

December 1, 2020



**Pennsylvania State Employees'
Retirement System – 401(a) Plan**

Third Quarter 2020

Executive Summary

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Market Environment

Continued Recovery in Global Equity Markets in 3Q20

Global equity continued the rally in 3Q after March market bottom:

- S&P 500 Index -33.5% from peak (02/19/20) to low on 3/23/20
- Rebound since March puts S&P 500 even with February peak, suggesting broad-based recovery, but year to date results are concentrated in a few stocks.
- Fed cut rates to zero, commenced QE, instituted multiple facilities to backstop money markets, credit markets, and economy.
 - Fed expects to get paid back
 - Further fiscal stimulus expected
- Congress passed fiscal stimulus (CARES) to carry the economy through the crisis.
- Economic recovery will be uncertain as COVID-19 infections surge anew; re-openings may be reversed.

Returns for Periods ended 9/30/20

	1 Quarter	1 Year	5 Years	10 Years	25 Years
U.S. Equity					
Russell 3000	9.21	15.00	13.69	13.48	9.29
S&P 500	8.93	15.15	14.15	13.74	9.31
Russell 2000	4.93	0.39	8.00	9.85	7.96
Global ex-U.S. Equity					
MSCI World ex USA	4.92	0.16	5.32	4.37	4.71
MSCI Emerging Markets	9.56	10.54	8.97	2.51	--
MSCI ACWI ex USA Small Cap	10.50	6.97	6.80	5.31	5.82
Fixed Income					
Bloomberg Barclays Aggregate	0.62	6.98	4.18	3.64	5.30
90-day T-Bill	0.04	1.10	1.20	0.64	2.32
Bloomberg Barclays Long Gov/Credit	1.22	12.92	8.78	7.36	7.66
Bloomberg Barclays Global Agg ex-US	4.14	5.48	3.60	1.35	3.90
Real Estate					
NCREIF Property	-0.99	0.25	5.91	9.18	9.01
FTSE Nareit Equity	1.44	-18.16	3.95	7.90	9.34
Alternatives					
CS Hedge Fund	3.44	2.41	2.76	3.64	7.25
Cambridge Private Equity*	9.89	7.67	11.36	13.38	14.86
Bloomberg Commodity	9.07	-8.20	-3.09	-6.03	0.91
Gold Spot Price	5.28	28.69	11.19	3.77	6.57
Inflation - CPI-U	0.96	1.37	1.81	1.77	2.14

*Cambridge PE data through 06/30/20

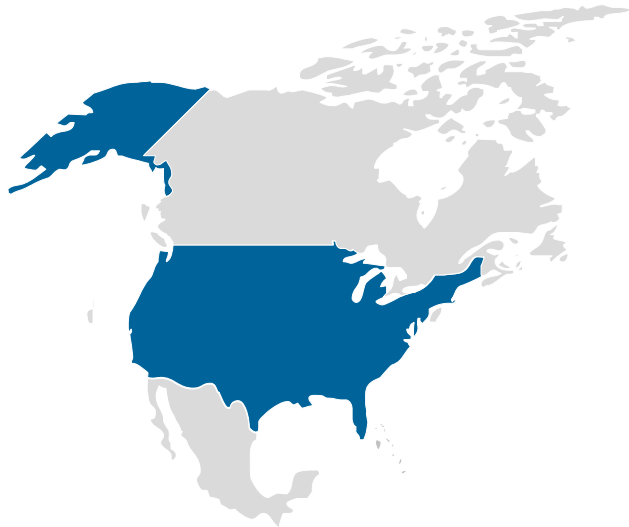
Sources: Bloomberg, Bloomberg Barclays, Callan, Cambridge, Credit Suisse, FTSE Russell, MSCI, NCREIF, S&P Dow Jones Indices

Market Environment: 3Q20

High degree of uncertainty

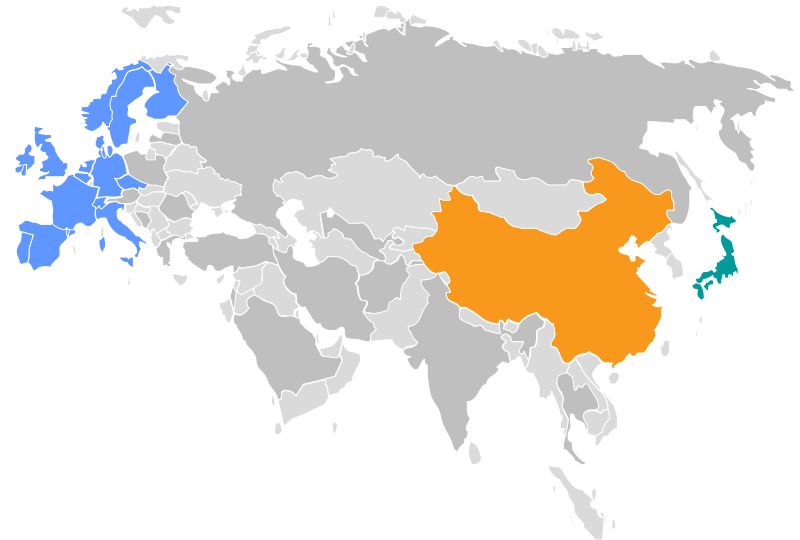
U.S.

- 2Q GDP fell -31.4%, largest decline on record; 3Q gain of 33% (both on an annualized basis)
- Retail sales, durable goods, and personal spending rebounded in 2Q and 3Q, but growth slowed in August and September.
- Unemployment dropped to 7.9% in September 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 2022.



Overseas

- Euro zone 1Q GDP contracted 3.7% (-14% annualized), followed by 11.8% drop (-39.5% annualized) in 2Q; largest quarterly drop on record.
- U.K. GDP sank 19.8% in 2Q (-59% annualized)—most ever.
- Japan’s economy shrank 7.9% (-28% annualized) in 2Q; third straight quarterly drop, dating back to 2019.
- China’s GDP fell 10% (-34% annualized) in 1Q, but rebounded 11.7% (+56%) in 2Q and is up 2.7% (11.3% annualized) in 3Q; only country expected to grow in 2020.
 - Chinese government unveiled fiscal stimulus of US\$506 bn, bringing budget deficit to a record high of 3.6% of GDP.

