

December 7, 2021



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

Third Quarter 2021

Executive Summary

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Market Environment

A Pause in Global Equity Markets in 3Q21

Flat-to-down returns across all market segments

Global equity hit the pause button in 3Q:

- One-year returns from September 2020 are still eye-popping:
 - S&P 500: +30%
 - MSCI World ex-USA: +27%
 - Emerging Markets: +18%
 - U.S. Small Cap: +48%
- Economic data began to show signs of softening; consumer and business spending hit by the concern over the 3Q surge in the Delta variant of COVID-19.
- 3Q GDP growth dropped sharply to 2% from a robust 6.7% in 2Q, but the economic recovery is still solid. Supply chain issues and sentiment surrounding the end of fiscal stimulus, the Delta variant, and return to a Fed taper slowed economic activity in 3Q.

Returns for Periods ended 9/30/21

	1 Quarter	1 Year	5 Years	10 Years	25 Years
U.S. Equity					
Russell 3000	-0.10	31.88	16.85	16.60	9.74
S&P 500	0.58	30.00	16.90	16.63	9.65
Russell 2000	-4.36	47.68	13.45	14.63	9.12
Global ex-U.S. Equity					
MSCI World ex USA	-0.66	26.50	8.88	7.88	5.34
MSCI Emerging Markets	-8.09	18.20	9.23	6.09	--
MSCI ACWI ex USA Small Cap	0.00	33.06	10.28	9.44	6.77
Fixed Income					
Bloomberg Aggregate	0.05	-0.90	2.94	3.01	5.06
90-day T-Bill	0.01	0.07	1.16	0.63	2.11
Bloomberg Long Gov/Credit	0.07	-2.97	5.21	5.76	7.41
Bloomberg Global Agg ex-US	-1.59	-1.15	1.10	0.90	3.58
Real Estate					
NCREIF Property	5.23	12.15	6.84	8.99	9.23
FTSE Nareit Equity	0.98	37.39	6.83	11.27	9.99
Alternatives					
CS Hedge Fund	--	--	--	--	--
Cambridge Private Equity*	11.52	56.87	20.97	15.81	15.62
Bloomberg Commodity	6.59	42.29	4.54	-2.66	1.41
Gold Spot Price	-0.82	-7.31	5.93	0.80	6.31
Inflation - CPI-U	0.96	5.39	2.59	1.92	2.23

*Cambridge PE data through 06/30/21

Sources: Bloomberg, Callan, Cambridge, Credit Suisse, FTSE Russell, MSCI, NCREIF, S&P Dow Jones Indices
HF Data is not yet available

Market Environment: 3Q21

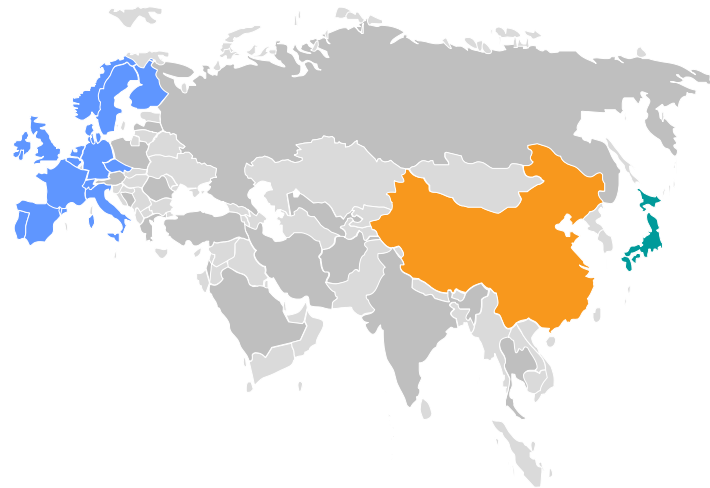
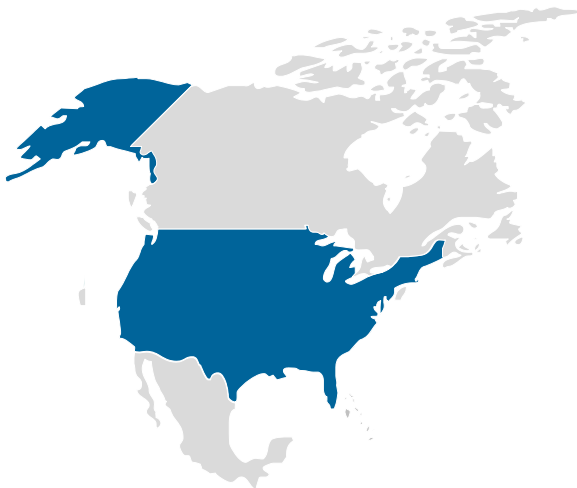
Strong growth worldwide during the first half of 2021, but slowdown hit in 3Q

