

February 23, 2021



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

Fourth Quarter 2020

Executive Summary

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Market Environment

Stunning Recovery in Global Equity Markets in 4Q20

V-shaped rebound, ahead of the global economy

- Rebound since March bottom lifted the S&P 500 by 70% through December. However, the strong recovery was concentrated in a few stocks: mega cap and IT.
- Fed cut rates to zero, commenced QE, instituted multiple facilities to backstop money markets, credit markets, and the economy.
 - Fed expects to get paid back.
 - Further fiscal stimulus added at year-end
- Economic recovery will be uncertain in 2021.
- Release of vaccines a huge positive development. Distribution challenges may keep widespread inoculation from being achieved until mid-year.
- As COVID-19 infections surge anew, re-openings may be reversed in many states and localities.

Returns for Periods ended 12/31/20

	1 Quarter	1 Year	5 Years	10 Years	25 Years
U.S. Equity					
Russell 3000	14.68	20.89	15.43	13.79	9.67
S&P 500	12.15	18.40	15.22	13.88	9.56
Russell 2000	31.37	19.96	13.26	11.20	9.05
Global ex-U.S. Equity					
MSCI World ex USA	15.85	7.59	7.64	5.19	5.17
MSCI Emerging Markets	19.70	18.31	12.81	3.63	--
MSCI ACWI ex USA Small Cap	18.56	14.24	9.37	5.95	6.49
Fixed Income					
Bloomberg Barclays Aggregate	0.67	7.51	4.44	3.84	5.16
90-day T-Bill	0.03	0.67	1.20	0.64	2.27
Bloomberg Barclays Long Gov/Credit	1.68	16.12	9.35	8.16	7.42
Bloomberg Barclays Global Agg ex-US	5.09	10.11	4.89	1.99	3.97
Real Estate					
NCREIF Property	1.15	1.60	5.91	9.00	9.09
FTSE Nareit Equity	11.57	-8.00	4.77	8.31	9.64
Alternatives					
CS Hedge Fund	6.39	6.36	4.07	3.81	7.26
Cambridge Private Equity*	10.38	17.87	13.87	13.82	15.05
Bloomberg Commodity	10.19	-3.12	1.03	-6.50	1.00
Gold Spot Price	-0.02	24.42	12.32	2.92	6.55
Inflation - CPI-U	0.07	1.36	1.95	1.74	2.13

*Cambridge PE data through 09/30/20

Sources: Bloomberg, Bloomberg Barclays, Callan, Cambridge, Credit Suisse, FTSE Russell, MSCI, NCREIF, S&P Dow Jones Indices

Market Environment: 4Q20

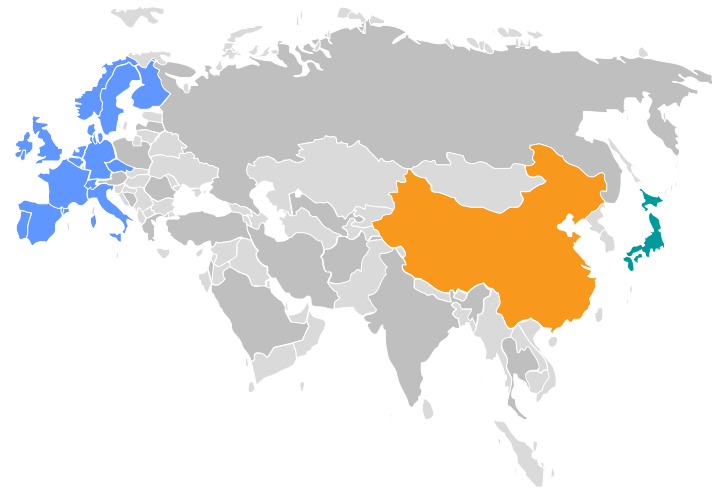
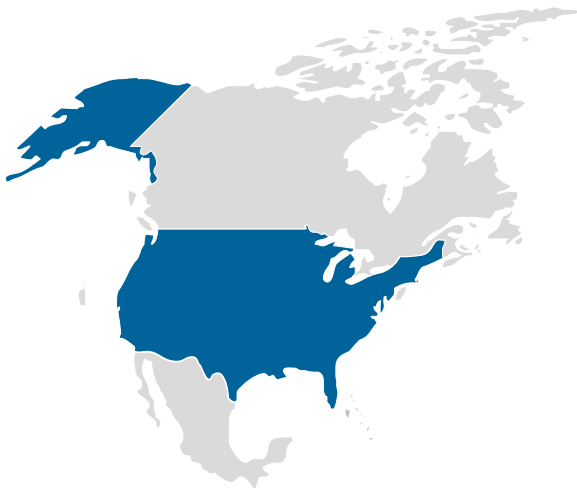
High degree of uncertainty

U.S.

- 2Q GDP -31.4%, largest decline on record; 3Q gain of 33%, solid growth of 4% in 4Q
- Retail sales, durable goods, and personal spending rebounded in 2Q and 3Q, but growth slowed in August and September as stimulus waned.
- Unemployment dropped to 6.7% in November from 14.7% April peak.
 - Jobless claims decelerated to less than 1 million per week but are still elevated relative to prior recession peaks.
- Housing benefiting from relatively low mortgage rates
- Fed left rates close to 0% and expects to be on hold until at least 2023.

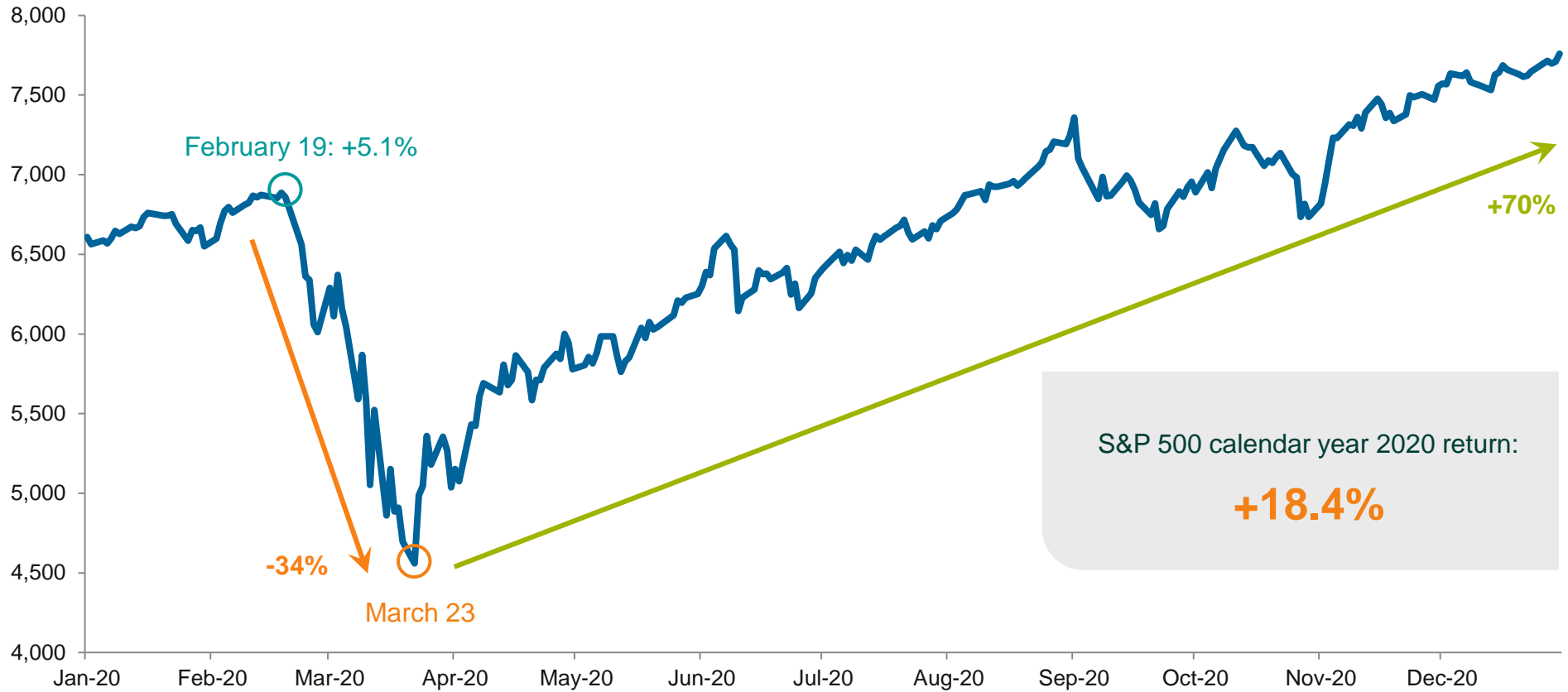
Global

- Euro zone 1Q GDP contracted 3.7% (-14% annualized), followed by 11.7% drop (-39.2% annualized) in 2Q, largest Q drop on record; 12.5% jump (60% annualized!) in 3Q
- U.K. GDP sank 18.8% in 2Q (-57% annualized)—most ever, rebounded 16% (81% annualized) in 3Q
- Japan's economy shrank 8.3% (-29% annualized) in 2Q; third straight quarterly drop, dating back to 2019; 5.3% growth (22.9% annualized) in 3Q
- China's GDP fell 10% (-34% annualized) in 1Q, but rebounded 11.7% (56% annualized) in 2Q and is up 2.7% (11.3% annualized) in 3Q; only country expected to grow in 2020



