

September 24, 2019



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

Second Quarter 2019

Executive Summary

Thomas H. Shingler
Senior Vice President

Bud Pellecchia
Senior Vice President

Britton M. Murdoch
Vice President

Callan

Market Environment

Does Strong First Half Spell Problems for Second Half of 2019 and 2020?

Central bank policy front and center

- Fed adopted dovish tone in January, a sharp reversal in stance. Rates held constant through Q2; rate cuts now expected in Q3 or Q4 2019.

However, U.S. economy remains strong, labor market very tight, reaching the limits of full employment

- Solid Q1 GDP growth (3.2%) moderated in Q2 (2.1%), will soften further in face of slowing global economy, trade uncertainty.
- Policy reversal simultaneously stoked fears of coming slowdown and fed a rally in bonds.

The slowdown in Europe and China weighing on global growth

- China suffering dramatic slowdown in growth: industrial output, retail sales, implied GDP.

Inflation remains stuck below 2% in U.S., weaker overseas

- Wage pressures building in U.S. have yet to translate into headline inflation.

Returns for Periods ended June 30, 2019

	1 Quarter	1 Year	5 Years	10 Years	25 Years
U.S. Equity					
Russell 3000	4.10	8.98	10.19	14.67	9.98
S&P 500	4.30	10.42	10.71	14.70	9.97
Russell 2000	2.10	-3.31	7.06	13.45	9.26
Non-U.S. Equity					
MSCI World ex USA	3.79	1.29	2.04	6.75	5.01
MSCI Emerging Markets	0.61	1.22	2.49	5.81	--
MSCI ACWI ex USA Small Cap	1.21	-5.94	2.77	8.48	5.32
Fixed Income					
Bloomberg Barclays Aggregate	3.08	7.87	2.95	3.90	5.50
3-Month T-Bill	0.64	2.31	0.87	0.49	2.52
Bloomberg Barclays Long Gov/Credit	6.59	13.82	5.68	7.62	7.73
Bloomberg Barclays Global Agg ex-US	3.42	4.10	-0.12	2.10	4.49
Real Estate					
NCREIF Property	1.51	6.51	8.83	9.25	9.36
FTSE NAREIT Equity	1.24	11.21	7.92	15.46	10.25
Alternatives					
CS Hedge Fund	2.35	2.46	2.36	5.03	7.84
Cambridge Private Equity*	4.86	12.71	12.30	14.83	15.32
Bloomberg Commodity	-1.19	-6.75	-9.15	-3.74	1.69
Gold Spot Price	8.87	12.69	1.35	4.31	5.32
Inflation - CPI-U	0.76	1.65	1.45	1.73	2.22

*Cambridge PE data are available through December 31, 2018.

Source: Callan

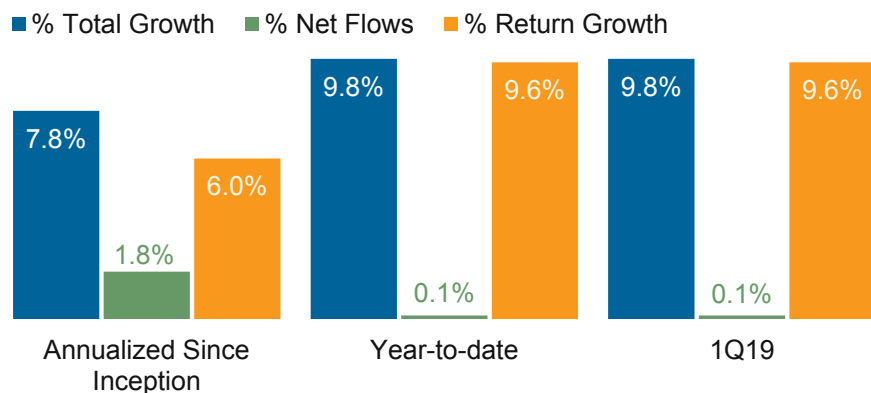
Defined Contribution / Deferred Compensation Trends

A Return to “Normal”

During the first quarter several metrics returned to their “normal” (if such a thing exists!) state:

- Target date funds returned to their perch atop the asset classes with regard to flows, capturing 73% of inflows in the first quarter. The prior quarter saw stable value capture the majority of inflows.
- Total flows, although representing just 13 basis points of the total growth figure (9.77%), were positive; this comes after 2 consecutive quarters of net outflows.

