

March 31, 2020

Pennsylvania SERS 457(b)



**Investment Measurement Service
Quarterly Review**

Information contained herein includes confidential, trade secret and proprietary information. Neither this Report nor any specific information contained herein is to be used other than by the intended recipient for its intended purpose or disseminated to any other person without Callan's permission. Certain information herein has been compiled by Callan and is based on information provided by a variety of sources believed to be reliable for which Callan has not necessarily verified the accuracy or completeness of or updated. This content may consist of statements of opinion, which are made as of the date they are expressed and are not statements of fact. This content is for informational purposes only and should not be construed as legal or tax advice on any matter. Any decision you make on the basis of this content is your sole responsibility. You should consult with legal and tax advisers before applying any of this information to your particular situation. Past performance is no guarantee of future results. For further information, please see Appendix for Important Information and Disclosures.

Table of Contents

March 31, 2020

Capital Markets Review	
Capital Markets Overview	2
Active Management Overview	6
Plan Assets and Performance	11
Risk-Based Funds	
Post Retirement Date Fund	35
2025 Retirement Date Fund	38
2030 Retirement Date Fund	41
2035 Retirement Date Fund	44
2040 Retirement Date Fund	47
2045 Retirement Date Fund	50
2050 Retirement Date Fund	53
2055 Retirement Date Fund	56
2060 Retirement Date Fund	59
2065 Retirement Date Fund	61
Domestic Equity	
U.S. Large Company Stock Index Fund	63
U.S. Small/Mid Company Stock Index Fund	68
International Equity	
Global Non-U.S. Index Fund	74
Domestic Fixed Income	
Short Term Investment Fund	81
Stable Value Fund	83
U.S. Bond Index Fund	85
Definitions	
Market Indicators	90
Database Groups	91
Risk/Reward Statistics	93
Callan Research/Education	95
Disclosures	98

U.S. EQUITY

During the 1st quarter of 2020, the COVID-19 pandemic coupled with an oil price war between Saudi Arabia and Russia spurred extreme global market volatility, which was further exacerbated by the realization that a shelter-in-place mandate was required to overcome the spread of the disease, subsequently inducing an all-but-certain global recession.

Large cap (S&P 500: -19.6%; Russell 1000: -20.2%)

- Cyclical were punished while Technology, Staples, and Health Care were more resilient.
- Energy (-50.5%) plunged as demand declined and OPEC and Russia refused to cut production, driving down oil prices globally.
- Financials (-31.9%) and Industrials (-27.1%) fell sharply as interest rates were cut by the Fed in an emergency session, and due to expectations of a steep GDP decline because of COVID-19.
- Technology fared the best (-11.9%). The FAAMG stocks had an average return of -7.9% in Q1, led by Amazon (+5.5%) and Microsoft (+0.3%); Health Care (-12.7%) and Consumer Staples (-12.7%) also held up better than the index average.

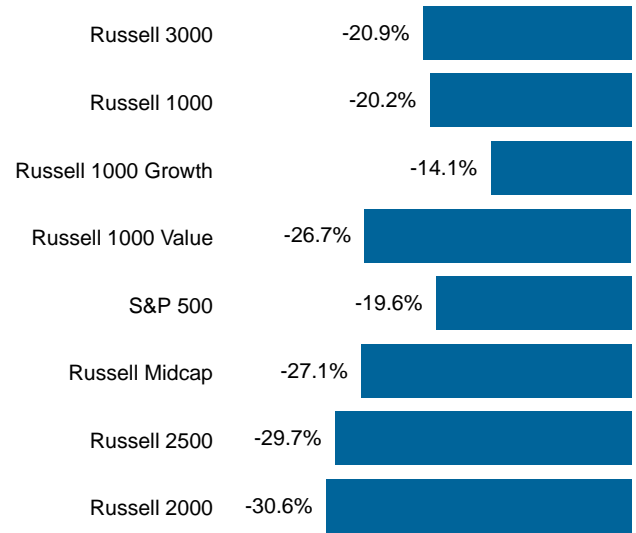
Large cap outpaced small cap for the quarter

- The Russell 2000 (-30.6%) experienced its worst quarter on record.
- The perceived safety of larger companies combined with more acute exposure to COVID-19 impact (e.g., restaurants, hotels, airlines, REITs) drove the sell-off.
- The performance of the Russell 2000 Value (-35.7%) was driven by its exposure to Energy (especially exploration and production companies) and Financials (banks).

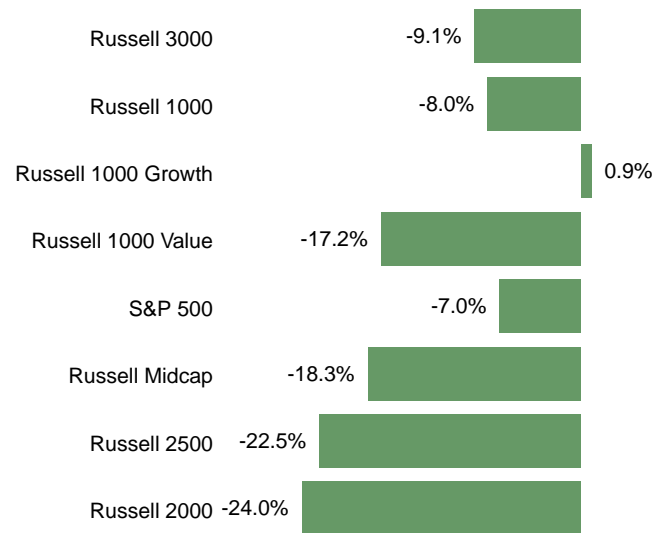
Growth outpaces value across market capitalizations

- The spread between Russell 1000 Growth (-14.1%) and Russell 2000 Value (-35.7%) was one of the widest ever.
- Russell MidCap Value (-0.8%) and Russell 2000 Value (-2.4%) now have negative annualized returns over a trailing five-year time period.

U.S. Equity: Quarterly Returns

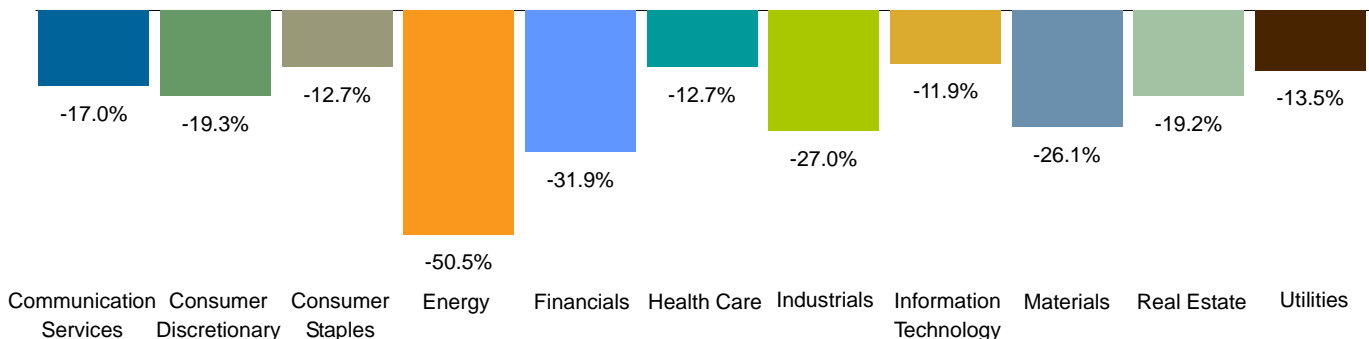


U.S. Equity: One-Year Returns



Sources: FTSE Russell, Standard & Poor's

S&P Sector Returns, Quarter Ended March 31, 2020



Source: Standard & Poor's

GLOBAL/GLOBAL EX-U.S. EQUITY

The COVID-19 pandemic coupled with the oil price war between Saudi Arabia and Russia injected significant volatility into the global equity markets, with most major indices entering bear market territory.

Global/Developed ex-U.S. (MSCI EAFE: -22.8%; MSCI World ex USA: -23.3%; MSCI ACWI ex USA: -23.4%; MSCI Japan: -16.8%; MSCI Pacific ex Japan: -27.6%)

- Fears of the pandemic and a global recession stoked the worst quarterly sell off since 2008 as economic activity halted worldwide.
- The oil price war further exacerbated the market meltdown, bidding up safe-haven assets and currencies.
- The U.S. dollar outperformed the euro, the British pound, and other major currencies, while underperforming the Swiss franc and yen.
- Every sector posted negative returns, led by cyclicals like travel-related industries, Energy, and Financials given the state of the economy and oil prices.
- Defensive sectors generally were under less pressure as demand for basic necessities to function (i.e., e-commerce and mobility) and combat the pandemic (i.e., diagnostics and treatment) helped stabilize Health Care, Consumer Staples, and Information Technology.
- Factor performance in developed ex-U.S. markets reflected risk aversion, including beta, size, and volatility.

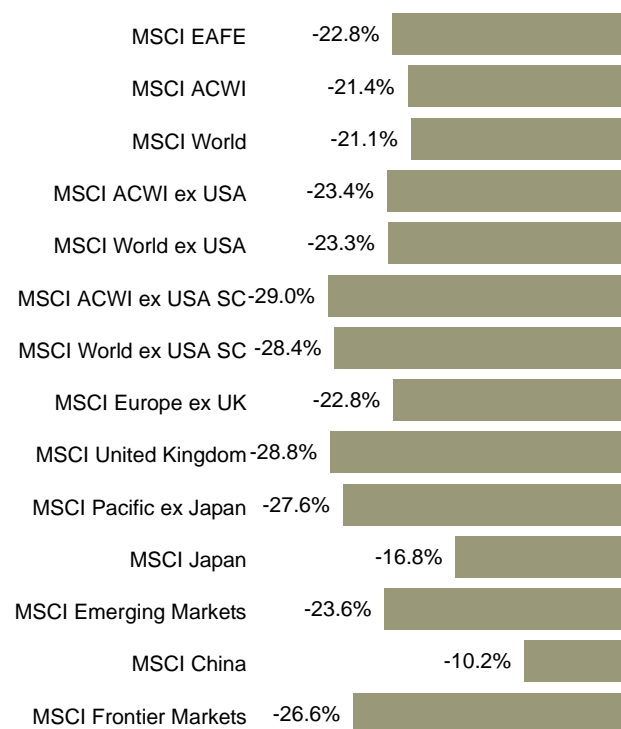
Emerging Markets (MSCI Emerging Markets Index: -23.6%)

- Decisive actions to contain the pandemic and stimulate the economy allowed China to outperform every developed and developing country.
- A looming global recession and the collapse in oil prices decimated commodities-levered economies like Brazil, South Africa, and Russia.
- Every sector posted negative returns, led by cyclicals such as travel-related industries, Energy, and Financials.
- Defensive sectors generally were under less pressure as demand for basic necessities and for diagnostics and treatment helped stabilize Health Care, Consumer Staples, and Information Technology.

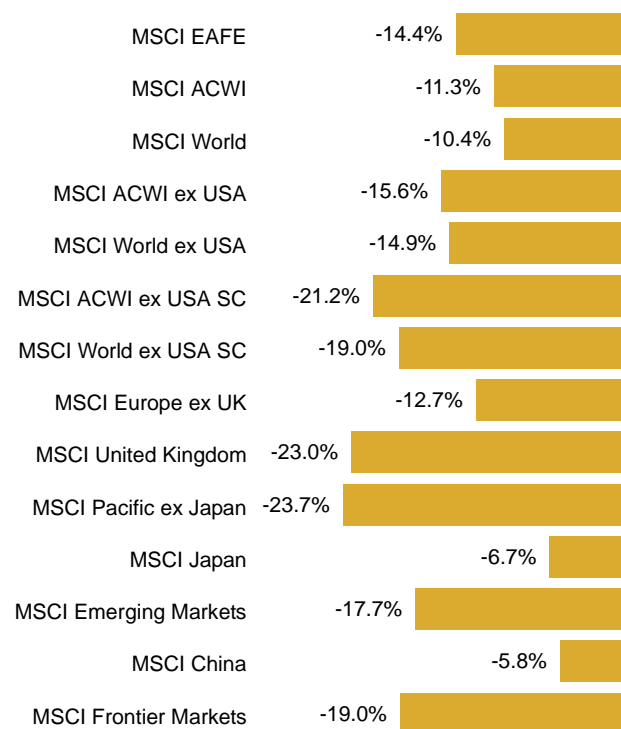
Global ex-U.S. Small Cap (MSCI World ex USA Small Cap: -28.4%; MSCI EM Small Cap: -31.4%; MSCI ACWI ex USA Small Cap: -29.0%)

- "Risk-off" market environment challenged small cap relative to large cap in both developed and emerging markets.
- Growth significantly outperformed value both within developed and emerging markets, supported by strong performance in Health Care, Consumer Staples, and Information Technology.

Global Equity: Quarterly Returns



Global Equity: One-Year Returns



Source: MSCI

U.S. FIXED INCOME

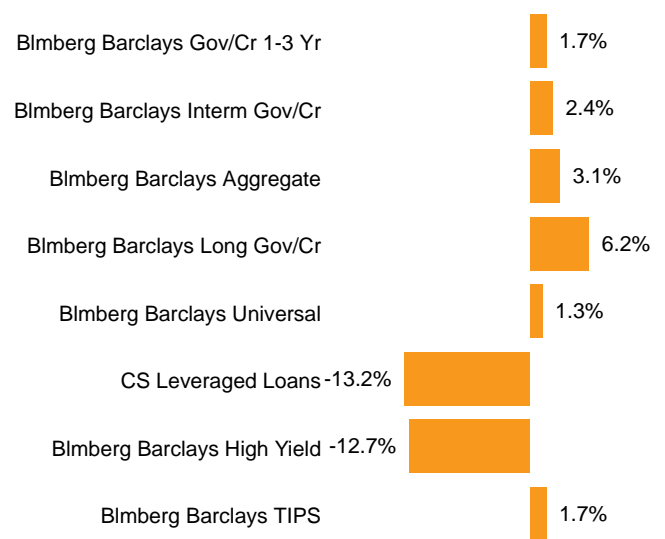
Treasuries rallied as investors sought safety

- The 10-year U.S. Treasury yield reached a low in March of 0.31% before closing the quarter at 0.70%, down sharply from the 2019 year-end level of 1.92%.
- The Treasury yield curve steepened as the Fed cut rates to 0%-0.25%.
- TIPS underperformed nominal Treasuries as expectations for inflation sank. The 10-year breakeven spread ended the quarter at 87 bps, down sharply from 177 bps at year-end.

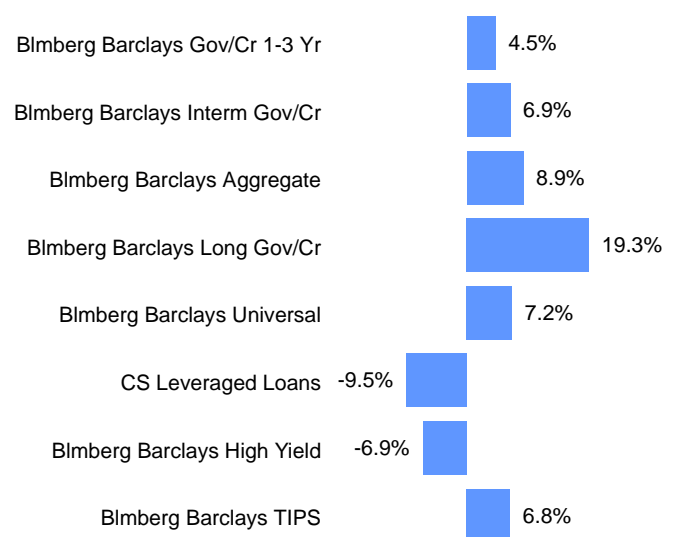
Investors spurned credit risk

- Investment grade and high yield bond funds experienced record outflows as investors flocked to cash.
- Investment grade corporate spreads widened by 149 bps to 272 bps, representing the hardest hit sector in the Bloomberg Barclays US Aggregate Bond Index, particularly within Industrials, where several well-known issuers were downgraded to below investment grade, including Occidental Petroleum and Ford.
- The quality bias was evident as BBB-rated credit (-7.4%) underperformed single A or higher (+0.5%).
- CCC-rated high yield corporates (-20.6%) lagged BB-rated corporates (-10.2%).
- Energy (-38.9%) was the lowest-performing high yield bond sub-sector as oil prices collapsed.

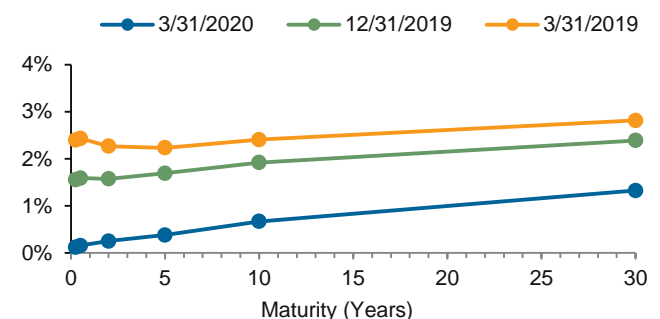
U.S. Fixed Income: Quarterly Returns



U.S. Fixed Income: One-Year Returns



U.S. Treasury Yield Curves



Sources: Bloomberg, Bloomberg Barclays, Credit Suisse

GLOBAL FIXED INCOME

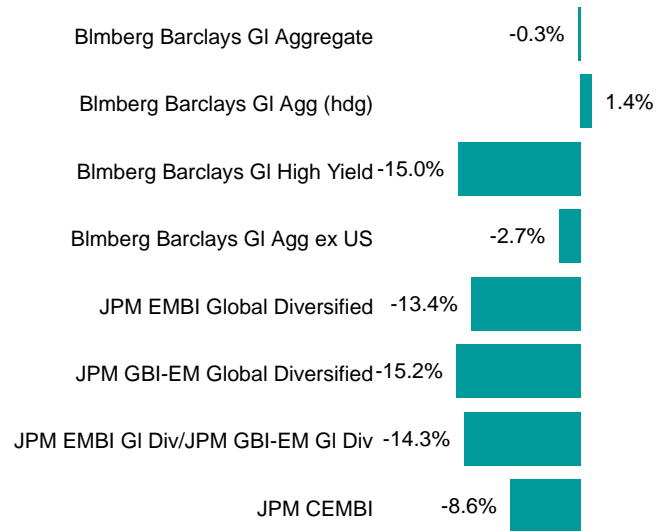
Global ex-U.S. fixed income ended slightly down

- Developed market sovereign bond yields ended the quarter slightly higher even as central banks stepped in to provide support to their economies; the European Central Bank launched a €750 billion stimulus program and the Bank of England cut interest rates.
- The U.S. dollar rose against the Australian dollar, British pound, and euro as investors sought safety within the greenback.

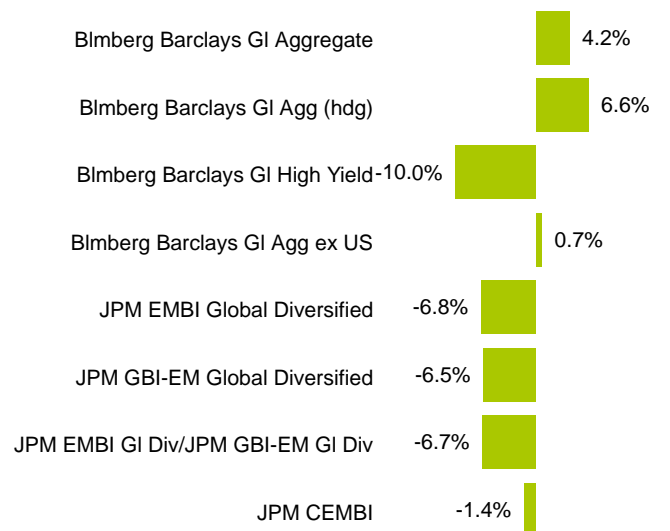
Emerging market debt plummeted in the risk-off environment

- Within the dollar-denominated benchmark, returns were mixed amongst its 60+ constituents.
- Within the local currency-denominated benchmark, several local market returns in Latin America dropped about 20% (Brazil, Mexico, and Colombia) and South Africa dropped 29% as oil-sensitive economies suffered from the drop in oil prices.

Global Fixed Income: Quarterly Returns

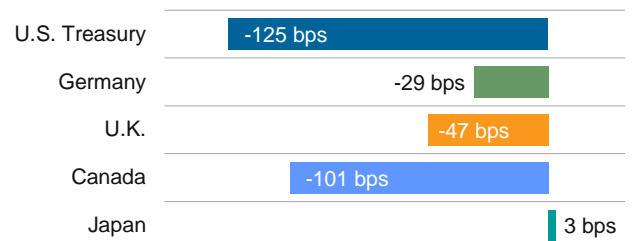


Global Fixed Income: One-Year Returns



Change in 10-Year Global Government Bond Yields

4Q19 to 1Q20



Sources: Bloomberg, Bloomberg Barclays, JP Morgan

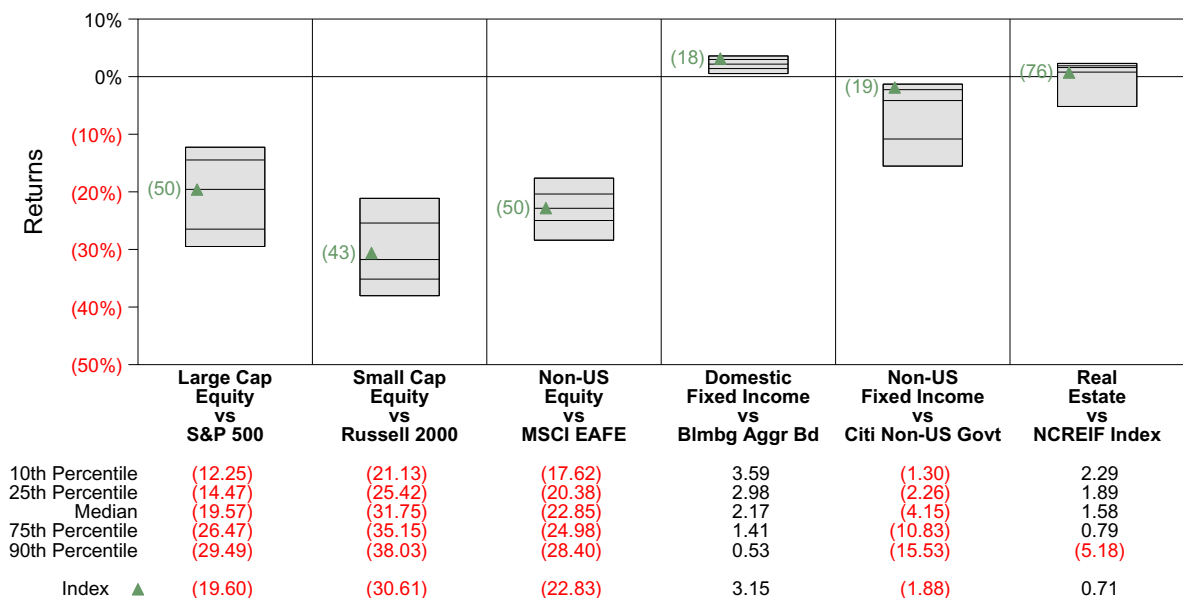
Market Overview

Active Management vs Index Returns

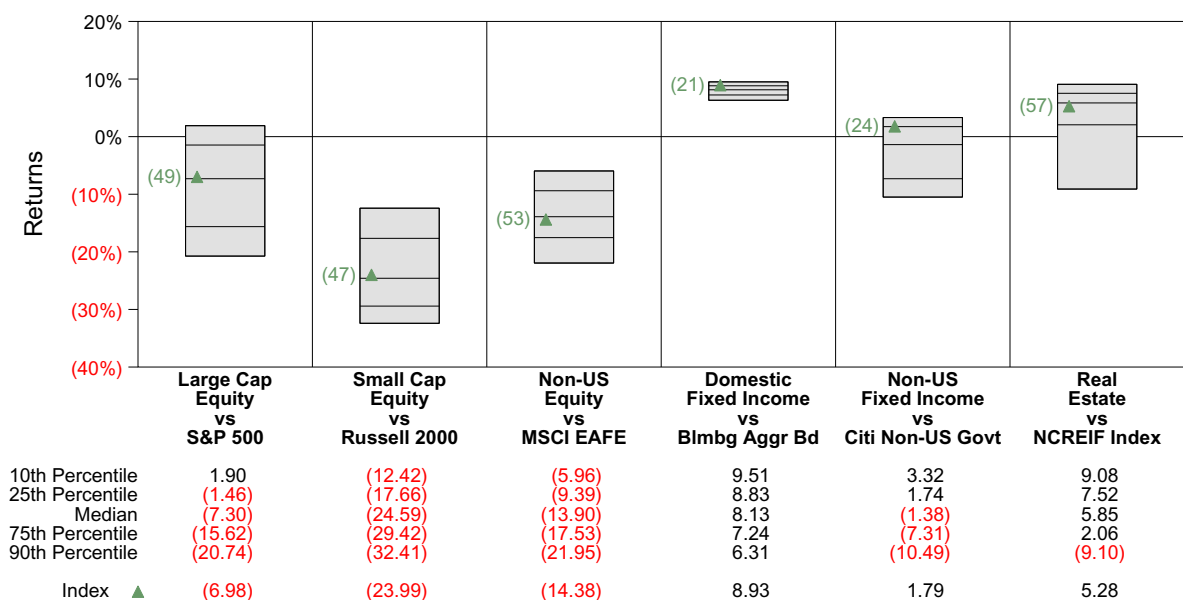
Market Overview

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, 2020



Range of Separate Account Manager Returns by Asset Class One Year Ended March 31, 2020

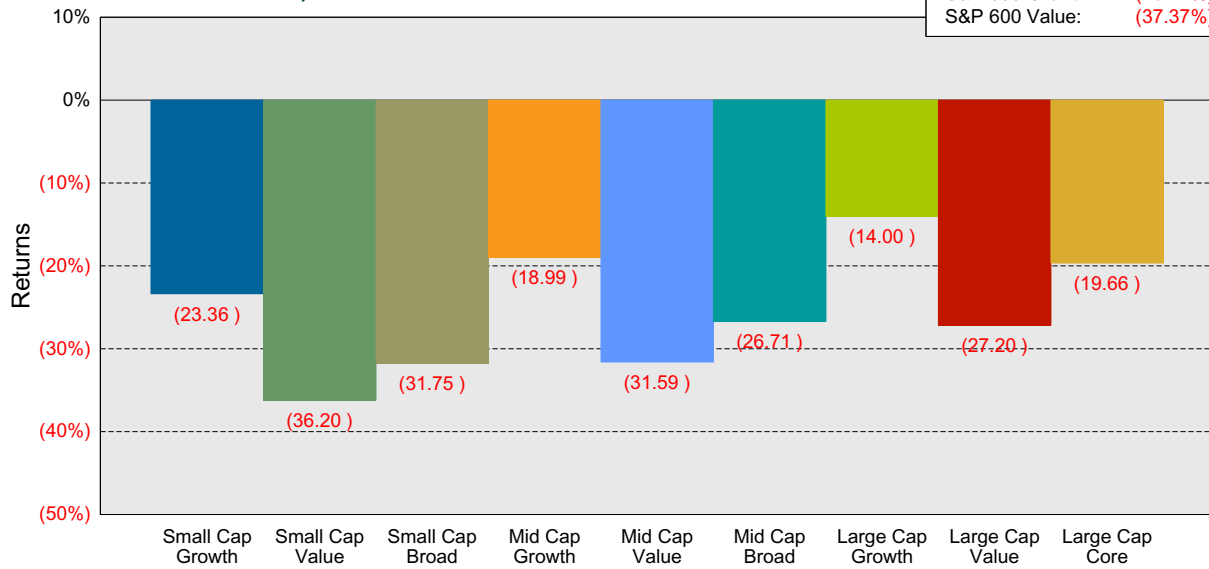


Domestic Equity Active Management Overview

The S&P 500 Index plunged 19.6% in the first quarter, its worst quarterly return since the Global Financial Crisis. After falling more than 30% from peak to trough in just a few weeks, the Index rallied 20% going into quarter-end as investors were heartened by the prospect of a \$2 trillion stimulus package. Notably, the decline marked the fastest bear market (defined as 20% drop in prices) in history 16 days from the high mark hit on February 19. Every sector experienced double-digit declines, with Information Technology (-11.9%), Consumer Staples (-12.7%), and Health Care (-12.7%) feeling the least pain. Financials (-31.9%) and Energy (-50.5%) fell the most. Financials were hurt by sharp declines in interest rates, and Energy's performance reflected plummeting oil prices. Oil prices tumbled 66%, with WTI Crude ending the quarter at \$20.48, down from roughly \$60 at the start of the year. From a style viewpoint, growth significantly outperformed value (Russell 1000 Growth: -14.1%; Russell 1000 Value: -26.7%). Growth indices benefited from Technology exposure while Value struggled with relatively heavy weights in Energy and Financials. Large cap (Russell 1000: -20.2%) outperformed small cap (Russell 2000: -30.6%). Small value (Russell 2000 Value: -35.7%) saw the sharpest decline.

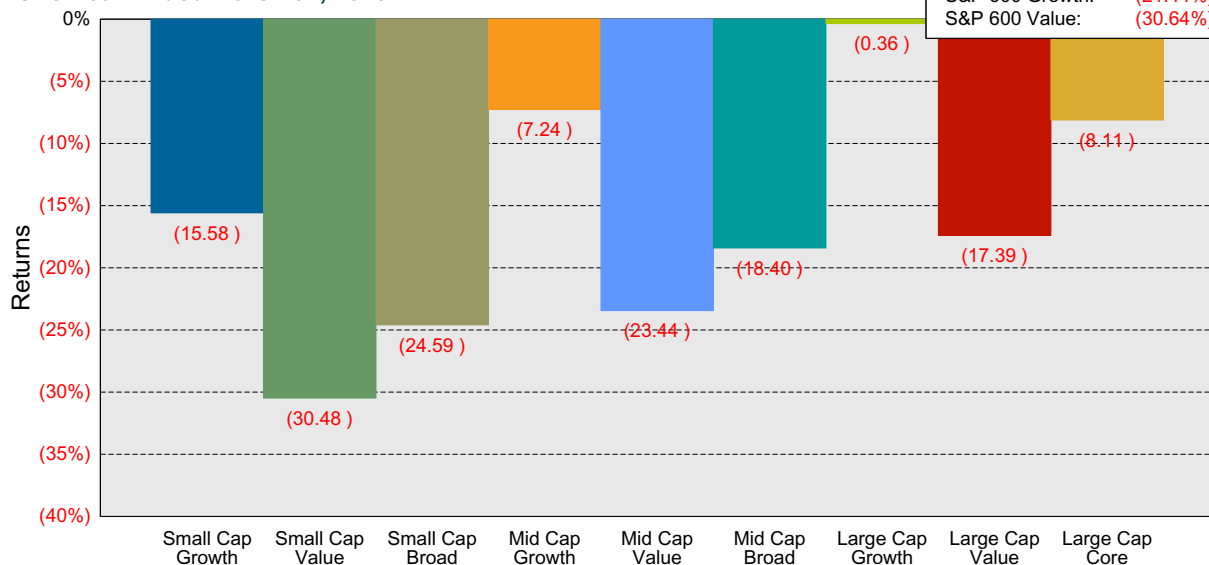
S&P 500:	(19.60%)
S&P 500 Growth:	(14.50%)
S&P 500 Value:	(25.34%)
S&P Mid Cap:	(29.70%)
S&P 600:	(32.64%)
S&P 600 Growth:	(28.11%)
S&P 600 Value:	(37.37%)

Separate Account Style Group Median Returns for Quarter Ended March 31, 2020



S&P 500:	(6.98%)
S&P 500 Growth:	(2.47%)
S&P 500 Value:	(12.20%)
S&P Mid Cap:	(22.51%)
S&P 600:	(25.89%)
S&P 600 Growth:	(21.44%)
S&P 600 Value:	(30.64%)

Separate Account Style Group Median Returns for One Year Ended March 31, 2020

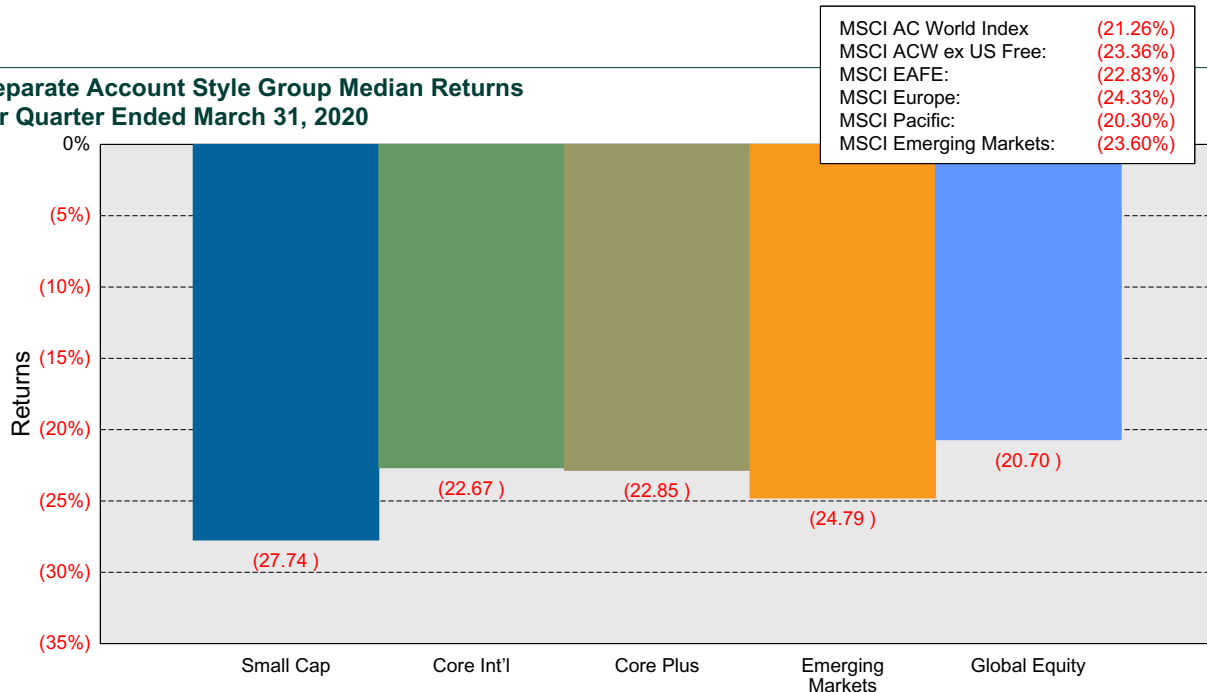


International Equity Active Management Overview

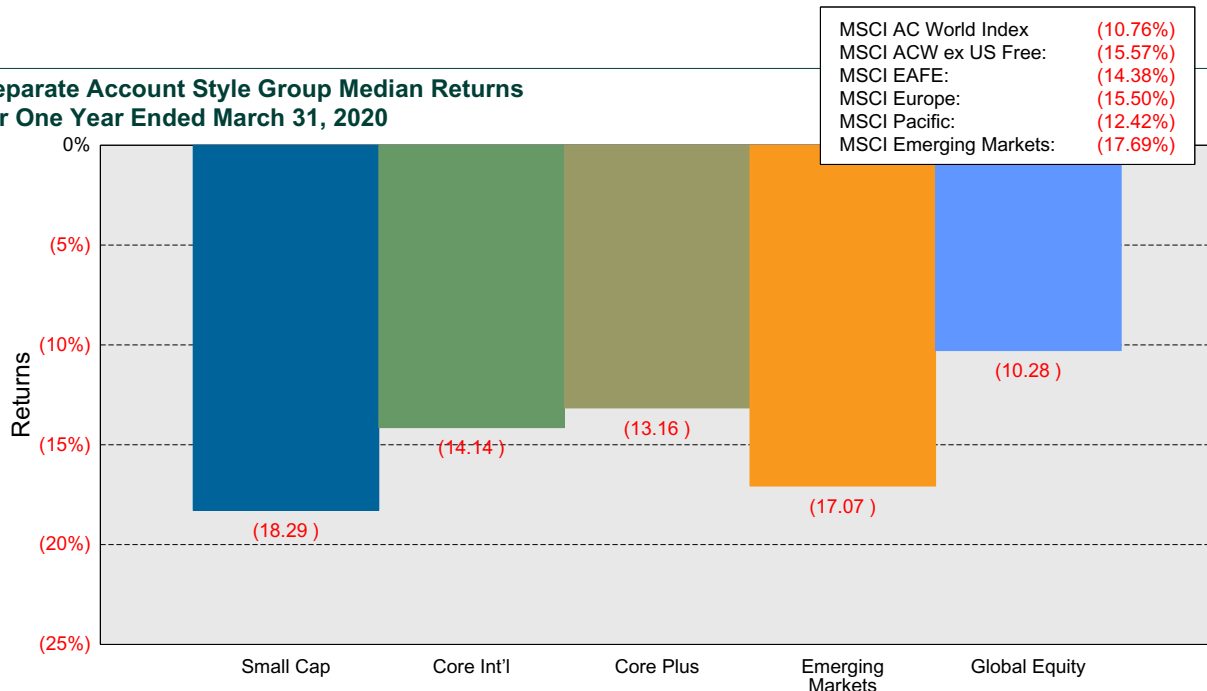
Global ex-U.S. equity indices fell sharply in the first quarter; the MSCI ACWI ex-USA Index dropped 23.4%. Across developed markets, Canada (-28%), the U.K. (-30%), and Australia (-34%) were among the worst performers while Japan (-17%) fared better, in relative terms. Modest appreciation of the U.S. dollar versus a basket of developed market currencies acted as a headwind for U.S. investors. As in the U.S., growth (MSCI ACWI ex-USA Growth: -18%) outperformed value (MSCI ACWI ex-USA Value: -29%). Also mirroring performance in the U.S., Health Care (-9%) was a top-performing sector while Energy (-38%) was the worst.

Emerging markets equities (MSCI EM: -23.6%) also sold off with currency depreciation being a key driver. Collectively, Latin American countries fell 46% in U.S. dollar terms and 32% in local currency terms. Russia dropped 36% in U.S. dollars (-22% local) and South Africa fell 41% (-24% local). India sank 32% (-27% local) while China performed relatively well, down only 10% in the quarter in U.S. dollar terms.

Separate Account Style Group Median Returns for Quarter Ended March 31, 2020



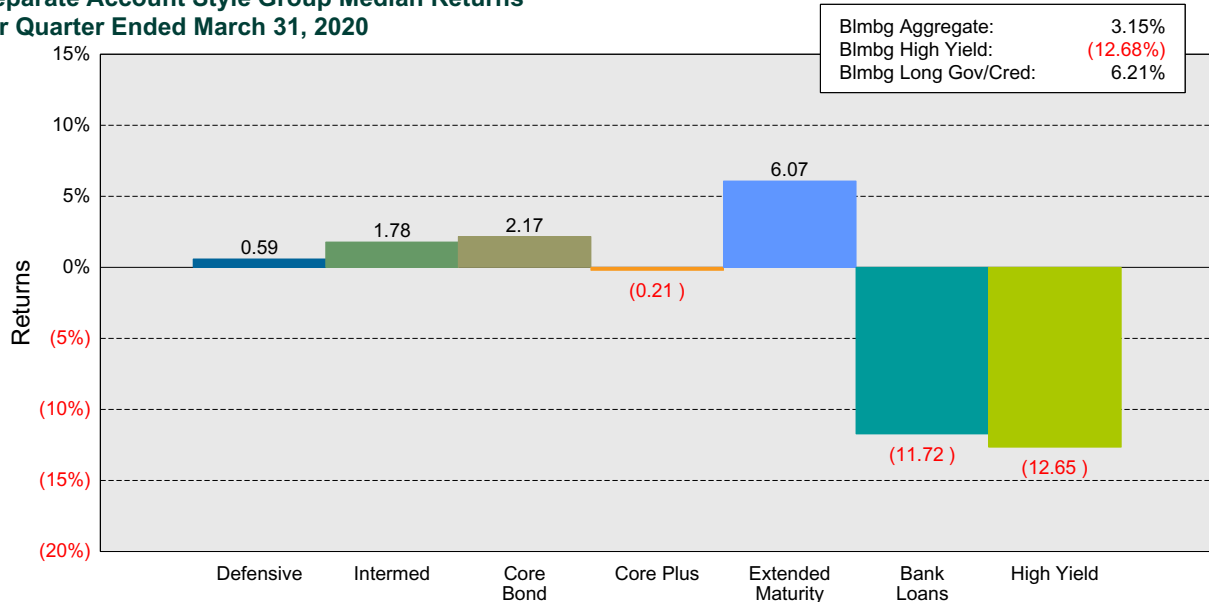
Separate Account Style Group Median Returns for One Year Ended March 31, 2020



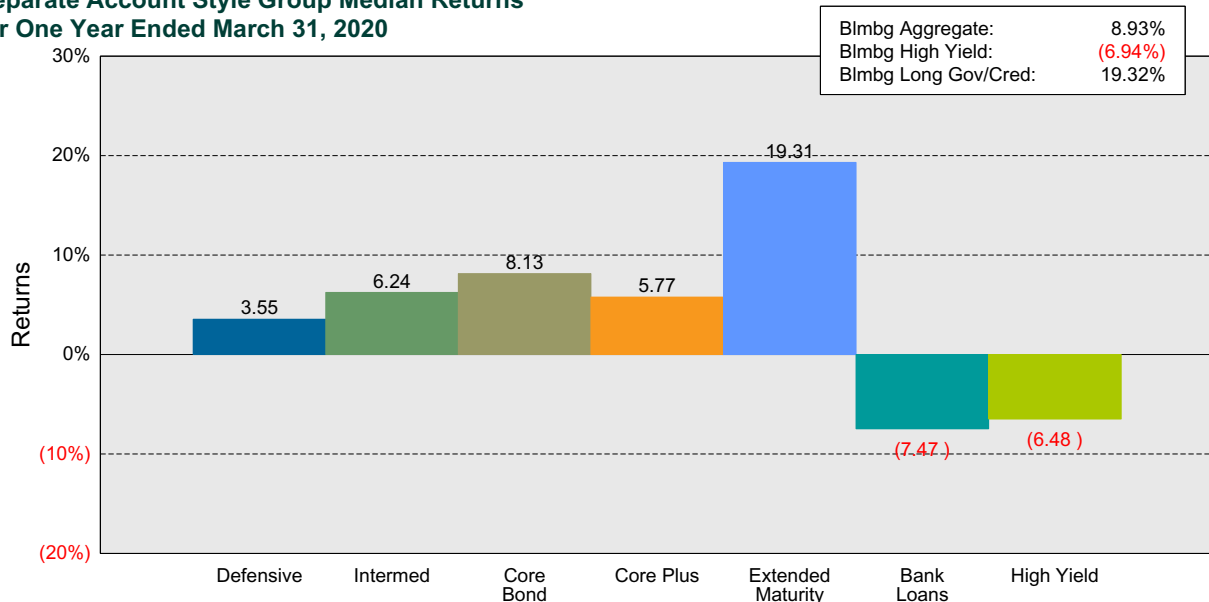
Domestic Fixed Income Active Management Overview

U.S. Treasury yields fell to record lows in March as investors sought safety and the Fed cut rates to 0%-0.25%. The 10-year U.S. Treasury yield reached a low in March of 0.31% before closing the quarter at 0.70%, down sharply from the year-end level of 1.92%. Most sectors underperformed U.S. Treasuries, hurt both by challenging liquidity conditions as well as a flight to safety. While the Bloomberg Barclays US Aggregate Bond Index rose 3.1% for the quarter, results were driven largely by performance of the Treasury sector (+8.2%). Corporates (-3.6%) and most securitized sectors underperformed U.S. Treasuries. The quality bias was evident in the return for the AAA-rated component (+5.8%) versus BBBs (-7.4%). TIPS (Bloomberg Barclays TIPS: +1.7%) sharply underperformed nominal Treasuries as expectations for inflation sank. The 10-year breakeven spread ended the quarter at 87 bps, down sharply from 177 bps at year-end. High yield corporate bonds (Bloomberg Barclays High Yield: -12.7%) fell sharply and ended the quarter with a yield-to-worst of 9.4% though it topped 10% in mid-March, the highest level since the GFC. Excluding the beleaguered Energy sector, high yield fell 9.1%. Leveraged loans performed even worse (S&P LSTA: -13.0%) and both high yield and loans experienced heavy outflows.

Separate Account Style Group Median Returns for Quarter Ended March 31, 2020



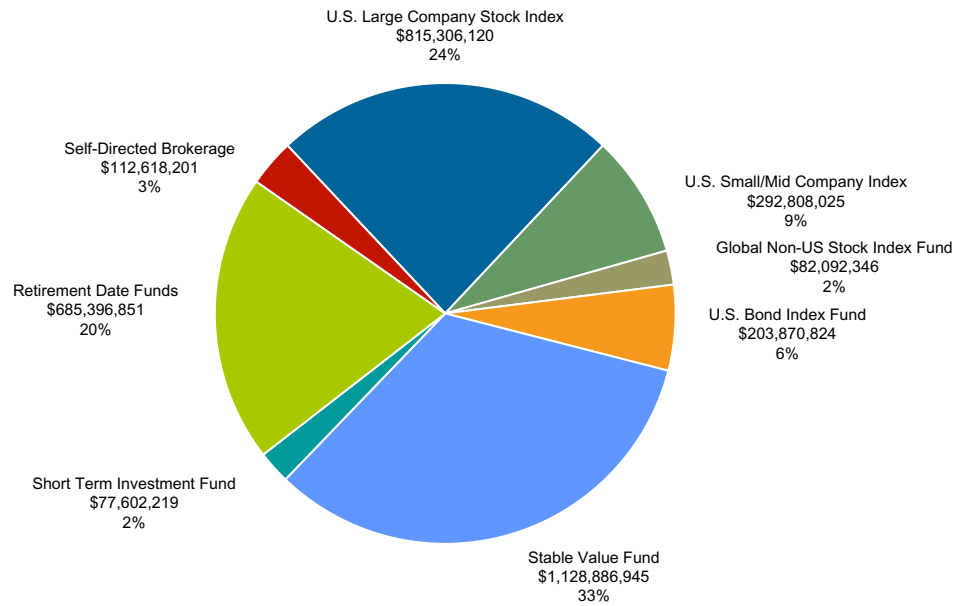
Separate Account Style Group Median Returns for One Year Ended March 31, 2020



Changes in Investment Fund Balances Period Ended March 31, 2020

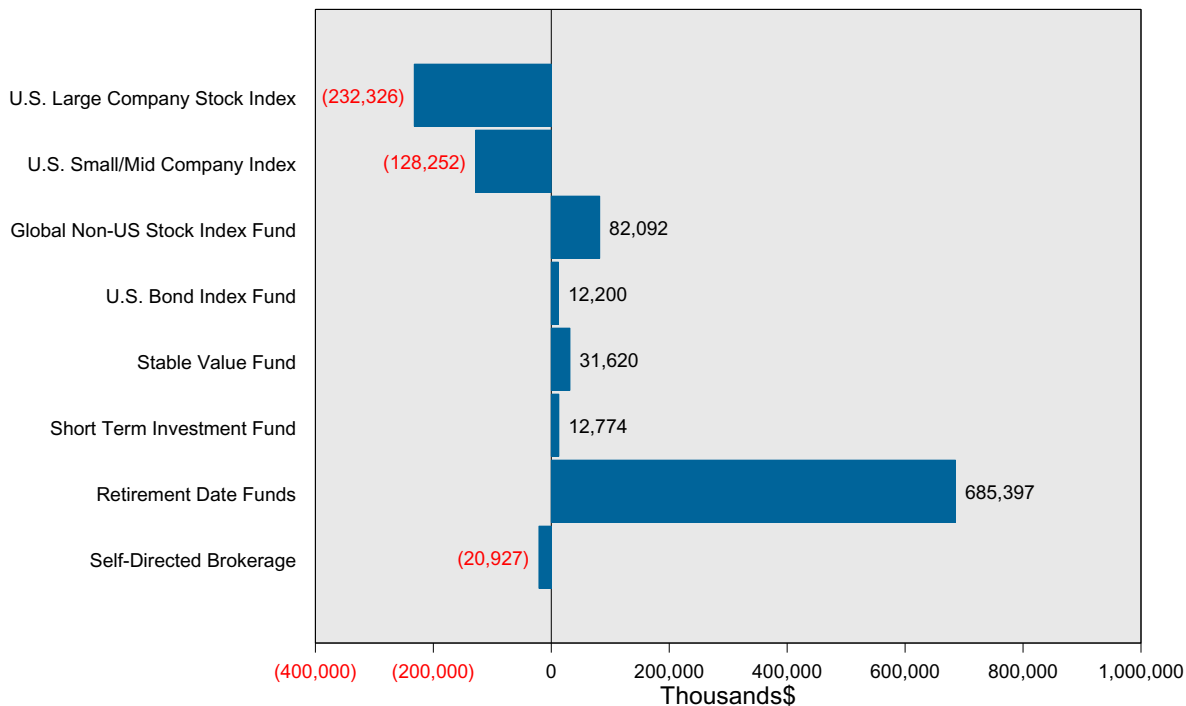
Allocation Across Investment Options

The chart below illustrates the allocation of the aggregate fund assets across the various investment options for the quarter ended March 31, 2020.