U.S. Equity Markets Rebound Over 70%

S&P 500 Total Return Price Index Calendar Year 2020



- Substantial price appreciation in spite of poor earnings
- Low Treasury yields helping to support valuations

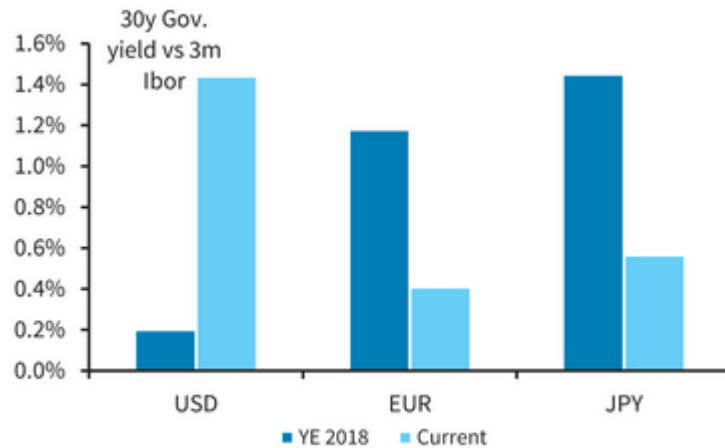
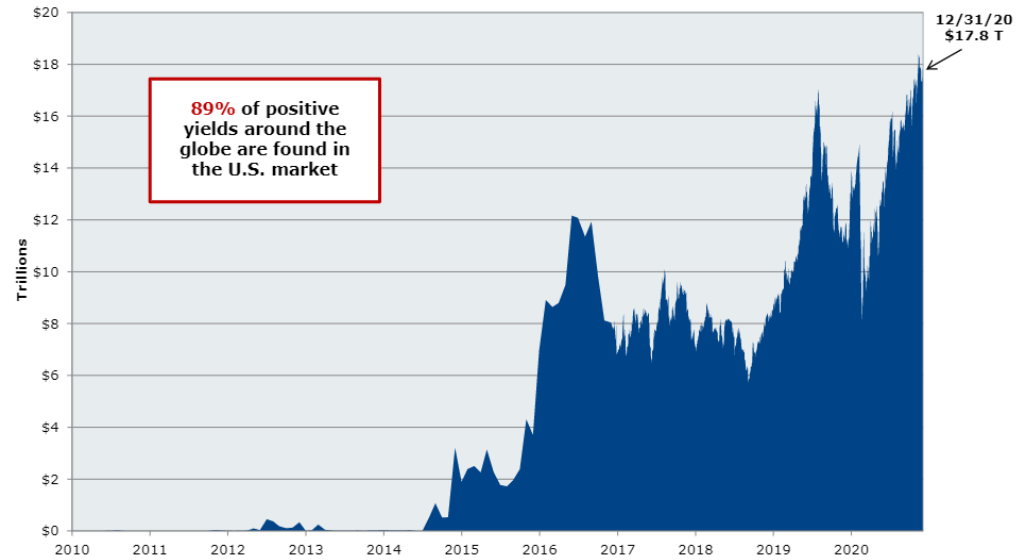
Source: S&P Dow Jones Indices
Data as of 12/31/20

Low and Negative Yields Fuel Demand for Credit

U.S. credit attractive to international investors

- Central banks globally are adopting a “lower for longer” mindset toward rates.
- 89% of positive yields globally are in the U.S., spurring demand for U.S. corporate credit.
- Lower LIBOR rates have decreased currency hedging costs; combined with a steep Treasury curve, that makes U.S. credit attractive to non-U.S. investors.