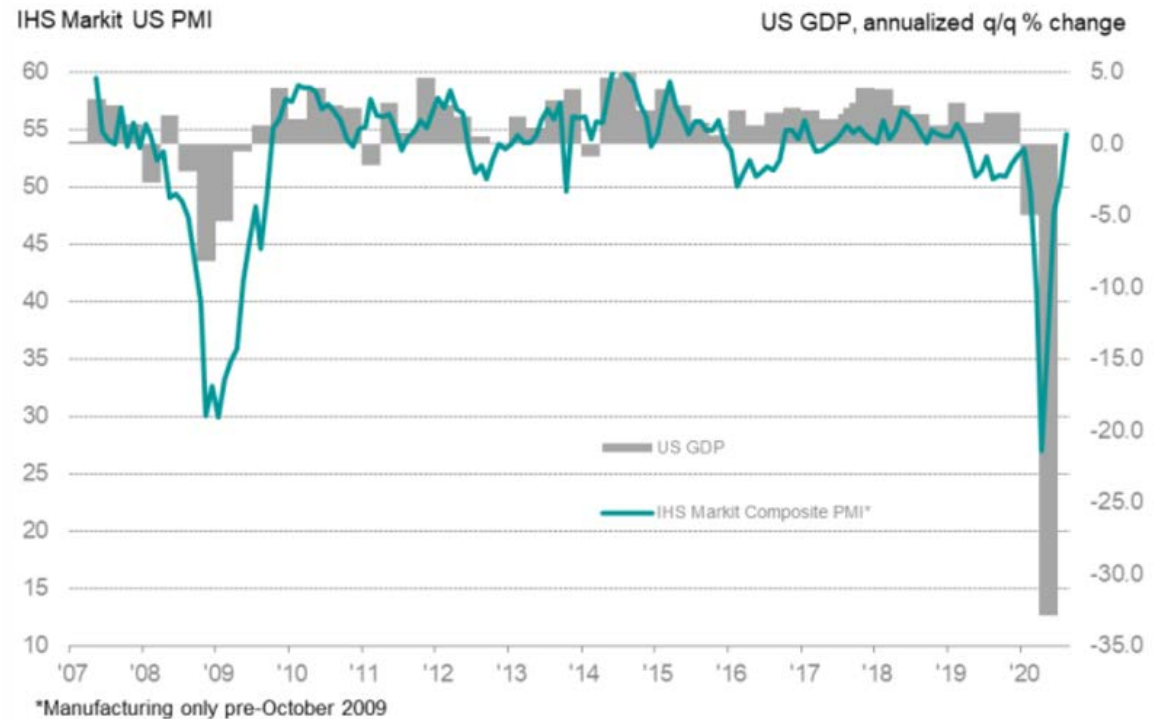


Stock Market is Not the Economy

Economic growth seriously impaired in 2020; recovery could be several quarters away

- US Purchasing Managers' Index (US PMI) provides a good proxy for future GDP.
- Initial decline in PMI mirrored by sharp decline in 1Q20 and 2Q20 GDP; for 3Q U.S. GDP projected at +33% annualized
- PMI has rebounded sharply.
 - IHS Markit US Composite PMI Output Index posted 53.2 in September
 - Up from 50.3 at the start of 3Q
 - Strong increase in output
- Broad improvement, but signs of slowing and an uneven recovery
- Manufacturing firms' new order inflows slipped in September.
- The level of the PMI in 3Q was lower than during previous periods of expansion, such as the entirety of 2018.

IHS Markit Composite PMI and U.S. GDP



Source: IHS Markit Flash U.S. Composite PMI™

Diversification Remains Key Risk Control

Periodic Table of Investment Returns 2003 – 3Q2020

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	3 Qtrs. 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	U.S. Fixed
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%	6.79%
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%	5.57%
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	Non-U.S. Fixed
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%	4.77%
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	Cash Equivalent
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%	0.64%
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	High Yield
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%	0.62%
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	Hedge Funds
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%	-0.02%
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	Real Estate Funds
-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%	-0.74%
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	Emerging Markets
-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%	-1.16%
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	Non-U.S. Equity
-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%	-7.13%
		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	Small Cap
		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%	-8.69%

- 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

Department of Labor Rule

Final Rule on Financial Factors in Selecting Plan Investments

Department of Labor Financial Factors Rule

- The Department of Labor (DOL) issued its final rule providing guidance to plan sponsors on the financial factors to consider when evaluating plan investments. This is a follow-up to its proposed Environmental, Social, and Governance (ESG) rule released four months ago.
- In the final rule, entitled “Financial Factors in Selecting Plan Investments,” the DOL modified the ESG rule, most notably removing references to ESG and instead focusing on pecuniary versus non-pecuniary factors. The DOL claimed the decision to forego the use of the term ESG was due to the lack of a commonly accepted definition of the term, either individually (E, S, or G) or collectively. That said, the DOL noted in both the proposed rule and the preamble to the final rule that ESG factors can be pecuniary.
- There are aspects of this final rule’s preamble, which provides a review and response to comments received and insight on the DOL’s thinking, and the rule itself that apply differently to defined contribution plans, defined benefit plans, multi-employer plans (e.g., union plans), and plans sponsored by religious organizations subject to ERISA. It is important for plan sponsors to incorporate applicable elements of the document into their fiduciary training and review it with their ERISA legal counsel to assess the impact to their specific ERISA-governed plan.

Highlights of the final rule include:

- The rule expands on the duty of prudence to require the consideration of different alternatives (review of multiple, similar types of options) in making investment selections. However, the DOL does not expect plan sponsors to “scour the marketplace” for all available alternatives, so this expansion of duty will likely not have an effect on fiduciaries already following sound processes for considering multiple options in investment manager selection (e.g., conducting a manager search process to select a new investment option).
- Rather than discussing ESG considerations specifically, the final rule states that investments must be evaluated based solely on pecuniary factors—i.e., factors that have a material impact on the risk and return of an investment based on a time horizon that is consistent with the plan’s objectives and funding policy—and that participants’ interests cannot be subordinated for non-pecuniary goals.

Department of Labor Rule Cont.

