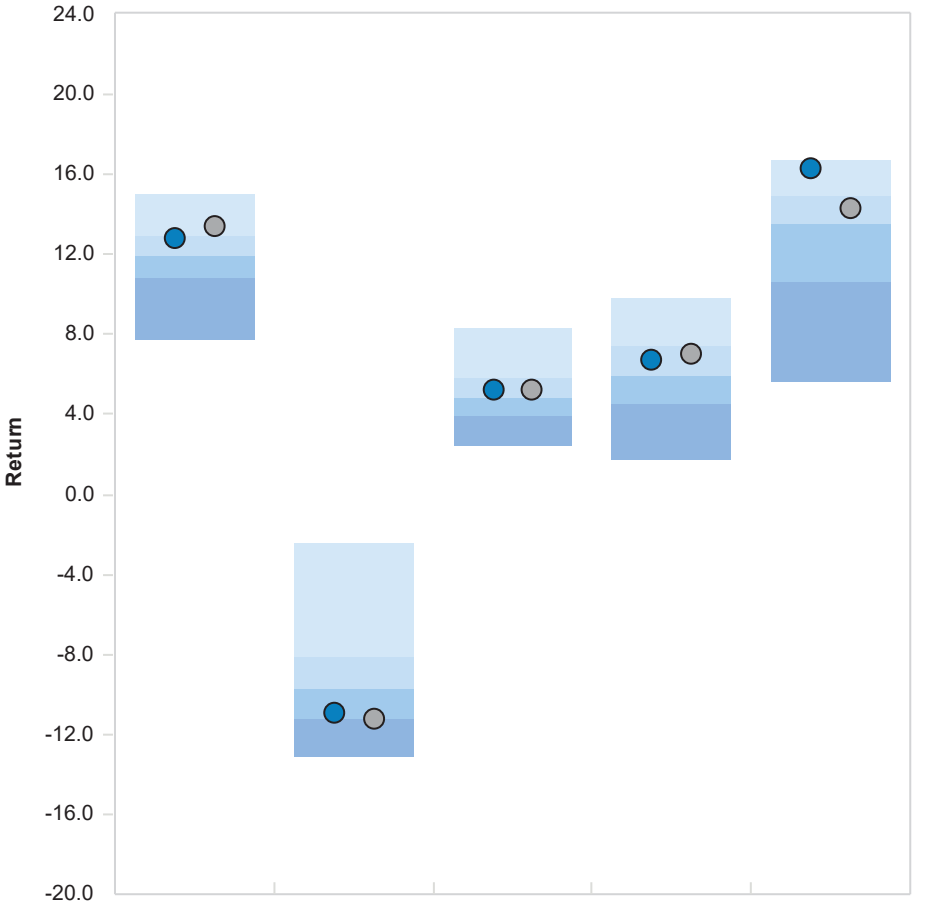
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	9	3 (33%)	6 (67%)	0 (0%)	0 (0%)
Index	20	9 (45%)	11 (55%)	0 (0%)	0 (0%)

Peer Group Analysis - IM U.S. High Yield Bonds (SA+CF)



	QTR	YTD	1 YR	2 YR	3 YR	4 YR	5 YR
● Investment	2.37 (2)	2.19 (86)	9.62 (66)	8.84 (59)	1.34 (67)	4.51 (57)	3.94 (33)
● Index	1.09 (66)	2.58 (62)	10.43 (23)	9.75 (20)	1.64 (56)	4.91 (37)	3.90 (35)
Median	1.25	2.72	9.84	9.00	1.79	4.67	3.72

Peer Group Analysis - IM U.S. High Yield Bonds (SA+CF)



	2023	2022	2021	2020	2019
● Investment	12.78 (30)	-10.87 (69)	5.27 (41)	6.78 (37)	16.30 (8)
● Index	13.44 (13)	-11.18 (75)	5.26 (41)	7.05 (32)	14.32 (35)
Median	11.93	-9.77	4.88	5.95	13.56

Comparative Performance

	1 Qtr Ending Mar-2024	1 Qtr Ending Dec-2023	1 Qtr Ending Sep-2023	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022
Investment	-0.17 (100)	6.58 (40)	0.65 (45)	1.50 (47)	3.58 (29)	4.24 (27)
Index	1.47 (57)	7.15 (13)	0.46 (60)	1.75 (24)	3.57 (30)	4.17 (30)
Median	1.51	6.37	0.57	1.46	3.24	3.94

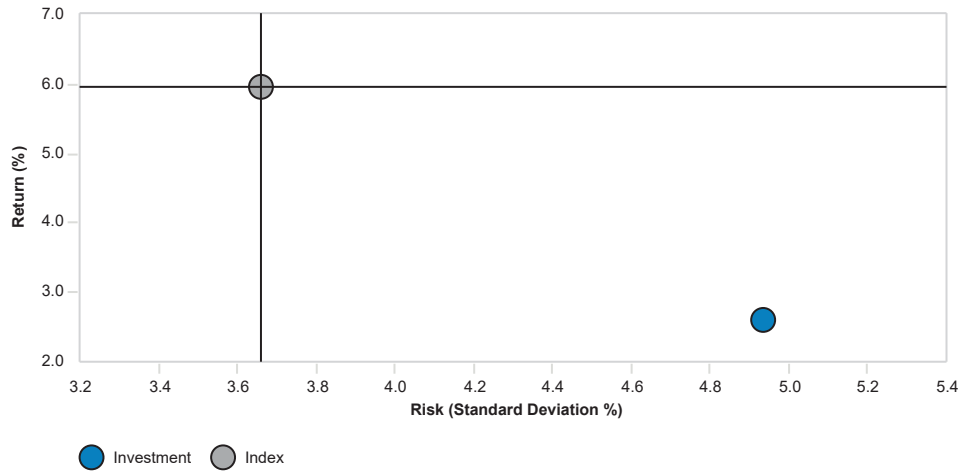
Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	2.60	4.93	-0.06	82.12	9	166.54	3
Index	5.97	3.66	0.83	100.00	10	100.00	2

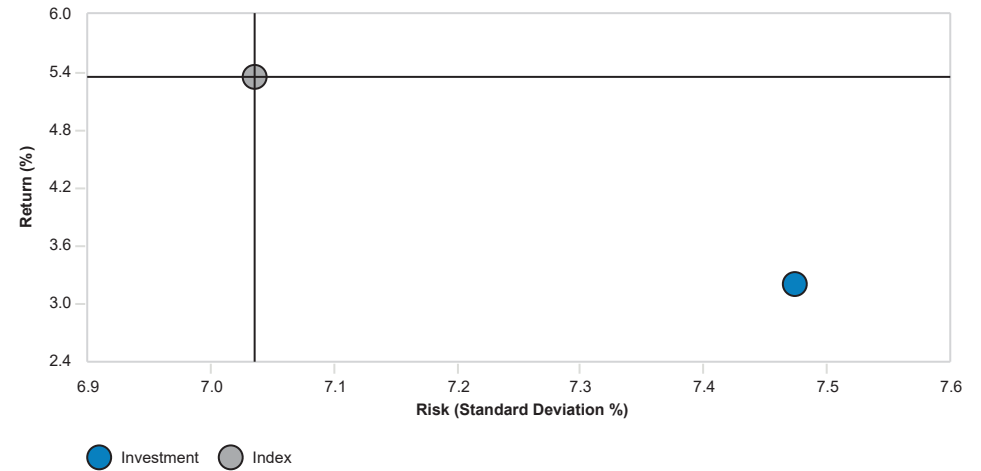
Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	3.21	7.47	0.17	90.09	15	123.93	5
Index	5.36	7.04	0.47	100.00	17	100.00	3