Bloomberg Barclays Global Aggregate Negative-Yielding Debt Index



ICE BofA U.S. Corporate Index Option-Adjusted Spread



Sources: Baird, Bloomberg, Barclays Research, ICE BofA

Diversification Remains Key Risk Control

Periodic Table of Investment Returns

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
U.S. Fixed	Non-U.S. Fixed	Emerging Markets	Emerging Markets	Emerging Markets	Emerging Markets	Emerging Markets	U.S. Fixed	Emerging Markets	Small Cap	Real Estate Funds	Emerging Markets	Small Cap	Large Cap	Real Estate Funds	Small Cap	Emerging Markets	Real Estate Funds	Large Cap	Small Cap
8.43%	22.37%	55.82%	25.55%	34.00%	32.17%	39.38%	5.24%	78.51%	26.85%	14.96%	18.23%	38.82%	13.69%	13.95%	21.31%	37.28%	7.36%	31.49%	19.96%
High Yield	U.S. Fixed	Small Cap	Non-U.S. Equity	Real Estate Funds	Non-U.S. Equity	Real Estate Funds	Non-U.S. Fixed	High Yield	Emerging Markets	U.S. Fixed	Non-U.S. Equity	Large Cap	Real Estate Funds	Large Cap	High Yield	Non-U.S. Equity	Cash Equivalent	Small Cap	Large Cap
5.28%	10.26%	47.25%	20.38%	20.15%	25.71%	14.84%	4.39%	58.21%	18.88%	7.84%	16.41%	32.39%	11.46%	1.38%	17.13%	24.21%	1.87%	25.52%	18.40%
Real Estate Funds	Real Estate Funds	Non-U.S. Equity	Small Cap	Non-U.S. Equity	Small Cap	Hedge Funds	Cash Equivalent	Non-U.S. Equity	Real Estate Funds	High Yield	Small Cap	Non-U.S. Equity	U.S. Fixed	U.S. Fixed	Large Cap	Large Cap	U.S. Fixed	Non-U.S. Equity	Emerging Markets
4.64%	4.57%	39.42%	18.33%	14.47%	18.37%	12.56%	2.06%	33.67%	15.26%	4.98%	16.35%	21.02%	5.97%	0.55%	11.96%	21.83%	0.01%	22.49%	18.31%
Cash Equivalent	Hedge Funds	High Yield	Non-U.S. Fixed	Hedge Funds	Large Cap	Non-U.S. Equity	Real Estate Funds	Small Cap	High Yield	Non-U.S. Fixed	Large Cap	Real Estate Funds	Small Cap	Cash Equivalent	Emerging Markets	Small Cap	High Yield	Emerging Markets	Non-U.S. Fixed
4.42%	3.04%	28.97%	12.54%	7.61%	15.79%	12.44%	-10.70%	27.17%	15.12%	4.36%	16.00%	12.90%	4.89%	0.05%	11.19%	14.65%	-2.08%	18.44%	10.11%
Hedge Funds	Cash Equivalent	Large Cap	Real Estate Funds	Large Cap	Real Estate Funds	Non-U.S. Fixed	Hedge Funds	Large Cap	Large Cap	Large Cap	High Yield	Hedge Funds	Hedge Funds	Hedge Funds	Real Estate Funds	Non-U.S. Fixed	Non-U.S. Fixed	High Yield	Non-U.S. Equity
4.42%	1.78%	28.68%	12.00%	4.91%	15.27%	11.03%	-19.07%	26.47%	15.06%	2.11%	15.81%	9.73%	4.13%	-0.71%	7.79%	10.51%	-2.15%	14.32%	7.59%
Small Cap	High Yield	Non-U.S. Fixed	High Yield	Small Cap	Hedge Funds	U.S. Fixed	High Yield	Hedge Funds	Hedge Funds	Cash Equivalent	Real Estate Funds	High Yield	High Yield	Non-U.S. Equity	Non-U.S. Equity	High Yield	Hedge Funds	Hedge Funds	U.S. Fixed
2.49%	-1.37%	19.36%	11.13%	4.55%	13.86%	6.97%	-26.16%	18.57%	10.95%	0.10%	9.79%	7.44%	2.45%	-3.04%	2.75%	7.50%	-3.19%	9.31%	7.51%
Emerging Markets	Emerging Markets	Hedge Funds	Large Cap	Cash Equivalent	High Yield	Large Cap	Small Cap	Non-U.S. Fixed	Non-U.S. Equity	Hedge Funds	Hedge Funds	Cash Equivalent	Cash Equivalent	Small Cap	U.S. Fixed	Hedge Funds	Large Cap	U.S. Fixed	High Yield
-2.61%	-6.16%	15.44%	10.88%	3.06%	11.85%	5.49%	-33.79%	7.53%	8.95%	-2.52%	7.67%	0.07%	0.04%	-4.41%	2.65%	7.12%	-4.38%	8.72%	7.11%
Non-U.S. Fixed	Non-U.S. Equity	Real Estate Funds	Hedge Funds	High Yield	Non-U.S. Fixed	Cash Equivalent	Large Cap	U.S. Fixed	U.S. Fixed	Small Cap	U.S. Fixed	U.S. Fixed	Emerging Markets	High Yield	Non-U.S. Fixed	Real Estate Funds	Small Cap	Non-U.S. Fixed	Hedge Funds
-3.75%	-15.80%	8.28%	9.64%	2.74%	8.16%	5.00%	-37.00%	5.93%	6.54%	-4.18%	4.21%	-2.02%	-2.19%	-4.47%	1.49%	6.66%	-11.01%	5.09%	6.36%
Large Cap	Small Cap	U.S. Fixed	U.S. Fixed	U.S. Fixed	Cash Equivalent	High Yield	Non-U.S. Equity	Cash Equivalent	Non-U.S. Fixed	Non-U.S. Equity	Non-U.S. Fixed	Emerging Markets	Non-U.S. Fixed	Non-U.S. Fixed	Hedge Funds	U.S. Fixed	Non-U.S. Equity	Real Estate Funds	Cash Equivalent
-11.89%	-20.48%	4.10%	4.34%	2.43%	4.86%	1.87%	-43.56%	0.21%	4.95%	-12.21%	4.09%	-2.60%	-3.09%	-6.02%	1.25%	3.54%	-14.09%	4.39%	0.67%
		Cash Equivalent	Cash Equivalent	Non-U.S. Fixed	U.S. Fixed	Small Cap	Emerging Markets	Real Estate Funds	Cash Equivalent	Emerging Markets	Cash Equivalent	Non-U.S. Fixed	Non-U.S. Equity	Emerging Markets	Cash Equivalent	Cash Equivalent	Emerging Markets	Cash Equivalent	Real Estate Funds
		1.15%	1.33%	-8.65%	4.33%	-1.57%	-53.33%	-30.40%	0.13%	-18.42%	0.11%	-3.08%	-4.32%	-14.92%	0.33%	0.86%	-14.57%	2.28%	0.34%

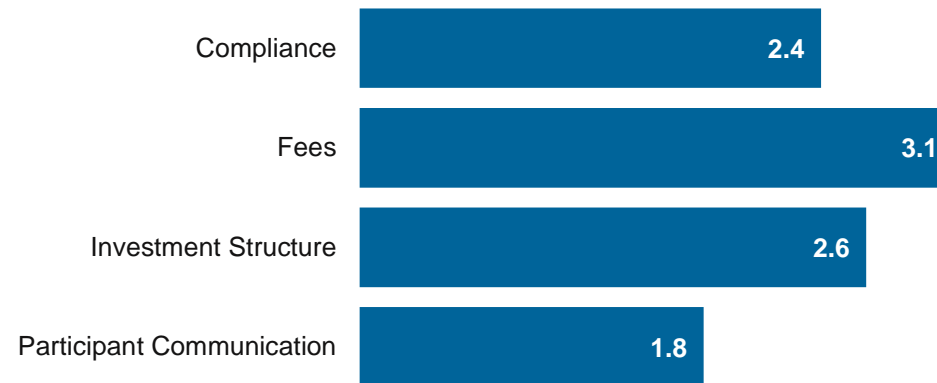
- Bloomberg Barclays Corp High Yield ● Bloomberg Barclays Global Aggregate ex US ● Bloomberg Barclays US Aggregate
- Credit Suisse Hedge Fund ● ICE BofAML US 3-Month Treasury Bill ● MSCI Emerging Markets ● MSCI World ex USA
- NFI-ODCE (value-weighted net) ● Russell 2000 ● S&P 500

4Q20 Consultant Survey: Key Issues for DC Plans

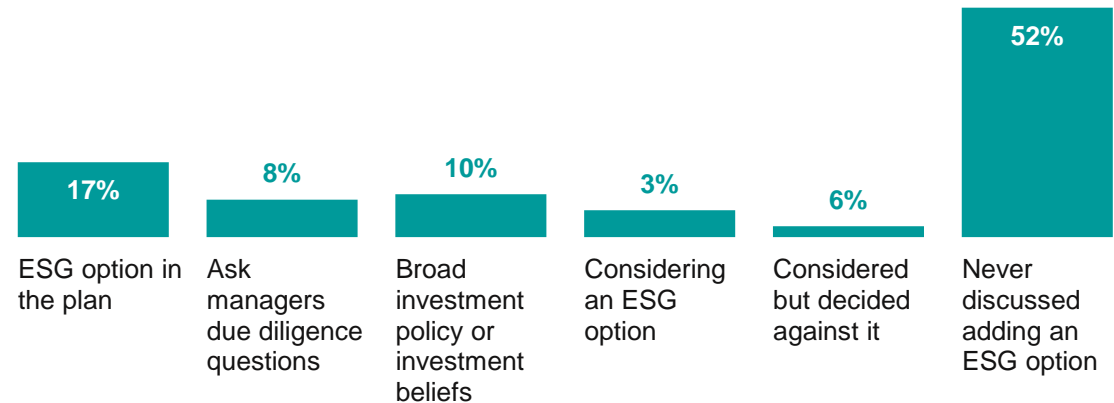
Fees still top concern but new focus on investment structure

- Plan fees the top concern for sponsors for the last five years
- This reflects, as one consultant put it, “ongoing fee containment” by clients.
- Investment structure the second-ranked issue, nudging aside compliance
- One client is “moving from core menu options with single investment managers to a white-labeled multi-manager approach.”
- Another consultant noted that “the fear of being sued is an underlying force to evaluate” investment structures.
- No discussion of ESG by roughly half of DC clients
- ESG option in roughly one-fifth of plans
- A new issue, noted one consultant: “The new DOL rule on financial factors (ESG rule) and what it means for plan sponsors.”

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



Discussions About ESG



Defined Contribution Industry Developments

Recordkeeper consolidation continues

- Vanguard announced a partnership with InfoSys in July to provide DC recordkeeping services.
 - Infosys will assume day-to-day operations supporting Vanguard's DC recordkeeping business, including software platforms, administration, and associated processes.
- Empower announced its acquisition of MassMutual's retirement plan business and Fifth Third's recordkeeping business.

Updated retirement plan limits for 2021 announced by IRS

- The annual contribution limit will remain the same at \$19,500.
- The age 50 annual catch-up contribution limit will remain the same at \$6,500.
- The annual compensation limit will increase from \$285,000 to \$290,000.
- The Section 415(c) limit will increase from \$57,000 to \$58,000.
- The highly compensated employee threshold will remain the same at \$130,000.

Final rule on 'Financial Factors'

- The letters "ESG" were not included in the final rule issued by the Department of Labor on Oct. 30, 2020.
- Focus was on requirement of fiduciaries to evaluate only pecuniary factors.
- In the very rare event of a tie-breaker, non-pecuniary factors may be considered except in the case of selecting the QDIA.
- The Biden administration may take steps to review this new rule through the Congressional Review Act or new rulemaking.