Changes in Fund Values

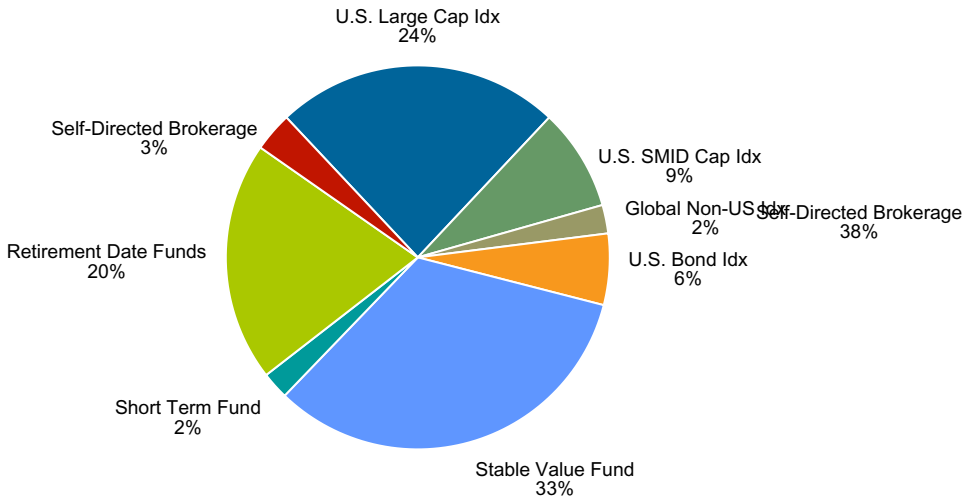
The chart below shows the net change in fund values across the various investment options for the quarter ended March 31, 2020. The change in value for each fund is the result of a combination of 3 factors: 1) market movements; 2) contributions or disbursements into or out of the funds by the participants (and any matching done by the company); and 3) transfers between funds by the participants.



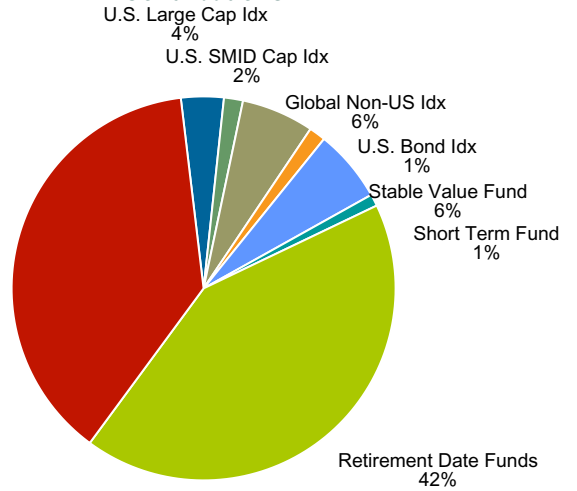
Asset Allocation

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.

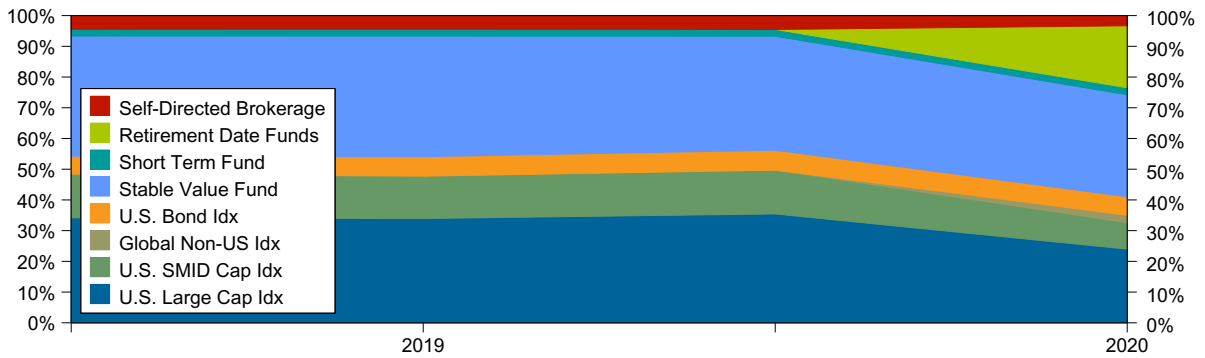
Asset Allocation



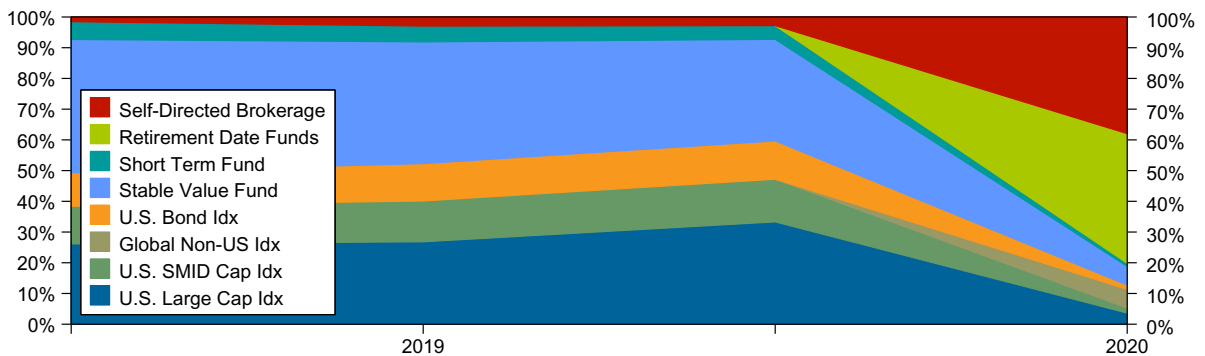
Contributions



Historical Asset Allocation



Historical Allocation of Contributions



Investment Fund Balances

The table below compares the fund's investment fund balances as of March 31, 2020 with that of December 31, 2019. 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 Funds

	March 31, 2020		Net New Inv. \$(000)	Inv. Return \$(000)	December 31, 2019	
	Market Value \$(000)	% of Total Weight			Market Value \$(000)	% of Total Weight
SERS Retirement Date Funds	\$685,397	20.17%	\$801,533	\$(116,136)	-	-
SERS Post Retirement Fund	225,405	6.63%	246,074	(20,668)	-	-
SERS 2025 Retirement Fund	124,723	3.67%	142,177	(17,455)	-	-
SERS 2030 Retirement Fund	112,491	3.31%	133,214	(20,723)	-	-
SERS 2035 Retirement Fund	97,955	2.88%	119,671	(21,716)	-	-
SERS 2040 Retirement Fund	54,594	1.61%	69,019	(14,426)	-	-
SERS 2045 Retirement Fund	38,734	1.14%	49,891	(11,156)	-	-
SERS 2050 Retirement Fund	22,675	0.67%	29,700	(7,025)	-	-
SERS 2055 Retirement Fund	5,794	0.17%	7,875	(2,081)	-	-
SERS 2060 Retirement Fund	2,184	0.06%	2,920	(736)	-	-
SERS 2065 Retirement Fund	842	0.02%	994	(151)	-	-
SERS Risk-Based Funds	\$0	0.00%	\$(742,732)	\$2,018	\$740,714	19.16%
SERS 60/40 Balanced Fund	0	0.00%	(278,107)	836	277,271	7.17%
SERS Conservative Portfolio Fund	0	0.00%	(85,990)	265	85,725	2.22%
SERS Moderate Portfolio Fund	0	0.00%	(199,564)	563	199,002	5.15%
SERS Aggressive Portfolio Fund	0	0.00%	(179,071)	355	178,716	4.62%
SERS U.S. Equity	\$1,108,114	32.61%	\$(44,364)	\$(316,213)	\$1,468,691	37.99%
SERS U.S. Large Company Index	815,306	23.99%	(31,070)	(201,256)	1,047,632	27.10%
SERS U.S. SMID Company Index	292,808	8.62%	(13,294)	(114,957)	421,060	10.89%
SERS International Equity	\$82,092	2.42%	\$(144,160)	\$57,067	\$169,185	4.38%
SERS Intl Company Idx Fund	0	0.00%	(169,339)	153	169,185	4.38%
SERS Global Non-US IdxFund	82,092	2.42%	25,179	56,914	-	-
SERS Fixed Income	\$1,410,360	41.50%	\$43,810	\$12,783	\$1,353,767	35.02%
SERS Short Term Investment Fund	77,602	2.28%	12,544	230	64,828	1.68%
SERS Stable Value Fund	1,128,887	33.22%	25,179	6,441	1,097,267	28.38%
SERS U.S. Bond Index Fund	203,871	6.00%	6,088	6,112	191,671	4.96%
Self-Directed Brokerage						
Self-Directed Brokerage Account	112,618	3.31%	184,556	(205,483)	133,545	3.45%
SERS 457(b) Total Fund	\$3,398,582	100.0%	\$98,643	\$(565,964)	\$3,865,902	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, 2020. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns for Periods Ended March 31, 2020

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 7 Years
Net Performance					
Retirement Date Funds					
SERS Post Retirement Fund	(7.73%)	(0.02%)	3.36%	3.20%	3.82%
BlackRock Post Retirement Index	(7.78%)	(0.04%)	3.33%	3.17%	3.79%
Callan Tgt Date Ret Inc	(7.47%)	(0.82%)	2.57%	2.60%	3.28%
SERS 2025 Retirement Fund	(11.32%)	(2.98%)	3.16%	3.38%	4.58%
BlackRock 2025 Index	(11.37%)	(3.02%)	3.08%	3.31%	4.51%
Callan Target Date 2025	(12.44%)	(4.33%)	2.59%	3.12%	4.76%
SERS 2030 Retirement Fund	(14.36%)	(5.53%)	2.68%	3.24%	4.69%
BlackRock 2030 Index	(14.41%)	(5.63%)	2.59%	3.14%	4.59%
Callan Target Date 2030	(14.76%)	(6.17%)	2.36%	3.16%	5.06%
SERS 2035 Retirement Fund	(17.11%)	(7.91%)	2.24%	3.12%	4.78%
BlackRock 2035 Index	(17.16%)	(7.99%)	2.12%	2.99%	4.66%
Callan Target Date 2035	(17.10%)	(8.23%)	1.96%	3.03%	5.14%
SERS 2040 Retirement Fund	(19.61%)	(10.07%)	1.78%	2.95%	4.82%
BlackRock 2040 Index	(19.65%)	(10.16%)	1.66%	2.81%	4.69%
Callan Target Date 2040	(18.86%)	(9.75%)	1.62%	2.92%	5.18%
SERS 2045 Retirement Fund	(21.29%)	(11.58%)	1.42%	2.79%	4.87%
BlackRock 2045 Index	(21.34%)	(11.72%)	1.26%	2.62%	4.72%
Callan Target Date 2045	(20.14%)	(10.81%)	1.40%	2.84%	5.14%
SERS 2050 Retirement Fund	(22.06%)	(12.30%)	1.22%	2.69%	4.90%
BlackRock 2050 Index	(22.09%)	(12.40%)	1.08%	2.53%	4.77%
Callan Target Date 2050	(20.41%)	(11.10%)	1.20%	2.71%	5.16%
SERS 2055 Retirement Fund	(22.11%)	(12.35%)	1.20%	2.66%	4.99%
BlackRock 2055 Index	(22.19%)	(12.48%)	1.05%	2.51%	4.85%
Callan Target Date 2055	(20.64%)	(11.46%)	1.08%	2.75%	5.28%
SERS 2060 Retirement Fund	(22.11%)	(12.35%)	1.18%	2.66%	-
BlackRock 2060 Index	(22.18%)	(12.47%)	1.05%	2.55%	-
Callan Target Date 2060	(20.66%)	(11.35%)	1.24%	3.01%	5.80%
SERS 2065 Retirement Fund	(22.12%)	-	-	-	-
BlackRock 2065 Index	(22.18%)	-	-	-	-
Callan Target Date 2065	(20.71%)	(10.25%)	-	-	-

*Target Date funds replaced risk-based funds in 1Q20.

Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods ended March 31, 2020. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

	Returns for Periods Ended March 31, 2020		
	Last 10 Years	Last 15 Years	Last 20 Years
Net Performance			
Retirement Date Funds			
SERS Post Retirement Fund	4.99%	-	-
BlackRock Post Retirement Index	4.96%	4.94%	5.05%
Callan Tgt Date Ret Inc	4.28%	4.05%	3.96%
SERS 2025 Retirement Fund	5.82%	-	-
BlackRock 2025 Index	5.76%	5.19%	4.00%
Callan Target Date 2025	6.13%	5.16%	-
SERS 2030 Retirement Fund	5.99%	-	-
BlackRock 2030 Index	5.90%	5.22%	3.82%
Callan Target Date 2030	6.45%	5.15%	3.27%
SERS 2035 Retirement Fund	6.14%	-	-
BlackRock 2035 Index	6.02%	5.22%	3.64%
Callan Target Date 2035	6.53%	5.38%	-
SERS 2040 Retirement Fund	6.22%	-	-
BlackRock 2040 Index	6.10%	5.20%	3.43%
Callan Target Date 2040	6.64%	5.32%	2.60%
SERS 2045 Retirement Fund	6.30%	-	-
BlackRock 2045 Index	6.17%	5.18%	3.32%
Callan Target Date 2045	6.51%	5.81%	-
SERS 2050 Retirement Fund	6.40%	-	-
BlackRock 2050 Index	6.26%	5.43%	3.54%
Callan Target Date 2050	6.70%	-	-
Callan Target Date 2055	6.91%	-	-

*Funds not listed do not have longer term history.

*Target Date funds replaced risk-based funds in 1Q20.

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.

	12/2019- 3/2020	2019	2018	2017	2016
Net Performance					
Retirement Date Funds					
SERS Post Retirement Fund	(7.73%)	15.65%	(3.47%)	10.18%	6.10%
BlackRock Post Retirement Index	(7.78%)	15.63%	(3.48%)	10.10%	6.01%
Callan Tgt Date Ret Inc	(7.47%)	13.21%	(3.04%)	8.76%	5.69%
SERS 2025 Retirement Fund	(11.32%)	18.60%	(4.86%)	13.91%	7.30%
BlackRock 2025 Index	(11.37%)	18.56%	(4.90%)	13.75%	7.10%
Callan Target Date 2025	(12.44%)	18.51%	(5.19%)	14.94%	7.08%
SERS 2030 Retirement Fund	(14.36%)	20.80%	(5.71%)	15.83%	7.88%
BlackRock 2030 Index	(14.41%)	20.70%	(5.76%)	15.64%	7.61%
Callan Target Date 2030	(14.76%)	20.43%	(6.12%)	16.77%	7.58%
SERS 2035 Retirement Fund	(17.11%)	22.84%	(6.50%)	17.72%	8.44%
BlackRock 2035 Index	(17.16%)	22.72%	(6.58%)	17.48%	8.08%
Callan Target Date 2035	(17.10%)	22.17%	(7.03%)	18.51%	8.20%
SERS 2040 Retirement Fund	(19.61%)	24.71%	(7.22%)	19.38%	8.88%
BlackRock 2040 Index	(19.65%)	24.62%	(7.33%)	19.09%	8.51%
Callan Target Date 2040	(18.86%)	23.59%	(7.89%)	19.84%	8.48%
SERS 2045 Retirement Fund	(21.29%)	26.05%	(7.85%)	20.47%	9.20%
BlackRock 2045 Index	(21.34%)	25.90%	(7.99%)	20.15%	8.77%
Callan Target Date 2045	(20.14%)	24.60%	(8.21%)	20.63%	8.63%
SERS 2050 Retirement Fund	(22.06%)	26.60%	(8.11%)	20.85%	9.26%
BlackRock 2050 Index	(22.09%)	26.48%	(8.26%)	20.55%	8.82%
Callan Target Date 2050	(20.41%)	24.89%	(8.44%)	20.74%	8.61%
SERS 2055 Retirement Fund	(22.11%)	26.67%	(8.13%)	20.82%	9.22%
BlackRock 2055 Index	(22.19%)	26.58%	(8.28%)	20.55%	8.82%
Callan Target Date 2055	(20.64%)	24.97%	(8.44%)	21.10%	8.65%
SERS 2060 Retirement Fund	(22.11%)	26.66%	(8.14%)	20.77%	9.25%
BlackRock 2060 Index	(22.18%)	26.58%	(8.28%)	20.55%	8.82%
Callan Target Date 2060	(20.66%)	25.08%	(8.35%)	21.15%	8.80%
SERS 2065 Retirement Fund	(22.12%)	-	-	-	-
BlackRock 2065 Index	(22.18%)	-	-	-	-
Callan Target Date 2065	(20.71%)	25.62%	(8.63%)	-	-

*Target Date funds replaced risk-based funds in 1Q20.

Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods ended March 31, 2020. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

	Returns for Periods Ended March 31, 2020				
	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 7 Years
Net Performance					
Domestic Equity					
SERS U.S. Large Company Index	(19.59%)	(6.97%)	5.11%	6.74%	9.63%
S&P 500 Index	(19.60%)	(6.98%)	5.10%	6.73%	9.62%
Callan Lg Cap Broad MF	(19.15%)	(7.01%)	4.67%	5.95%	8.96%
SERS SMID Company Index	(28.02%)	(20.47%)	(1.85%)	1.06%	5.59%
Dow Jones US Completion	(28.01%)	(20.61%)	(2.02%)	0.87%	5.40%
Callan SMID Broad MFs	(25.28%)	(19.07%)	1.00%	2.02%	5.28%
International Equity					
SERS Global Non-US Index	(23.74%)	(16.00%)	(1.90%)	(0.51%)	1.17%
MSCI ACWI ex US	(23.36%)	(15.57%)	(1.96%)	(0.64%)	1.06%
Callan Non US Equity MFs	(22.82%)	(14.66%)	(2.03%)	(0.79%)	1.58%
Domestic Fixed Income					
SERS Short Term Investment Fund	0.40%	2.10%	1.88%	1.32%	0.99%
3-month Treasury Bill	0.57%	2.25%	1.83%	1.19%	0.86%
Callan Cash Database(1)	0.36%	2.16%	1.98%	1.42%	1.11%
SERS Stable Value Fund	0.63%	2.60%	2.32%	2.20%	2.24%
3-month Treasury Bill	0.57%	2.25%	1.83%	1.19%	0.86%
Callan Stable Value	0.61%	2.55%	2.34%	2.20%	2.09%
SERS U.S. Bond Index Fund	3.25%	9.02%	4.85%	3.35%	3.16%
Blmbg Aggregate	3.15%	8.93%	4.82%	3.36%	3.19%
Callan Core Bond MFs	1.54%	7.36%	4.27%	3.19%	2.98%

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

*The Global Non-U.S. Stock Index Fund replaced the International Company Stock Index Fund in 1Q20.

Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods ended March 31, 2020. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

	Returns for Periods Ended March 31, 2020		
	Last 10 Years	Last 15 Years	Last 20 Years
Net Performance			
Domestic Equity			
SERS U.S. Large Company Index	10.55%	7.62%	4.84%
S&P 500 Index	10.53%	7.58%	4.79%
Callan Lg Cap Broad MF	9.61%	7.34%	4.63%
SERS SMID Company Index	8.26%	7.22%	5.26%
Dow Jones US Completion	8.06%	7.02%	4.88%
Callan SMID Broad MFs	7.98%	7.28%	6.26%
International Equity			
SERS Global Non-US Index	2.20%	-	-
MSCI ACWI ex US	2.05%	3.39%	-
Callan Non US Equity MFs	2.87%	3.35%	2.43%
Domestic Fixed Income			
SERS Short Term Investment Fund	0.76%	1.55%	-
3-month Treasury Bill	0.64%	1.39%	1.74%
Callan Cash Database(1)	0.92%	1.76%	2.10%
SERS Stable Value Fund	2.57%	3.27%	-
3-month Treasury Bill	0.64%	1.39%	1.74%
Callan Stable Value	2.30%	2.91%	3.63%
SERS U.S. Bond Index Fund	3.85%	4.37%	5.04%
BImbg Aggregate	3.88%	4.40%	5.08%
Callan Core Bond MFs	3.93%	4.51%	4.97%

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

*Funds not listed do not have longer term history.

*The Global Non-U.S. Stock Index Fund replaced the International Company Stock Index Fund in 1Q20.

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.

	12/2019- 3/2020	2019	2018	2017	2016
Net Performance					
Domestic Equity					
SERS U.S. Large Company Index	(19.59%)	31.51%	(4.39%)	21.84%	11.98%
S&P 500 Index	(19.60%)	31.49%	(4.38%)	21.83%	11.96%
Callan Lg Cap Broad MF	(19.15%)	30.14%	(4.54%)	23.56%	8.43%
SERS SMID Company Index	(28.02%)	28.20%	(9.32%)	18.21%	16.08%
Dow Jones US Completion	(28.01%)	27.91%	(9.57%)	18.12%	15.75%
Callan SMID Broad MFs	(25.28%)	29.40%	(8.69%)	17.14%	13.80%
International Equity					
SERS Global Non-US Index	(23.74%)	21.77%	(13.86%)	27.63%	5.05%
MSCI ACWI ex US	(23.36%)	21.51%	(14.20%)	27.19%	4.50%
Callan Non US Equity MFs	(22.82%)	22.83%	(15.04%)	26.90%	0.23%
Domestic Fixed Income					
SERS Short Term Investment Fund	0.40%	2.31%	2.09%	1.08%	0.59%
3-month Treasury Bill	0.57%	2.28%	1.87%	0.86%	0.33%
Callan Cash Database(1)	0.36%	2.69%	2.00%	1.19%	0.95%
SERS Stable Value Fund	0.63%	2.59%	2.34%	1.85%	1.99%
3-month Treasury Bill	0.57%	2.28%	1.87%	0.86%	0.33%
Callan Stable Value	0.61%	2.55%	2.24%	1.97%	1.89%
SERS U.S. Bond Index Fund	3.25%	8.69%	0.02%	3.53%	2.59%
Bimbg Aggregate	3.15%	8.72%	0.01%	3.54%	2.65%
Callan Core Bond MFs	1.54%	9.17%	(0.35%)	3.71%	3.03%

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

*The Global Non-U.S. Stock Index Fund replaced the International Company Stock Index Fund in 1Q20.

Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods ended March 31, 2020. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns for Periods Ended March 31, 2020

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 7 Years
Gross Performance					
Retirement Date Funds					
SERS Post Retirement Fund	(7.72%)	0.05%	3.43%	3.26%	3.89%
BlackRock Post Retirement Index	(7.78%)	(0.04%)	3.33%	3.17%	3.79%
Callan Tgt Date Ret Inc	(7.47%)	(0.82%)	2.57%	2.60%	3.28%
SERS 2025 Retirement Fund	(11.30%)	(2.91%)	3.23%	3.45%	4.65%
BlackRock 2025 Index	(11.37%)	(3.02%)	3.08%	3.31%	4.51%
Callan Target Date 2025	(12.44%)	(4.33%)	2.59%	3.12%	4.76%
SERS 2030 Retirement Fund	(14.34%)	(5.47%)	2.76%	3.32%	4.76%
BlackRock 2030 Index	(14.41%)	(5.63%)	2.59%	3.14%	4.59%
Callan Target Date 2030	(14.76%)	(6.17%)	2.36%	3.16%	5.06%
SERS 2035 Retirement Fund	(17.10%)	(7.84%)	2.31%	3.19%	4.85%
BlackRock 2035 Index	(17.16%)	(7.99%)	2.12%	2.99%	4.66%
Callan Target Date 2035	(17.10%)	(8.23%)	1.96%	3.03%	5.14%
SERS 2040 Retirement Fund	(19.60%)	(10.01%)	1.85%	3.01%	4.89%
BlackRock 2040 Index	(19.65%)	(10.16%)	1.66%	2.81%	4.69%
Callan Target Date 2040	(18.86%)	(9.75%)	1.62%	2.92%	5.18%
SERS 2045 Retirement Fund	(21.28%)	(11.53%)	1.49%	2.85%	4.93%
BlackRock 2045 Index	(21.34%)	(11.72%)	1.26%	2.62%	4.72%
Callan Target Date 2045	(20.14%)	(10.81%)	1.40%	2.84%	5.14%
SERS 2050 Retirement Fund	(22.05%)	(12.24%)	1.29%	2.75%	4.97%
BlackRock 2050 Index	(22.09%)	(12.40%)	1.08%	2.53%	4.77%
Callan Target Date 2050	(20.41%)	(11.10%)	1.20%	2.71%	5.16%
SERS 2055 Retirement Fund	(22.10%)	(12.29%)	1.26%	2.73%	5.06%
BlackRock 2055 Index	(22.19%)	(12.48%)	1.05%	2.51%	4.85%
Callan Target Date 2055	(20.64%)	(11.46%)	1.08%	2.75%	5.28%
SERS 2060 Retirement Fund	(22.10%)	(12.29%)	1.25%	2.73%	-
BlackRock 2060 Index	(22.18%)	(12.47%)	1.05%	2.55%	-
Callan Target Date 2060	(20.66%)	(11.35%)	1.24%	3.01%	5.80%
SERS 2065 Retirement Fund	(22.11%)	-	-	-	-
BlackRock 2065 Index	(22.18%)	-	-	-	-
Callan Target Date 2065	(20.71%)	(10.25%)	-	-	-

*Target Date funds replaced risk-based funds in 1Q20.

Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods ended March 31, 2020. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

	Returns for Periods Ended March 31, 2020		
	Last 10 Years	Last 15 Years	Last 20 Years
Gross Performance			
Retirement Date Funds			
SERS Post Retirement Fund	5.06%	-	-
BlackRock Post Retirement Index	4.96%	4.94%	5.05%
Callan Tgt Date Ret Inc	4.28%	4.05%	3.96%
SERS 2025 Retirement Fund	5.90%	-	-
BlackRock 2025 Index	5.76%	5.19%	4.00%
Callan Target Date 2025	6.13%	5.16%	-
SERS 2030 Retirement Fund	6.07%	-	-
BlackRock 2030 Index	5.90%	5.22%	3.82%
Callan Target Date 2030	6.45%	5.15%	3.27%
SERS 2035 Retirement Fund	6.21%	-	-
BlackRock 2035 Index	6.02%	5.22%	3.64%
Callan Target Date 2035	6.53%	5.38%	-
SERS 2040 Retirement Fund	6.29%	-	-
BlackRock 2040 Index	6.10%	5.20%	3.43%
Callan Target Date 2040	6.64%	5.32%	2.60%
SERS 2045 Retirement Fund	6.37%	-	-
BlackRock 2045 Index	6.17%	5.18%	3.32%
Callan Target Date 2045	6.51%	5.81%	-
SERS 2050 Retirement Fund	6.48%	-	-
BlackRock 2050 Index	6.26%	5.43%	3.54%
Callan Target Date 2050	6.70%	-	-
Callan Target Date 2055	6.91%	-	-

*Funds not listed do not have longer term history.

*Target Date funds replaced risk-based funds in 1Q20.

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.

	12/2019- 3/2020	2019	2018	2017	2016
Gross Performance					
Retirement Date Funds					
SERS Post Retirement Fund	(7.72%)	15.72%	(3.41%)	10.25%	6.18%
BlackRock Post Retirement Index	(7.78%)	15.63%	(3.48%)	10.10%	6.01%
Callan Tgt Date Ret Inc	(7.47%)	13.21%	(3.04%)	8.76%	5.69%
SERS 2025 Retirement Fund	(11.30%)	18.67%	(4.80%)	13.99%	7.37%
BlackRock 2025 Index	(11.37%)	18.56%	(4.90%)	13.75%	7.10%
Callan Target Date 2025	(12.44%)	18.51%	(5.19%)	14.94%	7.08%
SERS 2030 Retirement Fund	(14.34%)	20.86%	(5.63%)	15.91%	7.95%
BlackRock 2030 Index	(14.41%)	20.70%	(5.76%)	15.64%	7.61%
Callan Target Date 2030	(14.76%)	20.43%	(6.12%)	16.77%	7.58%
SERS 2035 Retirement Fund	(17.10%)	22.93%	(6.43%)	17.77%	8.50%
BlackRock 2035 Index	(17.16%)	22.72%	(6.58%)	17.48%	8.08%
Callan Target Date 2035	(17.10%)	22.17%	(7.03%)	18.51%	8.20%
SERS 2040 Retirement Fund	(19.60%)	24.80%	(7.17%)	19.45%	8.95%
BlackRock 2040 Index	(19.65%)	24.62%	(7.33%)	19.09%	8.51%
Callan Target Date 2040	(18.86%)	23.59%	(7.89%)	19.84%	8.48%
SERS 2045 Retirement Fund	(21.28%)	26.12%	(7.78%)	20.54%	9.25%
BlackRock 2045 Index	(21.34%)	25.90%	(7.99%)	20.15%	8.77%
Callan Target Date 2045	(20.14%)	24.60%	(8.21%)	20.63%	8.63%
SERS 2050 Retirement Fund	(22.05%)	26.70%	(8.05%)	20.94%	9.31%
BlackRock 2050 Index	(22.09%)	26.48%	(8.26%)	20.55%	8.82%
Callan Target Date 2050	(20.41%)	24.89%	(8.44%)	20.74%	8.61%
SERS 2055 Retirement Fund	(22.10%)	26.75%	(8.07%)	20.90%	9.30%
BlackRock 2055 Index	(22.19%)	26.58%	(8.28%)	20.55%	8.82%
Callan Target Date 2055	(20.64%)	24.97%	(8.44%)	21.10%	8.65%
SERS 2060 Retirement Fund	(22.10%)	26.74%	(8.08%)	20.85%	9.32%
BlackRock 2060 Index	(22.18%)	26.58%	(8.28%)	20.55%	8.82%
Callan Target Date 2060	(20.66%)	25.08%	(8.35%)	21.15%	8.80%
SERS 2065 Retirement Fund	(22.11%)	-	-	-	-
BlackRock 2065 Index	(22.18%)	-	-	-	-
Callan Target Date 2065	(20.71%)	25.62%	(8.63%)	-	-

*Target Date funds replaced risk-based funds in 1Q20.

Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods ended March 31, 2020. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns for Periods Ended March 31, 2020

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 7 Years
Gross Performance					
Domestic Equity					
SERS U.S. Large Company Index	(19.59%)	(6.96%)	5.12%	6.75%	9.64%
S&P 500 Index	(19.60%)	(6.98%)	5.10%	6.73%	9.62%
Callan Lg Cap Broad MF	(19.15%)	(7.01%)	4.67%	5.95%	8.96%
SERS SMID Company Index	(28.02%)	(20.47%)	(1.84%)	1.07%	5.60%
Dow Jones US Completion	(28.01%)	(20.61%)	(2.02%)	0.87%	5.40%
Callan SMID Broad MFs	(25.28%)	(19.07%)	1.00%	2.02%	5.28%
International Equity					
SERS Global Non-US Index	(23.73%)	(15.99%)	(1.89%)	(0.49%)	1.18%
MSCI ACWI ex US	(23.36%)	(15.57%)	(1.96%)	(0.64%)	1.06%
Callan Non US Equity MFs	(22.82%)	(14.66%)	(2.03%)	(0.79%)	1.58%
Domestic Fixed Income					
SERS Short Term Investment Fund	0.40%	2.10%	1.88%	1.32%	0.99%
3-month Treasury Bill	0.57%	2.25%	1.83%	1.19%	0.86%
Callan Cash Database(1)	0.36%	2.16%	1.98%	1.42%	1.11%
SERS Stable Value Fund	0.65%	2.68%	2.46%	2.41%	2.49%
3-month Treasury Bill	0.57%	2.25%	1.83%	1.19%	0.86%
Callan Stable Value	0.61%	2.55%	2.34%	2.20%	2.09%
SERS U.S. Bond Index Fund	3.25%	9.03%	4.85%	3.35%	3.16%
Blmbg Aggregate	3.15%	8.93%	4.82%	3.36%	3.19%
Callan Core Bond MFs	1.54%	7.36%	4.27%	3.19%	2.98%

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

*The Global Non-U.S. Stock Index Fund replaced the International Company Stock Index Fund in 1Q20.

Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods ended March 31, 2020. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

	Returns for Periods Ended March 31, 2020		
	Last 10 Years	Last 15 Years	Last 20 Years
Gross Performance			
Domestic Equity			
SERS U.S. Large Company Index	10.55%	7.63%	4.85%
S&P 500 Index	10.53%	7.58%	4.79%
Callan Lg Cap Broad MF	9.61%	7.34%	4.63%
SERS SMID Company Index	8.26%	7.22%	5.27%
Dow Jones US Completion	8.06%	7.02%	4.88%
Callan SMID Broad MFs	7.98%	7.28%	6.26%
International Equity			
SERS Global Non-US Index	2.21%	-	-
MSCI ACWI ex US	2.05%	3.39%	-
Callan Non US Equity MFs	2.87%	3.35%	2.43%
Domestic Fixed Income			
SERS Short Term Investment Fund	0.76%	1.55%	-
3-month Treasury Bill	0.64%	1.39%	1.74%
Callan Cash Database(1)	0.92%	1.76%	2.10%
SERS Stable Value Fund	2.84%	3.54%	-
3-month Treasury Bill	0.64%	1.39%	1.74%
Callan Stable Value	2.30%	2.91%	3.63%
SERS U.S. Bond Index Fund	3.86%	4.37%	5.05%
BImbg Aggregate	3.88%	4.40%	5.08%
Callan Core Bond MFs	3.93%	4.51%	4.97%

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

*Funds not listed do not have longer term history.

*The Global Non-U.S. Stock Index Fund replaced the International Company Stock Index Fund in 1Q20.

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.

	12/2019- 3/2020	2019	2018	2017	2016
Gross Performance					
Domestic Equity					
SERS U.S. Large Company Index	(19.59%)	31.51%	(4.38%)	21.85%	11.99%
S&P 500 Index	(19.60%)	31.49%	(4.38%)	21.83%	11.96%
Callan Lg Cap Broad MF	(19.15%)	30.14%	(4.54%)	23.56%	8.43%
SERS SMID Company Index	(28.02%)	28.21%	(9.32%)	18.21%	16.08%
Dow Jones US Completion	(28.01%)	27.91%	(9.57%)	18.12%	15.75%
Callan SMID Broad MFs	(25.28%)	29.40%	(8.69%)	17.14%	13.80%
International Equity					
SERS Global Non-US Index	(23.73%)	21.79%	(13.85%)	27.65%	5.06%
MSCI ACWI ex US	(23.36%)	21.51%	(14.20%)	27.19%	4.50%
Callan Non US Equity MFs	(22.82%)	22.83%	(15.04%)	26.90%	0.23%
Domestic Fixed Income					
SERS Short Term Investment Fund	0.40%	2.31%	2.09%	1.08%	0.59%
3-month Treasury Bill	0.57%	2.28%	1.87%	0.86%	0.33%
Callan Cash Database(1)	0.36%	2.69%	2.00%	1.19%	0.95%
SERS Stable Value Fund	0.65%	2.66%	2.41%	2.16%	2.31%
3-month Treasury Bill	0.57%	2.28%	1.87%	0.86%	0.33%
Callan Stable Value	0.61%	2.55%	2.24%	1.97%	1.89%
SERS U.S. Bond Index Fund	3.25%	8.69%	0.03%	3.53%	2.59%
Bimbg Aggregate	3.15%	8.72%	0.01%	3.54%	2.65%
Callan Core Bond MFs	1.54%	9.17%	(0.35%)	3.71%	3.03%

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

*The Global Non-U.S. Stock Index Fund replaced the International Company Stock Index Fund in 1Q20.

Pennsylvania SERS 457(b)
Investment Manager Performance Monitoring Summary Report
March 31, 2020

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									
Retirement Date Funds									
SERS Post Retirement Fund Callan Tgt Date Ret Inc	-7.7 59	-0.0 42	3.4 21	3.2 16	3.8 19	5.0 13			0.08 96
BlackRock Post Retirement Idx	-7.8 61	-0.0 43	3.3 22	3.2 17	3.8 22	5.0 16			
SERS 2025 Retirement Fund Callan Target Date 2025	-11.3 24	-3.0 22	3.2 23	3.4 29	4.6 61	5.8 61			0.08 96
BlackRock 2025 Index	-11.4 26	-3.0 23	3.1 24	3.3 31	4.5 66	5.8 64			
SERS 2030 Retirement Fund Callan Target Date 2030	-14.4 40	-5.5 34	2.7 31	3.2 41	4.7 69	6.0 64			0.08 97
BlackRock 2030 Index	-14.4 43	-5.6 38	2.6 39	3.1 51	4.6 74	5.9 73			
SERS 2035 Retirement Fund Callan Target Date 2035	-17.1 51	-7.9 43	2.2 32	3.1 43	4.8 68	6.1 68			0.08 97
BlackRock 2035 Index	-17.2 51	-8.0 45	2.1 37	3.0 53	4.7 75	6.0 76			
SERS 2040 Retirement Fund Callan Target Date 2040	-19.6 70	-10.1 57	1.8 36	2.9 47	4.8 75	6.2 65			0.08 97
BlackRock 2040 Index	-19.7 70	-10.2 60	1.7 47	2.8 56	4.7 77	6.1 71			
SERS 2045 Retirement Fund Callan Target Date 2045	-21.3 80	-11.6 67	1.4 46	2.8 51	4.9 68	6.3 59			0.08 97
BlackRock 2045 Index	-21.3 84	-11.7 71	1.3 54	2.6 57	4.7 79	6.2 72			
SERS 2050 Retirement Fund Callan Target Date 2050	-22.1 89	-12.3 78	1.2 49	2.7 50	4.9 69	6.4 60			0.08 97
BlackRock 2050 Index	-22.1 89	-12.4 78	1.1 52	2.5 60	4.8 74	6.3 65			
SERS 2055 Retirement Fund Callan Target Date 2055	-22.1 82	-12.3 73	1.2 44	2.7 53	5.0 66				0.08 97
BlackRock 2055 Index	-22.2 86	-12.5 75	1.1 53	2.5 60	4.8 71				
SERS 2060 Retirement Fund Callan Target Date 2060	-22.1 79	-12.4 74	1.2 51	2.7 65					0.08 96
BlackRock 2060 Index	-22.2 83	-12.5 75	1.1 56	2.5 71					

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 457(b)
Investment Manager Performance Monitoring Summary Report
March 31, 2020

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	-22.1 76								0.08 89
Callan Target Date 2065									
LifePath Index 2065	-22.2 78								
Domestic Equity									
SERS U.S. Large Company Index	-19.6 52	-7.0 50	5.1 48	6.7 43	9.6 43	10.5 39			0.02 99
Callan Lg Cap Broad MF									
S&P 500 Index	-19.6 53	-7.0 50	5.1 48	6.7 43	9.6 44	10.5 39			
SERS U.S. Small/Mid Company Index	-28.0 55	-20.5 53	-1.8 56	1.1 52	5.6 47	8.3 49			0.03 100
Callan SMID Broad MFs									
Dow Jones US Completion	-28.0 55	-20.6 53	-2.0 56	0.9 52	5.4 49	8.1 50			
International Equity									
SERS Global Non-U.S. Index Fund	-23.7 59	-16.0 59	-1.9 49	-0.5 46	1.2 62	2.2 63			0.06 99
Callan Non US Equity MFs									
MSCI ACWI ex US	-23.4 55	-15.6 55	-2.0 49	-0.6 48	1.1 64	2.1 66			
Domestic Fixed Income									
SERS Short Term Investment Fund	0.4 39	2.1 65	1.9 74	1.3 75	1.0 82	0.8 81			
Callan Cash Database									
3-month Treasury Bill	0.6 4	2.3 34	1.8 77	1.2 92	0.9 92	0.6 95			
Comments: Callan Cash Database includes STIF, enhanced cash, and money market funds.									
SERS Stable Value Fund	0.6 16	2.6 29	2.3 40	2.2 37	2.2 19	2.6 13			
Callan Stable Value									
3-month Treasury Bill	0.6 85	2.3 98	1.8 100	1.2 98	0.9 98	0.6 100			
SERS U.S. Bond Index Fund	3.3 12	9.0 11	4.8 9	3.3 29	3.2 30	3.9 63			0.03 98
Callan Core Bond MFs									
Blmbg Aggregate	3.1 12	8.9 11	4.8 9	3.4 28	3.2 28	3.9 60			

Returns:
■ above median
■ third quartile
■ fourth quartile

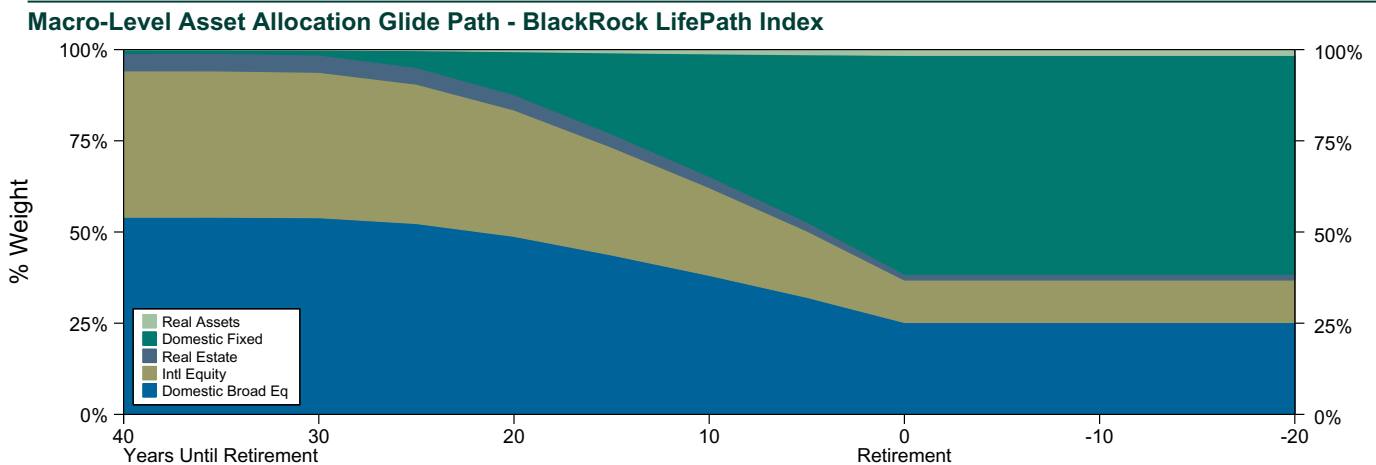
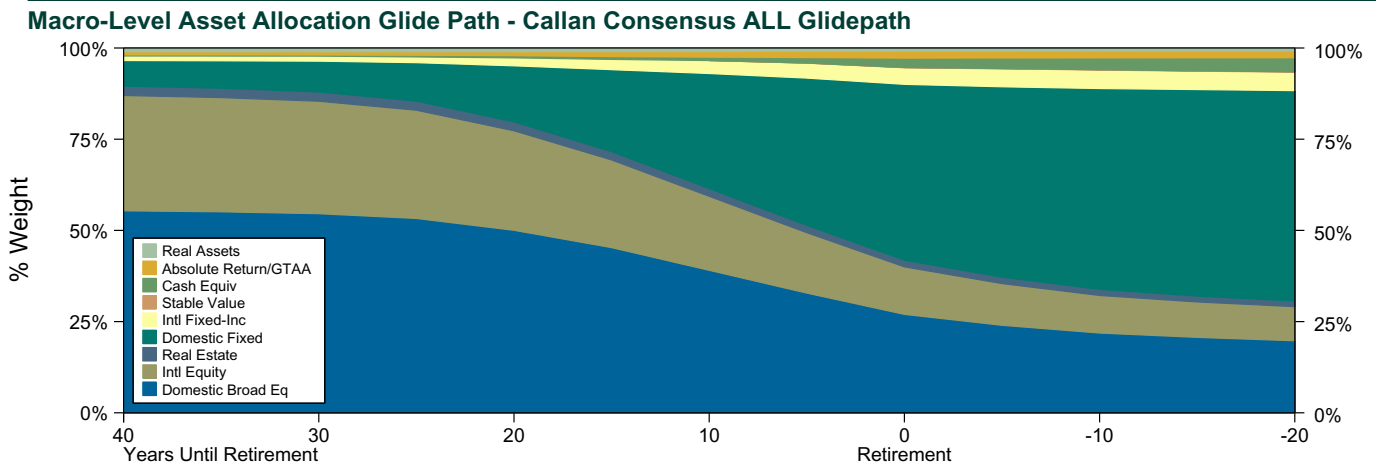
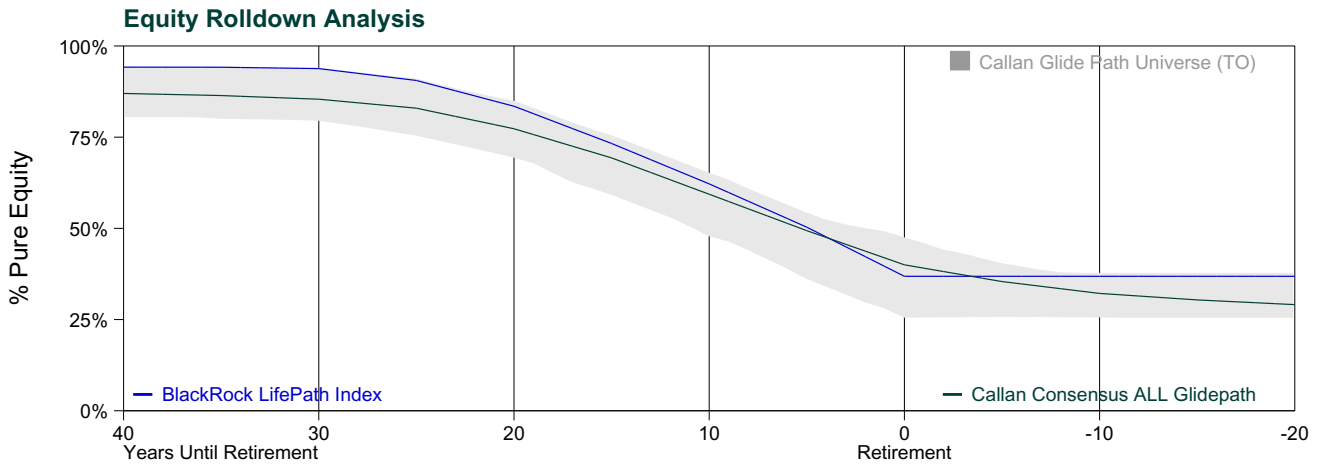
Return Consistency:
■ above median
■ third quartile
■ fourth quartile

Risk Quadrant:


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

Callan Consensus ALL Glidepath Target Date Glide Path Analysis as of March 31, 2020

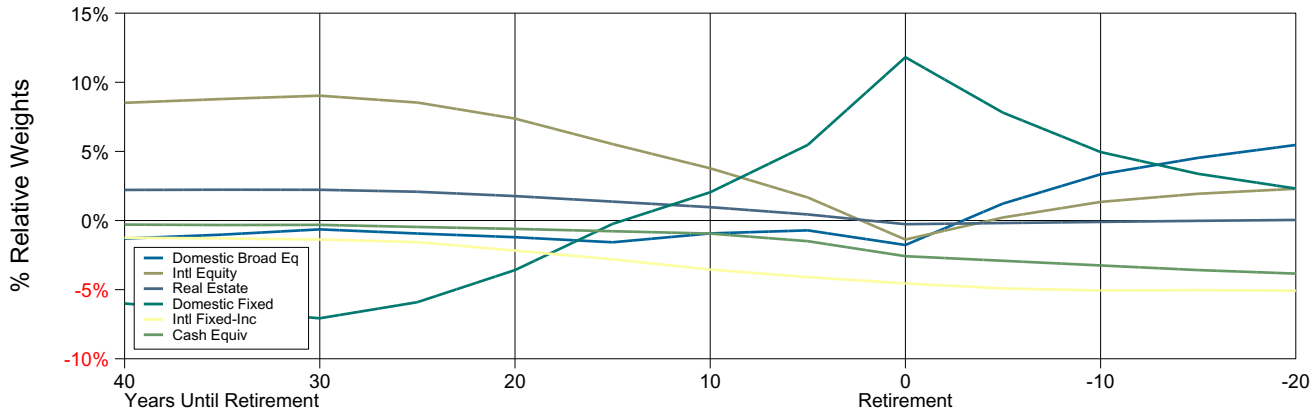
The following charts illustrate the asset allocation "glide path" underlying the relevant suite of target date funds. This analysis covers forty years of investor wealth accumulation up to retirement, as well as twenty years of wealth decumulation following retirement. The top chart shows the "pure" 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.