U.S.

- GDP growth slipped to 2% in 3Q, after a 6.7% gain in 2Q. The Fed now expects 5.9% growth for the year.
- Consumer spending, non-residential investment, and exports drove GDP gains through the first half of the year. But consumers grew cautious in 3Q as the Delta variant fueled a pandemic surge, and both spending and employment disappointed.
- Unemployment dropped to 4.8% in September, but it is still above the pre-COVID rate of 3.5%. The economy added 194,000 jobs in September, down from a monthly average of 560,000 during 2021.

Global

- Euro zone GDP expanded 9.2% in 2Q21, after shrinking in 4Q20 and 1Q21.
- U.K. GDP grew 5.5% in 2Q21, far better than estimates. U.K. may face a longer road to recovery than the euro zone due to the double-whammy of the pandemic and Brexit.
- Japan's economy is expected to grow much more modestly than other developed nations in 2021; 2Q21 GDP grew 1.9%.
- China's GDP rose less than 1% annualized in 3Q21, after recovering to 4.9% in 2Q21. Renewed pandemic restrictions and supply chain issues challenged growth.



Inflation in the U.S.

Unclear as to the level at which inflation pressures are ‘transitory,’ and Fed remains responsive

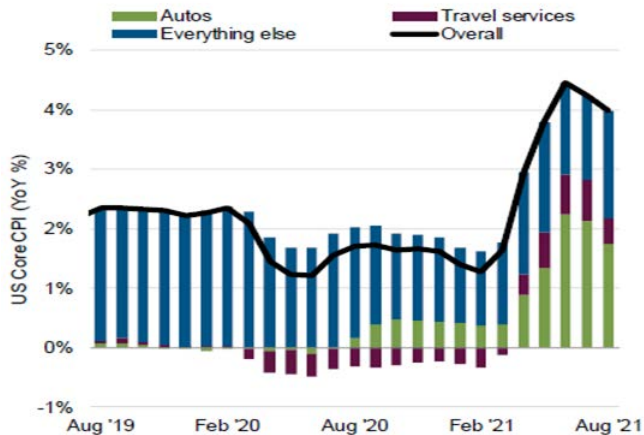
Fed reiterates that current price pressures are transitory

- Inflation is being temporarily influenced by pandemic-related supply bottlenecks (e.g., used cars and housing).
- Used autos spiked (+32% YOY), but rents (with a greater weight in the index) have started to apply price pressure.
- Fed’s flexible average inflation targeting (FAIT) allows inflation to overshoot the 2% neutral rate; PCE (Fed’s preferred inflation measure) rose 4.3% in August.

Policy adjustments may be on the horizon

- Fed signaled it would move up its taper announcement.
- Sep ‘21 Fed Funds rate forecast illustrated a potential rate hike in 2022, with a 25 bps increase; the previous dot plot had no hikes until 2023.