Growth Source



Source: Callan DC

First Quarter 2019 Flows

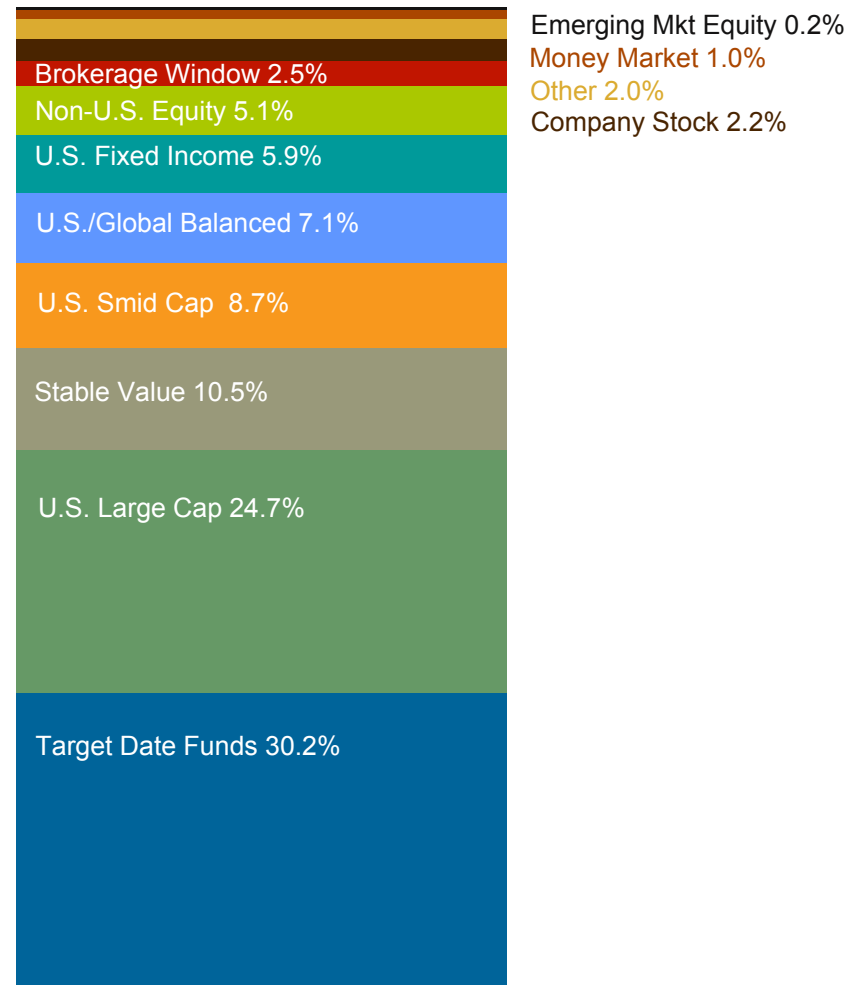
DC Asset Mix Name	Flows
Alternatives / Other	-1.92%
Brokerage Window	-6.74%
Company Stock	-11.86%
Emerging Market Equity	-0.80%
Global Equity	-3.16%
High Yield	0.10%
Money Market	4.25%
Non-U.S. Equity	-13.77%
Non-U.S. / Global Fixed Income	0.87%
Real Estate	0.39%
Real Return / TIPS	-2.10%
Specialty Equity / Sector	-0.41%
Stable Value	-11.11%
Target Date Funds	73.22%
U.S. Fixed Income	21.27%
U.S. Large Cap	-24.86%
U.S. Smid Cap	-5.42%
U.S. / Global Balanced	-16.65%

Callan DC Index™ Net Cash Flow Analysis and Asset Allocation

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

Asset Class	1Q19
Alternatives/Other	-1.92%
Brokerage Window	-6.74%
Company Stock	-11.86%
Emerging Market Equity	-0.80%
Global Equity	-3.16%
High Yield	0.10%
Money Market	4.25%
Non-U.S. Equity	-13.77%
Non-U.S./Global Fixed Income	0.87%
Real Estate	0.39%
Real Return/TIPS	-2.10%
Specialty Equity/Sector	-0.41%
Stable Value	-11.11%
Target Date Funds	73.22%
U.S. Fixed Income	21.27%
U.S. Large Cap	-24.86%
U.S. Smid Cap	-5.42%
U.S./Global Balanced	-16.65%
Total Turnover*	0.48%

Asset Allocation as of March 31, 2019



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

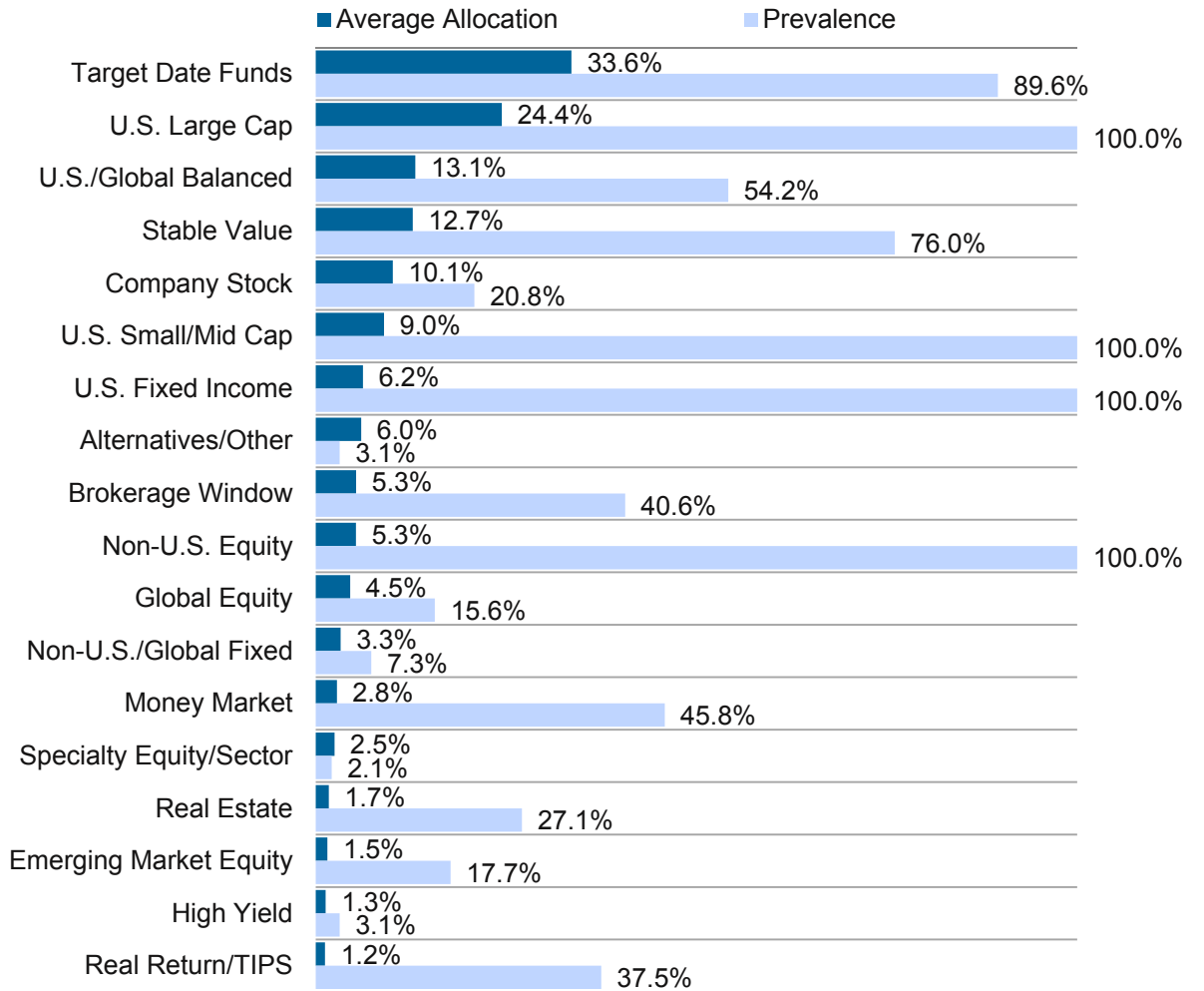
Note: Data provided is the most recent available at time of publication.

