

Investment Performance Review
Period Ending September 30, 2023

Erie County Employees Retirement Plan



3rd Quarter 2023 Market Environment



The Economy

- The US Federal Reserve Bank (the Fed) continued to increase interest rates during the quarter with an additional 0.25% increase in the Fed Funds rate in late July, followed by a pause at the September Federal Open Market Committee (FOMC) meeting. The Fed continues to prioritize fighting high inflation with the press release from the July meeting detailing the FOMC's commitment to returning inflation to its 2% target rate. In addition, the committee members have agreed to continue reducing the Fed's balance sheet by reducing holdings in Treasuries, agency debt and agency mortgage-backed securities.
- The US labor market continues to show signs of weakening. Private payroll growth for the month of September showed growth well below estimates, coming in at just 89,000 new jobs for the month.
- Capital market yields have risen to their highest levels in over a decade as market participants are demanding a greater premium on long-term Treasury securities. The 30-year Treasury yield jumped 0.88% during the quarter signaling that market participants are anticipating higher levels of both inflation and policy interest rates.
- The Atlanta Fed's GDPNow model's projected third-quarter GDP growth has been revised upward from the original estimates of 3.5% in July to 4.9% at the end of September. The main drivers of the upward revisions came in August upon the release of personal consumption and private domestic investment data from the US Bureau of Labor and Statistics.

Equity (Domestic and International)

- US equities moved broadly lower during the third quarter. The selloff was agnostic to size and style as all major domestic equity benchmarks finished the quarter with losses in the mid to high single-digit territory. After its encouraging performance in the second quarter, the large-cap S&P 500 benchmark fell by -3.3% for the third quarter. Small-cap stocks faced a deeper drawdown over the period with the Russell 2000 returning -5.1%. Contributing factors to this quarter's performance were, unsurprisingly, related to interest rates and the overall level of inflation in the economy.
- International stocks also came under pressure during the third quarter, reversing their positive results from last quarter. China continues to show signs of weakness as the cost of debt increases globally. Given China's large weight in the MSCI Emerging Market Index and its economic influence in the region, future prospects of growth for southeast Asia will be largely dependent on the strength of future growth for the country.

Fixed Income

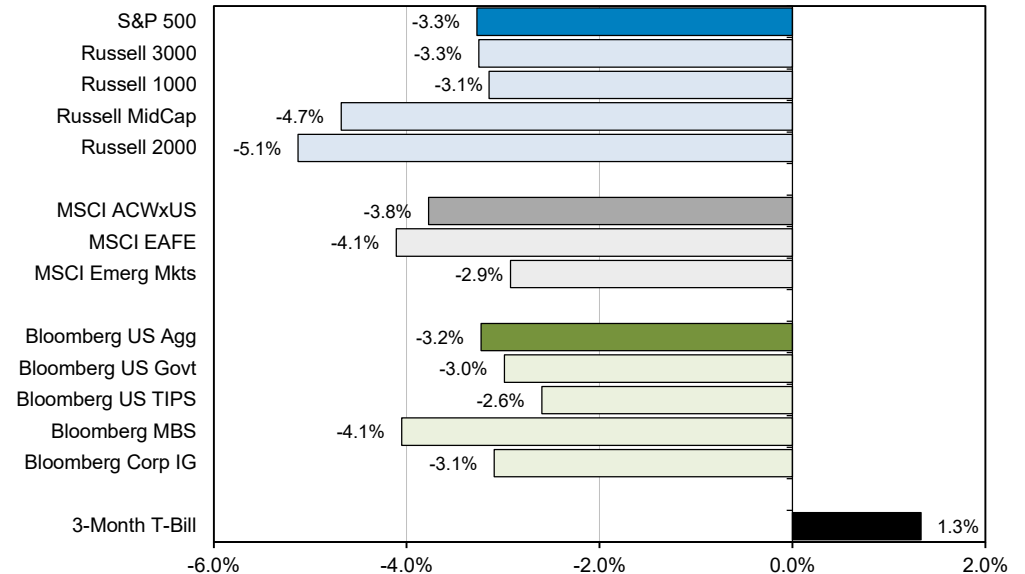
- While the US economy continues to see signs of disinflation, many of the Fed's preferred gauges continue to show inflation above their long-term target. During the quarter, the Fed maintained its inflation-fighting policy stance, increasing interest rates by 0.25% in July but opting to pause in September. The additional rate hike in July along with the possibility that additional rate hikes could occur later in the year, drove capital market yields sharply higher during the quarter.
- The mortgage-backed sector was the worst-performing sector during the quarter as the 10-year Treasury yield hit its highest level in 16 years. US Government securities were the worst-performing sector during the previous 12 months. US Treasuries have lagged corporate and securitized sectors as yields at longer maturities rose significantly and credit availability has tightened since last year.
- High-yield corporate bonds have held up better than higher-quality issues, aided by narrowing credit spreads, higher coupons, and generally shorter maturities. High-yield bonds were the best-performing segment of the domestic bond market during the quarter and on a trailing 12-month basis.

Market Themes

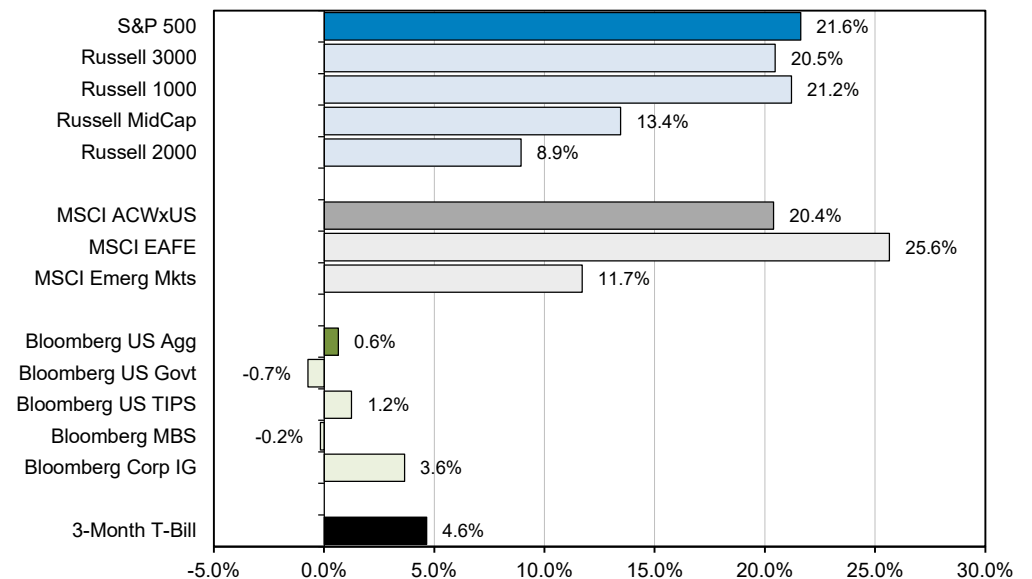
- Economies around the globe continue to struggle with taming inflation. Markets are beginning to experience pressures brought on by higher costs of debt and pricing in expectations of higher interest rates for longer than originally anticipated. US Treasury yields on the long end of the par curve have risen sharply which threatens to undercut the economy by markedly raising borrowing costs.
- While energy costs have subsided from the initial shock of the Russian invasion in 2022, oil prices have been driven higher in recent months due to cuts in global production. This was soon followed by consumer-led demand destruction and expectations are that prices could soon subside.
- Despite concerns about slowing economic growth, lower-quality corporate bonds continue to outperform the government sector.
- US and international equity markets have struggled to maintain their recovery after last year's disappointment. Expectations that inflation would continue to moderate and central banks would slow the pace of their monetary tightening cycles have not taken shape as quickly as originally anticipated, leaving the consumer disadvantaged by higher price levels, higher interest rates, and weak availability of credit.

- Domestic equity markets struggled in the third quarter, reverting from the performance posted in the first half of 2023. Strong performance from domestic equities markets earlier in the year was enough to overshadow the third quarter's negative returns, leading to positive results for most domestic equity benchmarks on a trailing one-year basis. Macroeconomic challenges faced by the US economy for the past several quarters finally weighed on market participants, leading to dismal market returns. For the period, the Russell 1000 large-cap benchmark returned -3.1 % versus -4.7% for the Russell Mid Cap Index and -5.1% for the Russell 2000 small-cap index.
- International developed and emerging market equities also delivered disappointing results, in line with their domestic counterparts. Europe continues to face geopolitical risks related to the conflict in Ukraine and rising interest rates. However, inflation has eased somewhat due to higher rates and more manageable energy prices. The developed-market MSCI EAFE Index returned -4.1% for the quarter and the MSCI Emerging Markets Index fell by -2.9%.
- The domestic bond market continued its decline during the quarter due to the Fed's decision to hike policy rates an additional 0.25% and a re-shaping of the Treasury yield curve. The Bloomberg US Aggregate Index returned -3.2% for the quarter and investment-grade corporate bonds returned a similar -3.1%.
- Over the one-year trailing period, US equity markets were positive as the disappointing performance from much of 2022 rolled off. The S&P 500 Index climbed 21.6% for the trailing 12 months. The weakest relative performance for the year was the Russell 2000 Index, which still rose 8.9% over the last 12 months.
- International markets also shook off their poor 2022 performance. Over the trailing one-year period, the MSCI EAFE Index was the best-performing equity benchmark, returning 25.6% while the MSCI Emerging Markets Index posted a more modest 11.7%.
- Bond markets were generally flat over the previous 12 months. Investment-grade corporate bonds were the best-performing sector, posting a return of 3.6%. Meanwhile, Treasuries were negative, returning -0.7% over the previous 12 months. The bellwether fixed-income benchmark, the Bloomberg US Aggregate Index, returned a small, positive 0.6%.

Quarter Performance



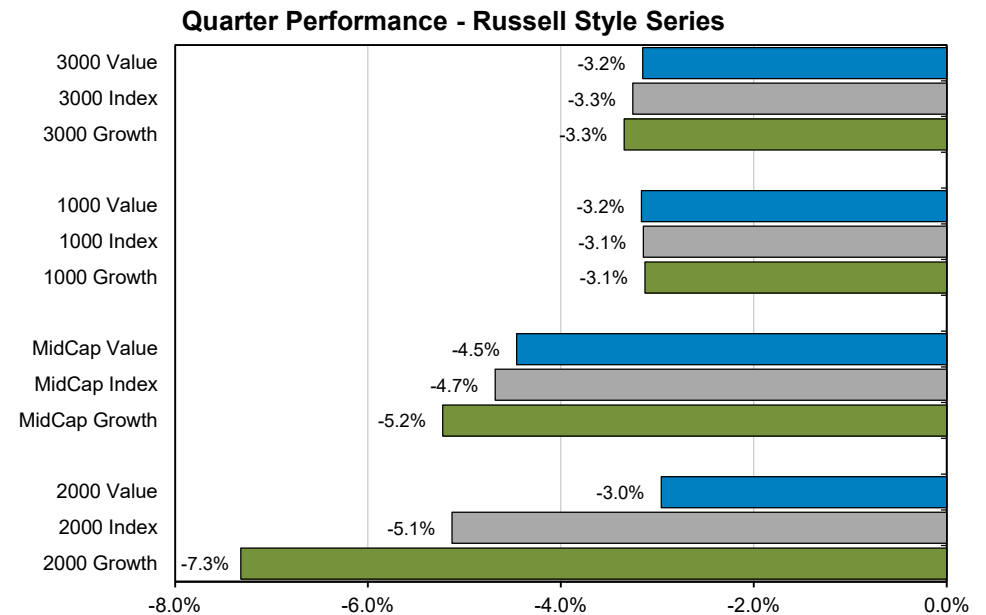
1-Year Performance



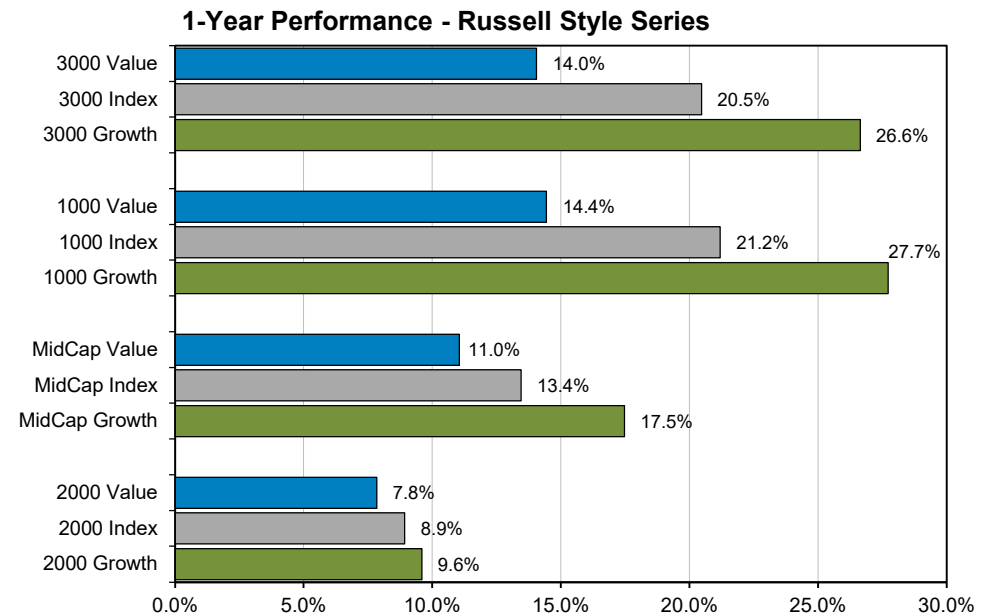
Source: Investment Metrics



- During the third quarter, core domestic equity benchmarks reversed course from their encouraging first-half 2023 performance. The selloff was agnostic to style as growth and value were down -3.3% and -3.2% respectively for the Russell 3000 Index, the broad market benchmark.
- Large-cap stocks once again led results for the capitalization-based benchmarks, besting both the mid-cap and small-cap indices for the quarter. Russell 1000 Index fell by -3.1% while the Russell 2000 Index fell by -5.1%.
- Among large-cap stocks, performance was relatively uniform across the style spectrum as growth fell by -3.1% and value fell by -3.2%. However, among small-cap stocks, performance across the style spectrum was disparate as growth fell by -7.3% and value fell by just -3.0%.



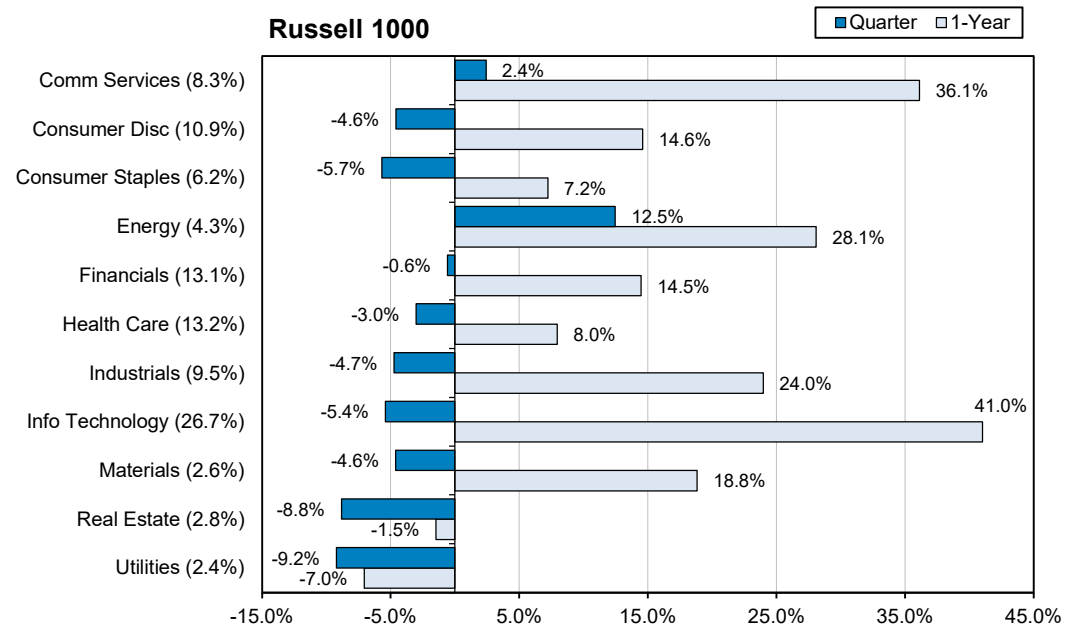
- The third quarter's reversal for domestic equity markets did not eclipse the rebound seen in the asset class during the first half of 2023 as each of the Russell indices were positive on a trailing 12-month basis. Within large-cap stocks, the Russell 1000 Growth Index maintains sizable dominance, returning 27.7% and leading the way among style-and-market-capitalization classifications. The worst-performing sub-index was the Russell 2000 Value, which posted a modest 7.8% return for the trailing 12 months.
- Growth rebounded from disappointing results in early 2022 and continues to lead value-based benchmarks in all market capitalization ranges over the trailing year. The Russell 2000 Growth Index returned 9.6%, outpacing the Russell 2000 Value Index return of 7.8%. The Russell 1000 Growth and Russell Midcap Growth benchmarks gained 27.7% and 17.5%, respectively, while their corresponding value index counterparts returned solid, but lagging, performance of 14.4% and 11.0%, respectively.



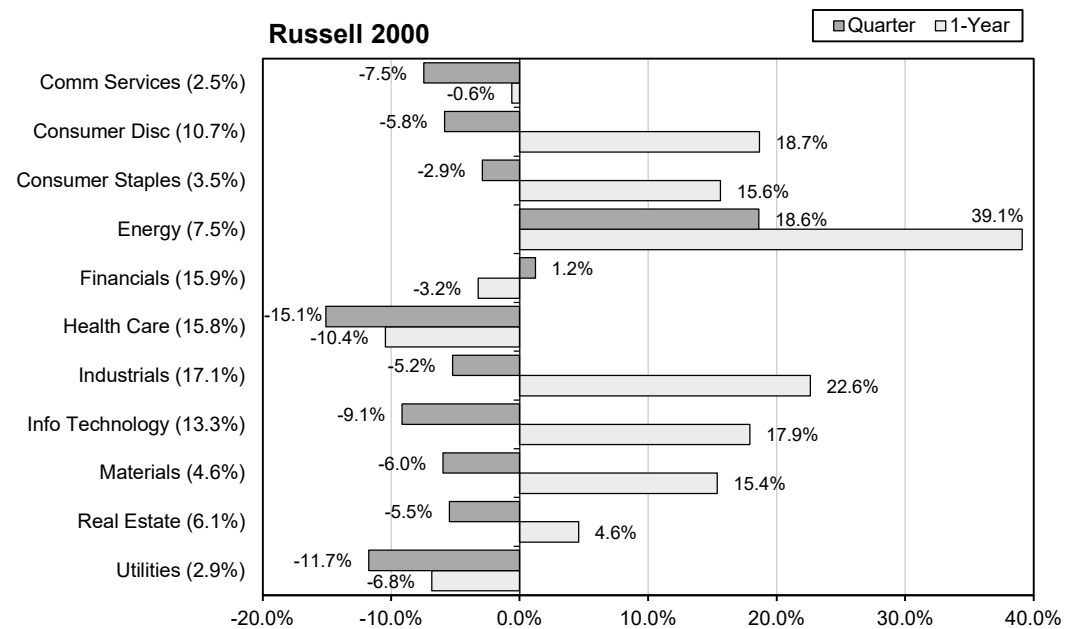
Source: Investment Metrics



- Performance of the large-cap Russell 1000 Index was affected by negative performance in nine of 11 economic sectors during the quarter. However, four of the 11 sectors managed to outpace the core large-cap index.
- While domestic equities experienced challenges during the quarter, the energy sector managed a solid return of 12.5%. The other three sectors that outpaced the headline large-cap index's -3.1% return for the quarter were communication services (2.4%), financials (-0.6%) and health care (-3.0%). The worst-performing sectors during the quarter were utilities (-9.2%), and real estate (-8.8%).
- For the full year, four economic sectors exceeded the return of the broad large-cap index, and nine of the 11 sectors posted positive performance. The weakest economic sectors in the Russell 1000 for the year were utilities, and real estate which declined by -7.0% and -1.5%, respectively. Both sectors have been heavily impacted by rising energy costs and a market rotation away from defensive names.



- Nine of 11 economic sectors in the small-cap benchmark posted negative results during the quarter while just three exceeded the -5.1% return of the Russell 2000 Index. The health care (-15.1%) and utilities (-11.7%) sectors detracted the most from small-cap performance, lagging the broad benchmark for the quarter. The two economic sectors that were positive for the quarter were energy (18.6%), and financials (1.2%).
- Similar to their large-cap peers, seven small-cap sectors were positive for the trailing 12 months. Energy posted the strongest sector result (39.1%) while the industrials sector also posting a return of more than 20% for the last 12 months. Just four of the 11 economic sectors fell short of the core small-cap benchmark's return of 8.9% over the trailing year. The worst-performing sector for the year was health care with a return of -10.4%. The utilities (-6.8%), financials (-3.2%), and communication services (-0.6%) sectors also posted negative results for the year.



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 September 30, 2023

Top 10 Weighted Stocks				
Russell 1000	Weight	1-Qtr Return	1-Year Return	Sector
Apple Inc	6.4%	-11.6%	24.6%	Information Technology
Microsoft Corp	5.9%	-7.1%	36.9%	Information Technology
Amazon.com Inc	2.9%	-2.5%	12.5%	Consumer Discretionary
NVIDIA Corp	2.6%	2.8%	258.6%	Information Technology
Alphabet Inc Class A	2.0%	9.3%	36.8%	Communication Services
Tesla Inc	1.7%	-4.4%	-5.7%	Consumer Discretionary
Alphabet Inc Class C	1.7%	9.0%	37.1%	Communication Services
Meta Platforms Inc Class A	1.7%	4.6%	121.3%	Communication Services
Berkshire Hathaway Inc Class B	1.6%	2.7%	31.2%	Financials
Exxon Mobil Corp	1.2%	10.6%	39.1%	Energy

Top 10 Performing Stocks (by Quarter)				
Russell 1000	Weight	1-Qtr Return	1-Year Return	Sector
AppLovin Corp Ordinary Shares	0.0%	55.3%	105.0%	Information Technology
Vertiv Holdings Co Class A	0.0%	50.2%	283.0%	Industrials
Capri Holdings Ltd	0.0%	46.6%	36.9%	Consumer Discretionary
Rivian Automotive Inc Class A	0.0%	45.7%	-26.2%	Consumer Discretionary
Texas Pacific Land Corp	0.0%	38.8%	3.3%	Energy
Affirm Holdings Inc Ordinary Shares	0.0%	38.7%	13.4%	Financials
Splunk Inc	0.1%	37.9%	94.5%	Information Technology
H&R Block Inc	0.0%	36.2%	4.5%	Consumer Discretionary
Ollie's Bargain Outlet Holdings Inc	0.0%	33.2%	49.6%	Consumer Discretionary
Zions Bancorp NA	0.0%	31.4%	-28.4%	Financials

Bottom 10 Performing Stocks (by Quarter)				
Russell 1000	Weight	1-Qtr Return	1-Year Return	Sector
AMC Entertainment Holdings Inc	0.0%	-79.4%	-87.0%	Communication Services
Hawaiian Electric Industries Inc	0.0%	-65.0%	-62.4%	Utilities
NovoCure Ltd	0.0%	-61.1%	-78.7%	Health Care
Apellis Pharmaceuticals Inc	0.0%	-58.2%	-44.3%	Health Care
Viasat Inc	0.0%	-55.3%	-38.9%	Information Technology
Petco Health and Wellness Co Inc	0.0%	-54.0%	-63.4%	Consumer Discretionary
Driven Brands Holdings Inc	0.0%	-53.5%	-55.0%	Industrials
Olaplex Holdings Inc	0.0%	-47.6%	-79.6%	Consumer Staples
Masimo Corp	0.0%	-46.7%	-37.9%	Health Care
Spirit AeroSystems Holdings Inc	0.0%	-44.7%	-26.4%	Industrials

Top 10 Weighted Stocks				
Russell 2000	Weight	1-Qtr Return	1-Year Return	Sector
Super Micro Computer Inc	0.6%	10.0%	397.9%	Information Technology
Chart Industries Inc	0.3%	5.8%	-8.3%	Industrials
ChampionX Corp	0.3%	15.1%	84.2%	Energy
Chord Energy Corp Ordinary Shares	0.3%	6.3%	29.3%	Energy
Murphy Oil Corp	0.3%	19.1%	32.3%	Energy
Matador Resources Co	0.3%	14.0%	22.8%	Energy
Light & Wonder Inc Ordinary Shares	0.3%	3.7%	66.3%	Consumer Discretionary
Weatherford International PLC	0.3%	36.0%	179.7%	Energy
Simpson Manufacturing Co Inc	0.3%	8.4%	93.1%	Industrials
SPS Commerce Inc	0.3%	-11.2%	37.3%	Information Technology

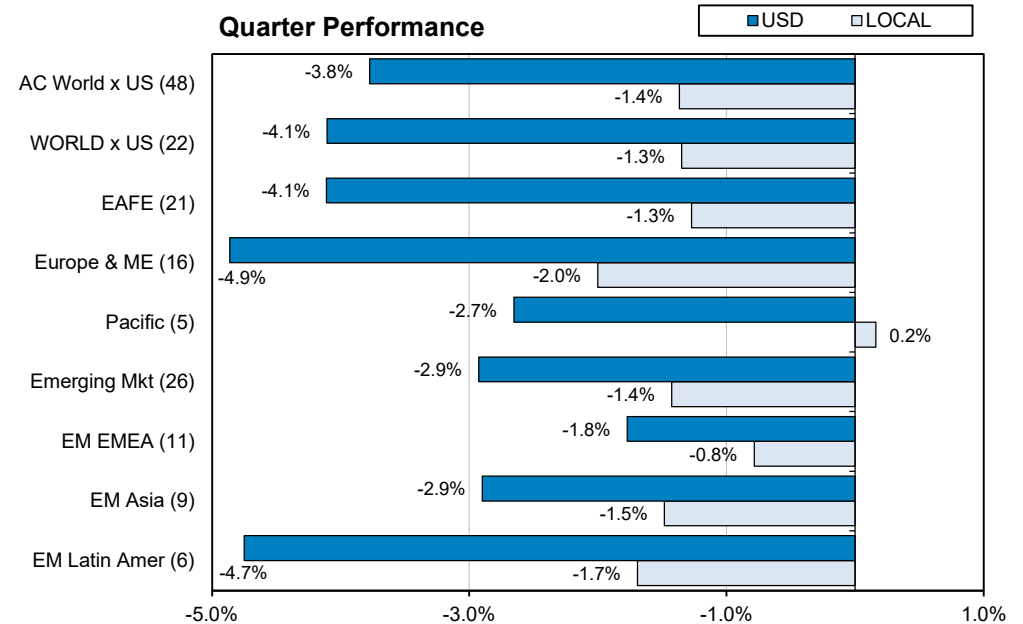
Top 10 Performing Stocks (by Quarter)				
Russell 2000	Weight	1-Qtr Return	1-Year Return	Sector
Tango Therapeutics Inc	0.0%	239.2%	211.0%	Health Care
PolyMet Mining Corp	0.0%	166.3%	-22.3%	Materials
Cardlytics Inc	0.0%	161.1%	75.5%	Communication Services
Telephone and Data Systems Inc	0.1%	124.8%	41.3%	Communication Services
Thorne HealthTech Inc	0.0%	116.8%	115.4%	Consumer Staples
Immunovant Inc	0.1%	102.4%	588.0%	Health Care
Tetra Technologies Inc	0.0%	88.8%	77.7%	Energy
NextNav Inc	0.0%	74.8%	91.1%	Information Technology
Centrus Energy Corp Class A	0.0%	74.3%	38.5%	Energy
Hallador Energy Co	0.0%	68.3%	156.6%	Energy

Bottom 10 Performing Stocks (by Quarter)				
Russell 2000	Weight	1-Qtr Return	1-Year Return	Sector
Outlook Therapeutics Inc	0.0%	-87.3%	-81.9%	Health Care
CXApp Inc Ordinary Shares	0.0%	-83.4%	-81.9%	Information Technology
Cano Health Inc Ordinary Shares	0.0%	-81.8%	-97.1%	Health Care
Loop Media Inc	0.0%	-79.2%	-88.9%	Communication Services
Akoustis Technologies Inc	0.0%	-76.3%	-74.6%	Information Technology
Benson Hill Inc	0.0%	-74.5%	-87.9%	Consumer Staples
TPI Composites Inc	0.0%	-74.4%	-76.5%	Industrials
Kodiak Sciences Inc	0.0%	-73.9%	-76.7%	Health Care
System1 Inc	0.0%	-73.1%	-80.8%	Communication Services
Presto Automation Inc	0.0%	-72.6%	-30.2%	Information Technology

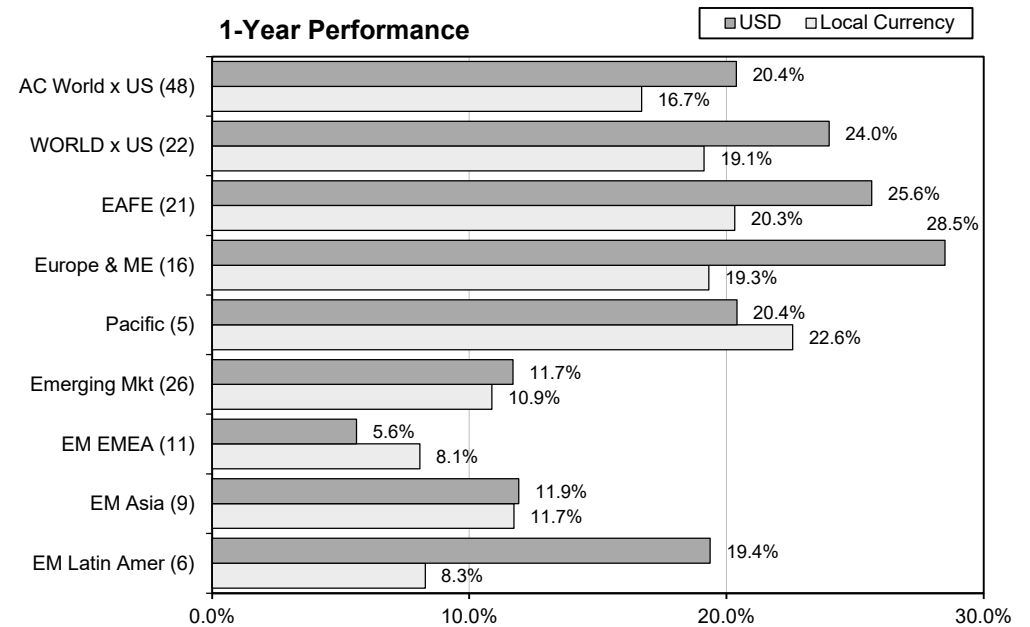
Source: Morningstar Direct



- International developed and emerging market benchmarks struggled in both US Dollar (USD) and local currency (LCL) terms. The strengthening USD contributed to weaker USD performance for non-US indices during the quarter. The developed-market MSCI EAFE Index struggled with a -4.1% return in USD and -1.3% in LCL terms for the period. The MSCI Emerging Markets Index fell by less than most developed market indices, returning -2.9% in USD and -1.4% in LCL terms.
- The EMEA index had the smallest drawdown for the quarter in USD terms, falling -1.8%. In local currency terms, the Pacific regional index exhibited a slight 0.2% gain during the quarter, the only positive return among its peers.