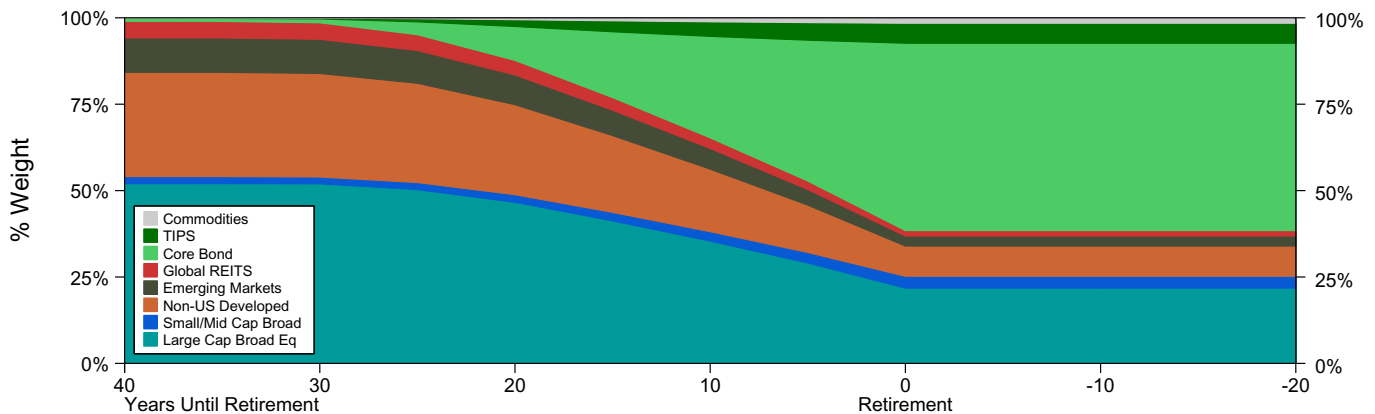
BlackRock LifePath Index Target Date Glide Path Analysis as of March 31, 2020

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.

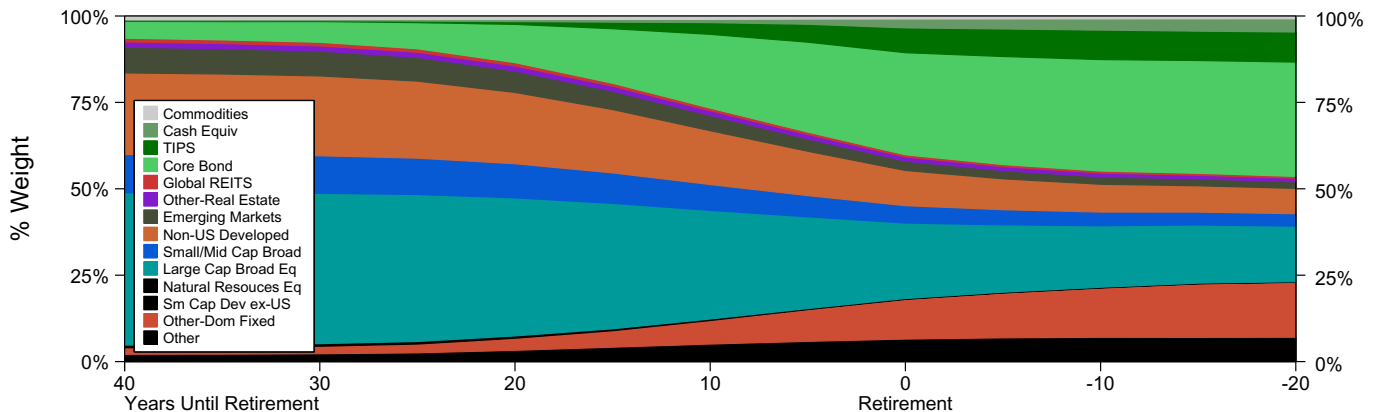
Relative Macro Asset Allocation - BlackRock LifePath Index vs. Callan Consensus ALL Glidep



Micro-Level Asset Allocation Glide Path - BlackRock LifePath Index



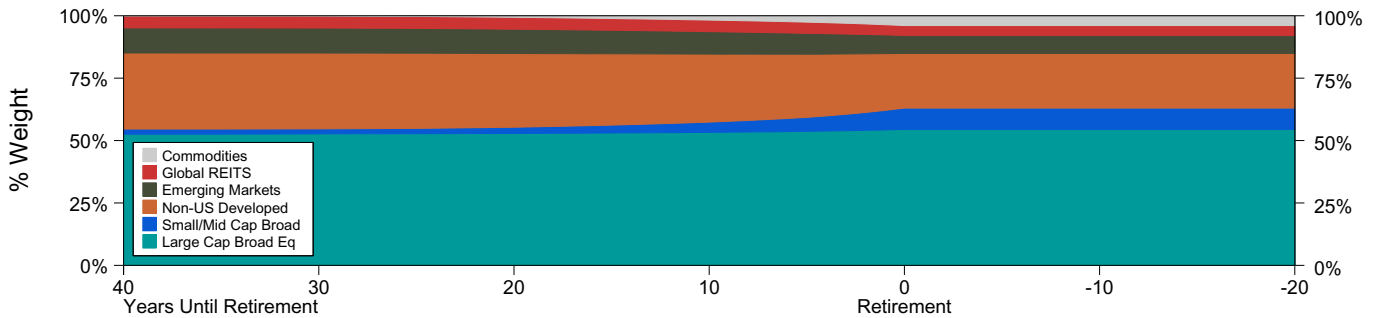
Micro-Level Asset Allocation Glide Path - Callan Consensus ALL Glidepath



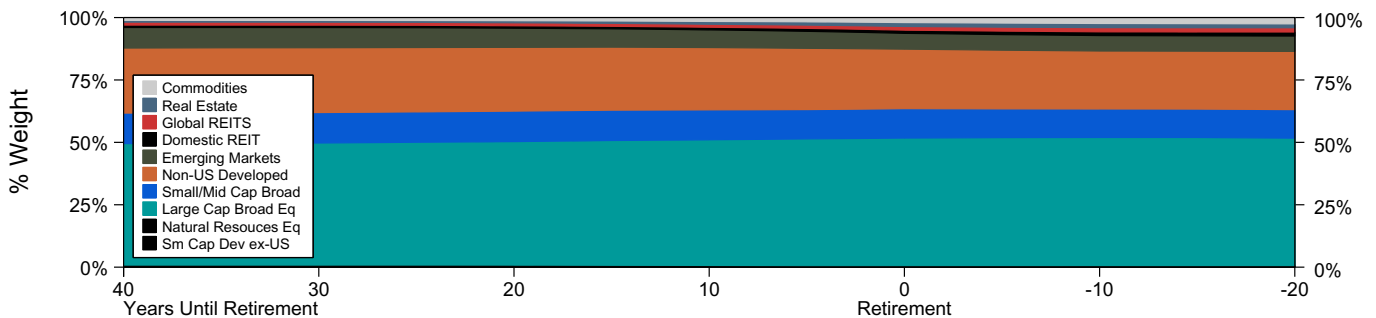
BlackRock LifePath Index Target Date Glide Path Analysis as of March 31, 2020

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.

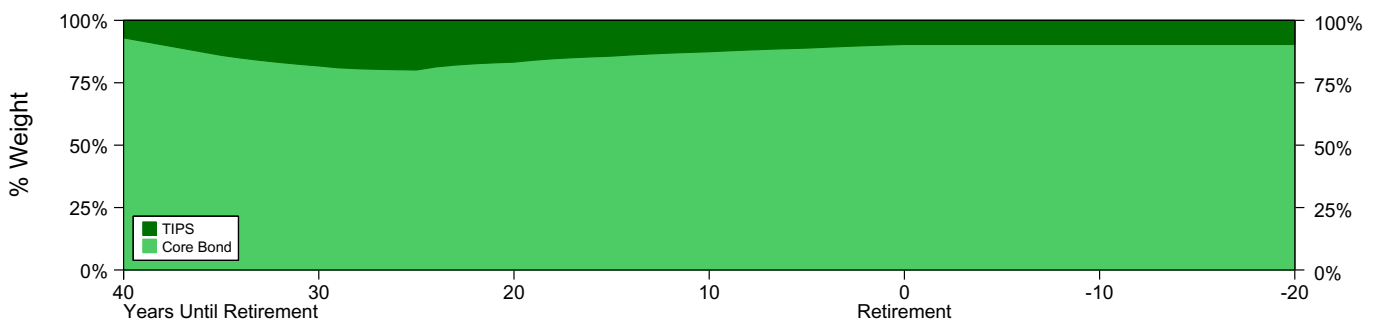
Micro-Level Equity Allocation Glide Path - BlackRock LifePath Index



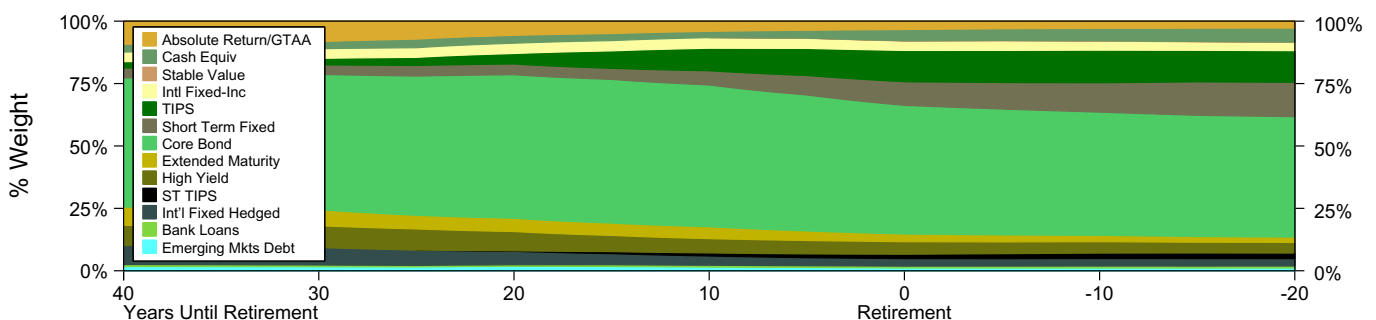
Micro-Level Equity Asset Allocation Glide Path - Callan Consensus ALL Glidepath



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



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



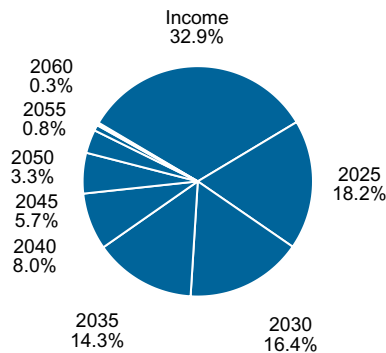
Pennsylvania SERS 457(b) - BlackRock LifePath Index Target Date Fund Family Analysis as of March 31, 2020

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).

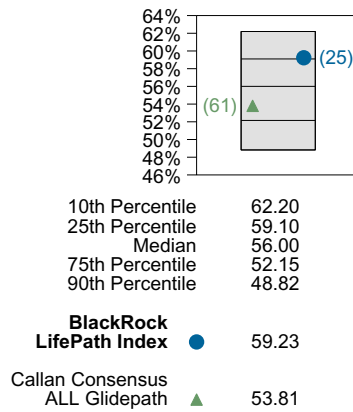
Glidepath Peer Group: ALL

Fee/Return Type: Gross

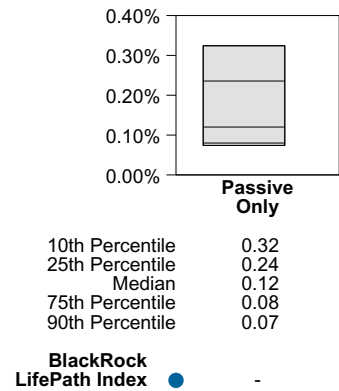
Fund Family Allocation



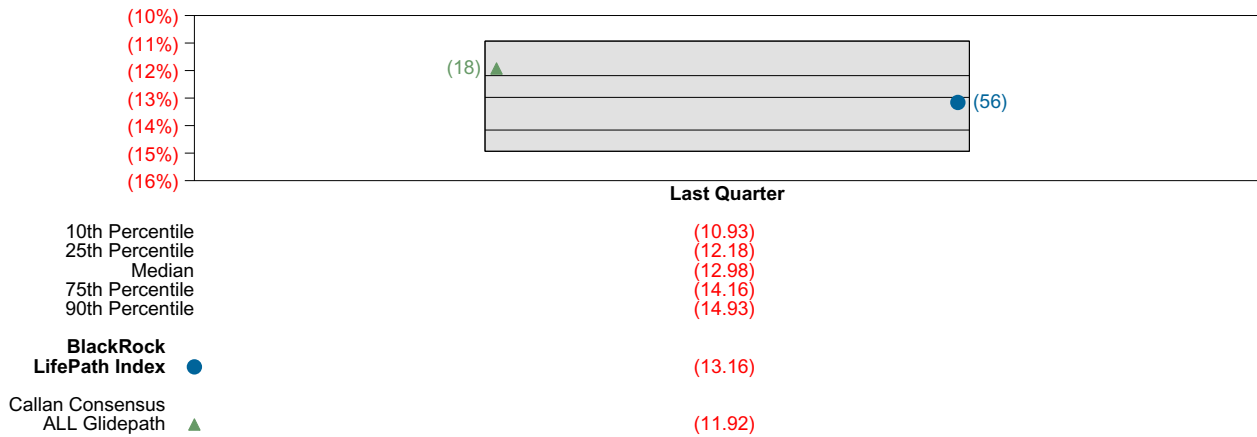
Equity Exposure



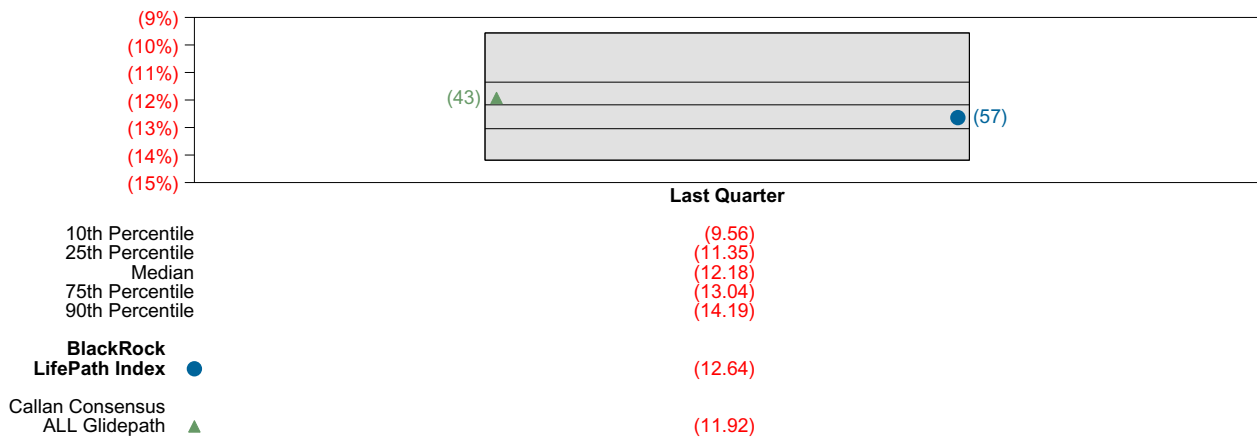
Expense Ratio



Target Date Family Performance vs Peer Families



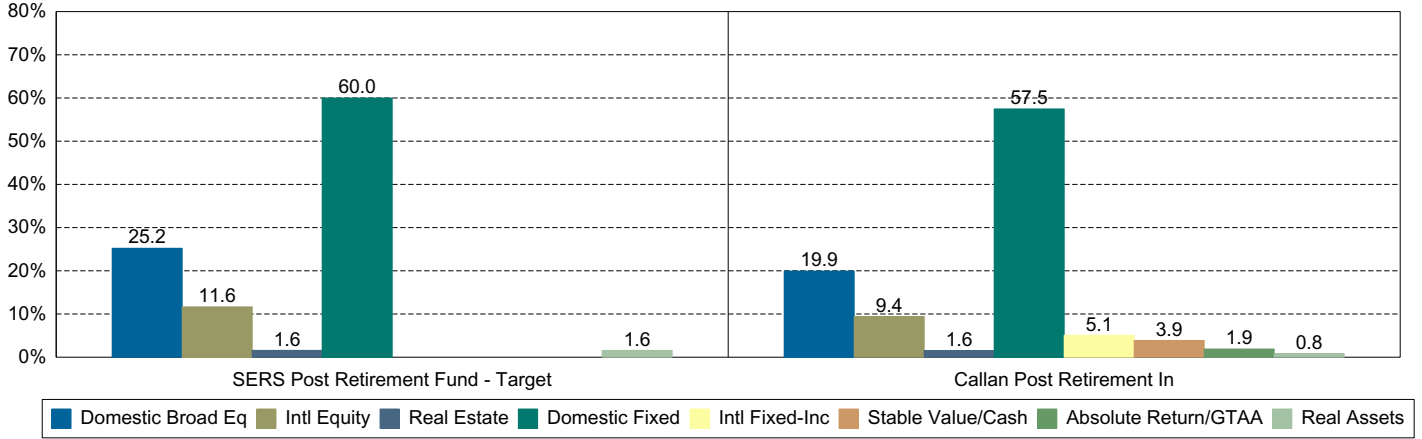
Target Date Family Glide Path Returns vs Peer Families



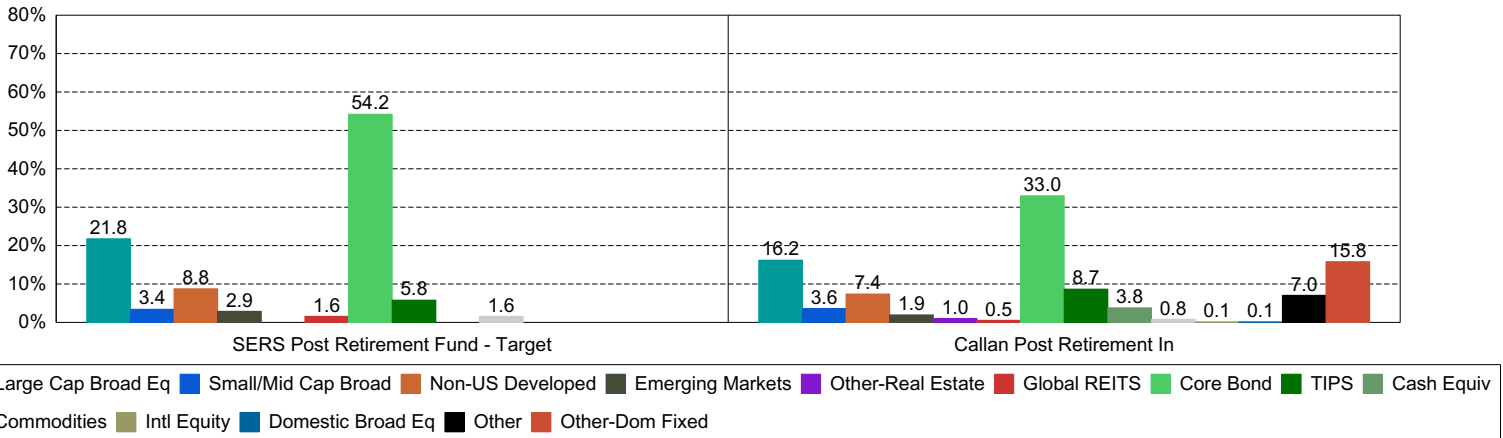
SERS Post Retirement Fund Target Date Fund Asset Allocation as of March 31, 2020

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.

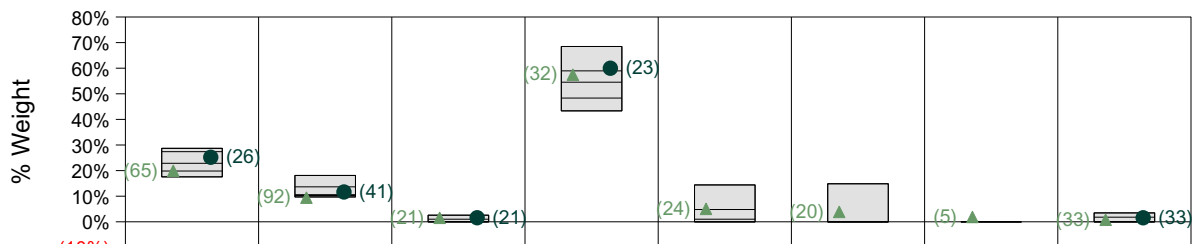
Macro-Level Asset Allocation



Micro-Level Asset Allocation



Macro Asset Allocation Rankings vs. Callan Target Date 2000-2010



	Domestic Broad Eq	Intl Equity	Real Estate	Domestic Fixed	Intl Fixed-Inc	Stable Value/Cash	Absolute Return/GTAA	Real Assets
10th Percentile	28.70	18.10	2.58	68.47	14.41	14.86	0.00	3.48
25th Percentile	27.40	13.66	1.01	58.96	4.80	0.00	0.00	1.80
Median	22.85	10.59	0.04	54.53	1.01	0.00	0.00	0.00
75th Percentile	19.83	10.26	0.00	48.33	0.00	0.00	0.00	0.00
90th Percentile	17.55	9.71	0.00	43.33	0.00	0.00	0.00	0.00

SERS Post Retirement Fund - Target	●	25.21	11.65	1.58	59.99	-	-	-	1.57
Callan Post Retirement In	▲	19.93	9.42	1.55	57.47	5.07	3.88	1.89	0.79

SERS Post Retirement Fund Period Ended March 31, 2020

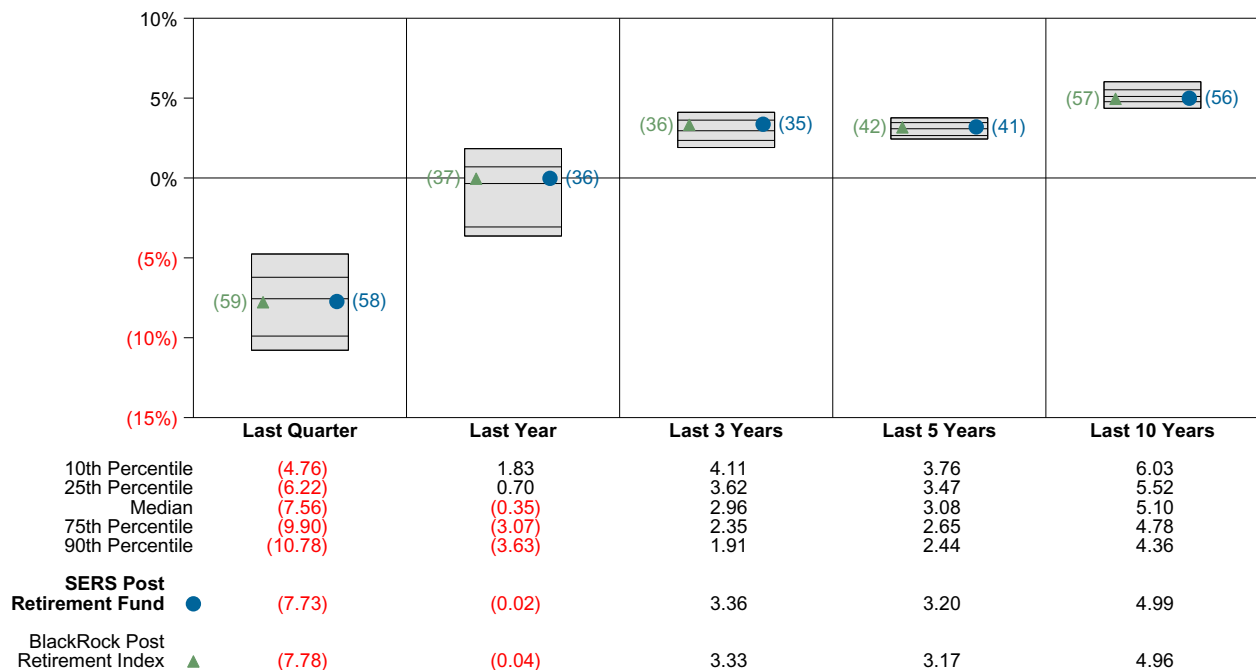
Investment Philosophy

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. Target Date funds replaced risk-based funds in 1Q20.

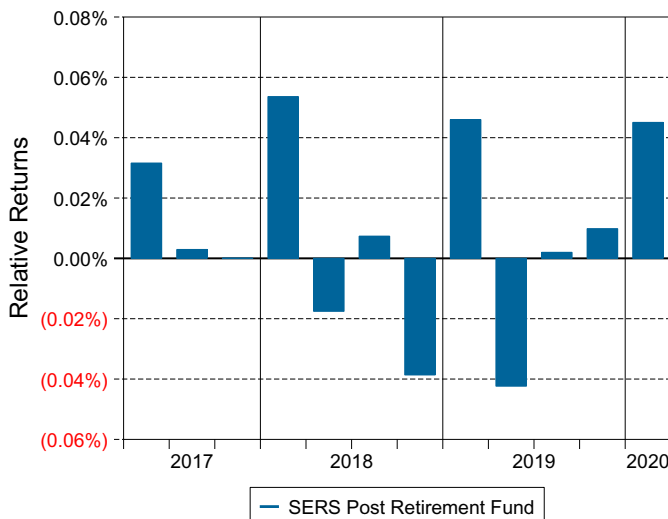
Quarterly Summary and Highlights

- SERS Post Retirement Fund's portfolio posted a (7.73)% return for the quarter placing it in the 58 percentile of the Callan Target Date 2000-2010 group for the quarter and in the 36 percentile for the last year.
- SERS Post Retirement Fund's portfolio outperformed the BlackRock Post Retirement Index by 0.05% for the quarter and outperformed the BlackRock Post Retirement Index for the year by 0.02%.

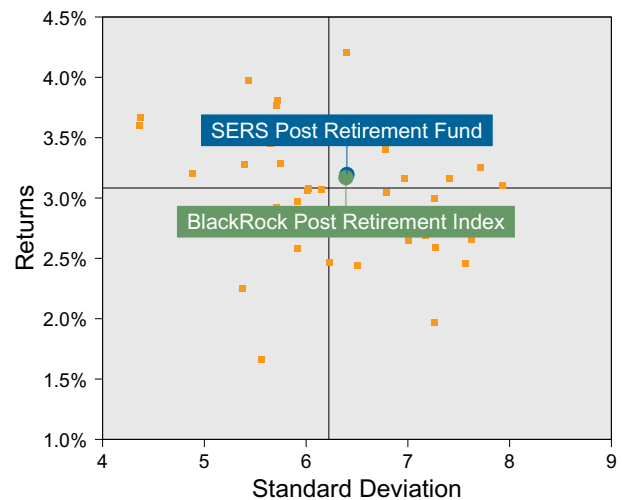
Performance vs Callan Target Date 2000-2010 (Net)



Relative Returns vs BlackRock Post Retirement Index



Callan Target Date 2000-2010 (Net) Annualized Five Year Risk vs Return

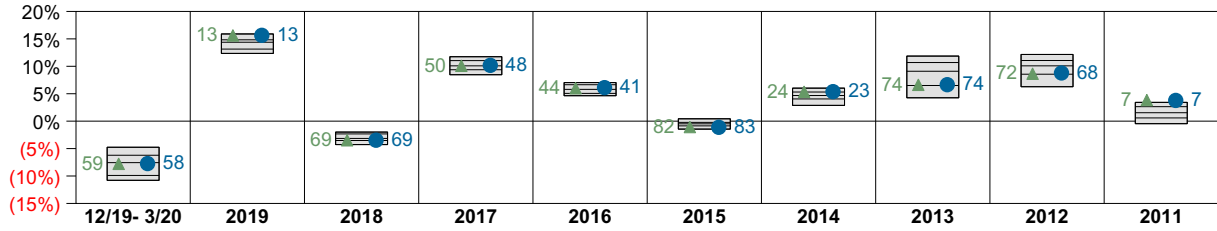


SERS Post Retirement Fund Return Analysis Summary

Return Analysis

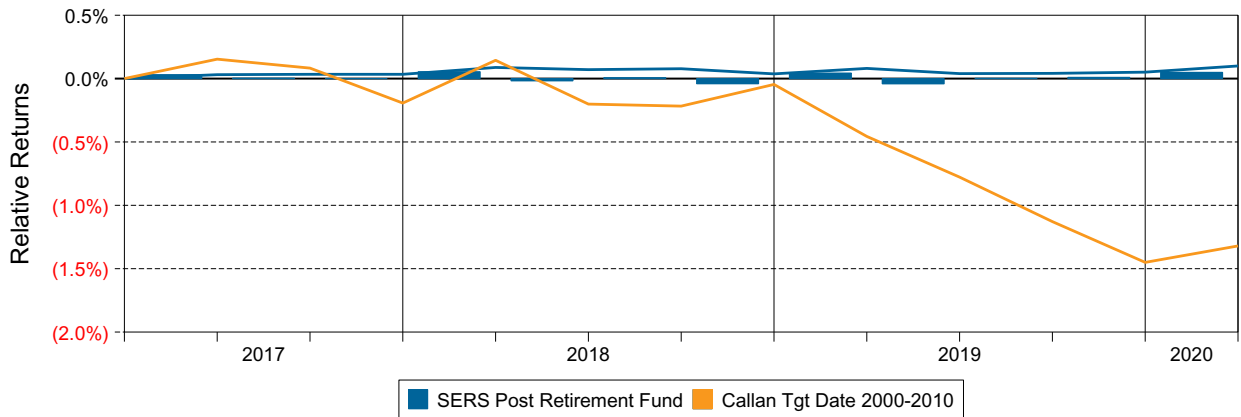
The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate 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 2000-2010 (Net)

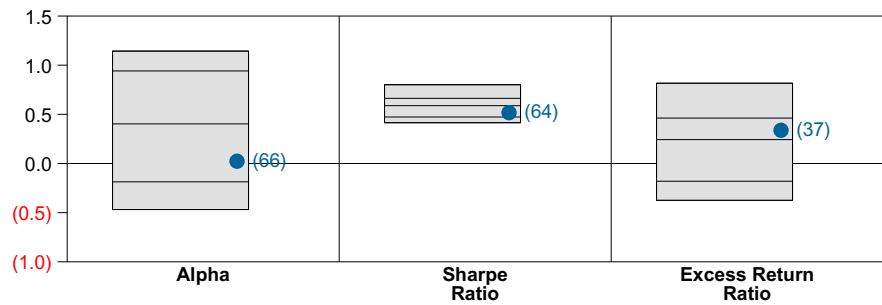


	12/19- 3/20	2019	2018	2017	2016	2015	2014	2013	2012	2011
SERS Post Retirement Fund ●	(7.73)	15.65	(3.47)	10.18	6.10	(1.12)	5.38	6.64	8.79	3.78
BlackRock Post Retirement Index ▲	(7.78)	15.63	(3.48)	10.10	6.01	(1.07)	5.36	6.63	8.65	3.85

Cumulative and Quarterly Relative Return vs BlackRock Post Retirement Index



Risk Adjusted Return Measures vs BlackRock Post Retirement Index Rankings Against Callan Target Date 2000-2010 (Net) Seven Years Ended March 31, 2020

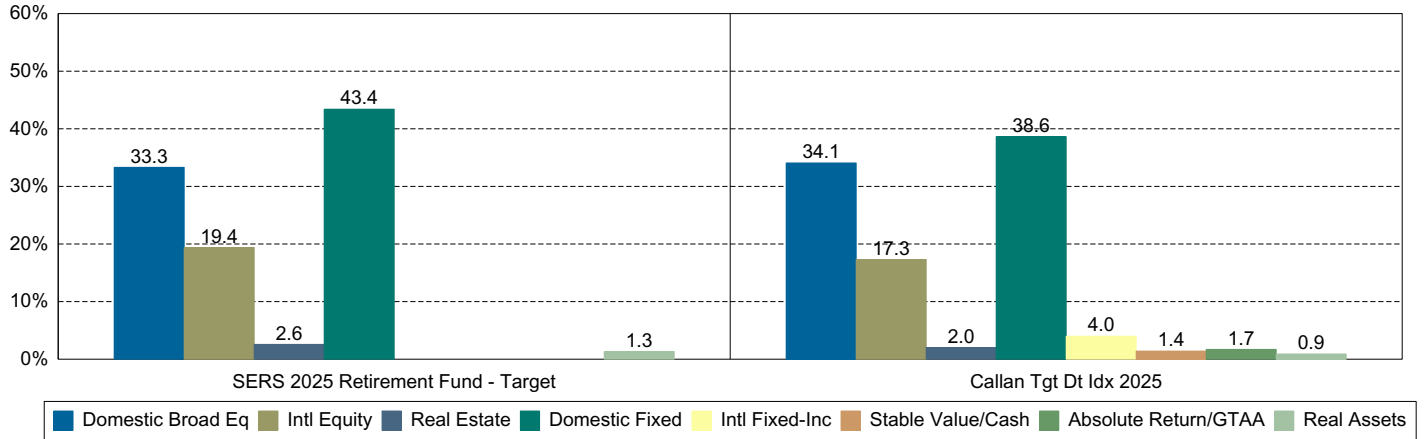


	Alpha	Sharpe Ratio	Excess Return Ratio
10th Percentile	1.14	0.80	0.82
25th Percentile	0.94	0.66	0.46
Median	0.40	0.59	0.24
75th Percentile	(0.19)	0.47	(0.18)
90th Percentile	(0.47)	0.41	(0.37)
SERS Post Retirement Fund ●	0.02	0.52	0.34

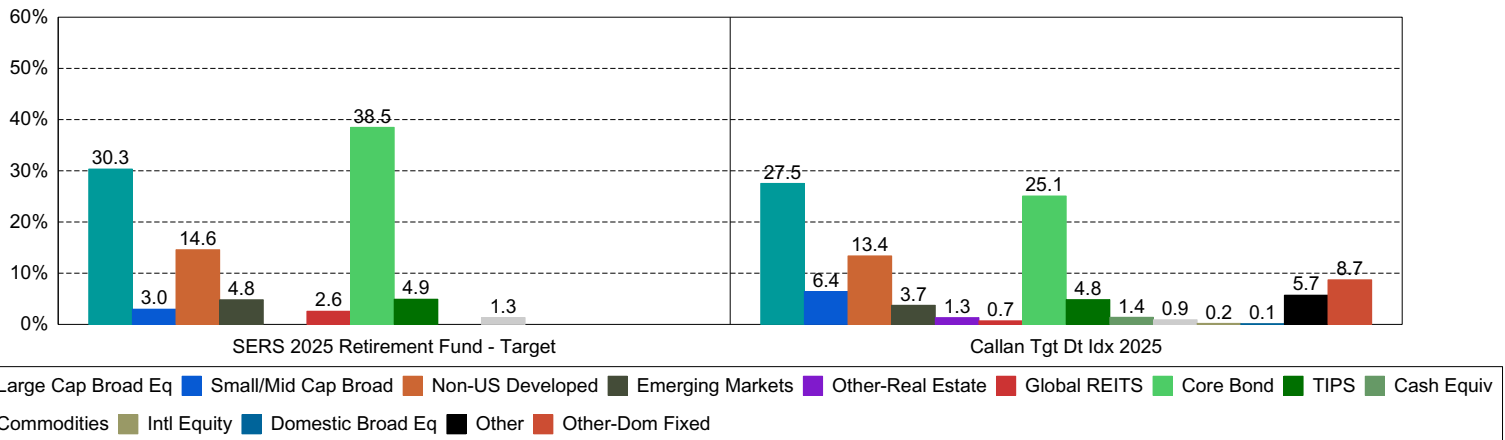
SERS 2025 Retirement Fund Target Date Fund Asset Allocation as of March 31, 2020

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.

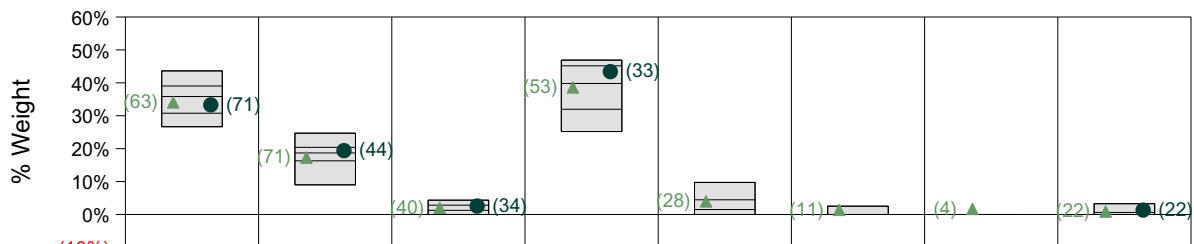
Macro-Level Asset Allocation



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	43.62	24.70	4.35	46.90	9.74	2.53	0.00	3.28
25th Percentile	39.04	20.40	2.83	45.16	4.46	0.00	0.00	0.62
Median	35.84	18.70	1.26	39.80	1.50	0.00	0.00	0.00
75th Percentile	30.76	16.31	0.00	31.97	0.00	0.00	0.00	0.00
90th Percentile	26.66	9.00	0.00	25.20	0.00	0.00	0.00	0.00

SERS 2025 Retirement Fund - Target	●	33.31	19.39	2.57	43.40	-	-	-	1.33
Callan Tgt Dt Idx 2025	▲	34.06	17.30	2.02	38.62	3.98	1.41	1.70	0.90

SERS 2025 Retirement Fund Period Ended March 31, 2020

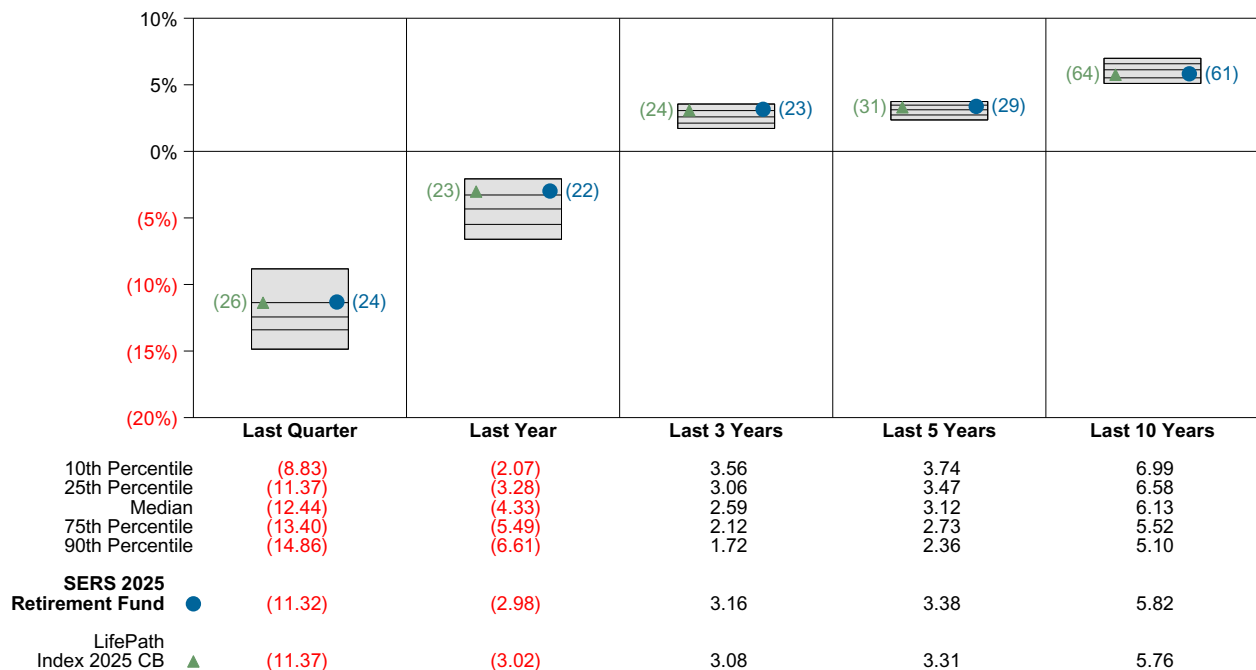
Investment Philosophy

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. Target Date funds replaced risk-based funds in 1Q20.

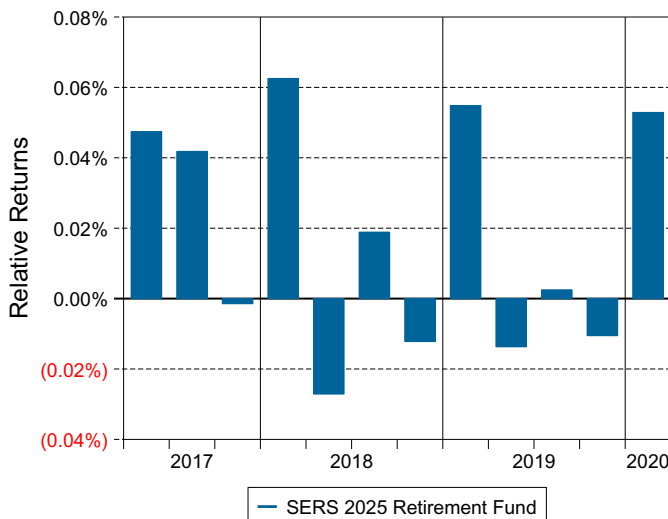
Quarterly Summary and Highlights

- SERS 2025 Retirement Fund's portfolio posted a (11.32)% return for the quarter placing it in the 24 percentile of the Callan Target Date 2025 group for the quarter and in the 22 percentile for the last year.
- SERS 2025 Retirement Fund's portfolio outperformed the LifePath Index 2025 CB by 0.05% for the quarter and outperformed the LifePath Index 2025 CB for the year by 0.04%.

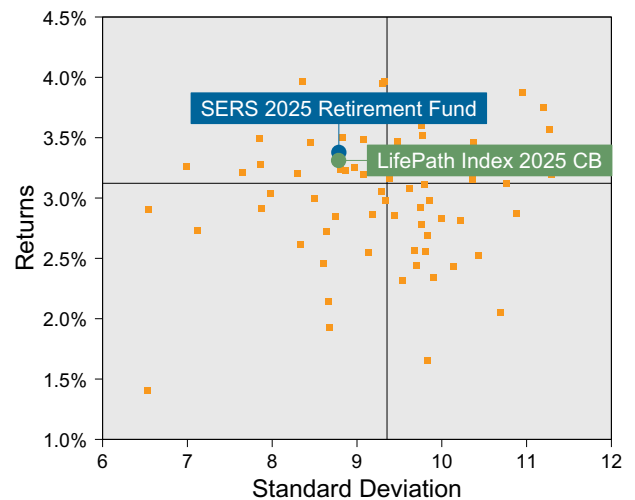
Performance vs Callan Target Date 2025 (Net)



Relative Return vs LifePath Index 2025 CB



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

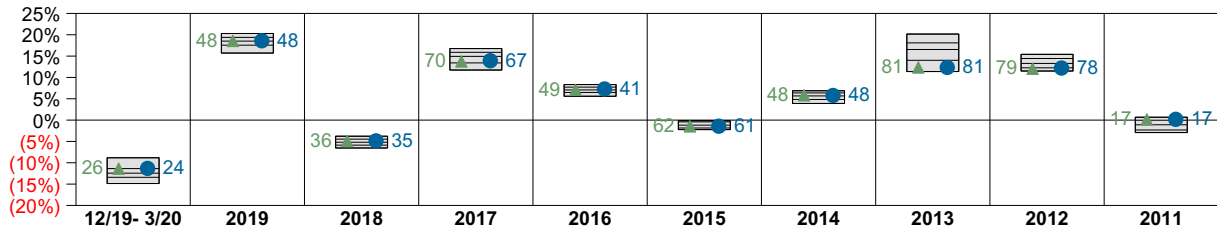


SERS 2025 Retirement Fund Return Analysis Summary

Return Analysis

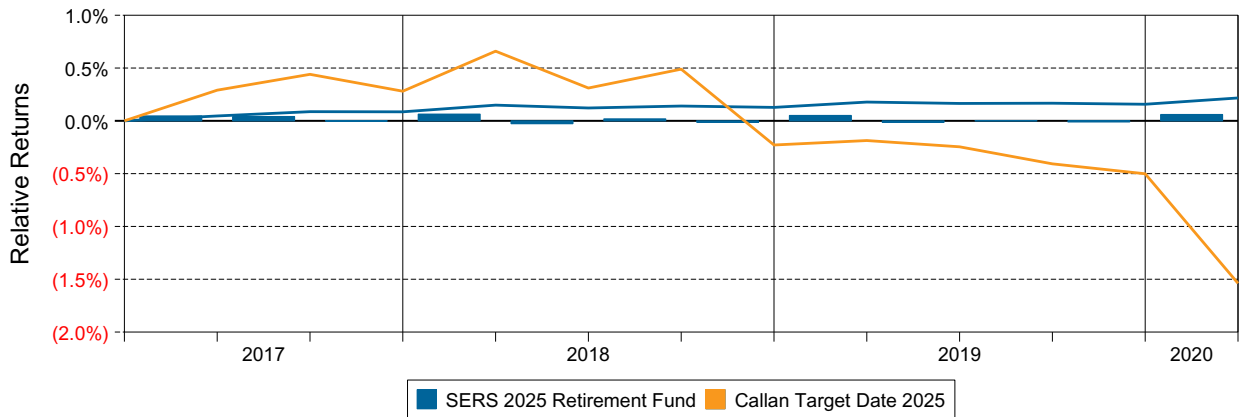
The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate 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)

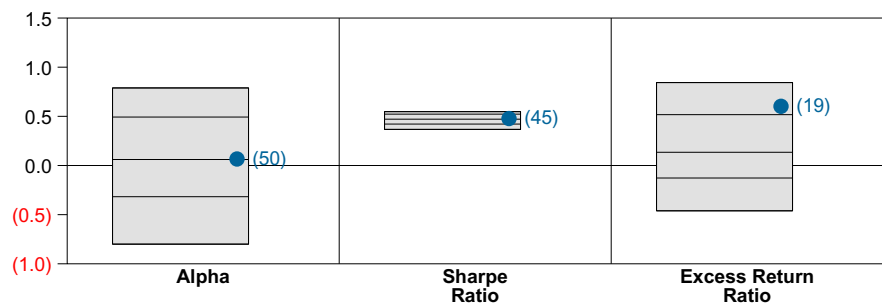


10th Percentile	(8.83)	20.30	(3.77)	16.77	8.34	(0.13)	6.88	20.17	15.41	0.67
25th Percentile	(11.37)	19.39	(4.46)	15.89	7.73	(0.41)	6.37	18.10	14.44	(0.03)
Median	(12.44)	18.51	(5.19)	14.94	7.08	(1.19)	5.67	16.55	13.28	(1.09)
75th Percentile	(13.40)	17.56	(5.87)	13.41	6.48	(1.85)	4.84	14.02	12.26	(2.32)
90th Percentile	(14.86)	15.71	(6.53)	11.73	5.59	(2.23)	3.90	11.38	11.50	(2.92)
SERS 2025 Retirement Fund	(11.32)	18.60	(4.86)	13.91	7.30	(1.43)	5.77	12.34	12.20	0.18
LifePath Index 2025 CB	(11.37)	18.56	(4.90)	13.75	7.10	(1.45)	5.82	12.35	12.04	0.16

Cumulative and Quarterly Relative Return 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, 2020



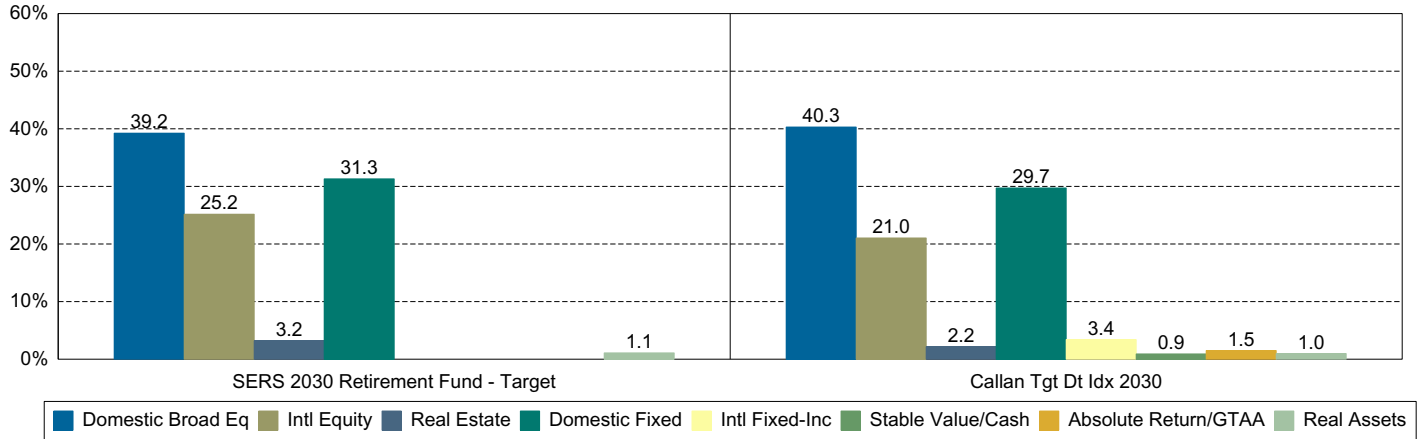
10th Percentile	0.79	0.55	0.84
25th Percentile	0.49	0.52	0.52
Median	0.06	0.47	0.13
75th Percentile	(0.32)	0.42	(0.13)
90th Percentile	(0.80)	0.37	(0.46)
SERS 2025 Retirement Fund	0.07	0.48	0.60

SERS 2030 Retirement Fund

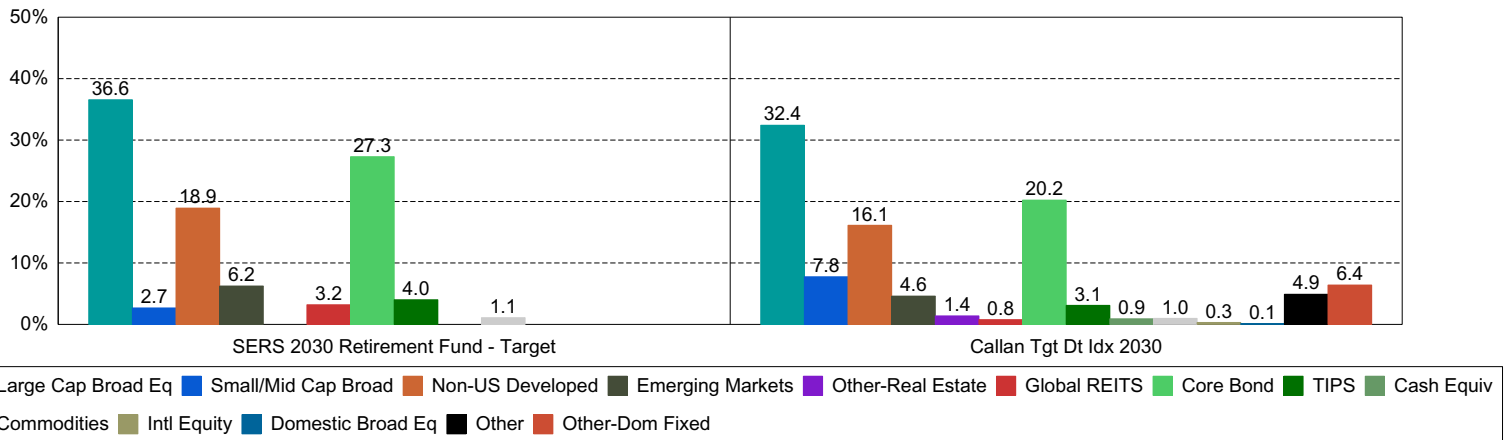
Target Date Fund Asset Allocation as of March 31, 2020

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.

