

February 25, 2020



**Pennsylvania State Employees'
Retirement System – 457(b) Plan**

Fourth Quarter 2019

Executive Summary

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Market Environment

Does Strong 2019 Spell Problems for 2020 and Beyond?

Fed rate cuts, solid corporate fundamentals, and even lower unemployment propelled U.S. equity markets in Q4.

Equity markets around the globe surged in Q4, and closed the year with outsized returns.

- S&P 500 Index was up 31.5%, MSCI World ex USA Index was up 22.5%, and MSCI Emerging Markets Index was up 18.4%. One-year results look particularly strong thanks to the sharp drop in Q4 2018 - lower starting point.

Prospect of a trade deal helped boost global ex-U.S. markets.

- Economic weakness, trade concerns remain for developed ex-U.S. and EM equities.

Fixed income markets enjoyed an “outlier” year.

- Bloomberg Aggregate Index was up 8.7%, contrary to all forecasts
- Investment grade credit the strongest performer in the U.S.; long credit was up 22.4%
- Yield curve shifted lower across maturities; inverted from 90-day to 10-year in April, then from 2- to 10-year in August, but ended the year no longer inverted.

Returns for Periods ended December 31, 2019

	1 Quarter	1 Year	5 Years	10 Years	25 Years
U.S. Equity					
Russell 3000	9.10	31.02	11.24	13.42	10.21
S&P 500	9.07	31.49	11.70	13.56	10.22
Russell 2000	9.94	25.52	8.23	11.83	9.35
Global ex-U.S. Equity					
MSCI World ex USA	7.86	22.49	5.42	5.32	5.31
MSCI Emerging Markets	11.84	18.44	5.61	3.68	--
MSCI ACWI ex USA Small Cap	11.01	22.42	7.04	6.92	5.93
Fixed Income					
Bloomberg Barclays Aggregate	0.18	8.72	3.05	3.75	5.56
90-day T-Bill	0.46	2.28	1.07	0.58	2.47
Bloomberg Barclays Long Gov/Credit	-1.12	19.59	5.42	7.59	7.90
Bloomberg Barclays Global Agg ex-US	0.67	5.09	1.62	1.50	4.38
Real Estate					
NCREIF Property	1.55	6.42	8.25	10.17	9.34
FTSE Nareit Equity	-0.76	26.00	7.21	11.94	10.64
Alternatives					
CS Hedge Fund	2.44	9.31	2.65	4.25	7.84
Cambridge Private Equity*	0.90	9.50	12.37	13.75	15.30
Bloomberg Commodity	4.42	7.69	-3.92	-4.73	1.70
Gold Spot Price	3.41	18.87	5.16	3.34	5.66
Inflation - CPI-U	0.08	2.29	1.82	1.75	2.18

*Cambridge PE data through September 30, 2019.

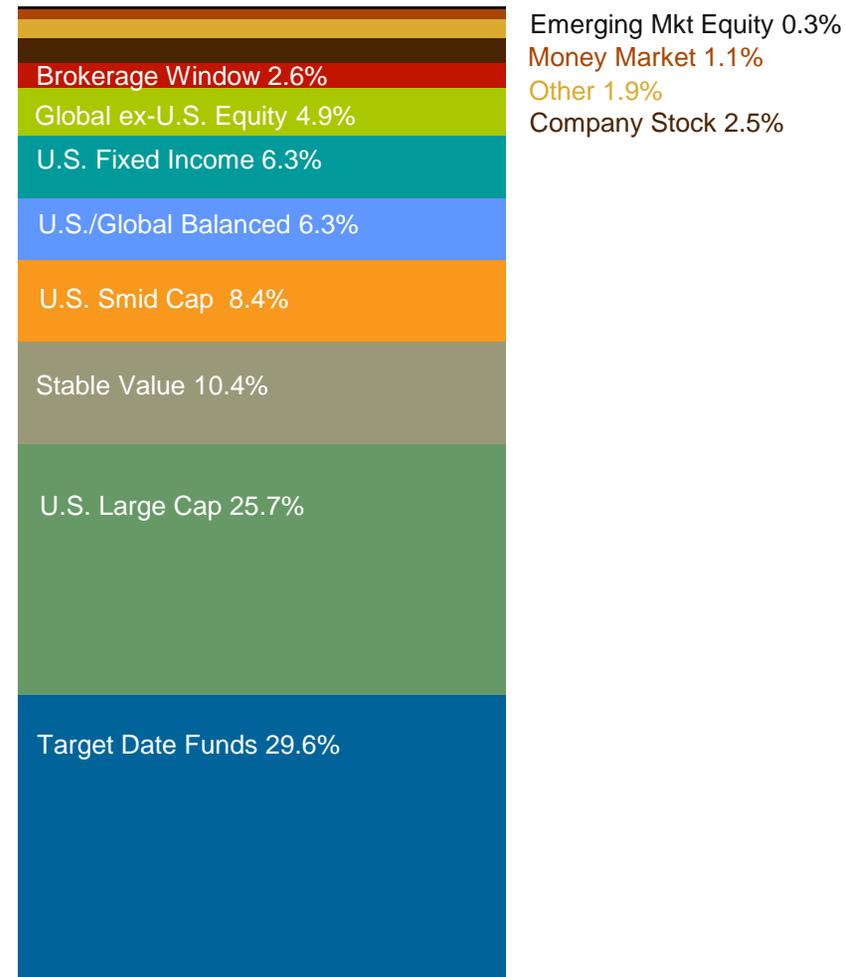
Source: Callan

Callan DC Index™

Net Cash Flow Analysis (as % of Total Net Flows)

Asset Class	3Q19
Alternatives/Other	-0.79%
Brokerage Window	-2.81%
Company Stock	-9.68%
Emerging Market Equity	-1.23%
Global Equity	-2.48%
High Yield	0.42%
Money Market	4.14%
Global ex-U.S. Equity	-5.92%
Global/Global ex-U.S. Fixed Income	-0.27%
Real Estate	0.59%
Real Return/TIPS	-0.10%
Specialty Equity/Sector	0.12%
Stable Value	9.69%
Target Date Funds	26.18%
U.S. Fixed Income	57.73%
U.S. Large Cap	-52.23%
U.S. Smid Cap	-19.09%
U.S./Global Balanced	-5.39%
Total Turnover*	0.35%

