

September 30, 2019

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

September 30, 2019

Capital Markets Review	
Capital Markets Overview	2
Active Management Overview	6
Plan Assets and Performance	11
Risk-Based Funds	
60/40 Balanced Stock & Bond Fund	31
Conservative Portfolio Fund	33
Moderate Portfolio Fund	35
Aggressive Portfolio Fund	37
Domestic Equity	
U.S. Large Company Stock Index Fund	40
U.S. Small/Mid Company Stock Index Fund	45
International Equity	
International Company Stock Index Fund	51
Domestic Fixed Income	
Short Term Investment Fund	58
Stable Value Fund	60
U.S. Bond Index Fund	62
Definitions	
Market Indicators	67
Database Groups	68
Risk/Reward Statistics	70
Callan Research/Education	72
Disclosures	75

U.S. EQUITY

U.S. equity markets posted mixed results amid a market that saw 30-year Treasury yields hit historic lows and the most meaningful, albeit short-lived, factor rotation among equities since the Global Financial Crisis (GFC). Large cap (+1.4%) and mid cap stocks (+0.5%) posted modest gains for the quarter while small caps declined (Russell 2000: -2.4%). Ongoing U.S.-China trade tension, earnings and interest rate uncertainty, and the global political landscape continued to drive investor uncertainty.

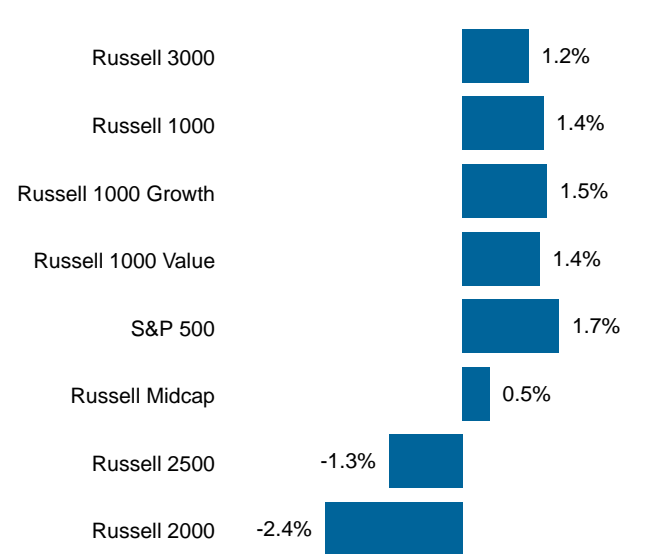
Large Cap U.S. Equity (S&P 500: +1.7%; Russell 1000: +1.4%)

- Top sectors were in defensive areas including Utilities (+9.3%), Real Estate (+7.7%), and Consumer Staples (+6.1%) in response to investors' continued flight to quality.
- Energy, hurt by falling oil prices, fell 6.3%; Health Care lagged (-2.2%) amid discussions around price transparency and pricing reform by U.S. presidential candidates.
- Cyclical sector exposure has been volatile given uncertainty around the trade deal (and continued sideways movement of markets) along with slowed global growth.
- Up to September, momentum stocks (which have shifted to include many of the market's least volatile stocks) outperformed as investors shunned the cheapest quintile of value (and more volatile) stocks. This trend sharply reversed in early September as the 10-year Treasury yield rose from 1.46% to 1.73% and momentum stocks fell precipitously while value stocks traded up over the course of two days. The magnitude of the reversal gave a boost to value stocks across market capitalizations for the quarter.

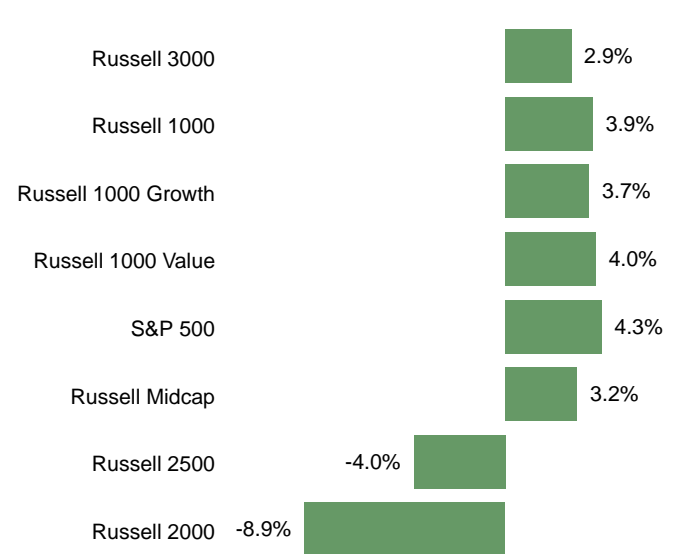
Growth vs. Value (Russell 1000 Value: +1.4%, Russell 1000 Growth: +1.5%; Russell 2000 Value: -0.6%, Russell 2000 Growth: -4.2%)

- While value continues to trail growth year-to-date, it gained ground during September's factor reversal, finishing the quarter essentially in line with growth within large caps.
- Within small cap, value benefited as investors favored the cheapest 20% of small caps while the most expensive quintile within the Russell 2000 declined double digits.

U.S. Equity: Quarterly Returns

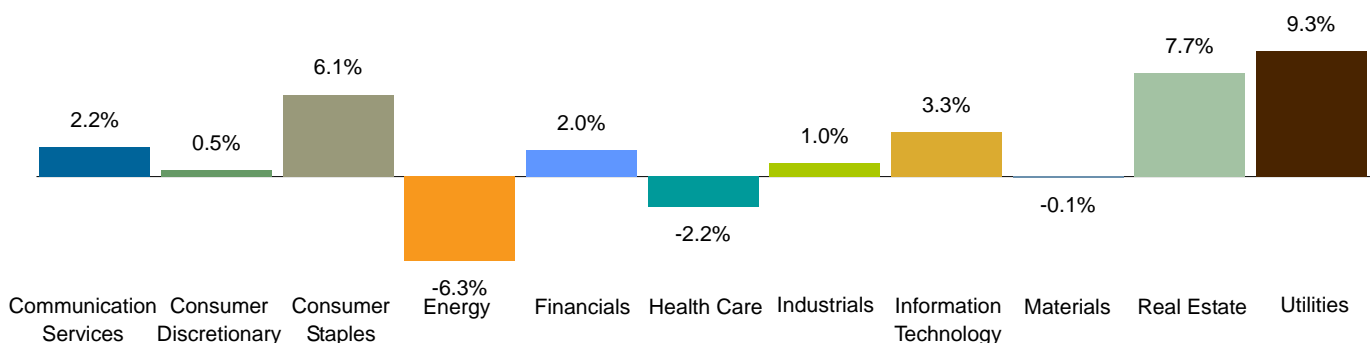


U.S. Equity: One-Year Returns



Sources: FTSE Russell, Standard & Poor's

S&P Sector Returns, Quarter Ended September 30, 2019



Source: Standard & Poor's

NON-U.S./GLOBAL EQUITY

Global equity markets turned negative in the third quarter. After more modest positive results in the second quarter, fears over continued trade war impacts, a no-deal Brexit, and a potential global slowdown impacted investor behavior. Given this backdrop, more defensive areas of the market outperformed.

Global/Non-U.S. Developed (MSCI EAFE: -1.1%; MSCI World ex USA: -0.9%; MSCI ACWI ex USA: -1.8%; MSCI Hong Kong: -11.9%; MSCI Japan: +3.1%)

- Boris Johnson's attempted suspension of Parliament and no-deal Brexit proclamations weighed on U.K. stocks (-2.5%).
- Germany (-4.0%) experienced recession fears; industrial production dropped 1.5% in June from the prior month, while the estimate was -0.5%.
- Hong Kong protests proved to be a headwind as the market fell -11.9% over the three-month period.
- Japan was one of the few bright spots within developed markets as low short-term interest rates remain unchanged and a resolution to the Japan/South Korea trade war looked more promising.
- Cyclical sectors trailed as investors were positioned defensively; Energy (-6.5%) had the worst performance.
- For the quarter, factor performance reflected cautious investor behavior as quality and low volatility did well. However, the month of September saw a brief recovery in value across all markets as trade talks improved and central banks eased.

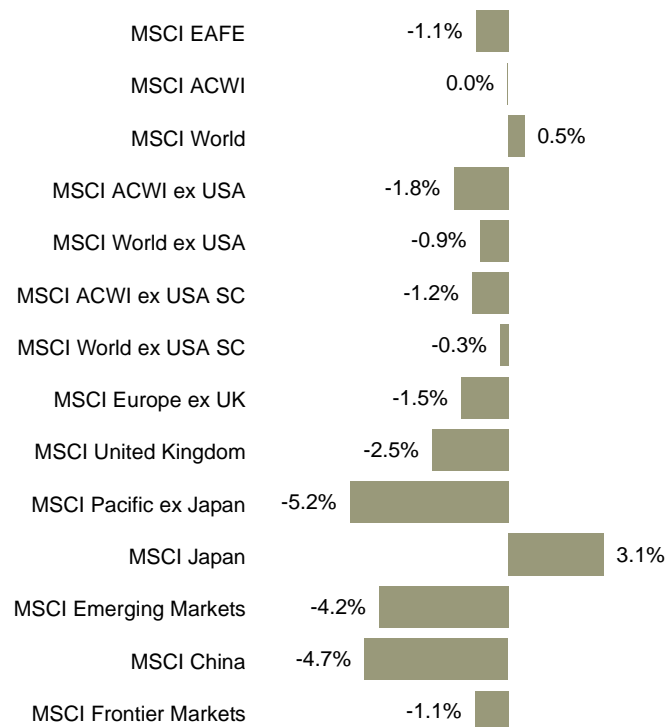
Emerging Markets (MSCI Emerging Markets Index: -4.2%)

- Emerging markets fared worst among global markets; uncertainty weighed heavily on these volatile countries.
- Though most emerging market countries fell during the quarter, Turkey (+11.7%) had strong results as its central bank cut rates two times in less than two months.
- Factor performance in emerging markets favored quality and price momentum as investors moved toward safe assets.

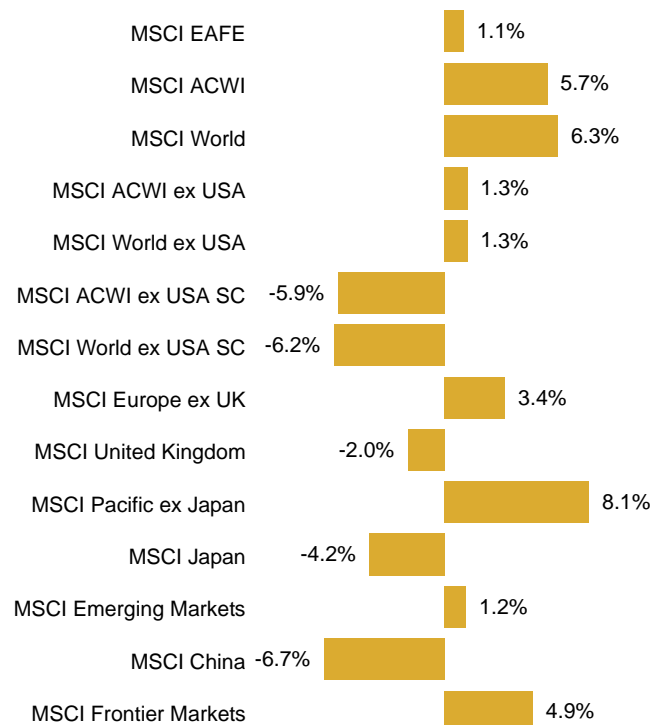
Non-U.S. Small Cap (MSCI World ex USA Small Cap: -0.3%; MSCI EM Small Cap: -4.6%; MSCI ACWI ex USA Small Cap: -1.2%)

- Small cap marginally outperformed large cap, both in developed and all country ex-U.S. markets; despite overall defensive posturing, idiosyncratic businesses pushed past global market issues.
- Japan (+4.0%) helped drive developed returns as small cap companies also benefited from low rates and resolved trade tensions; Hong Kong (-7.6%) detracted as local businesses were hurt by the protests.

Global Equity: Quarterly Returns



Global Equity: One-Year Returns



Source: MSCI

FIXED INCOME

The Federal Open Market Committee (FOMC) cut short-term interest rates by 25 basis points twice in the third quarter amid an economic backdrop that has been supported by strong consumer spending and a solid labor market, but challenged by weakening manufacturing data and business investment. The Fed chair stated that the FOMC would act as “appropriate to sustain the expansion,” and the European Central Bank and other central banks around the world also moved in the direction of easing monetary policy. Yields fell in the U.S. and abroad given global growth headwinds fueled by mounting trade tensions as well as geopolitical uncertainty.

U.S. Fixed Income (Bloomberg Barclays US Aggregate Bond Index: +2.3%)

- Treasuries returned 2.4% as rates fell across the yield curve.
- While the widely monitored 2- and 10-year key rates remained positive, the spread between the 3-month and 10-year key rates remained inverted.
- Long Treasuries soared (+7.9%) as 30-year yields fell roughly 40 bps.
- Nominal Treasuries outperformed TIPS as inflation expectations continued to fall; 10-year breakeven spreads were 1.53% as of quarter-end, down from 1.69% as of June 30. The 10-year real yield dipped briefly into negative territory in early September.

Investment Grade Corporates (Bloomberg Barclays Corporate: +3.1%)

- Investment grade corporate credit spreads were range-bound, but their yield advantage was enough to generate positive excess returns versus like-duration Treasuries.
- Issuance in the corporate bond market was \$320 billion in the quarter, \$50 billion higher than a year ago; demand remained solid. BBB-rated corporates (+3.1%) modestly outperformed A-rated or higher corporates (+3.0%).

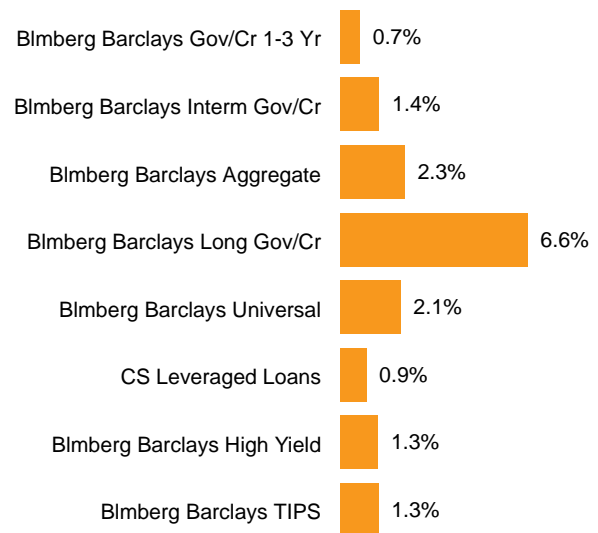
High Yield (Bloomberg Barclays Corporate High Yield: +1.3%)

- BB-rated corporates (+2.0%) outperformed CCC-rated corporates (-1.8%). BB- and B-rated spreads narrowed slightly, but the rally in rates helped drive outperformance as a result of higher quality bonds’ greater sensitivity to interest rate movements.
- CCC-rated bond spreads widened significantly, representing some concern about deteriorating quality at the lower-end of the spectrum.

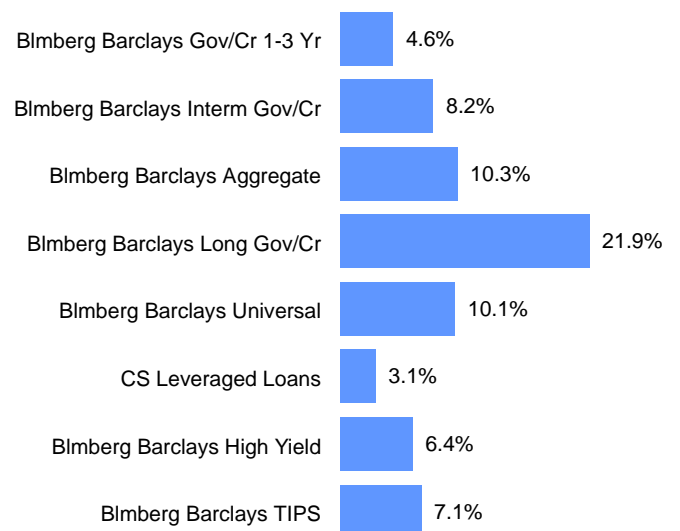
Leveraged Loans (CS Leveraged Loans: +0.9%)

- Bank loans, which have floating rate coupons, underperformed high yield bonds as rates rallied and investors worried about deteriorating credit quality.
- CLO issuance continued to exceed expectations, providing positive technical support to the leveraged loan market.

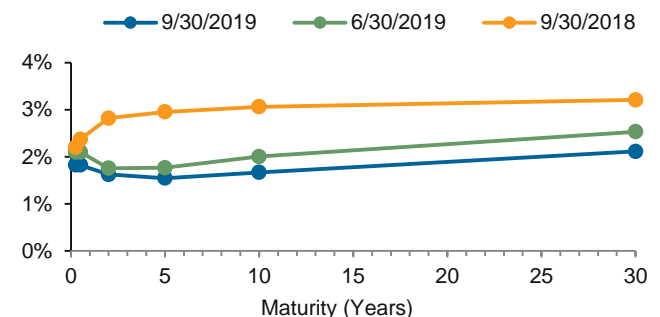
U.S. Fixed Income: Quarterly Returns



U.S. Fixed Income: One-Year Returns



U.S. Treasury Yield Curves



Sources: Bloomberg, Bloomberg Barclays, Credit Suisse

NON-U.S. FIXED INCOME

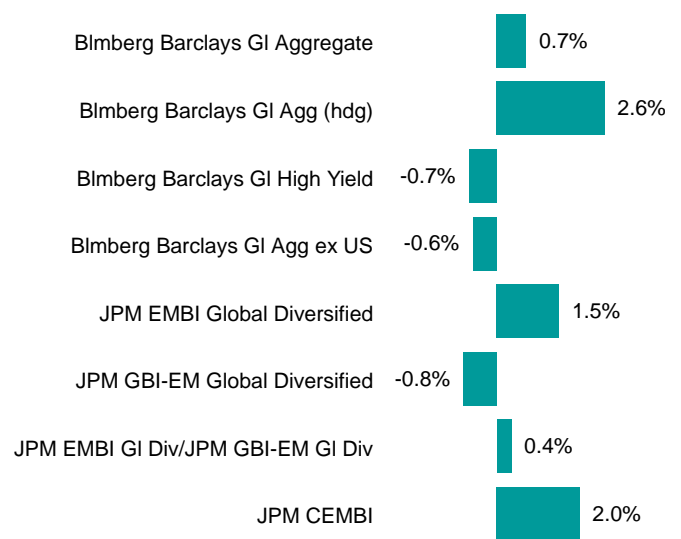
Global Fixed Income (Bloomberg Barclays Global Aggregate (unhedged): +0.7%; (hedged): +2.6%)

- Developed market sovereign bond yields rallied, pushing European sovereigns further into negative territory as the ECB reduced its deposit rate and announced a new bond purchasing stimulus program.
- Negative yielding debt totals nearly \$17 trillion, a record high.
- The U.S. dollar was up 3.4% versus a basket of trade partner currencies and up 4.3% vs the beleaguered euro.

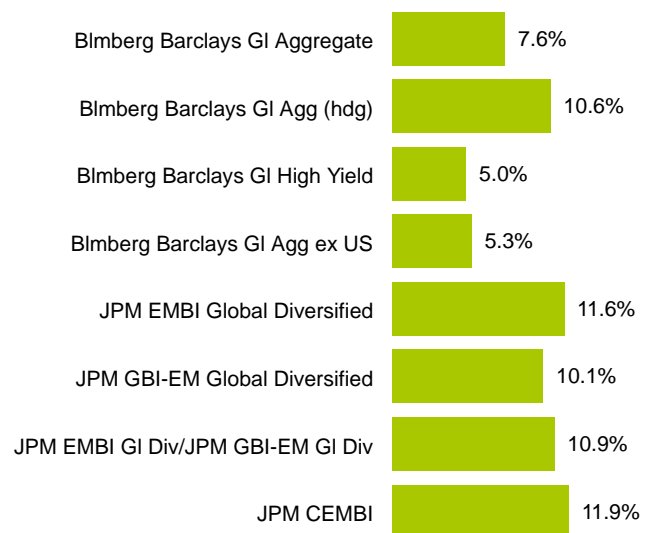
US\$ EMD (JPM EMBI Global Diversified: +1.5%), **Local Currency EMD** (JPM GBI-EM Global Diversified: -0.8%)

- Broadly, emerging market currencies depreciated versus the U.S. dollar, hampering local currency returns.
- Within the dollar-denominated benchmark, Argentina (-42%) and Venezuela (-51%) were among the few to post negative returns. Conversely, returns in the local debt benchmark were more mixed with Turkey (+19%) and Argentina (-60%) being outliers.

Global Fixed Income: Quarterly Returns

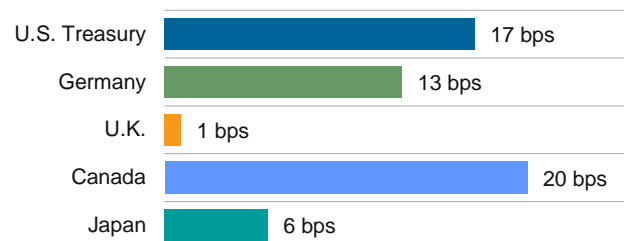


Global Fixed Income: One-Year Returns



Change in 10-Year Global Government Bond Yields

2Q19 to 3Q19



Sources: Bloomberg, Bloomberg Barclays, JP Morgan

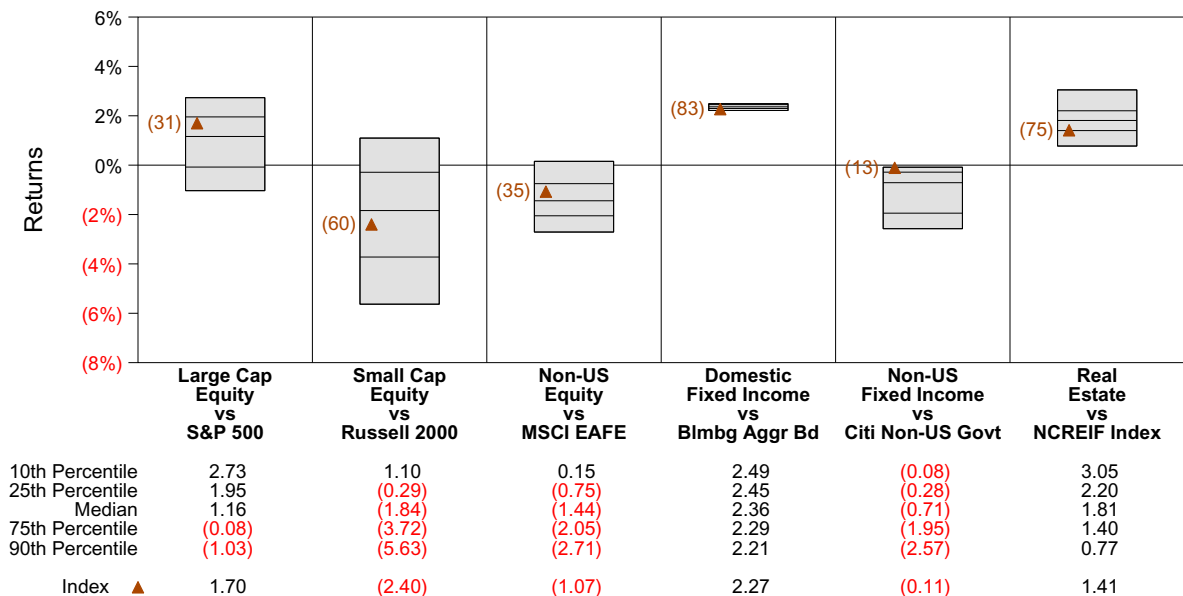
Market Overview

Active Management vs Index Returns

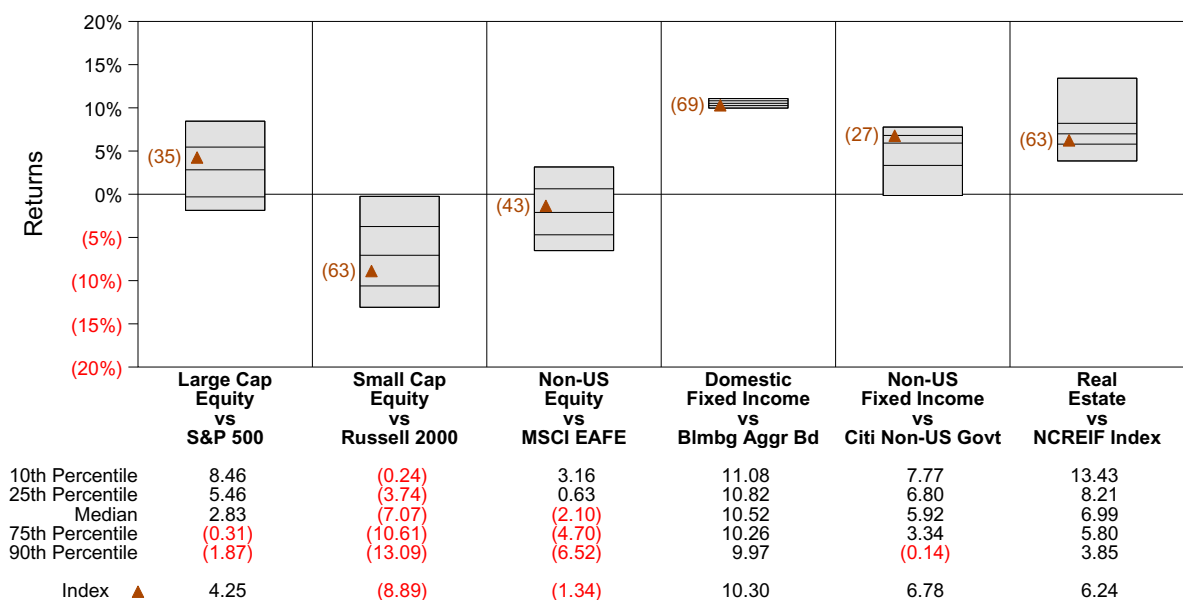
Market Overview

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 September 30, 2019



Range of Separate Account Manager Returns by Asset Class One Year Ended September 30, 2019

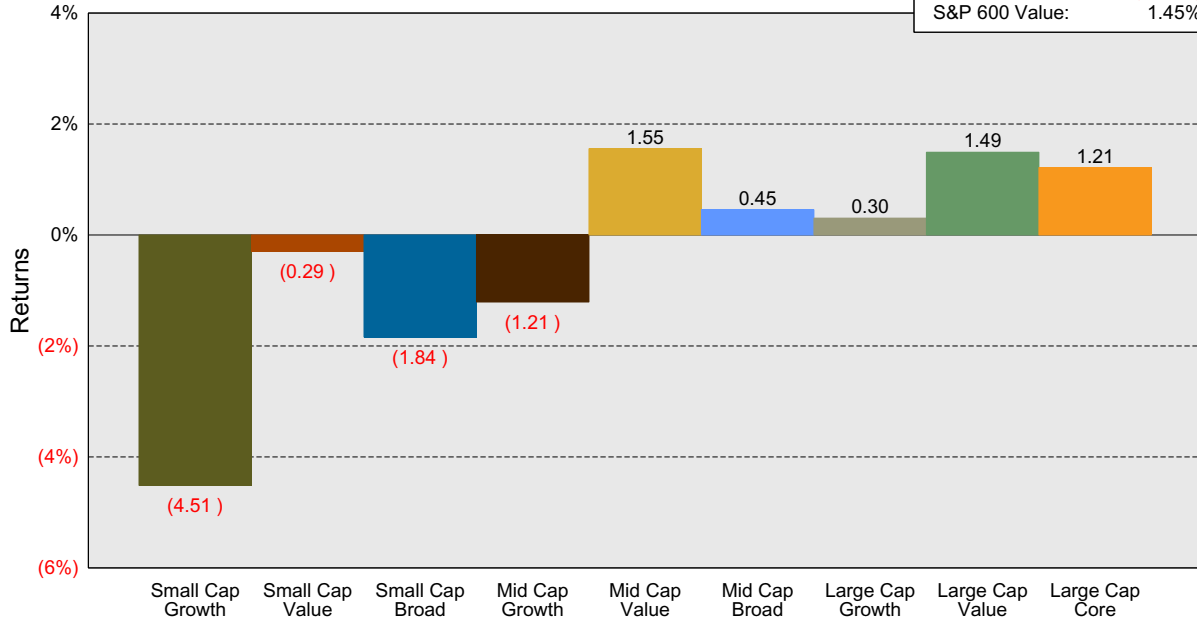


Domestic Equity Active Management Overview

The S&P 500 Index returned 1.7% in the third quarter, bringing its y-t-d result to an impressive 20.6%. Third quarter returns were mixed across sectors. The winners were Real Estate (+7.7%) and Utilities (+9.3%), both benefiting from lower interest rates. Returns for both sectors are approaching 30% on a YTD basis. Energy, hurt by falling oil prices, lost 6.3% and is up only 6.0% for the year. Health Care was another poor performer, down 2.2% and up 5.6% YTD. From a style perspective, value mounted a comeback late in the quarter, but over the full quarter returns across styles were similar (R1000: 1.4%; R1000G: 1.5%; R1000V: 1.4%). Small caps underperformed (R2000: -2.4% vs R1000: +1.4%) and, notably, small cap value outperformed small cap growth by a significant margin (R2000V: -0.6% vs R2000G: -4.2%).