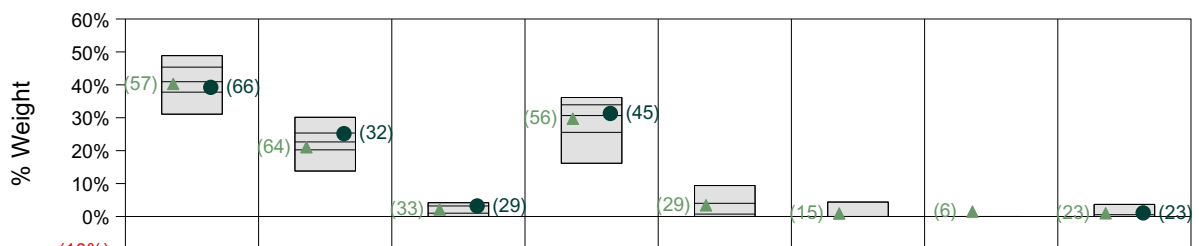
Macro-Level Asset Allocation



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	48.88	30.14	4.19	36.14	9.40	4.39	0.00	3.67
25th Percentile	45.38	25.36	3.20	33.93	4.00	0.00	0.00	0.54
Median	40.95	22.65	1.00	30.66	0.73	0.00	0.00	0.00
75th Percentile	37.78	20.25	0.00	25.56	0.00	0.00	0.00	0.00
90th Percentile	31.08	13.81	0.00	16.16	0.00	0.00	0.00	0.00

SERS 2030 Retirement Fund - Target	●	39.24	25.17	3.20	31.31	-	-	1.09
Callan Tgt Dt Idx 2030	▲	40.30	21.04	2.15	29.72	3.40	0.91	1.50

SERS 2030 Retirement Fund Period Ended March 31, 2020

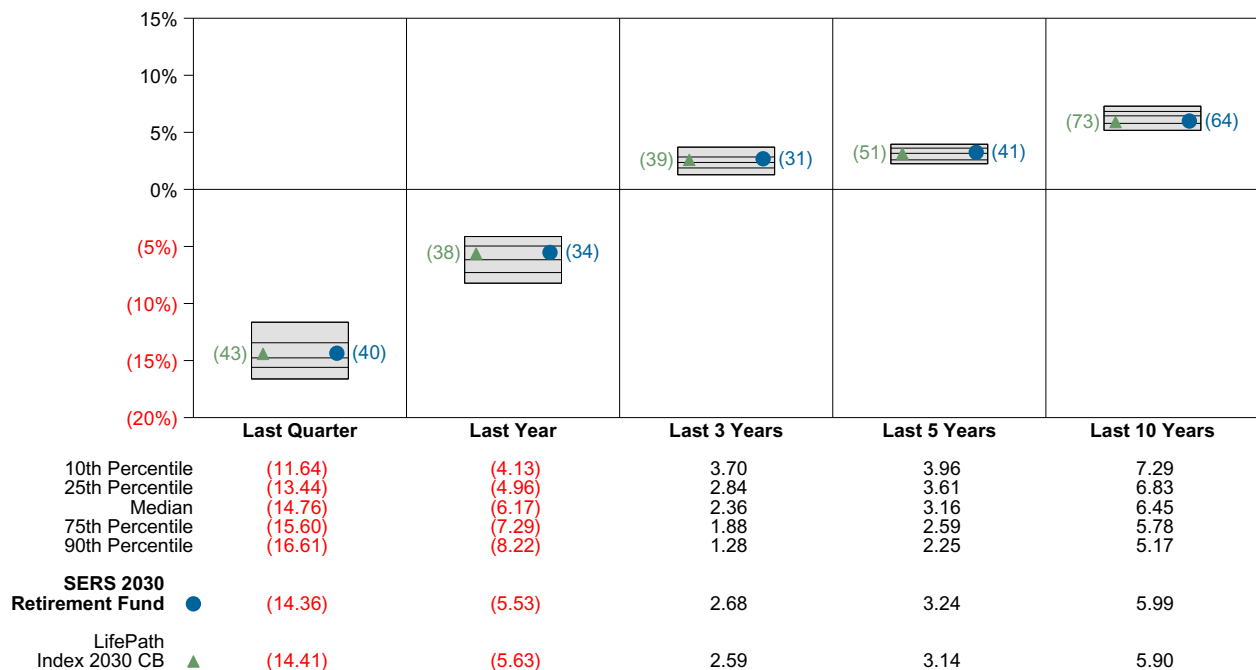
Investment Philosophy

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. Target Date funds replaced risk-based funds in 1Q20.

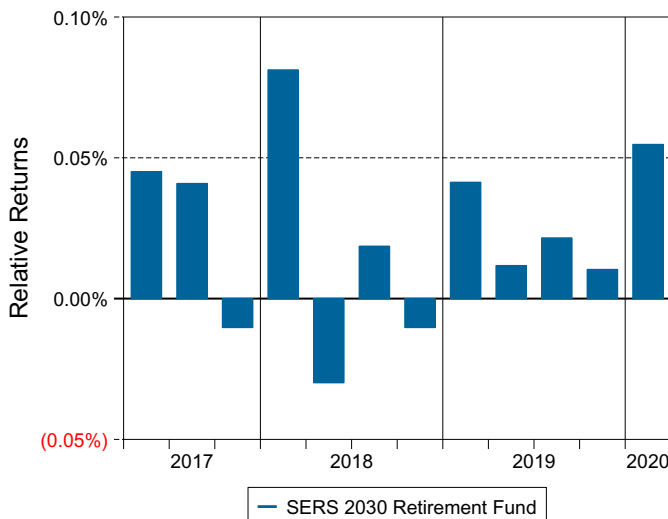
Quarterly Summary and Highlights

- SERS 2030 Retirement Fund's portfolio posted a (14.36)% return for the quarter placing it in the 40 percentile of the Callan Target Date 2030 group for the quarter and in the 34 percentile for the last year.
- SERS 2030 Retirement Fund's portfolio outperformed the LifePath Index 2030 CB by 0.05% for the quarter and outperformed the LifePath Index 2030 CB for the year by 0.10%.

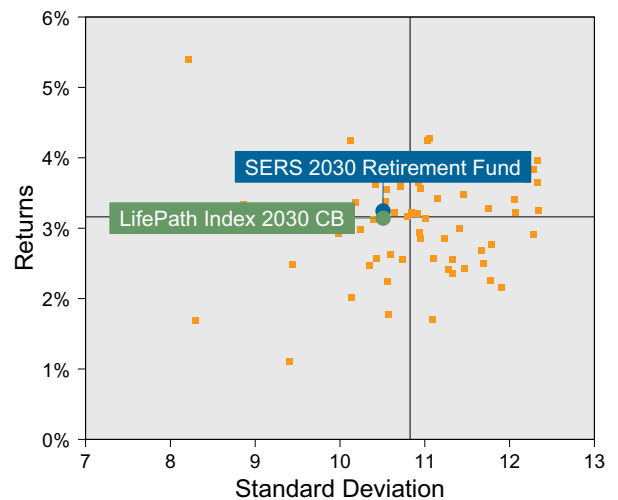
Performance vs Callan Target Date 2030 (Net)



Relative Return vs LifePath Index 2030 CB



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

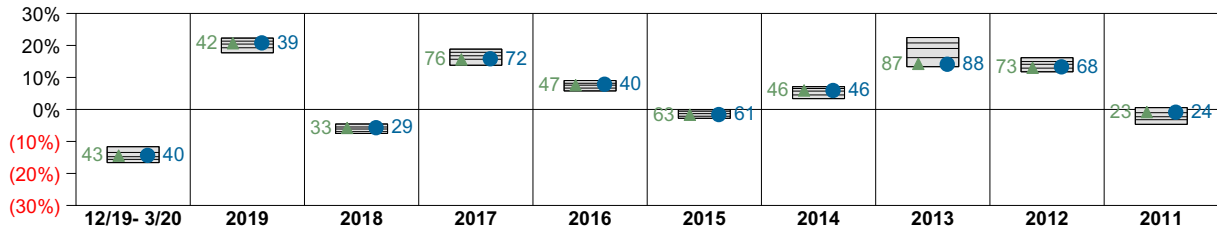


SERS 2030 Retirement Fund Return Analysis Summary

Return Analysis

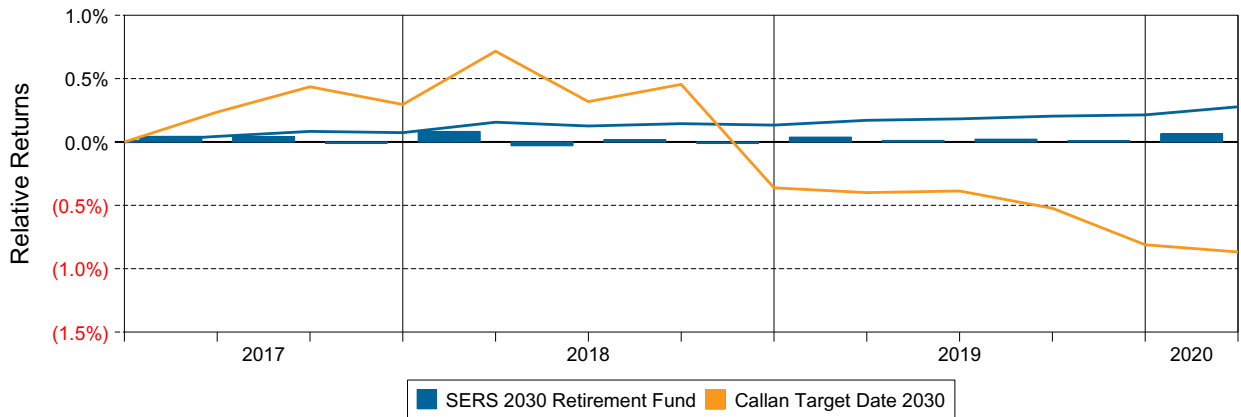
The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate 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)

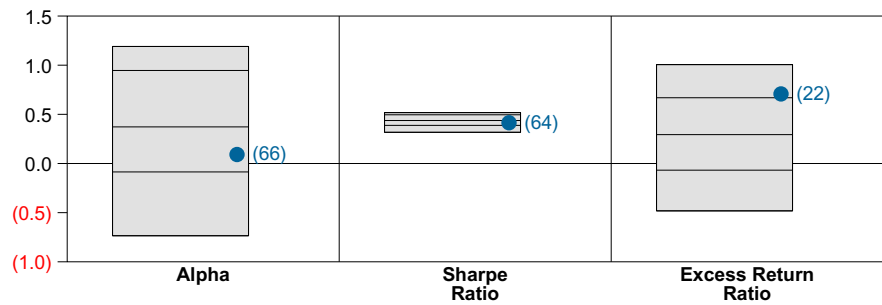


10th Percentile	(11.64)	22.30	(4.55)	18.85	9.03	(0.07)	7.12	22.47	16.16	0.57
25th Percentile	(13.44)	21.34	(5.48)	17.85	8.17	(0.57)	6.54	20.78	14.96	(1.02)
Median	(14.76)	20.43	(6.12)	16.77	7.58	(1.31)	5.74	19.05	14.11	(2.29)
75th Percentile	(15.60)	19.28	(6.94)	15.68	6.67	(2.13)	4.53	16.18	12.91	(3.21)
90th Percentile	(16.61)	17.70	(7.50)	13.81	5.79	(2.78)	3.38	13.36	11.77	(4.66)
SERS 2030 Retirement Fund	● (14.36)	20.80	(5.71)	15.83	7.88	(1.60)	5.92	14.12	13.31	(0.87)
LifePath Index 2030 CB	▲ (14.41)	20.70	(5.76)	15.64	7.61	(1.66)	5.95	14.26	13.04	(0.81)

Cumulative and Quarterly Relative Return 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, 2020



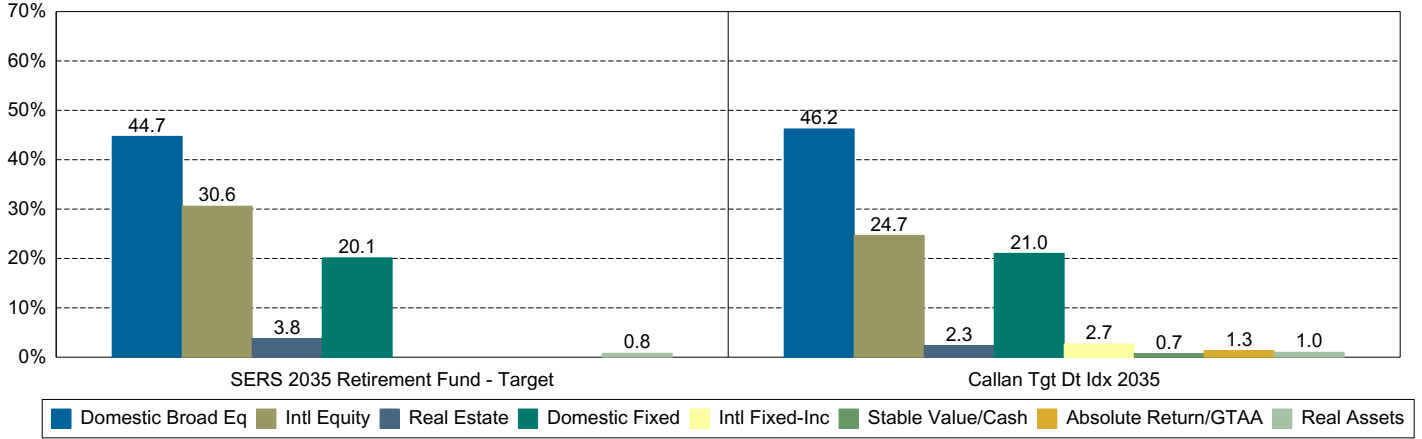
10th Percentile	1.19	0.52	1.01
25th Percentile	0.95	0.50	0.67
Median	0.37	0.44	0.29
75th Percentile	(0.09)	0.39	(0.07)
90th Percentile	(0.73)	0.32	(0.48)
SERS 2030 Retirement Fund	● 0.09	0.41	0.71

SERS 2035 Retirement Fund

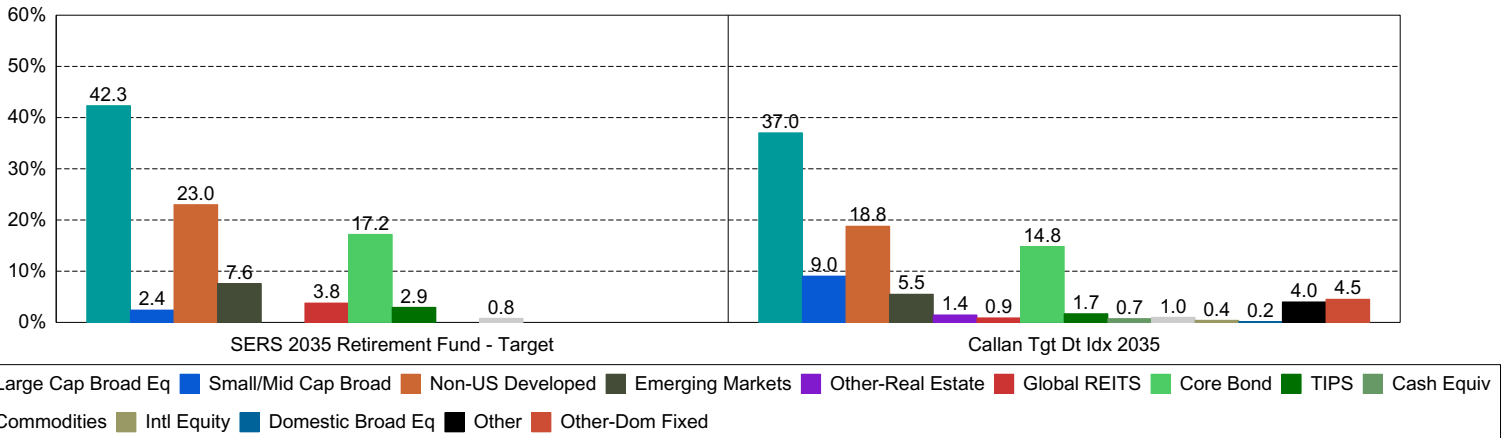
Target Date Fund Asset Allocation as of March 31, 2020

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.

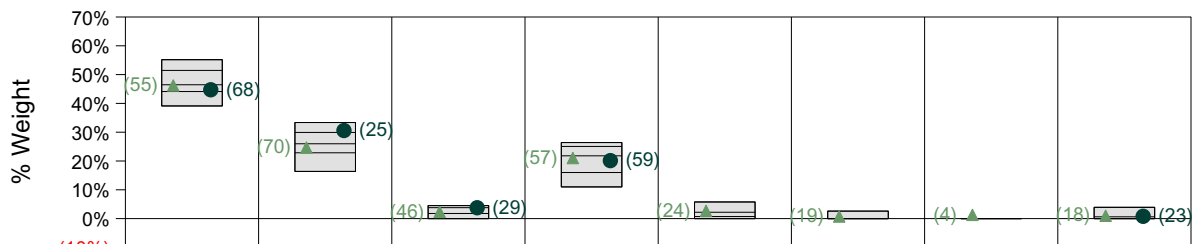
Macro-Level Asset Allocation



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	55.17	33.36	4.52	26.41	5.78	2.60	0.00	3.91
25th Percentile	51.45	29.92	3.79	25.05	2.20	0.00	0.00	0.62
Median	46.47	25.99	1.78	21.80	0.72	0.00	0.00	0.00
75th Percentile	44.12	22.85	0.00	16.00	0.00	0.00	0.00	0.00
90th Percentile	39.11	16.38	0.00	11.00	0.00	0.00	0.00	0.00

SERS 2035 Retirement Fund - Target	●	44.73	30.58	3.77	20.13	-	-	0.80
Callan Tgt Dt Idx 2035	▲	46.23	24.68	2.32	21.04	2.68	0.74	1.31

SERS 2035 Retirement Fund Period Ended March 31, 2020

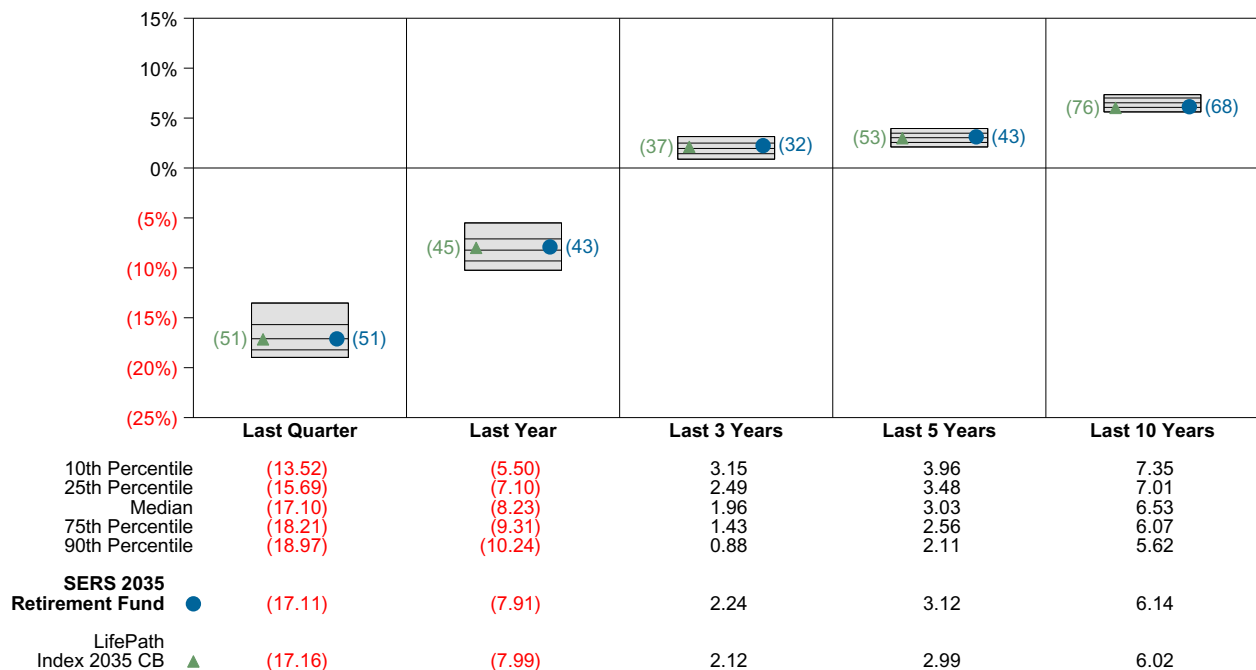
Investment Philosophy

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. Target Date funds replaced risk-based funds in 1Q20.

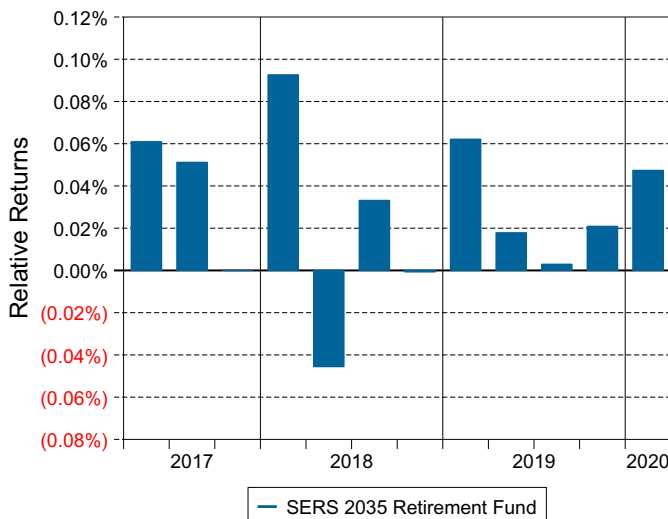
Quarterly Summary and Highlights

- SERS 2035 Retirement Fund's portfolio posted a (17.11)% return for the quarter placing it in the 51 percentile of the Callan Target Date 2035 group for the quarter and in the 43 percentile for the last year.
- SERS 2035 Retirement Fund's portfolio outperformed the LifePath Index 2035 CB by 0.05% for the quarter and outperformed the LifePath Index 2035 CB for the year by 0.09%.

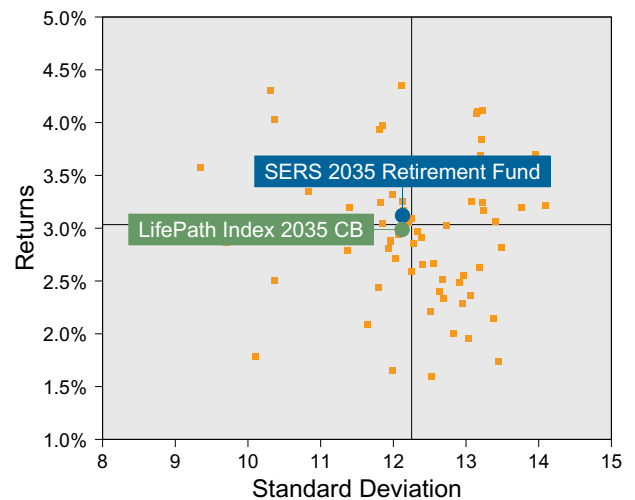
Performance vs Callan Target Date 2035 (Net)



Relative Return vs LifePath Index 2035 CB



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

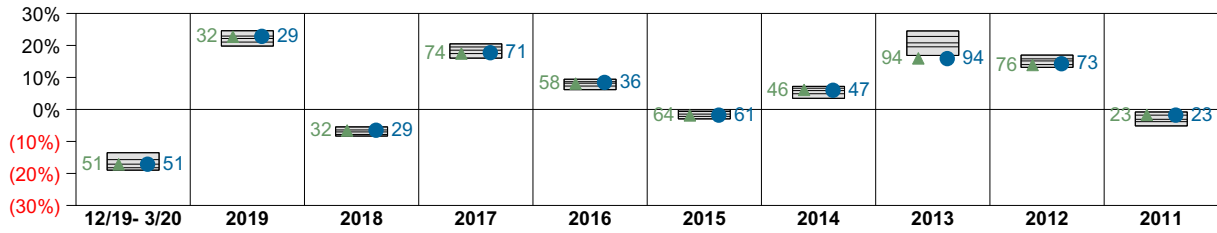


SERS 2035 Retirement Fund Return Analysis Summary

Return Analysis

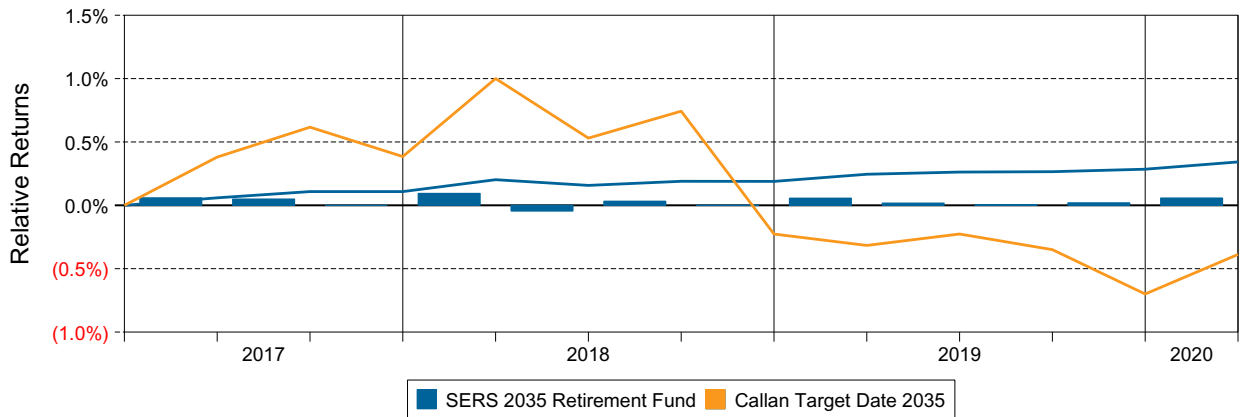
The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate 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)

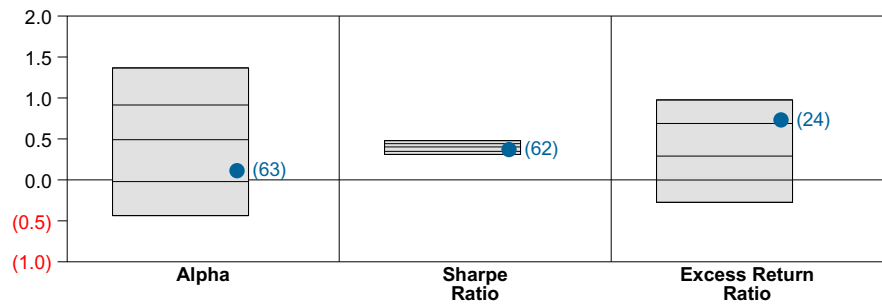


	12/19- 3/20	2019	2018	2017	2016	2015	2014	2013	2012	2011
10th Percentile	(13.52)	24.59	(5.46)	20.49	9.44	(0.10)	7.21	24.53	16.98	(0.79)
25th Percentile	(15.69)	22.92	(6.41)	19.53	8.67	(0.64)	6.63	22.82	15.81	(1.79)
Median	(17.10)	22.17	(7.03)	18.51	8.20	(1.46)	5.89	20.81	15.16	(3.09)
75th Percentile	(18.21)	21.05	(7.82)	17.46	7.30	(2.17)	4.91	19.56	14.02	(3.81)
90th Percentile	(18.97)	19.80	(8.31)	16.04	6.17	(2.95)	3.47	16.87	13.15	(5.15)
SERS 2035 Retirement Fund	(17.11)	22.84	(6.50)	17.72	8.44	(1.78)	5.99	15.88	14.28	(1.77)
LifePath Index 2035 CB	(17.16)	22.72	(6.58)	17.48	8.08	(1.86)	6.11	15.96	13.90	(1.71)

Cumulative and Quarterly Relative Return 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, 2020



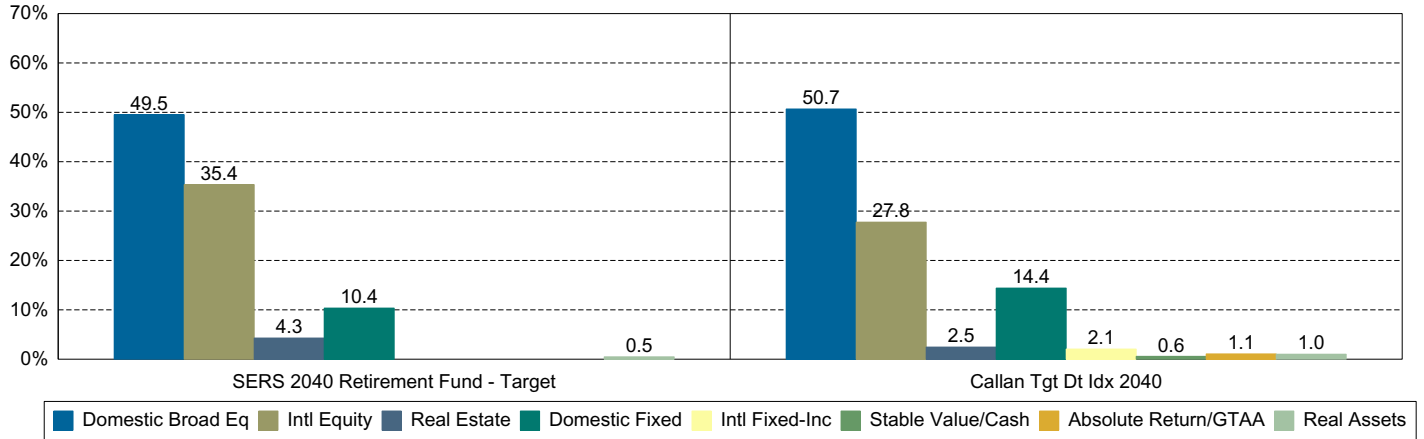
	Alpha	Sharpe Ratio	Excess Return Ratio
10th Percentile	1.37	0.48	0.98
25th Percentile	0.91	0.44	0.69
Median	0.49	0.40	0.29
75th Percentile	(0.02)	0.35	(0.00)
90th Percentile	(0.44)	0.31	(0.27)
SERS 2035 Retirement Fund	0.11	0.37	0.73

SERS 2040 Retirement Fund

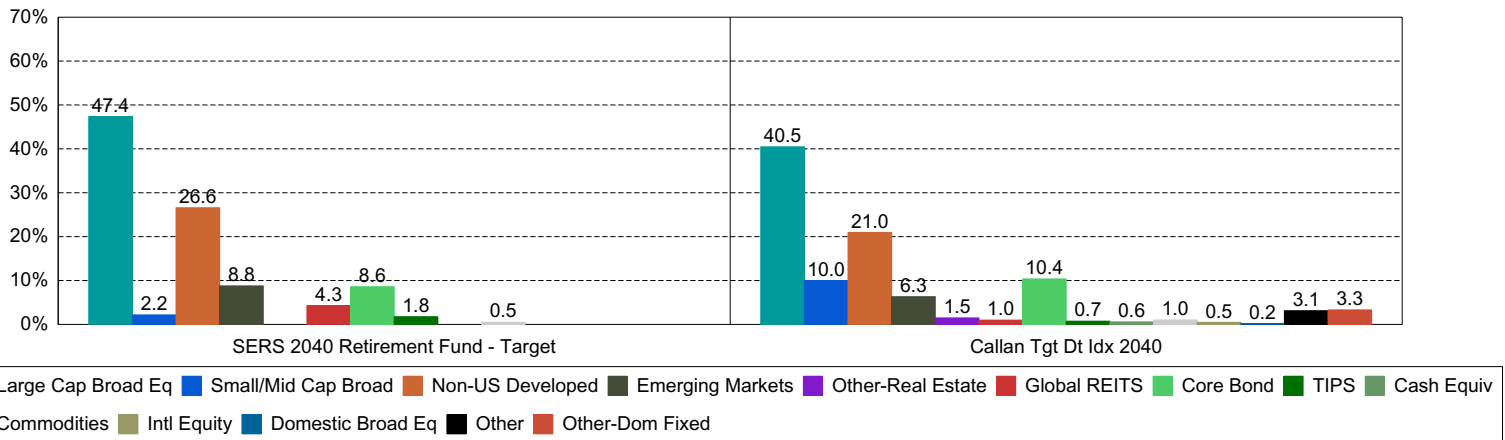
Target Date Fund Asset Allocation as of March 31, 2020

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.

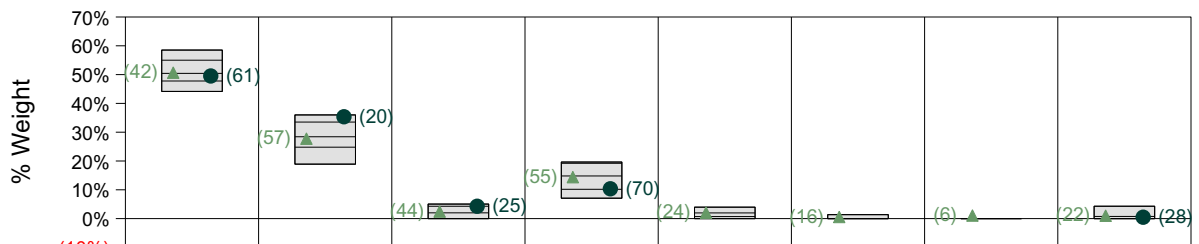
Macro-Level Asset Allocation



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	58.52	36.00	5.05	19.64	3.97	1.37	0.00	4.30
25th Percentile	55.00	33.52	4.28	19.20	1.97	0.00	0.00	0.75
Median	50.43	28.42	2.00	14.80	0.70	0.00	0.00	0.00
75th Percentile	47.78	24.80	0.00	10.18	0.00	0.00	0.00	0.00
90th Percentile	44.16	18.90	0.00	7.08	0.00	0.00	0.00	0.00
SERS 2040 Retirement Fund - Target	● 49.52	35.36	4.28	10.35	-	-	-	0.48
Callan Tgt Dt Idx 2040	▲ 50.68	27.76	2.45	14.40	2.05	0.58	1.07	1.01

SERS 2040 Retirement Fund Period Ended March 31, 2020

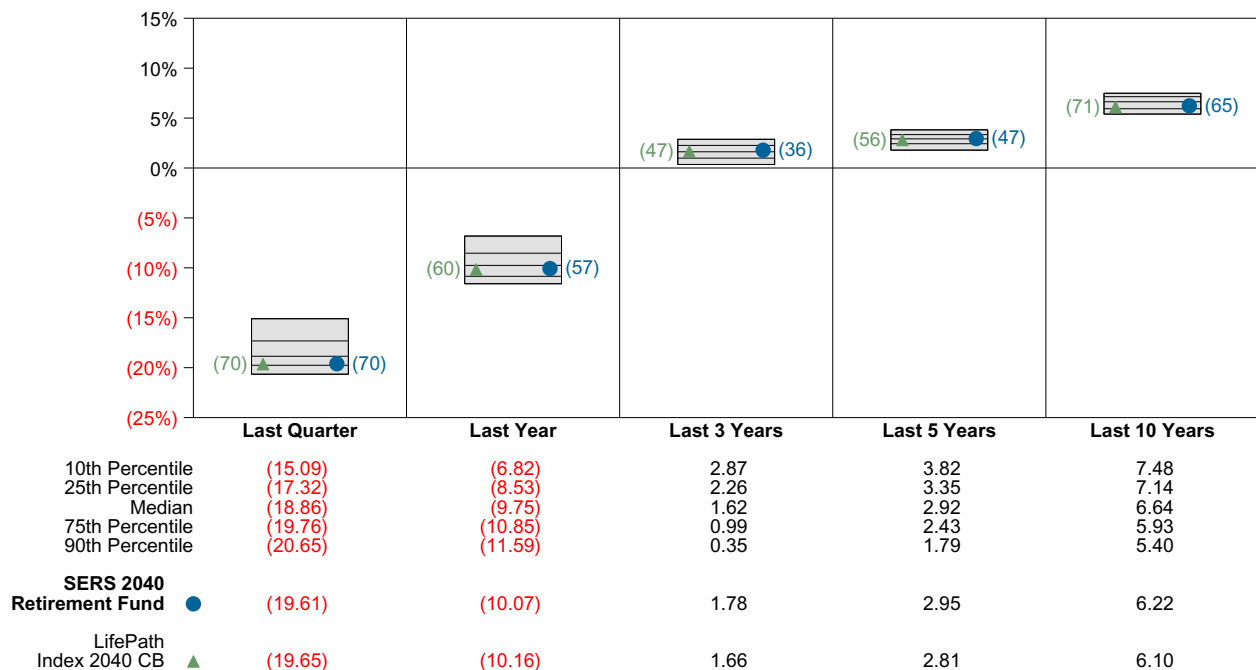
Investment Philosophy

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. Target Date funds replaced risk-based funds in 1Q20.

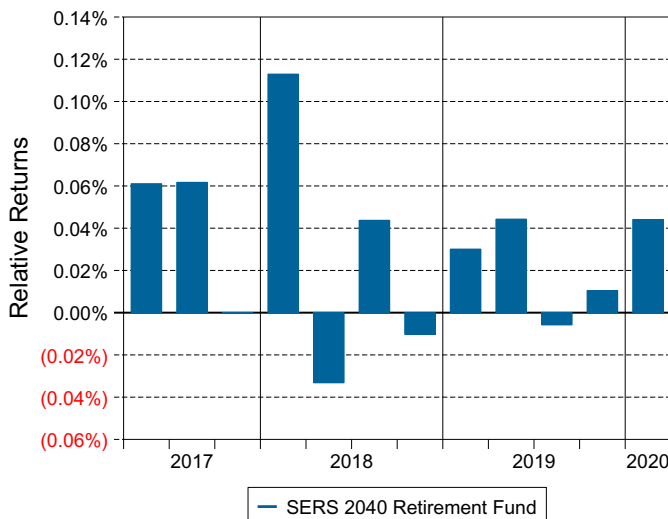
Quarterly Summary and Highlights

- SERS 2040 Retirement Fund's portfolio posted a (19.61)% return for the quarter placing it in the 70 percentile of the Callan Target Date 2040 group for the quarter and in the 57 percentile for the last year.
- SERS 2040 Retirement Fund's portfolio outperformed the LifePath Index 2040 CB by 0.04% for the quarter and outperformed the LifePath Index 2040 CB for the year by 0.09%.

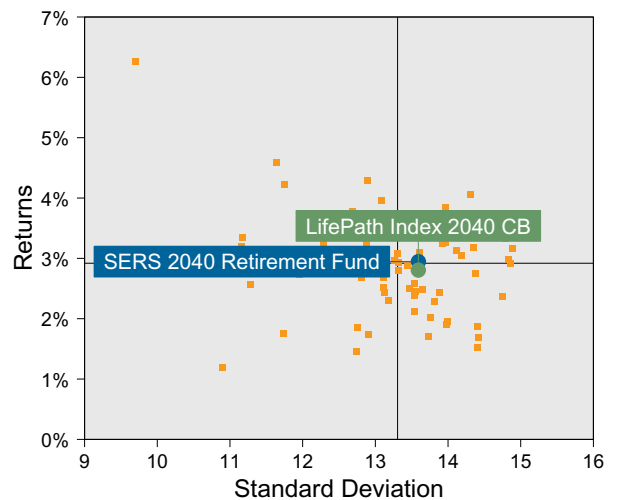
Performance vs Callan Target Date 2040 (Net)



Relative Return vs LifePath Index 2040 CB



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

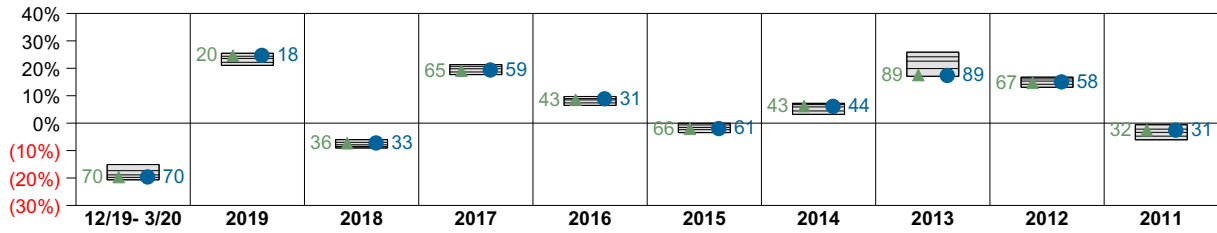


SERS 2040 Retirement Fund Return Analysis Summary

Return Analysis

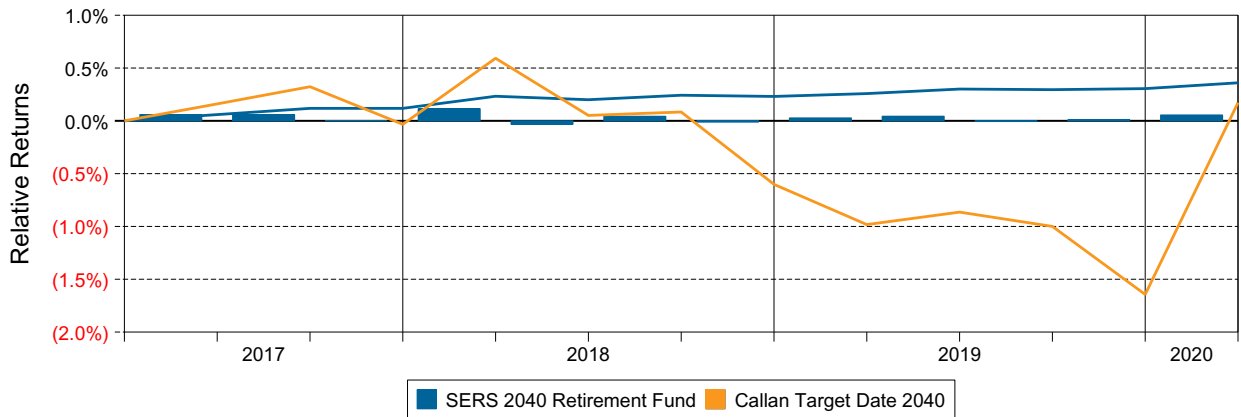
The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate 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)

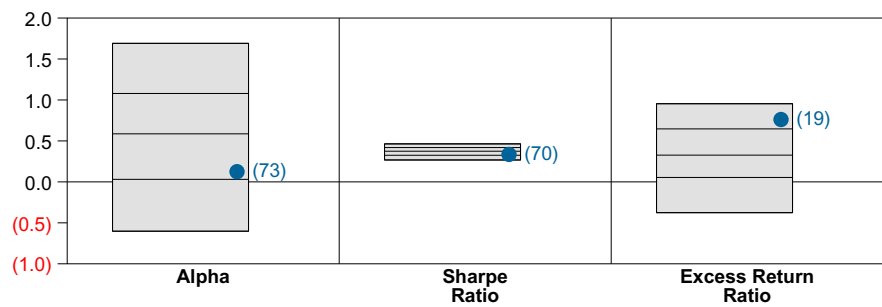


	12/19- 3/20	2019	2018	2017	2016	2015	2014	2013	2012	2011
10th Percentile	(15.09)	25.48	(6.01)	21.35	9.72	(0.05)	7.22	25.88	16.76	(0.57)
25th Percentile	(17.32)	24.40	(6.99)	20.71	8.96	(0.65)	6.77	24.20	16.13	(2.19)
Median	(18.86)	23.59	(7.89)	19.84	8.48	(1.55)	5.92	22.61	15.34	(3.36)
75th Percentile	(19.76)	22.18	(8.52)	18.66	7.40	(2.37)	4.45	19.90	14.17	(4.74)
90th Percentile	(20.65)	21.07	(9.05)	17.70	6.47	(3.45)	3.20	17.07	13.07	(6.06)
SERS 2040 Retirement Fund	● (19.61)	24.71	(7.22)	19.38	8.88	(1.98)	6.12	17.39	15.04	(2.54)
LifePath Index 2040 CB	▲ (19.65)	24.62	(7.33)	19.09	8.51	(2.08)	6.21	17.52	14.70	(2.58)

Cumulative and Quarterly Relative Return 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, 2020



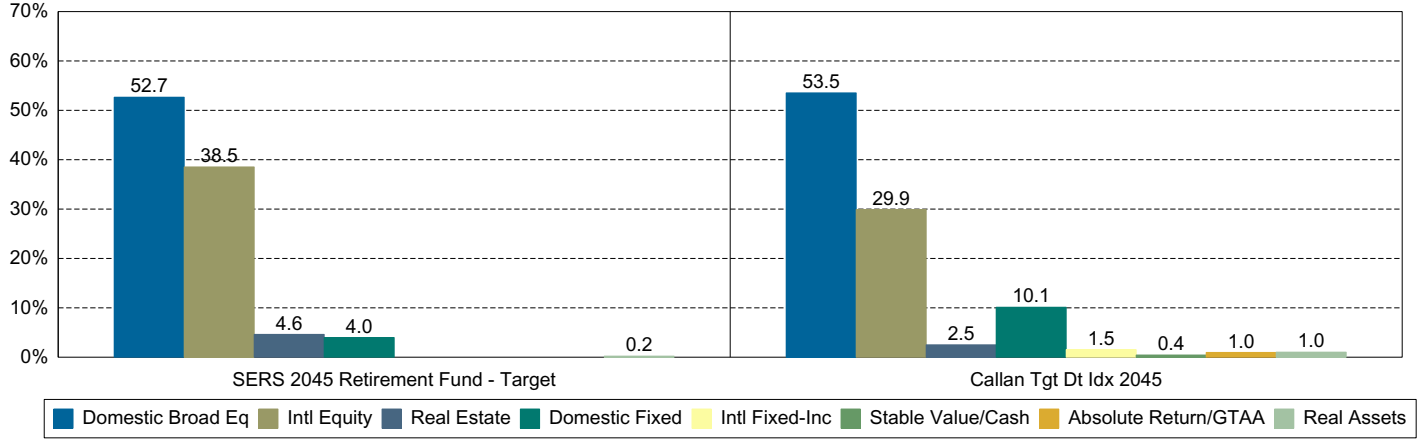
	Alpha	Sharpe Ratio	Excess Return Ratio
10th Percentile	1.69	0.46	0.95
25th Percentile	1.08	0.42	0.65
Median	0.59	0.37	0.33
75th Percentile	0.03	0.33	0.05
90th Percentile	(0.60)	0.27	(0.38)
SERS 2040 Retirement Fund	● 0.12	0.33	0.76

SERS 2045 Retirement Fund

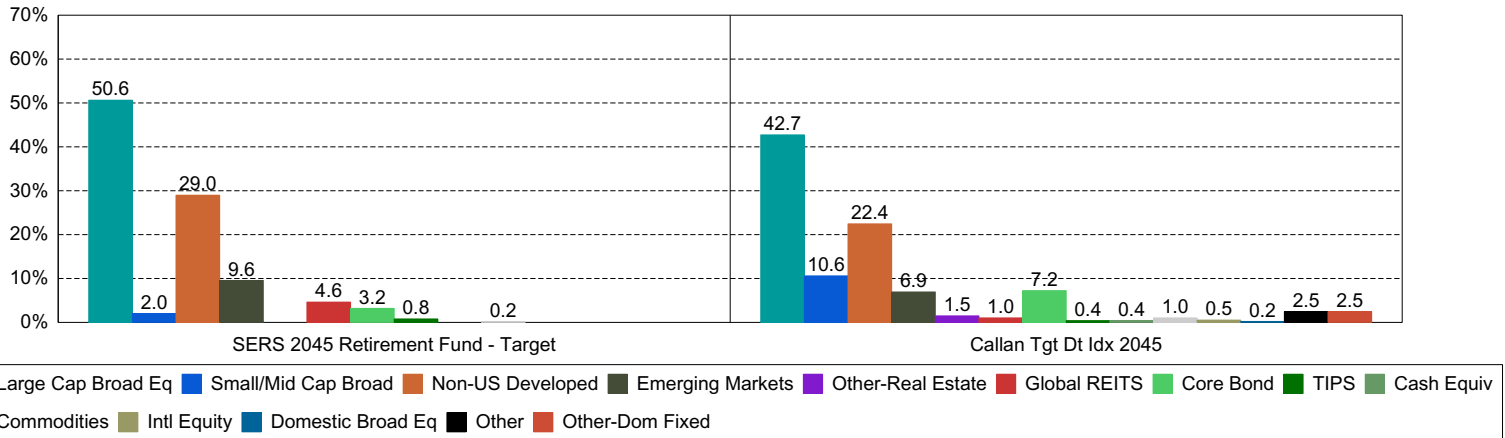
Target Date Fund Asset Allocation as of March 31, 2020

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.