Defined Contribution Industry Developments

Key Themes

Proxy Voting Rule

- The DOL issued a final rule on Dec. 16, 2020, for fiduciary duties in voting proxies held by ERISA plans.
- The key takeaway is that the plan fiduciary must consider the financial significance in voting or not voting the proxy.
- Plan sponsors should consult legal counsel to confirm compliance when evaluating proxy voting and establishing any proxy voting guidelines.
- The Biden administration may take steps to review this new rule through the Congressional Review Act or new rulemaking.

SECURE Act 2.0

- New retirement legislation, SECURE 2.0, has built off of the SECURE Act. While still pending, below we highlight some of the key proposed changes:
 - Allows collective trust investment vehicles in 403(b) plans
 - Allows for matching contributions for employees who are repaying student loans
 - Increases the catch-up amount to \$10,000 for those age 60 or over
 - Changes the required minimum distributions (RMD) starting age to 75, exempts those with balances under \$100,000 from the RMD rules, and reduces the penalty for failing to take RMDs.

Callan's 14th Annual DC Trends Survey Results

- Published in February 2021 and a webinar on Feb. 25, 2021
- Covers a wide variety of topics including:
 - Governance, Plan design features, Investment trends, Secure Act adoption, Cares Act adoption, Financial wellness, HSA usage

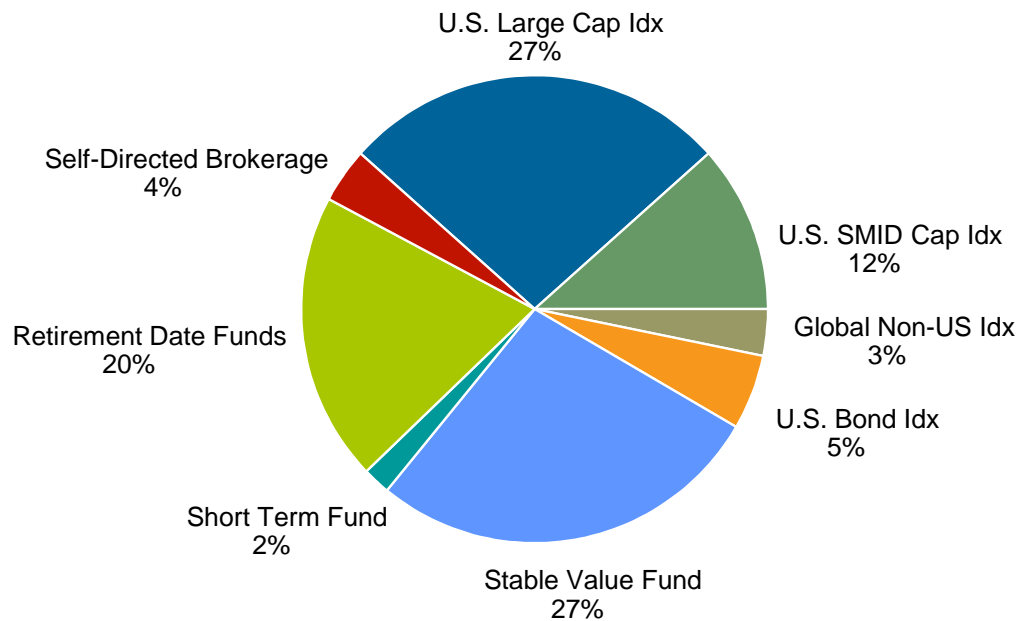
Callan

PA SERS 457(b) Plan Performance Review

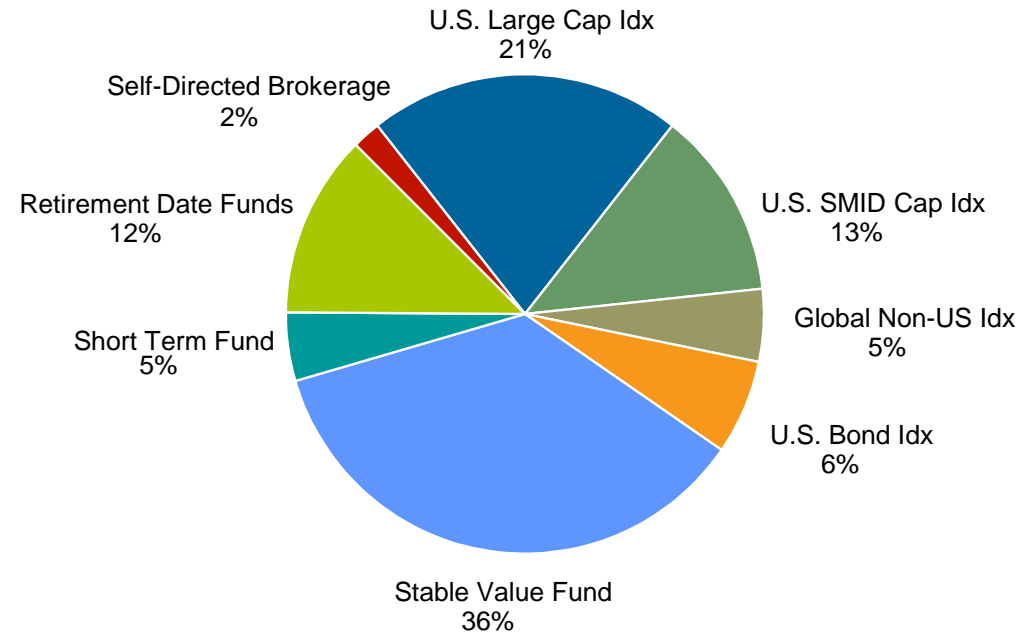
457(b) Plan Asset Allocation & Contributions