- Trailing one-year results were more appealing compared to the quarter's results. Much like domestic markets, trailing one-year performance for international developed and emerging markets rolled off their poor performance from 2022 resulting in strong returns for the trailing year. Additionally, LCL returns have outpaced USD returns for many developed markets due to the softening USD relative to many of the world's developed-market currencies over the year.
- Annual returns across emerging markets were broadly higher given their strong performance early in the year. Latin American results led the way with returns of 19.4% in USD and 8.3% in LCL terms. Performance in the EMEA regional benchmark detracted from emerging market index with the EMEA Index posting returns of 5.6% in USD and 8.1% in LCL terms. As a result, the broad MSCI Emerging Markets Index returned 11.7% in USD and 10.9% in LCL terms for the year.



Source: MSCI Global Index Monitor (Returns are Net)



The Market Environment
US Dollar International Index Attribution & Country Detail
As of September 30, 2023

MSCI - EAFE	Sector Weight	Quarter Return	1-Year Return
Communication Services	4.1%	-3.4%	14.4%
Consumer Discretionary	12.0%	-8.3%	32.8%
Consumer Staples	9.8%	-7.1%	9.9%
Energy	4.8%	11.6%	34.3%
Financials	19.1%	0.8%	33.9%
Health Care	13.4%	-3.1%	19.0%
Industrials	15.9%	-6.0%	32.9%
Information Technology	7.7%	-10.7%	29.2%
Materials	7.5%	-3.2%	23.7%
Real Estate	2.3%	-1.1%	5.4%
Utilities	3.4%	-8.8%	22.5%
Total	100.0%	-4.1%	25.6%

MSCI - ACWixUS	Sector Weight	Quarter Return	1-Year Return
Communication Services	5.5%	-4.9%	13.0%
Consumer Discretionary	11.9%	-5.6%	22.3%
Consumer Staples	8.4%	-6.4%	9.0%
Energy	6.0%	9.0%	27.3%
Financials	21.2%	-0.7%	22.0%
Health Care	9.7%	-2.8%	17.2%
Industrials	13.1%	-5.8%	28.2%
Information Technology	11.3%	-8.7%	29.0%
Materials	7.9%	-3.3%	16.2%
Real Estate	2.0%	-1.1%	4.7%
Utilities	3.1%	-7.9%	11.4%
Total	100.0%	-3.8%	20.4%

MSCI - Emerging Mkt	Sector Weight	Quarter Return	1-Year Return
Communication Services	9.6%	-5.9%	12.5%
Consumer Discretionary	13.7%	0.8%	5.1%
Consumer Staples	6.2%	-4.4%	4.6%
Energy	5.3%	6.3%	23.8%
Financials	22.3%	-1.7%	10.2%
Health Care	3.8%	-0.8%	4.1%
Industrials	6.7%	-4.6%	11.5%
Information Technology	20.2%	-6.8%	25.8%
Materials	8.0%	-3.1%	6.5%
Real Estate	1.7%	-0.6%	1.5%
Utilities	2.6%	-3.0%	-5.5%
Total	100.0%	-2.9%	11.7%

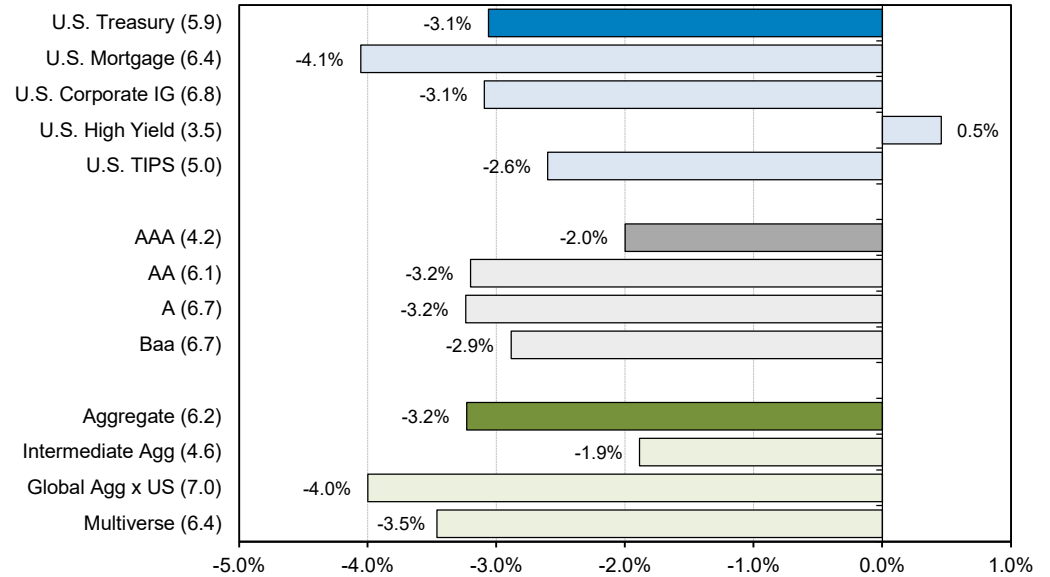
Country	MSCI-EAFE Weight	MSCI-ACWixUS Weight	Quarter Return	1-Year Return
Japan	22.9%	14.7%	-2.4%	23.3%
United Kingdom	15.3%	9.8%	-2.8%	20.0%
France	12.1%	7.7%	-7.1%	31.4%
Switzerland	9.9%	6.4%	-5.5%	13.7%
Germany	8.3%	5.3%	-7.7%	32.3%
Australia	7.4%	4.7%	-4.7%	10.4%
Netherlands	4.3%	2.7%	-14.1%	24.8%
Denmark	3.3%	2.1%	2.0%	52.0%
Sweden	3.1%	2.0%	-5.7%	17.9%
Spain	2.6%	1.7%	-4.1%	40.4%
Italy	2.6%	1.7%	-2.4%	47.8%
Hong Kong	2.3%	1.5%	-12.1%	-6.1%
Singapore	1.5%	0.9%	-2.1%	6.2%
Belgium	1.0%	0.6%	-0.2%	20.0%
Finland	0.9%	0.6%	-6.0%	-1.9%
Norway	0.7%	0.5%	10.7%	12.9%
Israel	0.7%	0.4%	4.5%	0.1%
Ireland	0.5%	0.4%	-7.7%	40.6%
Portugal	0.2%	0.1%	-8.9%	7.1%
New Zealand	0.2%	0.1%	-10.0%	12.2%
Austria	0.2%	0.1%	-0.6%	34.9%
Total EAFE Countries	100.0%	64.1%	-4.1%	25.6%
Canada		7.6%	-4.7%	8.7%
Total Developed Countries		71.7%	-4.1%	24.0%
China		8.5%	-1.9%	5.2%
India		4.5%	2.7%	10.1%
Taiwan		4.2%	-7.4%	21.8%
Korea		3.5%	-6.6%	26.2%
Brazil		1.5%	-3.6%	15.3%
Saudi Arabia		1.2%	-4.4%	-5.9%
South Africa		0.9%	-4.6%	6.7%
Mexico		0.7%	-6.5%	33.7%
Indonesia		0.6%	-3.4%	1.5%
Thailand		0.5%	-4.5%	0.1%
United Arab Emirates		0.4%	6.1%	2.2%
Malaysia		0.4%	4.5%	5.2%
Qatar		0.3%	0.1%	-17.8%
Kuwait		0.2%	-2.7%	-1.9%
Poland		0.2%	-12.7%	59.1%
Turkey		0.2%	32.7%	74.9%
Philippines		0.2%	-3.8%	17.7%
Chile		0.1%	-9.8%	3.3%
Greece		0.1%	-7.8%	70.6%
Peru		0.1%	-4.0%	29.9%
Hungary		0.1%	0.5%	75.9%
Czech Republic		0.0%	1.0%	35.7%
Colombia		0.0%	0.1%	15.9%
Egypt		0.0%	15.3%	48.4%
Total Emerging Countries		28.3%	-2.9%	11.7%
Total ACWixUS Countries		100.0%	-3.8%	20.4%

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.

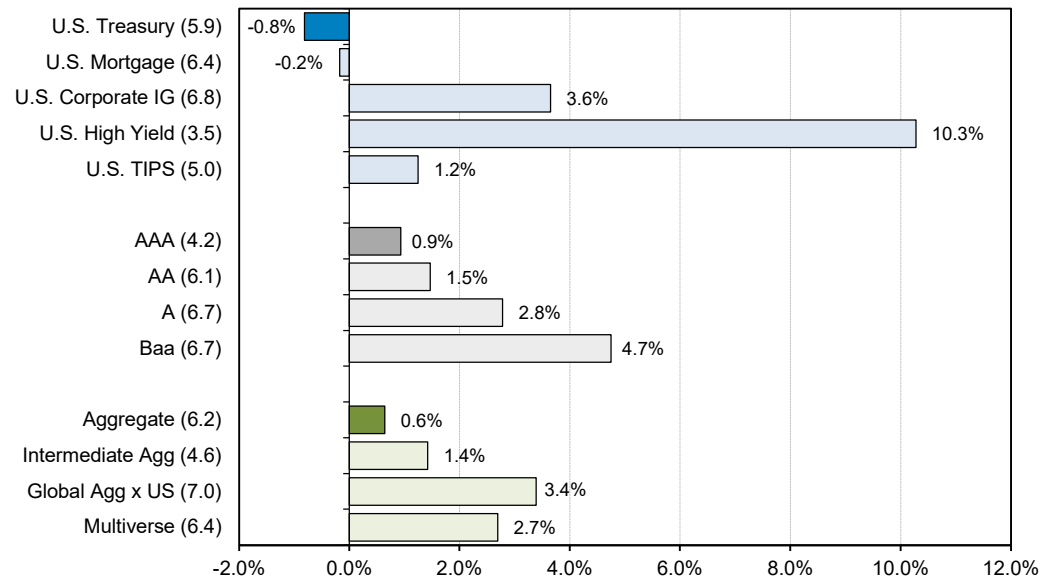


- Fixed income markets continued the decline that began in the second quarter. Yields remain elevated on the back of FOMC actions to hike policy rates throughout the year. After a challenging 2022 in fixed-income markets brought on by the largest and most rapid increase in interest rates since the early 1980s, higher yields and an expected slower pace of rate increases led investors to expect better outcomes in 2023. That expectation was challenged during the second and third quarters, as the additional 0.25% rate hike in July, and guidance toward potential future rate hikes weighed on the asset class and many of the major domestic fixed-income indices posted discouraging returns.
- The Bloomberg US Aggregate Bond Index, the bellwether US investment grade benchmark, declined -3.2% for the quarter. Beneath the headline benchmark, the Bloomberg US Corporate Investment Grade Index returned -3.1% and the US Mortgage Index posted a weaker -4.1%.
- Outside of the aggregate index's sub-components, high-yield bonds continued their rise with a return of 0.5% as credit spreads narrowed during the quarter. Additionally, US TIPS fell -2.6% for the quarter. The Bloomberg Global Aggregate ex-US Index lagged most domestic fixed-income indexes and the multiverse benchmark, posting a loss of -4.0% for the quarter.
- Over the trailing one-year period, the Bloomberg US Aggregate Bond Index gained just 0.6%. The benchmark's sub-components were highly dispersed with Treasuries falling -0.8% while corporate investment grade issues were up 3.6% over the previous 12 months. US TIPS, which are excluded from the aggregate index, increased by 1.2% for the year. High-yield corporate bonds, which have a much shorter duration, nearly tripled the returns of their investment grade counterparts with the Bloomberg US High Yield Index returning an impressive 10.3% for the trailing year.
- Performance for non-US bonds overcame the disappointing performance in 2022 with the Bloomberg Global Aggregate ex-US Index gaining 3.4%.

Quarter Performance



1-Year Performance

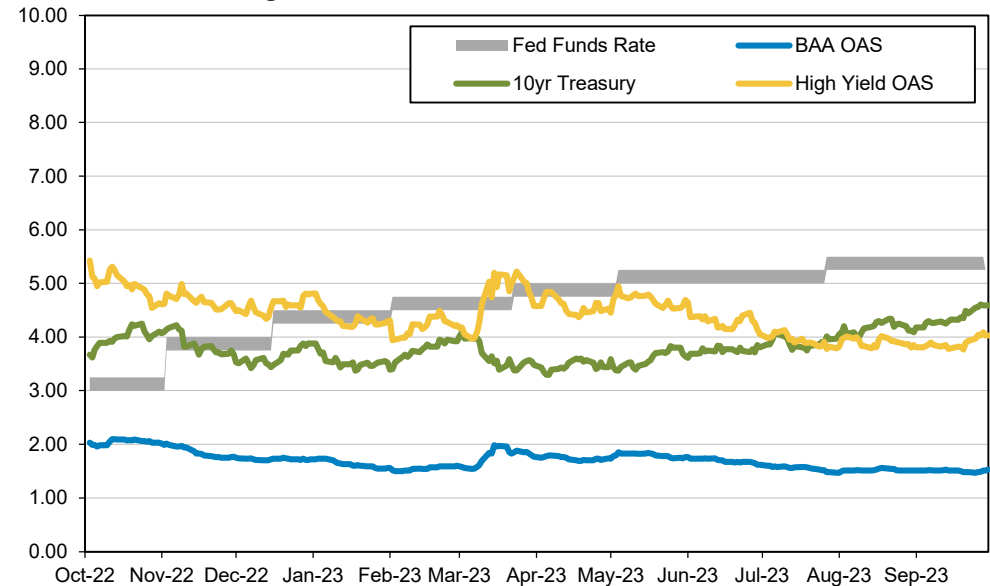


Source: Bloomberg

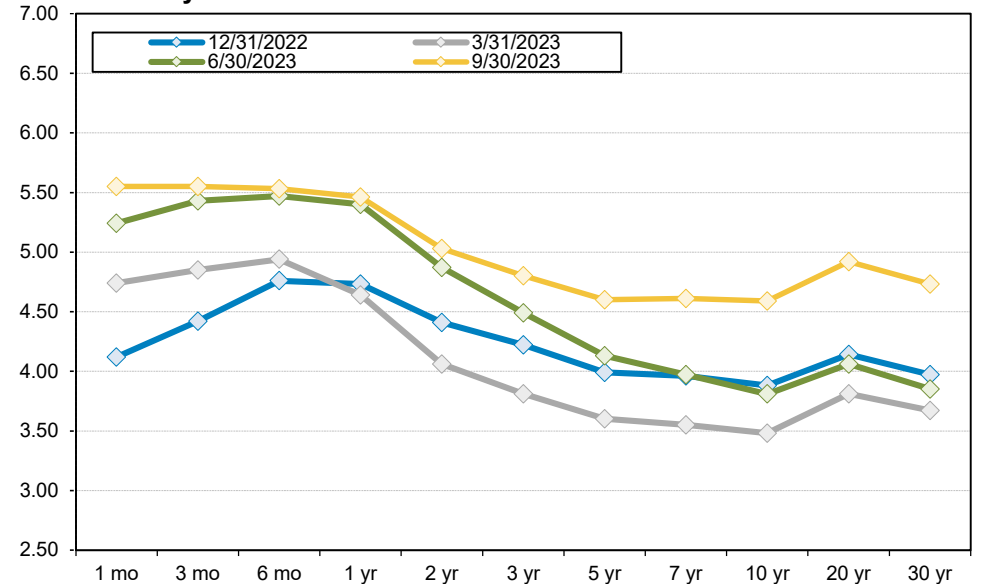


- The gray band across the graph illustrates the range of the current Fed Funds target rate. During the third quarter, the FOMC raised the lower end of its target rate range from 5.00% to 5.25% at their July meeting. While the FOMC paused further rate increases at their September meeting, several speeches and public comments since that meeting have made it clear that additional rate hikes should not be ruled out. While the overwhelming consensus has been that the Fed is moving towards the end of its rate hiking cycle, several statements and key macroeconomic statistics have shed doubt on timing of these expectations.
- The yield on the US 10-Year Treasury (green line) rose 0.78% largely due to increases in the policy rate and the potential for expected future inflationary pressure. The closing yield on the 10-Year Treasury was 4.59% as of September 29, 2023, and is up 71 basis points from its 3.88% yield at 2022 year-end. Capital market rates have now reached their highest levels in 16 years.
- The blue line illustrates changes in the BAA (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 investment grade issues with the lowest investment grade rating. For the full year, the spread narrowed from 2.05% to 1.53%, signaling a lower premium for credit risk than was the case a year prior. High-yield OAS spreads have narrowed from 5.92% in July 2022 to 4.03% as of the end of the quarter. Spikes in both the BAA OAS and High Yield spread measures were visible in the first quarter of 2023 following a short-lived crisis of confidence in the banking sector, which has since been addressed. Both spread measures traded lower on the news of the government's intervention, and as fears of possible contagion waned, credit spreads returned to their levels prior to February.
- The lower graph provides a snapshot of the US Treasury yield curve at the end of each of the last four quarters. Short-term rates continued to rise during the third quarter as the FOMC increased policy interest rates to continue combatting inflation. The Treasury yield curve has quickly exhibited a re-steepening with longer-term yields increasing at a faster pace than shorter-term yields. During the quarter, the 30-year yield jumped from 3.85% to 4.73% (an increase of 0.88%). Historically, a persistent inversion of the yield curve 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)



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- **The Fund's 3rd quarter return was -3.13% and its YTD return was 4.24%. As of 9-30-2023, the total Fund had an annualized 7-year return of 6.35%.**

- **The Fund's total equity weighting at 9-30-2023 was 51.5% versus its target equity weighting of 50%. Risk assets including public equities, private equity/debt, and private real estate as a percentage of the total Fund was 68.0%.**

- **In August, the Ironsides Direct Investment Fund V issued a capital call in the amount of \$605,745 with funding coming from the Vanguard S&P 500 Index fund.**

- **In September, the Hamilton Lane Secondary Fund VI issued a capital call in the amount of \$490,445 with funding coming from the Vanguard S&P 500 Index fund.**

- **In September, the Portfolio Advisors Co-Investment Fund III issued a distribution in the amount of \$447,179 received in the Cash Disbursement account.**

- **Bentall GreenOak US Core Plus Real Estate called \$1,666,667 on October 18th with funding coming from the Vanguard Russell 1000 Growth Index fund. There is still an additional \$4,222,221 yet to be called on the County's \$12M capital commitment.**

Wednesday, February 15, 2023 @ 12:00 pm

Hamilton Lane Private Equity

Adams Street Partners Private Equity

DFA Large Cap and International Equity

Review of Investment Policy Statement (Every February)

Wednesday, May 17, 2023 @ 12:00 pm

Boyd Watterson Fixed Income

Boyd Watterson GSA Real Estate

Review of Brokerage (Every May)

Wednesday, August 16, 2023 @ 12:00 pm

Emerald Advisors Small Cap Growth Equity

Constitution Capital Partners Private Equity

Vesper Capital Large Cap Core Equity

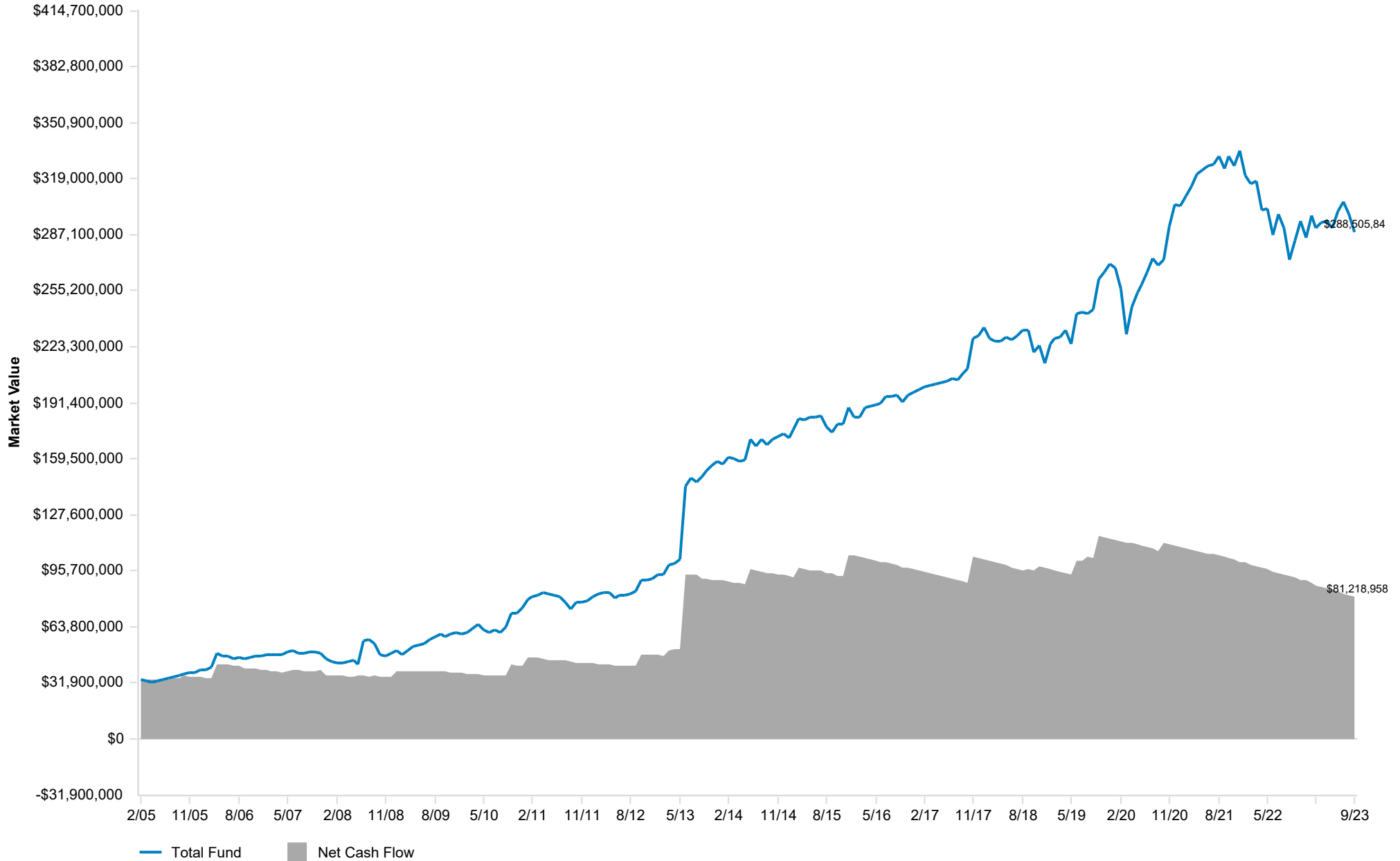
Wednesday, November 15, 2023 @ 12:00 pm

PNC Fixed Income and Custody

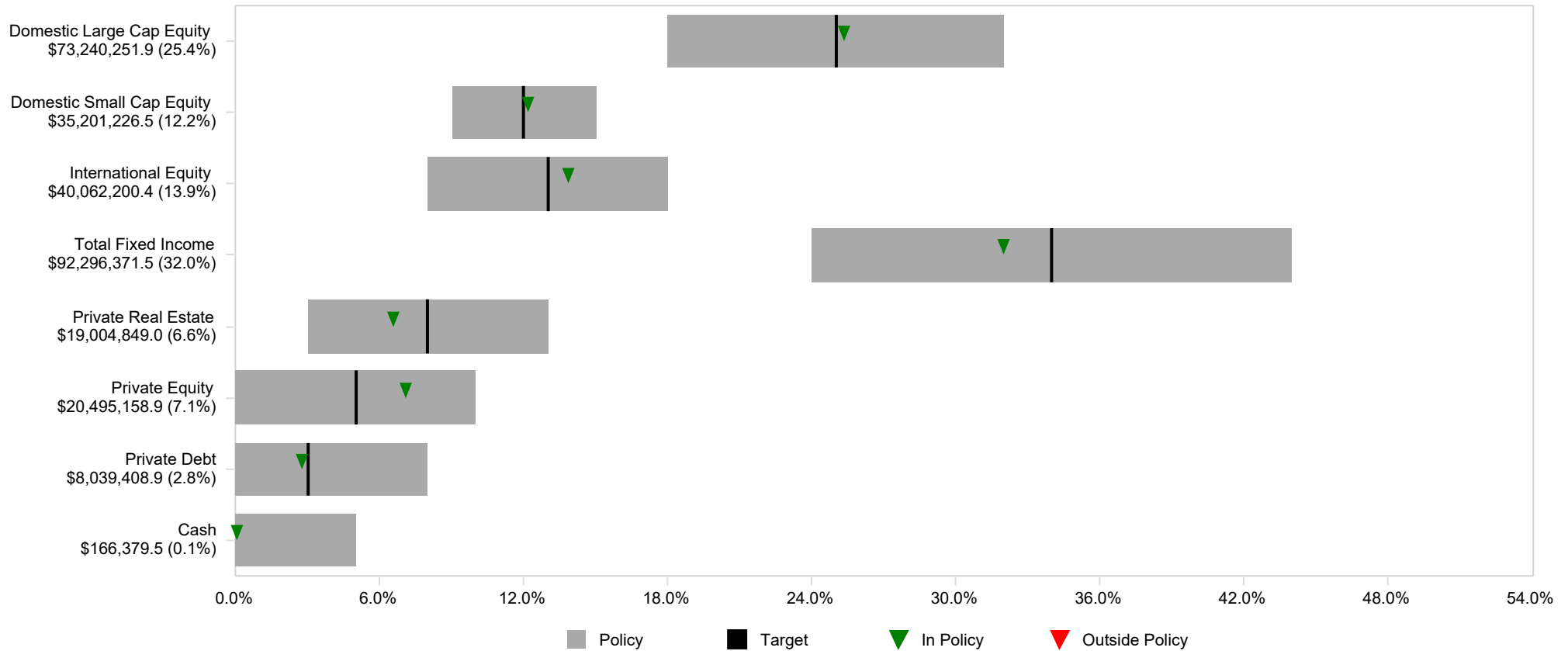
Allspring Global Small Cap Value Equity

Portfolio Advisors Private Equity

Schedule of Investable Assets



Executive Summary



Asset Allocation Compliance

	Asset Allocation \$	Current Allocation (%)	Minimum Allocation (%)	Maximum Allocation (%)	Target Allocation (%)
Total Fund	288,505,846	100.0	N/A	N/A	100.0
Domestic Large Cap Equity	73,240,252	25.4	18.0	32.0	25.0
Domestic Small Cap Equity	35,201,226	12.2	9.0	15.0	12.0
International Equity	40,062,200	13.9	8.0	18.0	13.0
Total Fixed Income	92,296,371	32.0	24.0	44.0	34.0
Private Real Estate	19,004,849	6.6	3.0	13.0	8.0
Private Equity	20,495,159	7.1	0.0	10.0	5.0
Private Debt	8,039,409	2.8	0.0	8.0	3.0
Cash	166,380	0.1	0.0	5.0	0.0



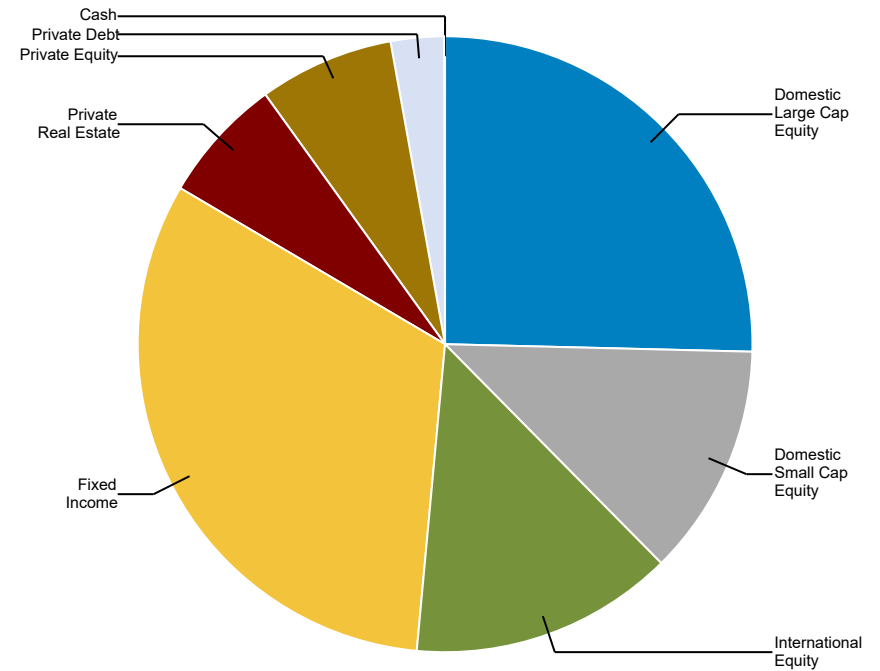
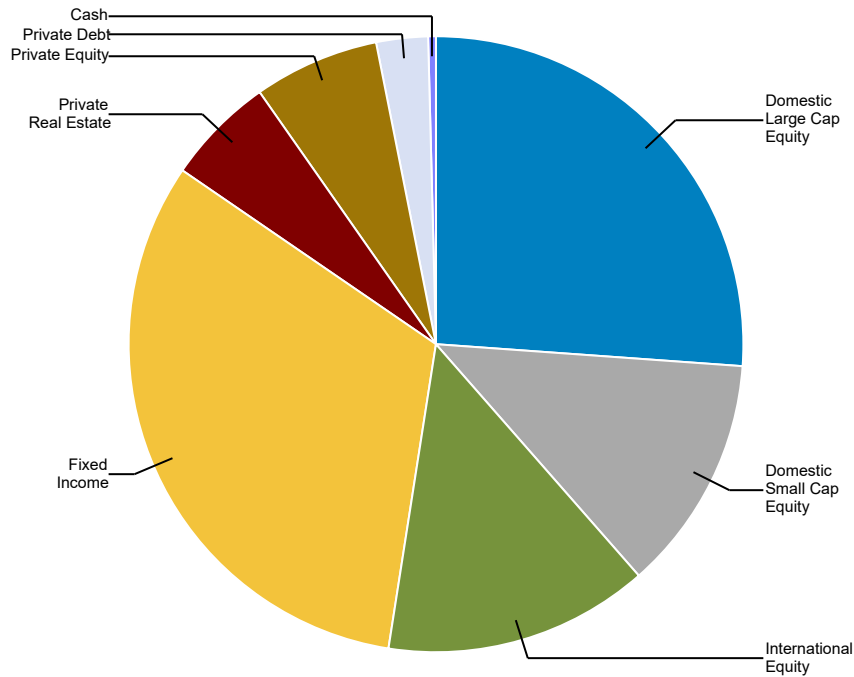
Asset Allocation By Asset Class