Core CPI Changes by Category (Trailing)



Core CPI Changes by Category (Snapshot)

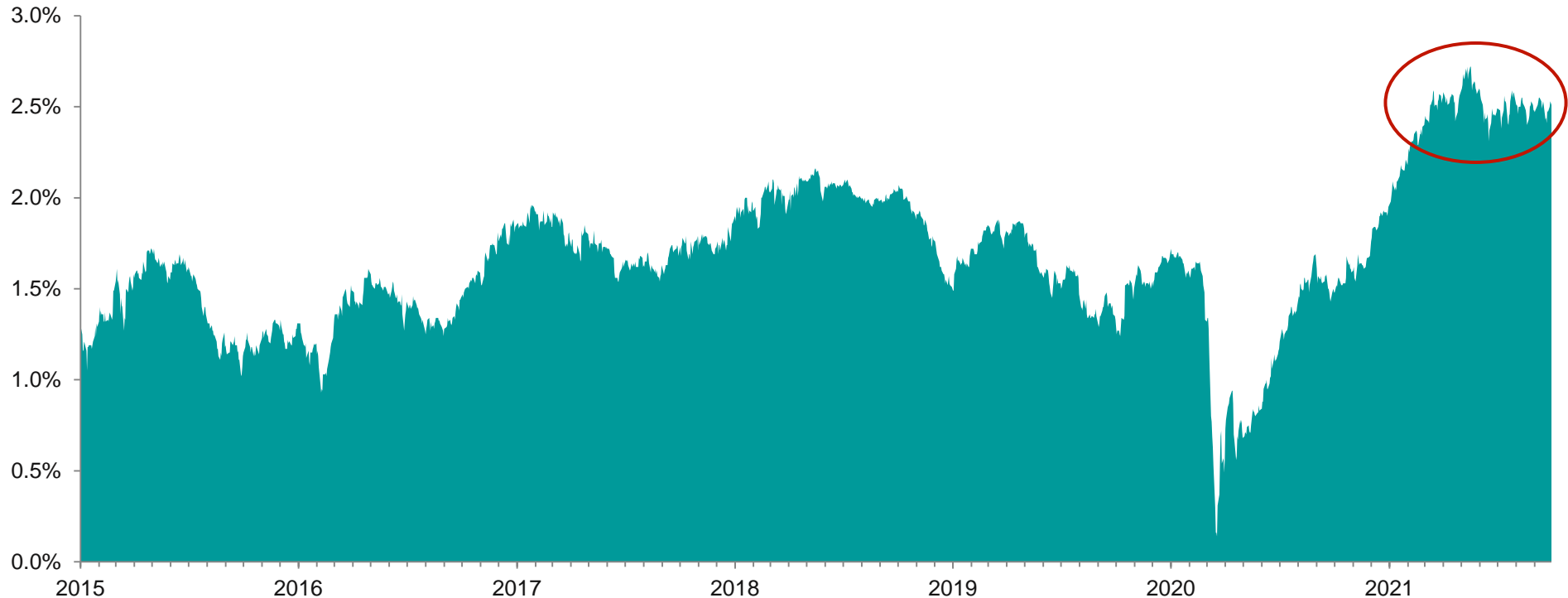
	Weight	Sep 21	Chg since Feb 2020	oya % change
All items less food and energy	100	0.24%	4.7%	4.0%
Commodities less food and energy	25.34	0.2%	8.5%	7.7%
Apparel	3.34	-1.1%	-1.3%	4.2%
New vehicles	4.71	1.3%	8.4%	7.6%
Used cars and trucks	3.45	-0.7%	41.5%	31.9%
Services less energy services	74.56	0.2%	3.3%	2.7%
Shelter	41.79	0.4%	3.6%	2.8%
Rent of primary residence	9.86	0.45%	3.3%	2.1%
Owners' equivalent rent	30.43	0.43%	3.7%	2.6%
Lodging away from home	1.03	-0.6%	5.0%	17.4%
Medical care services	9.14	-0.1%	3.6%	1.0%
Transportation services	6.45	-0.5%	-0.3%	4.6%
Motor vehicle insurance	2.00	2.1%	-0.8%	1.0%
Airline fares	0.79	-6.4%	17.9%	6.7%
Education and communication	7.92	0.4%	3.0%	1.3%