As of December 31, 2020

Asset Allocation



Contributions



Asset Allocation

As of December 31, 2020

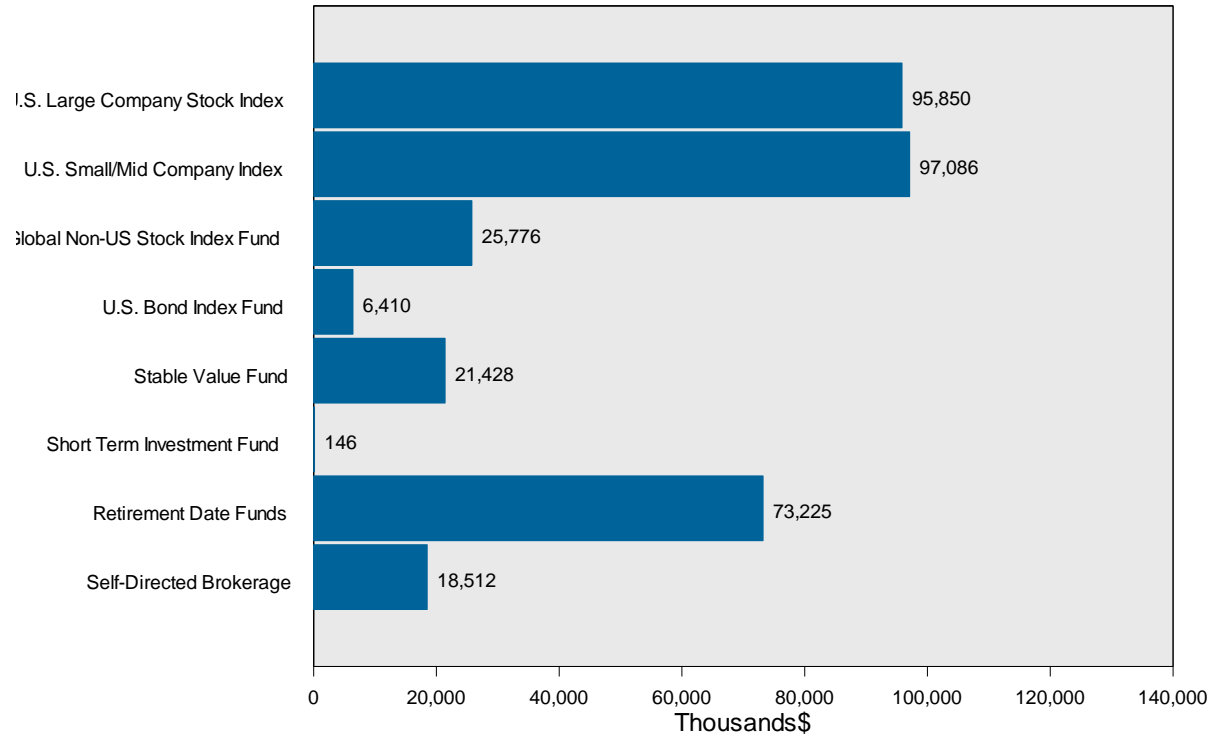
	December 31, 2020		Net New Inv. \$(000)	Inv. Return \$(000)	September 30, 2020	
	Market Value \$(000)	% of Total Weight			Market Value \$(000)	% of Total Weight
SERS Retirement Date Funds	\$866,669	20.03%	\$(3,744)	\$76,969	\$793,444	19.90%
SERS Post Retirement Fund	262,654	6.07%	(681)	16,610	246,725	6.19%
SERS 2025 Retirement Fund	156,522	3.62%	893	12,093	143,537	3.60%
SERS 2030 Retirement Fund	143,506	3.32%	(108)	13,061	130,553	3.27%
SERS 2035 Retirement Fund	123,454	2.85%	(4,160)	13,084	114,530	2.87%
SERS 2040 Retirement Fund	74,828	1.73%	(923)	8,725	67,026	1.68%
SERS 2045 Retirement Fund	56,817	1.31%	222	7,116	49,480	1.24%
SERS 2050 Retirement Fund	33,948	0.78%	301	4,393	29,254	0.73%
SERS 2055 Retirement Fund	9,758	0.23%	519	1,225	8,014	0.20%
SERS 2060 Retirement Fund	3,547	0.08%	116	459	2,973	0.07%
SERS 2065 Retirement Fund	1,634	0.04%	78	204	1,351	0.03%
SERS U.S. Equity	\$1,659,334	38.35%	\$(42,073)	\$235,008	\$1,466,398	36.77%
SERS U.S. Large Company Index	1,158,020	26.77%	(30,001)	125,851	1,062,170	26.63%
SERS U.S. SMID Company Index	501,314	11.59%	(12,071)	109,157	404,228	10.14%
SERS Non-U.S. Equity	\$139,701	3.23%	\$6,154	\$19,622	\$113,926	2.86%
SERS Global Non-US IdxFund	139,701	3.23%	6,154	19,622	113,926	2.86%
SERS Fixed Income	\$1,494,616	34.55%	\$20,923	\$7,060	\$1,466,633	36.78%
SERS Short Term Investment Fund	81,103	1.87%	158	(11)	80,956	2.03%
SERS Stable Value Fund	1,188,277	27.47%	15,674	5,754	1,166,849	29.26%
SERS U.S. Bond Index Fund	225,237	5.21%	5,092	1,318	218,827	5.49%
Self-Directed Brokerage						
Self-Directed Brokerage Account	166,070	3.84%	(463)	18,974	147,558	3.70%
SERS 457(b) Total Fund	\$4,326,390	100.0%	\$(19,202)	\$357,634	\$3,987,959	100.0%

Changes in Market Values and Contributions

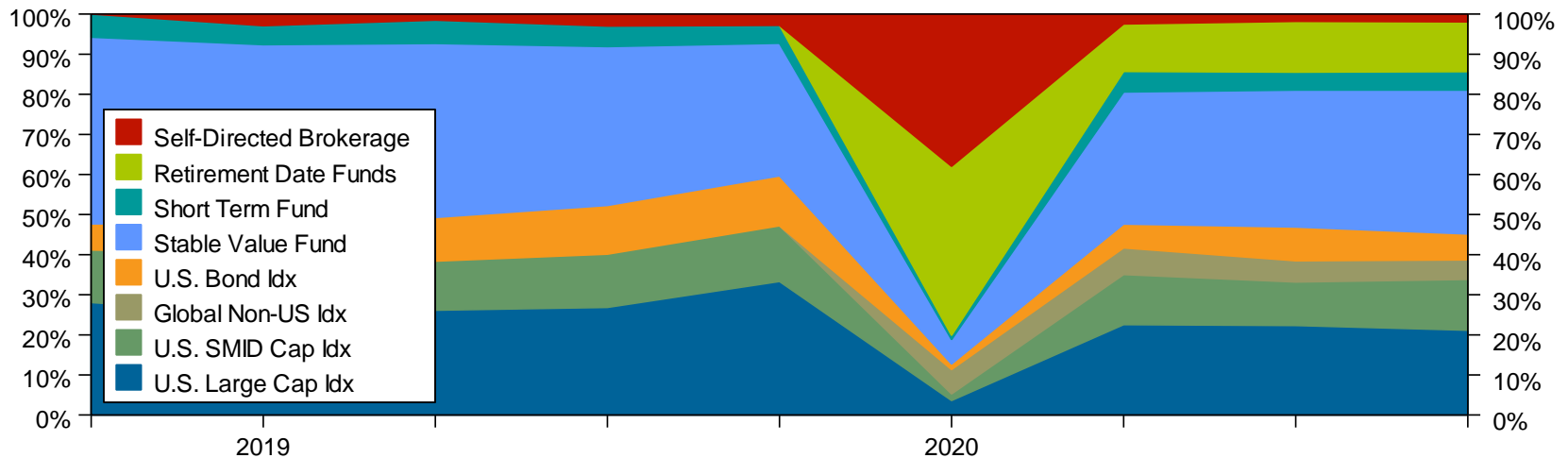
As of December 31, 2020

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.