Final Rule on Financial Factors in Selecting Plan Investments

- The final rule does address the so-called “tiebreaker” rule in which non-pecuniary considerations could be used to break ties between investments that cannot be distinguished from one another based on pecuniary factors. The DOL removed the “economically indistinguishable” language that was in the proposed rule as the bar for tiebreakers in response to commenters deeming it too onerous. The final rule stipulates a three-step documentation process that a plan fiduciary must follow in the case of tiebreakers.
- Specific to DC plans, the DOL delineates between selecting investment options for a plan lineup versus selecting the qualified default investment alternative (QDIA). In the case of an investment option that is not a QDIA, the DOL permits the selection of funds or products that support non-pecuniary goals as long as 1) the option is one of a number that a participant can choose between in a lineup and 2) the evaluation of the fund or product is based solely on pecuniary attributes (i.e., a standard fiduciary assessment of an investment including its risk and return characteristics).
- Plan sponsors are not able to select QDIAs that have as a main objective or investment strategy the inclusion or consideration of non-pecuniary factors. The bottom line is that the DOL is differentiating between QDIAs, which participants can be defaulted into by definition, from other plan options. The DOL calculated that non-compliant target date fund series are a tiny portion of the target date fund market.
- The rule does not address accessing funds via the brokerage window that may include or support non-pecuniary factors.

Timing:

All future fiduciary decisions including fund monitoring must reflect the final rule, as of 60 days after the rule is published in the Federal Register. However, QDIA compliance with the new rule must only be completed by April 30, 2022, to give sufficient time for fund changes for any plans that may require them.

Bottom Line:

The DOL’s new rule on a fiduciary’s investment duties for investment selection and monitoring is underpinned by the principles 1) that these decisions should be based on evaluating pecuniary factors such as risk-return characteristics of an investment; 2) that ESG factors are pecuniary in some cases; and 3) that ERISA fiduciaries should focus solely on the interests of plan participants and beneficiaries and should not subordinate their interests to further other goals.

Defined Contribution Industry Developments: 3Q20

IRS Announces Updated Retirement Plan Limits for 2021

The IRS announced the updated retirement plan limits for 2021. Below, we highlight the notable DC plan limits:

- 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.

Defined Contribution Industry Developments: 3Q20

Securing a Strong Retirement Act of 2020

The House Ways and Means Committee released a proposal that would pick up where last year's SECURE Act left off. The bi-partisan "Securing a Strong Retirement Act of 2020" proposed by Richard Neal (D-MA) and Kevin Brady (R-TX) contains far-reaching provisions that would affect defined contribution plans and participants in a variety of ways.

This proposal can be viewed as SECURE 2.0 and includes the following provisions:

- Increases the required minimum distribution age from 72 to 75
- Allows 403(b) plans to offer collective investment trusts within their investment lineups
- Expands to 403(b) plans, provisions that paved the way for 401(k) plans to join pooled employer plans (PEP), such as revoking the "bad apple" rule and waiving necessity for a common nexus
- Increases the amount that can be used to purchase qualified longevity annuity contracts
- Expands catch-up contributions
- Further clarifies startup tax credits to help incentivize small businesses to join PEPs and multiple employer plans
- Permits employer matches to a 401(k) to pay off student loans
- Related to target date funds, the Department of Labor would be required to issue guidance allowing for benchmarking of target date funds to be decomposed into the separate components of the target date fund instead of in the aggregate
- A provision would require plans established after December 31, 2021 to auto-enroll participants (at a rate between 3% and 10%) and annually auto-escalate contributions by 1% (up to 10%)

Bottom Line: Although this proposal is an encouraging show of bi-partisan cooperation, there is an election next week and a waning legislative calendar. With this in mind, implementation by year end remains a long shot, although not impossible. That being said, in its current form, the proposal would enact many popular features the defined contribution industry has long advocated.

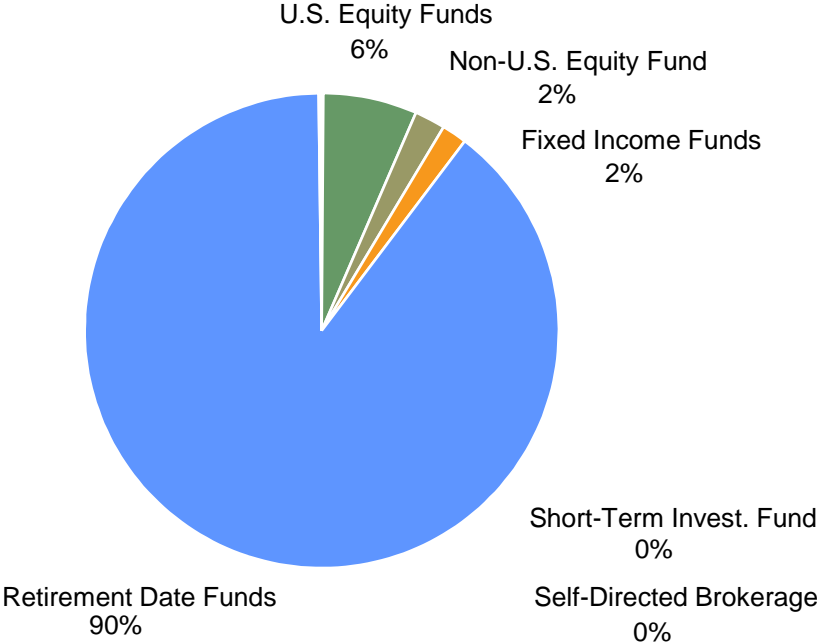
Callan

PA SERS 401(a) Plan Performance Review

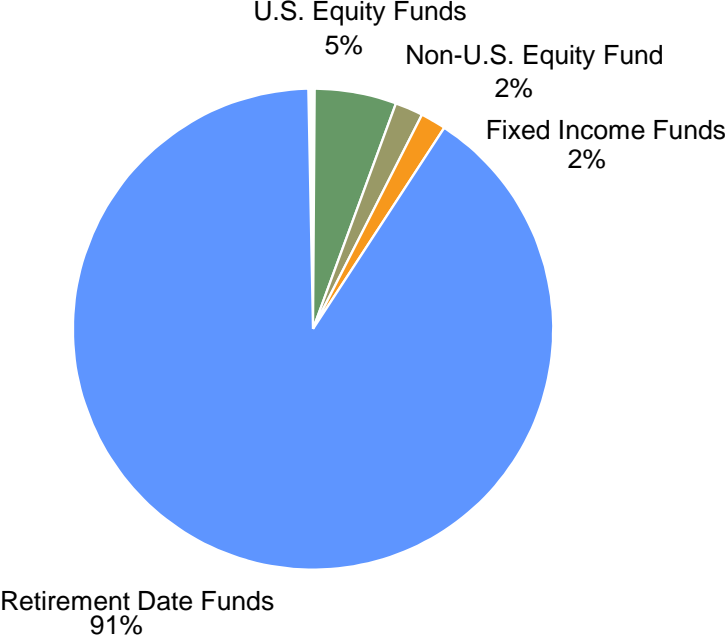
401(a) Plan Asset Allocation & Contributions

