

March 31, 2023

Pennsylvania SERS 401(a)



**Investment Measurement Service
Quarterly Review**

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Higher Interest Rates Work! That's Good?

ECONOMY

2 Fed rate hikes seem to be working as designed, but there is always a delicate balancing act in trying to avoid a recession. The U.S. economy has held up pretty well, but GDP is slowing and the bond market is signaling a recession is ahead. The risks of that event have increased.

After Worst Year Ever, A Rebound for Bonds

FIXED INCOME

8 Following the worst year ever for core fixed income, the Bloomberg US Aggregate Bond Index rose 3.0% in 1Q. As with equities, it was a bumpy ride with solid returns in January and March sandwiching a negative February. Global indices also rose in the quarter

Interest Continues as IRRs Stay Steady

PRIVATE CREDIT

12 Private credit generated net IRRs between 7% and 10% for trailing periods ended 9/30/22. Interest in the asset class remains strong and a renewed focus has been placed on relative value, downside protection, and managers' internal workout resources.

4Q22 and 1Q23 Gains Help Ease the Pain

INSTITUTIONAL INVESTORS

4 All investor types saw declines for the trailing year ended 1Q23, but the pain was eased by rebounds for stocks and bonds in 4Q22 and 1Q23. And while 2022 was a tough year, the silver lining is that return expectations going forward are now materially higher.

Private RE Mixed; REITs Lag Equities

REAL ESTATE/REAL ASSETS

10 Income returns for the NCREIF Property Index were positive but appreciation fell for the four major property sectors. REITs lagged equities in the quarter, and real assets were mixed but also lagged equities. Transaction volume continues to decrease on a rolling four-quarter basis.

Steady Gains Amid Volatile Markets

HEDGE FUNDS/MACs

13 Hedge funds ended the quarter in positive territory, although they underperformed broader equity indices, as the group provided steady performance through a volatile market environment. The median manager in the Callan Institutional Hedge Fund Peer Group rose 1.3%.

Increase but the Ride Was Bumpy in 1Q

EQUITY

6 The S&P 500 posted a second straight quarter of positive performance, gaining 7.5% in 1Q23; large cap growth led all style and cap indices higher, advancing 14.4%. Results were mixed across developed markets but most delivered positive returns.

Asset Class Adjusts To Tighter Conditions

PRIVATE EQUITY

11 Except for fundraising dollar volume, virtually all activity measures moderated in 1Q23. Company-level entry and exit transactions retreated to levels seen in 2020, which remain healthy but look meager compared to 2021's stimulus-fueled liquidity peak, and 2022's gradual slowdown.

Index Rises After 3 Quarters of Losses

DEFINED CONTRIBUTION

15 The Callan DC Index rose 6.3% in 4Q22 after three straight quarterly declines. Balances also rose, driven by investment gains. TDFs continued to see the largest inflows. Allocations to equities rose slightly. Fees fell but the amount varied by plan size.

Broad Market Quarterly Returns

U.S. Equity
Russell 3000



Global ex-U.S. Equity
MSCI ACWI ex USA



U.S. Fixed Income
Bloomberg Agg



Global ex-U.S. Fixed Income
Bloomberg Global Agg ex US



Sources: Bloomberg, FTSE Russell, MSCI

Higher Interest Rates Work! That's Good, Right?!

ECONOMY | Jay Kloepfer

The Federal Reserve has two very public mandates: to support employment growth and to maintain low, stable inflation. When the economy falls into recession (GDP and jobs are contracting) and unemployment rises, the Fed typically steps in and lowers interest rates. Lower rates stimulate borrowing by consumers and businesses, and thereby spur demand that will ultimately pull the economy back into the black with positive economic growth and a resumption of hiring. When inflation rises, the Fed typically steps in and raises interest rates. Higher rates slow borrowing by consumers and businesses, and thereby lessen demand and slow the upward pressure on prices.

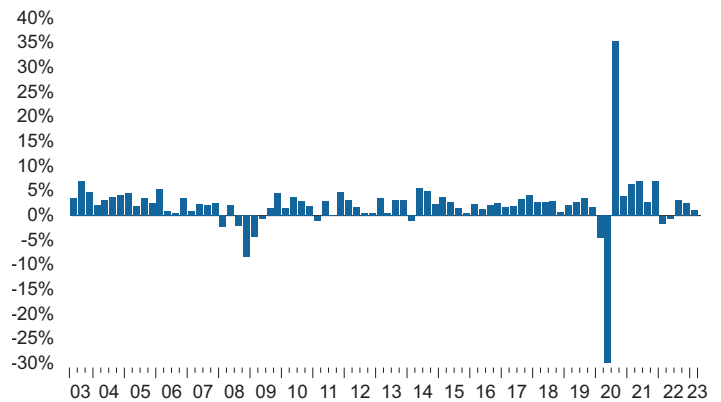
There is a balancing act on both sides of this policy equation: How much stimulus is enough to get the economy growing and spur recovery in the job market to pull down unemployment, before the resumption in demand pushes up prices? How high can interest rates go before the economy slows enough to tip into recession and unemployment shoots up? While this characterization is incredibly simplistic compared to the complex inner workings of the Fed, and ignores for the moment the impact of the Fed balance sheet and monetary tightening or easing, the story works to help explain the conundrum we currently face as we move into 2Q23.

The last three years saw incredible mayhem in the supply chains, capital flows, and job markets of the world, with equally volatile yet weirdly out-of-sync (at times) mayhem in the capital markets. We suffered through a pandemic with an uneven global policy response, and the invasion of Ukraine in winter 2022. Global energy fell to an effective price of zero in 2020 only to skyrocket immediately thereafter. Inflation surged hard after more than a decade of suppression, and central bank responses to withdraw stimulus and put out the inflation fire in 2022 spooked equity markets and drove fixed income returns to their worst year ever.

Underneath all this, the U.S. economy has actually held up pretty darn well. We regained the pre-pandemic levels of GDP and employment in fairly short order, given the depth of the declines. The job market in the U.S. has been particularly robust; even in 2022 as the capital markets plummeted, we added 4.8 million jobs

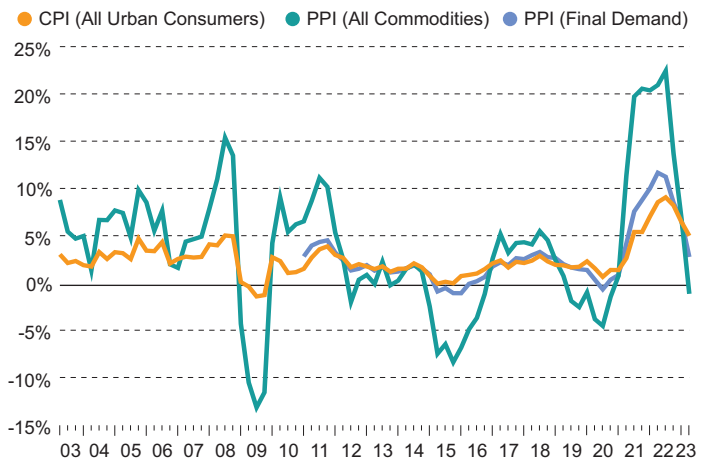
Quarterly Real GDP Growth

(20 Years)



Source: Bureau of Economic Analysis

Inflation Year-Over-Year



Source: Bureau of Labor Statistics

during the year, with two monster months in February and July, and an average of 330,000 new jobs in the other 10 months of 2022. On the downside, overall gains in jobs hide the continued mismatch between the supply of jobs from employers and the type of jobs workers are demanding. Many trade and service industries remain woefully understaffed. Personal income surged, first through pandemic support in 2020 and the inability to spend in lockdown, and then as wages and salaries rose when economic growth burst into the open in 2021 and 2022. However, inflation ate into income gains and drove up prices for businesses, crimping real returns and company margins. Now that the Fed Funds rate has reached 5% and mortgage rates are at 7%, is it time for us to tip into recession? Did the Fed do “too much, too late?”

1Q23 GDP grew 1.1%, a definite slowdown from the second half of 2022, and below consensus expectations of 2%. Two culprits for the slower growth were weaker retail sales and a drop in new home construction. Another culprit was inventory reduction—companies worked down their stockpiles. Reducing inventories in anticipation of slower demand can be a self-fulfilling prophecy, as inventory reduction is a negative to GDP, but it can also set the economy up for a stronger 2Q, with the potential to rebuild inventory in the coming months. The consensus among economic forecasters is for substantial slowdown in 2023, to near zero growth in 2Q and 3Q, reaching the soft landing that is the holy grail of central banks.

Over history, however, we have not enjoyed soft landings in recessions; unemployment has spiked far beyond what would be thought of as a soft landing. The data for tracking recessions are all lagged, but the sequence of events in the economy is typically 1) slowing activity that takes a while to show up in the GDP data, then 2) cutting back in the form of spending and hiring, 3) layoffs starting in high-flying industries, leading to 4) the multiplier effects of the slowdown snowballing into significant job losses across the broad economy. The stock market usually prices in recession first, often far ahead of the economic data, and then the market begins to advance, pricing in the recovery while the recession is still unfolding.

The bond market has been signaling belief in recession with an inverted yield curve. The market fully believed in the Fed's interest rate plans in March 2022 when inflation took off, and the yield curve shifted up sharply. As the year went on, the bond market then began worrying that the Fed would have to reverse course "soon" and start cutting rates to stave off recession, hence the inversion of the yield curve. The Fed has made it clear that inflation remains concern

Recent Quarterly Economic Indicators

	1Q23	4Q22	3Q22	2Q22
Employment Cost: Total Compensation Growth	4.8%	5.1%	5.0%	5.1%
Nonfarm Business: Productivity Growth	-2.7%	1.6%	1.2%	-3.7%
GDP Growth	1.1%	2.6%	3.2%	-0.9%
Manufacturing Capacity Utilization	78.3%	78.5%	79.4%	79.6%
Consumer Sentiment Index (1966=100)	64.6	58.8	56.1	57.8

Sources: Bureau of Economic Analysis, Bureau of Labor Statistics, Federal Reserve, IHS Economics, Reuters/University of Michigan

The Long-Term View

Index	1Q23	Periods Ended 3/31/23			
		1Yr	5Yrs	10Yrs	25Yrs
U.S. Equity					
Russell 3000	7.2	-8.6	10.5	11.7	7.4
S&P 500	7.5	-7.7	11.2	12.2	7.4
Russell 2000	2.7	-11.6	4.7	8.0	6.8
Global ex-U.S. Equity					
MSCI EAFE	8.5	-1.4	3.5	5.0	4.3
MSCI ACWI ex USA	6.9	-5.1	2.5	4.2	--
MSCI Emerging Markets	4.0	-10.7	-0.9	2.0	--
MSCI ACWI ex USA Small Cap	4.7	-10.4	1.7	5.1	6.5
Fixed Income					
Bloomberg Agg	3.0	-4.8	0.9	1.4	4.0
90-Day T-Bill	1.1	2.5	1.4	0.9	1.9
Bloomberg Long G/C	5.8	-13.4	0.6	2.3	5.6
Bloomberg GI Agg ex US	3.1	-10.7	-3.2	-1.0	2.8
Real Estate					
NCREIF Property	-1.8	-1.6	6.7	8.3	8.8
FTSE Nareit Equity	2.7	-19.2	6.0	6.0	8.0
Alternatives					
CS Hedge Fund	0.2	-0.9	4.2	3.9	5.5
Cambridge PE*	0.8	-8.2	16.1	15.1	14.1
Bloomberg Commodity	-5.4	-12.5	5.4	-1.7	1.8
Gold Spot Price	8.8	1.6	8.4	2.2	7.8
Inflation – CPI-U	1.7	5.0	3.9	2.6	2.5

*Data for most recent period lags. Data as of 9/30/22.

Sources: Bloomberg, Bureau of Economic Analysis, Credit Suisse, FTSE Russell, MSCI, NCREIF, Refinitiv/Cambridge, S&P Dow Jones Indices

No. 1, and the potential to cause a recession has not entered its deliberations. The strong job market in 1Q—almost a million new jobs—gives the Fed cover to continue course. The storm clouds on the horizon are the various measures of inflation: CPI-U and PCE both rose 5% in the first quarter, and the employment cost index for private industry rose 4.8%. While these rates are high relative to longer term history, they are down substantially from the peaks of mid-2022.

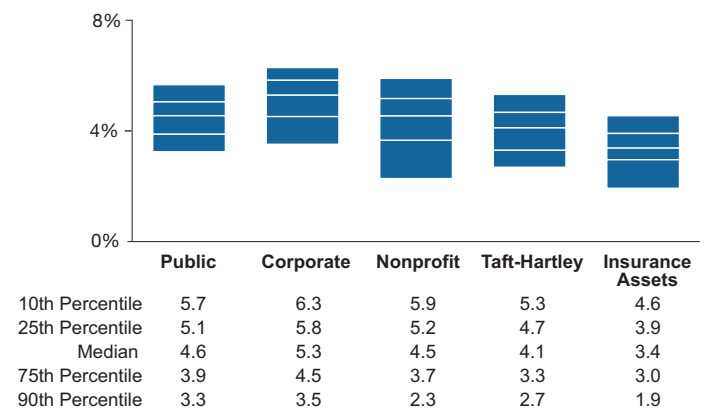
So higher interest rates are working, slowing demand and lessening price pressure, but inflation has a habit of being sticky on the downside. Squeezed margins means pressure to trim costs (and raise prices if possible). Highly visible layoffs in technology may soon expand to the broader economy. The chance of a recession in 2023 remains high.

Returns Fall for Trailing Year, but 4Q22, 1Q23 Gains Help Ease the Pain

INSTITUTIONAL INVESTORS

- Gains for stocks and bonds at the end of 2022 and beginning of 2023 eased the pain of a tough year for all institutional investors in 2022.
- While all investor types saw losses for the trailing one-year ending 1Q23, the declines were less than the double-digit losses they had experienced last year.
- Most investor types topped a 60% S&P 500/40% Bloomberg Aggregate benchmark over the trailing one year, with the exception of corporate plans.
- Results over the last 20 years for all investor types are in line with the stock-bonds benchmark.
- Entering 2023, for all investor types inflation is still an issue, despite recent declines.
 - Even if the rate goes to zero, the level of prices is permanently higher unless we get to deflation. The impact on individual and business real net income is substantial and portends slower growth in 2023 and 2024.
- Rate hikes from the Fed are another key concern.
 - The Fed has increased rates 475 bps since March 2022, from 0.0%-0.25% to 4.75%-5.0% in March 2023.
- While the painful losses across the board for investors in 2022 were a challenge, the silver lining is that higher returns are expected going forward.
 - Return targets are now in sight.
 - Risk reduction is on the table.

Quarterly Returns, Callan Database Groups (3/31/23)



Source: Callan

Callan Database Median and Index Returns* for Periods Ended 3/31/23

Database Group	Quarter	1 Year	3 Years	5 Years	10 Years	20 Years
Public Database	4.6	-4.8	11.2	6.2	7.2	7.9
Corporate Database	5.3	-7.3	5.5	4.2	5.9	7.3
Nonprofit Database	4.5	-4.7	11.2	5.8	6.7	7.7
Taft-Hartley Database	4.1	-4.0	11.2	6.4	7.3	7.5
Insurance Assets Database	3.4	-3.0	4.4	3.2	3.6	5.1
All Institutional Investors	4.6	-4.9	10.6	5.7	6.8	7.6
Large (>\$1 billion)	4.2	-4.9	11.2	6.5	7.3	8.0
Medium (\$100mm - \$1bn)	4.7	-4.9	10.7	5.8	7.0	7.6
Small (<\$100 million)	4.6	-4.9	10.4	5.5	6.6	7.2
60% S&P 500/40% Bloomberg Agg	5.7	-6.3	9.9	7.5	8.1	7.8

*Returns less than one year are not annualized.

Source: Callan. Callan's database includes the following groups: public defined benefit (DB) plans, corporate DB plans, nonprofits, insurance assets, and Taft-Hartley plans. Approximately 10% to 15% of the database constituents are Callan's clients. All database group returns presented gross of fees. Past performance is no guarantee of future results. Reference to or inclusion in this report of any product, service, or entity should not be construed as a recommendation, approval, affiliation, or endorsement of such product, service, or entity by Callan.

- Private markets are now over target allocations.
 - Downward market valuations are slower in coming, distorting true exposures.
 - Interest remains strong in all private assets.
 - Sharpened interest in real assets continues.
 - But current real assets exposures did not help, given losses in the asset class.
- Strategic themes in client conversations: How much has the world changed, and does it alter how we should view and implement our portfolio?

Corporated Defined Benefit (DB) Plans

- Liabilities fell sharply with rising interest rates. Liability-driven investing (LDI) portfolios were hammered by long duration exposure; typical LDI plan treaded water in funded status.
- Plans are questioning what they are doing with LDI, and why. Funded status no longer translates directly to contributions, or expense. Funding relief changed views.
- Total return-oriented plans saw funded status improve as equities declined less than liabilities.
- We expect higher interest rates will increase discussions about pension risk transfer. Most of our corporate DB clients are inclined to keep the plan on the balance sheet.

Public DB Plans

- Downward pressure on actuarial discount rates may now abate as capital markets expectations are higher following the market decline.
- Higher return expectations and lowered discount rates have led to a number of discussions of de-risking, after years of risking-up to chase returns.
- Inflation impacts future liabilities through pressure on salary and hits plans now with COLAs. Political pressures are high on plans with discretionary COLAs. Most COLAs are NOT funded, which is the reason why many plans suspended or eliminated them to address funding shortfalls over the past decade.

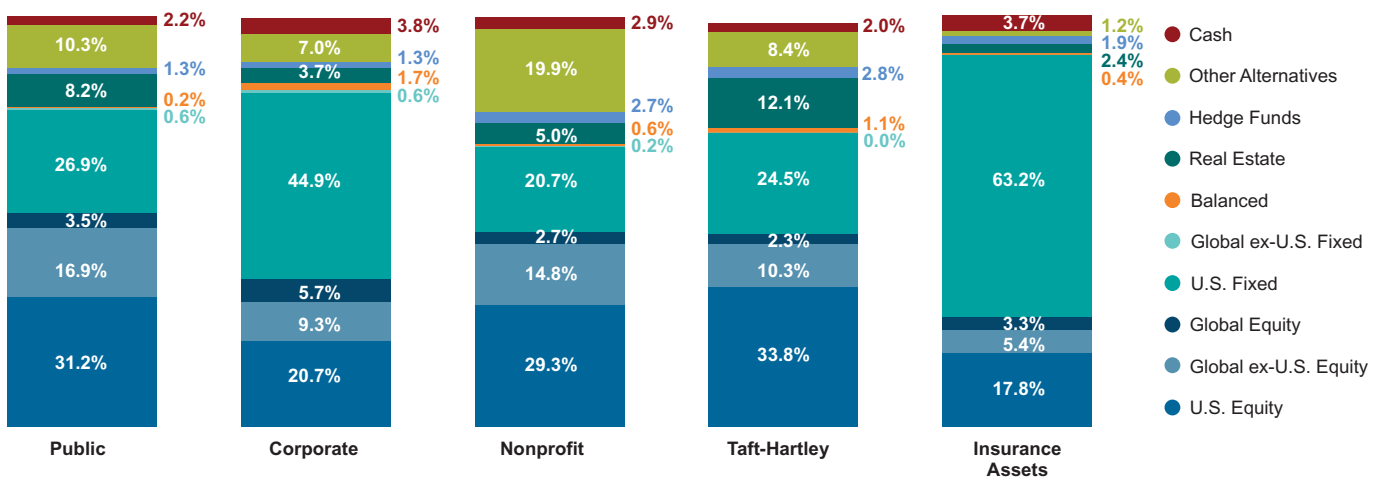
Nonprofits

- They are expanding the depth and breadth of their private markets allocations to diversify a prior focus on growth.
- Inflation concerns will lead to reconsideration of spending policies in 2023.

Defined Contribution (DC) Plans

- Pressure on investment management fees shows no signs of abating.
- Plans are also focused on compliance as they digest the implications of SECURE 2.0.

Average Asset Allocation, Callan Database Groups



Note: Charts may not sum to 100% due to rounding. Other alternatives include but is not limited to: diversified multi-asset, private credit, private equity, and real assets. Source: Callan

Equity

U.S. Equities

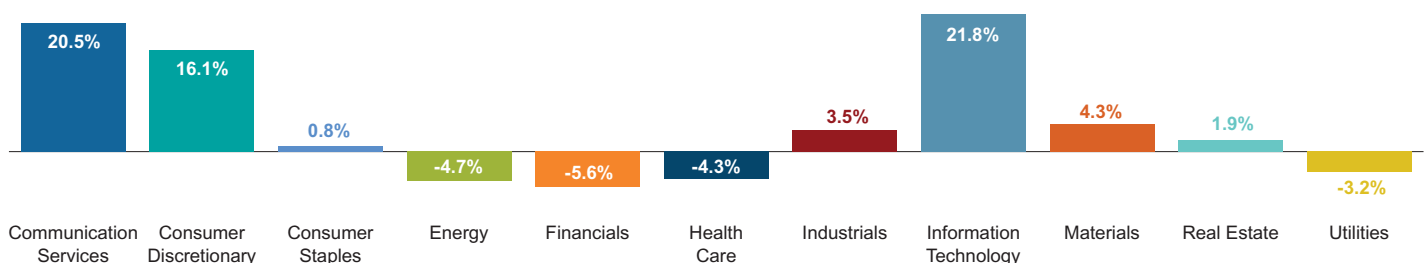
Markets gain, with exception of small cap value

- The S&P 500 posted a second straight quarter of positive performance, gaining 7.5% in 1Q23; large cap growth led all style and cap indices higher, advancing 14.4%.
- Russell 2000 Value was a notable exception and experienced a slight decline of 0.7% due to greater exposure to Financials, specifically banks.
- During the quarter, three sectors comprising 44% of the S&P 500 (and 63% of the Russell 1000 Growth Index) drove performance: Technology (+21.8%), Communication Services (+20.5%), and Consumer Discretionary (+16.1%).
- Financials, Energy, and Health Care posted negative returns for the quarter but had only a modest impact on total returns given smaller weights in respective benchmarks.
- Small caps (Russell 2000) underperformed large caps (Russell 1000) and growth outperformed value during the quarter, a reversal from 2022. Greater exposure to banks in Russell 2000 (8.3%) versus Russell 1000 (3.3%) was one differentiator for returns; strong returns for mega-cap Technology also increased divergence.

Large cap growth outperformance drivers

- The large cap growth outperformance was driven by increased valuations as interest rates declined and expectations of a more dovish Fed emerged.
- Asset managers may take a more cautious approach in equity markets into coming quarters as earnings estimates decline; expect a focus on quality, cash flow, defensive value names, and profitable growth stocks.

Quarterly Performance of Industry Sectors (12/31/22)

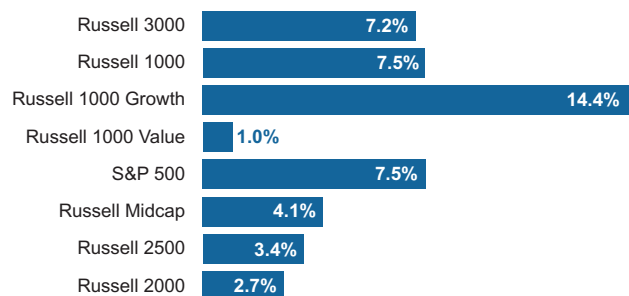


Source: S&P Dow Jones Indices

- Price multiples continue to be important as elevated valuations may compress if markets anticipate that monetary easing is not on the near-term horizon.
- Analyst estimates for future earnings are diverging, typically a sign of elevated economic turbulence.
- Investors “bought the dip” as stock performance reversed from the prior year; the worst-performing stocks for 2022 became best-performing stocks during 1Q23.

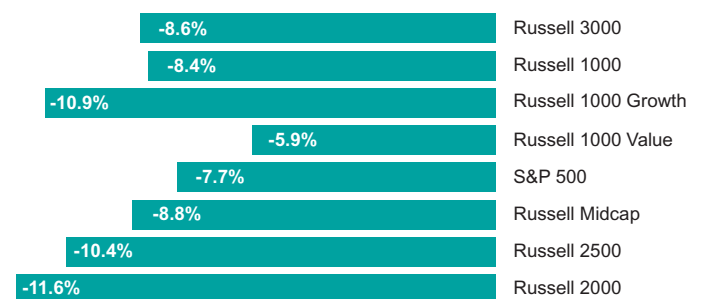
U.S. Equity: Quarterly Returns

(3/31/23)



U.S. Equity: One-Year Returns

(3/31/23)



Sources: FTSE Russell and S&P Dow Jones Indices

Global Equity

1Q23 brought global equity markets back to black

- Positive results despite hiccups
- 1Q23 was marked by the collapse of Silicon Valley Bank and Credit Suisse, which sent fears of a banking crisis across global markets.
- Despite a Fed hike during the period, investors began to price in lower rate expectations.
- Europe outperformed other regions, making up ground lost in 2022 as inflation eased and recession fears lessened.

Growth vs. value

- Growth outpaced value across developed and emerging markets.
- In a reversal from 2022, investors preferred growth alongside a drawdown in banks; Information Technology was the largest outperformer.

U.S. dollar vs. other currencies

- After some strength early in the quarter, the U.S. dollar declined 1% as interest rate differentials narrowed globally.

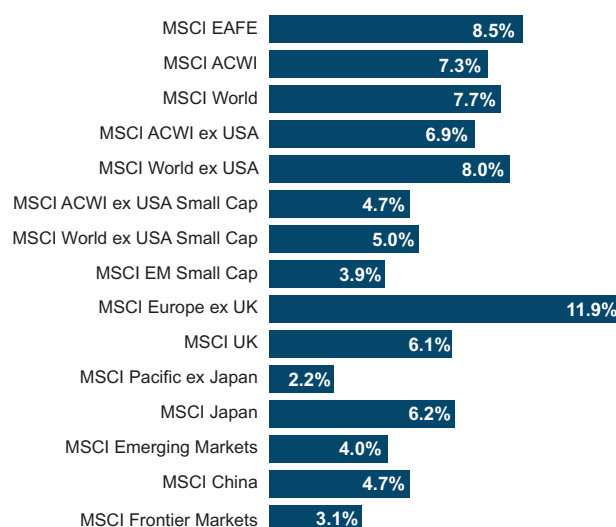
Developed markets outpace U.S.

- Outperformance of developed markets over the past year has been driven by Europe.
- Europe beat U.S. as the worst fears in the wake of the Russia-Ukraine War were not realized.
- Europe benefited from falling gas prices and China reopening.
- Value-growth dispersion was impacted less in developed markets relative to U.S. given the composition of the markets.
- EAFE Value outperformed Growth by 2.5 percentage points.
- S&P 500 Value outperformed Growth by 15.2 percentage points.
- Weak dollar in recent quarters helped global ex-U.S. equities.
- Since DXY Index reached a 20-year high in September 2022, it has fallen by 10%.

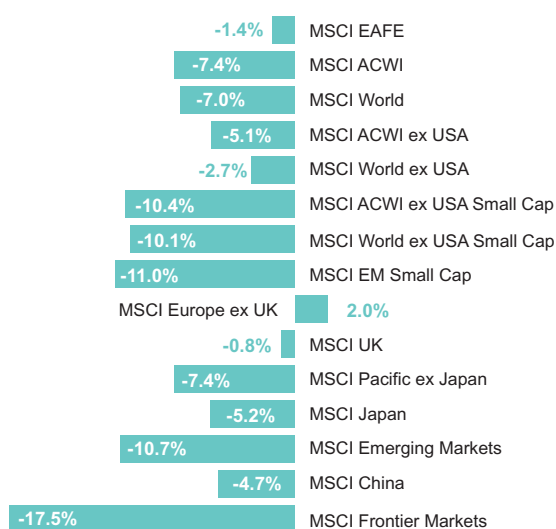
Will Europe continue to be a source of return?

- EPS growth expectations have fallen for both S&P 500 (-7%) and Europe (-9%).
- However, euro zone provides valuation support relative to the U.S.
- Euro zone trades at a 30% discount vs. the U.S.

Global ex-U.S. Equity: Quarterly Returns (U.S. Dollar, 3/31/23)



Global ex-U.S. Equity: One-Year Returns (U.S. Dollar, 3/31/23)



Source: MSCI

Fixed Income

U.S. Fixed Income

Bloomberg Aggregate was positive in 1Q but mixed

- January: +3.1%
- February: -2.6%
- March: +2.5%

U.S. Treasury volatility was pronounced

- 2-year U.S. Treasury yield high was 5.08% on 3/8 and low was 3.77% on 3/24
- MOVE Index highest since 2008

Yield curve remained inverted but also volatile

- 2yr/10yr | 3/31: -58 bps; max 3/8: -109; min 3/23: -38
- 1yr/10yr | 3/31: -116 bps

Fed raised rates, bringing target to 4.75%–5.00%

- Median expectation from Fed is 5.1% for year-end 2023; market pricing in Fed cuts by year-end
- Inflation moderated but still high and job market tight

Sector performance mixed

- Corporate Industrials excess return: +58 bps
- Corporate Financials excess return: -39 bps
- RMBS excess return: -50 bps
- CMBS excess return: -74 bps
- High yield excess return: +123 bps

Valuations fair

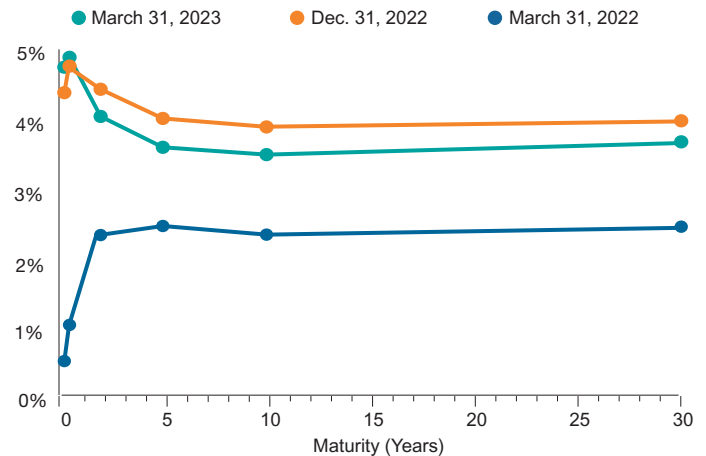
- Credit spreads have not widened materially and are close to historical averages

Municipal Bonds

Indices gained in 1Q23

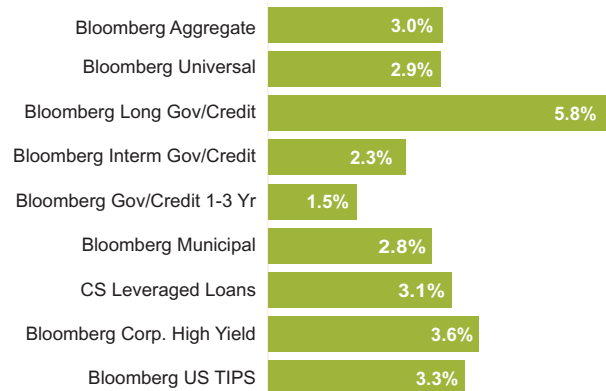
- Lower quality outperformed (AAA: +2.5%; AA: +2.7%; A: +3.0%; BBB: +3.7%)
- Muni curve inverted but less so than U.S. Treasuries
- 2-year AAA yield: 2.41%; 10-year AAA yield: 2.28%
- Valuations relative to U.S. Treasuries are rich

U.S. Treasury Yield Curves



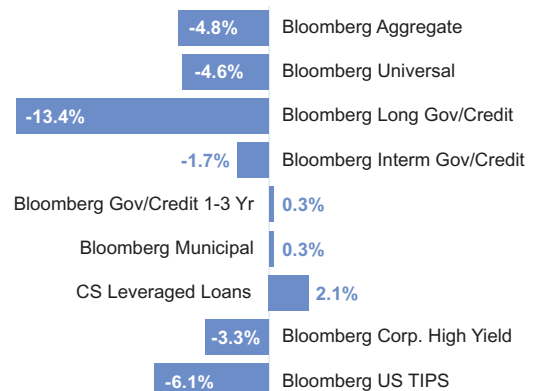
Source: Bloomberg

U.S. Fixed Income: Quarterly Returns (3/31/23)



Sources: Bloomberg and Credit Suisse

U.S. Fixed Income: One-Year Returns (3/31/23)



Sources: Bloomberg and Credit Suisse

FIXED INCOME (Continued)

- 10-year AAA Muni/10-year U.S. Treasury yield ratio 65%; below 10-year average of 88%
- Over the last 10 years, 10-year ratio was richer 4% of the time
- After-tax yield of Muni Bond Index = 5.5%; Bloomberg IG Corporate = 5.2% (Source: Eaton Vance)

Supply/demand

- Outflows nearly \$2 billion but lower than the \$22 billion in 1Q22
- Supply about 25% lower year-over-year
- Munis not immune to turmoil in banking, but fundamentals remain sound
- Banks are third largest holder of munis (about 15%) but thus far have not been sellers
- Municipals could be affected by tighter lending standards but likely result would be more public issuance
- “Rainy Day” fund balances and state tax revenues robust

Global Fixed Income

Global Aggregate was positive in 1Q but mixed

- January: +3.3%
- February: -3.3%
- March: +3.2%
- ECB and UK hiked rates; Japan held steady

U.S. dollar was mixed but mostly lower

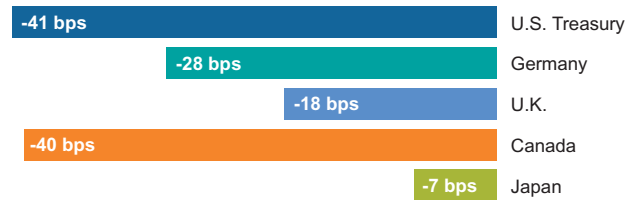
- Euro: +2% vs dollar
- British pound: +3% vs dollar
- Japanese yen: -1% vs dollar
- Australian dollar: -1% vs dollar
- Mexican peso: +8% vs dollar
- Brazilian real: +4% vs dollar

Emerging market debt delivered solid results

- EM currencies did well versus U.S. dollar, especially in Latin America; Latin America local currency return: +4.1%; unhedged in \$US: +9.8%

Change in 10-Year Global Government Bond Yields

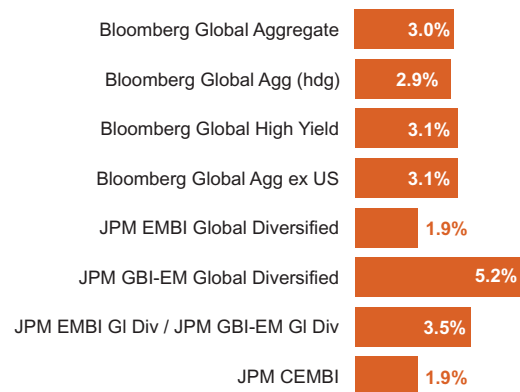
4Q22 to 1Q23



Source: Bloomberg

Global Fixed Income: Quarterly Returns

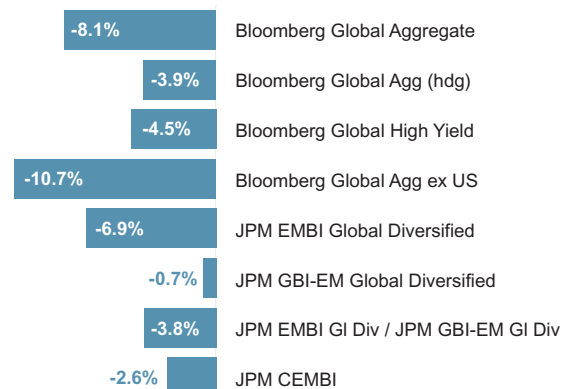
(3/31/23)



Sources: Bloomberg and JPMorgan Chase

Global Fixed Income: One-Year Returns

(3/31/23)



Sources: Bloomberg and JPMorgan Chase

Private Real Estate Sees Mixed Results, While REITs Lag Equities

REAL ESTATE/REAL ASSETS | Kristin Bradbury, Munir Iman, and Aaron Quach

Income returns positive but appreciation negative

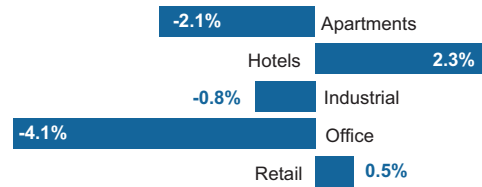
- Income returns were positive across all property sectors and regions in the NCREIF Property Index.
- All sectors and regions, except for Hotel, experienced negative appreciation.
- Valuations are reflective of higher interest rates, which have put upward pressure on capitalization rate and discount rate assumptions.
- Return dispersion by manager within the ODCE Index was due to the composition of underlying portfolios.
- Outstanding redemption requests for most large ODCE funds are approximately 8% to 16% of net asset value.
- There is more than \$200 billion of capital waiting to be deployed in North America.
- Majority of dry powder capital in opportunistic, value-add, and debt funds
- Transaction volume continues to decrease on a rolling four-quarter basis and is now below five-year averages.
- The rise in interest rates is the driving force behind the slowdown in transactions. A bid-ask spread remains and price discovery continues to occur among market participants.

REITs Underperform Equity Indices

- Global REITs underperformed in 1Q23, rising 0.8% compared to a 7.7% rise for global equities (MSCI World).

Sector Quarterly Returns by Property Type

(3/31/23)



Source: NCREIF

- U.S. REITs gained 2.7% in 1Q23, in contrast with the S&P 500 Index, which rose 7.5%.
- REITs are now trading at a discount to NAV (-12%) and offer relative value given the strength of underlying fundamentals.
- Historically, global REITs have traded at a -5.1% discount to NAV.

Real assets mixed but lagged global equities

- Real assets were mixed in 1Q but generally underperformed global equities.
- Gold (S&P Gold Spot Price Index: +8.8%), REITs (MSCI US REIT: +2.7%), infrastructure (DJB Global Infrastructure: +2.5%), and TIPS (Bloomberg TIPS: +2.0%) all posted positive returns.
- The S&P GSCI Index fell 4.9% with oil down about 7%. WTI Crude closed the quarter at \$74/barrel, just before OPEC announced its intention to cut production in May.

Callan Database Median and Index Returns* for Periods Ended 3/31/23

Private Real Assets	Quarter	Year to Date	1 Year	3 Years	5 Years	10 Years	15 Years
Real Estate ODCE Style	-1.7	-1.7	-2.2	8.4	7.5	9.0	5.1
NFI-ODCE (value-weighted, net)	-3.4	-3.4	-3.9	7.5	6.6	8.5	5.0
NCREIF Property	-1.8	-1.8	-1.6	7.2	6.7	8.3	6.3
NCREIF Farmland	2.1	2.1	8.9	7.5	6.5	8.5	10.2
NCREIF Timberland	1.8	1.7	11.3	8.1	5.5	5.8	4.6
Public Real Estate							
Global Real Estate Style	1.8	1.8	-20.2	7.9	3.3	4.7	4.5
FTSE EPRA Nareit Developed	0.8	0.8	-21.4	6.6	0.9	2.5	2.5
Global ex-U.S. Real Estate Style	0.1	0.0	-21.9	2.8	-0.7	3.4	2.4
FTSE EPRA Nareit Dev ex US	-1.7	-1.6	-23.0	1.1	-3.1	0.3	0.7
U.S. REIT Style	3.1	3.1	-19.0	11.4	7.2	6.9	7.3
FTSE EPRA Nareit Equity REITs	2.7	2.7	-19.2	12.1	6.0	6.0	6.3

*Returns less than one year are not annualized. Sources: Callan, FTSE Russell, NCREIF

Deceleration in 2022, with Trends for 2023 Very Unclear

PRIVATE EQUITY | Gary Robertson

Private equity continued the trend of slower activity in 1Q23, after the frothy 2021 peak period. Fundraising dollar volume ticked up slightly, but overall combined company-level entry and exit volumes averaged drops of about 34% by count and 54% by dollar volume from 4Q22. Exits continue to suffer more than fund commitments and new investments.

Fundraising ► Based on preliminary data, 1Q23 private equity partnerships holding final closes totaled \$188.7 billion, up 20% from 4Q22. New partnerships formed dropped 47% to 339, with the trend continuing of larger funds consolidating most commitments. Secondary funds surged to 17% of commitments, which is an anomaly for the strategy that normally has a low single-digit market share. New buyout funds with 44% of commitments remains low. Venture capital has declined from recent 30%-plus levels but remains significant. (Unless otherwise noted, all data comes from PitchBook.)

Buyouts ► Funds closed 2,429 investments with \$123 billion in disclosed deal value, a 21% decline in count and a 53% drop in dollar value from 4Q.

VC Investments ► New investments in venture capital companies totaled 10,271 rounds of financing, down 10%, with \$78 billion of announced value, down 11%.

Exits ► There were 462 private M&A exits of private equity-backed companies, a 3% increase. Disclosed values declined 36% to \$89 billion. There were 47 private equity-backed IPOs, down 20%, which raised an aggregate \$5 billion, down 44%.

Venture-backed M&A exits totaled 527 with disclosed value of \$22 billion. The number of sales rose only 1% from 4Q, but announced value jumped 175%. There were 58 VC-backed IPOs, down 51%, and the combined float totaled \$6 billion, a 33% decrease.

Returns ► Preliminary numbers (finals will be published in mid-May) for 4Q22 indicate a modestly up quarter for All Private Equity, with Buyout and Credit-related strategies offsetting continued declines in Venture Capital and Growth Equity.

Funds Closed 1/1/23 to 3/31/23

Strategy	No. of Funds	Amt (\$mm)	Share
Venture Capital	200	31,629	17%
Growth Equity	14	15,316	8%
Buyouts	93	83,346	44%
Mezzanine Debt	8	16,012	8%
Distressed/Special Credit	3	10,515	6%
Energy	0	0	0%
Secondary and Other	20	31,608	17%
Fund-of-Funds	1	274	0%
Totals	339	188,700	100%

Source: PitchBook (Figures may not total due to rounding.)

Private Equity Performance (%) (Pooled Horizon IRRs through 12/31/22*)

Strategy	Quarter	1 Year	3 Years	5 Years	10 Years	15 Years	20 Years	25 Years
All Venture	-5.40	-19.17	24.33	22.38	19.22	13.19	12.60	23.50
Growth Equity	-1.29	-14.64	19.32	18.13	15.85	12.62	14.76	15.15
All Buyouts	4.15	-3.00	17.52	15.75	15.14	10.06	15.01	12.77
Mezzanine	3.82	4.34	11.60	11.04	11.23	10.19	11.19	10.00
Credit Opportunities	2.53	4.37	8.60	7.02	8.24	8.74	9.79	9.54
Control Distressed	1.98	3.91	19.76	13.44	12.29	10.49	11.92	11.71
All Private Equity	0.67	-8.32	18.62	16.60	15.20	10.90	13.83	13.71
S&P 500	7.56	-18.11	7.66	9.42	12.56	8.81	9.80	7.64
Russell 3000	1.87	-13.01	-2.71	0.02	1.06	2.66	3.10	3.97

Note: Private equity returns are net of fees. Sources: Refinitiv/Cambridge and S&P Dow Jones Indices

*Most recent data available at time of publication

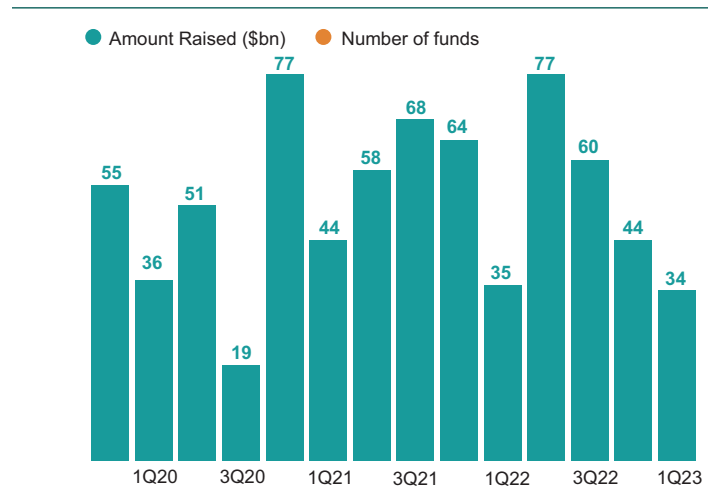
Note: Transaction count and dollar volume figures across all private equity measures are preliminary figures and are subject to update in subsequent versions of the *Capital Markets Review* and other Callan publications.

Net IRRs Range Between 7%-10%; Interest Remains Strong

PRIVATE CREDIT | Catherine Beard

- Private credit performance varies across sub-asset class and underlying return drivers. On average, the asset class has generated net IRRs of 7% to 10% for trailing periods ended Sept. 30, 2022. Higher-risk strategies performed better than lower-risk strategies.
- As interest rates declined after the Global Financial Crisis (GFC), private credit attracted increased interest from institutional investors.
- Private credit fundraising was robust leading into the COVID dislocation with a particular focus on direct lending, asset-based lending, and distressed strategies.
- In the current rate environment, a renewed focus has been placed on relative value, downside protection, and managers' internal workout resources.
- There is renewed interest in strategies with strong collateral protection such as asset-based lending.
- Larger sponsor-backed lending is seeing a new focus due to the high yield/broadly syndicated loan disintermediation by private debt.
 - U.S. sub-investment grade corporate yields rose dramatically at the beginning of 2022 with yields peaking in September. This was a combination of higher interest rates due to tighter Fed policy and a widening of high yield spreads.
 - Spreads widened during the first half of 2022 due to weaker credit conditions as the U.S. economic outlook worsened. This has since moderated.
 - Default rates for U.S. corporate bonds ticked up in 1Q but remained well below the historical average of 3%-4%. Callan expects defaults to increase somewhat in coming months as economic growth slows and

Private Credit Fundraising (\$bn)



Source: Preqin

potentially turns negative.

- The Corporate Bond Market Distress Index (CMDI) rose rapidly during the first nine months of 2022, especially for investment grade bonds, highlighting market volatility and a drying up of liquidity, but has fallen since then. In 2023, as the IG distress index continues to fall, the HY bond indicator is on the rise. The CMDI incorporates a range of indicators, including new issuance and pricing for primary and secondary market bonds and relative pricing between traded and nontraded bonds.

Private Credit Performance (%) (Pooled Horizon IRRs through 9/30/22*)

Strategy	Quarter	1 Year	3 Years	5 Years	8 Years	10 Years	15 Years	20 Years
Senior Debt	-2.4	-3.5	4.6	5.1	5.7	5.9	6.3	6.1
Mezzanine	0.2	5.0	11.8	11.1	10.8	11.3	10.5	11.3
Credit Opportunities	0.7	3.9	8.4	7.2	6.6	8.3	8.6	9.7
Total Private Credit	-0.1	2.6	8.4	7.7	7.4	8.6	8.8	9.7

Source: Refinitiv/Cambridge

*Most recent data available at time of publication

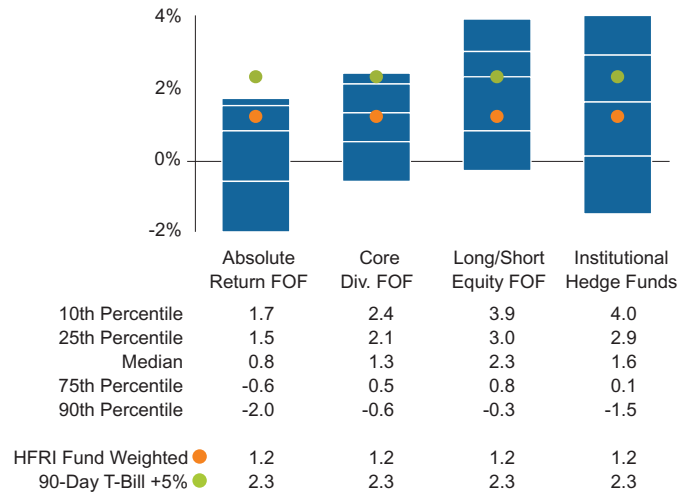
Steady Gains Amid Volatile Markets

HEDGE FUNDS/MACs | Joe McGuane

- Equity and credit markets saw volatility spike during 1Q23, as sentiment on inflation and Federal Reserve policy whipsawed in response to signs of persistent inflation following strong economic data on the labor market.
- Both stocks and bonds gained ground, and hedge funds ended the quarter in positive territory, although they underperformed broader equity indices, as the group provided steady performance through a volatile market environment.
- Equity hedge strategies had a strong start to the year, as tech-focused managers saw performance soar.
- Relative value managers also had a nice quarter, as fixed income relative value strategies were able to profit off the move in short-term rates in March.
- Event-driven strategies posted gains, as some managers profited from merger arbitrage exposures as spreads tightened with the completion of several large strategic deals.

Hedge Fund Style Group Returns

(3/31/23)



Sources: Callan, Credit Suisse, Federal Reserve

Callan Peer Group Median and Index Returns* for Periods Ended 3/31/23

Hedge Fund Universe	Quarter	1 Year	3 Years	5 Years	10 Years	15 Years
Callan Institutional Hedge Fund Peer Group	1.6	2.6	9.2	5.7	5.8	6.1
Callan Fund-of-Funds Peer Group	1.2	0.9	8.1	4.2	4.2	3.7
Callan Absolute Return FOF Style	0.8	2.3	8.8	4.1	4.5	3.6
Callan Core Diversified FOF Style	1.3	1.5	8.1	4.0	4.0	3.4
Callan Long/Short Equity FOF Style	2.3	-2.3	6.6	4.5	4.6	4.1
HFRI Fund-Weighted Index	1.2	-2.1	10.5	4.7	4.4	4.0
HFRI Fixed Convertible Arbitrage	1.4	1.0	9.1	5.3	5.0	5.4
HFRI Distressed/Restructuring	0.9	-4.6	12.2	4.7	4.4	4.5
HFRI Emerging Markets	1.9	-4.9	8.0	1.0	2.8	2.0
HFRI Equity Market Neutral	0.8	2.5	4.1	1.9	2.9	2.0
HFRI Event-Driven	1.4	-2.2	11.7	4.5	4.6	4.5
HFRI Relative Value	1.3	0.0	7.7	3.6	3.9	4.7
HFRI Macro	-2.4	-0.4	7.0	4.6	2.7	2.4
HFRI Equity Hedge	2.5	-3.7	12.4	5.0	5.3	4.2
HFRI Multi-Strategy	1.4	-6.3	7.1	2.4	2.8	3.1
HFRI Merger Arbitrage	-1.8	-0.3	9.7	5.3	4.3	4.0
90-Day T-Bill + 5%	2.3	7.5	5.9	6.4	5.9	5.7

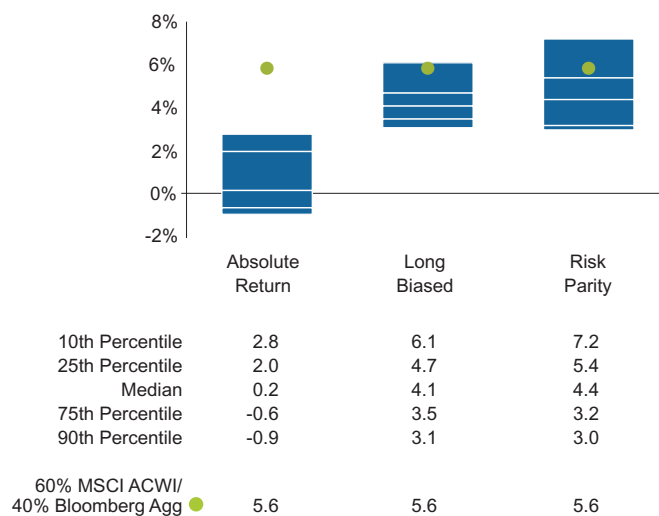
*Net of fees. Sources: Callan, Credit Suisse, Hedge Fund Research

- Macro strategies generated negative performance on the quarter, as losses came from short positions in U.S. rates, and short positions in U.S. equity indices detracted from performance.
- The median manager in the Callan Institutional Hedge Fund Peer Group rose 1.6%.
- Within this style group of 50 peers, the average hedged credit manager gained 2.1%, as high yield markets had a strong start to the year as near-term recession risks receded and capital market access improved.
- Hedged rates managers rose 1.5%, as those strategies were able to profit off short-term rates falling in March, as the banking crisis flared up.
- The average hedged equity manager fell 0.3%, as managers with a focus on tech, media, and telecom (TMT) and consumer stocks led the rally after lagging for all of 2022.
- Within the HFRI Indices, the best-performing strategy in 1Q was the equity hedge index (+2.5%), as managers that were focused on growth stocks saw a strong bounce in performance compared to last year.
- Event-driven strategies finished up 1.4%, as hard catalyst situations contributed to performance along with select merger arbitrage exposures as spreads tightened.

- Macro strategies ended the quarter 2.4% lower, primarily due to losses in short fixed income exposures, as banking turmoil abruptly shifted rate expectations.
- Across the Callan Hedge FOF Database, the median Callan Long-Short Equity FOF gained 2.3%, as managers benefited from a strong S&P 500 during 1Q.
- The median Callan Core Diversified FOF rose 1.3%, as equity hedge exposure offset negative performance from macro managers during the quarter.
- Callan Absolute Return FOF was up 0.8%, as multi-strategy and equity hedge exposure was able to offset the underperformance from macro managers in the quarter.
- The median Callan MAC Risk Parity manager gained 4.4%, as equities and fixed income drove performance during the quarter.
- The Callan MAC Long Biased peer group rose 4.1%, as strong equity performance led the group higher.
- The Callan MAC Absolute Return manager finished up 0.2%, as a bias toward value equities caused underperformance relative to the other peer groups, as growth equities had a strong start to the year.

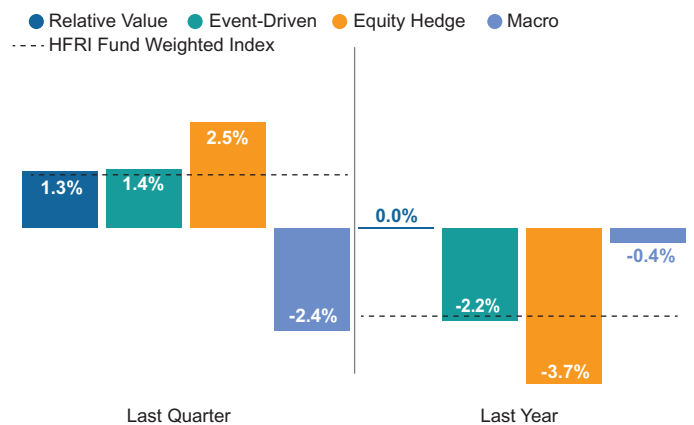
MAC Style Group Returns

(3/31/23)



HFRI Hedge Fund-Weighted Strategy Returns

(3/31/23)



Source: HFRI

Sources: Bloomberg, Callan, Eurekahedge, S&P Dow Jones Indices

Index Rises After Three Straight Quarters of Losses

DEFINED CONTRIBUTION | **Scotty Lee**

Performance: Index gains 6.3%, breaking streak of losses

- The Callan DC Index™ rose 6.3% in 4Q22 after three previous quarterly declines.
- The Age 45 Target Date Fund gained 8.4%.

Growth Sources: Investment gains lead to rise in balances

- Balances rose by 5.8% after a 4.7% decrease the previous quarter, driven by investment gains.

Turnover: Net transfers increase slightly

- Turnover (net transfer activity levels within DC plans) slightly increased to 0.18% from the previous quarter's 0.14%.
- Despite the small increase, the Index's historical average (0.56%) remained steady.

Net Cash Flow: TDFs remain in top spot

- Target date funds (TDFs) received the largest net inflows in the DC Index, garnering 84.6% of quarterly net flows.
- Investors withdrew assets from U.S. large cap equity (-19.5%) and global ex-U.S. equity (-9.5%).
- Stable value (-34.7%) saw relatively large outflows.

Equity Allocation: Exposure rises

- The Index's overall allocation to equity (70.1%) rose slightly from the previous quarter's level (69.3%).

Asset Allocation: Capital preservation declines

- Global ex-U.S. equity (5.0%) and U.S. large cap (25.2%) were among the asset classes with the largest percentage increases in allocation.
- Stable value (10.0%) had a decrease in allocation from the previous quarter's level (10.5%).

Prevalance: Balanced funds dip—again

- The prevalence of a balanced fund (40.8%) decreased again to its lowest level since the inception of the Index in 2006.

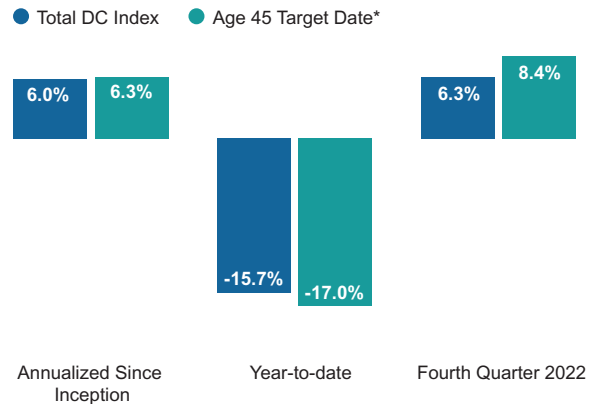
Management Fees: Declines vary by plan size

- Less than \$500 million in assets: fees fell by 1 basis point.
- \$500 million-\$1 billion: -2 bps.
- More than \$1 billion: -4 bps.

Underlying fund performance, asset allocation, and cash flows of more than 100 large defined contribution plans representing approximately \$400 billion in assets are tracked in the Callan DC Index.

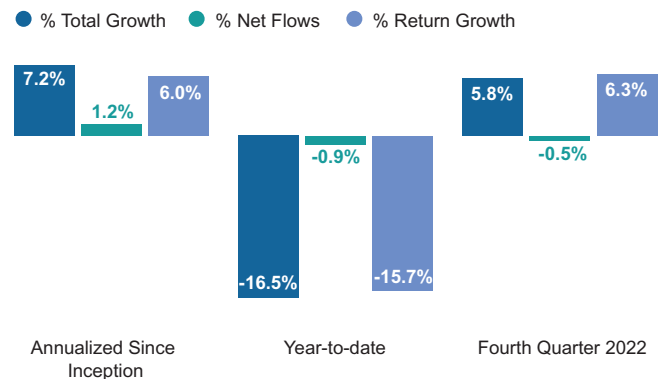
Investment Performance

(12/31/22)



Growth Sources

(12/31/22)



Net Cash Flow Analysis (4Q22)

(Top Two and Bottom Two Asset Gatherers)

Asset Class	Flows as % of Total Net Flows
Target Date Funds	84.6%
Money Market	8.0%
U.S. Large Cap	-19.5%
Stable Value	-34.7%
Total Turnover**	0.2%

Data provided here is the most recent available at time of publication.

Source: Callan DC Index

Note: DC Index inception date is January 2006.

* The Age 45 Fund transitioned from the average 2035 TDF to the 2040 TDF in June 2018.

** Total Index "turnover" measures the percentage of total invested assets (transfers only, excluding contributions and withdrawals) that moved between asset classes.

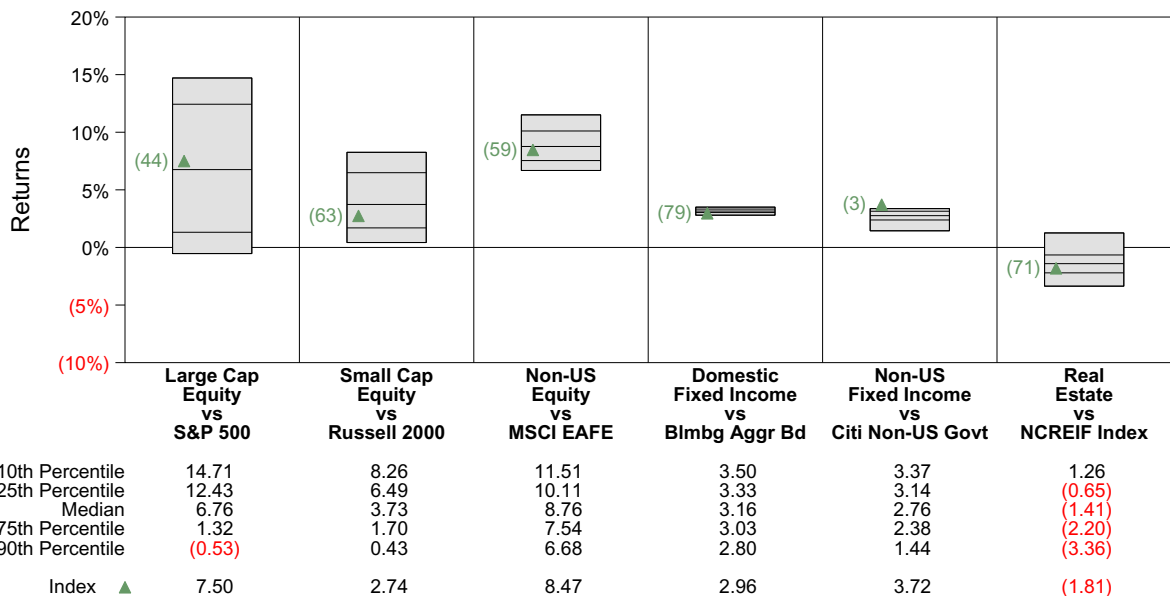
Market Overview

Active Management vs Index Returns

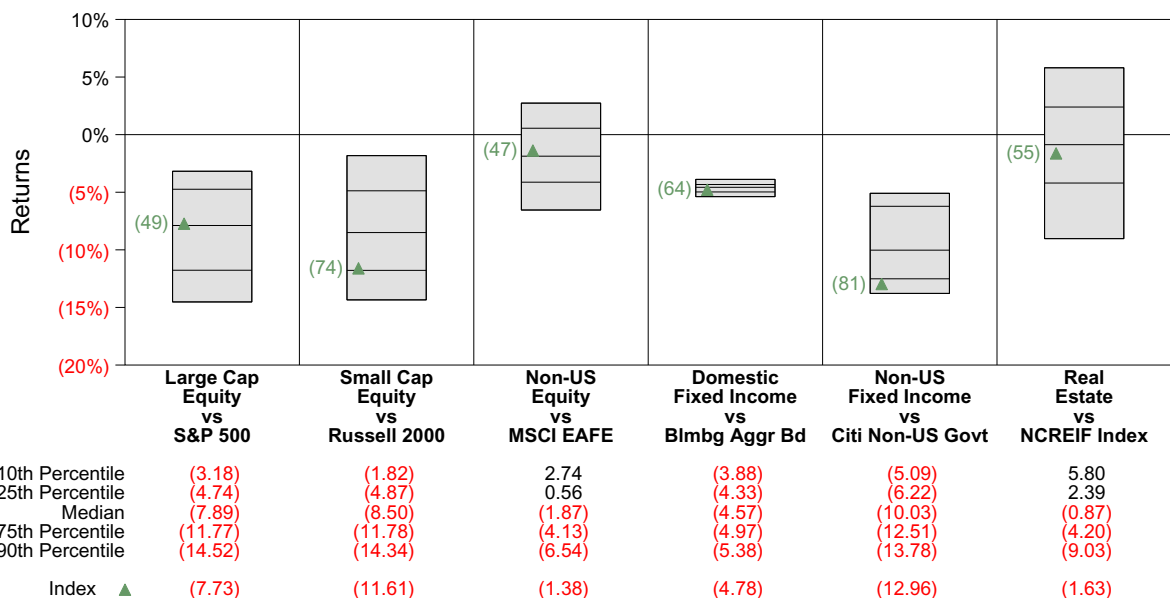
Market Overview

The charts below illustrate the range of returns across managers in Callan's Separate Account database over the most recent one quarter and one year time periods. The database is broken down by asset class to illustrate the difference in returns across those asset classes. An appropriate index is also shown for each asset class for comparison purposes. As an example, the first bar in the upper chart illustrates the range of returns for domestic equity managers over the last quarter. The triangle represents the S&P 500 return. The number next to the triangle represents the ranking of the S&P 500 in the Large Cap Equity manager database.