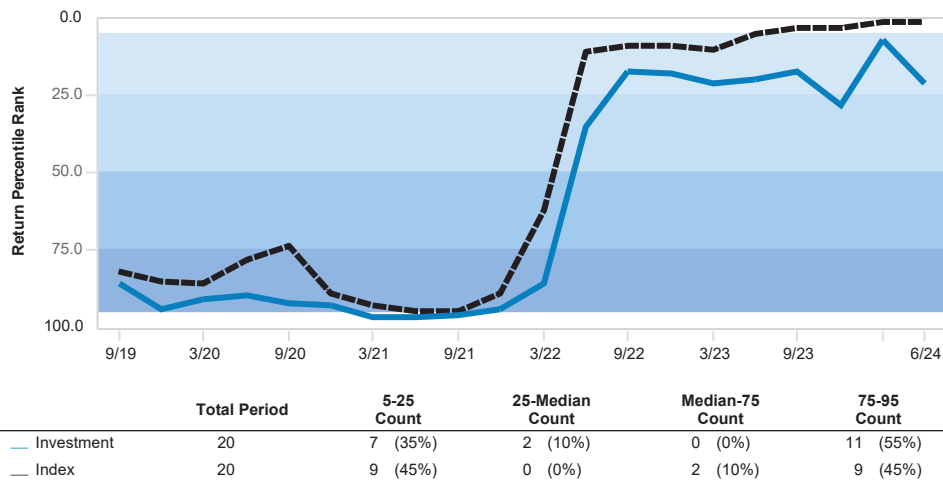
Risk and Return 3 Years



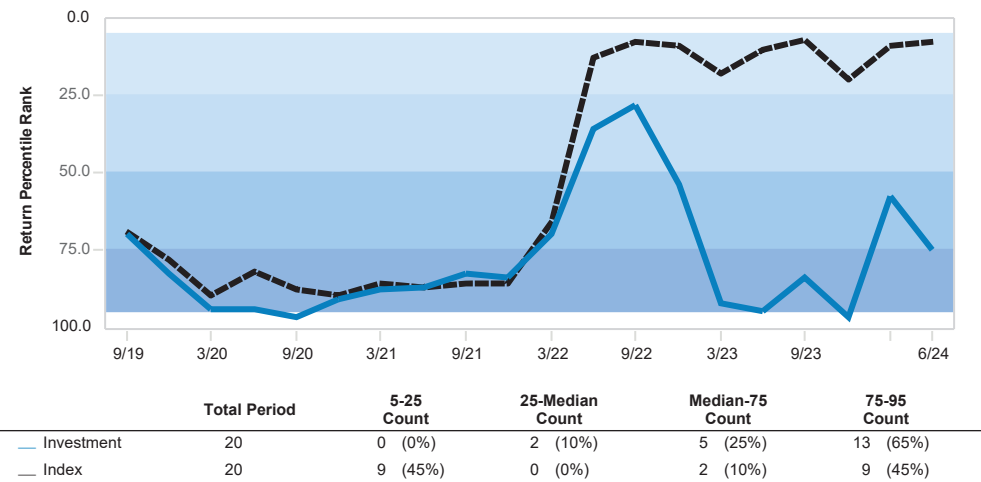
Risk and Return 5 Years



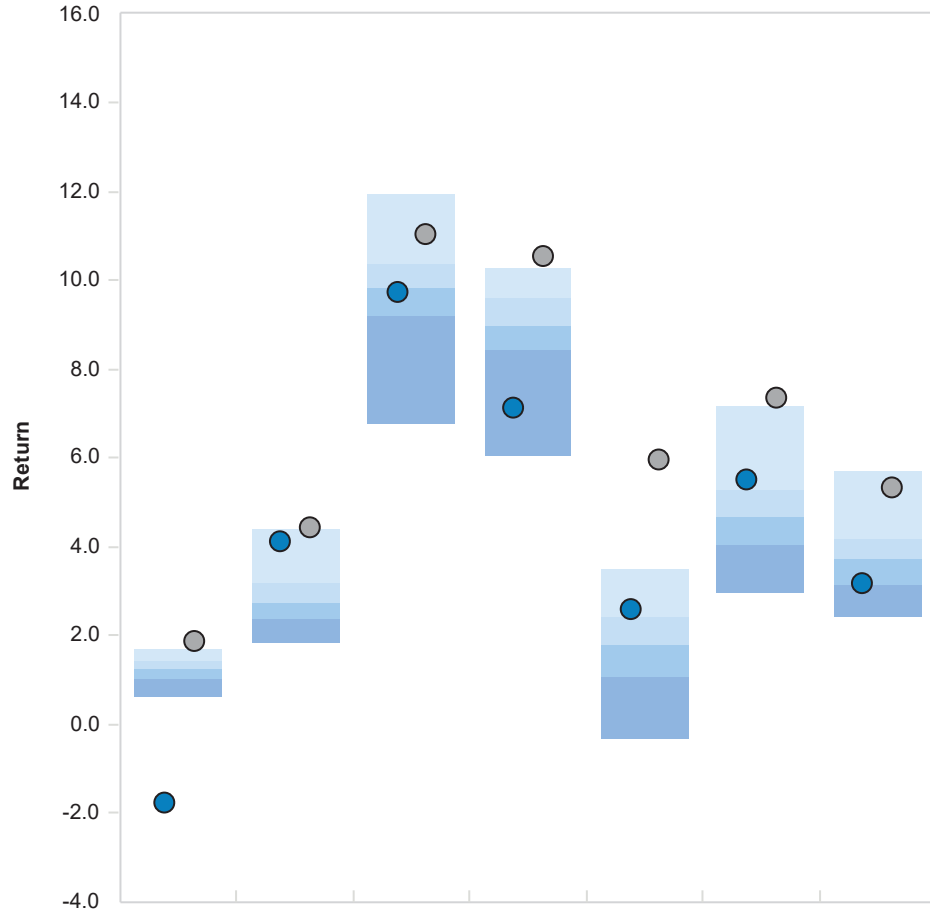
3 Year Rolling Percentile Rank IM U.S. High Yield Bonds (SA+CF)