As of September 30, 2020

Asset Allocation



Contributions



Asset Allocation

As of September 30, 2020

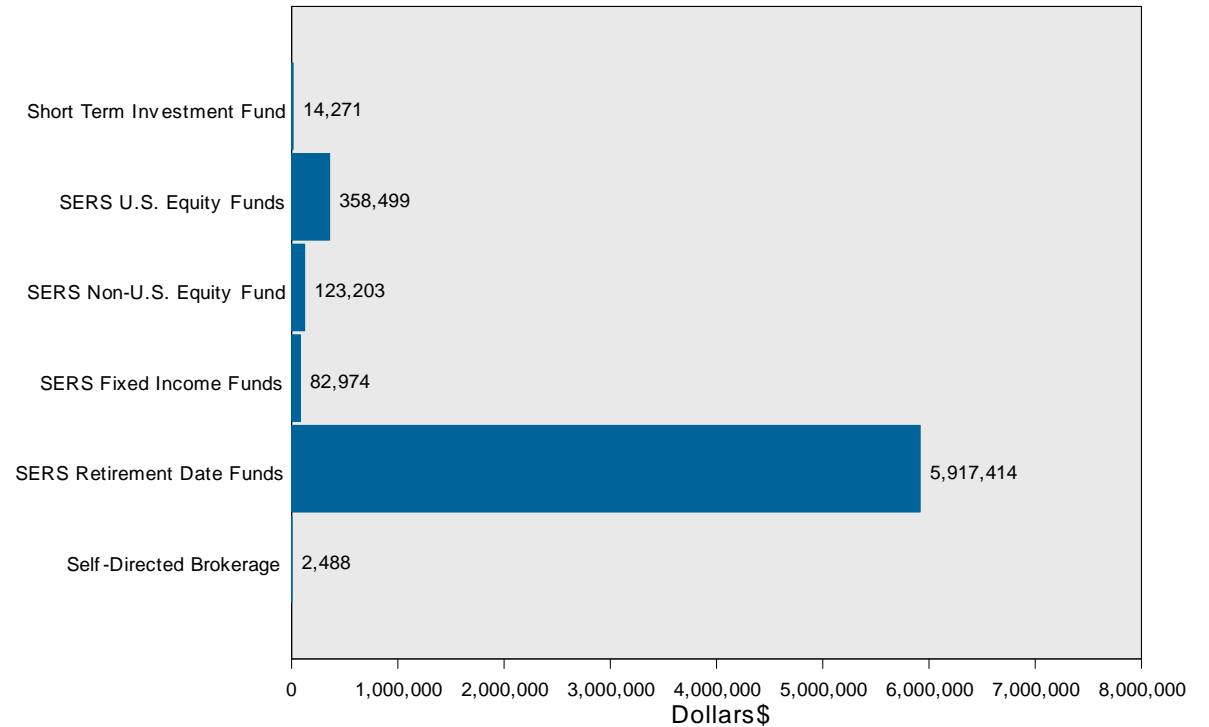
	September 30, 2020			June 30, 2020		
	Market Value	% of Total	Net New Inv.	Inv. Return	Market Value	% of Total
SERS Retirement Date Funds	\$22,379,177	89.71%	\$4,711,715	\$1,205,698	\$16,461,764	89.17%
SERS Post Retirement Fund	424,755	1.70%	92,505	12,381	319,868	1.73%
SERS 2025 Retirement Fund	1,084,398	4.35%	243,275	38,305	802,818	4.35%
SERS 2030 Retirement Fund	2,489,918	9.98%	400,802	111,094	1,978,021	10.71%
SERS 2035 Retirement Fund	2,172,599	8.71%	521,098	101,158	1,550,344	8.40%
SERS 2040 Retirement Fund	2,277,729	9.13%	529,752	119,583	1,628,394	8.82%
SERS 2045 Retirement Fund	3,117,958	12.50%	620,780	178,615	2,318,563	12.56%
SERS 2050 Retirement Fund	3,229,802	12.95%	718,563	190,978	2,320,260	12.57%
SERS 2055 Retirement Fund	2,944,151	11.80%	614,050	175,573	2,154,528	11.67%
SERS 2060 Retirement Fund	3,003,844	12.04%	609,311	180,881	2,213,652	11.99%
SERS 2065 Retirement Fund	1,634,024	6.55%	361,576	97,130	1,175,318	6.37%
SERS U.S. Equity	\$1,594,625	6.39%	\$241,909	\$116,590	\$1,236,126	6.70%
SERS U.S. Large Company Idx Fund	1,080,898	4.33%	173,267	76,640	830,991	4.50%
SERS U.S. All Company Idx Fund	323,525	1.30%	37,233	24,880	261,411	1.42%
SERS U.S. SMID Company Idx Fund	190,203	0.76%	31,409	15,069	143,724	0.78%
SERS Non-U.S. Equity						
SERS Global Non-U.S. Index Fund	512,691	2.06%	99,793	23,409	389,489	2.11%
SERS Fixed Income	\$423,813	1.70%	\$80,413	\$2,562	\$340,839	1.85%
SERS Short Term Investment Fund	46,530	0.19%	14,242	29	32,259	0.17%
SERS U.S. Short Term Bond Idx Fund	44,858	0.18%	1,493	71	43,293	0.23%
SERS U.S. TIPS Index Fund	60,154	0.24%	12,881	1,438	45,835	0.25%
SERS U.S. Bond Index Fund	272,271	1.09%	51,796	1,024	219,451	1.19%
Self-Directed Brokerage						
SERS Self-Directed Brokerage	34,577	0.14%	0	2,488	32,089	0.17%
Total Fund	\$24,944,884	100.0%	\$5,133,830	\$1,350,747	\$18,460,307	100.0%