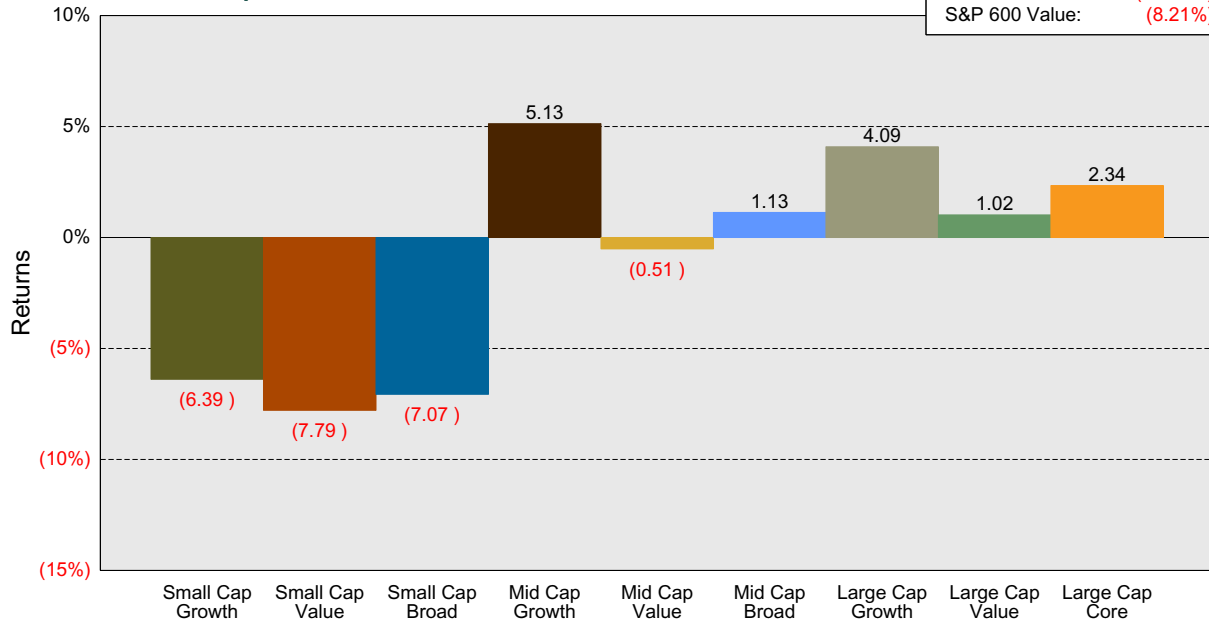
S&P 500:	1.70%
S&P 500 Growth:	0.72%
S&P 500 Value:	2.83%
S&P Mid Cap:	(0.09%)
S&P 600:	(0.20%)
S&P 600 Growth:	(1.86%)
S&P 600 Value:	1.45%

Separate Account Style Group Median Returns for Quarter Ended September 30, 2019



S&P 500:	4.25%
S&P 500 Growth:	3.25%
S&P 500 Value:	5.56%
S&P Mid Cap:	(2.49%)
S&P 600:	(9.34%)
S&P 600 Growth:	(10.40%)
S&P 600 Value:	(8.21%)

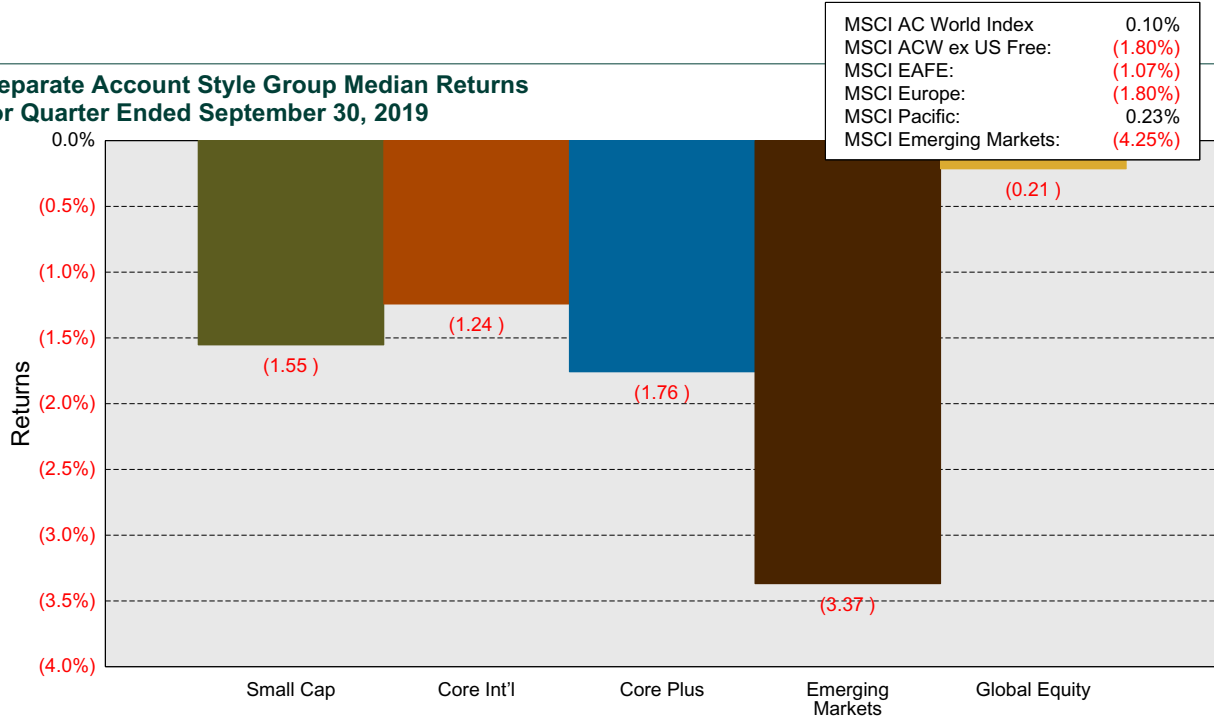
Separate Account Style Group Median Returns for One Year Ended September 30, 2019



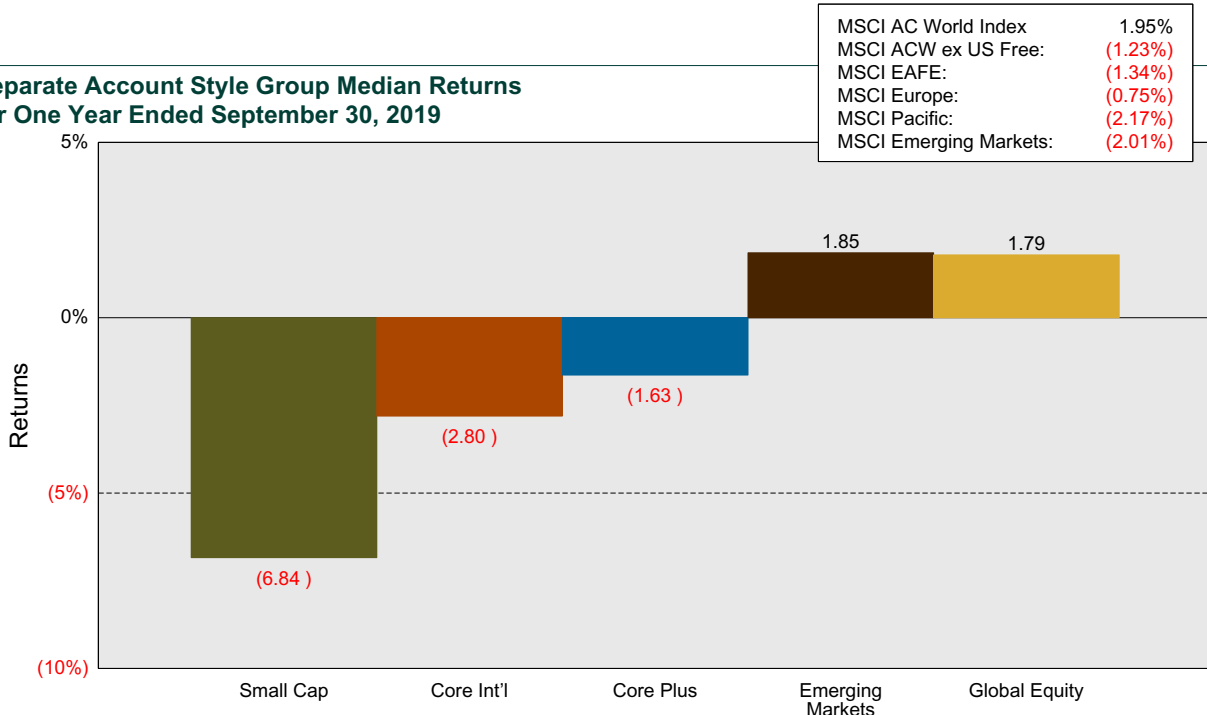
International Equity Active Management Overview

International markets lagged the U.S. on the back of broad-based strength in the U.S. dollar. The MSCI ACWI ex USA Index fell 1.8%, with emerging markets (MSCI EM: -4.2%) underperforming developed (MSCI EAFE: -1.1%). The U.K. sank 2.5% due solely to performance of its currency, which lost just over 3% versus the U.S. dollar on Brexit-related woes. Japan (+3.1%) was one of the few countries to post a positive return, and the yen was also essentially flat vs the U.S. dollar. Brazil, India, and China were off roughly 5%, and Russia posted a more modest 1.4% loss. Political uncertainty in Argentina caused its market to lose half its value in August (-47%); that said, Argentina just entered the EM Index in May 2019 and accounts for a very small slice (less than 1%). Value underperformed growth in both developed and emerging markets and remains far behind on a YTD basis. From a sector standpoint, Technology (MSCI ACWI ex USA Technology: +2.2%) was up the most while Materials (-6.5%) and Energy (-4.6%) performed the worst.

Separate Account Style Group Median Returns for Quarter Ended September 30, 2019



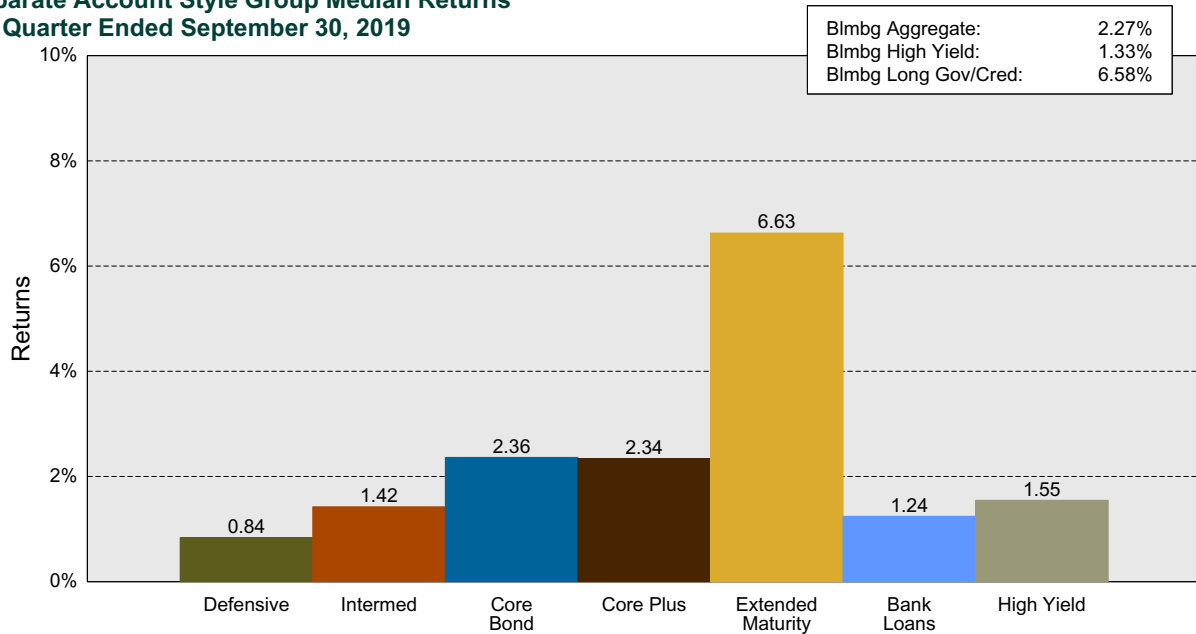
Separate Account Style Group Median Returns for One Year Ended September 30, 2019



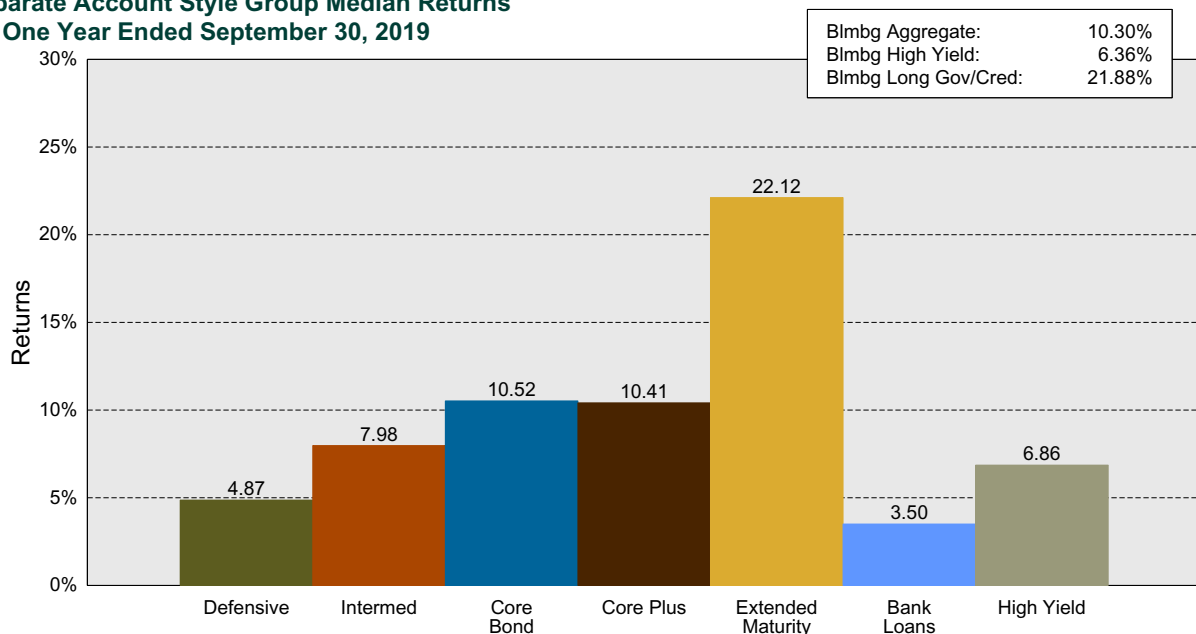
Domestic Fixed Income Active Management Overview

Ten-year U.S. Treasury yields were volatile in the third quarter, especially in September, hitting a 2019 low of 1.40% on Sept. 4, soaring to 1.90% mid-month and closing the quarter at 1.68%, down 32 bps from June 30. U.S. Treasuries thus posted strong results (Bloomberg Barclays US Treasury Index: +2.4%). Long U.S. Treasuries soared (Bloomberg Barclays Long US Treasury Index: +7.9%; +19.8% YTD) in the falling rate environment. The Bloomberg Barclays Aggregate rose 2.3%, bringing its YTD result to an impressive +8.5%. High yield was up just over 1% (+11.4% YTD) but, notably, lower quality significantly underperformed (CCC: -1.8% vs BB: +2.0%, and +5.6% vs +12.8% YTD) representing some concern about deteriorating quality at the lower end of the spectrum. TIPS (Bloomberg Barclays TIPS: +1.3%) underperformed as inflation expectations waned; 10-year breakeven spreads were 1.53% as of quarter-end, down from 1.69% as of 6/30/19. The 10-year real yield dipped briefly into negative territory in early September.

Separate Account Style Group Median Returns for Quarter Ended September 30, 2019



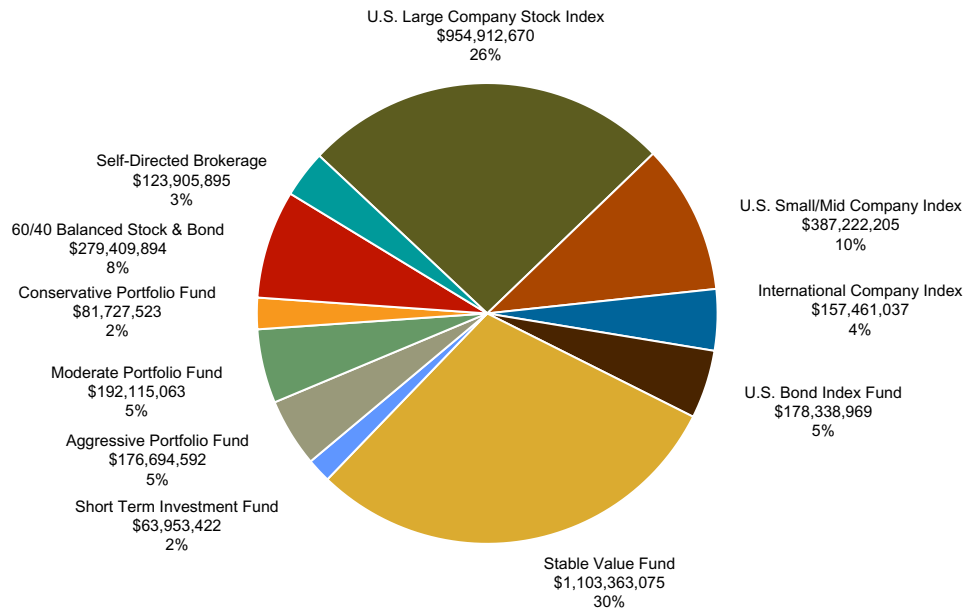
Separate Account Style Group Median Returns for One Year Ended September 30, 2019



Changes in Investment Fund Balances Period Ended September 30, 2019

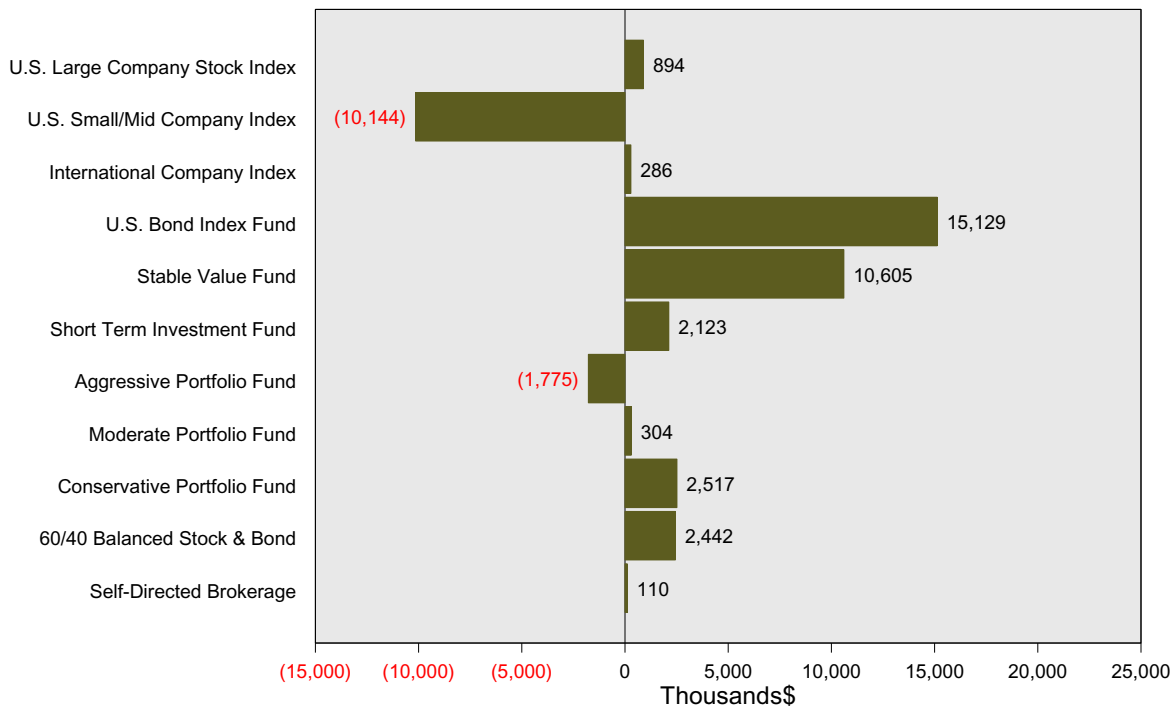
Allocation Across Investment Options

The chart below illustrates the allocation of the aggregate fund assets across the various investment options for the quarter ended September 30, 2019.



Changes in Fund Values

The chart below shows the net change in fund values across the various investment options for the quarter ended September 30, 2019. 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.

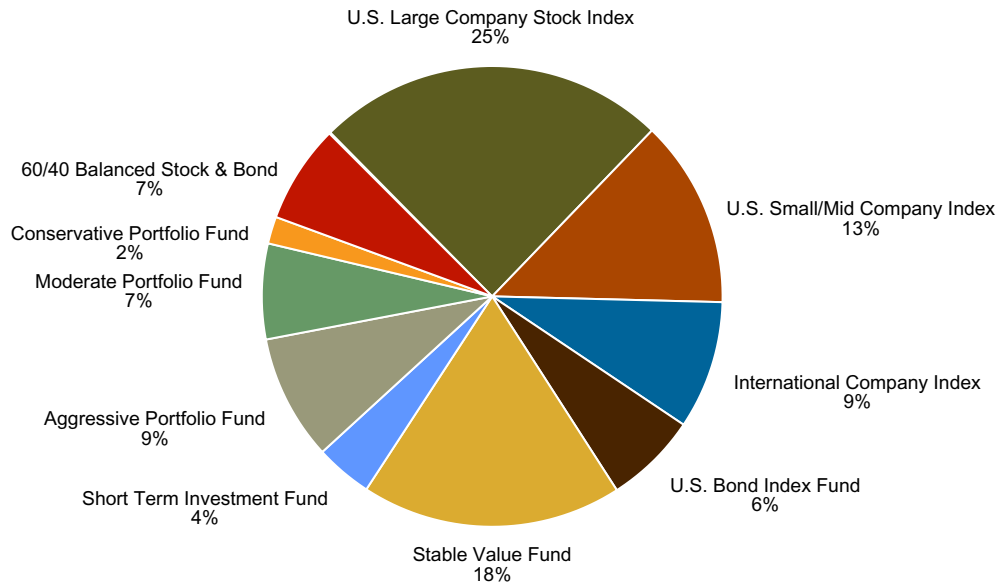


Pennsylvania SERS Summary of Contributions

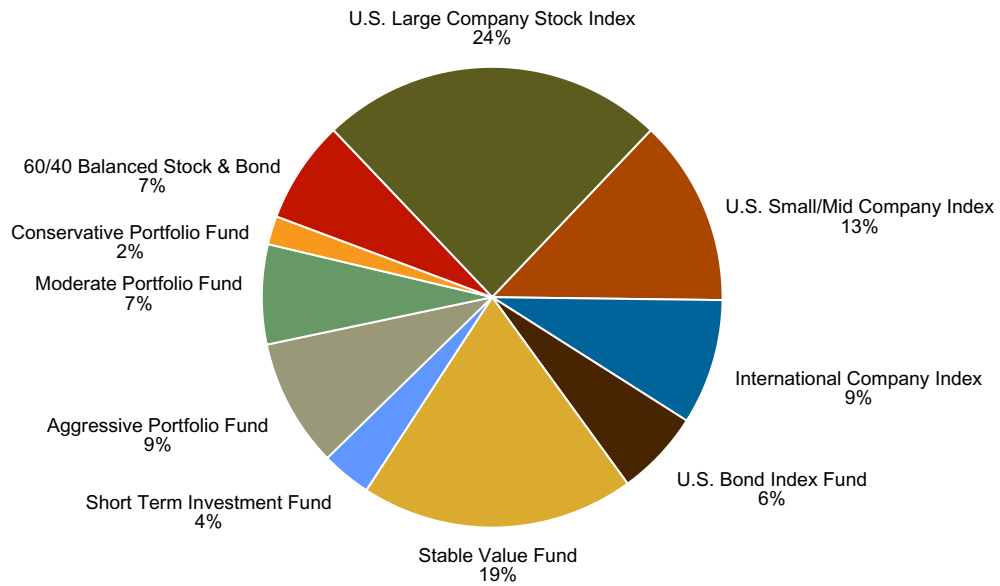
Contributions

The charts below illustrates the contributions for the fund for the current quarter and for the last year.

Contributions ended September 30, 2019

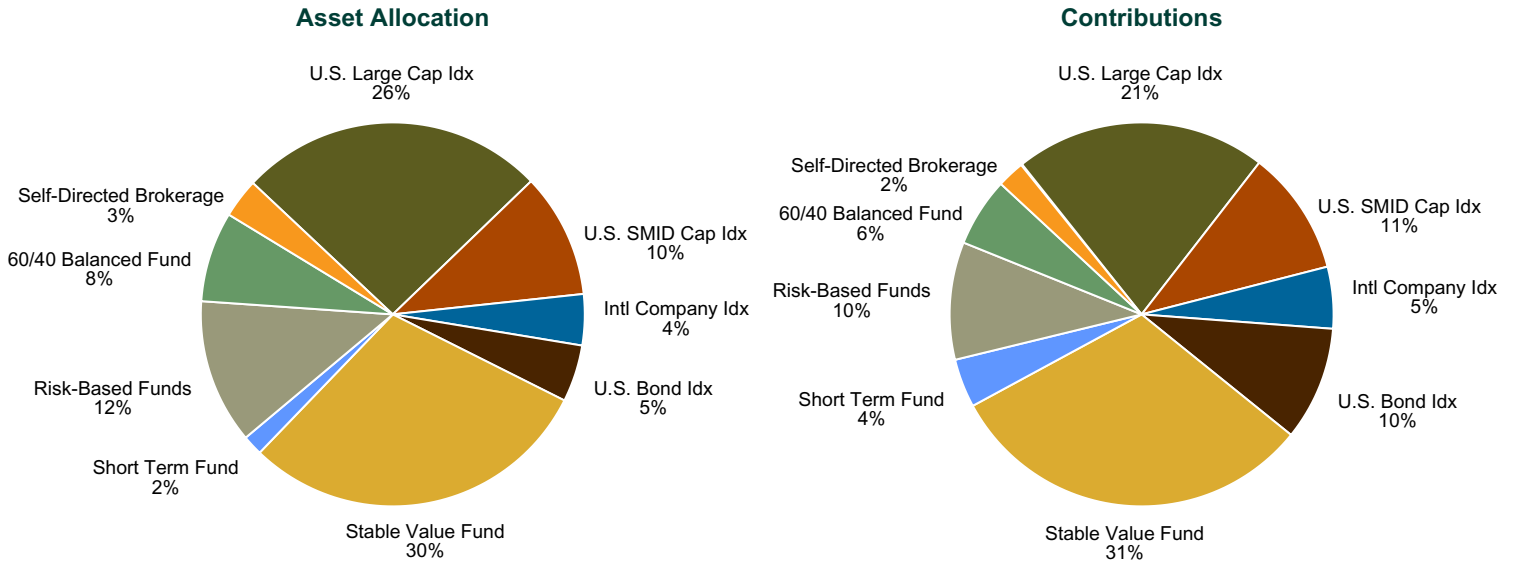


Contributions for One Year ended September 30, 2019

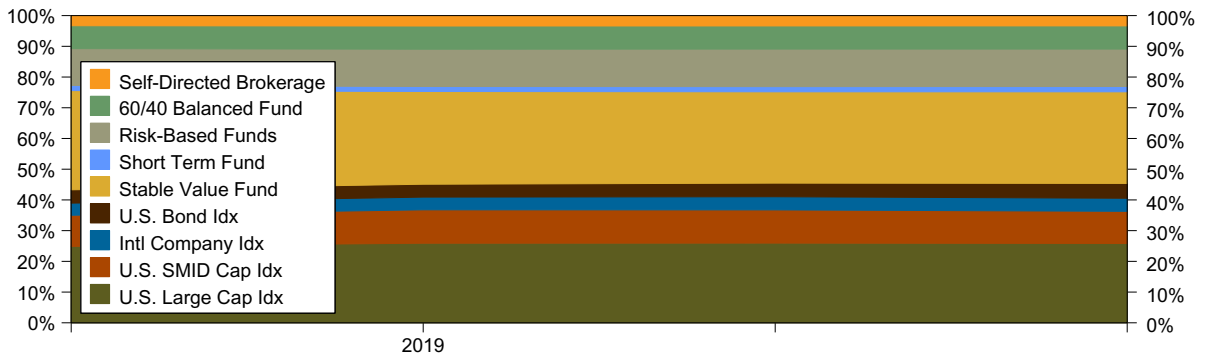


Asset Allocation

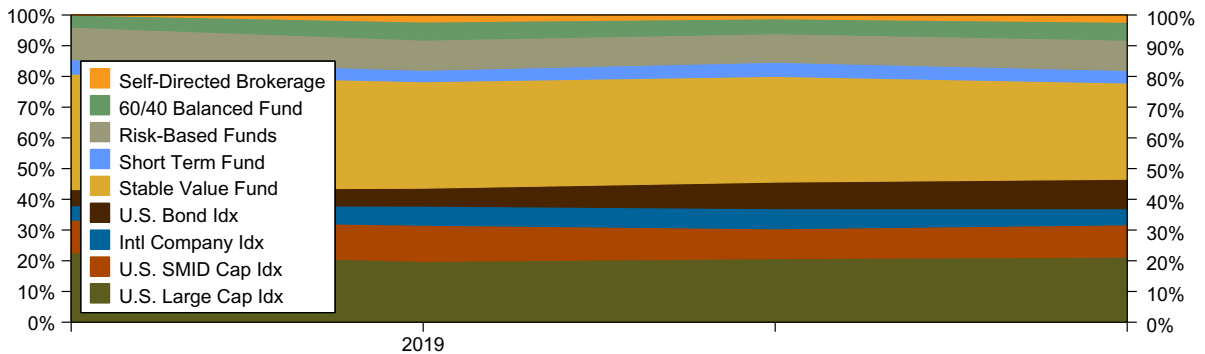
The charts below illustrate the historical asset allocation of the fund as well as the historical allocations of contributions to the fund. The pie charts on the top show the most recent allocations of both assets and contributions which include exchanges and transfers within the plan. The middle chart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



Historical Asset Allocation



Historical Allocation of Contributions



Investment Fund Balances

The table below compares the fund's investment fund balances as of September 30, 2019 with that of June 30, 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

	September 30, 2019		Net New Inv. \$(000)	Inv. Return \$(000)	June 30, 2019	
	Market Value \$(000)	% of Total Weight			Market Value \$(000)	% of Total Weight
SERS Risk-Based Funds	\$729,947	19.73%	\$(6,501)	\$9,989	\$726,459	19.76%
SERS 60/40 Stock & Bond Fund	279,410	7.55%	(2,780)	5,222	276,968	7.53%
SERS Conservative Portfolio Fund	81,728	2.21%	1,438	1,079	79,210	2.15%
SERS Moderate Portfolio Fund	192,115	5.19%	(1,916)	2,220	191,811	5.22%
SERS Aggressive Portfolio Fund	176,695	4.78%	(3,243)	1,467	178,470	4.85%
SERS U.S. Equity	\$1,342,135	36.28%	\$(18,741)	\$9,491	\$1,351,385	36.76%
SERS U.S. Large Company Index	954,913	25.81%	(14,806)	15,700	954,019	25.95%
SERS U.S. SMID Company Index	387,222	10.47%	(3,935)	(6,209)	397,366	10.81%
SERS International Equity						
SERS Intl Company Idx Fund	157,461	4.26%	2,003	(1,717)	157,175	4.27%
SERS Fixed Income	\$1,345,655	36.38%	\$17,030	\$10,827	\$1,317,799	35.84%
SERS Short Term Investment Fund	63,953	1.73%	1,782	340	61,831	1.68%
SERS Stable Value Fund	1,103,363	29.83%	3,796	6,810	1,092,758	29.72%
SERS U.S. Bond Index Fund	178,339	4.82%	11,452	3,676	163,210	4.44%
Self-Directed Brokerage						
Self-Directed Brokerage Account	123,906	3.35%	1,132	(1,022)	123,796	3.37%
SERS 457(b) Total Fund	\$3,699,104	100.0%	\$(5,077)	\$27,567	\$3,676,613	100.0%

Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods ended September 30, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns for Periods Ended September 30, 2019

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 7 Years
Net Performance					
Risk-Based Funds					
SERS 60/40 Stock & Bond Fund	1.92%	7.16%	9.35%	7.99%	9.08%
60% S&P 500/ 40% Aggregate Bond	1.93%	7.09%	9.33%	7.97%	9.10%
Callan Dom Balanced MFs	1.41%	4.34%	8.27%	6.70%	8.45%
SERS Conservative Portfolio Fund	1.38%	6.49%	5.27%	4.61%	4.95%
Conservative Portfolio Custom Index(3)	1.37%	6.38%	5.19%	4.53%	4.90%
Callan MA Tgt All Cons MF	1.15%	5.40%	4.64%	3.92%	4.57%
SERS Moderate Portfolio Fund	1.22%	5.64%	8.10%	6.75%	7.98%
Moderate Portfolio Custom Index(2)	1.21%	5.48%	8.01%	6.65%	7.93%
Callan MA Tgt All Mod MF	0.96%	4.34%	6.58%	5.31%	6.70%
SERS Aggressive Portfolio Fund	0.88%	3.80%	9.72%	7.78%	9.70%
Aggressive Portfolio Custom Index(1)	0.86%	3.61%	9.61%	7.65%	9.61%
Callan MA Tgt All AgGr MF	0.06%	0.31%	8.99%	6.69%	9.13%

(1) Consists of: 48% S&P 500, 20% MSCI EAFE, 20% Bloomberg Agg., and 12% Dow Jones U.S. Market Completion Index

(2) Consists of: 40% Bloomberg Agg., 36% S&P 500, 15% MSCI EAFE, and 9% Dow Jones U.S. Market Completion Index

(3) Consists of: 50% Bloomberg Agg., 20% 3 Month T-Bill, 17% S&P 500, 8% MSCI EAFE, and 5% Dow Jones U.S. Mkt Completion

Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods ended September 30, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns for Periods Ended September 30, 2019

	Last 10 Years	Last 15 Years	Last 20 Years
Net Performance			
Risk-Based Funds			
SERS 60/40 Stock & Bond Fund	9.65%	-	-
60% S&P 500/ 40% Aggregate Bond	9.62%	7.39%	6.20%
Callan Dom Balanced MFs	8.75%	6.70%	5.50%
SERS Conservative Portfolio Fund	5.48%	5.16%	-
Conservative Portfolio Custom Index(3)	5.42%	5.11%	5.04%
Callan MA Tgt All Cons MF	5.69%	4.89%	5.01%
SERS Moderate Portfolio Fund	8.45%	7.02%	-
Moderate Portfolio Custom Index(2)	8.35%	6.96%	6.06%
Callan MA Tgt All Mod MF	7.44%	6.17%	5.64%
SERS Aggressive Portfolio Fund	9.87%	7.76%	-
Aggressive Portfolio Custom Index(1)	9.74%	7.65%	6.13%
Callan MA Tgt All AgGr MF	9.27%	6.95%	6.03%

(1) Consists of: 48% S&P 500, 20% MSCI EAFE, 20% Bloomberg Agg., and 12% Dow Jones U.S. Market Completion Index

(2) Consists of: 40% Bloomberg Agg., 36% S&P 500, 15% MSCI EAFE, and 9% Dow Jones U.S. Market Completion Index

(3) Consists of: 50% Bloomberg Agg., 20% 3 Month T-Bill, 17% S&P 500, 8% MSCI EAFE, and 5% Dow Jones U.S. Mkt Completion

(4) Funds not listed do not have longer term history.

Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods ended September 30, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns for Periods Ended September 30, 2019

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 7 Years
Net Performance					
Domestic Equity					
SERS U.S. Large Company Idx Fund	1.70%	4.26%	13.39%	10.85%	13.26%
S&P 500 Index	1.70%	4.25%	13.39%	10.84%	13.26%
Callan Lg Cap Broad MF	0.76%	2.27%	12.67%	9.74%	12.54%
SERSU.S. SMID Company Idx Fund	(1.53%)	(3.62%)	10.07%	8.57%	11.72%
Dow Jones US Completion	(1.64%)	(3.95%)	9.84%	8.36%	11.50%
Callan SMID Broad MFs	(1.77%)	(4.42%)	10.81%	8.51%	10.97%
International Equity					
SERS International Company Idx Fund	(1.03%)	(0.83%)	6.77%	3.68%	6.44%
MSCI EAFE	(1.07%)	(1.34%)	6.48%	3.27%	6.12%
Callan Intl Eq Dev Mkt MF	(1.33%)	(2.48%)	5.99%	3.08%	6.02%
Domestic Fixed Income					
SERS Short Term Investment Fund	0.59%	2.43%	1.73%	1.16%	0.88%
3-month Treasury Bill	0.56%	2.39%	1.54%	0.98%	0.72%
Callan Cash Database(1)	0.64%	2.79%	1.89%	1.41%	1.16%
SERS Stable Value Fund	0.60%	2.37%	2.14%	2.14%	2.23%
3-month Treasury Bill	0.56%	2.39%	1.54%	0.98%	0.72%
Callan Stable Value	0.64%	2.50%	2.21%	2.11%	1.98%
SERS U.S. Bond Index Fund	2.25%	10.28%	2.89%	3.33%	2.65%
Blmbg Aggregate	2.27%	10.30%	2.92%	3.38%	2.72%
Callan Core Bond MFs	2.25%	10.14%	3.12%	3.36%	2.73%

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

Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods ended September 30, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns for Periods Ended September 30, 2019

	Last 10 Years	Last 15 Years	Last 20 Years
Net Performance			
Domestic Equity			
SERS U.S. Large Company Idx Fund	13.26%	9.05%	6.38%
S&P 500 Index	13.24%	9.01%	6.33%
Callan Lg Cap Broad MF	12.43%	8.83%	6.37%
SERS U.S. SMID Company Idx Fund	12.51%	9.65%	8.39%
Dow Jones US Completion	12.31%	9.45%	8.06%
Callan SMID Broad MFs	12.13%	9.31%	8.88%
International Equity			
SERS International Company Idx Fund	5.22%	5.58%	3.66%
MSCI EAFE	4.90%	5.29%	3.72%
Callan Intl Eq Dev Mkt MF	4.94%	5.47%	4.37%
Domestic Fixed Income			
SERS Short Term Investment Fund	0.69%	1.56%	-
3-month Treasury Bill	0.54%	1.39%	1.82%
Callan Cash Database(1)	1.02%	1.87%	2.36%
SERS Stable Value Fund	2.63%	3.31%	-
3-month Treasury Bill	0.54%	1.39%	1.82%
Callan Stable Value	2.24%	2.92%	3.67%
SERS U.S. Bond Index Fund	3.68%	4.15%	4.96%
Blmbg Aggregate	3.75%	4.21%	5.01%
Callan Core Bond MFs	4.01%	4.46%	5.07%

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

(2) Funds not listed do not have longer term history.

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.

	12/2018- 9/2019	2018	2017	2016	2015
Net Performance					
Risk-Based Funds					
SERS 60/40 Stock & Bond Fund	15.76%	(2.19%)	14.25%	8.16%	1.20%
60% S&P 500/ 40% Aggregate Bond	15.72%	(2.26%)	14.26%	8.21%	1.20%
Callan Dom Balanced MFs	14.85%	(4.56%)	14.32%	7.30%	(0.54%)
SERS Conservative Portfolio Fund	10.08%	(1.58%)	8.37%	4.35%	0.48%
Conservative Portfolio Custom Index(3)	10.00%	(1.72%)	8.31%	4.28%	0.44%
Callan MA Tgt All Cons MF	10.04%	(3.34%)	8.82%	5.48%	(1.12%)
SERS Moderate Portfolio Fund	14.47%	(4.07%)	14.46%	7.00%	0.55%
Moderate Portfolio Custom Index(2)	14.32%	(4.21%)	14.40%	6.92%	0.47%
Callan MA Tgt All Mod MF	12.74%	(5.06%)	13.20%	6.59%	(1.38%)
SERS Aggressive Portfolio Fund	16.42%	(5.66%)	18.29%	8.49%	0.45%
Aggressive Portfolio Custom Index(1)	16.24%	(5.82%)	18.19%	8.33%	0.34%
Callan MA Tgt All AgGr MF	15.67%	(8.91%)	20.65%	7.67%	(1.42%)

(1) Consists of: 48% S&P 500, 20% MSCI EAFE, 20% Bloomberg Agg., and 12% Dow Jones U.S. Market Completion Index

(2) Consists of: 40% Bloomberg Agg., 36% S&P 500, 15% MSCI EAFE, and 9% Dow Jones U.S. Market Completion Index

(3) Consists of: 50% Bloomberg Agg., 20% 3 Month T-Bill, 17% S&P 500, 8% MSCI EAFE, and 5% Dow Jones U.S. Mkt Completion

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.

	12/2018- 9/2019	2018	2017	2016	2015
Net Performance					
Domestic Equity					
SERS U.S. Large Company Idx Fund	20.55%	(4.39%)	21.84%	11.98%	1.40%
S&P 500 Index	20.55%	(4.38%)	21.83%	11.96%	1.38%
Callan Lg Cap Broad MF	19.76%	(4.54%)	23.56%	8.43%	1.50%
SERSU.S. SMID Company Idx Fund	17.77%	(9.34%)	18.19%	16.05%	(3.32%)
Dow Jones US Completion	17.54%	(9.57%)	18.12%	15.75%	(3.42%)
Callan SMID Broad MFs	18.99%	(8.69%)	17.14%	13.80%	(2.80%)
International Equity					
SERS International Company Idx Fund	13.38%	(13.39%)	25.53%	1.71%	(0.43%)
MSCI EAFE	12.80%	(13.79%)	25.03%	1.00%	(0.81%)
Callan Intl Eq Dev Mkt MF	12.29%	(15.06%)	26.64%	0.39%	(0.73%)
Domestic Fixed Income					
SERS Short Term Investment Fund	1.82%	2.09%	1.08%	0.59%	0.19%
3-month Treasury Bill	1.81%	1.87%	0.86%	0.33%	0.05%
Callan Cash Database(1)	2.19%	2.00%	1.19%	0.95%	0.40%
SERS Stable Value Fund	1.73%	2.34%	1.85%	1.99%	2.18%
3-month Treasury Bill	1.81%	1.87%	0.86%	0.33%	0.05%
Callan Stable Value	1.88%	2.24%	1.97%	1.89%	1.77%
SERS U.S. Bond Index Fund	8.49%	0.01%	3.51%	2.57%	0.47%
Bimbg Aggregate	8.52%	0.01%	3.54%	2.65%	0.55%
Callan Core Bond MFs	8.80%	(0.35%)	3.71%	3.03%	0.10%

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

Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods ended September 30, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns for Periods Ended September 30, 2019

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 7 Years
Gross Performance					
Risk-Based Funds					
SERS 60/40 Stock & Bond Fund	1.92%	7.18%	9.37%	8.00%	9.10%
60% S&P 500/ 40% Aggregate Bond	1.93%	7.09%	9.33%	7.97%	9.10%
Callan Dom Balanced MFs	1.41%	4.34%	8.27%	6.70%	8.45%
SERS Conservative Portfolio Fund	1.38%	6.51%	5.29%	4.63%	4.96%
Conservative Portfolio Custom Index(3)	1.37%	6.38%	5.19%	4.53%	4.90%
Callan MA Tgt All Cons MF	1.15%	5.40%	4.64%	3.92%	4.57%
SERS Moderate Portfolio Fund	1.22%	5.66%	8.11%	6.76%	8.00%
Moderate Portfolio Custom Index(2)	1.21%	5.48%	8.01%	6.65%	7.93%
Callan MA Tgt All Mod MF	0.96%	4.34%	6.58%	5.31%	6.70%
SERS Aggressive Portfolio Fund	0.88%	3.81%	9.73%	7.80%	9.71%
Aggressive Portfolio Custom Index(1)	0.86%	3.61%	9.61%	7.65%	9.61%
Callan MA Tgt All AgGr MF	0.06%	0.31%	8.99%	6.69%	9.13%

(1) Consists of: 48% S&P 500, 20% MSCI EAFE, 20% Bloomberg Agg., and 12% Dow Jones U.S. Market Completion Index

(2) Consists of: 40% Bloomberg Agg., 36% S&P 500, 15% MSCI EAFE, and 9% Dow Jones U.S. Market Completion Index

(3) Consists of: 50% Bloomberg Agg., 20% 3 Month T-Bill, 17% S&P 500, 8% MSCI EAFE, and 5% Dow Jones U.S. Mkt Completion

Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods ended September 30, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns for Periods Ended September 30, 2019

	Last 10 Years	Last 15 Years	Last 20 Years
Gross Performance			
Risk-Based Funds			
SERS 60/40 Stock & Bond Fund	9.66%	-	-
60% S&P 500/ 40% Aggregate Bond	9.62%	7.39%	6.20%
Callan Dom Balanced MFs	8.75%	6.70%	5.50%
SERS Conservative Portfolio Fund	5.49%	5.18%	-
Conservative Portfolio Custom Index(3)	5.42%	5.11%	5.04%
Callan MA Tgt All Cons MF	5.69%	4.89%	5.01%
SERS Moderate Portfolio Fund	8.46%	7.04%	-
Moderate Portfolio Custom Index(2)	8.35%	6.96%	6.06%
Callan MA Tgt All Mod MF	7.44%	6.17%	5.64%
SERS Aggressive Portfolio Fund	9.89%	7.77%	-
Aggressive Portfolio Custom Index(1)	9.74%	7.65%	6.13%
Callan MA Tgt All AgGr MF	9.27%	6.95%	6.03%

(1) Consists of: 48% S&P 500, 20% MSCI EAFE, 20% Bloomberg Agg., and 12% Dow Jones U.S. Market Completion Index

(2) Consists of: 40% Bloomberg Agg., 36% S&P 500, 15% MSCI EAFE, and 9% Dow Jones U.S. Market Completion Index

(3) Consists of: 50% Bloomberg Agg., 20% 3 Month T-Bill, 17% S&P 500, 8% MSCI EAFE, and 5% Dow Jones U.S. Mkt Completion

(4) Funds not listed do not have longer term history.

Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods ended September 30, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns for Periods Ended September 30, 2019

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 7 Years
Gross Performance					
Domestic Equity					
SERS U.S. Large Company Idx Fund	1.70%	4.27%	13.41%	10.86%	13.27%
S&P 500 Index	1.70%	4.25%	13.39%	10.84%	13.26%
Callan Lg Cap Broad MF	0.76%	2.27%	12.67%	9.74%	12.54%
SERS U.S. SMID Company Idx Fund	(1.52%)	(3.60%)	10.09%	8.59%	11.74%
Dow Jones US Completion	(1.64%)	(3.95%)	9.84%	8.36%	11.50%
Callan SMID Broad MFs	(1.77%)	(4.42%)	10.81%	8.51%	10.97%
International Equity					
International Company Stock Idx Fund	(1.03%)	(0.81%)	6.79%	3.70%	6.46%
MSCI EAFE	(1.07%)	(1.34%)	6.48%	3.27%	6.12%
Callan Intl Eq Dev Mkt MF	(1.33%)	(2.48%)	5.99%	3.08%	6.02%
Domestic Fixed Income					
SERS Short Term Investment Fund	0.59%	2.43%	1.73%	1.16%	0.88%
3-month Treasury Bill	0.56%	2.39%	1.54%	0.98%	0.72%
Callan Cash Database(1)	0.64%	2.79%	1.89%	1.41%	1.16%
SERS Stable Value Fund	0.68%	2.62%	2.37%	2.41%	2.52%
3-month Treasury Bill	0.56%	2.39%	1.54%	0.98%	0.72%
Callan Stable Value	0.64%	2.50%	2.21%	2.11%	1.98%
SERS U.S. Bond Index Fund	2.25%	10.29%	2.91%	3.35%	2.67%
Blmbg Aggregate	2.27%	10.30%	2.92%	3.38%	2.72%
Callan Core Bond MFs	2.25%	10.14%	3.12%	3.36%	2.73%

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

Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods ended September 30, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns for Periods Ended September 30, 2019

	Last 10 Years	Last 15 Years	Last 20 Years
Gross Performance			
Domestic Equity			
SERS U.S. Large Company Idx Fund	13.27%	9.06%	6.39%
S&P 500 Index	13.24%	9.01%	6.33%
Callan Lg Cap Broad MF	12.43%	8.83%	6.37%
SERS U.S. SMID Company Idx Fund	12.53%	9.67%	8.41%
Dow Jones US Completion	12.31%	9.45%	8.06%
Callan SMID Broad MFs	12.13%	9.31%	8.88%
International Equity			
International Company Stock Idx Fund	5.24%	5.60%	3.68%
MSCI EAFE	4.90%	5.29%	3.72%
Callan Intl Eq Dev Mkt MF	4.94%	5.47%	4.37%
Domestic Fixed Income			
SERS Short Term Investment Fund	0.69%	1.56%	-
3-month Treasury Bill	0.54%	1.39%	1.82%
Callan Cash Database(1)	1.02%	1.87%	2.36%
SERS Stable Value Fund	2.93%	3.59%	-
3-month Treasury Bill	0.54%	1.39%	1.82%
Callan Stable Value	2.24%	2.92%	3.67%
SERS U.S. Bond Index Fund	3.70%	4.17%	4.98%
Blmbg Aggregate	3.75%	4.21%	5.01%
Callan Core Bond MFs	4.01%	4.46%	5.07%

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

(2) Funds not listed do not have longer term history.

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.

	12/2018- 9/2019	2018	2017	2016	2015
Gross Performance					
Risk-Based Funds					
SERS 60/40 Stock & Bond Fund	15.77%	(2.18%)	14.27%	8.18%	1.21%
60% S&P 500/ 40% Aggregate Bond	15.72%	(2.26%)	14.26%	8.21%	1.20%
Callan Dom Balanced MFs	14.85%	(4.56%)	14.32%	7.30%	(0.54%)
SERS Conservative Portfolio Fund	10.09%	(1.57%)	8.39%	4.36%	0.50%
Conservative Portfolio Custom Index(3)	10.00%	(1.72%)	8.31%	4.28%	0.44%
Callan MA Tgt All Cons MF	10.04%	(3.34%)	8.82%	5.48%	(1.12%)
SERS Moderate Portfolio Fund	14.48%	(4.06%)	14.48%	7.02%	0.56%
Moderate Portfolio Custom Index(2)	14.32%	(4.21%)	14.40%	6.92%	0.47%
Callan MA Tgt All Mod MF	12.74%	(5.06%)	13.20%	6.59%	(1.38%)
SERS Aggressive Portfolio Fund	16.43%	(5.65%)	18.31%	8.51%	0.46%
Aggressive Portfolio Custom Index(1)	16.24%	(5.82%)	18.19%	8.33%	0.34%
Callan MA Tgt All AgGr MF	15.67%	(8.91%)	20.65%	7.67%	(1.42%)

(1) Consists of: 48% S&P 500, 20% MSCI EAFE, 20% Bloomberg Agg., and 12% Dow Jones U.S. Market Completion Index

(2) Consists of: 40% Bloomberg Agg., 36% S&P 500, 15% MSCI EAFE, and 9% Dow Jones U.S. Market Completion Index

(3) Consists of: 50% Bloomberg Agg., 20% 3 Month T-Bill, 17% S&P 500, 8% MSCI EAFE, and 5% Dow Jones U.S. Mkt Completion

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.

	12/2018- 9/2019	2018	2017	2016	2015
Gross Performance					
Domestic Equity					
SERS U.S. Large Company Idx Fund	20.57%	(4.38%)	21.85%	11.99%	1.41%
S&P 500 Index	20.55%	(4.38%)	21.83%	11.96%	1.38%
Callan Lg Cap Broad MF	19.76%	(4.54%)	23.56%	8.43%	1.50%
SERS U.S. SMID Company Idx Fund	17.78%	(9.32%)	18.21%	16.08%	(3.30%)
Dow Jones US Completion	17.54%	(9.57%)	18.12%	15.75%	(3.42%)
Callan SMID Broad MFs	18.99%	(8.69%)	17.14%	13.80%	(2.80%)
International Equity					
International Company Stock Idx Fund	13.40%	(13.37%)	25.55%	1.73%	(0.41%)
MSCI EAFE	12.80%	(13.79%)	25.03%	1.00%	(0.81%)
Callan Intl Eq Dev Mkt MF	12.29%	(15.06%)	26.64%	0.39%	(0.73%)
Domestic Fixed Income					
SERS Short Term Investment Fund	1.82%	2.09%	1.08%	0.59%	0.19%
3-month Treasury Bill	1.81%	1.87%	0.86%	0.33%	0.05%
Callan Cash Database(1)	2.19%	2.00%	1.19%	0.95%	0.40%
SERS Stable Value Fund	1.97%	2.41%	2.16%	2.31%	2.51%
3-month Treasury Bill	1.81%	1.87%	0.86%	0.33%	0.05%
Callan Stable Value	1.88%	2.24%	1.97%	1.89%	1.77%
SERS U.S. Bond Index Fund	8.50%	0.03%	3.53%	2.59%	0.49%
Blmbg Aggregate	8.52%	0.01%	3.54%	2.65%	0.55%
Callan Core Bond MFs	8.80%	(0.35%)	3.71%	3.03%	0.10%

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

**Pennsylvania SERS
Investment Manager Performance Monitoring Summary Report
September 30, 2019**

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
Gross of Fee Performance									
Risk-Based Funds									
SERS 60/40 Stock & Bond Fund Callan Dom Balanced MFs	1.9 26	7.2 22	9.4 21	8.0 10	9.1 25	9.7 16			0.01 98
60% S&P 500/ 40% Aggregate Bond	1.9 26	7.1 23	9.3 22	8.0 10	9.1 25	9.6 17			
SERS Conservative Portfolio Fund Callan MA Tgt All Cons MF	1.4 26	6.5 27	5.3 28	4.6 22	5.0 38	5.5 59			0.01 100
Conservative Portfolio Custom Index	1.4 26	6.4 28	5.2 32	4.5 25	4.9 41	5.4 61			
SERS Moderate Portfolio Fund Callan MA Tgt All Mod MF	1.2 37	5.7 28	8.1 20	6.8 17	8.0 23	8.5 25			0.02 100
Moderate Portfolio Custom Index	1.2 38	5.5 31	8.0 21	6.7 19	7.9 25	8.3 28			
SERS Aggressive Portfolio Fund Callan MA Tgt All AgGr MF	0.9 16	3.8 9	9.7 29	7.8 15	9.7 32	9.9 24			0.02 100
Aggressive Portfolio Custom Index	0.9 17	3.6 10	9.6 33	7.7 16	9.6 34	9.7 29			
Domestic Equity									
SERS U.S. Large Company Index Callan Lg Cap Broad MF	1.7 24	4.3 29	13.4 43	10.9 38	13.3 36	13.3 35			0.01 99
S&P 500 Index	1.7 24	4.3 29	13.4 44	10.8 38	13.3 37	13.2 36			
SERS U.S. Small/Mid Company Index Callan SMID Broad MFs	-1.5 49	-3.6 44	10.1 55	8.6 50	11.7 36	12.5 41			0.02 100
Dow Jones US Completion	-1.6 49	-4.0 46	9.8 58	8.4 51	11.5 41	12.3 44			
International Equity									
SERS International Company Idx Fund Callan Intl Eq Dev Mkt MF	-1.0 36	-0.8 32	6.8 28	3.7 35	6.5 30	5.2 43			0.02 99
MSCI EAFE	-1.1 37	-1.3 37	6.5 34	3.3 43	6.1 46	4.9 57			
Domestic Fixed Income									
SERS Short Term Investment Fund Callan Cash Database	0.6 78	2.4 88	1.7 80	1.2 85	0.9 86	0.7 86			0.00 100
3-month Treasury Bill	0.6 91	2.4 94	1.5 94	1.0 97	0.7 97	0.5 97			
Comments: Callan Cash Database includes STIF, enhanced cash, and money market funds.									

Returns:
■ above median
■ third quartile
■ fourth quartile

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

Risk Quadrant:

Return
Risk

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

**Pennsylvania SERS
Investment Manager Performance Monitoring Summary Report
September 30, 2019**

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 Stable Value Fund Callan Stable Value	0.7 11	2.6 30	2.4 15	2.4 1	2.5 1	2.9 1			
3-month Treasury Bill	0.6 93	2.4 76	1.5 98	1.0 99	0.7 99	0.5 100			
SERS U.S. Bond Index Fund Callan Core Bond MFs	2.3 49	10.3 43	2.9 70	3.3 52	2.7 58	3.7 86			0.02 96
Blmbg Aggregate	2.3 44	10.3 43	2.9 70	3.4 47	2.7 51	3.7 83			

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

SERS 60/40 Stock & Bond Fund

Period Ended September 30, 2019

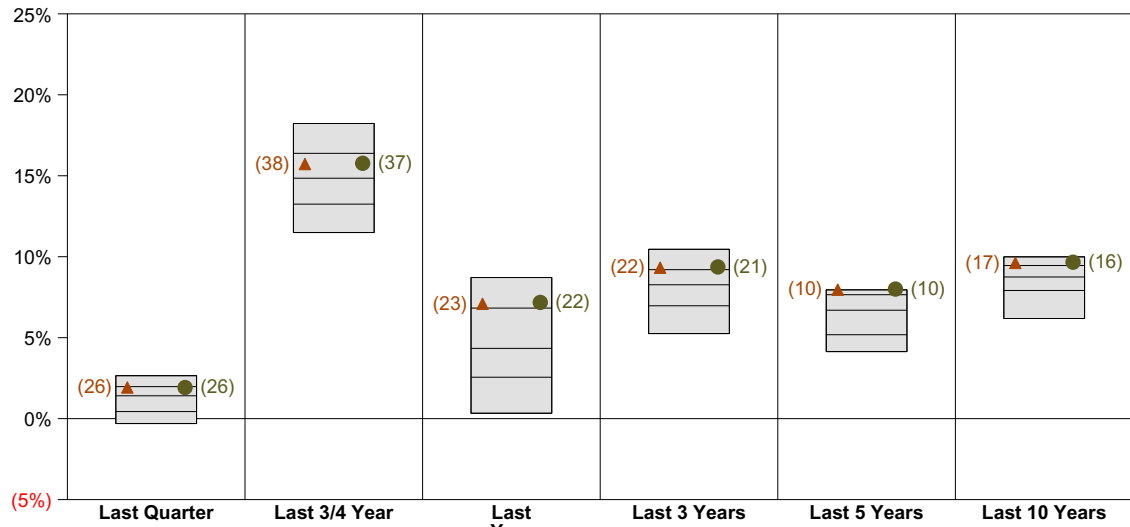
Investment Philosophy

The 60/40 Balanced Stock & Bond Fund seeks to provide current income and long-term capital growth by investing in a combination of stocks and bonds. The fund is comprised of two of the 457 plan's core index funds (60% U.S. Large Company Stock Index Fund and 40% U.S. Bond Index Fund). This fund is managed by Mellon Capital Management.

Quarterly Summary and Highlights

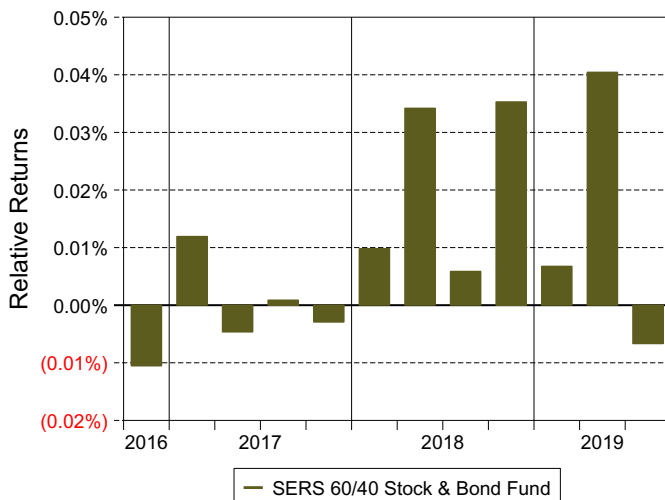
- SERS 60/40 Stock & Bond Fund's portfolio posted a 1.92% return for the quarter placing it in the 26 percentile of the Callan Domestic Balanced Mutual Funds group for the quarter and in the 22 percentile for the last year.
- SERS 60/40 Stock & Bond Fund's portfolio underperformed the 60% S&P 500/ 40% Aggregate Bond by 0.01% for the quarter and outperformed the 60% S&P 500/ 40% Aggregate Bond for the year by 0.08%.

Performance vs Callan Domestic Balanced Mutual Funds (Institutional Net)

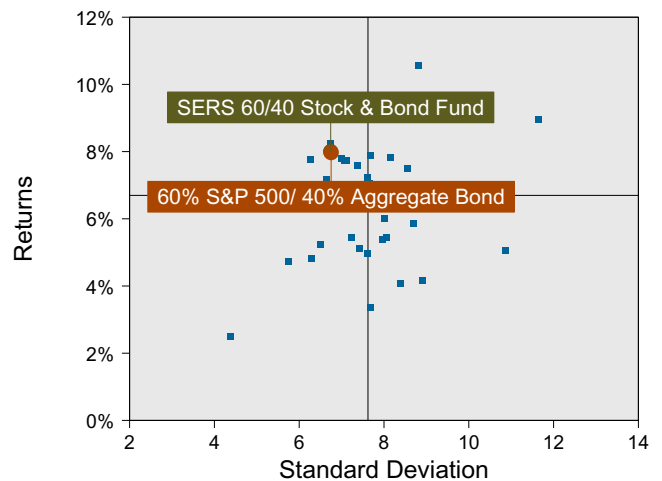


10th Percentile	2.65	18.23	8.72	10.46	7.95	9.99
25th Percentile	1.98	16.38	6.83	9.20	7.65	9.46
Median	1.41	14.85	4.34	8.27	6.70	8.75
75th Percentile	0.44	13.25	2.56	6.97	5.18	7.91
90th Percentile	(0.30)	11.49	0.33	5.25	4.14	6.18
SERS 60/40 Stock & Bond Fund	● 1.92	15.77	7.18	9.37	8.00	9.66
60% S&P 500/ 40% Aggregate Bond	▲ 1.93	15.72	7.09	9.33	7.97	9.62

Relative Returns vs 60% S&P 500/ 40% Aggregate Bond



Callan Domestic Balanced Mutual Funds (Institutional Net) Annualized Five Year Risk vs Return

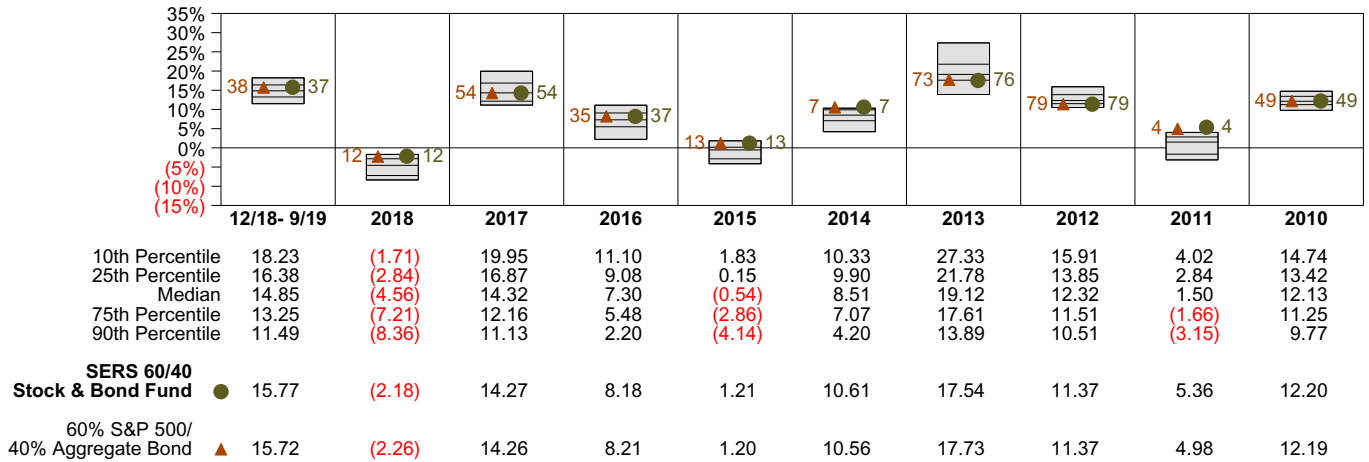


SERS 60/40 Stock & Bond Fund Return Analysis Summary

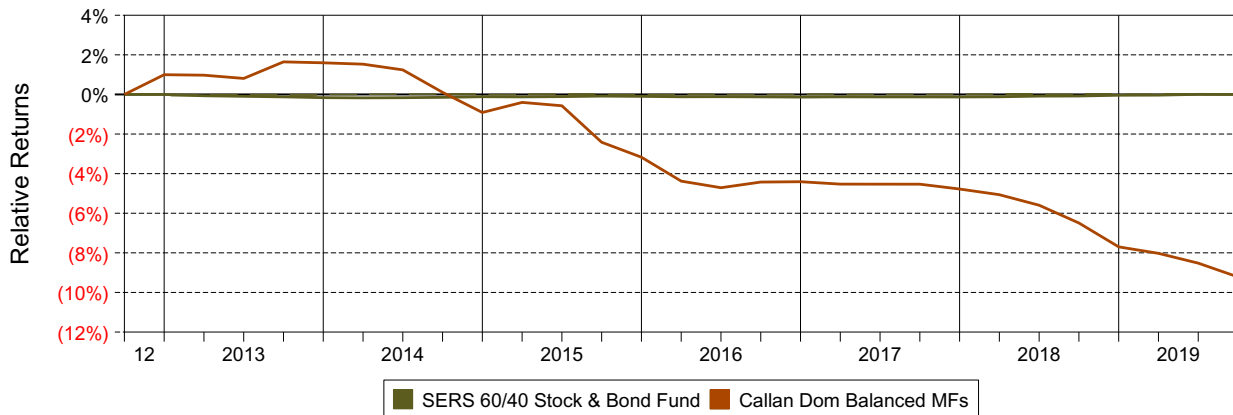
Return Analysis

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.