Source: Callan

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

- **The Risk Based / Balanced Funds** allocation of 20% 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 are expected to take place in January of 2020.
- **The Stable Value Fund** allocation is approximately 23%, which is larger than the average allocation of 13%.
- **Investments in Large Cap Stock Index Fund** represents approximately 26% of the Plan, a similar percentage compared to the average allocation of 24%.
- 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 March 31, 2019



Source: Callan

Consultant Survey: Second Quarter 2019

Defined Contribution: Significant Issues and Trends

- Fees, litigation dominate discussion for DC plan sponsors
- Other topics of interest:

“We are interested in legislation that will impact public sector DC plans, such as the SECURE Act, or legislation that will permit CITs in more plans. Clients are very interested in safe harbors for automatic features. Additionally, every plan is increasingly interested in cybersecurity, and the pace at which this interest increases is almost exponential year to year.”

Ranking of issues in order of most importance by Defined Contribution clients (4 = most important)



30% of DC clients have seriously discussed **financial wellness** with their consultant

10% of DC clients have seriously discussed the **Secure Act** with their consultant

Defined Contribution Trends

Other Areas of Focus

Continued Legislative Watch

- In a scene reminiscent of Beckett's "Waiting for Godot," the team is monitoring the status of the SECURE Act. The Act was passed overwhelmingly by the House but has stalled in the Senate with opposition from Ted Cruz and Pat Toomey. As of this writing the SECURE language could be included within the broader budget language.

Record keeper Capabilities

- Financial wellness and record keeper capabilities remain areas of conversation with clients and record keepers.

Managed Accounts

- It is not uncommon to have record keepers offer fee reductions in return for a client agreeing to offer a managed account service. As such, there is more attention being paid to the process by which managed accounts are evaluated.