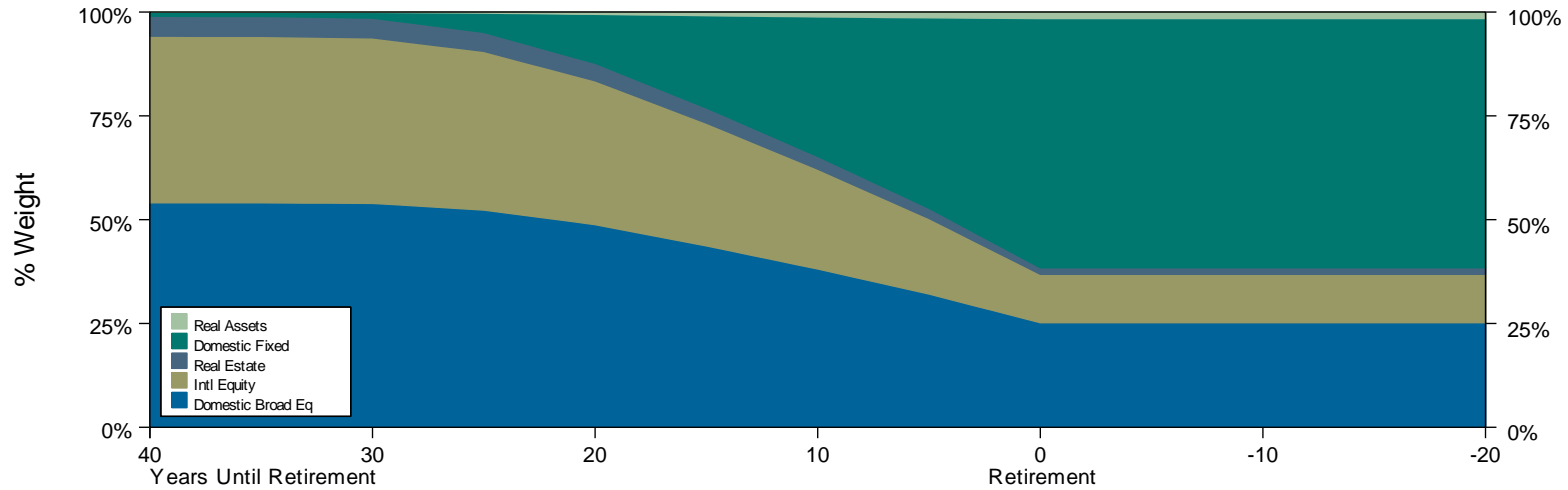
Historical Allocation of Contributions



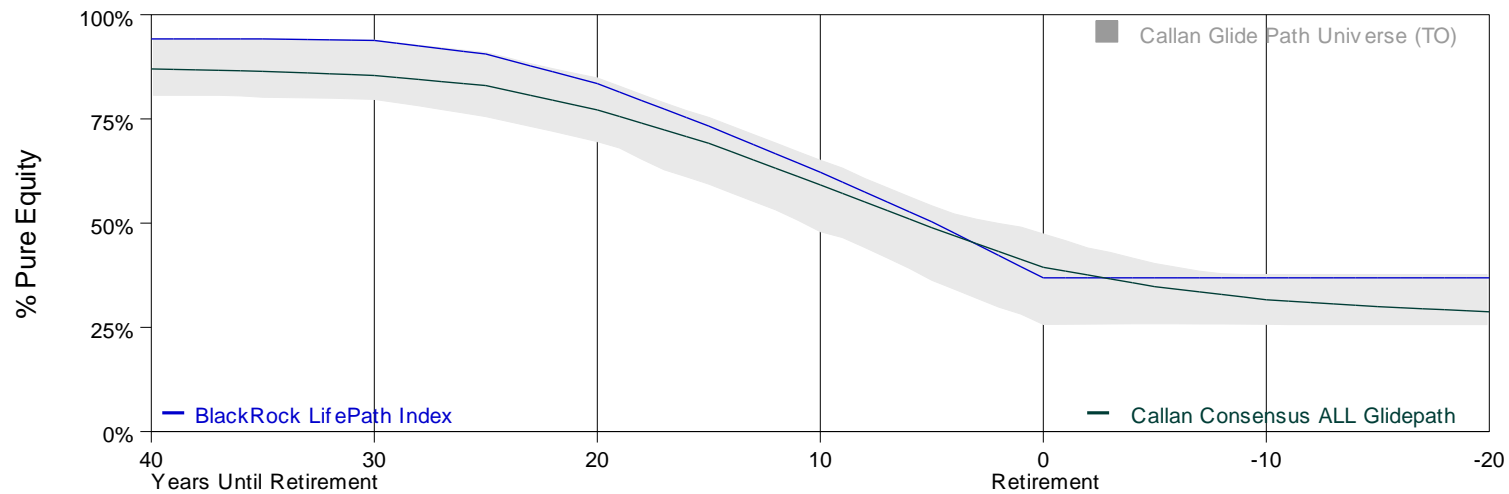
Blackrock LifePath Retirement Funds

Glidepath and Equity Roll-down Exposure as of December 31, 2020

BlackRock LifePath Retirement Funds Glidepath



BlackRock LifePath Retirement Funds Equity Roll-down Exposure



Cumulative Performance - Net of Fees

As of December 31, 2020

	Last Quarter	Last Year	Last 3 Years	Last 5 Years
Net Performance				
Retirement Date Funds				
SERS Post Retirement Fund	6.77%	11.97%	7.72%	7.88%
BlackRock Post Retirement Index	6.77%	11.80%	7.66%	7.81%
Callan Tgt Date Ret Inc	5.95%	10.02%	6.51%	6.78%
SERS 2025 Retirement Fund	8.38%	12.19%	8.17%	9.12%
BlackRock 2025 Index	8.37%	12.01%	8.09%	9.00%
Callan Target Date 2025	9.17%	12.55%	8.17%	9.23%
SERS 2030 Retirement Fund	10.09%	12.88%	8.74%	9.95%
BlackRock 2030 Index	10.09%	12.72%	8.64%	9.79%
Callan Target Date 2030	10.50%	13.17%	8.70%	9.98%
SERS 2035 Retirement Fund	11.74%	13.58%	9.26%	10.74%
BlackRock 2035 Index	11.72%	13.44%	9.15%	10.55%
Callan Target Date 2035	12.02%	14.23%	9.12%	10.65%
SERS 2040 Retirement Fund	13.26%	14.14%	9.71%	11.41%
BlackRock 2040 Index	13.22%	13.98%	9.59%	11.21%
Callan Target Date 2040	13.22%	14.83%	9.48%	11.18%
SERS 2045 Retirement Fund	14.45%	14.83%	10.08%	11.90%
BlackRock 2045 Index	14.42%	14.65%	9.92%	11.66%
Callan Target Date 2045	14.07%	15.48%	9.63%	11.49%
SERS 2050 Retirement Fund	15.05%	15.20%	10.25%	12.09%
BlackRock 2050 Index	15.02%	15.07%	10.12%	11.87%
Callan Target Date 2050	14.41%	15.63%	9.67%	11.54%
SERS 2055 Retirement Fund	15.13%	15.32%	10.30%	12.11%
BlackRock 2055 Index	15.14%	15.18%	10.17%	11.90%
Callan Target Date 2055	14.69%	15.70%	9.89%	11.79%
SERS 2060 Retirement Fund	15.13%	15.31%	10.29%	12.10%
BlackRock 2060 Index	15.14%	15.19%	10.17%	11.90%
Callan Target Date 2060	14.65%	15.87%	9.93%	12.00%
SERS 2065 Retirement Fund	15.08%	15.15%	-	-
BlackRock 2065 Index	15.14%	15.19%	-	-
Callan Target Date 2065	14.89%	16.41%	10.01%	-

Note: SERS Funds are the top fund in each grouping followed by each fund's respective benchmark and median peer.
*Target Date funds replaced risk-based funds in 1Q20.

Cumulative Performance - Net of Fees

As of December 31, 2020

	Last 7 Years	Last 10 Years	Last 15 Years	Last 20 Years
Net Performance				
Retirement Date Funds				
SERS Post Retirement Fund	6.19%	6.25%	5.94%	-
BlackRock Post Retirement Index	6.14%	6.21%	5.92%	5.86%
Callan Tgt Date Ret Inc	5.12%	5.35%	5.01%	4.74%
SERS 2025 Retirement Fund	7.07%	7.37%	-	-
BlackRock 2025 Index	6.99%	7.30%	6.32%	5.60%
Callan Target Date 2025	7.15%	7.82%	6.39%	-
SERS 2030 Retirement Fund	7.64%	7.94%	6.67%	-
BlackRock 2030 Index	7.53%	7.85%	6.61%	5.74%
Callan Target Date 2030	7.76%	8.53%	6.65%	5.39%
SERS 2035 Retirement Fund	8.18%	8.47%	-	-
BlackRock 2035 Index	8.05%	8.36%	6.87%	5.85%
Callan Target Date 2035	8.20%	8.94%	7.02%	-
SERS 2040 Retirement Fund	8.64%	8.92%	7.17%	-
BlackRock 2040 Index	8.49%	8.79%	7.08%	5.90%
Callan Target Date 2040	8.60%	9.30%	7.18%	5.56%
SERS 2045 Retirement Fund	8.97%	9.28%	-	-
BlackRock 2045 Index	8.80%	9.14%	7.24%	5.97%
Callan Target Date 2045	8.87%	9.49%	7.70%	-
SERS 2050 Retirement Fund	9.10%	9.49%	-	-
BlackRock 2050 Index	8.95%	9.35%	7.48%	6.54%
Callan Target Date 2050	8.93%	9.61%	6.87%	-
SERS 2055 Retirement Fund	9.12%	9.62%	-	-
BlackRock 2055 Index	8.97%	9.48%	-	-
Callan Target Date 2055	9.09%	9.83%	-	-

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

Funds not listed do not have longer term history.