Range of Separate Account Manager Returns by Asset Class One Quarter Ended March 31, 2023



Range of Separate Account Manager Returns by Asset Class One Year Ended March 31, 2023

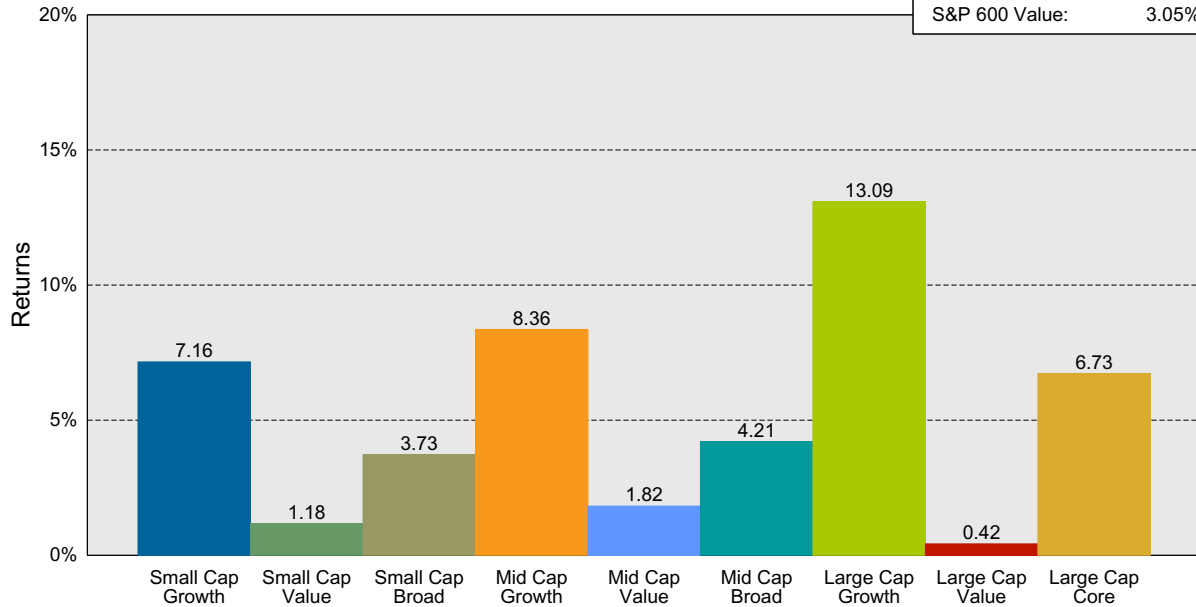


Domestic Equity Active Management Overview

U.S. stock indices posted positive returns in 1Q but it was not smooth sailing; strong returns in January were followed by negative results in February and mixed performance across sectors and styles in March. The S&P 500 Index rose 7.5% for the quarter and the tech-heavy Nasdaq 100 soared 20.8%. Within the S&P 500, Technology (+22%), Communication Services (+21%), and Consumer Discretionary (+16%) rose sharply while Financials (-6%), Energy (-5%), Health Care (-4%), and Utilities (-3%) fell. Growth stocks trounced value for the quarter (Russell 1000 Growth: +14.4%; Russell 1000 Value: +1.0%) due largely to the sharp outperformance of Technology relative to Financials. Small value (Russell 2000 Value: -0.7%) was the one sector to post negative returns, hurt by its exposure to smaller banks. Small cap stocks underperformed mid and large (Russell 2000: +2.7%; Russell MidCap: +4.1%; Russell 1000: +7.5%) across the style spectrum.

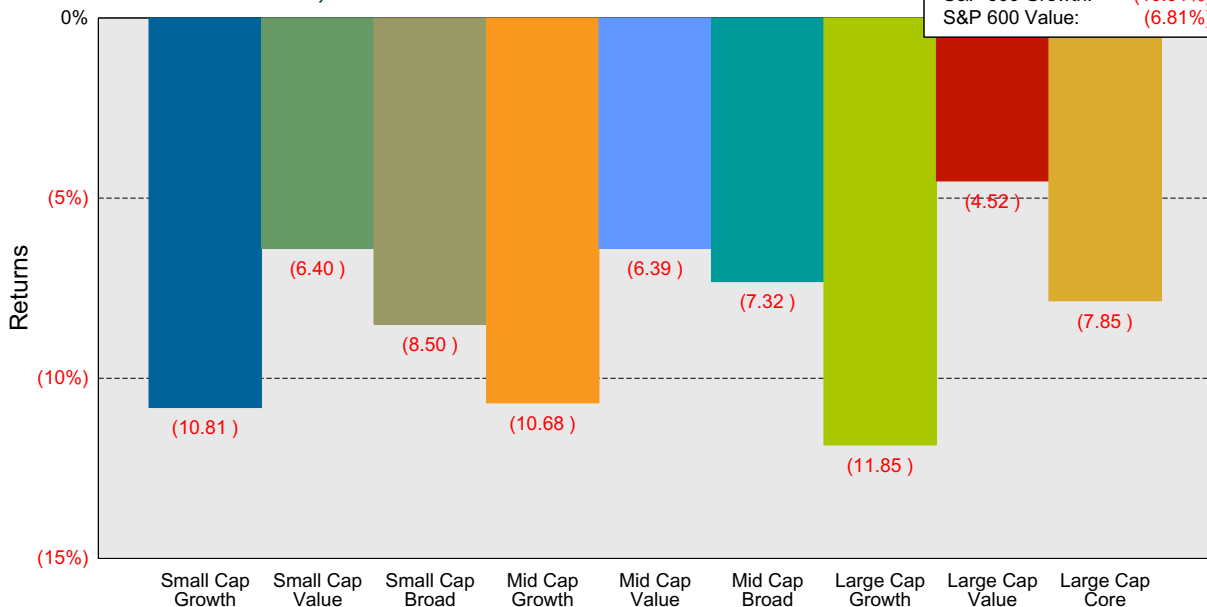
S&P 500:	7.50%
S&P 500 Growth:	9.63%
S&P 500 Value:	5.17%
S&P Mid Cap:	3.81%
S&P 600:	2.57%
S&P 600 Growth:	2.14%
S&P 600 Value:	3.05%

Separate Account Style Group Median Returns for Quarter Ended March 31, 2023



S&P 500:	(7.73%)
S&P 500 Growth:	(15.33%)
S&P 500 Value:	(0.16%)
S&P Mid Cap:	(5.12%)
S&P 600:	(8.82%)
S&P 600 Growth:	(10.91%)
S&P 600 Value:	(6.81%)

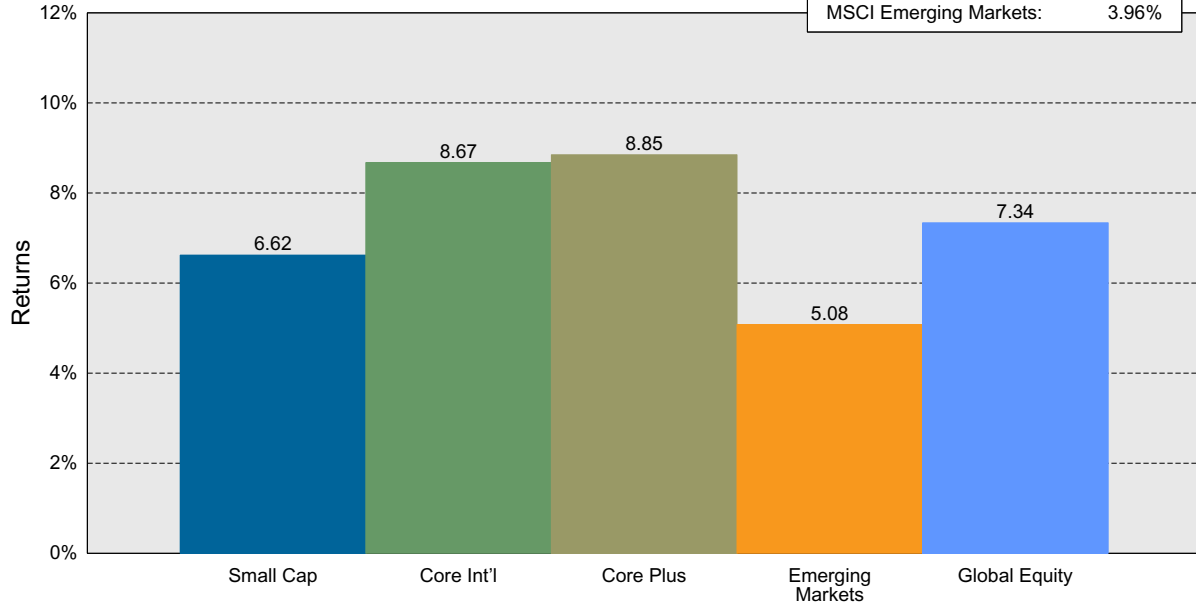
Separate Account Style Group Median Returns for One Year Ended March 31, 2023



International Equity Active Management Overview

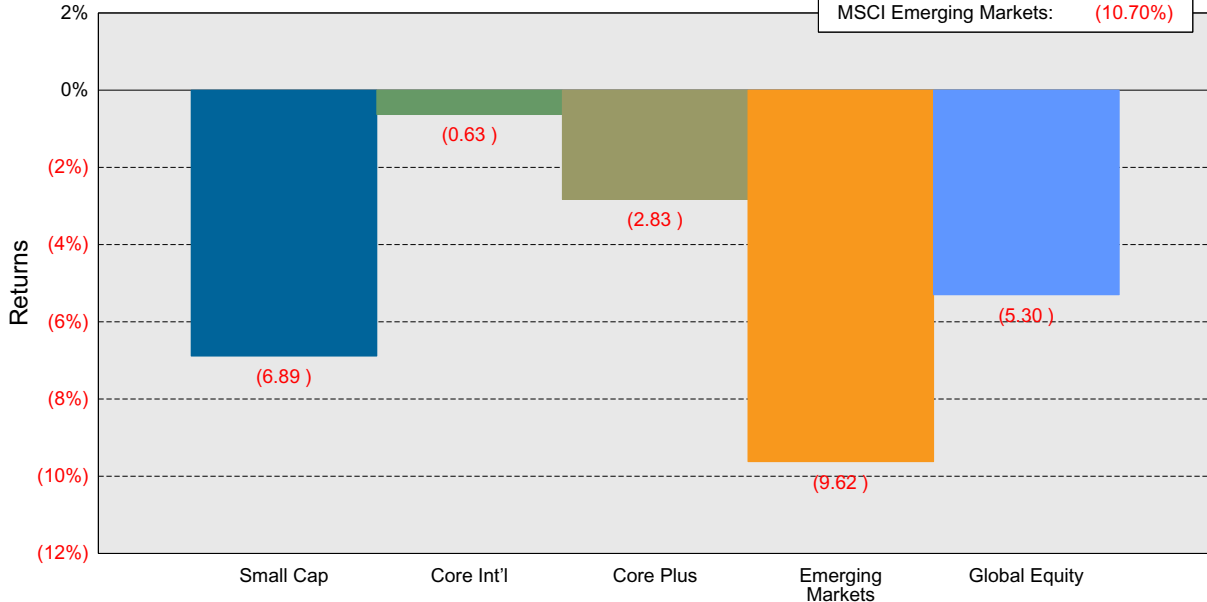
Global ex-U.S. markets posted solid results for the quarter. The MSCI ACWI ex USA Index gained 6.9% (Local: +6.2%). Performance varied across developed market countries but most delivered positive returns. Europe ex-U.K. (+12%) outperformed Japan (+6%), the U.K. (+6%), and Canada (+4%). As in the U.S., growth outperformed value but by smaller margin (MSCI ACWI ex USA Value: +5.2%; MSCI ACWI ex USA Growth: +8.6%). Technology (+17%) was the best performing sector while Energy (-0.3%) was the only sector to post a negative return. Financials (+1%) also lagged. Emerging markets returns (MSCI Emerging Markets: +4.0) were mixed across countries. India (-6%) and Brazil (-3%) weighed on broad market returns while China (+5%) and Korea (+10%) outperformed. Quarterly returns were positive across regions: Latin America (+3.9%), Emerging Europe (+1.5%), and Emerging Asia (+4.8%).

Separate Account Style Group Median Returns for Quarter Ended March 31, 2023



MSCI AC World Index	7.44%
MSCI ACW ex US Free:	6.87%
MSCI EAFE:	8.47%
MSCI Europe:	10.56%
MSCI Pacific:	4.71%
MSCI Emerging Markets:	3.96%

Separate Account Style Group Median Returns for One Year Ended March 31, 2023

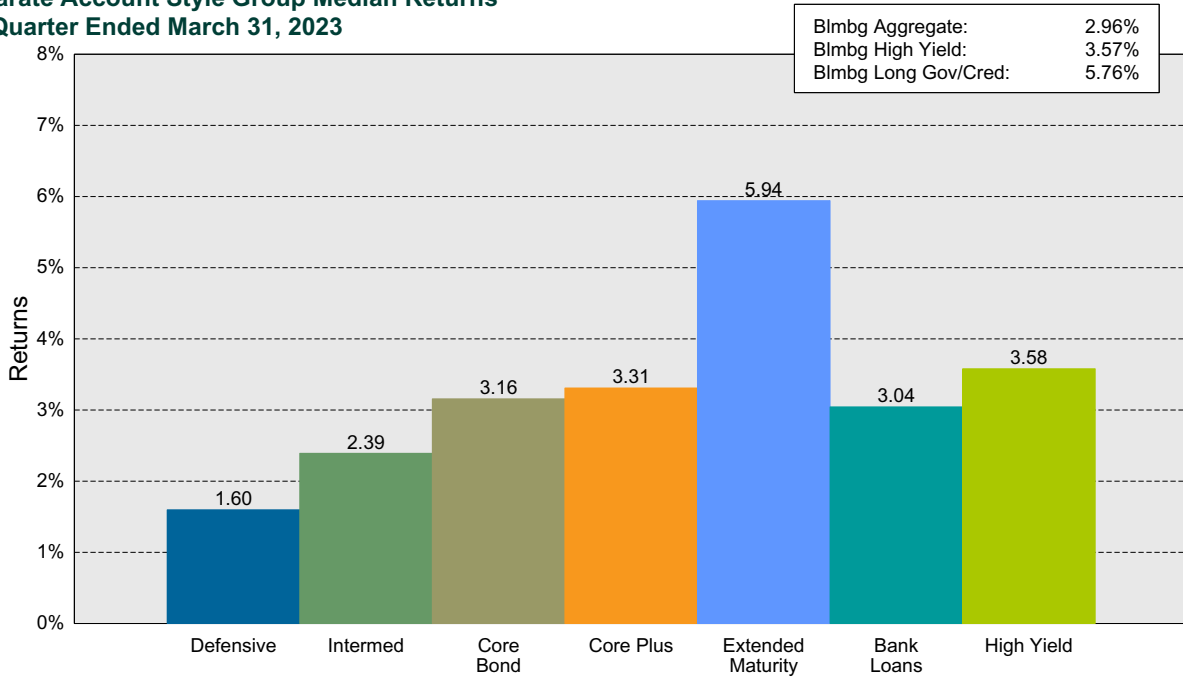


MSCI AC World Index	(6.96%)
MSCI ACW ex US Free:	(5.07%)
MSCI EAFE:	(1.38%)
MSCI Europe:	1.38%
MSCI Pacific:	(6.01%)
MSCI Emerging Markets:	(10.70%)

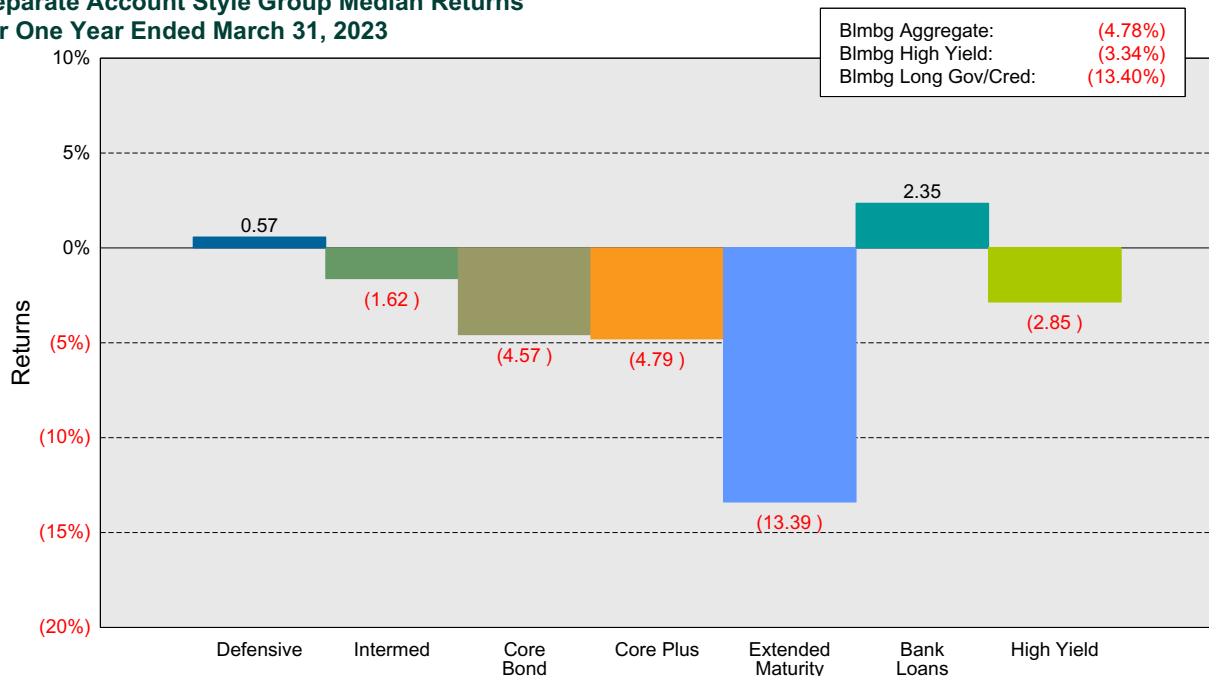
Domestic Fixed Income Active Management Overview

The Bloomberg US Aggregate Bond Index rose 3.0% in 1Q. It was a bumpy ride with solid returns in January and March sandwiching a negative February. The yield curve remained inverted as of quarter-end by 58 bps for the 2-year/10-year and 116 bps for the 1-year/10-year. Sector performance was mixed over the quarter with residential and commercial mortgages underperforming U.S Treasuries and corporates outperforming (except Financials). TIPS (Bloomberg TIPS: +3.3%) also did well; 10-year breakeven spreads were 2.3% as of quarter-end. High yield (Bloomberg High Yield Index: +3.6%) outperformed but dispersion within the Index is meaningfully higher than it was two years ago.

Separate Account Style Group Median Returns for Quarter Ended March 31, 2023



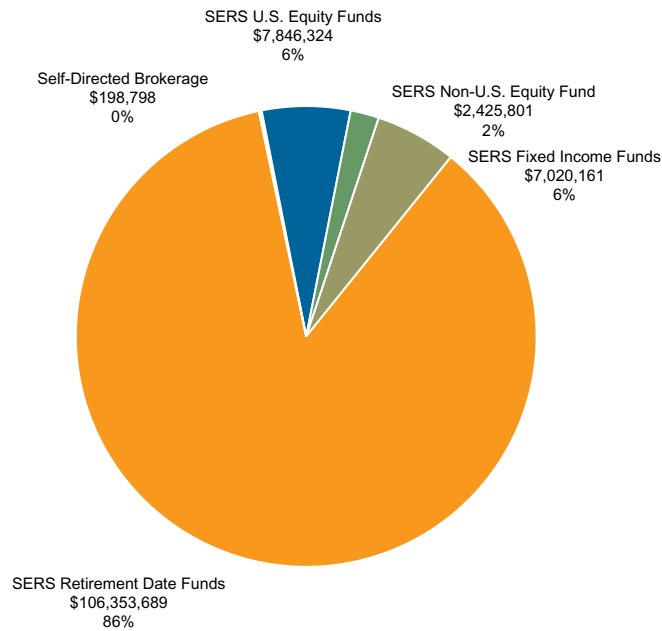
Separate Account Style Group Median Returns for One Year Ended March 31, 2023



Changes in Investment Fund Balances Period Ended March 31, 2023

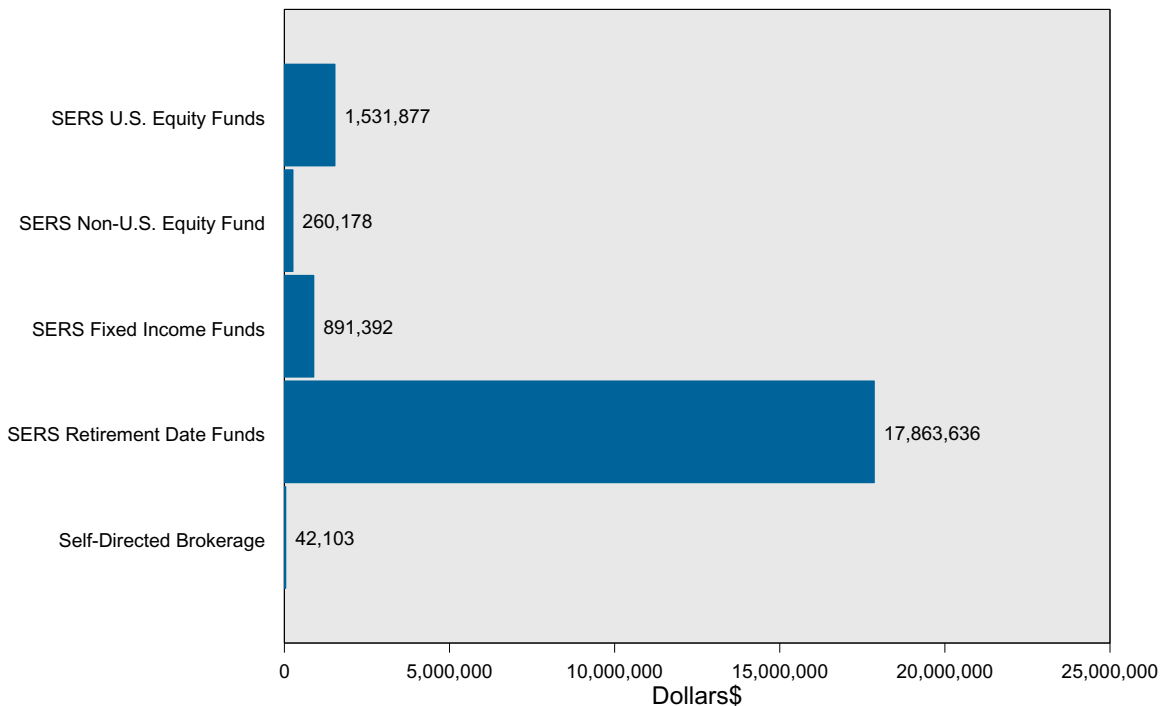
Allocation Across Investment Options

The chart below illustrates the allocation of the aggregate fund assets across the various investment options for the quarter ended March 31, 2023.



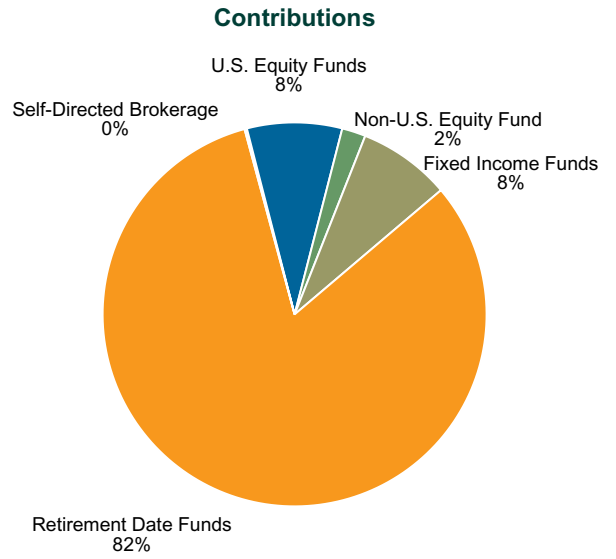
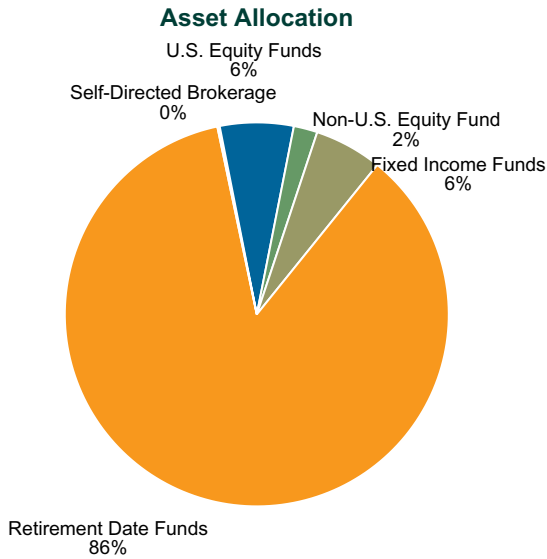
Changes in Fund Values

The chart below shows the net change in fund values across the various investment options for the quarter ended March 31, 2023. The change in value for each fund is the result of a combination of 3 factors: 1) market movements; 2) contributions or disbursements into or out of the funds by the participants (and any matching done by the company); and 3) transfers between funds by the participants.

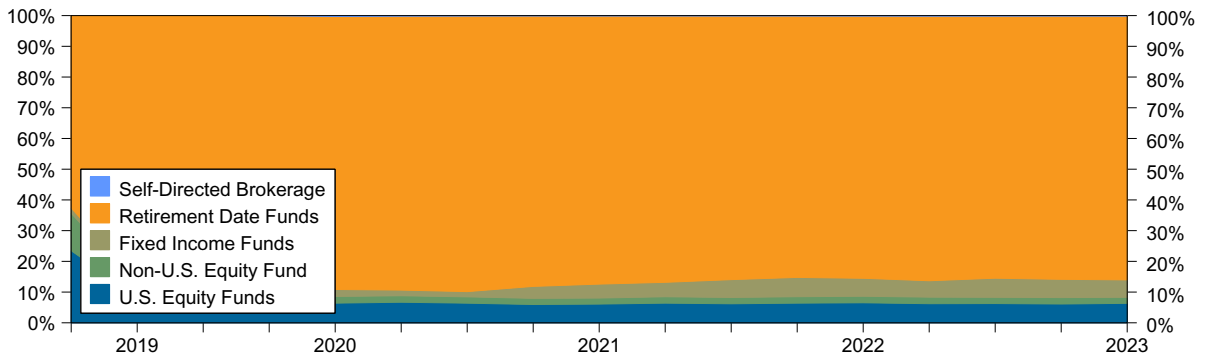


Asset Allocation

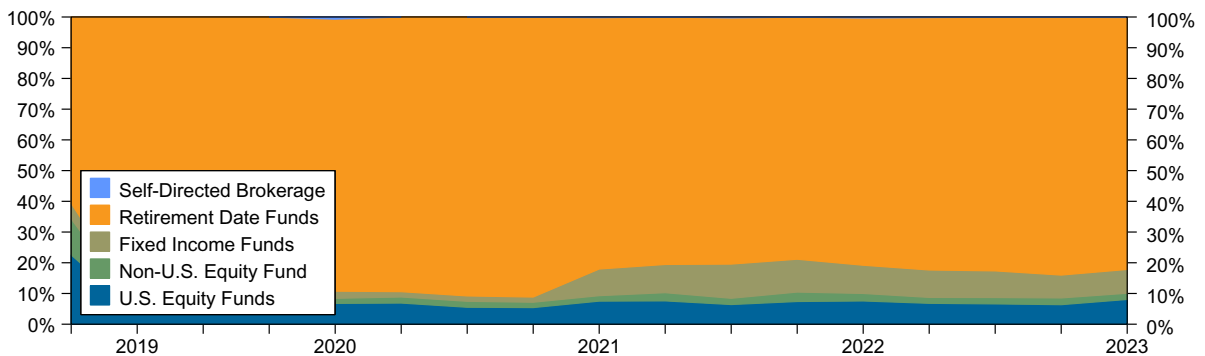
The charts below illustrate the historical asset allocation of the fund as well as the historical allocations of contributions to the fund. The pie charts on the top show the most recent allocations of both assets and contributions which include exchanges and transfers within the plan. The middle chart displays the historical allocation of fund assets. The bottom chart illustrates the historical allocation of contributions.



Historical Asset Allocation



Historical Allocation of Contributions



Investment Manager Asset Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of March 31, 2023, with the distribution as of December 31, 2022. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

Asset Distribution Across Investment Managers

	March 31, 2023		Net New Inv.	Inv. Return	December 31, 2022	
	Market Value	Weight			Market Value	Weight
SERS Retirement Date Funds	\$106,353,689	85.88%	\$12,046,545	\$5,817,094	\$88,490,050	85.70%
SERS Post Retirement Fund	1,711,102	1.38%	173,945	67,239	1,469,918	1.42%
SERS 2025 Retirement Fund	4,633,772	3.74%	467,409	193,727	3,972,636	3.85%
SERS 2030 Retirement Fund	10,680,553	8.62%	918,497	500,328	9,261,728	8.97%
SERS 2035 Retirement Fund	11,017,447	8.90%	1,222,498	551,606	9,243,344	8.95%
SERS 2040 Retirement Fund	12,848,946	10.38%	1,609,978	686,643	10,552,325	10.22%
SERS 2045 Retirement Fund	13,050,728	10.54%	1,472,166	737,546	10,841,016	10.50%
SERS 2050 Retirement Fund	14,172,625	11.44%	1,642,384	827,995	11,702,247	11.33%
SERS 2055 Retirement Fund	14,402,305	11.63%	1,632,537	850,905	11,918,863	11.54%
SERS 2060 Retirement Fund	13,528,286	10.92%	1,434,994	801,971	11,291,321	10.94%
SERS 2065 Retirement Fund	10,307,925	8.32%	1,472,137	599,134	8,236,654	7.98%
SERS U.S. Equity	\$7,846,324	6.34%	\$1,048,578	\$483,299	\$6,314,447	6.12%
SERS U.S. Large Company Index Fund	5,039,885	4.07%	631,873	326,080	4,081,932	3.95%
SERS U.S. All Company Index Fund	1,935,497	1.56%	356,609	113,263	1,465,625	1.42%
SERS U.S. SMID Company Index Fund	870,942	0.70%	60,096	43,956	766,890	0.74%
SERS Non-U.S. Equity	\$2,425,801	1.96%	\$100,456	\$159,721	\$2,165,623	2.10%
SERS Global Non-U.S. Index Fund	2,425,801	1.96%	100,456	159,721	2,165,623	2.10%
SERS Fixed Income	\$7,020,161	5.67%	\$802,621	\$88,770	\$6,128,770	5.94%
SERS Short Term Investment Fund	5,067,774	4.09%	429,757	45,024	4,592,993	4.45%
SERS U.S. Short Term Bond Index Fund	516,510	0.42%	379,620	6,412	130,477	0.13%
SERS U.S. TIPS Index Fund	307,938	0.25%	(37,673)	9,724	335,887	0.33%
SERS U.S. Bond Index Fund	1,127,940	0.91%	30,916	27,610	1,069,413	1.04%
SERS Self-Directed Brokerage	\$198,798	0.16%	\$28,045	\$14,059	\$156,695	0.15%
Total Fund	\$123,844,774	100.0%	\$14,026,245	\$6,562,944	\$103,255,585	100.0%

Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods ended March 31, 2023. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns for Periods Ended March 31, 2023

	Last Quarter	Last 1 Year	Last 3 Years	Last 5 Years
Net Performance				
Target Date Funds				
SERS Post Retirement Fund	4.42%	(6.05%)	4.98%	3.78%
BlackRock Post Retirement Index	4.28%	(6.11%)	4.96%	3.76%
Callan Tgt Date Ret Inc	3.96%	(5.03%)	4.70%	3.25%
SERS 2025 Retirement Fund	4.71%	(6.44%)	6.96%	4.35%
BlackRock 2025 Index	4.57%	(6.58%)	6.93%	4.32%
Callan Target Date 2025	4.72%	(5.82%)	8.00%	4.56%
SERS 2030 Retirement Fund	5.26%	(6.72%)	9.11%	5.08%
BlackRock 2030 Index	5.13%	(6.92%)	9.08%	5.04%
Callan Target Date 2030	5.30%	(6.19%)	9.67%	5.07%
SERS 2035 Retirement Fund	5.74%	(7.01%)	11.18%	5.76%
BlackRock 2035 Index	5.62%	(7.29%)	11.13%	5.70%
Callan Target Date 2035	5.74%	(6.60%)	11.48%	5.65%
SERS 2040 Retirement Fund	6.21%	(7.26%)	13.06%	6.35%
BlackRock 2040 Index	6.10%	(7.64%)	12.98%	6.27%
Callan Target Date 2040	6.10%	(6.71%)	12.84%	6.06%
SERS 2045 Retirement Fund	6.60%	(7.44%)	14.55%	6.83%
BlackRock 2045 Index	6.49%	(7.88%)	14.44%	6.72%
Callan Target Date 2045	6.33%	(6.93%)	14.08%	6.33%
SERS 2050 Retirement Fund	6.80%	(7.53%)	15.28%	7.06%
BlackRock 2050 Index	6.70%	(8.01%)	15.16%	6.96%
Callan Target Date 2050	6.42%	(6.96%)	14.18%	6.43%
SERS 2055 Retirement Fund	6.85%	(7.55%)	15.39%	7.11%
BlackRock 2055 Index	6.75%	(8.04%)	15.29%	7.01%
Callan Target Date 2055	6.49%	(7.09%)	14.34%	6.46%
SERS 2060 Retirement Fund	6.86%	(7.55%)	15.38%	7.10%
BlackRock 2060 Index	6.75%	(8.04%)	15.29%	7.01%
Callan Target Date 2060	6.51%	(7.05%)	14.38%	6.46%
SERS 2065 Retirement Fund	6.89%	(7.53%)	15.32%	-
BlackRock 2065 Index	6.76%	(8.04%)	15.28%	-
Callan Target Date 2065	6.56%	(7.35%)	14.60%	6.68%

Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods ended March 31, 2023. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns for Periods Ended March 31, 2023

	Last 7 Years	Last 10 Years	Last 15 Years	Last 20 Years
Net Performance				
Target Date Funds				
SERS Post Retirement Fund	4.50%	4.17%	4.59%	-
BlackRock Post Retirement Index	4.47%	4.14%	4.57%	5.49%
Callan Tgt Date Ret Inc	3.92%	3.63%	3.99%	4.51%
SERS 2025 Retirement Fund	5.63%	5.29%	5.08%	-
BlackRock 2025 Index	5.57%	5.23%	5.03%	6.67%
Callan Target Date 2025	5.98%	5.79%	5.50%	-
SERS 2030 Retirement Fund	6.50%	5.99%	5.51%	-
BlackRock 2030 Index	6.43%	5.92%	5.45%	7.13%
Callan Target Date 2030	6.78%	6.51%	5.93%	7.44%
SERS 2035 Retirement Fund	7.34%	6.66%	5.92%	-
BlackRock 2035 Index	7.24%	6.56%	5.83%	7.54%
Callan Target Date 2035	7.48%	7.11%	6.36%	-
SERS 2040 Retirement Fund	8.07%	7.23%	6.25%	-
BlackRock 2040 Index	7.94%	7.11%	6.14%	7.89%
Callan Target Date 2040	8.02%	7.50%	6.69%	8.12%
SERS 2045 Retirement Fund	8.60%	7.68%	6.50%	-
BlackRock 2045 Index	8.45%	7.54%	6.37%	8.24%
Callan Target Date 2045	8.37%	7.74%	6.68%	-
SERS 2050 Retirement Fund	8.83%	7.92%	6.73%	-
BlackRock 2050 Index	8.68%	7.78%	6.61%	8.60%
Callan Target Date 2050	8.47%	7.87%	6.87%	-
SERS 2055 Retirement Fund	8.86%	8.01%	-	-
BlackRock 2055 Index	8.72%	7.88%	-	-
Callan Target Date 2055	8.56%	7.96%	7.42%	-

*Funds not shown do not have longer term historical performance.

Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods ended March 31, 2023. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns for Periods Ended March 31, 2023

	Last Quarter	Last 1 Year	Last 3 Years	Last 5 Years
Net Performance				
Domestic Equity				
SERS U.S. Large Company Index Fund	7.50%	(7.74%)	18.61%	11.20%
S&P 500 Index	7.50%	(7.73%)	18.60%	11.19%
Callan Lg Cap Broad MF	6.72%	(8.41%)	17.50%	9.73%
SERS U.S. All Company Index Fund	7.17%	(8.60%)	18.38%	10.40%
Russell 3000 Index	7.18%	(8.58%)	18.48%	10.45%
Callan Multi Cap Brd MF	6.03%	(7.83%)	17.31%	8.61%
SERS U.S. SMID Company Idx Fund	5.84%	(13.90%)	17.43%	6.23%
Dow Jones US Completion	5.82%	(14.26%)	17.04%	5.93%
Callan SMID Broad MFs	5.32%	(8.75%)	19.13%	6.85%
International Equity				
SERS Global Non-U.S. Index Fund	7.37%	(4.28%)	12.41%	2.74%
MSCI ACWI ex US	6.87%	(5.07%)	11.80%	2.47%
Callan Non US Equity MFs	9.42%	(0.60%)	13.23%	3.12%
Domestic Fixed Income				
SERS Short Term Investment Fund	1.10%	2.68%	1.01%	1.48%
3-month Treasury Bill	1.07%	2.50%	0.89%	1.41%
Callan Cash Database(1)	1.16%	2.70%	1.12%	1.58%
SERS U.S. Short Term Bond Idx Fund	1.52%	0.27%	(0.39%)	1.26%
Blmbg Gov/Cred 1-3 Yr	1.51%	0.26%	(0.38%)	1.26%
Callan Short US Govt MFs	1.56%	(0.81%)	(1.09%)	0.71%
SERS U.S. TIPS Index Fund	3.35%	(6.01%)	1.76%	2.94%
Blmbg US TIPS	3.34%	(6.06%)	1.75%	2.94%
Callan TIPS MFs	3.39%	(6.10%)	2.06%	2.81%
SERS U.S. Bond Index Fund	2.97%	(4.79%)	(2.79%)	0.91%
Blmbg Aggregate	2.96%	(4.78%)	(2.77%)	0.91%
Callan Core Bond MFs	3.29%	(5.02%)	(1.79%)	1.17%

(1) Callan Cash Database includes STIF, enhanced cash, and money market funds.

Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods ended March 31, 2023. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns for Periods Ended March 31, 2023

	Last 7 Years	Last 10 Years	Last 15 Years	Last 20 Years
Net Performance				
Domestic Equity				
SERS U.S. Large Company Index Fund	12.43%	12.25%	10.09%	10.41%
S&P 500 Index	12.42%	12.24%	10.06%	10.37%
Callan Lg Cap Broad MF	11.66%	11.33%	9.55%	10.11%
SERS U.S. All Company Index Fund	11.94%	11.70%	-	-
Russell 3000 Index	11.99%	11.73%	9.90%	10.44%
Callan Multi Cap Brd MF	10.29%	10.15%	8.68%	9.83%
SERS U.S. SMID Company Idx Fund	9.40%	9.01%	9.07%	10.82%
Dow Jones US Completion	9.13%	8.77%	8.82%	10.61%
Callan SMID Broad MFs	9.91%	8.98%	9.11%	10.46%
International Equity				
SERS Global Non-U.S. Index Fund	6.20%	4.42%	-	-
MSCI ACWI ex US	5.86%	4.17%	2.62%	7.50%
Callan Non US Equity MFs	6.17%	4.98%	3.58%	7.71%
Domestic Fixed Income				
SERS Short Term Investment Fund	1.34%	0.99%	0.88%	-
3-month Treasury Bill	1.21%	0.87%	0.69%	1.31%
Callan Cash Database(1)	1.42%	1.14%	1.17%	1.66%
Blmbg Gov/Cred 1-3 Yr	1.04%	1.01%	1.46%	2.03%
Callan Short US Govt MFs	0.58%	0.57%	1.25%	1.80%
Blmbg US TIPS	2.44%	1.49%	2.93%	3.87%
Callan TIPS MFs	2.38%	1.36%	2.77%	3.58%
SERS U.S. Bond Index Fund	0.87%	1.34%	2.66%	3.14%
Blmbg Aggregate	0.88%	1.36%	2.71%	3.18%
Callan Core Bond MFs	1.17%	1.51%	3.06%	3.39%

(1) Callan Cash Database includes STIF, enhanced cash, and money market funds.

*Funds not shown do not have longer term historical performance.

Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

	12/2022- 3/2023	2022	2021	2020	2019
Net Performance					
Target Date Funds					
SERS Post Retirement Fund	4.42%	(14.63%)	6.95%	11.97%	15.65%
BlackRock Post Retirement Index	4.28%	(14.54%)	7.02%	11.80%	15.63%
Callan Tgt Date Ret Inc	3.96%	(12.88%)	6.31%	10.02%	13.21%
SERS 2025 Retirement Fund	4.71%	(15.23%)	8.99%	12.19%	18.60%
BlackRock 2025 Index	4.57%	(15.17%)	9.07%	12.01%	18.56%
Callan Target Date 2025	4.72%	(15.14%)	10.04%	12.58%	18.53%
SERS 2030 Retirement Fund	5.26%	(15.97%)	11.43%	12.88%	20.80%
BlackRock 2030 Index	5.13%	(15.92%)	11.50%	12.72%	20.70%
Callan Target Date 2030	5.30%	(16.04%)	11.63%	13.23%	20.43%
SERS 2035 Retirement Fund	5.74%	(16.67%)	13.80%	13.58%	22.84%
BlackRock 2035 Index	5.62%	(16.67%)	13.85%	13.44%	22.72%
Callan Target Date 2035	5.74%	(16.79%)	13.92%	14.28%	22.16%
SERS 2040 Retirement Fund	6.21%	(17.35%)	15.96%	14.14%	24.71%
BlackRock 2040 Index	6.10%	(17.38%)	15.97%	13.98%	24.62%
Callan Target Date 2040	6.10%	(17.40%)	15.85%	14.91%	23.62%
SERS 2045 Retirement Fund	6.60%	(17.89%)	17.72%	14.83%	26.05%
BlackRock 2045 Index	6.49%	(17.96%)	17.70%	14.65%	25.90%
Callan Target Date 2045	6.33%	(17.95%)	16.83%	15.52%	24.60%
SERS 2050 Retirement Fund	6.80%	(18.20%)	18.67%	15.20%	26.60%
BlackRock 2050 Index	6.70%	(18.30%)	18.62%	15.07%	26.48%
Callan Target Date 2050	6.42%	(18.07%)	17.17%	15.73%	24.89%
SERS 2055 Retirement Fund	6.85%	(18.27%)	18.83%	15.32%	26.67%
BlackRock 2055 Index	6.75%	(18.38%)	18.81%	15.18%	26.58%
Callan Target Date 2055	6.49%	(18.21%)	17.27%	15.83%	24.97%
SERS 2060 Retirement Fund	6.86%	(18.28%)	18.82%	15.31%	26.66%
BlackRock 2060 Index	6.75%	(18.39%)	18.81%	15.19%	26.58%
Callan Target Date 2060	6.51%	(18.27%)	17.41%	15.90%	25.08%
SERS 2065 Retirement Fund	6.89%	(18.30%)	18.77%	15.15%	-
BlackRock 2065 Index	6.76%	(18.40%)	18.80%	15.19%	-
Callan Target Date 2065	6.56%	(18.61%)	17.54%	16.46%	25.62%

Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

	12/2022- 3/2023	2022	2021	2020	2019
Net Performance					
Domestic Equity					
SERS U.S. Large Company Index Fund	7.50%	(18.12%)	28.70%	18.43%	31.51%
S&P 500 Index	7.50%	(18.11%)	28.71%	18.40%	31.49%
Callan Lg Cap Broad MF	6.72%	(18.55%)	25.50%	18.47%	30.14%
SERS U.S. All Company Index Fund	7.17%	(19.23%)	25.61%	21.20%	30.52%
Russell 3000 Index	7.18%	(19.21%)	25.66%	20.89%	31.02%
Callan Multi Cap Brd MF	6.03%	(18.29%)	24.17%	17.19%	29.12%
SERS U.S. SMID Company Idx Fund	5.84%	(26.13%)	12.89%	32.03%	28.20%
Dow Jones US Completion	5.82%	(26.56%)	12.36%	32.17%	27.94%
Callan SMID Broad MFs	5.32%	(21.59%)	19.56%	24.00%	29.40%
International Equity					
SERS Global Non-U.S. Index Fund	7.37%	(15.92%)	7.97%	11.15%	21.77%
MSCI ACWI ex US	6.87%	(16.00%)	7.82%	10.65%	21.51%
Callan Non US Equity MFs	9.42%	(15.77%)	9.47%	11.12%	22.83%
Domestic Fixed Income					
SERS Short Term Investment Fund	1.10%	1.59%	0.07%	0.67%	2.31%
3-month Treasury Bill	1.07%	1.46%	0.05%	0.67%	2.28%
Callan Cash Database(1)	1.16%	1.15%	0.13%	1.05%	2.65%
SERS U.S. Short Term Bond Idx Fund	1.52%	(3.69%)	(0.52%)	3.36%	4.02%
Blmbg Gov/Cred 1-3 Yr	1.51%	(3.69%)	(0.47%)	3.33%	4.03%
Callan Short US Govt MFs	1.56%	(5.07%)	(1.07%)	3.57%	3.52%
SERS U.S. TIPS Index Fund	3.35%	(11.76%)	5.87%	11.00%	8.40%
Blmbg US TIPS	3.34%	(11.85%)	5.96%	10.99%	8.43%
Callan TIPS MFs	3.39%	(11.88%)	5.54%	10.79%	8.31%
SERS U.S. Bond Index Fund	2.97%	(12.94%)	(1.65%)	7.56%	8.69%
Blmbg Aggregate	2.96%	(13.01%)	(1.54%)	7.51%	8.72%
Callan Core Bond MFs	3.29%	(13.47%)	(1.17%)	8.65%	9.17%

(1) Callan Cash Database includes STIF, enhanced cash, and money market funds.

Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods ended March 31, 2023. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns for Periods Ended March 31, 2023

	Last Quarter	Last 1 Year	Last 3 Years	Last 5 Years
Gross Performance				
Target Date Funds				
SERS Post Retirement Fund	4.43%	(5.98%)	5.05%	3.85%
BlackRock Post Retirement Index	4.28%	(6.11%)	4.96%	3.76%
Callan Tgt Date Ret Inc	3.96%	(5.03%)	4.70%	3.25%
SERS 2025 Retirement Fund	4.73%	(6.38%)	7.04%	4.42%
BlackRock 2025 Index	4.57%	(6.58%)	6.93%	4.32%
Callan Target Date 2025	4.72%	(5.82%)	8.00%	4.56%
SERS 2030 Retirement Fund	5.27%	(6.66%)	9.19%	5.15%
BlackRock 2030 Index	5.13%	(6.92%)	9.08%	5.04%
Callan Target Date 2030	5.30%	(6.19%)	9.67%	5.07%
SERS 2035 Retirement Fund	5.76%	(6.94%)	11.25%	5.83%
BlackRock 2035 Index	5.62%	(7.29%)	11.13%	5.70%
Callan Target Date 2035	5.74%	(6.60%)	11.48%	5.65%
SERS 2040 Retirement Fund	6.23%	(7.19%)	13.14%	6.42%
BlackRock 2040 Index	6.10%	(7.64%)	12.98%	6.27%
Callan Target Date 2040	6.10%	(6.71%)	12.84%	6.06%
SERS 2045 Retirement Fund	6.61%	(7.38%)	14.62%	6.90%
BlackRock 2045 Index	6.49%	(7.88%)	14.44%	6.72%
Callan Target Date 2045	6.33%	(6.93%)	14.08%	6.33%
SERS 2050 Retirement Fund	6.82%	(7.47%)	15.36%	7.13%
BlackRock 2050 Index	6.70%	(8.01%)	15.16%	6.96%
Callan Target Date 2050	6.42%	(6.96%)	14.18%	6.43%
SERS 2055 Retirement Fund	6.87%	(7.49%)	15.47%	7.18%
BlackRock 2055 Index	6.75%	(8.04%)	15.29%	7.01%
Callan Target Date 2055	6.49%	(7.09%)	14.34%	6.46%
SERS 2060 Retirement Fund	6.87%	(7.49%)	15.46%	7.17%
BlackRock 2060 Index	6.75%	(8.04%)	15.29%	7.01%
Callan Target Date 2060	6.51%	(7.05%)	14.38%	6.46%
SERS 2065 Retirement Fund	6.91%	(7.47%)	15.40%	-
BlackRock 2065 Index	6.76%	(8.04%)	15.28%	-
Callan Target Date 2065	6.56%	(7.35%)	14.60%	6.68%

Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods ended March 31, 2023. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns for Periods Ended March 31, 2023

	Last 7 Years	Last 10 Years	Last 15 Years	Last 20 Years
Gross Performance				
Target Date Funds				
SERS Post Retirement Fund	4.57%	4.24%	4.66%	-
BlackRock Post Retirement Index	4.47%	4.14%	4.57%	5.49%
Callan Tgt Date Ret Inc	3.92%	3.63%	3.99%	4.51%
SERS 2025 Retirement Fund	5.70%	5.36%	5.15%	-
BlackRock 2025 Index	5.57%	5.23%	5.03%	6.67%
Callan Target Date 2025	5.98%	5.79%	5.50%	-
SERS 2030 Retirement Fund	6.58%	6.07%	5.58%	-
BlackRock 2030 Index	6.43%	5.92%	5.45%	7.13%
Callan Target Date 2030	6.78%	6.51%	5.93%	7.44%
SERS 2035 Retirement Fund	7.41%	6.73%	5.99%	-
BlackRock 2035 Index	7.24%	6.56%	5.83%	7.54%
Callan Target Date 2035	7.48%	7.11%	6.36%	-
SERS 2040 Retirement Fund	8.14%	7.30%	6.32%	-
BlackRock 2040 Index	7.94%	7.11%	6.14%	7.89%
Callan Target Date 2040	8.02%	7.50%	6.69%	8.12%
SERS 2045 Retirement Fund	8.67%	7.75%	6.57%	-
BlackRock 2045 Index	8.45%	7.54%	6.37%	8.24%
Callan Target Date 2045	8.37%	7.74%	6.68%	-
SERS 2050 Retirement Fund	8.91%	7.99%	6.80%	-
BlackRock 2050 Index	8.68%	7.78%	6.61%	8.60%
Callan Target Date 2050	8.47%	7.87%	6.87%	-
SERS 2055 Retirement Fund	8.93%	8.08%	-	-
BlackRock 2055 Index	8.72%	7.88%	-	-
Callan Target Date 2055	8.56%	7.96%	7.42%	-

*Funds not shown do not have longer term historical performance.

Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods ended March 31, 2023. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns for Periods Ended March 31, 2023

	Last Quarter	Last 1 Year	Last 3 Years	Last 5 Years
Gross Performance				
Domestic Equity				
SERS U.S. Large Company Index Fund	7.50%	(7.73%)	18.61%	11.20%
S&P 500 Index	7.50%	(7.73%)	18.60%	11.19%
Callan Lg Cap Broad MF	6.72%	(8.41%)	17.50%	9.73%
SERS U.S. All Company Index Fund	7.17%	(8.60%)	18.39%	10.40%
Russell 3000 Index	7.18%	(8.58%)	18.48%	10.45%
Callan Multi Cap Brd MF	6.03%	(7.83%)	17.31%	8.61%
SERS U.S. SMID Company Idx Fund	5.84%	(13.89%)	17.43%	6.24%
Dow Jones US Completion	5.82%	(14.26%)	17.04%	5.93%
Callan SMID Broad MFs	5.32%	(8.75%)	19.13%	6.85%
International Equity				
SERS Global Non-U.S. Index Fund	7.37%	(4.26%)	12.43%	2.76%
MSCI ACWI ex US	6.87%	(5.07%)	11.80%	2.47%
Callan Non US Equity MFs	9.42%	(0.60%)	13.23%	3.12%
Domestic Fixed Income				
SERS Short Term Investment Fund	1.10%	2.68%	1.01%	1.48%
3-month Treasury Bill	1.07%	2.50%	0.89%	1.41%
Callan Cash Database(1)	1.16%	2.70%	1.12%	1.58%
SERS U.S. Short Term Bond Idx Fund	1.52%	0.27%	(0.39%)	1.26%
Blmbg Gov/Cred 1-3 Yr	1.51%	0.26%	(0.38%)	1.26%
Callan Short US Govt MFs	1.56%	(0.81%)	(1.09%)	0.71%
SERS U.S. TIPS Index Fund	3.35%	(6.01%)	1.76%	2.95%
Blmbg US TIPS	3.34%	(6.06%)	1.75%	2.94%
Callan TIPS MFs	3.39%	(6.10%)	2.06%	2.81%
SERS U.S. Bond Index Fund	2.98%	(4.79%)	(2.79%)	0.92%
Blmbg Aggregate	2.96%	(4.78%)	(2.77%)	0.91%
Callan Core Bond MFs	3.29%	(5.02%)	(1.79%)	1.17%

(1) Callan Cash Database includes STIF, enhanced cash, and money market funds.

Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods ended March 31, 2023. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns for Periods Ended March 31, 2023

	Last 7 Years	Last 10 Years	Last 15 Years	Last 20 Years
Gross Performance				
Domestic Equity				
SERS U.S. Large Company Index Fund	12.44%	12.26%	10.10%	10.42%
S&P 500 Index	12.42%	12.24%	10.06%	10.37%
Callan Lg Cap Broad MF	11.66%	11.33%	9.55%	10.11%
SERS U.S. All Company Index Fund	11.94%	11.71%	-	-
Russell 3000 Index	11.99%	11.73%	9.90%	10.44%
Callan Multi Cap Brd MF	10.29%	10.15%	8.68%	9.83%
SERS U.S. SMID Company Idx Fund	9.41%	9.02%	9.07%	10.82%
Dow Jones US Completion	9.13%	8.77%	8.82%	10.61%
Callan SMID Broad MFs	9.91%	8.98%	9.11%	10.46%
International Equity				
SERS Global Non-U.S. Index Fund	6.21%	4.43%	-	-
MSCI ACWI ex US	5.86%	4.17%	2.62%	7.50%
Callan Non US Equity MFs	6.17%	4.98%	3.58%	7.71%
Domestic Fixed Income				
SERS Short Term Investment Fund	1.34%	0.99%	0.88%	-
3-month Treasury Bill	1.21%	0.87%	0.69%	1.31%
Callan Cash Database(1)	1.42%	1.14%	1.17%	1.66%
Blmbg Gov/Cred 1-3 Yr	1.04%	1.01%	1.46%	2.03%
Callan Short US Govt MFs	0.58%	0.57%	1.25%	1.80%
Blmbg US TIPS	2.44%	1.49%	2.93%	3.87%
Callan TIPS MFs	2.38%	1.36%	2.77%	3.58%
SERS U.S. Bond Index Fund	0.88%	1.34%	2.66%	3.15%
Blmbg Aggregate	0.88%	1.36%	2.71%	3.18%
Callan Core Bond MFs	1.17%	1.51%	3.06%	3.39%

(1) Callan Cash Database includes STIF, enhanced cash, and money market funds.

Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

	12/2022- 3/2023	2022	2021	2020	2019
Gross Performance					
Target Date Funds					
SERS Post Retirement Fund	4.43%	(14.57%)	7.03%	12.04%	15.72%
BlackRock Post Retirement Index	4.28%	(14.54%)	7.02%	11.80%	15.63%
Callan Tgt Date Ret Inc	3.96%	(12.88%)	6.31%	10.02%	13.21%
SERS 2025 Retirement Fund	4.73%	(15.17%)	9.06%	12.26%	18.67%
BlackRock 2025 Index	4.57%	(15.17%)	9.07%	12.01%	18.56%
Callan Target Date 2025	4.72%	(15.14%)	10.04%	12.58%	18.53%
SERS 2030 Retirement Fund	5.27%	(15.91%)	11.50%	12.96%	20.86%
BlackRock 2030 Index	5.13%	(15.92%)	11.50%	12.72%	20.70%
Callan Target Date 2030	5.30%	(16.04%)	11.63%	13.23%	20.43%
SERS 2035 Retirement Fund	5.76%	(16.61%)	13.88%	13.65%	22.93%
BlackRock 2035 Index	5.62%	(16.67%)	13.85%	13.44%	22.72%
Callan Target Date 2035	5.74%	(16.79%)	13.92%	14.28%	22.16%
SERS 2040 Retirement Fund	6.23%	(17.29%)	16.04%	14.22%	24.80%
BlackRock 2040 Index	6.10%	(17.38%)	15.97%	13.98%	24.62%
Callan Target Date 2040	6.10%	(17.40%)	15.85%	14.91%	23.62%
SERS 2045 Retirement Fund	6.61%	(17.84%)	17.79%	14.90%	26.12%
BlackRock 2045 Index	6.49%	(17.96%)	17.70%	14.65%	25.90%
Callan Target Date 2045	6.33%	(17.95%)	16.83%	15.52%	24.60%
SERS 2050 Retirement Fund	6.82%	(18.15%)	18.75%	15.27%	26.70%
BlackRock 2050 Index	6.70%	(18.30%)	18.62%	15.07%	26.48%
Callan Target Date 2050	6.42%	(18.07%)	17.17%	15.73%	24.89%
SERS 2055 Retirement Fund	6.87%	(18.22%)	18.91%	15.40%	26.75%
BlackRock 2055 Index	6.75%	(18.38%)	18.81%	15.18%	26.58%
Callan Target Date 2055	6.49%	(18.21%)	17.27%	15.83%	24.97%
SERS 2060 Retirement Fund	6.87%	(18.23%)	18.90%	15.38%	26.74%
BlackRock 2060 Index	6.75%	(18.39%)	18.81%	15.19%	26.58%
Callan Target Date 2060	6.51%	(18.27%)	17.41%	15.90%	25.08%
SERS 2065 Retirement Fund	6.91%	(18.25%)	18.85%	15.22%	-
BlackRock 2065 Index	6.76%	(18.40%)	18.80%	15.19%	-
Callan Target Date 2065	6.56%	(18.61%)	17.54%	16.46%	25.62%

Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

	12/2022- 3/2023	2022	2021	2020	2019
Gross Performance					
Domestic Equity					
SERS U.S. Large Company Index Fund	7.50%	(18.11%)	28.71%	18.44%	31.51%
S&P 500 Index	7.50%	(18.11%)	28.71%	18.40%	31.49%
Callan Lg Cap Broad MF	6.72%	(18.55%)	25.50%	18.47%	30.14%
SERS U.S. All Company Index Fund	7.17%	(19.23%)	25.62%	21.20%	30.53%
Russell 3000 Index	7.18%	(19.21%)	25.66%	20.89%	31.02%
Callan Multi Cap Brd MF	6.03%	(18.29%)	24.17%	17.19%	29.12%
SERS U.S. SMID Company Idx Fund	5.84%	(26.12%)	12.90%	32.04%	28.21%
Dow Jones US Completion	5.82%	(26.56%)	12.36%	32.17%	27.94%
Callan SMID Broad MFs	5.32%	(21.59%)	19.56%	24.00%	29.40%
International Equity					
SERS Global Non-U.S. Index Fund	7.37%	(15.91%)	7.98%	11.17%	21.79%
MSCI ACWI ex US	6.87%	(16.00%)	7.82%	10.65%	21.51%
Callan Non US Equity MFs	9.42%	(15.77%)	9.47%	11.12%	22.83%
Domestic Fixed Income					
SERS Short Term Investment Fund	1.10%	1.59%	0.07%	0.67%	2.31%
3-month Treasury Bill	1.07%	1.46%	0.05%	0.67%	2.28%
Callan Cash Database(1)	1.16%	1.15%	0.13%	1.05%	2.65%
SERS U.S. Short Term Bond Idx Fund	1.52%	(3.68%)	(0.51%)	3.37%	4.02%
Blmbg Gov/Cred 1-3 Yr	1.51%	(3.69%)	(0.47%)	3.33%	4.03%
Callan Short US Govt MFs	1.56%	(5.07%)	(1.07%)	3.57%	3.52%
SERS U.S. TIPS Index Fund	3.35%	(11.76%)	5.88%	11.00%	8.40%
Blmbg US TIPS	3.34%	(11.85%)	5.96%	10.99%	8.43%
Callan TIPS MFs	3.39%	(11.88%)	5.54%	10.79%	8.31%
SERS U.S. Bond Index Fund	2.98%	(12.93%)	(1.64%)	7.56%	8.69%
Blmbg Aggregate	2.96%	(13.01%)	(1.54%)	7.51%	8.72%
Callan Core Bond MFs	3.29%	(13.47%)	(1.17%)	8.65%	9.17%

(1) Callan Cash Database includes STIF, enhanced cash, and money market funds.