Changes in Market Values and Contributions

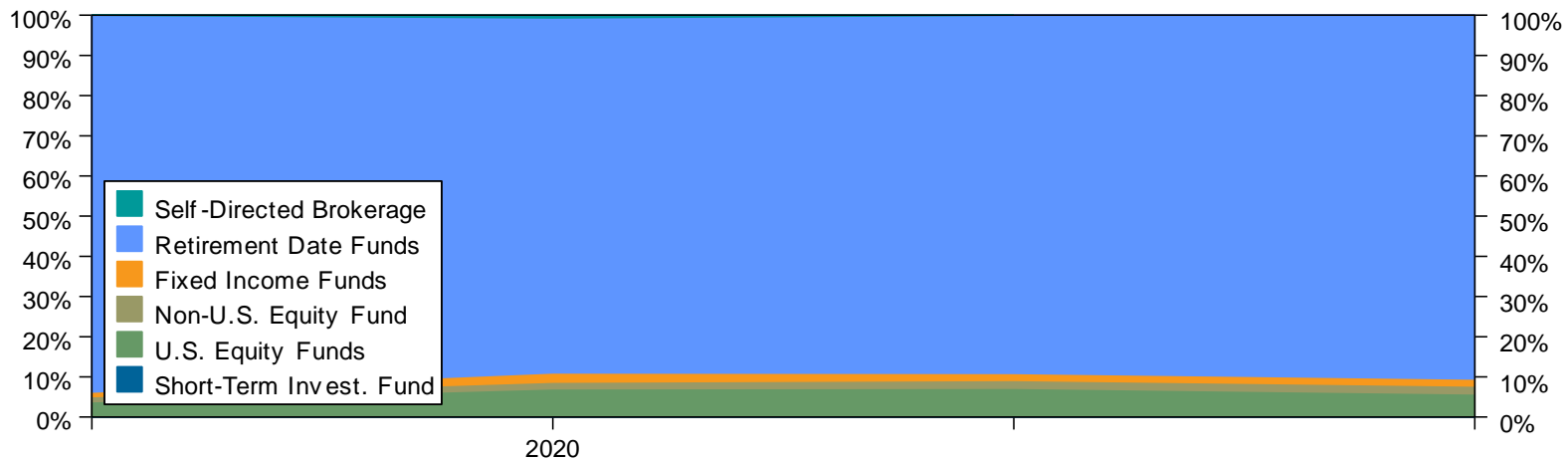
As of September 30, 2020

- 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.