5 Year Rolling Percentile Rank IM U.S. High Yield Bonds (SA+CF)

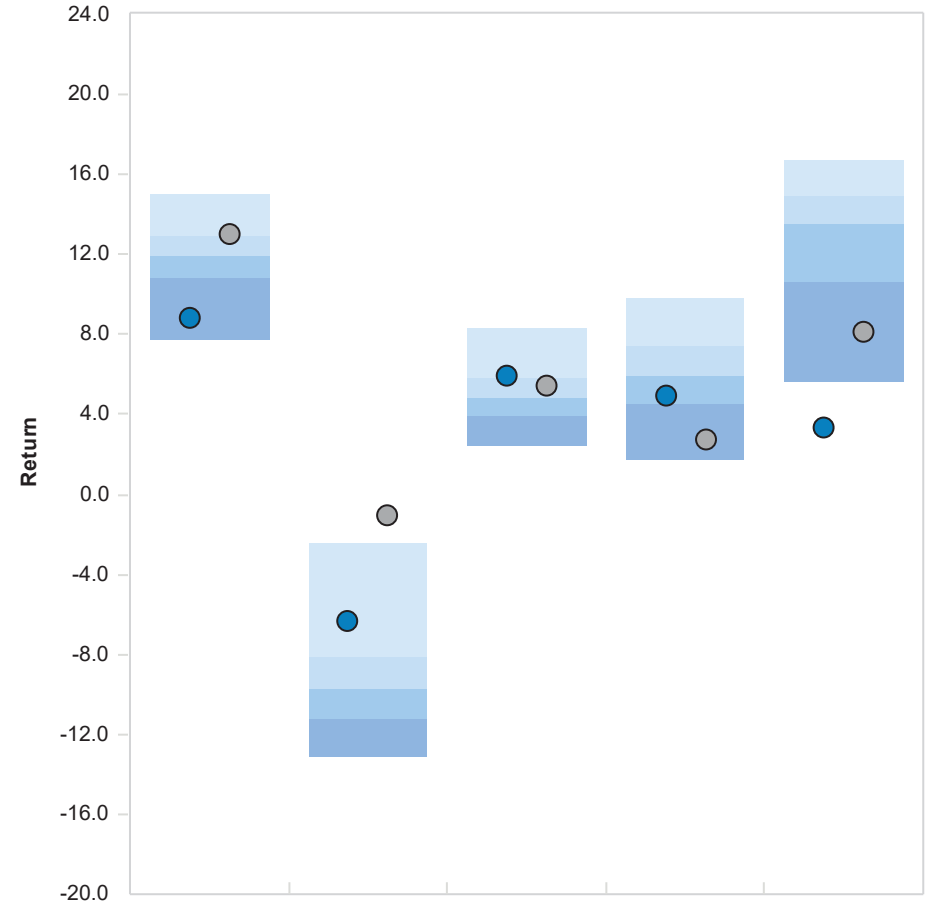


Peer Group Analysis - IM U.S. High Yield Bonds (SA+CF)



	QTR	YTD	1 YR	2 YR	3 YR	4 YR	5 YR
● Investment	-1.77 (100)	4.15 (6)	9.77 (56)	7.14 (92)	2.60 (21)	5.54 (20)	3.21 (75)
● Index	1.87 (3)	4.44 (5)	11.04 (13)	10.57 (3)	5.97 (1)	7.36 (5)	5.36 (8)
Median	1.25	2.72	9.84	9.00	1.79	4.67	3.72

Peer Group Analysis - IM U.S. High Yield Bonds (SA+CF)



	2023	2022	2021	2020	2019
● Investment	8.84 (91)	-6.38 (20)	5.99 (20)	4.98 (70)	3.31 (98)
● Index	13.04 (21)	-1.06 (3)	5.40 (36)	2.78 (90)	8.16 (87)
Median	11.93	-9.77	4.88	5.95	13.56

Comparative Performance

	1 Qtr Ending Mar-2024	1 Qtr Ending Dec-2023	1 Qtr Ending Sep-2023	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022
Investment	6.02 (1)	3.28 (95)	2.05 (5)	1.05 (82)	2.20 (90)	1.16 (93)
Index	2.52 (10)	2.85 (97)	3.37 (2)	3.12 (5)	3.11 (57)	2.33 (86)
Median	1.51	6.37	0.57	1.46	3.24	3.94

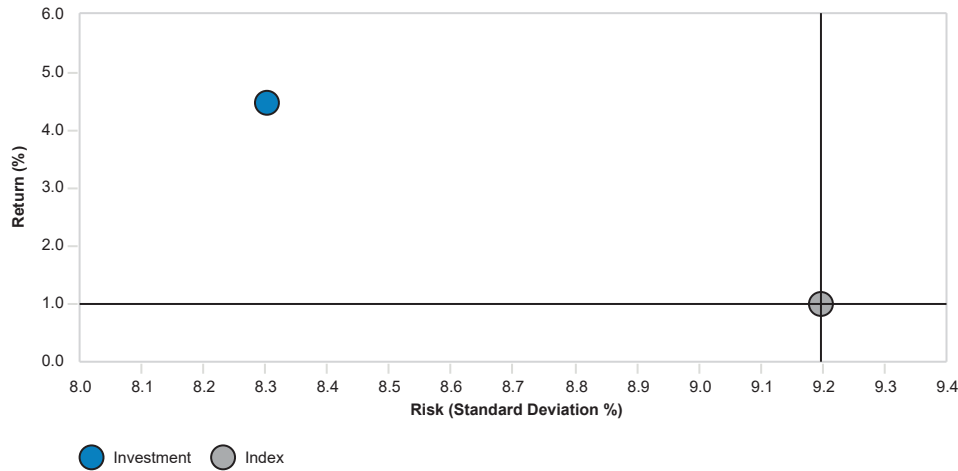
Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	4.48	8.30	0.20	82.94	5	34.15	7
Index	1.02	9.20	-0.16	100.00	5	100.00	7

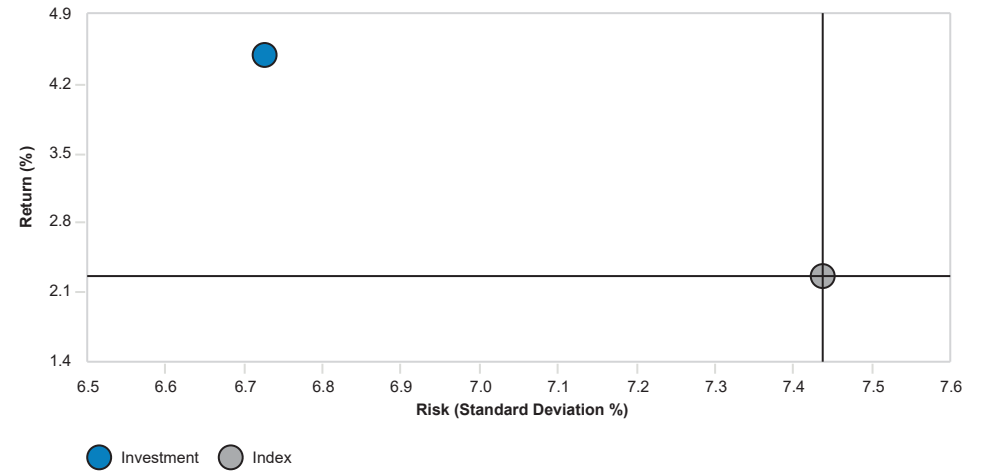
Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	4.49	6.73	0.36	89.71	12	39.49	8
Index	2.27	7.44	0.05	100.00	12	100.00	8