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

Cumulative Performance - Net of Fees

As of December 31, 2020

	Last Quarter	Last Year	Last 3 Years	Last 5 Years
Net Performance				
Domestic Equity				
SERS U.S. Large Company Index	12.16%	18.43%	14.19%	15.23%
S&P 500 Index	12.15%	18.40%	14.18%	15.22%
Callan Lg Cap Broad MF	12.79%	18.47%	13.50%	14.42%
SERS U.S. SMID Company Index	27.50%	32.03%	15.35%	16.06%
Dow Jones US Completion	27.41%	32.17%	15.21%	15.89%
Callan SMID Broad MFs	23.61%	24.00%	14.72%	14.73%
International Equity				
SERS Global Non-US Index	16.96%	11.15%	5.25%	9.35%
MSCI ACWI ex US	17.01%	10.65%	4.88%	8.93%
Callan Non US Equity MFs	16.48%	11.12%	4.48%	7.75%
Domestic Fixed Income				
SERS Short Term Investment Fund	0.04%	0.66%	1.68%	1.34%
3-month Treasury Bill	0.03%	0.67%	1.60%	1.20%
Callan Cash Database(1)	0.07%	1.01%	1.88%	1.52%
SERS Stable Value Fund	0.52%	2.32%	2.41%	2.22%
3-month Treasury Bill	0.03%	0.67%	1.60%	1.20%
Callan Stable Value	0.52%	2.25%	2.38%	2.24%
SERS U.S. Bond Index Fund	0.65%	7.56%	5.35%	4.43%
Blmbg Aggregate	0.67%	7.51%	5.34%	4.44%
Callan Core Bond MFs	1.28%	8.65%	5.83%	4.86%

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

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

Cumulative Performance - Net of Fees

As of December 31, 2020

	Last 7 Years	Last 10 Years	Last 15 Years	Last 20 Years
Net Performance				
Domestic Equity				
SERS U.S. Large Company Index	12.93%	13.90%	9.93%	7.51%
S&P 500 Index	12.92%	13.88%	9.88%	7.47%
Callan Lg Cap Broad MF	12.36%	13.32%	9.82%	7.27%
SERS U.S. SMID Company Index	11.89%	13.23%	10.68%	9.76%
Dow Jones US Completion	11.73%	13.03%	10.48%	9.56%
Callan SMID Broad MFs	10.74%	11.78%	9.91%	9.12%
International Equity				
SERS Global Non-US Index	5.06%	5.15%	-	-
MSCI ACWI ex US	4.82%	4.92%	4.89%	5.23%
Callan Non US Equity MFs	4.86%	6.00%	5.31%	5.19%
Domestic Fixed Income				
SERS Short Term Investment Fund	1.01%	0.77%	1.41%	-
3-month Treasury Bill	0.87%	0.64%	1.23%	1.51%
Callan Cash Database(1)	1.17%	0.94%	1.69%	1.95%
SERS Stable Value Fund	2.23%	2.45%	3.15%	-
3-month Treasury Bill	0.87%	0.64%	1.23%	1.51%
Callan Stable Value	2.07%	2.08%	2.73%	3.36%
SERS U.S. Bond Index Fund	4.08%	3.80%	4.45%	4.79%
Blmbg Aggregate	4.09%	3.84%	4.49%	4.83%
Callan Core Bond MFs	4.26%	4.13%	4.78%	4.97%

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

*Funds not listed do not have longer term history.

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

Performance Summary & Expense Ratios as of December 31, 2020

Investment Manager	Last Quarter Return	Last Year Return	3 Year Return	5 Year Return	7 Year Return	10 Year Return	5 Year Return Consistency	5 Year Risk Quadrant	Expense Ratio
Net of Fee Performance									
Retirement Date Funds									
SERS Post Retirement Fund Callan Tgt Date Ret Inc	6.8 28	12.0 11	7.7 7	7.9 13	6.2 10	6.2 14			0.08 93
BlackRock Post Retirement Idx	6.8 28	11.8 16	7.7 9	7.8 15	6.1 12	6.2 14			
SERS 2025 Retirement Fund Callan Target Date 2025	8.4 68	12.2 56	8.2 50	9.1 57	7.1 60	7.4 71			0.08 93
BlackRock 2025 Index	8.4 69	12.0 58	8.1 54	9.0 63	7.0 62	7.3 72			
SERS 2030 Retirement Fund Callan Target Date 2030	10.1 67	12.9 57	8.7 47	9.9 51	7.6 55	7.9 72			0.08 93
BlackRock 2030 Index	10.1 67	12.7 65	8.6 54	9.8 61	7.5 57	7.9 73			
SERS 2035 Retirement Fund Callan Target Date 2035	11.7 55	13.6 63	9.3 46	10.7 45	8.2 51	8.5 66			0.08 93
BlackRock 2035 Index	11.7 57	13.4 68	9.2 50	10.6 60	8.1 62	8.4 73			
SERS 2040 Retirement Fund Callan Target Date 2040	13.3 44	14.1 61	9.7 36	11.4 34	8.6 46	8.9 66			0.08 93
BlackRock 2040 Index	13.2 51	14.0 64	9.6 47	11.2 46	8.5 58	8.8 69			
SERS 2045 Retirement Fund Callan Target Date 2045	14.4 36	14.8 62	10.1 33	11.9 33	9.0 44	9.3 56			0.08 93
BlackRock 2045 Index	14.4 36	14.7 64	9.9 40	11.7 44	8.8 53	9.1 66			
SERS 2050 Retirement Fund Callan Target Date 2050	15.1 29	15.2 55	10.3 32	12.1 31	9.1 42	9.5 55			0.08 93
BlackRock 2050 Index	15.0 30	15.1 58	10.1 37	11.9 39	8.9 50	9.3 60			
SERS 2055 Retirement Fund Callan Target Date 2055	15.1 28	15.3 56	10.3 31	12.1 32	9.1 49	9.6 53			0.08 94
BlackRock 2055 Index	15.1 28	15.2 59	10.2 37	11.9 45	9.0 56	9.5 57			
SERS 2060 Retirement Fund Callan Target Date 2060	15.1 30	15.3 59	10.3 35	12.1 46					0.08 93
BlackRock 2060 Index	15.1 30	15.2 60	10.2 40	11.9 54					

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

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, 2020

Investment Manager	Last Quarter Return	Last Year Return	3 Year Return	5 Year Return	7 Year Return	10 Year Return	5 Year Return Consistency	5 Year Risk Quadrant	Expense Ratio
SERS 2065 Retirement Fund Callan Target Date 2065	15.1 ³⁹	15.1 ⁶⁸							0.08 ⁷⁶
LifePath Index 2065	15.1 ³⁸	15.2 ⁶⁸							
Domestic Equity									
SERS U.S. Large Company Index Callan Lg Cap Broad MF	12.2 ⁵⁹	18.4 ⁵⁰	14.2 ⁴⁸	15.2 ⁴⁵	12.9 ⁴⁵	13.9 ⁴³			0.02 ⁹⁹
S&P 500 Index	12.1 ⁵⁹	18.4 ⁵¹	14.2 ⁴⁸	15.2 ⁴⁵	12.9 ⁴⁵	13.9 ⁴⁴			
SERS U.S. Small/Mid Company Index Callan SMID Broad MFs	27.5 ¹⁹	32.0 ³³	15.4 ⁴⁸	16.1 ⁴²	11.9 ⁴⁰	13.2 ⁴¹			0.03 ¹⁰⁰
Dow Jones US Completion	27.4 ¹⁹	32.2 ³³	15.2 ⁴⁸	15.9 ⁴³	11.7 ⁴¹	13.0 ⁴²			
International Equity									
SERS Global Non-U.S. Index Fund Callan Non US Equity MFs	17.0 ⁴⁵	11.2 ⁴⁹	5.2 ⁴⁵	9.3 ³⁹	5.1 ⁴⁶	5.2 ⁶⁷			0.06 ⁹⁹
MSCI ACWI ex US	17.0 ⁴⁵	10.7 ⁵³	4.9 ⁴⁸	8.9 ⁴⁰	4.8 ⁵³	4.9 ⁶⁹			
Domestic Fixed Income									
SERS Short Term Investment Fund Callan Cash Database	0.0 ⁸⁸	0.7 ⁸⁵	1.7 ⁸¹	1.3 ⁸⁰	1.0 ⁸²	0.8 ⁸³			0.00 ¹⁰⁰
3-month Treasury Bill	0.0 ⁹³	0.7 ⁸⁵	1.6 ⁸⁵	1.2 ⁹³	0.9 ⁹³	0.6 ⁹⁶			
Comments: Callan Cash Database includes STIF, enhanced cash, and money market funds.									
SERS Stable Value Fund Callan Stable Value	0.5 ⁶	2.3 ²	2.4 ¹	2.2 ³	2.2 ¹	2.5 ¹			
3-month Treasury Bill	0.0 ⁹⁹	0.7 ⁹⁹	1.6 ⁸⁶	1.2 ⁹⁸	0.9 ¹⁰⁰	0.6 ⁹⁹			
SERS U.S. Bond Index Fund Callan Core Bond MFs	0.6 ⁹⁰	7.6 ⁹⁰	5.4 ⁷⁹	4.4 ⁸³	4.1 ⁷²	3.8 ⁹⁰			0.03 ⁹⁸
Blmbg Aggregate	0.7 ⁹⁰	7.5 ⁹⁰	5.3 ⁸⁰	4.4 ⁸³	4.1 ⁷²	3.8 ⁸⁵			