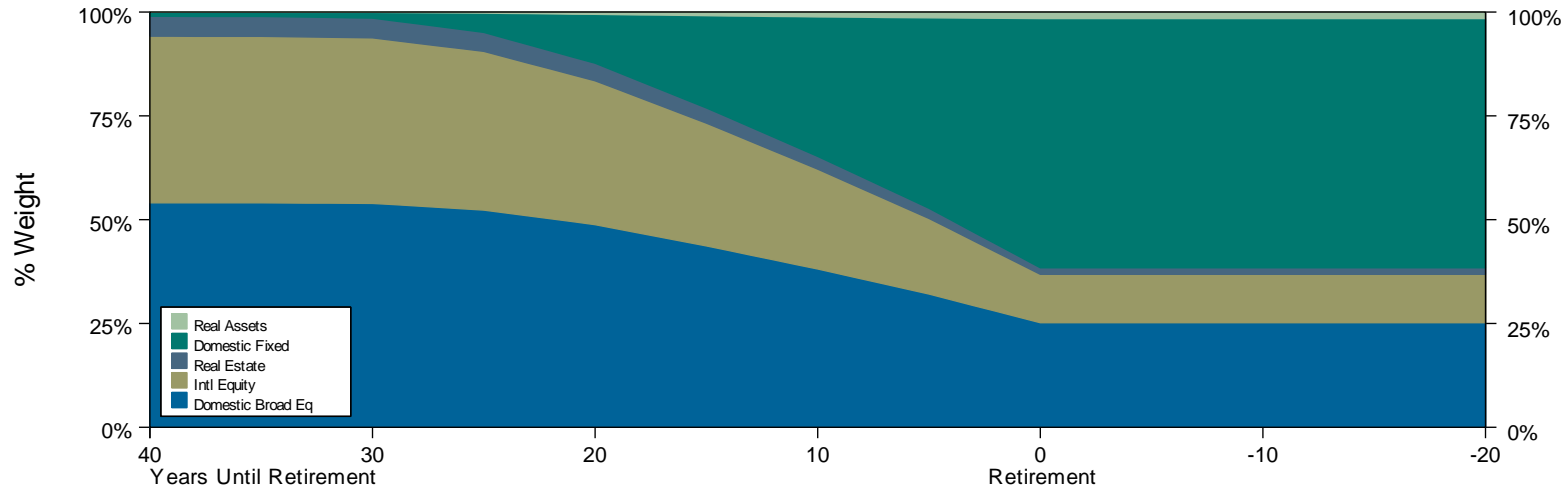
Historical Allocation of Contributions



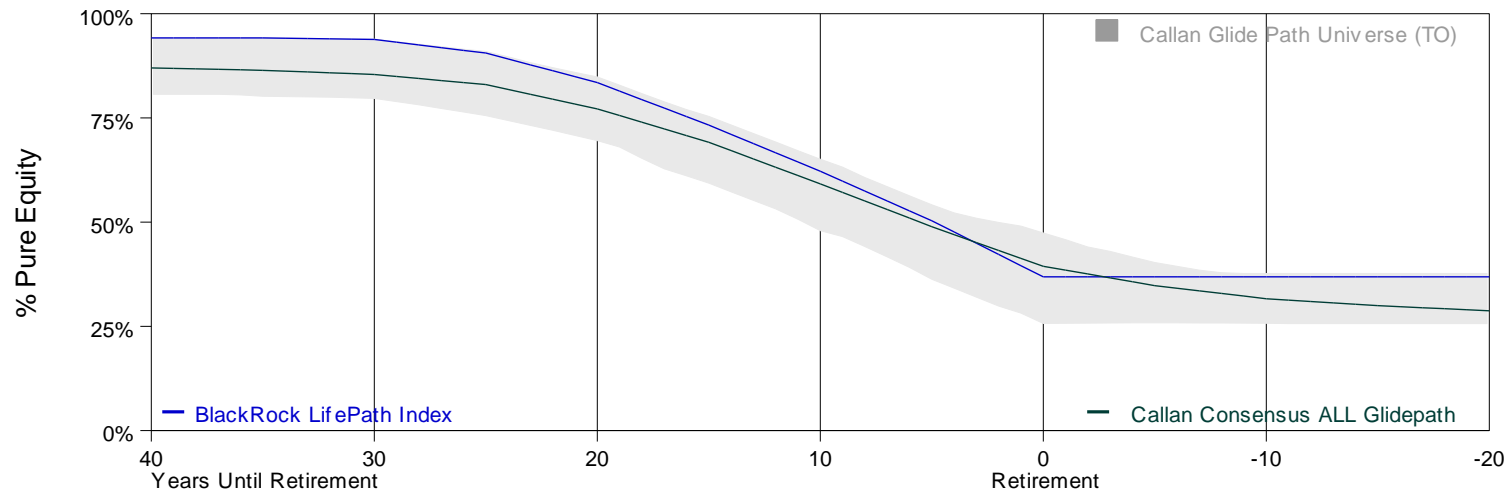
Blackrock Lifepath Retirement Funds

Glidepath and Equity Rolldown Exposure as of September 30, 2020

BlackRock LifePath Retirement Funds Glidepath



BlackRock LifePath Retirement Funds Equity Rolldown Exposure



Cumulative Performance - Net of Fees

As of September 30, 2020

	Last Quarter	Year to Date	Last Year	Last 3 Years	Last 5 Years
Net Performance					
Target Date Funds					
SERS Post Retirement Fund	3.76%	4.87%	8.62%	6.28%	6.71%
BlackRock Post Retirement Index	3.72%	4.72%	8.46%	6.23%	6.66%
Callan Tgt Date 2000-2010	3.56%	4.06%	7.62%	5.80%	6.57%
SERS 2025 Retirement Fund	4.62%	3.51%	8.51%	6.55%	7.88%
BlackRock 2025 Index	4.60%	3.36%	8.36%	6.48%	7.79%
Callan Target Date 2025	4.76%	3.36%	8.18%	6.25%	7.85%
SERS 2030 Retirement Fund	5.48%	2.54%	8.58%	6.74%	8.48%
BlackRock 2030 Index	5.47%	2.39%	8.42%	6.64%	8.36%
Callan Target Date 2030	5.49%	2.73%	8.59%	6.54%	8.47%
SERS 2035 Retirement Fund	6.29%	1.64%	8.64%	6.90%	9.05%
BlackRock 2035 Index	6.28%	1.53%	8.50%	6.80%	8.90%
Callan Target Date 2035	6.24%	2.19%	8.79%	6.71%	8.96%
SERS 2040 Retirement Fund	7.02%	0.78%	8.62%	7.02%	9.51%
BlackRock 2040 Index	7.01%	0.67%	8.49%	6.91%	9.36%
Callan Target Date 2040	6.78%	1.63%	9.04%	6.69%	9.23%
SERS 2045 Retirement Fund	7.58%	0.33%	8.75%	7.11%	9.81%
BlackRock 2045 Index	7.58%	0.20%	8.60%	6.97%	9.62%
Callan Target Date 2045	7.15%	1.25%	9.05%	6.77%	9.45%
SERS 2050 Retirement Fund	7.85%	0.13%	8.80%	7.13%	9.88%
BlackRock 2050 Index	7.85%	0.04%	8.70%	7.01%	9.71%
Callan Target Date 2050	7.33%	0.91%	8.69%	6.69%	9.47%
SERS 2055 Retirement Fund	7.89%	0.16%	8.86%	7.14%	9.88%
BlackRock 2055 Index	7.90%	0.04%	8.74%	7.02%	9.72%
Callan Target Date 2055	7.37%	0.91%	8.79%	6.80%	9.75%
SERS 2060 Retirement Fund	7.88%	0.15%	8.85%	7.13%	9.87%
BlackRock 2060 Index	7.90%	0.04%	8.74%	7.02%	9.72%
Callan Target Date 2060	7.37%	0.89%	9.03%	6.72%	9.86%
SERS 2065 Retirement Fund	7.89%	0.06%	8.64%	-	-
BlackRock 2065 Index	7.90%	0.04%	8.74%	-	-

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

Cumulative Performance - Net of Fees

As of September 30, 2020

	Last 7 Years	Last 10 Years	Last 15 Years	Last 20 Years
Net Performance				
Target Date Funds				
SERS Post Retirement Fund	5.58%	5.89%	5.57%	-
BlackRock Post Retirement Index	5.53%	5.85%	5.55%	5.60%
Callan Tgt Date 2000-2010	5.44%	6.05%	4.86%	-
SERS 2025 Retirement Fund	6.45%	7.17%	-	-
BlackRock 2025 Index	6.37%	7.10%	5.90%	4.96%
Callan Target Date 2025	6.62%	7.72%	5.95%	-
SERS 2030 Retirement Fund	6.86%	7.65%	6.14%	-
BlackRock 2030 Index	6.75%	7.56%	6.09%	4.97%
Callan Target Date 2030	7.13%	8.31%	6.16%	4.45%
SERS 2035 Retirement Fund	7.22%	8.09%	-	-
BlackRock 2035 Index	7.10%	7.98%	6.25%	4.95%
Callan Target Date 2035	7.47%	8.54%	6.43%	-
SERS 2040 Retirement Fund	7.54%	8.46%	6.45%	-
BlackRock 2040 Index	7.39%	8.34%	6.37%	4.89%
Callan Target Date 2040	7.73%	8.97%	6.50%	4.36%
SERS 2045 Retirement Fund	7.76%	8.77%	-	-
BlackRock 2045 Index	7.59%	8.63%	6.45%	4.84%
Callan Target Date 2045	7.79%	8.95%	7.02%	-
SERS 2050 Retirement Fund	7.86%	8.98%	-	-
BlackRock 2050 Index	7.71%	8.84%	6.66%	5.00%
Callan Target Date 2050	7.93%	9.18%	6.06%	-
SERS 2055 Retirement Fund	7.91%	9.12%	-	-
BlackRock 2055 Index	7.76%	8.98%	-	-
Callan Target Date 2055	7.97%	9.41%	-	-

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.