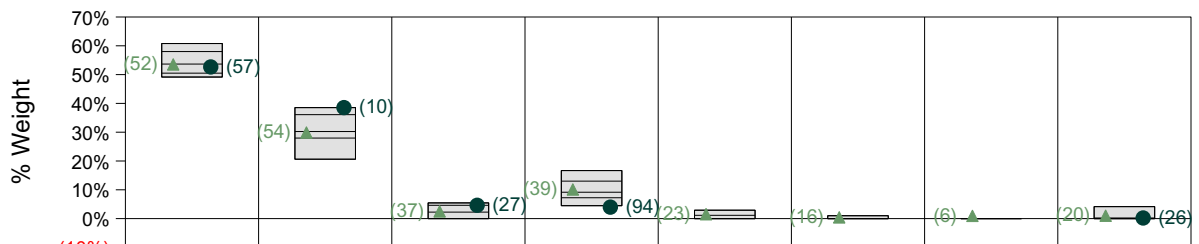
Macro-Level Asset Allocation



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	60.79	38.53	5.45	16.68	2.92	1.00	0.00	4.16
25th Percentile	58.00	36.09	4.62	13.01	1.14	0.00	0.00	0.21
Median	53.66	30.23	2.25	9.16	0.00	0.00	0.00	0.00
75th Percentile	50.50	27.96	0.00	7.24	0.00	0.00	0.00	0.00
90th Percentile	49.15	20.62	0.00	4.48	0.00	0.00	0.00	0.00

SERS 2045 Retirement Fund - Target	●	52.66	38.53	4.62	3.98	-	-	0.21
Callan Tgt Dt Idx 2045	▲	53.53	29.90	2.51	10.12	1.52	0.44	0.96

SERS 2045 Retirement Fund Period Ended March 31, 2020

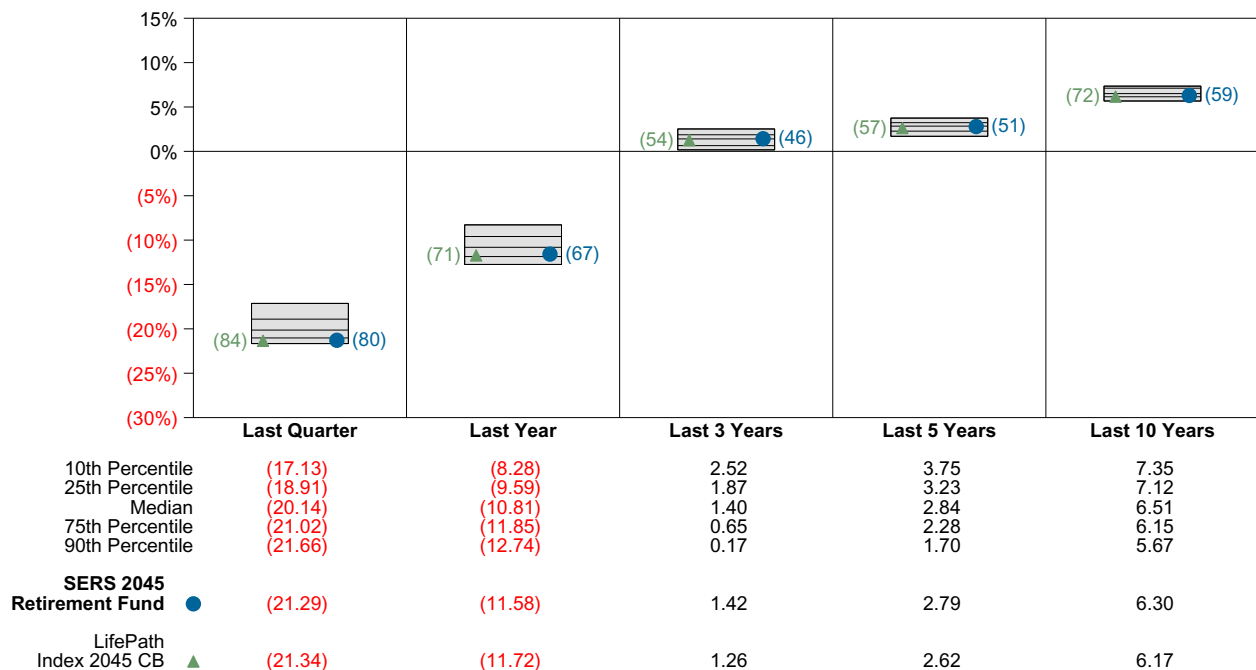
Investment Philosophy

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. Target Date funds replaced risk-based funds in 1Q20.

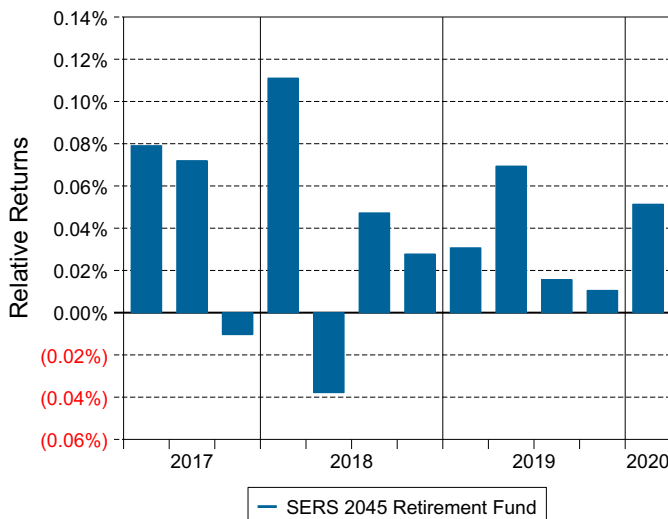
Quarterly Summary and Highlights

- SERS 2045 Retirement Fund's portfolio posted a (21.29)% return for the quarter placing it in the 80 percentile of the Callan Target Date 2045 group for the quarter and in the 67 percentile for the last year.
- SERS 2045 Retirement Fund's portfolio outperformed the LifePath Index 2045 CB by 0.05% for the quarter and outperformed the LifePath Index 2045 CB for the year by 0.14%.

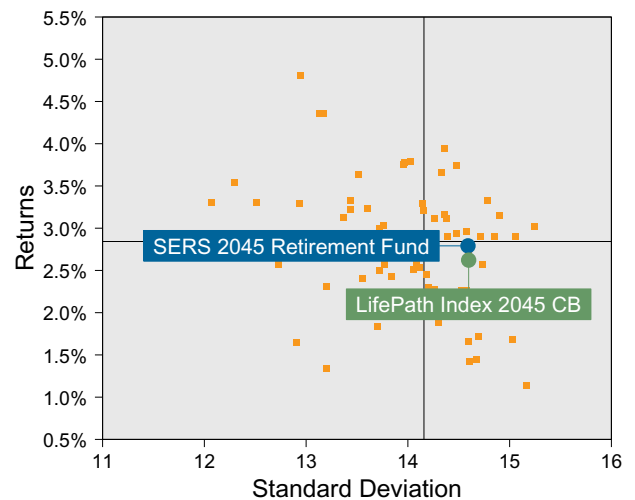
Performance vs Callan Target Date 2045 (Net)



Relative Return vs LifePath Index 2045 CB



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

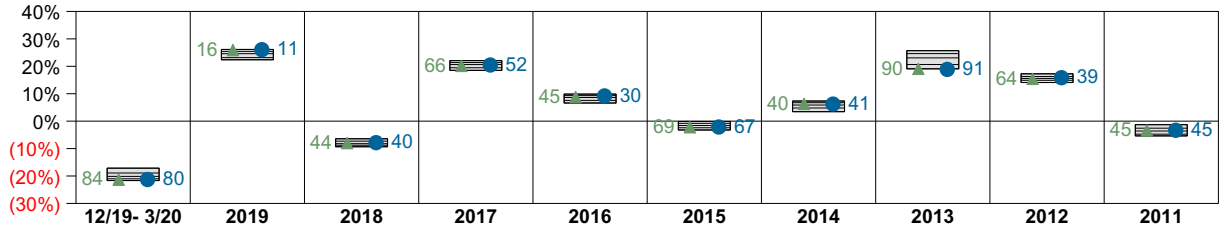


SERS 2045 Retirement Fund Return Analysis Summary

Return Analysis

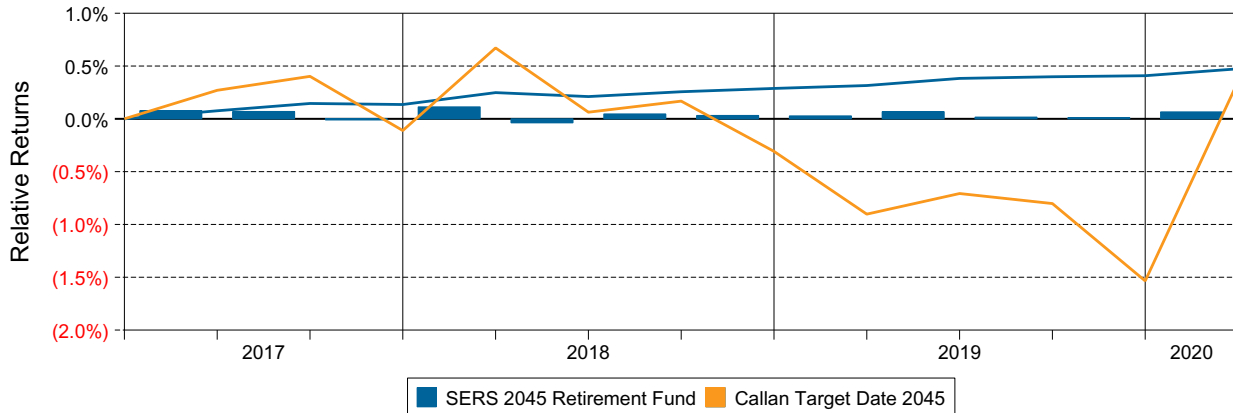
The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate 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)

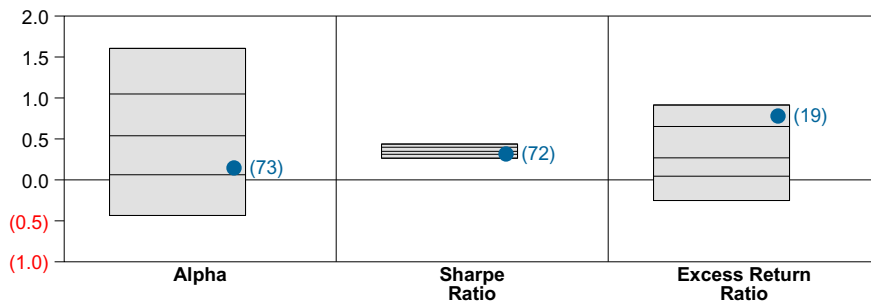


	12/19- 3/20	2019	2018	2017	2016	2015	2014	2013	2012	2011
10th Percentile	(17.13)	26.14	(6.43)	22.08	9.86	(0.12)	7.33	25.70	17.26	(1.28)
25th Percentile	(18.91)	25.44	(7.30)	21.36	9.31	(0.79)	6.73	24.63	16.28	(2.56)
Median	(20.14)	24.60	(8.21)	20.63	8.63	(1.58)	5.87	23.08	15.58	(3.59)
75th Percentile	(21.02)	23.16	(8.78)	19.47	7.56	(2.41)	4.80	20.66	14.90	(4.74)
90th Percentile	(21.66)	22.38	(9.33)	18.51	6.62	(3.23)	3.45	19.08	14.08	(5.37)
SERS 2045 Retirement Fund	● (21.29)	26.05	(7.85)	20.47	9.20	(2.13)	6.22	18.86	15.84	(3.32)
LifePath Index 2045 CB	▲ (21.34)	25.90	(7.99)	20.15	8.77	(2.22)	6.31	19.09	15.43	(3.36)

Cumulative and Quarterly Relative Return 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, 2020



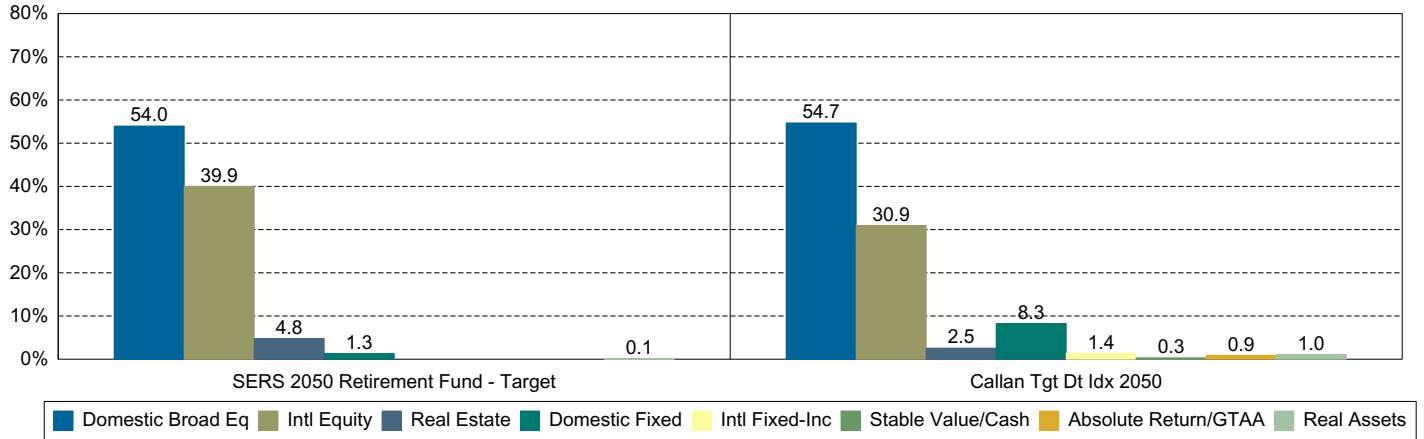
	Alpha	Sharpe Ratio	Excess Return Ratio
10th Percentile	1.61	0.44	0.91
25th Percentile	1.05	0.40	0.65
Median	0.54	0.35	0.27
75th Percentile	0.06	0.31	0.05
90th Percentile	(0.43)	0.26	(0.25)
SERS 2045 Retirement Fund	● 0.15	0.32	0.78

SERS 2050 Retirement Fund

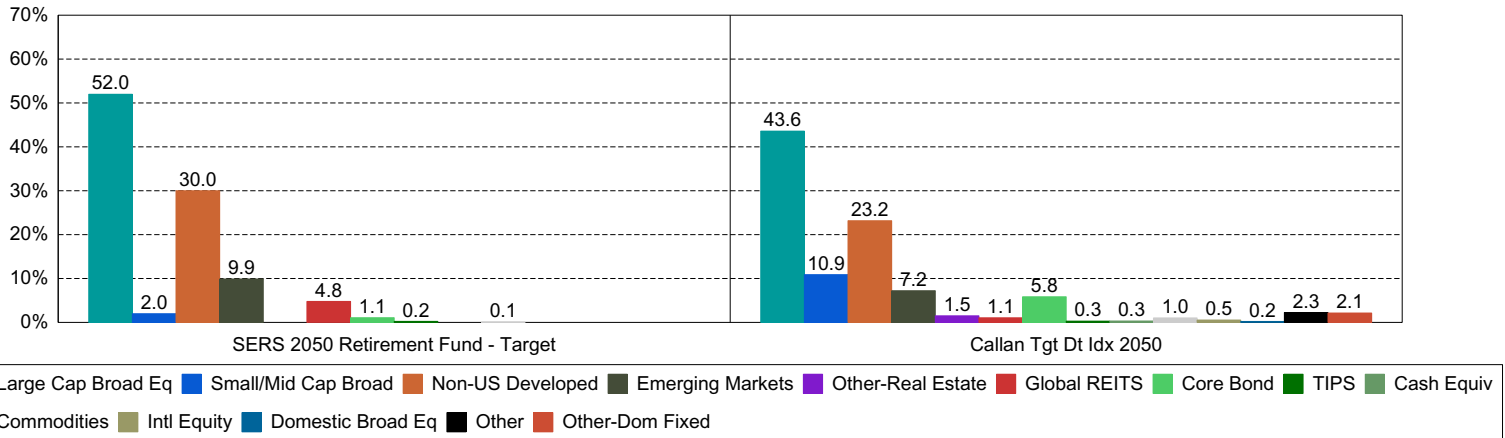
Target Date Fund Asset Allocation as of March 31, 2020

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.

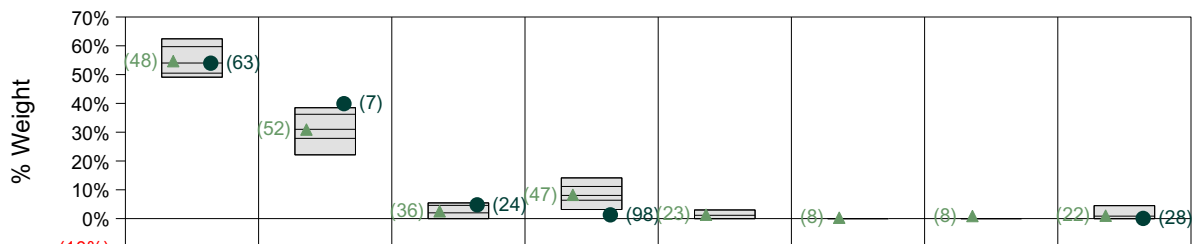
Macro-Level Asset Allocation



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	62.43	38.50	5.45	14.14	3.00	0.00	0.00	4.50
25th Percentile	59.70	36.22	4.59	11.16	1.15	0.00	0.00	0.85
Median	54.02	31.00	2.00	8.05	0.00	0.00	0.00	0.00
75th Percentile	50.50	27.86	0.00	6.38	0.00	0.00	0.00	0.00
90th Percentile	49.10	22.14	0.00	3.15	0.00	0.00	0.00	0.00
SERS 2050 Retirement Fund - Target	● 53.96	39.90	4.77	1.30	-	-	-	0.06
Callan Tgt Dt Idx 2050	▲ 54.68	30.92	2.55	8.26	1.36	0.32	0.90	1.02

SERS 2050 Retirement Fund Period Ended March 31, 2020

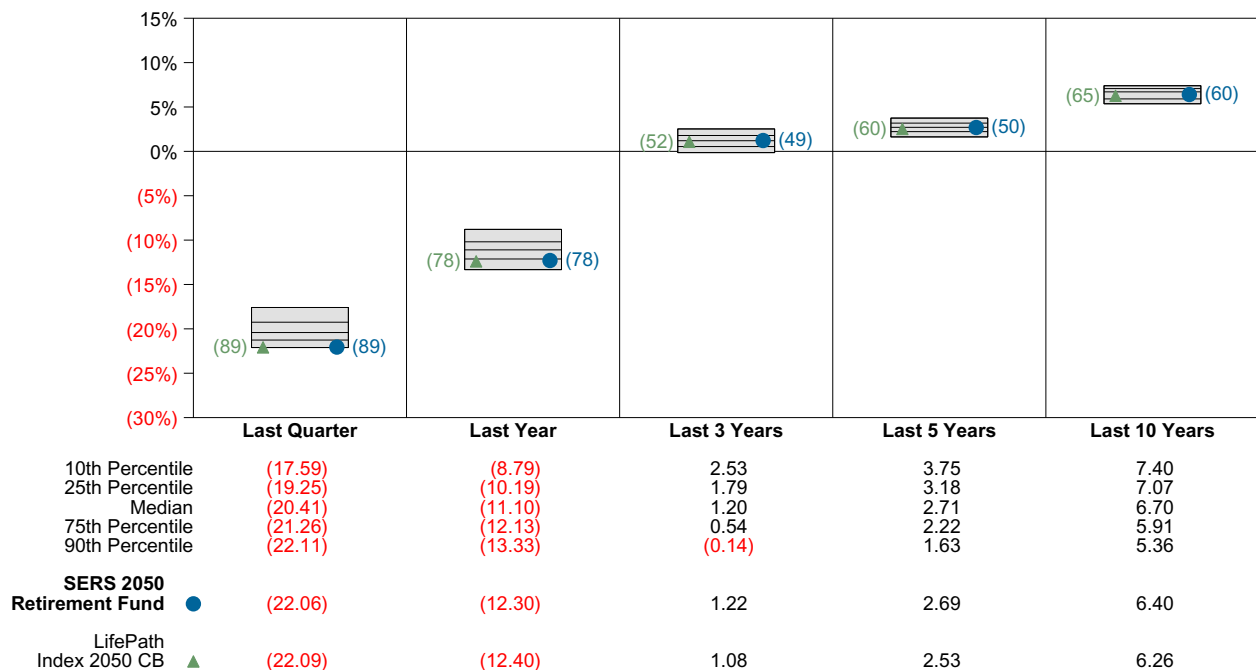
Investment Philosophy

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. Target Date funds replaced risk-based funds in 1Q20.

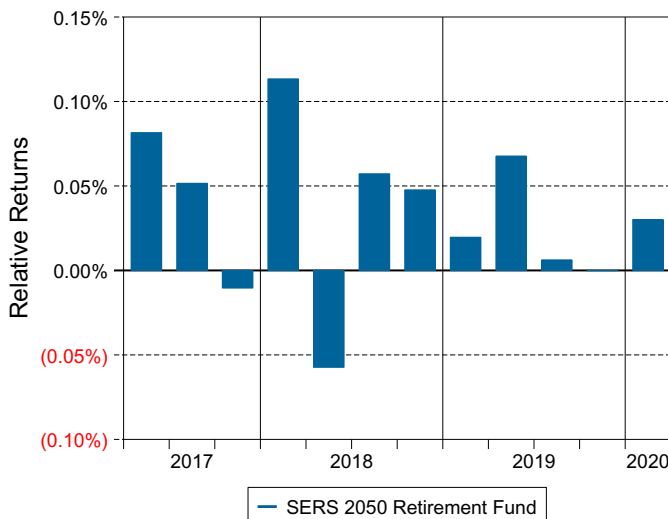
Quarterly Summary and Highlights

- SERS 2050 Retirement Fund's portfolio posted a (22.06)% return for the quarter placing it in the 89 percentile of the Callan Target Date 2050 group for the quarter and in the 78 percentile for the last year.
- SERS 2050 Retirement Fund's portfolio outperformed the LifePath Index 2050 CB by 0.03% for the quarter and outperformed the LifePath Index 2050 CB for the year by 0.10%.

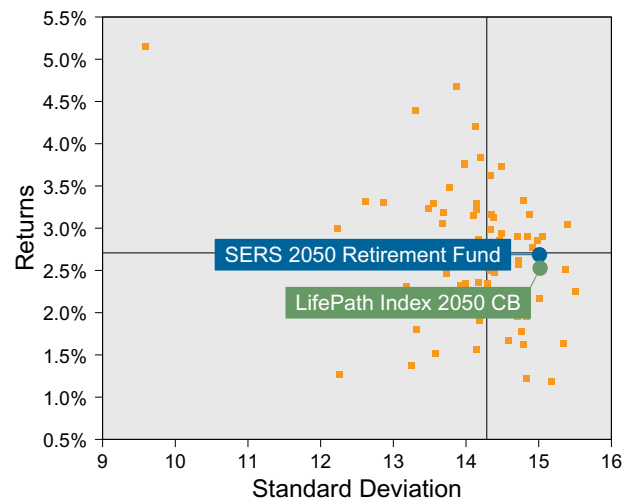
Performance vs Callan Target Date 2050 (Net)



Relative Return vs LifePath Index 2050 CB



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

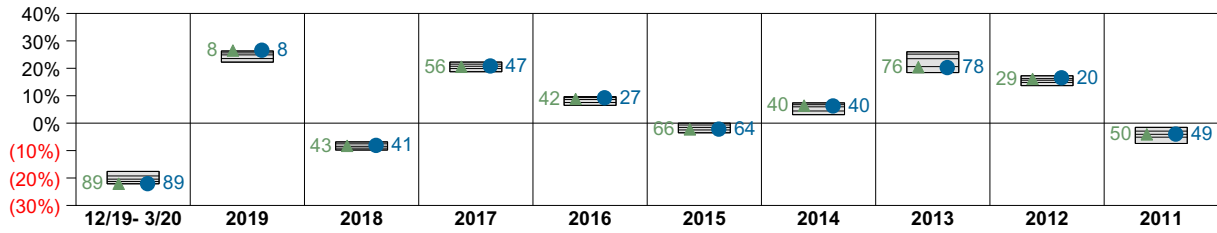


SERS 2050 Retirement Fund Return Analysis Summary

Return Analysis

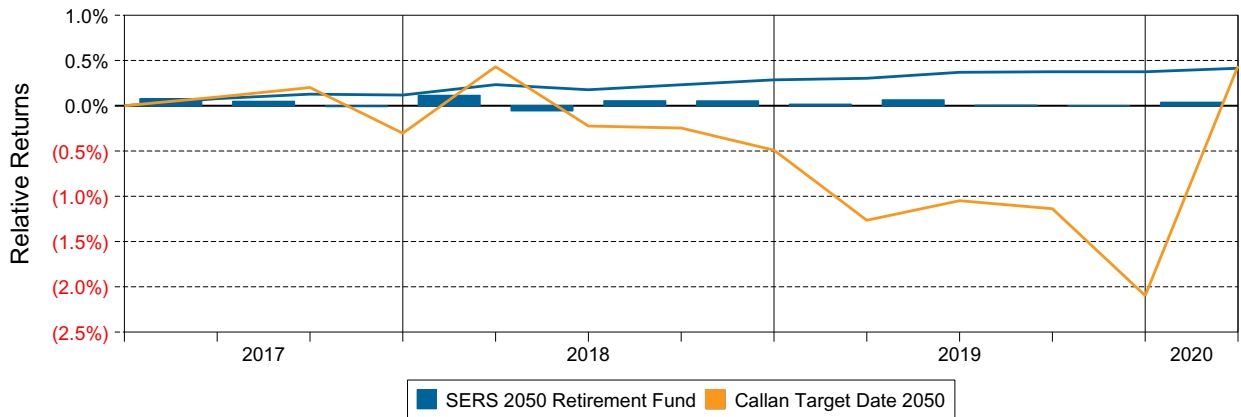
The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate 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)

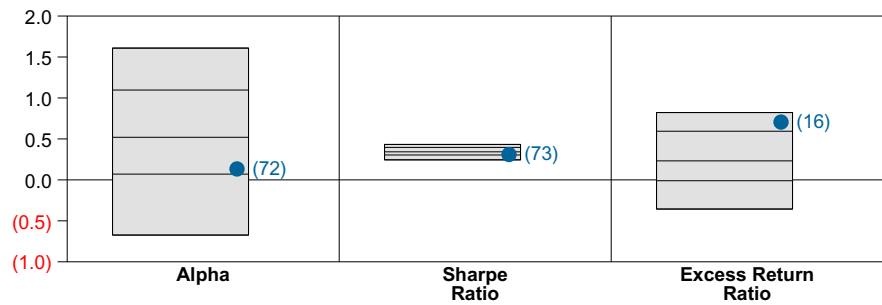


	12/19- 3/20	2019	2018	2017	2016	2015	2014	2013	2012	2011
10th Percentile	(17.59)	26.30	(6.84)	22.27	9.65	(0.02)	7.38	26.02	17.27	(1.53)
25th Percentile	(19.25)	25.62	(7.54)	21.51	9.32	(0.68)	6.73	25.17	16.24	(2.91)
Median	(20.41)	24.89	(8.44)	20.74	8.61	(1.56)	5.95	23.50	15.65	(4.08)
75th Percentile	(21.26)	23.55	(9.11)	19.91	7.52	(2.48)	4.44	20.62	14.84	(5.11)
90th Percentile	(22.11)	22.25	(9.80)	18.75	6.49	(3.51)	3.10	18.44	13.68	(7.41)
SERS 2050 Retirement Fund	● (22.06)	26.60	(8.11)	20.85	9.26	(2.17)	6.28	20.26	16.54	(3.98)
LifePath Index 2050 CB	▲ (22.09)	26.48	(8.26)	20.55	8.82	(2.26)	6.41	20.40	16.12	(4.08)

Cumulative and Quarterly Relative Return 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, 2020

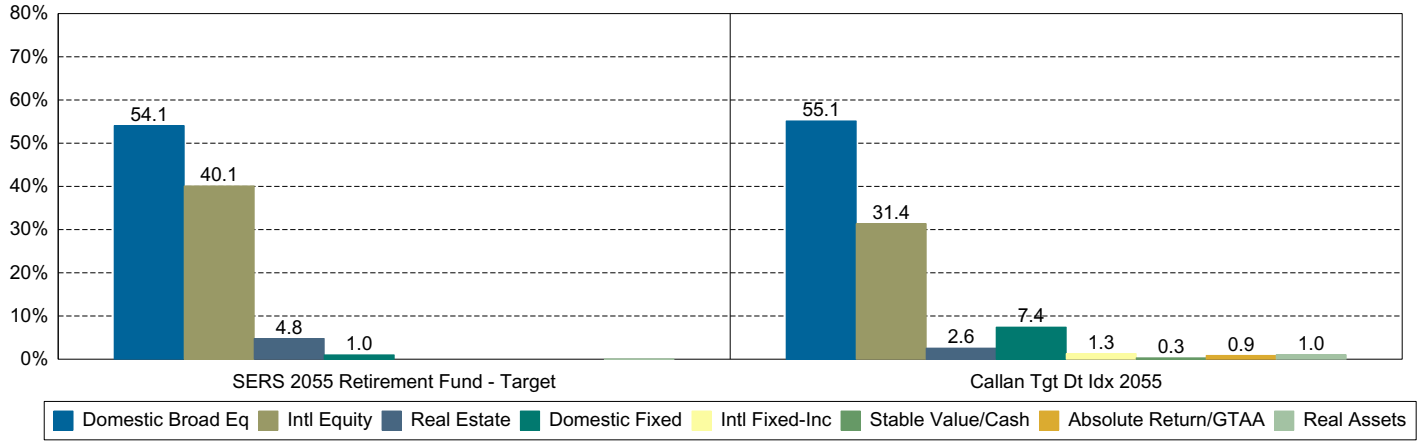


	Alpha	Sharpe Ratio	Excess Return Ratio
10th Percentile	1.61	0.43	0.82
25th Percentile	1.10	0.40	0.59
Median	0.52	0.34	0.23
75th Percentile	0.07	0.30	(0.01)
90th Percentile	(0.67)	0.24	(0.36)
SERS 2050 Retirement Fund	● 0.13	0.31	0.71

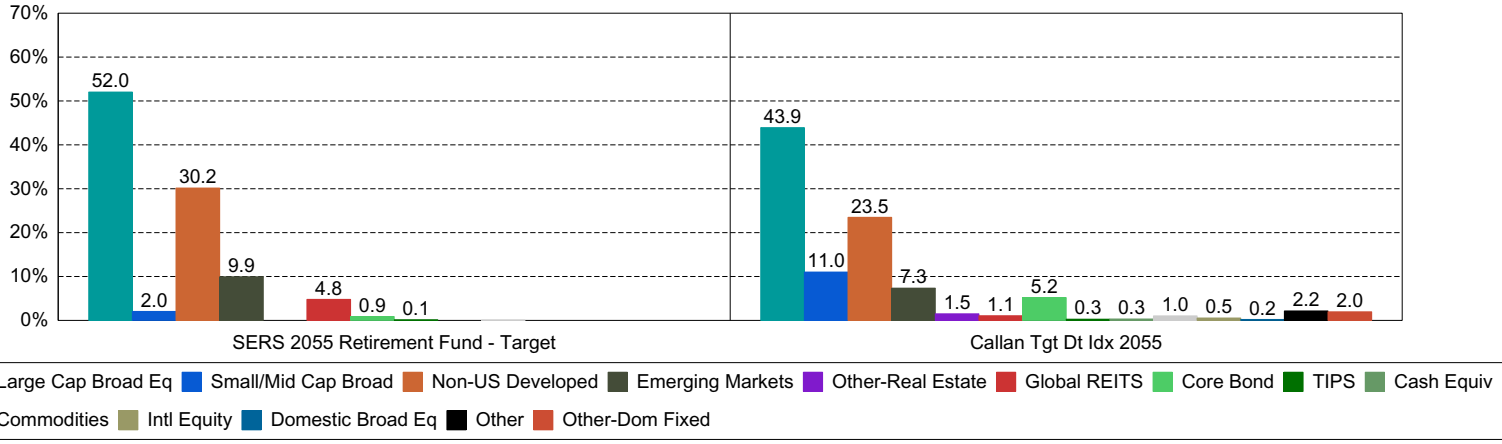
SERS 2055 Retirement Fund Target Date Fund Asset Allocation as of March 31, 2020

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.

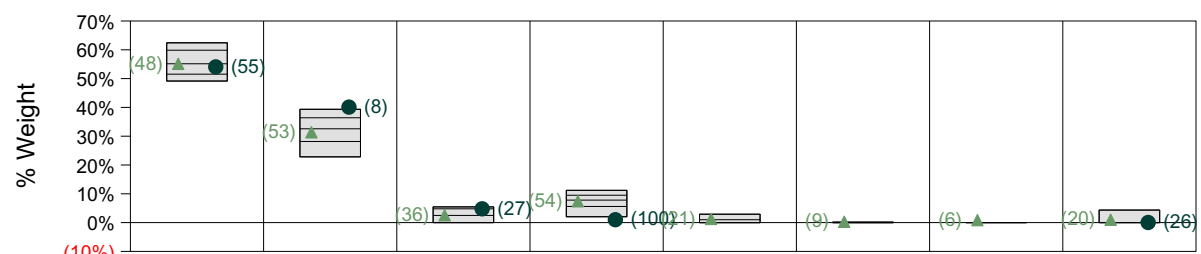
Macro-Level Asset Allocation



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	62.43	39.34	5.45	11.20	2.92	0.18	0.00	4.36
25th Percentile	59.85	36.40	4.79	9.50	1.00	0.00	0.00	0.04
Median	55.14	32.57	2.49	7.80	0.00	0.00	0.00	0.00
75th Percentile	51.53	28.17	0.00	5.60	0.00	0.00	0.00	0.00
90th Percentile	49.15	22.82	0.00	2.02	0.00	0.00	0.00	0.00
SERS 2055 Retirement Fund - Target	● 54.07	40.11	4.79	1.00	-	-	-	0.04
Callan Tgt Dt Idx 2055	▲ 55.15	31.37	2.56	7.42	1.29	0.32	0.87	1.02

SERS 2055 Retirement Fund Period Ended March 31, 2020

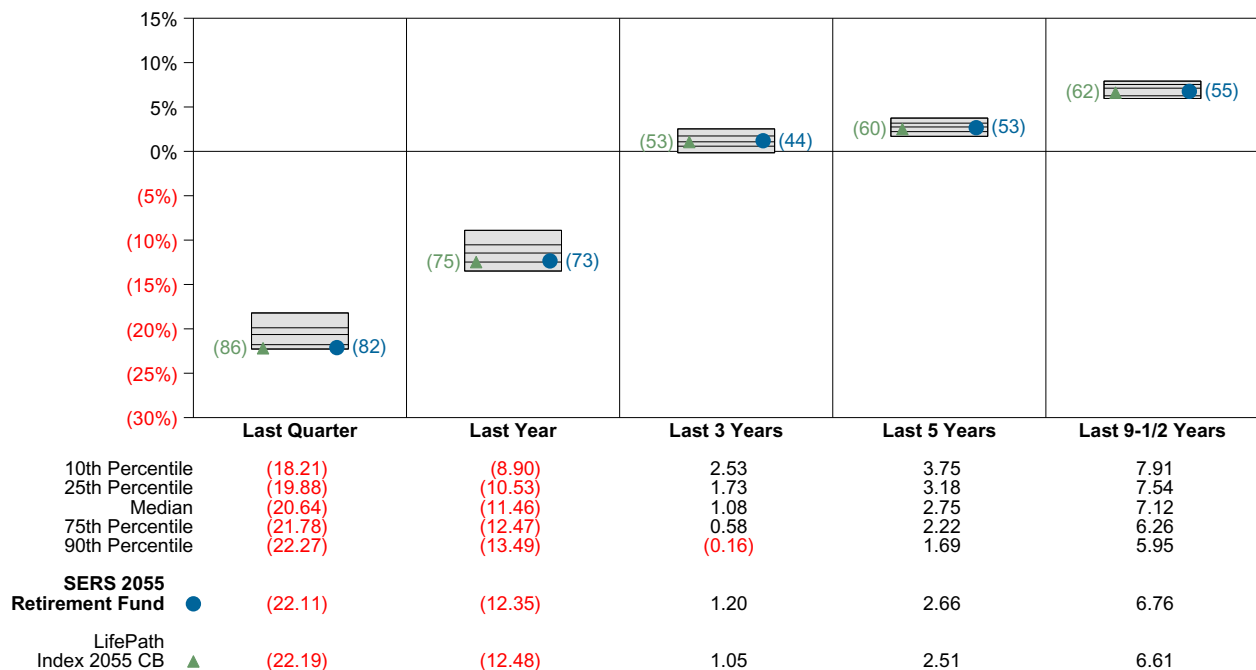
Investment Philosophy

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. Target Date funds replaced risk-based funds in 1Q20.

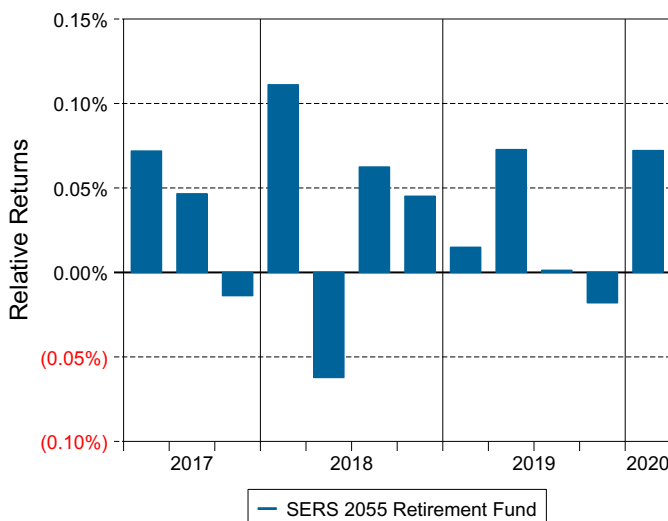
Quarterly Summary and Highlights

- SERS 2055 Retirement Fund's portfolio posted a (22.11)% return for the quarter placing it in the 82 percentile of the Callan Target Date 2055 group for the quarter and in the 73 percentile for the last year.
- SERS 2055 Retirement Fund's portfolio outperformed the LifePath Index 2055 CB by 0.07% for the quarter and outperformed the LifePath Index 2055 CB for the year by 0.13%.

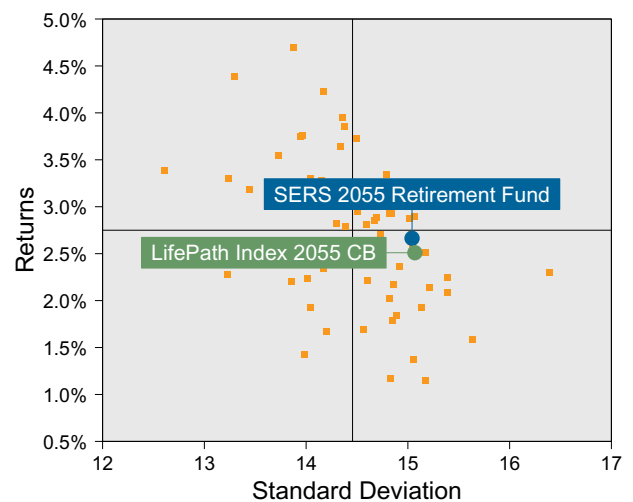
Performance vs Callan Target Date 2055 (Net)



Relative Return vs LifePath Index 2055 CB



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

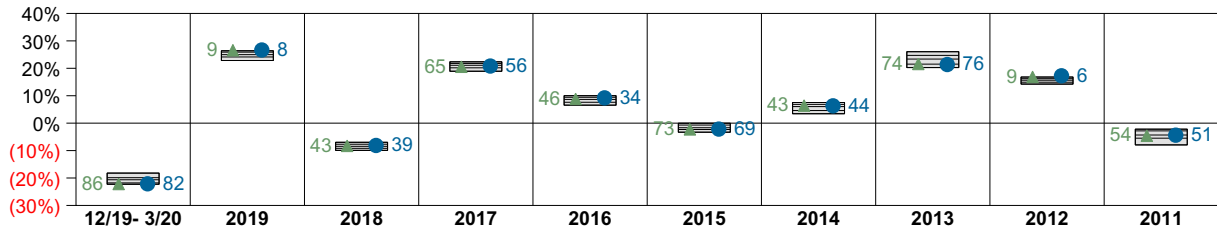


SERS 2055 Retirement Fund Return Analysis Summary

Return Analysis

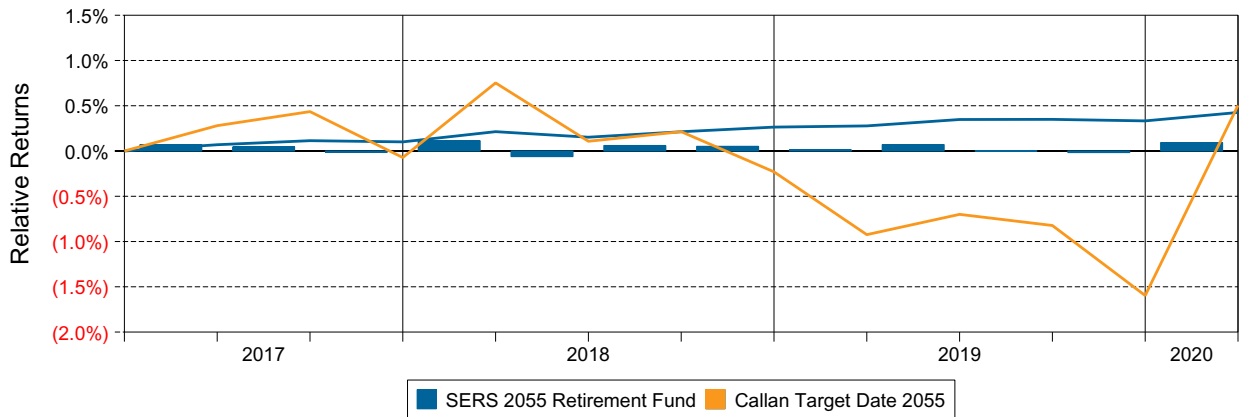
The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate 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)

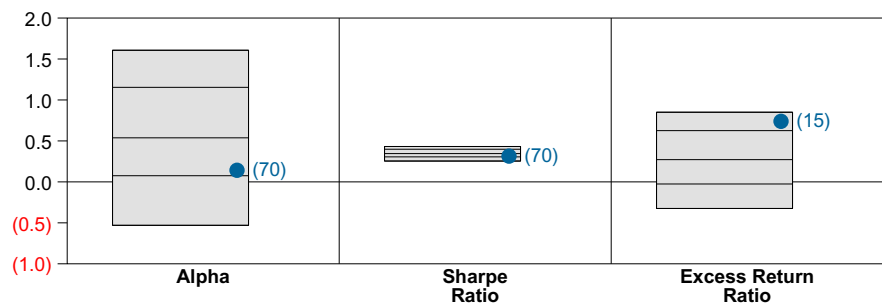


10th Percentile	(18.21)	26.39	(6.98)	22.36	10.01	(0.05)	7.53	26.05	16.82	(2.19)
25th Percentile	(19.88)	25.90	(7.69)	21.77	9.44	(0.69)	6.85	24.70	16.22	(2.81)
Median	(20.64)	24.97	(8.44)	21.10	8.65	(1.67)	6.04	23.36	15.65	(4.33)
75th Percentile	(21.78)	24.13	(9.18)	20.17	7.61	(2.31)	4.60	21.51	14.93	(5.48)
90th Percentile	(22.27)	22.84	(9.93)	18.92	6.55	(3.30)	3.44	20.26	14.25	(7.93)
SERS 2055 Retirement Fund	● (22.11)	26.67	(8.13)	20.82	9.22	(2.17)	6.31	21.37	17.27	(4.38)
LifePath Index 2055 CB	▲ (22.19)	26.58	(8.28)	20.55	8.82	(2.26)	6.41	21.58	16.87	(4.56)

Cumulative and Quarterly Relative Return 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, 2020



10th Percentile	1.61	0.43	0.85
25th Percentile	1.15	0.40	0.63
Median	0.54	0.35	0.27
75th Percentile	0.08	0.31	(0.03)
90th Percentile	(0.53)	0.25	(0.32)
SERS 2055 Retirement Fund	● 0.14	0.31	0.74

SERS 2060 Retirement Fund Period Ended March 31, 2020

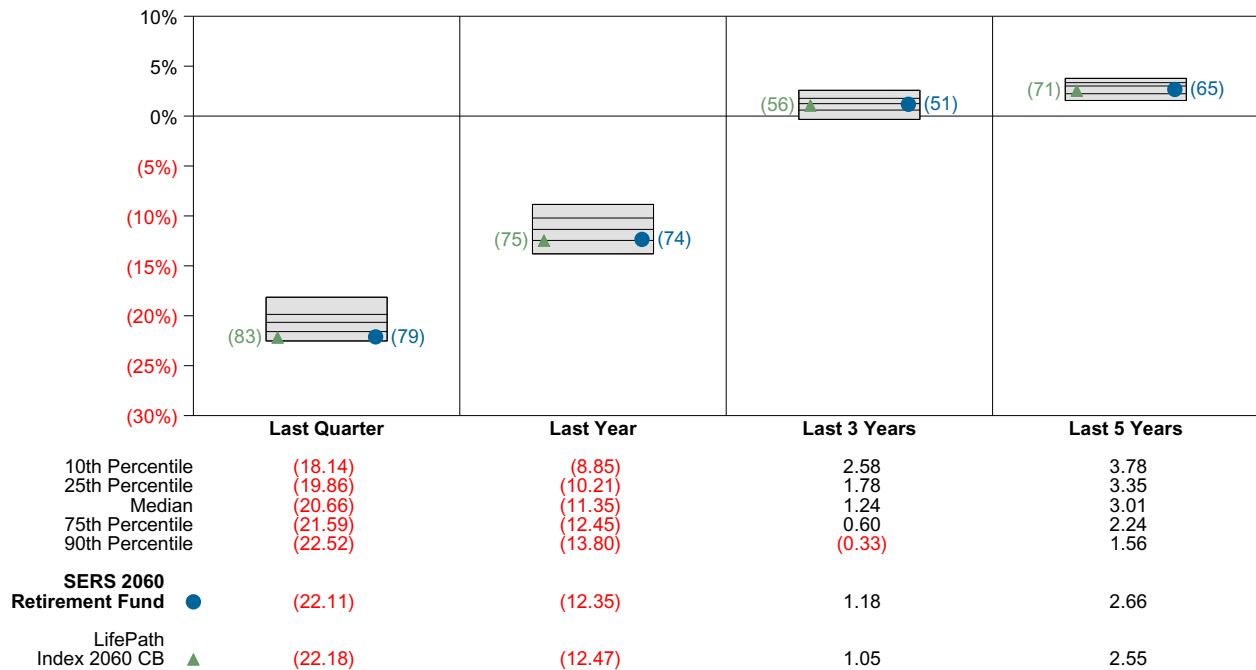
Investment Philosophy

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. Target Date funds replaced risk-based funds in 1Q20.