Total Fund

As of September 30, 2023

Jun-2023 : \$300,500,246

Sep-2023 : \$288,505,846

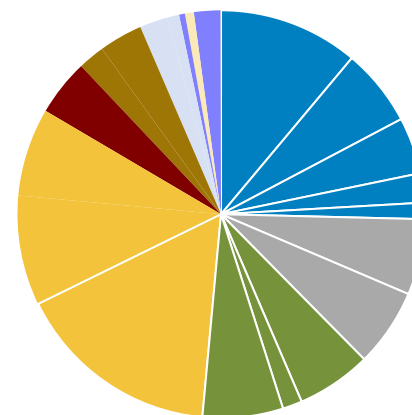
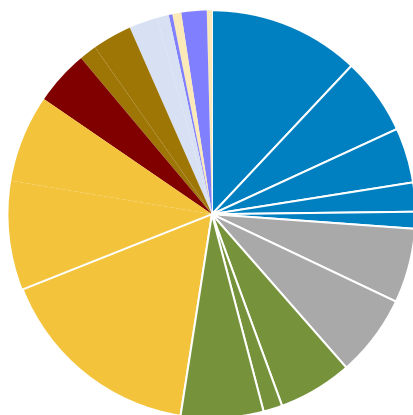


Allocation			Allocation		
	Market Value	Allocation		Market Value	Allocation
■ Domestic Large Cap Equity	78,540,388	26.1	■ Domestic Large Cap Equity	73,240,252	25.4
■ Domestic Small Cap Equity	37,244,325	12.4	■ Domestic Small Cap Equity	35,201,226	12.2
■ International Equity	41,897,468	13.9	■ International Equity	40,062,200	13.9
■ Total Fixed Income	96,398,456	32.1	■ Total Fixed Income	92,296,371	32.0
■ Private Real Estate	17,171,265	5.7	■ Private Real Estate	19,004,849	6.6
■ Private Equity	19,846,148	6.6	■ Private Equity	20,495,159	7.1
■ Private Debt	8,162,746	2.7	■ Private Debt	8,039,409	2.8
■ Cash	1,239,450	0.4	■ Cash	166,380	0.1



Jun-2023 : \$300,500,246

Sep-2023 : \$288,505,846



Allocation			Allocation		
	Market Value	Allocation		Market Value	Allocation
■ Vanguard S&P 500 Index Fund (VINIX)	36,092,345	12.0	■ Vanguard S&P 500 Index Fund (VINIX)	32,035,409	11.1
■ Vanguard Russell 1000 Growth Index (VRGWX)	18,389,999	6.1	■ Vanguard Russell 1000 Growth Index (VRGWX)	17,811,690	6.2
■ DFA Large Value Equity (DFLVX)	13,131,974	4.4	■ DFA Large Value Equity (DFLVX)	12,948,976	4.5
■ Vanguard Russell 1000 Value Index (VRVIX)	6,914,626	2.3	■ Vanguard Russell 1000 Value Index (VRVIX)	6,695,649	2.3
■ Vesper Capital Mgmt (UTRN)	4,011,445	1.3	■ Vesper Capital Mgmt (UTRN)	3,748,527	1.3
■ Allspring Global Small Value Eq.	17,734,153	5.9	■ Allspring Global Small Value Eq.	17,350,189	6.0
■ Emerald Small Growth Equity	19,510,172	6.5	■ Emerald Small Growth Equity	17,851,038	6.2
■ DFA International Equity (DFIEX)	17,670,908	5.9	■ DFA International Equity (DFIEX)	17,150,873	5.9
■ DFA Emerging Markets (DFCEX)	4,529,496	1.5	■ DFA Emerging Markets (DFCEX)	4,460,822	1.5
■ EuroPacific Growth Fund (RERGX)	19,697,064	6.6	■ EuroPacific Growth Fund (RERGX)	18,450,505	6.4
■ Boyd Watterson Fixed	49,647,613	16.5	■ Boyd Watterson Fixed	46,985,431	16.3
■ PNC Fixed	25,963,331	8.6	■ PNC Fixed	25,131,517	8.7
■ Vanguard Core Bond Fund (VCOBX)	20,787,512	6.9	■ Vanguard Core Bond Fund (VCOBX)	20,179,423	7.0
■ Bentall GreenOak/MEPT Real Estate	-	0.0	■ Bentall GreenOak/MEPT Real Estate	-	0.0
■ Boyd Watterson GSA Fund	13,016,271	4.3	■ Boyd Watterson GSA Fund	12,905,410	4.5
■ Bentall GreenOak US Core Plus RE	4,154,994	1.4	■ Bentall GreenOak US Core Plus RE	6,099,439	2.1
■ Ironsides Direct Investment Fund V	9,368,300	3.1	■ Ironsides Direct Investment Fund V	9,974,045	3.5
■ PA Co-Investment Fund III	6,817,156	2.3	■ PA Co-Investment Fund III	6,369,977	2.2
■ Adams Street Co-Investment Fund V	2,799,002	0.9	■ Adams Street Co-Investment Fund V	2,799,002	1.0
■ Hamilton Lane Secondary Fund VI	861,690	0.3	■ Hamilton Lane Secondary Fund VI	1,352,135	0.5
■ Ironsides Opportunities Fund	2,128,253	0.7	■ Ironsides Opportunities Fund	2,004,916	0.7
■ PA Credit Strategies Fund	6,034,493	2.0	■ PA Credit Strategies Fund	6,034,493	2.1
■ Cash Account	1,239,450	0.4	■ Cash Account	166,380	0.1



Financial Reconciliation								
	Market Value 07/01/2023	Net Transfers	Contributions	Distributions	Management Fees	Other Expenses	Return On Investment	Market Value 09/30/2023
Total Fund	300,500,246	-	3,118,832	-5,600,617	-114,631	-70,267	-9,327,717	288,505,846
Domestic Large Cap Equity	78,540,388	-3,040,635	-	-	-	-	-2,259,501	73,240,252
Vanguard S&P 500 Index Fund (VINIX)	36,092,345	-3,040,635	-	-	-	-	-1,016,300	32,035,409
Vanguard Russell 1000 Growth Index (VRGWX)	18,389,999	-	-	-	-	-	-578,308	17,811,690
DFA Large Value Equity (DFLVX)	13,131,974	-	-	-	-	-	-182,998	12,948,976
Vanguard Russell 1000 Value Index (VRVIX)	6,914,626	-	-	-	-	-	-218,977	6,695,649
Vesper Capital Mgmt (UTRN)	4,011,445	-	-	-	-	-	-262,917	3,748,527
Domestic Small Cap Equity	37,244,325	-	-	-	-	-	-2,043,099	35,201,226
Allspring Global Small Value Eq.	17,734,153	-	-	-	-	-	-383,964	17,350,189
Emerald Small Growth Equity	19,510,172	-	-	-	-	-	-1,659,134	17,851,038
International Equity	41,897,468	-	-	-	-	-	-1,835,268	40,062,200
DFA International Equity (DFIEX)	17,670,908	-	-	-	-	-	-520,035	17,150,873
DFA Emerging Markets (DFCEX)	4,529,496	-	-	-	-	-	-68,674	4,460,822
EuroPacific Growth Fund (RERGX)	19,697,064	-	-	-	-	-	-1,246,559	18,450,505
Total Fixed Income	96,398,456	-1,000,000	-	-	-	-	-3,102,085	92,296,371
Boyd Watterson Fixed	49,647,613	-1,000,000	-	-	-	-	-1,662,181	46,985,431
PNC Fixed	25,963,331	-	-	-	-	-	-831,814	25,131,517
Vanguard Core Bond Fund (VCOBX)	20,787,512	-	-	-	-	-	-608,090	20,179,423
Private Real Estate	17,171,265	1,944,445	-	-	-	-	-110,861	19,004,849
Bentall GreenOak/MEPT Real Estate	-	-	-	-	-	-	-	-
Boyd Watterson GSA Fund	13,016,271	-	-	-	-	-	-110,861	12,905,410
Bentall GreenOak US Core Plus RE	4,154,994	1,944,445	-	-	-	-	-	6,099,439
Private Equity	19,846,148	649,011	-	-	-	-	-	20,495,159
Ironsides Direct Investment Fund V	9,368,300	605,745	-	-	-	-	-	9,974,045
PA Co-Investment Fund III	6,817,156	-447,179	-	-	-	-	-	6,369,977
Adams Street Co-Investment Fund V	2,799,002	-	-	-	-	-	-	2,799,002
Hamilton Lane Secondary Fund VI	861,690	490,445	-	-	-	-	-	1,352,135
Private Debt	8,162,746	-123,337	-	-	-	-	-	8,039,409
Ironsides Opportunities Fund	2,128,253	-123,337	-	-	-	-	-	2,004,916
PA Credit Strategies Fund	6,034,493	-	-	-	-	-	-	6,034,493
Cash	1,239,450	1,570,517	3,118,832	-5,600,617	-114,631	-70,267	23,096	166,380
Cash Account	1,239,450	1,570,517	3,118,832	-5,600,617	-114,631	-70,267	23,096	166,380



Financial Reconciliation								
	Market Value 01/01/2023	Net Transfers	Contributions	Distributions	Management Fees	Other Expenses	Return On Investment	Market Value 09/30/2023
Total Fund	285,172,494	-	9,311,365	-17,656,448	-377,213	-167,703	12,223,351	288,505,846
Domestic Large Cap Equity	70,280,543	-5,040,635	-	-	-	-	8,000,344	73,240,252
Vanguard S&P 500 Index Fund (VINIX)	31,824,022	-4,040,635	-	-	-	-	4,252,022	32,035,409
Vanguard Russell 1000 Growth Index (VRGWX)	14,259,327	-	-	-	-	-	3,552,364	17,811,690
DFA Large Value Equity (DFLVX)	12,669,538	-	-	-	-	-	279,437	12,948,976
Vanguard Russell 1000 Value Index (VRVIX)	7,569,545	-1,000,000	-	-	-	-	126,104	6,695,649
Vesper Capital Mgmt (UTRN)	3,958,111	-	-	-	-	-	-209,584	3,748,527
Domestic Small Cap Equity	42,617,837	-9,500,000	-	-	-	-	2,083,390	35,201,226
Allspring Global Small Value Eq.	23,468,455	-7,500,000	-	-	-	-	1,381,733	17,350,189
Emerald Small Growth Equity	19,149,381	-2,000,000	-	-	-	-	701,657	17,851,038
International Equity	38,738,368	-1,000,000	-	-	-	-	2,323,832	40,062,200
DFA International Equity (DFIEX)	17,023,164	-1,000,000	-	-	-	-	1,127,709	17,150,873
DFA Emerging Markets (DFCEX)	4,167,693	-	-	-	-	-	293,129	4,460,822
EuroPacific Growth Fund (RERGX)	17,547,511	-	-	-	-	-	902,994	18,450,505
Total Fixed Income	78,034,368	15,606,109	-	-	-	-	-1,344,105	92,296,371
Boyd Watterson Fixed	34,787,597	12,750,000	-	-	-	-	-552,166	46,985,431
PNC Fixed	22,391,930	3,000,000	-	-	-	-	-260,412	25,131,517
Vanguard S-T Invst Grade Bond Fund (VFSIX)	20,854,841	-21,143,891	-	-	-	-	289,051	-
Vanguard Core Bond Fund (VCOBX)	-	21,000,000	-	-	-	-	-820,577	20,179,423
Private Real Estate	28,450,669	-9,124,586	-	-	-44,375	-	-276,859	19,004,849
Bentall GreenOak/MEPT Real Estate	11,350,655	-11,069,031	-	-	-23,849	-	-257,775	-
Boyd Watterson GSA Fund	13,030,448	-	-	-	-	-	-125,038	12,905,410
Bentall GreenOak US Core Plus RE	4,069,566	1,944,445	-	-	-20,526	-	105,954	6,099,439
Private Equity	16,820,728	2,613,536	-	-	-	-	1,060,895	20,495,159
Ironsides Direct Investment Fund V	9,240,148	605,745	-	-	-	-	128,152	9,974,045
PA Co-Investment Fund III	6,995,010	-980,027	-	-	-	-	354,994	6,369,977
Adams Street Co-Investment Fund V	585,570	2,000,000	-	-	-	-	213,432	2,799,002
Hamilton Lane Secondary Fund VI	-	987,818	-	-	-	-	364,317	1,352,135
Private Debt	8,976,700	-1,223,091	-	-	-	-	285,799	8,039,409
Ironsides Opportunities Fund	3,070,761	-1,223,091	-	-	-	-	157,245	2,004,916
PA Credit Strategies Fund	5,905,939	-	-	-	-	-	128,554	6,034,493
Cash	1,253,282	7,668,667	9,311,365	-17,656,448	-332,838	-167,703	90,055	166,380
Cash Account	1,253,282	7,668,667	9,311,365	-17,656,448	-332,838	-167,703	90,055	166,380



Asset Allocation & Performance	Allocation		Performance(%)														
	Market Value \$	%	QTR		YTD		1 YR		3 YR		5 YR		7 YR		Inception	Inception Date	
Total Fund (Gross)	288,505,846	100.0	-3.13	(61)	4.24	(68)	9.78	(71)	5.18	(31)	4.72	(66)	6.35	(57)	6.67	(16)	Jan-1998
Total Fund Policy Index			-3.42		3.54		9.14		4.36		4.20		5.44		5.94		
All Public DB Plans Median			-2.94		4.86		10.93		4.36		5.09		6.46		6.09		
Total Fund (Net)	288,505,846	100.0	-3.16		4.11		9.59		4.99		4.46		6.06		6.07		Oct-2003
Total Fund Policy Index			-3.42		3.54		9.14		4.36		4.20		5.44		6.38		
Total Equity	148,503,679	51.5	-4.02		8.22		19.15		-		-		-		-3.52		Apr-2022
Domestic Large Cap Equity	73,240,252	25.4	-3.09		11.27		20.06		-		-		-		-2.66		Apr-2022
Vanguard S&P 500 Index Fund (VINIX)	32,035,409	11.1	-3.28	(21)	13.04	(16)	21.57	(12)	10.11	(9)	9.89	(7)	12.21	(5)	12.13	(3)	Jul-2013
S&P 500 Index			-3.27		13.07		21.62		10.15		9.92		12.24		12.17		
IM S&P 500 Index (MF) Median			-3.34		12.85		21.25		9.78		9.58		11.87		11.77		
Vanguard Russell 1000 Growth Index (VRGWX)	17,811,690	6.2	-3.14	(36)	24.91	(34)	27.65	(36)	7.91	(11)	12.35	(8)	15.57	(8)	14.90	(8)	Jul-2013
Russell 1000 Growth Index			-3.13		24.98		27.72		7.97		12.42		15.64		14.98		
IM U.S. Large Cap Growth Equity (MF) Median			-3.55		23.17		26.27		4.70		9.57		13.09		12.97		
DFA Large Value Equity (DFLVX)	12,948,976	4.5	-1.39	(19)	2.21	(48)	16.56	(44)	13.49	(24)	5.58	(82)	8.39	(64)	7.20	(41)	May-2006
Russell 1000 Value Index			-3.16		1.79		14.44		11.05		6.23		7.92		6.78		
IM U.S. Large Cap Value Equity (MF) Median			-2.36		2.03		15.11		11.44		6.71		8.87		6.93		
Vanguard Russell 1000 Value Index (VRVIX)	6,695,649	2.3	-3.17	(69)	1.77	(52)	14.39	(58)	-		-		-		4.46	(77)	Mar-2021
Russell 1000 Value Index			-3.16		1.79		14.44		-		-		-		4.53		
IM U.S. Large Cap Value Equity (MF) Median			-2.36		2.03		15.11		-		-		-		5.79		
Vesper Capital Mgmt (UTRN)	3,748,527	1.3	-6.55	(100)	-5.29	(100)	2.34	(100)	-		-		-		2.95	(98)	Nov-2020
S&P 500 Index			-3.27		13.07		21.62		-		-		-		11.48		
IM U.S. Large Cap Core Equity (SA+CF+MF) Median			-3.16		11.42		20.68		-		-		-		10.27		
Domestic Small Cap Equity	35,201,226	12.2	-5.49		4.54		14.46		-		-		-		-5.26		Apr-2022
Allspring Global Small Value Eq.	17,350,189	6.0	-2.17	(56)	7.36	(23)	20.25	(24)	16.20	(64)	5.64	(47)	8.38	(42)	8.94	(41)	Dec-2004
Russell 2000 Value Index			-2.96		-0.53		7.84		13.32		2.59		5.94		6.35		
IM U.S. Small Cap Value Equity (SA+CF+MF) Median			-1.92		3.64		15.70		17.42		5.48		8.07		8.70		
Emerald Small Growth Equity	17,851,038	6.2	-8.50	(85)	3.86	(66)	10.68	(54)	1.69	(63)	3.41	(68)	8.97	(68)	10.34	(66)	Oct-1998
Russell 2000 Growth Index			-7.32		5.24		9.59		1.09		1.55		6.77		7.15		
IM U.S. Small Cap Growth Equity (SA+CF+MF) Median			-6.11		5.55		10.94		3.40		4.82		9.88		11.29		

See the disclosure page at the end of the report.



	Allocation		Performance(%)								Inception Date
	Market Value \$	%	QTR	YTD	1 YR	3 YR	5 YR	7 YR	Inception		
International Equity	40,062,200	13.9	-4.38	5.91	21.87	-	-	-	-3.72	Apr-2022	
DFA International Equity (DFIEX)	17,150,873	5.9	-2.94 (20)	6.51 (48)	25.28 (38)	7.20 (9)	3.14 (29)	-	2.59 (30)	Dec-2017	
MSCI EAFE Value Index (Net)			0.59	9.92	31.51	11.11	2.81	-	2.05		
IM International Multi-Cap Core Equity (MF) Median			-4.13	6.42	24.29	4.87	2.65	-	2.15		
DFA Emerging Markets (DFCEX)	4,460,822	1.5	-1.52 (19)	7.03 (19)	18.31 (16)	4.72 (17)	3.21 (22)	-	1.65 (-)	Dec-2017	
MSCI Emerging Markets (Net) Index			-2.93	1.82	11.70	-1.73	0.55	-	-0.29		
IM Emerging Markets Equity (SA+CF+MF) Median			-3.85	2.92	12.21	-2.60	0.81	-	-		
EuroPacific Growth Fund (RERGX)	18,450,505	6.4	-6.33 (33)	5.15 (29)	19.64 (43)	0.08 (60)	3.11 (54)	5.21 (41)	4.94 (36)	Nov-2015	
MSCI AC World ex USA Growth (Net)			-7.31	2.61	15.84	-1.86	2.54	4.66	4.58		
IM International Large Cap Growth Equity (MF) Median			-7.10	4.42	18.88	0.89	3.23	5.02	4.53		
Total Fixed Income	92,296,371	32.0	-3.24	-1.06	-0.36	-	-	-	-3.56	Apr-2022	
Boyd Watterson Fixed	46,985,431	16.3	-3.40 (87)	-0.61 (54)	-0.15 (98)	-3.13 (18)	0.91 (40)	0.81 (39)	3.82 (81)	Oct-1998	
Boyd Watterson Fixed Policy			-3.23	-1.21	0.31	-3.53	0.64	0.35	-		
IM U.S. Broad Market Fixed Income (SA+CF) Median			-3.01	-0.56	1.33	-4.47	0.73	0.60	4.18		
PNC Fixed	25,131,517	8.7	-3.20 (71)	-0.58 (53)	-0.34 (98)	-3.66 (24)	0.78 (48)	0.52 (58)	2.52 (95)	Jul-2008	
PNC Fixed Policy			-3.23	-1.21	0.31	-3.53	0.64	0.35	2.24		
IM U.S. Broad Market Fixed Income (SA+CF) Median			-3.01	-0.56	1.33	-4.47	0.73	0.60	3.32		
Vanguard Core Bond Fund (VCOBX)	20,179,423	7.0	-2.93 (50)	-	-	-	-	-	-3.93 (57)	Feb-2023	
Blmbg. U.S. Aggregate Index			-3.23	-	-	-	-	-	-4.15		
IM U.S. Broad Market Core Fixed Income (MF) Median			-2.93	-	-	-	-	-	-3.78		
Total Alternatives	47,539,417	16.5									
Private Real Estate	19,004,849	6.6	-0.58	-0.87	-3.52	-	-	-	1.27	Apr-2022	
Boyd Watterson GSA Fund	12,905,410	4.5	-0.85 (13)	-0.96 (10)	-0.80 (10)	4.48 (84)	5.92 (41)	7.16 (18)	7.42 (-)	Feb-2016	
NCREIF Property Index			-1.37	-5.07	-8.39	6.04	5.26	5.76	6.07		
IM U.S. Private Real Estate (SA+CF) Median			-3.09	-7.88	-12.83	6.81	5.72	6.33	-		
Bentall GreenOak US Core Plus RE	6,099,439	2.1	0.00 (8)	2.61 (8)	-	-	-	-	-	Nov-2022	
NCREIF Property Index			-1.37	-5.07	-	-	-	-	-8.39		
IM U.S. Private Real Estate (SA+CF) Median			-3.09	-7.88	-	-	-	-	-		

	Allocation		Performance(%)							
	Market Value \$	%	QTR	YTD	1 YR	3 YR	5 YR	7 YR	Inception	Inception Date
Private Equity	20,495,159	7.1								
Ironsides Direct Investment Fund V	9,974,045	3.5								
PA Co-Investment Fund III	6,369,977	2.2								
Adams Street Co-Investment Fund V	2,799,002	1.0								
Hamilton Lane Secondary Fund VI	1,352,135	0.5								
Private Debt	8,039,409	2.8								
Ironsides Opportunities Fund	2,004,916	0.7								
PA Credit Strategies Fund	6,034,493	2.1								
Cash	166,380	0.1								
Cash Account	166,380	0.1								

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Comparative Performance

Total Fund

As of September 30, 2023

Comparative Performance																				
	2022		2021		2020		2019		2018		2017		2016		2015		2014		2013	
Total Fund (Gross)	-11.56	(22)	13.31	(59)	12.18	(64)	18.55	(70)	-5.13	(69)	14.12	(71)	8.40	(20)	0.36	(36)	6.45	(47)	20.25	(10)
Total Fund Policy Index	-12.15		11.61		12.26		17.45		-3.89		10.71		8.86		1.22		7.13		16.95	
All Public DB Plans Median	-13.83		13.82		13.34		19.90		-4.50		15.19		6.98		-0.20		6.31		16.53	
Total Fund (Net)	-11.71		13.09		11.89		18.18		-5.52		13.72		7.99		-0.03		6.02		19.70	
Total Fund Policy Index	-12.15		11.61		12.26		17.45		-3.89		10.71		8.86		1.22		7.13		16.95	
Total Equity																				
Domestic Large Cap Equity																				
Vanguard S&P 500 Index Fund (VINIX)	-18.14	(12)	28.67	(7)	18.39	(13)	31.47	(4)	-4.42	(15)	21.80	(4)	11.93	(6)	1.34	(11)	13.65	(2)		
S&P 500 Index	-18.11		28.71		18.40		31.49		-4.38		21.83		11.96		1.38		13.69		32.39	
IM S&P 500 Index (MF) Median	-18.36		28.25		18.05		31.08		-4.66		21.37		11.55		0.97		13.18		31.77	
Vanguard Russell 1000 Growth Index (VRGWX)	-29.17	(28)	27.52	(18)	38.38	(35)	36.30	(21)	-1.56	(55)	30.13	(40)	7.03	(10)	5.56	(51)	12.98	(25)		
Russell 1000 Growth Index	-29.14		27.60		38.49		36.39		-1.51		30.21		7.08		5.67		13.05		33.48	
IM U.S. Large Cap Growth Equity (MF) Median	-31.30		22.39		35.62		33.26		-1.22		29.28		2.21		5.61		10.49		34.12	
DFA Large Value Equity (DFLVX)	-5.78	(48)	28.07	(22)	-0.60	(91)	25.49	(65)	-11.61	(87)	18.97	(25)	18.89	(9)	-3.49	(62)	10.05	(67)	40.31	(1)
Russell 1000 Value Index	-7.54		25.16		2.80		26.54		-8.27		13.66		17.34		-3.83		13.45		32.53	
IM U.S. Large Cap Value Equity (MF) Median	-6.10		25.96		3.82		26.50		-8.61		16.95		13.85		-3.00		10.82		32.11	
Vanguard Russell 1000 Value Index (VRVIX)	-7.62	(67)																		
Russell 1000 Value Index	-7.54		25.16		2.80		26.54		-8.27		13.66		17.34		-3.83		13.45		32.53	
IM U.S. Large Cap Value Equity (MF) Median	-6.10		25.96		3.82		26.50		-8.61		16.95		13.85		-3.00		10.82		32.11	
Vesper Capital Mgmt (UTRN)	-20.37	(79)	30.04	(15)																
S&P 500 Index	-18.11		28.71		18.40		31.49		-4.38		21.83		11.96		1.38		13.69		32.39	
IM U.S. Large Cap Core Equity (SA+CF+MF) Median	-18.26		26.92		18.04		30.11		-5.50		21.50		9.74		0.72		11.78		31.87	
Domestic Small Cap Equity																				
Allspring Global Small Value Eq.	-12.53	(80)	29.83	(62)	2.24	(69)	29.50	(11)	-12.84	(34)	12.21	(36)	30.62	(32)	-3.36	(33)	8.76	(12)	39.76	(40)
Russell 2000 Value Index	-14.48		28.27		4.63		22.39		-12.86		7.84		31.74		-7.47		4.22		34.52	
IM U.S. Small Cap Value Equity (SA+CF+MF) Median	-10.36		32.50		4.79		23.26		-14.64		10.28		27.74		-5.24		5.11		38.06	
Emerald Small Growth Equity	-23.91	(33)	5.74	(74)	39.16	(50)	31.23	(41)	-10.67	(83)	28.70	(20)	10.07	(58)	4.58	(9)	7.55	(18)	50.89	(16)
Russell 2000 Growth Index	-26.36		2.83		34.63		28.48		-9.31		22.17		11.32		-1.38		5.60		43.30	
IM U.S. Small Cap Growth Equity (SA+CF+MF) Median	-26.82		11.67		38.95		29.00		-4.28		22.32		11.18		-1.02		4.22		44.80	

See the disclosure page at the end of this report.



Comparative Performance

Total Fund

As of September 30, 2023

	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
International Equity										
DFA International Equity (DFIEX)	-13.48 (21)	13.87 (9)	7.72 (55)	21.66 (41)	-17.40 (83)					
MSCI EAFE Value Index (Net)	-5.58	10.89	-2.63	16.09	-14.78	21.44	5.02	-5.68	-5.39	22.95
IM International Multi-Cap Core Equity (MF) Median	-15.12	10.46	7.96	21.25	-15.14	25.23	1.25	-0.89	-4.98	20.08
DFA Emerging Markets (DFCEX)	-16.40 (19)	5.83 (18)	13.86 (70)	16.04 (77)	-15.25 (40)					
MSCI Emerging Markets (Net) Index	-20.09	-2.54	18.31	18.42	-14.57	37.28	11.19	-14.92	-2.19	-2.60
IM Emerging Markets Equity (SA+CF+MF) Median	-22.50	-1.95	17.99	20.50	-16.45	35.98	7.17	-13.17	-2.65	-1.46
EuroPacific Growth Fund (RERGX)	-22.72 (60)	2.84 (86)	25.27 (17)	27.38 (55)	-14.87 (53)	31.14 (29)	1.06 (21)			
MSCI AC World ex USA Growth (Net)	-23.05	5.09	22.20	27.34	-14.43	32.01	0.12	-1.25	-2.65	15.49
IM International Large Cap Growth Equity (MF) Median	-20.24	8.88	20.00	27.50	-14.67	28.61	-1.94	0.25	-4.47	20.01
Total Fixed Income										
Boyd Watterson Fixed	-9.17 (7)	-0.40 (38)	6.86 (91)	8.69 (84)	-0.03 (52)	3.45 (91)	2.22 (96)	0.92 (30)	3.47 (97)	-0.07 (21)
Boyd Watterson Fixed Policy	-8.24	-1.44	6.43	6.80	0.88	2.14	2.08	1.07	3.13	-0.86
IM U.S. Broad Market Fixed Income (SA+CF) Median	-12.92	-0.75	8.74	9.49	-0.01	4.33	3.71	0.63	6.14	-1.19
PNC Fixed	-9.36 (7)	-1.38 (74)	7.53 (85)	7.29 (95)	0.78 (10)	2.41 (99)	2.11 (97)	0.66 (50)	2.99 (99)	-0.40 (27)
PNC Fixed Policy	-8.24	-1.44	6.43	6.80	0.88	2.14	2.08	1.07	3.13	-0.86
IM U.S. Broad Market Fixed Income (SA+CF) Median	-12.92	-0.75	8.74	9.49	-0.01	4.33	3.71	0.63	6.14	-1.19
Vanguard S-T Inv't Grade Bond Fund (VFSIX)	-5.72 (94)	-0.30 (75)	5.28 (5)	5.87 (6)	1.02 (65)	2.16 (20)	2.85 (17)	1.18 (4)	1.89 (4)	1.53 (10)
Blmbg. 1-3 Year Gov/Credit	-3.69	-0.47	3.33	4.03	1.60	0.84	1.28	0.65	0.77	0.64
IM U.S. Short Term Investment Grade (MF) Median	-3.78	0.02	3.02	4.12	1.24	1.45	1.68	0.27	0.67	0.47
Vanguard Core Bond Fund (VCOBX)										
Blmbg. U.S. Aggregate Index	-13.01	-1.55	7.51	8.72	0.01	3.54	2.65	0.55	5.97	-2.02
IM U.S. Broad Market Core Fixed Income (MF) Median	-13.66	-1.33	8.16	8.76	-0.62	3.60	2.90	0.04	5.55	-1.96
Private Real Estate										
Bentall GreenOak/MEPT Real Estate	8.74 (28)	20.81 (72)	1.37 (59)	4.55 (78)	8.18 (55)	6.48 (80)	8.97 (71)	13.01 (79)	13.22 (61)	12.84 (67)
NCREIF Property Index	5.52	17.70	1.60	6.42	6.72	6.96	7.97	13.33	11.82	10.98
IM U.S. Private Real Estate (SA+CF) Median	7.13	23.30	1.57	7.01	8.35	8.06	9.80	15.34	13.66	14.72
Boyd Watterson GSA Fund	4.58 (72)	8.04 (97)	6.97 (6)	9.53 (18)	9.60 (23)	8.87 (35)				
NCREIF Property Index	5.52	17.70	1.60	6.42	6.72	6.96	7.97	13.33	11.82	10.98
IM U.S. Private Real Estate (SA+CF) Median	7.13	23.30	1.57	7.01	8.35	8.06	9.80	15.34	13.66	14.72
Bentall GreenOak US Core Plus RE										
NCREIF Property Index	5.52	17.70	1.60	6.42	6.72	6.96	7.97	13.33	11.82	10.98
IM U.S. Private Real Estate (SA+CF) Median	7.13	23.30	1.57	7.01	8.35	8.06	9.80	15.34	13.66	14.72

See the disclosure page at the end of this report.