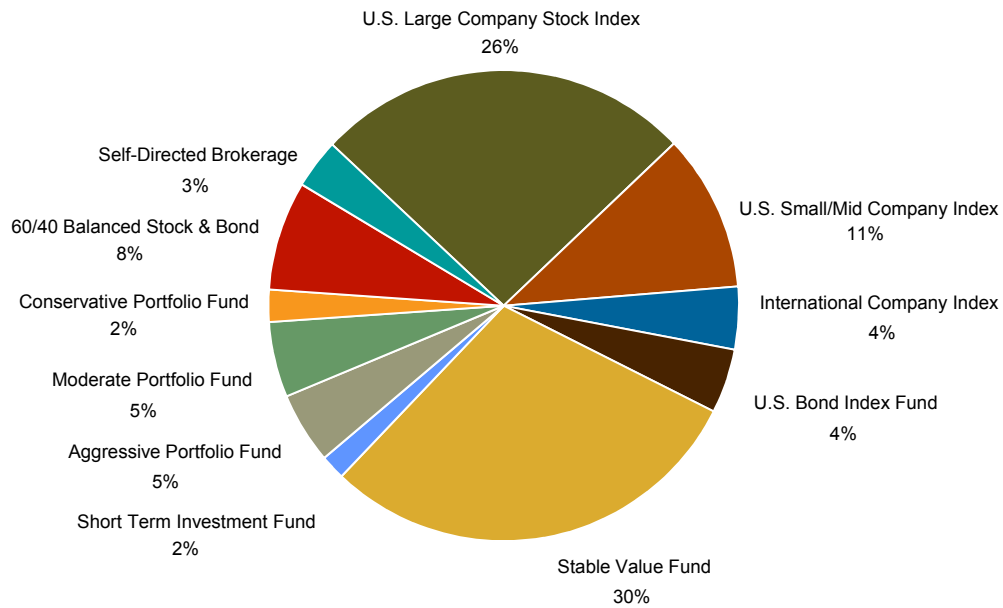
Callan

PA SERS 457(b) Plan Performance Review

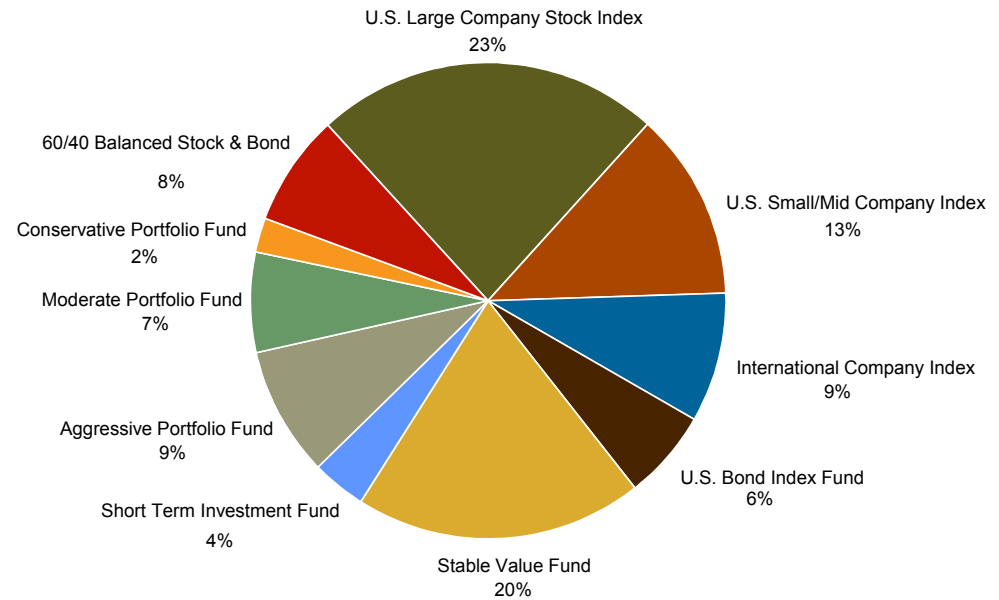
457(b) Plan Asset Allocation & Contributions

As of June 30, 2019

Asset Allocation



Contributions



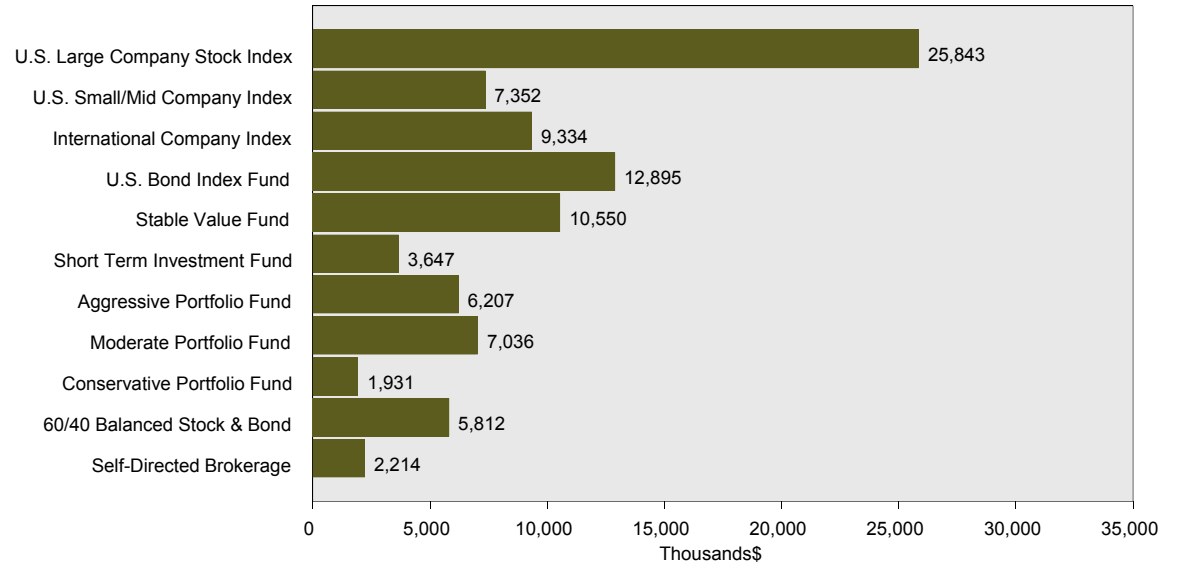
Asset Allocation and Changes in Market Values

As of June 30, 2019

	June 30, 2019		Net New Inv. \$(000)	Inv. Return \$(000)	March 31, 2019	
	Market Value \$(000)	% of Total Weight			Market Value \$(000)	% of Total Weight
SERS Risk-Based Funds	\$726,459	19.76%	\$(4,689)	\$25,674	\$705,474	19.69%
SERS 60/40 Stock & Bond Fund	276,968	7.53%	(4,397)	10,209	271,156	7.57%
SERS Conservative Portfolio Fund	79,210	2.15%	(277)	2,208	77,280	2.16%
SERS Moderate Portfolio Fund	191,811	5.22%	323	6,713	184,775	5.16%
SERS Aggressive Portfolio Fund	178,470	4.85%	(338)	6,545	172,263	4.81%
SERS U.S. Equity	\$1,351,385	36.76%	\$(17,825)	\$51,021	\$1,318,189	36.78%
SERS U.S. Large Company Index	954,019	25.95%	(13,484)	39,328	928,176	25.90%
SERS U.S. SMID Company Index	397,366	10.81%	(4,341)	11,693	390,014	10.88%
SERS International Equity						
SERS Intl Company Idx Fund	157,175	4.27%	3,672	5,662	147,841	4.13%
SERS Fixed Income	\$1,317,799	35.84%	\$15,635	\$11,456	\$1,290,708	36.02%
SERS Short Term Investment Fund	61,831	1.68%	3,314	333	58,184	1.62%
SERS Stable Value Fund	1,092,758	29.72%	4,154	6,396	1,082,208	30.20%
SERS U.S. Bond Index Fund	163,210	4.44%	8,168	4,727	150,316	4.19%
Self-Directed Brokerage						
Self-Directed Brokerage Account	123,796	3.37%	(1,972)	4,187	121,581	3.39%
SERS 457(b) Total Fund	\$3,676,613	100.0%	\$(5,180)	\$98,000	\$3,583,793	100.0%

• 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, company match, distributions, withdrawals; and
3. Transfers between funds by participants.