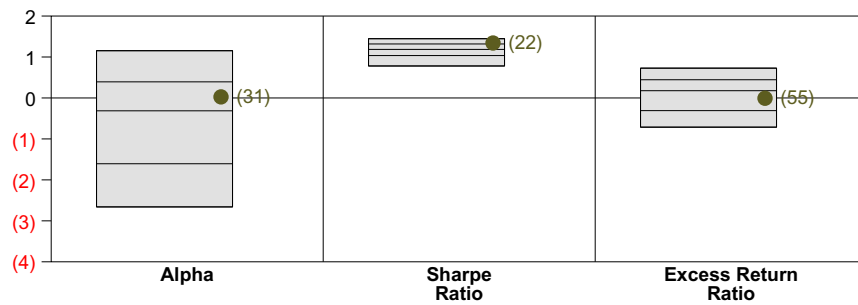
Performance vs Callan Domestic Balanced Mutual Funds (Institutional Net)



Cumulative and Quarterly Relative Return vs 60% S&P 500/ 40% Aggregate Bond



Risk Adjusted Return Measures vs 60% S&P 500/ 40% Aggregate Bond Rankings Against Callan Domestic Balanced Mutual Funds (Institutional Net) Seven Years Ended September 30, 2019



	Alpha	Sharpe Ratio	Excess Return Ratio
10th Percentile	1.15	1.45	0.73
25th Percentile	0.39	1.32	0.44
Median	(0.31)	1.19	0.18
75th Percentile	(1.61)	1.04	(0.31)
90th Percentile	(2.66)	0.78	(0.71)
SERS 60/40 Stock & Bond Fund	● 0.03	1.34	(0.01)

SERS Conservative Portfolio Fund

Period Ended September 30, 2019

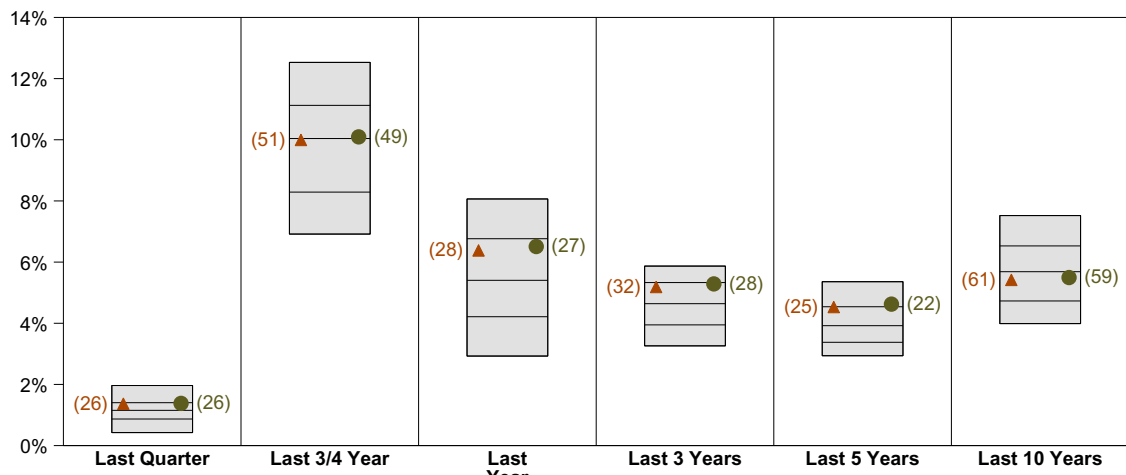
Investment Philosophy

The Commonwealth of Pennsylvania Conservative Portfolio Fund seeks a high total return on investment through long-term capital appreciation, and to a lesser extent, income. This fund is comprised of 5 of the plan's core funds (50% U.S. Bond Index Fund, 20% Short-Term Investment Fund, 17% U.S. Large Company Stock Index Fund, 8% International Company Stock Index Fund and 5% U.S. Small/Mid Company Stock Index Fund). This fund is managed by Mellon Capital Management.

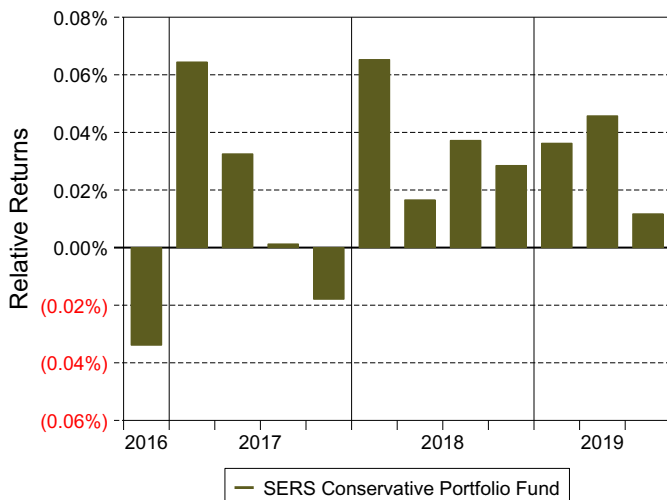
Quarterly Summary and Highlights

- SERS Conservative Portfolio Fund's portfolio posted a 1.38% return for the quarter placing it in the 26 percentile of the Callan Mixed-Asset Target Alloc Cons MFs group for the quarter and in the 27 percentile for the last year.
- SERS Conservative Portfolio Fund's portfolio outperformed the Conservative Portfolio Custom Index by 0.01% for the quarter and outperformed the Conservative Portfolio Custom Index for the year by 0.13%.

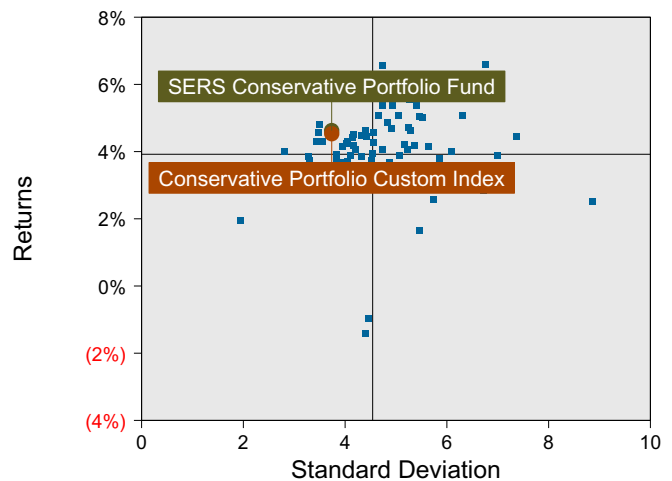
Performance vs Callan Mixed-Asset Target Alloc Cons MFs (Institutional Net)



Relative Returns vs Conservative Portfolio Custom Index



Callan Mixed-Asset Target Alloc Cons MFs (Institutional Net) Annualized Five Year Risk vs Return

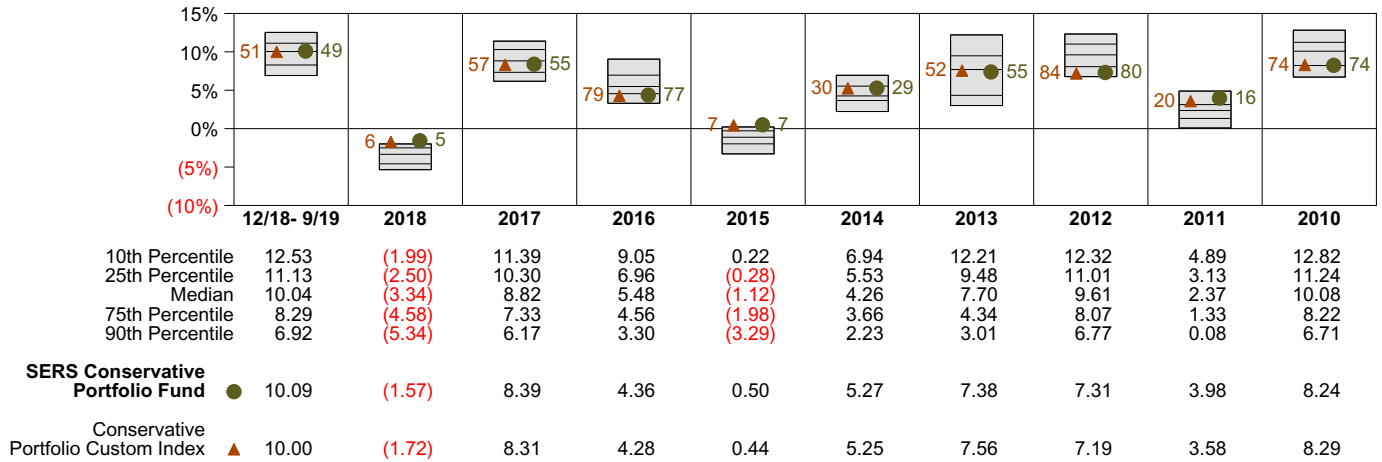


SERS Conservative Portfolio Fund Return Analysis Summary

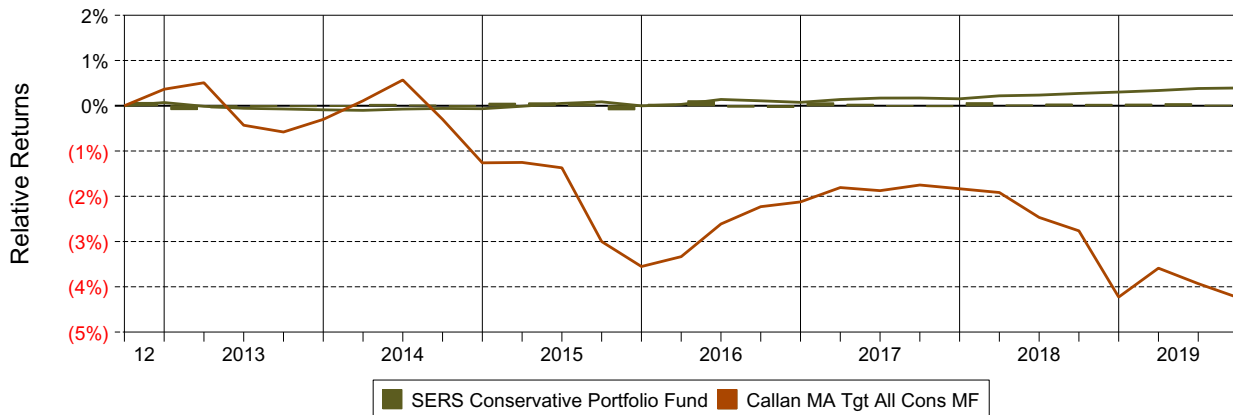
Return Analysis

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.

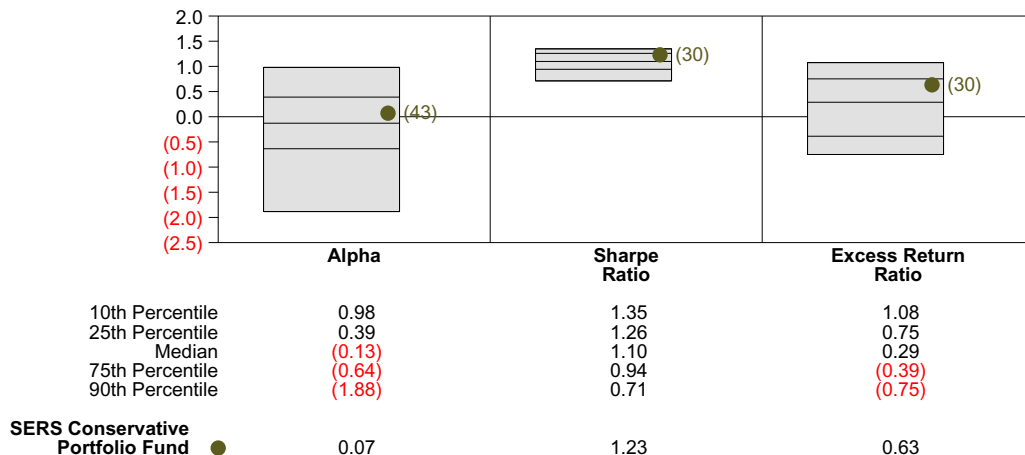
Performance vs Callan Mixed-Asset Target Alloc Cons MFs (Institutional Net)



Cumulative and Quarterly Relative Return vs Conservative Portfolio Custom Index



Risk Adjusted Return Measures vs Conservative Portfolio Custom Index Rankings Against Callan Mixed-Asset Target Alloc Cons MFs (Institutional Net) Seven Years Ended September 30, 2019



SERS Moderate Portfolio Fund

Period Ended September 30, 2019

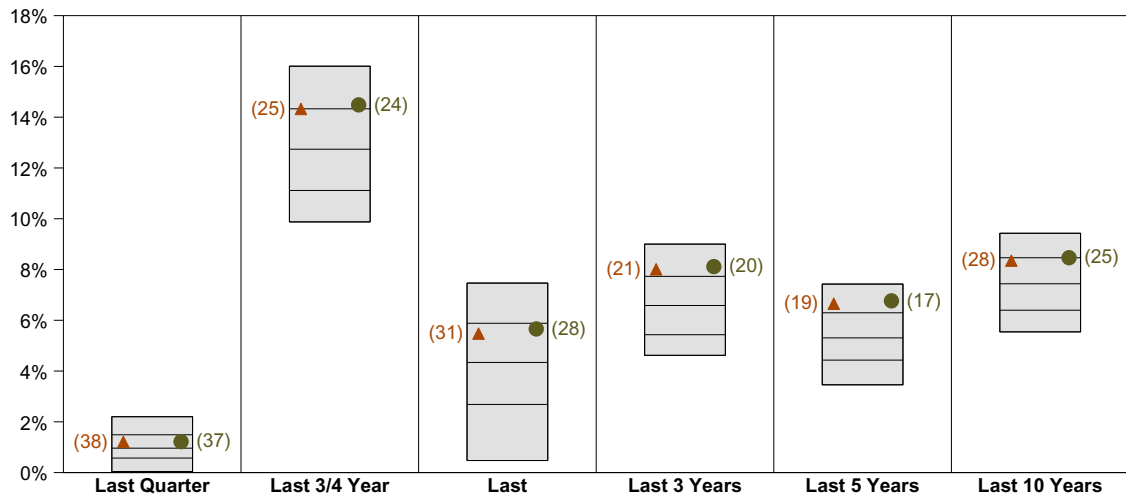
Investment Philosophy

The Commonwealth of Pennsylvania Moderate Portfolio Fund seeks a high total return on investment through long-term capital appreciation, and to a lesser extent, income. This fund is comprised of 4 of the plan's core funds (40% U.S. Bond Index Fund, 36% U.S. Large Company Stock Index Fund, 15% International Company Stock Index Fund and 9% U.S. Small/Mid Company Stock Index Fund). This fund is managed by Mellon Capital Management.

Quarterly Summary and Highlights

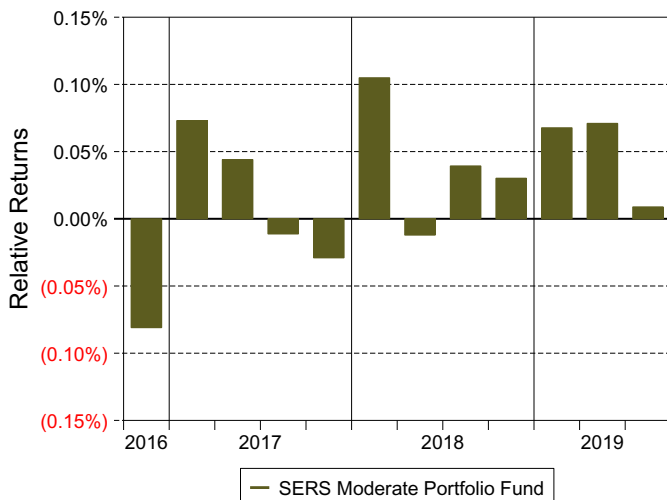
- SERS Moderate Portfolio Fund's portfolio posted a 1.22% return for the quarter placing it in the 37 percentile of the Callan Mixed-Asset Target Alloc Mod MF group for the quarter and in the 28 percentile for the last year.
- SERS Moderate Portfolio Fund's portfolio outperformed the Moderate Portfolio Custom Index by 0.01% for the quarter and outperformed the Moderate Portfolio Custom Index for the year by 0.18%.

Performance vs Callan Mixed-Asset Target Alloc Mod MF (Institutional Net)

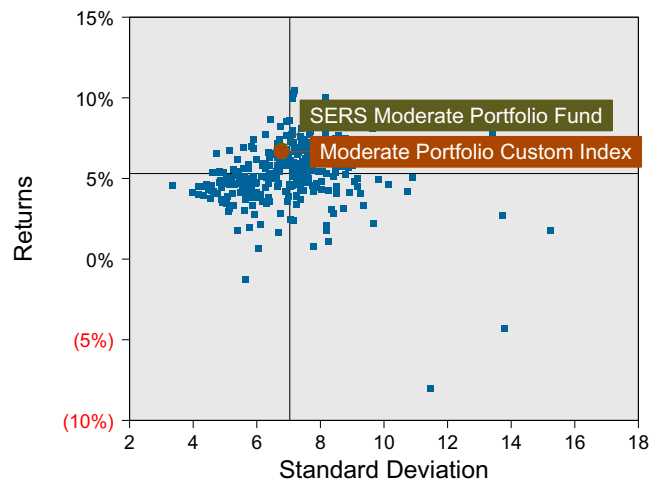


10th Percentile	2.20	16.01	7.47	9.00	7.43	9.43	
25th Percentile	1.49	14.33	5.88	7.73	6.30	8.46	
Median	0.96	12.74	4.34	6.58	5.31	7.44	
75th Percentile	0.57	11.11	2.69	5.43	4.43	6.40	
90th Percentile	0.04	9.87	0.48	4.62	3.46	5.54	
SERS Moderate Portfolio Fund	●	1.22	14.48	5.66	8.11	6.76	8.46
Moderate Portfolio Custom Index	▲	1.21	14.32	5.48	8.01	6.65	8.35

Relative Returns vs Moderate Portfolio Custom Index



Callan Mixed-Asset Target Alloc Mod MF (Institutional Net) Annualized Five Year Risk vs Return

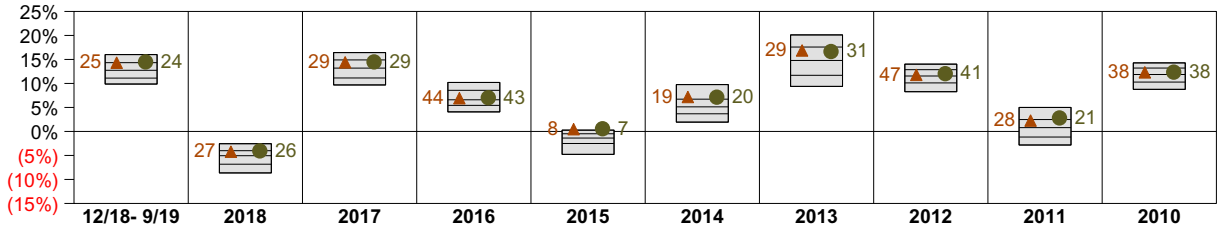


SERS Moderate Portfolio Fund Return Analysis Summary

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.

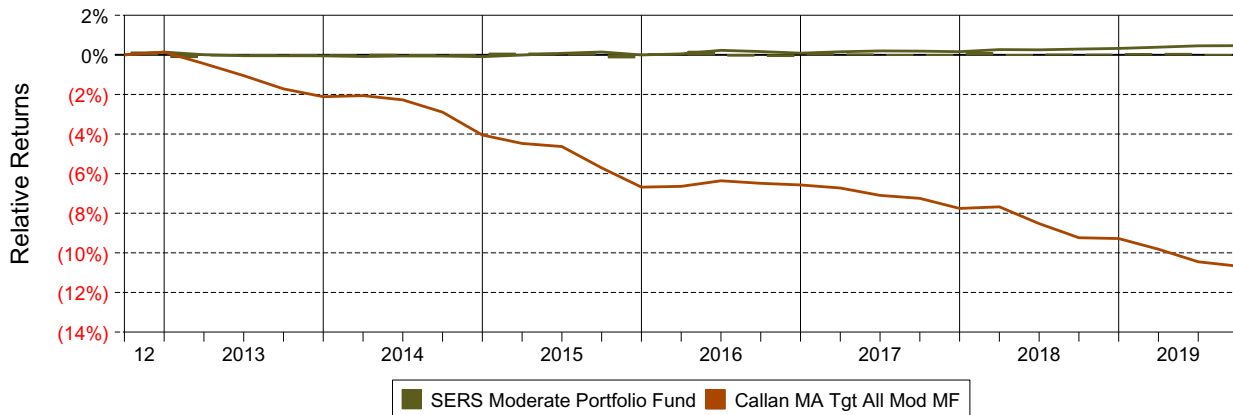
Performance vs Callan Mixed-Asset Target Alloc Mod MF (Institutional Net)



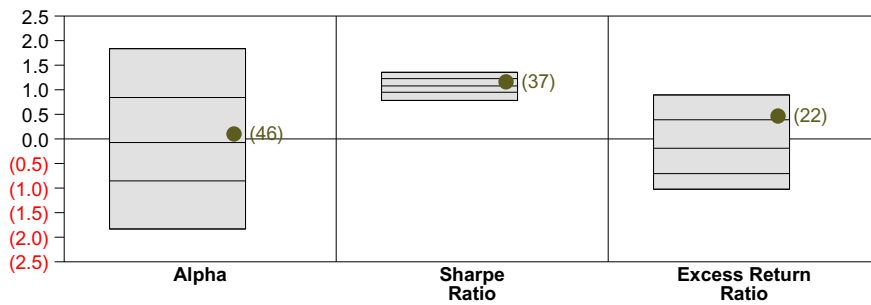
10th Percentile	16.01	(2.56)	16.43	10.21	0.27	9.76	20.11	14.02	5.00	14.28
25th Percentile	14.33	(4.01)	14.90	8.57	(0.49)	6.72	17.59	12.87	2.48	13.20
Median	12.74	(5.06)	13.20	6.59	(1.38)	5.12	14.79	11.55	0.79	11.86
75th Percentile	11.11	(6.83)	11.14	5.43	(2.51)	3.68	11.69	10.11	(1.16)	10.28
90th Percentile	9.87	(8.64)	9.68	4.07	(4.78)	1.94	9.39	8.28	(2.83)	8.77

SERS Moderate Portfolio Fund	●	14.48	(4.06)	14.48	7.02	0.56	7.14	16.65	12.03	2.81	12.35
Moderate Portfolio Custom Index	▲	14.32	(4.21)	14.40	6.92	0.47	7.18	16.87	11.79	2.27	12.31

Cumulative and Quarterly Relative Return vs Moderate Portfolio Custom Index



Risk Adjusted Return Measures vs Moderate Portfolio Custom Index Rankings Against Callan Mixed-Asset Target Alloc Mod MF (Institutional Net) Seven Years Ended September 30, 2019



10th Percentile	1.84	1.36	0.90
25th Percentile	0.84	1.23	0.39
Median	(0.07)	1.08	(0.19)
75th Percentile	(0.85)	0.95	(0.71)
90th Percentile	(1.83)	0.78	(1.02)

SERS Moderate Portfolio Fund	●	0.10	1.16	0.47
-------------------------------------	---	------	------	------

SERS Aggressive Portfolio Fund Period Ended September 30, 2019

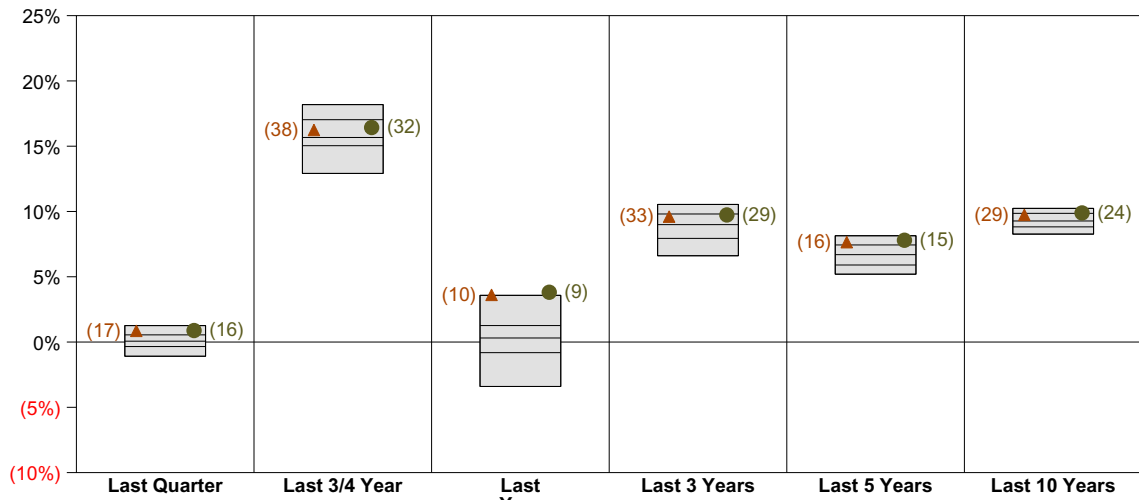
Investment Philosophy

The Commonwealth of Pennsylvania Aggressive Portfolio Fund seeks a high total return on investment through long-term capital appreciation. This fund is comprised of 4 of the plans core funds (48% U.S. Large Company Stock Index Fund, 20% U.S. Bond Index Fund, 20% International Company Stock Index Fund and 12% U.S. Small/Mid Company Stock Index Fund). The fund is managed by Mellon Capital Management.

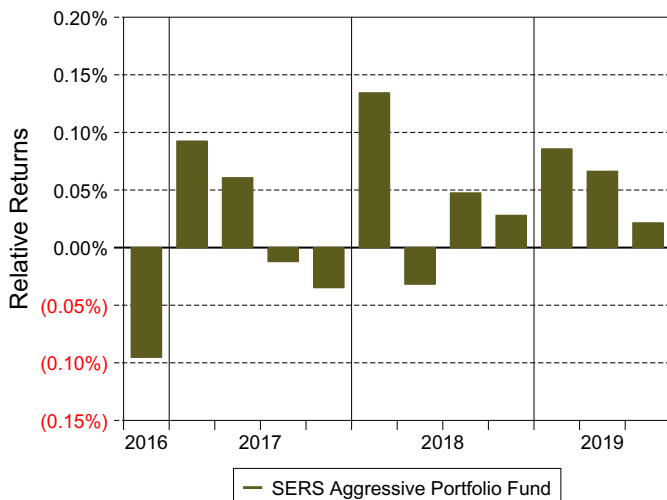
Quarterly Summary and Highlights

- SERS Aggressive Portfolio Fund's portfolio posted a 0.88% return for the quarter placing it in the 16 percentile of the Callan Mix-Asst Tgt Alloc Aggr Grwth MF group for the quarter and in the 9 percentile for the last year.
- SERS Aggressive Portfolio Fund's portfolio outperformed the Aggressive Portfolio Custom Index by 0.02% for the quarter and outperformed the Aggressive Portfolio Custom Index for the year by 0.20%.

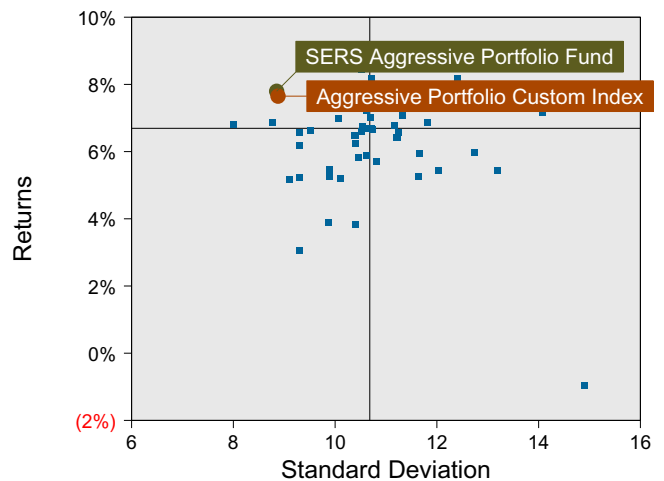
Performance vs Callan Mix-Asst Tgt Alloc Aggr Grwth MF (Institutional Net)



Relative Returns vs Aggressive Portfolio Custom Index



Callan Mix-Asst Tgt Alloc Aggr Grwth MF (Institutional Net) Annualized Five Year Risk vs Return

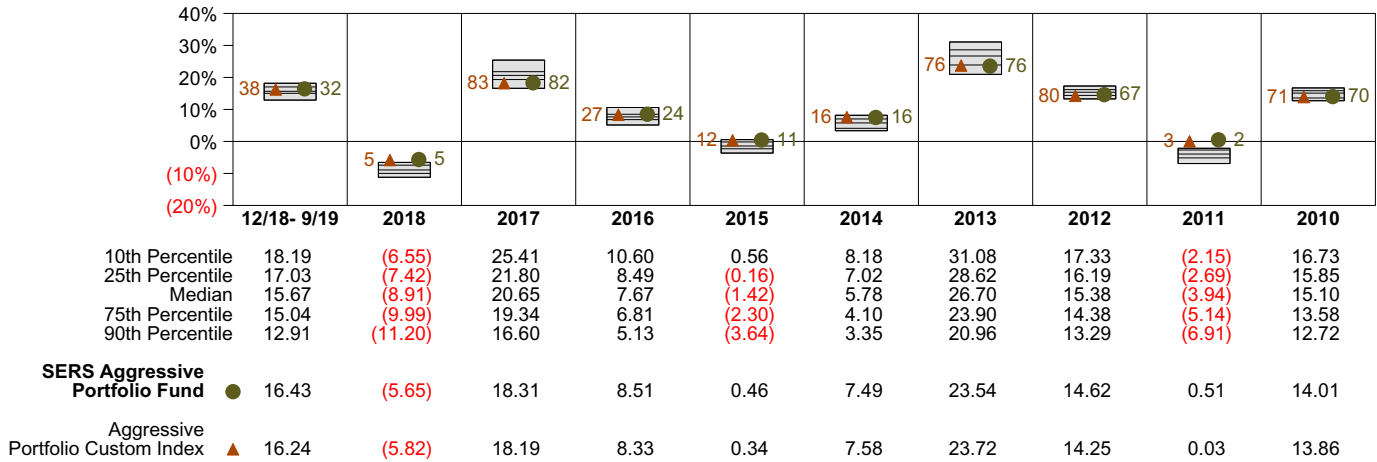


SERS Aggressive Portfolio Fund Return Analysis Summary

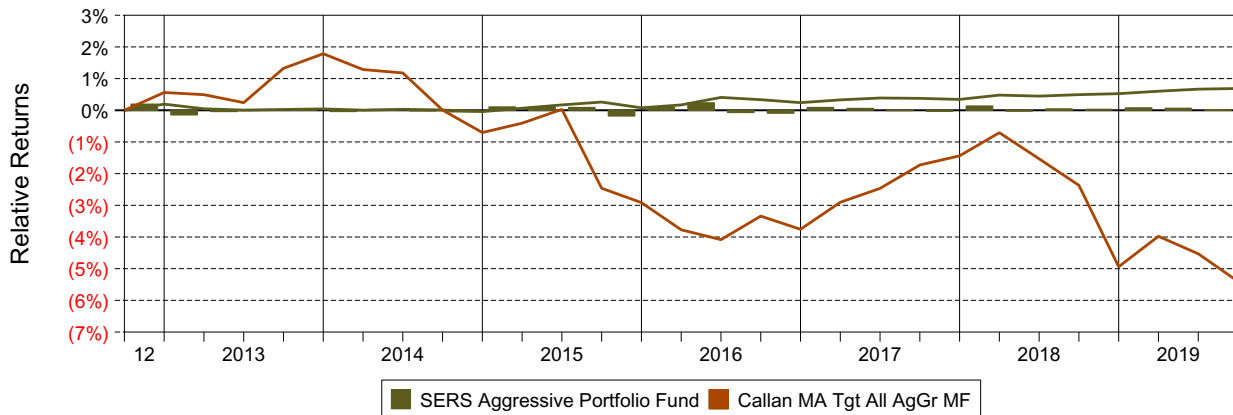
Return Analysis

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.