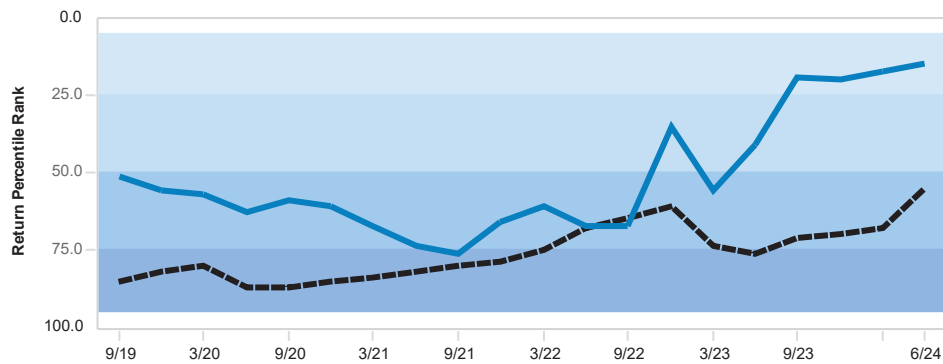
Risk and Return 3 Years



Risk and Return 5 Years

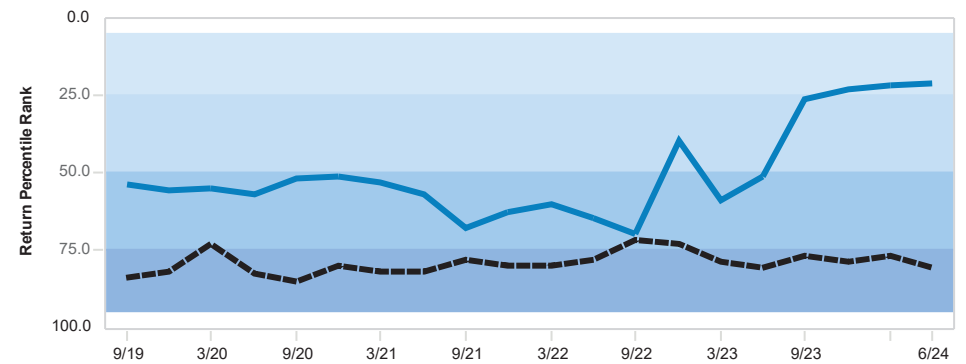


3 Year Rolling Percentile Rank IM U.S. Private Real Estate (SA+CF)



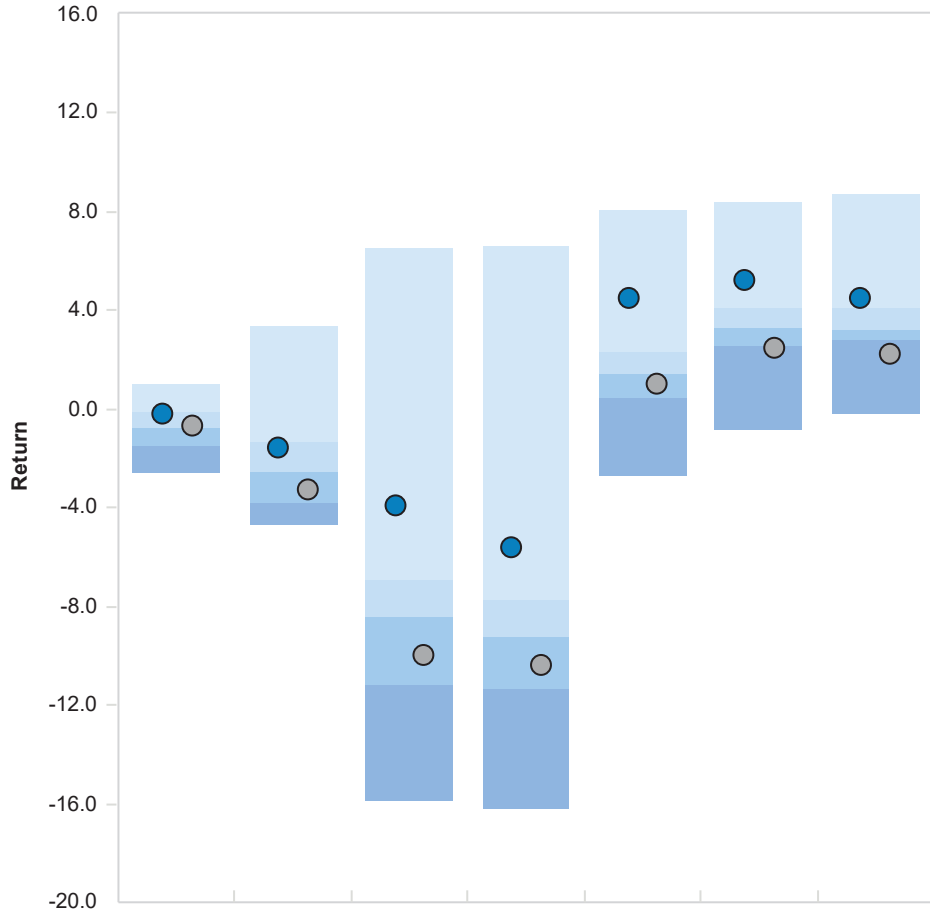
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	4 (20%)	2 (10%)	13 (65%)	1 (5%)
Index	20	0 (0%)	0 (0%)	9 (45%)	11 (55%)