As of September 30, 2023

Private Equity Summary of Partnership

Partnerships	Valuation Date	Vintage Year	Investment Strategy	Capital Commitment \$	Drawn Down \$	Market Value \$	Distributed \$	IRR (%)	TVPI Multiple
Private Equity Funds									
Ironsides Direct Investment Fund V	09/30/2023	2018	Buyouts	6,000,000	7,292,877	9,974,045	2,196,167	15.8	1.7
PA Co-Investment Fund III	09/30/2023	2019	Buyouts	6,000,000	5,511,784	6,369,977	4,192,318	20.0	1.9
Adams Street Co-Investment Fund V	09/30/2023	2022	Co-Investment	10,000,000	2,512,945	2,799,002	-	17.8	1.1
Hamilton Lane Secondary Fund VI	09/30/2023	2022	Secondaries	10,000,000	990,445	1,352,135	2,627	72.6	1.4
Private Debt Funds									
Ironsides Opportunities Fund	09/30/2023	2018	Credit	4,000,000	2,814,610	2,004,916	2,244,152	12.2	1.5
PA Credit Strategies Fund	09/30/2023	2015	Credit	4,000,000	4,000,000	6,034,493	-	8.8	1.5



Comparative Performance - IRR
Private Investments
As of September 30, 2023

Comparative Performance - IRR									
	QTR	YTD	1 YR	2 YR	3 YR	4 YR	5 YR	Inception	Inception Date
Private Equity									
Ironsides Direct Investment Fund V	0.00	1.37	2.02	3.23	12.28	15.96	N/A	15.76	11/09/2018
PA Co-Investment Fund III	0.00	5.23	7.92	13.84	21.53	23.79	N/A	20.04	11/05/2018
Adams Street Co-Investment Fund V	0.00	10.90	17.84	N/A	N/A	N/A	N/A	17.84	10/28/2022
Hamilton Lane Secondary Fund VI	0.00	72.60	N/A	N/A	N/A	N/A	N/A	72.60	01/03/2023
Private Debt									
Ironsides Opportunities Fund	0.00	6.96	9.62	10.25	12.18	11.81	N/A	12.18	12/31/2018
PA Credit Strategies Fund	0.00	2.18	4.45	7.02	13.16	9.02	N/A	8.83	11/21/2018



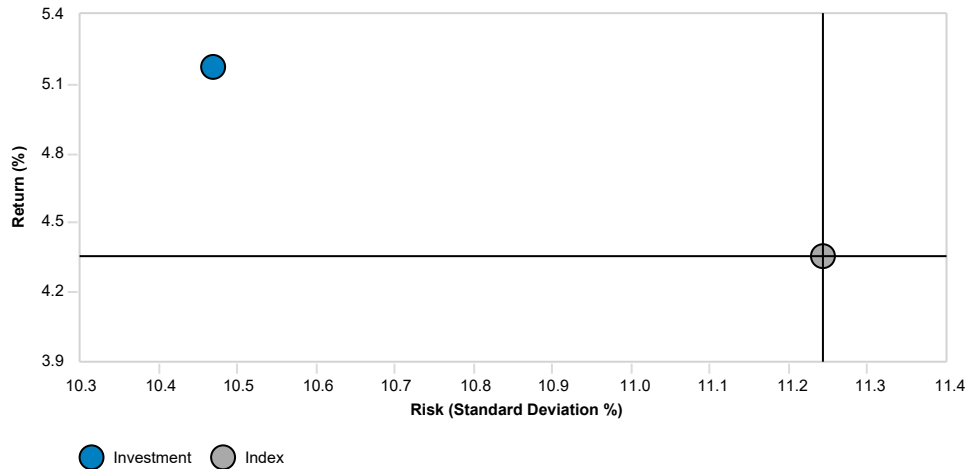
Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	5.18	10.47	0.37	99.64	8	94.13	4
Index	4.36	11.24	0.28	100.00	7	100.00	5

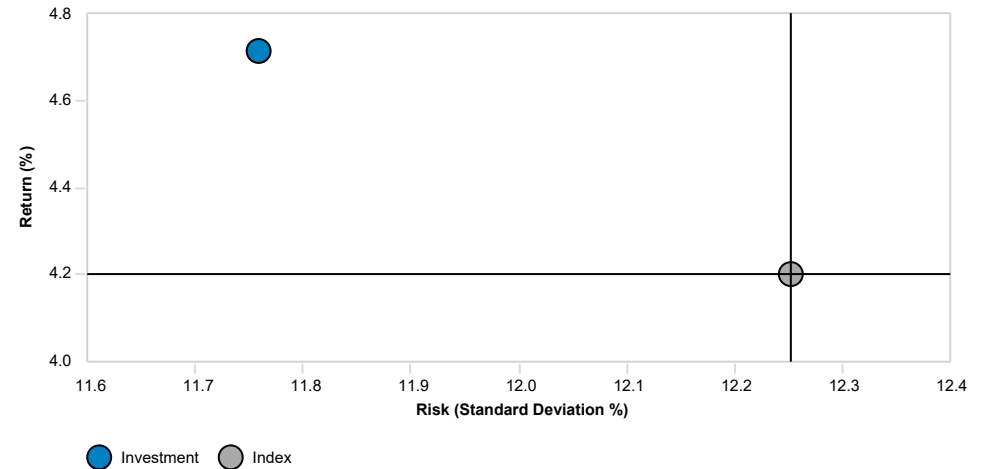
Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	4.72	11.76	0.30	100.27	14	97.29	6
Index	4.20	12.25	0.26	100.00	13	100.00	7

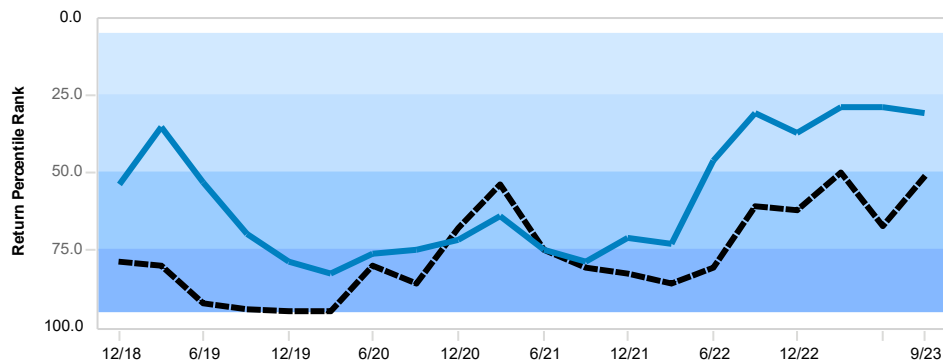
Risk and Return 3 Years



Risk and Return 5 Years

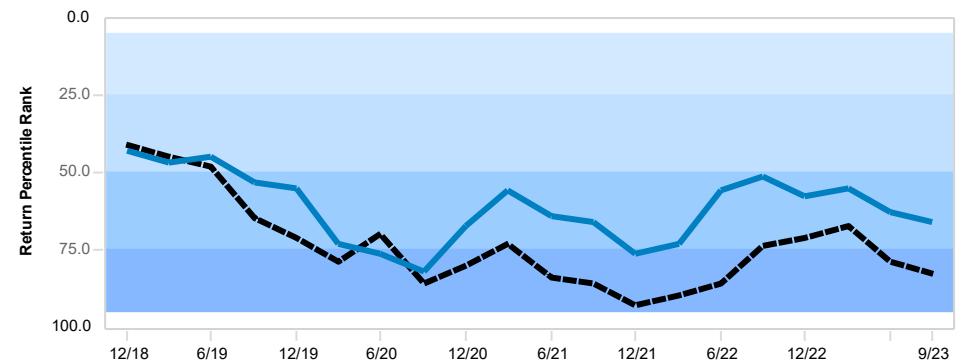


3 Year Rolling Percentile Rank All Public DB Plans



	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	0 (0%)	7 (35%)	9 (45%)	4 (20%)
Index	20	0 (0%)	1 (5%)	7 (35%)	12 (60%)

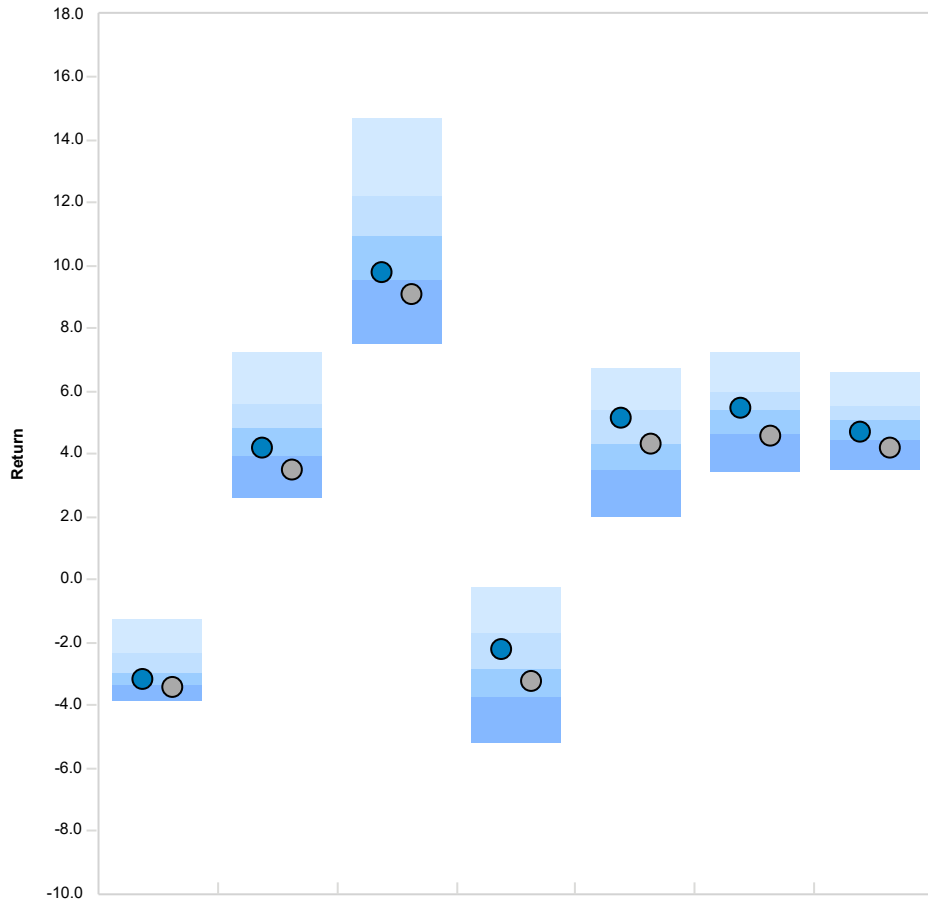
5 Year Rolling Percentile Rank All Public DB Plans



	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	0 (0%)	3 (15%)	14 (70%)	3 (15%)
Index	20	0 (0%)	3 (15%)	7 (35%)	10 (50%)

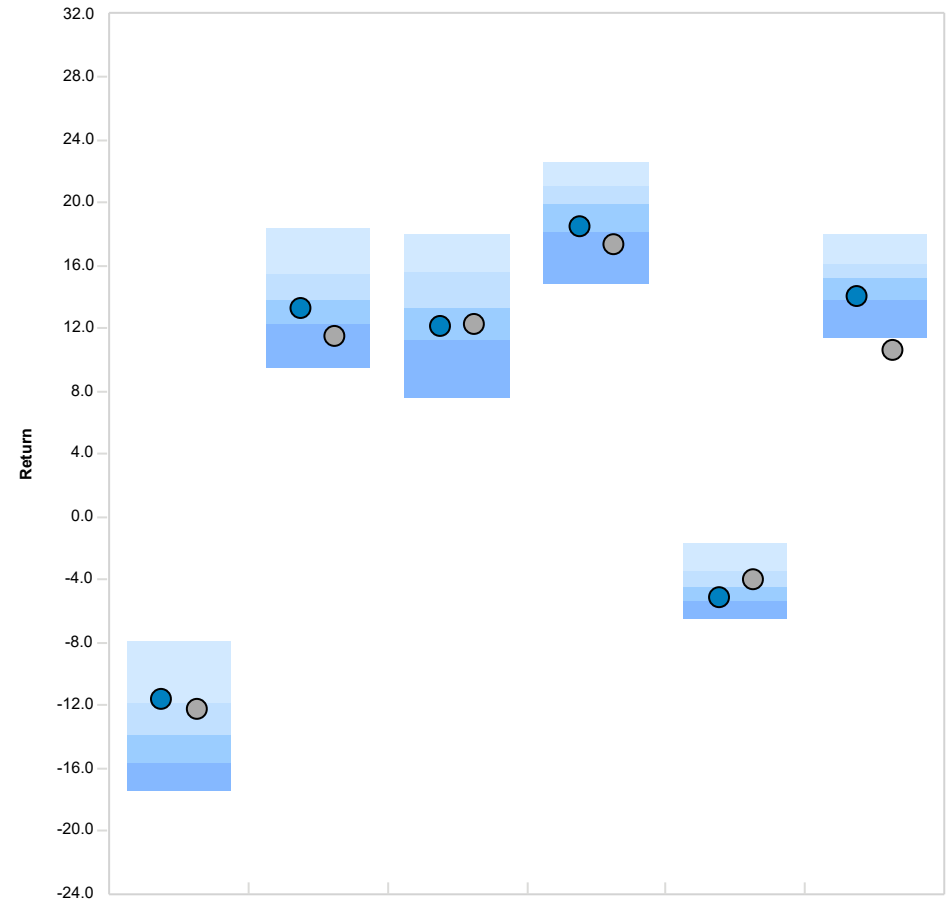


Plan Sponsor Peer Group Analysis vs. All Public DB Plans



	QTR	FYTD	1 YR	2 YR	3 YR	4 YR	5 YR
● Investment	-3.13 (61)	4.24 (68)	9.78 (71)	-2.16 (35)	5.18 (31)	5.48 (48)	4.72 (66)
● Index	-3.42 (78)	3.54 (84)	9.14 (82)	-3.19 (61)	4.36 (51)	4.63 (76)	4.20 (83)
Median	-2.94	4.86	10.93	-2.84	4.36	5.42	5.09

Plan Sponsor Peer Group Analysis vs. All Public DB Plans



	2022	2021	2020	2019	2018	2017
● Investment	-11.56 (22)	13.31 (59)	12.18 (64)	18.55 (70)	-5.13 (69)	14.12 (71)
● Index	-12.15 (30)	11.61 (84)	12.26 (63)	17.45 (82)	-3.89 (33)	10.71 (97)
Median	-13.83	13.82	13.34	19.90	-4.50	15.19

Comparative Performance

	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022
Investment	3.17 (59)	4.31 (51)	5.31 (62)	-3.84 (28)	-8.75 (18)	-4.29 (32)
Index	3.02 (65)	4.07 (62)	5.41 (60)	-3.34 (14)	-9.83 (32)	-4.38 (34)
Median	3.33	4.31	5.66	-4.31	-10.64	-4.88



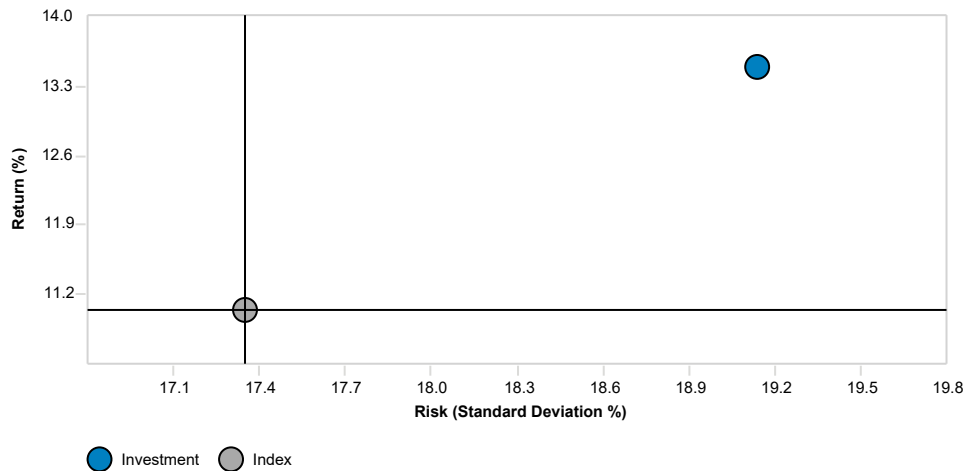
Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	13.49	19.14	0.67	109.04	7	101.74	5
Index	11.05	17.35	0.59	100.00	7	100.00	5

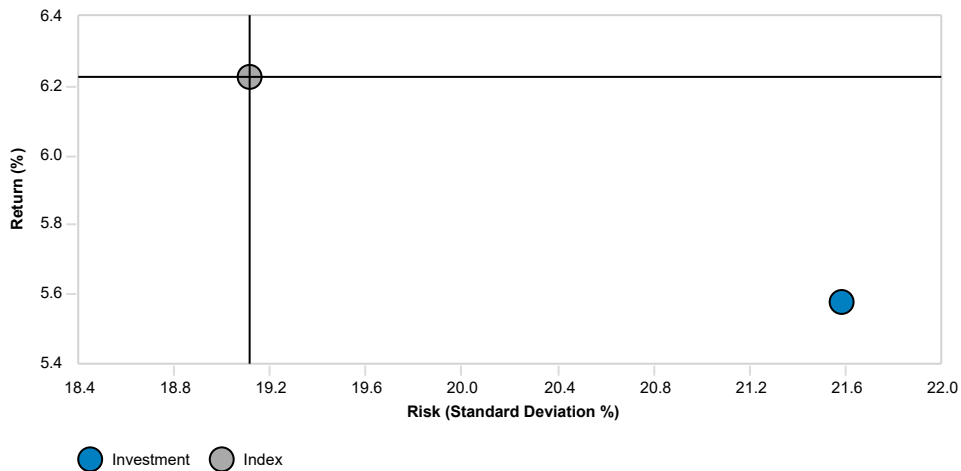
Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	5.58	21.58	0.28	107.51	13	110.53	7
Index	6.23	19.11	0.32	100.00	13	100.00	7

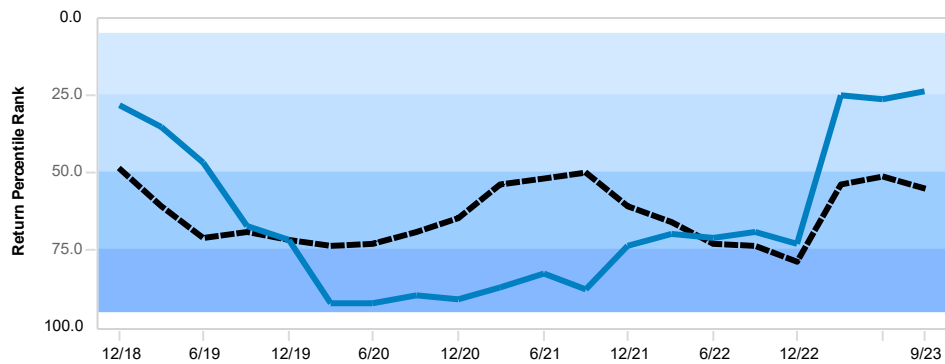
Risk and Return 3 Years



Risk and Return 5 Years

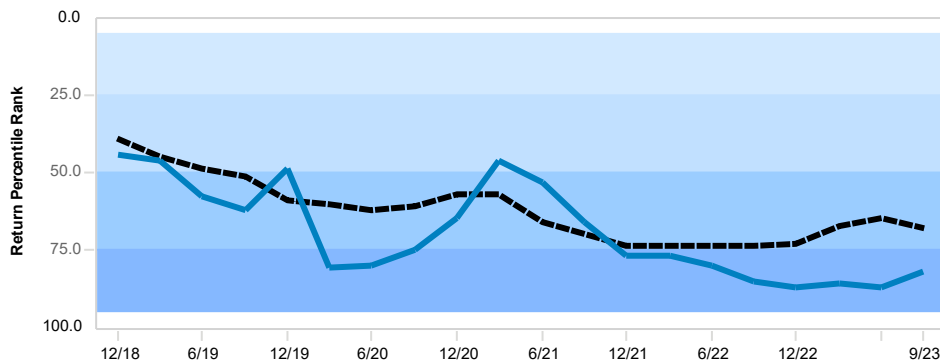


3 Year Rolling Percentile Rank IM U.S. Large Cap Value Equity (MF)



	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	2 (10%)	4 (20%)	7 (35%)	7 (35%)
Index	20	0 (0%)	2 (10%)	17 (85%)	1 (5%)

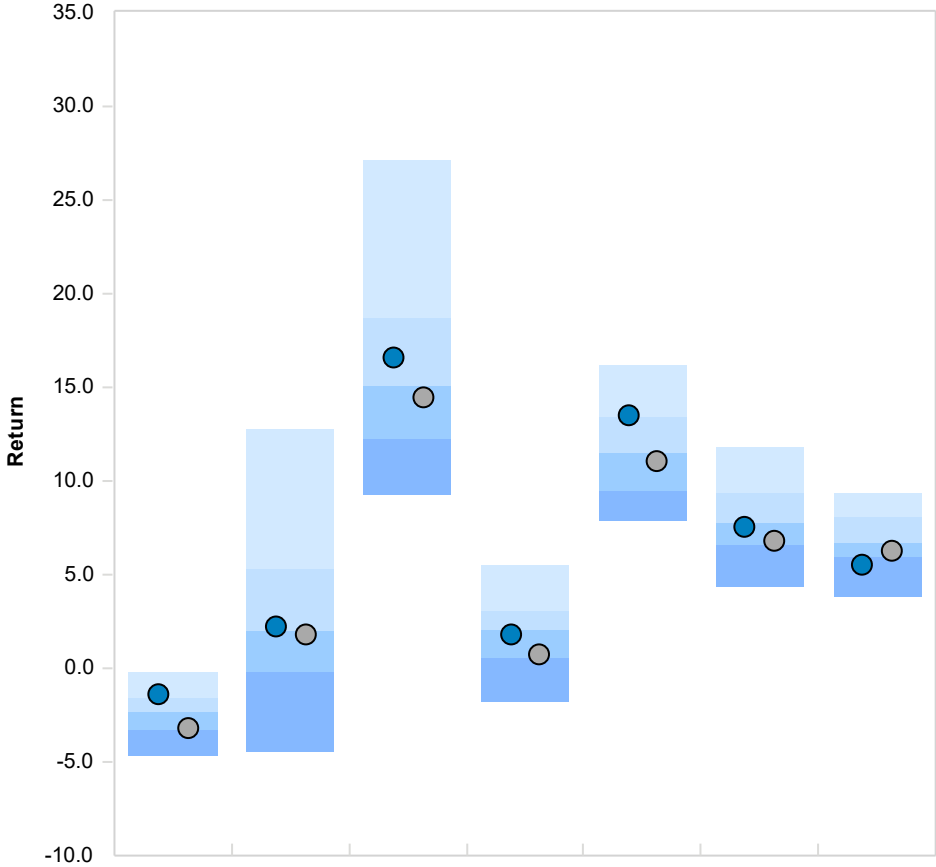
5 Year Rolling Percentile Rank IM U.S. Large Cap Value Equity (MF)



	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	0 (0%)	4 (20%)	6 (30%)	10 (50%)
Index	20	0 (0%)	3 (15%)	17 (85%)	0 (0%)

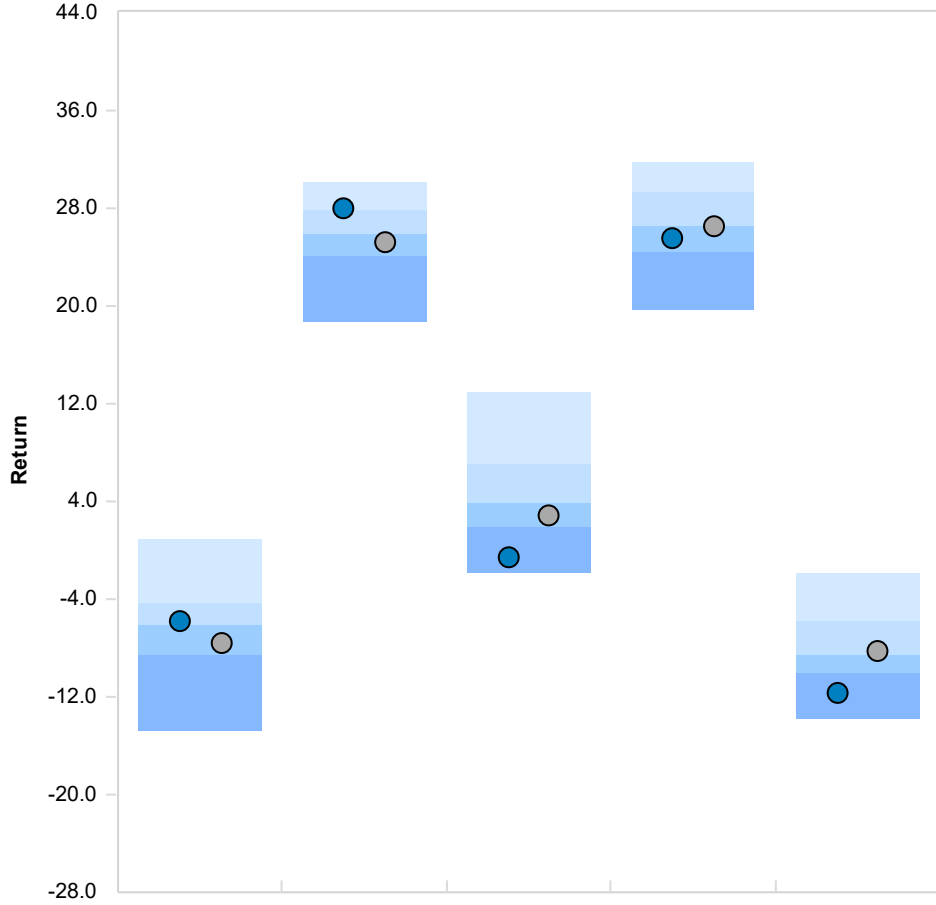


Peer Group Analysis - IM U.S. Large Cap Value Equity (MF)



	QTR	FYTD	1 YR	2 YR	3 YR	4 YR	5 YR
● Investment	-1.39 (19)	2.21 (48)	16.56 (44)	1.83 (55)	13.49 (24)	7.53 (55)	5.58 (82)
● Index	-3.16 (69)	1.79 (52)	14.44 (57)	0.71 (74)	11.05 (55)	6.79 (71)	6.23 (68)
Median	-2.36	2.03	15.11	2.02	11.44	7.74	6.71

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



	2022	2021	2020	2019	2018
● Investment	-5.78 (48)	28.07 (22)	-0.60 (91)	25.49 (65)	-11.61 (87)
● Index	-7.54 (66)	25.16 (63)	2.80 (61)	26.54 (50)	-8.27 (45)
Median	-6.10	25.96	3.82	26.50	-8.61

Comparative Performance

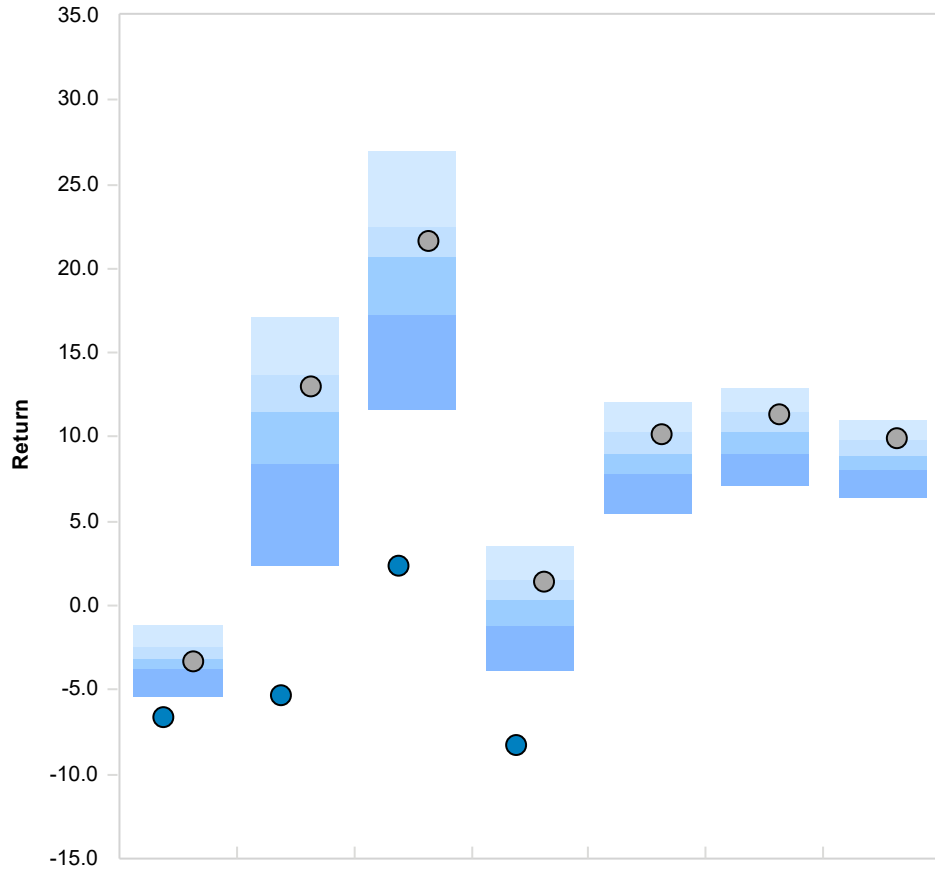
	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022
Investment	3.18 (78)	0.46 (45)	14.05 (27)	-5.65 (53)	-12.13 (62)	-0.35 (42)
Index	4.07 (56)	1.01 (33)	12.42 (59)	-5.62 (52)	-12.21 (63)	-0.74 (57)
Median	4.40	0.15	12.88	-5.57	-11.35	-0.58