Returns:
■ above median
■ third quartile
■ fourth quartile

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

Risk Quadrant:

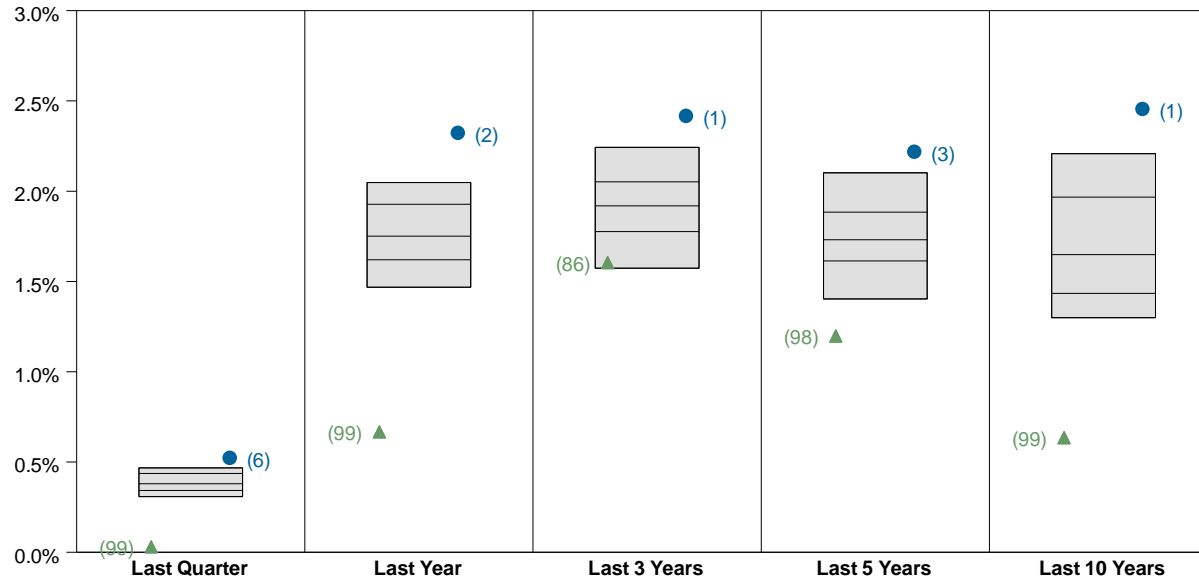
 Return
 Risk

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

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, 2020

Performance vs Callan Stable Value CT (Institutional Net)



	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile	0.47	2.05	2.24	2.10	2.21
25th Percentile	0.44	1.93	2.05	1.88	1.97
Median	0.38	1.75	1.92	1.73	1.65
75th Percentile	0.34	1.62	1.78	1.61	1.43
90th Percentile	0.31	1.47	1.57	1.40	1.30
SERS Stable Value Fund ●	0.52	2.32	2.41	2.22	2.45
3-month Treasury Bill ▲	0.03	0.67	1.60	1.20	0.64

Wrap Provider Exposure*

Contract Issuer	Portfolio	Average Fee	Moody's Rating	S&P Rating	Fitch Rating
Nationwide Life Insurance	20.14%	0.16%	A1	A+	NR
Transamerica	20.02%	0.16%	A1	A+	WD
Prudential Insurance Co.	15.11%	0.16%	Aa3	AA-	AA-
RGA	15.10%	0.16%	A1	AA-	A
Pacific Life Insurance Co.	12.59%	0.16%	A1	AA-	AA-
State Street Bank	12.60%	0.16%	Aa2	AA-	AA+
	95.57%	0.15%			

*Source: Invesco

457(b) Plan Investment Structure

Lineup Mapped to Callan's Clean Sheet



401(a) and 457(b) Plans - 2020 Recap and 2021 Work Plan

2020 Recap:

- Quarterly Performance Reports and Reviews as well as Market and Industry Trends Updates by Callan
- Ongoing Monitoring, Due Diligence and Watch List Recommendations of Investment Managers by Callan
- Callan Memo - 457(b) Plan Lineup Changes and Optimization
- Plan Administration and Investment Management Fee Benchmarking Analysis by Callan
- IPS Review and Update by SERS IO and Callan

2021 Work Plan:

- Quarterly Performance Reports and Reviews as well as Market and Industry Trends Updates by Callan
- Ongoing Monitoring, Due Diligence and Watch List Recommendations of Investment Managers by Callan
- Plan Administration and Investment Management Fee Education by Callan
- Plan Administration Fee Structure Analysis by Callan
- Plan Administration and Investment Management Fee Benchmarking Analysis by Callan - Continued
- Target Date Fund Suitability Analysis by Callan
- Installation of Callan PEP performance reporting software on SERS IO computers and onsite onboarding for PA SERS IO

Callan

Appendix – Callan Update

Published Research Highlights from 4Q20

Under the Hood of Alternative Beta



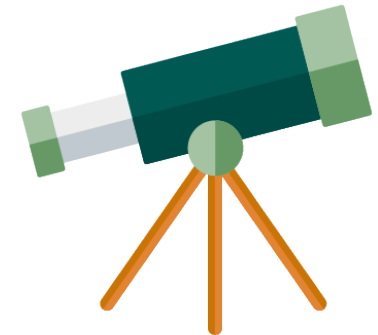
A Primer on Green Building Certifications



Private Equity 'Research Café'



And coming in 2021: Our Capital Markets Assumptions



Recent Blog Posts

Will Boring Still Be Beautiful?

James Veneruso

The Private Equity Playbook: Playing Offense

Alternatives Consulting Group

Plus our [blog](#) contains a wide array of posts related to the pandemic

Additional Reading

Private Equity Trends quarterly newsletter

Active vs. Passive quarterly charts

Capital Markets Review quarterly newsletter

Monthly Updates to the Periodic Table

Market Pulse Flipbook quarterly markets update

Callan Institute Events

Upcoming conferences, workshops, and webinars

March Workshop - Virtual

March 25, 2021

9:00 – 10:15am (45 minutes prepared remarks; 30 minutes Q&A)

A Fresh Look at Fixed Income – Generating Yield in a Zero Interest Rate Environment

As expectations for interest rates continue to fall, asset owners and fund managers are looking for new ways to generate returns. In this workshop, our consultants and specialists will share:

- How the drop in interest rate expectations impacts different types of investors.
- What Callan research has identified as potential approaches for garnering income and returns.
- What asset owners should consider as they evaluate options for their fixed income mandates.

This is your chance to step back and think differently about fixed income. You'll come away with a deeper understanding of the issues facing asset owners and how they are thinking about their options moving forward.

Callan College

Learn the Fundamentals

This course is for institutional investors, including trustees and staff members of nonprofits, and public and corporate funds. This session familiarizes fund sponsor trustees and staff with basic investment theory, terminology, and practices.

Join our next virtual session:

April 13, 2021 – April 15, 2021

2-3 hour sessions over 3 days

Join our next LIVE session in San Francisco:

July 14, 2021 – July 15, 2021

1.5 day session held in Callan's San Francisco office

Save the Date!

2021 National Conference

Summer 2021

We can't wait to see you!

Callan Updates

Firm updates by the numbers, as of Dec. 31, 2020

Total Associates: 198

Ownership

- 100% employees
- Broadly distributed across 99 shareholders

Leadership Changes

- No changes to leadership 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

“One of the silver linings of the current work-from-home environment is the record attendance we have seen for our virtual education events. This includes our webinars, workshops, and our fiduciary education series, the ‘Callan College.’ Since education has always been at the heart of Callan’s consulting business, it’s encouraging to see our clients and associates adapt to the current situation and make education an even greater priority.”

- CEO & Chief Research Officer Greg Allen on Callan's COVID-19 Response



Disclaimers

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Reference to or inclusion in this report of any product, service or entity should not be construed as a recommendation, approval, affiliation or endorsement of such product, service or entity by Callan.

Past performance is no guarantee of future results.

The statements made herein may include forward-looking statements regarding future results. The forward-looking statements herein: (i) are best estimations consistent with the information available as of the date hereof and (ii) involve known and unknown risks and uncertainties such that actual results may differ materially from these statements. There is no obligation to update or alter any forward-looking statement, whether as a result of new information, future events or otherwise. Undue reliance should not be placed on forward-looking statements.