5 Year Rolling Percentile Rank IM U.S. Private Real Estate (SA+CF)

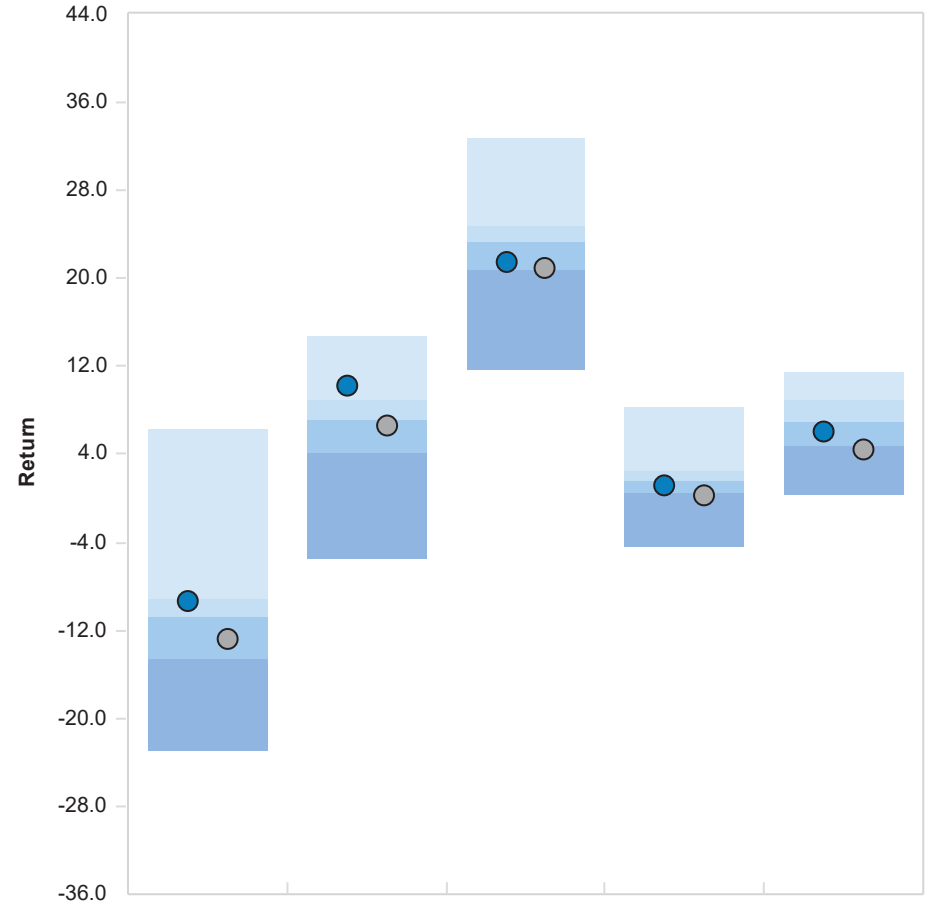


	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	3 (15%)	2 (10%)	15 (75%)	0 (0%)
Index	20	0 (0%)	0 (0%)	3 (15%)	17 (85%)

Peer Group Analysis - IM U.S. Private Real Estate (SA+CF)



Peer Group Analysis - IM U.S. Private Real Estate (SA+CF)



Comparative Performance

	1 Qtr Ending Mar-2024	1 Qtr Ending Dec-2023	1 Qtr Ending Sep-2023	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022
Investment	-1.35 (27)	-2.21 (36)	-0.22 (11)	-2.24 (65)	-5.00 (85)	0.00 (8)
Index	-2.58 (66)	-5.00 (66)	-2.10 (38)	-2.88 (70)	-3.38 (66)	-5.17 (56)
Median	-2.11	-4.10	-2.66	-1.98	-2.91	-4.97

Private Equity Summary of Partnership
Total Private Equity w Life Settlement Composite
As of June 30, 2024

Private Equity Summary of Partnership

Partnerships	Vintage Year	Capital Commitment \$	Market Value \$
Total Private Equity w Life Settlement Composite		334,900,410	179,725,943
Accolade Partners V	2015	3,000,000	4,878,324
Accolade Partners VI	2018	3,000,000	3,126,144
Adams Street 2003 U.S Fund	2003	13,733,000	111,640
Adams Street 2008 Global	2008	10,000,000	2,927,670
Adams Street 2009 Global	2009	5,000,000	2,155,743
Auldbrass Spec Opps II	2018	4,000,000	2,431,689
Birchmere Ventures IV	2012	525,000	39,415
BlackRock Multi-Alternative Opps	2016	3,000,000	2,178,715
Blackstone Tac Op I	2012	2,000,000	208,592
Blackstone Tac Op II	2015	3,000,000	466,536
Blackstone Tac Op III	2019	5,000,000	4,484,648
CCA Black	2015	7,500,000	5,628,775
CCA Blue	2013	3,800,000	-
CCA Green	2009	15,000,000	-
CCA Longevity Fund VI LP	2019	5,000,000	2,318,847
Commonfund Venture Partners XII	2018	3,000,000	4,715,348
Constitution Ironsides Direct Investment Fund IV	2016	3,000,000	913,883
Constitution Ironsides Opportunities Fund	2018	4,000,000	1,936,799
Constitution Ironsides Partnership Fund II	2011	6,000,000	-
Constitution Ironsides Partnership Fund III	2014	8,000,000	2,490,628
Crestline Opportunity Fund III	2016	4,000,000	1,834,445
Crestline Recovery II	2011	3,000,000	34,234
DCM Fund IV	2015	3,000,000	3,373,469
Draper Triangle II	2005	10,000,000	4,551
Draper Triangle III	2013	13,500,000	8,946,347
Emerald Advisors Fin Srv I	2018	2,000,000	1,465,648
Entrust Special Opportunities Fund III	2015	3,000,000	1,123,752
Entrust Special Opportunities Fund IV	2018	3,000,000	2,665,587
Farol Fund II	2020	4,000,000	4,972,305
Five Points III	2017	3,000,000	2,834,845
Glouston Private Equity Opportunities IV	2011	3,000,000	148,492
Goldman Sachs Private Equity Partners 2004	2005	10,000,000	8,853
Greenspring Early Stage I LP	2018	4,000,000	5,221,873
Greenspring Opportunities II-A	2013	3,000,000	2,235,377
Greenspring Opportunities III	2014	3,000,000	2,275,942
Greenspring Opportunities IV	2015	3,000,000	2,141,374
Greenspring Opportunities V	2018	3,000,000	3,284,386
Greenspring Secondaries I	2014	1,000,000	439,470
Greenspring Secondaries II	2016	2,000,000	671,018

Data Sources:
Market Values - BNY Mellon and Investment Managers
Commitments - Asset Strategies

**Private Equity Summary of Partnership
Total Private Equity w Life Settlement Composite
As of June 30, 2024**

Partnerships	Vintage Year	Capital Commitment \$	Market Value \$
iNetworks INOF II	2013	-	6,195,373
iNetworks Opportunity Fund	2013	11,000,000	15,203,552
iNetworks Opportunity Fund II	2020	12,500,000	10,609,445
JMI Equity Fund IX-A	2019	3,000,000	3,444,019
Magarac Ventures	2022	10,000,000	2,427,780
Mellon PAM Fund V	2005	10,000,000	6,369
Mesirow Partners Fund IV	2006	17,000,000	1,857,924
North Haven Capital Partners VI	2015	3,000,000	2,347,575
North Haven Senior Loan Fund	2018	4,000,000	2,616,327
Pharos Capital Partners III	2013	3,000,000	2,157,748
PLSG Accelerator Fund	2011	250,000	59,477
ValStone Partners IV	2008	20,000,000	-
ValStone Partners V	2013	20,000,000	16,917,259
ValStone Partners VI	2017	20,000,000	16,537,580
Valstone Senior Living	2018	13,092,410	14,650,150

*Data Sources:
Market Values - BNY Mellon and Investment Managers
Commitments - Asset Strategies*