Pennsylvania SERS 401(a)
Investment Manager Performance Monitoring Summary Report
March 31, 2023

Investment Manager	Last Quarter Return	Last Year Return	3 Year Return	5 Year Return	7 Year Return	10 Year Return	5 Year Return Consistency	5 Year Risk Quadrant	Expense Ratio
Net of Fee Performance									
Target Date Funds									
SERS Post Retirement Fund Callan Tgt Date Ret Inc	4.4 26	-6.0 82	5.0 39	3.8 25	4.5 19	4.2 20			0.08 74
BlackRock Post Retirement Index	4.3 37	-6.1 85	5.0 40	3.8 26	4.5 20	4.1 21			
SERS 2025 Retirement Fund Callan Target Date 2025	4.7 51	-6.4 72	7.0 81	4.4 61	5.6 72	5.3 76			0.08 72
BlackRock 2025 Index	4.6 62	-6.6 80	6.9 81	4.3 63	5.6 74	5.2 78			
SERS 2030 Retirement Fund Callan Target Date 2030	5.3 52	-6.7 66	9.1 72	5.1 49	6.5 68	6.0 80			0.08 70
BlackRock 2030 Index	5.1 56	-6.9 81	9.1 73	5.0 52	6.4 72	5.9 82			
SERS 2035 Retirement Fund Callan Target Date 2035	5.7 48	-7.0 66	11.2 58	5.8 41	7.3 59	6.7 74			0.08 72
BlackRock 2035 Index	5.6 56	-7.3 83	11.1 58	5.7 45	7.2 69	6.6 82			
SERS 2040 Retirement Fund Callan Target Date 2040	6.2 38	-7.3 69	13.1 43	6.3 27	8.1 43	7.2 73			0.08 68
BlackRock 2040 Index	6.1 51	-7.6 85	13.0 45	6.3 32	7.9 58	7.1 77			
SERS 2045 Retirement Fund Callan Target Date 2045	6.6 26	-7.4 71	14.5 26	6.8 22	8.6 32	7.7 58			0.08 72
BlackRock 2045 Index	6.5 38	-7.9 89	14.4 29	6.7 26	8.4 45	7.5 69			
SERS 2050 Retirement Fund Callan Target Date 2050	6.8 21	-7.5 70	15.3 8	7.1 13	8.8 21	7.9 45			0.08 68
BlackRock 2050 Index	6.7 30	-8.0 88	15.2 10	7.0 18	8.7 32	7.8 58			
SERS 2055 Retirement Fund Callan Target Date 2055	6.8 18	-7.6 67	15.4 7	7.1 13	8.9 18	8.0 44			0.08 76
BlackRock 2055 Index	6.7 30	-8.0 91	15.3 10	7.0 14	8.7 35	7.9 59			
SERS 2060 Retirement Fund Callan Target Date 2060	6.9 23	-7.5 64	15.4 12	7.1 12	8.8 31				0.08 75
BlackRock 2060 Index	6.8 35	-8.0 88	15.3 14	7.0 16	8.7 45				

Returns:
■ above median
■ third quartile
■ fourth quartile

Return Consistency:
■ above median
■ third quartile
■ fourth quartile

Risk Quadrant:


Expense Ratio:
■ below median
■ second quartile
■ first quartile

Pennsylvania SERS 401(a)
Investment Manager Performance Monitoring Summary Report
March 31, 2023

Investment Manager	Last Quarter Return	Last Year Return	3 Year Return	5 Year Return	7 Year Return	10 Year Return	5 Year Return Consistency	5 Year Risk Quadrant	Expense Ratio
SERS 2065 Retirement Fund Callan Target Date 2065	6.9 23	-7.5 55	15.3 17						0.08 56
BlackRock 2065 Index	6.8 33	-8.0 84	15.3 18						
Domestic Equity									
SERS U.S. Large Company Stock Index Fund Callan Lg Cap Broad MF	7.5 46	-7.7 46	18.6 30	11.2 27	12.4 37	12.3 36			0.02 100
S&P 500 Index	7.5 46	-7.7 46	18.6 30	11.2 27	12.4 37	12.2 37			
SERS U.S. All Company Index Fund Callan Multi Cap Brd MF	7.2 38	-8.6 56	18.4 40	10.4 23	11.9 28	11.7 22			0.03 99
Russell 3000 Index	7.2 38	-8.6 56	18.5 38	10.5 22	12.0 28	11.7 22			
U.S. Small/Mid Company Stock Index Fund Callan SMID Broad MFs	5.8 41	-13.9 82	17.4 57	6.2 61	9.4 57	9.0 49			0.03 98
Dow Jones US Completion	5.8 42	-14.3 85	17.0 59	5.9 72	9.1 59	8.8 56			
International Equity									
SERS Global Non-U.S. Index Fund Callan Non US Equity MFs	7.4 79	-4.3 74	12.4 60	2.7 63	6.2 49	4.4 71			0.05 99
MSCI ACWI ex US	6.9 84	-5.1 77	11.8 69	2.5 67	5.9 54	4.2 78			
Domestic Fixed Income									
SERS Short Term Investment Fund Callan Cash Database	1.1 85	2.7 52	1.0 75	1.5 71	1.3 73	1.0 79			0.00 100
3-month Treasury Bill	1.1 88	2.5 57	0.9 80	1.4 89	1.2 92	0.9 93			
Comments: Callan Cash Database includes STIF, enhanced cash, and money market funds.									
SERS U.S. Short Term Bond Idx Fund Callan Short US Govt MFs	1.5 62	0.3 13	-0.4 13	1.3 6					0.02 100
Blmbg Gov/Cred 1-3 Yr	1.5 63	0.3 13	-0.4 13	1.3 5	1.0 6	1.0 1			
SERS U.S. TIPS Index Fund Callan TIPS MFs	3.4 55	-6.0 39	1.8 70	2.9 36					0.02 99
Blmbg US TIPS	3.3 57	-6.1 44	1.8 70	2.9 36	2.4 46	1.5 26			

Returns:
 above median
 third quartile
 fourth quartile

Return Consistency:
 above median
 third quartile
 fourth quartile

Risk Quadrant:

Expense Ratio:
 below median
 second quartile
 first quartile

Pennsylvania SERS 401(a)
Investment Manager Performance Monitoring Summary Report
March 31, 2023

Investment Manager	Last Quarter Return	Last Year Return	3 Year Return	5 Year Return	7 Year Return	10 Year Return	5 Year Return Consistency	5 Year Risk Quadrant	Expense Ratio
SERS U.S. Bond Index Fund	3.0 78	-4.8 36	-2.8 98	0.9 70	0.9 91	1.3 81			0.02 98
Callan Core Bond MFs									
Blmbg Aggregate	3.0 79	-4.8 35	-2.8 98	0.9 71	0.9 91	1.4 75			

Returns:
 above median
 third quartile
 fourth quartile

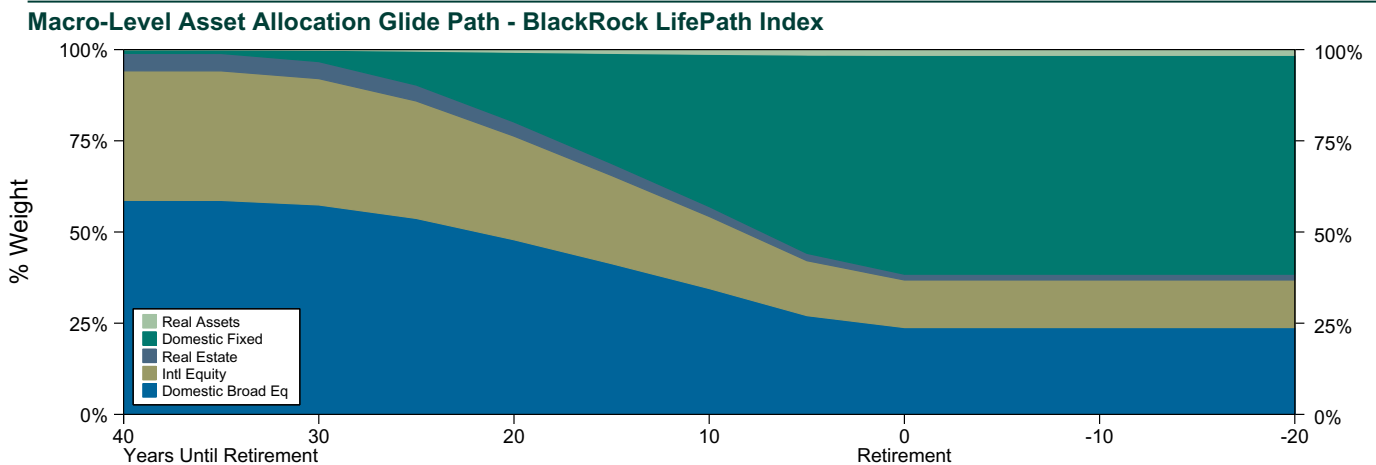
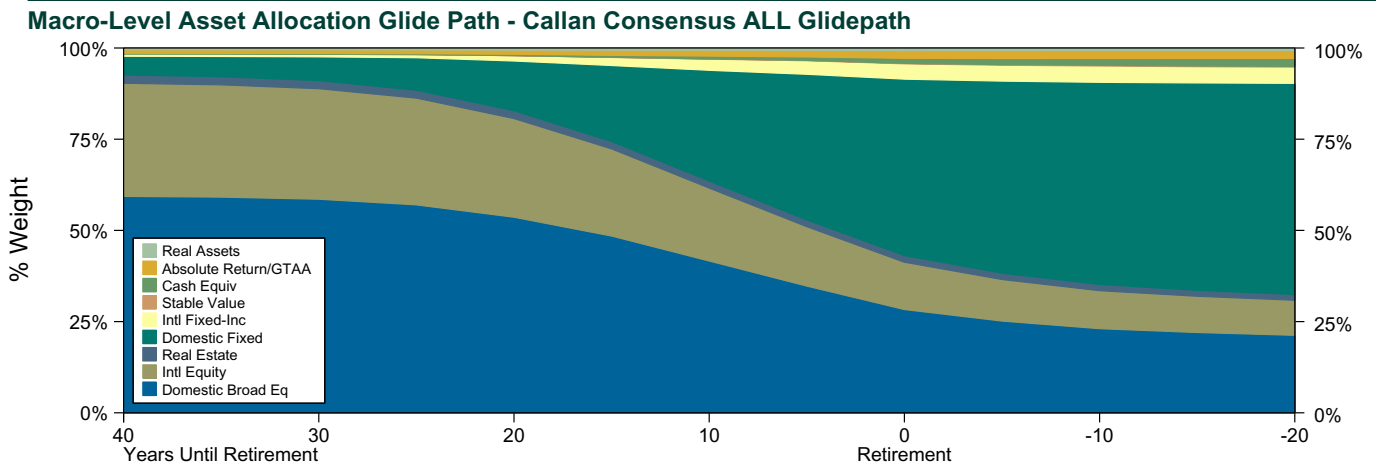
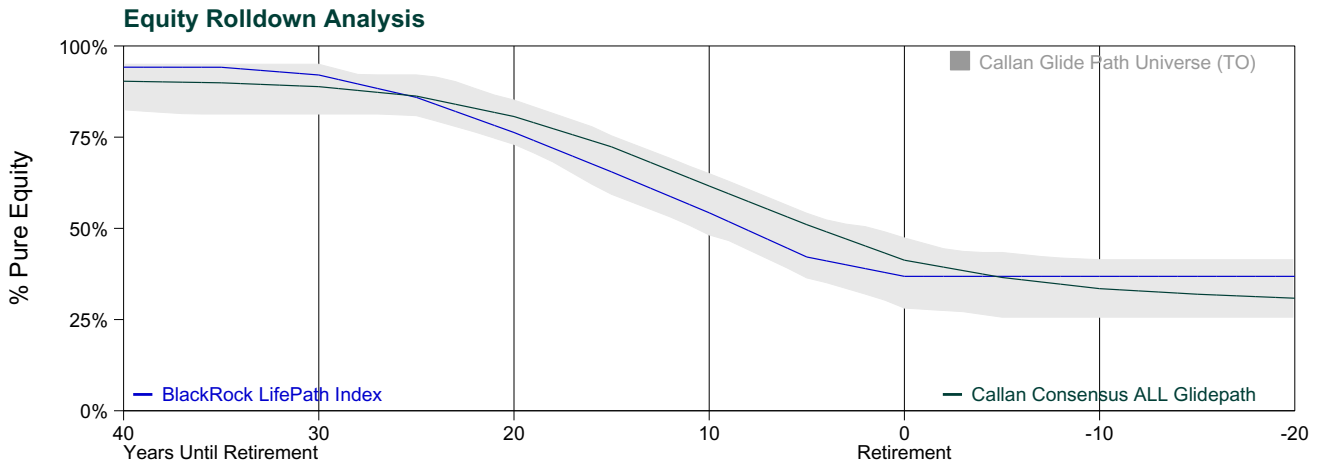
Return Consistency:
 above median
 third quartile
 fourth quartile

Risk Quadrant:

Expense Ratio:
 below median
 second quartile
 first quartile

Callan Consensus ALL Glidepath Target Date Glide Path Analysis as of March 31, 2023

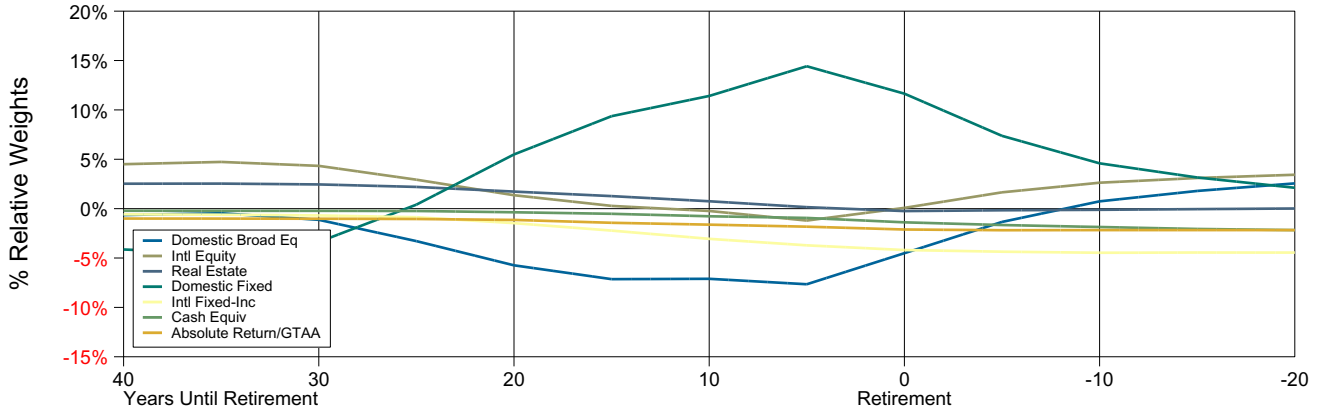
The following charts illustrate the asset allocation "glide path" underlying the relevant suite of target date funds. This analysis covers forty years of investor wealth accumulation up to retirement, as well as twenty years of wealth decumulation following retirement. The top chart shows the "pure" equity exposure (public equities excluding REITs) versus the peer group and index. The subsequent charts show more asset allocation detail at the high "macro" level.



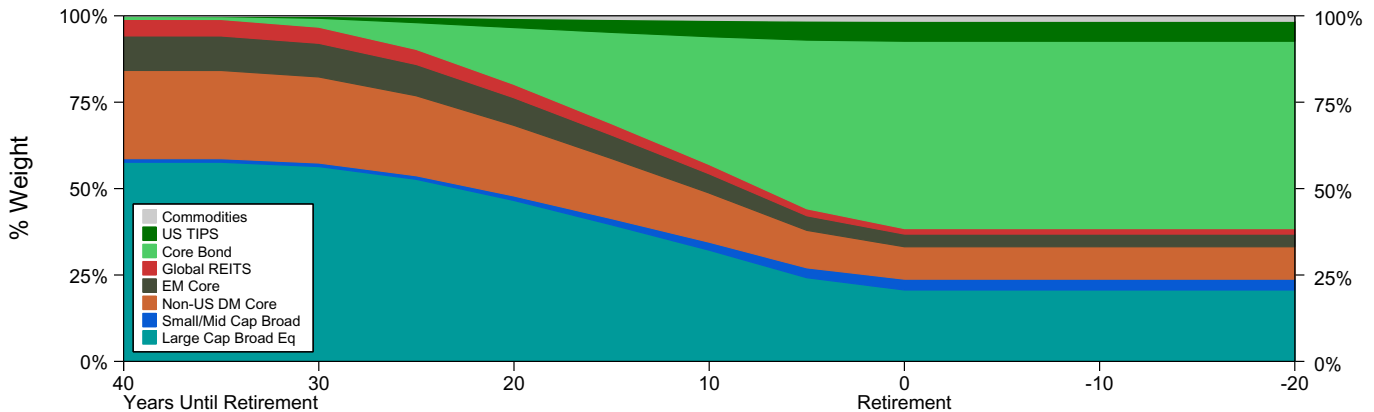
BlackRock LifePath Index Target Date Glide Path Analysis as of March 31, 2023

The following charts illustrate the asset allocation "glide path" underlying the relevant suite of target date funds. This analysis covers forty years of investor wealth accumulation up to retirement, as well as twenty years of wealth decumulation following retirement. The top chart highlights any significant "macro-level" differences between the manager's asset allocation glide path and that of the glide path index. The bottom two charts illustrate the asset allocation glide paths of both the manager and index at the more detailed "micro" level.

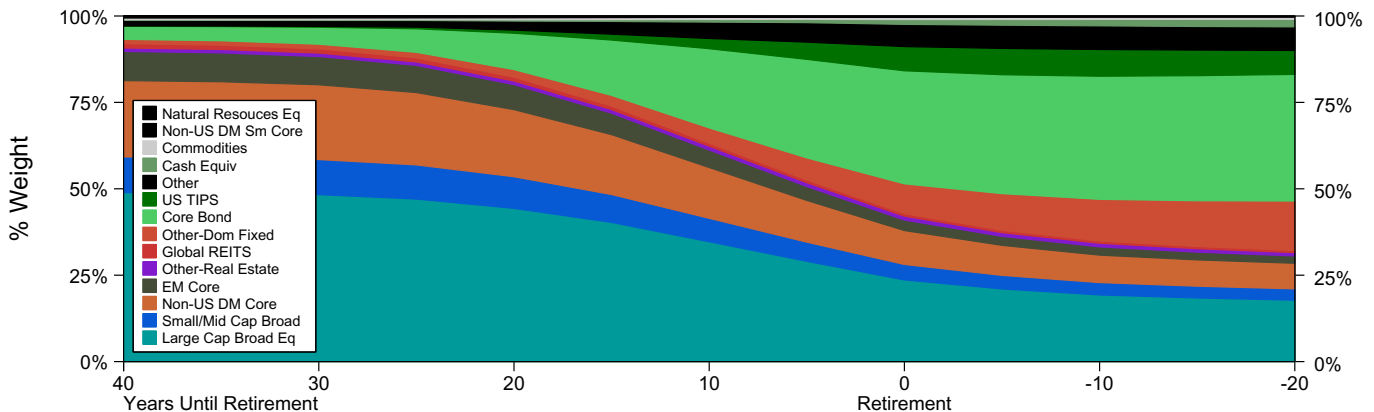
Relative Macro Asset Allocation - BlackRock LifePath Index vs. Callan Consensus ALL Glidep



Micro-Level Asset Allocation Glide Path - BlackRock LifePath Index



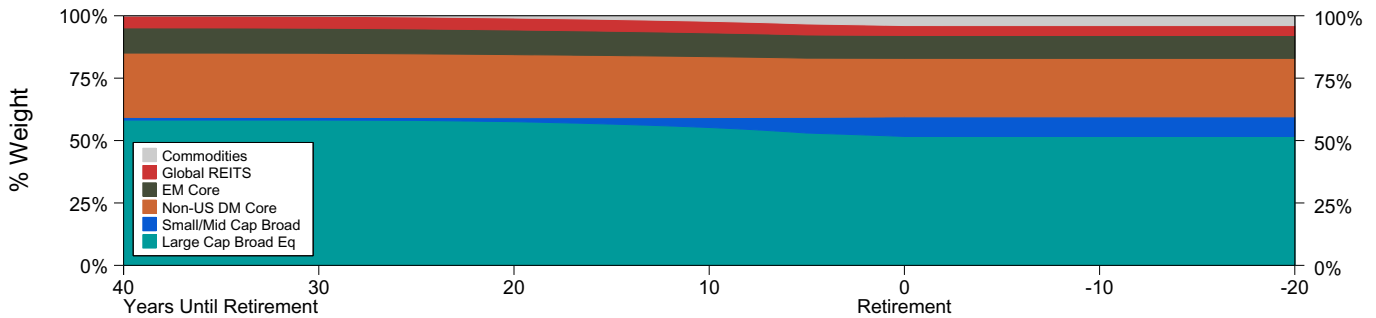
Micro-Level Asset Allocation Glide Path - Callan Consensus ALL Glidepath



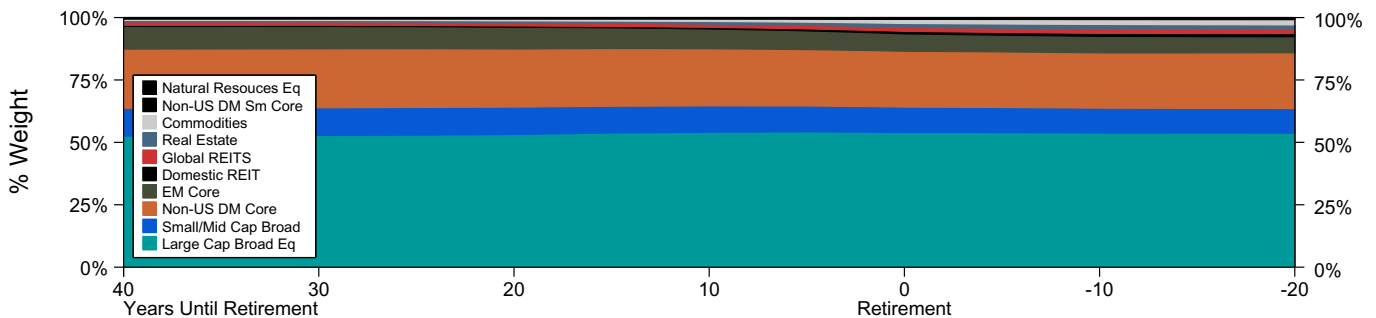
BlackRock LifePath Index Target Date Glide Path Analysis as of March 31, 2023

The first two charts below illustrate the detailed composition over time of the "risky", or "growth" portion of the glide paths for both the manager and index, defined to be all public equity and real estate asset classes. These charts highlight both the levels of diversification and aggressiveness within the wealth creation portion of the glide paths. The last two charts serve a similar purpose but focus on the composition over time of the remaining wealth preservation portion (non-equity) of the manager and index glide paths.

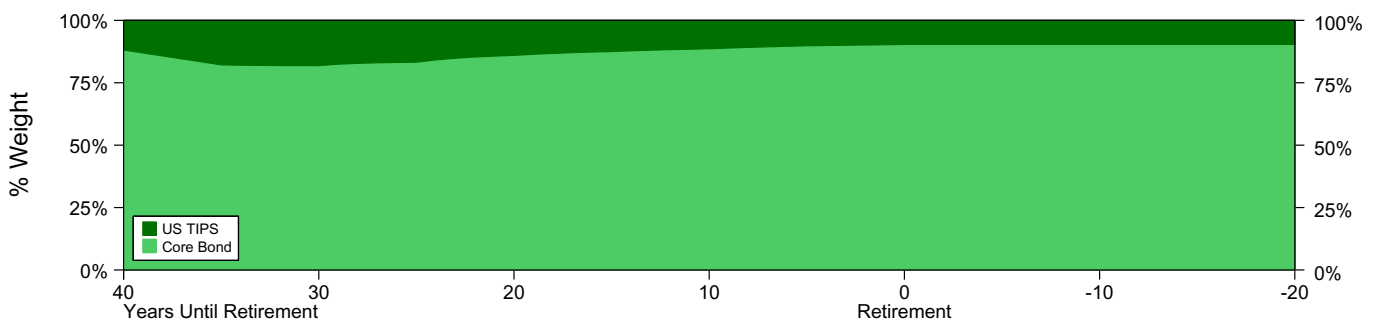
Micro-Level Equity Allocation Glide Path - BlackRock LifePath Index



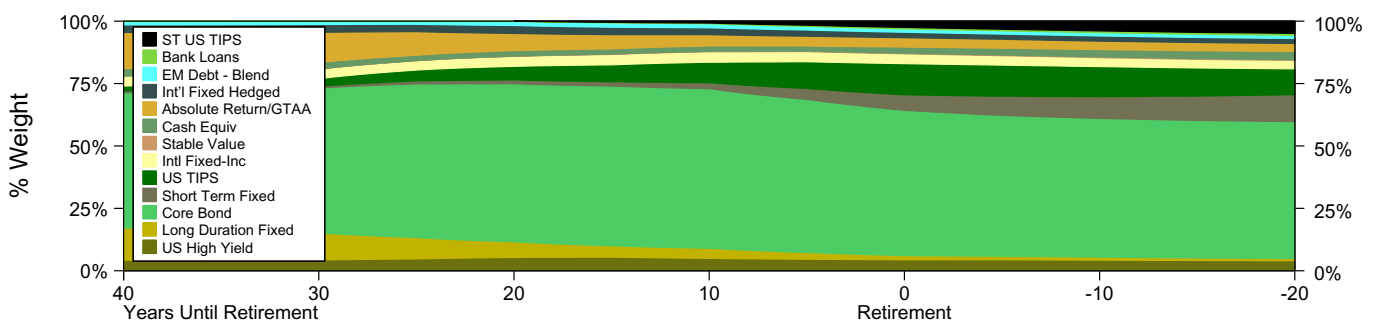
Micro-Level Equity Asset Allocation Glide Path - Callan Consensus ALL Glidepath



Micro-Level Non-Equity Allocation Glide Path - BlackRock LifePath Index



Micro-Level Non-Equity Asset Allocation Glide Path - Callan Consensus ALL Glidep



Pennsylvania SERS 401(a) - BlackRock LifePath Index Target Date Fund Family Analysis as of March 31, 2023

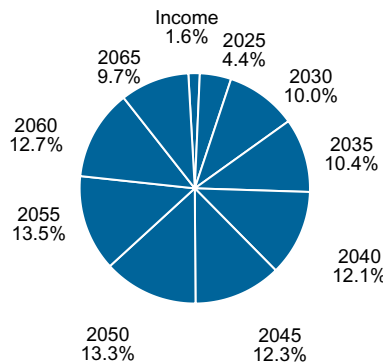
The following is an analysis of the client's suite of target date funds as an aggregated portfolio using actual proportions held by the client's participants. The upper-left pie chart shows the current client weights across target dates. The rest of the charts compare different attributes of the aggregated client target date portfolio to a peer group of target date fund families, as well as target date indices, by mimicking the client target date weights using these alternatives. The first two charts evaluate the aggregate client equity exposure and expense ratio via target date funds. The last two charts analyze aggregate client target date performance on both an actual return basis as well as a "glide path return" basis (simulated returns using each funds' asset allocation "glide path" weights and index returns).

Glidepath Peer Group: ALL

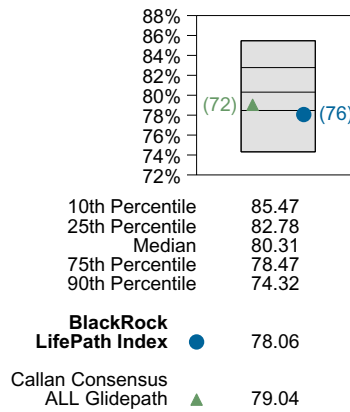
Passive and Non-Passive

Fee/Return Type: Gross

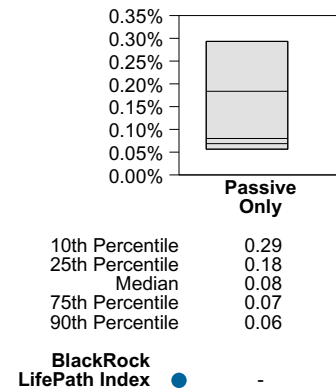
Fund Family Allocation



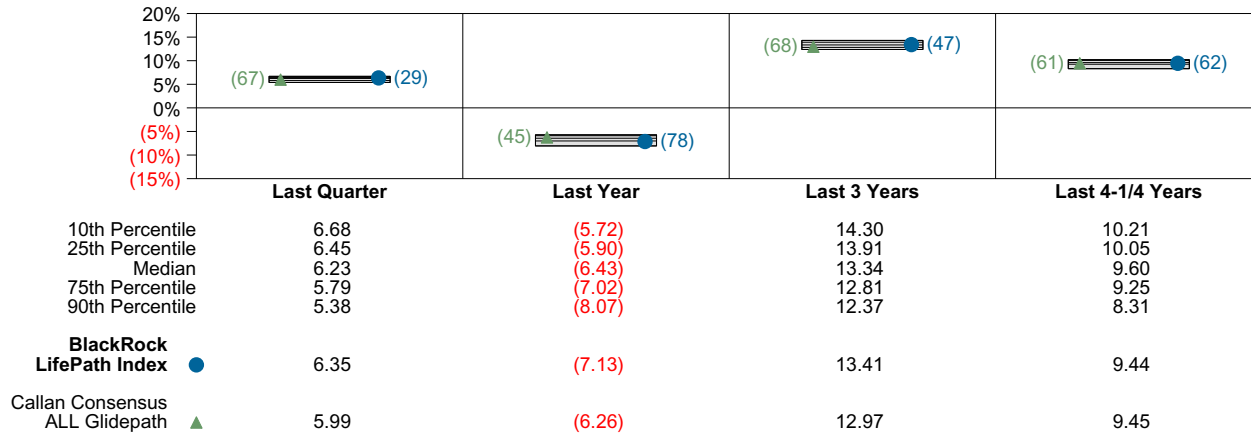
Equity Exposure



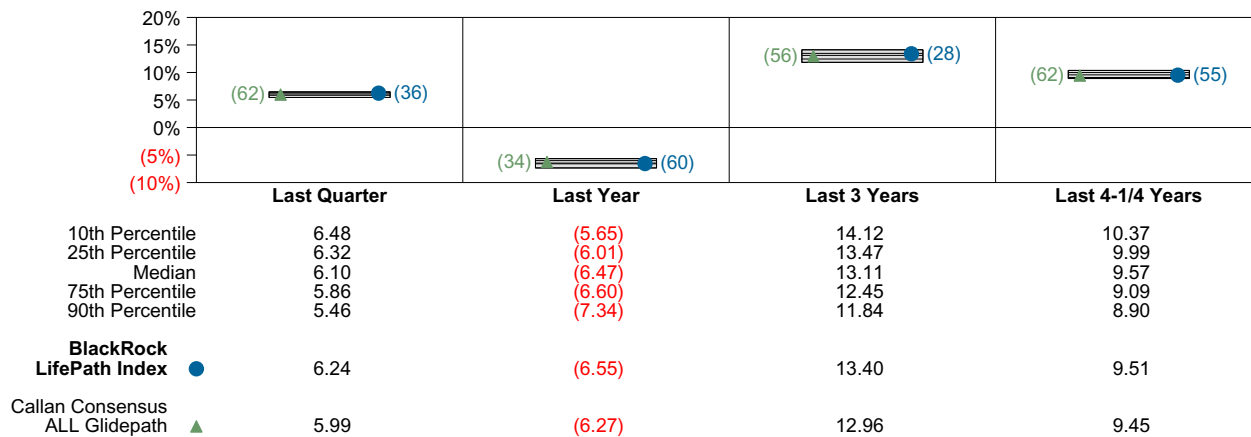
Expense Ratio



Target Date Family Performance vs Peer Families



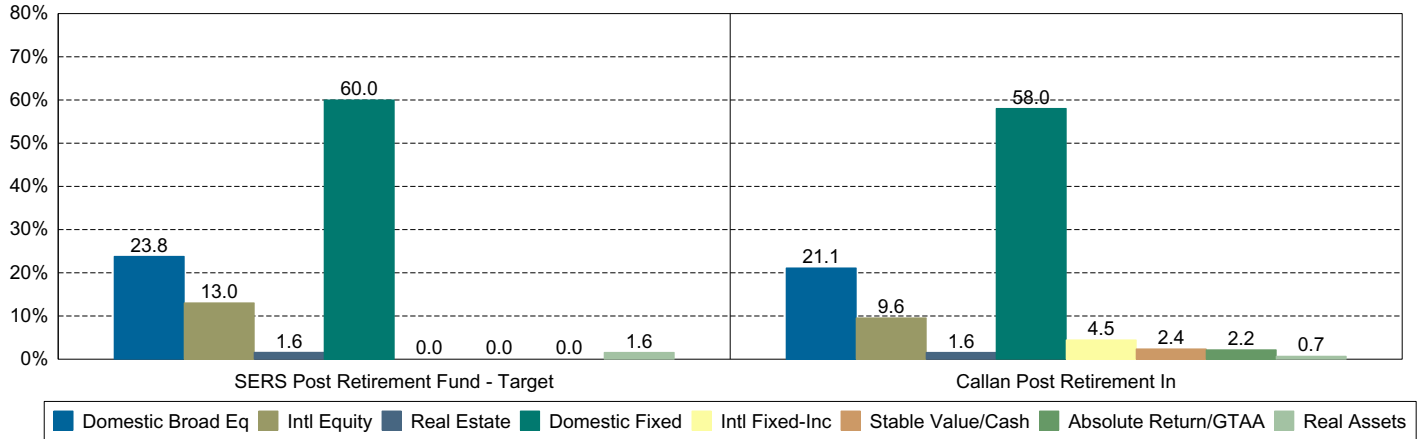
Target Date Family Glide Path Returns vs Peer Families



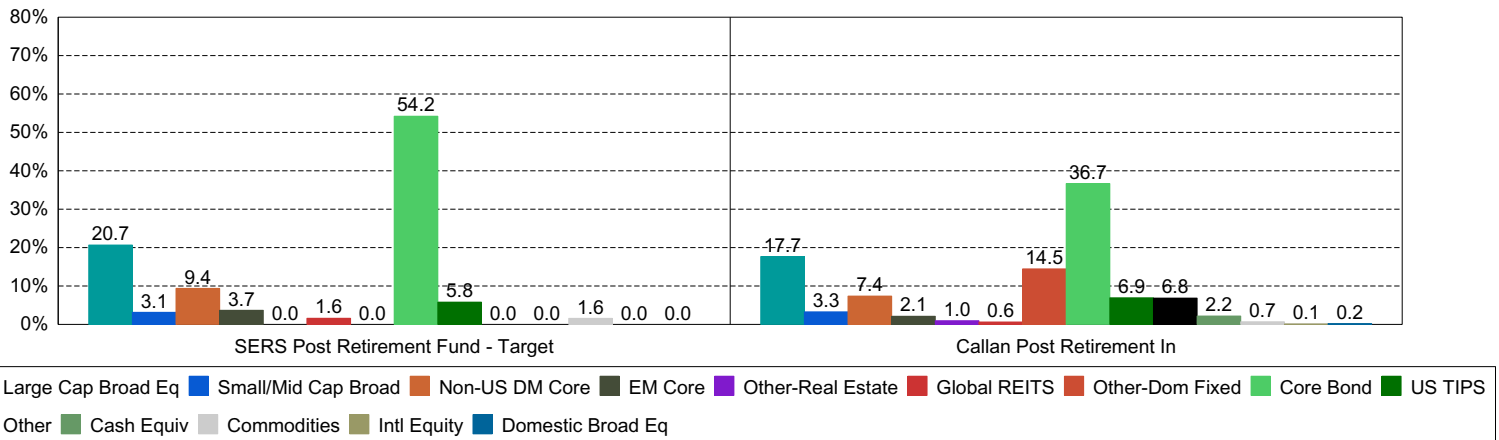
SERS Post Retirement Fund Target Date Fund Asset Allocation as of March 31, 2023

The charts below illustrate the current target asset allocation of the relevant target date fund based on its underlying glide path and compares it to an index. The top charts compare target asset allocation at a high "macro" asset class level, while the middle charts show a more detailed "micro" level view. The bottom chart compares the current "macro" level target asset allocation, and index, to a relevant peer group of target date funds by ranking the various target asset class weights versus those peer target date funds.

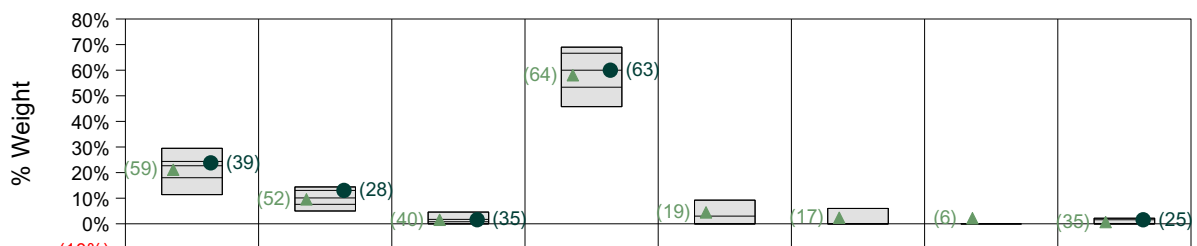
Macro-Level Asset Allocation



Micro-Level Asset Allocation



Macro Asset Allocation Rankings vs. Callan Target Date Retirement Income



	Domestic Broad Eq	Intl Equity	Real Estate	Domestic Fixed	Intl Fixed-Inc	Stable Value/Cash	Absolute Return/GTAA	Real Assets
10th Percentile	29.49	14.40	4.58	69.00	9.24	6.00	0.00	2.17
25th Percentile	24.36	13.04	1.73	66.62	3.00	0.00	0.00	1.57
Median	22.67	10.10	0.80	60.00	0.00	0.00	0.00	0.00
75th Percentile	18.00	7.60	0.00	53.35	0.00	0.00	0.00	0.00
90th Percentile	11.40	5.00	0.00	45.76	0.00	0.00	0.00	0.00

SERS Post Retirement Fund - Target	●	23.80	13.04	1.59	60.00	-	-	1.57
Callan Post Retirement In	▲	21.12	9.56	1.58	58.04	4.46	2.38	2.17

SERS Post Retirement Fund Period Ended March 31, 2023

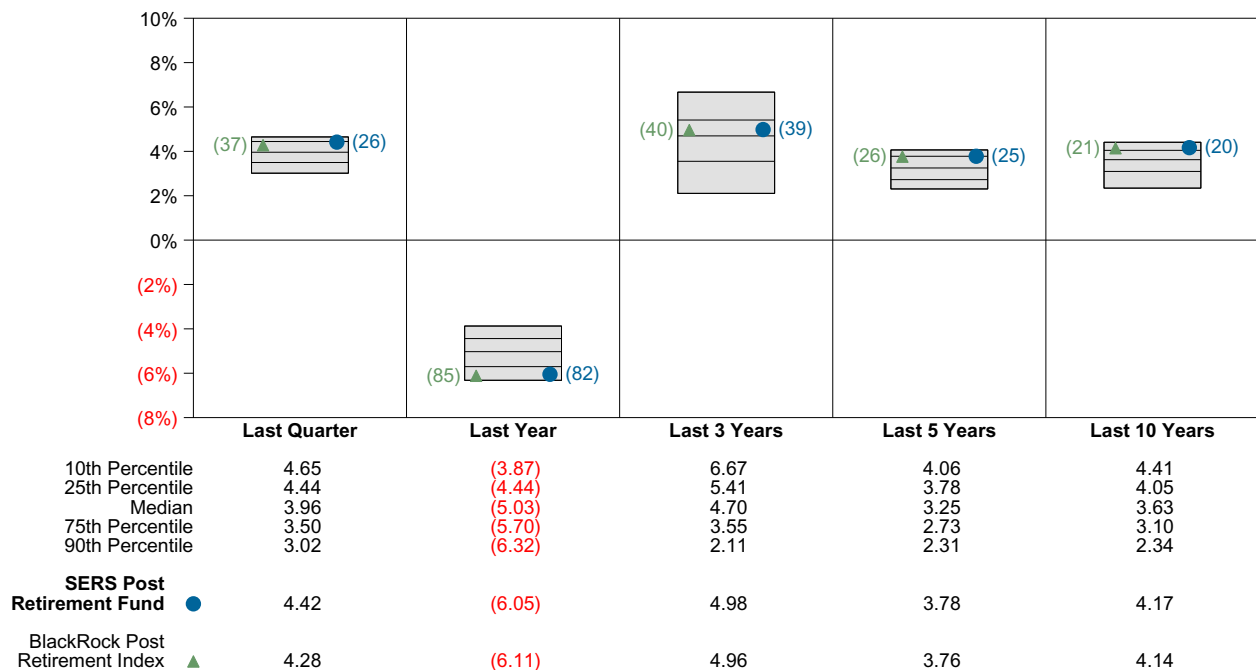
Investment Philosophy

The BlackRock LifePath(R) Index Retirement Fund (the "Fund") seeks to provide for retirement outcomes consistent with investor preferences throughout the savings and drawdown phase based on quantitatively measured risk that investors, on average, may be willing to accept. The Fund will be diversified across global asset classes, with allocations changing over the investment horizon to become more heavily oriented toward debt and debt-like securities, on the premise that individuals investing for retirement desire to reduce investment risk in their retirement accounts as their retirement date approaches.

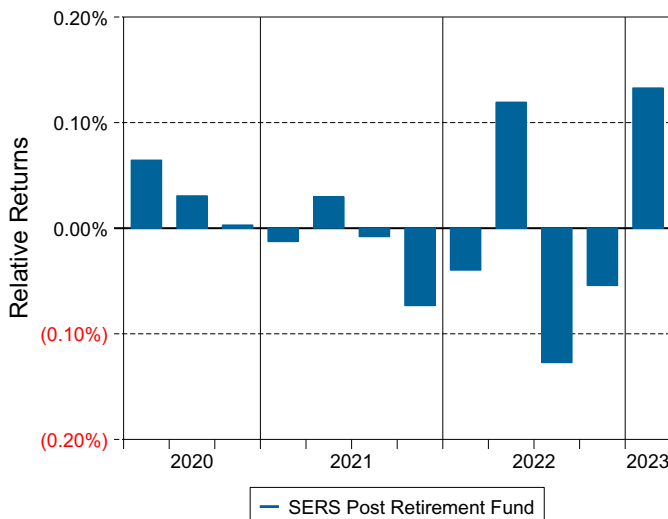
Quarterly Summary and Highlights

- SERS Post Retirement Fund's portfolio posted a 4.42% return for the quarter placing it in the 26 percentile of the Callan Target Date Retirement Income group for the quarter and in the 82 percentile for the last year.
- SERS Post Retirement Fund's portfolio outperformed the BlackRock Post Retirement Index by 0.14% for the quarter and outperformed the BlackRock Post Retirement Index for the year by 0.07%.

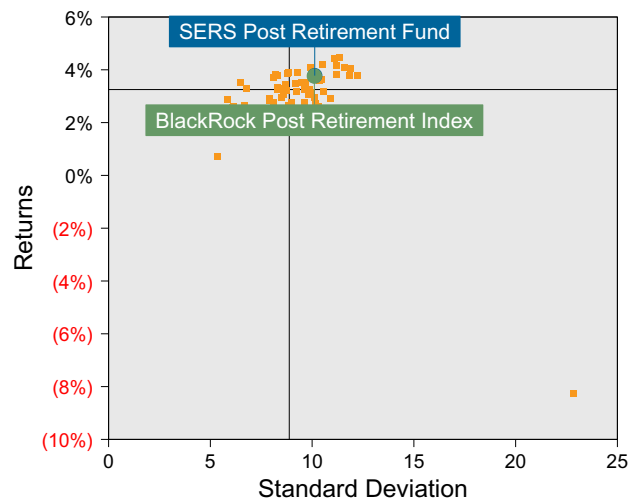
Performance vs Callan Target Date Retirement Income (Net)



Relative Returns vs BlackRock Post Retirement Index



Callan Target Date Retirement Income (Net) Annualized Five Year Risk vs Return

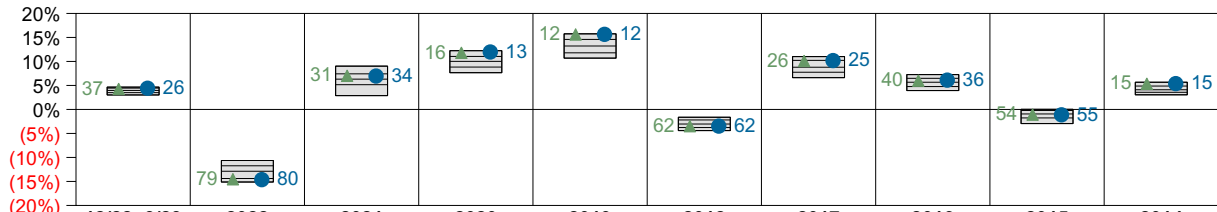


SERS Post Retirement Fund Return Analysis Summary

Return Analysis

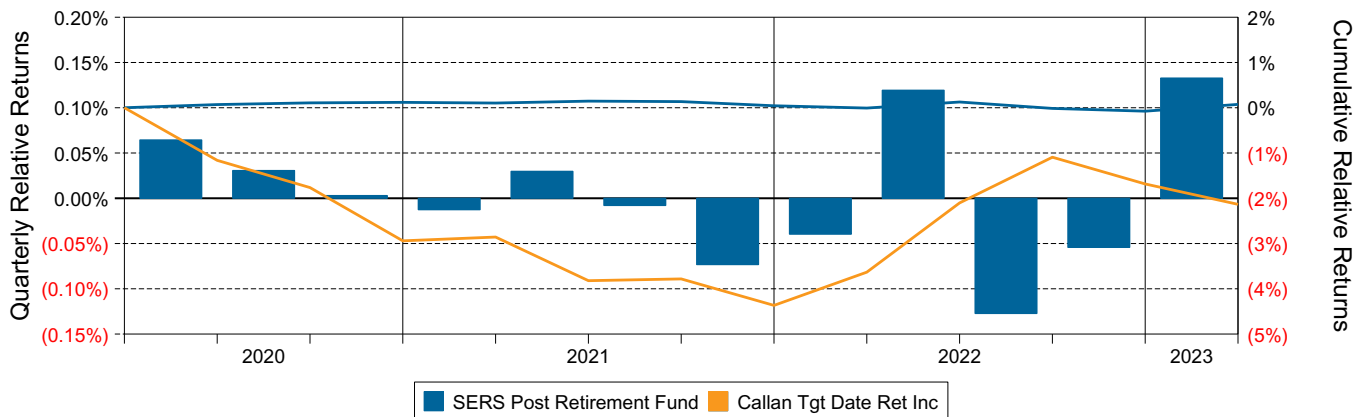
The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

Performance vs Callan Target Date Retirement Income (Net)

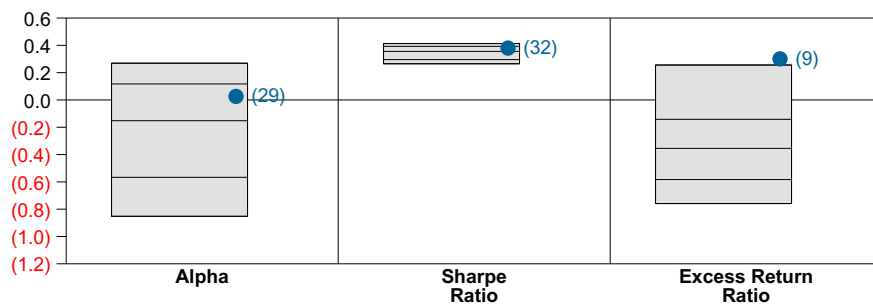


	12/22- 3/23	2022	2021	2020	2019	2018	2017	2016	2015	2014
10th Percentile	4.65	(10.64)	9.02	12.24	15.75	(1.63)	11.01	7.26	0.02	5.66
25th Percentile	4.44	(11.74)	7.42	11.04	14.59	(2.19)	10.22	6.48	(0.22)	4.87
Median	3.96	(12.88)	6.31	10.02	13.21	(3.04)	8.80	5.67	(0.94)	4.10
75th Percentile	3.50	(14.39)	5.16	8.83	11.79	(3.77)	7.75	4.77	(1.77)	3.57
90th Percentile	3.02	(15.12)	2.88	7.66	10.69	(4.41)	6.62	3.93	(2.94)	3.05
SERS Post Retirement Fund	4.42	(14.63)	6.95	11.97	15.65	(3.47)	10.18	6.10	(1.12)	5.38
BlackRock Post Retirement Index	4.28	(14.54)	7.02	11.80	15.63	(3.48)	10.10	6.01	(1.07)	5.36

Cumulative and Quarterly Relative Returns vs BlackRock Post Retirement Index



Risk Adjusted Return Measures vs BlackRock Post Retirement Index Rankings Against Callan Target Date Retirement Income (Net) Seven Years Ended March 31, 2023



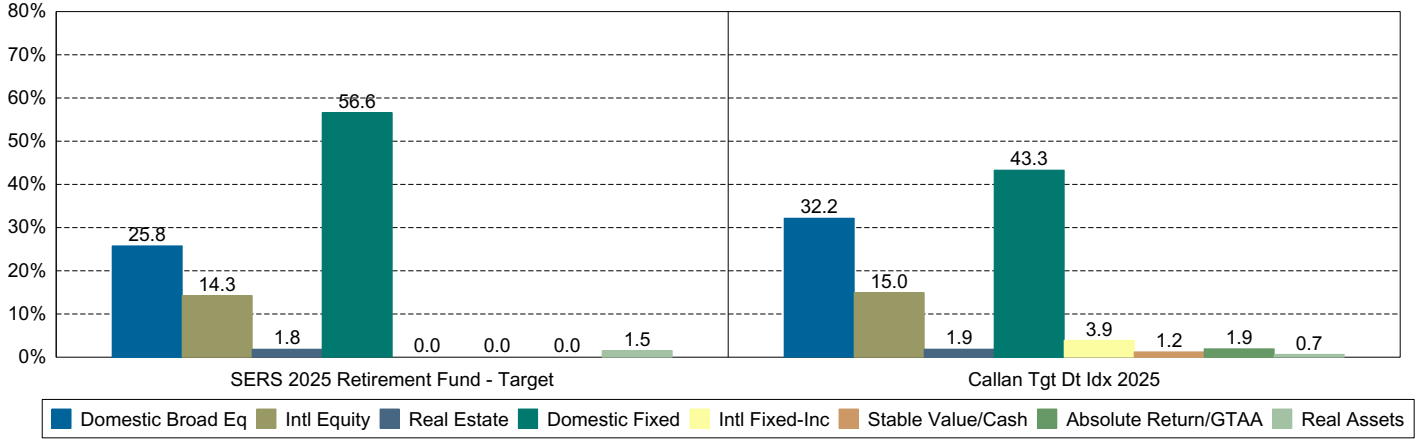
	Alpha	Sharpe Ratio	Excess Return Ratio
10th Percentile	0.27	0.41	0.26
25th Percentile	0.12	0.39	(0.14)
Median	(0.15)	0.36	(0.35)
75th Percentile	(0.57)	0.30	(0.58)
90th Percentile	(0.85)	0.27	(0.76)
SERS Post Retirement Fund	0.03	0.38	0.30

SERS 2025 Retirement Fund

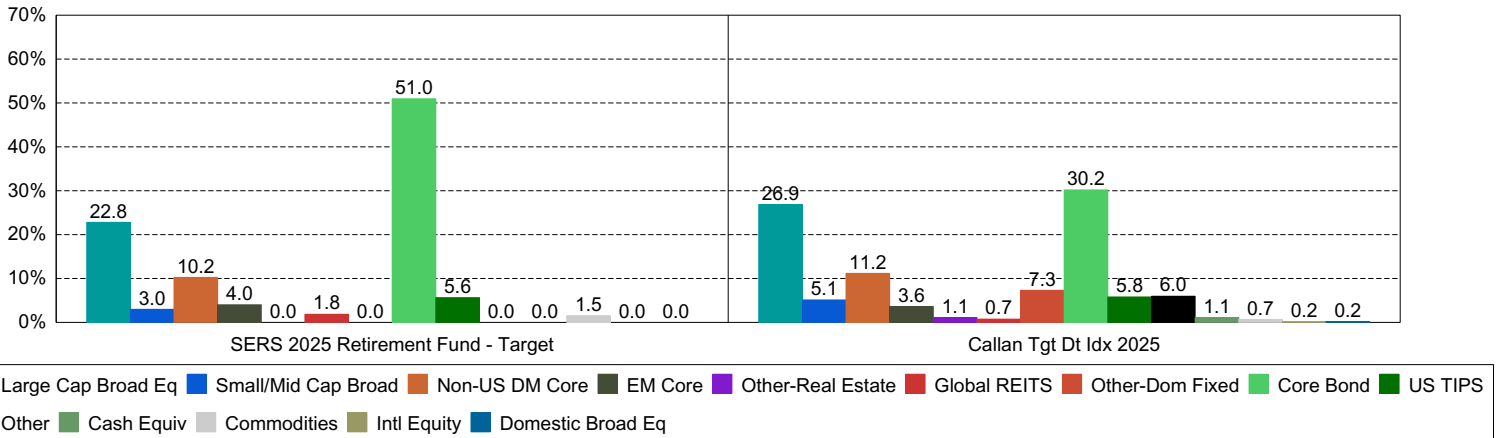
Target Date Fund Asset Allocation as of March 31, 2023

The charts below illustrate the current target asset allocation of the relevant target date fund based on its underlying glide path and compares it to an index. The top charts compare target asset allocation at a high "macro" asset class level, while the middle charts show a more detailed "micro" level view. The bottom chart compares the current "macro" level target asset allocation, and index, to a relevant peer group of target date funds by ranking the various target asset class weights versus those peer target date funds.

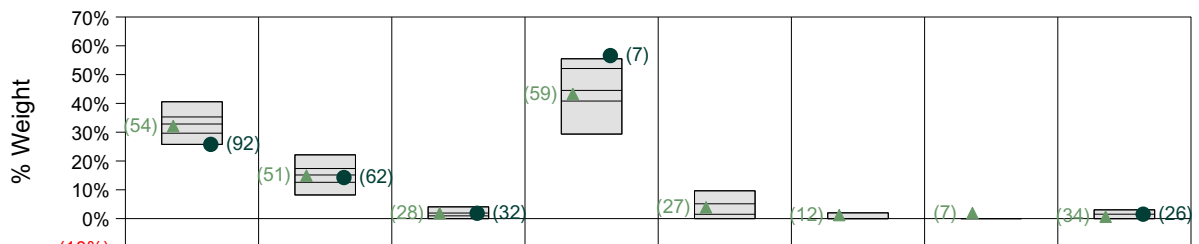
Macro-Level Asset Allocation



Micro-Level Asset Allocation



Macro Asset Allocation Rankings vs. Callan Target Date 2025



	Domestic Broad Eq	Intl Equity	Real Estate	Domestic Fixed	Intl Fixed-Inc	Stable Value/Cash	Absolute Return/GTAA	Real Assets
10th Percentile	40.57	22.14	4.08	55.50	9.66	2.00	0.00	3.04
25th Percentile	35.30	17.39	1.93	52.12	5.14	0.00	0.00	1.53
Median	32.85	15.15	0.95	44.51	1.50	0.00	0.00	0.00
75th Percentile	29.66	12.60	0.00	40.82	0.00	0.00	0.00	0.00
90th Percentile	25.77	8.20	0.00	29.34	0.00	0.00	0.00	0.00

SERS 2025 Retirement Fund - Target	●	25.77	14.26	1.85	56.60	-	-	-	1.53
Callan Tgt Dt Idx 2025	▲	32.17	14.95	1.86	43.29	3.91	1.23	1.94	0.66

SERS 2025 Retirement Fund Period Ended March 31, 2023

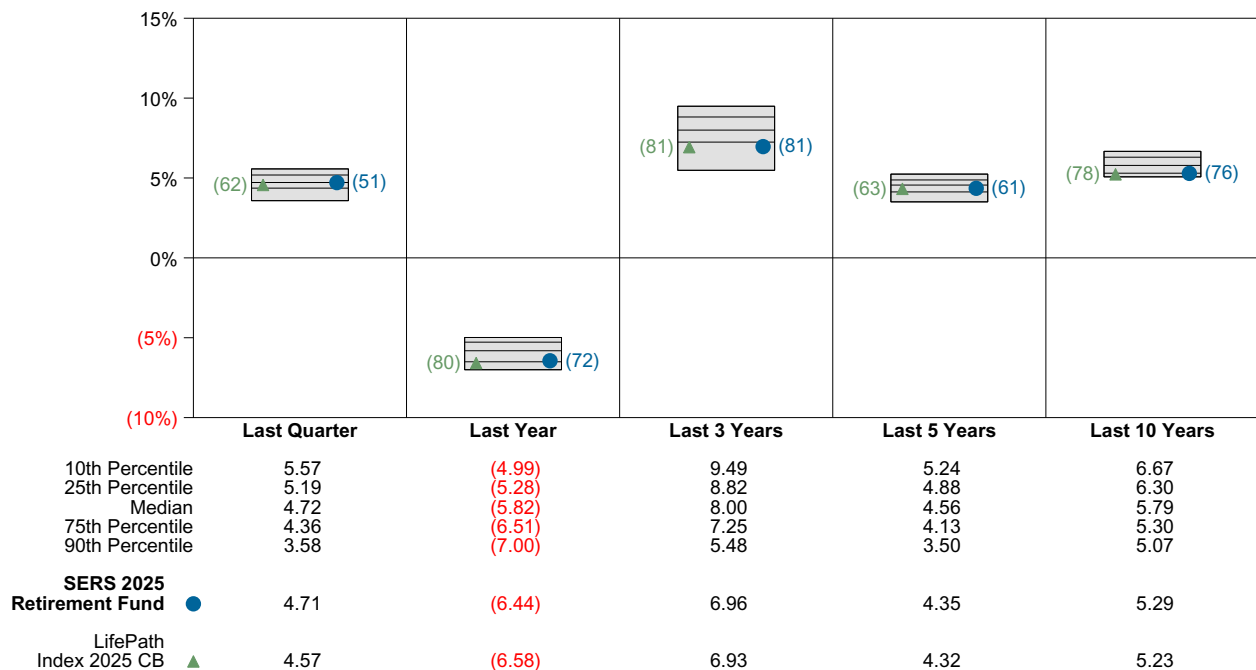
Investment Philosophy

The BlackRock LifePath(R) Index 2025 Fund (the "Fund") seeks to provide for retirement outcomes consistent with investor preferences throughout the savings and drawdown phase based on quantitatively measured risk that investors, on average, may be willing to accept. The Fund will be diversified across global asset classes, with allocations changing over the investment horizon to become more heavily oriented toward debt and debt-like securities, on the premise that individuals investing for retirement desire to reduce investment risk in their retirement accounts as their retirement date approaches.

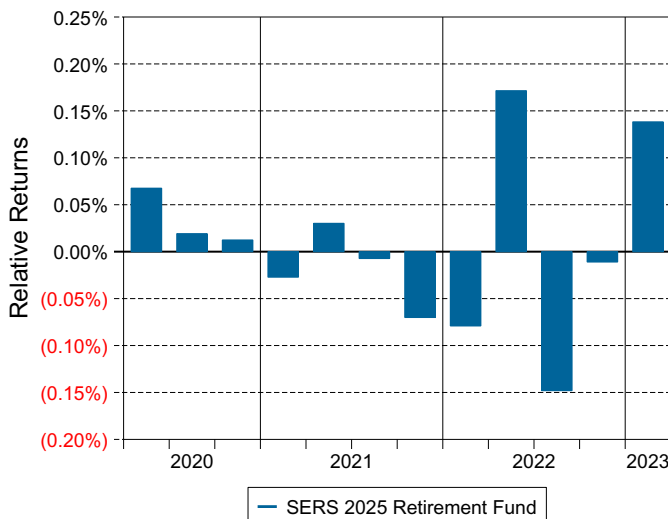
Quarterly Summary and Highlights

- SERS 2025 Retirement Fund's portfolio posted a 4.71% return for the quarter placing it in the 51 percentile of the Callan Target Date 2025 group for the quarter and in the 72 percentile for the last year.
- SERS 2025 Retirement Fund's portfolio outperformed the LifePath Index 2025 CB by 0.14% for the quarter and outperformed the LifePath Index 2025 CB for the year by 0.14%.

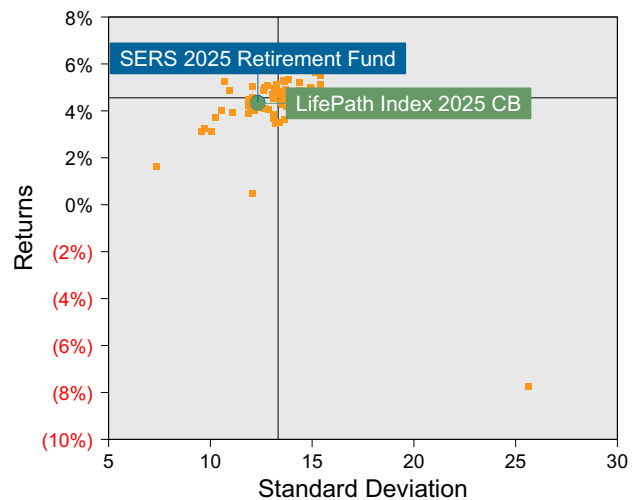
Performance vs Callan Target Date 2025 (Net)



Relative Return vs LifePath Index 2025 CB



Callan Target Date 2025 (Net) Annualized Five Year Risk vs Return

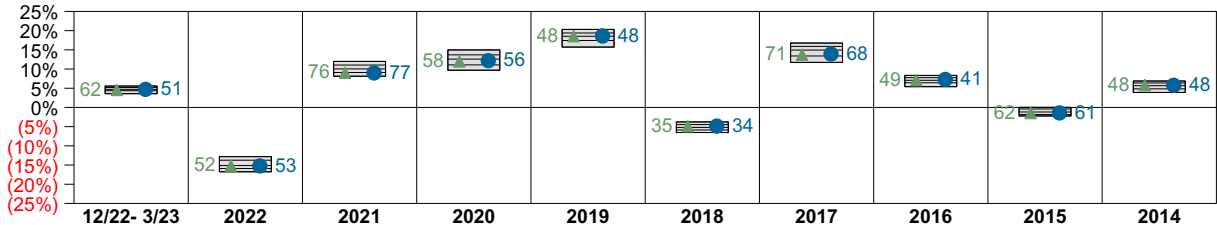


SERS 2025 Retirement Fund Return Analysis Summary

Return Analysis

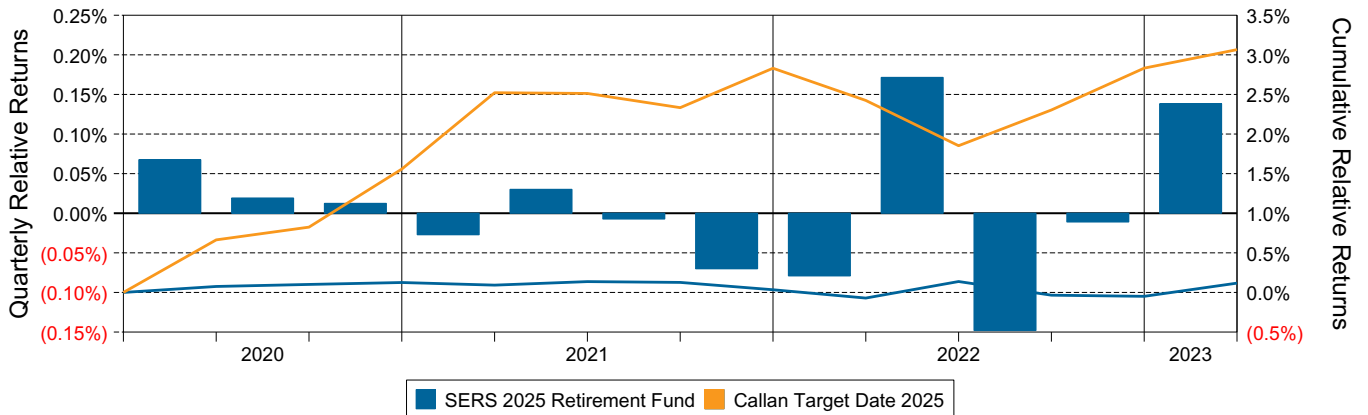
The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

Performance vs Callan Target Date 2025 (Net)

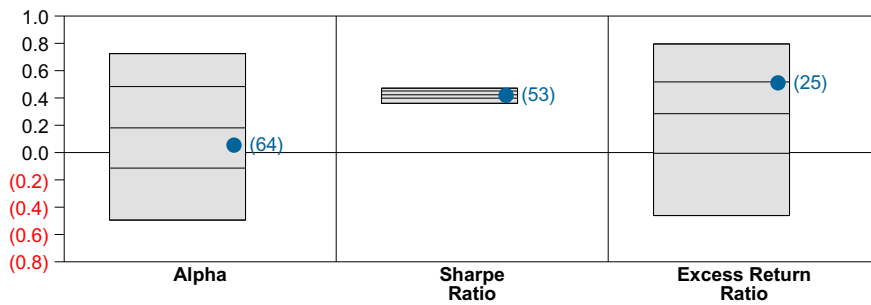


	12/22- 3/23	2022	2021	2020	2019	2018	2017	2016	2015	2014
10th Percentile	5.57	(12.80)	11.99	14.98	20.32	(3.77)	16.77	8.34	0.02	6.88
25th Percentile	5.19	(13.74)	11.04	13.70	19.39	(4.46)	15.90	7.76	(0.39)	6.37
Median	4.72	(15.14)	10.04	12.58	18.53	(5.20)	14.94	7.07	(1.19)	5.67
75th Percentile	4.36	(15.90)	9.10	11.08	17.43	(5.87)	13.41	6.43	(1.85)	4.84
90th Percentile	3.58	(16.76)	8.13	9.69	15.71	(6.53)	11.73	5.41	(2.22)	3.90
SERS 2025 Retirement Fund	● 4.71	(15.23)	8.99	12.19	18.60	(4.86)	13.91	7.30	(1.43)	5.77
LifePath Index 2025 CB	▲ 4.57	(15.17)	9.07	12.01	18.56	(4.90)	13.75	7.10	(1.45)	5.82

Cumulative and Quarterly Relative Returns vs LifePath Index 2025 CB



Risk Adjusted Return Measures vs LifePath Index 2025 CB Rankings Against Callan Target Date 2025 (Net) Seven Years Ended March 31, 2023



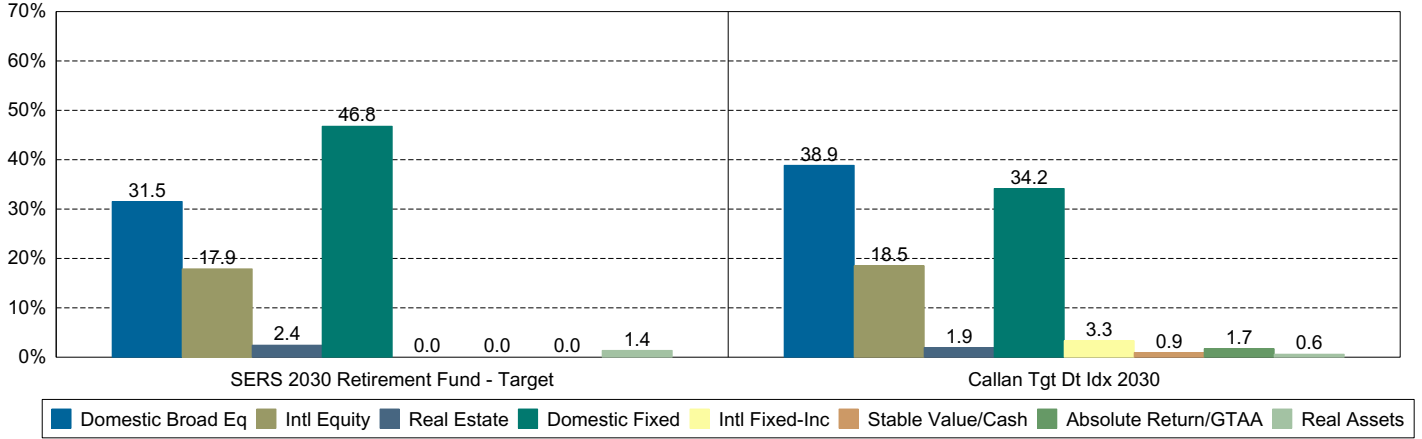
	Alpha	Sharpe Ratio	Excess Return Ratio
10th Percentile	0.72	0.47	0.80
25th Percentile	0.48	0.45	0.52
Median	0.18	0.42	0.28
75th Percentile	(0.11)	0.40	(0.01)
90th Percentile	(0.49)	0.36	(0.46)
SERS 2025 Retirement Fund	● 0.05	0.42	0.51

SERS 2030 Retirement Fund

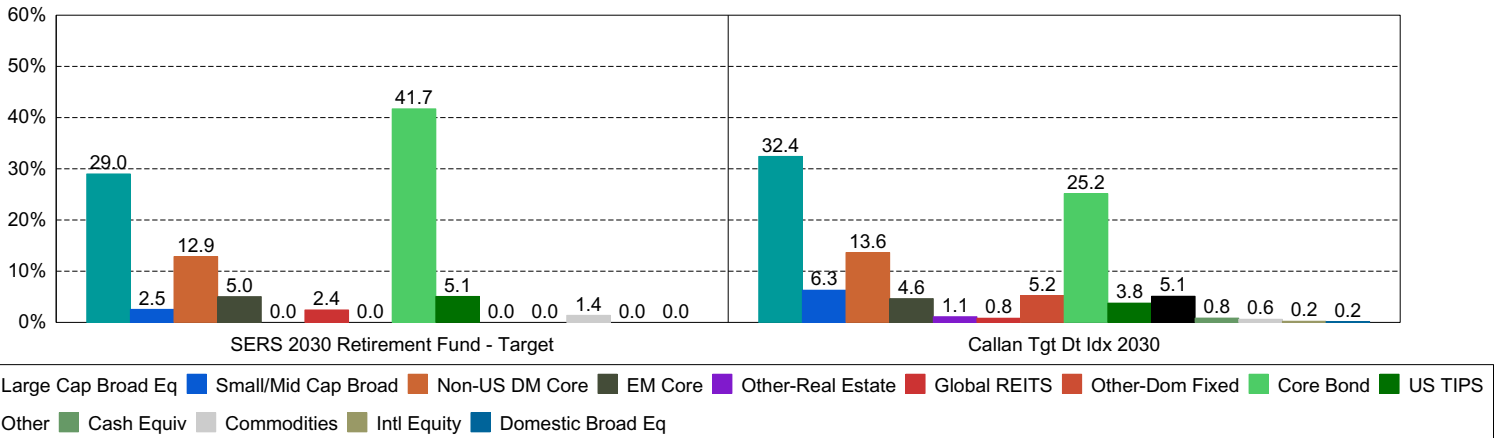
Target Date Fund Asset Allocation as of March 31, 2023

The charts below illustrate the current target asset allocation of the relevant target date fund based on its underlying glide path and compares it to an index. The top charts compare target asset allocation at a high "macro" asset class level, while the middle charts show a more detailed "micro" level view. The bottom chart compares the current "macro" level target asset allocation, and index, to a relevant peer group of target date funds by ranking the various target asset class weights versus those peer target date funds.