Asset Allocation as of 9/30/2019



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

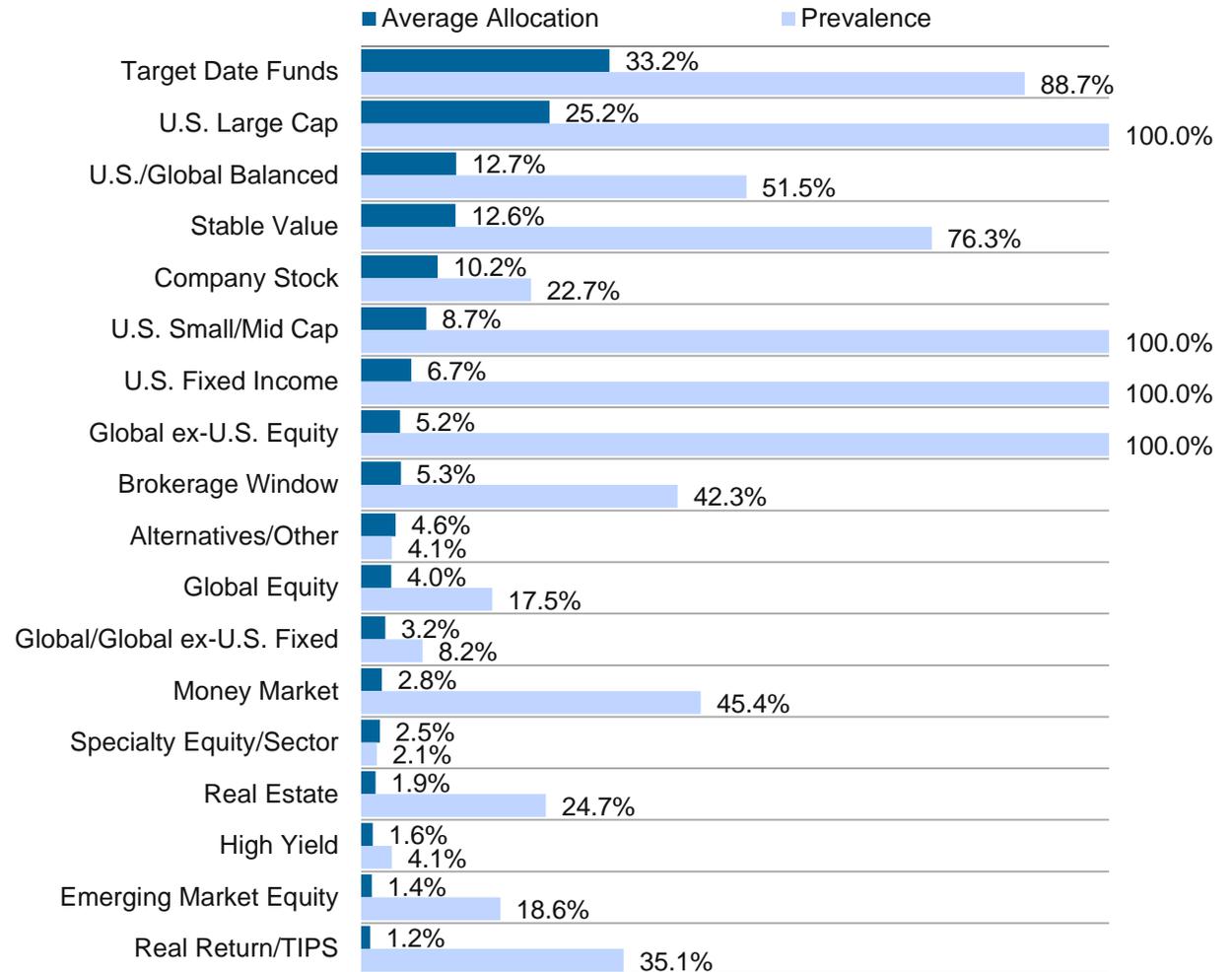
Note: Data provided is the most recent available at time of publication.

Source: Callan

Prevalence of PA SERS 457b Funds versus Callan’s DC Index:

- **The Risk Based / Balanced Funds** allocation of approximately 19% is higher than the average of 13%. The Board voted to replace the Risk Based / Balanced Funds with the BlackRock Target Date Funds. These changes took place in January of 2020.
- **The Stable Value Fund** allocation is approximately 28%, which is larger than the average allocation of 13%.
- **Investments in Large Cap Stock Index Fund** represents approximately 27% of the Plan, a similar percentage compared to the average allocation of 25%.
- It is important to note that the DC Index presents typical allocations. Asset allocation figures from the Index do not represent ideal allocations but rather demonstrate how the SERS plan differs from others.

Prevalence of Funds in DC Plans as of September 30, 2019



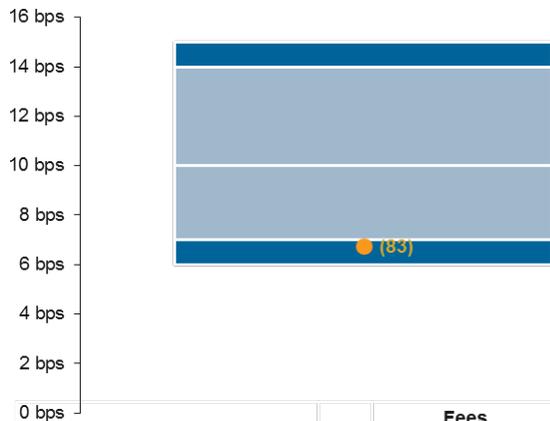
Defined Contribution & Deferred Compensation Trends

TDF Fee compression

TDFs feeling the squeeze

- TDFs are not immune to fee compression experienced across other asset classes.
- In just the past two years, the median fee across all vintages (mutual funds and collective trusts) has been reduced by 4 bps, a reduction of nearly 10%.
- PA SERS current TDF Fee of 6.75 bps places the TDF suite in the 83rd Percentile of passive CIT target date fund peers' fees.

Effective Annual Fee
Group: Passive CIT TDF Family



	Fees
10th percentile	15
25th percentile	14
Median	10
75th percentile	7
90th percentile	6
PA SERS BlackRock TDF	6.75
No. of TDF Family Observations	12 TDF Series

Cheapest Fee for Various Periods
Group: Callan Target Date 2035



Callan 2020 DC Trends Survey - Fiduciary Positioning

- For the fourth year in a row, plan sponsors ranked reviewing plan fees as the most important step they took over the past 12 months to improve the fiduciary position of their DC plan. This action ranked significantly higher than any other activity undertaken.
- Implementing, updating, or reviewing the investment policy statement came in second. Conducting formal fiduciary training ranked third, followed by replacing fund manager(s), conducting a plan audit, and reviewing compliance.