Historical Hybrid Composition			
Allocation Mandate	Weight (%)	Allocation Mandate	Weight (%)
Jan-1979		Jun-2010	
Russell 3000 Index	65.00	FT Wilshire 5000 Total Market TR Index	20.00
Blmbg. U.S. Aggregate Index	35.00	MSCI AC World ex USA (Net)	25.00
Mar-2007		Blmbg. U.S. Aggregate Index	14.00
FT Wilshire 5000 Total Market TR Index	45.00	FTSE High Yield Market Capped Index	10.00
MSCI EAFE (Net) Index	10.00	Bloomberg U.S. TIPS Index	6.00
Blmbg. U.S. Aggregate Index	25.00	Bloomberg Commodity Index Total Return	5.00
Bloomberg Commodity Index Total Return	5.00	NCREIF Fund Index-Open End Diversified Core Equity (VW) (Net) Monthly	10.00
NCREIF Fund Index-Open End Diversified Core Equity (VW) (Net) Monthly	5.00	Private Equity Composite	10.00
Private Equity Composite	5.00	Mar-2013	
90 Day U.S. Treasury Bill	5.00	FT Wilshire 5000 Total Market TR Index	16.10
Sep-2008		MSCI AC World ex USA (Net)	18.90
FT Wilshire 5000 Total Market TR Index	45.00	Blmbg. U.S. Aggregate Index	10.00
MSCI AC World ex USA (Net)	10.00	FTSE High Yield Market Capped Index	12.00
Blmbg. U.S. Aggregate Index	25.00	Bloomberg U.S. TIPS Index	5.00
Bloomberg Commodity Index Total Return	5.00	Bloomberg Commodity Index Total Return	8.00
NCREIF Fund Index-Open End Diversified Core Equity (VW) (Net) Monthly	5.00	NCREIF Fund Index-Open End Diversified Core Equity (VW) (Net) Monthly	10.00
Private Equity Composite	5.00	Private Equity Composite	20.00
90 Day U.S. Treasury Bill	5.00	Apr-2016	
Dec-2008		FT Wilshire 5000 Total Market TR Index	15.00
FT Wilshire 5000 Total Market TR Index	35.00	MSCI AC World ex USA (Net)	15.00
MSCI AC World ex USA (Net)	15.00	Blmbg. U.S. Aggregate Index	10.00
Blmbg. U.S. Aggregate Index	20.00	FTSE High Yield Market Capped Index	12.00
FTSE High Yield Market Capped Index	5.00	Bloomberg U.S. TIPS Index	8.00
Bloomberg U.S. TIPS Index	5.00	Bloomberg Commodity Index Total Return	2.50
Bloomberg Commodity Index Total Return	5.00	NCREIF Fund Index-Open End Diversified Core Equity (VW) (Net) Monthly	10.00
NCREIF Fund Index-Open End Diversified Core Equity (VW) (Net) Monthly	7.50	Private Equity Composite	22.50
Private Equity Composite	5.00	Alerian MLP Index	5.00
90 Day U.S. Treasury Bill	2.50	Jan-2019	
Sep-2009		FT Wilshire 5000 Total Market TR Index	16.50
FT Wilshire 5000 Total Market TR Index	30.00	MSCI AC World ex USA (Net)	16.50
MSCI AC World ex USA (Net)	20.00	Blmbg. U.S. Aggregate Index	12.50
Blmbg. U.S. Aggregate Index	15.00	FTSE High Yield Market Capped Index	12.00
FTSE High Yield Market Capped Index	10.00	Bloomberg U.S. TIPS Index	5.00
Bloomberg U.S. TIPS Index	7.50	NCREIF Fund Index-Open End Diversified Core Equity (VW) (Net) Monthly	12.50
Bloomberg Commodity Index Total Return	2.50	Private Equity Composite	20.00
NCREIF Fund Index-Open End Diversified Core Equity (VW) (Net) Monthly	10.00	Alerian MLP Index	5.00
Private Equity Composite	5.00		

Allocation Mandate	Weight (%)
Mar-2021	
Russell 3000 Index	16.50
MSCI AC World ex USA (Net)	16.50
Blmbg. U.S. Aggregate Index	12.50
FTSE High Yield Market Capped Index	12.00
Bloomberg U.S. TIPS Index	5.00
NCREIF Fund Index-Open End Diversified Core Equity (VW) (Net) Monthly	12.50
Liquid Policy Benchmark	5.00
Total Private Equity w Life Settlement Composite	20.00
Jul-2022	
Russell 3000 Index	16.50
MSCI AC World ex USA (Net)	16.50
Blmbg. U.S. Aggregate Index	12.50
FTSE High Yield Market Capped Index	12.00
CPI + 3%	5.00
NCREIF Fund Index-Open End Diversified Core Equity (VW) (Net) Monthly	12.50
Liquid Policy Benchmark	5.00
Total Private Equity w Life Settlement Composite	20.00

Historical Hybrid Composition

Allocation Mandate

Weight (%)

Nov-1993

FT Wilshire 5000 Total Market TR Index

100.00

Mar-2021

Russell 3000 Index

100.00

Historical Hybrid Composition	
Allocation Mandate	Weight (%)
Dec-2000	
MSCI EAFE (Net) Index	100.00
Sep-2008	
MSCI AC World ex USA (Net)	100.00
Mar-2015	
MSCI AC World ex USA IMI (Net)	100.00
Mar-2021	
MSCI AC World ex USA (Net)	100.00

Historical Hybrid Composition

Allocation Mandate

Weight (%)

Mar-2021

S&P 500 Index	30.00
S&P MidCap 400 Index	2.00
S&P SmallCap 600 Index	10.50
MSCI EAFE IMI (Net)	16.90
MSCI Emerging Markets IMI (Net)	6.10
Blmbg. U.S. Aggregate Index	25.00
ICE BofAML 1-3 Year Treasury	4.50
FTSE NAREIT Equity REIT Index	5.00

	Estimated Annual Fee (%)	Market Value (\$)	Estimated Annual Fee (\$)	Fee Schedule
Domestic Equity				
SSgA S&P 500 Index	0.02	80,963,265	16,193	0.02 % of Assets
Fragasso Large Core (EMWO)	1.00	85,961	860	1.00 % of First \$0 M 0.95 % of Next \$0 M 0.75 % of Next \$1 M 0.65 % of Next \$2 M 0.55 % of Next \$3 M 0.50 % of Next \$3 M 0.25 % of Next \$3 M 0.20 % Thereafter
Twin Capital Enhanced Equity	0.35	40,886,101	143,101	0.35 % of Assets
Vesper U.S. Large Cap Short-Term Reversal Strategy ETF (UTRN) (EMWO)	0.75	1,108,282	8,312	0.75 % of Assets
Earnest Small Value	0.93	13,792,652	128,445	1.00 % of First \$10 M 0.75 % of Next \$15 M 0.60 % of Next \$25 M 0.50 % Thereafter
Emerald Advisors Small Cap	0.74	14,696,539	108,179	1.00 % of First \$2 M 0.75 % of Next \$8 M 0.60 % Thereafter
Emerald Advisors All Cap (EMWO)	0.60	6,189,313	37,136	0.60 % of Assets
Etho (EMWO)	0.47	1,888,513	8,876	0.47 % of Assets
CIM Small Cap (EMWO)	0.75	4,873	37	0.75 % of First \$5 M 0.40 % of Next \$10 M 0.25 % Thereafter
Cookson Peirce (EMWO)	0.50	2,915,192	14,576	0.50 % of Assets
Stoneridge Dynamic Small Cap Equity (EMWO)	0.60	2,022,618	12,136	0.60 % of Assets
International Equity				
SSgA ACWI ex US	0.07	40,759,597	28,532	0.07 % of Assets
Baillie Gifford Intl Equity	0.61	51,093,400	311,670	0.61 % of Assets
FIAM Select International Equity	0.32	34,693,607	111,173	0.34 % of First \$25 M 0.27 % of Next \$25 M 0.24 % of Next \$150 M 0.20 % Thereafter
Segall, Bryant & Hamill	0.61	40,439,035	246,976	0.75 % of First \$15 M 0.55 % of Next \$20 M 0.45 % of Next \$30 M 0.35 % Thereafter