Cumulative Performance - Net of Fees

As of September 30, 2020

	Last Quarter	Year to Date	Last Year	Last 3 Years	Last 5 Years
Net Performance					
Domestic Equity					
SERS U.S. Large Company Index Fund	8.93%	5.60%	15.18%	12.29%	14.16%
S&P 500 Index	8.93%	5.57%	15.15%	12.28%	14.15%
Callan Lg Cap Broad MF	9.19%	5.49%	15.02%	11.52%	13.14%
SERS U.S. All Company Index Fund	9.16%	5.73%	15.35%	11.59%	13.64%
Russell 3000 Index	9.21%	5.41%	15.00%	11.65%	13.69%
Callan Multi Cap Brd MF	7.98%	2.45%	10.63%	8.85%	10.81%
SERS U.S. SMID Company Idx Fund	9.85%	3.56%	12.72%	8.07%	11.24%
Dow Jones US Completion	9.90%	3.74%	12.93%	7.96%	11.08%
Callan SMID Broad MFs	6.52%	(0.19%)	6.56%	9.13%	10.30%
International Equity					
SERS Global Non-U.S. Index Fund	6.22%	(4.97%)	3.34%	1.49%	6.50%
MSCI ACWI ex US	6.25%	(5.44%)	3.00%	1.16%	6.23%
Callan Non US Equity MFs	6.54%	(2.88%)	4.37%	1.35%	5.38%
Domestic Fixed Income					
SERS Short Term Investment Fund	0.08%	0.63%	1.11%	1.77%	1.35%
3-month Treasury Bill	0.04%	0.64%	1.10%	1.69%	1.20%
Callan Cash Database(1)	0.14%	0.92%	1.49%	1.98%	1.51%
SERS U.S. Short Term Bond Idx Fund	0.22%	3.15%	3.76%	-	-
Blmbg Gov/Cred 1-3 Yr	0.23%	3.12%	3.73%	2.84%	2.09%
Callan Short US Govt MFs	0.21%	3.40%	3.71%	2.66%	1.83%
SERS U.S. TIPS Index Fund	3.04%	9.23%	10.09%	-	-
Blmbg US TIPS	3.03%	9.22%	10.08%	5.79%	4.61%
Callan TIPS MFs	3.17%	8.49%	9.17%	5.33%	4.29%
SERS U.S. Bond Index Fund	0.59%	6.87%	7.05%	5.26%	4.17%
Blmbg Aggregate	0.62%	6.79%	6.98%	5.24%	4.18%
Callan Core Bond MFs	1.17%	7.45%	7.58%	5.43%	4.46%

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

Cumulative Performance - Net of Fees

As of September 30, 2020

	Last 7 Years	Last 10 Years	Last 15 Years	Last 20 Years
Net Performance				
Domestic Equity				
SERS U.S. Large Company Index Fund	12.69%	13.76%	9.24%	6.47%
S&P 500 Index	12.68%	13.74%	9.19%	6.42%
Callan Lg Cap Broad MF	12.04%	13.12%	9.16%	6.45%
SERS U.S. All Company Index Fund	12.09%	-	-	-
Russell 3000 Index	12.11%	13.48%	9.13%	6.58%
Callan Multi Cap Brd MF	9.76%	11.45%	7.94%	6.56%
SERS U.S. SMID Company Idx Fund	9.36%	12.12%	9.09%	7.40%
Dow Jones US Completion	9.20%	11.93%	8.90%	7.11%
Callan SMID Broad MFs	8.73%	11.25%	8.83%	7.96%
International Equity				
SERS Global Non-U.S. Index Fund	3.43%	4.26%	-	-
MSCI ACWI ex US	3.18%	4.00%	4.09%	-
Callan Non US Equity MFs	3.48%	5.20%	4.52%	4.30%
Domestic Fixed Income				
SERS Short Term Investment Fund	1.01%	0.77%	1.47%	-
3-month Treasury Bill	0.86%	0.64%	1.29%	1.59%
Callan Cash Database(1)	1.18%	0.95%	1.71%	2.05%
Blmbg Gov/Cred 1-3 Yr	1.77%	1.57%	2.60%	3.08%
Callan Short US Govt MFs	1.58%	1.38%	2.49%	2.98%
Blmbg US TIPS	3.38%	3.57%	4.21%	5.52%
Callan TIPS MFs	2.99%	3.09%	3.89%	5.00%
SERS U.S. Bond Index Fund	3.95%	3.60%	4.45%	4.98%
Blmbg Aggregate	3.97%	3.64%	4.48%	5.01%
Callan Core Bond MFs	4.03%	3.86%	4.73%	5.09%

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

*Funds not listed do not have longer term history.

Performance Summary & Expense Ratios as of September 30, 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									
Target Date Funds									
SERS Post Retirement Fund Callan Tgt Date Ret Inc	3.8 27	8.6 9	6.3 8	6.7 15	5.6 14	5.9 14			0.07 96
BlackRock Post Retirement Index	3.7 30	8.5 10	6.2 9	6.7 16	5.5 15	5.9 16			
SERS 2025 Retirement Fund Callan Target Date 2025	4.6 55	8.5 43	6.6 33	7.9 50	6.5 58	7.2 69			0.07 96
BlackRock 2025 Index	4.6 56	8.4 47	6.5 39	7.8 55	6.4 62	7.1 69			
SERS 2030 Retirement Fund Callan Target Date 2030	5.5 51	8.6 50	6.7 35	8.5 49	6.9 63	7.7 71			0.07 96
BlackRock 2030 Index	5.5 51	8.4 52	6.6 41	8.4 54	6.7 66	7.6 74			
SERS 2035 Retirement Fund Callan Target Date 2035	6.3 44	8.6 54	6.9 36	9.0 42	7.2 62	8.1 70			0.07 96
BlackRock 2035 Index	6.3 44	8.5 57	6.8 43	8.9 53	7.1 68	8.0 73			
SERS 2040 Retirement Fund Callan Target Date 2040	7.0 28	8.6 54	7.0 35	9.5 35	7.5 59	8.5 68			0.07 96
BlackRock 2040 Index	7.0 29	8.5 56	6.9 40	9.4 42	7.4 66	8.3 71			
SERS 2045 Retirement Fund Callan Target Date 2045	7.6 15	8.8 52	7.1 34	9.8 38	7.8 52	8.8 55			0.07 97
BlackRock 2045 Index	7.6 15	8.6 56	7.0 39	9.6 44	7.6 65	8.6 63			
SERS 2050 Retirement Fund Callan Target Date 2050	7.9 10	8.8 49	7.1 33	9.9 36	7.9 53	9.0 58			0.07 97
BlackRock 2050 Index	7.9 10	8.7 50	7.0 38	9.7 42	7.7 59	8.8 61			
SERS 2055 Retirement Fund Callan Target Date 2055	7.9 11	8.9 48	7.1 32	9.9 40	7.9 54	9.1 57			0.07 97
BlackRock 2055 Index	7.9 11	8.7 52	7.0 37	9.7 51	7.8 62	9.0 61			
SERS 2060 Retirement Fund Callan Target Date 2060	7.9 16	8.8 51	7.1 34	9.9 49					0.07 96
BlackRock 2060 Index	7.9 13	8.7 52	7.0 38	9.7 60					