Sources: (top-right) J.P. Morgan, (bottom-left) PIMCO

Inflation Rebounds and Spurs Headline Concerns

Fixed income market: rising short- to medium-term inflation expectations

5-Year Breakeven Inflation Rate



- Fixed income market expecting inflation to rise in the near term
 - The five-year breakeven inflation rate has recovered from near zero, and is now above 2.5%—substantially higher than current level.
 - Five-year breakeven inflation rate is the difference between five-year nominal and five-year Treasury Inflation-Protected Securities (TIPS) yields.
 - Actual breakeven rate not as important as markets forecasting neither deflation nor high inflation

Source: Federal Reserve Bank of St. Louis

Diversification Remains Key Risk Control

Periodic Table of Investment Returns

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	3 Qtrs. 2021
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	Large Cap
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%	15.92%
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	Real Estate Funds
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%	12.42%
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	Small Cap
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%	12.41%
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	Non-U.S. Equity
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%	9.19%
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	High Yield
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%	4.53%
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	Cash Equivalent
-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%	0.04%
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	Emerging Markets
-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%	-1.25%
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	U.S. Fixed
-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%	-1.55%
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	Non-U.S. Fixed
-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%	-5.94%
		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	
		1.33%	-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

DC Industry Updates and Observations

DOL Proposes New ESG and Proxy Voting Rule

- Covers both ESG integration and proxy voting and is in a 60-day comment period; expected to be finalized next year
- **Key ESG takeaway:** Allows for a prudent fiduciary to consider any factor that is deemed material to risk/return analysis and explicitly makes material ESG factors possible to consider
- Maintains standards of prudence in selecting plan investments and loyalty to participants and beneficiaries in making investment decisions
- Includes examples of climate, governance, and workforce practices that could impact investment returns
- Allows for the QDIA to consider ESG, a large departure from the current Trump-era rule
- ESG expected to have the opportunity to become much more widely integrated in investment strategies
- More encouraging of plan sponsors exercising their shareholder rights, including voting proxies, but still emphasizes that interests of plan participants and beneficiaries cannot be subordinated in exercising shareholder rights

Target Date Provider Observations

- Many of the major TDF managers have adjusted their glide paths due to lower expected returns, including:
 - BlackRock using more fixed income index funds to increase credit exposure for younger TDF investors
 - T. Rowe Price increasing equity exposure across entire glide path other than at age 65
 - J.P. Morgan increasing U.S. equity and emerging market exposure near and at retirement
 - TIAA increasing exposure to global ex-U.S. equity in lieu of U.S. equity
 - Vanguard creating an alternative target date fund with increased equity exposure at and in retirement
 - Principal increasing equity exposure across most of glide path, including post-retirement vintages

Other DC Topics to be Considered

- Next year's DC plan audit may need to be a full scope audit instead of limited scope; sponsors should check with their plan's auditor to set expectations for costs and plan sponsor requirements.
- A recent fee lawsuit involving the Juniper Networks 401(k) plan alleged the plan should have considered the cost of share classes net of revenue share. In this case, the plan was offering several share classes with zero revenue share but could have offered classes that had a higher total expense ratio but a lower expense ratio net of revenue share. The lawsuit alleged that the revenue share classes would have had a lower net cost for participants assuming revenue share was reallocated to the participant accounts that generated it.