Cumulative Performance - Net of Fees

As of June 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	3.85%	10.02%	9.56%	7.74%	9.46%
60% S&P 500/ 40% Aggregate Bond	3.81%	9.94%	9.53%	7.72%	9.48%
Callan Dom Balanced MFs	3.67%	7.17%	9.03%	6.39%	9.04%
SERS Conservative Portfolio Fund	2.89%	6.92%	5.40%	4.24%	5.14%
Conservative Portfolio Custom Index(3)	2.84%	6.78%	5.33%	4.16%	5.10%
Callan MA Tgt All Cons MF	2.71%	5.76%	4.90%	3.45%	4.94%
SERS Moderate Portfolio Fund	3.67%	7.93%	8.77%	6.31%	8.45%
Moderate Portfolio Custom Index(2)	3.61%	7.73%	8.70%	6.22%	8.41%
Callan MA Tgt All Mod MF	3.00%	5.83%	7.34%	4.75%	7.23%
SERS Aggressive Portfolio Fund	3.84%	7.57%	10.84%	7.33%	10.37%
Aggressive Portfolio Custom Index(1)	3.78%	7.35%	10.76%	7.21%	10.29%
Callan MA Tgt All AgGr MF	3.31%	4.13%	10.81%	6.23%	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 June 30, 2019

	Last 10 Years	Last 15 Years	Last 20 Years
Net Performance			
Risk-Based Funds			
SERS 60/40 Stock & Bond Fund	10.57%	-	-
60% S&P 500/ 40% Aggregate Bond	10.55%	7.27%	5.91%
Callan Dom Balanced MFs	9.89%	6.57%	5.35%
SERS Conservative Portfolio Fund	6.05%	5.15%	-
Conservative Portfolio Custom Index(3)	6.00%	5.10%	4.94%
Callan MA Tgt All Cons MF	6.46%	4.98%	4.93%
SERS Moderate Portfolio Fund	9.53%	6.96%	-
Moderate Portfolio Custom Index(2)	9.43%	6.90%	5.90%
Callan MA Tgt All Mod MF	8.54%	6.11%	5.36%
SERS Aggressive Portfolio Fund	11.27%	7.65%	-
Aggressive Portfolio Custom Index(1)	11.14%	7.55%	5.94%
Callan MA Tgt All AgGr MF	10.83%	6.83%	5.59%

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 June 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	4.30%	10.42%	14.19%	10.72%	13.99%
S&P 500 Index	4.30%	10.42%	14.19%	10.71%	13.98%
Callan Lg Cap Broad MF	4.23%	9.03%	13.88%	9.72%	13.46%
SERSU.S. SMID Company Idx Fund	3.07%	2.15%	13.22%	7.84%	12.80%
Dow Jones US Completion	3.02%	1.87%	13.01%	7.65%	12.59%
Callan SMID Broad MFs	4.14%	3.52%	12.23%	7.70%	12.20%
International Equity					
SERS International Company Idx Fund	3.85%	1.73%	9.25%	2.60%	7.55%
MSCI EAFE	3.68%	1.08%	9.11%	2.25%	7.31%
Callan Intl Eq Dev Mkt MF	3.17%	(0.61%)	8.49%	2.05%	7.08%
Domestic Fixed Income					
SERS Short Term Investment Fund	0.61%	2.40%	1.58%	1.05%	0.80%
3-month Treasury Bill	0.64%	2.31%	1.38%	0.87%	0.65%
Callan Cash Database(1)	0.74%	2.74%	1.73%	1.30%	1.11%
SERS Stable Value Fund	0.61%	2.61%	2.38%	2.44%	2.56%
3-month Treasury Bill	0.64%	2.31%	1.38%	0.87%	0.65%
Callan Stable Value	0.64%	2.46%	2.16%	2.08%	1.97%
SERS U.S. Bond Index Fund	3.09%	7.89%	2.27%	2.91%	2.56%
Blmbg Aggregate	3.08%	7.87%	2.31%	2.95%	2.62%
Callan Core Bond MFs	3.08%	7.80%	2.53%	2.91%	2.77%

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 June 30, 2019

	Last 10 Years	Last 15 Years	Last 20 Years
Net Performance			
Domestic Equity			
SERS U.S. Large Company Idx Fund	14.72%	8.79%	5.95%
S&P 500 Index	14.70%	8.75%	5.90%
Callan Lg Cap Broad MF	13.81%	8.65%	6.01%
SERS U.S. SMID Company Idx Fund	14.75%	9.63%	8.13%
Dow Jones US Completion	14.53%	9.43%	7.81%
Callan SMID Broad MFs	14.11%	9.24%	8.58%
International Equity			
SERS International Company Idx Fund	7.22%	5.64%	3.97%
MSCI EAFE	6.90%	5.35%	4.00%
Callan Intl Eq Dev Mkt MF	7.20%	5.39%	4.53%
Domestic Fixed Income			
SERS Short Term Investment Fund	0.64%	1.54%	-
3-month Treasury Bill	0.49%	1.38%	1.85%
Callan Cash Database(1)	0.98%	1.82%	2.39%
SERS Stable Value Fund	2.98%	3.63%	-
3-month Treasury Bill	0.49%	1.38%	1.85%
Callan Stable Value	2.28%	2.99%	3.77%
SERS U.S. Bond Index Fund	3.82%	4.21%	4.88%
Blmbg Aggregate	3.90%	4.27%	4.93%
Callan Core Bond MFs	4.39%	4.53%	5.00%

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.