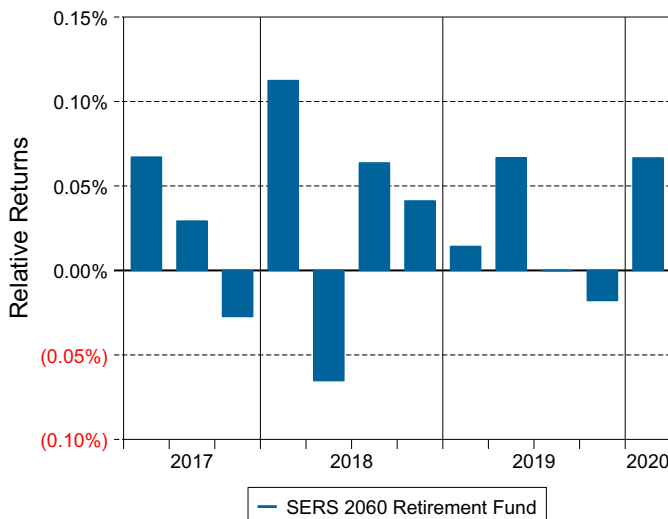
Quarterly Summary and Highlights

- SERS 2060 Retirement Fund's portfolio posted a (22.11)% return for the quarter placing it in the 79 percentile of the Callan Target Date 2060 group for the quarter and in the 74 percentile for the last year.
- SERS 2060 Retirement Fund's portfolio outperformed the LifePath Index 2060 CB by 0.07% for the quarter and outperformed the LifePath Index 2060 CB for the year by 0.12%.

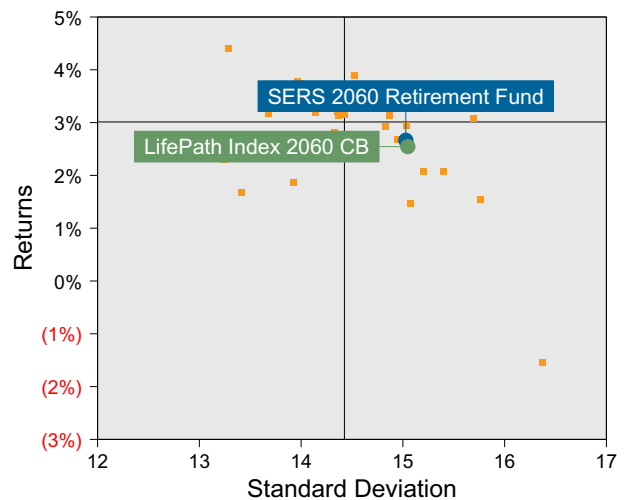
Performance vs Callan Target Date 2060 (Net)



Relative Return vs LifePath Index 2060 CB



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

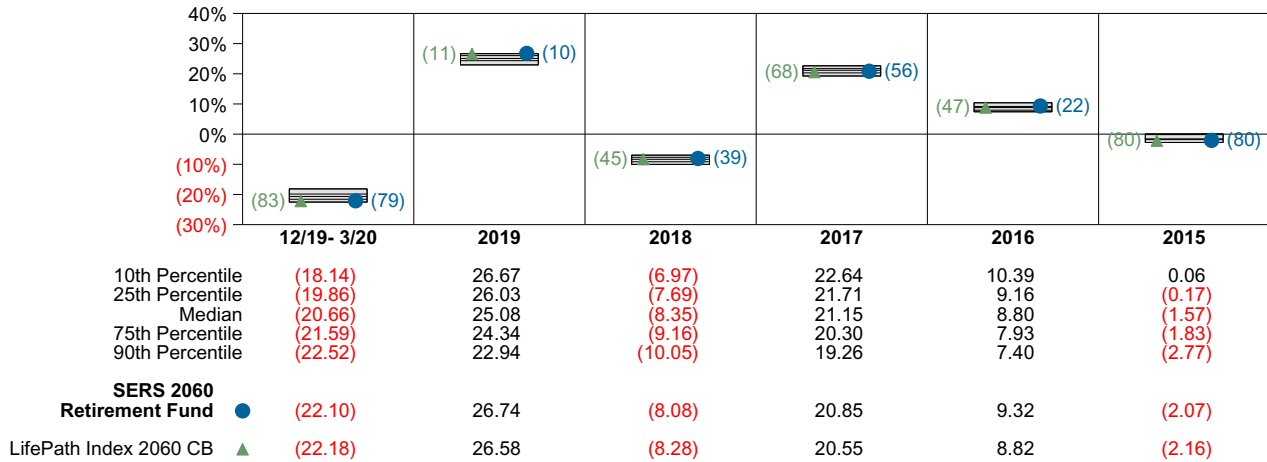


SERS 2060 Retirement Fund Return Analysis Summary

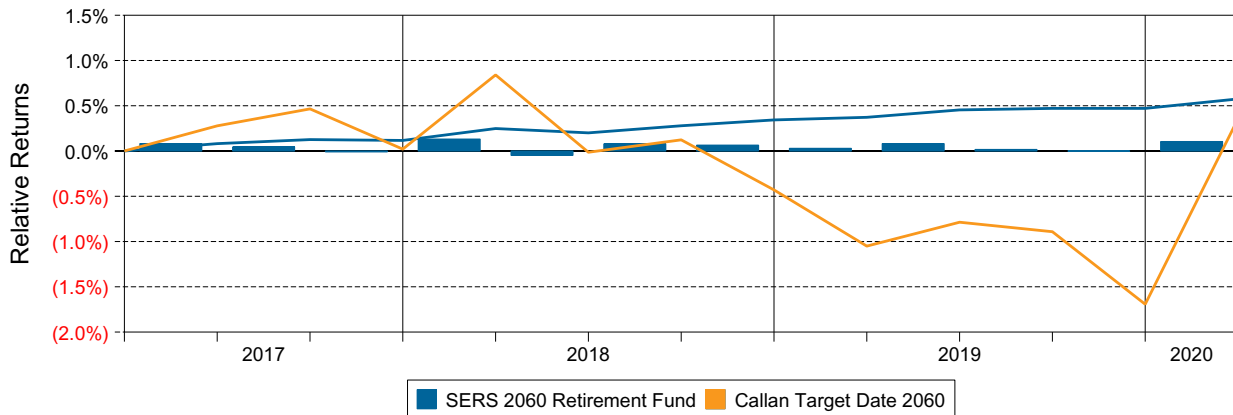
Return Analysis

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.

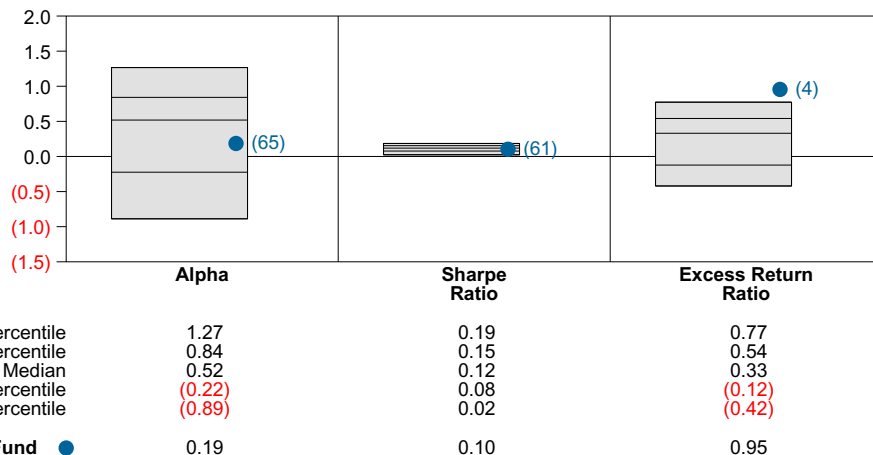
Performance vs Callan Target Date 2060 (Net)



Cumulative and Quarterly Relative Return vs LifePath Index 2060 CB



Risk Adjusted Return Measures vs LifePath Index 2060 CB Rankings Against Callan Target Date 2060 (Net) Five Years Ended March 31, 2020



SERS 2065 Retirement Fund

Period Ended March 31, 2020

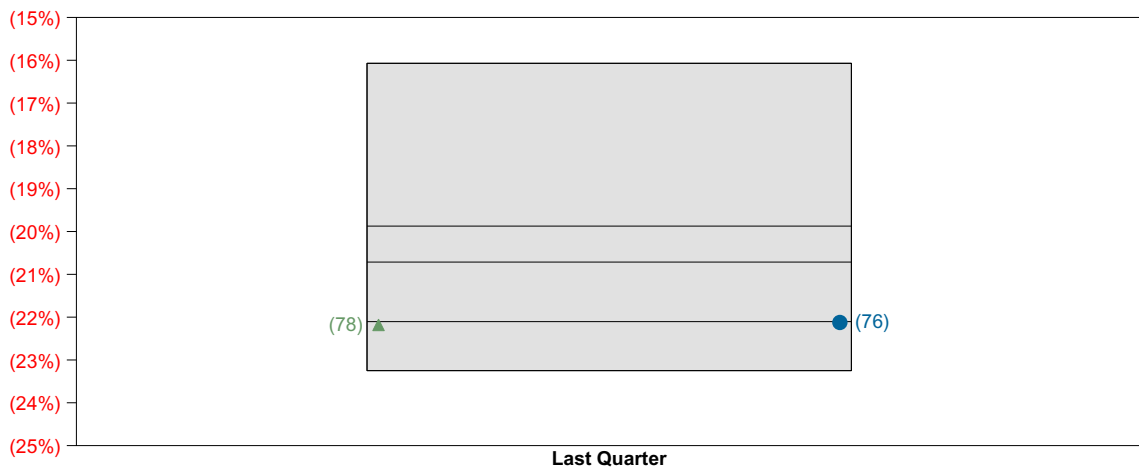
Investment Philosophy

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. Target Date funds replaced risk-based funds in 1Q20.

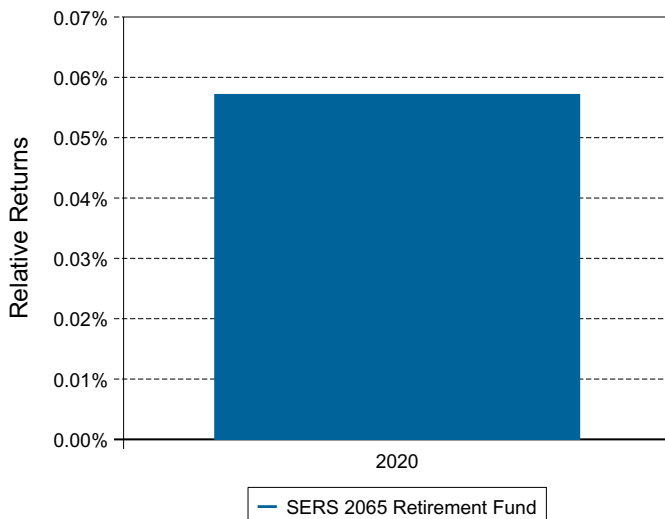
Quarterly Summary and Highlights

- SERS 2065 Retirement Fund's portfolio posted a (22.12)% return for the quarter placing it in the 76 percentile of the Callan Target Date 2065 group for the quarter.
- SERS 2065 Retirement Fund's portfolio outperformed the LifePath Index 2065 CB by 0.06% for the quarter.

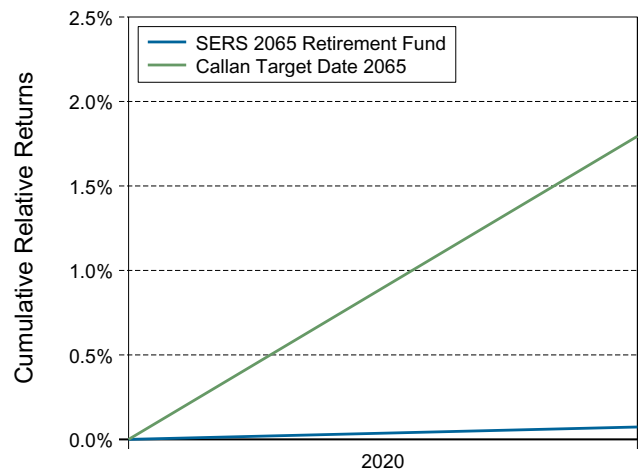
Performance vs Callan Target Date 2065 (Net)



Relative Return vs LifePath Index 2065 CB



Cumulative Returns vs LifePath Index 2065 CB



SERS U.S. Large Company Index Fund

Period Ended March 31, 2020

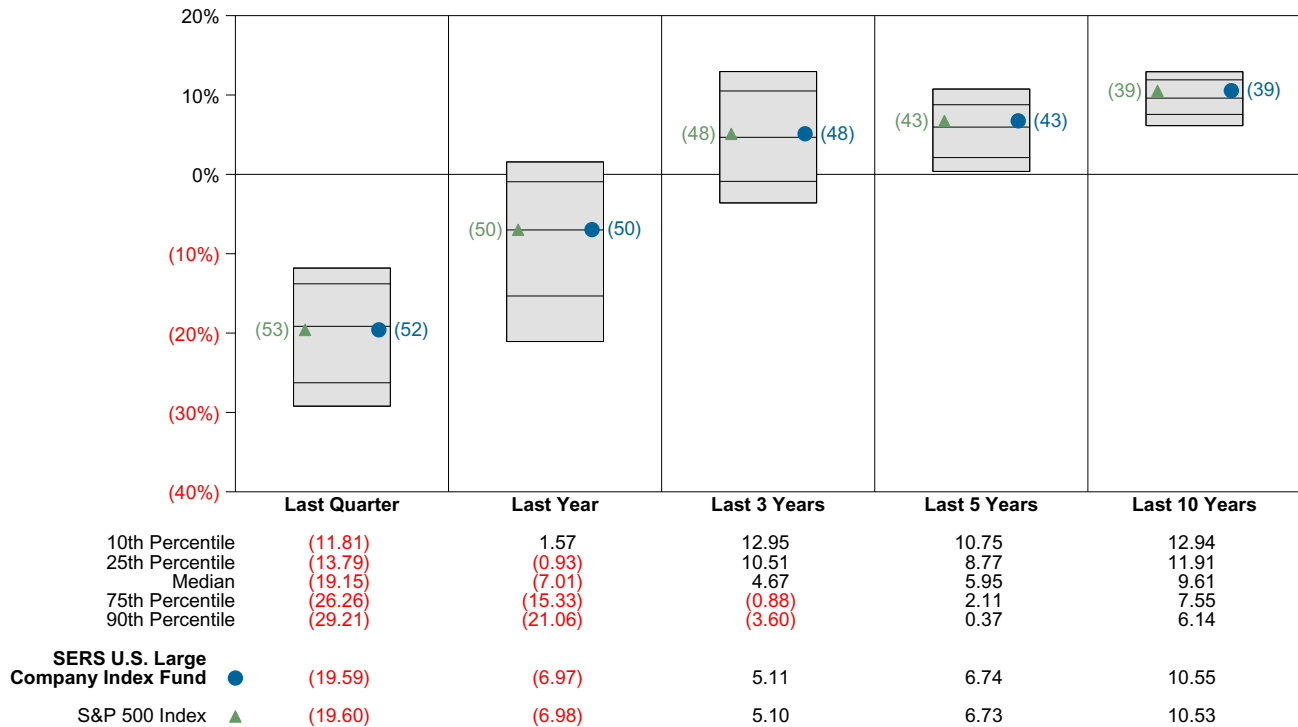
Investment Philosophy

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.

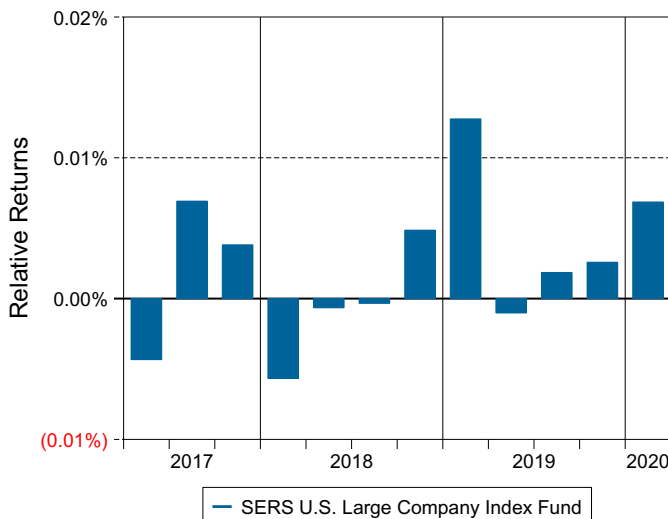
Quarterly Summary and Highlights

- SERS U.S. Large Company Index Fund's portfolio posted a (19.59)% return for the quarter placing it in the 52 percentile of the Callan Large Cap Broad Equity Mut Funds group for the quarter and in the 50 percentile for the last year.
- SERS U.S. Large Company Index Fund's portfolio outperformed the S&P 500 Index by 0.01% for the quarter and outperformed the S&P 500 Index for the year by 0.01%.

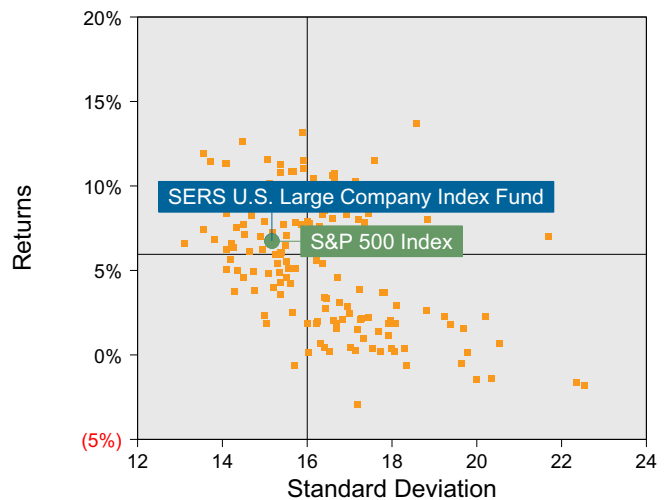
Performance vs Callan Large Cap Broad Equity Mut Funds (Institutional Net)



Relative Return vs S&P 500 Index



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

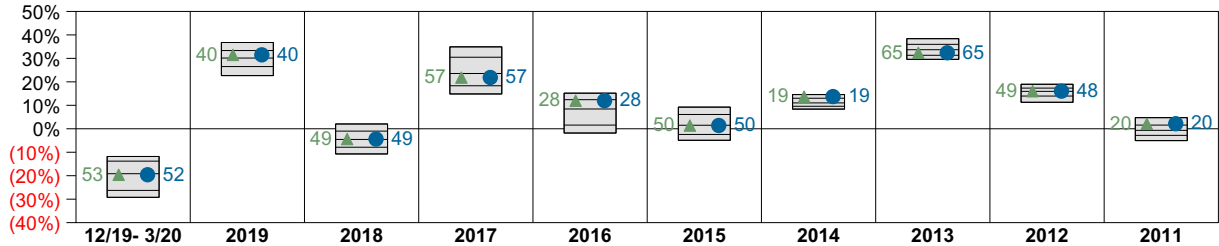


SERS U.S. Large Company Index Fund Return Analysis Summary

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.

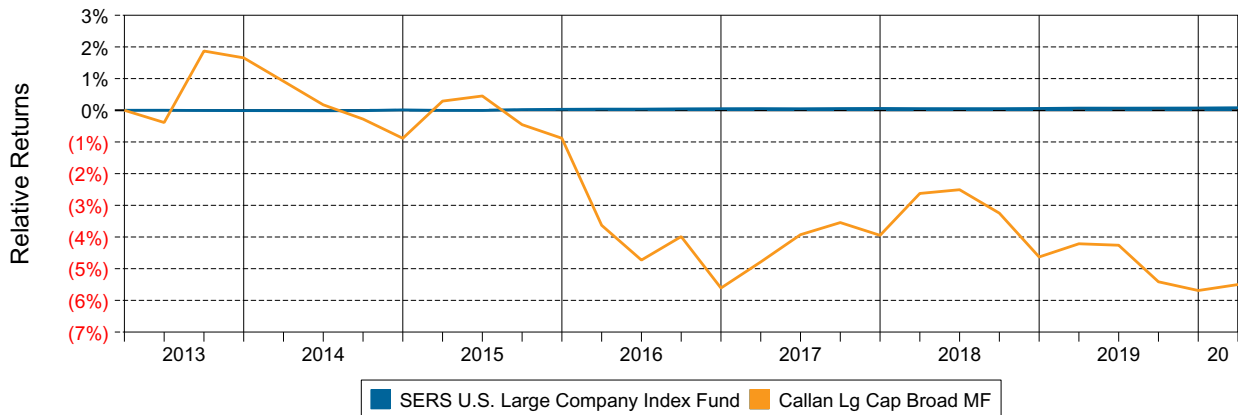
Performance vs Callan Large Cap Broad Equity Mut Funds (Institutional Net)



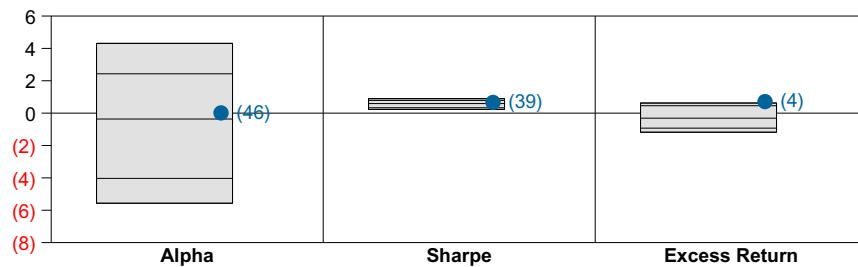
	12/19- 3/20	2019	2018	2017	2016	2015	2014	2013	2012	2011
10th Percentile	(11.81)	36.76	2.05	34.91	15.17	9.23	14.58	38.40	18.96	4.74
25th Percentile	(13.79)	33.34	(1.00)	30.48	12.39	6.09	13.01	35.98	17.33	1.57
Median	(19.15)	30.14	(4.54)	23.56	8.43	1.50	11.02	33.69	15.94	(0.67)
75th Percentile	(26.26)	26.51	(7.86)	18.33	1.56	(2.42)	9.59	31.31	13.94	(2.81)
90th Percentile	(29.21)	22.66	(10.72)	14.82	(1.82)	(4.91)	8.38	29.58	11.29	(5.04)

	12/19- 3/20	2019	2018	2017	2016	2015	2014	2013	2012	2011
SERS U.S. Large Company Index Fund	● (19.59)	31.51	(4.39)	21.84	11.98	1.40	13.71	32.38	16.03	2.14
S&P 500 Index	▲ (19.60)	31.49	(4.38)	21.83	11.96	1.38	13.69	32.39	16.00	2.11

Cumulative and Quarterly Relative Return 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, 2020



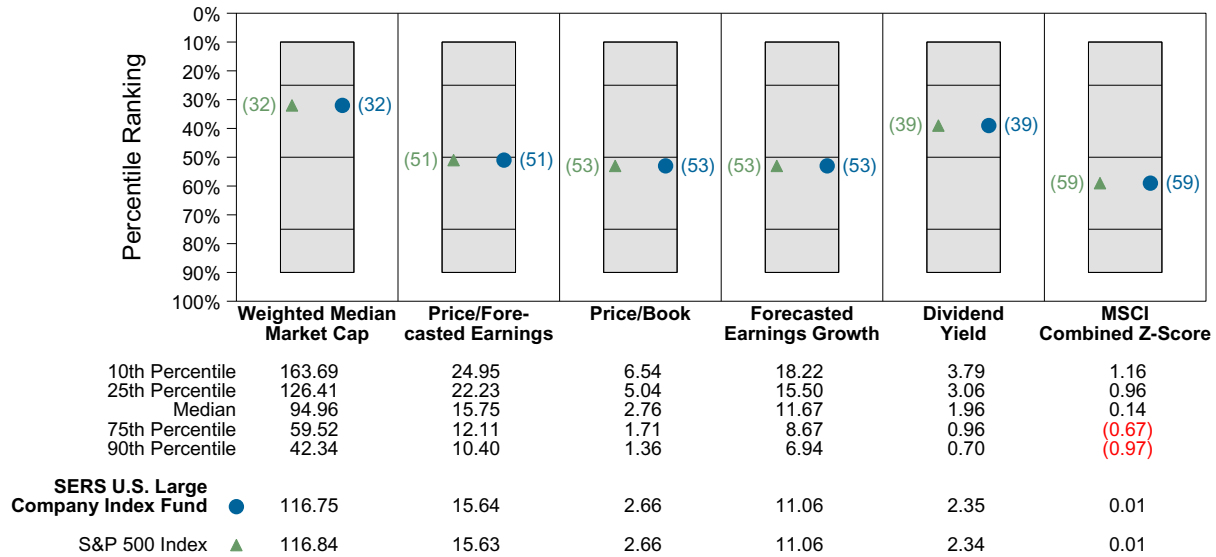
	Alpha	Sharpe Ratio	Excess Return Ratio
10th Percentile	4.31	0.90	0.62
25th Percentile	2.43	0.79	0.46
Median	(0.36)	0.59	(0.31)
75th Percentile	(4.03)	0.33	(0.93)
90th Percentile	(5.57)	0.23	(1.18)
SERS U.S. Large Company Index Fund	● 0.01	0.66	0.71

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

Portfolio Characteristics

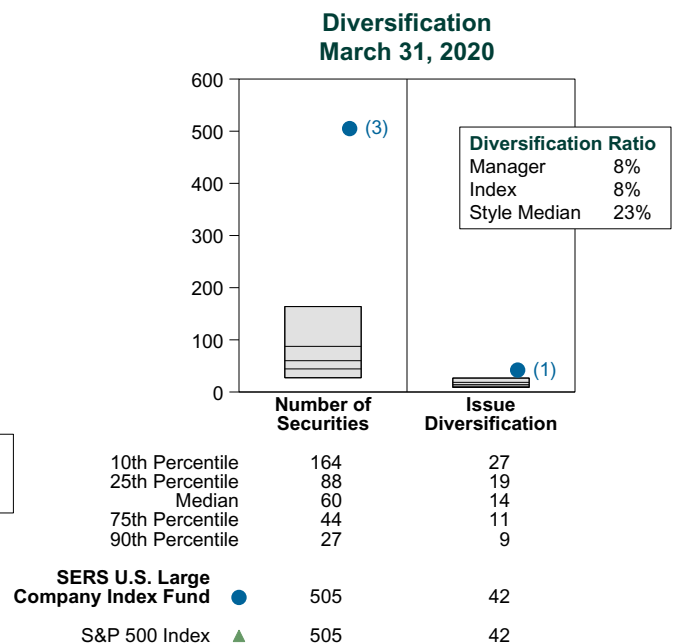
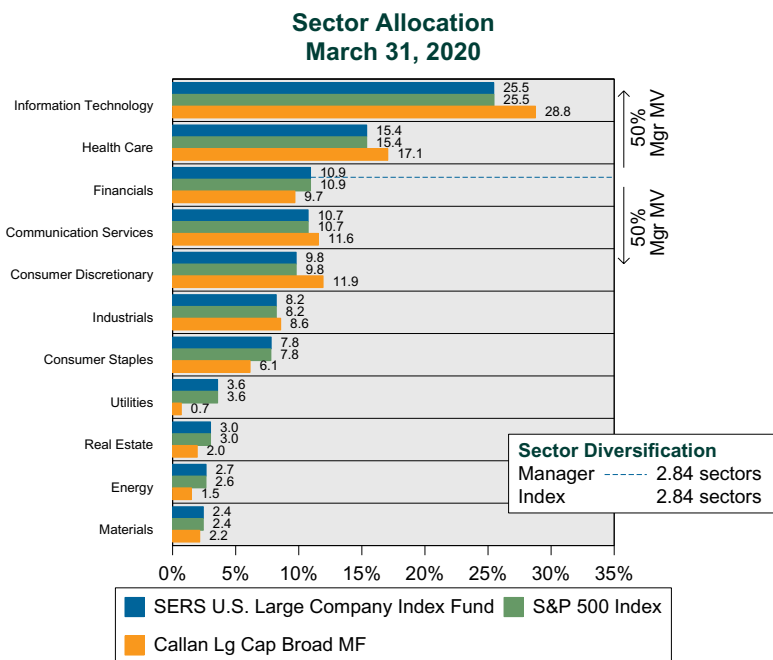
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Portfolio Characteristics Percentile Rankings Rankings Against Callan Large Cap Broad Equity Mut Funds as of March 31, 2020



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 Fund Top 10 Portfolio Holdings Characteristics as of March 31, 2020

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
Microsoft Corp	Information Technology	\$45,738,777	5.6%	0.28%	1199.55	26.03	1.29%	15.00%
Apple Inc	Information Technology	\$40,376,770	5.0%	(13.20)%	1112.64	18.12	1.21%	13.00%
Amazon.Com	Consumer Discretionary	\$30,869,868	3.8%	5.51%	970.59	62.45	0.00%	30.00%
Facebook Inc Cl A	Communication Services	\$15,261,346	1.9%	(18.73)%	401.28	18.07	0.00%	11.40%
Berkshire Hathaway Inc Del Cl B New	Financials	\$13,597,197	1.7%	(19.28)%	252.74	17.01	0.00%	9.02%
Alphabet Inc Cl A	Communication Services	\$13,237,228	1.6%	(13.25)%	348.46	21.72	0.00%	4.80%
Alphabet Inc Cl C	Communication Services	\$13,214,386	1.6%	(13.03)%	396.49	21.66	0.00%	22.47%
Johnson & Johnson	Health Care	\$13,121,799	1.6%	(9.52)%	345.70	14.37	2.90%	5.59%
JPMorgan Chase & Co	Financials	\$10,736,744	1.3%	(35.00)%	276.75	8.69	4.00%	7.75%
Visa Inc Com Cl A	Information Technology	\$10,487,158	1.3%	(14.13)%	274.87	25.19	0.74%	14.76%

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
Regeneron Pharmaceutical	Health Care	\$1,480,398	0.2%	30.04%	52.82	17.37	0.00%	8.02%
Citrix Sys Inc	Information Technology	\$617,031	0.1%	28.02%	17.32	25.44	0.99%	6.40%
Nortonlifelock Inc	Information Technology	\$410,248	0.1%	27.67%	11.66	16.96	2.67%	1.98%
Digital Realty Trust	Real Estate	\$1,385,851	0.2%	17.02%	36.02	106.94	3.23%	(17.91)%
Gilead Sciences	Health Care	\$3,597,909	0.4%	16.19%	94.12	11.68	3.64%	0.51%
Nefflix Inc	Communication Services	\$6,258,244	0.8%	16.05%	164.77	57.13	0.00%	44.73%
Clorox Co	Consumer Staples	\$825,053	0.1%	13.60%	21.67	26.24	2.45%	3.63%
Sba Communications Corp New Cl A	Real Estate	\$1,153,694	0.1%	12.22%	30.22	115.37	0.69%	23.92%
Msci Inc	Financials	\$928,839	0.1%	12.16%	24.57	38.74	0.94%	10.60%
Nvidia Corp	Information Technology	\$6,135,029	0.8%	12.10%	161.32	33.55	0.24%	10.00%

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
Apache Corp	Energy	\$60,935	0.0%	(83.54)%	1.58	(2.55)	23.92%	(20.95)%
Norwegian Cruise Line Hldgs Shs	Consumer Discretionary	\$90,211	0.0%	(81.24)%	2.34	5.05	0.00%	(24.85)%
Marathon Oil Corp	Energy	\$102,512	0.0%	(75.66)%	2.62	(14.95)	6.08%	3.75%
Royal Caribbean Cruises Ltd	Consumer Discretionary	\$219,366	0.0%	(75.61)%	6.72	4.94	9.70%	13.70%
Noble Energy Inc	Energy	\$111,536	0.0%	(75.54)%	2.93	(11.87)	7.95%	(18.09)%
Carnival Corp	Consumer Discretionary	\$197,405	0.0%	(73.79)%	6.95	4.62	15.19%	7.55%
Devon Energy Corp	Energy	\$103,055	0.0%	(73.06)%	2.65	(14.02)	6.37%	(270.00)%
Capri Holdings Limited Shs	Consumer Discretionary	\$62,551	0.0%	(71.71)%	1.61	2.47	0.00%	3.70%
Halliburton Co	Energy	\$232,855	0.0%	(71.69)%	6.03	9.22	10.51%	(5.20)%
Diamondback Energy Inc	Energy	\$163,636	0.0%	(71.62)%	4.15	5.24	5.73%	19.70%

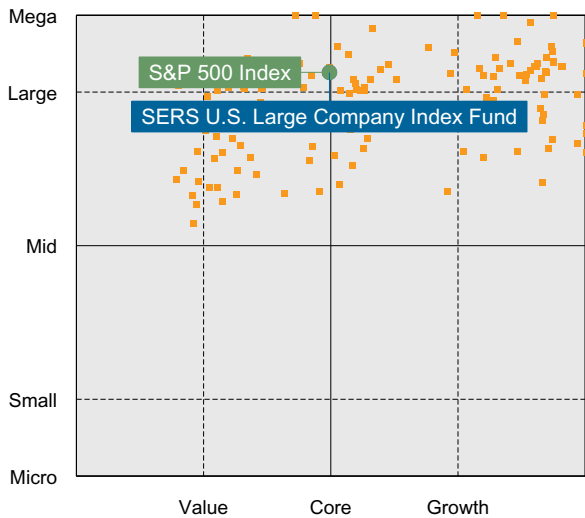
Historical Holdings Based Style Analysis

SERS U.S. Large Company Index Fund

For Three Years Ended March 31, 2020

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.

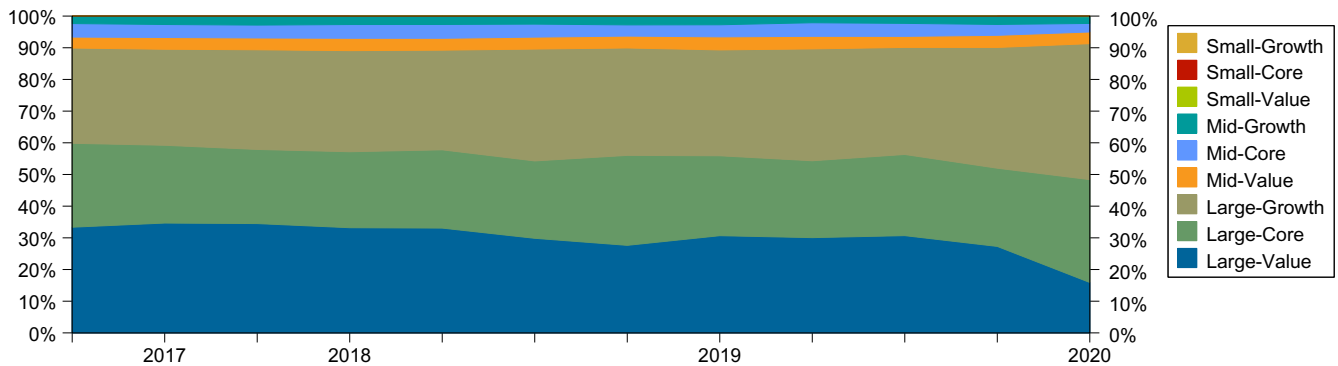
Average Style Map vs Callan Lg Cap Broad MF Holdings for Three Years Ended March 31, 2020



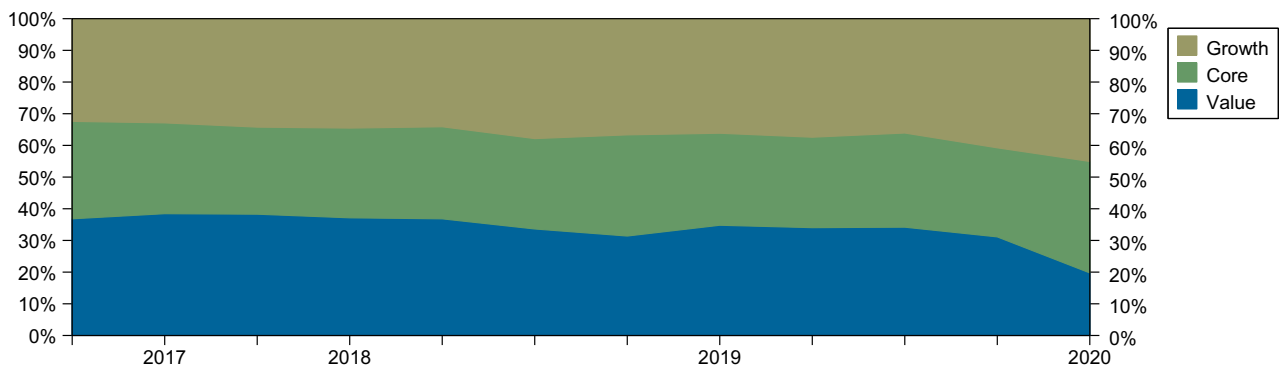
Average Style Exposure Matrix Holdings for Three Years Ended March 31, 2020

	Value	Core	Growth	Total
Large	30.1% (102)	25.7% (94)	34.0% (88)	89.8% (284)
	30.1% (102)	25.7% (94)	34.0% (88)	89.8% (284)
Mid	3.8% (87)	3.9% (80)	2.5% (49)	10.2% (216)
	3.8% (87)	3.9% (80)	2.5% (48)	10.2% (215)
Small	0.0% (3)	0.0% (0)	0.0% (1)	0.1% (4)
	0.0% (3)	0.0% (1)	0.0% (1)	0.1% (5)
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	33.9% (192)	29.6% (174)	36.5% (138)	100.0% (504)
	33.8% (192)	29.6% (175)	36.5% (137)	100.0% (504)

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



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



SERS U.S. SMID Company Stock Idx Period Ended March 31, 2020

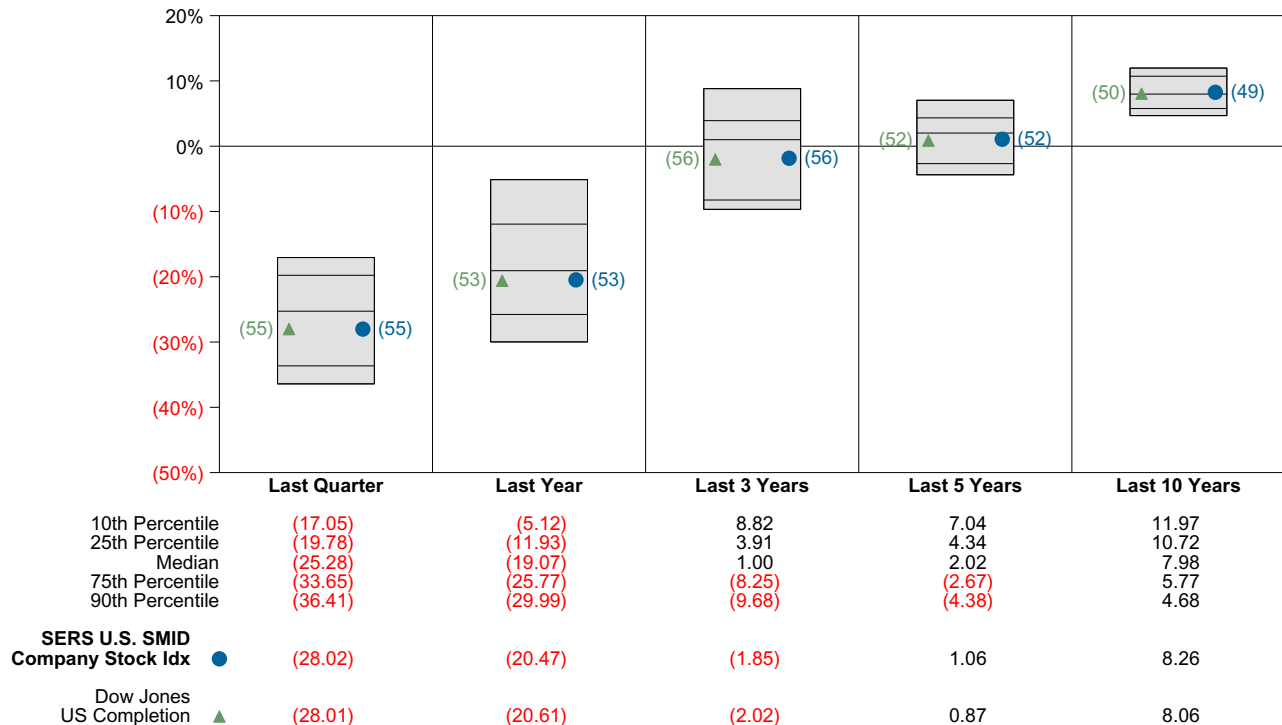
Investment Philosophy

The U.S. Small/Mid Company Stock Index Fund seeks to match the performance and overall characteristics of the Dow Jones U.S. Completion Total Stock Market Index in a risk-controlled, cost-effective manner. The Fund's approach to quality indexing aims to minimize tracking error, manage transaction costs and replicate the majority of the index and sample from the remaining smaller securities. This fund is managed by Mellon Capital Management.

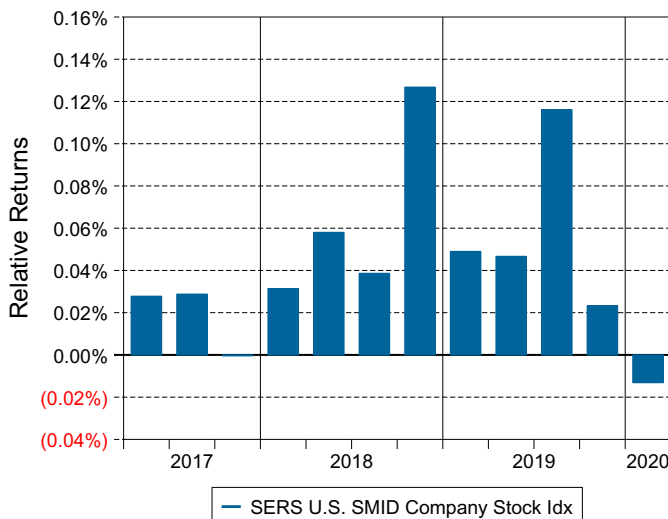
Quarterly Summary and Highlights

- SERS U.S. SMID Company Stock Idx's portfolio posted a (28.02)% return for the quarter placing it in the 55 percentile of the Callan Small/MidCap Broad Mutual Funds group for the quarter and in the 53 percentile for the last year.
- SERS U.S. SMID Company Stock Idx's portfolio underperformed the Dow Jones US Completion by 0.01% for the quarter and outperformed the Dow Jones US Completion for the year by 0.13%.

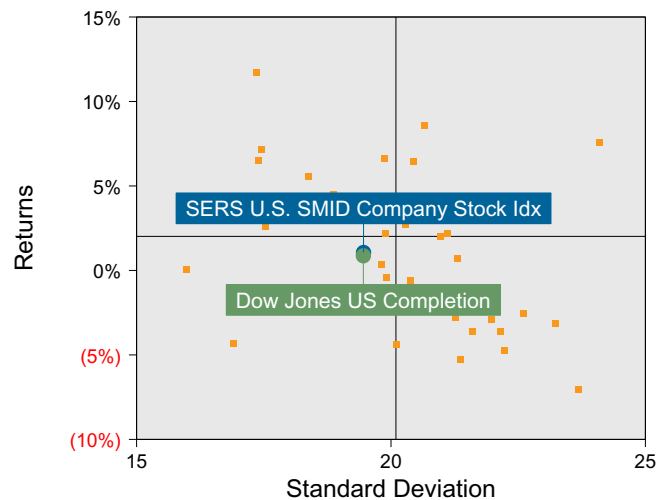
Performance vs Callan Small/MidCap Broad Mutual Funds (Institutional Net)



Relative Return vs Dow Jones US Completion



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

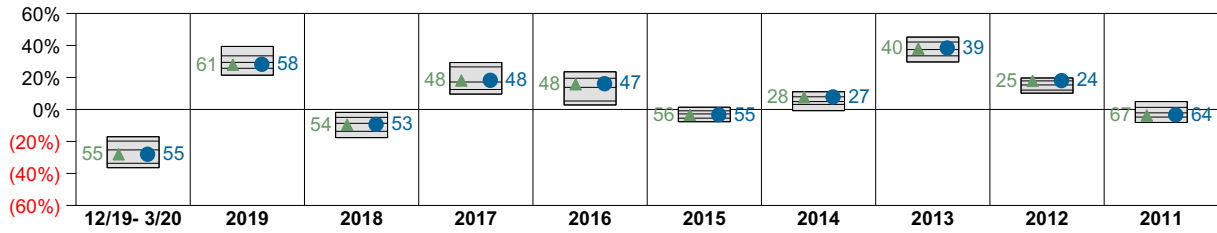


SERS U.S. SMID Company Stock Idx Return Analysis Summary

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.