Rank of actions taken to improve fiduciary positioning

	2016	2017	2018	2019	Ranking
<p>Most important</p> <p>Least important</p>	Reviewed plan fees	Reviewed plan fees	Reviewed plan fees	Reviewed plan fees	4.0
	Updated or reviewed IPS	Updated or reviewed IPS	Implemented, updated or reviewed IPS	Implemented, updated, or reviewed IPS	2.1
	Reviewed compliance	Conducted formal fiduciary training	Conducted plan audit	Conducted formal fiduciary training	1.9
	Conducted formal fiduciary training	Changed investment menu	Changed investment menu	Replaced fund manager(s)	1.7
	Changed investment menu	Conducted plan audit	Conducted formal fiduciary training	Conducted plan audit	1.5
	Replaced fund manager(s)	Reviewed compliance with fiduciary rule	Reviewed compliance	Reviewed compliance	1.2
	Other (e.g., plan audit, operational processes)	Replaced fund manager(s)	Replaced fund manager(s)	Changed investment menu	1.1
	Reviewed/changed QDIA	Audited security protocols	Audited security protocols	Audited security protocols	0.8
	Audited security protocols	Changed/hired investment consultant	Reviewed/changed QDIA	Reviewed/changed QDIA	0.6
	Changed communication approach	Reviewed/changed QDIA	Changed/hired investment consultant	Other (e.g., operational processes)	0.6

(5=Most important. Total ranking is weighted average score.)

Additional categories (2019): Changed/hired investment consultant (0.4); evaluated/implemented 3(38) discretionary services (0.3); implemented a written fee payment policy statement (0.2); changed recordkeeper (0.1); changed trustee/custodian (0.1).

Consultant Survey: Historical Analysis

Fees, retirement income solutions, and SECURE Act are top of mind

As in past quarters, fees continued to be the most important issue for defined contribution plan sponsors in the fourth quarter.

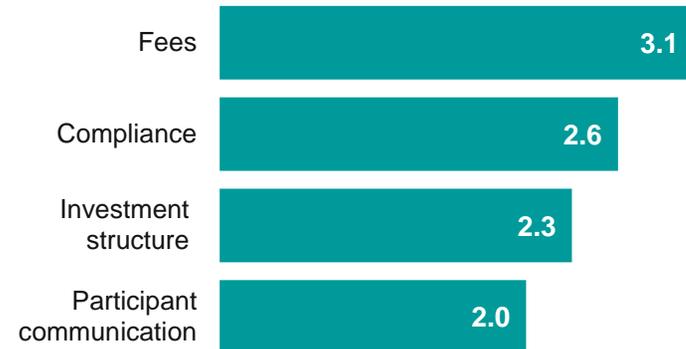
As one consultant noted, “Fee benchmarking is top-of-mind for DC plans.” This includes both investment management and administrative fees, such as recordkeeper services and fees.

One corporate DC client “is considering reducing the number of options and overall complexity of the plan with the ancillary benefit of potentially reducing fees through better economies of scale.”

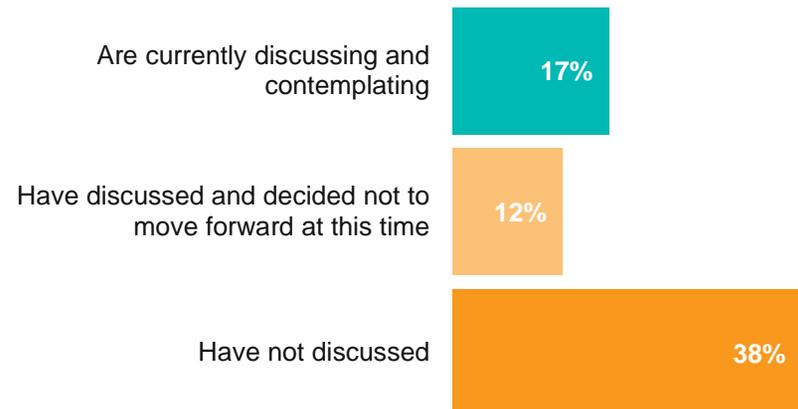
Some clients are also discussing post-retirement options. One plan is examining “the inclusion of QLAC annuities within the TDF structure as a means to deliver predictable retirement income and to manage longevity risk.” Another consultant reported that a plan had “some high-level interest in retirement income but was not close to implementation.”

As noted previously, a major new issue for DC plans this past quarter stemmed from the signing into law of the SECURE Act. As a consultant noted, “We don't know all of the ramifications of this legislation but know it's going to have wide-ranging impacts.”

Ranking of Issues by DC Clients (4 = most important)