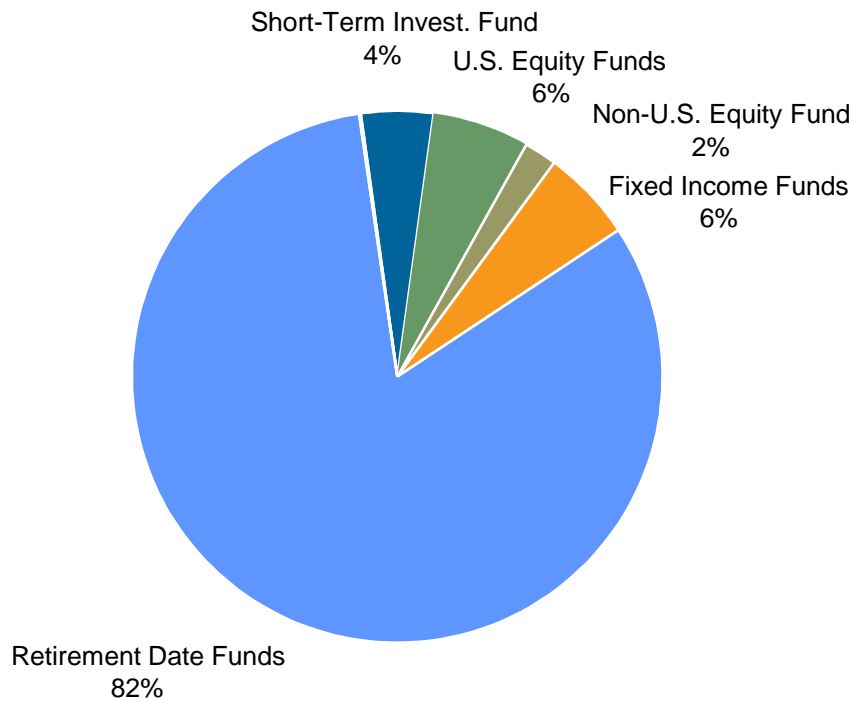
Callan

PA SERS 401(a) Plan Performance Review

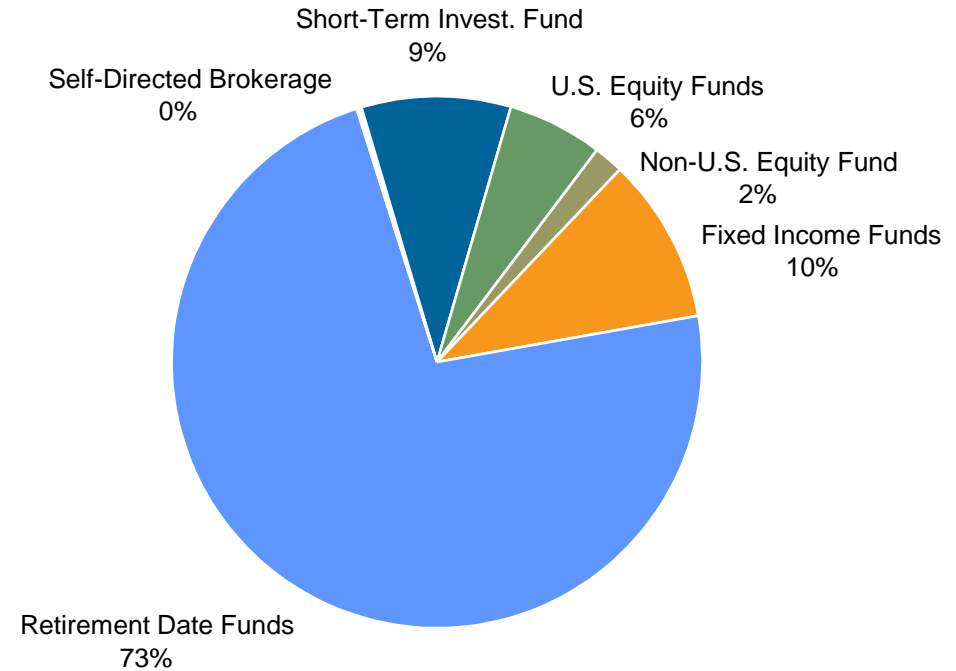
401(a) Plan Asset Allocation & Contributions