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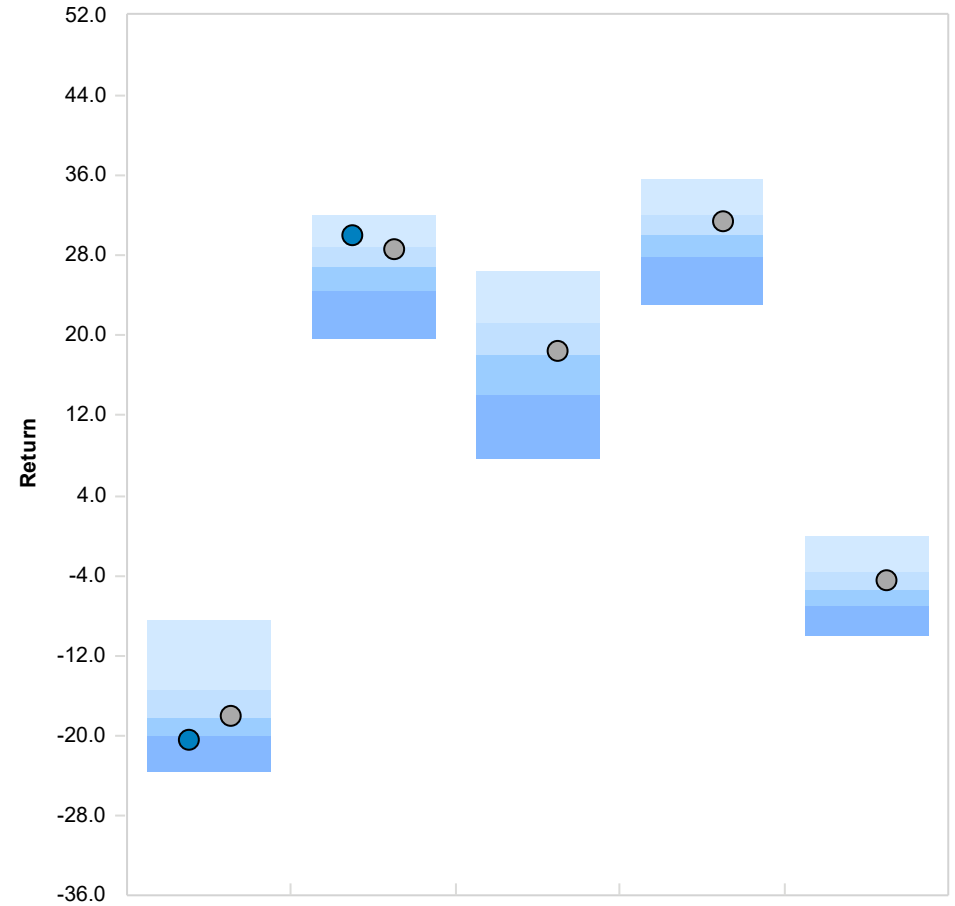


Peer Group Analysis - IM U.S. Large Cap Core Equity (SA+CF+MF)



	QTR	FYTD	1 YR	2 YR	3 YR	4 YR	5 YR
● Investment	-6.55 (100)	-5.29 (100)	2.34 (100)	-8.23 (100)	N/A	N/A	N/A
● Index	-3.27 (57)	13.07 (32)	21.62 (37)	1.39 (29)	10.15 (28)	11.38 (26)	9.92 (22)
Median	-3.16	11.42	20.68	0.36	8.99	10.30	8.91

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



	2022	2021	2020	2019	2018
● Investment	-20.37 (79)	30.04 (15)	N/A	N/A	N/A
● Index	-18.11 (49)	28.71 (27)	18.40 (48)	31.49 (34)	-4.38 (32)
Median	-18.26	26.92	18.04	30.11	-5.50

Comparative Performance

	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022
Investment	0.71 (100)	0.63 (96)	8.07 (46)	-8.60 (100)	-8.63 (3)	-11.76 (99)
Index	8.74 (31)	7.50 (29)	7.56 (57)	-4.88 (43)	-16.10 (61)	-4.60 (31)
Median	8.12	6.51	7.84	-5.12	-15.69	-5.47



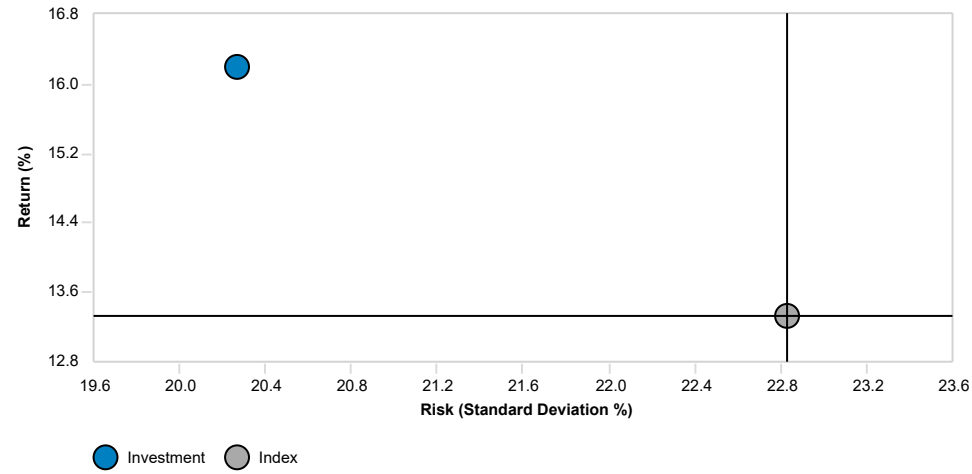
Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	16.20	20.27	0.76	93.27	7	81.48	5
Index	13.32	22.83	0.58	100.00	6	100.00	6

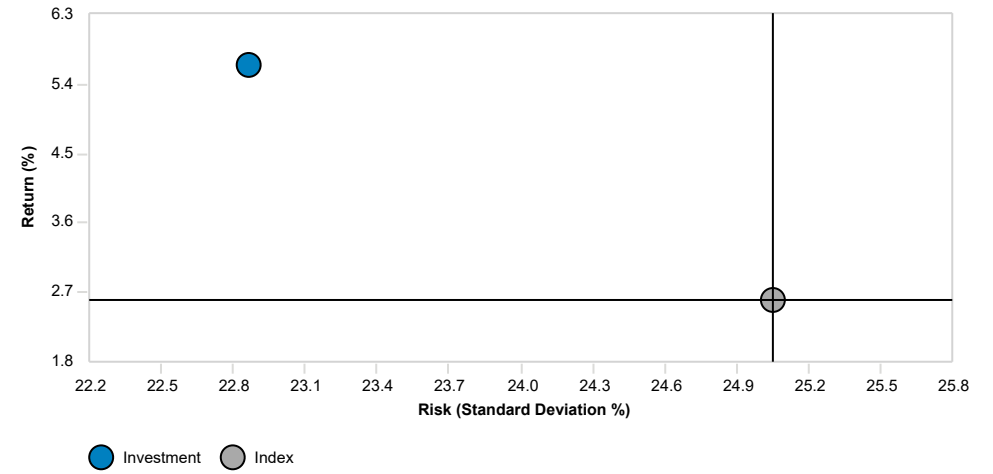
Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	5.64	22.87	0.28	94.58	13	86.06	7
Index	2.59	25.05	0.16	100.00	11	100.00	9

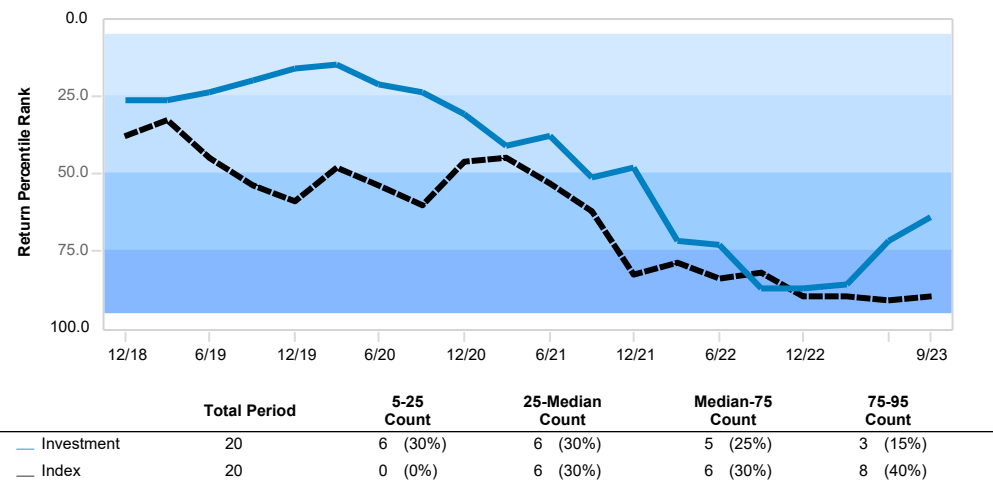
Risk and Return 3 Years



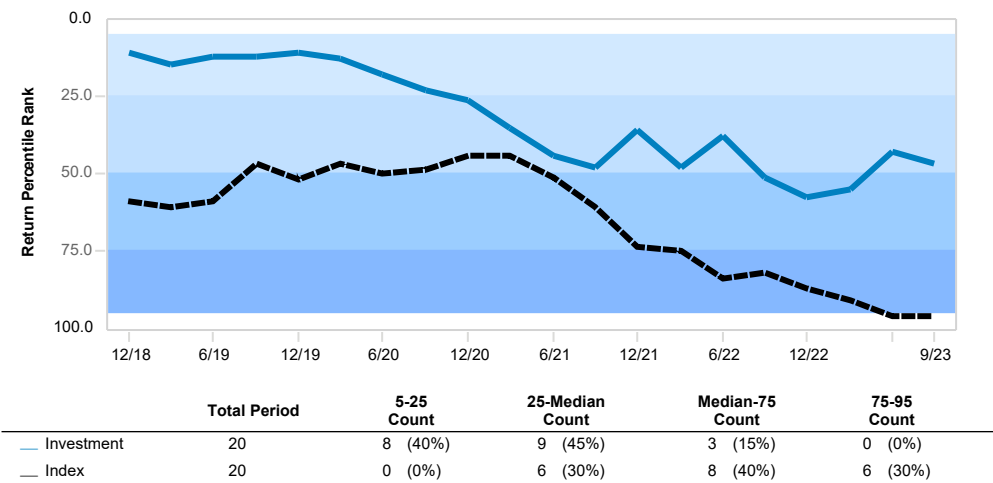
Risk and Return 5 Years



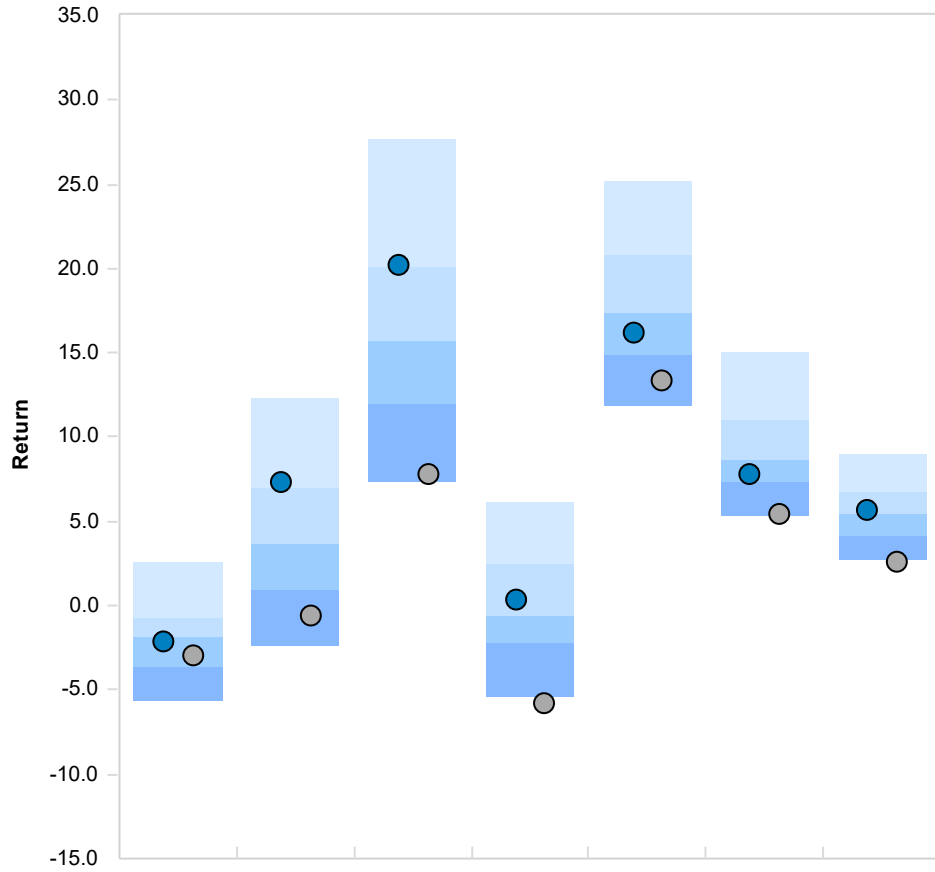
3 Year Rolling Percentile Rank IM U.S. Small Cap Value Equity (SA+CF+MF)



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

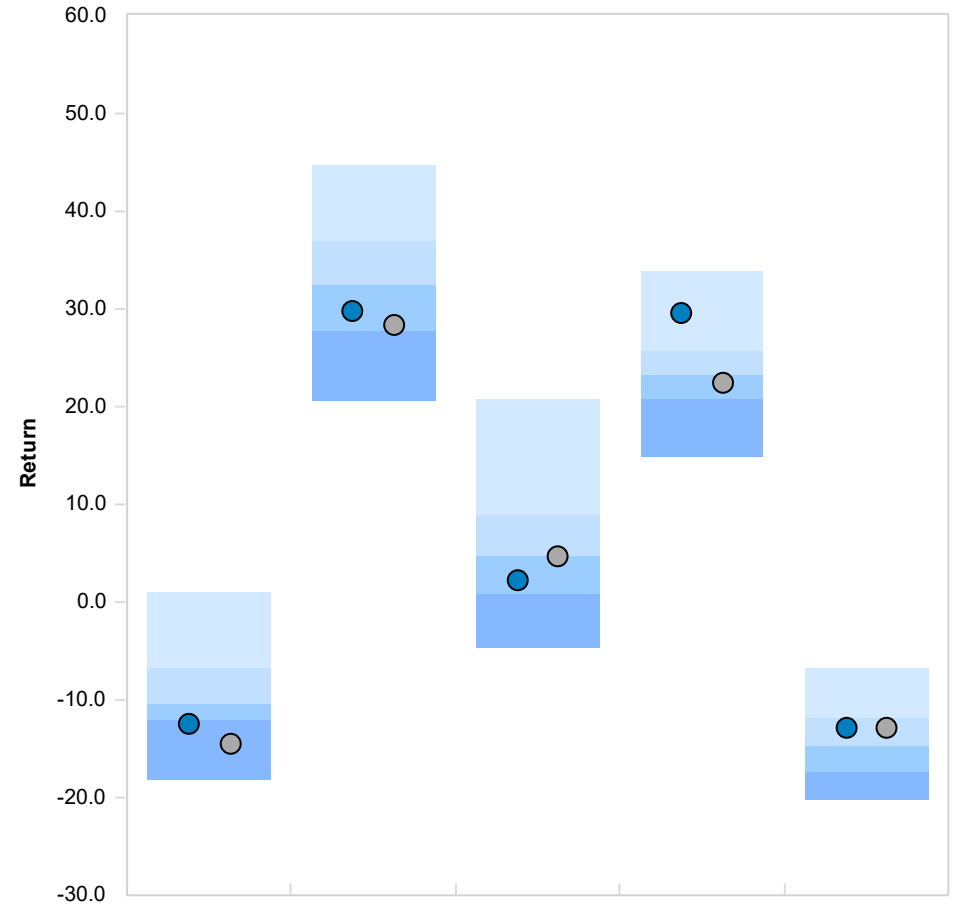


Peer Group Analysis - IM U.S. Small Cap Value Equity (SA+CF+MF)



	QTR	FYTD	1 YR	2 YR	3 YR	4 YR	5 YR
● Investment	-2.17 (56)	7.36 (23)	20.25 (24)	0.33 (41)	16.20 (64)	7.87 (67)	5.64 (47)
● Index	-2.96 (62)	-0.53 (89)	7.84 (95)	-5.78 (97)	13.32 (90)	5.50 (94)	2.59 (96)
Median	-1.92	3.64	15.70	-0.59	17.42	8.63	5.48

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



	2022	2021	2020	2019	2018
● Investment	-12.53 (80)	29.83 (62)	2.24 (69)	29.50 (11)	-12.84 (34)
● Index	-14.48 (90)	28.27 (72)	4.63 (52)	22.39 (62)	-12.86 (34)
Median	-10.36	32.50	4.79	23.26	-14.64

Comparative Performance

	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022
Investment	5.47 (26)	4.04 (19)	12.01 (46)	-8.24 (95)	-11.59 (20)	-3.74 (79)
Index	3.18 (68)	-0.66 (86)	8.42 (90)	-4.61 (47)	-15.28 (83)	-2.40 (57)
Median	4.08	1.59	11.75	-4.87	-13.57	-1.93



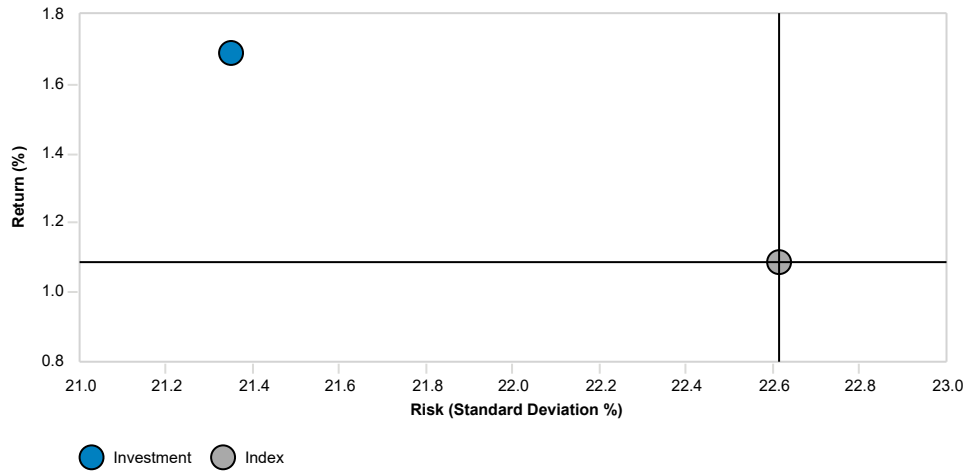
Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	1.69	21.35	0.11	99.35	8	98.04	4
Index	1.09	22.61	0.08	100.00	8	100.00	4

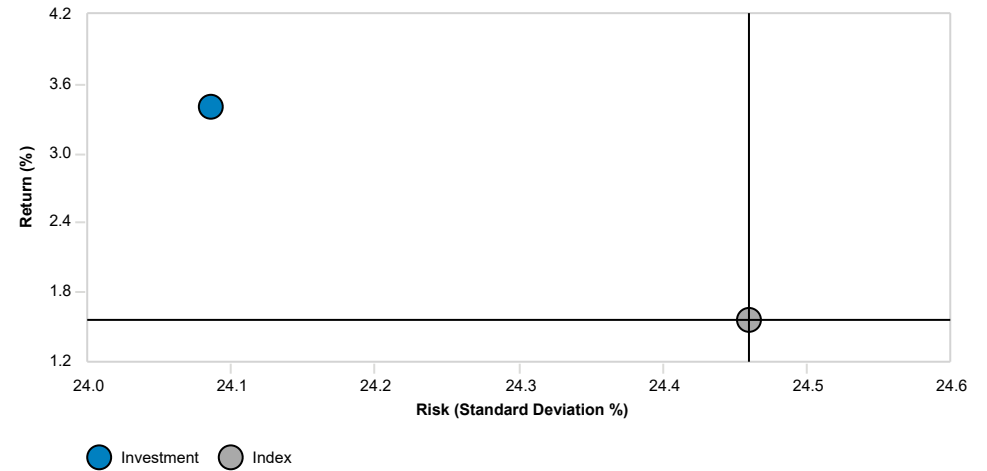
Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	3.41	24.09	0.19	102.57	13	97.30	7
Index	1.55	24.46	0.12	100.00	13	100.00	7

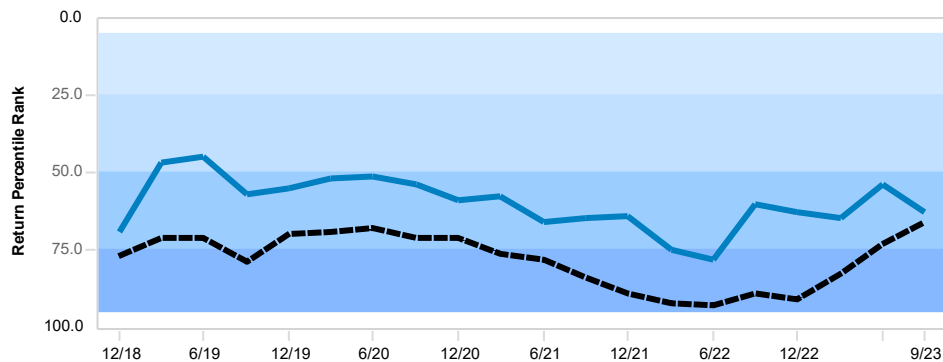
Risk and Return 3 Years



Risk and Return 5 Years

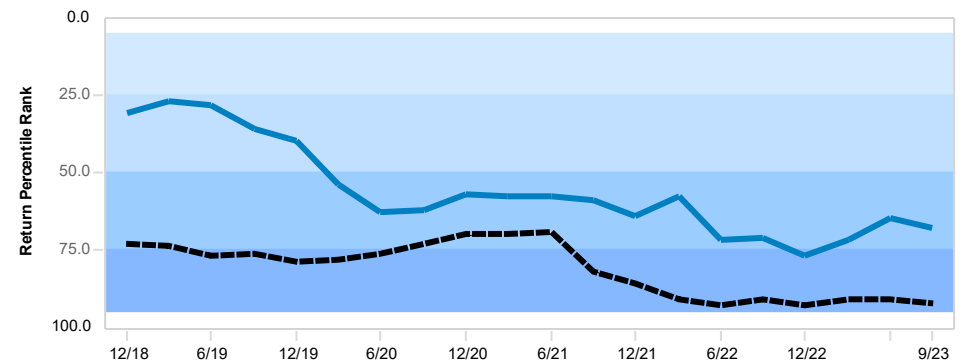


3 Year Rolling Percentile Rank IM U.S. Small Cap Growth Equity (SA+CF+MF)



	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	0 (0%)	2 (10%)	17 (85%)	1 (5%)
Index	20	0 (0%)	0 (0%)	9 (45%)	11 (55%)

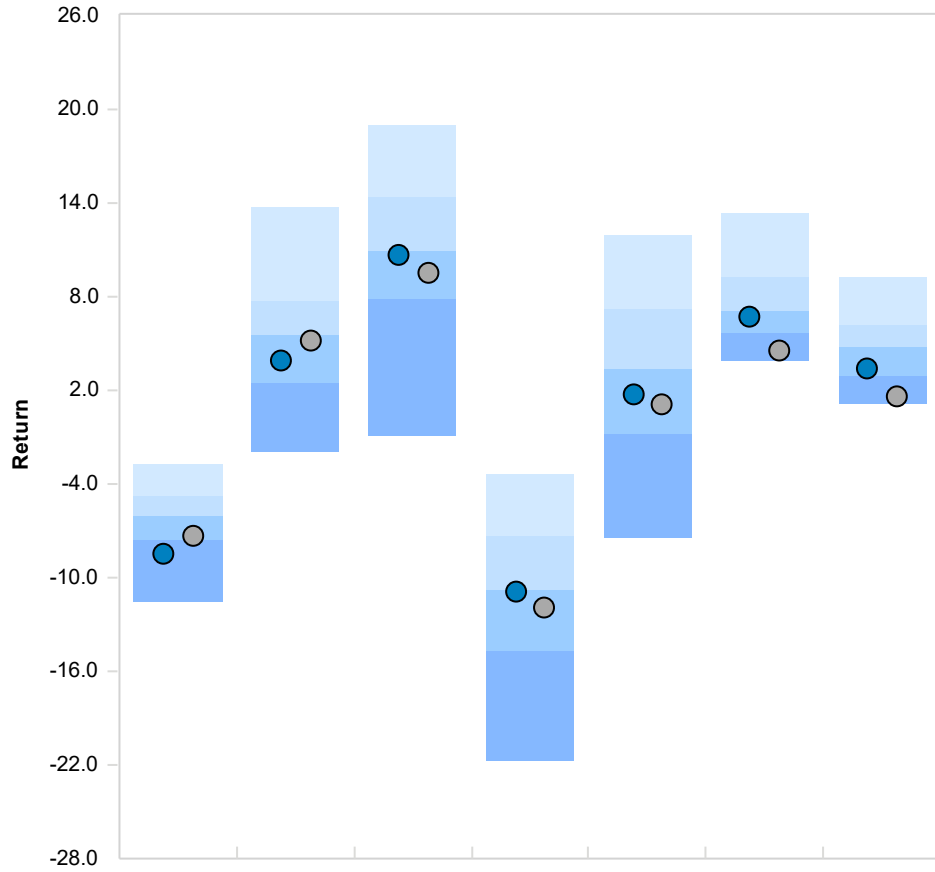
5 Year Rolling Percentile Rank IM U.S. Small Cap Growth Equity (SA+CF+MF)



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

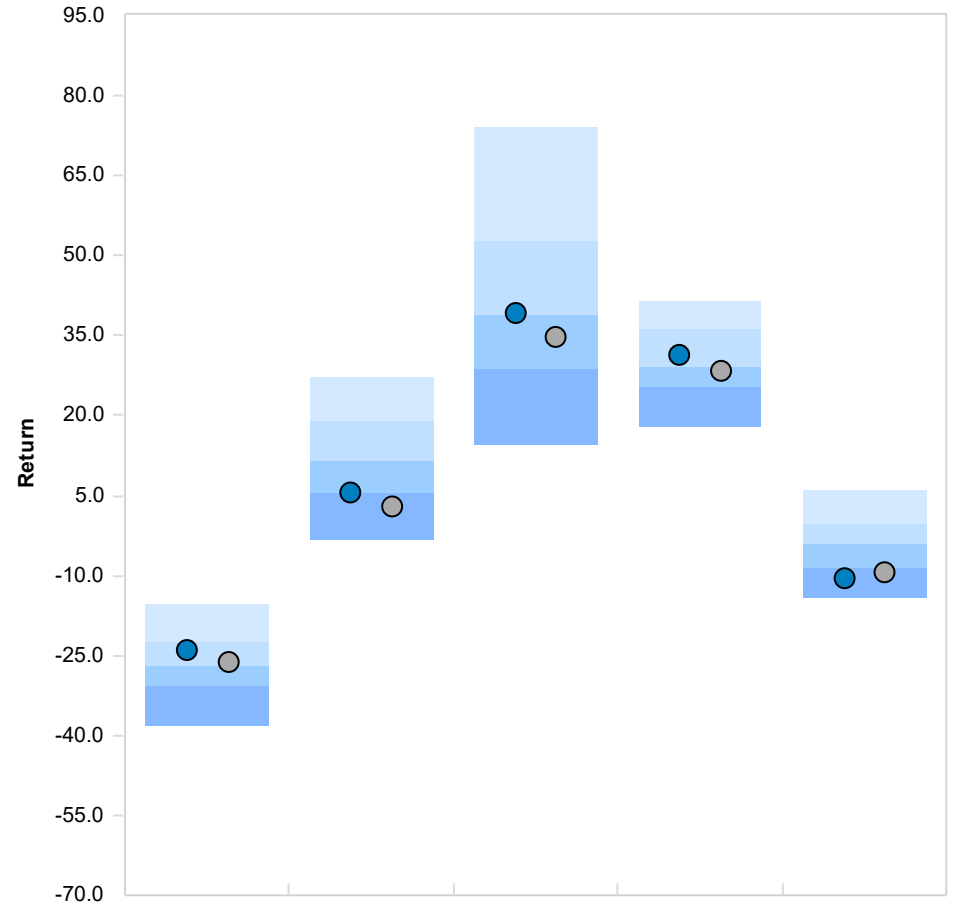


Peer Group Analysis - IM U.S. Small Cap Growth Equity (SA+CF+MF)



	QTR	FYTD	1 YR	2 YR	3 YR	4 YR	5 YR
● Investment	-8.50 (85)	3.86 (66)	10.68 (54)	-10.92 (51)	1.69 (63)	6.73 (57)	3.41 (68)
● Index	-7.32 (72)	5.24 (53)	9.59 (63)	-11.96 (56)	1.09 (66)	4.56 (91)	1.55 (92)
Median	-6.11	5.55	10.94	-10.80	3.40	7.12	4.82

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



	2022	2021	2020	2019	2018
● Investment	-23.91 (33)	5.74 (74)	39.16 (50)	31.23 (41)	-10.67 (83)
● Index	-26.36 (47)	2.83 (84)	34.63 (59)	28.48 (53)	-9.31 (78)
Median	-26.82	11.67	38.95	29.00	-4.28

Comparative Performance

	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022
Investment	8.85 (7)	4.28 (80)	6.57 (30)	0.01 (35)	-20.10 (62)	-10.65 (28)
Index	7.05 (22)	6.07 (61)	4.13 (60)	0.24 (32)	-19.25 (53)	-12.63 (51)
Median	5.37	6.72	4.73	-1.06	-18.96	-12.60



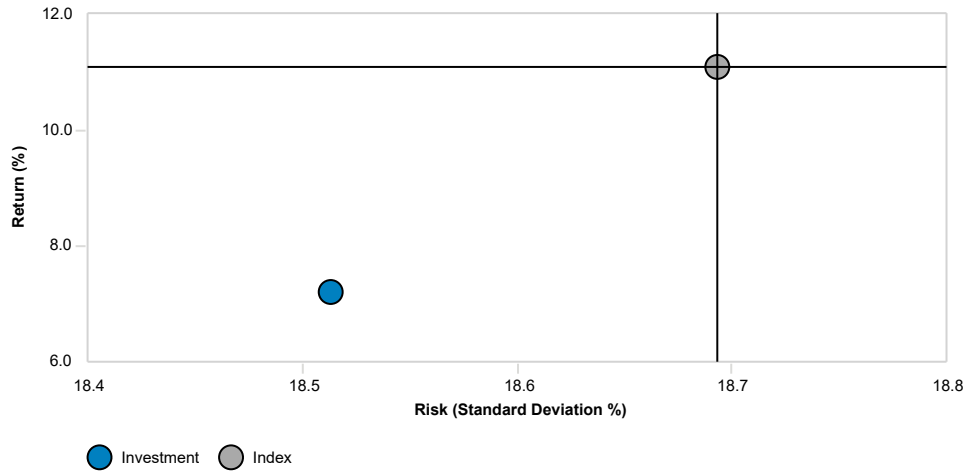
Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	7.20	18.51	0.38	91.79	7	106.08	5
Index	11.11	18.69	0.57	100.00	9	100.00	3