DC Clients' Discussions About A Post-Retirement Option



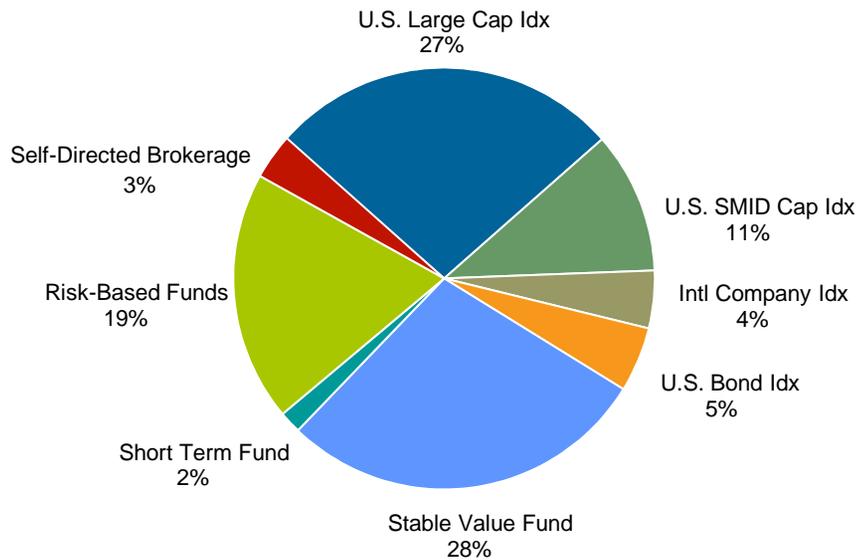
Callan

PA SERS 457(b) Plan Performance Review

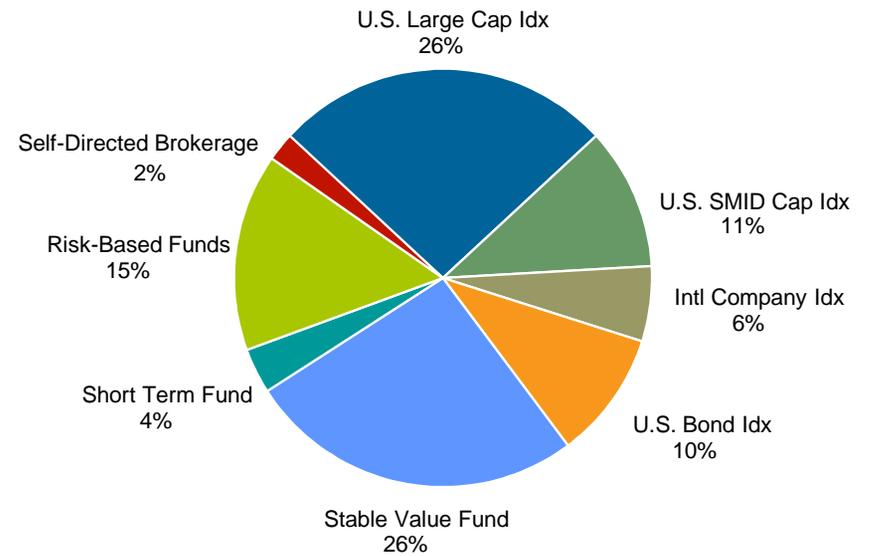
457(b) Plan Asset Allocation & Contributions

As of December 31, 2019

Asset Allocation



Contributions



Asset Allocation

As of December 31, 2019

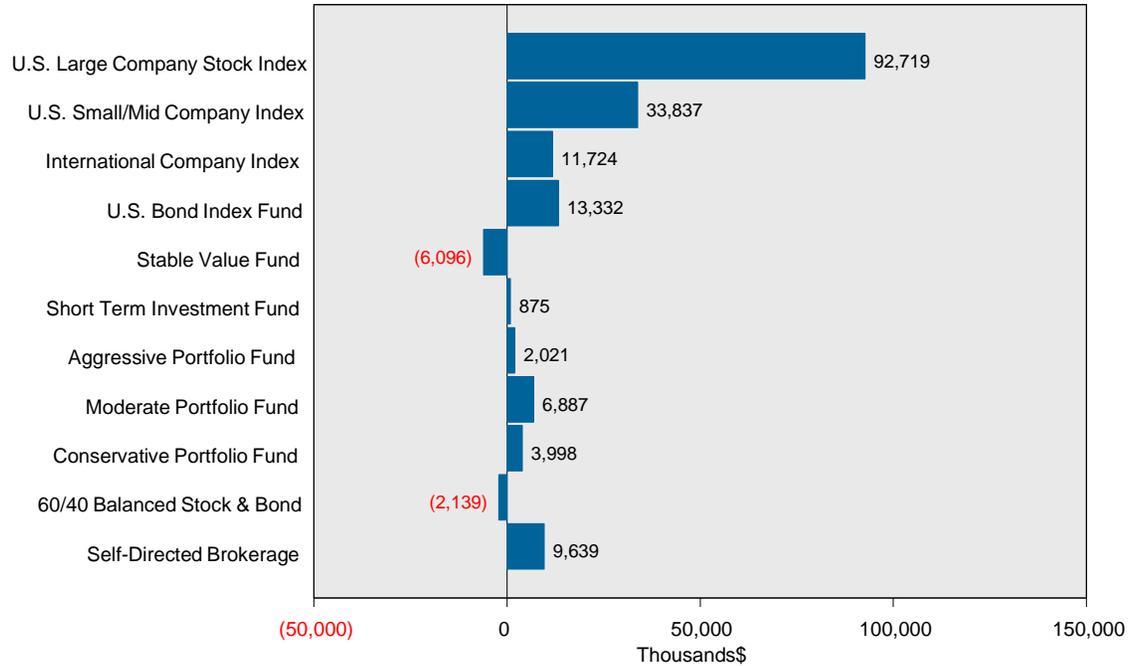
	December 31, 2019			Net New Inv. \$(000)	Inv. Return \$(000)	September 30, 2019	
	Market Value \$(000)	% of Total Weight	Market Value \$(000)			% of Total Weight	
SERS Risk-Based Funds	\$740,714	19.16%	\$(28,856)	\$39,623	\$729,947	19.73%	
SERS 60/40 Stock & Bond Fund	277,271	7.17%	(17,190)	15,052	279,410	7.55%	
SERS Conservative Portfolio Fund	85,725	2.22%	1,697	2,301	81,728	2.21%	
SERS Moderate Portfolio Fund	199,002	5.15%	(3,269)	10,156	192,115	5.19%	
SERS Aggressive Portfolio Fund	178,716	4.62%	(10,094)	12,115	176,695	4.78%	
SERS U.S. Equity	\$1,468,691	37.99%	\$6,466	\$120,090	\$1,342,135	36.28%	
SERS U.S. Large Company Index	1,047,632	27.10%	6,584	86,135	954,913	25.81%	
SERS U.S. SMID Company Index	421,060	10.89%	(118)	33,955	387,222	10.47%	
SERS International Equity							
SERS Intl Company Idx Fund	169,185	4.38%	(629)	12,353	157,461	4.26%	
SERS Fixed Income	\$1,353,767	35.02%	\$790	\$7,322	\$1,345,655	36.38%	
SERS Short Term Investment Fd	64,828	1.68%	604	271	63,953	1.73%	
SERS Stable Value Fund	1,097,267	28.38%	(12,937)	6,841	1,103,363	29.83%	
SERS U.S. Bond Index Fund	191,671	4.96%	13,123	210	178,339	4.82%	
Self-Directed Brokerage							
Self-Directed Brokerage Account	133,545	3.45%	921	8,718	123,906	3.35%	
SERS 457(b) Total Fund	\$3,865,902	100.0%	\$(21,308)	\$188,106	\$3,699,104	100.0%	