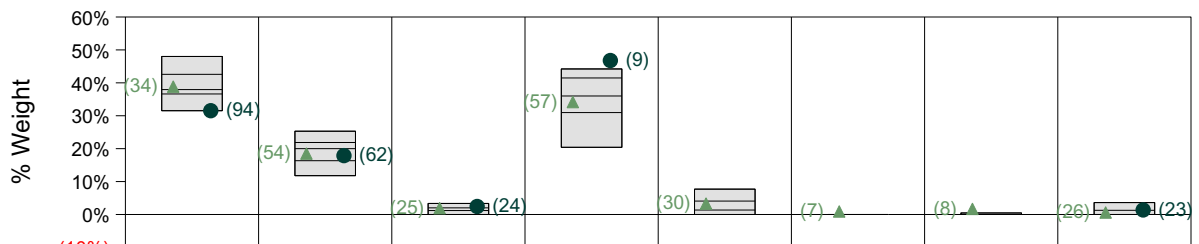
Macro-Level Asset Allocation



Micro-Level Asset Allocation



Macro Asset Allocation Rankings vs. Callan Target Date 2030



	Domestic Broad Eq	Intl Equity	Real Estate	Domestic Fixed	Intl Fixed-Inc	Stable Value/Cash	Absolute Return/GTAA	Real Assets
10th Percentile	48.01	25.30	3.35	44.22	7.70	0.00	0.46	3.62
25th Percentile	42.58	21.87	2.02	41.48	4.07	0.00	0.00	1.27
Median	37.95	20.00	1.20	36.00	1.35	0.00	0.00	0.00
75th Percentile	36.62	16.34	0.00	30.96	0.00	0.00	0.00	0.00
90th Percentile	31.53	11.79	0.00	20.41	0.00	0.00	0.00	0.00

SERS 2030 Retirement Fund - Target	●	31.53	17.89	2.43	46.78	-	-	-	1.37
Callan Tgt Dt Idx 2030	▲	38.86	18.51	1.92	34.16	3.32	0.92	1.70	0.61

SERS 2030 Retirement Fund Period Ended March 31, 2023

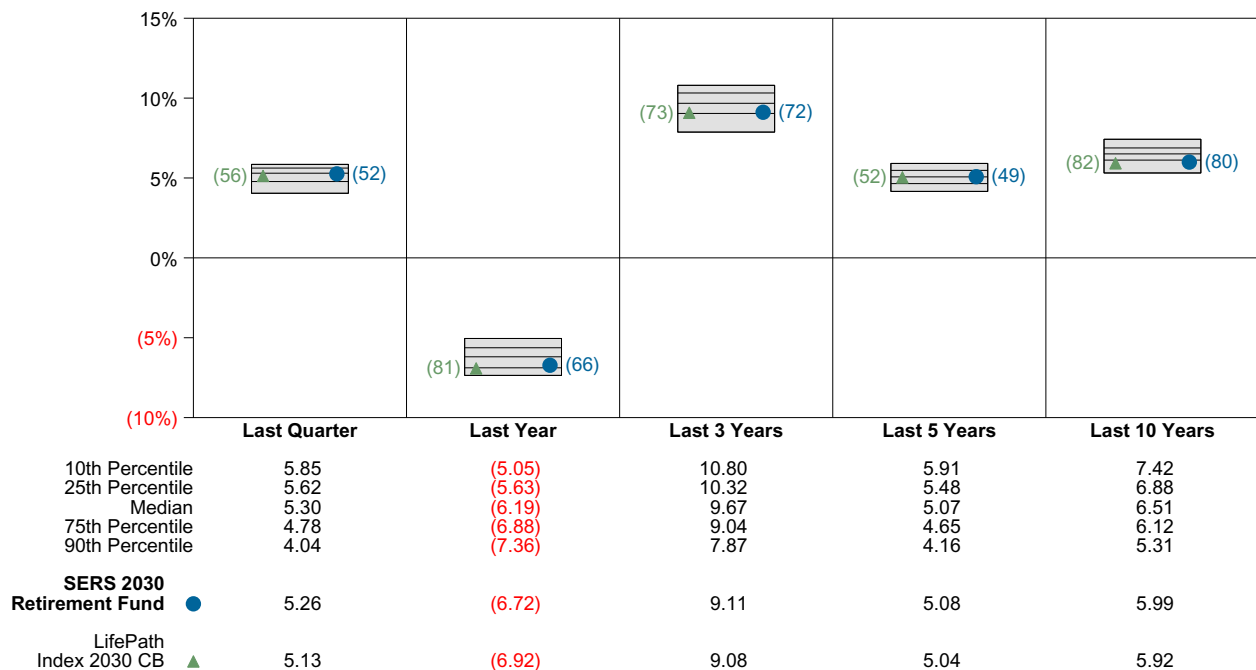
Investment Philosophy

The BlackRock LifePath(R) Index 2030 Fund (the "Fund") seeks to provide for retirement outcomes consistent with investor preferences throughout the savings and drawdown phase based on quantitatively measured risk that investors, on average, may be willing to accept. The Fund will be diversified across global asset classes, with allocations changing over the investment horizon to become more heavily oriented toward debt and debt-like securities, on the premise that individuals investing for retirement desire to reduce investment risk in their retirement accounts as their retirement date approaches.

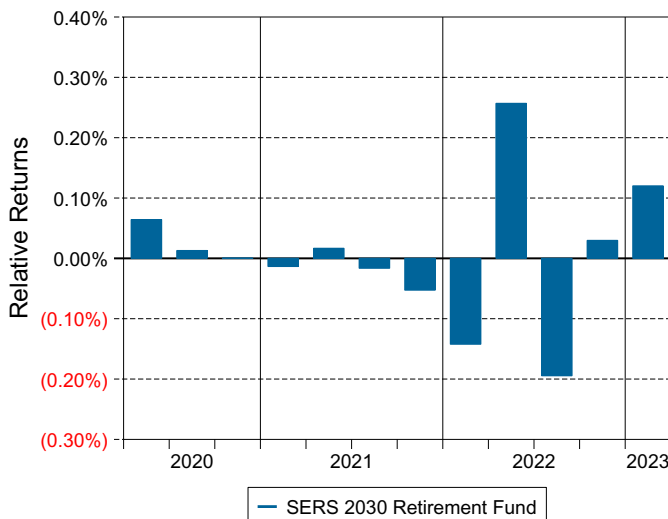
Quarterly Summary and Highlights

- SERS 2030 Retirement Fund's portfolio posted a 5.26% return for the quarter placing it in the 52 percentile of the Callan Target Date 2030 group for the quarter and in the 66 percentile for the last year.
- SERS 2030 Retirement Fund's portfolio outperformed the LifePath Index 2030 CB by 0.13% for the quarter and outperformed the LifePath Index 2030 CB for the year by 0.20%.

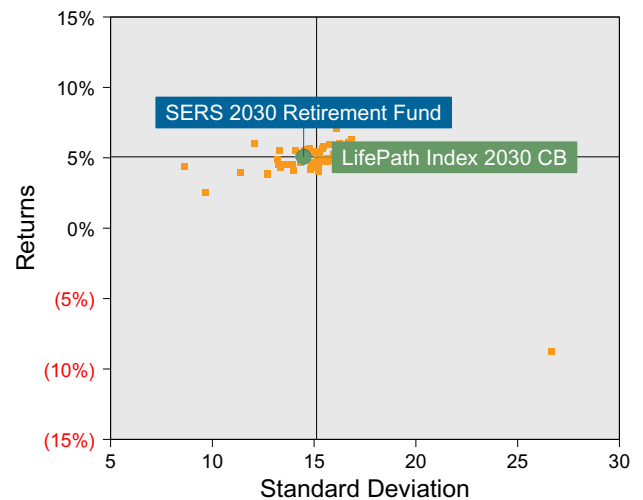
Performance vs Callan Target Date 2030 (Net)



Relative Return vs LifePath Index 2030 CB



Callan Target Date 2030 (Net) Annualized Five Year Risk vs Return

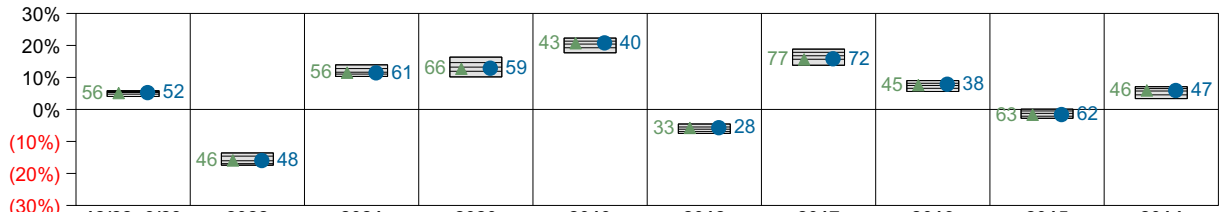


SERS 2030 Retirement Fund Return Analysis Summary

Return Analysis

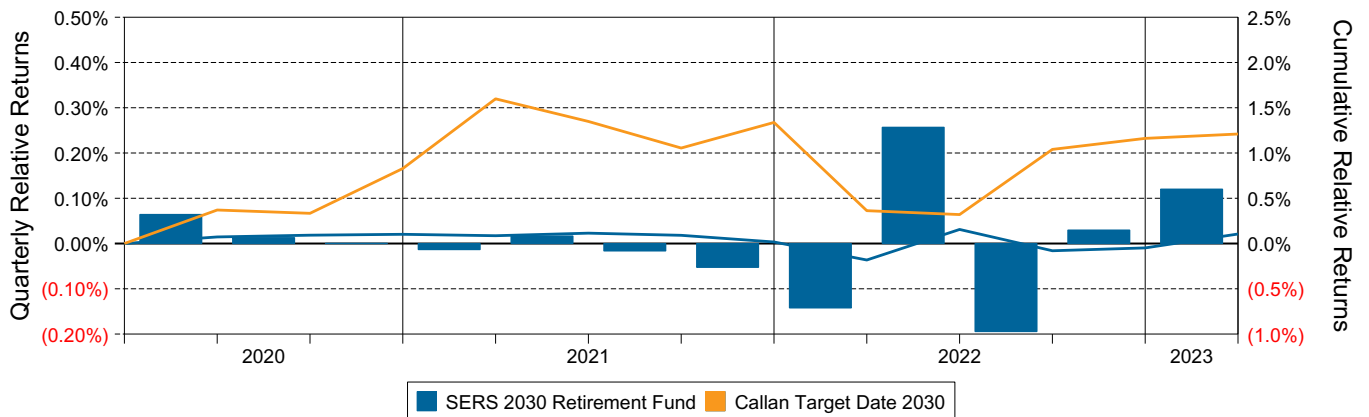
The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

Performance vs Callan Target Date 2030 (Net)

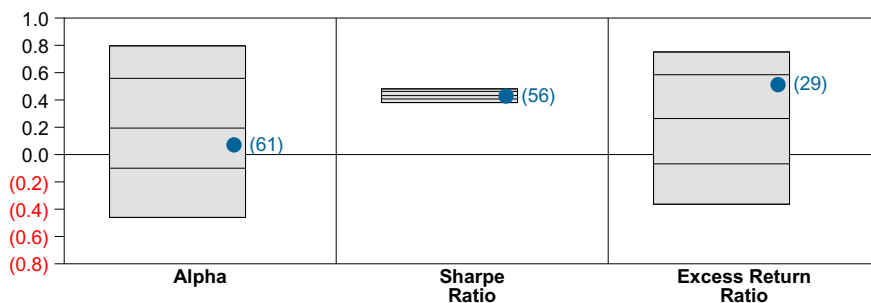


Period	12/22- 3/23	2022	2021	2020	2019	2018	2017	2016	2015	2014
10th Percentile	5.85	(13.59)	13.94	16.35	22.30	(4.55)	18.85	9.02	0.09	7.11
25th Percentile	5.62	(14.60)	12.77	14.64	21.34	(5.48)	17.85	8.17	(0.48)	6.52
Median	5.30	(16.04)	11.63	13.23	20.43	(6.17)	16.77	7.49	(1.22)	5.76
75th Percentile	4.78	(16.94)	11.05	11.92	19.28	(6.93)	15.68	6.60	(2.12)	4.56
90th Percentile	4.04	(17.42)	10.31	10.16	17.70	(7.50)	13.81	5.61	(2.77)	3.39
SERS 2030 Retirement Fund	5.26	(15.97)	11.43	12.88	20.80	(5.71)	15.83	7.88	(1.60)	5.92
LifePath Index 2030 CB	5.13	(15.92)	11.50	12.72	20.70	(5.76)	15.64	7.61	(1.66)	5.95

Cumulative and Quarterly Relative Returns vs LifePath Index 2030 CB



Risk Adjusted Return Measures vs LifePath Index 2030 CB Rankings Against Callan Target Date 2030 (Net) Seven Years Ended March 31, 2023

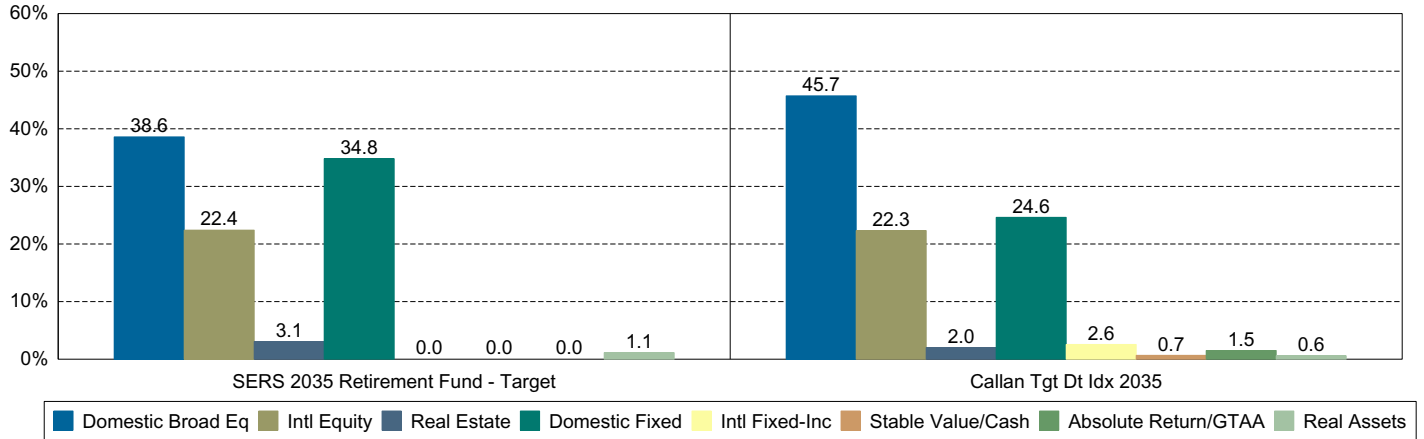


Measure	Alpha	Sharpe Ratio	Excess Return Ratio
10th Percentile	0.80	0.48	0.75
25th Percentile	0.56	0.46	0.58
Median	0.19	0.43	0.26
75th Percentile	(0.10)	0.41	(0.07)
90th Percentile	(0.46)	0.38	(0.36)
SERS 2030 Retirement Fund	0.07	0.43	0.51

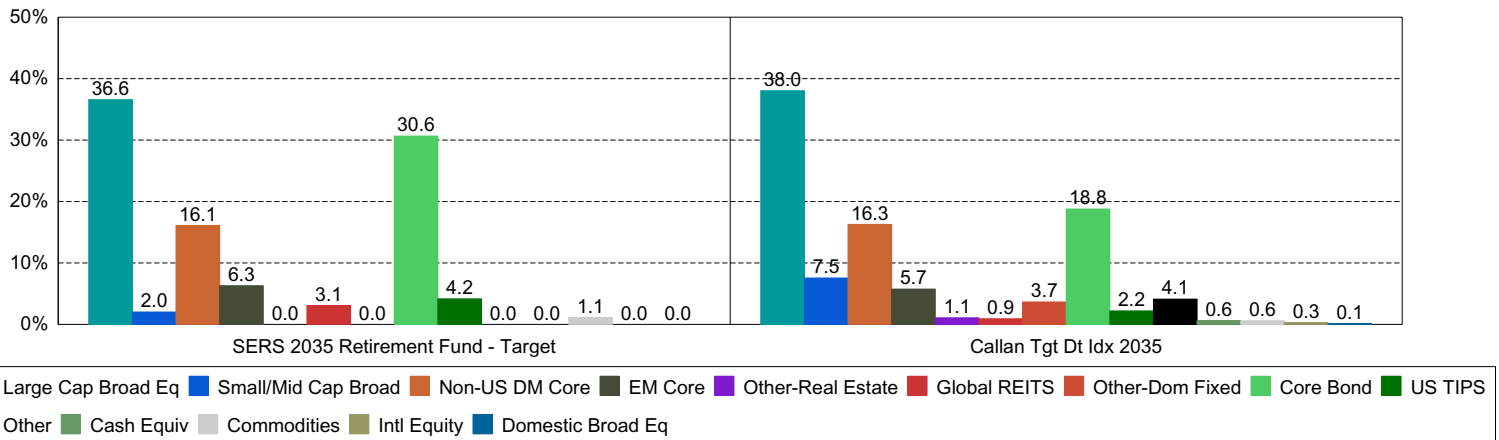
SERS 2035 Retirement Fund Target Date Fund Asset Allocation as of March 31, 2023

The charts below illustrate the current target asset allocation of the relevant target date fund based on its underlying glide path and compares it to an index. The top charts compare target asset allocation at a high "macro" asset class level, while the middle charts show a more detailed "micro" level view. The bottom chart compares the current "macro" level target asset allocation, and index, to a relevant peer group of target date funds by ranking the various target asset class weights versus those peer target date funds.

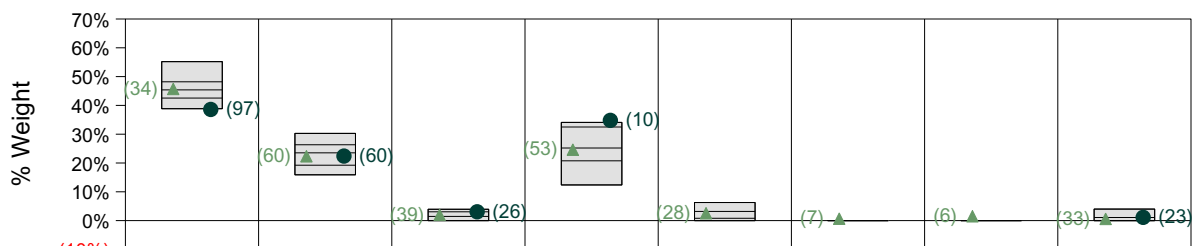
Macro-Level Asset Allocation



Micro-Level Asset Allocation



Macro Asset Allocation Rankings vs. Callan Target Date 2035



	Domestic Broad Eq	Intl Equity	Real Estate	Domestic Fixed	Intl Fixed-Inc	Stable Value/Cash	Absolute Return/GTAA	Real Assets
10th Percentile	55.19	30.28	3.93	34.09	6.28	0.00	0.00	4.00
25th Percentile	48.19	26.33	3.06	32.50	3.18	0.00	0.00	1.08
Median	45.39	23.53	1.45	25.20	0.81	0.00	0.00	0.00
75th Percentile	42.54	19.23	0.00	20.76	0.00	0.00	0.00	0.00
90th Percentile	38.86	15.90	0.00	12.38	0.00	0.00	0.00	0.00

SERS 2035 Retirement Fund - Target	●	38.59	22.40	3.06	34.81	-	-	1.13
Callan Tgt Dt Idx 2035	▲	45.72	22.33	2.00	24.63	0.67	1.51	0.59

SERS 2035 Retirement Fund Period Ended March 31, 2023

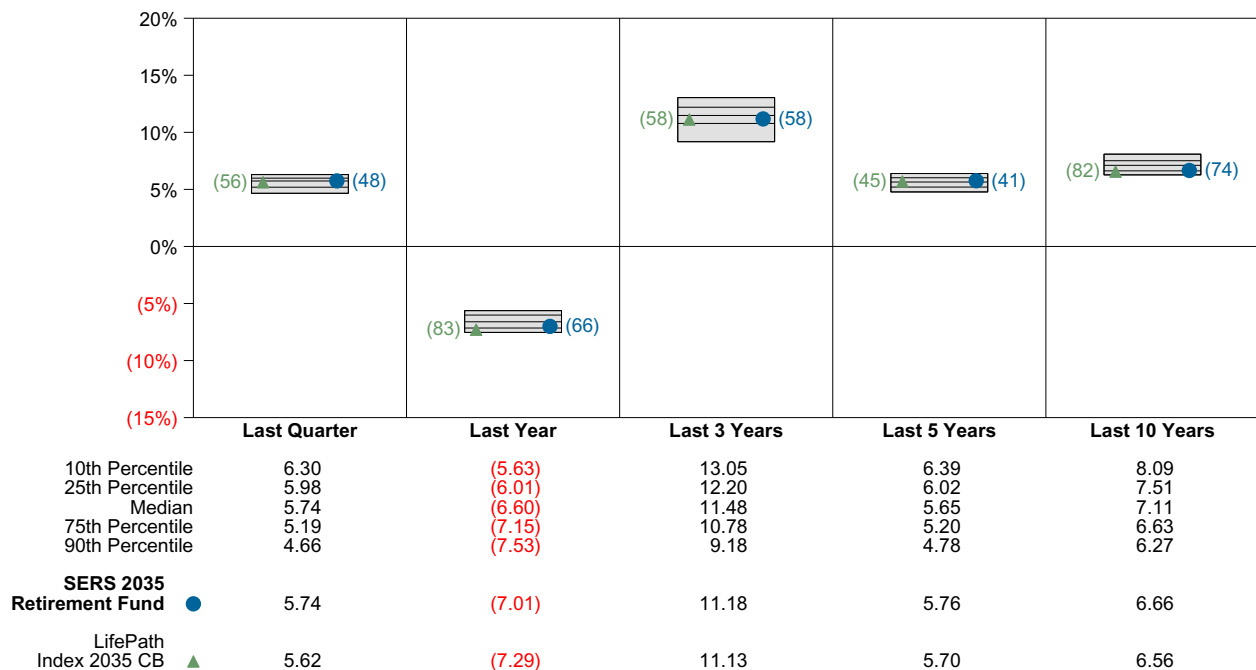
Investment Philosophy

The BlackRock LifePath(R) Index 2035 Fund (the "Fund") seeks to provide for retirement outcomes consistent with investor preferences throughout the savings and drawdown phase based on quantitatively measured risk that investors, on average, may be willing to accept. The Fund will be diversified across global asset classes, with allocations changing over the investment horizon to become more heavily oriented toward debt and debt-like securities, on the premise that individuals investing for retirement desire to reduce investment risk in their retirement accounts as their retirement date approaches.

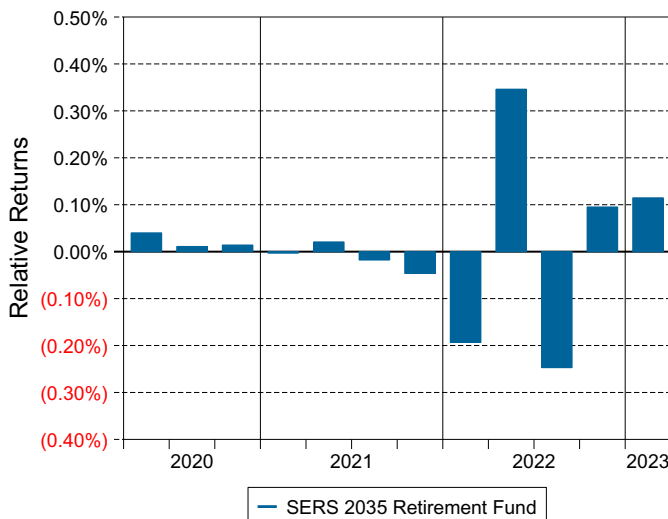
Quarterly Summary and Highlights

- SERS 2035 Retirement Fund's portfolio posted a 5.74% return for the quarter placing it in the 48 percentile of the Callan Target Date 2035 group for the quarter and in the 66 percentile for the last year.
- SERS 2035 Retirement Fund's portfolio outperformed the LifePath Index 2035 CB by 0.12% for the quarter and outperformed the LifePath Index 2035 CB for the year by 0.29%.

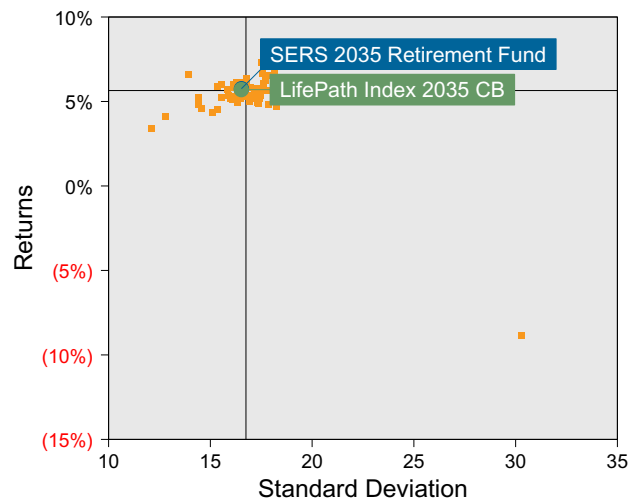
Performance vs Callan Target Date 2035 (Net)



Relative Return vs LifePath Index 2035 CB



Callan Target Date 2035 (Net) Annualized Five Year Risk vs Return

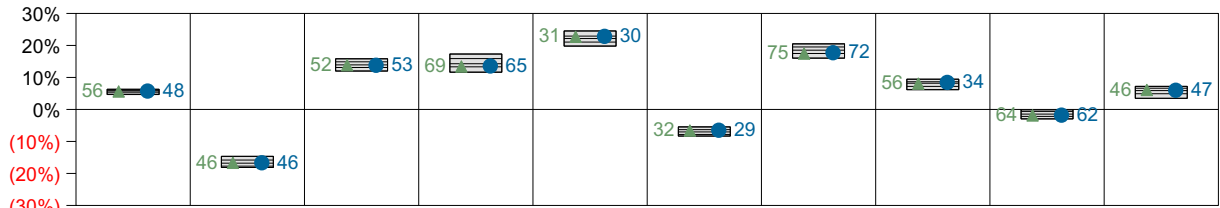


SERS 2035 Retirement Fund Return Analysis Summary

Return Analysis

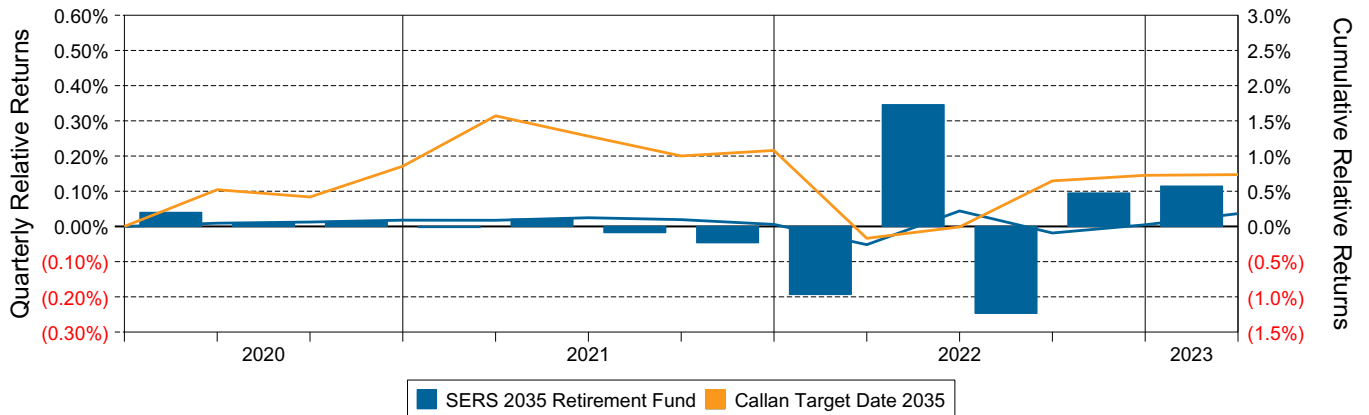
The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

Performance vs Callan Target Date 2035 (Net)

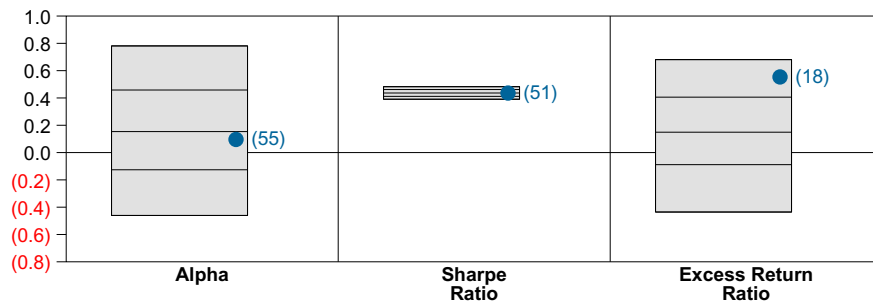


	12/22- 3/23	2022	2021	2020	2019	2018	2017	2016	2015	2014
10th Percentile	6.30	(14.66)	15.82	17.32	24.52	(5.46)	20.49	9.45	(0.09)	7.21
25th Percentile	5.98	(15.82)	14.88	15.89	22.92	(6.32)	19.53	8.65	(0.61)	6.63
Median	5.74	(16.79)	13.92	14.28	22.16	(7.03)	18.51	8.19	(1.46)	5.89
75th Percentile	5.19	(17.71)	13.11	13.31	21.05	(7.82)	17.48	7.20	(2.17)	4.91
90th Percentile	4.66	(18.13)	12.00	11.64	19.80	(8.31)	16.04	6.17	(2.95)	3.47
SERS 2035 Retirement Fund	● 5.74	(16.67)	13.80	13.58	22.84	(6.50)	17.72	8.44	(1.78)	5.99
LifePath Index 2035 CB	▲ 5.62	(16.67)	13.85	13.44	22.72	(6.58)	17.48	8.08	(1.86)	6.11

Cumulative and Quarterly Relative Returns vs LifePath Index 2035 CB



Risk Adjusted Return Measures vs LifePath Index 2035 CB Rankings Against Callan Target Date 2035 (Net) Seven Years Ended March 31, 2023



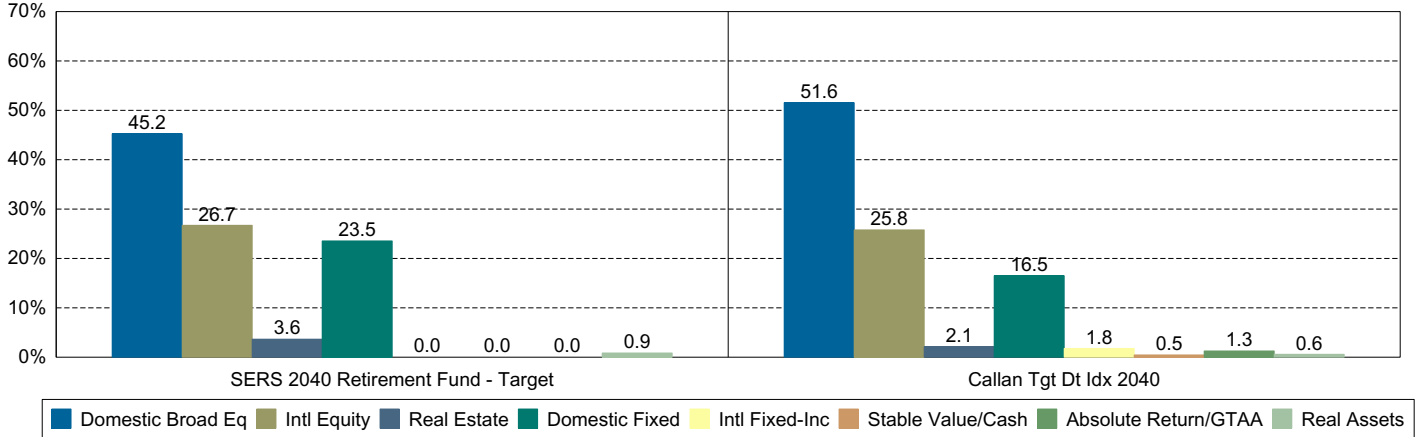
	Alpha	Sharpe Ratio	Excess Return Ratio
10th Percentile	0.78	0.48	0.68
25th Percentile	0.46	0.46	0.41
Median	0.15	0.44	0.15
75th Percentile	(0.13)	0.41	(0.09)
90th Percentile	(0.46)	0.39	(0.44)
SERS 2035 Retirement Fund	● 0.10	0.44	0.55

SERS 2040 Retirement Fund

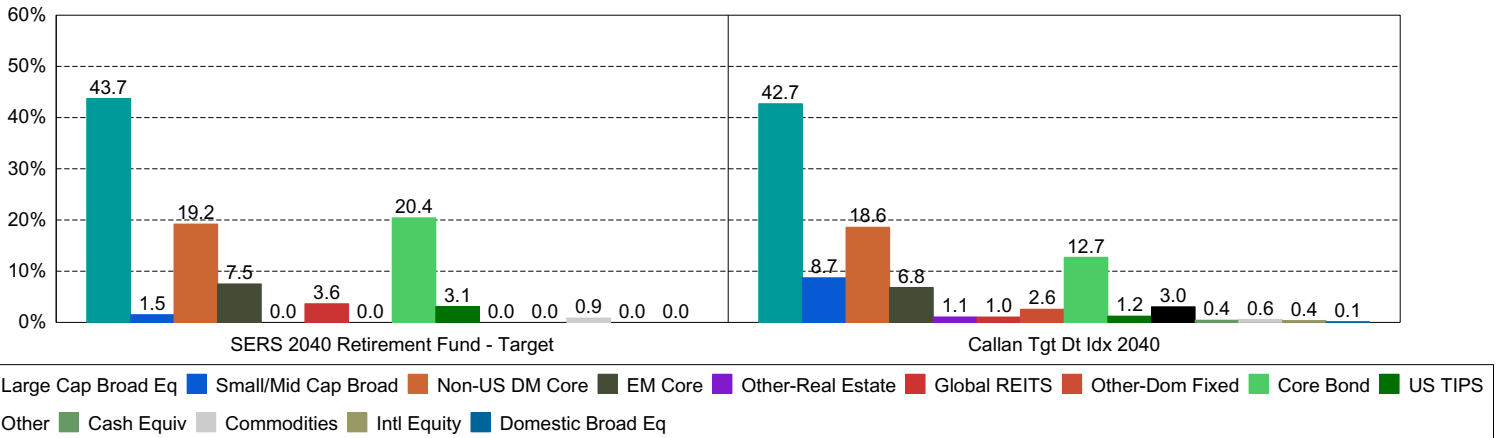
Target Date Fund Asset Allocation as of March 31, 2023

The charts below illustrate the current target asset allocation of the relevant target date fund based on its underlying glide path and compares it to an index. The top charts compare target asset allocation at a high "macro" asset class level, while the middle charts show a more detailed "micro" level view. The bottom chart compares the current "macro" level target asset allocation, and index, to a relevant peer group of target date funds by ranking the various target asset class weights versus those peer target date funds.

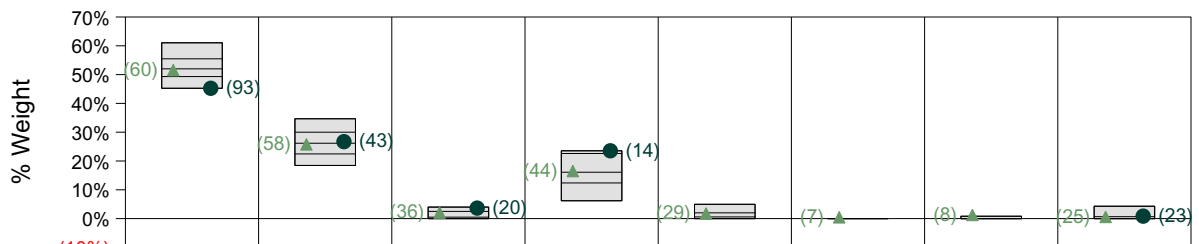
Macro-Level Asset Allocation



Micro-Level Asset Allocation



Macro Asset Allocation Rankings vs. Callan Target Date 2040



	Domestic Broad Eq	Intl Equity	Real Estate	Domestic Fixed	Intl Fixed-Inc	Stable Value/Cash	Absolute Return/GTAA	Real Assets
10th Percentile	61.05	34.66	4.00	23.54	4.96	0.00	0.82	4.30
25th Percentile	55.48	30.00	2.50	22.60	2.00	0.00	0.00	0.66
Median	52.00	26.16	0.50	16.10	0.58	0.00	0.00	0.00
75th Percentile	49.32	22.46	0.00	12.38	0.00	0.00	0.00	0.00
90th Percentile	45.25	18.45	0.00	6.20	0.00	0.00	0.00	0.00

SERS 2040 Retirement Fund - Target	●	45.25	26.71	3.65	23.54	-	-	0.85
Callan Tgt Dt Idx 2040	▲	51.55	25.78	2.10	16.50	1.77	0.45	1.26

SERS 2040 Retirement Fund Period Ended March 31, 2023

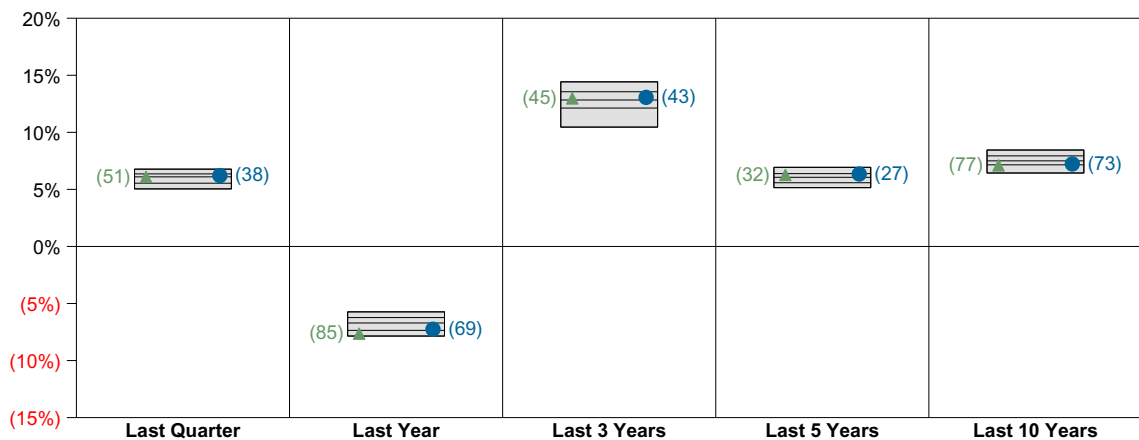
Investment Philosophy

The BlackRock LifePath(R) Index 2040 Fund (the "Fund") seeks to provide for retirement outcomes consistent with investor preferences throughout the savings and drawdown phase based on quantitatively measured risk that investors, on average, may be willing to accept. The Fund will be diversified across global asset classes, with allocations changing over the investment horizon to become more heavily oriented toward debt and debt-like securities, on the premise that individuals investing for retirement desire to reduce investment risk in their retirement accounts as their retirement date approaches.

Quarterly Summary and Highlights

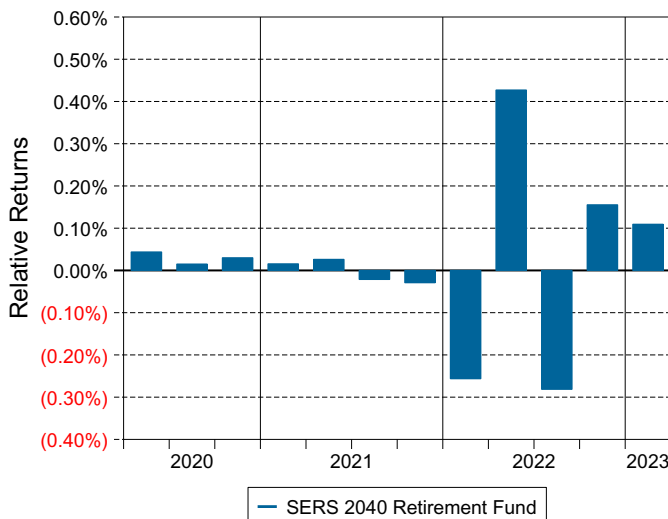
- SERS 2040 Retirement Fund's portfolio posted a 6.21% return for the quarter placing it in the 38 percentile of the Callan Target Date 2040 group for the quarter and in the 69 percentile for the last year.
- SERS 2040 Retirement Fund's portfolio outperformed the LifePath Index 2040 CB by 0.12% for the quarter and outperformed the LifePath Index 2040 CB for the year by 0.38%.

Performance vs Callan Target Date 2040 (Net)

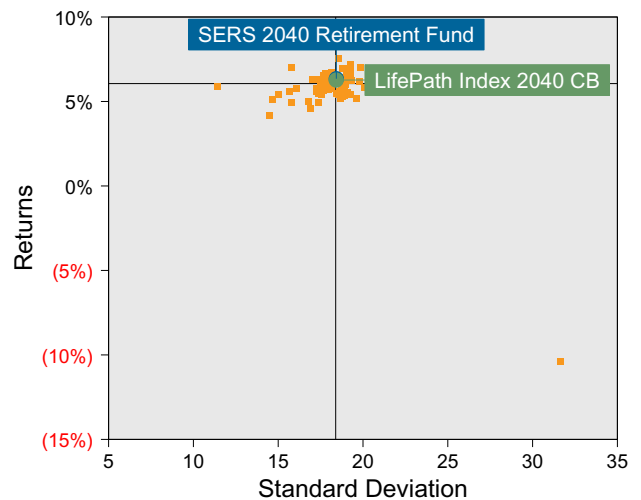


	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile	6.77	(5.73)	14.43	6.93	8.45
25th Percentile	6.36	(6.23)	13.56	6.38	7.94
Median	6.10	(6.71)	12.84	6.06	7.50
75th Percentile	5.54	(7.36)	12.13	5.58	7.15
90th Percentile	5.04	(7.85)	10.46	5.15	6.44
SERS 2040 Retirement Fund	6.21	(7.26)	13.06	6.35	7.23
LifePath Index 2040 CB	6.10	(7.64)	12.98	6.27	7.11

Relative Return vs LifePath Index 2040 CB



Callan Target Date 2040 (Net) Annualized Five Year Risk vs Return

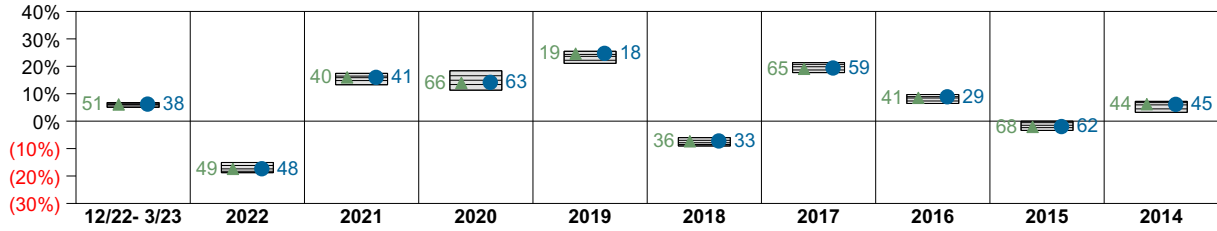


SERS 2040 Retirement Fund Return Analysis Summary

Return Analysis

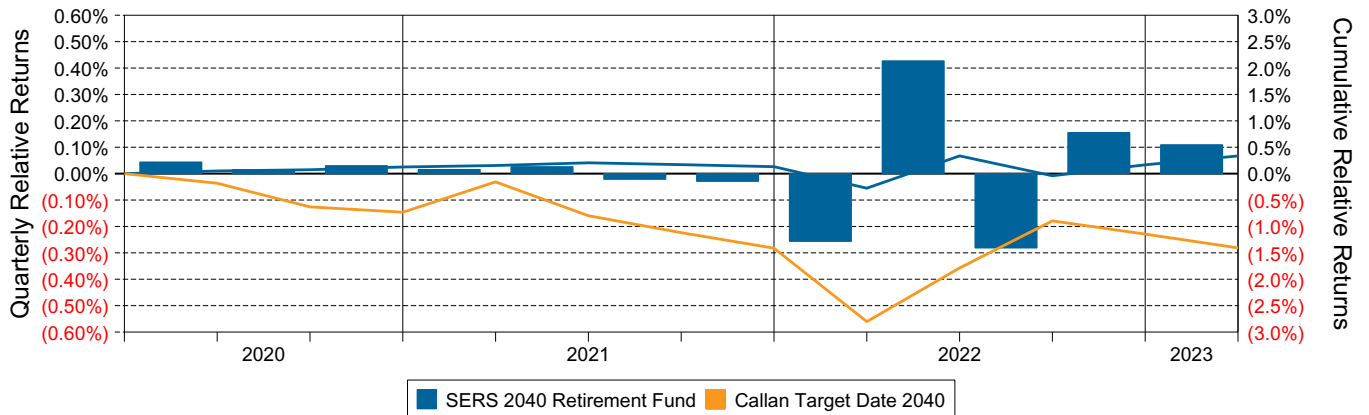
The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

Performance vs Callan Target Date 2040 (Net)

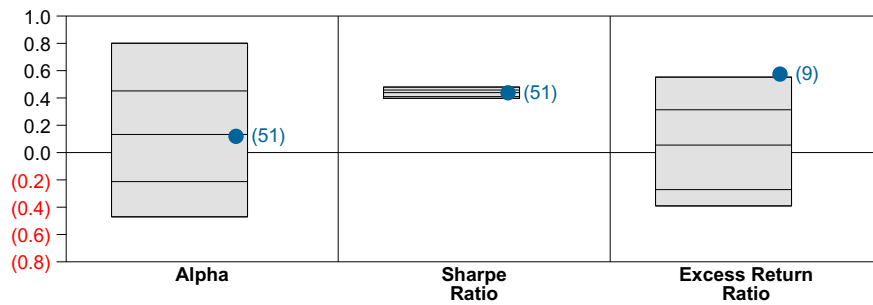


	12/22- 3/23	2022	2021	2020	2019	2018	2017	2016	2015	2014
10th Percentile	6.77	(15.07)	17.43	18.37	25.47	(6.01)	21.35	9.71	(0.03)	7.22
25th Percentile	6.36	(16.16)	16.42	16.56	24.33	(6.99)	20.71	8.93	(0.55)	6.76
Median	6.10	(17.40)	15.85	14.91	23.62	(7.87)	19.84	8.44	(1.51)	5.94
75th Percentile	5.54	(18.28)	14.80	13.35	22.20	(8.52)	18.66	7.35	(2.36)	4.47
90th Percentile	5.04	(18.79)	13.27	11.29	21.07	(9.05)	17.70	6.44	(3.38)	3.21
SERS 2040 Retirement Fund	6.21	(17.35)	15.96	14.14	24.71	(7.22)	19.38	8.88	(1.98)	6.12
LifePath Index 2040 CB	6.10	(17.38)	15.97	13.98	24.62	(7.33)	19.09	8.51	(2.08)	6.21

Cumulative and Quarterly Relative Returns vs LifePath Index 2040 CB



Risk Adjusted Return Measures vs LifePath Index 2040 CB Rankings Against Callan Target Date 2040 (Net) Seven Years Ended March 31, 2023



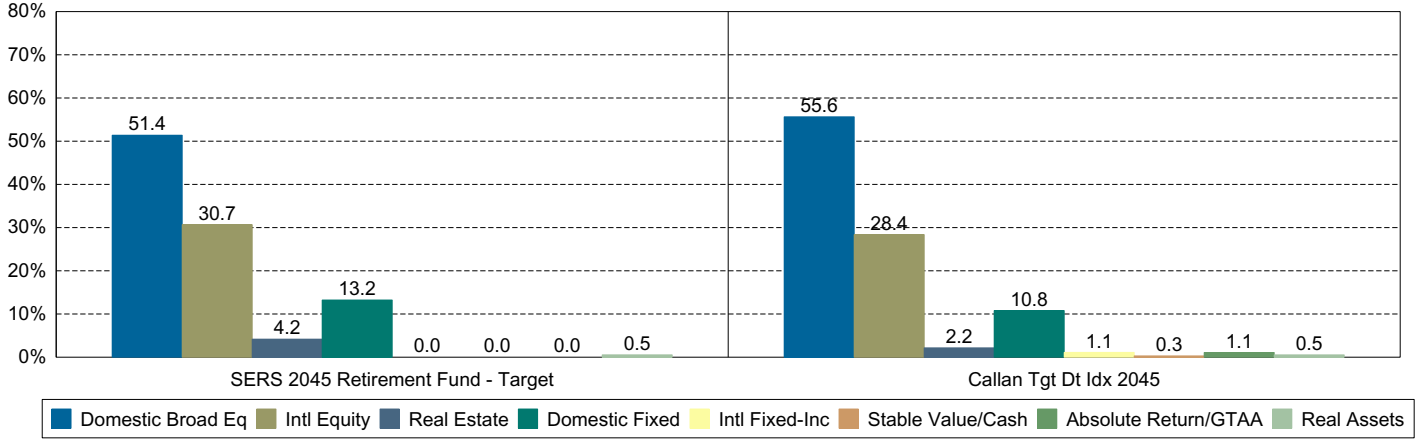
Measure	10th Percentile	25th Percentile	Median	75th Percentile	90th Percentile	SERS 2040 Retirement Fund
Alpha	0.80	0.45	0.13	(0.21)	(0.47)	0.12
Sharpe Ratio	0.48	0.46	0.44	0.41	0.40	0.44
Excess Return Ratio	0.55	0.31	0.05	(0.27)	(0.39)	0.57

SERS 2045 Retirement Fund

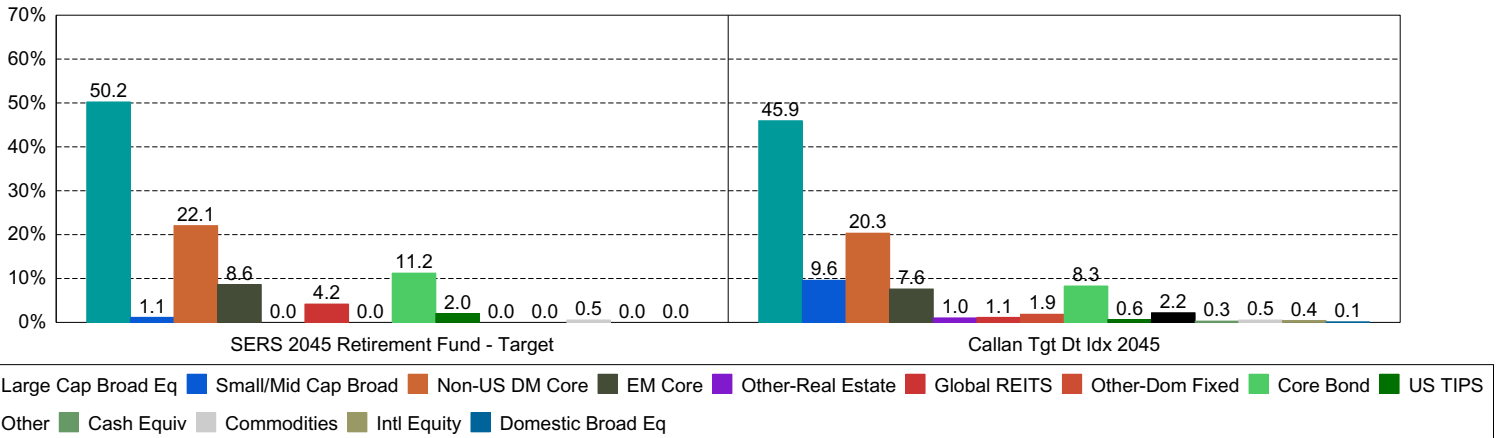
Target Date Fund Asset Allocation as of March 31, 2023

The charts below illustrate the current target asset allocation of the relevant target date fund based on its underlying glide path and compares it to an index. The top charts compare target asset allocation at a high "macro" asset class level, while the middle charts show a more detailed "micro" level view. The bottom chart compares the current "macro" level target asset allocation, and index, to a relevant peer group of target date funds by ranking the various target asset class weights versus those peer target date funds.

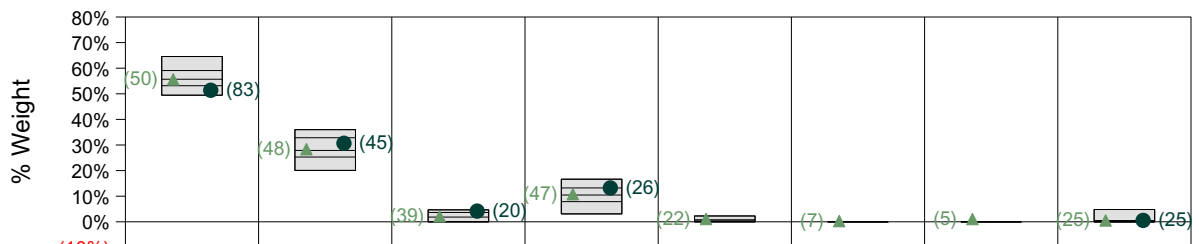
Macro-Level Asset Allocation



Micro-Level Asset Allocation



Macro Asset Allocation Rankings vs. Callan Target Date 2045



	Domestic Broad Eq	Intl Equity	Real Estate	Domestic Fixed	Intl Fixed-Inc	Stable Value/Cash	Absolute Return/GTAA	Real Assets
10th Percentile	64.56	36.00	4.68	16.65	2.28	0.00	0.00	4.80
25th Percentile	59.08	32.83	3.65	13.23	0.80	0.00	0.00	0.49
Median	55.68	27.88	1.84	10.46	0.37	0.00	0.00	0.00
75th Percentile	53.16	25.30	0.00	7.87	0.00	0.00	0.00	0.00
90th Percentile	49.45	20.07	0.00	3.08	0.00	0.00	0.00	0.00

	Domestic Broad Eq	Intl Equity	Real Estate	Domestic Fixed	Intl Fixed-Inc	Stable Value/Cash	Absolute Return/GTAA	Real Assets
SERS 2045 Retirement Fund - Target	51.37	30.68	4.17	13.23	-	-	-	0.54
Callan Tgt Dt Idx 2045	55.64	28.37	2.16	10.79	1.11	0.30	1.09	0.54

SERS 2045 Retirement Fund Period Ended March 31, 2023

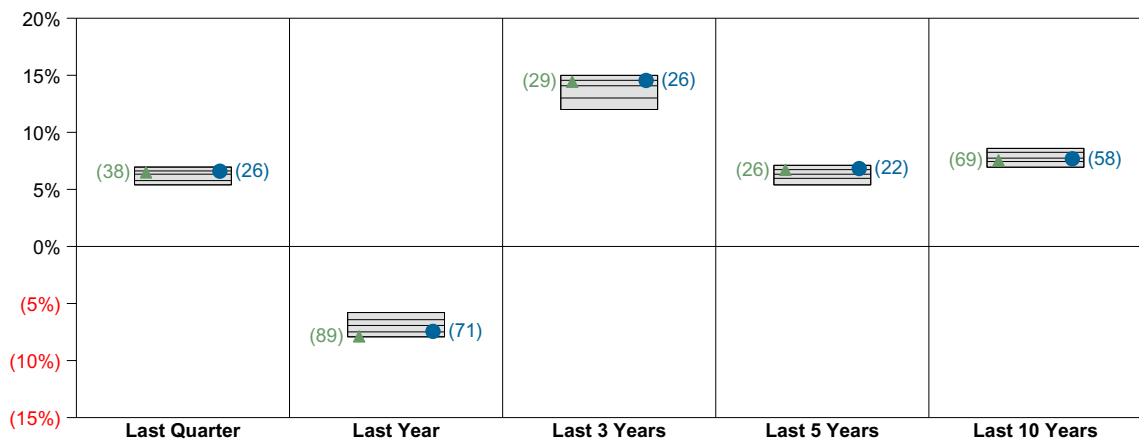
Investment Philosophy

The BlackRock LifePath(R) Index 2045 Fund (the "Fund") seeks to provide for retirement outcomes consistent with investor preferences throughout the savings and drawdown phase based on quantitatively measured risk that investors, on average, may be willing to accept. The Fund will be diversified across global asset classes, with allocations changing over the investment horizon to become more heavily oriented toward debt and debt-like securities, on the premise that individuals investing for retirement desire to reduce investment risk in their retirement accounts as their retirement date approaches.

Quarterly Summary and Highlights

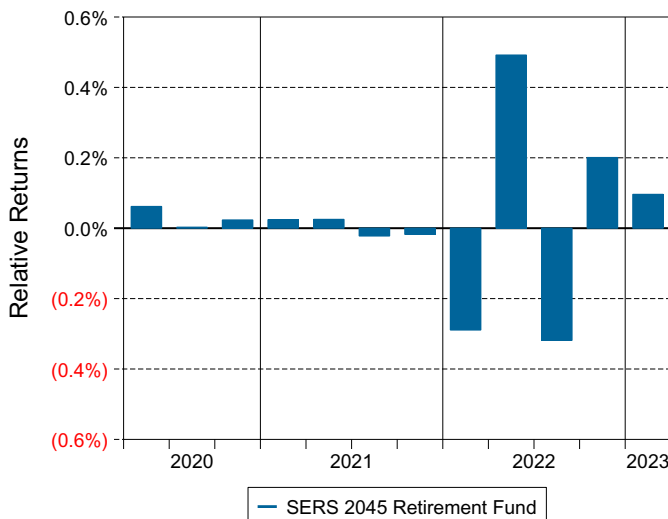
- SERS 2045 Retirement Fund's portfolio posted a 6.60% return for the quarter placing it in the 26 percentile of the Callan Target Date 2045 group for the quarter and in the 71 percentile for the last year.
- SERS 2045 Retirement Fund's portfolio outperformed the LifePath Index 2045 CB by 0.10% for the quarter and outperformed the LifePath Index 2045 CB for the year by 0.43%.