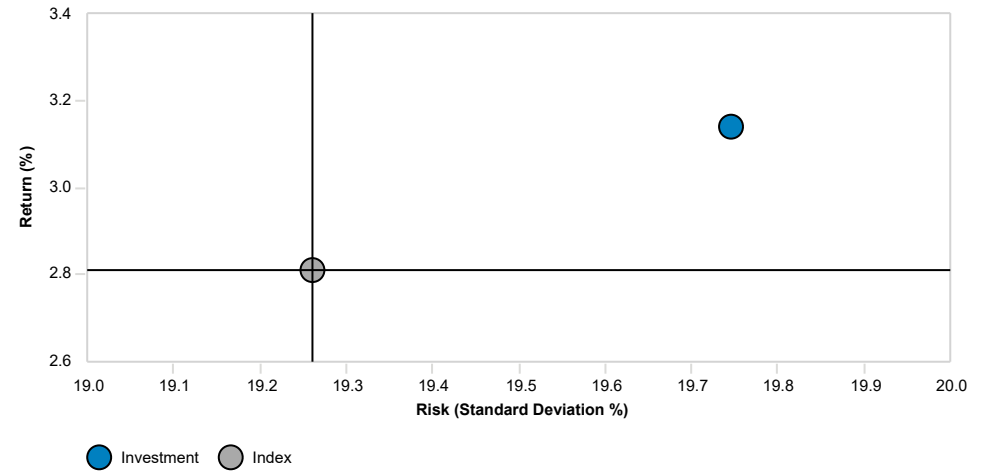
Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	3.14	19.75	0.17	103.22	12	101.98	8
Index	2.81	19.26	0.15	100.00	14	100.00	6

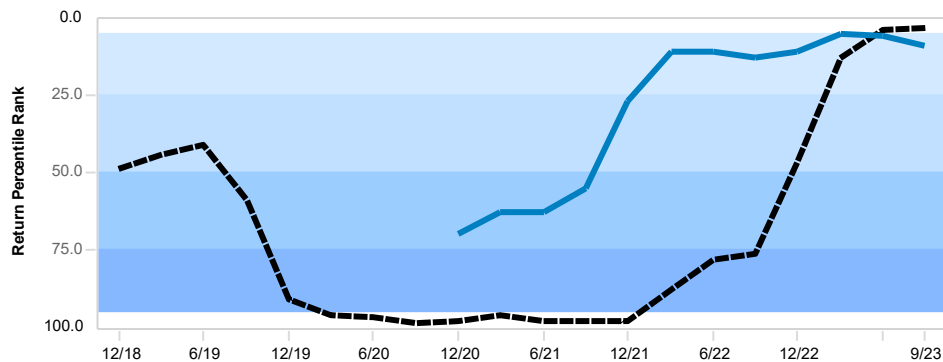
Risk and Return 3 Years



Risk and Return 5 Years

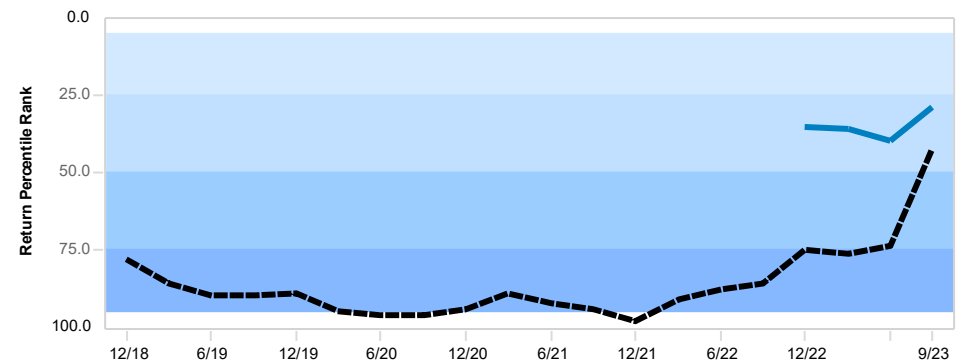


3 Year Rolling Percentile Rank IM International Multi-Cap Core Equity (MF)



	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	12	7 (58%)	1 (8%)	4 (33%)	0 (0%)
Index	20	3 (15%)	4 (20%)	1 (5%)	12 (60%)

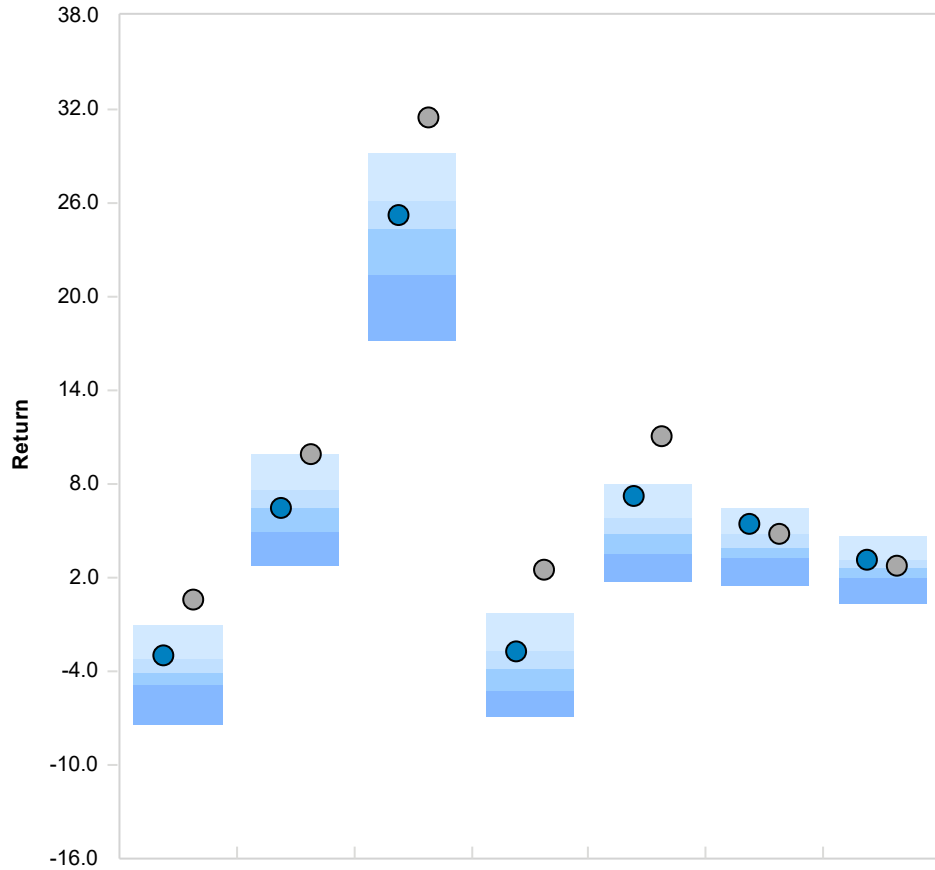
5 Year Rolling Percentile Rank IM International Multi-Cap Core Equity (MF)



	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	4	0 (0%)	4 (100%)	0 (0%)	0 (0%)
Index	20	0 (0%)	1 (5%)	2 (10%)	17 (85%)

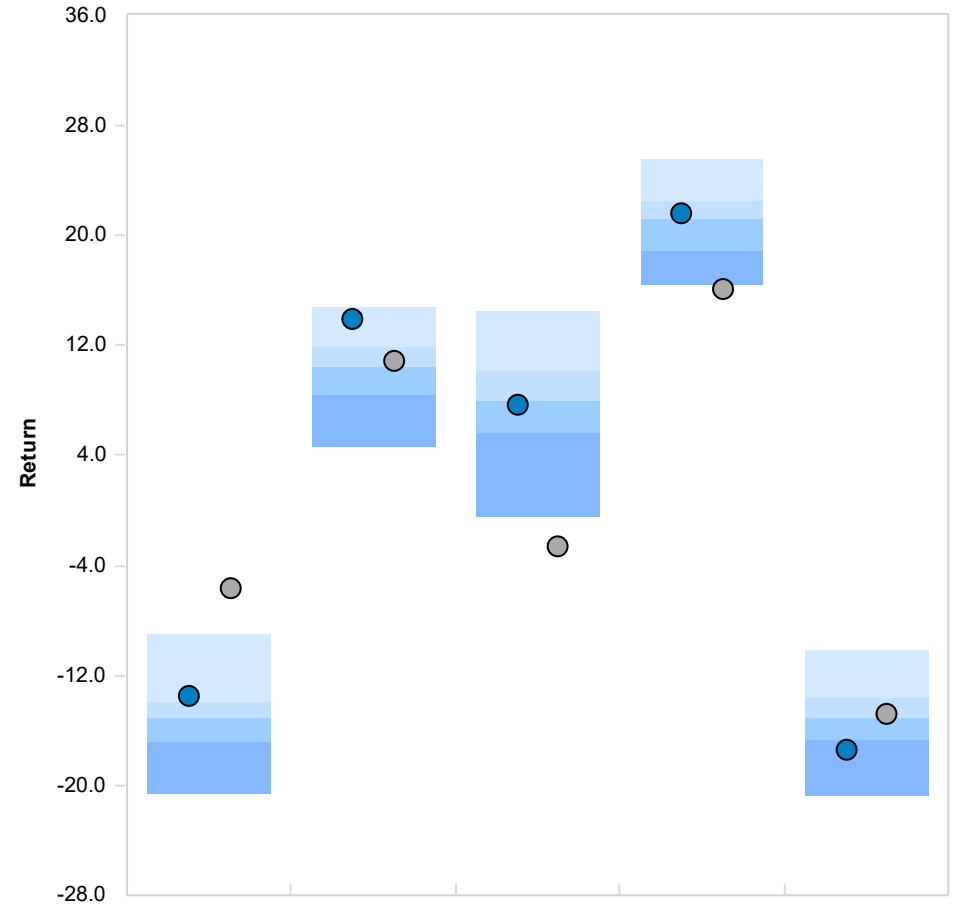


Peer Group Analysis - IM International Multi-Cap Core Equity (MF)



	QTR	FYTD	1 YR	2 YR	3 YR	4 YR	5 YR
● Investment	-2.94 (20)	6.51 (48)	25.28 (38)	-2.72 (26)	7.20 (9)	5.45 (10)	3.14 (29)
● Index	0.59 (1)	9.92 (6)	31.51 (1)	2.47 (3)	11.11 (3)	4.84 (23)	2.81 (42)
Median	-4.13	6.42	24.29	-3.88	4.87	3.94	2.65

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



	2022	2021	2020	2019	2018
● Investment	-13.48 (21)	13.87 (9)	7.72 (55)	21.66 (41)	-17.40 (83)
● Index	-5.58 (2)	10.89 (45)	-2.63 (99)	16.09 (96)	-14.78 (47)
Median	-15.12	10.46	7.96	21.25	-15.14

Comparative Performance

	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022
Investment	2.07 (84)	7.51 (63)	17.63 (29)	-10.45 (53)	-13.59 (58)	-4.95 (14)
Index	3.15 (38)	5.93 (93)	19.64 (5)	-10.20 (39)	-12.41 (22)	0.33 (1)
Median	2.95	7.84	16.91	-10.43	-13.29	-6.47



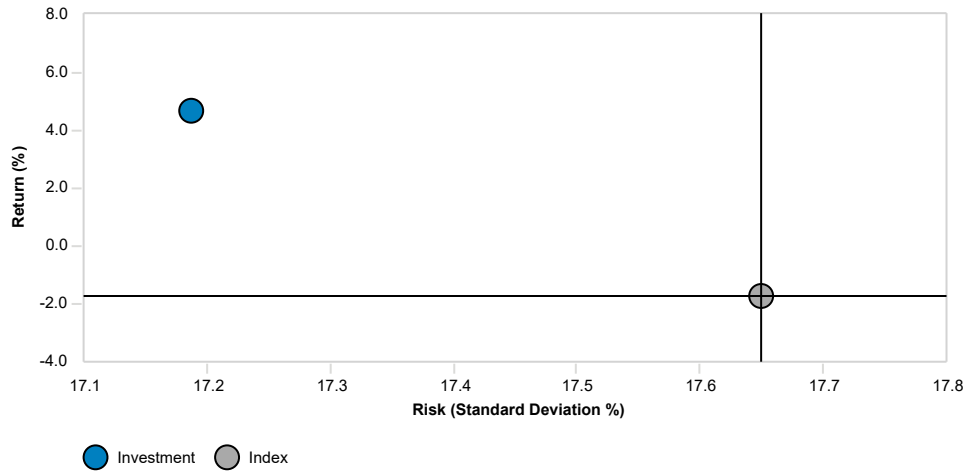
Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	4.72	17.19	0.26	105.52	7	78.68	5
Index	-1.73	17.65	-0.11	100.00	6	100.00	6

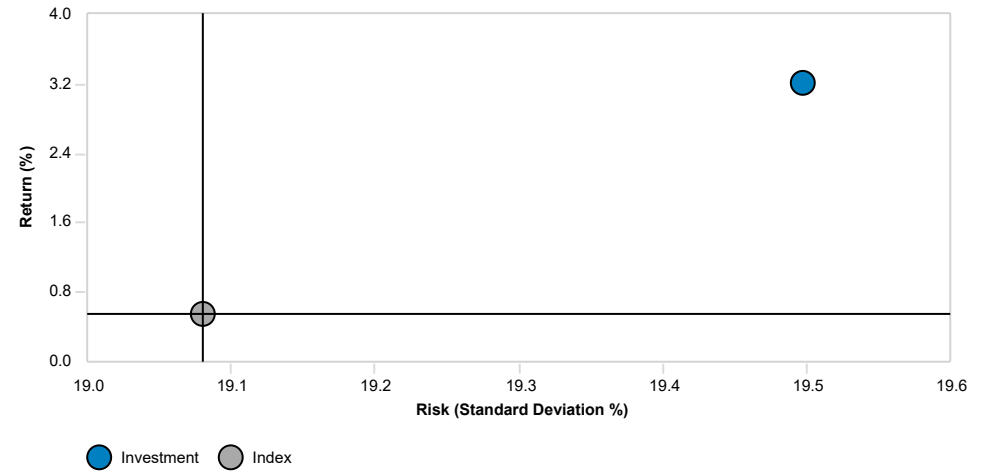
Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	3.21	19.50	0.17	101.86	12	90.91	8
Index	0.55	19.08	0.04	100.00	11	100.00	9

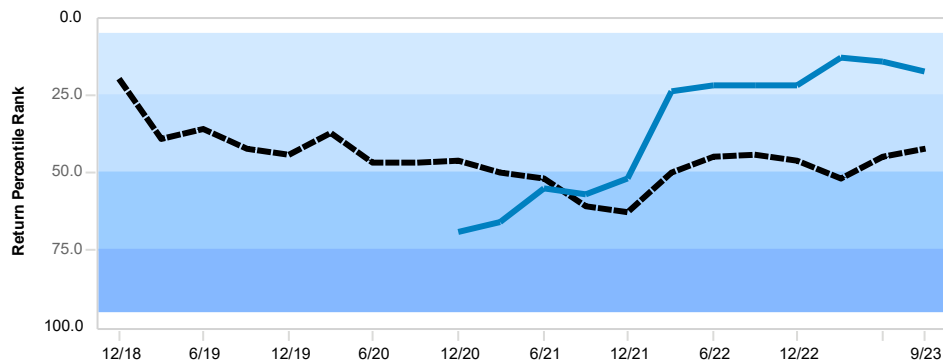
Risk and Return 3 Years



Risk and Return 5 Years

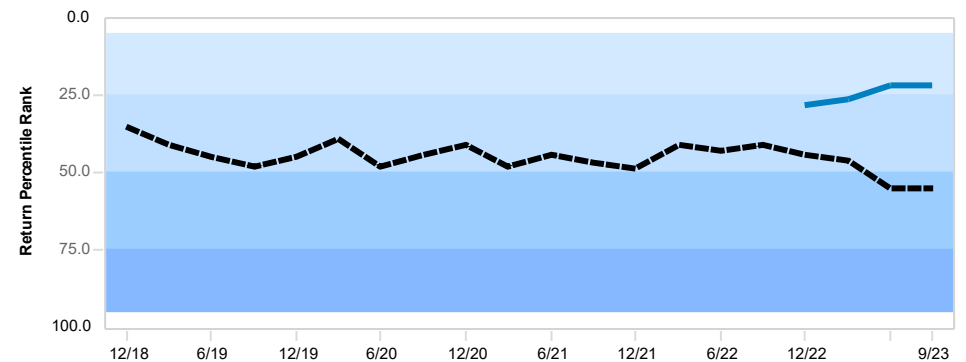


3 Year Rolling Percentile Rank IM Emerging Markets Equity (SA+CF+MF)



	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	12	7 (58%)	0 (0%)	5 (42%)	0 (0%)
Index	20	1 (5%)	15 (75%)	4 (20%)	0 (0%)

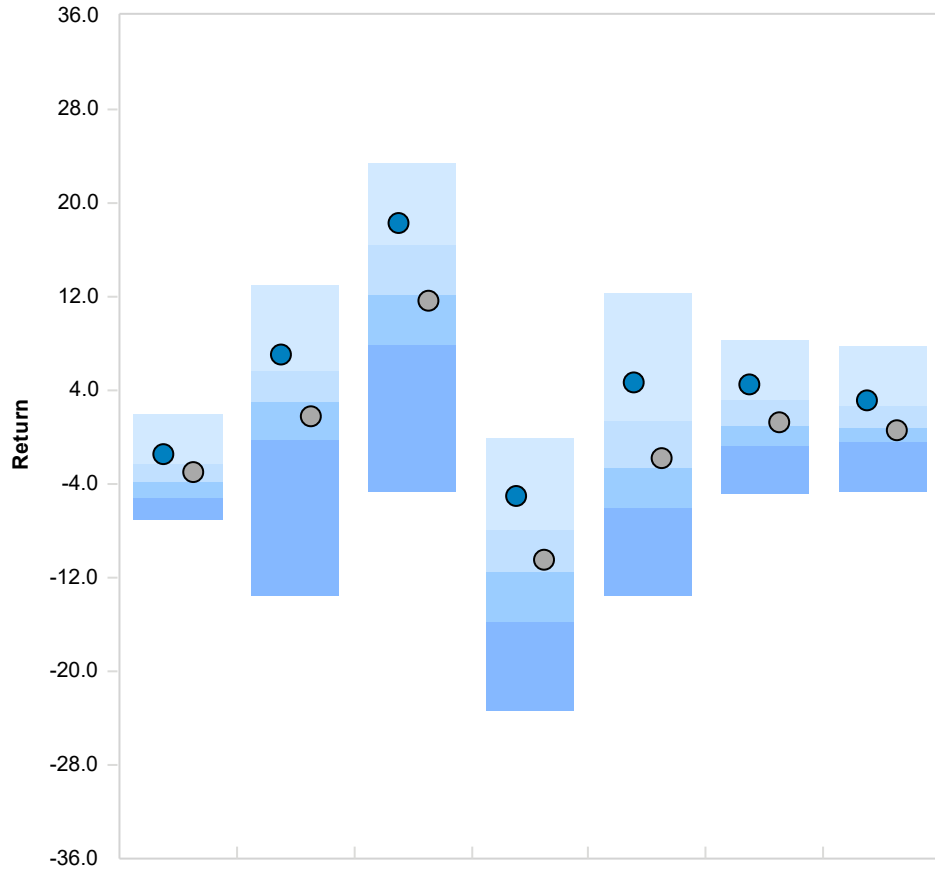
5 Year Rolling Percentile Rank IM Emerging Markets Equity (SA+CF+MF)



	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	4	2 (50%)	2 (50%)	0 (0%)	0 (0%)
Index	20	0 (0%)	18 (90%)	2 (10%)	0 (0%)

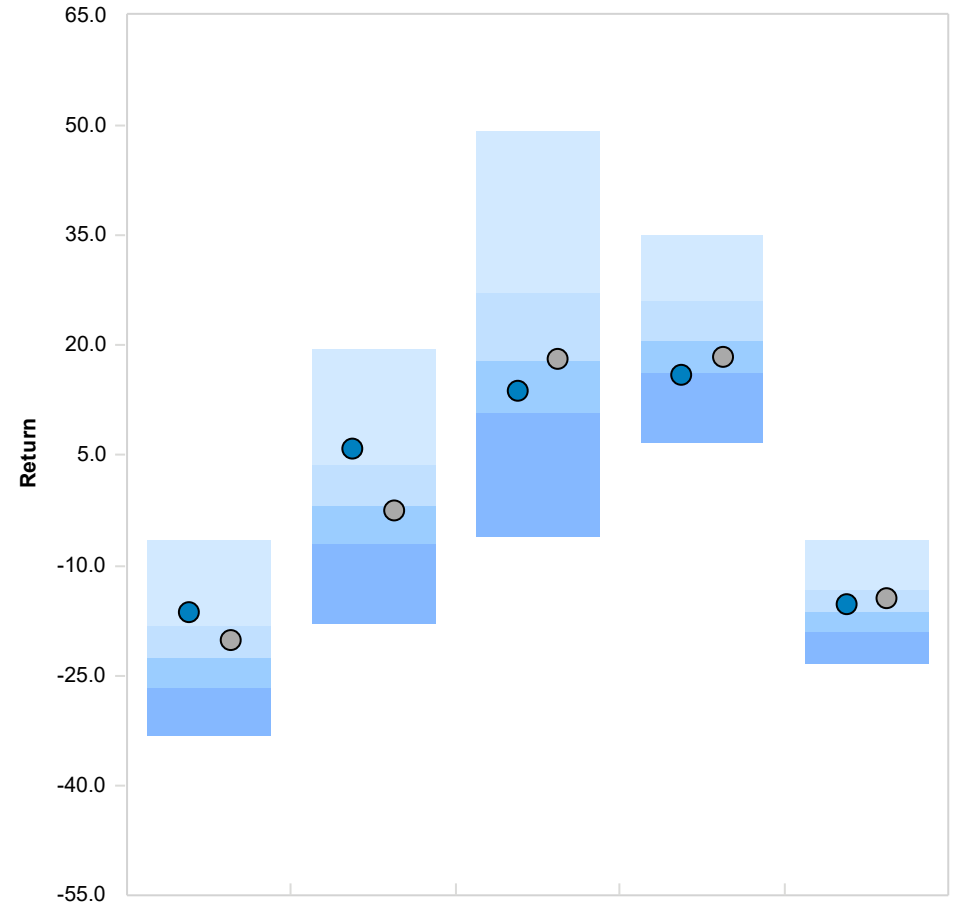


Peer Group Analysis - IM Emerging Markets Equity (SA+CF+MF)



	QTR	FYTD	1 YR	2 YR	3 YR	4 YR	5 YR
● Investment	-1.52 (19)	7.03 (19)	18.31 (16)	-4.99 (16)	4.72 (17)	4.49 (18)	3.21 (22)
● Index	-2.93 (33)	1.82 (60)	11.70 (54)	-10.39 (42)	-1.73 (42)	1.21 (47)	0.55 (55)
Median	-3.85	2.92	12.21	-11.48	-2.60	0.93	0.81

Peer Group Analysis - IM Emerging Markets Equity (SA+CF+MF)



	2022	2021	2020	2019	2018
● Investment	-16.40 (19)	5.83 (18)	13.86 (70)	16.04 (77)	-15.25 (40)
● Index	-20.09 (33)	-2.54 (54)	18.31 (49)	18.42 (63)	-14.57 (32)
Median	-22.50	-1.95	17.99	20.52	-16.44

Comparative Performance

	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022
Investment	2.93 (31)	5.59 (32)	10.54 (41)	-10.90 (46)	-11.79 (52)	-3.77 (13)
Index	0.90 (65)	3.96 (66)	9.70 (54)	-11.57 (56)	-11.45 (45)	-6.97 (29)
Median	1.61	4.84	9.93	-11.21	-11.71	-10.40



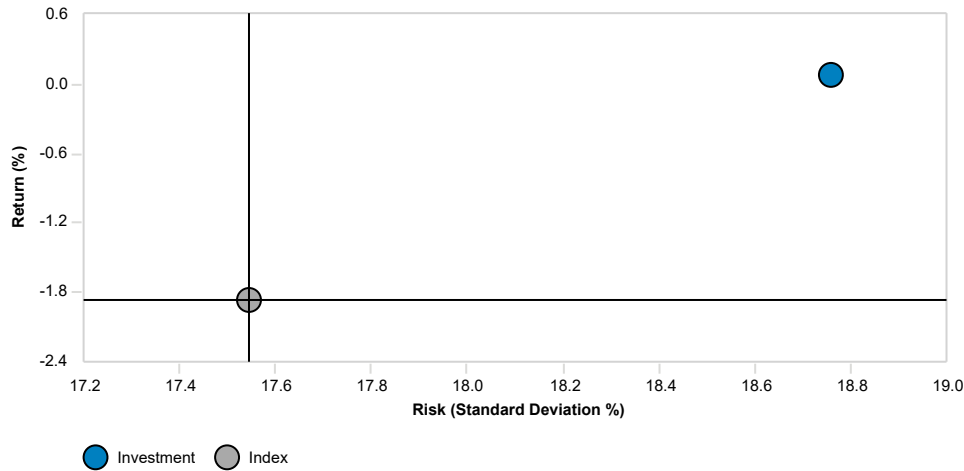
Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	0.08	18.76	0.01	107.80	5	98.81	7
Index	-1.86	17.55	-0.12	100.00	6	100.00	6

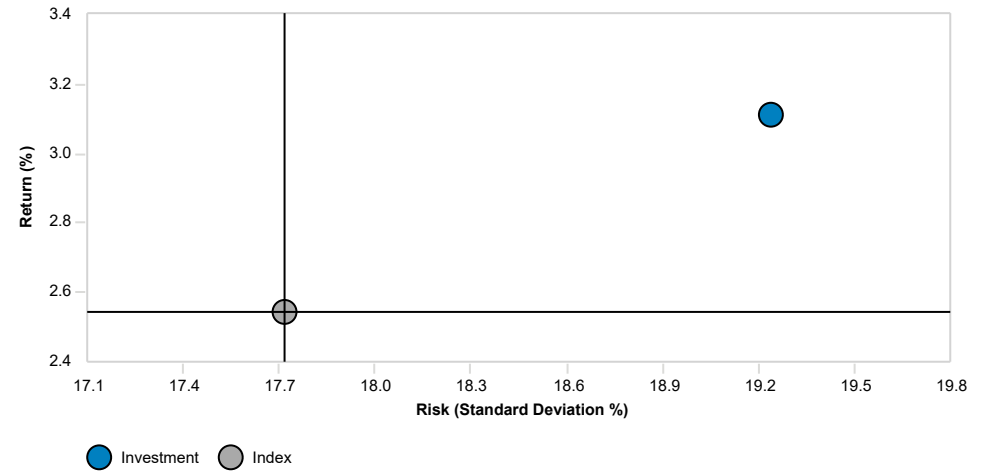
Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	3.11	19.24	0.17	108.10	10	105.87	10
Index	2.54	17.72	0.13	100.00	11	100.00	9

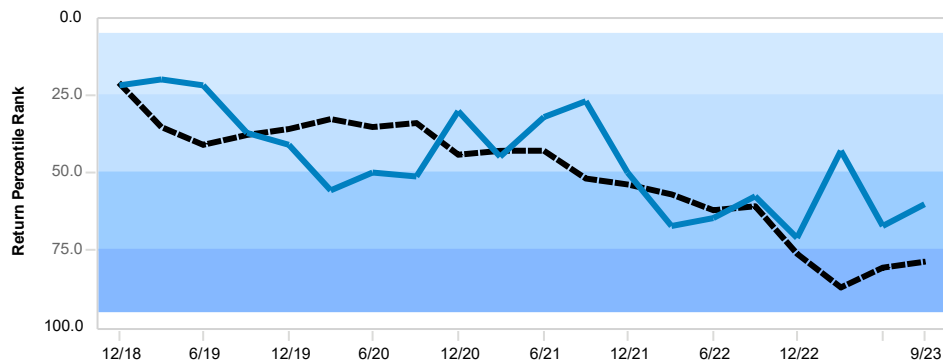
Risk and Return 3 Years



Risk and Return 5 Years

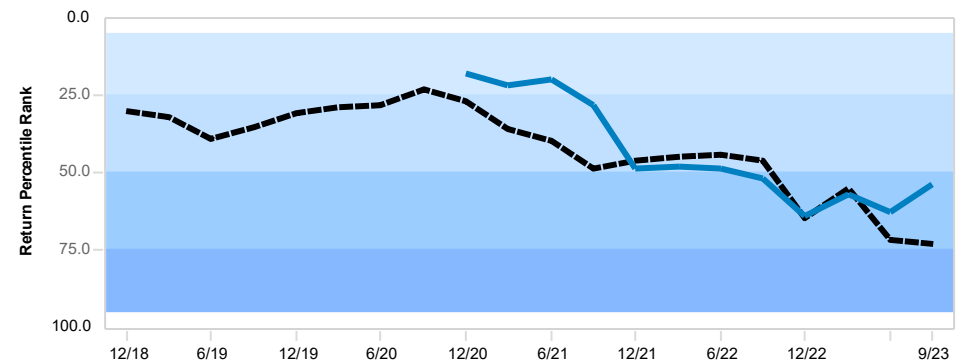


3 Year Rolling Percentile Rank IM International Large Cap Growth Equity (MF)



	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	3 (15%)	9 (45%)	8 (40%)	0 (0%)
Index	20	1 (5%)	10 (50%)	5 (25%)	4 (20%)

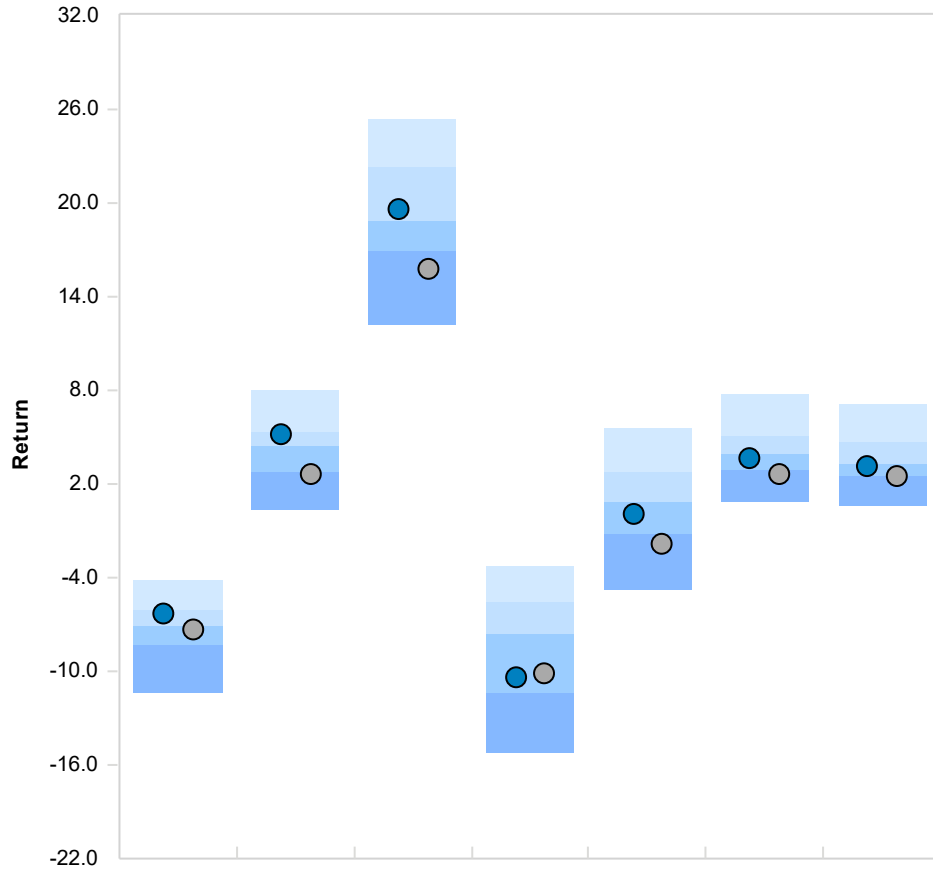
5 Year Rolling Percentile Rank IM International Large Cap Growth Equity (MF)