Changes in Market Values and Contributions

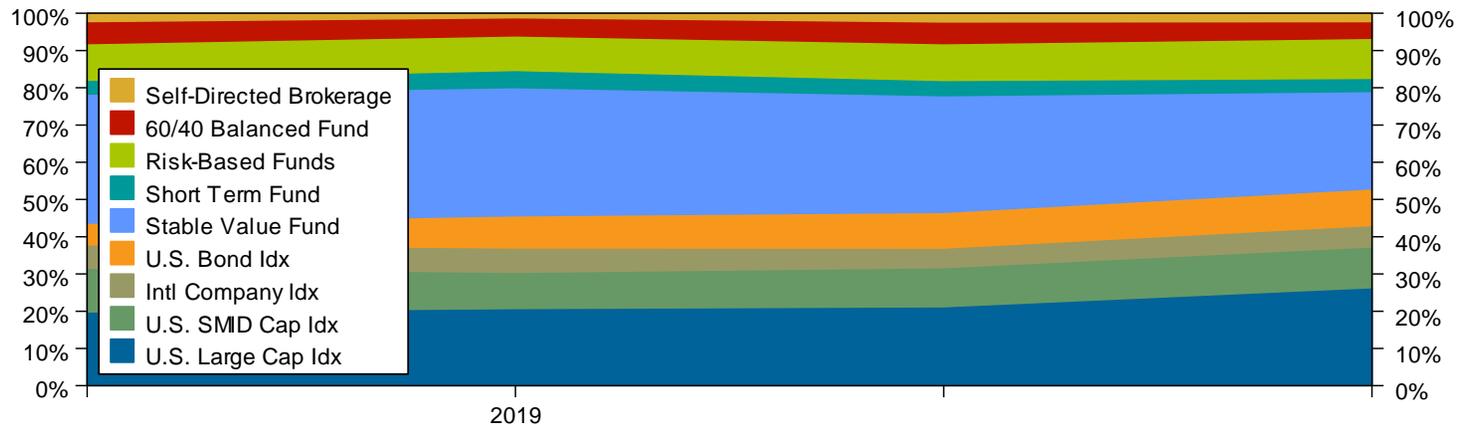
As of December 31, 2019

The chart to the right shows the net change in fund values across the various investment options for the quarter. The change in value for each fund is the result of:

1. Investment returns;
2. Participant contributions, employer match, distributions, withdrawals; and
3. Transfers between funds by participants.



Historical Allocation of Contributions



Cumulative Performance - Net of Fees

As of December 31, 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	5.56%	22.19%	10.94%	8.37%	9.95%
60% S&P 500/ 40% Aggregate Bond	5.51%	22.11%	10.89%	8.35%	9.96%
Callan Dom Balanced MFs	5.58%	20.74%	9.73%	7.10%	9.21%
SERS Conservative Portfolio Fund	2.83%	13.19%	6.48%	4.83%	5.25%
Conservative Portfolio Custom Index(3)	2.82%	13.10%	6.38%	4.75%	5.21%
Callan MA Tgt All Cons MF	2.46%	12.63%	5.78%	4.30%	4.89%
SERS Moderate Portfolio Fund	5.36%	20.60%	9.81%	7.34%	8.59%
Moderate Portfolio Custom Index(2)	5.36%	20.45%	9.69%	7.23%	8.55%
Callan MA Tgt All Mod MF	4.54%	18.06%	7.92%	5.83%	7.21%
SERS Aggressive Portfolio Fund	7.06%	24.63%	11.62%	8.67%	10.50%
Aggressive Portfolio Custom Index(1)	7.08%	24.47%	11.48%	8.54%	10.45%
Callan MA Tgt All AgGr MF	7.89%	25.19%	11.09%	7.75%	10.01%

Note: SERS Funds are the top fund in each grouping followed by each fund's respective benchmark and median peer.

(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

Cumulative Performance - Net of Fees

As of December 31, 2019

	Last 10 Years	Last 15 Years	Last 20 Years
Net Performance			
Risk-Based Funds			
SERS 60/40 Stock & Bond Fund	9.84%	-	-
60% S&P 500/ 40% Aggregate Bond	9.81%	7.36%	6.04%
Callan Dom Balanced MFs	8.98%	6.56%	5.55%
SERS Conservative Portfolio Fund	5.62%	5.09%	-
Conservative Portfolio Custom Index(3)	5.55%	5.03%	4.90%
Callan MA Tgt All Cons MF	5.70%	4.66%	4.92%
SERS Moderate Portfolio Fund	8.70%	6.90%	-
Moderate Portfolio Custom Index(2)	8.59%	6.83%	5.81%
Callan MA Tgt All Mod MF	7.41%	6.05%	5.41%
SERS Aggressive Portfolio Fund	10.20%	7.61%	-
Aggressive Portfolio Custom Index(1)	10.06%	7.50%	5.79%
Callan MA Tgt All AgGr MF	9.51%	6.75%	5.29%

Note: SERS Funds are the top fund in each grouping followed by each fund's respective benchmark and median peer.

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(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

Funds not listed do not have longer performance history.

Cumulative Performance - Net of Fees

As of December 31, 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	9.07%	31.50%	15.27%	11.70%	14.74%
S&P 500 Index	9.07%	31.49%	15.27%	11.70%	14.73%
Callan Lg Cap Broad MF	8.76%	30.14%	14.69%	10.58%	13.86%
SERS U.S. SMID Company Idx Fund	8.84%	28.18%	11.16%	9.04%	12.63%
Dow Jones US Completion	8.82%	27.91%	10.96%	8.84%	12.42%
Callan SMID Broad MFs	7.68%	29.40%	12.48%	9.18%	12.02%
International Equity					
SERS International Company Idx Fund	7.89%	22.33%	9.97%	6.13%	6.49%
MSCI EAFE	8.17%	22.01%	9.56%	5.67%	6.35%
Callan Intl Eq Dev Mkt MF	9.07%	22.87%	9.49%	5.65%	6.31%
Domestic Fixed Income					
SERS Short Term Investment Fund	0.48%	2.31%	1.82%	1.25%	0.94%
3-month Treasury Bill	0.46%	2.28%	1.67%	1.07%	0.78%
Callan Cash Database(1)	0.53%	2.62%	1.99%	1.41%	1.09%
SERS Stable Value Fund	0.66%	2.59%	2.26%	2.19%	2.25%
3-month Treasury Bill	0.46%	2.28%	1.67%	1.07%	0.78%
Callan Stable Value	0.64%	2.51%	2.26%	2.14%	2.02%
SERS U.S. Bond Index Fund	0.17%	8.67%	4.00%	3.00%	2.65%
Bimbg Aggregate	0.18%	8.72%	4.03%	3.05%	2.72%
Callan Core Bond MFs	0.15%	9.17%	4.17%	3.12%	2.71%

Note: SERS Funds are the top fund in each grouping followed by each fund's respective benchmark and median peer.

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

Cumulative Performance - Net of Fees

As of December 31, 2019

	Last 10 Years	Last 15 Years	Last 20 Years
Net Performance			
Domestic Equity			
SERS U.S. Large Company Idx Fund	13.58%	9.04%	6.10%
S&P 500 Index	13.56%	9.00%	6.06%
Callan Lg Cap Broad MF	12.67%	8.85%	5.96%
SERS U.S. SMID Company Idx Fund	12.92%	9.34%	7.49%
Dow Jones US Completion	12.72%	9.13%	7.12%
Callan SMID Broad MFs	12.28%	8.91%	8.28%
International Equity			
SERS International Company Idx Fund	5.81%	5.12%	3.23%
MSCI EAFE	5.50%	4.84%	3.32%
Callan Intl Eq Dev Mkt MF	5.78%	5.04%	3.94%
Domestic Fixed Income			
SERS Short Term Investment Fund	0.73%	1.56%	-
3-month Treasury Bill	0.58%	1.39%	1.78%
Callan Cash Database(1)	0.91%	1.81%	2.14%
SERS Stable Value Fund	2.61%	3.30%	-
3-month Treasury Bill	0.58%	1.39%	1.78%
Callan Stable Value	2.23%	2.93%	3.68%
SERS U.S. Bond Index Fund	3.68%	4.09%	4.98%
Bimbg Aggregate	3.75%	4.15%	5.03%
Callan Core Bond MFs	4.04%	4.38%	5.08%

Note: SERS Funds are the top fund in each grouping followed by each fund's respective benchmark and median peer.