Performance vs Callan Target Date 2045 (Net)

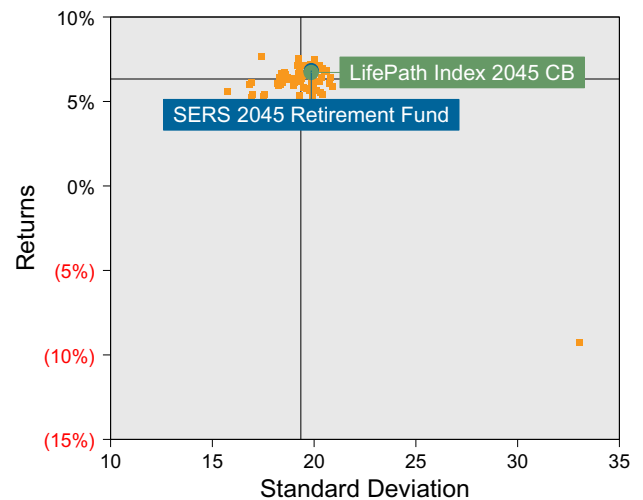


	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile	6.96	(5.79)	14.99	7.11	8.59
25th Percentile	6.62	(6.42)	14.56	6.73	8.25
Median	6.33	(6.93)	14.08	6.33	7.74
75th Percentile	5.77	(7.49)	13.01	5.97	7.44
90th Percentile	5.40	(7.92)	12.00	5.40	6.94
SERS 2045 Retirement Fund	6.60	(7.44)	14.55	6.83	7.68
LifePath Index 2045 CB	6.49	(7.88)	14.44	6.72	7.54

Relative Return vs LifePath Index 2045 CB



Callan Target Date 2045 (Net) Annualized Five Year Risk vs Return

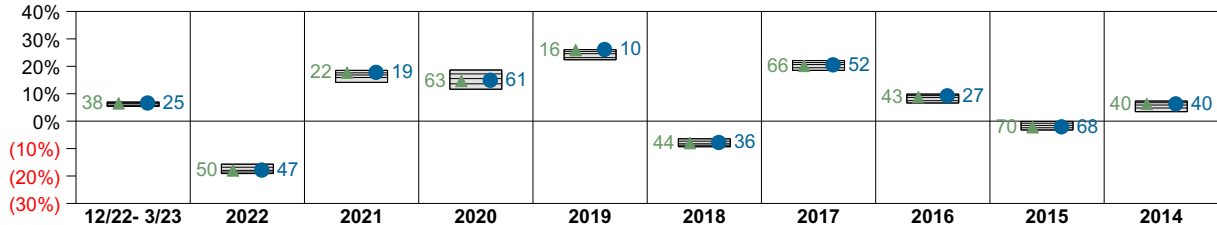


SERS 2045 Retirement Fund Return Analysis Summary

Return Analysis

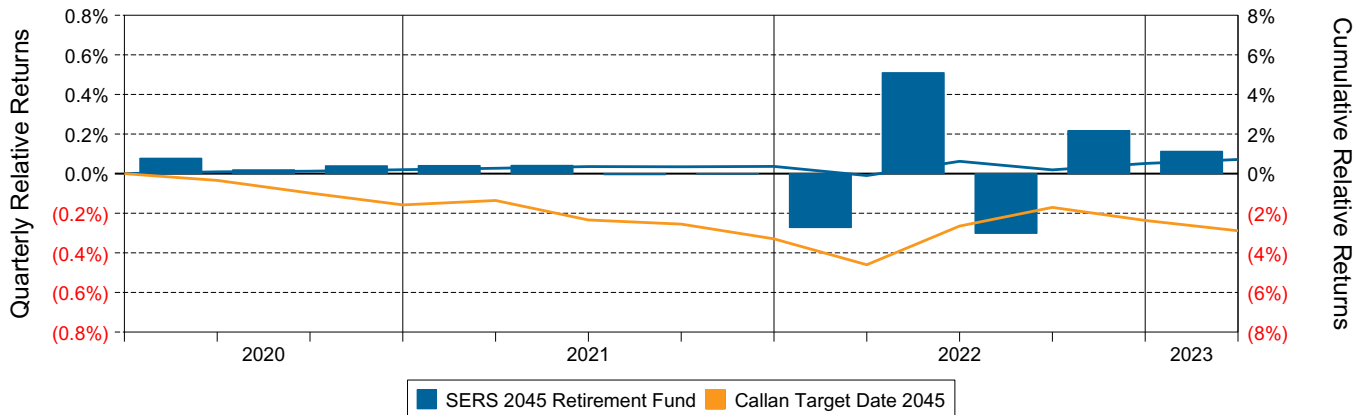
The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

Performance vs Callan Target Date 2045 (Net)

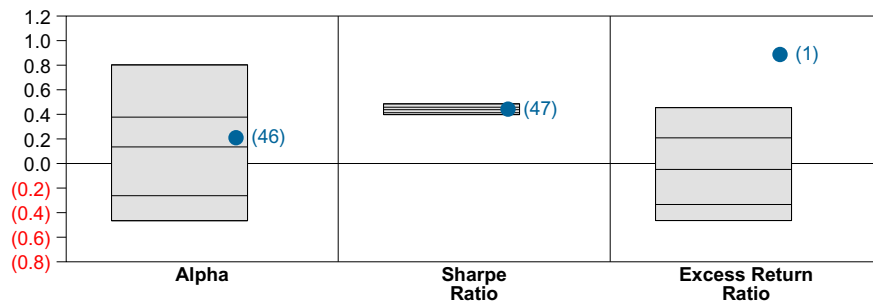


	12/22- 3/23	2022	2021	2020	2019	2018	2017	2016	2015	2014
10th Percentile	6.96	(15.69)	18.52	18.65	26.10	(6.43)	22.09	9.86	(0.12)	7.33
25th Percentile	6.62	(16.79)	17.62	17.23	25.44	(7.30)	21.36	9.31	(0.75)	6.73
Median	6.33	(17.95)	16.83	15.52	24.60	(8.25)	20.63	8.59	(1.57)	5.87
75th Percentile	5.77	(18.55)	15.91	13.61	23.16	(8.78)	19.47	7.47	(2.41)	4.80
90th Percentile	5.40	(19.12)	14.14	11.64	22.38	(9.33)	18.51	6.62	(3.23)	3.45
SERS 2045 Retirement Fund	6.61	(17.84)	17.79	14.90	26.12	(7.78)	20.54	9.25	(2.07)	6.30
LifePath Index 2045 CB	6.49	(17.96)	17.70	14.65	25.90	(7.99)	20.15	8.77	(2.22)	6.31

Cumulative and Quarterly Relative Returns vs LifePath Index 2045 CB



Risk Adjusted Return Measures vs LifePath Index 2045 CB Rankings Against Callan Target Date 2045 (Net) Seven Years Ended March 31, 2023



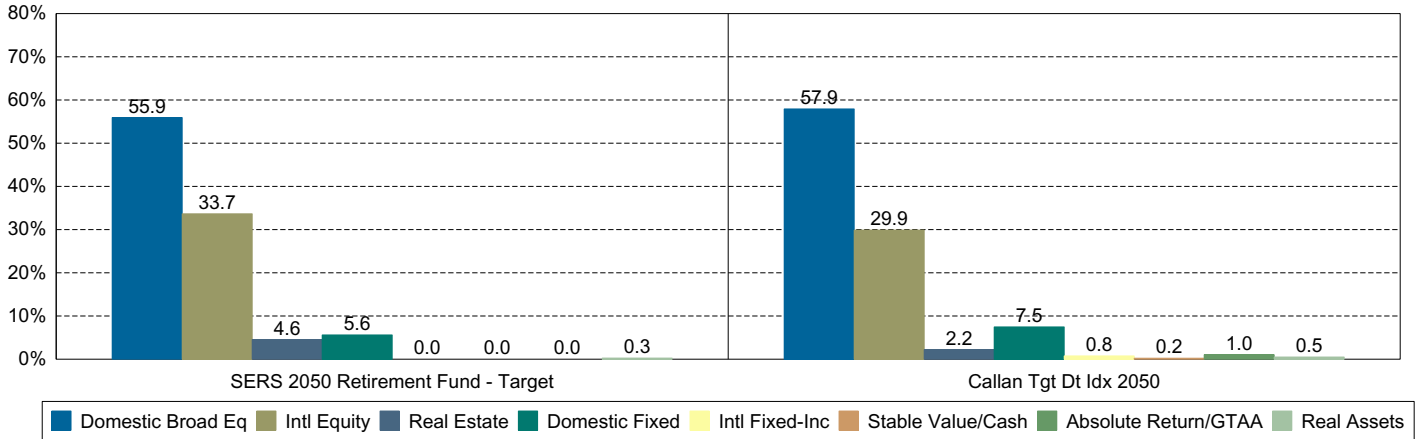
	Alpha	Sharpe Ratio	Excess Return Ratio
10th Percentile	0.80	0.49	0.45
25th Percentile	0.38	0.46	0.21
Median	0.13	0.44	(0.05)
75th Percentile	(0.26)	0.41	(0.33)
90th Percentile	(0.47)	0.40	(0.46)
SERS 2045 Retirement Fund	0.21	0.44	0.89

SERS 2050 Retirement Fund

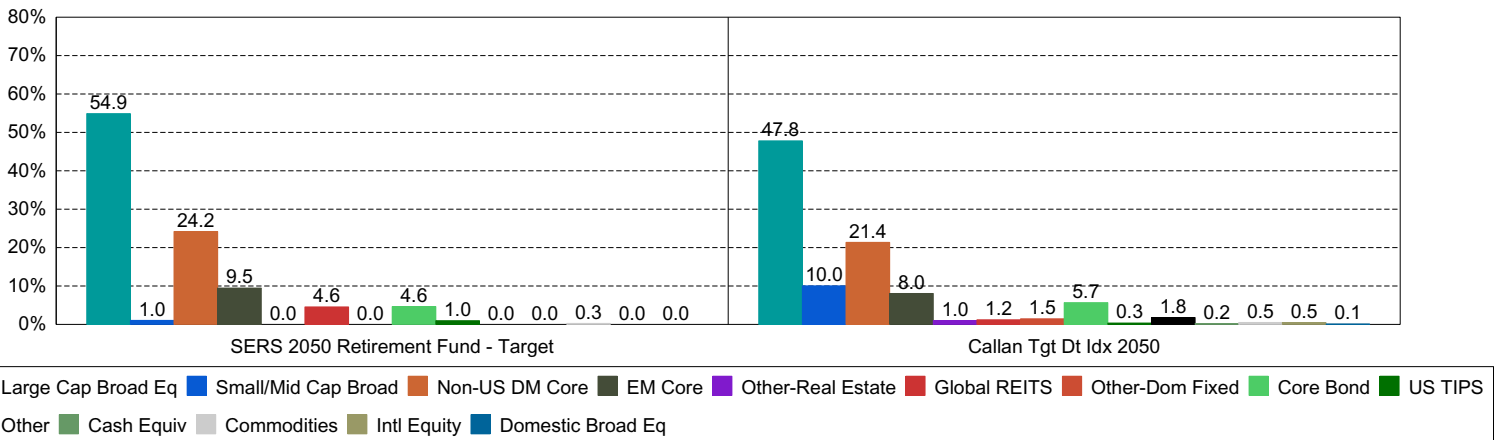
Target Date Fund Asset Allocation as of March 31, 2023

The charts below illustrate the current target asset allocation of the relevant target date fund based on its underlying glide path and compares it to an index. The top charts compare target asset allocation at a high "macro" asset class level, while the middle charts show a more detailed "micro" level view. The bottom chart compares the current "macro" level target asset allocation, and index, to a relevant peer group of target date funds by ranking the various target asset class weights versus those peer target date funds.

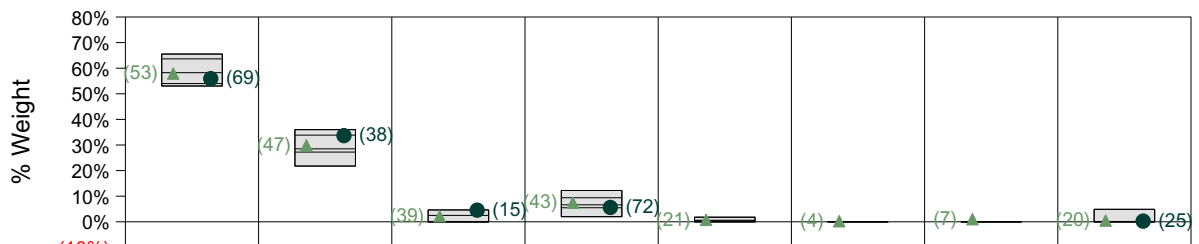
Macro-Level Asset Allocation



Micro-Level Asset Allocation



Macro Asset Allocation Rankings vs. Callan Target Date 2050



	Domestic Broad Eq	Intl Equity	Real Estate	Domestic Fixed	Intl Fixed-Inc	Stable Value/Cash	Absolute Return/GTAA	Real Assets
10th Percentile	65.53	36.00	4.64	12.23	1.80	0.00	0.00	4.88
25th Percentile	63.65	33.85	2.50	9.40	0.60	0.00	0.00	0.13
Median	58.25	28.50	0.00	6.62	0.35	0.00	0.00	0.00
75th Percentile	54.00	27.23	0.00	5.49	0.00	0.00	0.00	0.00
90th Percentile	53.04	21.78	0.00	2.00	0.00	0.00	0.00	0.00
SERS 2050 Retirement Fund - Target	● 55.93	33.65	4.55	5.61	-	-	-	0.26
Callan Tgt Dt Idx 2050	▲ 57.93	29.88	2.20	7.47	0.76	0.23	1.03	0.50

SERS 2050 Retirement Fund Period Ended March 31, 2023

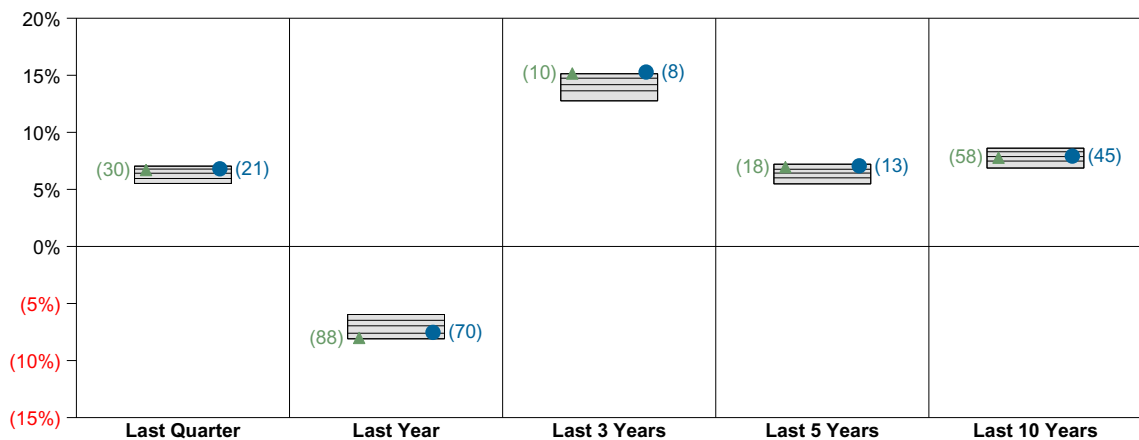
Investment Philosophy

The BlackRock LifePath(R) Index 2050 Fund (the "Fund") seeks to provide for retirement outcomes consistent with investor preferences throughout the savings and drawdown phase based on quantitatively measured risk that investors, on average, may be willing to accept. The Fund will be diversified across global asset classes, with allocations changing over the investment horizon to become more heavily oriented toward debt and debt-like securities, on the premise that individuals investing for retirement desire to reduce investment risk in their retirement accounts as their retirement date approaches.

Quarterly Summary and Highlights

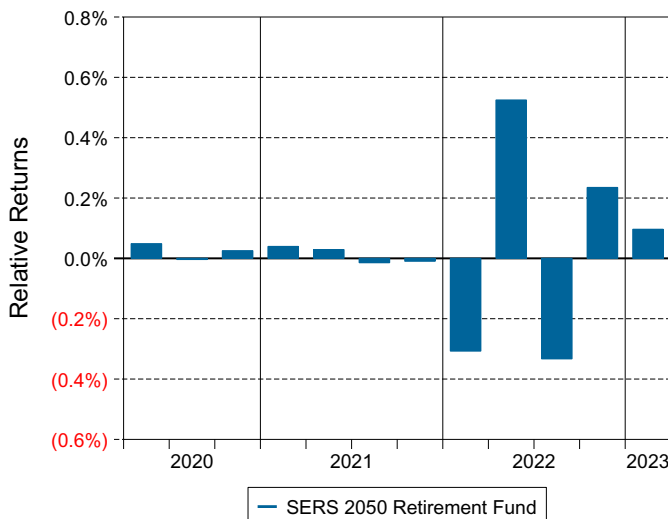
- SERS 2050 Retirement Fund's portfolio posted a 6.80% return for the quarter placing it in the 21 percentile of the Callan Target Date 2050 group for the quarter and in the 70 percentile for the last year.
- SERS 2050 Retirement Fund's portfolio outperformed the LifePath Index 2050 CB by 0.10% for the quarter and outperformed the LifePath Index 2050 CB for the year by 0.48%.

Performance vs Callan Target Date 2050 (Net)

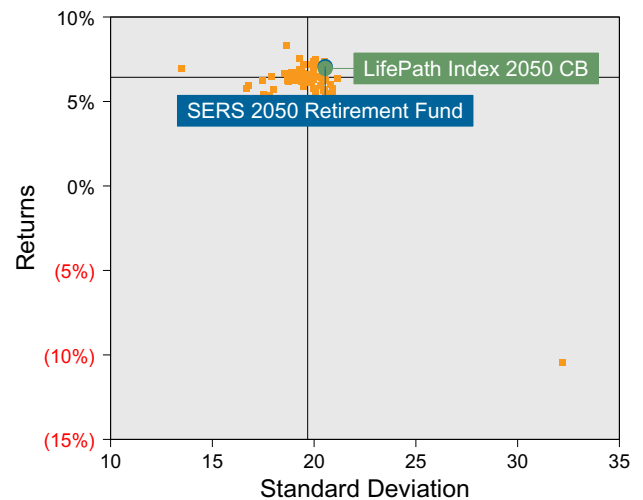


	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile	7.04	(5.96)	15.14	7.21	8.61
25th Percentile	6.78	(6.48)	14.75	6.77	8.30
Median	6.42	(6.96)	14.18	6.43	7.87
75th Percentile	5.95	(7.60)	13.64	6.01	7.48
90th Percentile	5.52	(8.09)	12.76	5.48	6.87
SERS 2050 Retirement Fund	6.80	(7.53)	15.28	7.06	7.92
LifePath Index 2050 CB	6.70	(8.01)	15.16	6.96	7.78

Relative Return vs LifePath Index 2050 CB



Callan Target Date 2050 (Net) Annualized Five Year Risk vs Return

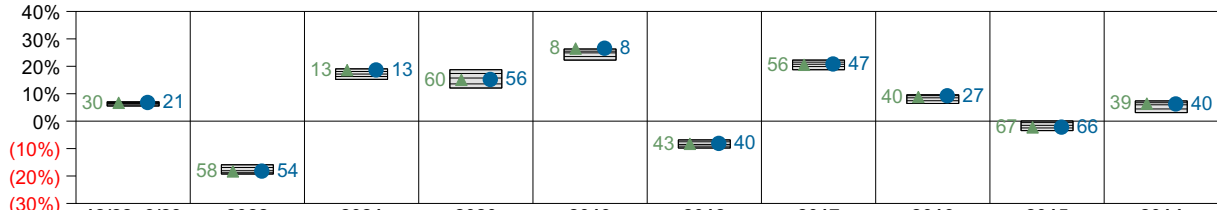


SERS 2050 Retirement Fund Return Analysis Summary

Return Analysis

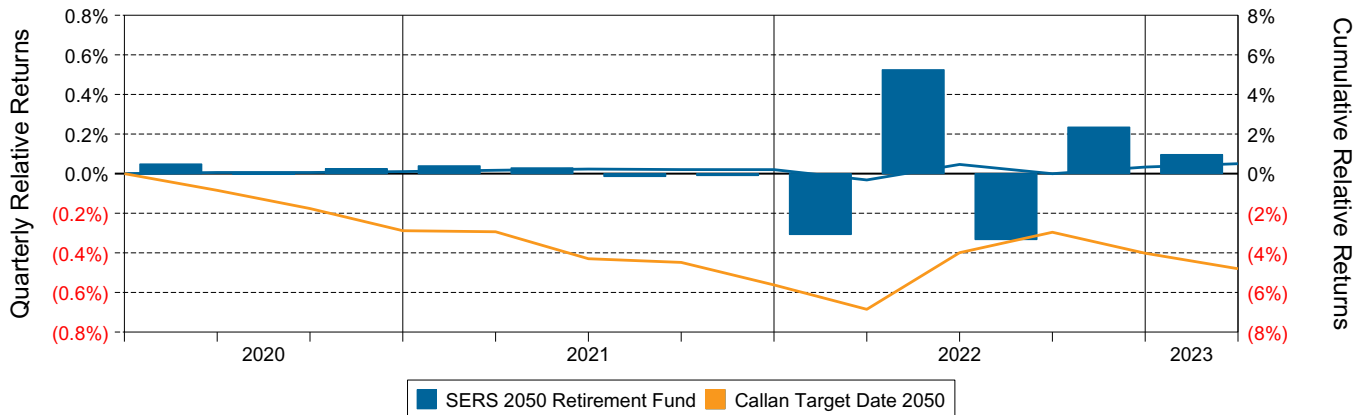
The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

Performance vs Callan Target Date 2050 (Net)

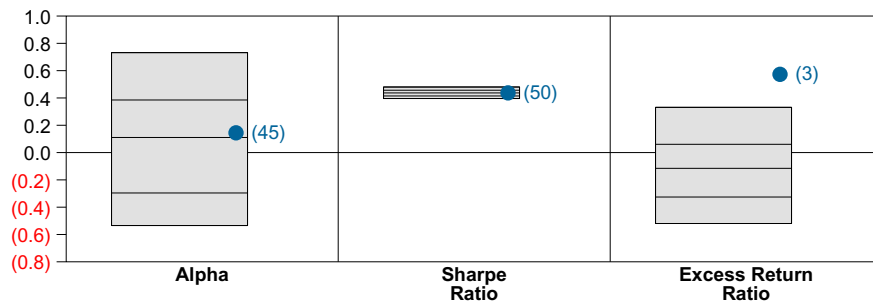


	12/22- 3/23	2022	2021	2020	2019	2018	2017	2016	2015	2014
10th Percentile	7.04	(15.90)	19.07	18.76	26.30	(6.84)	22.27	9.60	0.05	7.37
25th Percentile	6.78	(16.89)	18.10	17.38	25.51	(7.53)	21.51	9.29	(0.54)	6.72
Median	6.42	(18.07)	17.17	15.73	24.89	(8.48)	20.74	8.51	(1.53)	5.96
75th Percentile	5.95	(18.80)	16.27	13.59	23.55	(9.11)	19.91	7.45	(2.48)	4.45
90th Percentile	5.52	(19.28)	15.23	12.08	22.26	(9.80)	18.75	6.44	(3.45)	3.12
SERS 2050 Retirement Fund	● 6.80	(18.20)	18.67	15.20	26.60	(8.11)	20.85	9.26	(2.17)	6.28
LifePath Index 2050 CB	▲ 6.70	(18.30)	18.62	15.07	26.48	(8.26)	20.55	8.82	(2.26)	6.41

Cumulative and Quarterly Relative Returns vs LifePath Index 2050 CB



Risk Adjusted Return Measures vs LifePath Index 2050 CB Rankings Against Callan Target Date 2050 (Net) Seven Years Ended March 31, 2023



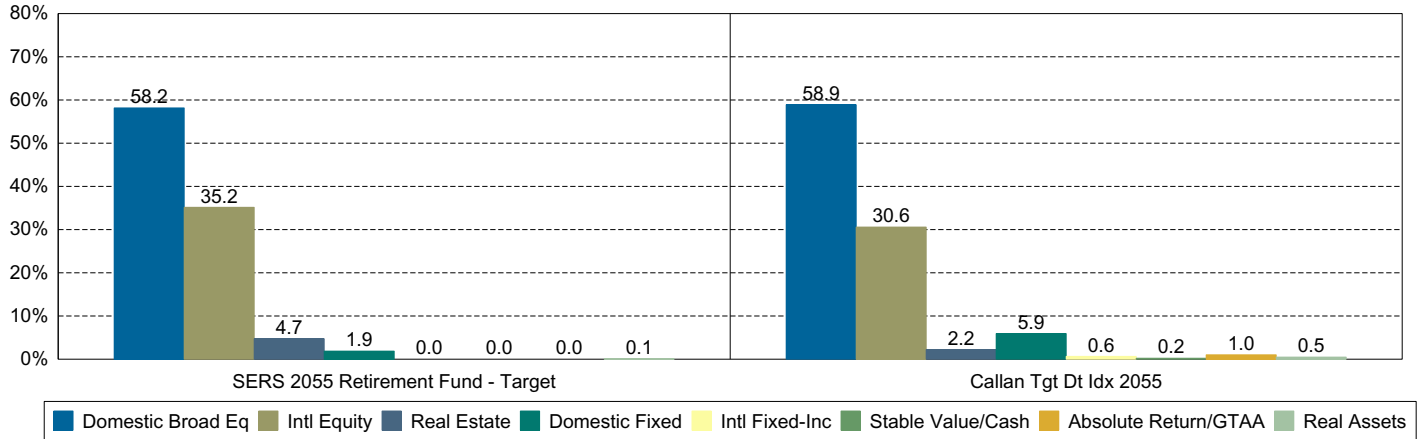
	Alpha	Sharpe Ratio	Excess Return Ratio
10th Percentile	0.73	0.48	0.33
25th Percentile	0.39	0.46	0.06
Median	0.11	0.44	(0.12)
75th Percentile	(0.30)	0.41	(0.33)
90th Percentile	(0.53)	0.40	(0.52)
SERS 2050 Retirement Fund	● 0.14	0.44	0.57

SERS 2055 Retirement Fund

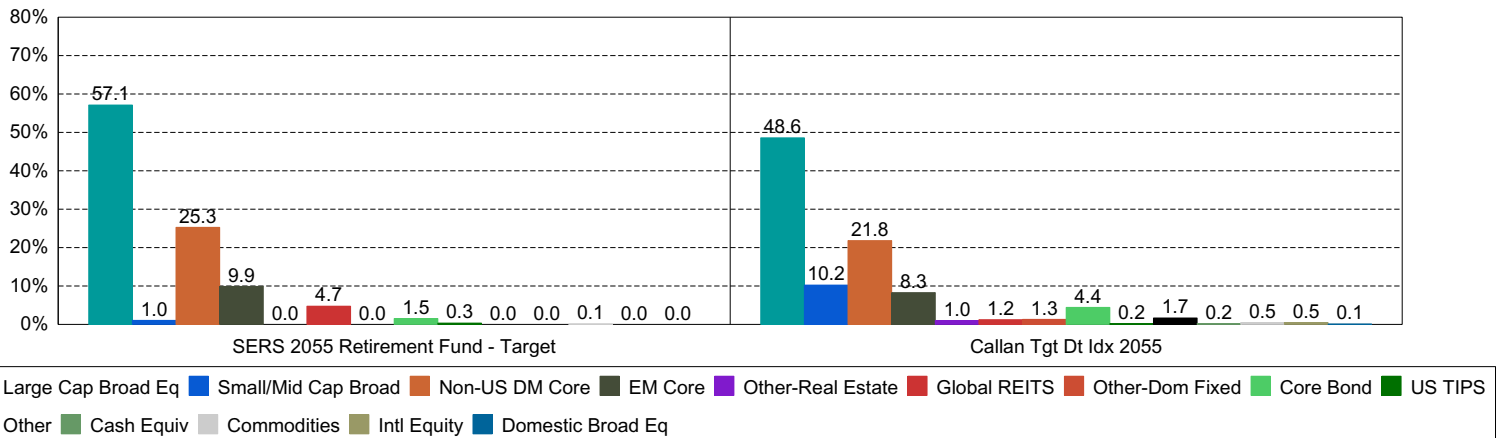
Target Date Fund Asset Allocation as of March 31, 2023

The charts below illustrate the current target asset allocation of the relevant target date fund based on its underlying glide path and compares it to an index. The top charts compare target asset allocation at a high "macro" asset class level, while the middle charts show a more detailed "micro" level view. The bottom chart compares the current "macro" level target asset allocation, and index, to a relevant peer group of target date funds by ranking the various target asset class weights versus those peer target date funds.

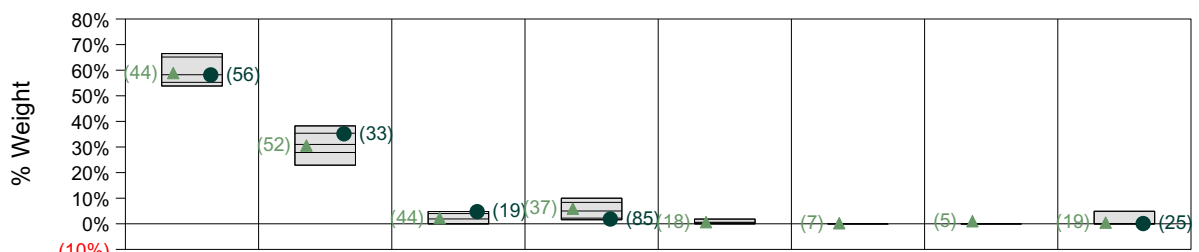
Macro-Level Asset Allocation



Micro-Level Asset Allocation



Macro Asset Allocation Rankings vs. Callan Target Date 2055



	Domestic Broad Eq	Intl Equity	Real Estate	Domestic Fixed	Intl Fixed-Inc	Stable Value/Cash	Absolute Return/GTAA	Real Assets
10th Percentile	66.50	38.25	4.80	10.00	1.84	0.00	0.00	4.90
25th Percentile	65.15	35.38	4.00	8.36	0.60	0.00	0.00	0.07
Median	58.23	31.00	1.90	5.00	0.35	0.00	0.00	0.00
75th Percentile	55.26	27.85	0.00	2.21	0.00	0.00	0.00	0.00
90th Percentile	53.82	22.90	0.00	1.58	0.00	0.00	0.00	0.00
SERS 2055 Retirement Fund - Target	● 58.16	35.15	4.74	1.86	-	-	-	0.09
Callan Tgt Dt Idx 2055	▲ 58.89	30.58	2.23	5.93	0.65	0.22	1.01	0.48

SERS 2055 Retirement Fund Period Ended March 31, 2023

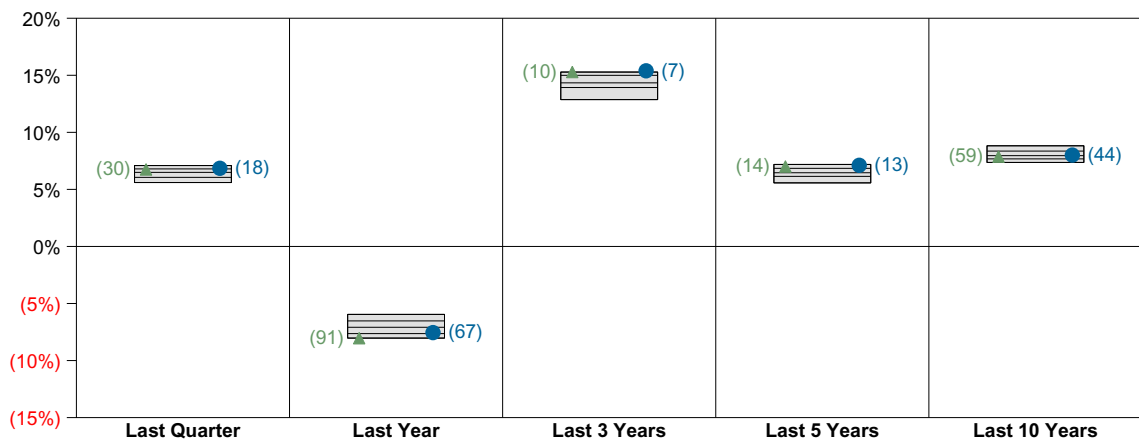
Investment Philosophy

The BlackRock LifePath(R) Index 2055 Fund (the "Fund") seeks to provide for retirement outcomes consistent with investor preferences throughout the savings and drawdown phase based on quantitatively measured risk that investors, on average, may be willing to accept. The Fund will be diversified across global asset classes, with allocations changing over the investment horizon to become more heavily oriented toward debt and debt-like securities, on the premise that individuals investing for retirement desire to reduce investment risk in their retirement accounts as their retirement date approaches.

Quarterly Summary and Highlights

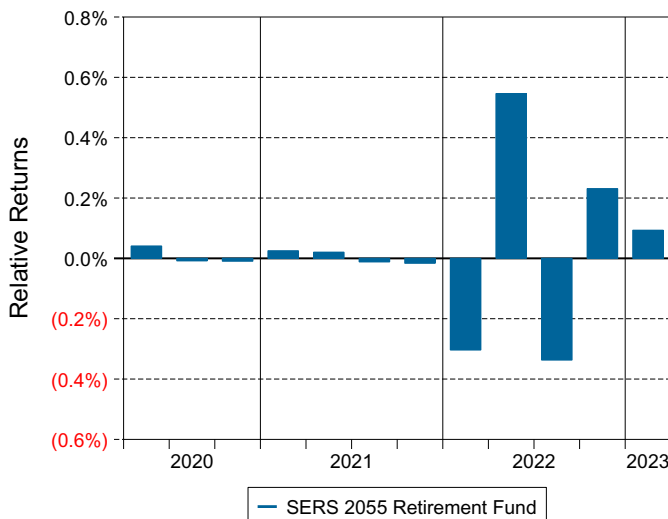
- SERS 2055 Retirement Fund's portfolio posted a 6.85% return for the quarter placing it in the 18 percentile of the Callan Target Date 2055 group for the quarter and in the 67 percentile for the last year.
- SERS 2055 Retirement Fund's portfolio outperformed the LifePath Index 2055 CB by 0.10% for the quarter and outperformed the LifePath Index 2055 CB for the year by 0.49%.

Performance vs Callan Target Date 2055 (Net)

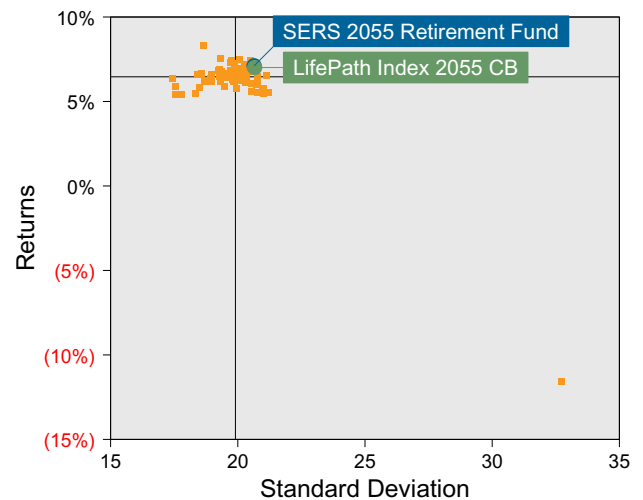


	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile	7.09	(5.96)	15.28	7.18	8.82
25th Percentile	6.80	(6.53)	15.00	6.84	8.36
Median	6.49	(7.09)	14.34	6.46	7.96
75th Percentile	6.05	(7.64)	13.93	6.14	7.67
90th Percentile	5.60	(8.03)	12.87	5.57	7.36
SERS 2055 Retirement Fund	6.85	(7.55)	15.39	7.11	8.01
LifePath Index 2055 CB	6.75	(8.04)	15.29	7.01	7.88

Relative Return vs LifePath Index 2055 CB



Callan Target Date 2055 (Net) Annualized Five Year Risk vs Return

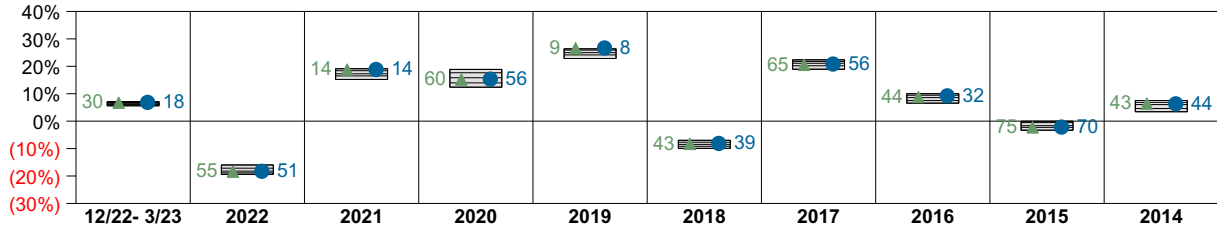


SERS 2055 Retirement Fund Return Analysis Summary

Return Analysis

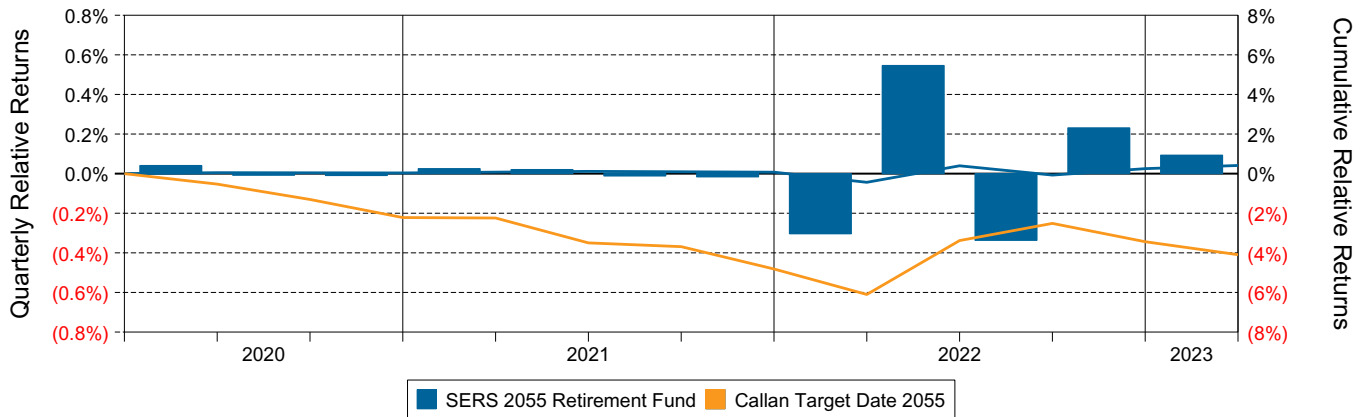
The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

Performance vs Callan Target Date 2055 (Net)

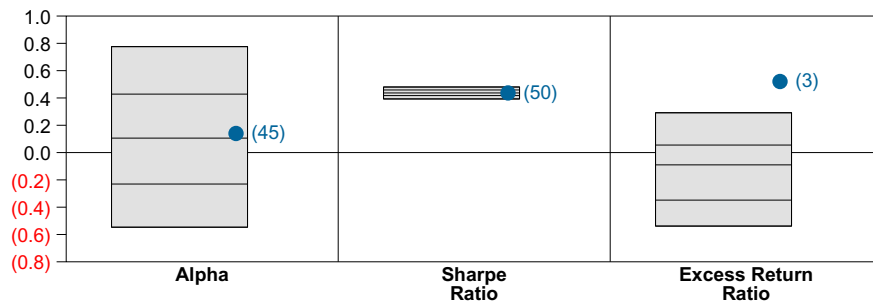


	12/22- 3/23	2022	2021	2020	2019	2018	2017	2016	2015	2014
10th Percentile	7.09	(15.97)	19.12	18.86	26.37	(6.99)	22.36	10.01	(0.05)	7.53
25th Percentile	6.80	(17.15)	18.40	17.65	25.90	(7.69)	21.77	9.44	(0.53)	6.85
Median	6.49	(18.21)	17.27	15.83	24.97	(8.47)	21.10	8.60	(1.64)	6.04
75th Percentile	6.05	(18.85)	16.50	13.95	24.15	(9.18)	20.20	7.51	(2.26)	4.60
90th Percentile	5.60	(19.38)	15.20	12.38	22.84	(9.93)	18.92	6.55	(3.30)	3.44
SERS 2055 Retirement Fund	6.85	(18.27)	18.83	15.32	26.67	(8.13)	20.82	9.22	(2.17)	6.31
LifePath Index 2055 CB	6.75	(18.38)	18.81	15.18	26.58	(8.28)	20.55	8.82	(2.26)	6.41

Cumulative and Quarterly Relative Returns vs LifePath Index 2055 CB



Risk Adjusted Return Measures vs LifePath Index 2055 CB Rankings Against Callan Target Date 2055 (Net) Seven Years Ended March 31, 2023



	Alpha	Sharpe Ratio	Excess Return Ratio
10th Percentile	0.78	0.48	0.29
25th Percentile	0.43	0.46	0.06
Median	0.11	0.44	(0.09)
75th Percentile	(0.23)	0.42	(0.35)
90th Percentile	(0.55)	0.39	(0.54)
SERS 2055 Retirement Fund	0.14	0.44	0.52

SERS 2060 Retirement Fund Period Ended March 31, 2023

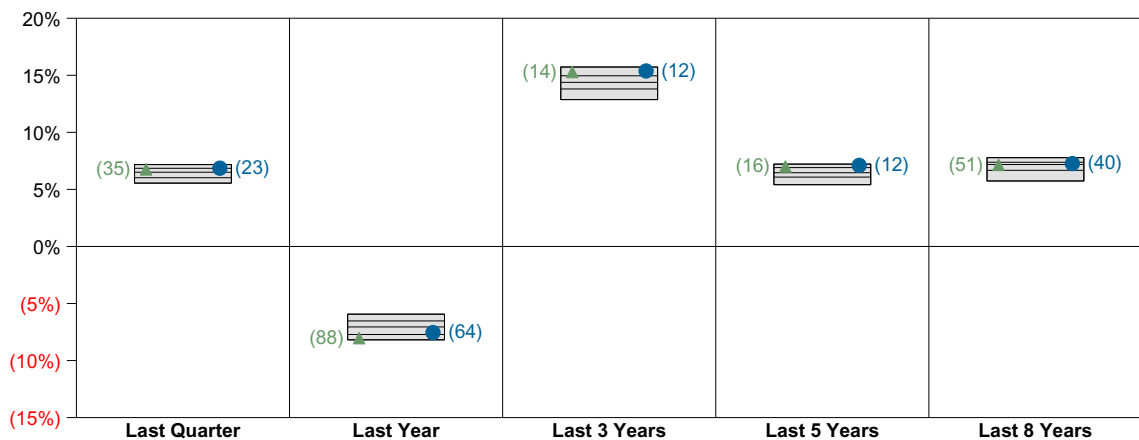
Investment Philosophy

The BlackRock LifePath(R) Index 2060 Fund (the "Fund") seeks to provide for retirement outcomes consistent with investor preferences throughout the savings and drawdown phase based on quantitatively measured risk that investors, on average, may be willing to accept. The Fund will be diversified across global asset classes, with allocations changing over the investment horizon to become more heavily oriented toward debt and debt-like securities, on the premise that individuals investing for retirement desire to reduce investment risk in their retirement accounts as their retirement date approaches.

Quarterly Summary and Highlights

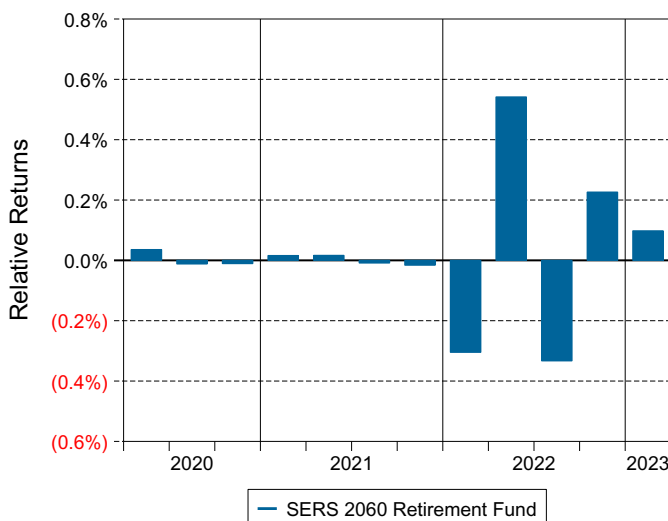
- SERS 2060 Retirement Fund's portfolio posted a 6.86% return for the quarter placing it in the 23 percentile of the Callan Target Date 2060 group for the quarter and in the 64 percentile for the last year.
- SERS 2060 Retirement Fund's portfolio outperformed the LifePath Index 2060 CB by 0.10% for the quarter and outperformed the LifePath Index 2060 CB for the year by 0.49%.

Performance vs Callan Target Date 2060 (Net)

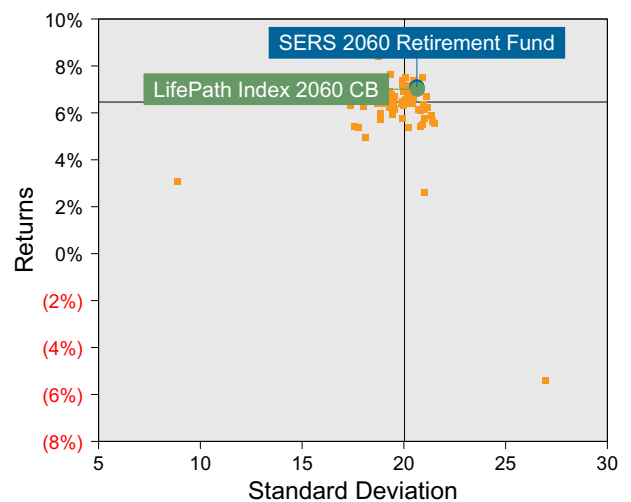


	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 8 Years
10th Percentile	7.18	(5.93)	15.73	7.22	7.78
25th Percentile	6.85	(6.53)	14.96	6.91	7.38
Median	6.51	(7.05)	14.38	6.46	7.18
75th Percentile	6.02	(7.72)	13.80	6.08	6.67
90th Percentile	5.55	(8.18)	12.87	5.41	5.74
SERS 2060 Retirement Fund	6.86	(7.55)	15.38	7.10	7.26
LifePath Index 2060 CB	6.75	(8.04)	15.29	7.01	7.15

Relative Return vs LifePath Index 2060 CB



Callan Target Date 2060 (Net) Annualized Five Year Risk vs Return

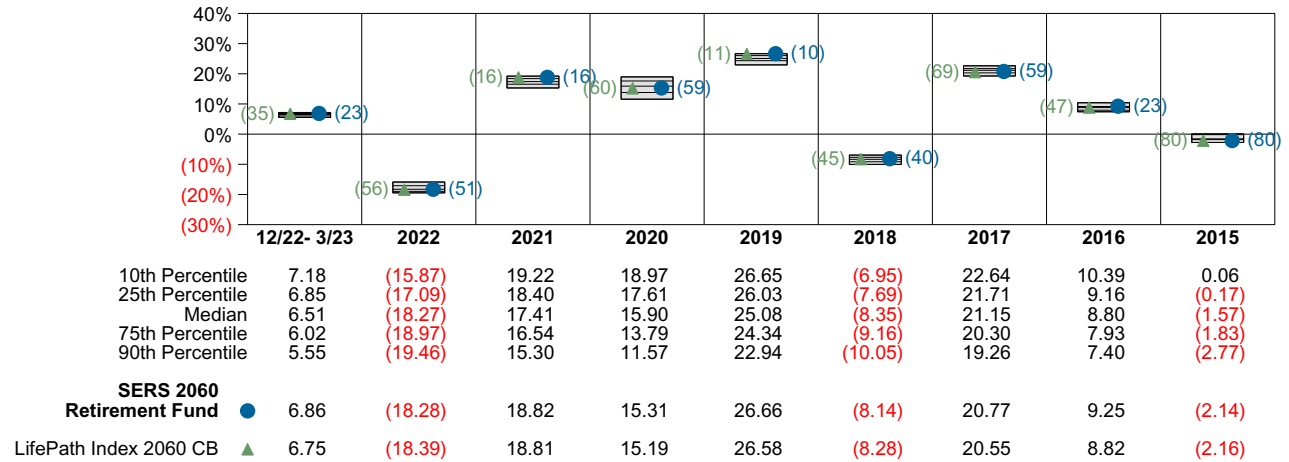


SERS 2060 Retirement Fund Return Analysis Summary

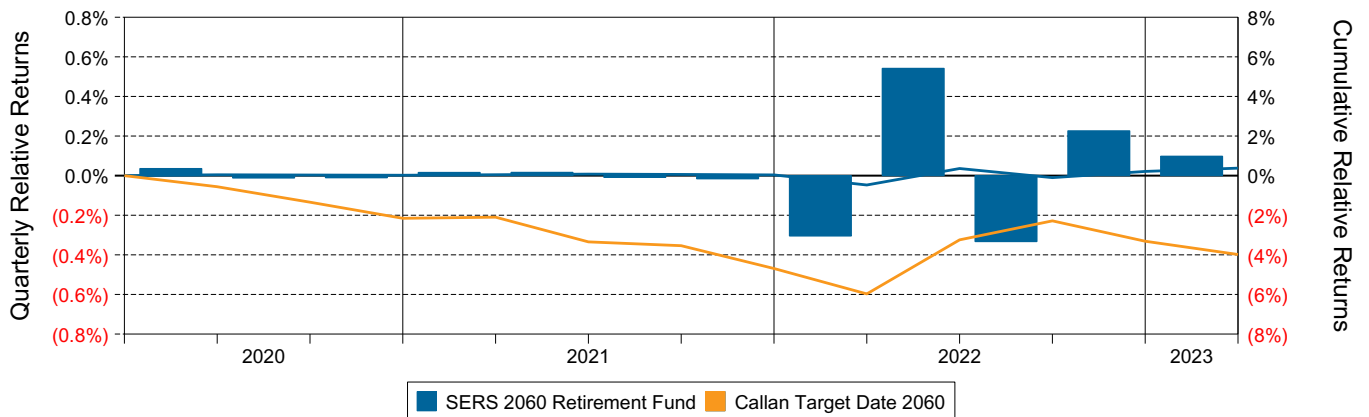
Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

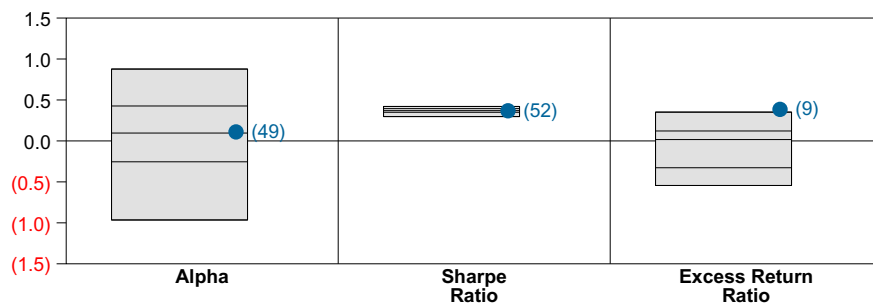
Performance vs Callan Target Date 2060 (Net)



Cumulative and Quarterly Relative Returns vs LifePath Index 2060 CB



Risk Adjusted Return Measures vs LifePath Index 2060 CB Rankings Against Callan Target Date 2060 (Net) Eight Years Ended March 31, 2023



SERS 2065 Retirement Fund Period Ended March 31, 2023

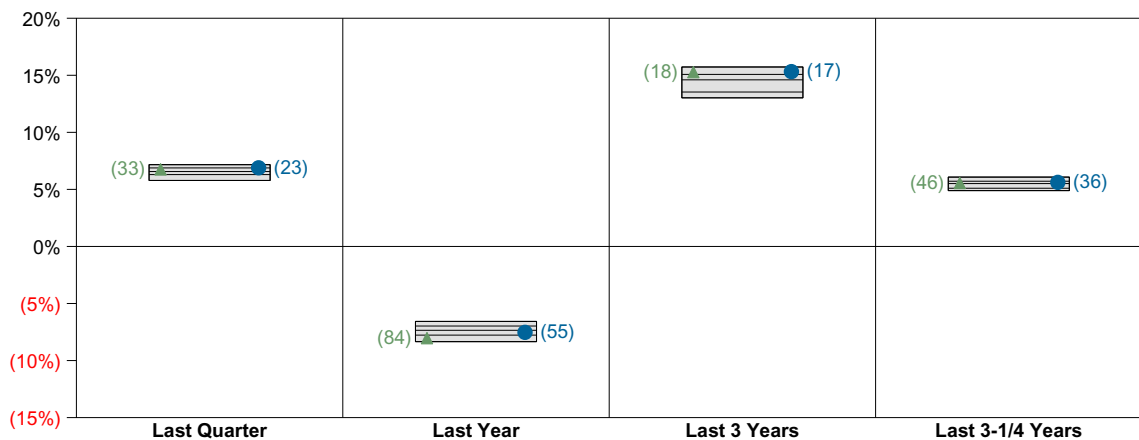
Investment Philosophy

The BlackRock LifePath(R) Index 2065 Fund (the "Fund") seeks to provide for retirement outcomes consistent with investor preferences throughout the savings and drawdown phase based on quantitatively measured risk that investors, on average, may be willing to accept. The Fund will be diversified across global asset classes, with allocations changing over the investment horizon to become more heavily oriented toward debt and debt-like securities, on the premise that individuals investing for retirement desire to reduce investment risk in their retirement accounts as their retirement date approaches.

Quarterly Summary and Highlights

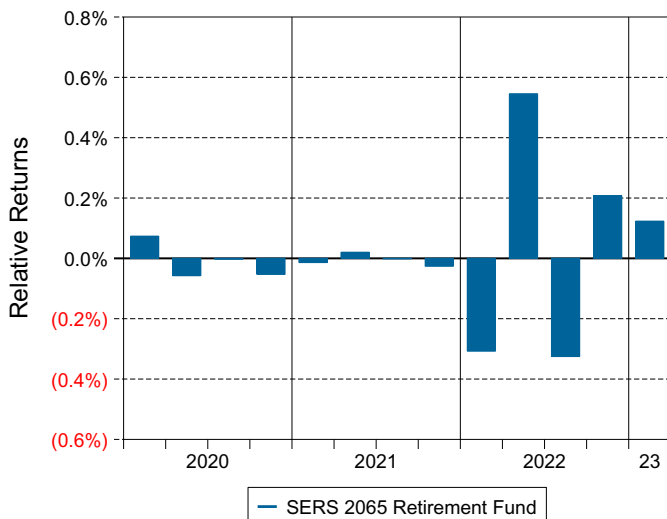
- SERS 2065 Retirement Fund's portfolio posted a 6.89% return for the quarter placing it in the 23 percentile of the Callan Target Date 2065 group for the quarter and in the 55 percentile for the last year.
- SERS 2065 Retirement Fund's portfolio outperformed the LifePath Index 2065 CB by 0.13% for the quarter and outperformed the LifePath Index 2065 CB for the year by 0.51%.

Performance vs Callan Target Date 2065 (Net)

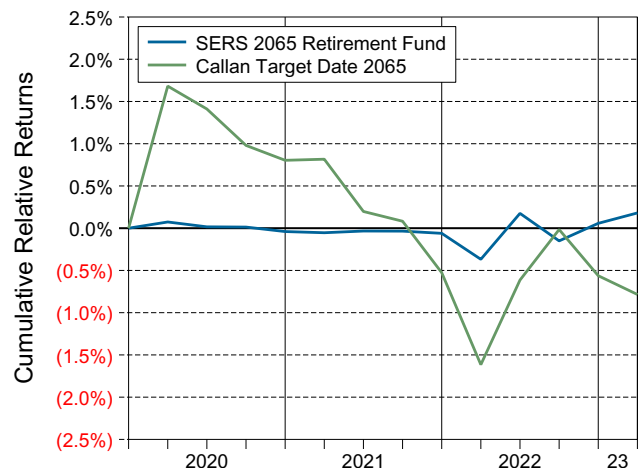


	Last Quarter	Last Year	Last 3 Years	Last 3-1/4 Years
10th Percentile	7.17	(6.57)	15.73	6.08
25th Percentile	6.88	(6.97)	15.08	5.72
Median	6.56	(7.35)	14.60	5.51
75th Percentile	6.30	(7.77)	13.53	5.10
90th Percentile	5.78	(8.34)	13.02	4.89
SERS 2065 Retirement Fund	6.89	(7.53)	15.32	5.62
LifePath Index 2065 CB	6.76	(8.04)	15.28	5.56

Relative Return vs LifePath Index 2065 CB



Cumulative Returns vs LifePath Index 2065 CB



SERS U.S. Large Company Index Period Ended March 31, 2023

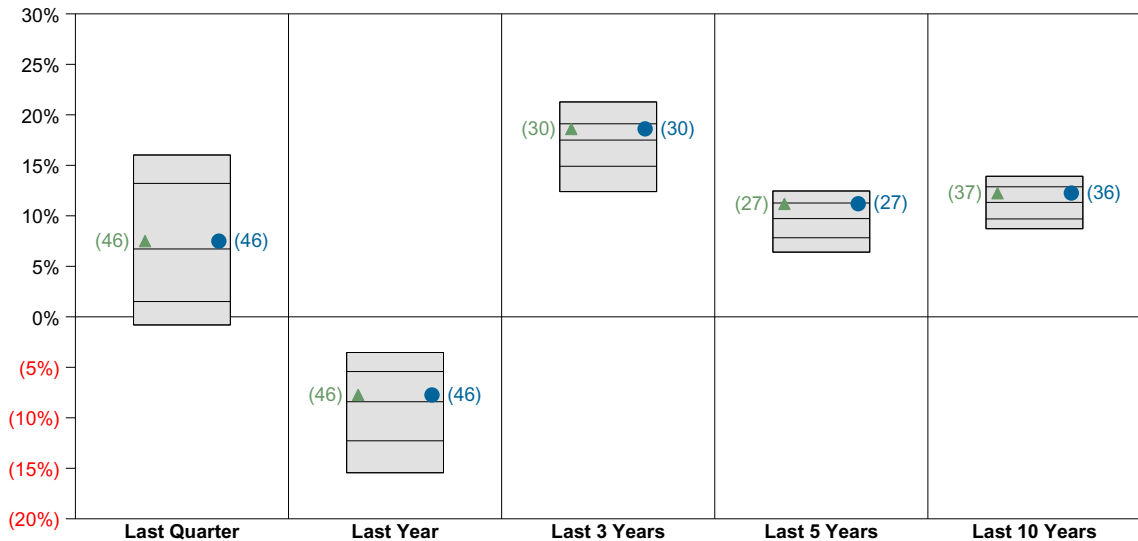
Investment Philosophy

The strategy seeks to replicate the performance and characteristics of the S&P 500 Index with minimal tracking error. Mellon Capital uses full replication to construct the portfolio, holding each security in the index in its proportionate weight. This fund is managed by Mellon Capital Management.

Quarterly Summary and Highlights

- SERS U.S. Large Company Index's portfolio posted a 7.50% return for the quarter placing it in the 46 percentile of the Callan Large Cap Broad Equity Mut Funds group for the quarter and in the 46 percentile for the last year.
- SERS U.S. Large Company Index's portfolio underperformed the S&P 500 Index by 0.00% for the quarter and underperformed the S&P 500 Index for the year by 0.01%.