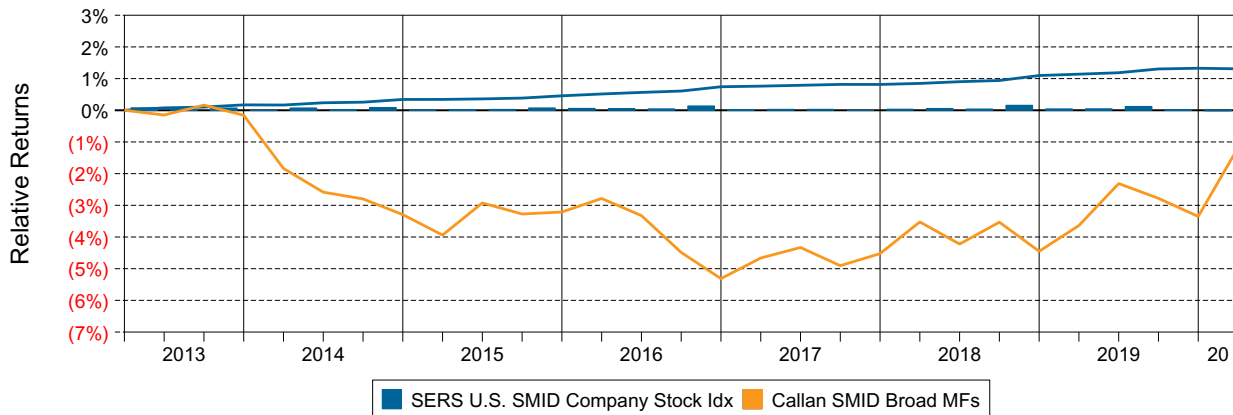
Performance vs Callan Small/MidCap Broad Mutual Funds (Institutional Net)



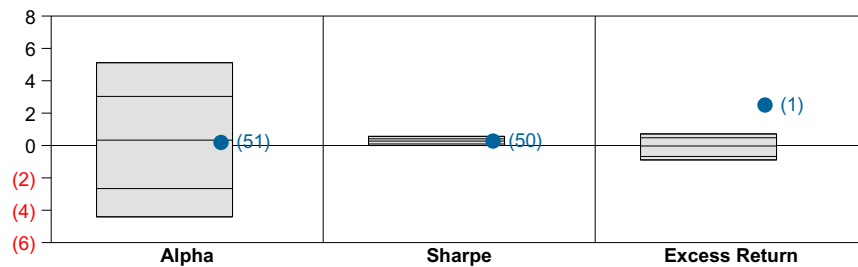
10th Percentile	(17.05)	39.38	(1.83)	29.31	23.54	1.38	11.06	45.21	19.66	4.92
25th Percentile	(19.78)	33.51	(4.95)	26.58	19.48	(0.87)	7.90	42.13	17.83	1.30
Median	(25.28)	29.40	(8.69)	17.14	13.80	(2.80)	4.92	37.43	15.32	(2.13)
75th Percentile	(33.65)	25.71	(13.66)	12.47	5.26	(5.46)	3.15	33.50	12.08	(4.76)
90th Percentile	(36.41)	21.40	(17.62)	9.57	2.79	(7.67)	(0.76)	29.67	10.16	(8.15)

SERS U.S. SMID Company Stock Idx	● (28.02)	28.20	(9.32)	18.21	16.08	(3.31)	7.81	38.40	18.04	(3.38)
Dow Jones US Completion	▲ (28.01)	27.91	(9.57)	18.12	15.75	(3.42)	7.63	38.05	17.89	(3.76)

Cumulative and Quarterly Relative Return 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, 2020



10th Percentile	5.12	0.56	0.72
25th Percentile	3.03	0.41	0.48
Median	0.33	0.27	(0.03)
75th Percentile	(2.66)	0.09	(0.68)
90th Percentile	(4.41)	(0.00)	(0.89)

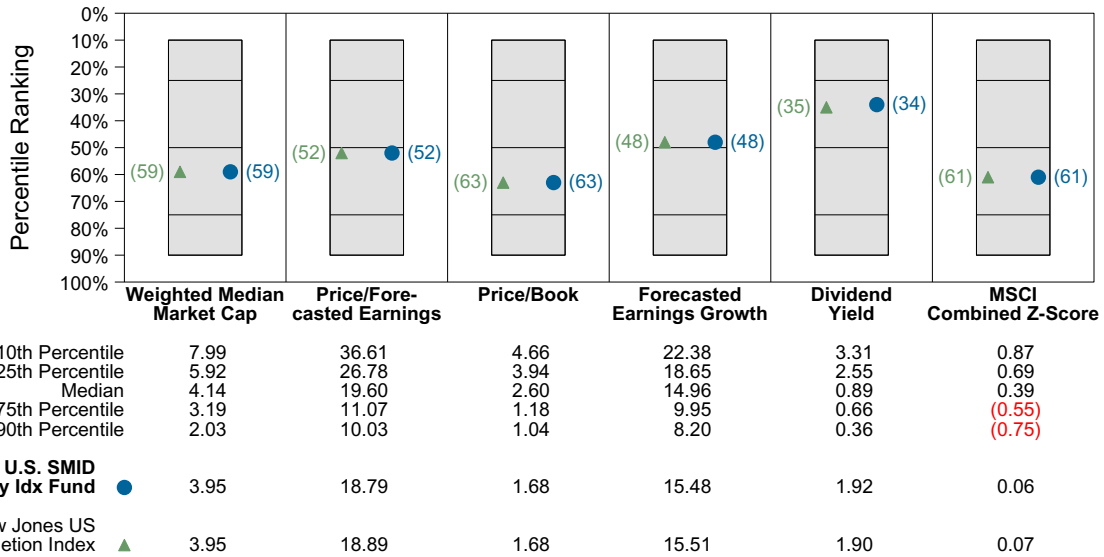
SERS U.S. SMID Company Stock Idx	● 0.19	0.27	2.50
---	--------	------	------

SERS U.S. SMID Company Idx Fund Equity Characteristics Analysis Summary

Portfolio Characteristics

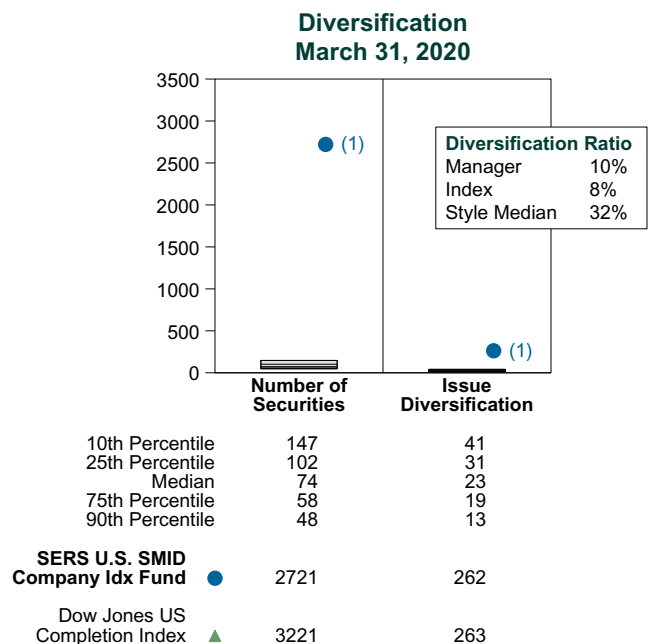
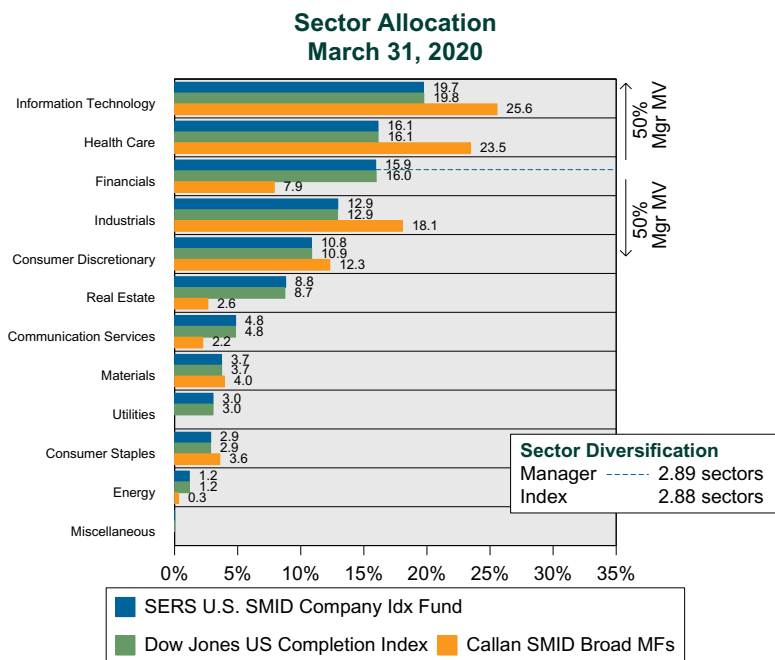
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Portfolio Characteristics Percentile Rankings Rankings Against Callan Small/MidCap Broad Mutual Funds as of March 31, 2020



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. SMID Company Idx Fund Top 10 Portfolio Holdings Characteristics as of March 31, 2020

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
Tesla Mtrs Inc	Consumer Discretionary	\$5,909,428	2.0%	25.26%	96.47	65.52	0.00%	-
Blackstone Group Inc Com Cl A	Financials	\$2,378,566	0.8%	(17.74)%	30.70	15.52	4.28%	17.36%
Dexcom Inc	Health Care	\$1,944,656	0.7%	23.10%	24.66	110.95	0.00%	54.60%
Lululemon Athletica Inc	Consumer Discretionary	\$1,799,391	0.6%	(18.18)%	23.53	35.89	0.00%	15.45%
Costar Group Inc	Industrials	\$1,703,992	0.6%	(1.85)%	21.52	53.25	0.00%	46.53%
Workday Inc Cl A	Information Technology	\$1,690,966	0.6%	(20.81)%	22.14	57.44	0.00%	20.00%
Veeva Sys Inc Cl A Com	Health Care	\$1,630,888	0.6%	11.17%	20.96	61.11	0.00%	19.40%
Splunk Inc	Information Technology	\$1,542,818	0.5%	(15.72)%	20.02	325.34	0.00%	32.75%
Square Inc Cl A	Information Technology	\$1,422,210	0.5%	(16.27)%	18.59	63.88	0.00%	38.93%
Liberty Broadband Corp Com Ser C	Communication Services	\$1,339,742	0.5%	(11.95)%	16.94	37.87	0.00%	-

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
Vaxart Inc	Health Care	\$10,595	0.0%	403.71%	0.13	(3.40)	0.00%	(35.45)%
Ibio Inc	Health Care	\$6,865	0.0%	325.22%	0.11	(1.04)	0.00%	-
Alpha Pro Tech Ltd	Industrials	\$8,597	0.0%	252.19%	0.16	88.18	0.00%	35.50%
Novavax Inc	Health Care	\$57,418	0.0%	241.45%	0.70	(5.28)	0.00%	-
Athersys Inc	Health Care	\$39,178	0.0%	143.88%	0.49	(9.49)	0.00%	-
Forty Seven Inc	Health Care	\$219,754	0.1%	142.37%	4.60	(34.76)	0.00%	-
Kala Pharmaceuticals Inc	Health Care	\$16,763	0.0%	138.18%	0.49	(4.77)	0.00%	-
Aduro Biotech Inc	Health Care	\$14,282	0.0%	132.03%	0.22	(3.71)	0.00%	-
Inovio Pharmaceuticals Inc	Health Care	\$80,593	0.0%	125.58%	1.08	(9.36)	0.00%	-
Neon Therapeutics Inc	Health Care	\$499	0.0%	123.63%	0.08	(1.82)	0.00%	26.90%

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
Stage Stores Inc	Consumer Discretionary	\$321	0.0%	(95.52)%	0.01	(0.26)	55.01%	-
Centennial Resource Dev Inc Cl A	Energy	\$4,122	0.0%	(94.31)%	0.07	(0.74)	0.00%	(36.13)%
Valaris Plc Shs Class A	Energy	\$7,098	0.0%	(93.21)%	0.09	(0.10)	35.55%	(23.10)%
Qep Res Inc	Energy	\$6,067	0.0%	(92.51)%	0.08	5.97	23.92%	99.84%
Whiting Pete Corp New	Energy	\$5,039	0.0%	(90.87)%	0.06	(0.28)	0.00%	(35.19)%
Amplify Energy Corp New	Energy	\$1,206	0.0%	(90.41)%	0.02	3.13	70.68%	(27.64)%
Penn Va Corp New	Energy	\$3,653	0.0%	(89.81)%	0.05	0.84	0.00%	-
Nine Energy Svc Inc	Energy	\$674	0.0%	(89.65)%	0.02	(0.56)	0.00%	(54.20)%
Forum Energy Technologies In	Energy	\$1,477	0.0%	(89.38)%	0.02	(0.70)	0.00%	(60.94)%
Oasis Pete Inc New	Energy	\$7,769	0.0%	(89.27)%	0.11	(0.63)	0.00%	10.11%

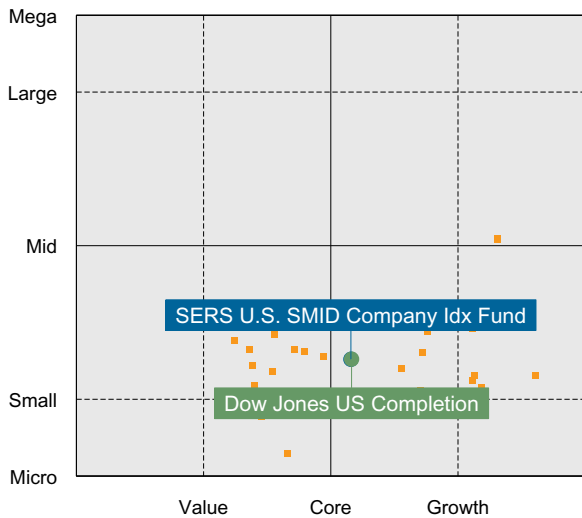
Historical Holdings Based Style Analysis

SERS U.S. SMID Company Idx Fund

For Three Years Ended March 31, 2020

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.

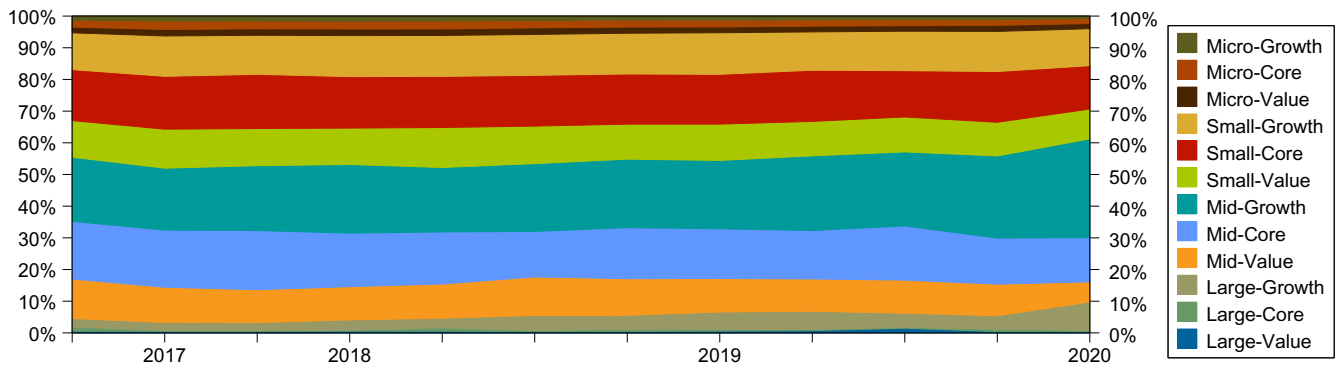
Average Style Map vs Callan SMID Broad MFs Holdings for Three Years Ended March 31, 2020



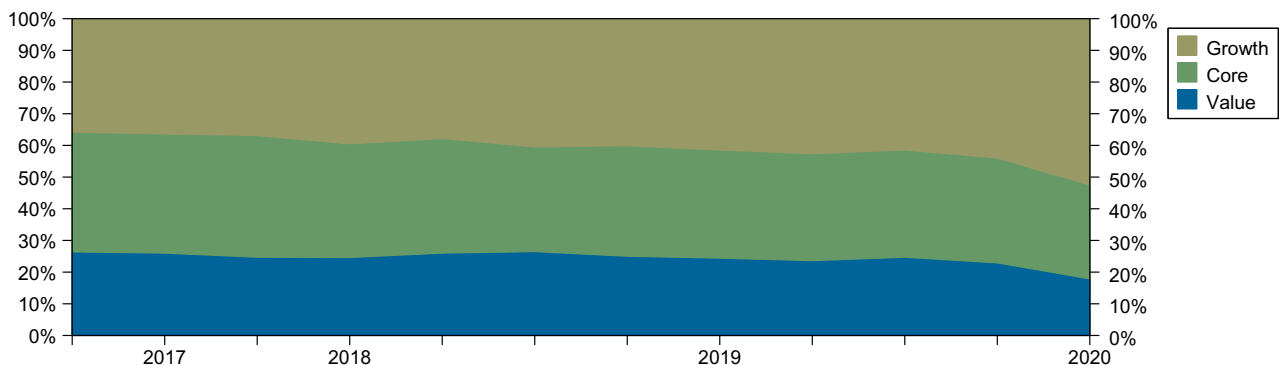
Average Style Exposure Matrix Holdings for Three Years Ended March 31, 2020

	Value	Core	Growth	Total
Large	0.6% (2)	0.5% (3)	4.3% (9)	5.5% (14)
	0.6% (2)	0.5% (2)	4.3% (9)	5.4% (13)
Mid	10.5% (88)	16.3% (133)	22.6% (164)	49.4% (385)
	10.5% (88)	16.3% (134)	22.6% (164)	49.4% (386)
Small	11.3% (322)	15.9% (486)	12.5% (379)	39.7% (1187)
	11.3% (322)	15.9% (489)	12.6% (381)	39.7% (1192)
Micro	1.9% (447)	2.2% (609)	1.3% (251)	5.4% (1307)
	1.9% (545)	2.3% (839)	1.3% (295)	5.5% (1679)
Total	24.4% (859)	34.9% (1231)	40.8% (803)	100.0% (2893)
	24.3% (957)	34.9% (1464)	40.8% (849)	100.0% (3270)

SERS U.S. SMID Company Idx Fund Historical Cap/Style Exposures



SERS U.S. SMID Company Idx Fund Historical Style Only Exposures



SERS Global Non-U.S. Index Fund

Period Ended March 31, 2020

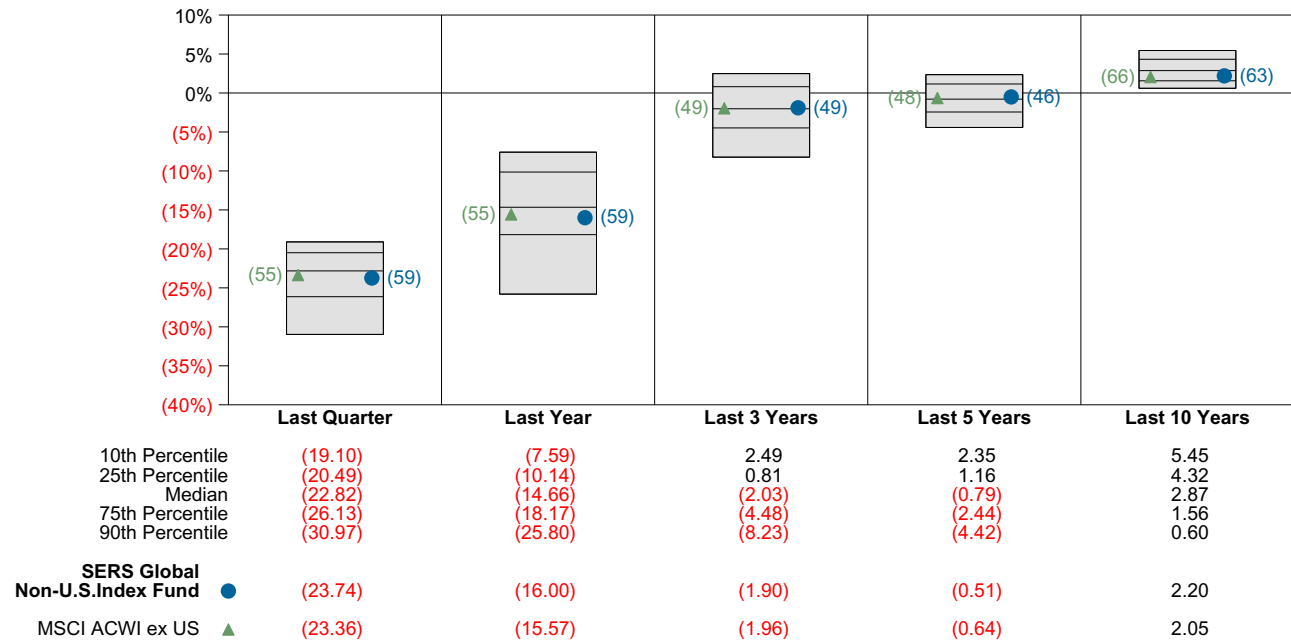
Investment Philosophy

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. The Global Non-U.S. Stock Index Fund replaced the International Company Stock Index Fund in 1Q20.

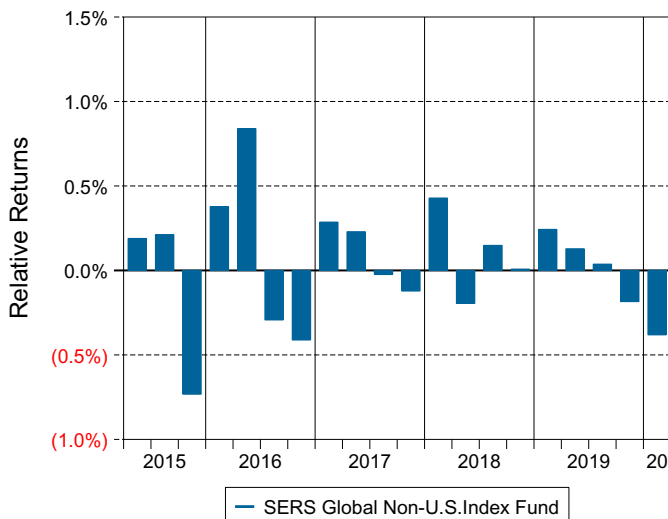
Quarterly Summary and Highlights

- SERS Global Non-U.S. Index Fund's portfolio posted a (23.74)% return for the quarter placing it in the 59 percentile of the Callan Non US Equity Mutual Funds group for the quarter and in the 59 percentile for the last year.
- SERS Global Non-U.S. Index Fund's portfolio underperformed the MSCI ACWI ex US by 0.38% for the quarter and underperformed the MSCI ACWI ex US for the year by 0.43%.

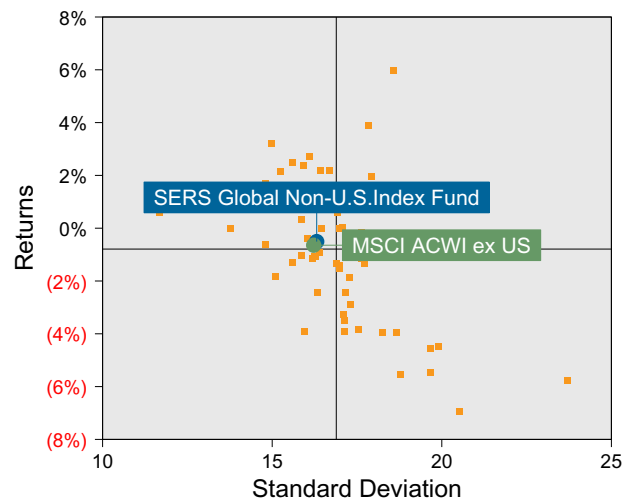
Performance vs Callan Non US Equity Mutual Funds (Institutional Net)



Relative Return vs MSCI ACWI ex US



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

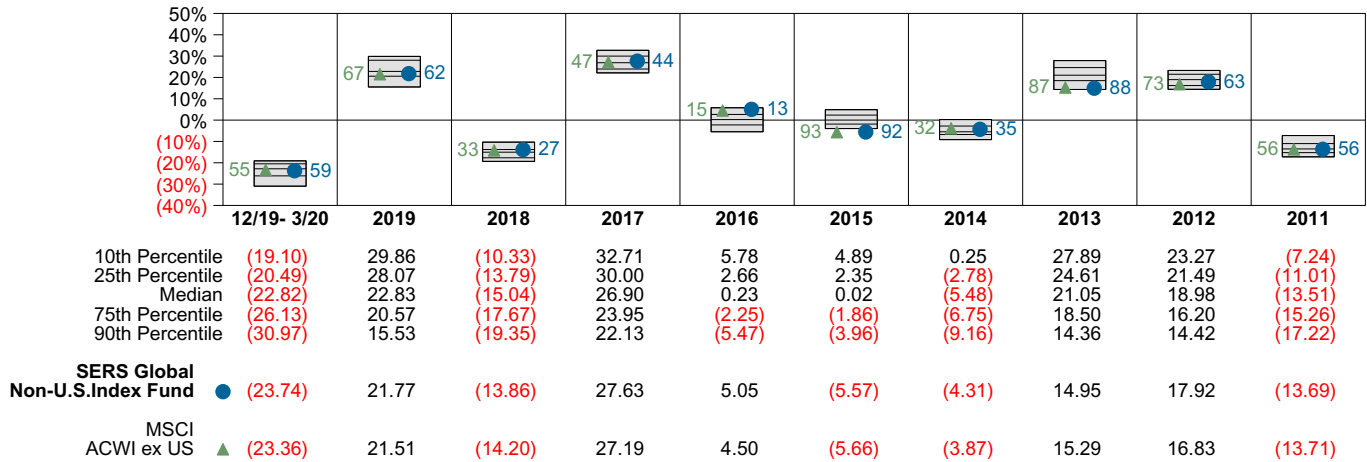


SERS Global Non-U.S.Index Fund Return Analysis Summary

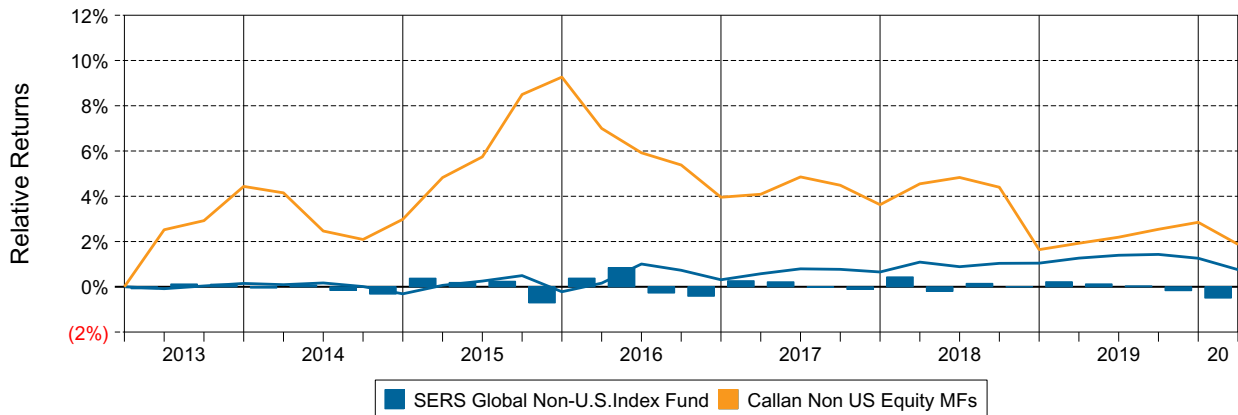
Return Analysis

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.

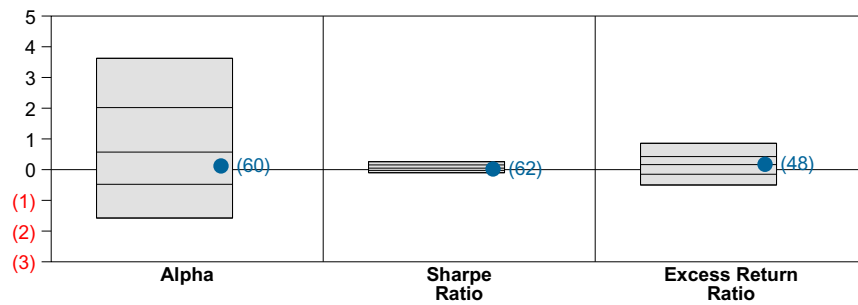
Performance vs Callan Non US Equity Mutual Funds (Institutional Net)



Cumulative and Quarterly Relative Return vs MSCI ACWI ex US



Risk Adjusted Return Measures vs MSCI ACWI ex US Rankings Against Callan Non US Equity Mutual Funds (Institutional Net) Seven Years Ended March 31, 2020



10th Percentile	3.62	0.26	0.86
25th Percentile	2.02	0.15	0.43
Median	0.57	0.05	0.16
75th Percentile	(0.48)	(0.02)	(0.15)
90th Percentile	(1.58)	(0.10)	(0.50)

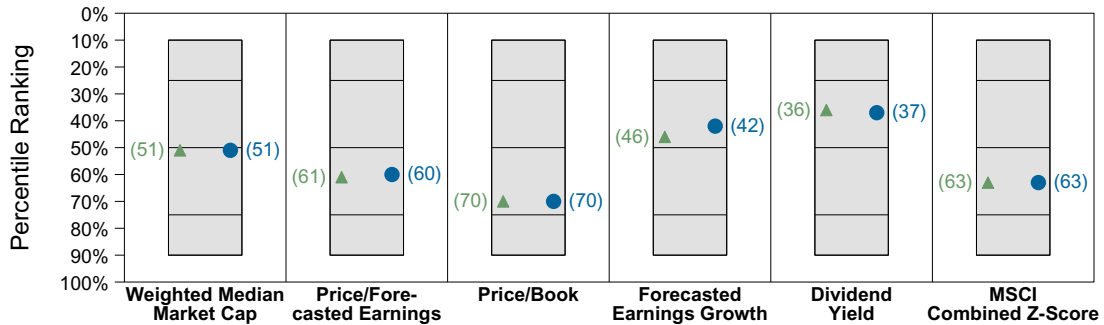
SERS Global Non-U.S.Index Fund ● 0.12 0.02 0.17

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, 2020

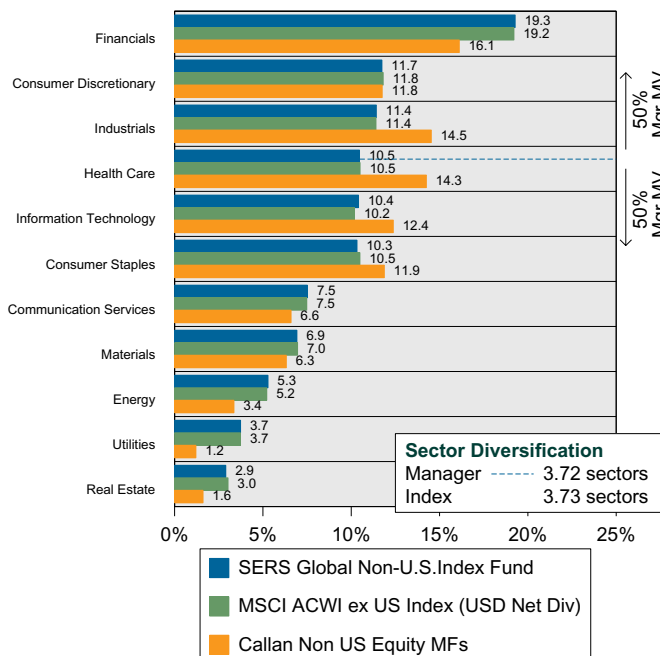


	Weighted Median Market Cap	Price/Forecasted Earnings	Price/Book	Forecasted Earnings Growth	Dividend Yield	MSCI Combined Z-Score
10th Percentile	50.06	18.21	2.91	14.76	4.64	0.96
25th Percentile	36.04	15.60	2.19	11.29	3.97	0.61
Median	28.04	12.88	1.75	9.22	3.17	0.22
75th Percentile	20.16	10.42	1.06	7.61	2.25	(0.23)
90th Percentile	12.79	9.05	0.86	6.32	1.61	(0.66)
SERS Global Non-U.S.Index Fund	27.58	12.12	1.28	9.45	3.49	0.03
MSCI ACWI ex US Index (USD Net Div)	27.61	12.03	1.27	9.42	3.56	0.03

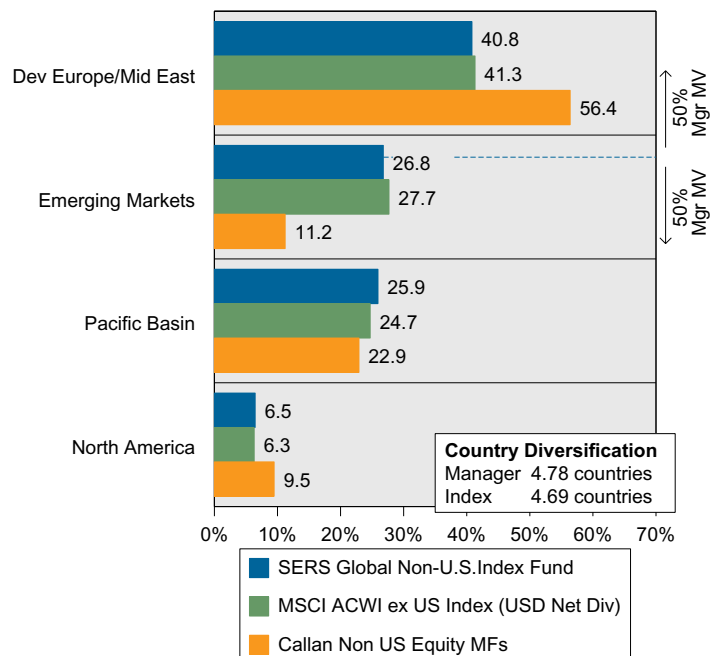
Sector Weights

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, 2020



Regional Allocation March 31, 2020



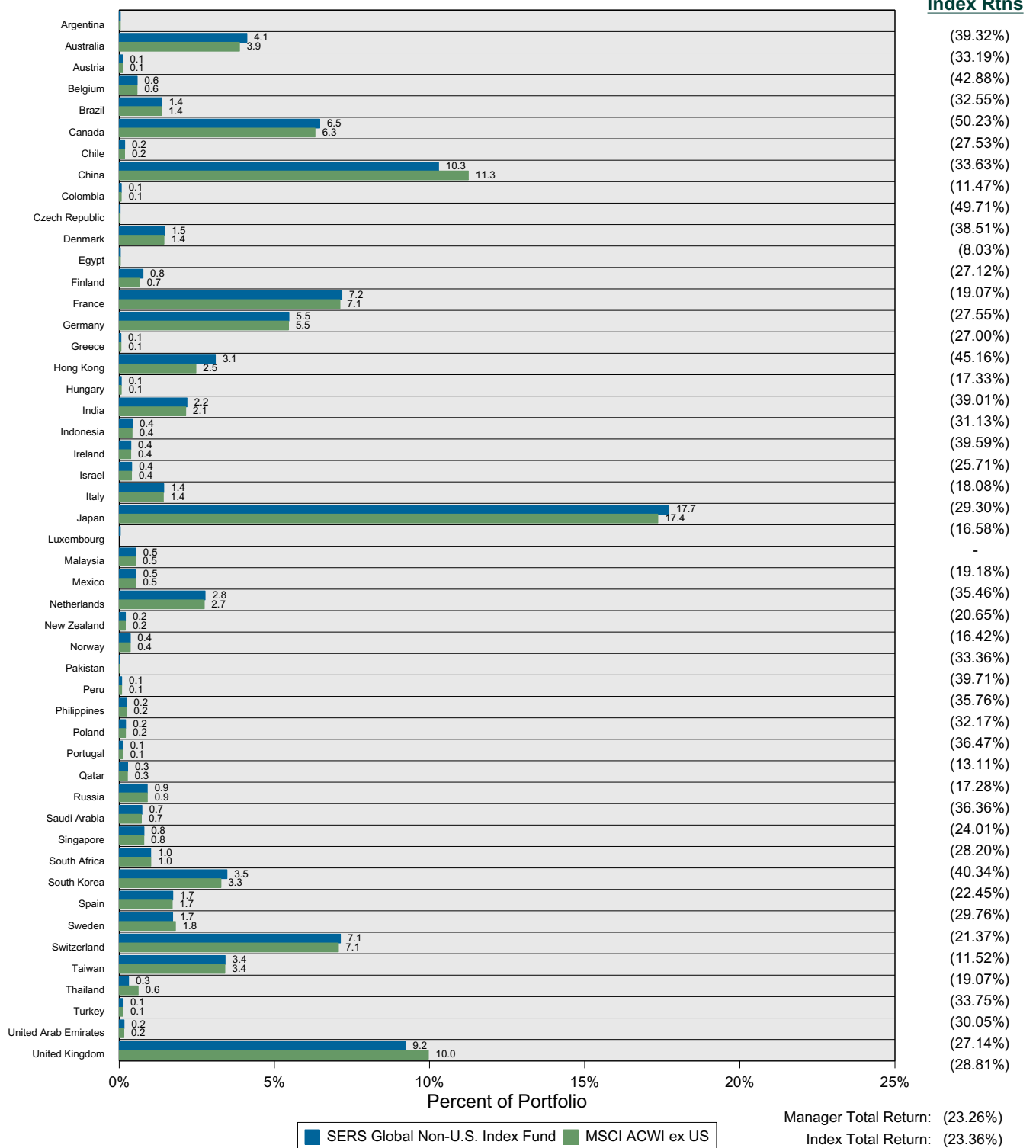
Country Allocation

SERS Global Non-U.S. Index Fund VS MSCI ACWI ex US Index (USD Net Div)

Country Allocation

The chart below contrasts the portfolio's country allocation with that of the index as of March 31, 2020. 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, 2020



SERS Global Non-U.S. Index Fund Top 10 Portfolio Holdings Characteristics as of March 31, 2020

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
Alibaba Group Hldg Ltd Sponsored Ads	Consumer Discretionary	\$1,632,823	2.0%	(8.30)%	521.74	22.51	0.00%	23.00%
Nestle S A Shs Nom New	Consumer Staples	\$1,462,851	1.8%	(5.01)%	305.89	21.60	2.71%	7.23%
Tencent Holdings Limited Shs Par Hkd	Communication Services	\$1,358,107	1.7%	(0.53)%	468.60	27.50	0.32%	21.37%
Roche Hldgs Ag Basel Div Rts Ctf	Health Care	\$1,090,677	1.3%	3.02%	228.04	15.06	2.87%	5.30%
Taiwan Semicond Manufac Co L Shs	Information Technology	\$1,086,075	1.3%	(17.12)%	234.94	16.12	3.47%	12.68%
Samsung Electronics Co Ltd Ord	Information Technology	\$915,334	1.1%	(18.20)%	234.16	10.03	2.97%	(7.20)%
Novartis	Health Care	\$848,059	1.0%	(9.88)%	208.58	13.97	3.69%	7.01%
Toyota Motor Corp	Consumer Discretionary	\$670,022	0.8%	(15.16)%	196.50	8.58	3.38%	10.24%
Astrazeneca Plc Ord	Health Care	\$561,650	0.7%	(9.38)%	117.41	21.12	3.03%	15.90%
Hsbc Holdings (Gb)	Financials	\$547,461	0.7%	(22.85)%	114.71	8.84	8.76%	(1.86)%

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
Beijing Dabeinong Tech. Gp. 'a'	Consumer Staples	\$537	0.0%	70.69%	5.12	14.35	0.70%	(4.16)%
Celltrion Healthcare	Health Care	\$18,673	0.0%	60.77%	10.61	72.88	0.00%	135.99%
Wuhan Guide Infrared 'a'	Information Technology	\$358	0.0%	57.92%	4.46	59.50	0.06%	9.52%
Sic. New Hope Agri A	Consumer Staples	\$814	0.0%	54.81%	18.68	11.27	0.10%	(3.96)%
Zhejiang Huahai Pharm. A	Health Care	\$642	0.0%	46.31%	4.79	39.35	0.00%	0.98%
21 Cn Cybernet Corp.	Health Care	\$29,243	0.0%	41.50%	20.19	836.00	0.00%	9.78%
A Living Services Co Ltd H Common St	Industrials	\$9,944	0.0%	37.72%	2.11	24.94	0.66%	31.44%
Shanghai Kingstar Winning Sftw. 'a'	Health Care	\$428	0.0%	37.56%	4.85	58.04	0.10%	28.28%
Langchao Eltn.Info. A	Information Technology	\$583	0.0%	36.94%	7.88	37.72	0.14%	41.70%
Muyuan Foodstuff 'a'	Consumer Staples	\$1,882	0.0%	35.25%	37.98	7.91	0.04%	34.06%

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
Sasol	Materials	\$5,584	0.0%	(90.47)%	1.29	2.26	37.37%	(14.30)%
Flight Centre Limited Shs	Consumer Discretionary	\$1,627	0.0%	(80.42)%	0.61	6.50	15.94%	(5.64)%
Cenovus Energy Inc	Energy	\$10,064	0.0%	(80.06)%	2.45	(19.80)	8.80%	(7.07)%
Bombardier Inc Cl B	Industrials	\$3,307	0.0%	(78.52)%	0.68	(2.25)	0.00%	24.80%
Redefine Properties Ltd Shs	Real Estate	\$3,363	0.0%	(75.46)%	0.77	2.50	41.06%	5.00%
Alsea Sa De Cv Mexico Shs	Consumer Discretionary	\$1,705	0.0%	(75.34)%	0.54	10.00	5.14%	32.72%
Ccc Sa	Consumer Discretionary	\$957	0.0%	(75.15)%	0.30	7.73	1.60%	22.72%
Carnival Plc Shs	Consumer Discretionary	\$9,145	0.0%	(74.47)%	1.91	2.70	16.19%	7.55%
Lan Airlines	Industrials	\$2,898	0.0%	(74.28)%	1.57	4.06	2.72%	54.07%
Oil Search Ltd Ord	Energy	\$9,224	0.0%	(71.06)%	2.22	11.12	6.04%	12.30%

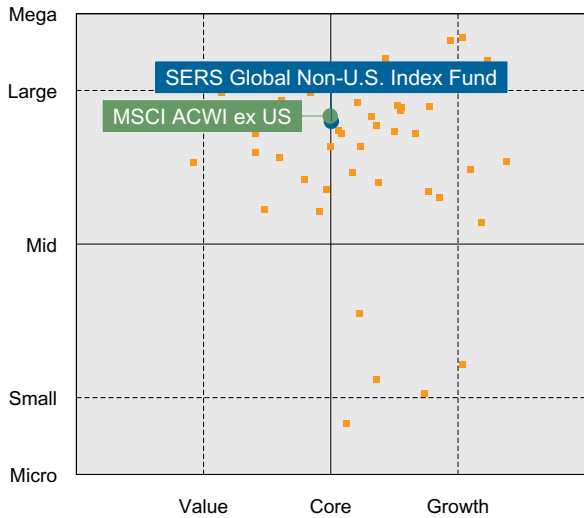
Historical Holdings Based Style Analysis

SERS Global Non-U.S. Index Fund

For Three Years Ended March 31, 2020

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.

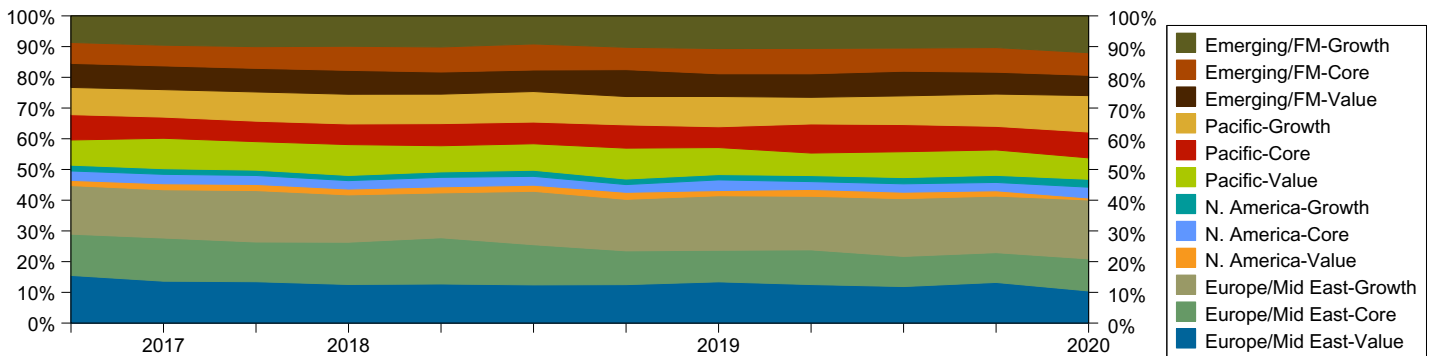
Average Style Map vs Callan Non US Equity MFs Holdings for Three Years Ended March 31, 2020



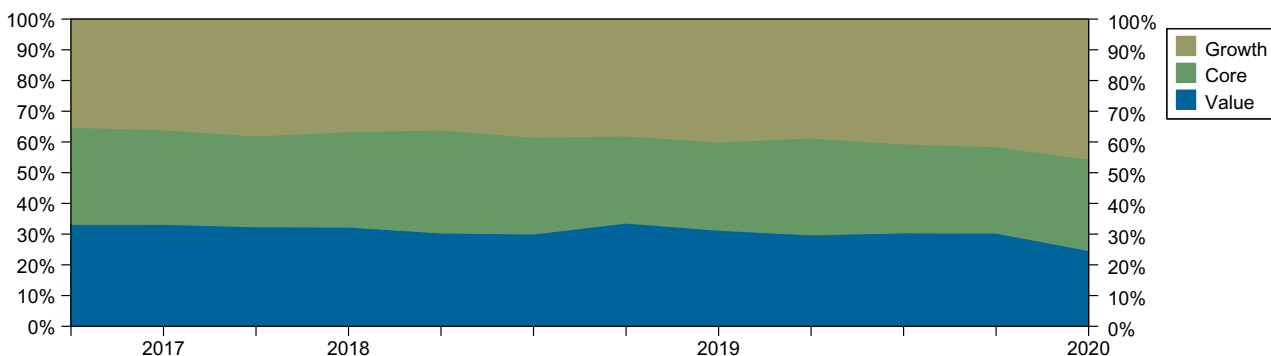
Average Style Exposure Matrix Holdings for Three Years Ended March 31, 2020

Europe/ Mid East	12.9% (127)	12.1% (122)	17.0% (176)	41.9% (425)
	13.1% (136)	11.9% (126)	17.0% (187)	42.0% (449)
N. America	1.8% (28)	2.9% (29)	1.9% (31)	6.7% (88)
	1.8% (29)	3.0% (30)	1.9% (32)	6.7% (91)
Pacific	8.7% (148)	7.6% (147)	9.7% (175)	26.0% (470)
	8.5% (149)	7.3% (146)	9.2% (175)	25.0% (470)
Emerging/ FM	7.6% (345)	7.6% (293)	10.1% (294)	25.3% (932)
	8.0% (387)	7.9% (339)	10.4% (340)	26.3% (1066)
Total	31.0% (648)	30.3% (591)	38.7% (676)	100.0% (1915)
	31.4% (701)	30.0% (641)	38.6% (734)	100.0% (2076)
	Value	Core	Growth	Total

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, 2020

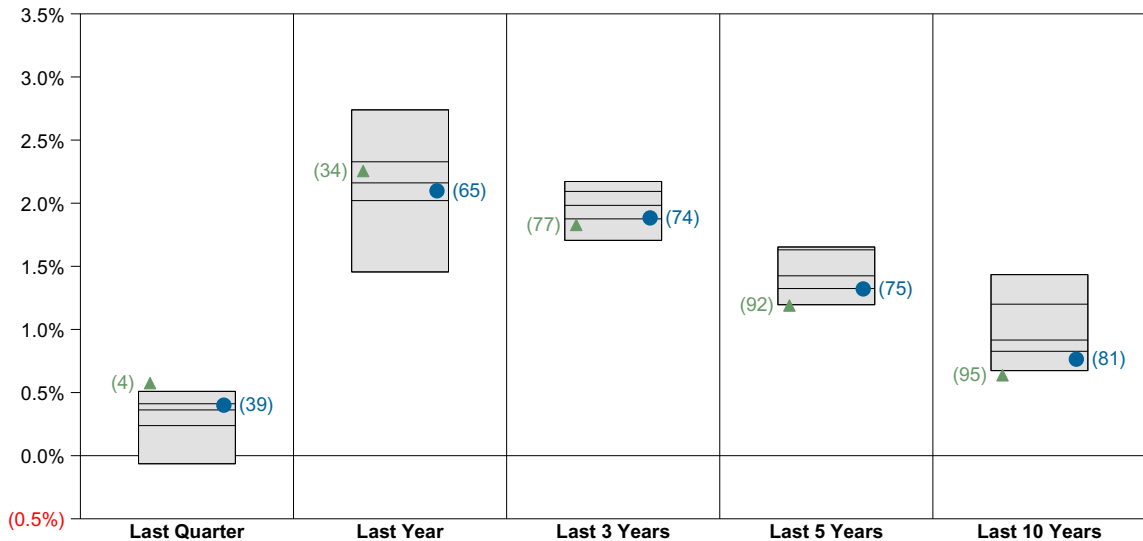
Investment Philosophy

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: a group that contains STIF, enhanced cash, and money market funds.

Quarterly Summary and Highlights

- SERS Short Term Investment Fund's portfolio posted a 0.40% return for the quarter placing it in the 39th percentile of the Callan Cash Database group for the quarter and in the 65th percentile for the last year.
- SERS Short Term Investment Fund's portfolio underperformed the 3-month Treasury Bill by 0.17% for the quarter and underperformed the 3-month Treasury Bill for the year by 0.16%.