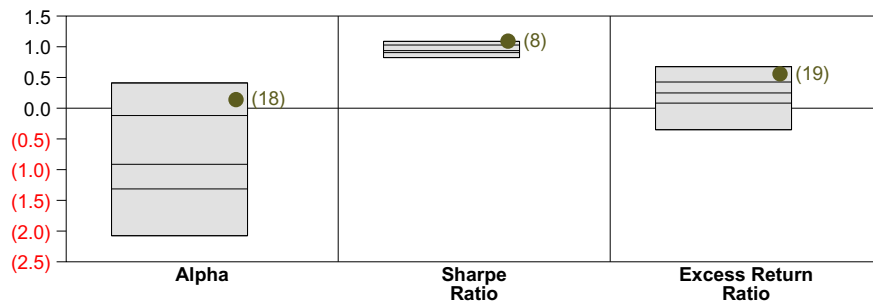
Performance vs Callan Mix-Asst Tgt Alloc Aggr Grwth MF (Institutional Net)



Cumulative and Quarterly Relative Return vs Aggressive Portfolio Custom Index



Risk Adjusted Return Measures vs Aggressive Portfolio Custom Index Rankings Against Callan Mix-Asst Tgt Alloc Aggr Grwth MF (Institutional Net) Seven Years Ended September 30, 2019



SERS U.S. Large Company Index Fund Period Ended September 30, 2019

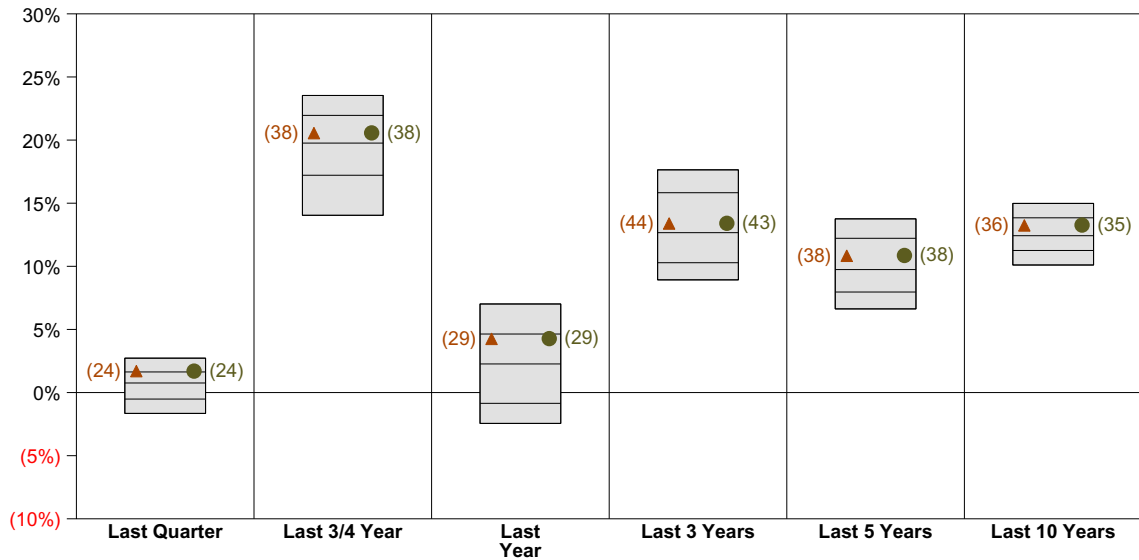
Investment Philosophy

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 1.70% return for the quarter placing it in the 24 percentile of the Callan Large Cap Broad Equity Mut Funds group for the quarter and in the 29 percentile for the last year.
- SERS U.S. Large Company Index Fund's portfolio underperformed the S&P 500 Index by 0.00% for the quarter and outperformed the S&P 500 Index for the year by 0.02%.

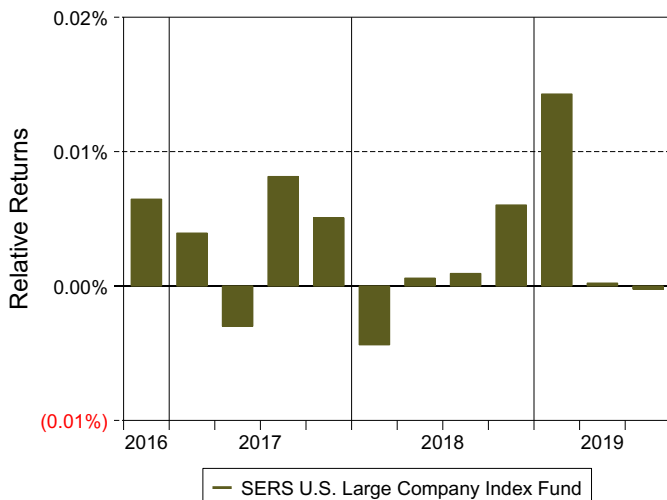
Performance vs Callan Large Cap Broad Equity Mut Funds (Institutional Net)



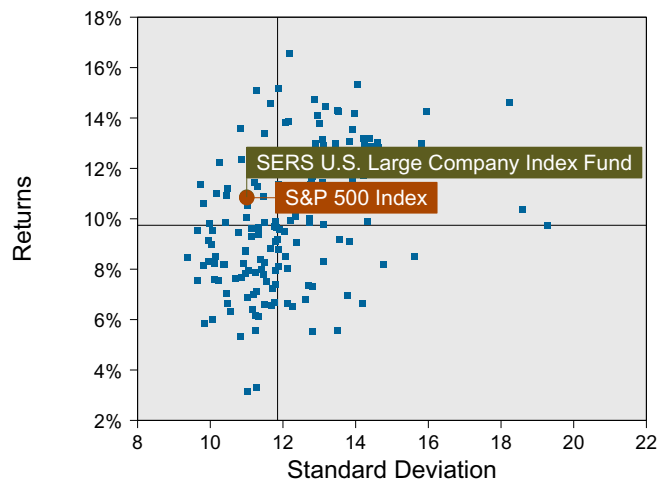
10th Percentile	2.73	23.53	7.02	17.64	13.76	14.98
25th Percentile	1.63	21.96	4.64	15.83	12.22	13.84
Median	0.76	19.76	2.27	12.67	9.74	12.43
75th Percentile	(0.52)	17.21	(0.85)	10.29	7.96	11.25
90th Percentile	(1.65)	14.04	(2.44)	8.93	6.63	10.10

SERS U.S. Large Company Index Fund	●	1.70	20.57	4.27	13.41	10.86	13.27
S&P 500 Index	▲	1.70	20.55	4.25	13.39	10.84	13.24

Relative Return vs S&P 500 Index



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

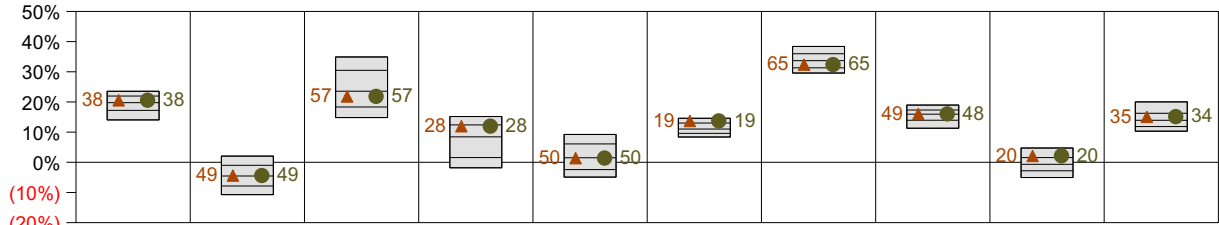


SERS U.S. Large Company Index Fund Return Analysis Summary

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.

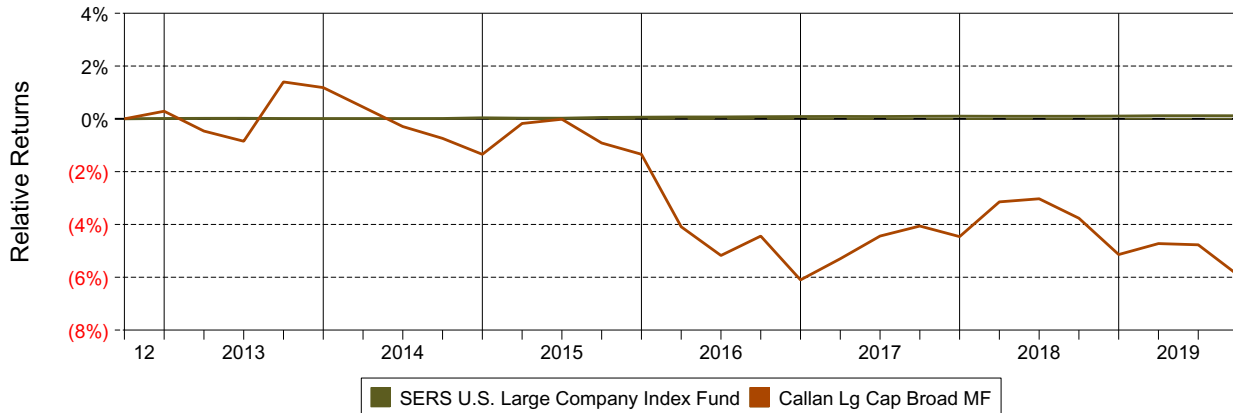
Performance vs Callan Large Cap Broad Equity Mut Funds (Institutional Net)



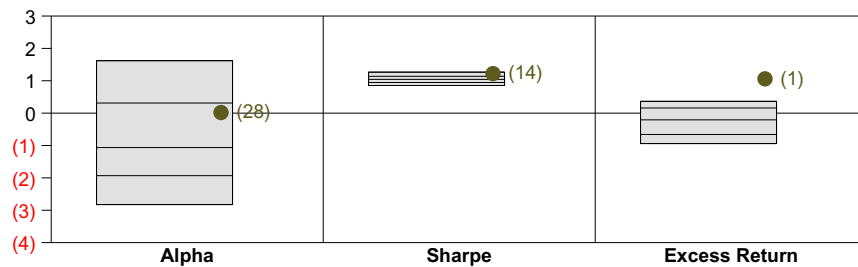
	12/18- 9/19	2018	2017	2016	2015	2014	2013	2012	2011	2010
10th Percentile	23.53	2.05	34.91	15.17	9.23	14.58	38.40	18.96	4.74	20.03
25th Percentile	21.96	(1.00)	30.48	12.39	6.09	13.01	35.98	17.33	1.57	16.25
Median	19.76	(4.54)	23.56	8.43	1.50	11.02	33.69	15.94	(0.67)	13.92
75th Percentile	17.21	(7.86)	18.33	1.56	(2.42)	9.59	31.31	13.94	(2.81)	11.84
90th Percentile	14.04	(10.72)	14.82	(1.82)	(4.91)	8.38	29.58	11.29	(5.04)	10.31

SERS U.S. Large Company Index Fund	●	20.57	(4.38)	21.85	11.99	1.41	13.72	32.39	16.04	2.15	15.14
S&P 500 Index	▲	20.55	(4.38)	21.83	11.96	1.38	13.69	32.39	16.00	2.11	15.06

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 September 30, 2019



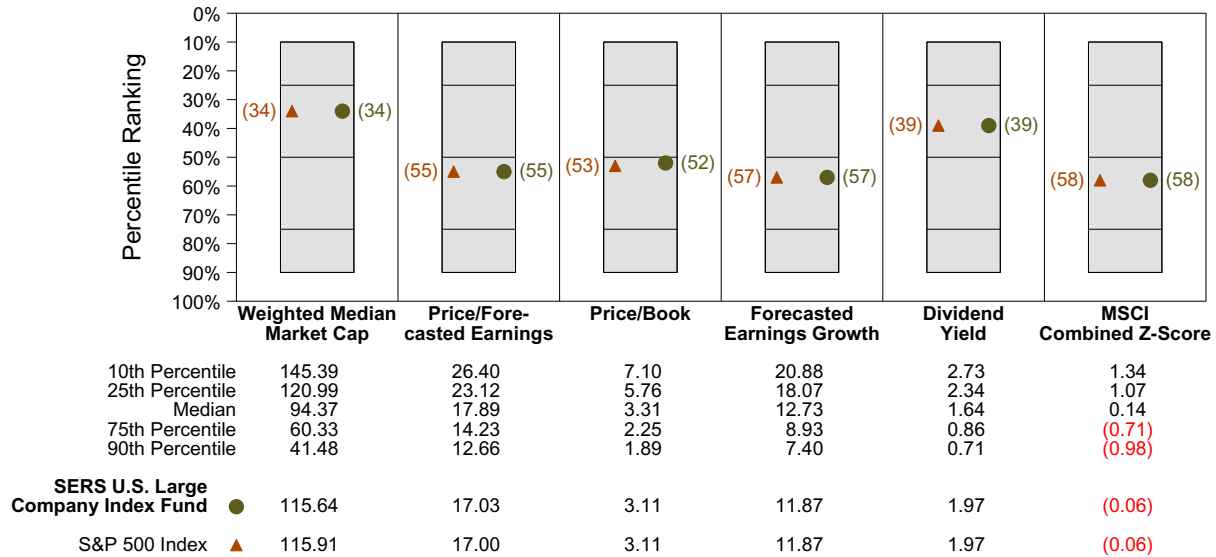
	Alpha	Sharpe Ratio	Excess Return Ratio
10th Percentile	1.62	1.27	0.36
25th Percentile	0.31	1.14	0.16
Median	(1.06)	1.04	(0.21)
75th Percentile	(1.93)	0.95	(0.66)
90th Percentile	(2.83)	0.85	(0.94)
SERS U.S. Large Company Index Fund	●	0.02	1.22
			1.06

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

Portfolio Characteristics

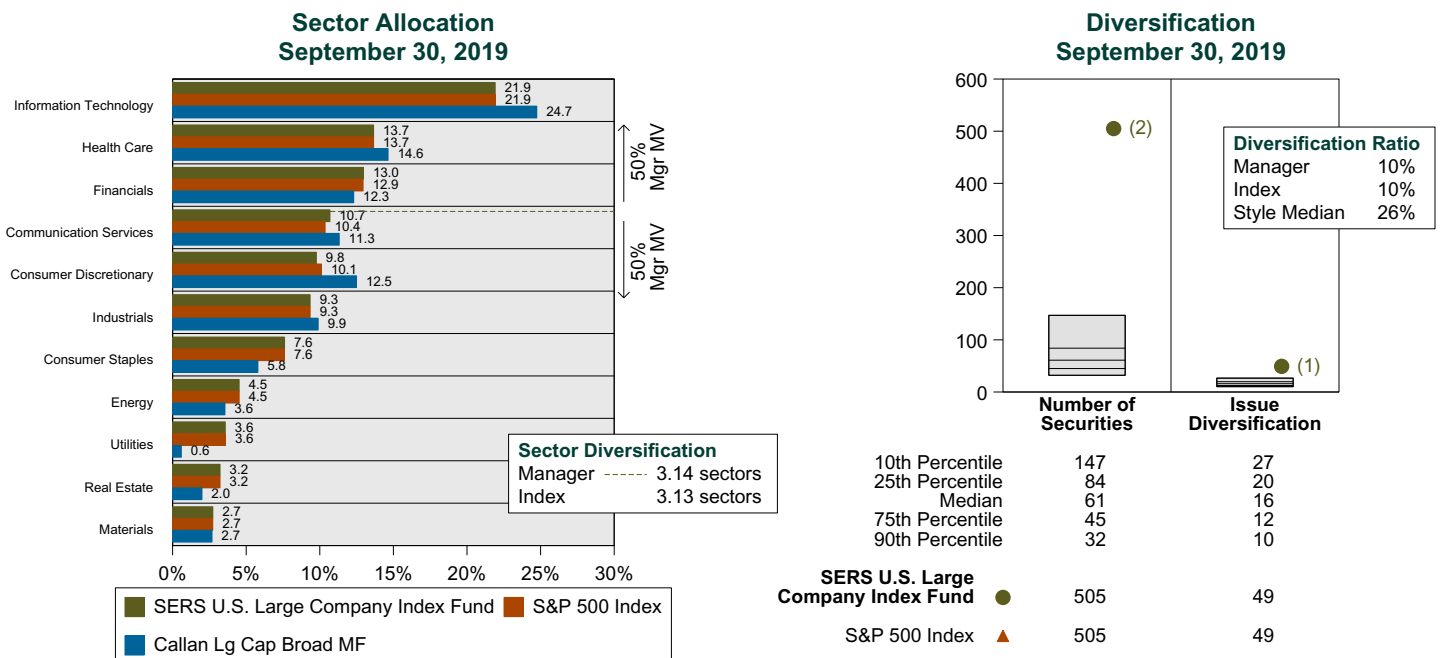
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Portfolio Characteristics Percentile Rankings Rankings Against Callan Large Cap Broad Equity Mut Funds as of September 30, 2019



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 September 30, 2019

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	\$40,998,662	4.3%	4.14%	1061.55	25.67	1.47%	14.15%
Apple Inc	Information Technology	\$36,746,237	3.8%	13.60%	1012.16	17.60	1.38%	9.68%
Amazon.Com	Consumer Discretionary	\$27,845,767	2.9%	(8.33)%	858.68	56.36	0.00%	83.00%
Facebook Inc Cl A	Communication Services	\$16,543,798	1.7%	(7.73)%	428.41	20.49	0.00%	20.05%
Berkshire Hathaway Inc Del Cl B New	Financials	\$15,736,013	1.6%	(2.42)%	288.38	19.50	0.00%	4.64%
JPMorgan Chase & Co	Financials	\$14,552,045	1.5%	6.01%	376.31	11.31	3.06%	5.45%
Alphabet Inc Cl C	Communication Services	\$14,240,640	1.5%	12.78%	423.41	22.55	0.00%	12.56%
Alphabet Inc Cl A	Communication Services	\$14,126,809	1.5%	12.78%	365.77	22.61	0.00%	12.56%
Johnson & Johnson	Health Care	\$13,194,155	1.4%	(6.42)%	341.46	14.39	2.94%	6.54%
Procter & Gamble Co	Consumer Staples	\$12,014,854	1.3%	14.17%	311.28	25.22	2.40%	7.09%

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
Kla-Tencor Corp	Information Technology	\$995,721	0.1%	35.67%	25.27	16.19	1.88%	14.57%
Western Digital Corp	Information Technology	\$670,084	0.1%	25.43%	17.73	15.41	3.35%	(13.80)%
Target Corp	Consumer Discretionary	\$2,113,246	0.2%	24.39%	54.62	16.58	2.47%	9.35%
Lam Research Corp	Information Technology	\$1,300,345	0.1%	23.65%	33.47	15.66	1.99%	(0.06)%
Newell Brands Inc	Consumer Discretionary	\$277,818	0.0%	23.10%	7.93	11.87	4.91%	(14.00)%
D.R. Horton	Consumer Discretionary	\$692,003	0.1%	22.60%	19.49	11.47	1.14%	13.00%
Hunt (J.B.) Transport	Industrials	\$371,369	0.0%	21.36%	11.81	18.66	0.94%	8.91%
Kellogg Co	Consumer Staples	\$614,404	0.1%	21.21%	21.92	16.14	3.54%	0.75%
Sherwin-Williams Co	Materials	\$1,742,364	0.2%	20.24%	50.73	23.52	0.82%	14.30%
Kroger Co	Consumer Staples	\$805,450	0.1%	19.61%	20.67	11.31	2.48%	5.20%

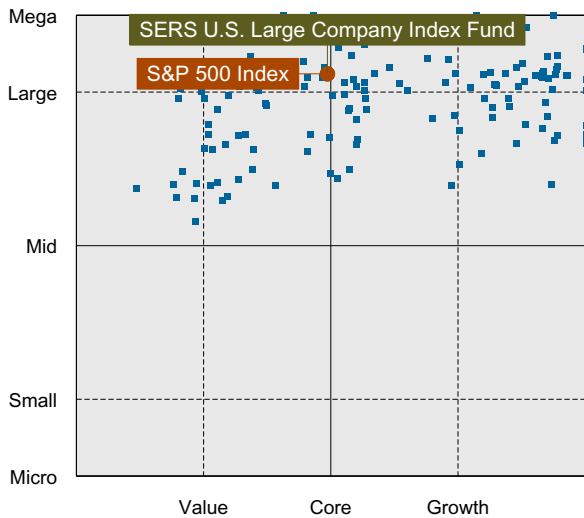
10 Worst Performers

Stock	Sector	Ending Market Value	Percent of Portfolio	Qtrly Return	Market Capital	Price/Forecasted Earnings Ratio	Dividend Yield	Forecasted Growth in Earnings
Nektar Therapeutics	Health Care	\$120,201	0.0%	(48.81)%	3.19	(7.00)	0.00%	-
Dxc Technology Co	Information Technology	\$304,193	0.0%	(46.15)%	7.73	3.77	2.85%	6.69%
Concho Res Inc	Energy	\$527,210	0.1%	(34.08)%	13.65	14.98	0.74%	12.03%
Align Technology Inc	Health Care	\$506,048	0.1%	(33.90)%	14.45	29.80	0.00%	19.50%
Abiomed Inc	Health Care	\$305,767	0.0%	(31.71)%	8.07	34.28	0.00%	24.20%
Ulta Salon Cosmetics & Frag I	Consumer Discretionary	\$566,289	0.1%	(27.74)%	14.75	19.46	0.00%	10.22%
Netflix Inc	Communication Services	\$4,524,070	0.5%	(27.14)%	117.17	52.93	0.00%	47.60%
Macys Inc	Consumer Discretionary	\$188,804	0.0%	(25.98)%	4.80	5.79	9.72%	(14.79)%
Alexion Pharmaceuticals Inc	Health Care	\$845,724	0.1%	(25.23)%	21.96	9.13	0.00%	17.18%
L Brands Inc	Consumer Discretionary	\$170,801	0.0%	(23.78)%	5.41	7.98	6.13%	6.10%

Historical Holdings Based Style Analysis SERS U.S. Large Company Index Fund For Three Years Ended September 30, 2019

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.

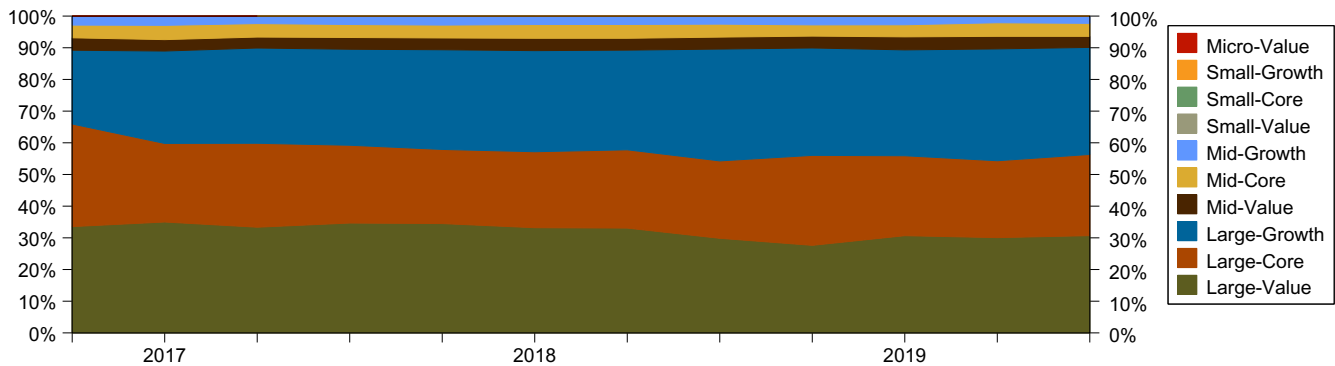
Average Style Map vs Callan Lg Cap Broad MF Holdings for Three Years Ended September 30, 2019



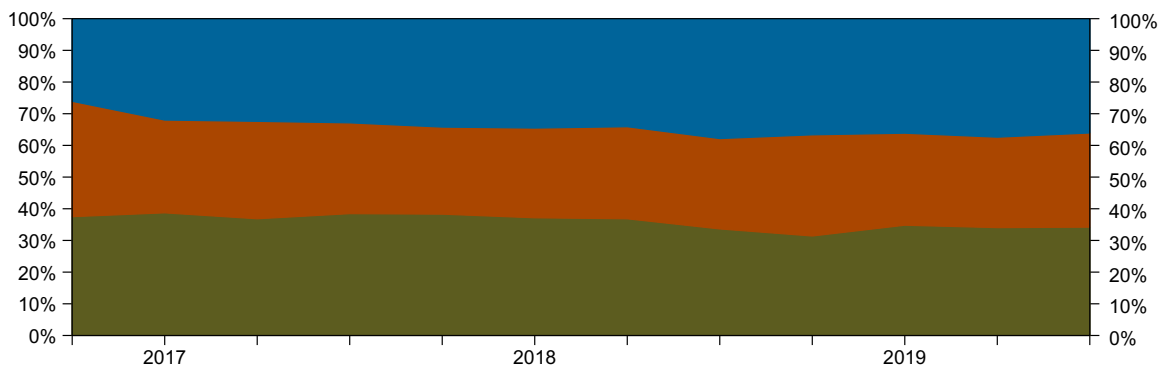
Average Style Exposure Matrix Holdings for Three Years Ended September 30, 2019

	32.2% (105)	25.7% (93)	31.6% (86)	89.5% (284)
Large	32.1% (105)	25.7% (93)	31.7% (87)	89.5% (285)
Mid	3.8% (83)	4.1% (83)	2.6% (49)	10.5% (215)
	3.8% (83)	4.1% (83)	2.6% (49)	10.4% (215)
Small	0.0% (2)	0.0% (0)	0.0% (1)	0.0% (3)
	0.0% (2)	0.0% (0)	0.0% (1)	0.1% (3)
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	36.0% (190)	29.8% (176)	34.2% (136)	100.0% (502)
	35.9% (190)	29.8% (176)	34.2% (137)	100.0% (503)
	Value	Core	Growth	Total

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 Idx Fund

Period Ended September 30, 2019

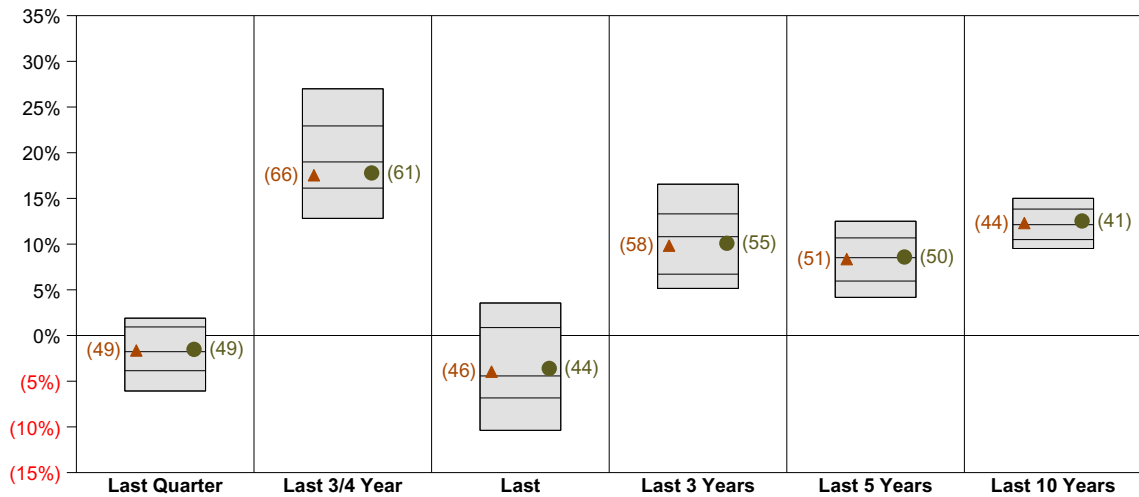
Investment Philosophy

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

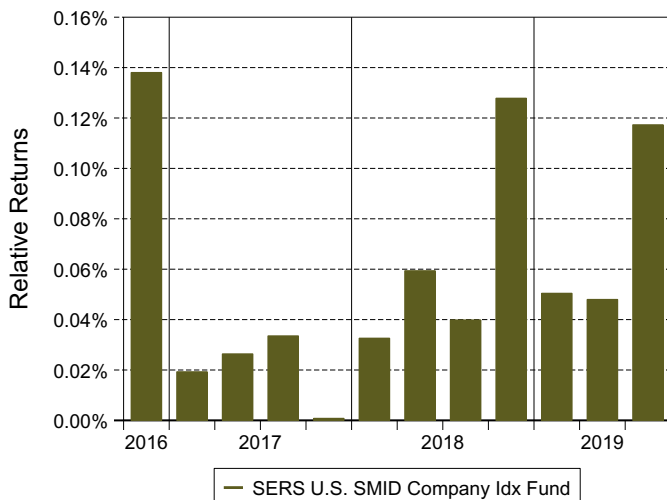
- SERS U.S. SMID Company Idx Fund's portfolio posted a (1.52)% return for the quarter placing it in the 49 percentile of the Callan Small/MidCap Broad Mutual Funds group for the quarter and in the 44 percentile for the last year.
- SERS U.S. SMID Company Idx Fund's portfolio outperformed the Dow Jones US Completion by 0.12% for the quarter and outperformed the Dow Jones US Completion for the year by 0.35%.