Calendar Year Performance - Net of Fees

As of June 30, 2019

	12/2018- 6/2019	2018	2017	2016	2015
Net Performance					
Risk-Based Funds					
SERS 60/40 Stock & Bond Fund	13.58%	(2.19%)	14.25%	8.16%	1.20%
60% S&P 500/ 40% Aggregate Bond	13.54%	(2.26%)	14.26%	8.21%	1.20%
Callan Dom Balanced MFs	12.92%	(4.56%)	14.32%	7.30%	(0.54%)
SERS Conservative Portfolio Fund	8.59%	(1.58%)	8.37%	4.35%	0.48%
Conservative Portfolio Custom Index(3)	8.51%	(1.72%)	8.31%	4.28%	0.44%
Callan MA Tgt All Cons MF	8.55%	(3.34%)	8.82%	5.48%	(1.12%)
SERS Moderate Portfolio Fund	13.10%	(4.07%)	14.46%	7.00%	0.55%
Moderate Portfolio Custom Index(2)	12.96%	(4.21%)	14.40%	6.92%	0.47%
Callan MA Tgt All Mod MF	11.61%	(5.06%)	13.20%	6.59%	(1.38%)
SERS Aggressive Portfolio Fund	15.41%	(5.66%)	18.29%	8.49%	0.45%
Aggressive Portfolio Custom Index(1)	15.25%	(5.82%)	18.19%	8.33%	0.34%
Callan MA Tgt All AgGr MF	15.95%	(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

(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

Calendar Year Performance - Net of Fees

As of June 30, 2019

	12/2018- 6/2019	2018	2017	2016	2015
Net Performance					
Domestic Equity					
SERS U.S. Large Company Idx Fund	18.54%	(4.39%)	21.84%	11.98%	1.40%
S&P 500 Index	18.54%	(4.38%)	21.83%	11.96%	1.38%
Callan Lg Cap Broad MF	19.05%	(4.54%)	23.56%	8.43%	1.50%
SERSU.S. SMID Company Idx Fund	19.59%	(9.34%)	18.19%	16.05%	(3.32%)
Dow Jones US Completion	19.49%	(9.57%)	18.12%	15.75%	(3.42%)
Callan SMID Broad MFs	20.96%	(8.69%)	17.14%	13.80%	(2.80%)
International Equity					
SERS International Company Idx Fund	14.57%	(13.39%)	25.53%	1.71%	(0.43%)
MSCI EAFE	14.03%	(13.79%)	25.03%	1.00%	(0.81%)
Callan Intl Eq Dev Mkt MF	14.19%	(15.06%)	26.64%	0.39%	(0.73%)
Domestic Fixed Income					
SERS Short Term Investment Fund	1.22%	2.09%	1.08%	0.59%	0.19%
3-month Treasury Bill	1.24%	1.87%	0.86%	0.33%	0.05%
Callan Cash Database(1)	1.51%	2.00%	1.19%	0.95%	0.40%
SERS Stable Value Fund	1.23%	2.61%	2.16%	2.31%	2.51%
3-month Treasury Bill	1.24%	1.87%	0.86%	0.33%	0.05%
Callan Stable Value	1.25%	2.21%	1.97%	1.89%	1.77%
SERS U.S. Bond Index Fund	6.11%	0.01%	3.51%	2.57%	0.47%
Blmbg Aggregate	6.11%	0.01%	3.54%	2.65%	0.55%
Callan Core Bond MFs	6.47%	(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 June 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 60% S&P 500/ 40% Aggregate Bond	3.9 38	10.0 22	9.6 32	7.8 8	9.5 35	10.6 23			0.01 98
SERS Conservative Portfolio Fund Callan MA Tgt All Cons MF Conservative Portfolio Custom Index	2.9 31	6.9 20	5.4 31	4.3 21	5.2 45	6.1 61			0.01 100
SERS Moderate Portfolio Fund Callan MA Tgt All Mod MF Moderate Portfolio Custom Index	3.7 15	8.0 17	8.8 20	6.3 18	8.5 24	9.5 26			0.02 100
SERS Aggressive Portfolio Fund Callan MA Tgt All AgGr MF Aggressive Portfolio Custom Index	3.8 23	7.6 7	10.9 49	7.3 17	10.4 40	11.3 31			0.02 100
Domestic Equity									
SERS U.S. Large Company Index Callan Lg Cap Broad MF S&P 500 Index	4.3 48	10.4 37	14.2 46	10.7 41	14.0 41	14.7 34			0.01 99
SERS U.S. Small/Mid Company Index Callan SMID Broad MFs Dow Jones US Completion	3.1 72	2.2 54	13.2 47	7.9 46	12.8 41	14.8 40			0.02 100
International Equity									
SERS International Company Idx Fund Callan Intl Eq Dev Mkt MF MSCI EAFE	3.8 27	1.7 31	9.3 28	2.6 35	7.6 32	7.2 50			0.02 99
Domestic Fixed Income									
SERS Short Term Investment Fund Callan Cash Database 3-month Treasury Bill	0.6 93	2.4 85	1.6 79	1.0 83	0.8 84	0.6 86			0.00 100
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

- 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 June 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 1	2.8 2	2.4 3	2.5 1	2.6 1	3.0 1			
3-month Treasury Bill	0.6 51	2.3 75	1.4 98	0.9 100	0.6 100	0.5 100			
SERS U.S. Bond Index Fund Callan Core Bond MFs	3.1 48	7.9 35	2.3 79	2.9 48	2.6 77	3.8 86			0.02 96
Blmbg Aggregate	3.1 50	7.9 39	2.3 77	2.9 37	2.6 69	3.9 84			