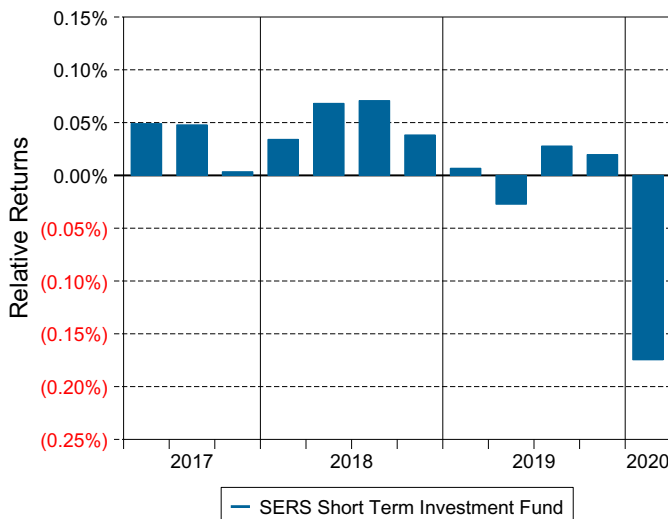
Performance vs Callan Cash Database (Gross)



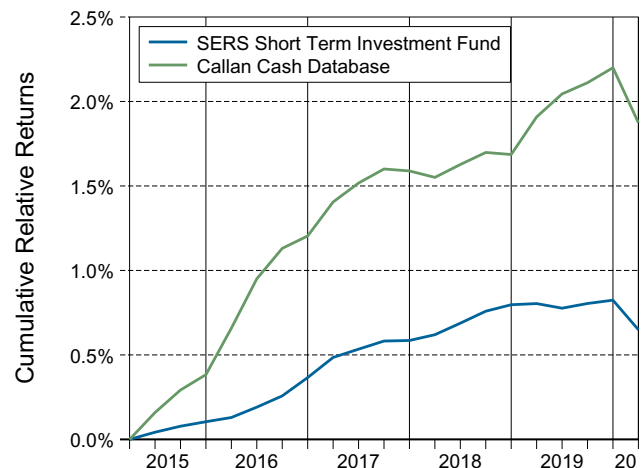
	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile	0.51	2.74	2.17	1.65	1.43
25th Percentile	0.41	2.33	2.09	1.63	1.20
Median	0.36	2.16	1.98	1.42	0.92
75th Percentile	0.24	2.02	1.88	1.32	0.83
90th Percentile	(0.06)	1.46	1.71	1.20	0.67

SERS Short Term Investment Fund	●	0.40	2.10	1.88	1.32	0.76
3-month Treasury Bill	▲	0.57	2.25	1.83	1.19	0.64

Relative Return vs 3-month Treasury Bill



Cumulative Returns vs 3-month Treasury Bill

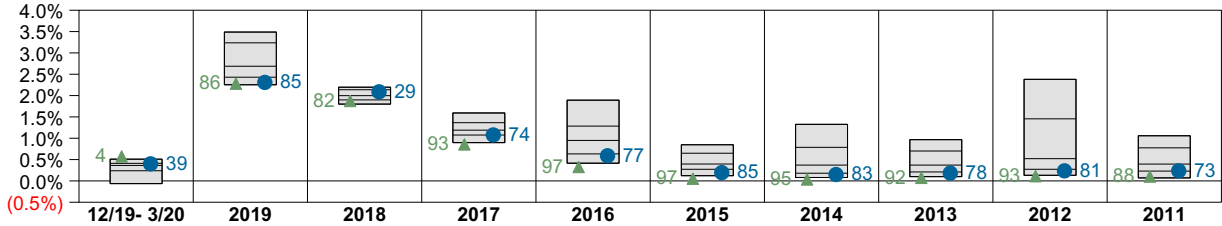


SERS Short Term Investment Fund Return Analysis Summary

Return Analysis

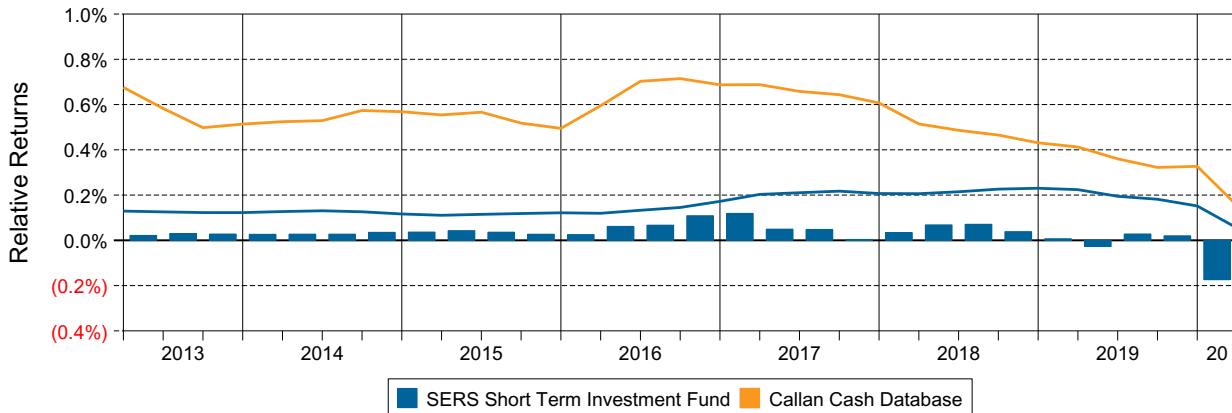
The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and 12 quarter rolling manager returns versus the appropriate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

Performance vs Callan Cash Database (Gross)

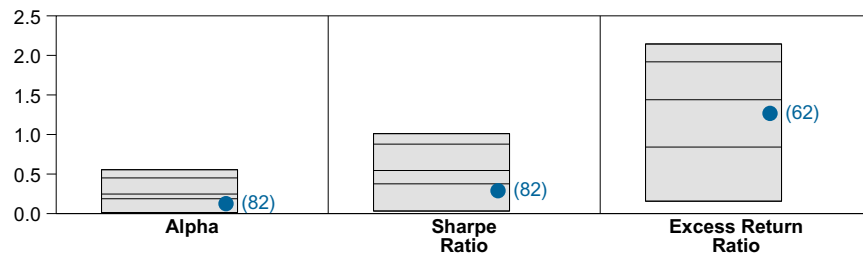


	12/19- 3/20	2019	2018	2017	2016	2015	2014	2013	2012	2011
SERS Short Term Investment Fund	● 0.40	2.31	2.09	1.08	0.59	0.19	0.15	0.18	0.24	0.24
3-month Treasury Bill	▲ 0.57	2.28	1.87	0.86	0.33	0.05	0.03	0.07	0.11	0.10

Rolling 12 Quarter and Quarterly Relative Return 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, 2020



	Alpha	Sharpe Ratio	Excess Return Ratio
10th Percentile	0.55	1.01	2.14
25th Percentile	0.45	0.88	1.92
Median	0.25	0.54	1.44
75th Percentile	0.19	0.38	0.84
90th Percentile	0.01	0.03	0.16
SERS Short Term Investment Fund	● 0.13	0.29	1.27

SERS Stable Value Fund

Period Ended March 31, 2020

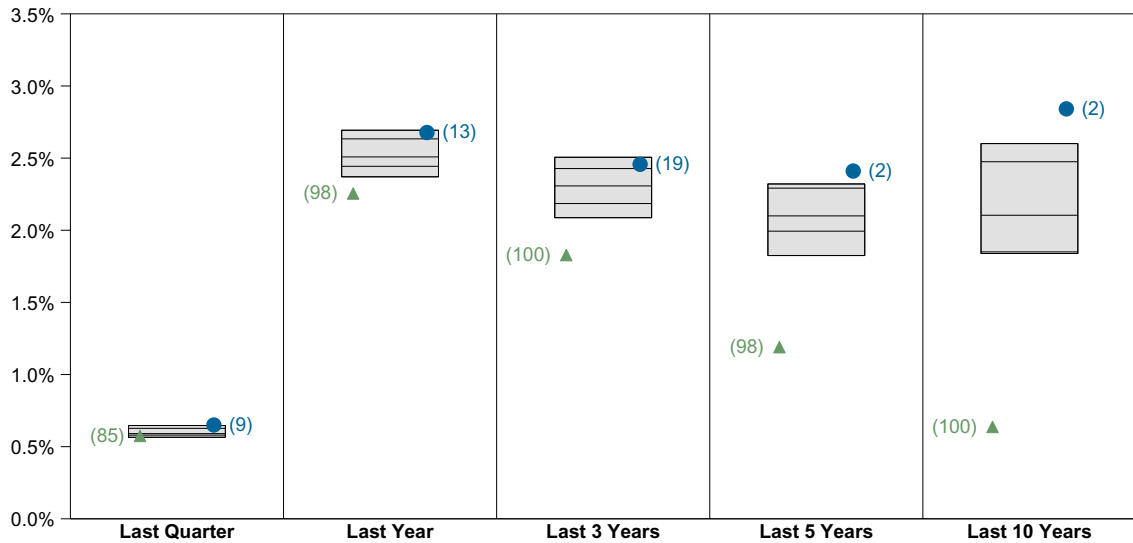
Investment Philosophy

The Stable Value Fund seeks to provide safety of principal and a stable yield consistent with that of a high-quality blend of short and intermediate fixed income securities, with the flexibility to move to cash equivalents to preserve principal. This fund is managed by Invesco.

Quarterly Summary and Highlights

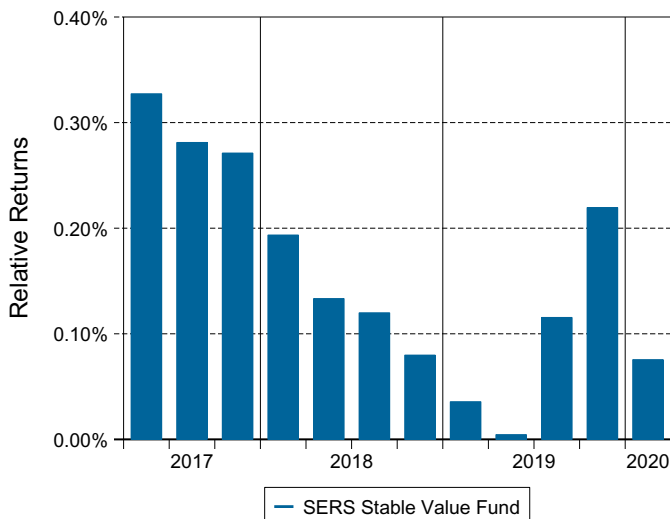
- SERS Stable Value Fund's portfolio posted a 0.65% return for the quarter placing it in the 9 percentile of the Callan Stable Value CT group for the quarter and in the 13 percentile for the last year.
- SERS Stable Value Fund's portfolio outperformed the 3-month Treasury Bill by 0.08% for the quarter and outperformed the 3-month Treasury Bill for the year by 0.42%.

Performance vs Callan Stable Value CT (Gross)

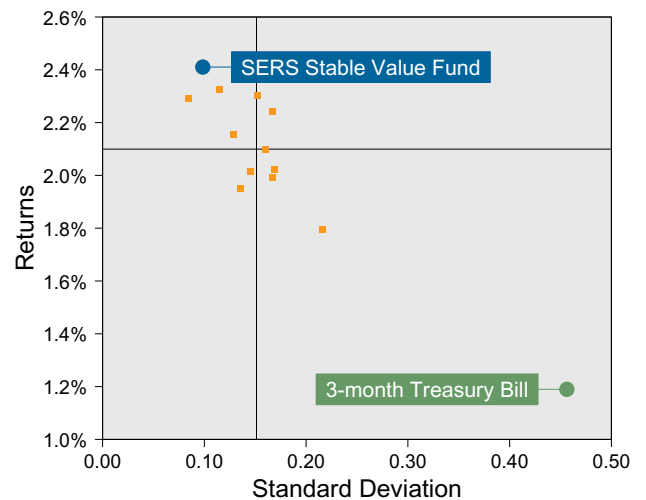


	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile	0.65	2.69	2.51	2.32	2.60
25th Percentile	0.63	2.63	2.43	2.29	2.47
Median	0.59	2.51	2.31	2.10	2.10
75th Percentile	0.58	2.44	2.19	1.99	1.85
90th Percentile	0.56	2.37	2.09	1.82	1.84
SERS Stable Value Fund	● 0.65	● 2.68	● 2.46	● 2.41	● 2.84
3-month Treasury Bill	▲ 0.57	▲ 2.25	▲ 1.83	▲ 1.19	▲ 0.64

Relative Return vs 3-month Treasury Bill



Callan Stable Value CT (Gross) Annualized Five Year Risk vs Return

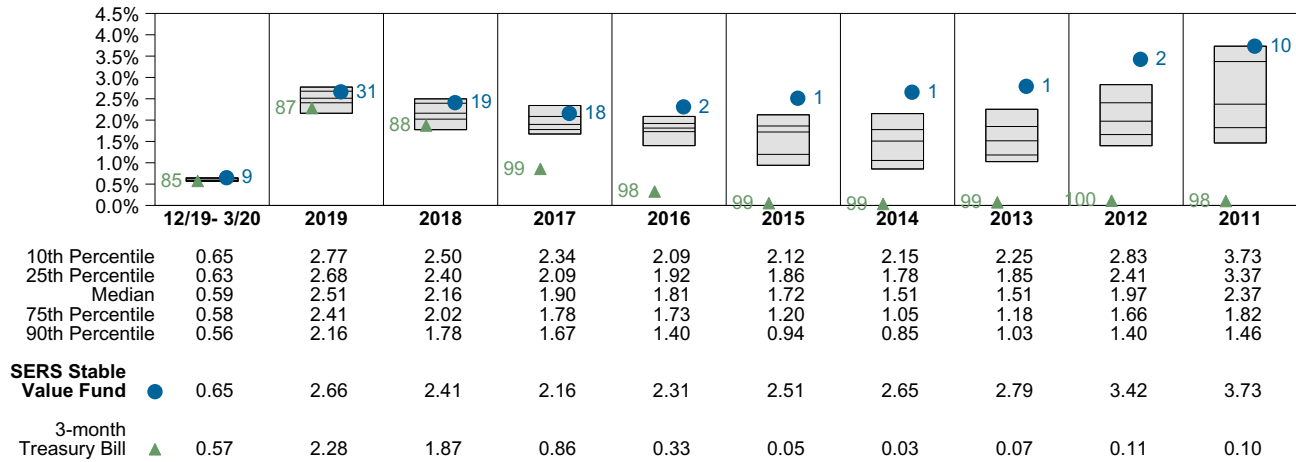


SERS Stable Value Fund Return Analysis Summary

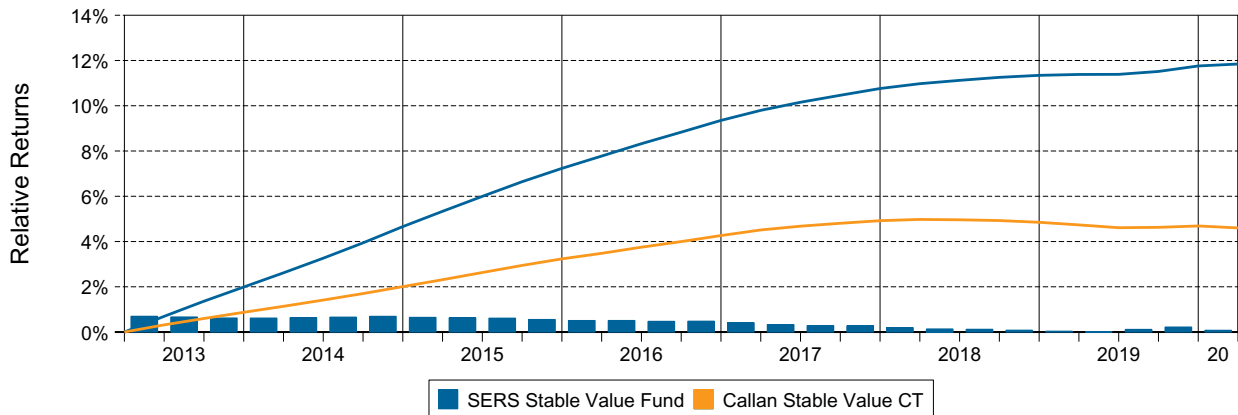
Return Analysis

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.

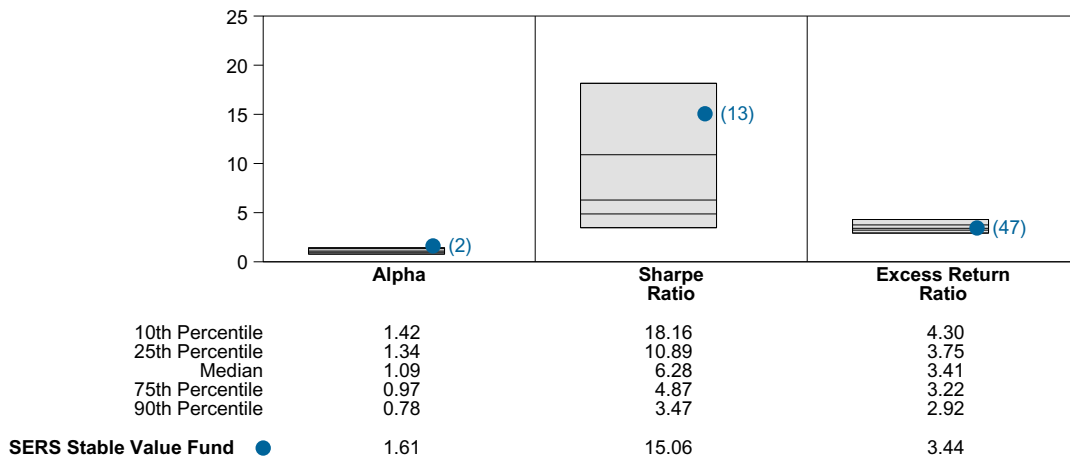
Performance vs Callan Stable Value CT (Gross)



Cumulative and Quarterly Relative Return vs 3-month Treasury Bill



Risk Adjusted Return Measures vs 3-month Treasury Bill Rankings Against Callan Stable Value CT (Gross) Seven Years Ended March 31, 2020



SERS U.S. Bond Index Fund Period Ended March 31, 2020

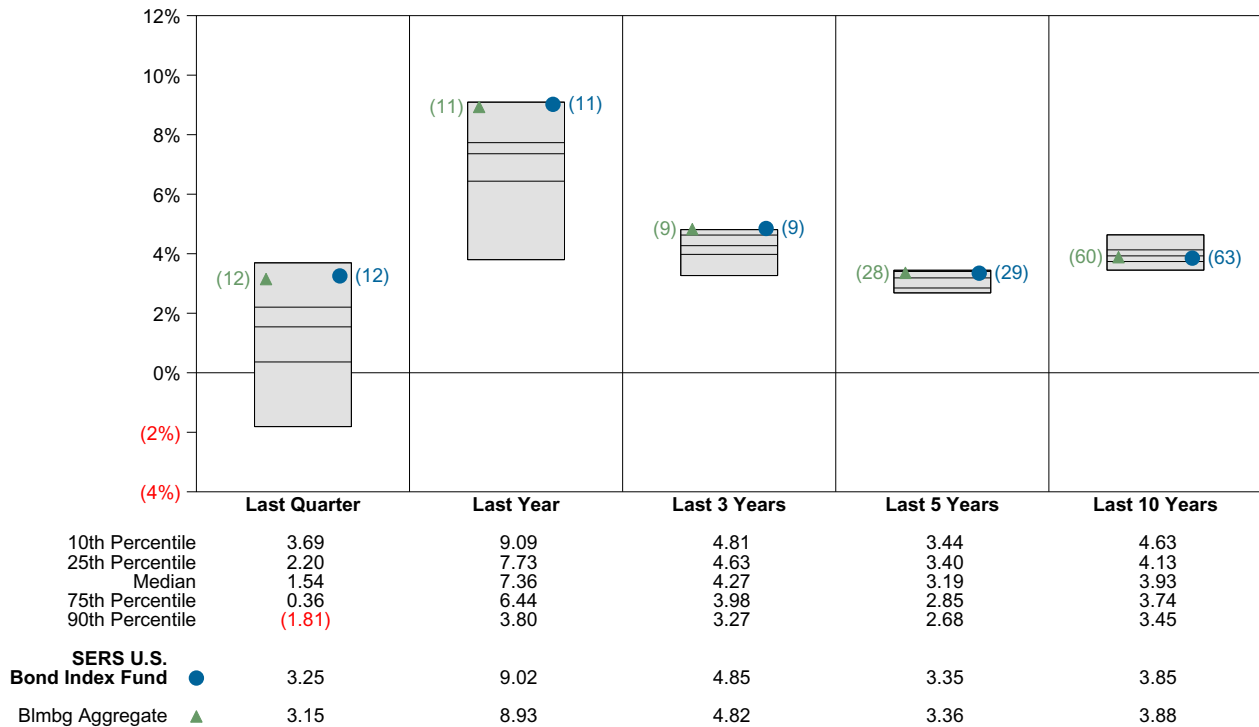
Investment Philosophy

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.

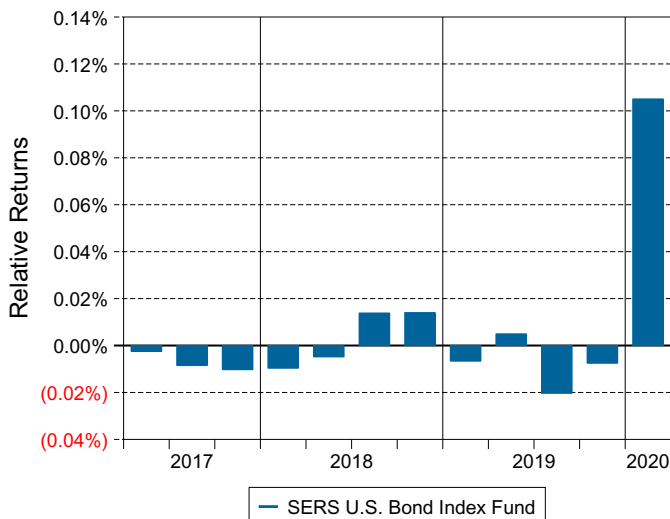
Quarterly Summary and Highlights

- SERS U.S. Bond Index Fund's portfolio posted a 3.25% return for the quarter placing it in the 12 percentile of the Callan Core Bond Mutual Funds group for the quarter and in the 11 percentile for the last year.
- SERS U.S. Bond Index Fund's portfolio outperformed the Blmbg Aggregate by 0.11% for the quarter and outperformed the Blmbg Aggregate for the year by 0.09%.

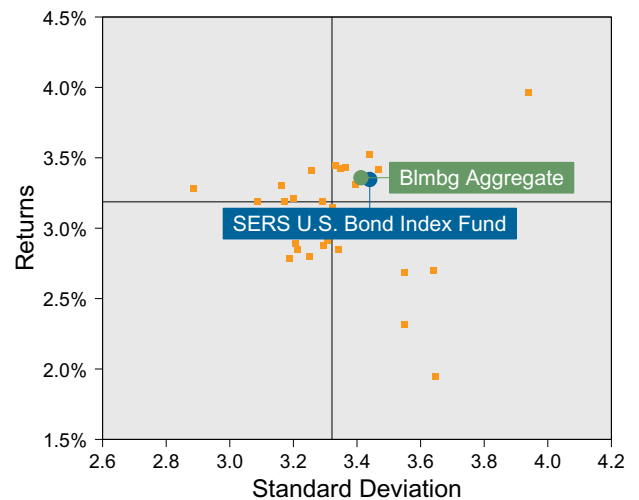
Performance vs Callan Core Bond Mutual Funds (Institutional Net)



Relative Return vs Blmbg Aggregate



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

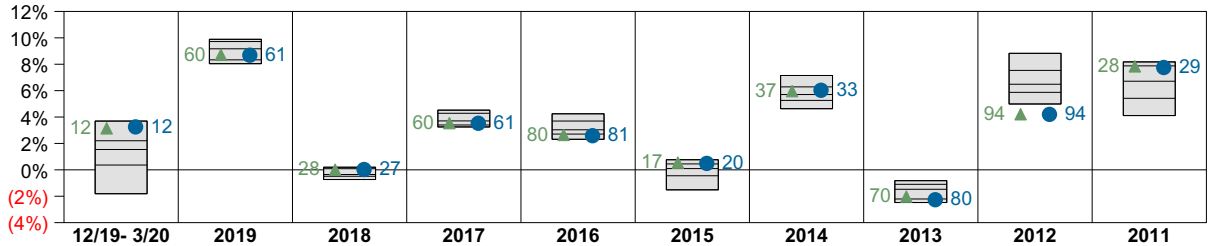


SERS U.S. Bond Index Fund Return Analysis Summary

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.

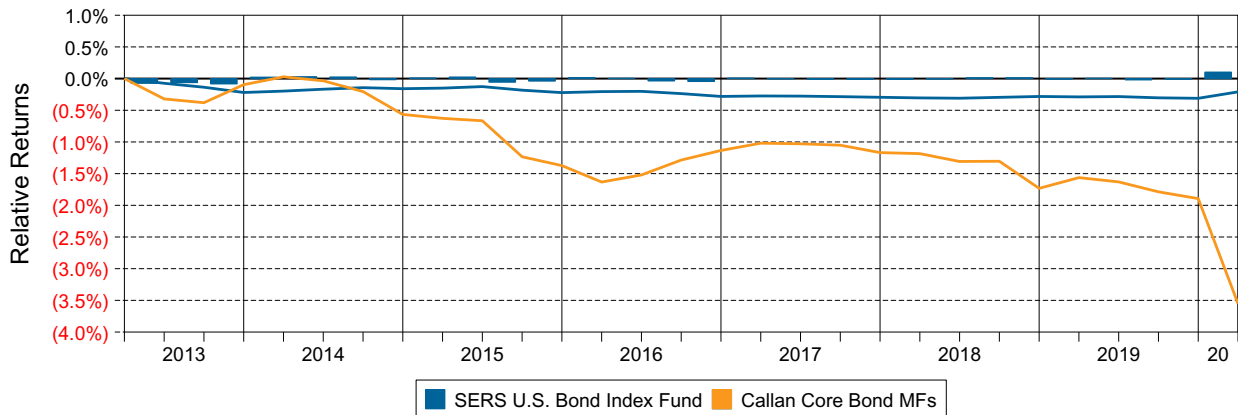
Performance vs Callan Core Bond Mutual Funds (Institutional Net)



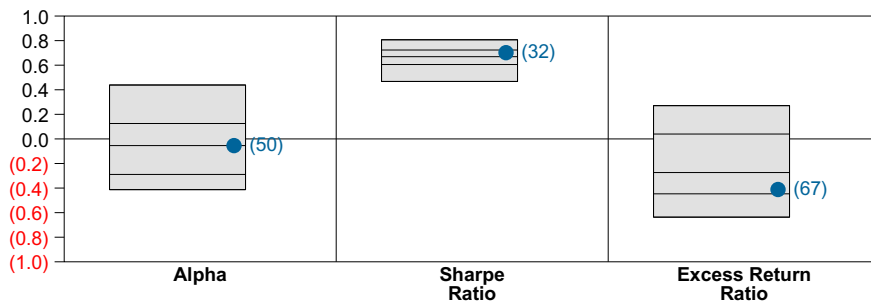
	12/19- 3/20	2019	2018	2017	2016	2015	2014	2013	2012	2011
10th Percentile	3.69	9.89	0.20	4.52	4.25	0.77	7.15	(0.82)	8.83	8.18
25th Percentile	2.20	9.72	0.09	4.28	3.70	0.45	6.29	(1.10)	7.53	7.88
Median	1.54	9.17	(0.35)	3.71	3.03	0.10	5.71	(1.47)	6.49	6.71
75th Percentile	0.36	8.33	(0.49)	3.40	2.71	(0.45)	5.26	(2.21)	5.87	5.42
90th Percentile	(1.81)	8.04	(0.73)	3.25	2.31	(1.52)	4.63	(2.48)	4.99	4.11

	12/19- 3/20	2019	2018	2017	2016	2015	2014	2013	2012	2011
SERS U.S. Bond Index Fund	● 3.25	8.69	0.02	3.53	2.59	0.49	6.03	(2.26)	4.20	7.75
Blmbg Aggregate	▲ 3.15	8.72	0.01	3.54	2.65	0.55	5.97	(2.02)	4.21	7.84

Cumulative and Quarterly Relative Return vs Blmbg Aggregate



Risk Adjusted Return Measures vs Blmbg Aggregate Rankings Against Callan Core Bond Mutual Funds (Institutional Net) Seven Years Ended March 31, 2020



	Alpha	Sharpe Ratio	Excess Return Ratio
10th Percentile	0.44	0.81	0.27
25th Percentile	0.13	0.72	0.04
Median	(0.05)	0.67	(0.27)
75th Percentile	(0.29)	0.61	(0.45)
90th Percentile	(0.41)	0.47	(0.64)
SERS U.S. Bond Index Fund	● (0.05)	0.70	(0.41)

SERS U.S. Bond Index Fund

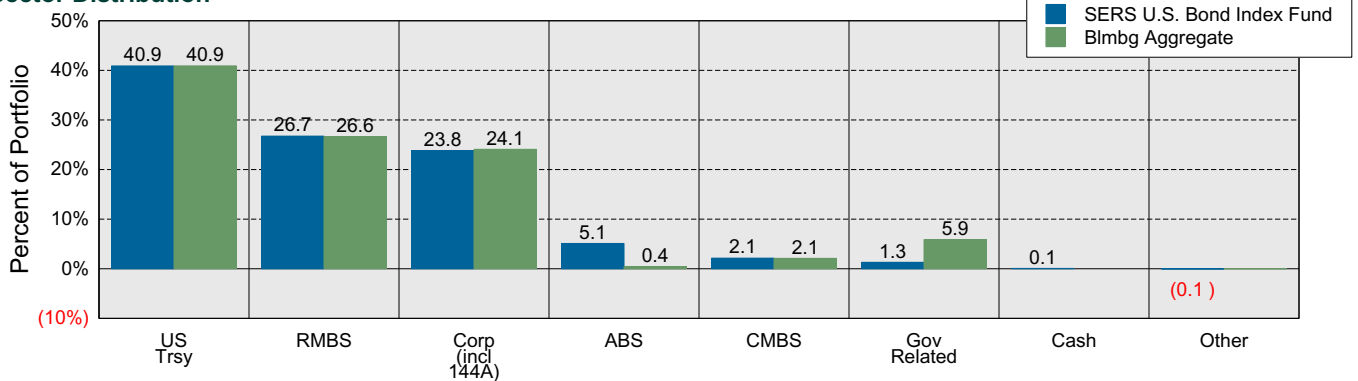
Portfolio Characteristics Summary

As of March 31, 2020

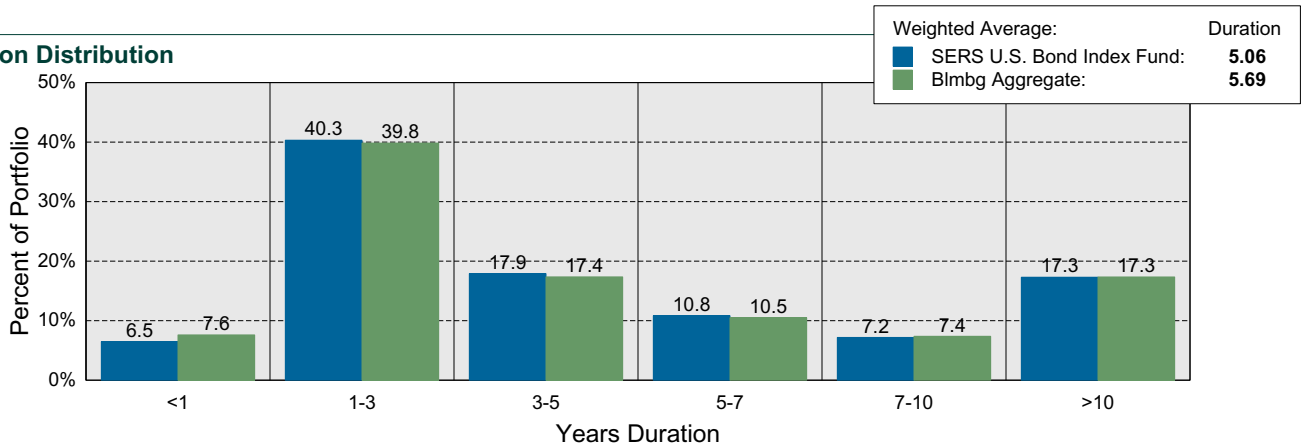
Portfolio Structure Comparison

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.

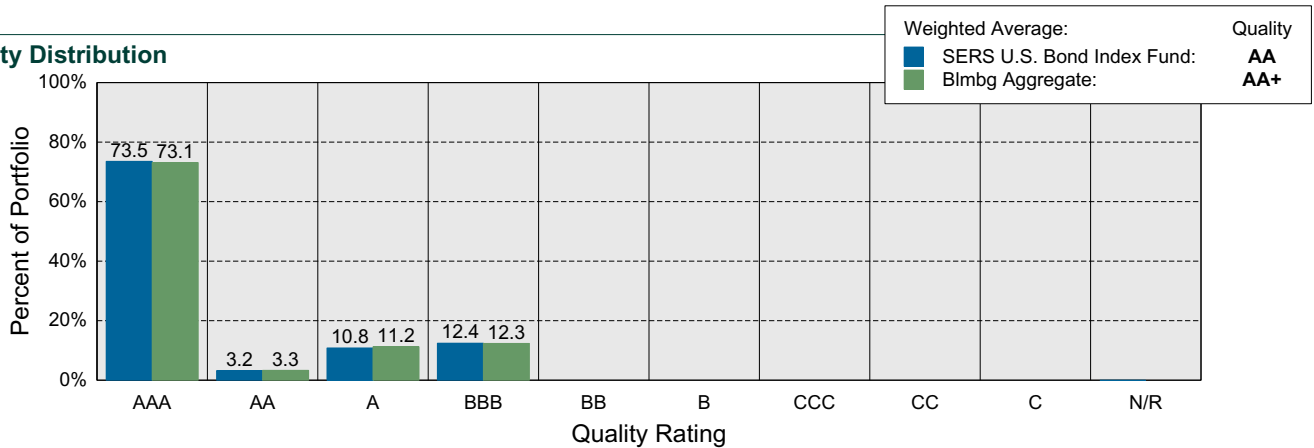
Sector Distribution



Duration Distribution



Quality Distribution



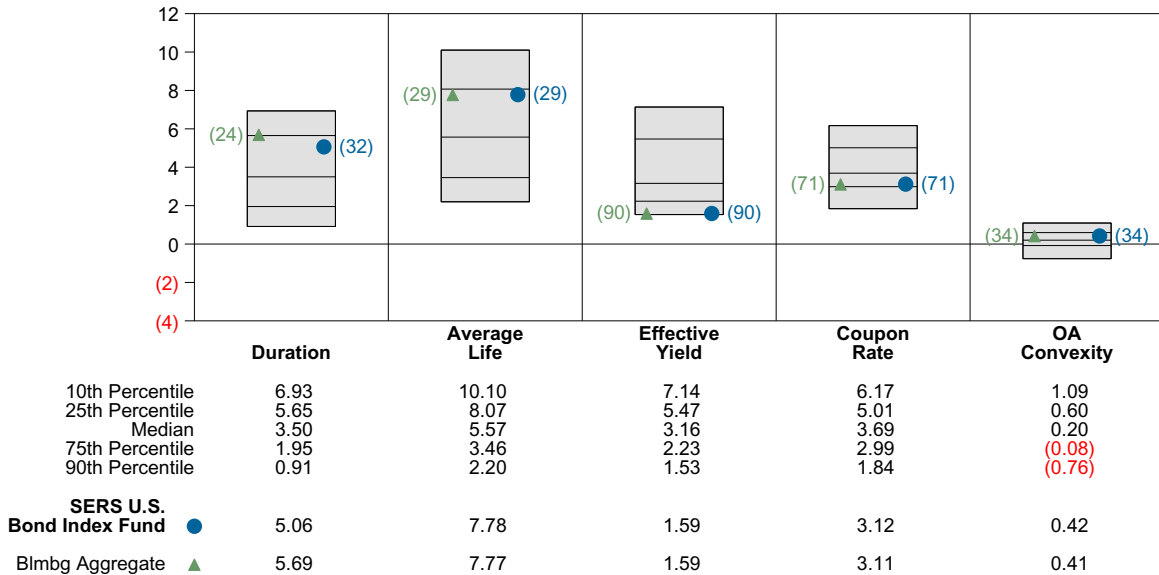
SERS U.S. Bond Index Fund

Bond Characteristics Analysis Summary

Portfolio Characteristics

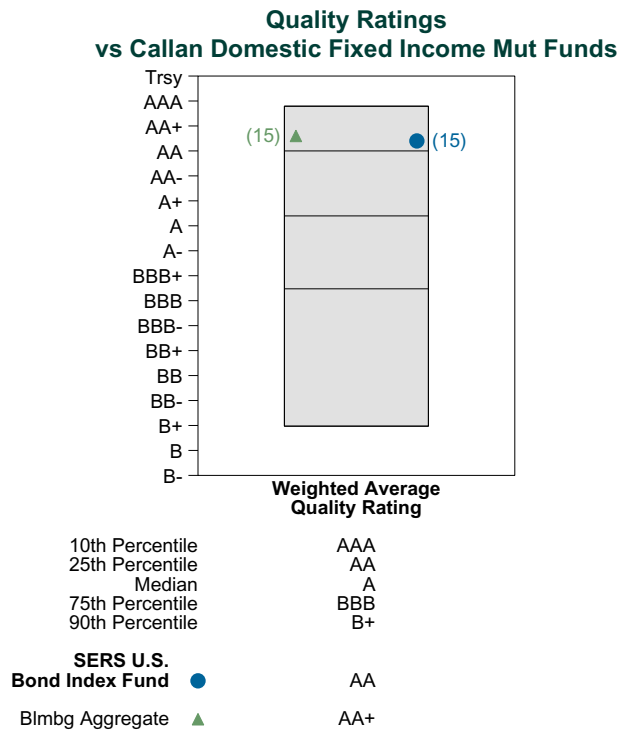
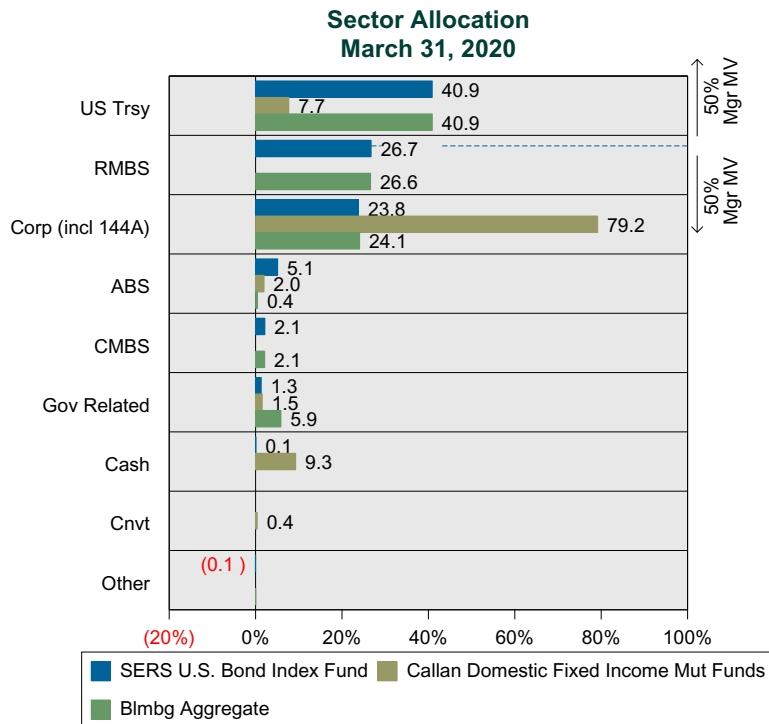
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Fixed Income Portfolio Characteristics Rankings Against Callan Domestic Fixed Income Mut Funds as of March 31, 2020



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.



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 Barclays Aggregate Bond Index 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.

Research and Educational Programs

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/library to see all of our publications, and www.callan.com/blog to view our blog "Perspectives." For more information contact Barb Gerraty at 415-274-3093 / institute@callan.com.

New Research from Callan's Experts

[2020 National Workshop Summary: Turbocharging DC Plans](#)

In this workshop, Connie Lee, Jana Steele, and James Veneruso described ways in which defined contribution plan sponsors can improve participant outcomes, including plan design strategies and investment implementation steps.

[2019 Nuclear Decommissioning Funding Study](#) | Callan's annual study offers insights into the status of nuclear decommissioning funding to make peer comparisons more accurate and relevant.

[2020 National Workshop Summary: Diversifying Alternatives](#)

In this workshop, presenters Pete Keliuotis, Catherine Beard, and Ashley DeLuce discussed three lesser-known alternatives strategies: specialty lending, emerging market private equity, and insurance-linked strategies.

[2020 DC Trends Survey](#) | Callan's *2020 Defined Contribution Trends Survey* is designed to provide a benchmark for sponsors to evaluate their plans compared to peers, and to offer insights to help sponsors improve their plans and the outcomes for their participants.

[How Sponsors Can Harness DC Plan Data for Better Outcomes](#)

Defined contribution (DC) plans are designed to help participants achieve the most beneficial outcomes. But participants' choices may not necessarily reflect asset allocation best practices. Sponsors can help participants by analyzing how investment options are used and make adjustments based on those observations.

[The Callan Periodic Table of Investment Returns](#) | We offer our Periodic Table Collection and the Callan Periodic Table of Investment Returns (Key Indices: 2000-2019).

[Callan's 2020-2029 Capital Market Assumptions](#) | Callan develops capital market assumptions to help clients with their long-term strategic planning. This year, we reduced our fixed income

assumptions to reflect lower starting yields following the Fed pivot in policy, but we held constant our real equity return over inflation.

[2020 National Workshop Summary: Fee Study](#) | In this 2020 workshop, presenters Butch Cliff, Mark Stahl, and Brady O'Connell discussed the major themes of our *2019 Investment Management Fee Study* and their impact on the institutional investor community.

[An Introduction to Our New Hedge Fund Peer Group](#) | The Callan Institutional Hedge Fund Peer Group is designed to help institutional investors better understand alpha-oriented solutions that can diversify their existing stock and bond exposures, and it represents the available pool of hedge fund talent that investors will want to consider, or at least compare with their existing hedge fund portfolios.

Quarterly Periodicals

[Private Equity Trends, 4Q19](#) | A high-level summary of private equity activity in the quarter through all the investment stages

[Active vs. Passive Charts, 4Q19](#) | A comparison of active managers alongside relevant benchmarks over the long term

[Market Pulse Flipbook, 4Q19](#) | 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 Market Review, 4Q19](#) | Analysis and a broad overview of the economy and public and private market activity each quarter across a wide range of asset classes

[Hedge Fund Quarterly, 4Q19](#) | Commentary on developments for hedge funds and multi-asset class (MAC) strategies

[Real Assets Reporter, 4Q19](#) | Data and insights on real estate and other real assets investment topics.

Events

Miss out on a Callan conference or workshop? Event summaries and speakers' presentations are available on our website: www.callan.com/library/

Please mark your calendar and look forward to upcoming invitations:

Upcoming Webinars

May 21 – Hedge Fund Overview

July 8 – China Update

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

Through the "Callan College," the Callan Institute offers educational sessions for industry professionals involved in the investment decision-making process. It was founded in 1994 to provide both clients and non-clients with basic- to intermediate-level instruction.

Introduction to Investments for Institutional Investors

This program familiarizes institutional investor trustees and staff and asset management advisers with basic investment theory, terminology, and practices. It lasts one-and-a-half days and is designed for individuals with less than two years of experience with asset-management oversight and/or support responsibilities. 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 dates and registration can be found at: www.callan.com/callan-college-intro-2/

Alternative Investments for Institutional Investors

Alternative investments like private equity, hedge funds, and real estate can play a key role in any portfolio. In this one-day session, Callan experts will provide instruction about the importance of allocations to alternatives, and how to integrate, evaluate, and monitor them.

Learn from some of Callan's senior consultants and experts, including Pete Keliuotis, the head of Alternatives Consulting. The session will cover private equity, private credit, hedge funds, real estate, and real assets; why invest in alternatives; risk/return characteristics and liquidity; designing and implementing an alternatives program; and trends and case studies.

Tuition is \$2,000 per person and includes instruction, all materials, and breakfast and lunch with the instructors.

Additional information including dates and registration can be found at: <https://www.callan.com/callan-college-alternatives-2/>



"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 on-going 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
Aberdeen Standard Investments
Acadian Asset Management LLC
AEGON USA Investment Management Inc.
AllianceBernstein
Allianz
American Century Investments
Amundi Pioneer Asset Management
AQR Capital Management
Ares Management LLC
Ariel Investments, LLC
Aristotle Capital Management, LLC
Atlanta Capital Management Co., LLC
Aviva Investors Americas
AXA Investment Managers
Baillie Gifford International, LLC
Baird Advisors
Baron Capital Management, Inc.
Barrow, Hanley, Mewhinney & Strauss, LLC
BlackRock
BMO Global Asset Management
BNP Paribas Asset Management
BNY Mellon Asset Management
Boston Partners
Brandes Investment Partners, L.P.
Brandywine Global Investment Management, LLC
BrightSphere Investment Group
Brown Brothers Harriman & Company
Cambiar Investors, LLC
CapFinancial Partners, LLC
Capital Group
Carillon Tower Advisers
CastleArk Management, LLC
Causeway Capital Management LLC
Chartwell Investment Partners
ClearBridge Investments, LLC

Manager Name
Cohen & Steers Capital Management, Inc.
Columbia Threadneedle Investments
Columbus Circle Investors
Credit Suisse Asset Management
D.E. Shaw Investment Management, L.L.C.
DePrince, Race & Zollo, Inc.
Dimensional Fund Advisors LP
Doubleline
Duff & Phelps Investment Management Co.
DWS
EARNEST Partners, LLC
Eaton Vance Management
Epoch Investment Partners, Inc.
Fayez Sarofim & Company
Federated Hermes, Inc.
Fidelity Institutional Asset Management
Fiera Capital Corporation
First Hawaiian Bank Wealth Management Division
First State Investments
Fisher Investments
Franklin Templeton
Fred Alger Management, Inc.
GAM (USA) Inc.
GCM Grosvenor
Glenmeade Investment Management, LP
GlobeFlex Capital, L.P.
Goldman Sachs
Green Square Capital Advisors, LLC
Guggenheim Investments
GW&K Investment Management
Harbor Capital Group Trust
Hartford Investment Management Co.
Heitman LLC
Hotchkis & Wiley Capital Management, LLC
Income Research + Management, Inc.

Manager Name
Insight Investment Management Limited
Intech Investment Management, LLC
Intercontinental Real Estate Corporation
Invesco
Investec Asset Management North America, Inc.
Ivy Investments
J.P. Morgan
Janus
Jennison Associates LLC
Jobs Peak Advisors
KeyCorp
Lazard Asset Management
Legal & General Investment Management America
Lincoln National Corporation
Longview Partners
Loomis, Sayles & Company, L.P.
Lord Abbett & Company
Los Angeles Capital Management
LSV Asset Management
MacKay Shields LLC
Macquarie Investment Management (MIM)
Manulife Investment Management
Marathon Asset Management, L.P.
McKinley Capital Management, LLC
Mellon
MetLife Investment Management
MFS Investment Management
MidFirst Bank
Mondrian Investment Partners Limited
Montag & Caldwell, LLC
Morgan Stanley Investment Management
Mountain Pacific Advisors, LLC
MUFG Union Bank, N.A.
Natixis Investment Managers
Neuberger Berman
Newton Investment Management
Nikko Asset Management Co., Ltd.
Nile Capital Group LLC
Northern Trust Asset Management
Nuveen
P/E Investments
Pacific Investment Management Company
Parametric Portfolio Associates LLC

Manager Name
Pathway Capital Management
Peregrine Capital Management, LLC.
Perkins Investment Management
PFM Asset Management LLC
PGIM Fixed Income
PineBridge Investments
PNC Capital Advisors, LLC
Polen Capital Management
Principal Global Investors
Putnam Investments, LLC
QMA LLC
RBC Global Asset Management
Regions Financial Corporation
Robeco Institutional Asset Management, US Inc.
Rothschild & Co. Asset Management US
S&P Dow Jones Indices
Schroder Investment Management North America Inc.
SLC Management
Smith Graham & Co. Investment Advisors, L.P.
State Street Global Advisors
Stone Harbor Investment Partners L.P.
Strategic Global Advisors
T. Rowe Price Associates, Inc.
The TCW Group, Inc.
Thompson, Siegel & Walmsley LLC
Thornburg Investment Management, Inc.
Tri-Star Trust Bank
UBS Asset Management
USAA Real Estate
VanEck
Versus Capital Group
Victory Capital Management Inc.
Virtus Investment Partners, Inc.
Vontobel Asset Management, Inc.
Voya
WCM Investment Management
WEDGE Capital Management
Wellington Management Company LLP
Wells Fargo Asset Management
Western Asset Management Company LLC
Westfield Capital Management Company, LP
William Blair & Company LLC