Fee information on this page is an illustrative estimate of management fees based on current reported portfolio values. Fee estimates do not reflect actual calculation methodologies or applicable carried interest.

	Estimated Annual Fee (%)	Market Value (\$)	Estimated Annual Fee (\$)	Fee Schedule
Core Fixed w Israel Bonds				
C S McKee	0.25	35,800,703	89,502	0.25 % of Assets
Federated Core Broad	0.29	28,180,457	82,951	0.30 % of First \$25 M 0.25 % of Next \$25 M 0.20 % Thereafter
CIM Investment Mgmt	0.25	28,391,802	70,980	0.25 % of Assets
Emstone Partners (EMWO)	0.30	5,346,032	16,038	0.30 % of Assets
Gridiron Capital Fixed Income	0.65	14,288,033	92,872	0.65 % of Assets
Gridiron Capital Multi-Asset (EMWO)	0.75	3,813,026	28,598	Performance Based 0.75 % and 10.00 %
FNB (EMWO)	0.35	2,757,511	9,651	0.35 % of First \$5 M 0.30 % of Next \$5 M 0.25 % of Next \$10 M 0.20 % Thereafter
Israel Bonds	0.20	7,979,440	15,959	0.20 % of Assets
High Yield Fixed				
Oaktree High Yield	0.50	47,834,486	239,172	0.50 % of Assets
Federated High Yield	0.45	56,758,764	255,414	0.45 % of Assets
Sound Point	1.00	211,563	2,116	1.00 % of Assets
Real Estate				
Morgan Stanley Prime Property Fund	0.84	70,514,156	592,319	0.84 % of Assets
Oaktree Real Estate^	1.41	4,189,191	59,068	1.41 % of Assets
ERECT Fund II	1.35	11,044,326	149,098	1.35 % of Assets
Washington Alliance (EMWO)	1.50	14,102,045	211,531	1.50 % of Assets
Washington Alliance II (EMWO)	1.50	3,582,553	53,738	1.50 % of Assets
Siguler Guff Distressed RE^	1.26	5,263,660	66,322	1.26 % of Assets
Artemis Real Estate Partners Fund IV	1.50	2,001,689	30,025	1.50 % of Assets
Infrastructure				
JP Morgan Infrastructure Fund (IIF Hedged)	1.00	28,091,787	280,918	1.00 % of Assets
IFM Global Infrastructure LP	0.77	27,000,980	207,908	0.77 % of Assets
Liquid Policy Portfolio				
BlackRock Liquidity iShares Public Pension Fund*	0.08	24,493,879	19,595	0.08 % of Assets
Investments ex Private Equity		694,067,955	3,218,988	

^ Due to limitations in reporting as a result of the variable and commitment based fee structure, Mariner calculated an approximation for this noted fee schedule. This figure demonstrates the "effective" basis point charge, computed based on the most recently available assessed quarterly fee + expenses, divided by the ending market value. The actual fee schedule can be found in Appendix A.

* Estimated fee based on average of underlying funds

Fee information on this page is an illustrative estimate of management fees based on current reported portfolio values. Fee estimates do not reflect actual calculation methodologies or applicable carried interest.

Allegheny County Employees' Retirement System
2023 Private Investment Management Fee Summary
June 30, 2024

****All fee information provided by Asset Strategies**

	Commitment Amount \$	2023 Mgmt Fees \$
Total Private Equity w Life Settlement Composite	290,140,928.00	2,555,114.57
Accolade Partners V	3,000,000.00	11,250.00
Accolade Partners VI	2,250,000.00	-
Adams Street 2003 U.S. Fund	13,733,000.00	-
Adams Street 2008 Global	10,000,000.00	9,000.00
Adams Street 2009 Global	5,000,000.00	9,927.00
Auldbrass Spec Opps II	4,000,000.00	49,345.00
Birchmere Ventures IV	525,000.00	-
Blackrock Multi-Alternative Opps	3,000,000.00	25,821.00
Blackstone Tac Op I	2,000,000.00	124.00
Blackstone Tac Op II	3,000,000.00	8,536.00
Blackstone Tac Op III	5,000,000.00	60,173.00
CCA Black	7,500,000.00	69,029.00
CCA Longevity Fund VI LP	5,000,000.00	38,610.59
Commonfund Venture Partners XII*	3,000,000.00	20,942.67
Constitution Ironsides Direct Investment Fund IV	3,000,000.00	8,692.14
Constitution Ironsides Opportunities Fund	4,000,000.00	11,610.93
Constitution Ironsides Partnership Fund III	8,000,000.00	15,619.16
Crestline Opportunity Fund III	4,000,000.00	21,941.76
Crestline Recovery II	2,058,704.00	195.52
DCM Fund IV	3,000,000.00	22,500.00
Draper Triangle II	10,000,000.00	-
Draper Triangle III	13,500,000.00	133,974.00
Emerald Advisors Fin Srv I	2,000,000.00	40,000.00
Entrust Special Opportunities Fund III	3,000,000.00	13,417.00
Entrust Special Opportunities Fund IV	3,000,000.00	31,214.00
Farol Fund II	4,000,000.00	40,000.00
Five Points III	3,000,000.00	25,000.00
Glouston Private Equity Opportunities IV	3,000,000.00	3,389.00
Goldman Sachs Private Equity Partners 2004	10,000,000.00	-
Greenspring Early Stage I LP	4,000,000.00	71,017.00
Greenspring Opportunities II-A	3,000,000.00	-
Greenspring Opportunities III	3,000,000.00	57,000.00
Greenspring Opportunities IV	3,000,000.00	60,000.00
Greenspring Opportunities V	3,000,000.00	60,232.00
Greenspring Secondaries I	1,000,000.00	10,000.00
Greenspring Secondaries II	2,000,000.00	20,000.00