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Funds not listed do not have longer performance history.

Calendar Year Performance - Net of Fees

As of December 31, 2019

	2019	2018	2017	2016	2015
Net Performance					
Risk-Based Funds					
SERS 60/40 Stock & Bond Fund	22.19%	(2.19%)	14.25%	8.16%	1.20%
60% S&P 500/ 40% Aggregate Bond	22.11%	(2.26%)	14.26%	8.21%	1.20%
Callan Dom Balanced MFs	20.74%	(4.56%)	14.32%	7.30%	(0.54%)
SERS Conservative Portfolio Fund	13.19%	(1.58%)	8.37%	4.35%	0.48%
Conservative Portfolio Custom Index(3)	13.10%	(1.72%)	8.31%	4.28%	0.44%
Callan MA Tgt All Cons MF	12.63%	(3.34%)	8.82%	5.48%	(1.12%)
SERS Moderate Portfolio Fund	20.60%	(4.07%)	14.46%	7.00%	0.55%
Moderate Portfolio Custom Index(2)	20.45%	(4.21%)	14.40%	6.92%	0.47%
Callan MA Tgt All Mod MF	18.06%	(5.06%)	13.20%	6.59%	(1.38%)
SERS Aggressive Portfolio Fund	24.63%	(5.66%)	18.29%	8.49%	0.45%
Aggressive Portfolio Custom Index(1)	24.47%	(5.82%)	18.19%	8.33%	0.34%
Callan MA Tgt All AgGr MF	25.19%	(8.91%)	20.65%	7.67%	(1.42%)

Note: SERS Funds are the top fund in each grouping followed by each fund's respective benchmark and median peer.

(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

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Calendar Year Performance - Net of Fees

As of December 31, 2019

	2019	2018	2017	2016	2015
Net Performance					
Domestic Equity					
SERS U.S. Large Company Idx Fund	31.50%	(4.39%)	21.84%	11.98%	1.40%
S&P 500 Index	31.49%	(4.38%)	21.83%	11.96%	1.38%
Callan Lg Cap Broad MF	30.14%	(4.54%)	23.56%	8.43%	1.50%
SERSU.S. SMID Company Idx Fund	28.18%	(9.34%)	18.19%	16.05%	(3.32%)
Dow Jones US Completion	27.91%	(9.57%)	18.12%	15.75%	(3.42%)
Callan SMID Broad MFs	29.40%	(8.69%)	17.14%	13.80%	(2.80%)
International Equity					
SERS International Company Idx Fund	22.33%	(13.39%)	25.51%	1.71%	(0.43%)
MSCI EAFE	22.01%	(13.79%)	25.03%	1.00%	(0.81%)
Callan Intl Eq Dev Mkt MF	22.87%	(15.06%)	26.64%	0.39%	(0.73%)
Domestic Fixed Income					
SERS Short Term Investment Fund	2.31%	2.09%	1.08%	0.59%	0.19%
3-month Treasury Bill	2.28%	1.87%	0.86%	0.33%	0.05%
Callan Cash Database(1)	2.62%	2.00%	1.19%	0.95%	0.40%
SERS Stable Value Fund	2.35%	2.34%	1.85%	1.99%	2.18%
3-month Treasury Bill	2.28%	1.87%	0.86%	0.33%	0.05%
Callan Stable Value	2.51%	2.24%	1.97%	1.89%	1.77%
SERS U.S. Bond Index Fund	8.67%	0.01%	3.51%	2.57%	0.47%
Blmbg Aggregate	8.72%	0.01%	3.54%	2.65%	0.55%
Callan Core Bond MFs	9.17%	(0.35%)	3.71%	3.03%	0.10%

Note: SERS Funds are the top fund in each grouping followed by each fund's respective benchmark and median peer.

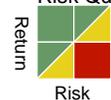
(1) Callan Cash Database includes STIF, enhanced cash, and money market funds.

Performance Summary & Expense Ratios as of December 31, 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	5.6 53	22.2 38	11.0 24	8.4 17	10.0 29	9.9 17			0.02 98
Callan Dom Balanced MFs 60% S&P 500/ 40% Aggregate Bond	5.5 57	22.1 38	10.9 25	8.4 18	10.0 29	9.8 17			
SERS Conservative Portfolio Fund	2.8 37	13.2 42	6.5 28	4.8 26	5.3 38	5.6 52			0.02 100
Callan MA Tgt All Cons MF Conservative Portfolio Custom Index	2.8 37	13.1 44	6.4 30	4.7 27	5.2 39	5.5 56			
SERS Moderate Portfolio Fund	5.4 29	20.6 20	9.8 17	7.4 16	8.6 26	8.7 24			0.02 100
Callan MA Tgt All Mod MF Moderate Portfolio Custom Index	5.4 29	20.4 21	9.7 21	7.2 19	8.6 26	8.6 26			
SERS Aggressive Portfolio Fund	7.1 75	24.7 63	11.6 34	8.7 19	10.5 36	10.2 22			0.02 100
Callan MA Tgt All AgGr MF Aggressive Portfolio Custom Index	7.1 75	24.5 66	11.5 43	8.5 23	10.4 37	10.1 31			
Domestic Equity									
SERS U.S. Large Company Index	9.1 42	31.5 40	15.3 45	11.7 39	14.7 37	13.6 34			0.01 99
Callan Lg Cap Broad MF S&P 500 Index	9.1 42	31.5 40	15.3 45	11.7 39	14.7 37	13.6 34			
SERS U.S. Small/Mid Company Index	8.8 29	28.2 58	11.2 52	9.1 51	12.7 38	12.9 40			0.03 100
Callan SMID Broad MFs Dow Jones US Completion	8.8 29	27.9 61	11.0 53	8.8 51	12.4 40	12.7 42			
International Equity									
SERS International Company Idx Fund	7.9 78	22.4 58	10.0 45	6.2 36	6.5 37	5.8 49			0.04 99
Callan Intl Eq Dev Mkt MF MSCI EAFE	8.2 70	22.0 60	9.6 48	5.7 49	6.3 49	5.5 57			
Domestic Fixed Income									
SERS Short Term Investment Fund	0.5 79	2.3 83	1.8 76	1.2 78	0.9 79	0.7 79			0.00 100
Callan Cash Database 3-month Treasury Bill	0.5 85	2.3 84	1.7 90	1.1 94	0.8 94	0.6 96			
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:


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

- The SERS 457(b) Plan per participant administrative fee of \$2 ranks in the bottom decile (cheaper than 90% of peers) of comparably sized plans in Callan's database.