	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	12	3 (25%)	4 (33%)	5 (42%)	0 (0%)
Index	20	1 (5%)	15 (75%)	4 (20%)	0 (0%)

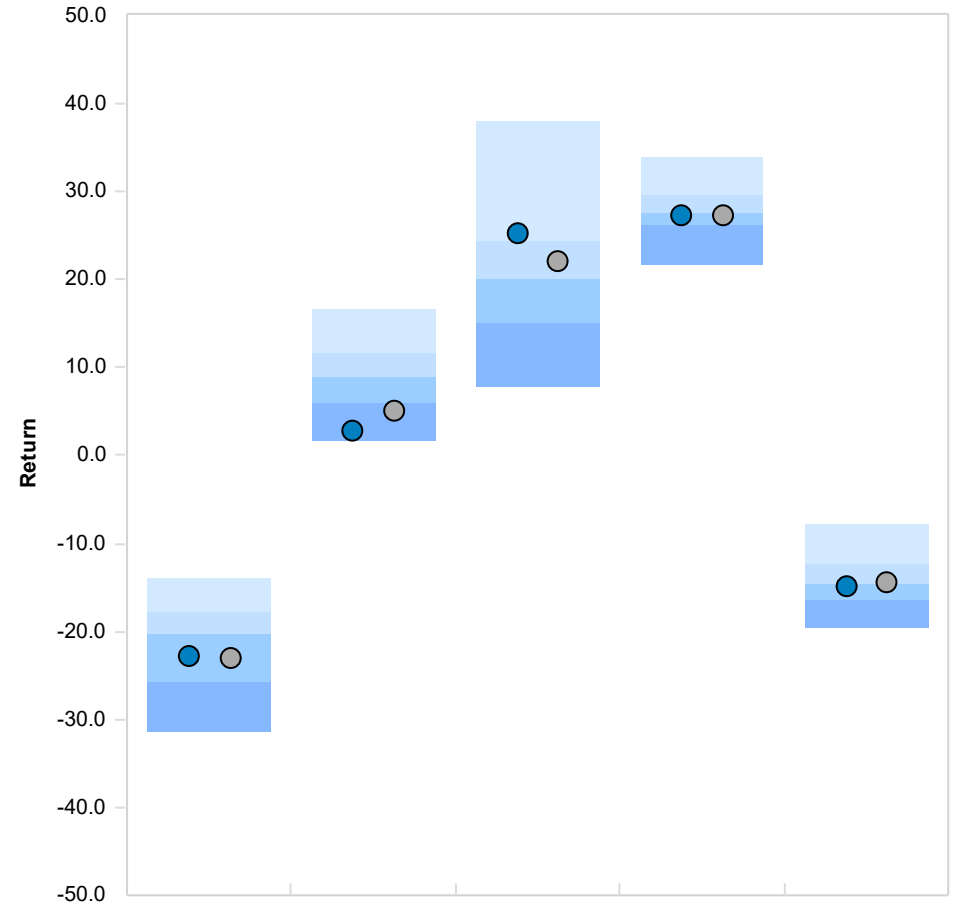


Peer Group Analysis - IM International Large Cap Growth Equity (MF)



	QTR	FYTD	1 YR	2 YR	3 YR	4 YR	5 YR
● Investment	-6.33 (33)	5.15 (29)	19.64 (43)	-10.37 (67)	0.08 (60)	3.61 (60)	3.11 (54)
● Index	-7.31 (55)	2.61 (77)	15.84 (85)	-10.10 (66)	-1.86 (79)	2.67 (79)	2.54 (73)
Median	-7.10	4.42	18.88	-7.53	0.89	3.93	3.23

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



	2022	2021	2020	2019	2018
● Investment	-22.72 (60)	2.84 (86)	25.27 (17)	27.38 (55)	-14.87 (53)
● Index	-23.05 (65)	5.09 (79)	22.20 (41)	27.34 (56)	-14.43 (47)
Median	-20.24	8.88	20.00	27.50	-14.67

Comparative Performance

	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022
Investment	2.16 (63)	9.87 (42)	13.78 (65)	-9.33 (39)	-14.65 (49)	-12.24 (59)
Index	1.94 (74)	8.59 (64)	12.89 (80)	-9.37 (41)	-15.71 (66)	-10.78 (46)
Median	2.45	9.63	14.64	-9.57	-14.68	-10.99



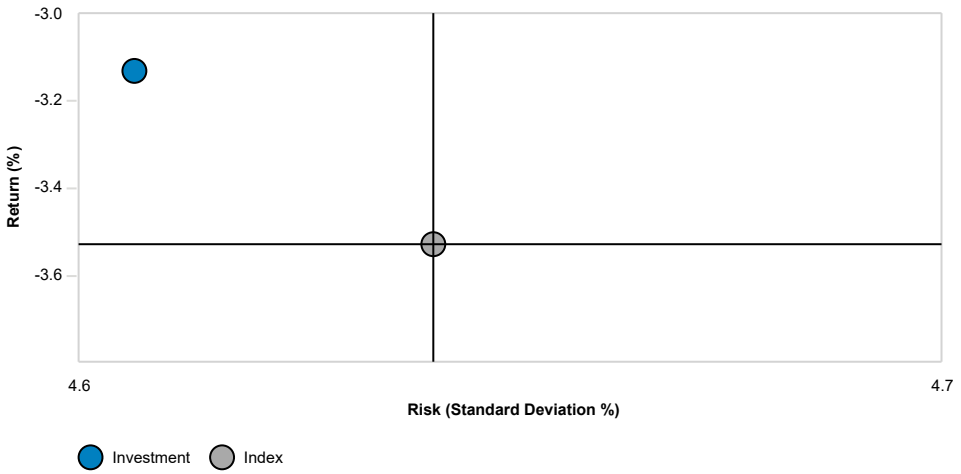
Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	-3.13	4.61	-1.02	100.72	5	95.20	7
Index	-3.53	4.64	-1.11	100.00	5	100.00	7

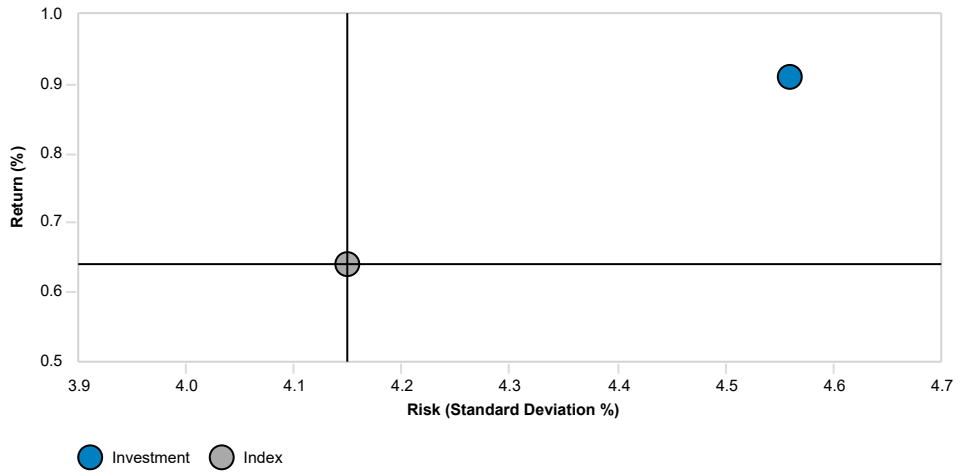
Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	0.91	4.56	-0.15	110.44	12	106.28	8
Index	0.64	4.15	-0.24	100.00	13	100.00	7

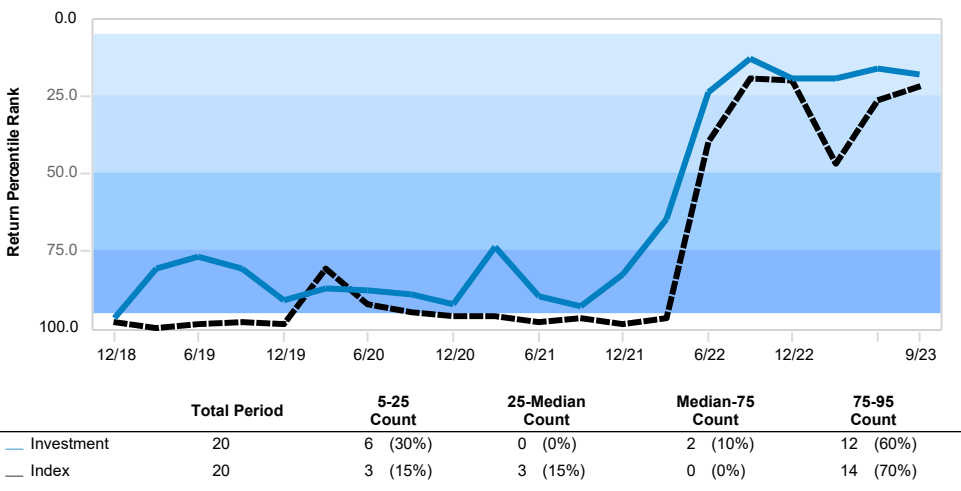
Risk and Return 3 Years



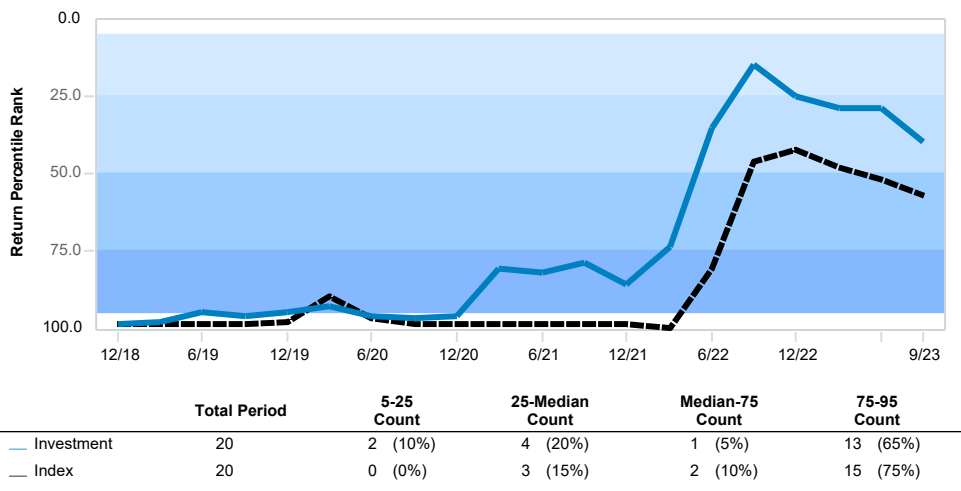
Risk and Return 5 Years



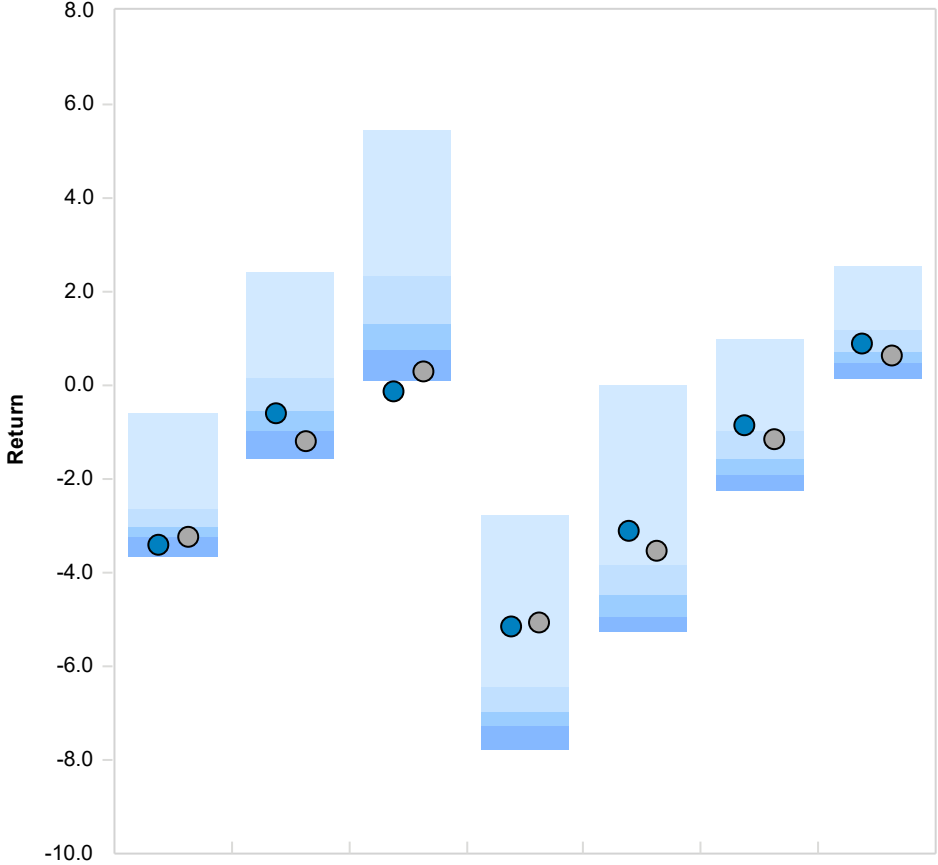
3 Year Rolling Percentile Rank IM U.S. Broad Market Fixed Income (SA+CF)



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

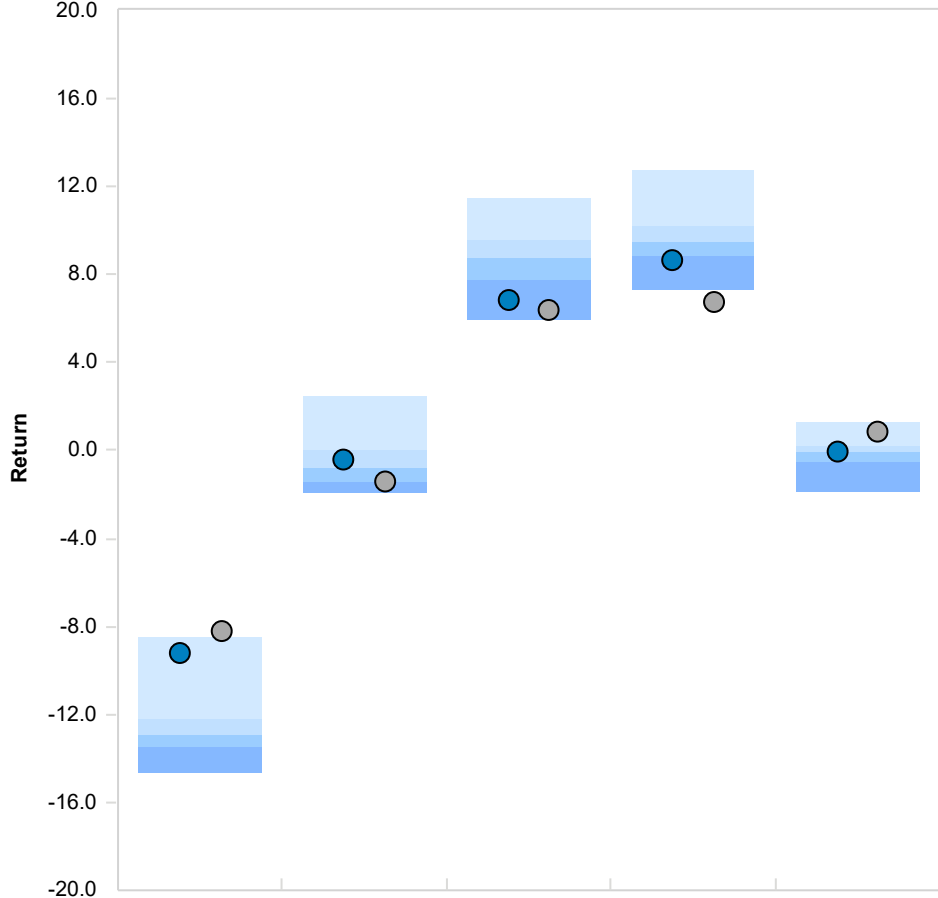


Peer Group Analysis - IM U.S. Broad Market Fixed Income (SA+CF)



	QTR	FYTD	1 YR	2 YR	3 YR	4 YR	5 YR
● Investment	-3.40 (87)	-0.61 (54)	-0.15 (98)	-5.14 (11)	-3.13 (18)	-0.85 (24)	0.91 (40)
● Index	-3.23 (77)	-1.21 (88)	0.31 (94)	-5.06 (11)	-3.53 (22)	-1.16 (31)	0.64 (57)
Median	-3.01	-0.56	1.33	-6.98	-4.47	-1.58	0.73

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



	2022	2021	2020	2019	2018
● Investment	-9.17 (7)	-0.40 (38)	6.86 (91)	8.69 (84)	-0.03 (52)
● Index	-8.24 (5)	-1.44 (76)	6.43 (93)	6.80 (98)	0.88 (9)
Median	-12.92	-0.75	8.74	9.49	-0.01

Comparative Performance

	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022
Investment	-0.15 (18)	3.05 (67)	0.46 (100)	-2.27 (6)	-3.22 (5)	-4.41 (9)
Index	-0.84 (82)	2.96 (75)	1.54 (85)	-3.06 (10)	-2.37 (3)	-4.51 (9)
Median	-0.58	3.16	1.90	-4.47	-5.00	-5.80



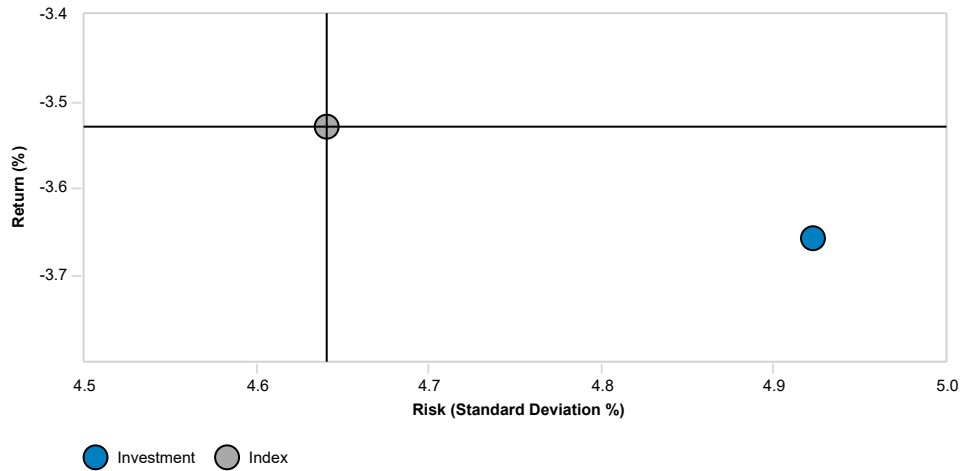
Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	-3.66	4.92	-1.07	108.13	4	106.07	8
Index	-3.53	4.64	-1.11	100.00	5	100.00	7

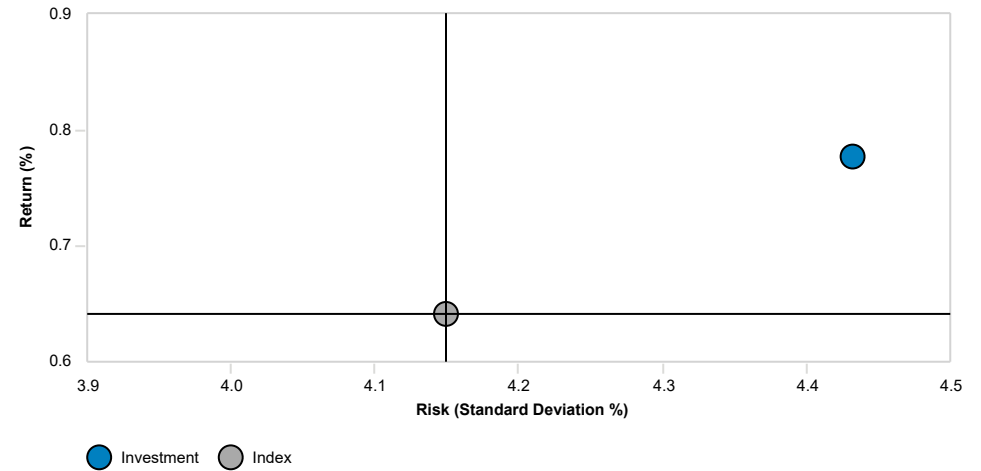
Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	0.78	4.43	-0.19	108.50	12	106.78	8
Index	0.64	4.15	-0.24	100.00	13	100.00	7

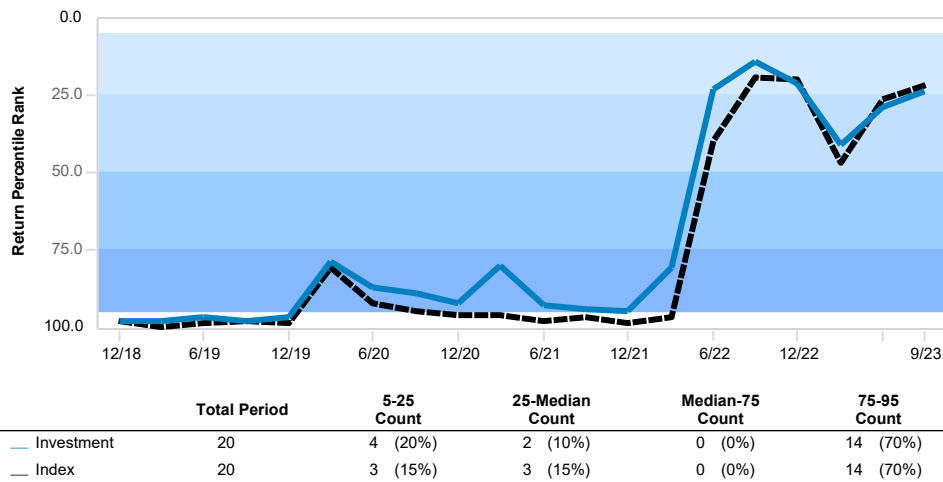
Risk and Return 3 Years



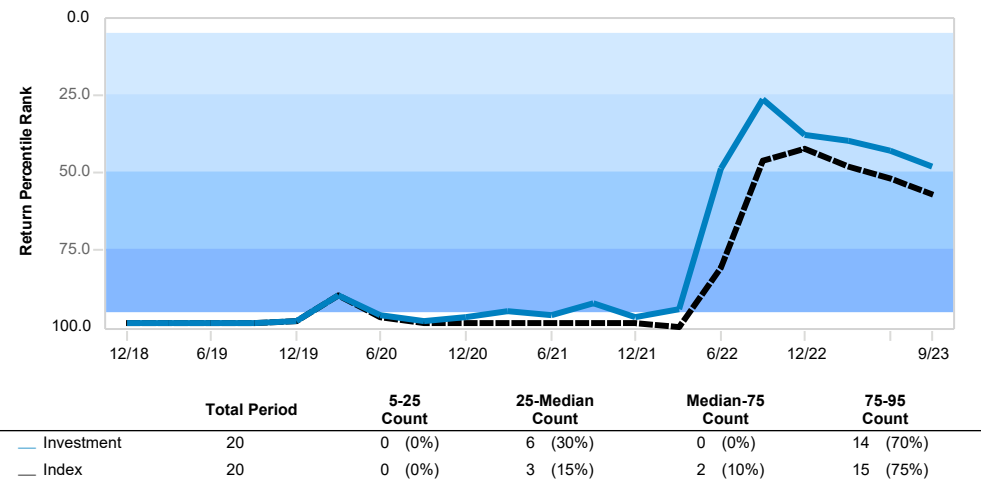
Risk and Return 5 Years



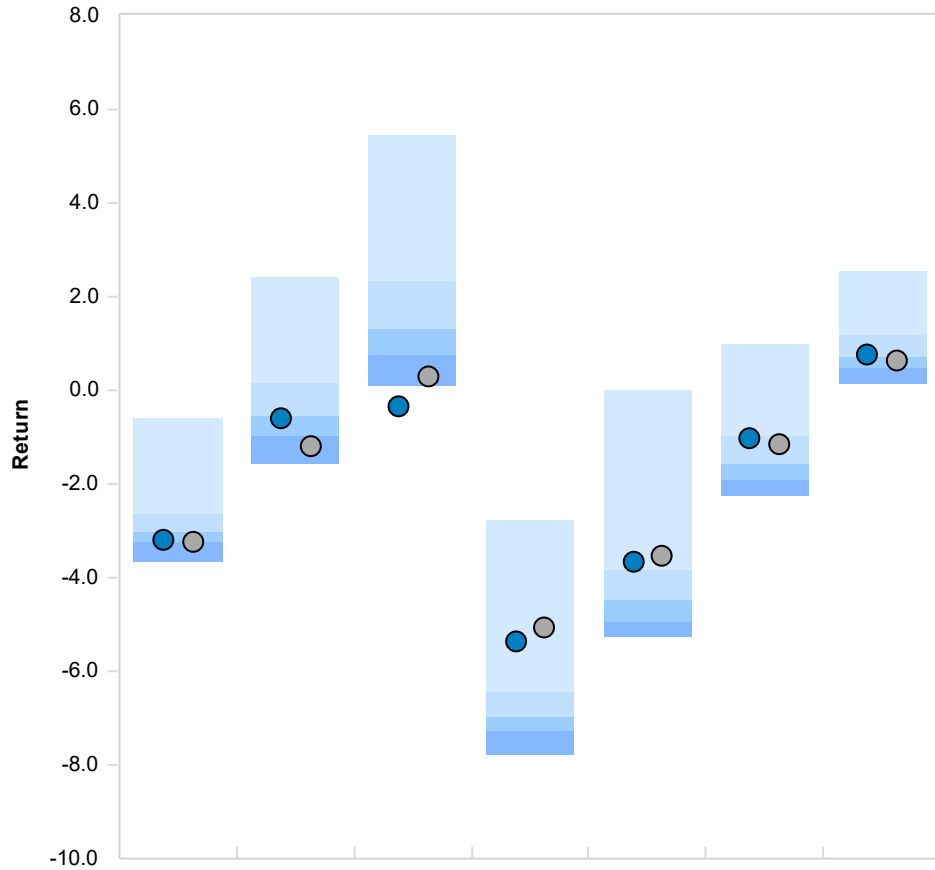
3 Year Rolling Percentile Rank IM U.S. Broad Market Fixed Income (SA+CF)



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

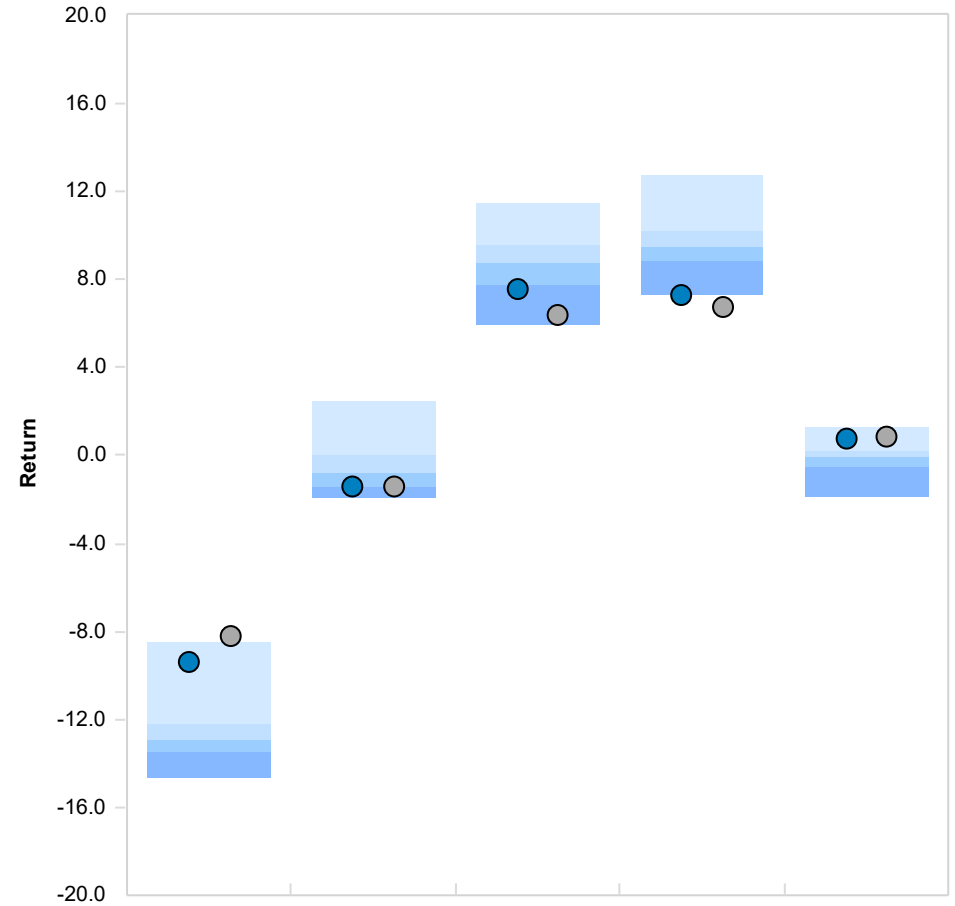


Peer Group Analysis - IM U.S. Broad Market Fixed Income (SA+CF)



	QTR	FYTD	1 YR	2 YR	3 YR	4 YR	5 YR
● Investment	-3.20 (71)	-0.58 (53)	-0.34 (98)	-5.36 (13)	-3.66 (24)	-1.01 (27)	0.78 (48)
● Index	-3.23 (77)	-1.21 (88)	0.31 (94)	-5.06 (11)	-3.53 (22)	-1.16 (31)	0.64 (57)
Median	-3.01	-0.56	1.33	-6.98	-4.47	-1.58	0.73

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



	2022	2021	2020	2019	2018
● Investment	-9.36 (7)	-1.38 (74)	7.53 (85)	7.29 (95)	0.78 (10)
● Index	-8.24 (5)	-1.44 (76)	6.43 (93)	6.80 (98)	0.88 (9)
Median	-12.92	-0.75	8.74	9.49	-0.01