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

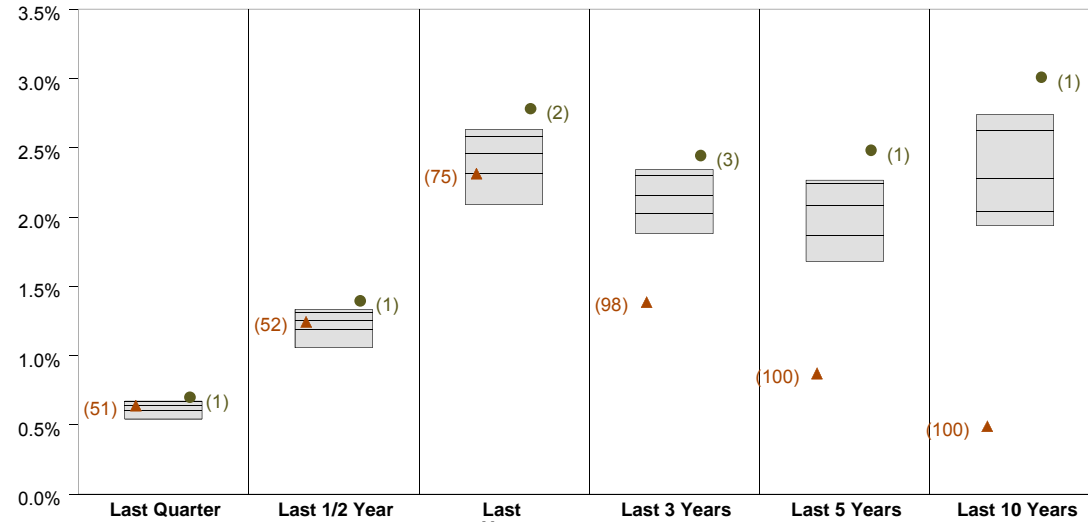
- The SERS 457(b) Plan per participant administrative fee of \$2 ranks in the bottom decile (cheaper than 90% of peers) of comparably sized plans in Callan's database.

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 June 30, 2019

Performance vs Callan Stable Value (Gross)



	Last Quarter	Last 1/2 Year	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile	0.67	1.33	2.63	2.34	2.27	2.74
25th Percentile	0.67	1.31	2.58	2.30	2.25	2.62
Median	0.64	1.25	2.46	2.16	2.08	2.28
75th Percentile	0.60	1.19	2.32	2.03	1.87	2.04
90th Percentile	0.54	1.06	2.09	1.88	1.68	1.94
SERS Stable Value Fund ●	0.69	1.38	2.77	2.43	2.47	3.00
3-month Treasury Bill ▲	0.64	1.24	2.31	1.38	0.87	0.49