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

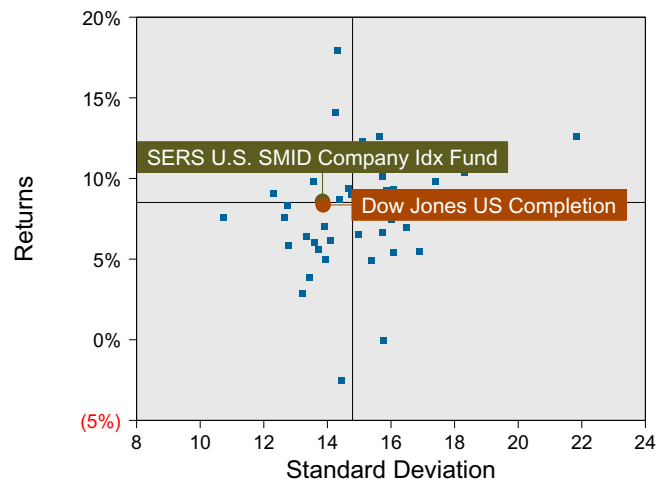


	Last Quarter	Last 3/4 Year	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile	1.90	27.00	3.56	16.56	12.50	15.01
25th Percentile	0.94	22.93	0.87	13.31	10.68	13.84
Median	(1.77)	18.99	(4.42)	10.81	8.51	12.13
75th Percentile	(3.85)	16.13	(6.83)	6.71	5.96	10.50
90th Percentile	(6.07)	12.81	(10.38)	5.15	4.17	9.52
SERS U.S. SMID Company Idx Fund	(1.52)	17.78	(3.60)	10.09	8.59	12.53
Dow Jones US Completion	(1.64)	17.54	(3.95)	9.84	8.36	12.31

Relative Return vs Dow Jones US Completion



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

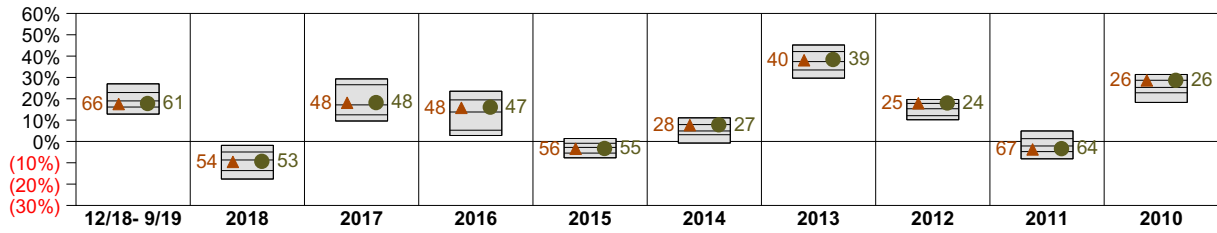


SERS U.S. SMID Company Idx Fund Return Analysis Summary

Return Analysis

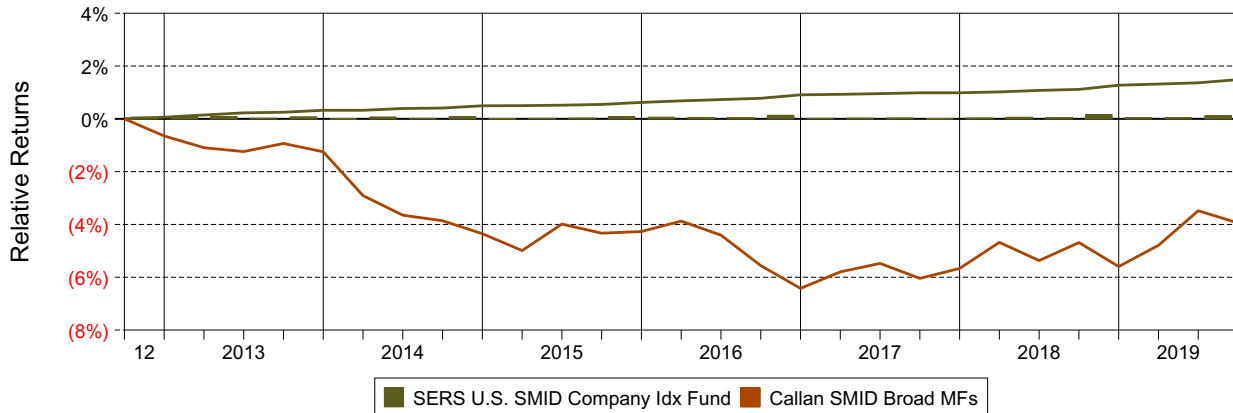
The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate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

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

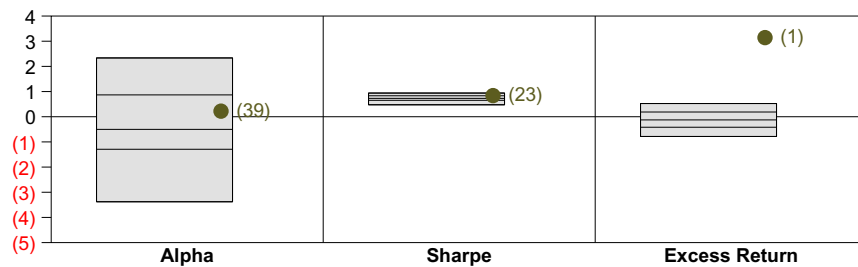


	12/18- 9/19	2018	2017	2016	2015	2014	2013	2012	2011	2010
10th Percentile	27.00	(1.83)	29.31	23.54	1.38	11.06	45.21	19.66	4.92	31.38
25th Percentile	22.93	(4.95)	26.58	19.48	(0.87)	7.90	42.13	17.83	1.30	28.67
Median	18.99	(8.69)	17.14	13.80	(2.80)	4.92	37.43	15.32	(2.13)	25.33
75th Percentile	16.13	(13.66)	12.47	5.26	(5.46)	3.15	33.50	12.08	(4.76)	22.82
90th Percentile	12.81	(17.62)	9.57	2.79	(7.67)	(0.76)	29.67	10.16	(8.15)	18.29
SERS U.S. SMID Company Idx Fund	● 17.78	(9.32)	18.21	16.08	(3.30)	7.81	38.41	18.04	(3.37)	28.65
Dow Jones US Completion	▲ 17.54	(9.57)	18.12	15.75	(3.42)	7.63	38.05	17.89	(3.76)	28.62

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 September 30, 2019



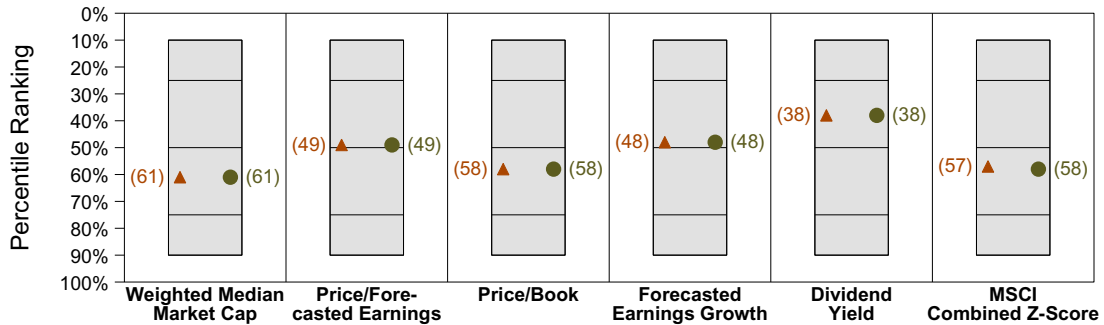
	Alpha	Sharpe Ratio	Excess Return Ratio
10th Percentile	2.34	0.94	0.52
25th Percentile	0.87	0.83	0.19
Median	(0.50)	0.73	(0.13)
75th Percentile	(1.29)	0.65	(0.42)
90th Percentile	(3.38)	0.47	(0.78)
SERS U.S. SMID Company Idx Fund	● 0.22	0.84	3.14

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 September 30, 2019

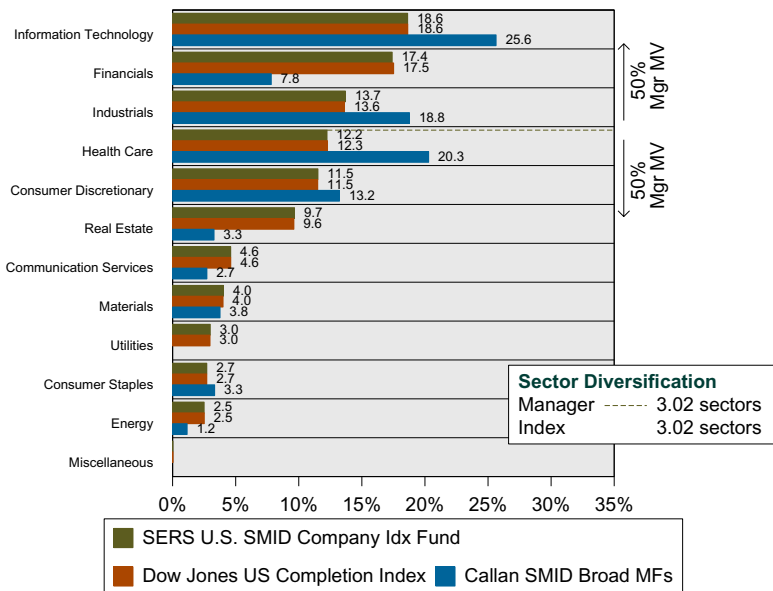


	Weighted Median Market Cap	Price/Forecasted Earnings	Price/Book	Forecasted Earnings Growth	Dividend Yield	MSCI Combined Z-Score
10th Percentile	8.54	39.03	5.77	19.73	2.11	1.01
25th Percentile	7.21	31.66	4.86	17.93	1.85	0.81
Median	5.24	20.85	3.12	14.45	0.78	0.44
75th Percentile	3.78	13.83	1.74	10.48	0.52	(0.43)
90th Percentile	2.71	12.83	1.46	7.04	0.28	(0.62)
SERS U.S. SMID Company Idx Fund ●	4.83	21.96	2.20	14.59	1.53	0.11
Dow Jones US Completion Index ▲	4.83	22.14	2.20	14.62	1.51	0.12

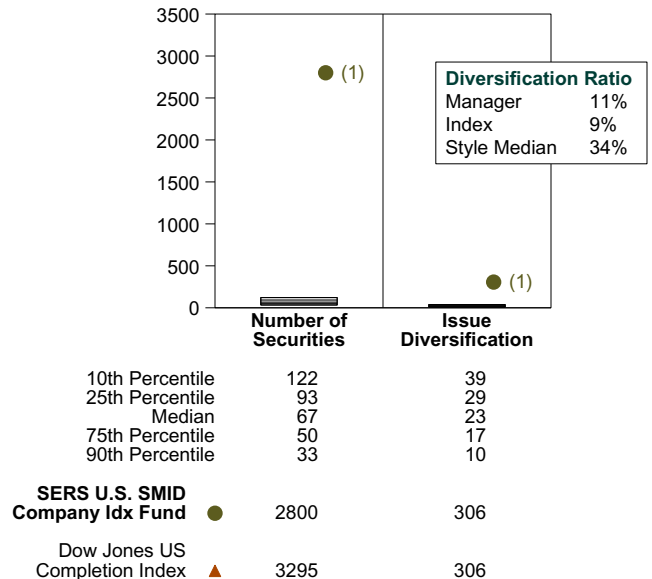
Sector Weights

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.

Sector Allocation September 30, 2019



Diversification September 30, 2019



SERS U.S. SMID Company Idx Fund Top 10 Portfolio Holdings Characteristics as of September 30, 2019

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
Servicenow Inc	Information Technology	\$3,752,156	1.0%	(7.55)%	47.60	63.08	0.00%	33.35%
Tesla Mtrs Inc	Consumer Discretionary	\$2,686,029	0.7%	7.79%	43.15	115.30	0.00%	-
Blackstone Group Inc Com Cl A	Financials	\$2,545,621	0.7%	11.02%	32.30	16.98	5.43%	19.43%
Workday Inc Cl A	Information Technology	\$2,172,585	0.6%	(17.33)%	27.87	83.11	0.00%	28.30%
Costar Group Inc	Industrials	\$1,710,776	0.4%	7.06%	21.68	51.20	0.00%	41.67%
Lululemon Athletica Inc	Consumer Discretionary	\$1,696,526	0.4%	6.84%	23.71	36.14	0.00%	19.25%
Square Inc Cl A	Information Technology	\$1,675,133	0.4%	(14.59)%	21.23	60.68	0.00%	48.60%
Veeva Sys Inc Cl A Com	Health Care	\$1,565,611	0.4%	(5.81)%	20.09	65.73	0.00%	19.00%
Las Vegas Sands Corp	Consumer Discretionary	\$1,549,816	0.4%	(0.98)%	44.46	17.46	5.33%	2.50%
Palo Alto Networks Inc	Information Technology	\$1,543,419	0.4%	0.03%	19.77	38.70	0.00%	16.75%

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
Direct Corp	Health Care	\$31,957	0.0%	182.21%	0.35	(14.60)	0.00%	-
Cim Coml Tr Corp	Financials	\$1,135	0.0%	177.09%	0.23	0.71	1.48%	159.32%
Impac Mtg Hldgs Inc	Financials	\$10,520	0.0%	153.87%	0.17	35.77	0.00%	(40.54)%
Hovnanian Enterprises Inc Cl A New	Consumer Discretionary	\$10,009	0.0%	153.29%	0.10	11.48	0.00%	(32.61)%
Stage Stores Inc	Consumer Discretionary	\$4,344	0.0%	144.16%	0.05	(0.68)	10.64%	-
Xpel Inc	Consumer Staples	\$11,555	0.0%	118.15%	0.33	24.95	0.00%	-
Atlanticus Hldgs Corp	Financials	\$10,922	0.0%	106.17%	0.13	3.51	0.00%	-
Nextcure	Health Care	\$16,965	0.0%	105.94%	0.70	(15.93)	0.00%	-
Seachange Intl Inc	Information Technology	\$14,077	0.0%	101.40%	0.11	20.87	0.00%	(23.59)%
Dova Pharmaceuticals Inc	Health Care	\$36,967	0.0%	98.23%	0.81	(14.41)	0.00%	-

10 Worst Performers

Stock	Sector	Ending Market Value	Percent of Portfolio	Qtrly Return	Market Capital	Price/Forecasted Earnings Ratio	Dividend Yield	Forecasted Growth in Earnings
Genocea Biosciences Inc	Health Care	\$986	0.0%	(90.75)%	0.08	(1.55)	0.00%	-
Tocagen Inc	Health Care	\$1,080	0.0%	(90.09)%	0.02	(0.34)	0.00%	-
Advaxis Inc	Health Care	\$67	0.0%	(87.27)%	0.01	(0.16)	0.00%	-
Waitr Hldgs Inc	Consumer Discretionary	\$5,971	0.0%	(79.57)%	0.10	(1.44)	0.00%	(0.46)%
Mcdermott Intl Inc	Energy	\$29,527	0.0%	(79.09)%	0.37	2.20	0.00%	(5.26)%
Synlogic Inc	Health Care	\$2,860	0.0%	(74.84)%	0.07	(1.21)	0.00%	-
Mallinckrodt	Health Care	\$16,555	0.0%	(73.75)%	0.20	0.31	0.00%	(9.60)%
Clovis Oncology Inc	Health Care	\$17,317	0.0%	(73.57)%	0.21	(0.63)	0.00%	33.70%
Bloom Energy Corp Com Cl A	Industrials	\$6,285	0.0%	(73.51)%	0.23	(13.49)	0.00%	25.00%
Chaparral Energy Inc Com Cl A	Energy	\$3,313	0.0%	(71.55)%	0.06	(6.91)	0.00%	-

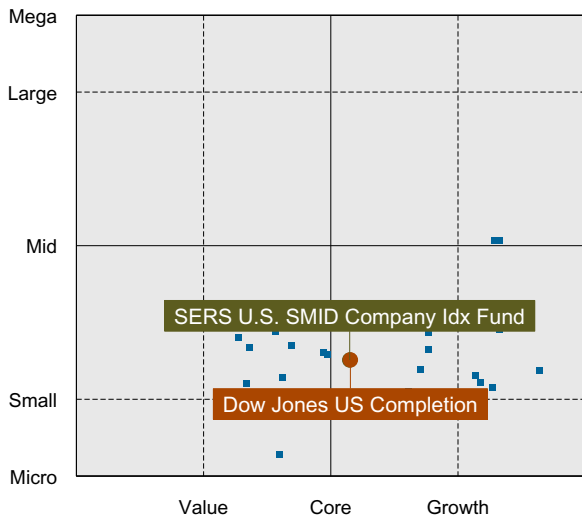
Historical Holdings Based Style Analysis

SERS U.S. SMID Company Idx Fund

For Three Years Ended September 30, 2019

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.

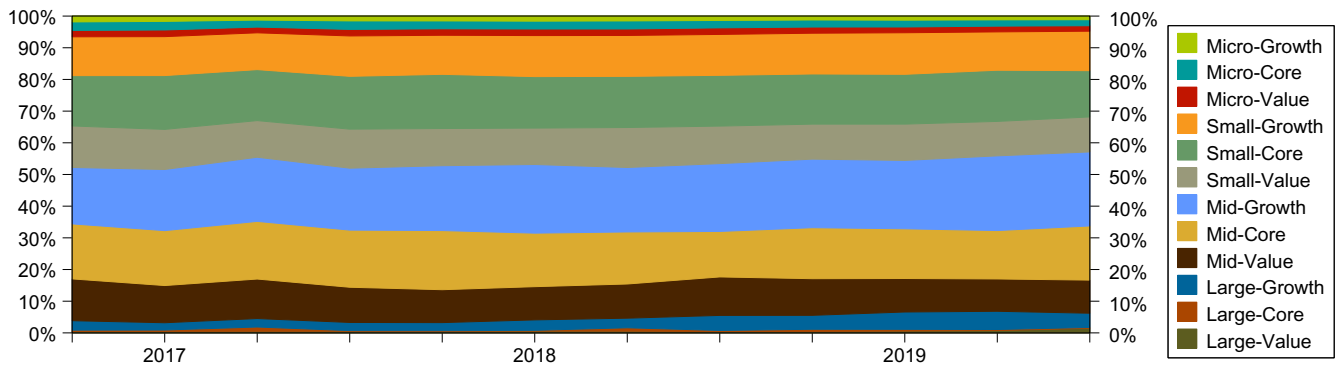
Average Style Map vs Callan SMID Broad MFs Holdings for Three Years Ended September 30, 2019



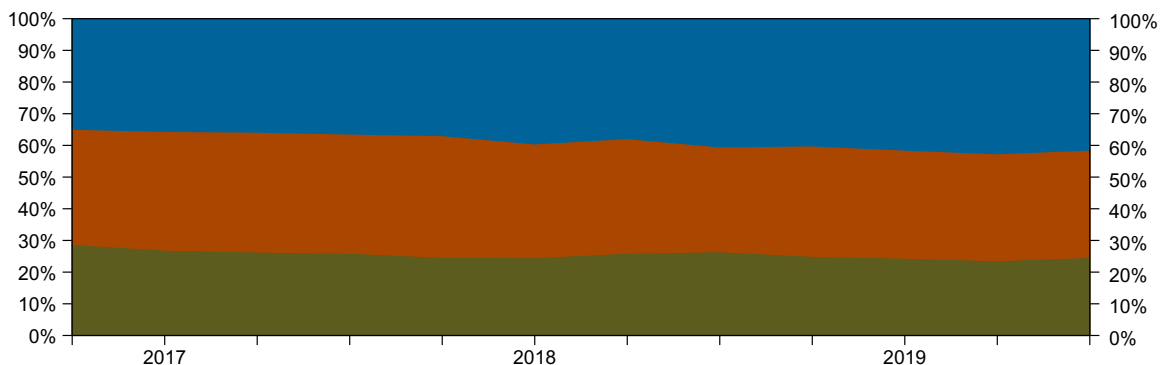
Average Style Exposure Matrix Holdings for Three Years Ended September 30, 2019

	0.6% (2)	0.5% (3)	3.7% (8)	4.8% (13)
Large	0.6% (2)	0.4% (2)	3.6% (8)	4.7% (12)
Mid	11.3% (94)	16.8% (136)	20.9% (153)	49.0% (383)
Small	11.8% (327)	16.1% (481)	12.5% (376)	40.5% (1184)
Micro	2.0% (435)	2.4% (652)	1.4% (267)	5.8% (1354)
Total	25.6% (858)	35.8% (1272)	38.6% (804)	100.0% (2934)
	Value	Core	Growth	Total

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



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



SERS International Company Index Fund

Period Ended September 30, 2019

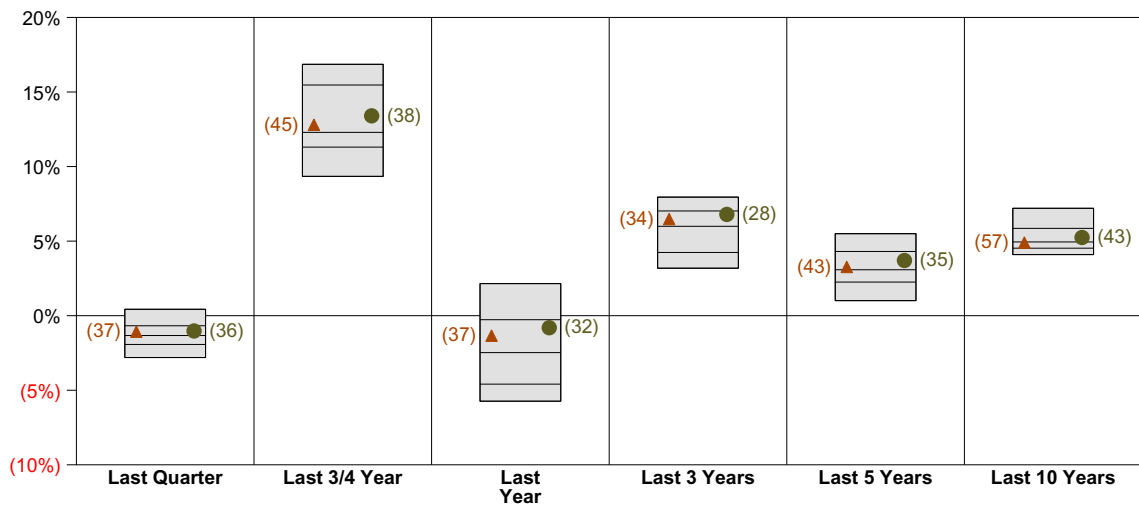
Investment Philosophy

The International Company Stock Index Fund seeks to track the performance of the MSCI EAFE Index. Within each country, full replication is used, holding each security in proportion to its market capitalization weight in the Index. The Fund may use over-the-counter foreign currency forward contracts to maintain the approximate currency exposure of the Index. Derivatives may be used to gain exposure, to provide liquidity for cash flows, to equitize dividend accruals, or for other purposes that facilitate meeting the Fund's objective. This fund is managed by Mellon Capital Management.

Quarterly Summary and Highlights

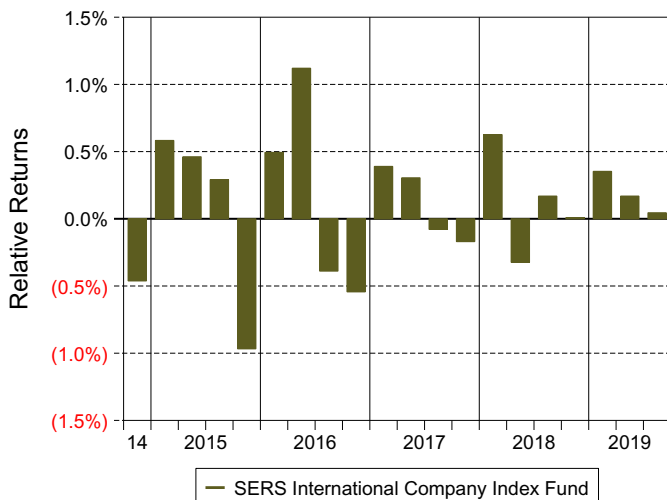
- SERS International Company Index Fund's portfolio posted a (1.03)% return for the quarter placing it in the 36 percentile of the Callan Intl Eq Developed Mkts MFs group for the quarter and in the 32 percentile for the last year.
- SERS International Company Index Fund's portfolio outperformed the MSCI EAFE by 0.04% for the quarter and outperformed the MSCI EAFE for the year by 0.53%.

Performance vs Callan Intl Eq Developed Mkts MFs (Institutional Net)

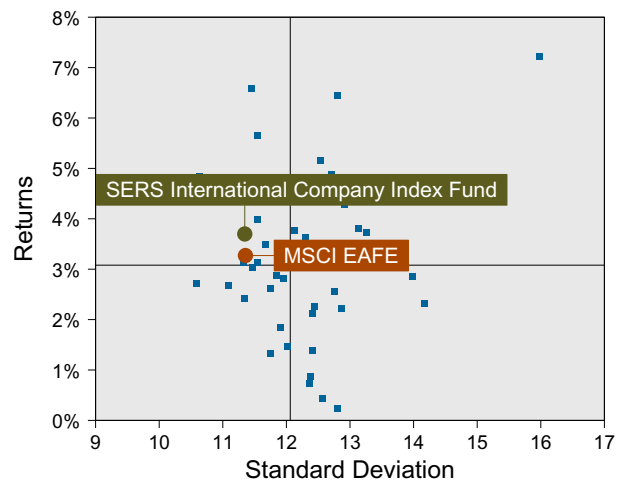


10th Percentile	0.43	16.86	2.15	7.95	5.50	7.20
25th Percentile	(0.68)	15.47	(0.27)	7.02	4.31	5.85
Median	(1.33)	12.29	(2.48)	5.99	3.08	4.94
75th Percentile	(1.93)	11.30	(4.59)	4.24	2.25	4.53
90th Percentile	(2.81)	9.34	(5.74)	3.18	1.01	4.10
SERS International Company Index Fund	● (1.03)	13.40	(0.81)	6.79	3.70	5.24
MSCI EAFE	▲ (1.07)	12.80	(1.34)	6.48	3.27	4.90

Relative Return vs MSCI EAFE



Callan Intl Eq Developed Mkts MFs (Institutional Net) Annualized Five Year Risk vs Return

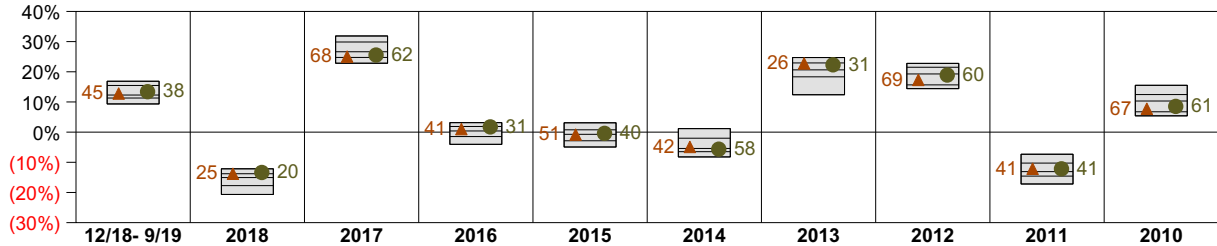


SERS International Company Index Fund Return Analysis Summary

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.

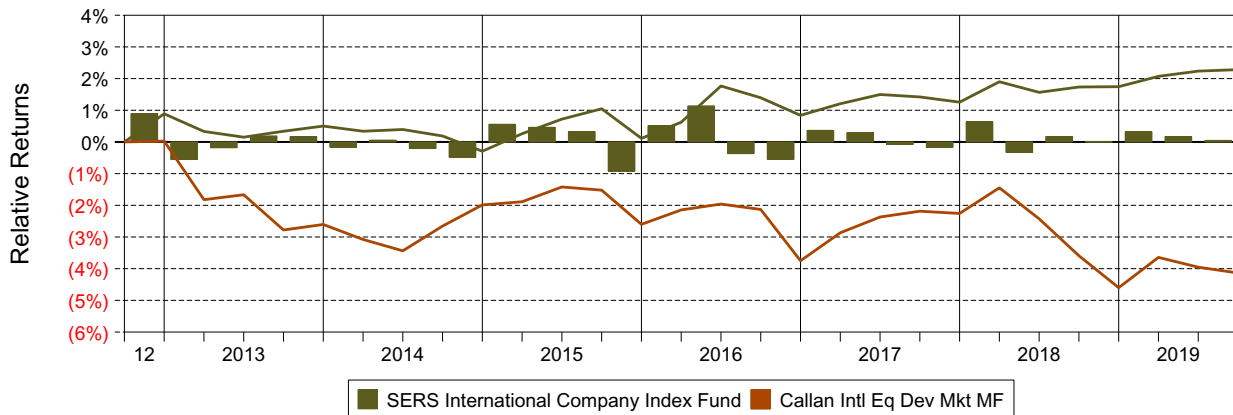
Performance vs Callan Intl Eq Developed Mkts MFs (Institutional Net)



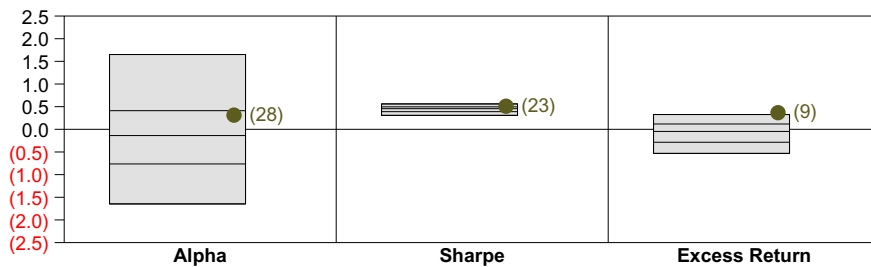
10th Percentile	16.86	(12.16)	31.87	3.15	3.09	1.17	24.72	22.78	(7.33)	15.51
25th Percentile	15.47	(13.79)	29.87	1.87	0.76	(2.02)	22.94	21.50	(10.27)	12.45
Median	12.29	(15.06)	26.64	0.39	(0.73)	(5.41)	20.64	19.28	(13.09)	10.31
75th Percentile	11.30	(17.73)	24.76	(1.47)	(2.86)	(6.48)	18.33	15.66	(14.58)	6.74
90th Percentile	9.34	(20.66)	22.83	(4.05)	(4.93)	(8.23)	12.38	14.42	(17.19)	5.40

SERS International Company Index Fund ●	13.40	(13.37)	25.55	1.73	(0.41)	(5.65)	22.31	18.92	(12.17)	8.52
MSCI EAFE ▲	12.80	(13.79)	25.03	1.00	(0.81)	(4.90)	22.78	17.32	(12.14)	7.75

Cumulative and Quarterly Relative Return vs MSCI EAFE



Risk Adjusted Return Measures vs MSCI EAFE Rankings Against Callan Intl Eq Developed Mkts MFs (Institutional Net) Seven Years Ended September 30, 2019



10th Percentile	1.65	0.56	0.33
25th Percentile	0.41	0.50	0.12
Median	(0.14)	0.46	(0.05)
75th Percentile	(0.76)	0.39	(0.29)
90th Percentile	(1.65)	0.31	(0.53)

SERS International Company Index Fund ●	0.31	0.51	0.37
--	------	------	------

SERS International Company Index Fund Equity Characteristics Analysis Summary

Portfolio Characteristics

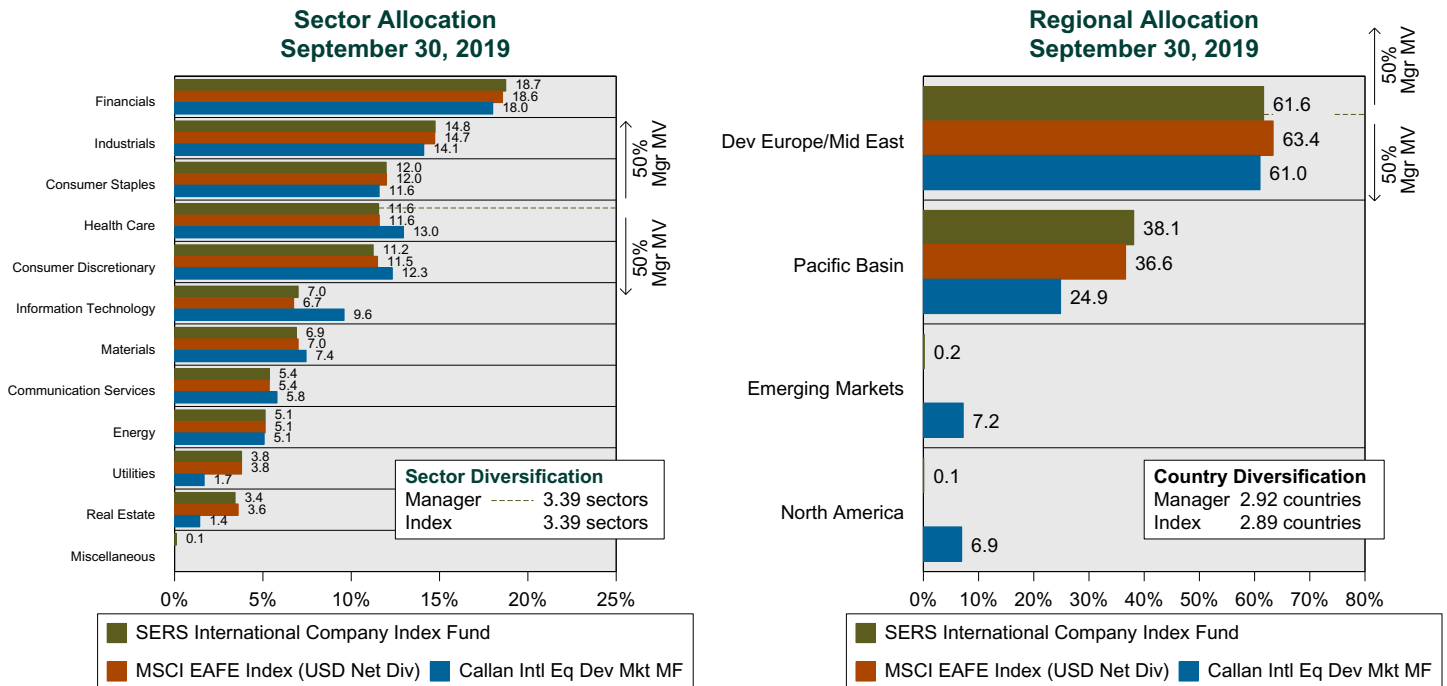
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Portfolio Characteristics Percentile Rankings Rankings Against Callan Intl Eq Developed Mkts MFs as of September 30, 2019



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.