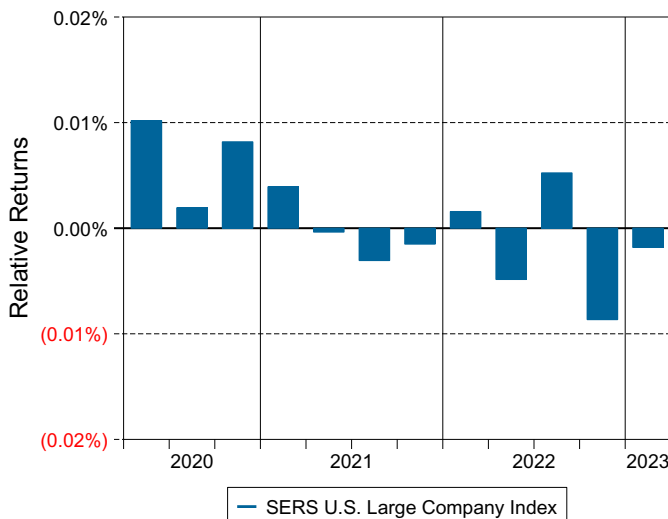
Performance vs Callan Large Cap Broad Equity Mut Funds (Institutional Net)



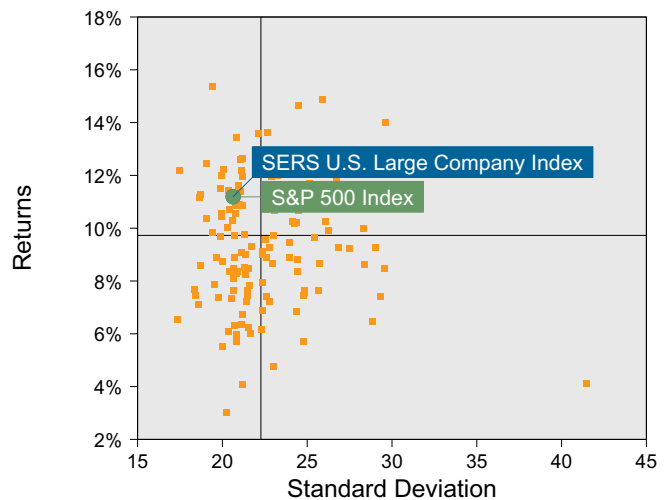
	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile	16.02	(3.53)	21.28	12.46	13.92
25th Percentile	13.21	(5.42)	19.11	11.27	12.87
Median	6.72	(8.41)	17.50	9.73	11.33
75th Percentile	1.51	(12.28)	14.91	7.83	9.69
90th Percentile	(0.81)	(15.44)	12.40	6.40	8.72

SERS U.S. Large Company Index	7.50	(7.74)	18.61	11.20	12.25
S&P 500 Index	7.50	(7.73)	18.60	11.19	12.24

Relative Return vs S&P 500 Index



Callan Large Cap Broad Equity Mut Funds (Institutional Net) Annualized Five Year Risk vs Return

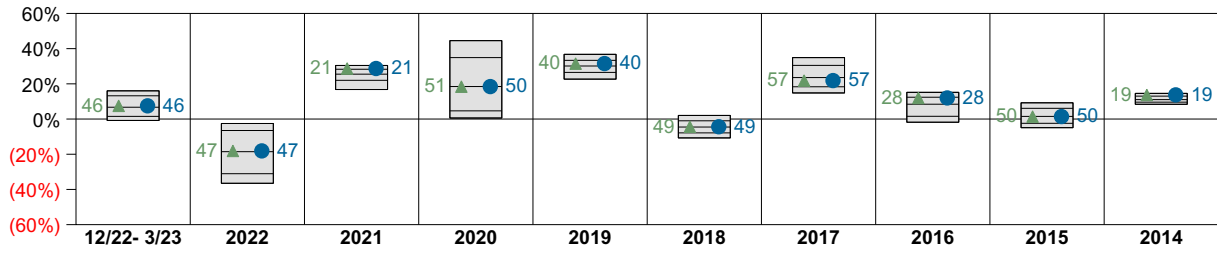


SERS U.S. Large Company Index Return Analysis Summary

Return Analysis

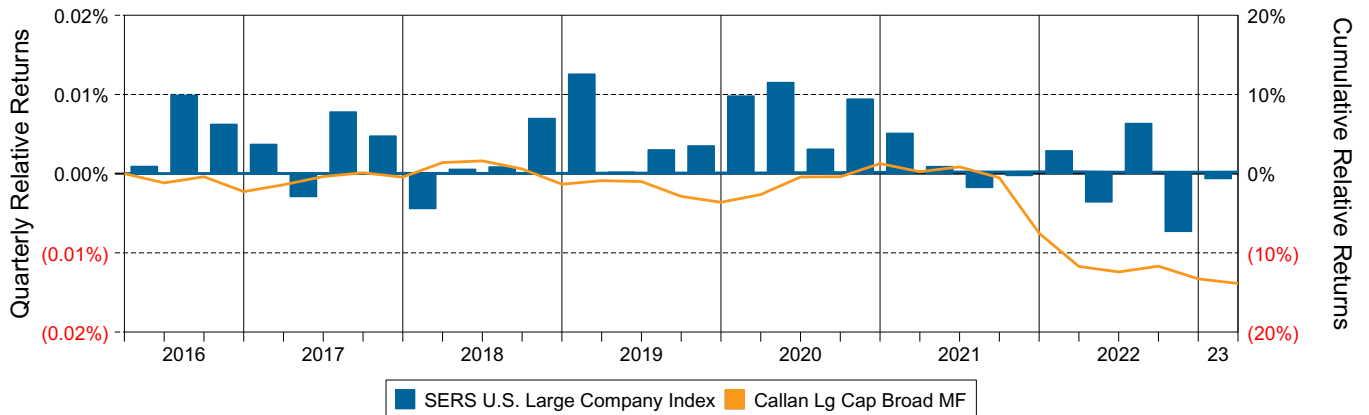
The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

Performance vs Callan Large Cap Broad Equity Mut Funds (Institutional Net)

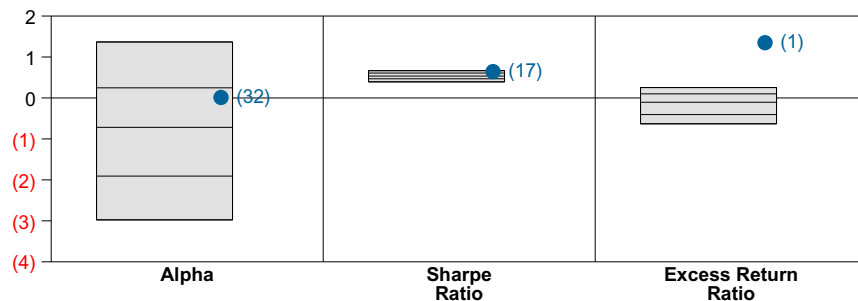


	12/22- 3/23	2022	2021	2020	2019	2018	2017	2016	2015	2014
10th Percentile	16.02	(2.53)	30.44	44.54	36.76	2.05	34.91	15.17	9.23	14.58
25th Percentile	13.21	(6.52)	28.29	34.90	33.34	(1.00)	30.48	12.39	6.09	13.01
Median	6.72	(18.55)	25.50	18.47	30.14	(4.54)	23.56	8.43	1.50	11.02
75th Percentile	1.51	(31.06)	22.00	4.64	26.51	(7.86)	18.33	1.56	(2.42)	9.59
90th Percentile	(0.81)	(36.52)	16.77	0.58	22.66	(10.72)	14.82	(1.82)	(4.91)	8.38
SERS U.S. Large Company Index	● 7.50	(18.11)	28.71	18.44	31.51	(4.38)	21.85	11.99	1.41	13.72
S&P 500 Index	▲ 7.50	(18.11)	28.71	18.40	31.49	(4.38)	21.83	11.96	1.38	13.69

Cumulative and Quarterly Relative Returns vs S&P 500 Index



Risk Adjusted Return Measures vs S&P 500 Index Rankings Against Callan Large Cap Broad Equity Mut Funds (Institutional Net) Seven Years Ended March 31, 2023



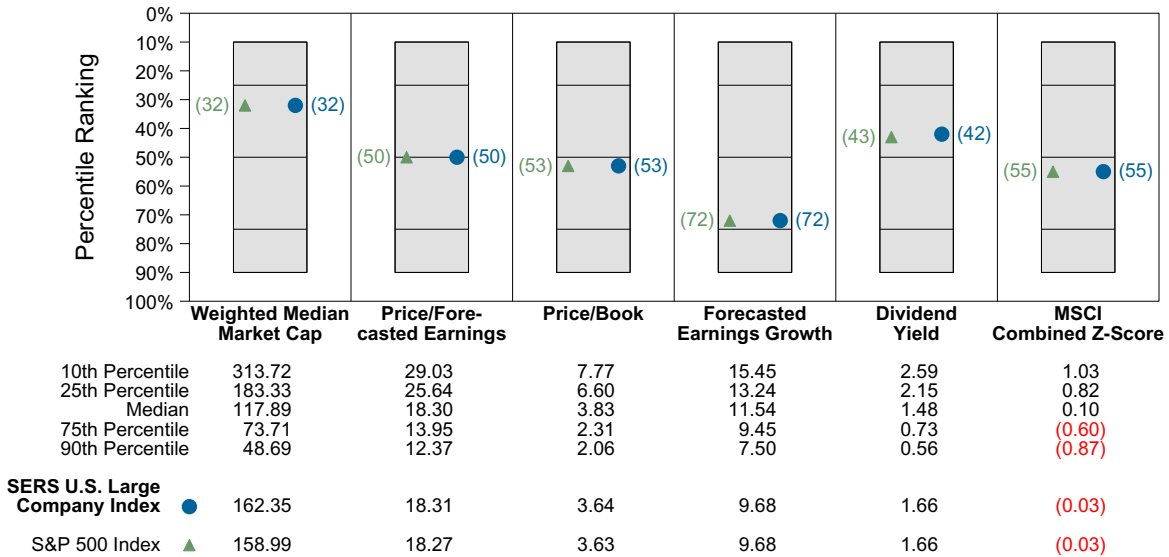
	Alpha	Sharpe Ratio	Excess Return Ratio
10th Percentile	1.37	0.67	0.25
25th Percentile	0.25	0.61	0.10
Median	(0.72)	0.53	(0.10)
75th Percentile	(1.91)	0.47	(0.41)
90th Percentile	(2.98)	0.39	(0.63)
SERS U.S. Large Company Index	● 0.01	0.64	1.35

SERS U.S. Large Company Index Equity Characteristics Analysis Summary

Portfolio Characteristics

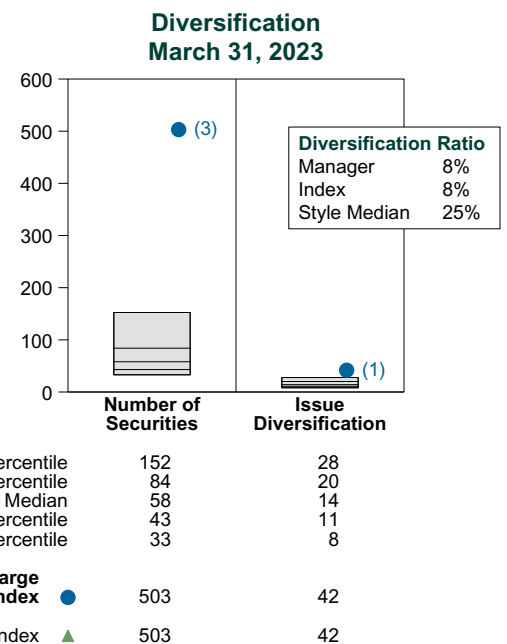
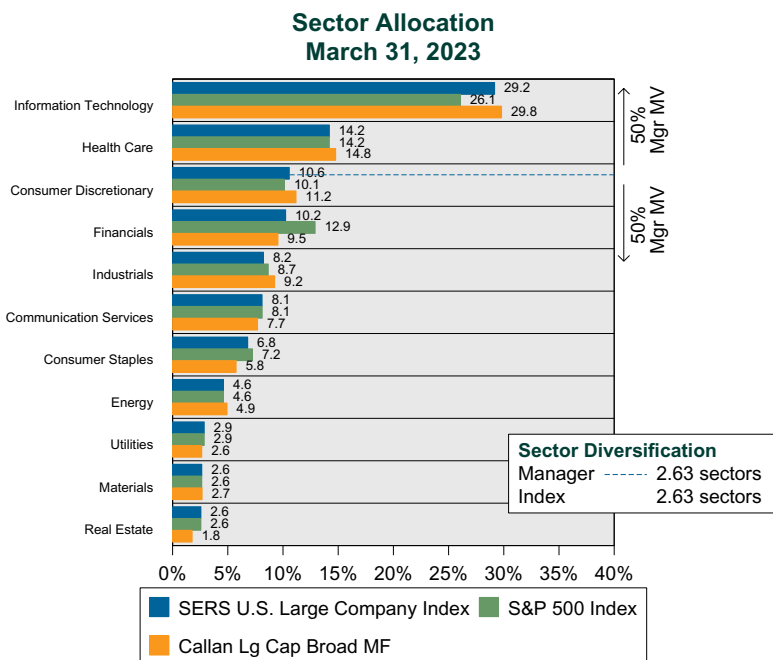
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Portfolio Characteristics Percentile Rankings Rankings Against Callan Large Cap Broad Equity Mut Funds as of March 31, 2023



Sector Weights

The graph below contrasts the manager's sector weights with those of the benchmark and median sector weights across the members of the peer group. The magnitude of sector weight differences from the index and the manager's sector diversification are also shown. Diversification by number and concentration of holdings are also compared to the benchmark and peer group. Issue Diversification represents by count, and Diversification Ratio by percent, the number of holdings that account for half of the portfolio's market value.



SERS U.S. Large Company Index Top 10 Portfolio Holdings Characteristics as of March 31, 2023

10 Largest Holdings

Stock	Sector	Ending Market Value	Percent of Portfolio	Qtrly Return	Market Capital	Price/Forecasted Earnings Ratio	Dividend Yield	Forecasted Growth in Earnings
Apple Inc	Information Technology	\$359,690	7.1%	27.11%	2609.04	26.25	0.56%	7.15%
Microsoft Corp	Information Technology	\$314,689	6.2%	20.52%	2146.05	27.71	0.94%	11.96%
Amazon.Com	Consumer Discretionary	\$134,981	2.7%	22.96%	1058.44	61.01	0.00%	9.44%
Nvidia Corp	Information Technology	\$100,200	2.0%	90.10%	686.09	58.42	0.06%	21.20%
Alphabet Inc Cl A	Communication Services	\$90,520	1.8%	17.57%	617.82	19.52	0.00%	15.23%
Tesla Mtrs Inc	Consumer Discretionary	\$81,814	1.6%	68.42%	656.42	48.34	0.00%	11.80%
Berkshire Hathaway Inc Del Cl B New	Financials	\$81,545	1.6%	(0.04)%	400.84	18.98	0.00%	11.56%
Alphabet Inc Cl C	Communication Services	\$79,290	1.6%	17.21%	620.67	19.70	0.00%	15.23%
Meta Platforms Inc	Communication Services	\$69,182	1.4%	76.12%	471.73	20.44	0.00%	13.20%
Exxon Mobil Corp	Energy	\$66,161	1.3%	0.19%	446.42	10.71	3.32%	26.96%

10 Best Performers

Stock	Sector	Ending Market Value	Percent of Portfolio	Qtrly Return	Market Capital	Price/Forecasted Earnings Ratio	Dividend Yield	Forecasted Growth in Earnings
Nvidia Corp	Information Technology	\$100,200	2.0%	90.10%	686.09	58.42	0.06%	21.20%
Meta Platforms Inc	Communication Services	\$69,182	1.4%	76.12%	471.73	20.44	0.00%	13.20%
Tesla Mtrs Inc	Consumer Discretionary	\$81,814	1.6%	68.42%	656.42	48.34	0.00%	11.80%
Warner Bros Discovery Inc	Communication Services	\$4,887	0.1%	59.28%	36.78	75.88	0.00%	(5.29)%
Align Technology Inc	Health Care	\$3,566	0.1%	58.44%	25.60	39.51	0.00%	16.90%
Advanced Micro Devices Inc	Information Technology	\$23,212	0.5%	51.32%	157.74	29.07	0.00%	9.52%
Salesforce Com Inc	Information Technology	\$29,320	0.6%	50.68%	199.78	26.93	0.00%	16.84%
West Pharmaceutical Svcs Inc	Health Care	\$3,848	0.1%	47.32%	25.73	45.32	0.22%	33.66%
General Electric Co	Industrials	\$15,294	0.3%	46.35%	104.23	39.07	0.33%	44.50%
Catalent Inc	Health Care	\$1,739	0.0%	45.99%	11.83	19.16	0.00%	9.10%

10 Worst Performers

Stock	Sector	Ending Market Value	Percent of Portfolio	Qtrly Return	Market Capital	Price/Forecasted Earnings Ratio	Dividend Yield	Forecasted Growth in Earnings
First Rep Bk San Francisco C	Financials	\$375	0.0%	(88.50)%	2.56	3.76	7.72%	(15.79)%
Zion Bancorporation Na	Financials	\$661	0.0%	(38.64)%	4.43	4.74	5.48%	14.48%
Schwab Charles Corp New	Financials	\$11,765	0.2%	(36.89)%	92.60	12.53	1.91%	14.67%
Comerica	Financials	\$846	0.0%	(33.99)%	5.71	4.57	6.54%	5.81%
Dish Network Corp Cl A	Communication Services	\$338	0.0%	(33.55)%	2.73	8.28	0.00%	(29.05)%
Keycorp	Financials	\$1,711	0.0%	(27.31)%	11.58	6.38	6.55%	6.00%
Lincoln National Corp	Financials	\$505	0.0%	(25.78)%	3.80	2.57	8.01%	4.50%
Centene Corp Del	Health Care	\$5,124	0.1%	(22.92)%	34.81	9.61	0.00%	12.19%
Cigna Corp New	Health Care	\$11,248	0.2%	(22.54)%	75.90	9.98	1.93%	11.30%
Apa Corp	Energy	\$1,687	0.0%	(22.32)%	11.21	5.85	2.77%	14.07%

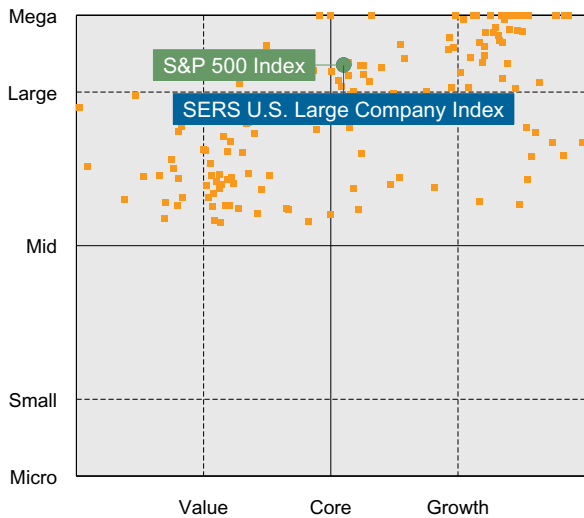
Historical Holdings Based Style Analysis

SERS U.S. Large Company Index

For Three Years Ended March 31, 2023

This page analyzes the historical investment style of a portfolio utilizing a detailed holdings-based style analysis to determine average actual exposures to various market capitalization and style segments of the domestic equity market. The market is segmented quarterly by capitalization and style. The capitalization segments are dictated by capitalization decile breakpoints. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the average historical market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the average historical portfolio and index weights and stock counts (in parentheses) in each capitalization/style segment of the market. The next two style exposure charts illustrate the actual quarterly cap/style and style only segment exposures of the portfolio through history.

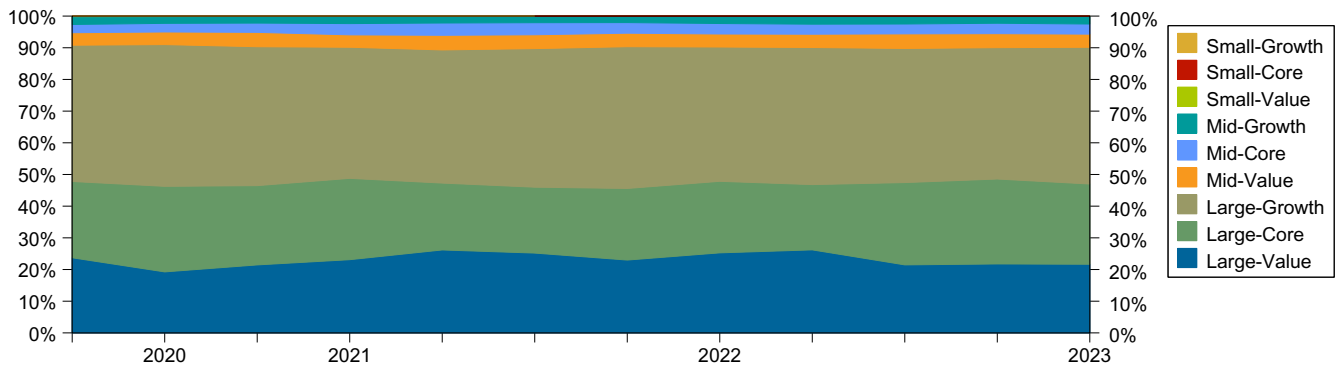
Average Style Map vs Callan Lg Cap Broad MF Holdings for Three Years Ended March 31, 2023



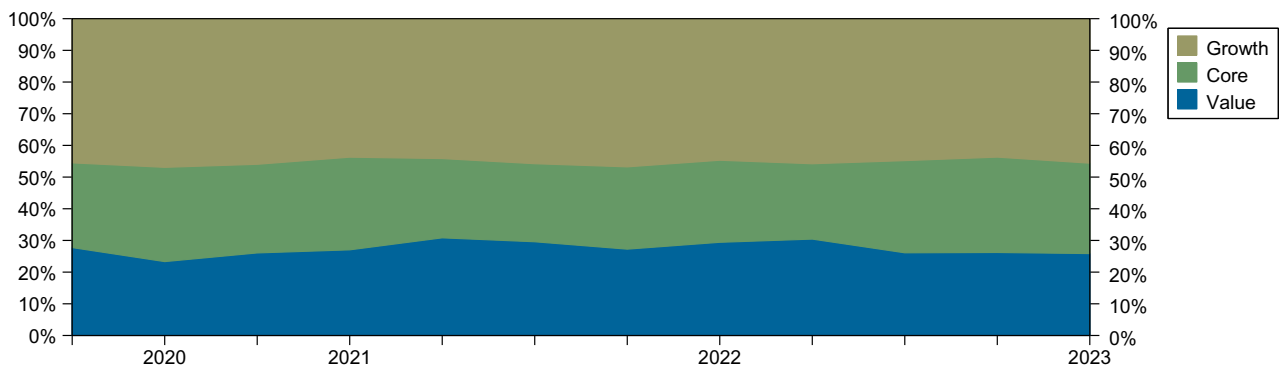
Average Style Exposure Matrix Holdings for Three Years Ended March 31, 2023

Large	23.2% (97)	24.0% (94)	43.0% (84)	90.2% (275)
	23.2% (96)	23.9% (94)	43.1% (84)	90.2% (274)
Mid	4.3% (102)	3.2% (75)	2.3% (47)	9.8% (224)
	4.2% (102)	3.2% (75)	2.3% (47)	9.7% (224)
Small	0.0% (4)	0.0% (2)	0.0% (1)	0.1% (7)
	0.0% (4)	0.0% (2)	0.0% (1)	0.1% (7)
Micro	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Total	27.5% (203)	27.2% (171)	45.3% (132)	100.0% (506)
	27.5% (202)	27.2% (171)	45.3% (132)	100.0% (505)
	Value	Core	Growth	Total

SERS U.S. Large Company Index Historical Cap/Style Exposures



SERS U.S. Large Company Index Historical Style Only Exposures



SERS U.S. All Company Index Fund

Period Ended March 31, 2023

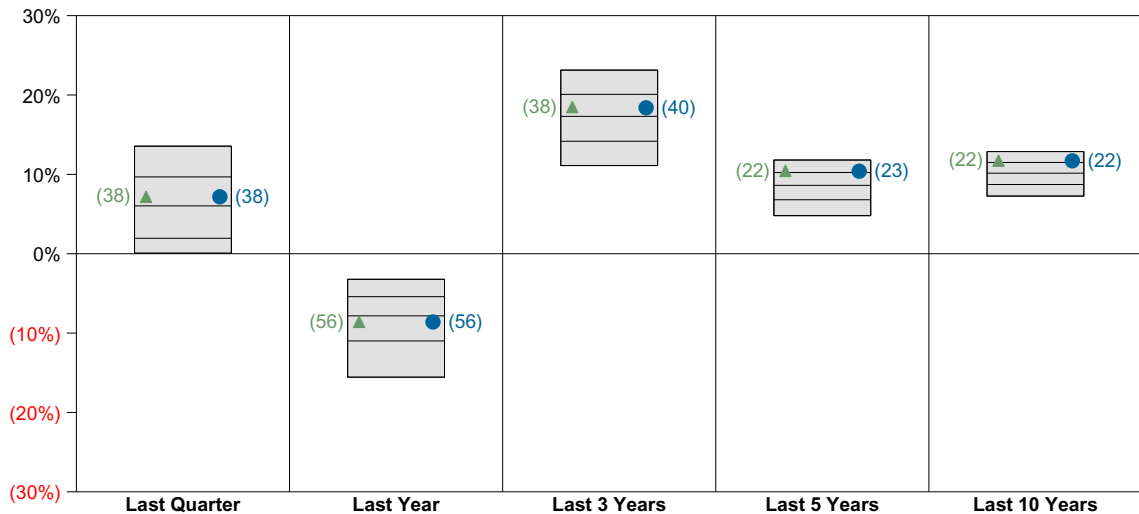
Investment Philosophy

The U.S. All Company Stock Index Fund's Investment objective is to track the performance of the Russell 3000 index. In meeting this objective, the Fund may invest in securities and a combination of other collective funds that together are designed to track the performance of the Index. The Fund will principally invest in other affiliated bank collective funds and equity securities, including common stock of U.S. companies. This fund is managed by Mellon Capital Management.

Quarterly Summary and Highlights

- SERS U.S. All Company Index Fund's portfolio posted a 7.17% return for the quarter placing it in the 38 percentile of the Callan Multi Cap Broad Mutual Funds group for the quarter and in the 56 percentile for the last year.
- SERS U.S. All Company Index Fund's portfolio underperformed the Russell 3000 Index by 0.01% for the quarter and underperformed the Russell 3000 Index for the year by 0.02%.

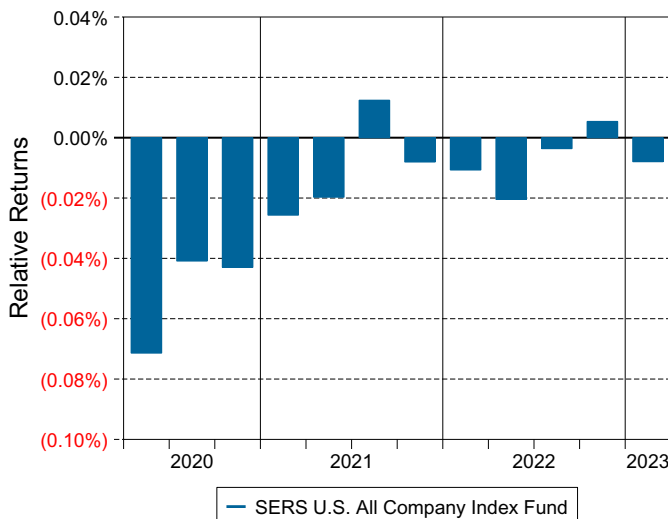
Performance vs Callan Multi Cap Broad Mutual Funds (Institutional Net)



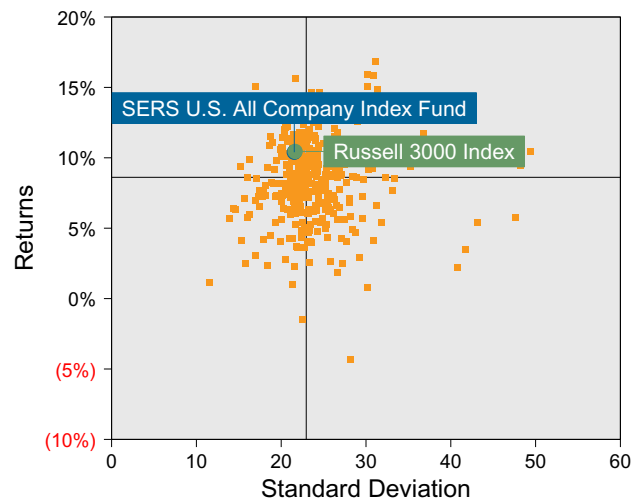
	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile	13.55	(3.22)	23.14	11.81	12.87
25th Percentile	9.68	(5.41)	20.08	10.23	11.50
Median	6.03	(7.83)	17.31	8.61	10.15
75th Percentile	1.94	(10.99)	14.17	6.80	8.72
90th Percentile	0.06	(15.56)	11.11	4.80	7.26

SERS U.S. All Company Index Fund	●	7.17	(8.60)	18.38	10.40	11.70
Russell 3000 Index	▲	7.18	(8.58)	18.48	10.45	11.73

Relative Return vs Russell 3000 Index



Callan Multi Cap Broad Mutual Funds (Institutional Net) Annualized Five Year Risk vs Return

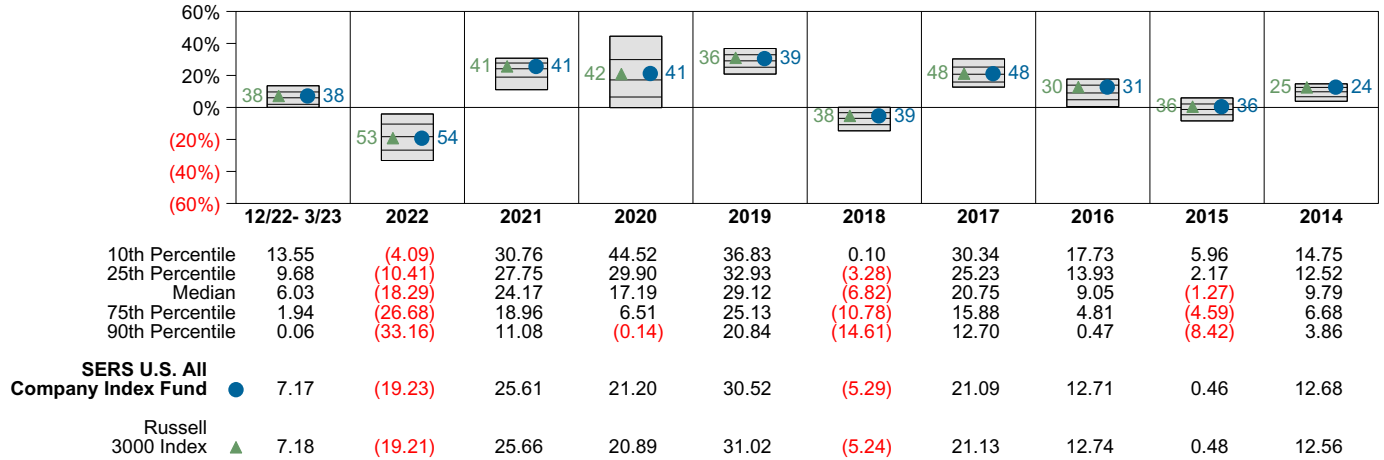


SERS U.S. All Company Index Fund Return Analysis Summary

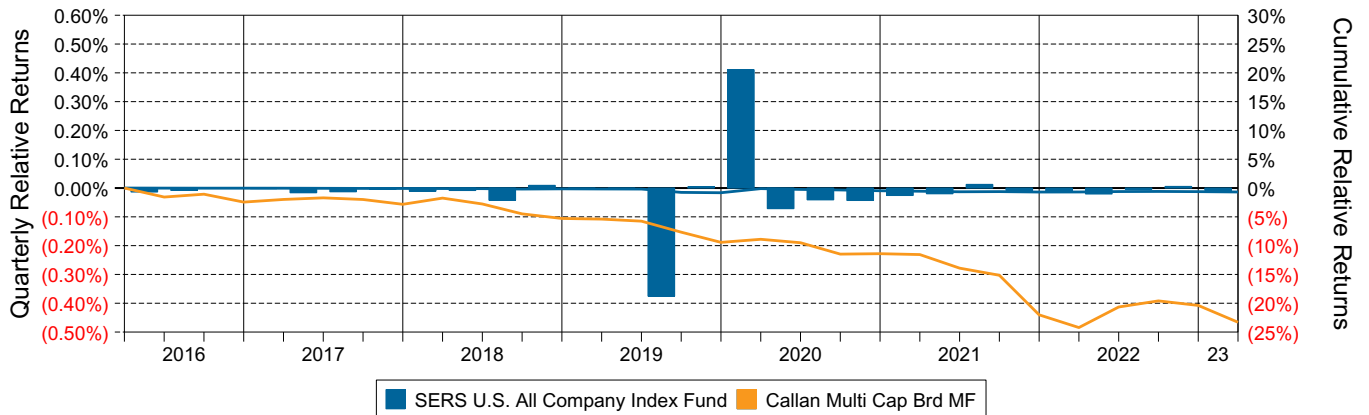
Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

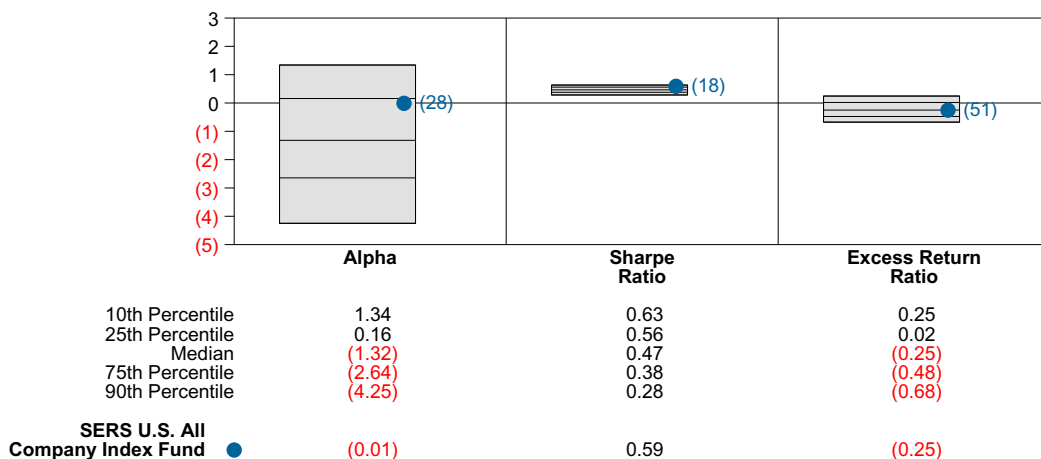
Performance vs Callan Multi Cap Broad Mutual Funds (Institutional Net)



Cumulative and Quarterly Relative Returns vs Russell 3000 Index



Risk Adjusted Return Measures vs Russell 3000 Index Rankings Against Callan Multi Cap Broad Mutual Funds (Institutional Net) Seven Years Ended March 31, 2023

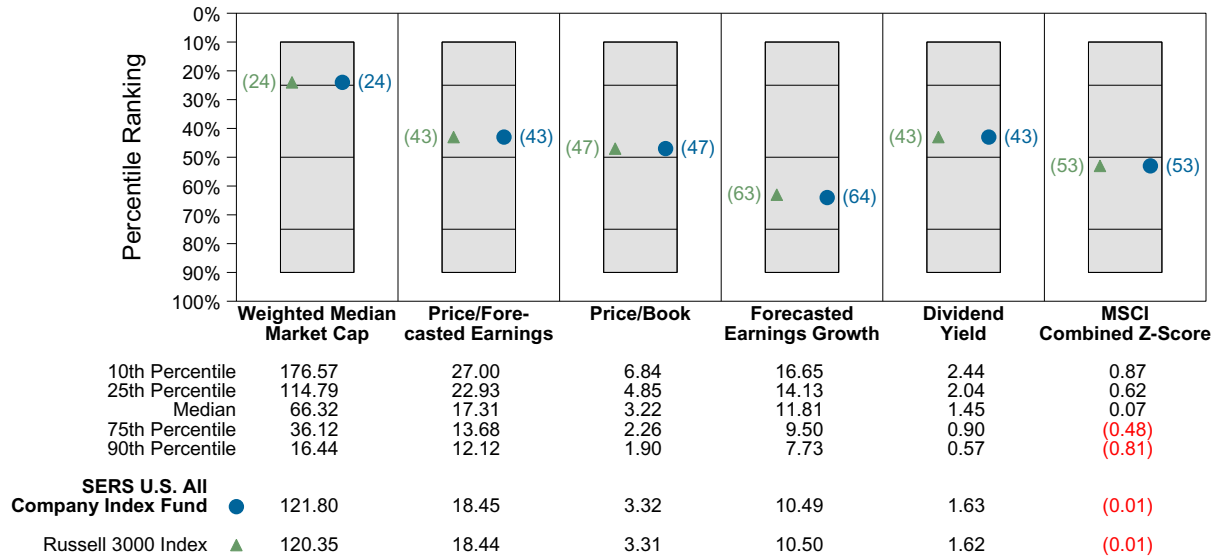


SERS U.S. All Company Index Fund Equity Characteristics Analysis Summary

Portfolio Characteristics

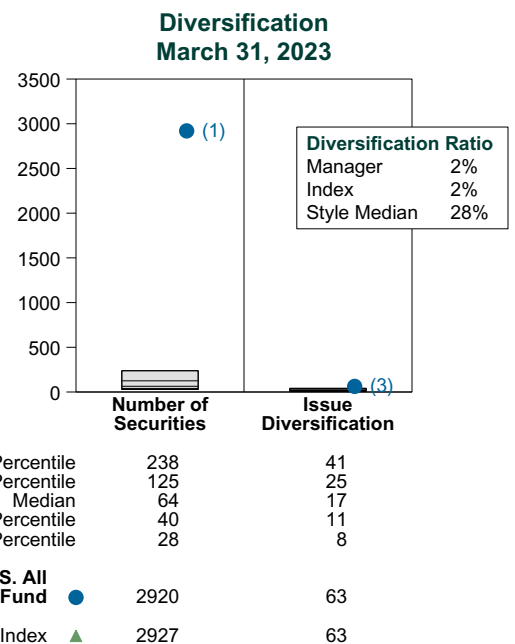
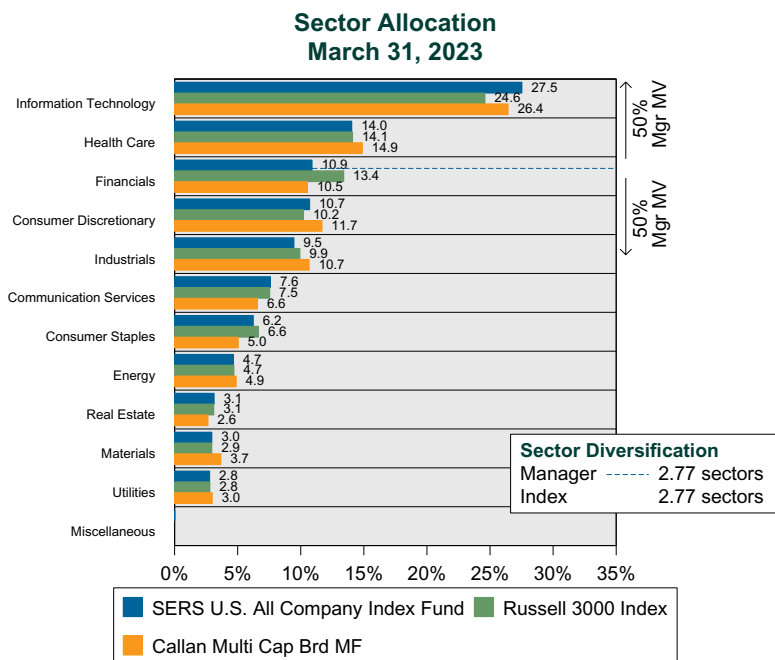
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Portfolio Characteristics Percentile Rankings Rankings Against Callan Multi Cap Broad Mutual Funds as of March 31, 2023



Sector Weights

The graph below contrasts the manager's sector weights with those of the benchmark and median sector weights across the members of the peer group. The magnitude of sector weight differences from the index and the manager's sector diversification are also shown. Diversification by number and concentration of holdings are also compared to the benchmark and peer group. Issue Diversification represents by count, and Diversification Ratio by percent, the number of holdings that account for half of the portfolio's market value.



SERS U.S. All Company Index Fund Top 10 Portfolio Holdings Characteristics as of March 31, 2023

10 Largest Holdings

Stock	Sector	Ending Market Value	Percent of Portfolio	Qtrly Return	Market Capital	Price/Forecasted Earnings Ratio	Dividend Yield	Forecasted Growth in Earnings
Apple Inc	Information Technology	\$119,485	6.2%	27.11%	2609.04	26.25	0.56%	7.15%
Microsoft Corp	Information Technology	\$104,002	5.4%	20.52%	2146.05	27.71	0.94%	11.96%
Amazon.Com	Consumer Discretionary	\$44,261	2.3%	22.96%	1058.44	61.01	0.00%	9.44%
Nvidia Corp	Information Technology	\$31,684	1.6%	90.10%	686.09	58.42	0.06%	21.20%
Alphabet Inc Cl A	Communication Services	\$30,077	1.6%	17.57%	617.82	19.52	0.00%	15.23%
Berkshire Hathaway Inc Del Cl B New	Financials	\$26,846	1.4%	(0.04)%	400.84	18.98	0.00%	11.56%
Alphabet Inc Cl C	Communication Services	\$26,227	1.4%	17.21%	620.67	19.70	0.00%	15.23%
Tesla Mtrs Inc	Consumer Discretionary	\$25,850	1.3%	68.42%	656.42	48.34	0.00%	11.80%
Meta Platforms Inc	Communication Services	\$22,741	1.2%	76.12%	471.73	20.44	0.00%	13.20%
Exxon Mobil Corp	Energy	\$21,779	1.1%	0.19%	446.42	10.71	3.32%	26.96%

10 Best Performers

Stock	Sector	Ending Market Value	Percent of Portfolio	Qtrly Return	Market Capital	Price/Forecasted Earnings Ratio	Dividend Yield	Forecasted Growth in Earnings
Cipher Mining Inc	Information Technology	\$4	0.0%	316.46%	0.58	(70.61)	0.00%	-
Selectquote Inc Issuer_code 30	Financials	\$14	0.0%	222.89%	0.36	(7.67)	0.00%	-
C3 Ai Inc Cl A	Information Technology	\$96	0.0%	200.00%	3.65	(97.59)	0.00%	-
Riot Blockchain Inc	Information Technology	\$75	0.0%	192.68%	1.67	(18.03)	0.00%	-
Oscar Health A	Financials	\$38	0.0%	165.77%	1.18	(5.48)	0.00%	75.90%
Marathon Digital Holdings In	Information Technology	\$49	0.0%	154.60%	1.46	24.29	0.00%	-
Aurinia Pharmaceuticals Inc	Health Care	\$70	0.0%	153.70%	1.56	(16.07)	0.00%	-
Reata Pharmaceuticals Inc Cl A	Health Care	\$120	0.0%	139.32%	2.92	(11.52)	0.00%	-
Atlas Technical Consultnts I Com Cl	Industrials	\$11	0.0%	136.69%	0.47	108.84	0.00%	-
Berkshire Grey Inc Com Cl A	Industrials	\$3	0.0%	128.55%	0.33	(5.77)	0.00%	-

10 Worst Performers

Stock	Sector	Ending Market Value	Percent of Portfolio	Qtrly Return	Market Capital	Price/Forecasted Earnings Ratio	Dividend Yield	Forecasted Growth in Earnings
Naked Brand Group	Consumer Discretionary	\$4	0.0%	-	0.12	(5.37)	0.00%	-
First Rep Bk San Francisco C	Financials	\$123	0.0%	(88.50)%	2.56	3.76	7.72%	(15.79)%
Cerberus Cybel Sentinel	Information Technology	\$1	0.0%	(86.75)%	0.05	(2.01)	0.00%	-
Cyxtera Technologies Inc Com Cl A	Information Technology	\$1	0.0%	(84.12)%	0.05	(0.29)	0.00%	-
Bed Bath & Beyond	Consumer Discretionary	\$2	0.0%	(82.97)%	0.18	(0.07)	0.00%	(41.13)%
Pear Therapeutics Inc Class A Com	Health Care	\$1	0.0%	(78.40)%	0.04	(0.53)	0.00%	-
Veru Inc	Consumer Staples	\$4	0.0%	(78.03)%	0.09	(1.12)	0.00%	(61.15)%
Sunlight Financial Holdings	Financials	\$0	0.0%	(75.80)%	0.03	(62.46)	0.00%	-
Esperion Therapeutics Inc Ne	Health Care	\$6	0.0%	(74.47)%	0.14	(0.96)	0.00%	-
Nektar Therapeutics	Health Care	\$6	0.0%	(68.91)%	0.13	(0.73)	0.00%	-

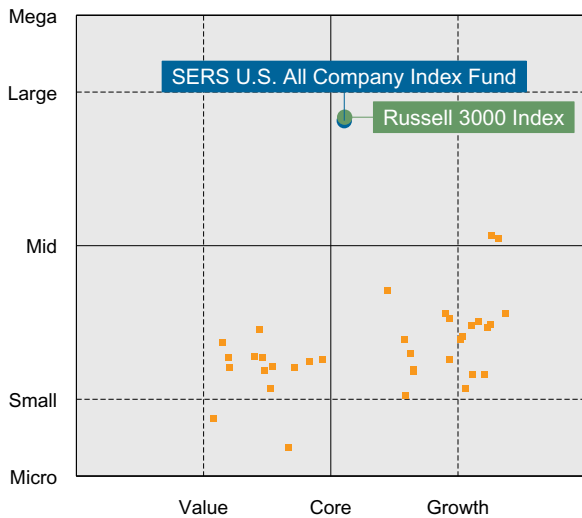
Historical Holdings Based Style Analysis

SERS U.S. All Company Index Fund

For Four and 1/2 Years Ended March 31, 2023

This page analyzes the historical investment style of a portfolio utilizing a detailed holdings-based style analysis to determine average actual exposures to various market capitalization and style segments of the domestic equity market. The market is segmented quarterly by capitalization and style. The capitalization segments are dictated by capitalization decile breakpoints. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the average historical market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the average historical portfolio and index weights and stock counts (in parentheses) in each capitalization/style segment of the market. The next two style exposure charts illustrate the actual quarterly cap/style and style only segment exposures of the portfolio through history.

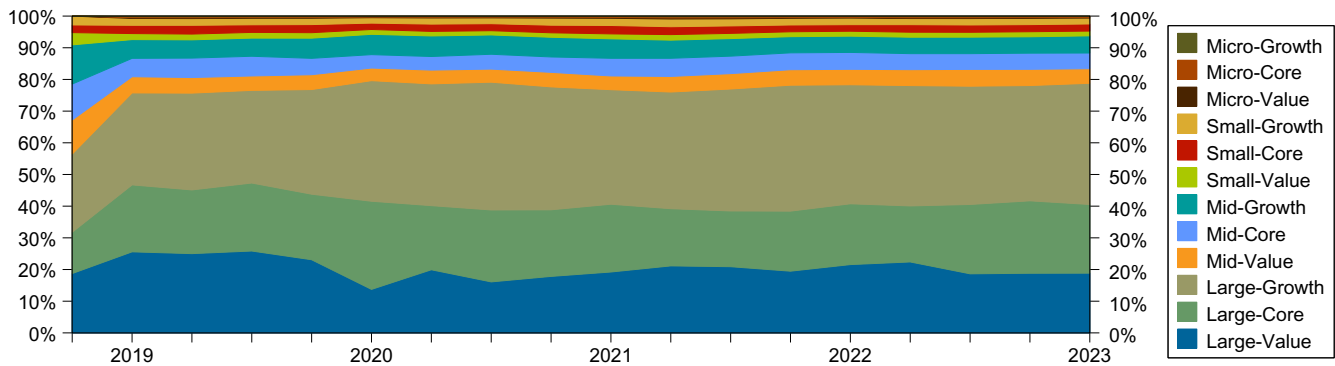
Average Style Map vs Callan SMID Broad MFs Holdings for Four and 1/2 Years Ended March 31, 2023



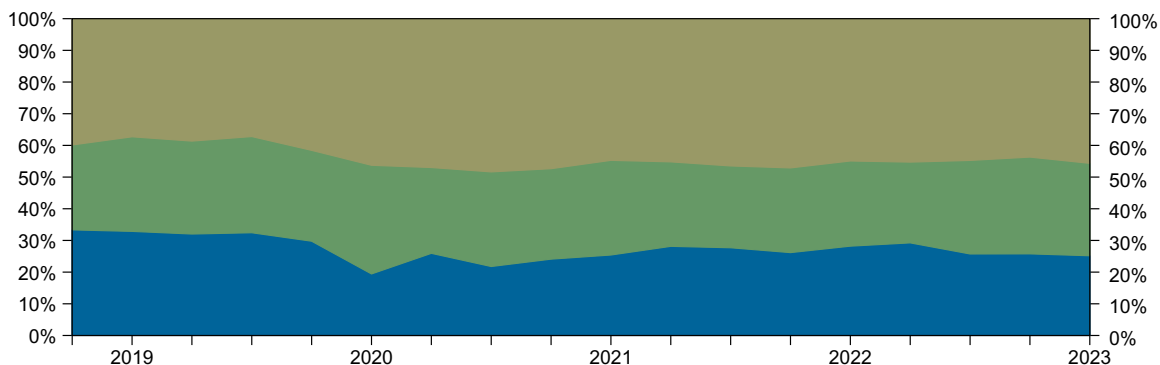
Average Style Exposure Matrix Holdings for Four and 1/2 Years Ended March 31, 2023

	Value	Core	Growth	Total
Large	20.4% (95)	20.4% (94)	35.6% (99)	76.4% (288)
	20.6% (98)	21.0% (97)	35.9% (103)	77.5% (298)
Mid	5.1% (165)	5.6% (204)	6.1% (220)	16.7% (589)
	4.7% (167)	5.2% (207)	5.8% (223)	15.7% (597)
Small	1.7% (298)	2.4% (479)	2.1% (370)	6.2% (1147)
	1.6% (309)	2.4% (497)	2.1% (386)	6.0% (1192)
Micro	0.2% (294)	0.3% (387)	0.1% (160)	0.7% (841)
	0.3% (310)	0.3% (413)	0.2% (171)	0.7% (894)
Total	27.4% (852)	28.6% (1164)	44.0% (849)	100.0% (2865)
	27.2% (884)	28.9% (1214)	43.9% (883)	100.0% (2981)

SERS U.S. All Company Index Fund Historical Cap/Style Exposures



SERS U.S. All Company Index Fund Historical Style Only Exposures



SERS U.S. SMID Company Index Period Ended March 31, 2023

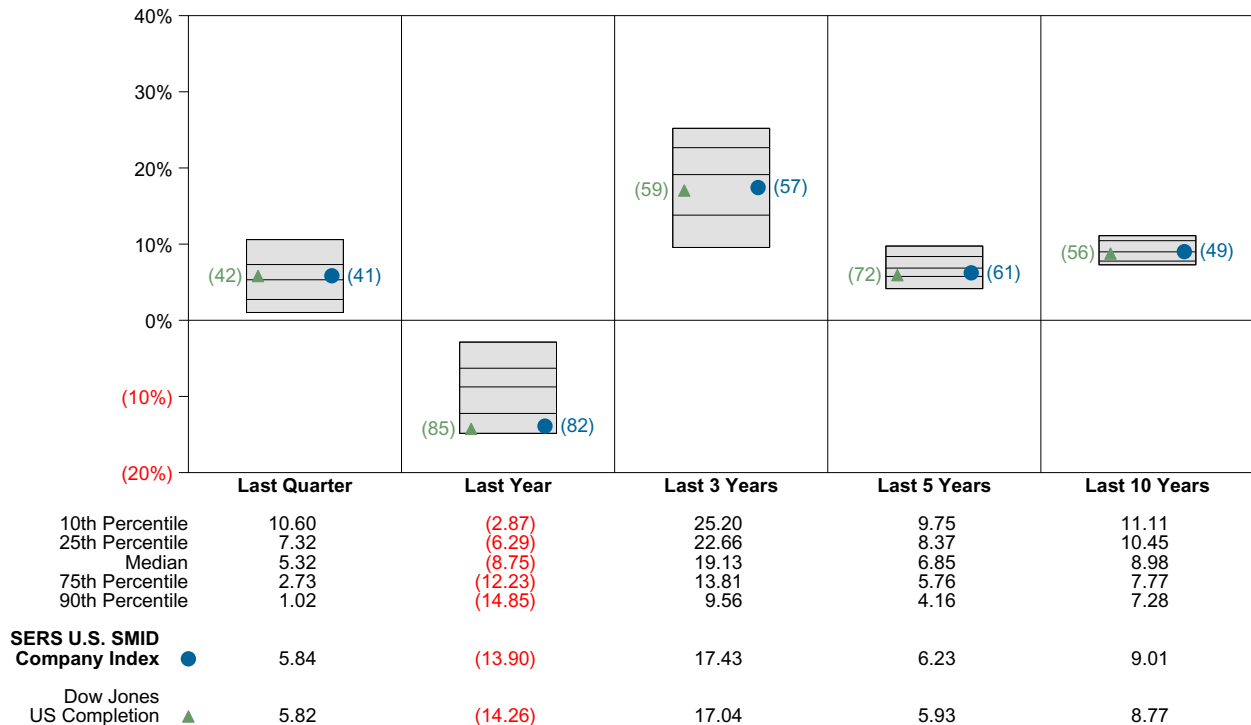
Investment Philosophy

The objective of the U.S. Small/Mid Company Stock Index Fund is to track the performance of the Dow Jones U.S. Completion Total Stock Market Index. In meeting this objective, the Fund may invest in securities, exchange-traded/mutual funds and a combination of other collective funds that together are designed to track the performance of the Dow Jones U.S. Completion Total Stock Market Index. This fund is managed by Mellon Capital Management.

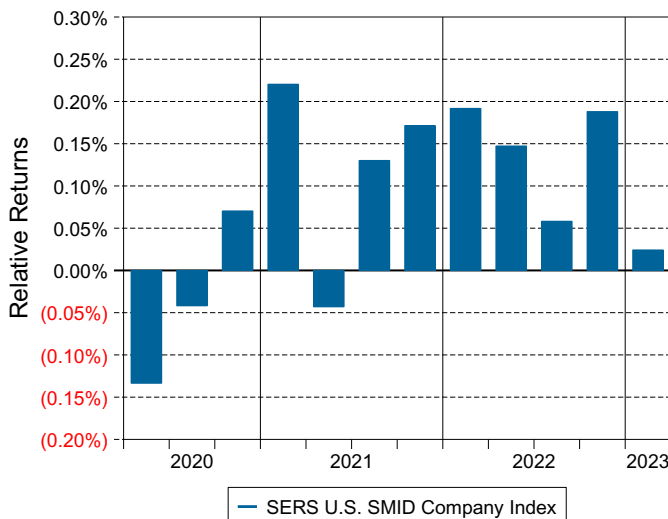
Quarterly Summary and Highlights

- SERS U.S. SMID Company Index's portfolio posted a 5.84% return for the quarter placing it in the 41 percentile of the Callan Small/MidCap Broad Mutual Funds group for the quarter and in the 82 percentile for the last year.
- SERS U.S. SMID Company Index's portfolio outperformed the Dow Jones US Completion by 0.03% for the quarter and outperformed the Dow Jones US Completion for the year by 0.36%.

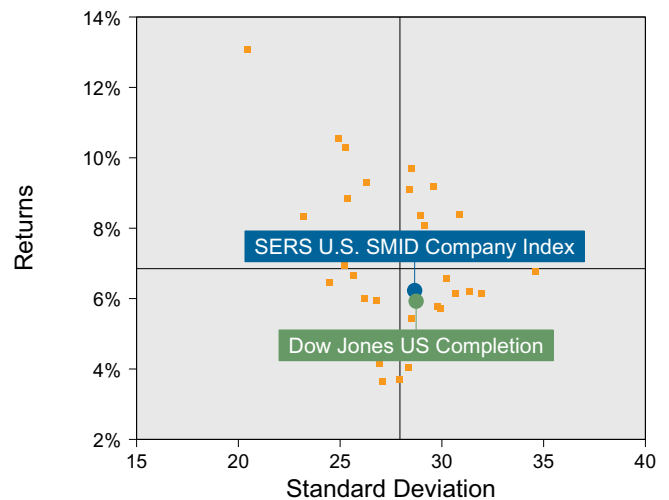
Performance vs Callan Small/MidCap Broad Mutual Funds (Institutional Net)



Relative Return vs Dow Jones US Completion



Callan Small/MidCap Broad Mutual Funds (Institutional Net) Annualized Five Year Risk vs Return

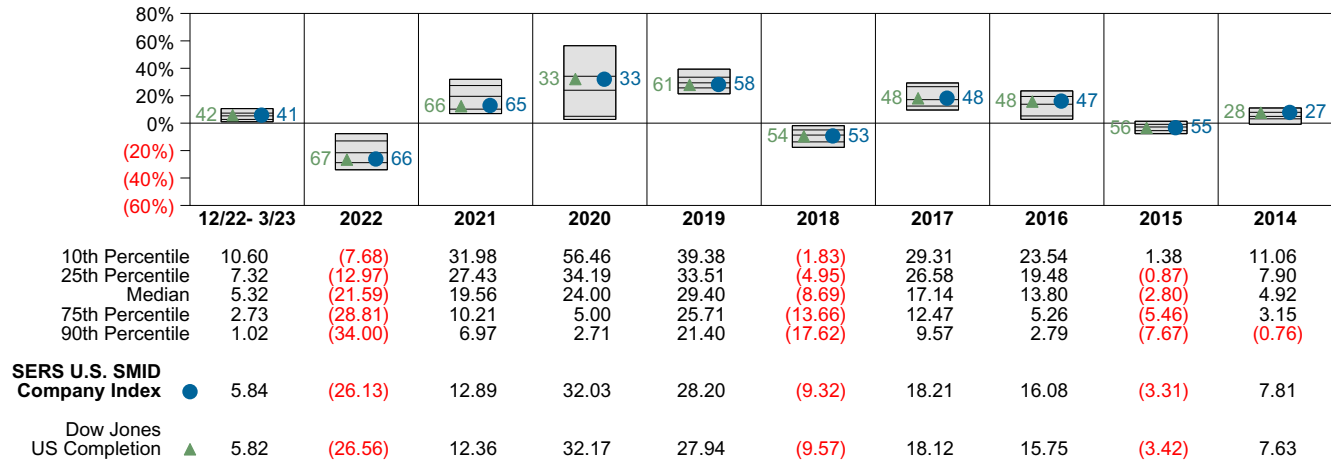


SERS U.S. SMID Company Index Return Analysis Summary

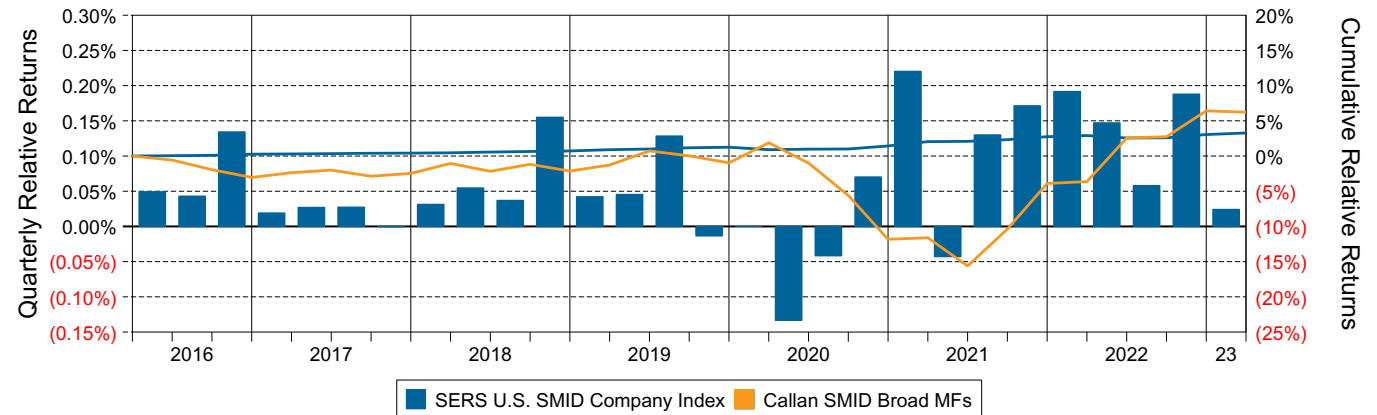
Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

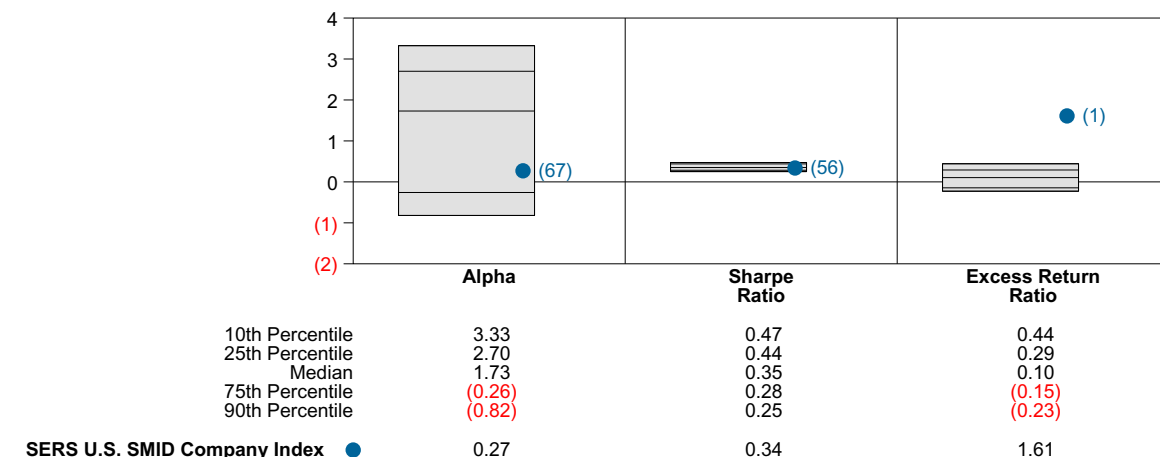
Performance vs Callan Small/MidCap Broad Mutual Funds (Institutional Net)



Cumulative and Quarterly Relative Returns vs Dow Jones US Completion



Risk Adjusted Return Measures vs Dow Jones US Completion Rankings Against Callan Small/MidCap Broad Mutual Funds (Institutional Net) Seven Years Ended March 31, 2023

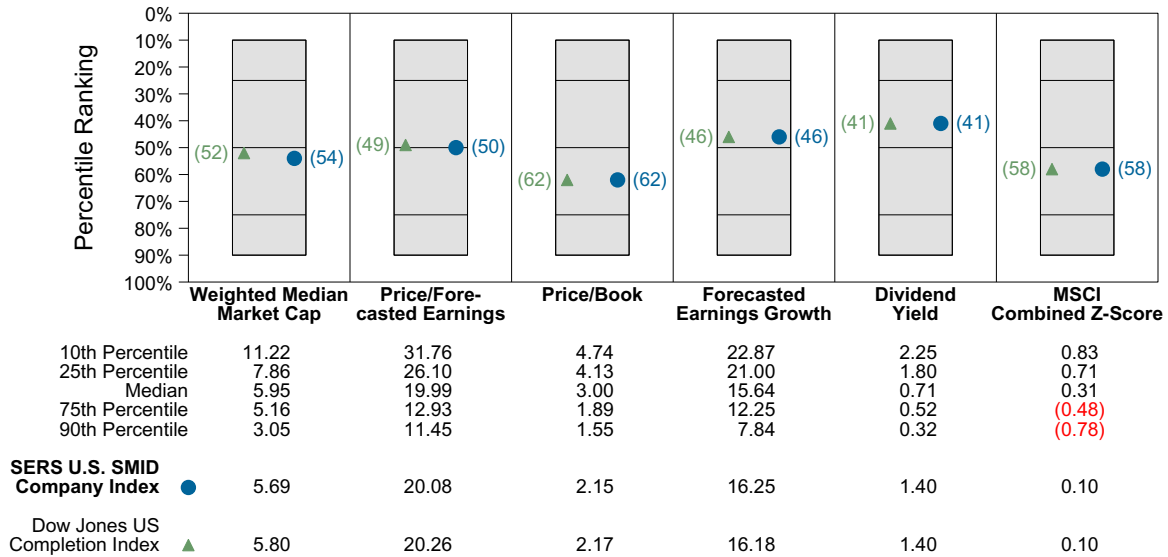


SERS U.S. SMID Company Index Equity Characteristics Analysis Summary

Portfolio Characteristics

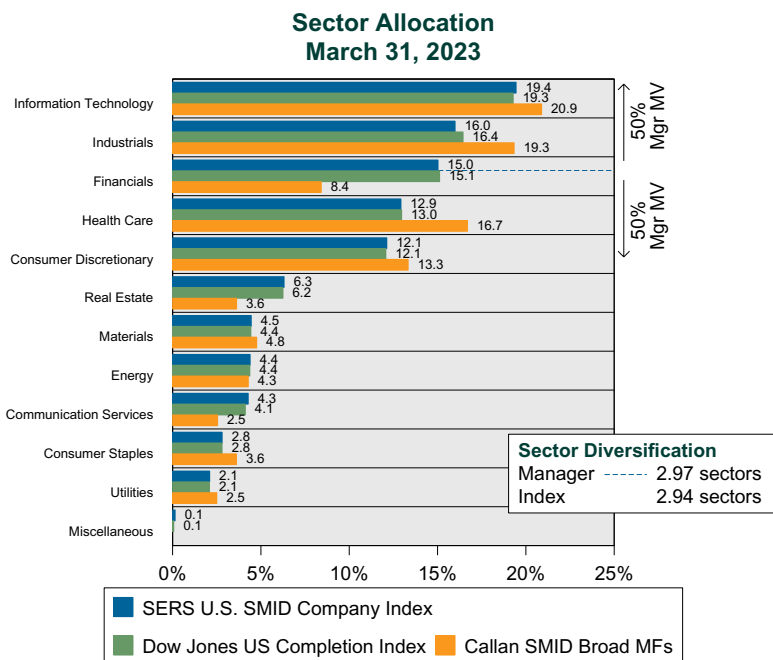
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Portfolio Characteristics Percentile Rankings Rankings Against Callan Small/MidCap Broad Mutual Funds as of March 31, 2023

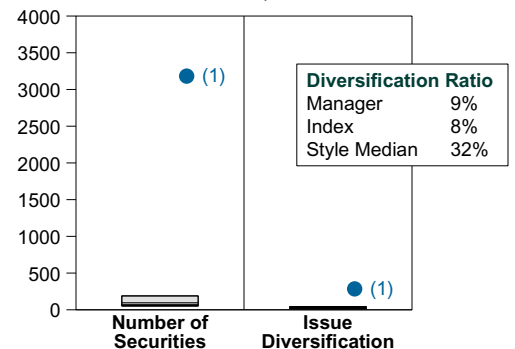


Sector Weights

The graph below contrasts the manager's sector weights with those of the benchmark and median sector weights across the members of the peer group. The magnitude of sector weight differences from the index and the manager's sector diversification are also shown. Diversification by number and concentration of holdings are also compared to the benchmark and peer group. Issue Diversification represents by count, and Diversification Ratio by percent, the number of holdings that account for half of the portfolio's market value.