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).

Performance Summary & Expense Ratios as of September 30, 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	7.9 25	8.6 69							0.07 84
BlackRock 2065 Index	7.9 25	8.7 69							
Domestic Equity									
SERS U.S. Large Company Stock Index Fund Callan Lg Cap Broad MF	8.9 52	15.2 50	12.3 48	14.2 45	12.7 45	13.8 44			0.02 99
S&P 500 Index	8.9 52	15.1 50	12.3 48	14.1 45	12.7 45	13.7 45			
SERS U.S. All Company Index Fund Callan Multi Cap Brd MF	9.2 40	15.3 39	11.6 39	13.6 33	12.1 32				0.03 99
Russell 3000 Index	9.2 40	15.0 40	11.6 39	13.7 33	12.1 32	13.5 28			
U.S. Small/Mid Company Stock Index Fund Callan SMID Broad MFs	9.9 17	12.7 41	8.1 55	11.2 48	9.4 43	12.1 42			0.03 100
Dow Jones US Completion	9.9 16	12.9 41	8.0 55	11.1 48	9.2 44	11.9 46			
International Equity									
SERS Global Non-U.S. Index Fund Callan Non US Equity MFs	6.2 54	3.3 55	1.5 50	6.5 43	3.4 52	4.3 62			0.06 99
MSCI ACWI ex US	6.3 53	3.0 56	1.2 51	6.2 44	3.2 55	4.0 66			
Domestic Fixed Income									
SERS Short Term Investment Fund Callan Cash Database	0.1 60	1.1 84	1.8 81	1.3 79	1.0 81	0.8 82			0.00 100
3-month Treasury Bill	0.0 95	1.1 84	1.7 84	1.2 92	0.9 93	0.6 96			
Comments: Callan Cash Database includes STIF, enhanced cash, and money market funds.									
SERS U.S. Short Term Bond Idx Fund Callan Short US Govt MFs	0.2 47	3.8 49							0.03 99
Blmbg Gov/Cred 1-3 Yr	0.2 45	3.7 50	2.8 30	2.1 15	1.8 32	1.6 31			
SERS U.S. TIPS Index Fund Callan TIPS MFs	3.0 53	10.1 28							0.03 99
Blmbg US TIPS	3.0 56	10.1 28	5.8 25	4.6 28	3.4 19	3.6 16			

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 September 30, 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 U.S. Bond Index Fund	0.6 95	7.1 69	5.3 63	4.2 75	4.0 63	3.6 85			0.03 98
Callan Core Bond MFs									
Bimbg Aggregate	0.6 95	7.0 71	5.2 64	4.2 74	4.0 62	3.6 79			

Returns:
 above median
 third quartile
 fourth quartile

Return Consistency:
 above median
 third quartile
 fourth quartile

Risk Quadrant:
 above median, low risk
 third quartile, low risk
 fourth quartile, low risk
 above median, high risk
 third quartile, high risk
 fourth quartile, high 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).

401(a) Plan Investment Structure

Lineup Mapped to Callan's Clean Sheet



Defined Contribution and Deferred Compensation Projects for 2020

- Plan Administration and Investment Management Fee Evaluation Study
- Target Date Fund Suitability Analysis (Postponed to 2021 with SERS IO)
- Investment Policy Statement Review

Callan

Appendix – Callan Update

Published Research Highlights from 3Q20

Private Equity Fees and Terms Study



Coping with COVID-19: Investment Manager Survey, 2nd Edition



2020 ESG Survey



How New Risk-Retention Rules Affect the CMBS Market



Recent Blog Posts

How Investors Can Address Climate Risk in Real Estate

Munir Iman and Aaron Quach

Fine-Tuning Implementation of the CARES Act

Jana Steele

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 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”

Introduction to Investments—Virtual

This program familiarizes institutional investor trustees and staff and asset management advisers with basic investment theory, terminology, and practices. It is held over three days with virtual modules of 2.5-3 hours. This course is designed for individuals with less than two years of experience with asset-management oversight and/or support responsibilities. Tuition is \$950 per person and includes instruction and digital materials.

Next Session: April 13-15, 2021

Additional information can be found at:
www.callan.com/cc-introduction-virtual/

“Research, education, and dialogue are more important than ever in these extraordinary times, which is why I’m pleased to announce that we are adding more webinars, and we plan to expand our events to include roundtables and other interactive digital offerings.”

Barb Gerraty
Director, Callan Institute



Upcoming Webinars

Callan’s Capital Markets Assumptions

January 14, 2021

Learn about our 2021-2030 Capital Markets Assumptions and the potential implications for strategic recommendations.

Details at www.callan.com/callan-institute-events

Market Intelligence Special Edition

January 22, 2021

Get insights on the current environment, including trends for equities, fixed income, alternative investments, and defined contribution plans; an overview of the capital markets; and case studies analyzing how institutional investors are addressing the financial stresses from the pandemic.

Save the Date!

2021 National Conference

June 21-23, 2021

We can't wait to see you!

Callan Updates

Firm updates by the numbers, as of Sept. 30, 2020

Total Associates: 199

Ownership

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

Leadership Changes

- Denise Steele promoted to chief technology officer
- Shalaka Kachare promoted to chief financial officer
- Jen Gallo promoted to general counsel

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

Denise Steele
CTO

Shalaka Kachare
CFO

Jen Gallo
General Counsel



Disclaimers

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