Country Allocation

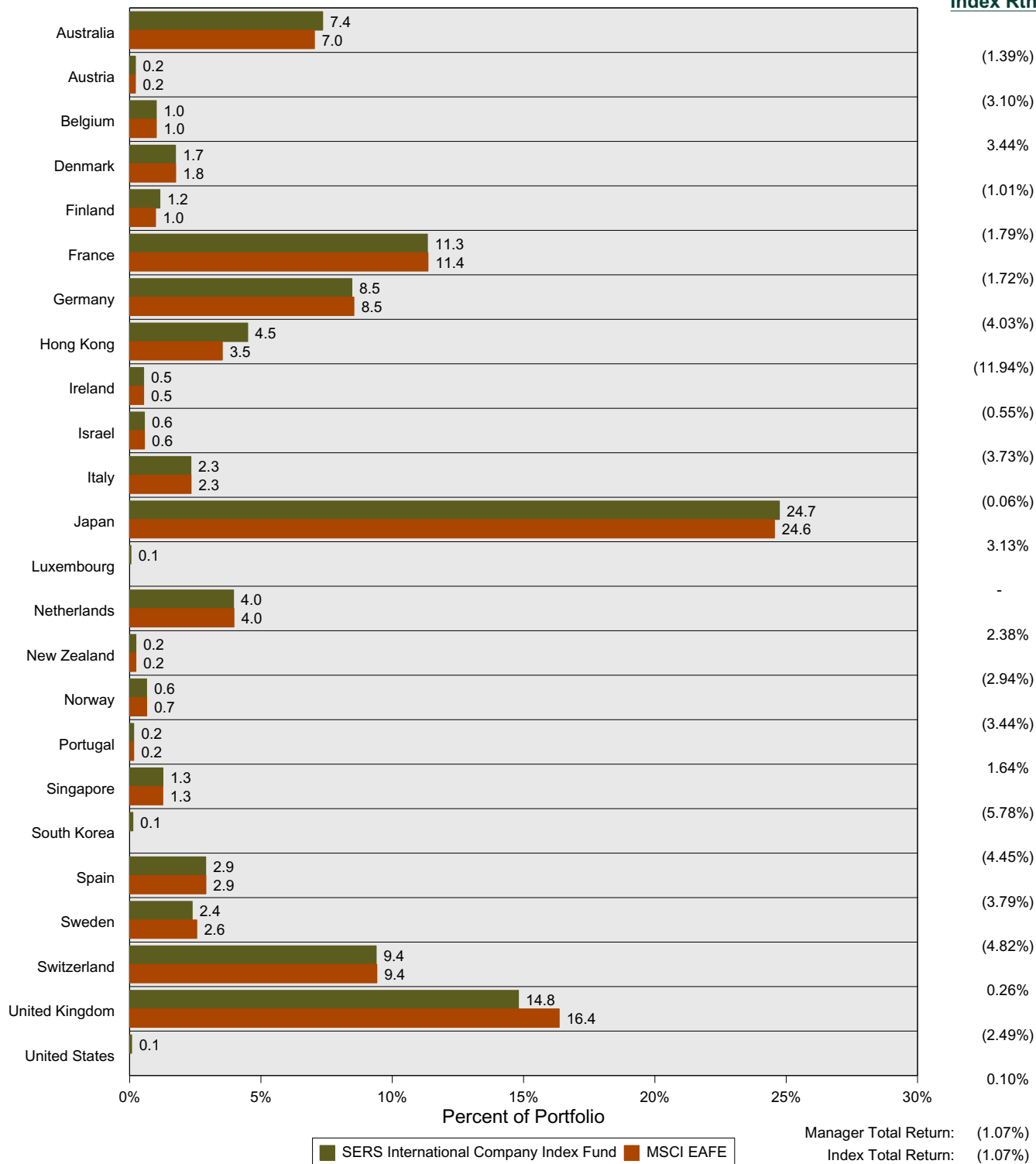
SERS International Company Index Fund VS MSCI EAFE Index (USD Net Div)

Country Allocation

The chart below contrasts the portfolio's country allocation with that of the index as of September 30, 2019. 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 September 30, 2019

Index Rtns



SERS International Company Index Fund Top 10 Portfolio Holdings Characteristics as of September 30, 2019

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
Nestle S A Shs Nom New	Consumer Staples	\$3,786,436	2.4%	4.76%	323.16	23.06	2.26%	8.73%
Roche Hldgs Ag Basel Div Rts Ctf	Health Care	\$2,329,283	1.5%	3.40%	204.64	14.87	2.86%	6.00%
Novartis	Health Care	\$2,122,127	1.3%	(5.14)%	219.34	15.65	3.29%	6.66%
Hsbc Holdings (Gb)	Financials	\$1,772,789	1.1%	(6.65)%	155.94	10.62	6.37%	1.52%
Toyota Motor Corp	Consumer Discretionary	\$1,760,039	1.1%	7.57%	217.87	8.93	3.05%	12.29%
Bp Plc Shs	Energy	\$1,471,692	0.9%	(7.45)%	129.88	11.30	6.24%	10.50%
Royal Dutch Shell A Shs	Energy	\$1,455,309	0.9%	(8.77)%	124.44	10.71	6.21%	12.32%
Total Sa Act	Energy	\$1,434,154	0.9%	(5.68)%	139.22	9.81	5.30%	11.57%
Astrazeneca Plc Ord	Health Care	\$1,335,613	0.8%	10.32%	117.38	21.68	2.96%	15.70%
Sap Se Shs	Information Technology	\$1,315,357	0.8%	(14.09)%	144.78	20.86	1.39%	12.70%

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
Banco Espirito Santo E Comer Ord	Financials	\$7	0.0%	100.00%	0.00	-	0.00%	-
Advantest Corp Ord	Information Technology	\$101,004	0.1%	60.63%	8.82	23.08	1.93%	(21.81)%
Casino Guichard Perrach Et C Act	Consumer Staples	\$29,677	0.0%	39.74%	5.18	14.07	7.12%	12.28%
Tokyo Electron	Information Technology	\$342,055	0.2%	36.85%	31.44	18.45	3.69%	(8.70)%
Nippon Paint Hldgs Co Ltd Shs	Materials	\$86,577	0.1%	33.79%	16.89	37.51	0.80%	10.40%
Renasas Electronics Corp Shs	Information Technology	\$55,697	0.0%	33.33%	11.07	23.81	0.00%	15.00%
So-Net M3	Health Care	\$121,989	0.1%	31.73%	16.34	67.26	0.27%	13.29%
Lend Lease Corp Ltd Ord	Real Estate	\$77,116	0.0%	30.83%	6.69	13.29	2.68%	5.33%
London Stk Exchange Grp Plc Ord	Financials	\$323,010	0.2%	29.36%	31.50	33.47	0.87%	12.10%
Bandai Namco Hldgs Inc Shs	Consumer Discretionary	\$142,396	0.1%	28.70%	13.82	21.22	2.15%	8.10%

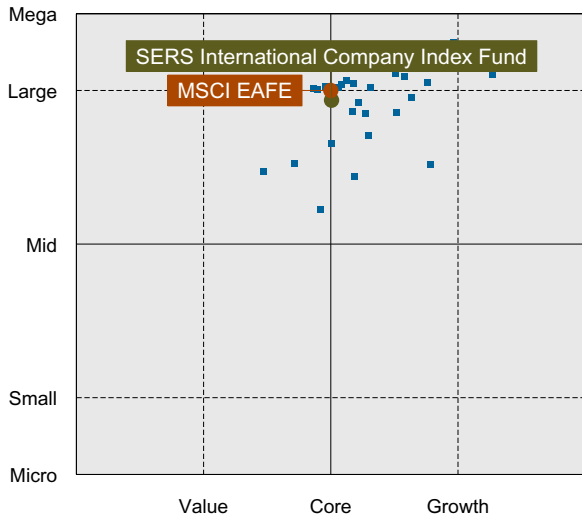
10 Worst Performers

Stock	Sector	Ending Market Value	Percent of Portfolio	Qtrly Return	Market Capital	Price/Forecasted Earnings Ratio	Dividend Yield	Forecasted Growth in Earnings
Yangzijiang Shipbu	Industrials	\$19,471	0.0%	(38.61)%	2.76	6.09	5.21%	(6.28)%
Cimic Group Ltd	Industrials	\$24,648	0.0%	(31.70)%	6.88	12.19	4.99%	(5.97)%
Ipsen Shs	Health Care	\$40,594	0.0%	(30.51)%	7.96	11.77	1.15%	10.94%
Evrax Plc	Materials	\$33,185	0.0%	(28.00)%	8.37	5.75	17.63%	153.22%
Konica Minolta Inc Shs	Information Technology	\$37,101	0.0%	(27.16)%	3.50	9.76	3.99%	0.60%
Teva Pharmaceutical Inds Ltd ADR	Health Care	\$86,554	0.1%	(25.46)%	7.52	(1.98)	0.00%	(7.60)%
Kerry Properties Ltd Ord	Real Estate	\$22,735	0.0%	(25.45)%	4.49	6.30	5.59%	12.79%
Yamato Holdings Co Ltd Ord	Industrials	\$53,356	0.0%	(25.35)%	6.19	16.48	1.72%	8.16%
Pacific Ports	Industrials	\$28,242	0.0%	(24.67)%	6.06	10.83	4.78%	1.52%
Imerys Ord	Materials	\$16,115	0.0%	(24.27)%	3.20	8.58	5.83%	3.00%

Historical Holdings Based Style Analysis SERS International Company Index Fund For Three Years Ended September 30, 2019

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.

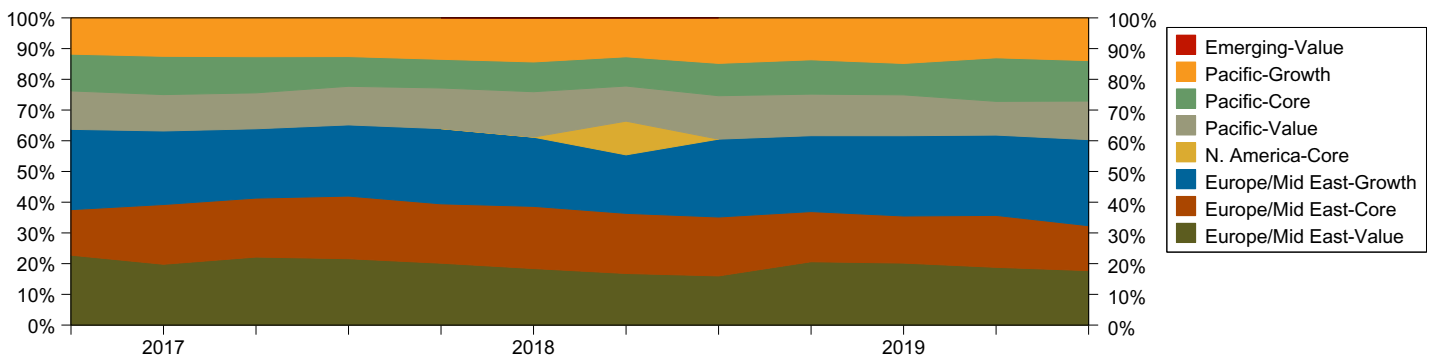
Average Style Map vs Callan Intl Eq Dev Mkt MF Holdings for Three Years Ended September 30, 2019



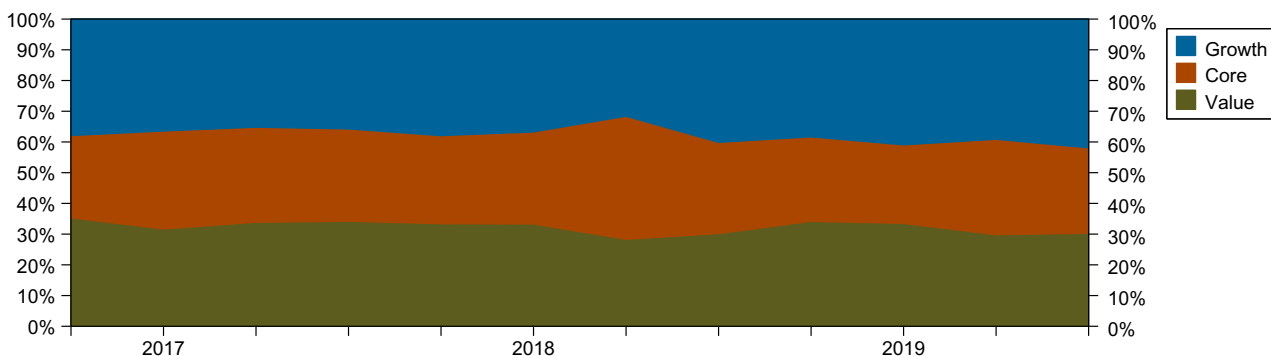
Average Style Exposure Matrix Holdings for Three Years Ended September 30, 2019

	19.6% (128)	17.9% (128)	24.3% (179)	61.9% (435)
Europe/ Mid East	19.9% (134)	18.2% (130)	24.8% (189)	62.9% (453)
N. America	0.0% (0)	0.9% (0)	0.0% (0)	0.9% (0)
Pacific	12.7% (144)	11.1% (151)	13.3% (174)	37.2% (469)
Emerging	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Total	32.3% (272)	30.0% (279)	37.7% (353)	100.0% (904)
	33.0% (279)	29.1% (280)	37.9% (364)	100.0% (923)
	Value	Core	Growth	Total

SERS International Company Index Fund Historical Region/Style Exposures



SERS International Company Index Fund Historical Style Only Exposures



SERS Short Term Investment Fund Period Ended September 30, 2019

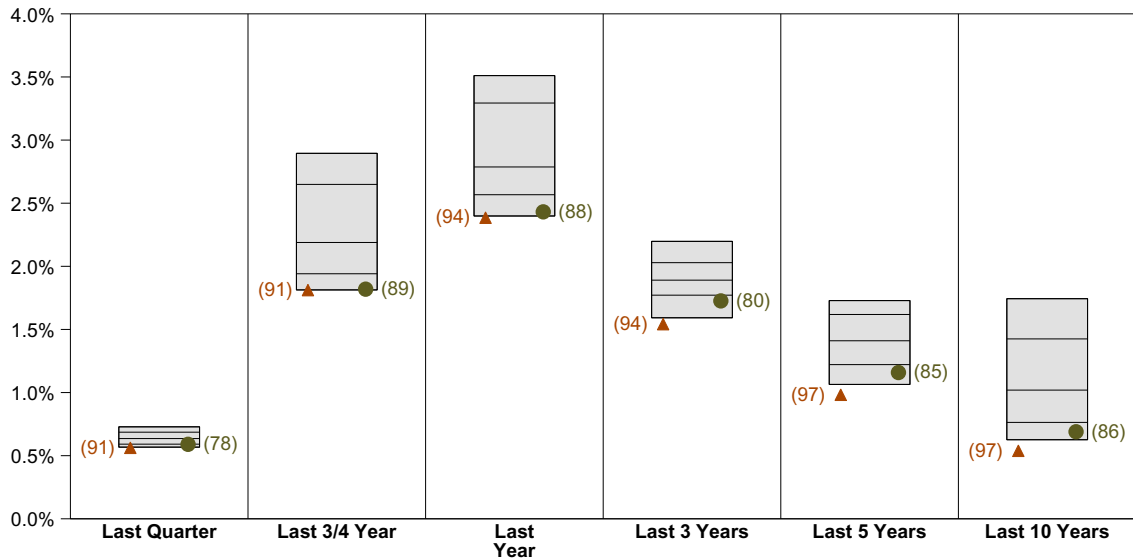
Investment Philosophy

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

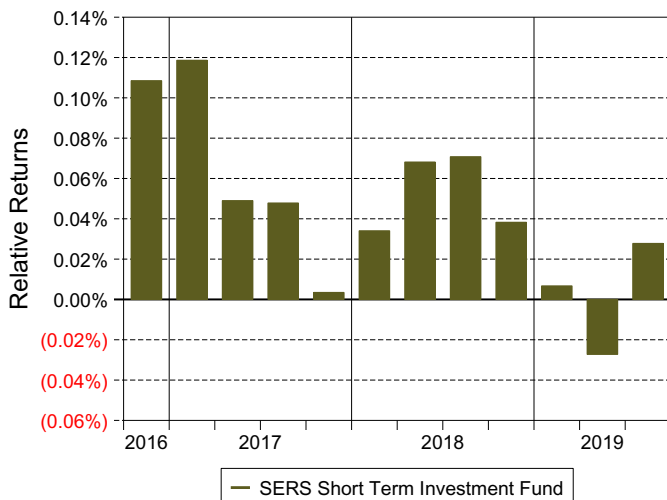
- SERS Short Term Investment Fund's portfolio posted a 0.59% return for the quarter placing it in the 78 percentile of the Callan Cash Database group for the quarter and in the 88 percentile for the last year.
- SERS Short Term Investment Fund's portfolio outperformed the 3-month Treasury Bill by 0.03% for the quarter and outperformed the 3-month Treasury Bill for the year by 0.05%.

Performance vs Callan Cash Database (Gross)

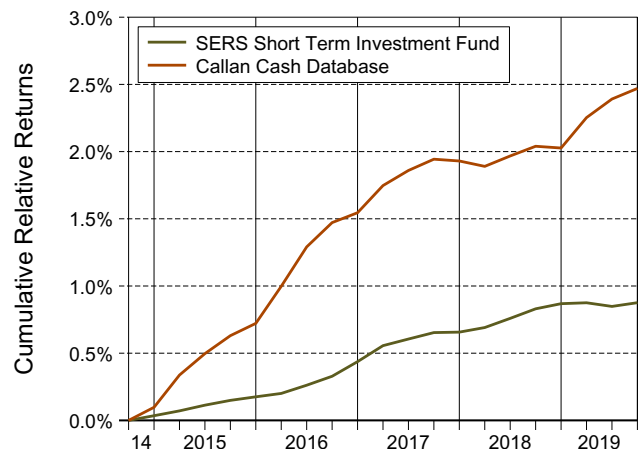


10th Percentile	0.73	2.90	3.51	2.20	1.73	1.74
25th Percentile	0.69	2.65	3.29	2.03	1.62	1.42
Median	0.64	2.19	2.79	1.89	1.41	1.02
75th Percentile	0.59	1.94	2.57	1.77	1.22	0.76
90th Percentile	0.57	1.81	2.40	1.59	1.06	0.63
SERS Short Term Investment Fund	● 0.59	1.82	2.43	1.73	1.16	0.69
3-month Treasury Bill	▲ 0.56	1.81	2.39	1.54	0.98	0.54

Relative Return vs 3-month Treasury Bill



Cumulative Returns vs 3-month Treasury Bill

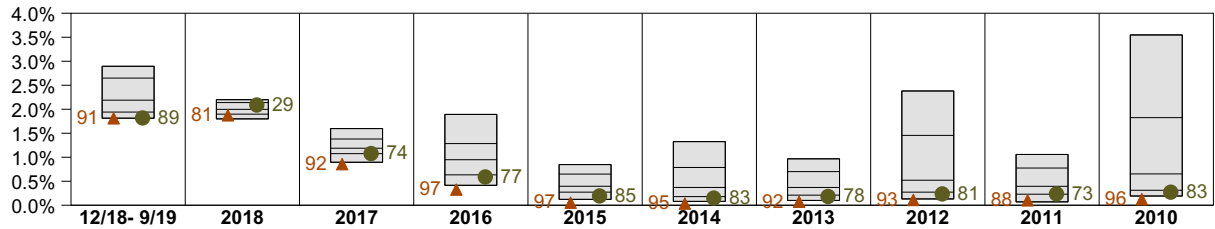


SERS Short Term Investment Fund Return Analysis Summary

Return Analysis

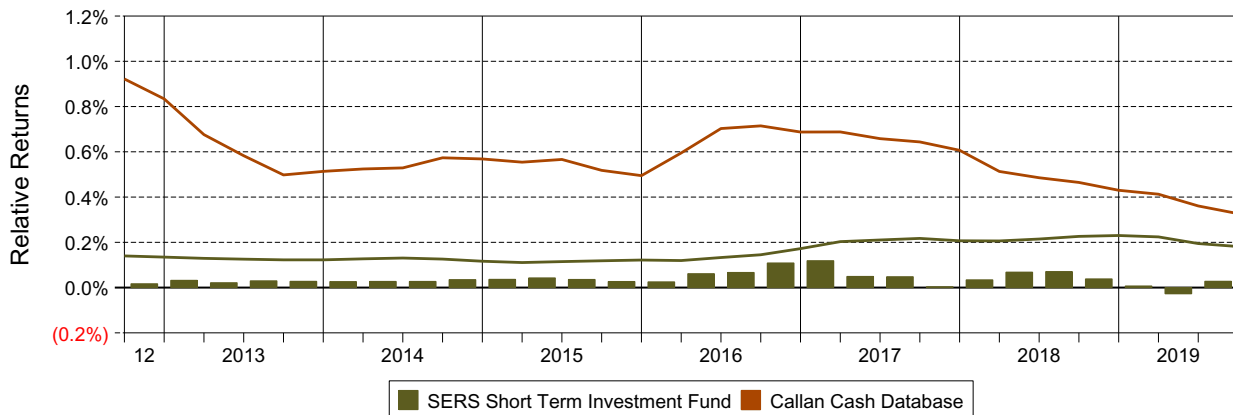
The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and 12 quarter rolling manager returns versus the appropriate 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)

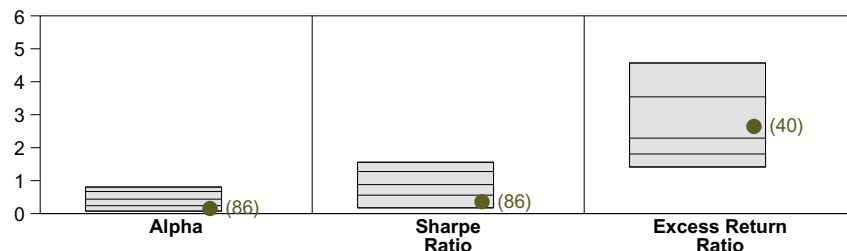


Period	10th Percentile	25th Percentile	Median	75th Percentile	90th Percentile	SERS Short Term Investment Fund	3-month Treasury Bill
12/18-9/19	2.90	2.65	2.19	1.94	1.81	1.82	1.81
2018	2.20	2.14	2.00	1.90	1.80	2.09	1.87
2017	1.60	1.38	1.19	1.08	0.90	1.08	0.86
2016	1.89	1.28	0.95	0.63	0.41	0.59	0.33
2015	0.85	0.65	0.40	0.27	0.12	0.19	0.05
2014	1.33	0.79	0.37	0.18	0.08	0.15	0.03
2013	0.97	0.70	0.37	0.21	0.10	0.18	0.07
2012	2.38	1.45	0.52	0.27	0.13	0.24	0.11
2011	1.06	0.78	0.39	0.23	0.07	0.24	0.10
2010	3.55	1.83	0.65	0.31	0.19	0.27	0.13

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 September 30, 2019



Measure	10th Percentile	25th Percentile	Median	75th Percentile	90th Percentile	SERS Short Term Investment Fund
Alpha	0.81	0.67	0.44	0.24	0.08	0.15
Sharpe Ratio	1.56	1.28	0.88	0.56	0.17	0.36
Excess Return Ratio	4.57	3.54	2.29	1.81	1.41	2.64

SERS Stable Value Fund Period Ended September 30, 2019

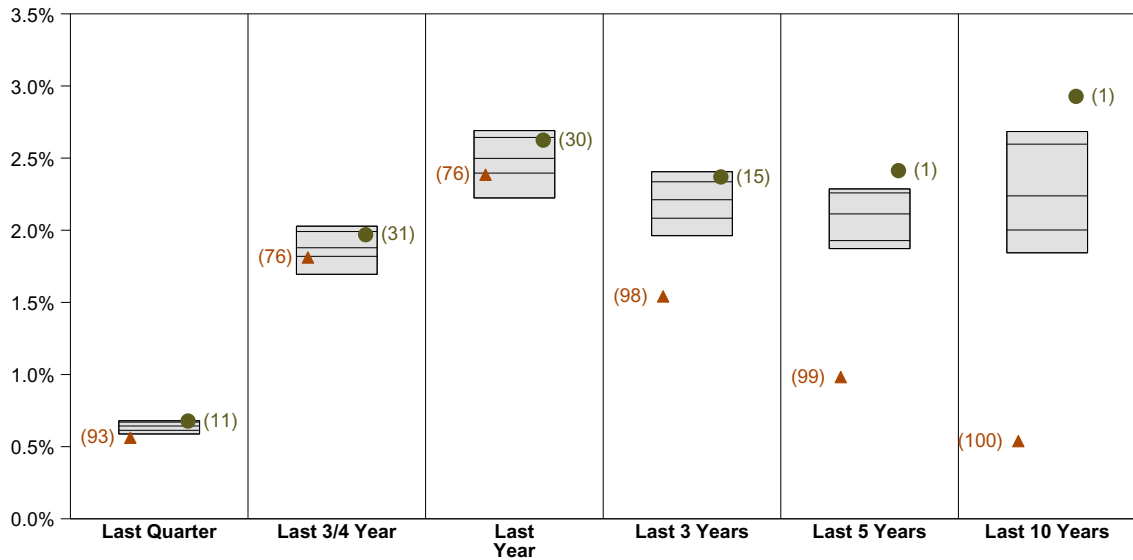
Investment Philosophy

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

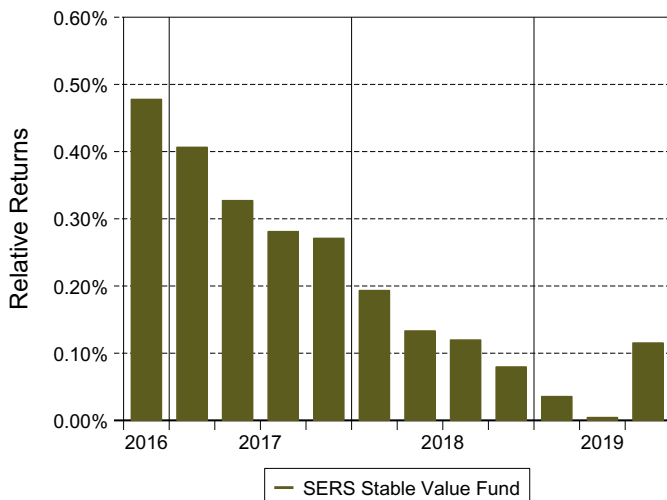
- SERS Stable Value Fund's portfolio posted a 0.68% return for the quarter placing it in the 11 percentile of the Callan Stable Value group for the quarter and in the 30 percentile for the last year.
- SERS Stable Value Fund's portfolio outperformed the 3-month Treasury Bill by 0.12% for the quarter and outperformed the 3-month Treasury Bill for the year by 0.24%.

Performance vs Callan Stable Value (Gross)

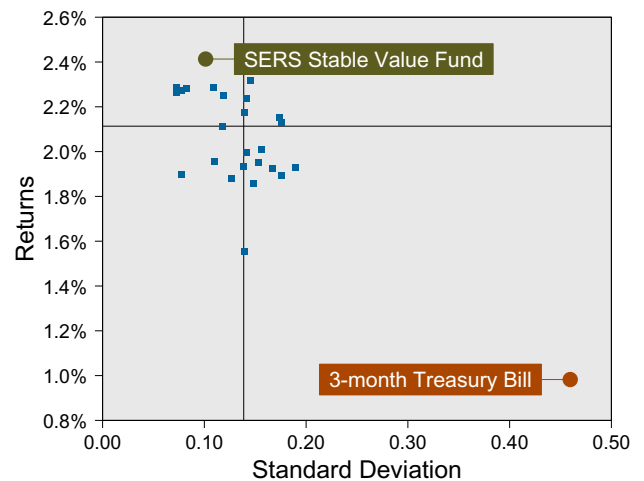


10th Percentile	0.68	2.03	2.69	2.41	2.29	2.68
25th Percentile	0.67	1.99	2.64	2.34	2.26	2.60
Median	0.64	1.88	2.50	2.21	2.11	2.24
75th Percentile	0.61	1.82	2.40	2.08	1.93	2.00
90th Percentile	0.59	1.69	2.22	1.96	1.87	1.84
SERS Stable Value Fund ●	0.68	1.97	2.62	2.37	2.41	2.93
3-month Treasury Bill ▲	0.56	1.81	2.39	1.54	0.98	0.54

Relative Return vs 3-month Treasury Bill



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

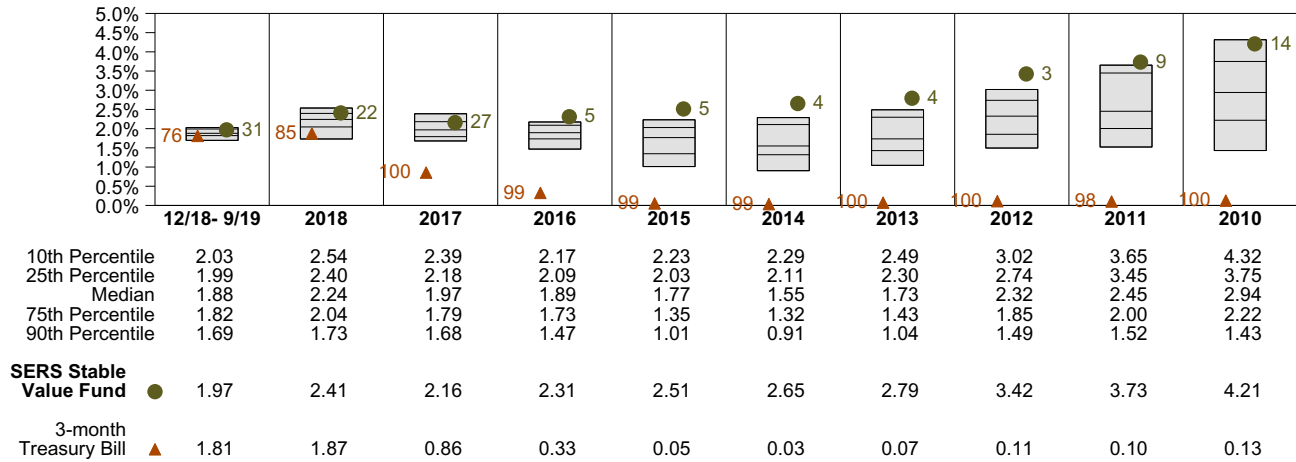


SERS Stable Value Fund Return Analysis Summary

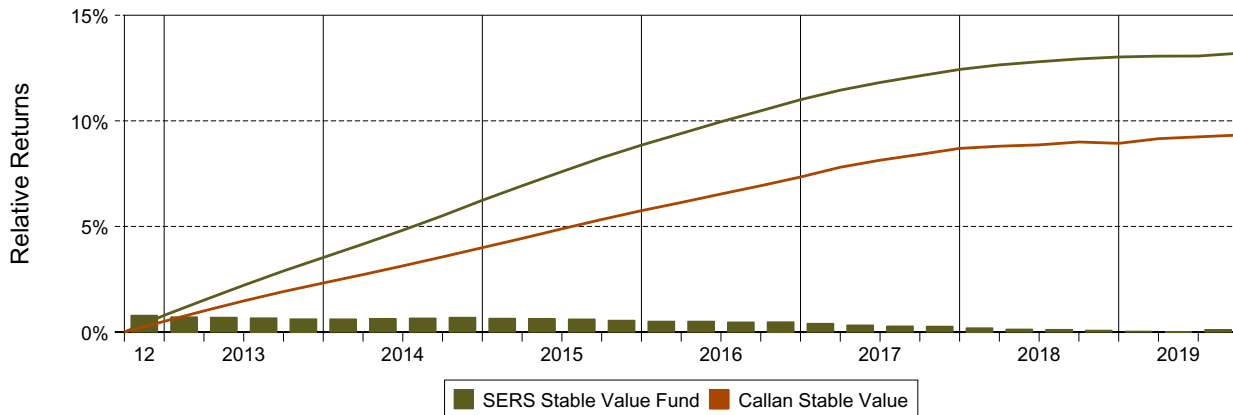
Return Analysis

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.