Note: For returns, each SERS Fund and corresponding benchmark return are shown with their respective peer group rankings. For returns, lower peer group rankings are more desirable (e.g. 25th percentile equates to top quartile performance). Expense Ratio: Higher peer group rankings are more desirable (e.g. 75th percentile equates to bottom quartile/cheapest fees).

Performance Summary & Expense Ratios

As of December 31, 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 13	2.7 27	2.4 18	2.4 2	2.5 1	2.9 1			
3-month Treasury Bill	0.5 100	2.3 89	1.7 97	1.1 98	0.8 99	0.6 100			
SERS U.S. Bond Index Fund Callan Core Bond MFs	0.2 43	8.7 61	4.0 64	3.0 64	2.7 56	3.7 82			0.03 98
Blmbg Aggregate	0.2 43	8.7 60	4.0 64	3.0 56	2.7 50	3.7 79			

Returns:
■ above median
■ third quartile
■ fourth quartile

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

Risk Quadrant:

 Return
 Risk

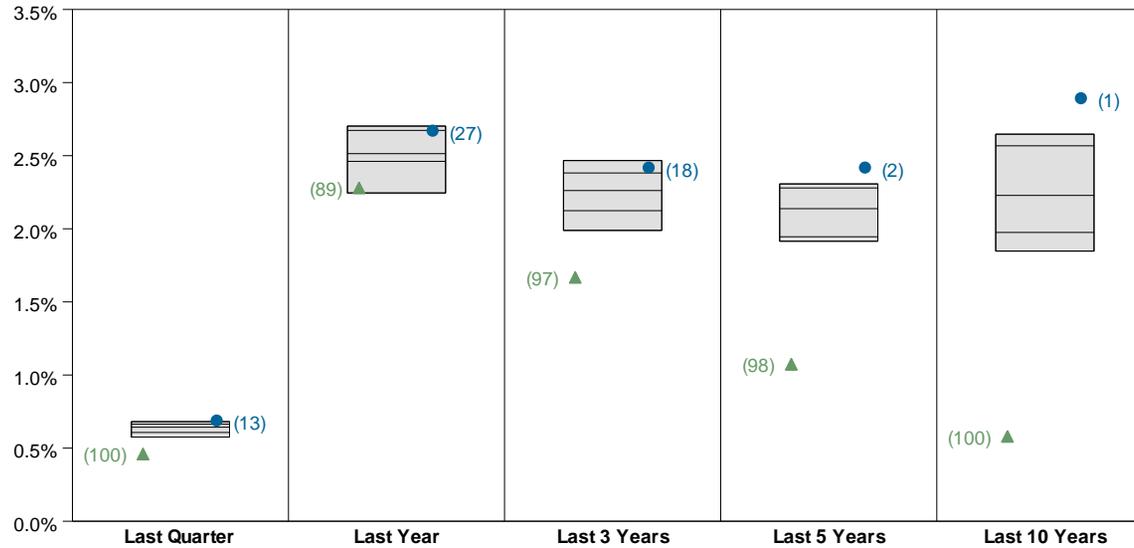
Expense Ratio:
■ below median
■ second quartile
■ first quartile

- The SERS 457(b) Plan per participant administrative fee of \$2 ranks in the bottom decile (cheaper than 90% of peers) of comparably sized plans in Callan's database.

Note: For returns, each SERS Fund and corresponding benchmark return are shown with their respective peer group rankings. For returns, lower peer group rankings are more desirable (e.g. 25th percentile equates to top quartile performance). Expense Ratio: Higher peer group rankings are more desirable (e.g. 75th percentile equates to bottom quartile/cheapest fees).

Stable Value Fund as of December 31, 2019

Performance vs Callan Stable Value (Gross)



	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile	0.68	2.70	2.47	2.31	2.65
25th Percentile	0.66	2.67	2.38	2.28	2.57
Median	0.64	2.51	2.26	2.14	2.23
75th Percentile	0.61	2.46	2.12	1.95	1.98
90th Percentile	0.58	2.25	1.99	1.92	1.85
SERS Stable Value Fund ●	0.68	2.66	2.41	2.41	2.88
3-month Treasury Bill ▲	0.46	2.28	1.67	1.07	0.58