Diversification March 31, 2023



	Number of Securities	Issue Diversification
10th Percentile	189	45
25th Percentile	96	31
Median	74	25
75th Percentile	59	19
90th Percentile	51	15
SERS U.S. SMID Company Index	● 3182	285
Dow Jones US Completion Index	▲ 3718	283

SERS U.S. SMID Company Index Top 10 Portfolio Holdings Characteristics as of March 31, 2023

10 Largest Holdings

Stock	Sector	Ending Market Value	Percent of Portfolio	Qtrly Return	Market Capital	Price/Forecasted Earnings Ratio	Dividend Yield	Forecasted Growth in Earnings
Uber Technologies Inc	Industrials	\$9,215	1.1%	28.19%	63.84	386.59	0.00%	-
Blackstone Group Inc Com Cl A	Financials	\$9,072	1.0%	19.51%	62.05	16.94	6.66%	9.70%
Palo Alto Networks Inc	Information Technology	\$8,782	1.0%	43.14%	60.44	44.78	0.00%	31.40%
Airbnb Inc Cl A Com Usd0.0001 Cl A	Consumer Discretionary	\$7,204	0.8%	45.51%	50.87	35.68	0.00%	-
Snowflake Inc Cl A	Information Technology	\$6,445	0.7%	7.48%	50.14	229.60	0.00%	-
Lululemon Athletica Inc	Consumer Discretionary	\$6,145	0.7%	13.67%	44.45	30.90	0.00%	17.30%
Workday Inc Cl A	Information Technology	\$6,067	0.7%	23.43%	42.13	38.07	0.00%	27.10%
Cheniere Energy Inc	Energy	\$5,698	0.7%	5.37%	38.41	9.96	1.00%	75.68%
Marvell Technology Group Ltd	Information Technology	\$5,372	0.6%	17.10%	36.94	26.32	0.55%	18.65%
Square Inc Cl A	Information Technology	\$5,365	0.6%	9.25%	37.17	35.89	0.00%	29.30%

10 Best Performers

Stock	Sector	Ending Market Value	Percent of Portfolio	Qtrly Return	Market Capital	Price/Forecasted Earnings Ratio	Dividend Yield	Forecasted Growth in Earnings
Bellerophon Therapeutics Inc	Health Care	\$15	0.0%	784.87%	0.08	(6.31)	0.00%	-
Inozyme Pharma Inc	Health Care	\$13	0.0%	445.41%	0.25	(3.20)	0.00%	-
Ibio Inc	Health Care	\$4	0.0%	363.16%	0.03	(1.03)	0.00%	-
Cipher Mining Inc	Information Technology	\$10	0.0%	316.46%	0.58	(70.61)	0.00%	-
Jasper Therapeutics Inc	Health Care	\$27	0.0%	280.73%	0.20	(3.09)	0.00%	-
Cid Created On Bank Faith For Id 090	Health Care	\$80	0.0%	267.87%	1.07	(10.70)	0.00%	-
Perma-Fix Environmental Svcs	Industrials	\$31	0.0%	233.79%	0.16	(62.99)	0.00%	-
Us Xpress Enterprises Inc Com Cl A	Industrials	\$39	0.0%	228.13%	0.22	(16.01)	0.00%	(40.86)%
Selectquote Inc Issuer_code 30	Financials	\$37	0.0%	222.89%	0.36	(7.67)	0.00%	-
Neuropace Inc	Health Care	\$5	0.0%	210.75%	0.12	(2.57)	0.00%	-

10 Worst Performers

Stock	Sector	Ending Market Value	Percent of Portfolio	Qtrly Return	Market Capital	Price/Forecasted Earnings Ratio	Dividend Yield	Forecasted Growth in Earnings
Brickell Biotech Inc	Health Care	\$0	0.0%	-	0.00	(0.26)	0.00%	-
Sintx Technologies Inc	Health Care	\$0	0.0%	-	0.01	(0.20)	0.00%	-
Biocept Inc	Health Care	\$0	0.0%	-	0.01	(0.35)	0.00%	-
Opgen Inc	Health Care	\$1	0.0%	-	0.01	(0.16)	0.00%	-
Jaguar Health Inc	Health Care	\$0	0.0%	(90.38)%	0.01	(0.03)	0.00%	-
Evelo Biosciences Inc	Health Care	\$1	0.0%	(88.80)%	0.02	(0.27)	0.00%	-
Remark Hldgs Inc	Information Technology	\$2	0.0%	(88.64)%	0.02	(0.67)	0.00%	-
Frequency Therapeutics	Health Care	\$3	0.0%	(86.94)%	0.02	(0.38)	0.00%	-
Cerberus Cybel Sentinel	Information Technology	\$3	0.0%	(86.75)%	0.05	(2.01)	0.00%	-
Cyxtera Technologies Inc Com Cl A	Information Technology	\$3	0.0%	(84.12)%	0.05	(0.29)	0.00%	-

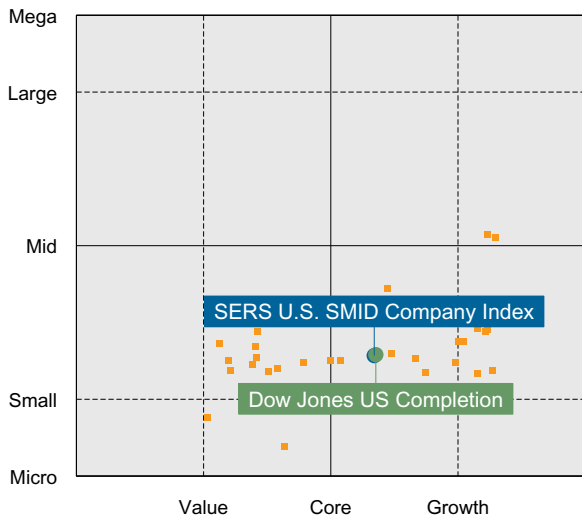
Historical Holdings Based Style Analysis

SERS U.S. SMID Company Index

For Three Years Ended March 31, 2023

This page analyzes the historical investment style of a portfolio utilizing a detailed holdings-based style analysis to determine average actual exposures to various market capitalization and style segments of the domestic equity market. The market is segmented quarterly by capitalization and style. The capitalization segments are dictated by capitalization decile breakpoints. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the average historical market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the average historical portfolio and index weights and stock counts (in parentheses) in each capitalization/style segment of the market. The next two style exposure charts illustrate the actual quarterly cap/style and style only segment exposures of the portfolio through history.

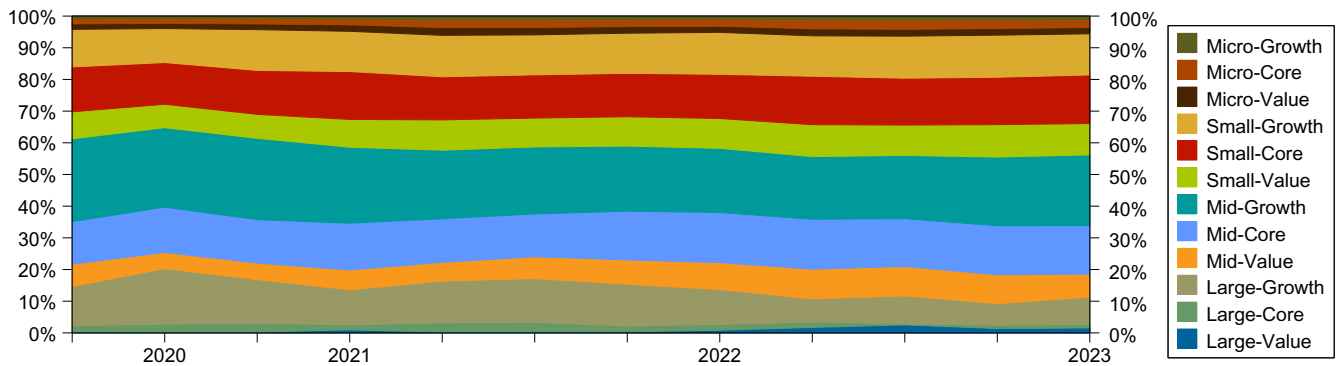
Average Style Map vs Callan SMID Broad MFs Holdings for Three Years Ended March 31, 2023



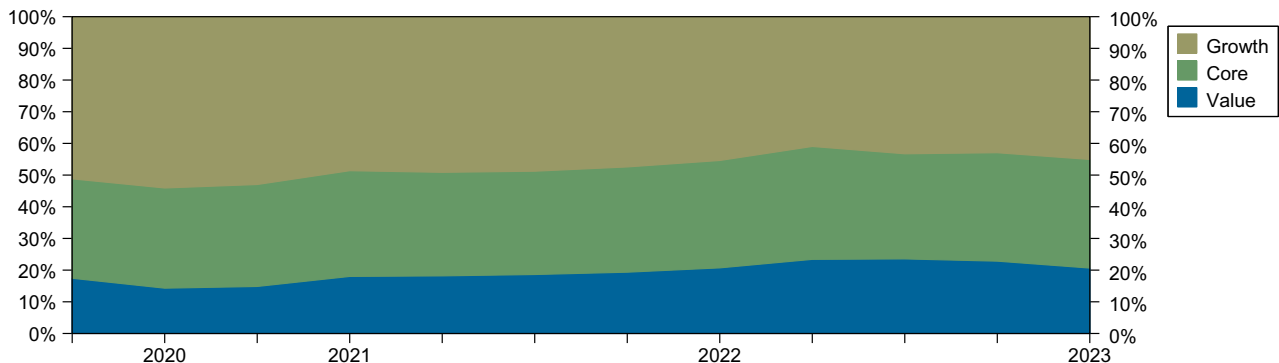
Average Style Exposure Matrix Holdings for Three Years Ended March 31, 2023

	0.9% (2)	1.9% (5)	11.5% (20)	14.2% (27)
Large	0.9% (2)	1.9% (4)	11.6% (20)	14.4% (26)
Mid	7.3% (65)	14.7% (138)	22.4% (175)	44.3% (378)
	7.2% (65)	14.7% (138)	22.5% (177)	44.4% (380)
Small	9.1% (289)	14.3% (528)	12.7% (393)	36.1% (1210)
	9.0% (289)	14.2% (528)	12.6% (397)	35.8% (1214)
Micro	2.0% (561)	2.3% (653)	1.0% (217)	5.3% (1431)
	2.0% (720)	2.4% (935)	1.0% (269)	5.4% (1924)
Total	19.3% (917)	33.2% (1324)	47.5% (805)	100.0% (3046)
	19.1% (1076)	33.2% (1605)	47.6% (863)	100.0% (3544)
	Value	Core	Growth	Total

SERS U.S. SMID Company Index Historical Cap/Style Exposures



SERS U.S. SMID Company Index Historical Style Only Exposures



SERS Global Non-U.S. Index Fund

Period Ended March 31, 2023

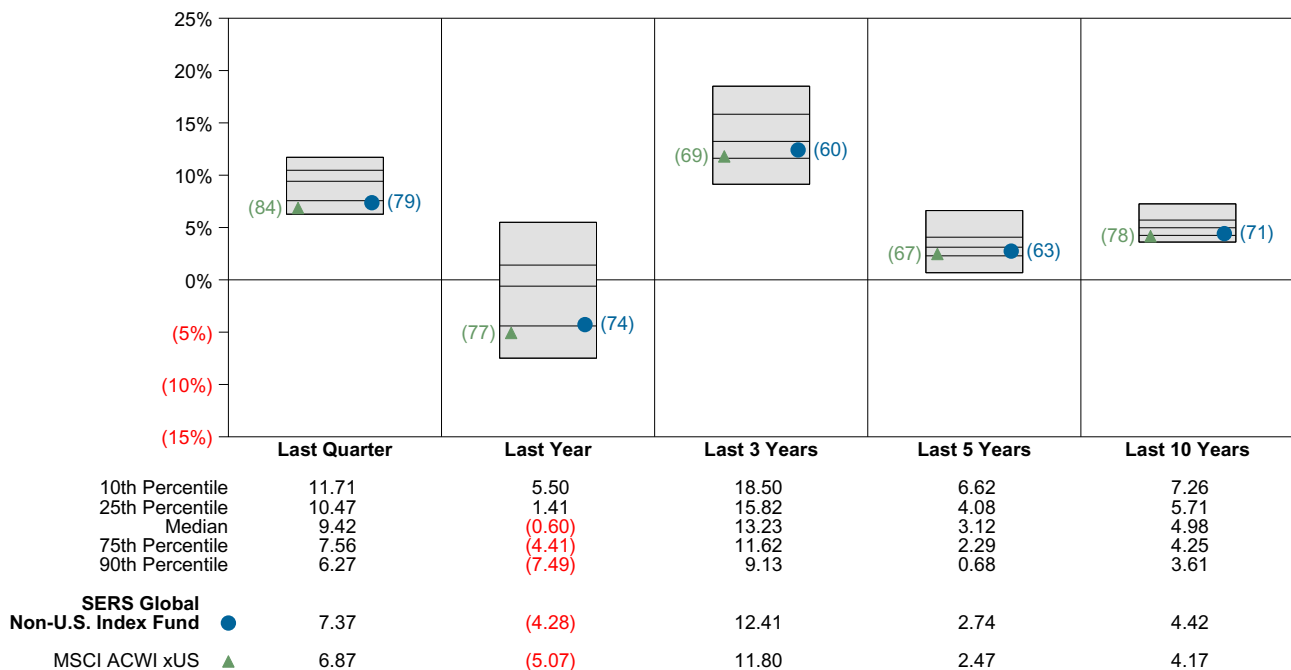
Investment Philosophy

The Global Non-U.S. Stock Index Fund seeks to track the performance of the MSCI All Country World Index (ACWI) ex-U.S. Index. In meeting this objective, the assets of the Fund may be invested in securities, and a combination of other collective funds that are designed to track the performance of such Index. The Fund will principally invest in a combination of other affiliated bank collective funds, equity securities and derivatives, including common stock of foreign companies, depository receipts, financial futures and over-the-counter derivatives that represent developed and emerging market equity securities. This fund is managed by Mellon Capital Management.

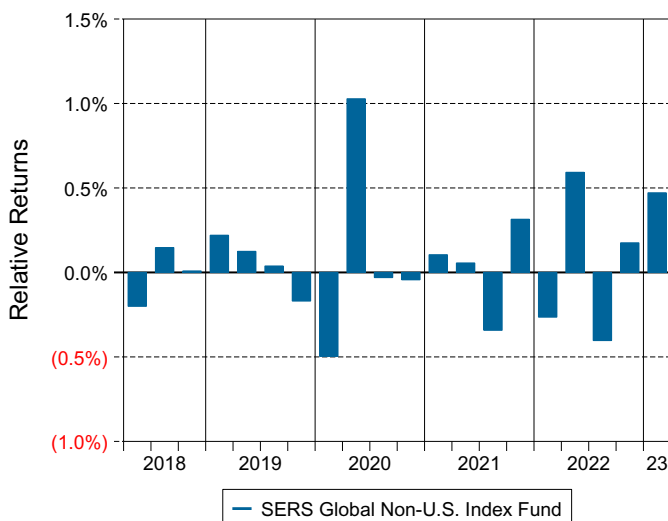
Quarterly Summary and Highlights

- SERS Global Non-U.S. Index Fund's portfolio posted a 7.37% return for the quarter placing it in the 79 percentile of the Callan Non US Equity Mutual Funds group for the quarter and in the 74 percentile for the last year.
- SERS Global Non-U.S. Index Fund's portfolio outperformed the MSCI ACWI xUS by 0.50% for the quarter and outperformed the MSCI ACWI xUS for the year by 0.79%.

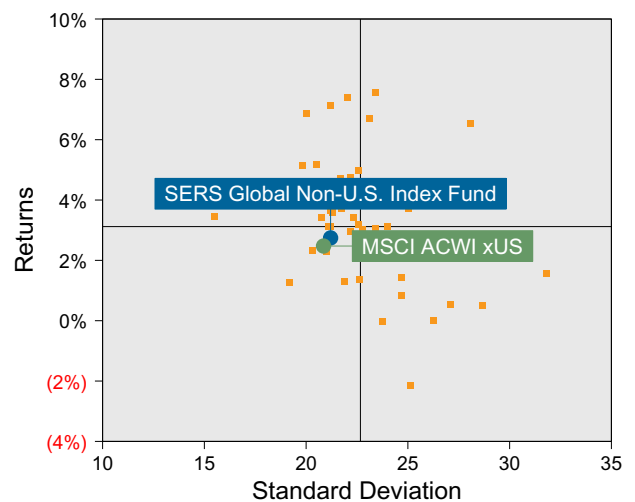
Performance vs Callan Non US Equity Mutual Funds (Institutional Net)



Relative Return vs MSCI ACWI xUS



Callan Non US Equity Mutual Funds (Institutional Net) Annualized Five Year Risk vs Return

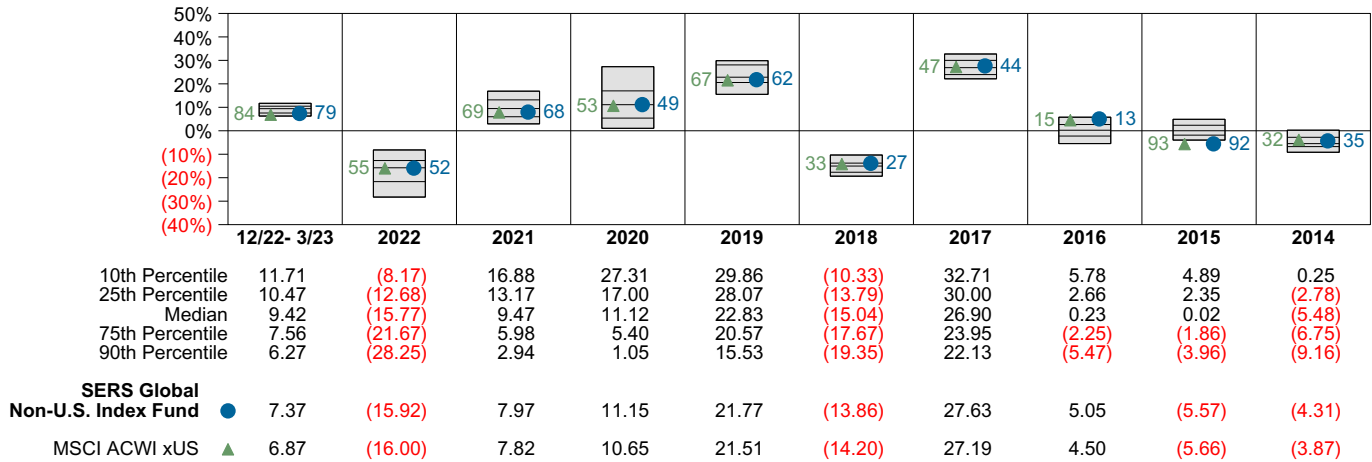


SERS Global Non-U.S. Index Fund Return Analysis Summary

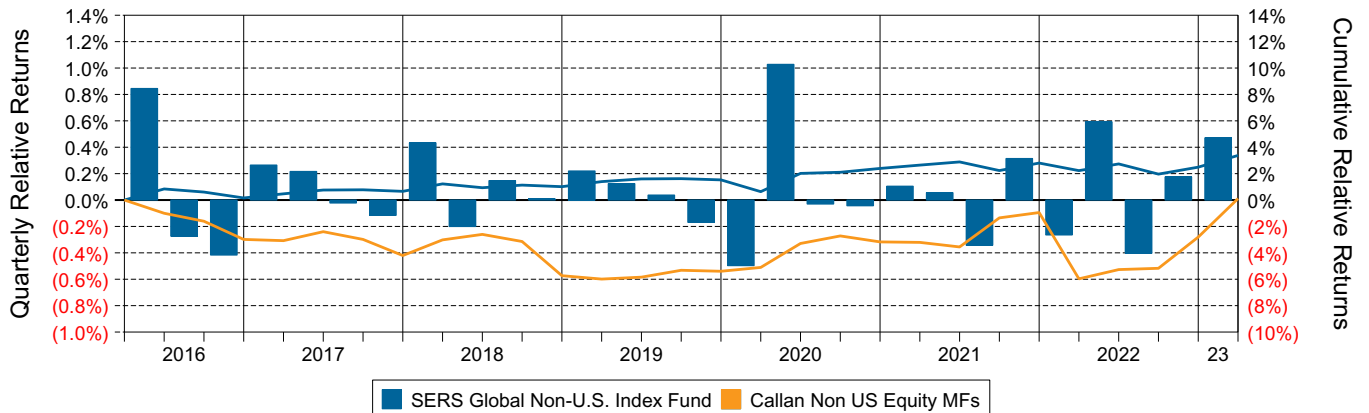
Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

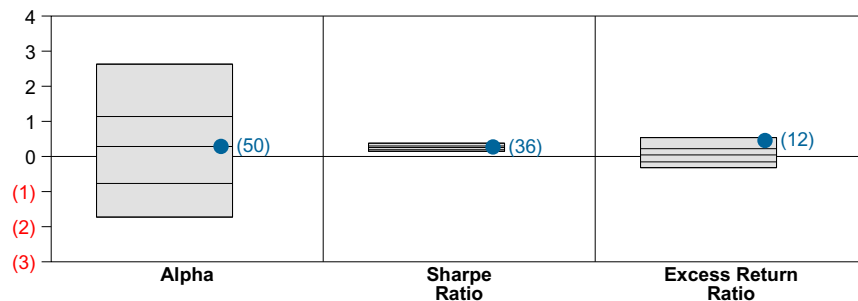
Performance vs Callan Non US Equity Mutual Funds (Institutional Net)



Cumulative and Quarterly Relative Returns vs MSCI ACWI xUS



Risk Adjusted Return Measures vs MSCI ACWI xUS Rankings Against Callan Non US Equity Mutual Funds (Institutional Net) Seven Years Ended March 31, 2023



	Alpha	Sharpe Ratio	Excess Return Ratio
10th Percentile	2.63	0.38	0.54
25th Percentile	1.14	0.30	0.22
Median	0.28	0.25	0.04
75th Percentile	(0.77)	0.19	(0.15)
90th Percentile	(1.73)	0.15	(0.32)

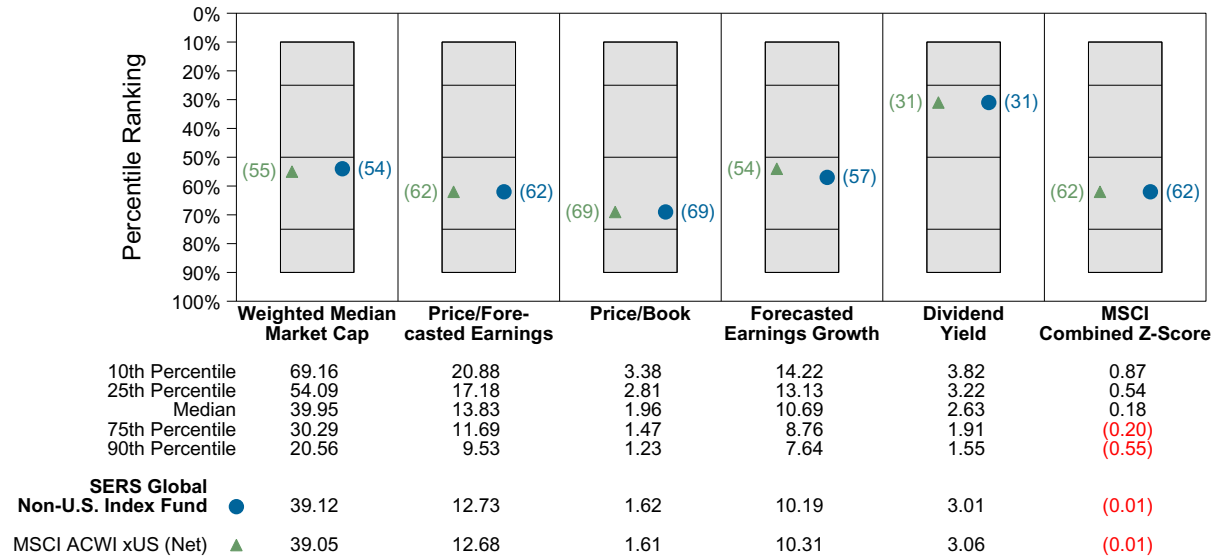
SERS Global Non-U.S. Index Fund ● 0.29 0.27 0.45

SERS Global Non-U.S. Index Fund Equity Characteristics Analysis Summary

Portfolio Characteristics

This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

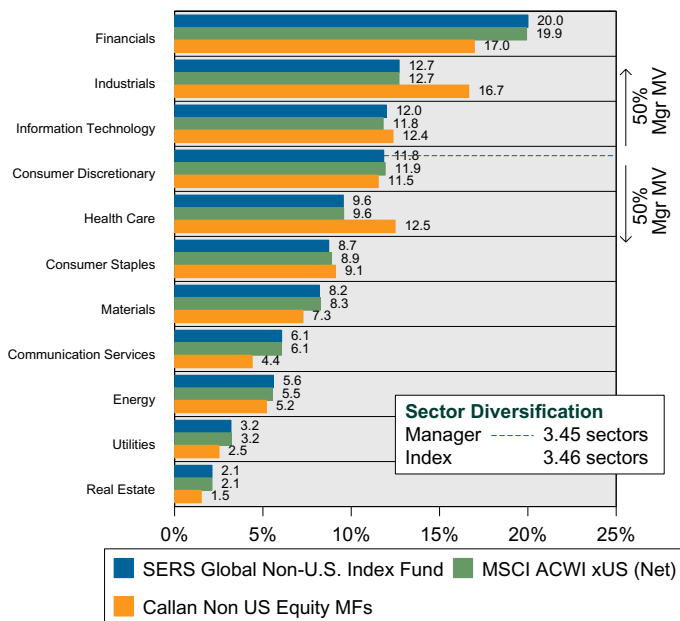
Portfolio Characteristics Percentile Rankings Rankings Against Callan Non US Equity Mutual Funds as of March 31, 2023



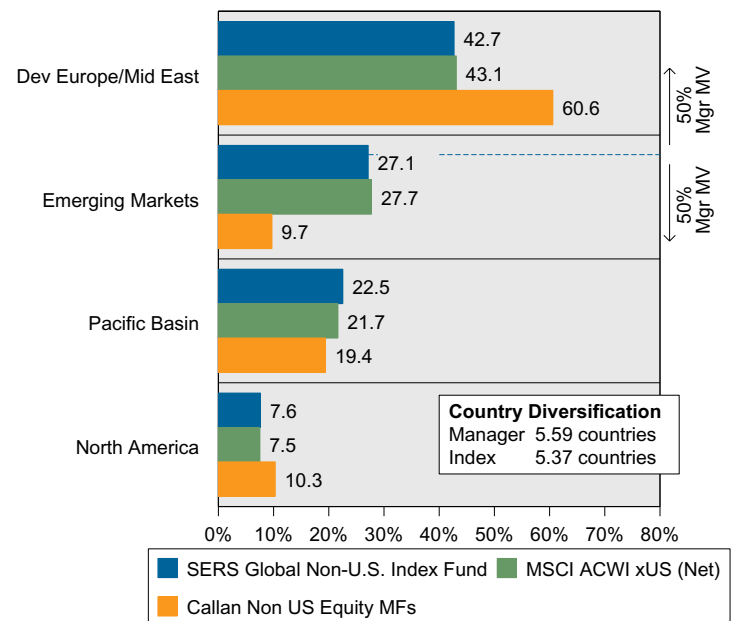
Sector Weights

The graph below contrasts the manager's sector weights with those of the benchmark and median sector weights across the members of the peer group. The magnitude of sector weight differences from the index and the manager's sector diversification are also shown. The regional allocation chart compares the manager's geographical region weights with those of the benchmark as well as the median region weights of the peer group.

Sector Allocation March 31, 2023



Regional Allocation March 31, 2023



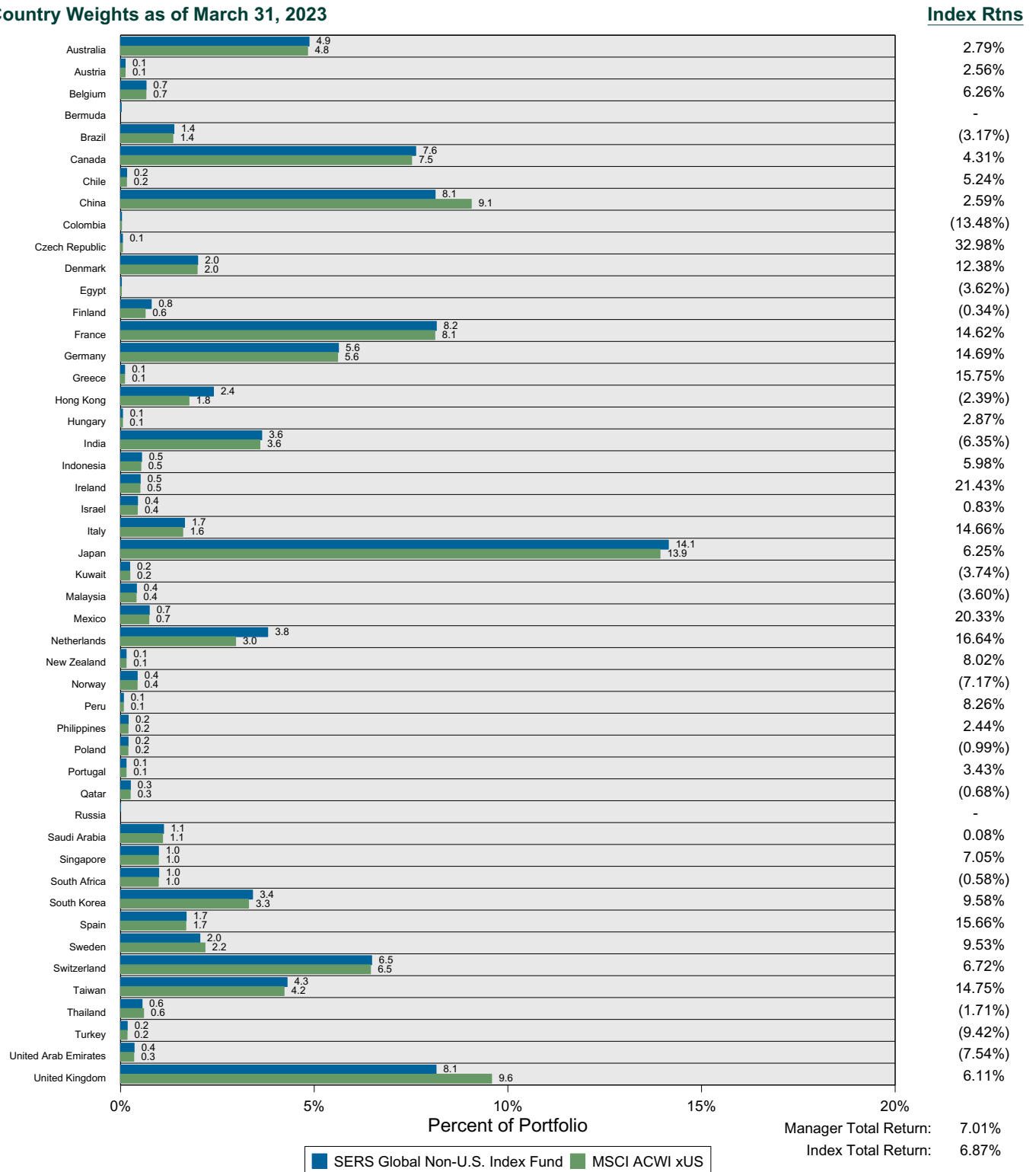
Country Allocation

SERS Global Non-U.S. Index Fund VS MSCI ACWI xUS (Net)

Country Allocation

The chart below contrasts the portfolio's country allocation with that of the index as of March 31, 2023. This chart is useful because large deviations in country allocation relative to the index are often good predictors of tracking error in the subsequent quarter. To the extent that the portfolio allocation is similar to the index, the portfolio should experience more "index-like" performance. In order to illustrate the performance effect on the portfolio and index of these country allocations, the individual index country returns are also shown.

Country Weights as of March 31, 2023



SERS Global Non-U.S. Index Fund Top 10 Portfolio Holdings Characteristics as of March 31, 2023

10 Largest Holdings

Stock	Sector	Ending Market Value	Percent of Portfolio	Qtrly Return	Market Capital	Price/Forecasted Earnings Ratio	Dividend Yield	Forecasted Growth in Earnings
Taiwan Semicond Manufac Co L Shs	Information Technology	\$45,046	1.9%	20.62%	453.96	15.21	2.06%	3.12%
Nestle S A Shs Nom New	Consumer Staples	\$34,477	1.4%	5.36%	335.52	21.82	2.65%	7.74%
Tencent Holdings Limited Shs Par Hkd	Communication Services	\$31,810	1.3%	22.53%	470.26	22.08	0.62%	9.36%
Asml Holding N V Asml Rev Stk Spl	Information Technology	\$28,156	1.2%	26.61%	273.84	31.88	0.95%	27.25%
Novo Nordisk B	Health Care	\$26,956	1.1%	18.55%	275.95	32.63	1.14%	21.10%
Lvmh Moet Hennessy Lou Vuitt Ord	Consumer Discretionary	\$26,114	1.1%	26.43%	460.59	25.79	1.42%	12.81%
Samsung Electronics Co Ltd Ord	Information Technology	\$24,678	1.0%	13.13%	293.48	25.81	2.26%	(5.00)%
Astrazeneca Plc Ord	Health Care	\$22,082	0.9%	4.41%	215.24	18.51	1.87%	14.88%
Roche Hldgs Ag Basel Div Rts Ctf	Health Care	\$20,582	0.8%	(5.72)%	200.68	13.04	3.64%	5.20%
Novartis	Health Care	\$20,413	0.8%	5.78%	208.82	13.62	3.82%	6.35%

10 Best Performers

Stock	Sector	Ending Market Value	Percent of Portfolio	Qtrly Return	Market Capital	Price/Forecasted Earnings Ratio	Dividend Yield	Forecasted Growth in Earnings
Sjec 'a'	Information Technology	\$32	0.0%	168.82%	18.14	115.45	0.57%	(6.24)%
Ecopro Bm	Industrials	\$880	0.0%	136.76%	16.87	49.78	0.20%	92.27%
Hexin Flush Info.Net.'a'	Financials	\$35	0.0%	111.72%	15.98	48.18	1.22%	5.93%
Zhejiang Dahua Tech.'a'	Information Technology	\$18	0.0%	101.41%	9.98	20.06	1.19%	16.06%
Anhui Ustc Iflytek	Information Technology	\$42	0.0%	95.43%	21.53	69.70	0.16%	21.16%
Foxconn Industrial Internet A	Information Technology	\$54	0.0%	88.97%	49.77	14.51	2.90%	2.60%
Wus Printed Circuit (Kunshan) 'a'	Information Technology	\$8	0.0%	81.95%	5.93	22.52	0.70%	18.62%
Beijing Kingsoft Office Software A L & F	Information Technology	\$67	0.0%	80.18%	31.75	128.18	0.15%	14.73%
Beijing Shiji Info.Tech. 'a'	Information Technology	\$586	0.0%	76.02%	8.67	30.31	0.16%	(0.57)%
	Information Technology	\$18	0.0%	72.47%	7.84	219.41	0.08%	0.79%

10 Worst Performers

Stock	Sector	Ending Market Value	Percent of Portfolio	Qtrly Return	Market Capital	Price/Forecasted Earnings Ratio	Dividend Yield	Forecasted Growth in Earnings
Ford Otomotiv Sanayi As Shs	Consumer Discretionary	\$218	0.0%	-	10.69	8.10	2.44%	41.96%
Adani Enterprises	Utilities	\$298	0.0%	(76.35)%	11.61	257.56	0.03%	-
Credit Suisse Group Ord Cl D	Financials	\$336	0.0%	(69.86)%	3.60	(2.39)	0.00%	22.40%
Adani Transmissions Ltd	Utilities	\$346	0.0%	(61.39)%	13.48	73.21	0.00%	74.89%
Adani Exports Ltd.	Industrials	\$375	0.0%	(54.33)%	24.28	65.74	0.06%	(18.45)%
Adani Green Energy Ltd	Utilities	\$349	0.0%	(54.08)%	16.98	178.67	0.00%	-
Hapvida Partp.E Invms.On	Health Care	\$253	0.0%	(46.29)%	3.69	173.33	1.66%	21.33%
Nihon M & A Center Inc Shs	Industrials	\$230	0.0%	(39.38)%	2.49	23.46	1.93%	16.90%
Pharmaron Beijing H	Health Care	\$87	0.0%	(38.69)%	0.84	13.81	1.07%	16.11%
Aroundtown	Real Estate	\$144	0.0%	(37.80)%	2.24	3.79	0.00%	5.25%

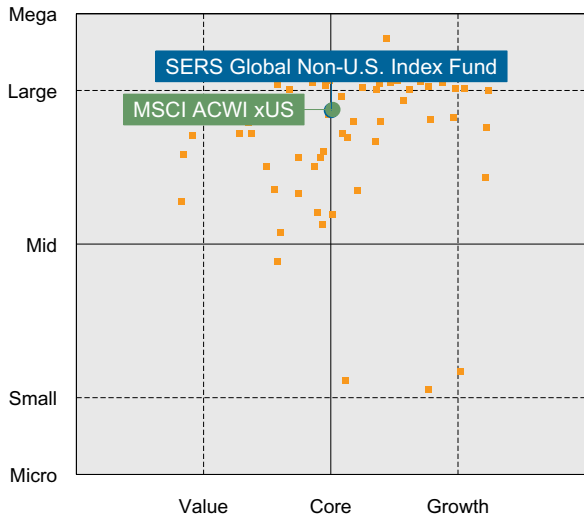
Historical Holdings Based Style Analysis

SERS Global Non-U.S. Index Fund

For Three Years Ended March 31, 2023

This page analyzes the historical investment style of a portfolio utilizing a detailed holdings-based style analysis to determine average actual exposures to various region and style segments of the international/global equity market. The market is segmented quarterly by region and style. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the average historical market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the average historical portfolio and index weights and stock counts (in parentheses) in each region/style segment of the market. The next two style exposure charts illustrate the actual quarterly region/style and style only segment exposures of the portfolio through history.

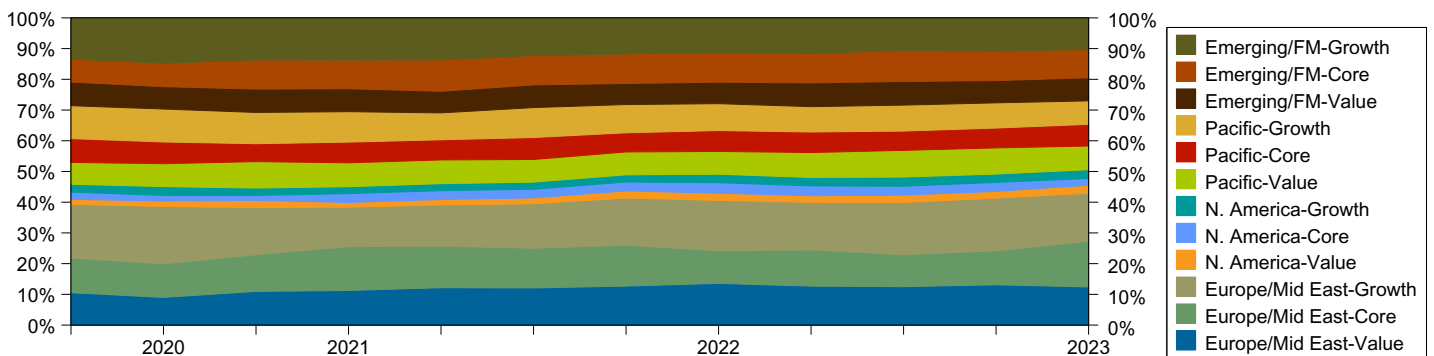
Average Style Map vs Callan Non US Equity MFs Holdings for Three Years Ended March 31, 2023



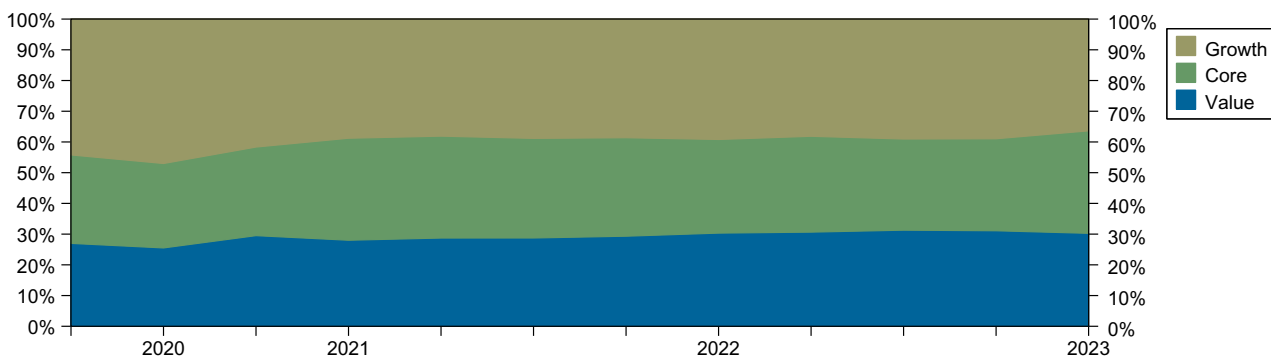
Average Style Exposure Matrix Holdings for Three Years Ended March 31, 2023

	Value	Core	Growth	Total
Europe/ Mid East	11.9% (137)	12.2% (125)	15.8% (151)	39.9% (413)
	11.9% (146)	12.0% (127)	16.2% (167)	40.1% (440)
N. America	2.1% (25)	2.7% (28)	2.6% (30)	7.3% (83)
	2.2% (27)	2.6% (30)	2.6% (34)	7.4% (91)
Pacific	7.8% (142)	6.7% (121)	9.2% (133)	23.8% (396)
	7.6% (143)	6.6% (121)	8.9% (133)	23.1% (397)
Emerging/ FM	7.4% (425)	9.3% (380)	12.3% (389)	29.0% (1194)
	7.5% (470)	9.4% (430)	12.6% (439)	29.5% (1339)
Total	29.2% (729)	30.9% (654)	39.9% (703)	100.0% (2086)
	29.2% (786)	30.5% (708)	40.2% (773)	100.0% (2267)

SERS Global Non-U.S. Index Fund Historical Region/Style Exposures



SERS Global Non-U.S. Index Fund Historical Style Only Exposures



SERS Short Term Investment Fund

Period Ended March 31, 2023

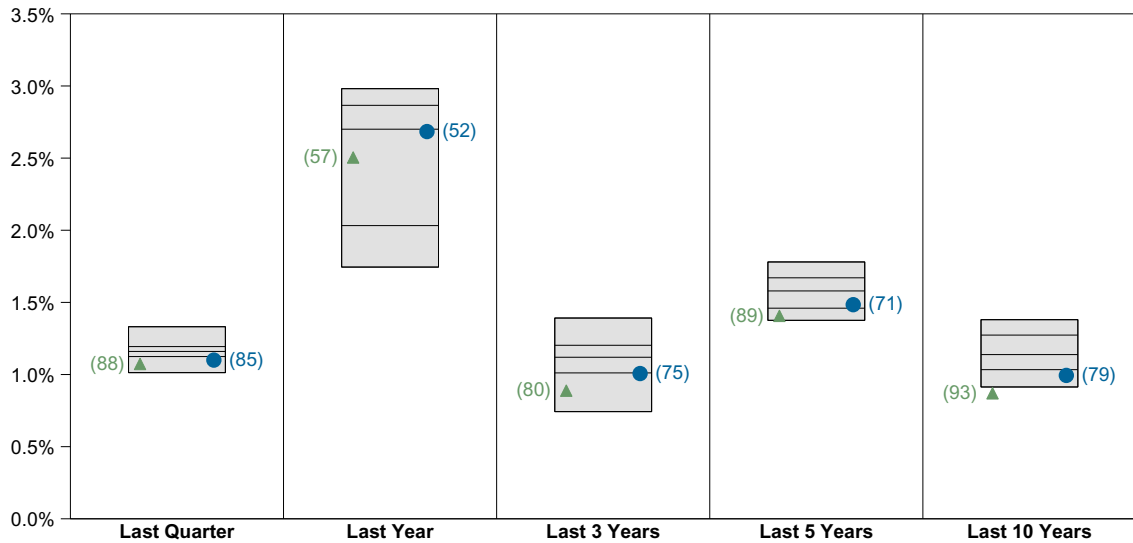
Investment Philosophy

The Short Term Investment Fund seeks to achieve the highest current income consistent with maintaining liquidity and safety of principal. This fund is managed by the Pennsylvania State Treasurer. It is compared against the Callan Cash Database, which includes STIF, enhanced cash, and money market funds.

Quarterly Summary and Highlights

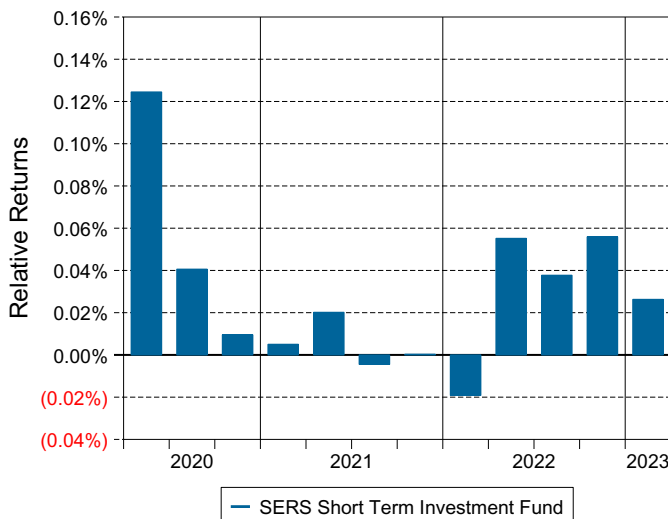
- SERS Short Term Investment Fund's portfolio posted a 1.10% return for the quarter placing it in the 85 percentile of the Callan Cash Database group for the quarter and in the 52 percentile for the last year.
- SERS Short Term Investment Fund's portfolio outperformed the 3-month Treasury Bill by 0.03% for the quarter and outperformed the 3-month Treasury Bill for the year by 0.18%.

Performance vs Callan Cash Database (Gross)

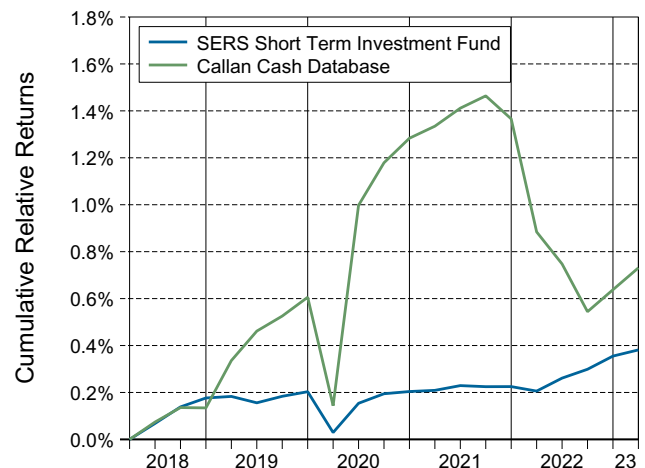


	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile	1.33	2.98	1.39	1.78	1.38
25th Percentile	1.19	2.87	1.20	1.67	1.27
Median	1.16	2.70	1.12	1.58	1.14
75th Percentile	1.12	2.03	1.01	1.46	1.03
90th Percentile	1.01	1.74	0.74	1.38	0.91
SERS Short Term Investment Fund	● 1.10	2.68	1.01	1.48	0.99
3-month Treasury Bill	▲ 1.07	2.50	0.89	1.41	0.87

Relative Return vs 3-month Treasury Bill



Cumulative Returns vs 3-month Treasury Bill

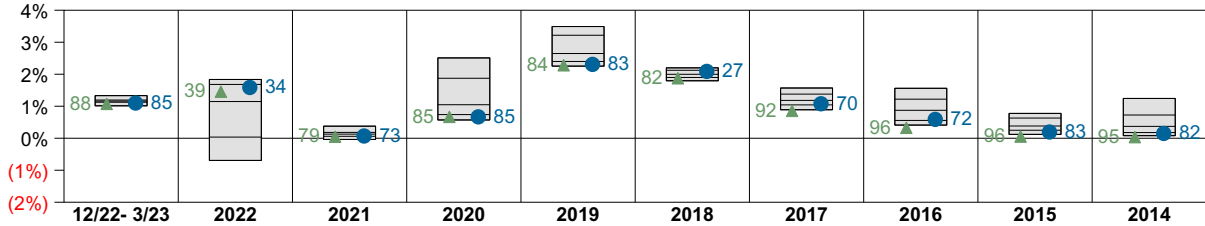


SERS Short Term Investment Fund Return Analysis Summary

Return Analysis

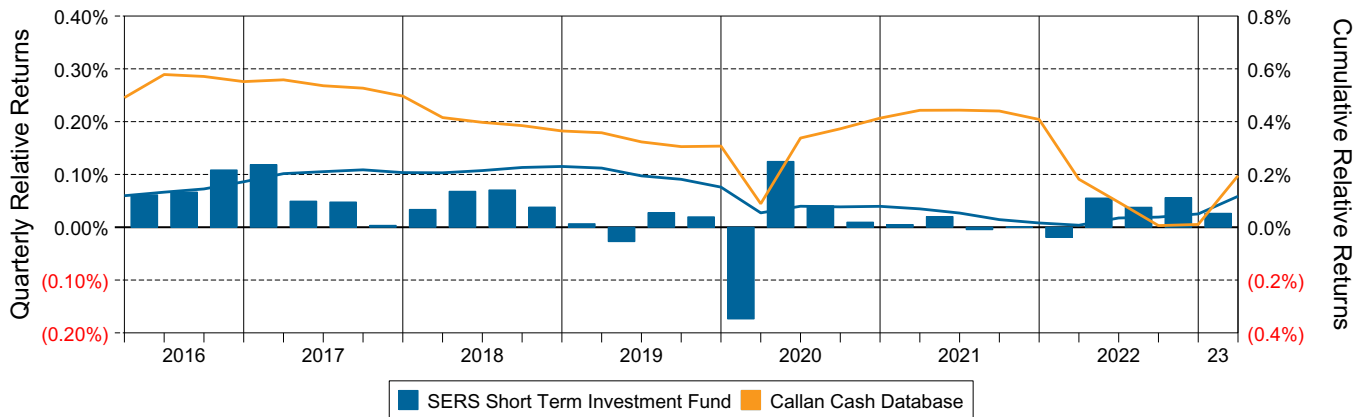
The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and 12 quarter rolling manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures. Callan Cash Database includes STIF, enhanced cash, and money market funds.

Performance vs Callan Cash Database (Gross)

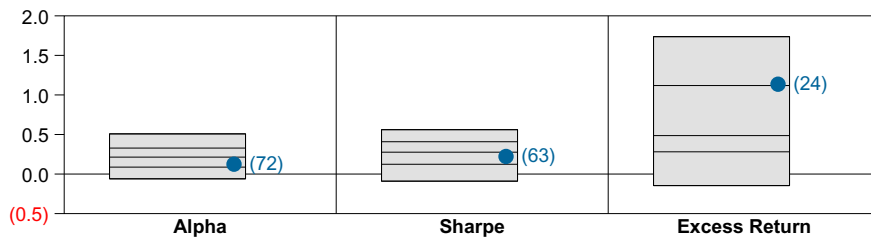


	12/22- 3/23	2022	2021	2020	2019	2018	2017	2016	2015	2014
SERS Short Term Investment Fund ●	1.10	1.59	0.07	0.67	2.31	2.09	1.08	0.59	0.19	0.15
3-month Treasury Bill ▲	1.07	1.46	0.05	0.67	2.28	1.87	0.86	0.33	0.05	0.03

Rolling 12 Quarter and Quarterly Relative Returns vs 3-month Treasury Bill



Risk Adjusted Return Measures vs 3-month Treasury Bill Rankings Against Callan Cash Database (Gross) Seven Years Ended March 31, 2023



	Alpha	Sharpe Ratio	Excess Return Ratio
SERS Short Term Investment Fund ●	0.12	0.22	1.14

SERS U.S. Short Term Bond Idx Fund

Period Ended March 31, 2023

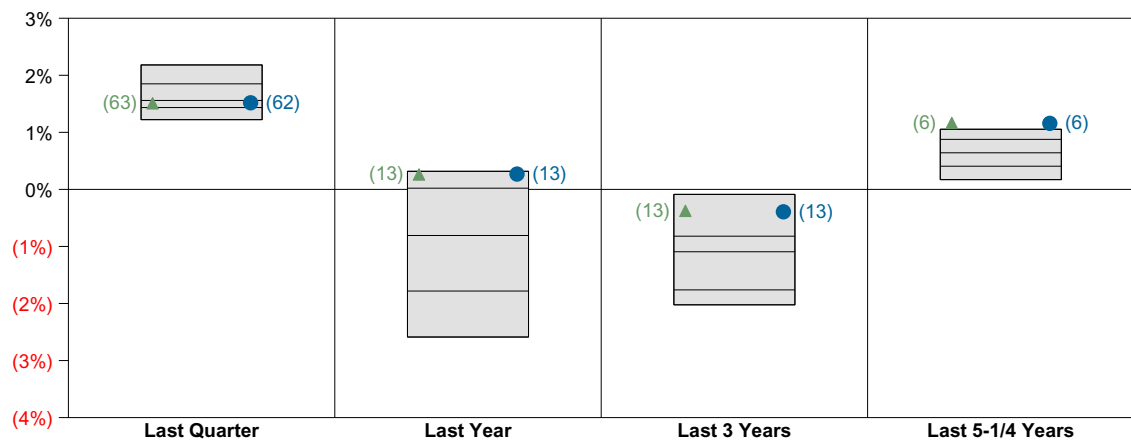
Investment Philosophy

The Fund's investment objective is to seek to track the performance of the Bloomberg Barclays U.S. 1-3 Year Government/Credit Index ("Index"). In meeting this objective, the Fund may invest in securities (including those issued through private placements) and a combination of other collective funds that together are designed to track the performance of the Index. The Fund will principally invest in other affiliated bank collective funds, debt securities of U.S. corporations and the U.S. government, its agencies and instrumentalities, including mortgage-related and asset-backed securities. This fund is managed by Mellon Capital Management.

Quarterly Summary and Highlights

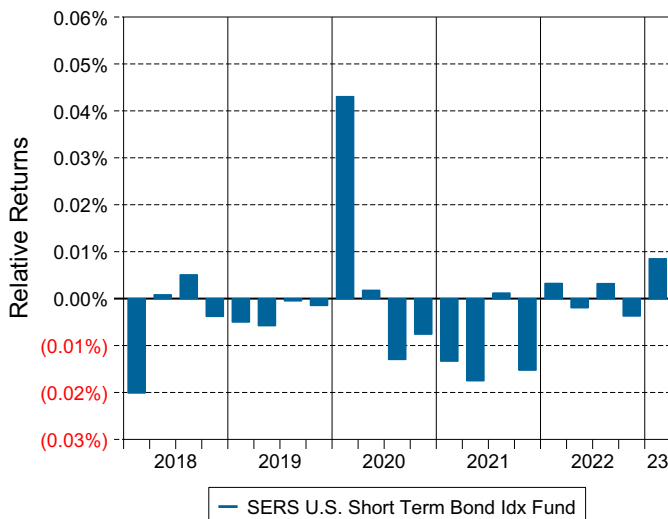
- SERS U.S. Short Term Bond Idx Fund's portfolio posted a 1.52% return for the quarter placing it in the 62 percentile of the Callan Short US Gov Bond Mut Funds group for the quarter and in the 13 percentile for the last year.
- SERS U.S. Short Term Bond Idx Fund's portfolio outperformed the Blmbg Gov/Cred 1-3 Yr by 0.01% for the quarter and outperformed the Blmbg Gov/Cred 1-3 Yr for the year by 0.01%.

Performance vs Callan Short US Gov Bond Mut Funds (Institutional Net)

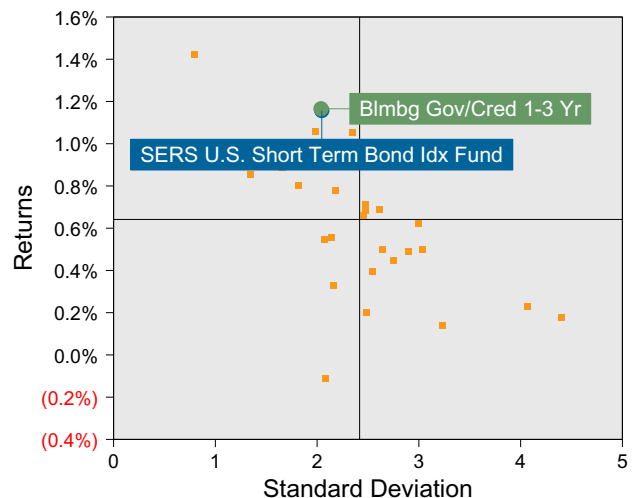


	Last Quarter	Last Year	Last 3 Years	Last 5-1/4 Years
10th Percentile	2.18	0.32	(0.09)	1.05
25th Percentile	1.85	0.02	(0.82)	0.88
Median	1.56	(0.81)	(1.09)	0.64
75th Percentile	1.43	(1.78)	(1.76)	0.41
90th Percentile	1.22	(2.59)	(2.02)	0.17
SERS U.S. Short Term Bond Idx Fund	1.52	0.27	(0.39)	1.16
Blmbg Gov/Cred 1-3 Yr	1.51	0.26	(0.38)	1.17

Relative Return vs Blmbg Gov/Cred 1-3 Yr



Callan Short US Gov Bond Mut Funds (Institutional Net) Annualized Five and One-Quarter Year Risk vs Return



SERS U.S. Short Term Bond Idx Fund

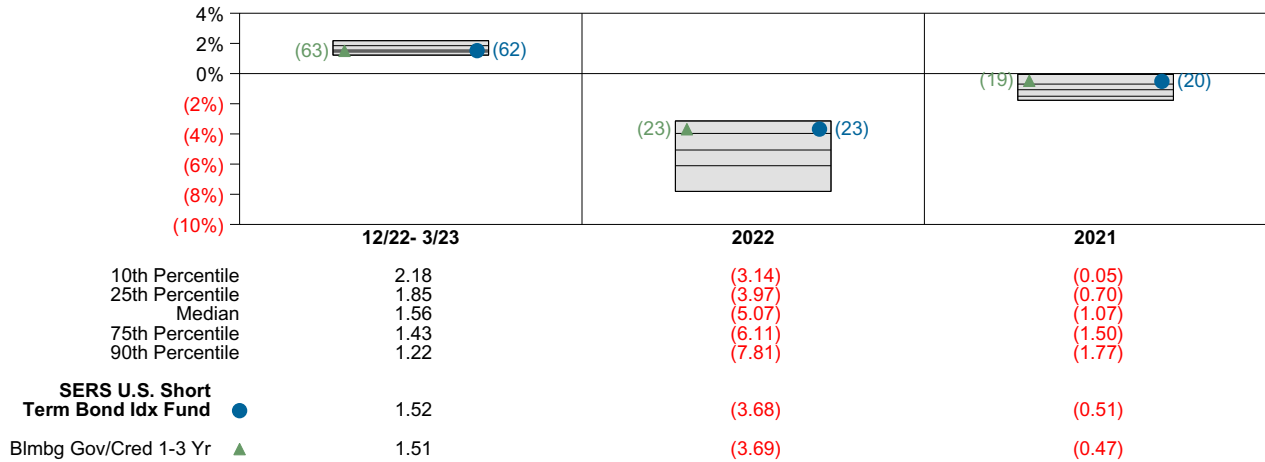
Return Analysis Summary

Return Analysis

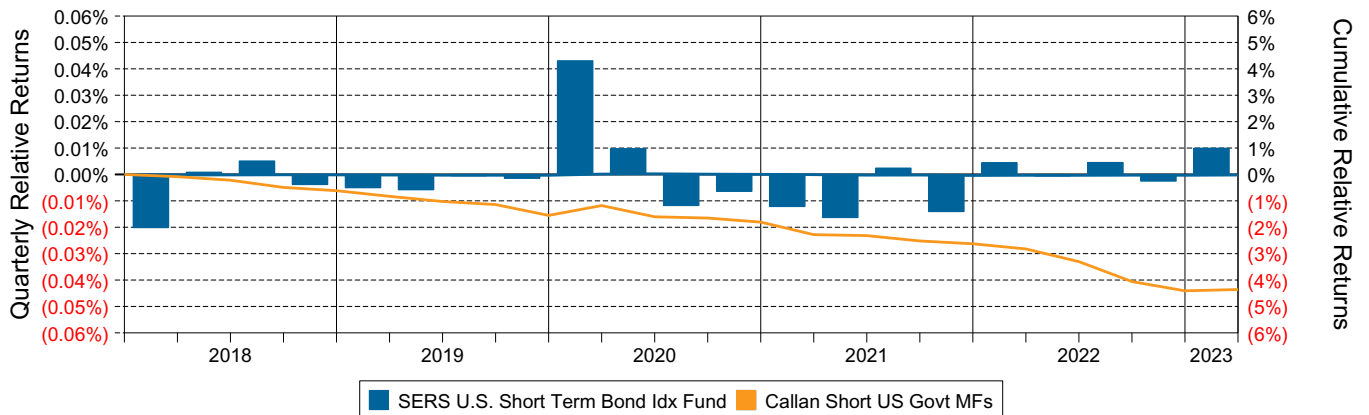
The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

Callan Cash Database includes STIF, enhanced cash, and money market funds.

Performance vs Callan Short US Gov Bond Mut Funds (Institutional Net)



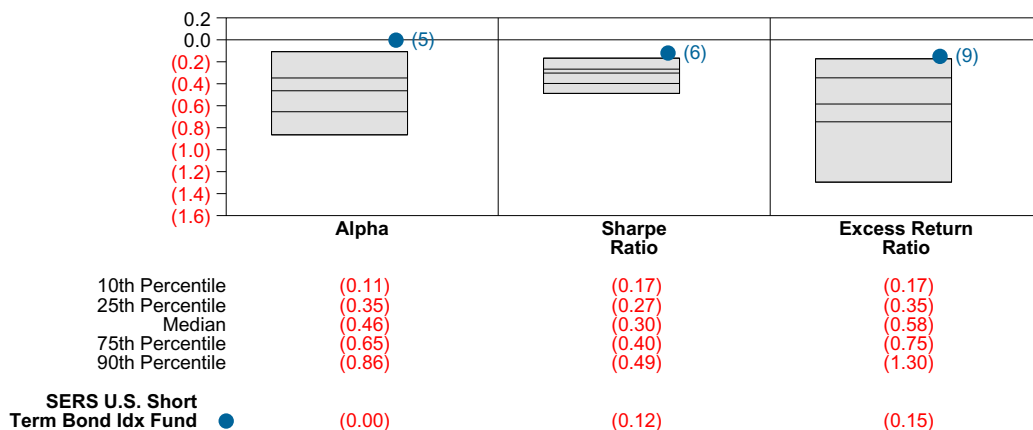
Cumulative and Quarterly Relative Returns vs Blmbg Gov/Cred 1-3 Yr



Risk Adjusted Return Measures vs Blmbg Gov/Cred 1-3 Yr

Rankings Against Callan Short US Gov Bond Mut Funds (Institutional Net)

Five and One-Quarter Years Ended March 31, 2023



SERS U.S. Short Term Bond Idx Fund

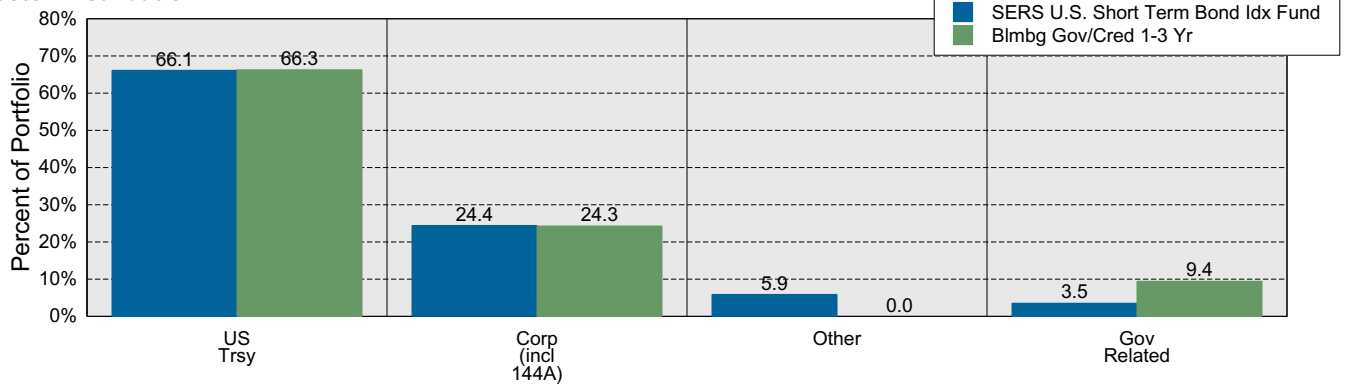
Portfolio Characteristics Summary

As of March 31, 2023

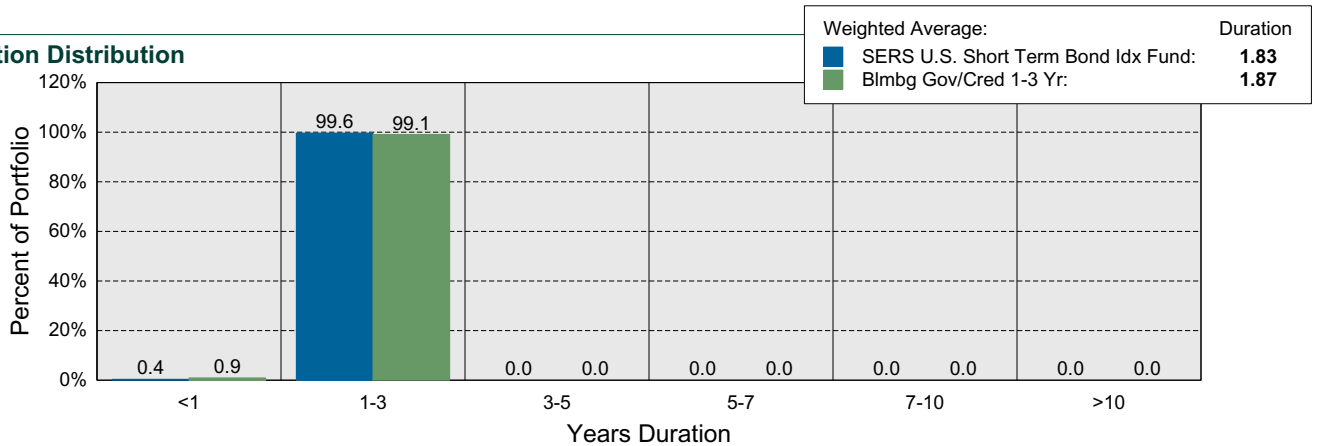
Portfolio Structure Comparison

The charts below compare the structure of the portfolio to that of the index from the three perspectives that have the greatest influence on return. The first chart compares the two portfolios across sectors. The second chart compares the duration distribution. The last chart compares the distribution across quality ratings.