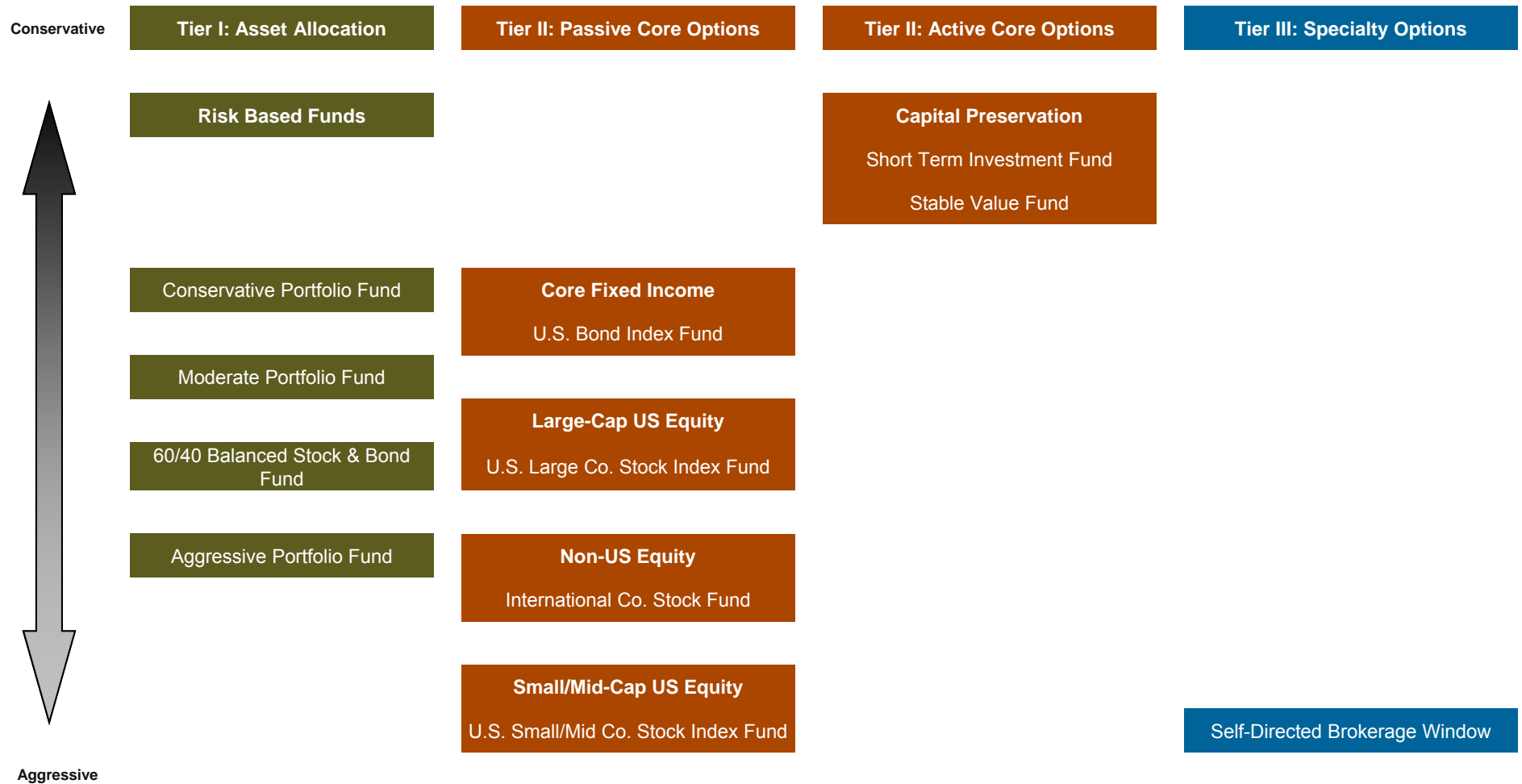
Wrap Provider Exposure*

Contract Issuer	Portfolio	Average Fee	Moody's Rating	S&P Rating	Fitch Rating
Nationwide Life Insurance	20.18%	0.18%	A1	A+	NR
Transamerica	20.09%	0.18%	A1	AA-	A+
Prudential Insurance Co.	15.14%	0.18%	Aa3	AA-	AA-
RGA	15.14%	0.18%	A1	AA-	A
Pacific Life Insurance Co.	12.62%	0.18%	A1	AA-	A+
State Street Bank	12.61%	0.18%	Aa3	AA-	AA+
	95.77%	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 are expected to take place in January of 2020.

Callan

Appendix – Callan Update

Published Research Highlights from 2Q19

The Cobbler's Shoes: How Asset Managers Run Their Own 401(k) Plans

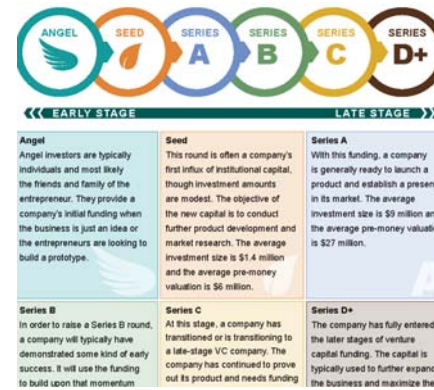


Callan's Periodic Table Explained

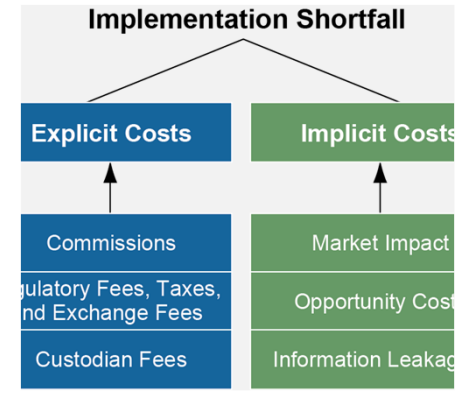
2013	2014	2015	2016	2017	2018
Small Cap Equity	Real Estate	Large Cap Equity	Small Cap Equity	Emerging Market Equity	Cash Equivalent
3.1%	1.38%	21.31%	37.28%	1.87%	
Non-U.S. Fixed Income	U.S. Fixed Income	High Yield	Non-U.S. Equity	U.S. Fixed Income	
32.4%	0.55%	17.13%	24.21%	0.01%	
Non-U.S. Equity	Cash Equivalent	Large Cap Equity	Large Cap Equity	High Yield	
21.02%	5.97%	11.96%	21.83%	-2.08%	
High Yield	Real Estate	Emerging Market Equity	Small Cap Equity	Non-U.S. Fixed Income	
7.44%	4.89%	11.19%	14.65%	-2.15%	

Explainer Video

How to Distinguish Between Growth Equity and Late-Stage VC



Two Questions to Help DC Plans Save on Litigation Costs



Recent Blog Posts

How STRIPS Can Help Corporate DB Plans
Sweta Vaidya

A Primer on Interval Funds
Kristin Bradbury and David Welsch

Legislative Fixes for the Student Debt Tsunami
Jana Steele

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

Callan Institute Events

Upcoming Conferences, Workshops, and Webinars

“Callan College” on Alternative Investments

October 29-30, 2019 in Chicago

Dive into Alternatives!

Alternative investments like private equity, hedge funds, and real estate can play a key role in any portfolio. In this one-and-a-half-day session, learn about the importance of allocations to alternatives, and how to consider integrating, evaluating, and monitoring them.

3 Reasons You Should Attend

- 1 Enhance** your knowledge to maximize your plan’s long term returns
- 2 Learn** about new opportunities for greater diversification
- 3 Prepare** your plan’s portfolio for market ups and downs

“This is 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



Upcoming Webinar

ESG

Webinars: On-Demand now available at <https://www.callan.com/ondemandwebinar/>

Regional Workshops

Denver, October 22, 2019

Chicago, October 24, 2019

40th National Conference

January 27–29, 2020

The Palace Hotel
San Francisco, CA

“Callan College” Introduction to Investments

Atlanta, October 8–9, 2019

Chicago, October 29-30, 2019

Callan Updates

Firm updates by the numbers, as of June 30, 2019

Total Associates: 194

Ownership

- 100% employees
- Broadly distributed across more than 95 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 50

Total Fund Sponsor Clients: more than 400

AUA: more than \$2.4 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