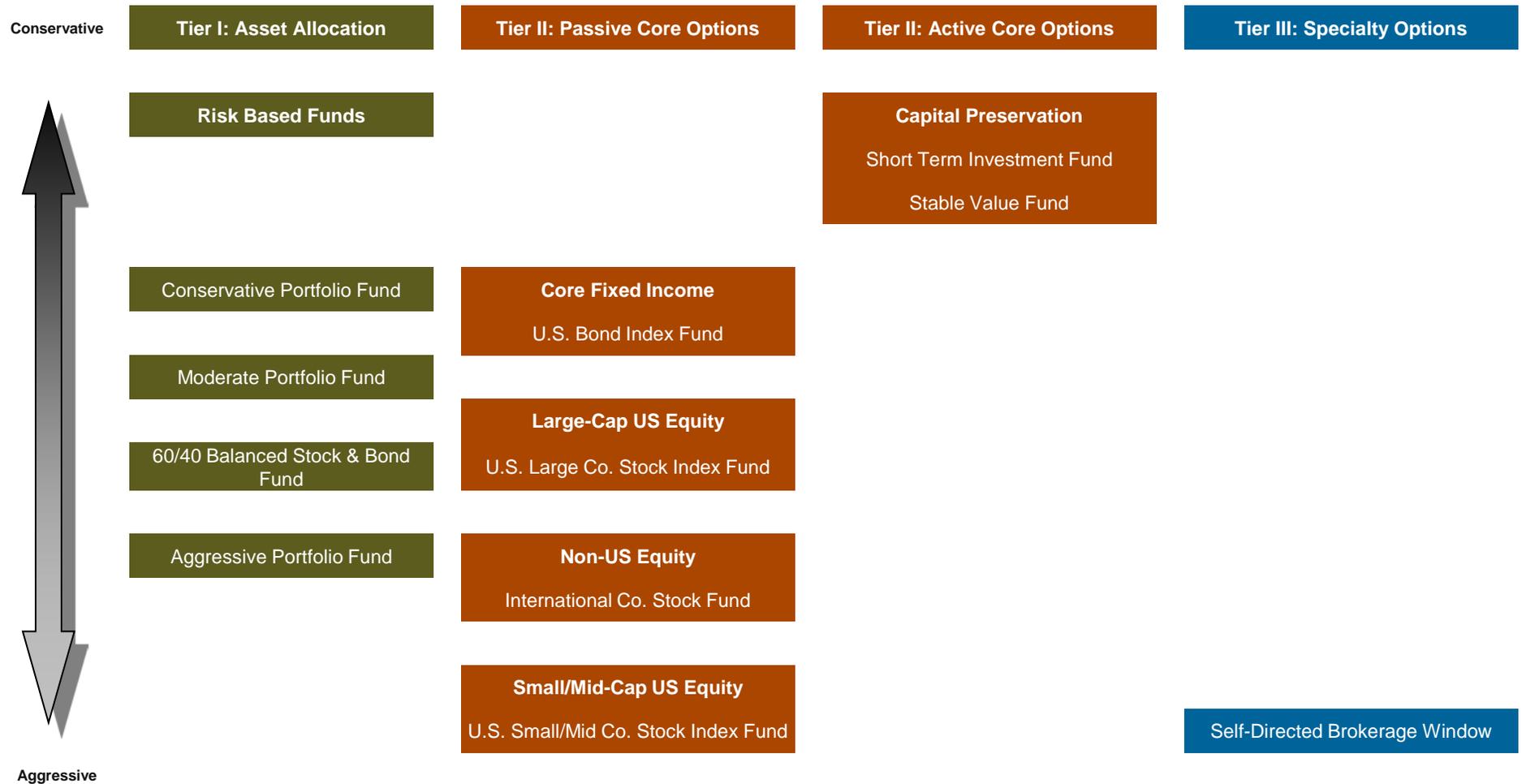
Wrap Provider Exposure*

Contract Issuer	Portfolio	Average Fee	Moody's Rating	S&P Rating	Fitch Rating
Nationwide Life Insurance	20.33%	0.18%	A1	A+	NR
Transamerica	20.26%	0.16%	A1	AA-	A+
Prudential Insurance Co.	15.25%	0.18%	Aa3	AA-	AA-
RGA	15.25%	0.18%	A1	AA-	A
Pacific Life Insurance Co.	12.71%	0.18%	A1	AA-	AA-
State Street Bank	12.71%	0.16%	Aa3	AA-	AA+
	96.49%	0.17%			

*Source: Invesco

457(b) Plan Investment Structure

Lineup Mapped to Callan's Clean Sheet



- Please note that the Board voted to replace the 4 Risk Based Options with the BlackRock Target Date Funds and replace the International Company Stock Fund with the Global Non-U.S. Stock Fund. These changes took place in January of 2020.

Defined Contribution and Deferred Compensation Projects for 2020

- Plan Administration and Investment Management Fee Evaluation Study
- Target Date Fund Suitability Analysis
- Investment Policy Statement Review

Callan

Appendix – Callan Update

Published Research Highlights from 4Q19

Callan's 2019 Investment Management Fee Study



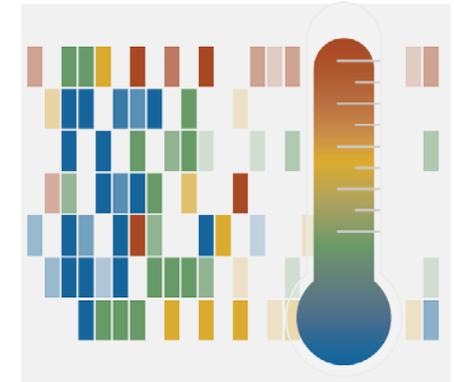
Long-Dated Private Equity Funds: More Illiquidity Please



Gold: Real Asset, Risk Mitigator, or Pet Rock?



Real Estate Indicators: Too Hot to Touch or Cool Enough to Handle?



Recent Blog Posts

What You Need to Know About the SECURE Act

James Veneruso

ESG: What the Future May Hold

Mike Stellato

10 Questions to Address When Evaluating Infrastructure Managers

Jan Mende

Additional Reading

Private Equity Trends quarterly newsletter

Active vs. Passive quarterly charts

Capital Market Review quarterly newsletter

Monthly Updates to the Periodic Table

Market Pulse Flipbook quarterly markets update

Real Assets Reporter quarterly newsletter

Callan Institute Events

Upcoming Conferences, Workshops, and Webinars

“Callan College”

These sessions provide institutional investors across the industry with basic- to intermediate-level instruction.

Introduction to Investments

San Francisco, April 21–22, 2020

Chicago, July 21-22, 2020

Chicago, October 13-14, 2020

Introduction to Alternative Investments

San Francisco, June 16, 2020

Chicago, November 3, 2020

All sessions qualify for continuing education credits

Register at [callan.com/callan-institute-events](https://www.callan.com/callan-institute-events)

“The Introduction to Alternative Investments sessions are a great opportunity for investors of all types to get a thorough introduction to alternative investments and meet the Callan team.”

Pete Keliuotis
Executive Vice President



2020 DC Trends Webinar

February 20, 2020, at 9:30 am (PST)

During this webinar, Callan experts Jamie McAllister and Greg Ungerman will offer key insights from our *DC Trends Survey*. They will discuss in detail the SECURE Act, retirement income solutions, and plan leakage as well as other key findings. They will be joined by an industry specialist, Marla Kreindler, a partner at Morgan Lewis.

Regional Workshops

San Francisco, June 23, 2020

Chicago, June 25, 2020

Atlanta, October 27, 2020

Portland, October 29, 2020

On-Demand Webinars

Visit our website for On-Demand webinar options at <https://www.callan.com/on-demand-webinars/>

Our most recent webinar covered Callan’s Capital Market Assumptions.

Callan Updates

Firm updates by the numbers, as of December 31, 2019

Total Associates: 194

Ownership

- 100% employees
- Broadly distributed across 93 shareholders

Leadership Changes

- No executive additions or departures
- No leadership changes this quarter

Total General and Fund Sponsor Consultants: more than 45

Total Specialty and Research Consultants: more than 60

Total CFA/CAIA/FRMs: more than 55

Total Fund Sponsor Clients: more than 400

AUA: more than \$2.5 trillion

“The Callan culture that we have all built together over the years is the reason we like coming to work each day ... Our culture of supporting and caring about each other, of appreciating and respecting each other while still having some fun and good humor has been the key to our longevity and success. We never want to diminish it.”

— Ron Peyton, Executive Chairman