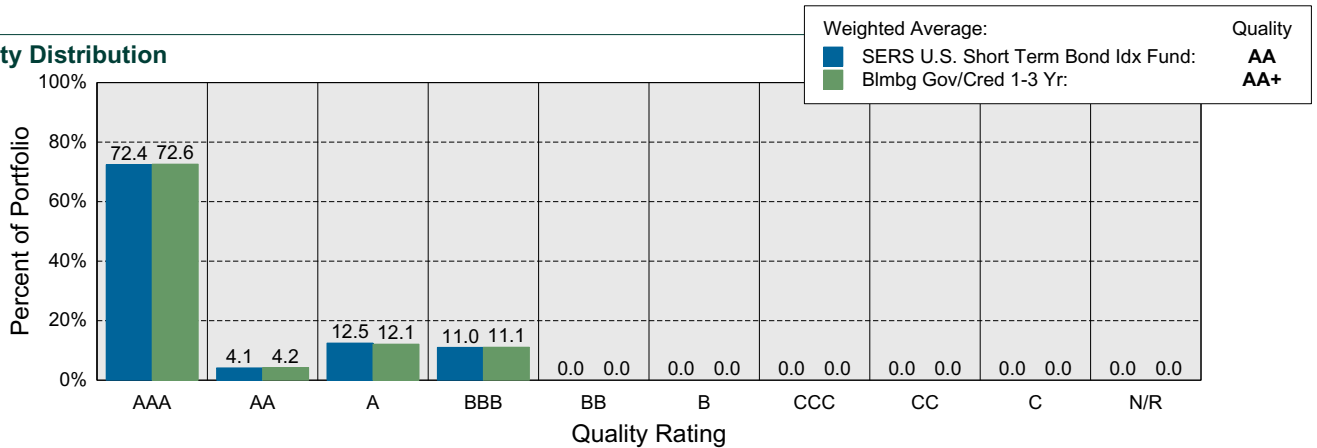
Sector Distribution



Duration Distribution



Quality Distribution



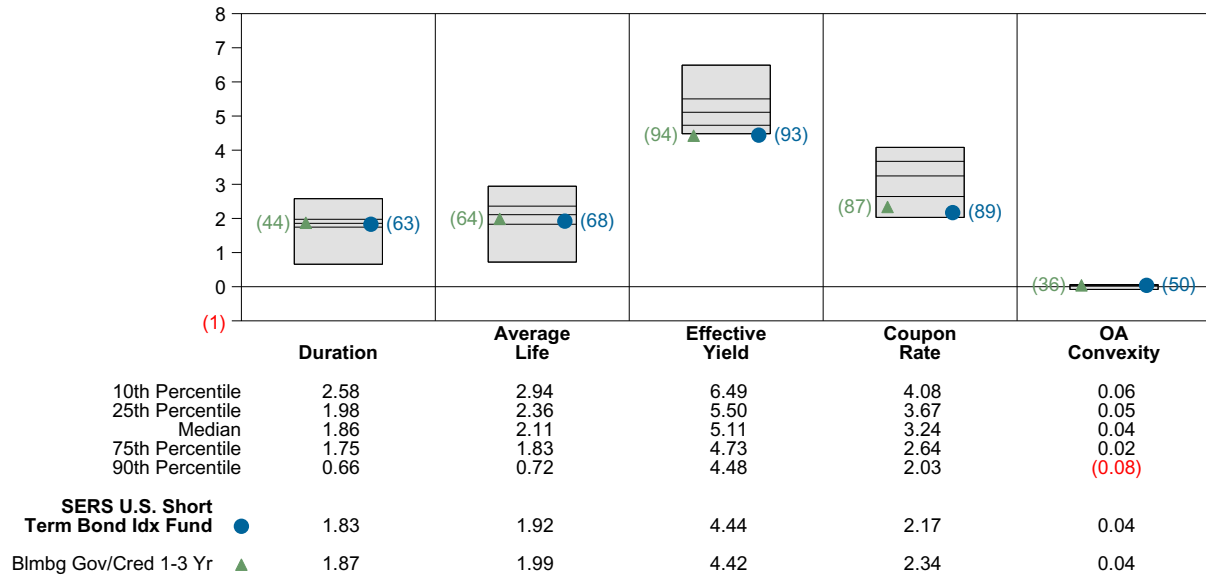
SERS U.S. Short Term Bond Idx Fund

Bond Characteristics Analysis Summary

Portfolio Characteristics

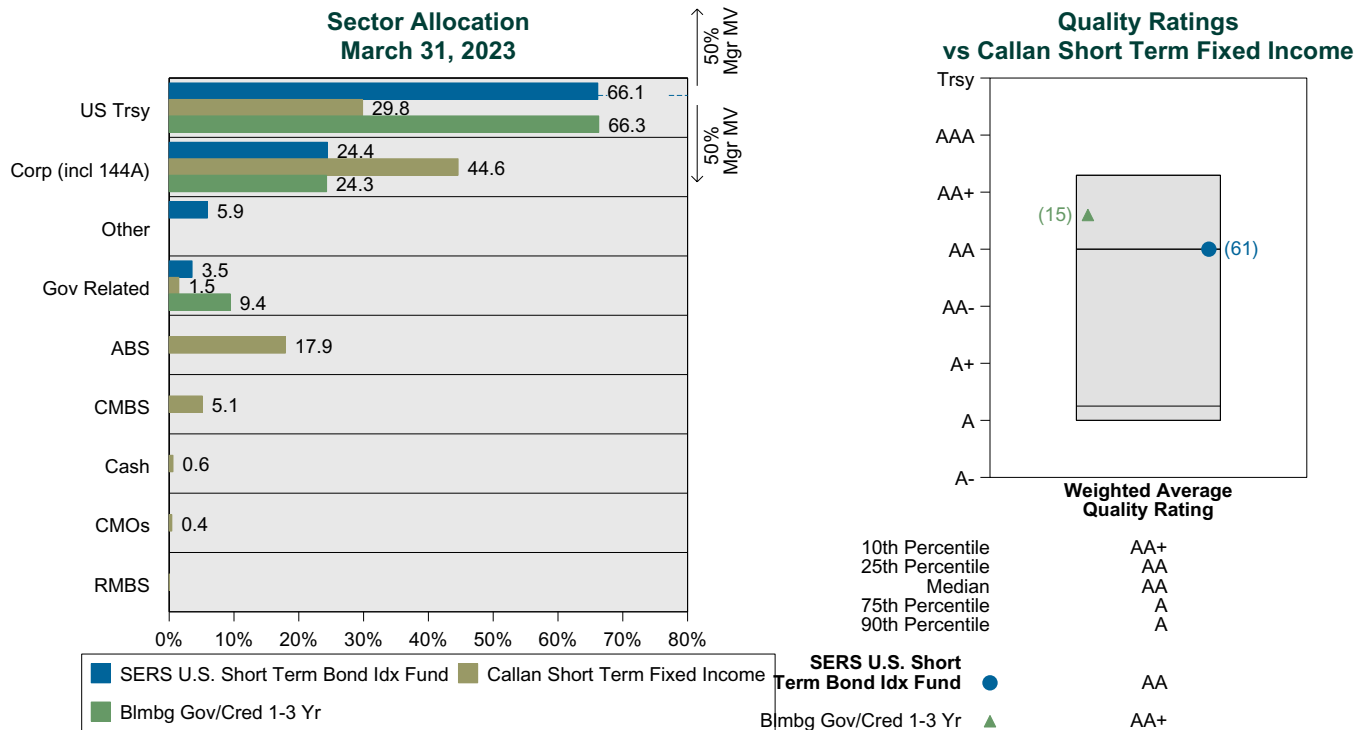
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Fixed Income Portfolio Characteristics Rankings Against Callan Short Term Fixed Income as of March 31, 2023



Sector Allocation and Quality Ratings

The first graph compares the manager's sector allocation with the average allocation across all the members of the manager's style. The second graph compares the manager's weighted average quality rating with the range of quality ratings for the style.



SERS U.S. TIPS Index Fund

Period Ended March 31, 2023

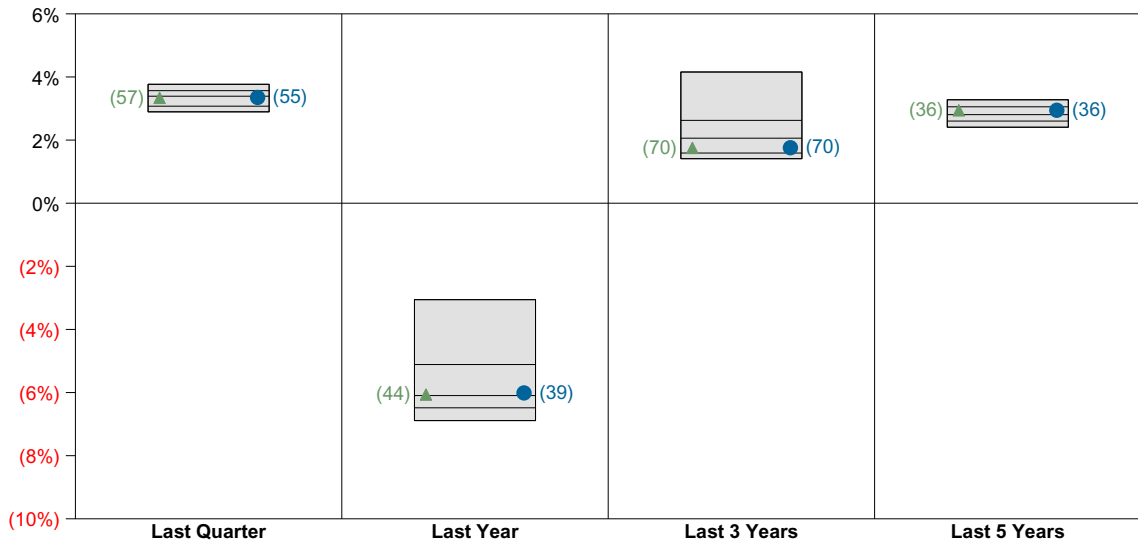
Investment Philosophy

The objective of the U.S. Treasury Inflation Protected Security Index Fund is to track the performance of the U.S. inflation-linked government bond market (otherwise known as Treasury Inflation Protected Securities, or "TIPS"). This fund is managed by Mellon Capital Management.

Quarterly Summary and Highlights

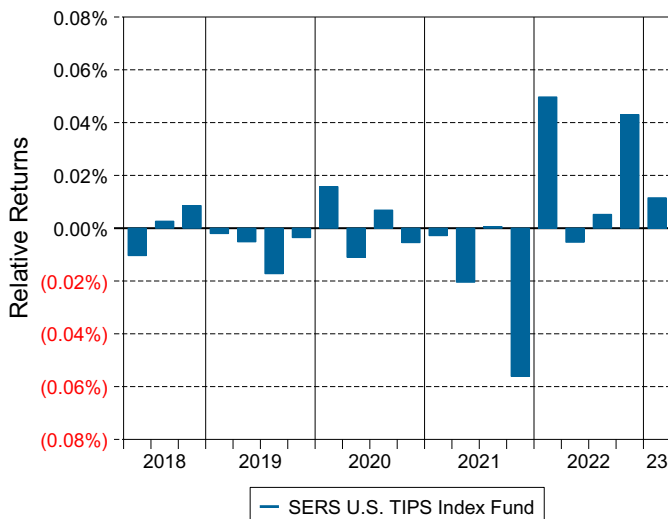
- SERS U.S. TIPS Index Fund's portfolio posted a 3.35% return for the quarter placing it in the 55 percentile of the Callan Treas Infl Prot Securities MFs group for the quarter and in the 39 percentile for the last year.
- SERS U.S. TIPS Index Fund's portfolio outperformed the Blmbg TIPS by 0.01% for the quarter and outperformed the Blmbg TIPS for the year by 0.05%.

Performance vs Callan Treas Infl Prot Securities MFs (Institutional Net)

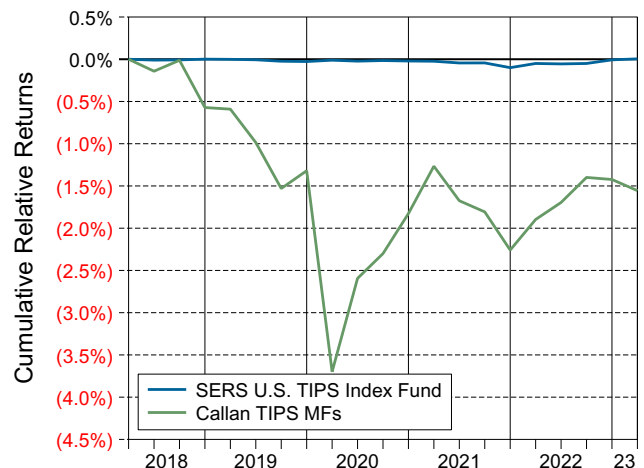


	Last Quarter	Last Year	Last 3 Years	Last 5 Years
10th Percentile	3.77	(3.06)	4.16	3.28
25th Percentile	3.57	(5.11)	2.62	3.05
Median	3.39	(6.10)	2.06	2.81
75th Percentile	3.07	(6.48)	1.59	2.60
90th Percentile	2.89	(6.89)	1.41	2.41
SERS U.S. TIPS Index Fund	3.35	(6.01)	1.76	2.94
Blmbg TIPS	3.34	(6.06)	1.75	2.94

Relative Return vs Blmbg TIPS



Cumulative Returns vs Blmbg TIPS



SERS U.S. TIPS Index Fund

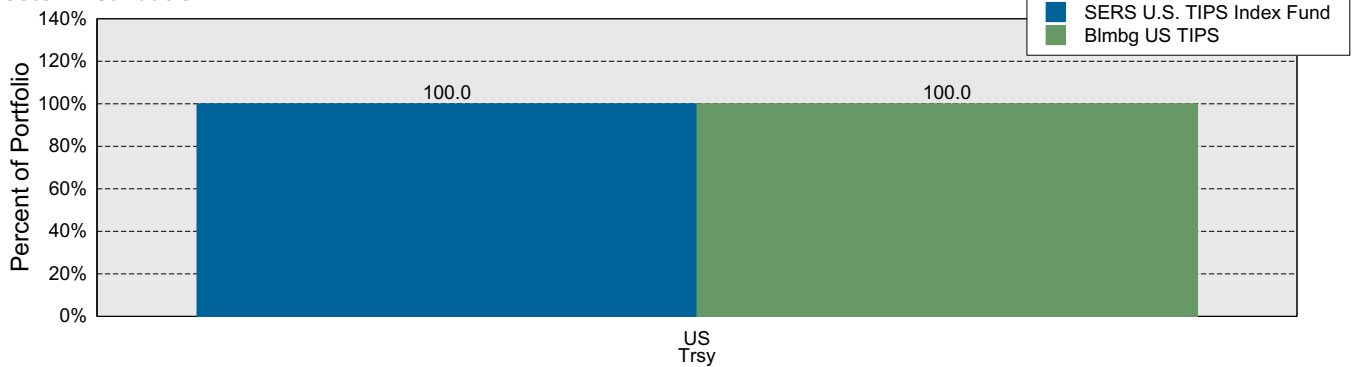
Portfolio Characteristics Summary

As of March 31, 2023

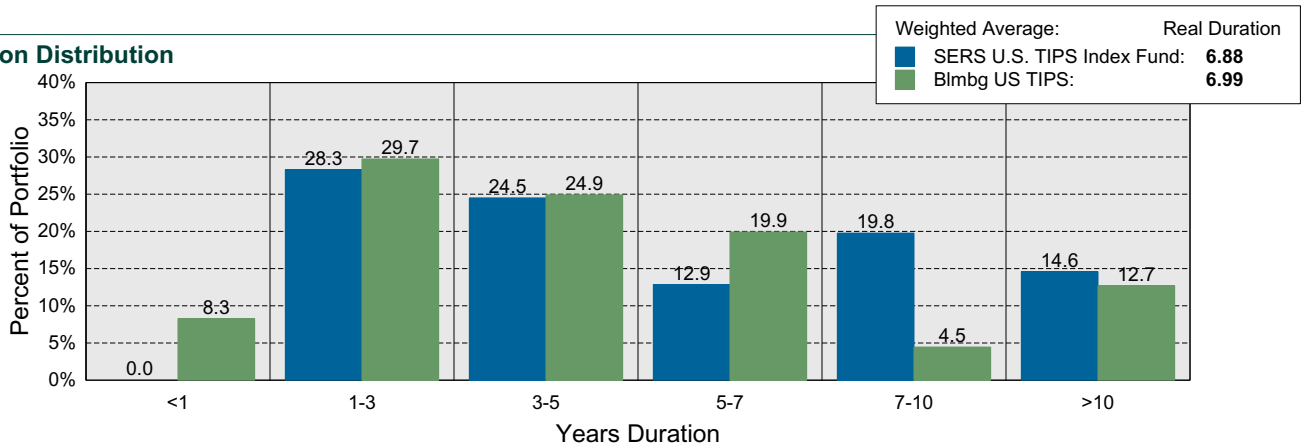
Portfolio Structure Comparison

The charts below compare the structure of the portfolio to that of the index from the three perspectives that have the greatest influence on return. The first chart compares the two portfolios across sectors. The second chart compares the duration distribution. The last chart compares the distribution across quality ratings.

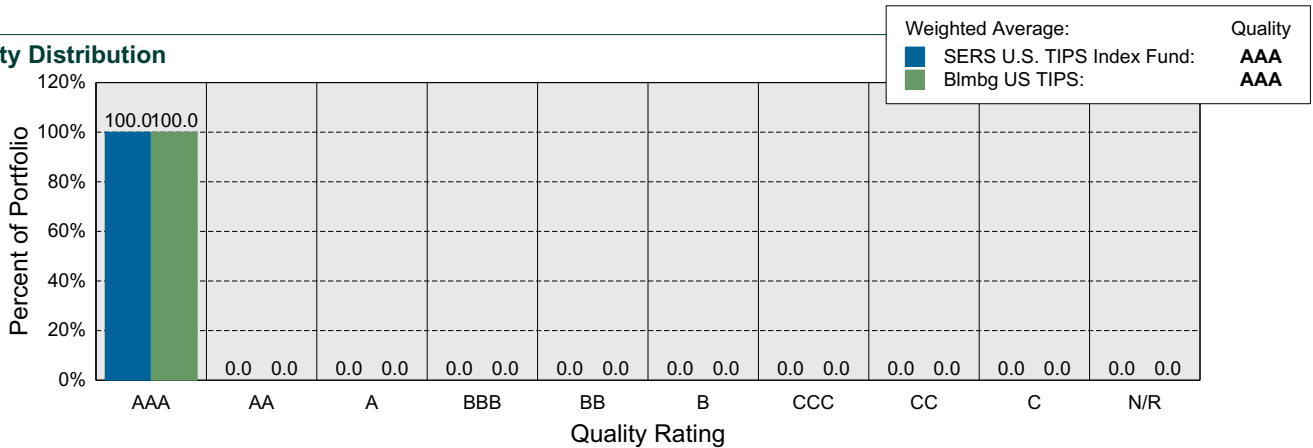
Sector Distribution



Duration Distribution



Quality Distribution

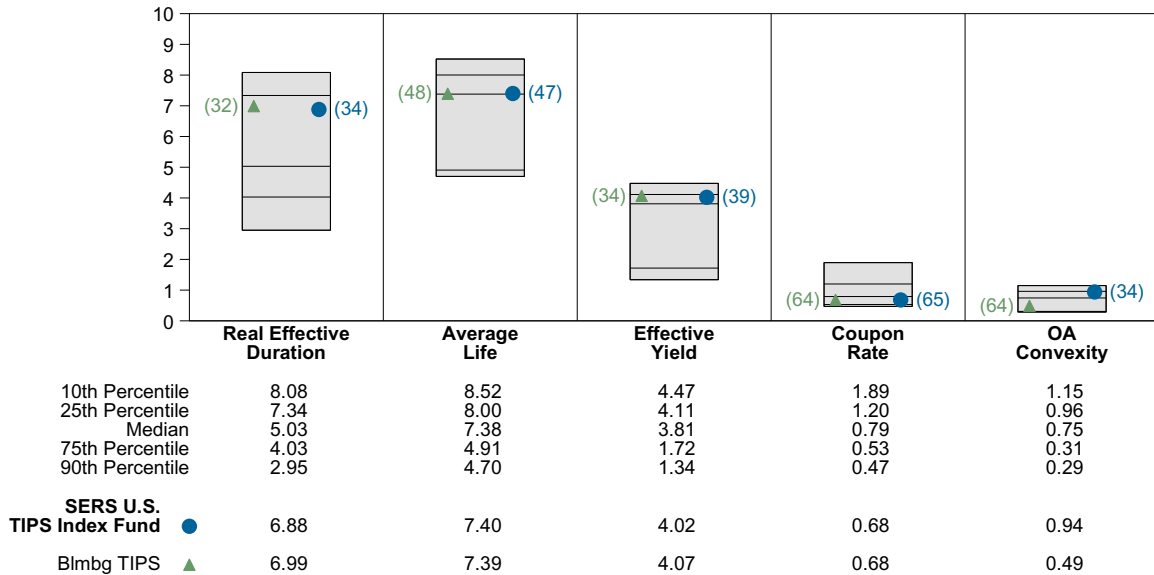


SERS U.S. TIPS Index Fund Bond Characteristics Analysis Summary

Portfolio Characteristics

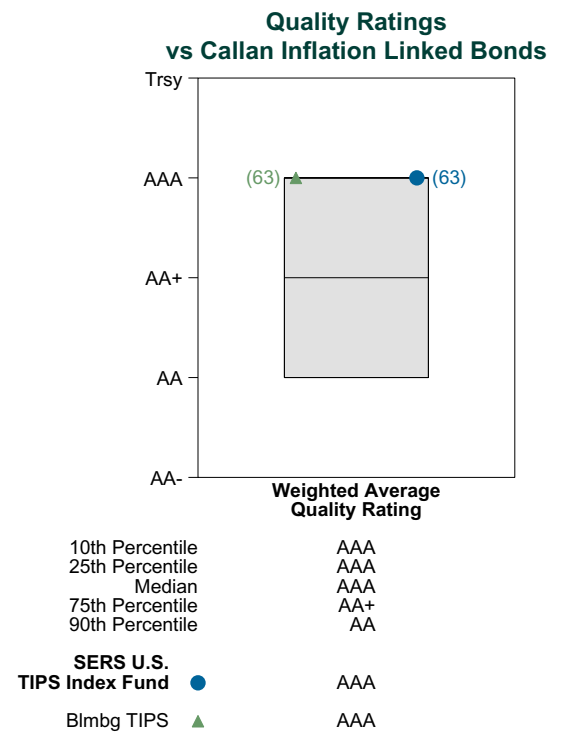
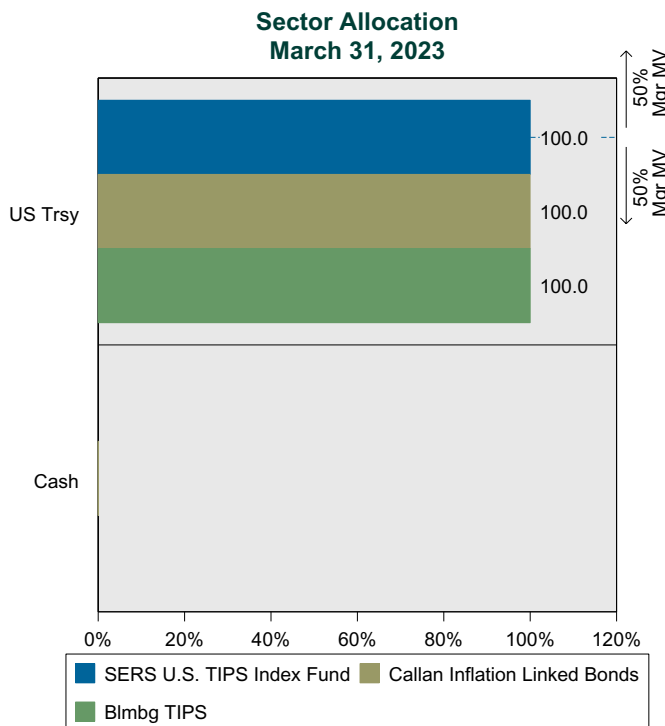
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Fixed Income Portfolio Characteristics Rankings Against Callan Inflation Linked Bonds as of March 31, 2023



Sector Allocation and Quality Ratings

The first graph compares the manager's sector allocation with the average allocation across all the members of the manager's style. The second graph compares the manager's weighted average quality rating with the range of quality ratings for the style.



SERS U.S. Bond Index Fund

Period Ended March 31, 2023

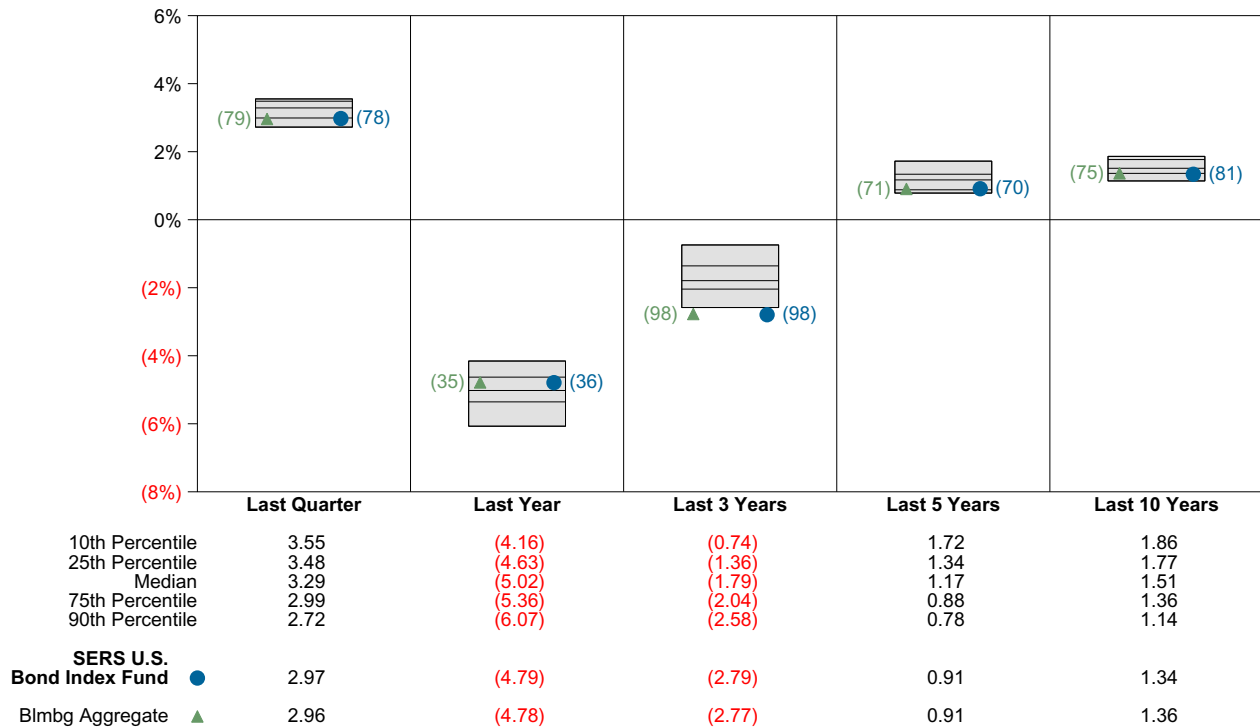
Investment Philosophy

The objective of the Fund is to track the performance of the Bloomberg US Aggregate Bond Index. In meeting this objective, the Fund may invest in securities (including those issued through private placements) and a combination of other collective funds that together are designed to track the performance of the Bloomberg US Aggregate Bond Index. This fund is managed by Mellon Capital Management.

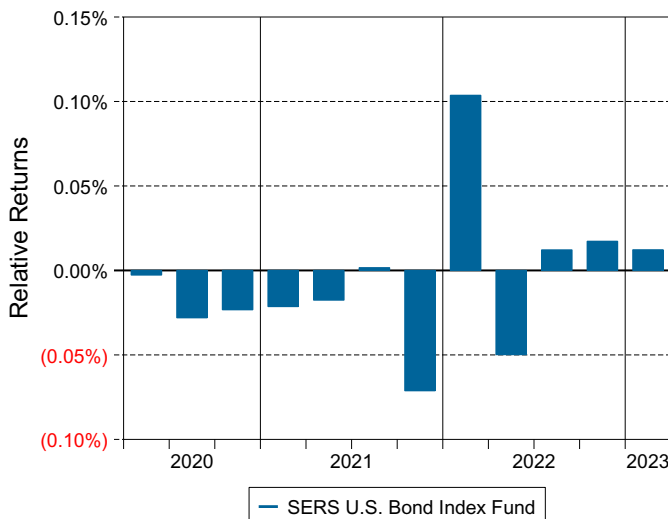
Quarterly Summary and Highlights

- SERS U.S. Bond Index Fund's portfolio posted a 2.97% return for the quarter placing it in the 78 percentile of the Callan Core Bond Mutual Funds group for the quarter and in the 36 percentile for the last year.
- SERS U.S. Bond Index Fund's portfolio outperformed the Blmbg Aggregate by 0.01% for the quarter and underperformed the Blmbg Aggregate for the year by 0.01%.

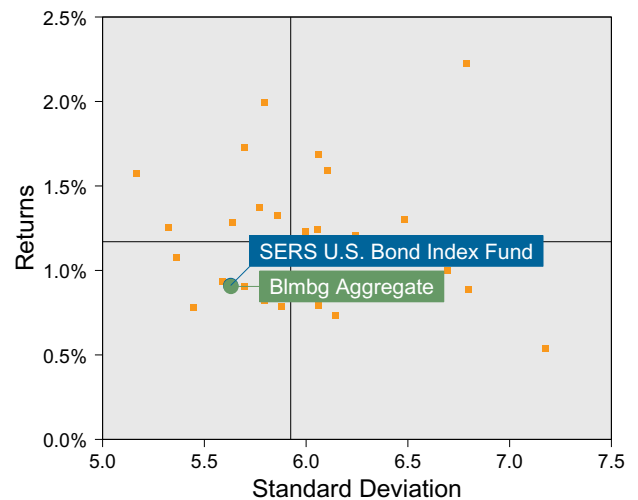
Performance vs Callan Core Bond Mutual Funds (Institutional Net)



Relative Return vs Blmbg Aggregate



Callan Core Bond Mutual Funds (Institutional Net) Annualized Five Year Risk vs Return

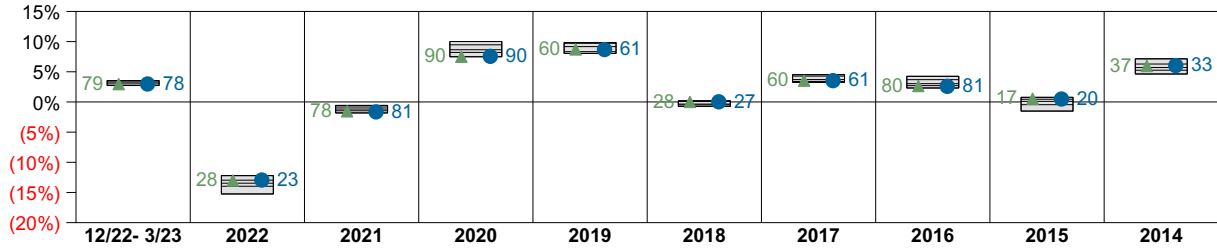


SERS U.S. Bond Index Fund Return Analysis Summary

Return Analysis

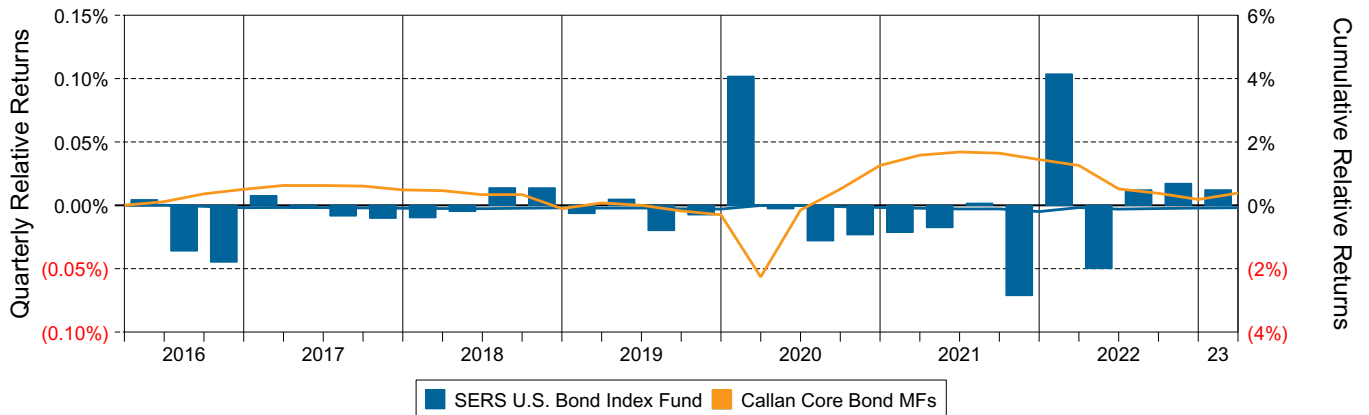
The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

Performance vs Callan Core Bond Mutual Funds (Institutional Net)

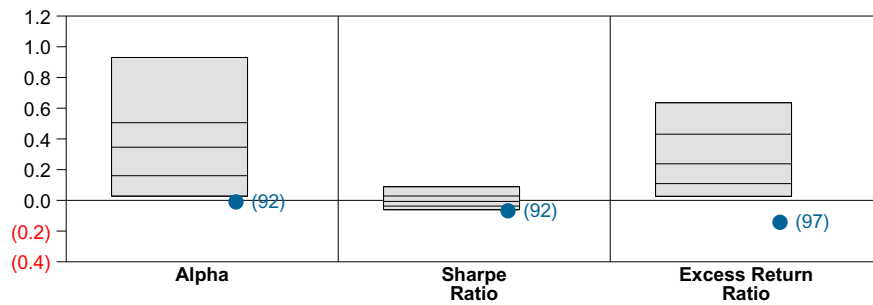


	12/22- 3/23	2022	2021	2020	2019	2018	2017	2016	2015	2014
10th Percentile	3.55	(12.21)	(0.57)	10.01	9.85	0.20	4.52	4.25	0.77	7.15
25th Percentile	3.48	(12.96)	(0.84)	9.47	9.72	0.09	4.28	3.70	0.45	6.29
Median	3.29	(13.47)	(1.17)	8.65	9.17	(0.35)	3.71	3.03	0.10	5.71
75th Percentile	2.99	(13.97)	(1.46)	8.21	8.33	(0.49)	3.40	2.71	(0.45)	5.26
90th Percentile	2.72	(15.25)	(1.82)	7.49	8.04	(0.73)	3.25	2.31	(1.52)	4.63
SERS U.S. Bond Index Fund	● 2.97	(12.94)	(1.65)	7.56	8.69	0.02	3.53	2.59	0.49	6.03
Blmbg Aggregate	▲ 2.96	(13.01)	(1.54)	7.51	8.72	0.01	3.54	2.65	0.55	5.97

Cumulative and Quarterly Relative Returns vs Blmbg Aggregate



Risk Adjusted Return Measures vs Blmbg Aggregate Rankings Against Callan Core Bond Mutual Funds (Institutional Net) Seven Years Ended March 31, 2023



	Alpha	Sharpe Ratio	Excess Return Ratio
10th Percentile	0.93	0.09	0.64
25th Percentile	0.51	0.03	0.43
Median	0.35	(0.01)	0.24
75th Percentile	0.16	(0.04)	0.11
90th Percentile	0.03	(0.06)	0.03
SERS U.S. Bond Index Fund	● (0.01)	(0.07)	(0.14)

SERS U.S. Bond Index Fund

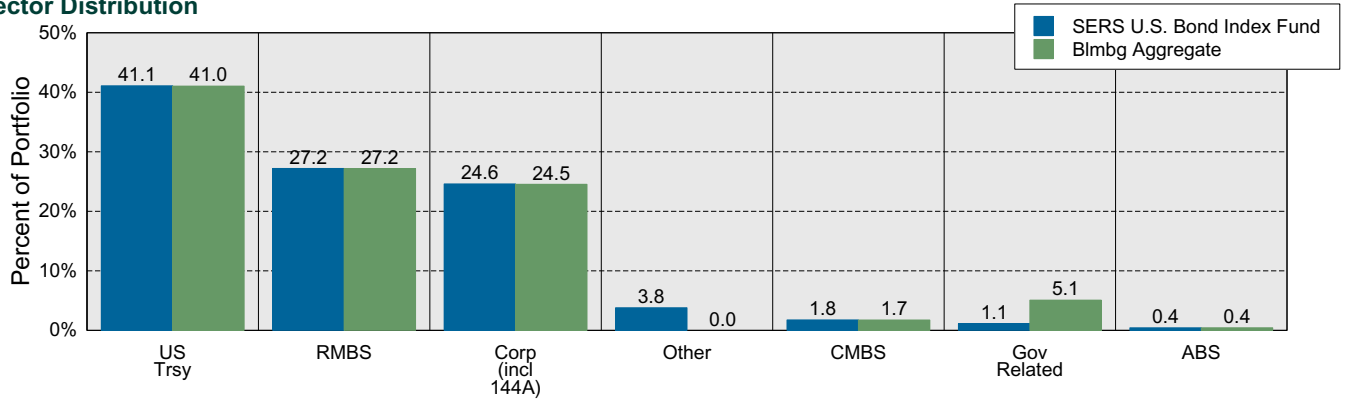
Portfolio Characteristics Summary

As of March 31, 2023

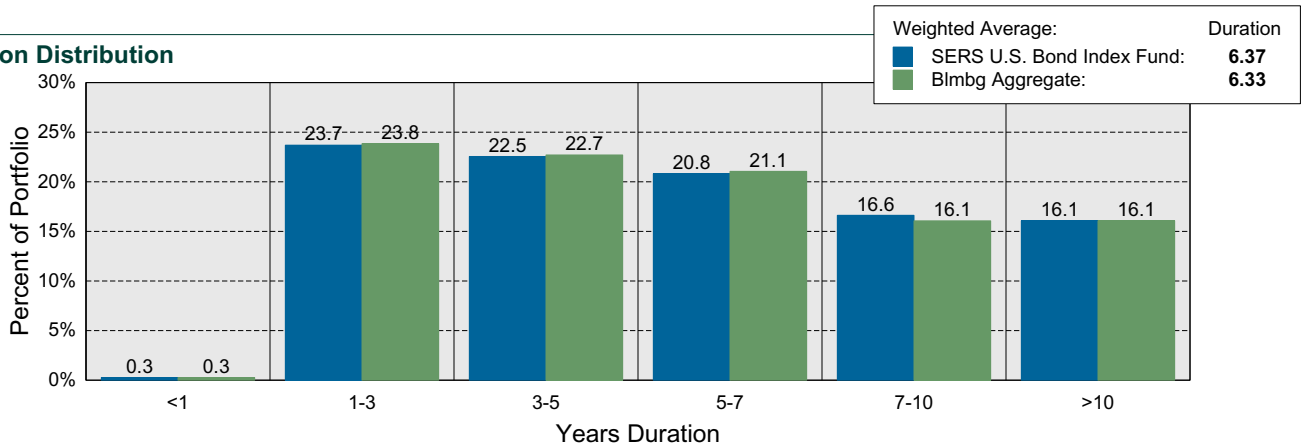
Portfolio Structure Comparison

The charts below compare the structure of the portfolio to that of the index from the three perspectives that have the greatest influence on return. The first chart compares the two portfolios across sectors. The second chart compares the duration distribution. The last chart compares the distribution across quality ratings.

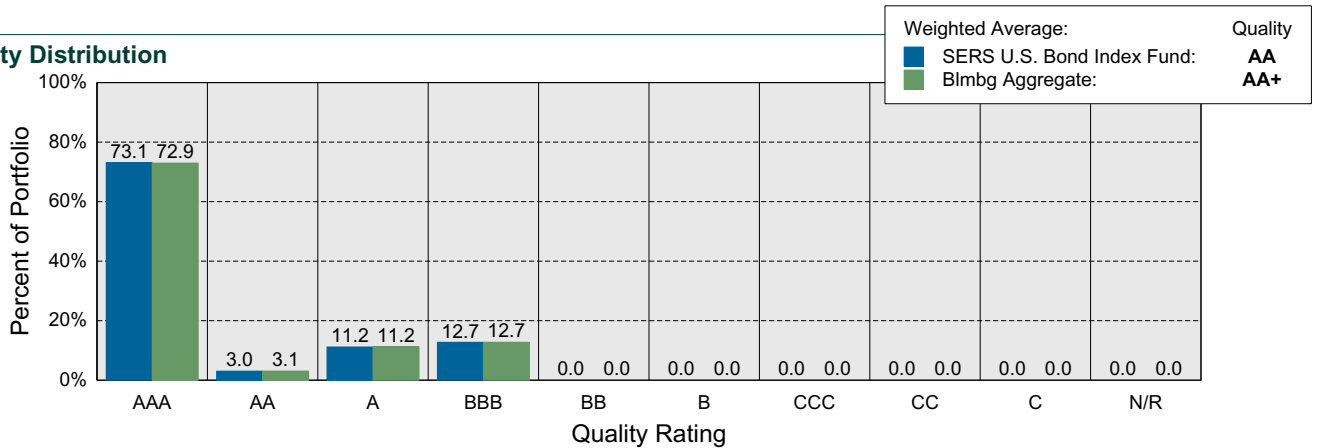
Sector Distribution



Duration Distribution



Quality Distribution

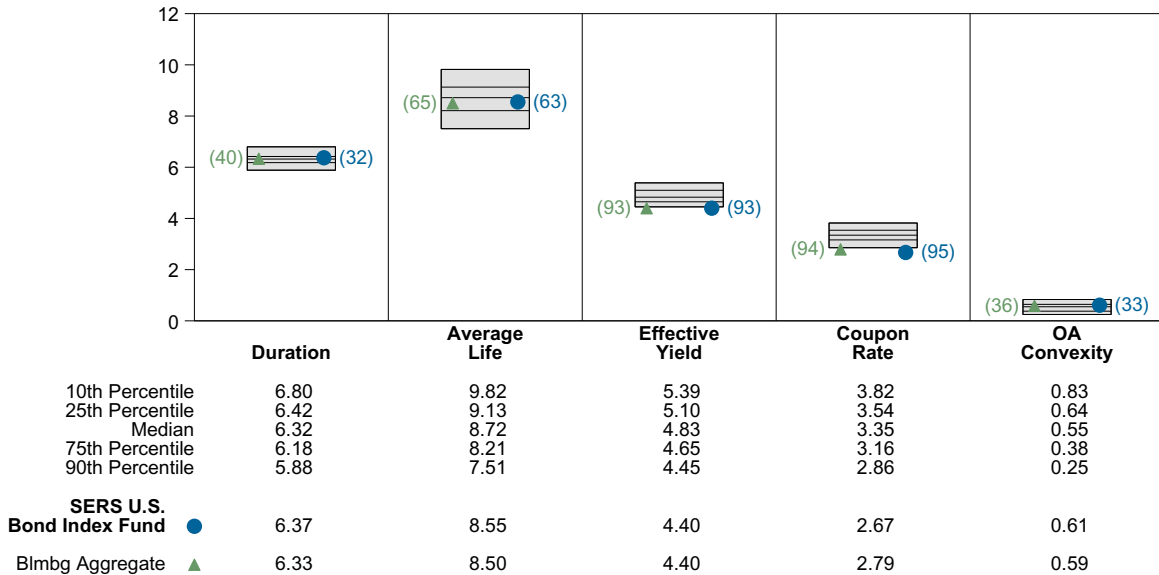


SERS U.S. Bond Index Fund Bond Characteristics Analysis Summary

Portfolio Characteristics

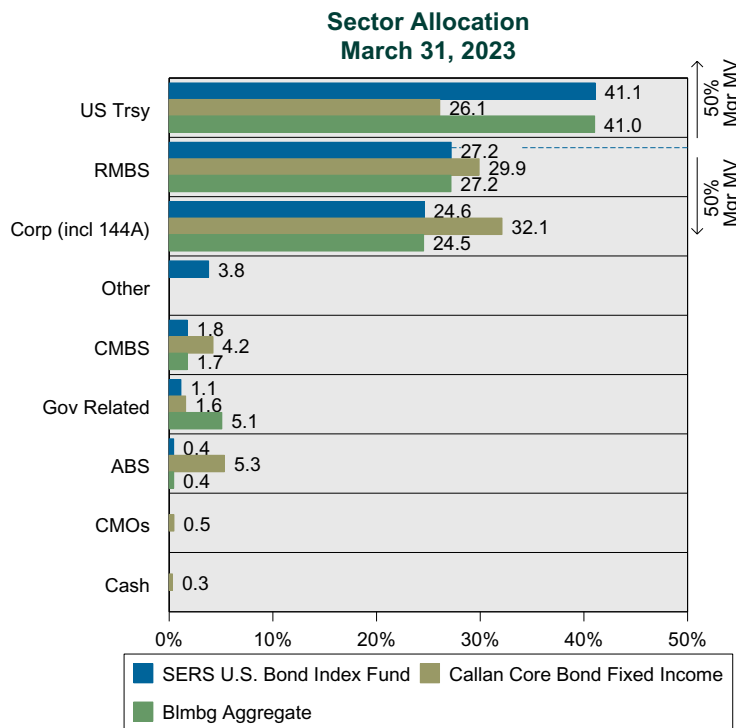
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Fixed Income Portfolio Characteristics Rankings Against Callan Core Bond Fixed Income as of March 31, 2023

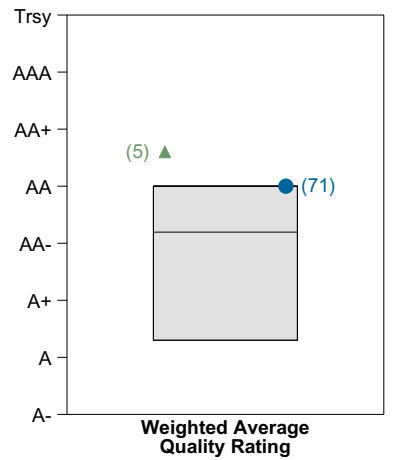


Sector Allocation and Quality Ratings

The first graph compares the manager's sector allocation with the average allocation across all the members of the manager's style. The second graph compares the manager's weighted average quality rating with the range of quality ratings for the style.



Quality Ratings vs Callan Core Bond Fixed Income



10th Percentile	AA
25th Percentile	AA
Median	AA
75th Percentile	AA-
90th Percentile	A

SERS U.S. Bond Index Fund ● AA
Blmbg Aggregate ▲ AA+

Equity Market Indicators

The market indicators included in this report are regarded as measures of equity or fixed income performance results. The returns shown reflect both income and capital appreciation.

Standard & Poor's 500 Index is designed to measure performance of the broad domestic economy through changes in the aggregate market value of 500 stocks representing all major industries. The index is capitalization-weighted, with each stock weighted by its proportion of the total market value of all 500 issues. Thus, larger companies have a greater effect on the index.

Fixed Income Market Indicators

90-Day U.S. Treasury Bills provide a measure of riskless return. The rate of return is the average interest rate available on the beginning of each month for a Treasury Bill maturing in ninety days.

Bloomberg Aggregate is a combination of the Mortgage Backed Securities Index and the intermediate and long-term components of the Government/Credit Bond Index.

International Equity Market Indicators

Morgan Stanley Capital International (MSCI) EAFE Index is composed of approximately 1000 equity securities representing the stock exchanges of Europe, Australia, New Zealand and the Far East. The index is capitalization-weighted and is expressed in terms of U.S. dollars.

Callan Databases

In order to provide comparative investment results for use in evaluating a fund's performance, Callan gathers rate of return data from investment managers. These data are then grouped by type of assets managed and by the type of investment manager. Except for mutual funds, the results are for tax-exempt fund assets. The databases, excluding mutual funds, represent investment managers who handle over 80% of all tax-exempt fund assets.

Equity Funds

Equity funds concentrate their investments in common stocks and convertible securities. The funds included maintain well-diversified portfolios.

Middle Capitalization - Mutual Funds who invest primarily in mid-range companies with market capitalizations between core equity companies and small capitalization companies. The average market capitalization is approximately \$7 billion. Invests in securities with greater volatility than the broader market as measured by the risk statistics Beta and Standard Deviation. The Middle Capitalization Style Group consists of the Middle Capitalization Growth Equity and the Middle Capitalization Value Equity Style Groups.

Fixed Income Funds

Fixed Income funds concentrate their investments in bonds, preferred stocks, and money market securities. The funds included maintain well-diversified portfolios.

Core Bond - Mutual Funds that construct portfolios to approximate the investment results of the Bloomberg Barclays Capital Government/Credit Bond Index or the Bloomberg Barclays Capital Aggregate Bond Index with a modest amount of variability in duration around the index. The objective is to achieve value added from sector and/or issue selection.

Balanced Funds

Balanced funds diversify their investments among common stocks, bonds, preferred stocks and money market securities. The funds included maintain well-diversified equity and fixed income portfolios.

Mutual Fund Balanced Funds - The Mutual Fund Balanced Fund Database consists of open-end mutual fund balanced products.

Risk/Reward Statistics

The risk statistics used in this report examine performance characteristics of a manager or a portfolio relative to a benchmark (market indicator) which assumes to represent overall movements in the asset class being considered. The main unit of analysis is the excess return, which is the portfolio return minus the return on a risk free asset (3 month T-Bill).

Alpha measures a portfolio's return in excess of the market return adjusted for risk. It is a measure of the manager's contribution to performance with reference to security selection. A positive alpha indicates that a portfolio was positively rewarded for the residual risk which was taken for that level of market exposure.

Beta measures the sensitivity of rates of portfolio returns to movements in the market index. A portfolio's beta measures the expected change in return per 1% change in the return on the market. If a beta of a portfolio is 1.5, a 1 percent increase in the return on the market will result, on average, in a 1.5 percent increase in the return on the portfolio. The converse would also be true.

Downside Risk stems from the desire to differentiate between "good risk" (upside volatility) and "bad risk" (downside volatility). Whereas standard deviation punishes both upside and downside volatility, downside risk measures only the standard deviation of returns below the target. Returns above the target are assigned a deviation of zero. Both the frequency and magnitude of underperformance affect the amount of downside risk.

Excess Return Ratio is a measure of risk adjusted relative return. This ratio captures the amount of active management performance (value added relative to an index) per unit of active management risk (tracking error against the index.) It is calculated by dividing the manager's annualized cumulative excess return relative to the index by the standard deviation of the individual quarterly excess returns. The Excess Return Ratio can be interpreted as the manager's active risk/reward tradeoff for diverging from the index when the index is mandated to be the "riskless" market position.

Information Ratio measures the manager's market risk-adjusted excess return per unit of residual risk relative to a benchmark. It is computed by dividing alpha by the residual risk over a given time period. Assuming all other factors being equal, managers with lower residual risk achieve higher values in the information ratio. Managers with higher information ratios will add value relative to the benchmark more reliably and consistently.

R-Squared indicates the extent to which the variability of the portfolio returns are explained by market action. It can also be thought of as measuring the diversification relative to the appropriate benchmark. An r-squared value of .75 indicates that 75% of the fluctuation in a portfolio return is explained by market action. An r-squared of 1.0 indicates that a portfolio's returns are entirely related to the market and it is not influenced by other factors. An r-squared of zero indicates that no relationship exists between the portfolio's return and the market.

Relative Standard Deviation is a simple measure of a manager's risk (volatility) relative to a benchmark. It is calculated by dividing the manager's standard deviation of returns by the benchmark's standard deviation of returns. A relative standard deviation of 1.20, for example, means the manager has exhibited 20% more risk than the benchmark over that time period. A ratio of .80 would imply 20% less risk. This ratio is especially useful when analyzing the risk of investment grade fixed-income products where actual historical durations are not available. By using this relative risk measure over rolling time periods one can illustrate the "implied" historical duration patterns of the portfolio versus the benchmark.

Residual Portfolio Risk is the unsystematic risk of a fund, the portion of the total risk unique to the fund (manager) itself and not related to the overall market. This reflects the "bets" which the manager places in that particular asset market. These bets may reflect emphasis in particular sectors, maturities (for bonds), or other issue specific factors which the manager considers a good investment opportunity. Diversification of the portfolio will reduce or eliminate the residual risk of that portfolio.

Risk/Reward Statistics

Rising Declining Periods refer to the sub-asset class cycles vis-a-vis the broader asset class. This is determined by evaluating the cumulative relative sub-asset class index performance to that of the broader asset class index. For example, to determine the Growth Style cycle, the S&P 500 Growth Index (sub-asset class) performance is compared to that of the S&P 500 Index (broader asset class).

Sharpe Ratio is a commonly used measure of risk-adjusted return. It is calculated by subtracting the "risk-free" return (usually 3 Month Treasury Bill) from the portfolio return and dividing the resulting "excess return" by the portfolio's risk level (standard deviation). The result is a measure of return gained per unit of risk taken.

Sortino Ratio is a downside risk-adjusted measure of value-added. It measures excess return over a benchmark divided by downside risk. The natural appeal is that it identifies value-added per unit of truly bad risk. The danger of interpretation, however, lies in these two areas: (1) the statistical significance of the denominator, and (2) its reliance on the persistence of skewness in return distributions.

Standard Deviation is a statistical measure of portfolio risk. It reflects the average deviation of the observations from their sample mean. Standard deviation is used as an estimate of risk since it measures how wide the range of returns typically is. The wider the typical range of returns, the higher the standard deviation of returns, and the higher the portfolio risk. If returns are normally distributed (ie. has a bell shaped curve distribution) then approximately 2/3 of the returns would occur within plus or minus one standard deviation from the sample mean.

Total Portfolio Risk is a measure of the volatility of the quarterly excess returns of an asset. Total risk is composed of two measures of risk: market (non-diversifiable or systematic) risk and residual (diversifiable or unsystematic) risk. The purpose of portfolio diversification is to reduce the residual risk of the portfolio.

Tracking Error is a statistical measure of a portfolio's risk relative to an index. It reflects the standard deviation of a portfolio's individual quarterly or monthly returns from the index's returns. Typically, the lower the Tracking Error, the more "index-like" the portfolio.

Treynor Ratio represents the portfolio's average excess return over a specified period divided by the beta relative to its benchmark over that same period. This measure reflects the reward over the risk-free rate relative to the systematic risk assumed.

Note: Alpha, Total Risk, and Residual Risk are annualized.

Quarterly Highlights

The Callan Institute provides research to update clients on the latest industry trends and carefully structured educational programs to enhance the knowledge of industry professionals. Visit www.callan.com/research-library to see all of our publications, and www.callan.com/blog to view our blog. For more information contact Barb Gerraty at 415-274-3093 / institute@callan.com.

New Research from Callan's Experts

[2023 DC Trends Survey](#) | Callan's 16th annual DC Trends Survey now covers SECURE 2.0 (pre-passage) and diversity topics, along with the key tenets of DC plan management, governance, and financial wellness.

[2023-2032 Capital Markets Assumptions](#) | A white paper detailing the process involved in creating our 2023-2032 capital markets assumptions and the reasoning behind them.

[1Q23 Real Assets Reporter: Energy Transition](#) | Jan Mende describes energy-transition investments and the role they can play in institutional portfolios.

[The Periodic Table of Investment Returns](#) | A visual representation of annual returns for key asset classes, ranked from best to worst performance for each calendar year.

Blog Highlights

[The PRT Decision: What Plan Sponsors Need to Know](#) | Despite the turbulence of 2022, many corporate defined benefit (DB) plan sponsors are considering pension risk transfers (PRTs).

[Can Institutional Investors Target 'Food Deserts' for Investment?](#) | While food desert investments have not been prevalent in institutional real estate portfolios, increasing government incentives and additional sources of financing may help support these opportunities in the future.

[Putting 2022 Public DB Plan Performance into Perspective](#) | While 2022 was indeed challenging, viewing plan returns over the long-term shows results that are favorable when stacked up against actuarial discount rates.

Webinar Replays

[Callan's 2023 DC Survey Results Webinar](#) | This webinar focuses on the results of Callan's 2023 DC Trends Survey, including fiduciary positioning, investments, retirement solutions, fees, and more.

[Research Cafe: ESG Interview Series](#) | During this interview, Tom Shingler of Callan discusses with Richard Ashley, partner and co-chair of US Employee Benefits and Executive Compensation practice at DLA Piper, key features of the new ESG and proxy voting rule.

Quarterly Periodicals

[Private Equity Update, 4Q22](#) | A high-level summary of private equity activity in the quarter through all the investment stages

[Active vs. Passive Charts, 4Q22](#) | A comparison of active managers alongside relevant benchmarks over the long term

[Market Pulse, 4Q22](#) | A quarterly market reference guide covering trends in the U.S. economy, developments for institutional investors, and the latest data on the capital markets

[Capital Markets Review, 4Q22](#) | Analysis and a broad overview of the economy and public and private markets activity each quarter across a wide range of asset classes

[Hedge Fund Update, 4Q22](#) | Commentary on developments for hedge funds and multi-asset class (MAC) strategies

[Real Assets Update, 4Q22](#) | A summary of market activity for real assets and private real estate during the quarter

[Private Credit Update, 4Q22](#) | A review of performance and fundraising activity for private credit during the quarter

Events

A complete list of all upcoming events can be found on our website: callan.com/events-education.

Please mark your calendar and look forward to upcoming invitations:

2023 June Workshops

June 27, 2023 – New York

June 29, 2023 – Chicago

For more information about events, please contact Barb Gerraty: 415-274-3093 / gerraty@callan.com

Education: By the Numbers

50+

Unique pieces of research the Institute generates each year

525

Attendees (on average) of the Institute's annual National Conference

3,700

Total attendees of the "Callan College" since 1994

Education

Founded in 1994, the "Callan College" offers educational sessions for industry professionals involved in the investment decision-making process.

Introduction to Investments

May 23-25 – Virtual

This program familiarizes institutional investor trustees and staff and asset management advisers with basic investment theory, terminology, and practices. Our virtual session is held over three days with virtual modules of 2.5-3 hours, while the in-person session lasts one-and-a-half days. This course is designed for individuals with less than two years of experience with asset-management oversight and/or support responsibilities. Virtual tuition is \$950 per person and includes instruction and digital materials. In-person tuition is \$2,350 per person and includes instruction, all materials, breakfast and lunch on each day, and dinner on the first evening with the instructors.

Additional information including registration can be found at: callan.com/events-education



"Research is the foundation of all we do at Callan, and sharing our best thinking with the investment community is our way of helping to foster dialogue to raise the bar across the industry."

Greg Allen, CEO and Chief Research Officer

List of Callan’s Investment Manager Clients

Confidential – For Callan Client Use Only

Callan takes its fiduciary and disclosure responsibilities to clients very seriously. We recognize that there are numerous potential conflicts of interest encountered in the investment consulting industry, and that it is our responsibility to manage those conflicts effectively and in the best interest of our clients. At Callan, we employ a robust process to identify, manage, monitor, and disclose potential conflicts on an ongoing basis.

The list below is an important component of our conflicts management and disclosure process. It identifies those investment managers that pay Callan fees for educational, consulting, software, database, or reporting products and services. We update the list quarterly because we believe that our fund sponsor clients should know the investment managers that do business with Callan, particularly those investment manager clients that the fund sponsor clients may be using or considering using. Please note that if an investment manager receives a product or service on a complimentary basis (e.g., attending an educational event), they are not included in the list below. Callan is committed to ensuring that we do not consider an investment manager’s business relationship with Callan, or lack thereof, in performing evaluations for or making suggestions or recommendations to its other clients. Please refer to Callan’s ADV Part 2A for a more detailed description of the services and products that Callan makes available to investment manager clients through our Institutional Consulting Group, Independent Adviser Group, and Fund Sponsor Consulting Group. Due to the complex corporate and organizational ownership structures of many investment management firms, parent and affiliate firm relationships are not indicated on our list.

Fund sponsor clients may request a copy of the most currently available list at any time. Fund sponsor clients may also request specific information regarding the fees paid to Callan by particular fund manager clients. Per company policy, information requests regarding fees are handled exclusively by Callan’s Compliance department.

Manager Name
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The content of this document is particular to the client and should not be relied upon by any other individual or entity. There can be no assurance that the performance of any account or investment will be comparable to the performance information presented in this document.

Certain information herein has been compiled by Callan from a variety of sources believed to be reliable but for which Callan has not necessarily verified for accuracy or completeness. Information contained herein may not be current. Callan has no obligation to bring current the information contained herein. This content of this document may consist of statements of opinion, which are made as of the date they are expressed and are not statements of fact. The opinions expressed herein may change based upon changes in economic, market, financial and political conditions and other factors. Callan has no obligation to bring current the opinions expressed herein.

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Callan disclaims any responsibility for reviewing the risks of individual securities or the compliance/non-compliance of individual security holdings with a client's investment policy guidelines.

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