****All fee information provided by Asset Strategies**

	Commitment Amount \$	2023 Mgmt Fees \$
iNetworks INOF II	2,349,140.00	46,982.80
iNetworks Opportunity Fund	11,000,000.00	220,000.00
iNetworks Opportunity Fund II	12,500,000.00	250,000.00
JMI Equity Fund IX-A	3,000,000.00	44,955.00
Magarac Ventures	10,000,000.00	200,000.00
Mellon PAM Fund V	10,000,000.00	-
Mesirow Partners Fund IV	17,000,000.00	43,112.00
North Haven Capital Partners VI	3,000,000.00	30,000.00
North Haven Senior Loan Fund	4,000,000.00	40,576.00
Pharos Capital Partners III	3,000,000.00	23,081.00
PLSG Accelerator Fund	250,000.00	-
Valstone Partners V	20,000,000.00	271,284.00
Valstone Partners VI	20,000,000.00	275,808.00
Valstone Senior Living	12,475,084.00	160,755.00

**Commonfund Ven XII mangement fees for 2023 estimate based on Committed Amount and fee percent outlined in fund documents*

Oaktree Real Estate Opportunities VI LP Fee Calculation

The annual Management Fee shall be an amount equal to the sum of the amounts determined with respect to each Limited Partner as follows: (a) prior to the end of the Investment Period, the product of the Management Fee Percentage attributable to such Limited Partner's Capital Commitment and the Capital Commitment of such Limited Partner and (b) from and after the day following the end of the Investment Period, the product of the Management Fee Percentage attributable to such Limited Partner's Capital Commitment and the lesser of (i) such Limited Partner's allocable portion of the Aggregate Contributed Capital and (ii) such Limited Partner's allocable portion of the cost basis of the Permitted Investments held by the Fund as of the end of the next-to-last month of the immediately preceding calendar quarter.

Siguler Guff Distressed Real Estate Opportunities Fund II, LP Fee Calculation

A management fee shall be payable with respect to each Limited Partner by the Partnership to the Investment Manager (the "Management Fee") quarterly in arrears on the last day of each fiscal quarter. Up to and including the end of the Direct Investment Commitment Period or, if earlier, the date on which pursuant to Section 7.03(b) the Partners and Parallel Company Partners have voted to require the General Partner to cease making both Direct Investments and additional commitments to Funds (the "Investment Termination Date"), the Management Fee, for each Limited Partner, shall be payable at that Limited Partner's Blended Rate multiplied by the aggregate amount of such Limited Partner's Capital Commitment. From and after the end of the Direct Investment Commitment Period or, if earlier, the Investment Termination Date, the Management Fee, for each Limited Partner, shall be payable at that Limited Partner's Applicable Percentage (as hereinafter defined) per annum multiplied by the aggregate amount of such Limited Partner's Capital Commitment. The "Blended Rate" shall be a percentage of a Limited Partner's Capital Commitment calculated by combining (x) one percent (1%) per annum on the first \$10,000,000 of such Limited Partner's Capital Commitment, (y) eighty-five one hundredths of one percent (0.85%) per annum on the next \$40,000,000 of such Limited Partner's Capital Commitment and (z) five tenths of one percent (0.50%) per annum on such Limited Partner's remaining Capital Commitment. The "Applicable Percentage" shall represent an amount equal to eighty percent (80%) of the Blended Rate used to calculate the Management Fee for the preceding year. For example, in the first year following the termination of the Direct Investment Commitment Period or the Investment Termination Date, as the case may be, the Applicable Percentage with respect to Limited Partners with Capital Commitments less than or equal to \$10,000,000 (and therefore with Blended Rates of 1%) shall be 0.80% (80% of 1%), and for the following year, the Applicable Percentage shall be 0.64% (80% of 0.80%).

Active Return	- Arithmetic difference between the manager's performance and the designated benchmark return over a specified time period.
Alpha	- A measure of the difference between a portfolio's actual performance and its expected return based on its level of risk as determined by beta. It determines the portfolio's non-systemic return, or its historical performance not explained by movements of the market.
Beta	- A measure of the sensitivity of a portfolio to the movements in the market. It is a measure of the portfolio's systematic risk.
Consistency	- The percentage of quarters that a product achieved a rate of return higher than that of its benchmark. Higher consistency indicates the manager has contributed more to the product's performance.
Distributed to Paid In (DPI)	- The ratio of money distributed to Limited Partners by the fund, relative to contributions. It is calculated by dividing cumulative distributions by paid in capital. This multiple shows the investor how much money they got back. It is a good measure for evaluating a fund later in its life because there are more distributions to measure against.
Down Market Capture	- The ratio of average portfolio performance over the designated benchmark during periods of negative returns. A lower value indicates better product performance
Downside Risk	- A measure similar to standard deviation that utilizes only the negative movements of the return series. It is calculated by taking the standard deviation of the negative quarterly set of returns. A higher factor is indicative of a riskier product.
Excess Return	- Arithmetic difference between the manager's performance and the risk-free return over a specified time period.
Excess Risk	- A measure of the standard deviation of a portfolio's performance relative to the risk free return.
Information Ratio	- This calculates the value-added contribution of the manager and is derived by dividing the active rate of return of the portfolio by the tracking error. The higher the Information Ratio, the more the manager has added value to the portfolio.
Public Market Equivalent (PME)	- Designs a set of analyses used in the Private Equity Industry to evaluate the performance of a Private Equity Fund against a public benchmark or index.
R-Squared	- The percentage of a portfolio's performance that can be explained by the behavior of the appropriate benchmark. A high R-Squared means the portfolio's performance has historically moved in the same direction as the appropriate benchmark.
Return	- Compounded rate of return for the period.
Sharpe Ratio	- Represents the excess rate of return over the risk free return divided by the standard deviation of the excess return. The result is an absolute rate of return per unit of risk. A higher value demonstrates better historical risk-adjusted performance.
Standard Deviation	- A statistical measure of the range of a portfolio's performance. It represents the variability of returns around the average return over a specified time period.
Total Value to Paid In (TVPI)	- The ratio of the current value of remaining investments within a fund, plus the total value of all distributions to date, relative to the total amount of capital paid into the fund to date. It is a good measure of performance before the end of a fund's life
Tracking Error	- This is a measure of the standard deviation of a portfolio's returns in relation to the performance of its designated market benchmark.
Treynor Ratio	- Similar to Sharpe ratio but utilizes beta rather than excess risk as determined by standard deviation. It is calculated by taking the excess rate of return above the risk free rate divided by beta to derive the absolute rate of return per unit of risk. A higher value indicates a product has achieved better historical risk-adjusted performance.
Up Market Capture	- The ratio of average portfolio performance over the designated benchmark during periods of positive returns. A higher value indicates better product performance.

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Methodology for this Award: For the 2022 Greenwich Quality Award for Overall U.S. Investment Consulting – Midsize Consultants – Between February and November 2022, Coalition Greenwich conducted interviews with 727 individuals from 590 of the largest tax-exempt funds in the United States. These U.S.-based institutional investors are corporate and union funds, public funds, and endowment and foundation funds, with either pension or investment pool assets greater than \$150 million. Study participants were asked to provide quantitative and qualitative evaluations of their asset management and investment consulting providers, including qualitative assessments of those firms soliciting their business and detailed information on important market trends.

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