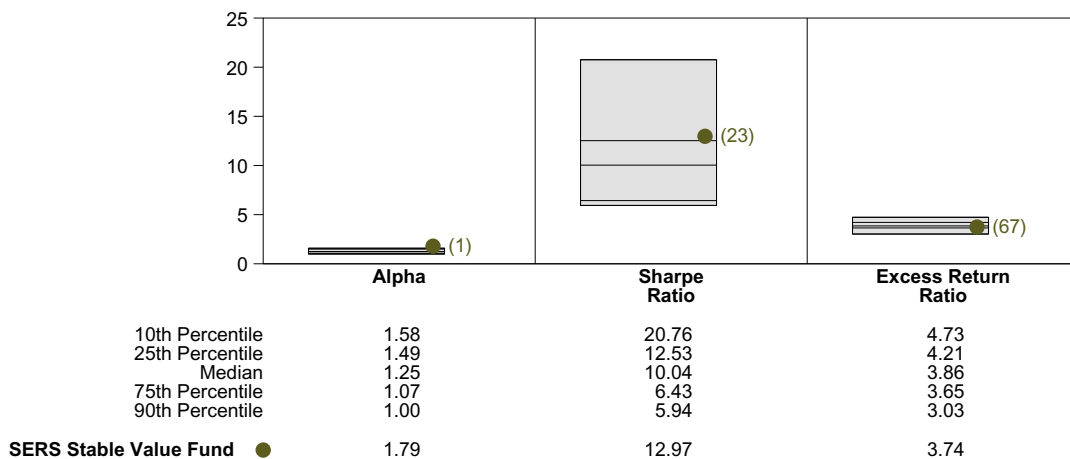
Performance vs Callan Stable Value (Gross)



Cumulative and Quarterly Relative Return vs 3-month Treasury Bill



Risk Adjusted Return Measures vs 3-month Treasury Bill Rankings Against Callan Stable Value (Gross) Seven Years Ended September 30, 2019



SERS U.S. Bond Index Fund

Period Ended September 30, 2019

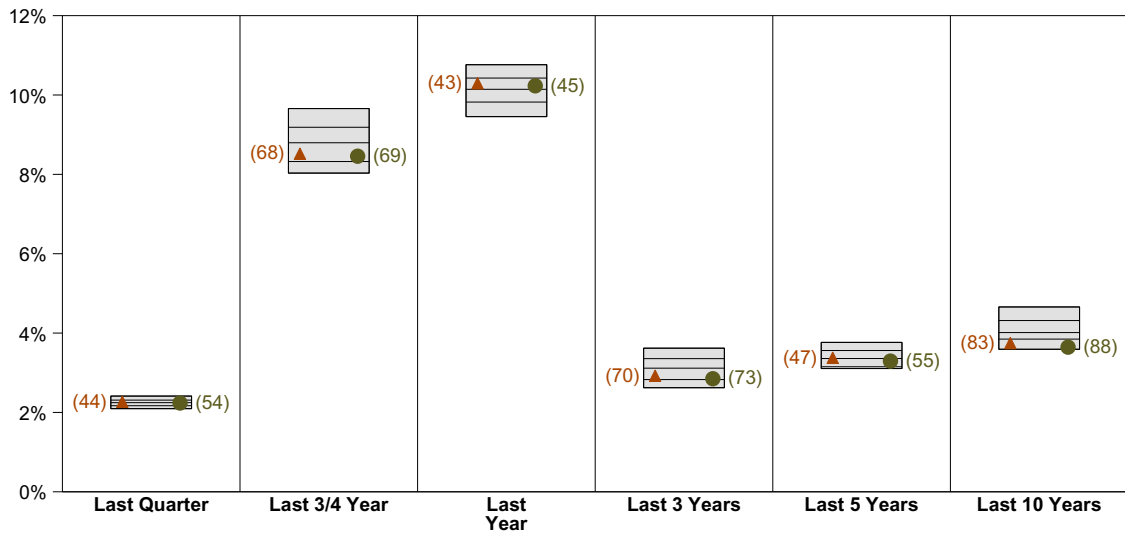
Investment Philosophy

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

Quarterly Summary and Highlights

- SERS U.S. Bond Index Fund's portfolio posted a 2.24% return for the quarter placing it in the 54 percentile of the Callan Core Bond Mutual Funds group for the quarter and in the 45 percentile for the last year.
- SERS U.S. Bond Index Fund's portfolio underperformed the Blmbg Aggregate by 0.03% for the quarter and underperformed the Blmbg Aggregate for the year by 0.06%.

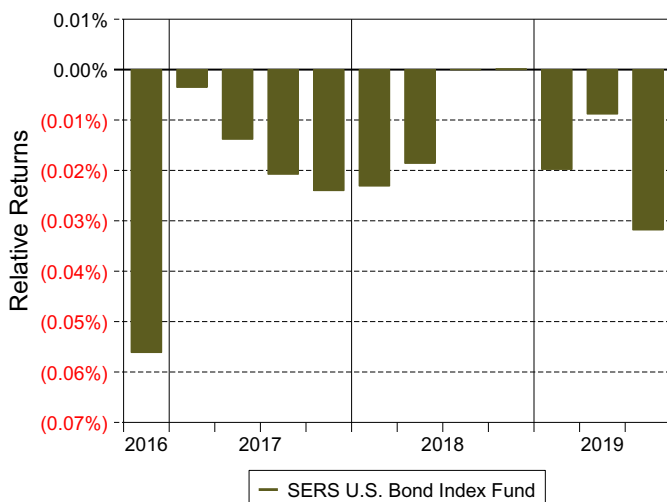
Performance vs Callan Core Bond Mutual Funds (Institutional Net)



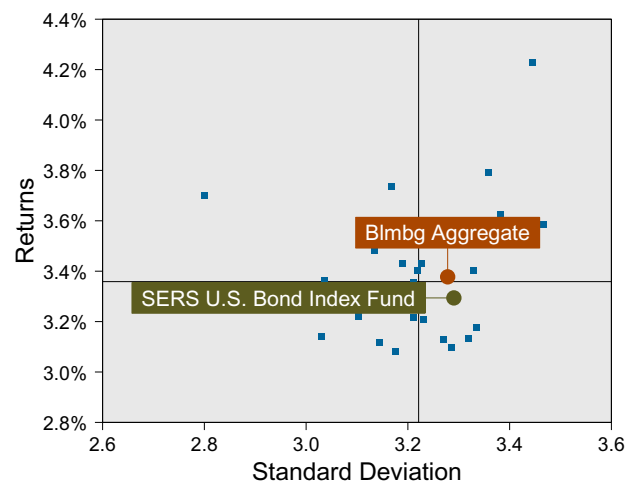
10th Percentile	2.41	9.66	10.76	3.62	3.77	4.66
25th Percentile	2.31	9.19	10.43	3.36	3.56	4.32
Median	2.25	8.80	10.14	3.12	3.36	4.01
75th Percentile	2.17	8.32	9.82	2.83	3.15	3.85
90th Percentile	2.10	8.03	9.45	2.62	3.11	3.59

SERS U.S. Bond Index Fund ●	2.24	8.46	10.23	2.85	3.29	3.65
Blmbg Aggregate ▲	2.27	8.52	10.30	2.92	3.38	3.75

Relative Return vs Blmbg Aggregate



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

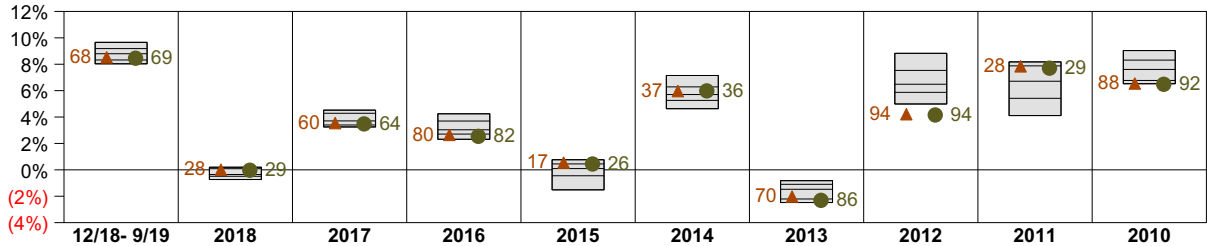


SERS U.S. Bond Index Fund Return Analysis Summary

Return Analysis

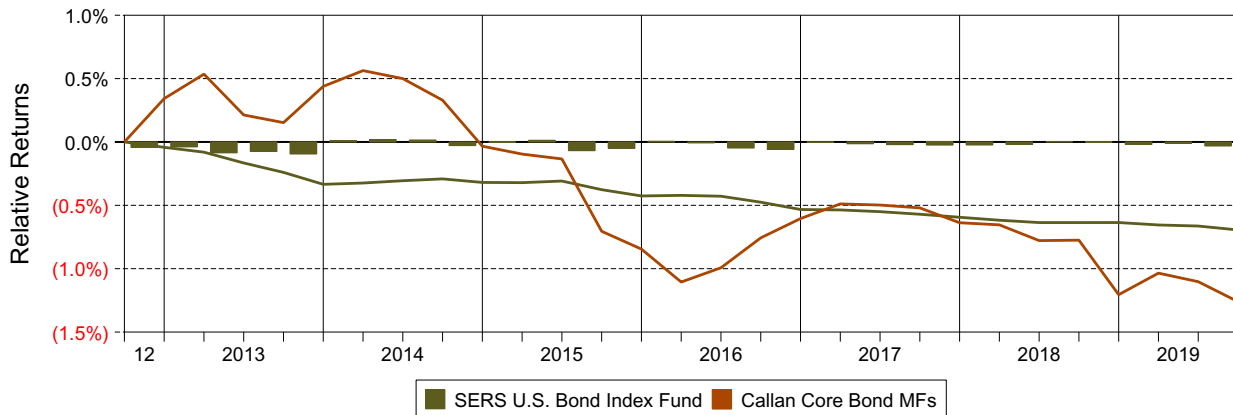
The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate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

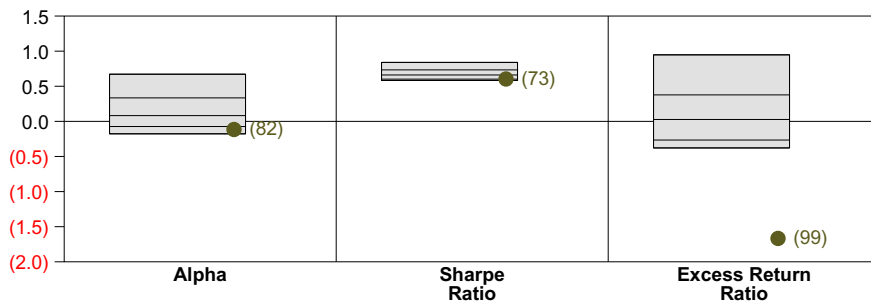


	12/18- 9/19	2018	2017	2016	2015	2014	2013	2012	2011	2010
10th Percentile	9.66	0.20	4.52	4.25	0.77	7.15	(0.82)	8.83	8.18	9.04
25th Percentile	9.19	0.09	4.28	3.70	0.45	6.29	(1.10)	7.53	7.88	8.31
Median	8.80	(0.35)	3.71	3.03	0.10	5.71	(1.47)	6.49	6.71	7.61
75th Percentile	8.32	(0.49)	3.40	2.71	(0.45)	5.26	(2.21)	5.87	5.42	6.77
90th Percentile	8.03	(0.73)	3.25	2.31	(1.52)	4.63	(2.48)	4.99	4.11	6.52
SERS U.S. Bond Index Fund	8.46	(0.03)	3.48	2.54	0.44	5.98	(2.31)	4.16	7.70	6.48
Blmbg Aggregate	8.52	0.01	3.54	2.65	0.55	5.97	(2.02)	4.21	7.84	6.54

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 September 30, 2019



	Alpha	Sharpe Ratio	Excess Return Ratio
10th Percentile	0.67	0.84	0.95
25th Percentile	0.33	0.73	0.38
Median	0.08	0.66	0.03
75th Percentile	(0.07)	0.60	(0.27)
90th Percentile	(0.18)	0.58	(0.38)
SERS U.S. Bond Index Fund	(0.12)	0.60	(1.67)

SERS U.S. Bond Index Fund

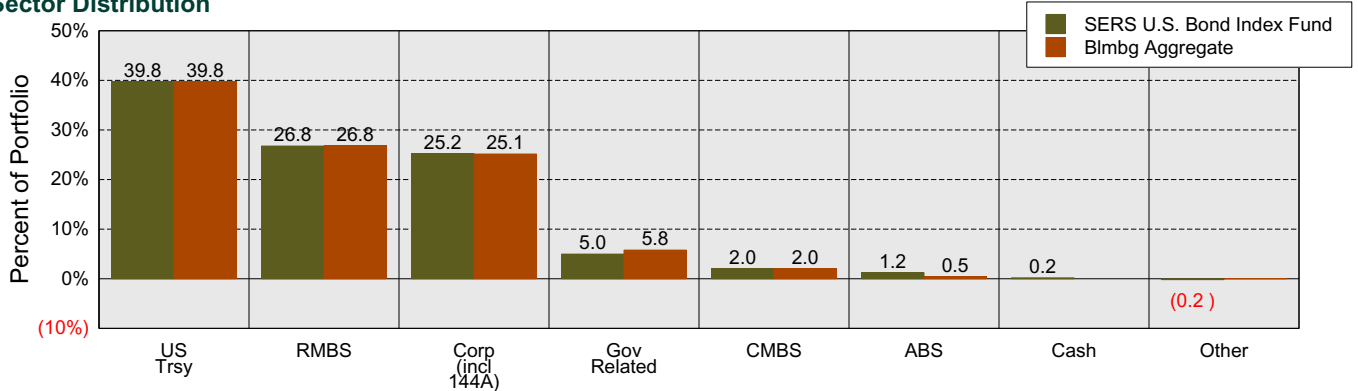
Portfolio Characteristics Summary

As of September 30, 2019

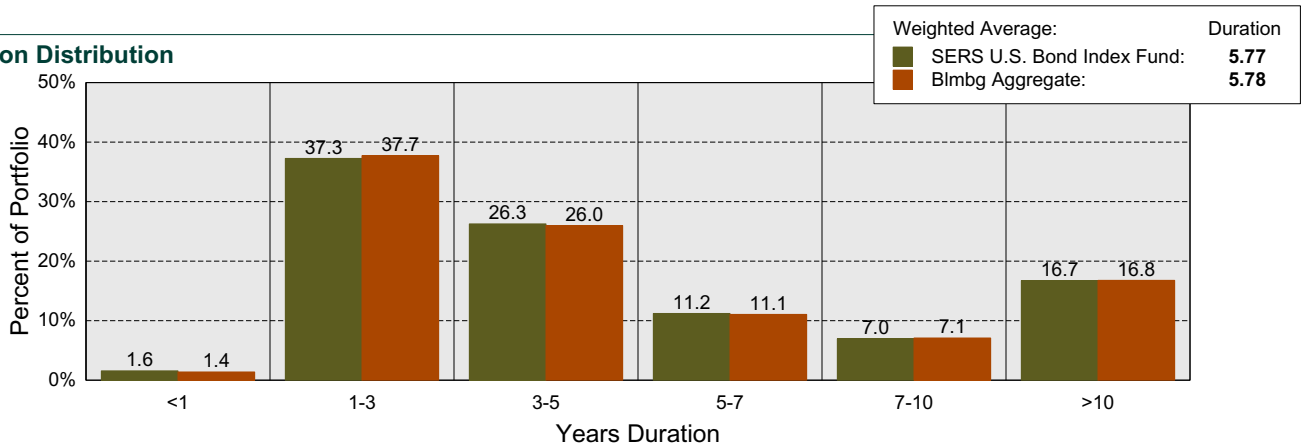
Portfolio Structure Comparison

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.

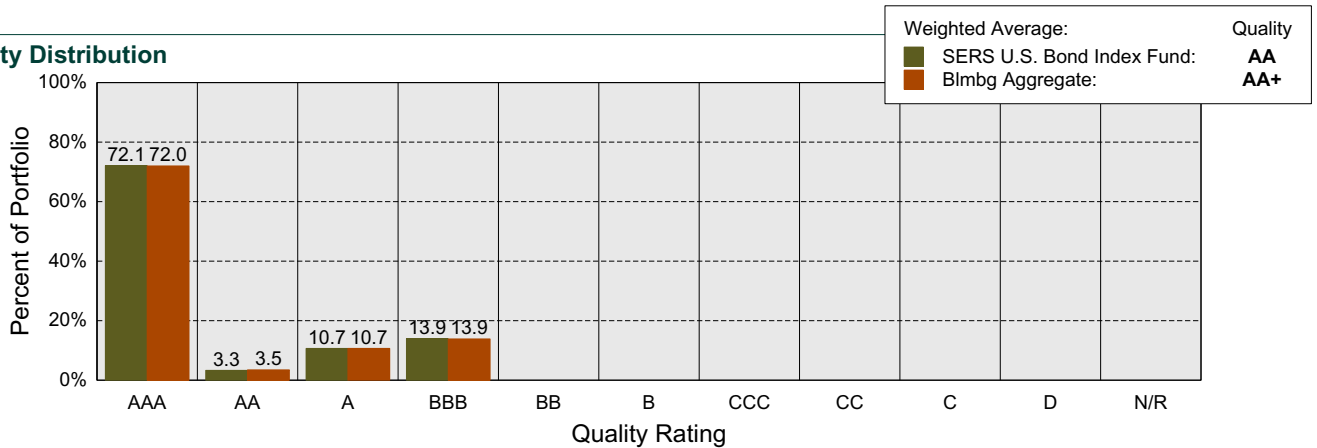
Sector Distribution



Duration Distribution



Quality Distribution



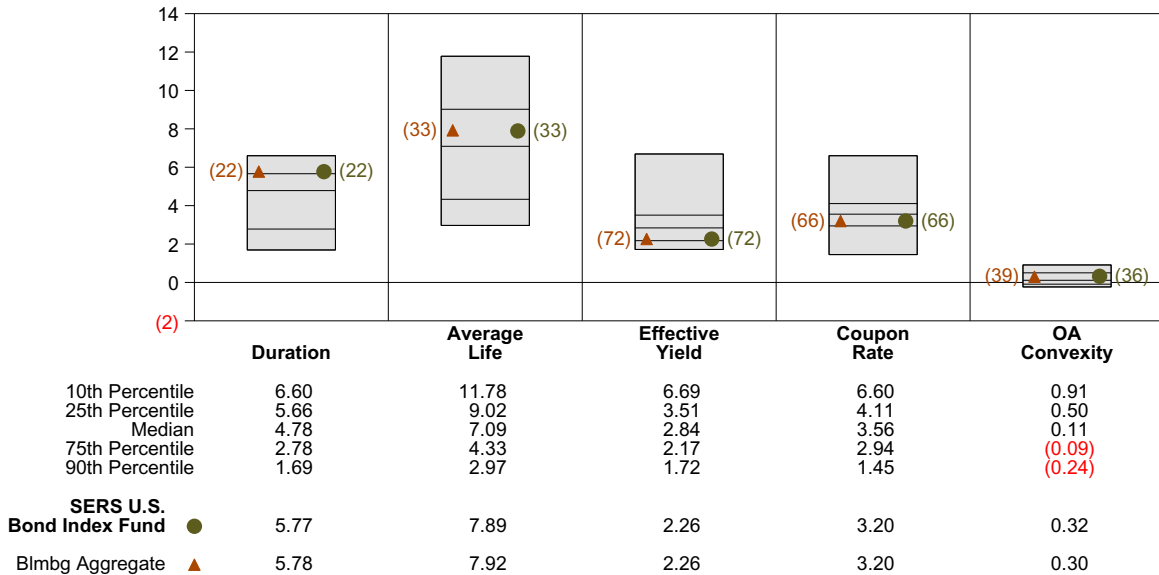
SERS U.S. Bond Index Fund

Bond Characteristics Analysis Summary

Portfolio Characteristics

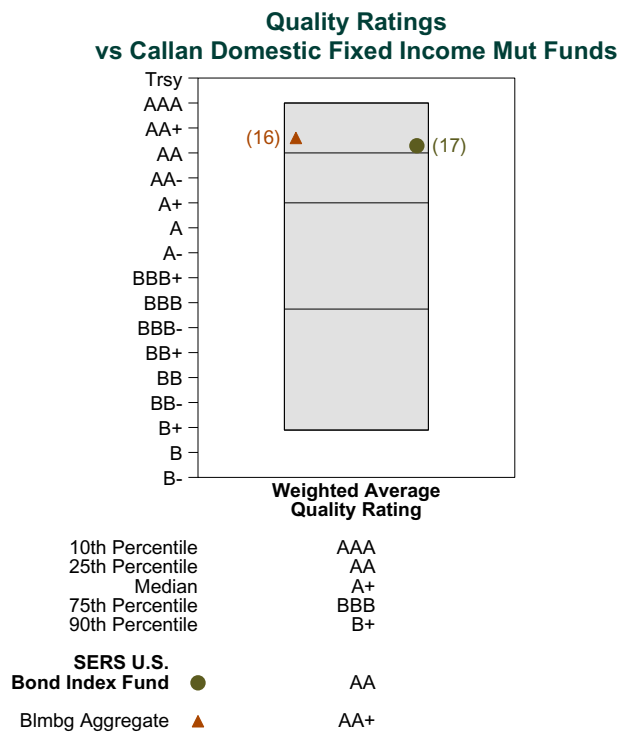
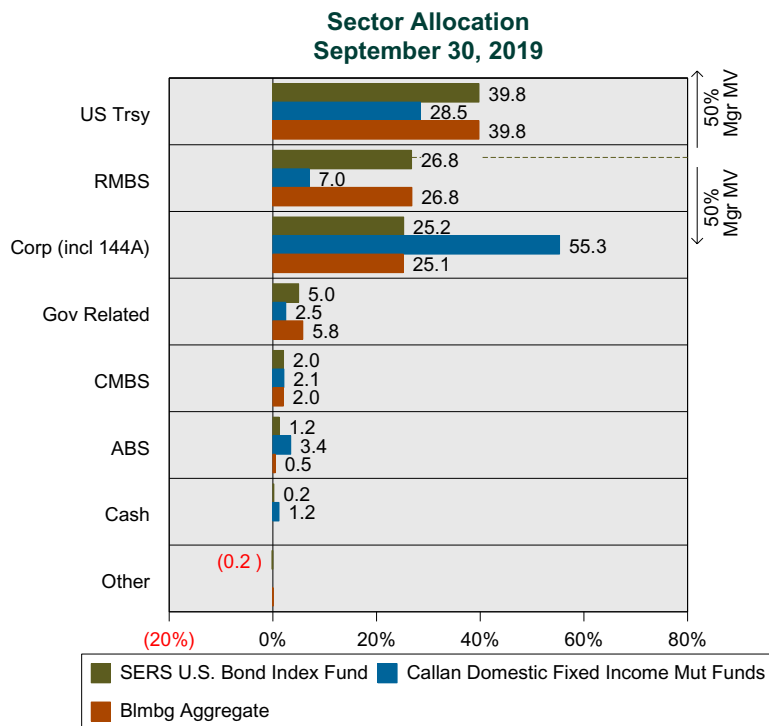
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Fixed Income Portfolio Characteristics Rankings Against Callan Domestic Fixed Income Mut Funds as of September 30, 2019



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.

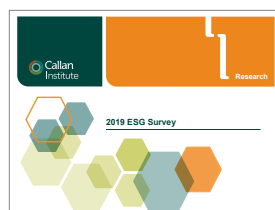
Research and Educational Programs

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

DTS Offers Some Key Advantages for Evaluating Fixed Income Portfolios

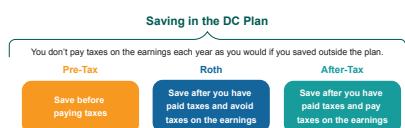
This paper describes duration times spread (DTS), which measures systematic credit-spread risk exposure. DTS estimates the return of any bond, by percentage, if its spread were to change from the current level, all else equal. DTS offers several advantages for monitoring risk in credit portfolios over other methods.



2019 ESG Survey | Callan’s seventh annual survey assessing the status of environmental, social, and governance (ESG) investing in the U.S. institutional investment market.

Callan’s DC Index in Detail | A video about the Callan DC Index™: why we started it, what it measures, and how it can benefit defined contribution plan sponsors.

DC Plan Hacks: Tips for an Efficient Design



plan sponsors should regularly evaluate their plans to make sure they serve the organization’s

benefits philosophy. When evaluating changes, the sponsor should consider its demographics, cost of benefits, vendor capabilities, impact on nondiscrimination testing, communication capabilities, and legal requirements.

2019 June Workshop Summary: In the Age of Illiquidity | For many nonprofits and defined benefit plans, the shift to higher-returning but less liquid asset classes has myriad implications. This summary discusses how consultants, institutional investors, and investment managers can work together to identify solutions tailored to each plan.

The Keys to Unlocking Private Equity Portfolio Assessment

Private equity performance evaluation has some unique considerations, so return calculations and benchmarking methodologies differ from public securities. Closed-end private equity vehicles are assessed using ratio analyses and internal rate of return (IRR) measures. Using performance metrics, private equity portfolios can be evaluated at the partnership level, at the vintage year level, and then at the total portfolio level.

Survivorship Bias and the Walking Dead

Survivorship bias, the predisposition to evaluate a data set by focusing on the “survivors” rather than also examining the record of non-survivors, is important to understand for hedge fund peer groups, which tend to have a relatively large number of constituents that disappear. Using a proprietary approach, Callan is able to adjust peer group comparisons for survivorship bias. This better-informed perspective enables a more honest assessment in considering performance relative to other opportunities.

Quarterly Periodicals

Private Equity Trends | A newsletter on private equity activity, covering both the fundraising cycle and performance over time.

Market Pulse Flipbook | A market reference guide covering trends in the U.S. economy, developments for institutional investors, and the latest data for U.S. and non-U.S. equities and fixed income, alternatives, and defined contribution plans.

Active vs. Passive Charts | This series of charts compares active managers alongside relevant benchmarks over the long term.

Capital Market Review | A newsletter providing analysis and a broad overview of the economy and public and private market activity each quarter across a wide range of asset classes.

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.

2020 National Conference

Celebrating the 40th anniversary of the Callan Institute
January 27-29, 2020 – San Francisco

Please also keep your eye out for upcoming Webinars in 2019! We will be sending invitations to register for these events and will also have registration links on our website at www.callan.com/webinarsupcoming.

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

The Center for Investment Training Educational Sessions

The Center for Investment Training, better known as the “Callan College,” provides a foundation of knowledge for industry professionals who are involved in the investment decision-making process. It was founded in 1994 to provide clients and non-clients alike with basic- to intermediate-level instruction.

Introduction to Investments

April 21-22, 2020

July 21-22, 2020

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 who have less than two years of experience with asset-management oversight and/or support responsibilities. Tuition for the Introductory “Callan College” session is \$2,350 per person. Tuition includes instruction, all materials, breakfast and lunch on each day, and dinner on the first evening with the instructors.

Learn more at www.callan.com/events/callan-college-intro

Education: By the Numbers

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

50+ Unique pieces of research the Institute generates each year

3,700 Total attendees of the “Callan College” since 1994

1980 Year the Callan Institute was founded



“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.
Alcentra
AllianceBernstein
Allianz Global Investors
Allianz Life Insurance Company of North America
American Century Investments
Amundi Pioneer Asset Management
AQR Capital Management
Ares Management LLC
Ariel Investments, LLC
Atlanta Capital Management Co., LLC
Aurelius Capital Management
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
Capital Group
Carillon Tower Advisers
CastleArk Management, LLC
Causeway Capital Management LLC
Chartwell Investment Partners

Manager Name
ClearBridge Investments, LLC
Cohen & Steers Capital Management, Inc.
Columbia Threadneedle Investments
Columbus Circle Investors
Corbin Capital Partners, L.P.
Cooke & Bieler, L.P.
Credit Suisse Asset Management
DePrince, Race & Zollo, Inc.
Diamond Hill Capital Management, 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 Investors
Fidelity Institutional Asset Management
Fiera Capital Corporation
Financial Engines
First Hawaiian Bank Wealth Management Division
First State Investments
Fisher Investments
Franklin Templeton
Fred Alger Management, Inc.
GAM (USA) Inc.
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.

Manager Name
Heitman LLC
Hotchkis & Wiley Capital Management, LLC
HSBC Global Asset Management
Income Research + Management, Inc.
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
Jarislowsky Fraser Global Investment Management
Jennison Associates LLC
Jobs Peak Advisors
KeyCorp
Lazard Asset Management
Legal & General Investment Management America
Lincoln National Corporation
LMCG Investments, LLC
Logan Circle Partners, L.P.
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
MFS Investment Management
MidFirst Bank
Mondrian Investment Partners Limited
Montag & Caldwell, LLC
Morgan Stanley Investment Management
Mountain Lake Investment Management LLC
Mountain Pacific Advisors, LLC
MUFG Union Bank, N.A.
Natixis Investment Managers
Neuberger Berman
Newton Investment Management
Nikko Asset Management Co., Ltd.
Northern Trust Asset Management
Nuveen
OFI Global Asset Management

Manager Name
Osterweis Capital Management, LLC
P/E Investments
Pacific Investment Management Company
Pathway Capital Management
Peregrine Capital Management, LLC.
Perkins Investment Management
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.
Rockefeller Capital Management
Rothschild & Co. Asset Management US
Russell Investments
Schroder Investment Management North America Inc.
Smith Graham & Co. Investment Advisors, L.P.
South Texas Money Management, Ltd.
State Street Global Advisors
Strategic Global Advisors
Stone Harbor Investment Partners, L.P.
Sun Life Investment Management
T. Rowe Price Associates, Inc.
The TCW Group, Inc.
Thompson, Siegel & Walmsley LLC
Thornburg Investment Management, Inc.
Tri-Star Trust Bank
UBS Asset Management
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