Comparative Performance

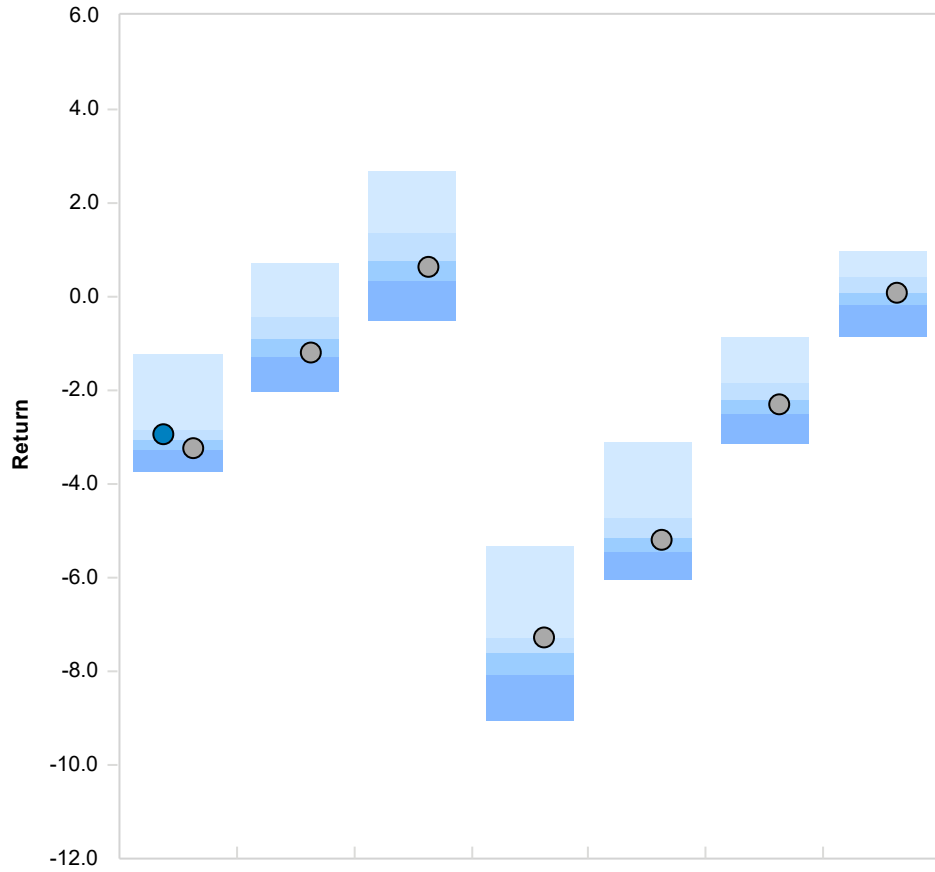
	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022
Investment	-0.67 (59)	3.40 (25)	0.24 (100)	-2.95 (9)	-2.43 (3)	-4.51 (9)
Index	-0.84 (82)	2.96 (75)	1.54 (85)	-3.06 (10)	-2.37 (3)	-4.51 (9)
Median	-0.58	3.16	1.90	-4.47	-5.00	-5.80



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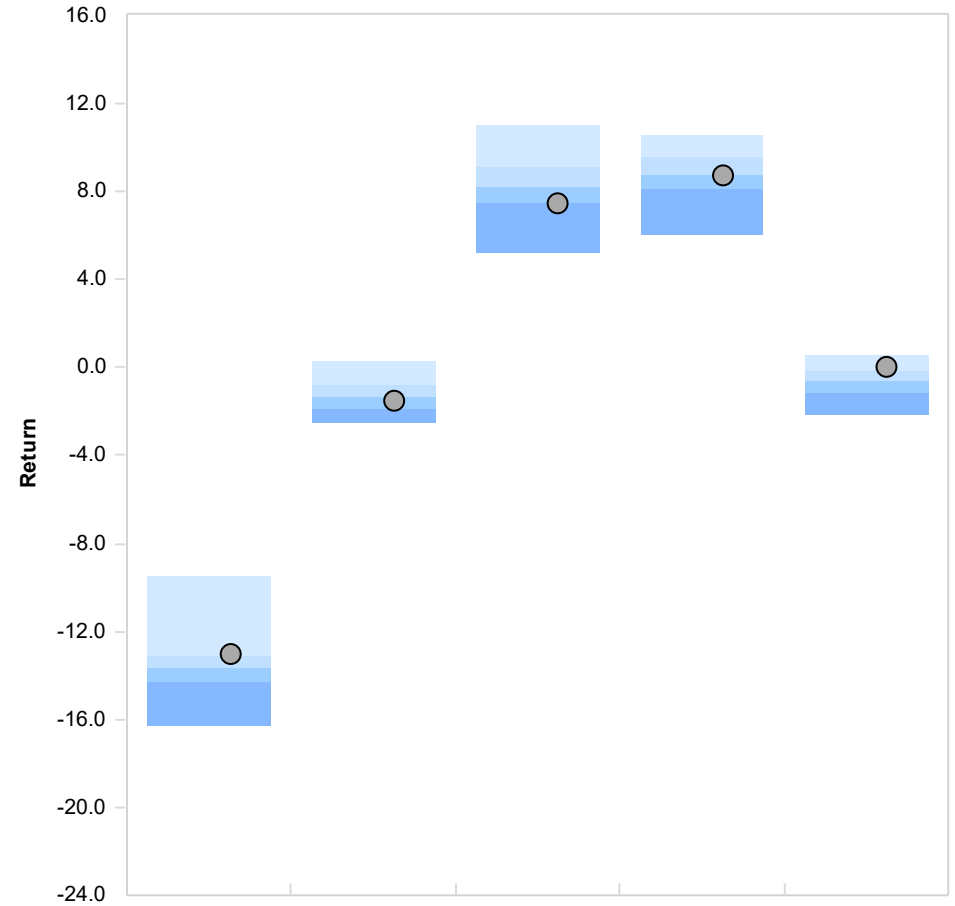


Peer Group Analysis - IM U.S. Broad Market Core Fixed Income (MF)



	QTR	FYTD	1 YR	2 YR	3 YR	4 YR	5 YR
● Investment	-2.93 (30)	N/A	N/A	N/A	N/A	N/A	N/A
● Index	-3.23 (69)	-1.21 (71)	0.64 (57)	-7.29 (28)	-5.21 (56)	-2.30 (57)	0.10 (48)
Median	-3.08	-0.91	0.77	-7.60	-5.13	-2.21	0.08

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



	2022	2021	2020	2019	2018
● Investment	N/A	N/A	N/A	N/A	N/A
● Index	-13.01 (22)	-1.55 (60)	7.51 (73)	8.72 (53)	0.01 (18)
Median	-13.66	-1.33	8.16	8.76	-0.62

Comparative Performance

	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022
Investment	-0.84 (53)	N/A	N/A	N/A	N/A	N/A
Index	-0.84 (55)	2.96 (69)	1.87 (35)	-4.75 (61)	-4.69 (16)	-5.93 (47)
Median	-0.81	3.14	1.71	-4.67	-5.35	-5.98



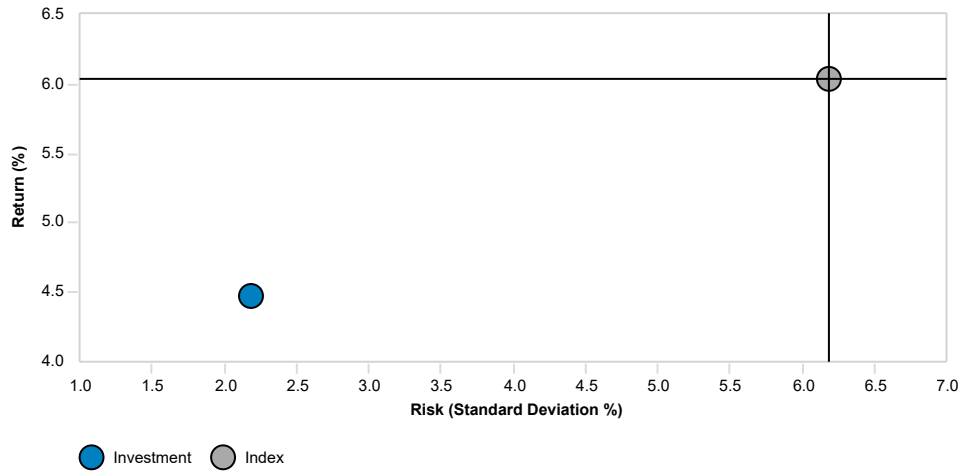
Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	4.48	2.18	0.89	52.27	10	9.24	2
Index	6.04	6.19	0.62	100.00	8	100.00	4

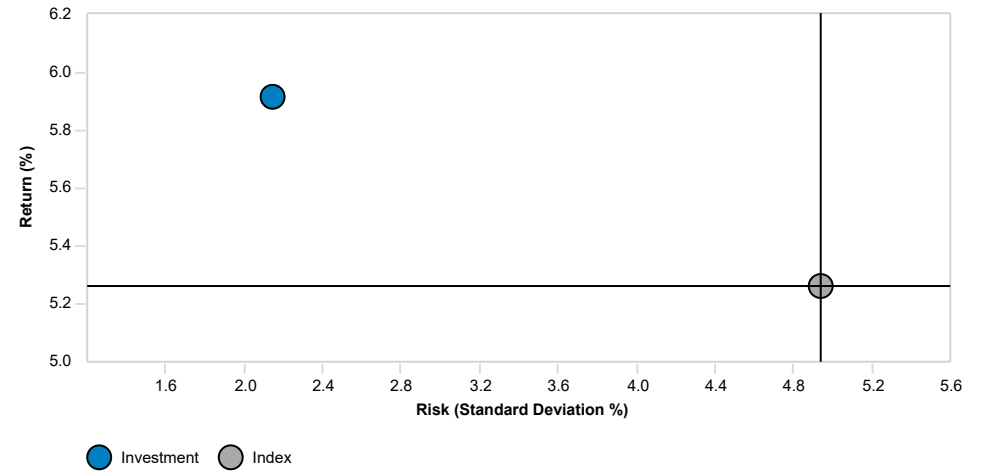
Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	5.92	2.15	1.50	76.81	18	-14.24	2
Index	5.26	4.93	0.64	100.00	15	100.00	5

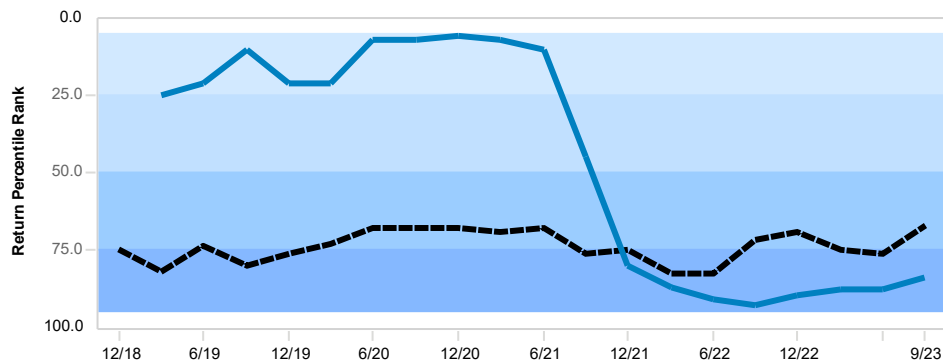
Risk and Return 3 Years



Risk and Return 5 Years

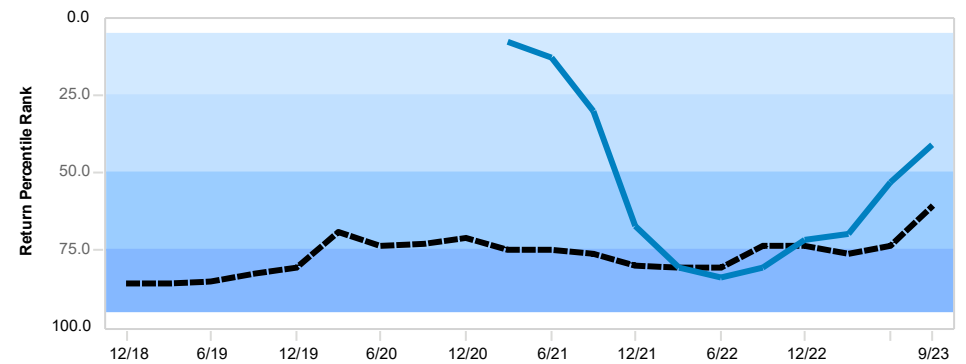


3 Year Rolling Percentile Rank IM U.S. Private Real Estate (SA+CF)



	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	19	10 (53%)	1 (5%)	0 (0%)	8 (42%)
Index	20	0 (0%)	0 (0%)	13 (65%)	7 (35%)

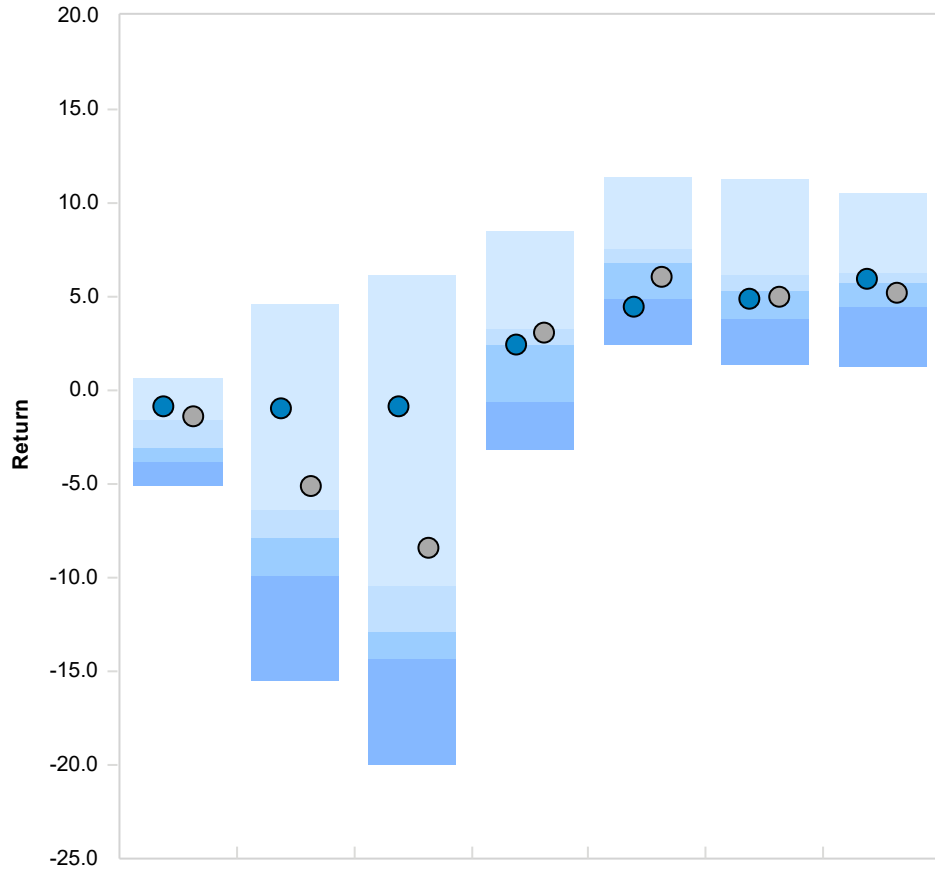
5 Year Rolling Percentile Rank IM U.S. Private Real Estate (SA+CF)



	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	11	2 (18%)	2 (18%)	4 (36%)	3 (27%)
Index	20	0 (0%)	0 (0%)	10 (50%)	10 (50%)

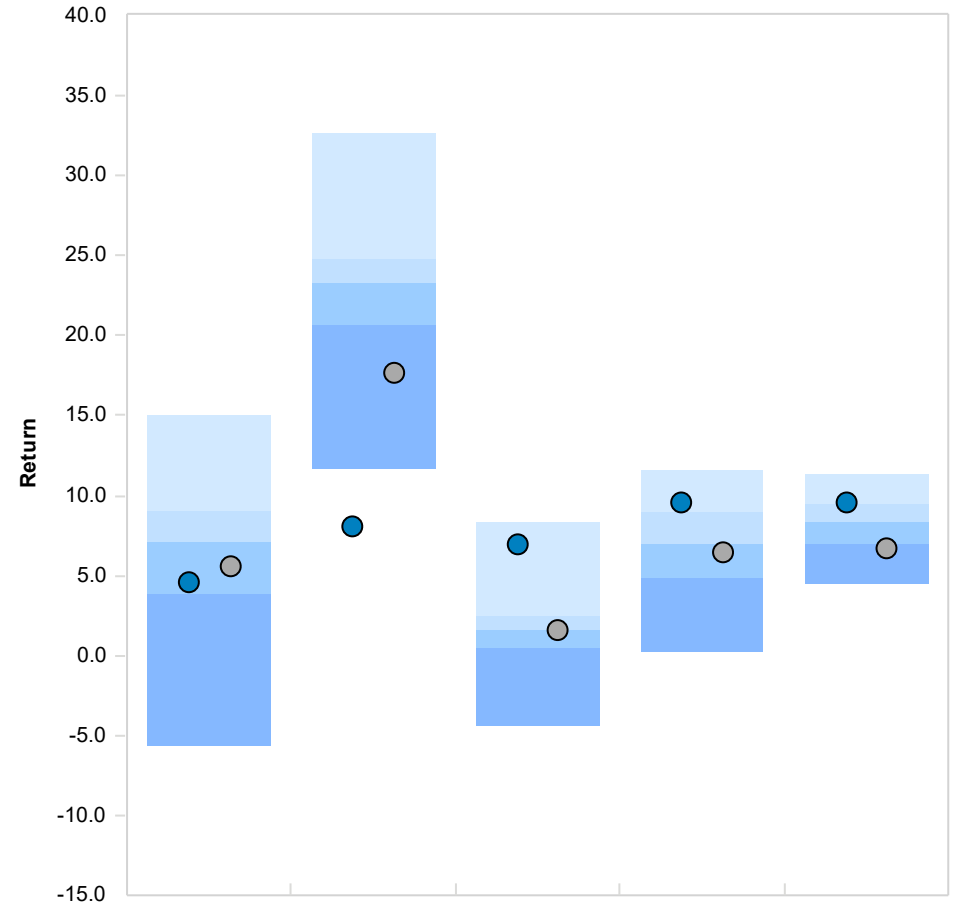


Peer Group Analysis - IM U.S. Private Real Estate (SA+CF)



	QTR	FYTD	1 YR	2 YR	3 YR	4 YR	5 YR
● Investment	-0.85 (13)	-0.96 (10)	-0.80 (10)	2.44 (51)	4.48 (84)	4.94 (60)	5.92 (41)
● Index	-1.37 (19)	-5.07 (15)	-8.39 (20)	3.12 (36)	6.04 (67)	5.02 (59)	5.26 (61)
Median	-3.09	-7.88	-12.83	2.45	6.81	5.36	5.72

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



	2022	2021	2020	2019	2018
● Investment	4.58 (72)	8.04 (97)	6.97 (6)	9.53 (18)	9.60 (23)
● Index	5.52 (59)	17.70 (85)	1.60 (47)	6.42 (64)	6.72 (81)
Median	7.13	23.30	1.57	7.01	8.35

Comparative Performance

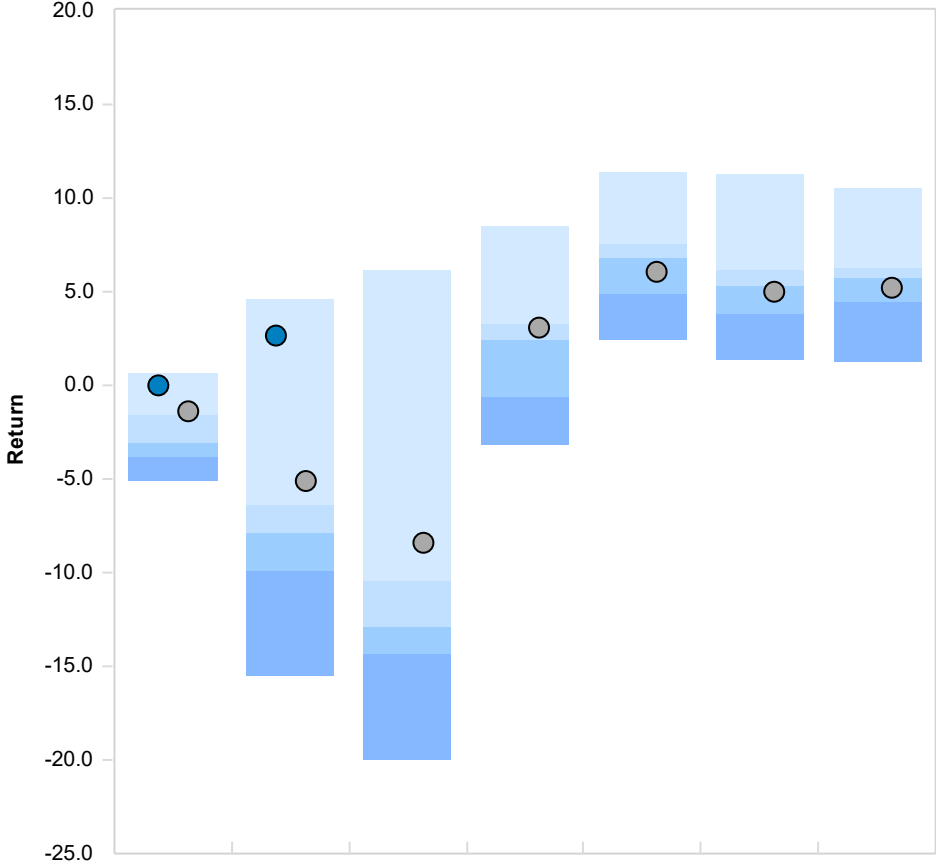
	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022
Investment	0.50 (9)	-0.60 (12)	0.16 (8)	1.38 (30)	1.33 (89)	1.65 (97)
Index	-1.98 (50)	-1.81 (26)	-3.50 (26)	0.57 (53)	3.23 (67)	5.33 (79)
Median	-1.98	-2.98	-4.97	0.59	4.17	6.68



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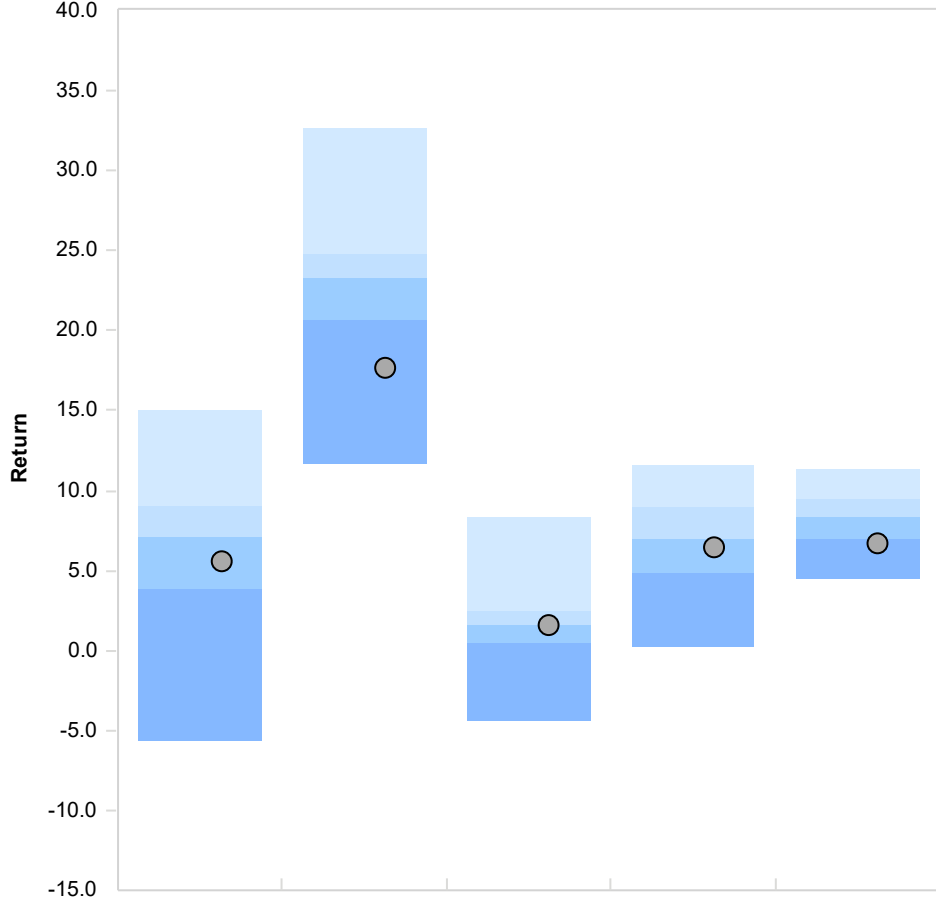


Peer Group Analysis - IM U.S. Open End Private Real Estate (SA+CF)



	QTR	FYTD	1 YR	2 YR	3 YR	4 YR	5 YR
● Investment	0.00 (8)	2.61 (8)	N/A	N/A	N/A	N/A	N/A
● Index	-1.37 (19)	-5.07 (15)	-8.39 (20)	3.12 (36)	6.04 (67)	5.02 (59)	5.26 (61)
Median	-3.09	-7.88	-12.83	2.45	6.81	5.36	5.72

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



	2022	2021	2020	2019	2018
● Investment	N/A	N/A	N/A	N/A	N/A
● Index	5.52 (59)	17.70 (85)	1.60 (47)	6.42 (64)	6.72 (81)
Median	7.13	23.30	1.57	7.01	8.35

Comparative Performance

	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022
Investment	1.54 (8)	1.06 (6)	N/A	N/A	N/A	N/A
Index	-1.98 (50)	-1.81 (26)	-3.50 (26)	0.57 (53)	3.23 (67)	5.33 (79)
Median	-1.98	-2.98	-4.97	0.59	4.17	6.68



	Estimated Annual Fee (%)	Market Value (\$)	Estimated Annual Fee (\$)	Fee Schedule
Total Fund	0.39	288,505,846	1,126,518	
Domestic Large Cap Equity	0.12	73,240,252	84,969	
Vanguard S&P 500 Index Fund (VINIX)	0.04	32,035,409	11,212	0.04 % of Assets
Vanguard Russell 1000 Growth Index (VRGWX)	0.07	17,811,690	12,468	0.07 % of Assets
DFA Large Value Equity (DFLVX)	0.22	12,948,976	28,488	0.22 % of Assets
Vanguard Russell 1000 Value Index (VRVIX)	0.07	6,695,649	4,687	0.07 % of Assets
Vesper Capital Mgmt (UTRN)	0.75	3,748,527	28,114	0.75 % of Assets
Domestic Small Cap Equity	0.56	35,201,226	196,857	
Allspring Global Small Value Eq.	0.50	17,350,189	86,751	0.50 % of Assets
Emerald Small Growth Equity	0.62	17,851,038	110,106	0.75 % of First \$2 M 0.60 % Thereafter
International Equity	0.36	40,062,200	143,432	
DFA International Equity (DFIEX)	0.24	17,150,873	41,162	0.24 % of Assets
DFA Emerging Markets (DFCEX)	0.39	4,460,822	17,397	0.39 % of Assets
EuroPacific Growth Fund (RERGX)	0.46	18,450,505	84,872	0.46 % of Assets
Total Fixed Income	0.22	92,296,371	198,614	
Boyd Watterson Fixed	0.23	46,985,431	108,066	0.23 % of Assets
PNC Fixed	0.28	25,131,517	70,368	0.28 % of Assets
Vanguard Core Bond Fund (VCOBX)	0.10	20,179,423	20,179	0.10 % of Assets
Private Real Estate	1.17	19,004,849	222,312	
Boyd Watterson GSA Fund	1.25	12,905,410	161,318	1.25 % of Assets
Bentall GreenOak US Core Plus RE	1.00	6,099,439	60,994	1.00 % of Assets
Private Equity	1.00	20,495,159	204,952	
Ironsides Direct Investment Fund V	1.00	9,974,045	99,740	1.00 % of Assets
PA Co-Investment Fund III	1.00	6,369,977	63,700	1.00 % of Assets
Adams Street Co-Investment Fund V	1.00	2,799,002	27,990	1.00 % of Assets
Hamilton Lane Secondary Fund VI	1.00	1,352,135	13,521	1.00 % of Assets
Private Debt	0.94	8,039,409	75,382	
Ironsides Opportunities Fund	0.75	2,004,916	15,037	0.75 % of Assets
PA Credit Strategies Fund	1.00	6,034,493	60,345	1.00 % of Assets
Cash		166,380	-	
Cash Account		166,380	-	

See the disclosure page at the end of this report.

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.



Historical Hybrid Composition

Allocation Mandate	Weight (%)
Dec-1997	
Bloomberg Intermediate US Govt/Credit Idx	40.00
MSCI EAFE (Net) Index	10.00
Russell 3000 Index	50.00
Mar-1998	
Russell 3000 Index	50.00
MSCI EAFE (Net) Index	10.00
Bloomberg Intermediate US Govt/Credit Idx	40.00
Mar-2005	
Russell 3000 Index	50.00
MSCI EAFE (Net) Index	10.00
Bloomberg Intermediate US Govt/Credit Idx	37.00
Blmbg. U.S. Corp High Yield	3.00
Mar-2007	
Russell 3000 Index	50.00
MSCI EAFE (Net) Index	10.00
Bloomberg Intermediate US Govt/Credit Idx	30.00
Blmbg. U.S. Gov't/Credit	10.00
Dec-2010	
Russell 3000 Index	45.00
MSCI EAFE (Net) Index	10.00
Bloomberg Intermediate US Govt/Credit Idx	38.00
NCREIF Property Index	7.00
Dec-2015	
MSCI EAFE (Net) Index	10.00
Bloomberg Intermediate US Govt/Credit Idx	37.00
NCREIF Property Index	7.00
Russell 2000 Index	15.00
Russell 1000 Index	12.00
S&P 500 Index	13.00
Alerian MLP Index	6.00

Allocation Mandate	Weight (%)
Mar-2019	
MSCI EAFE (Net) Index	13.00
Bloomberg Intermediate US Govt/Credit Idx	29.00
NCREIF Property Index	6.00
Russell 2000 Index	12.00
Russell 1000 Index	25.00
Alerian MLP Index	4.00
Credit Suisse Leveraged Loan Index	2.00
Russell Microcap + 3%	4.00
Bloomberg 1-5 Year Gov/Credit Idx	5.00
Mar-2021	
MSCI EAFE (Net) Index	13.00
Bloomberg Intermediate US Govt/Credit Idx	29.00
NCREIF Property Index	8.00
Russell 2000 Index	15.00
Russell 1000 Index	22.00
Credit Suisse Leveraged Loan Index	3.00
Russell Microcap + 3%	5.00
Bloomberg 1-5 Year Gov/Credit Idx	5.00
Jan-2023	
MSCI EAFE (Net) Index	13.00
Blmbg. U.S. Aggregate Index	34.00
NCREIF Property Index	8.00
Russell 2000 Index	15.00
Russell 1000 Index	22.00
Credit Suisse Leveraged Loan Index	3.00
Russell Microcap + 3%	5.00



Returns prior to 1/1/2023 are from the prior consultant.

Returns for periods greater than one year are annualized.

Manager fees associated with money market or cash accounts are not tracked.

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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