As of September 30, 2021

Asset Allocation



Contributions



Asset Allocation

As of September 30, 2021

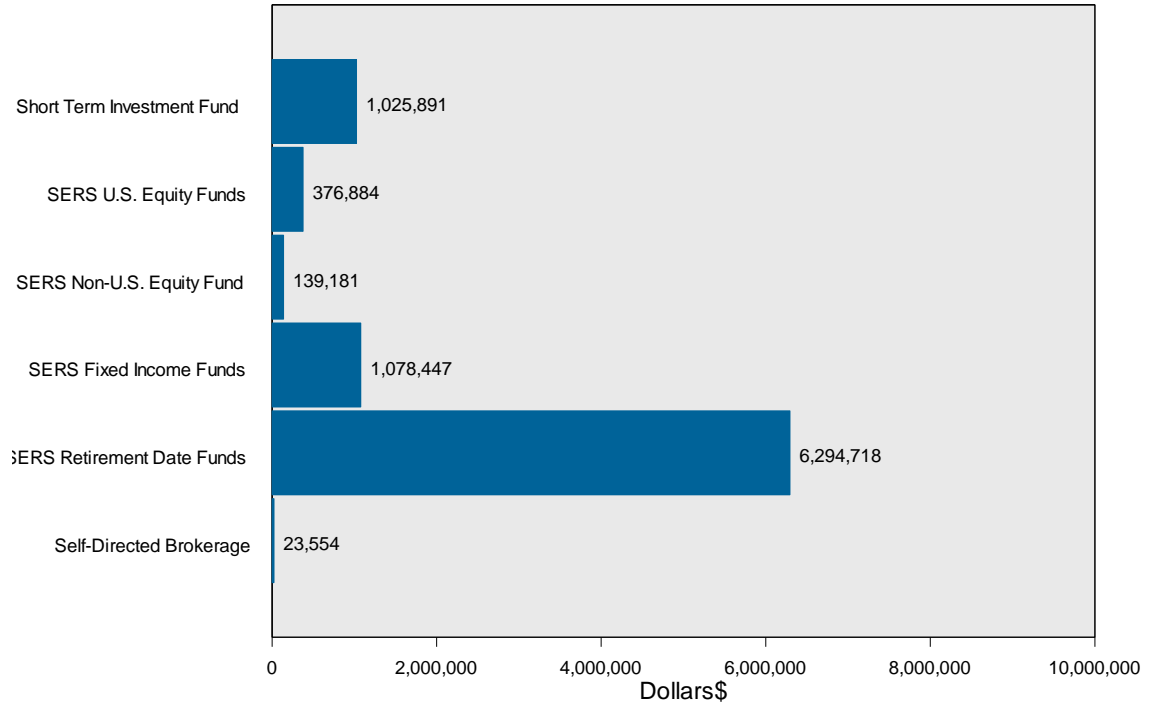
	September 30, 2021			June 30, 2021		
	Market Value	% of Total	Net New Inv.	Inv. Return	Market Value	% of Total
SERS Retirement Date Funds	\$53,761,372	85.81%	\$6,818,915	\$(524,197)	\$47,466,654	86.72%
SERS Post Retirement Fund	933,348	1.49%	116,698	(3,236)	819,886	1.50%
SERS 2025 Retirement Fund	2,580,328	4.12%	312,249	(11,243)	2,279,322	4.16%
SERS 2030 Retirement Fund	5,091,249	8.13%	305,219	(27,052)	4,813,082	8.79%
SERS 2035 Retirement Fund	6,706,579	10.70%	1,724,632	(65,283)	5,047,230	9.22%
SERS 2040 Retirement Fund	5,663,022	9.04%	851,733	(54,181)	4,865,471	8.89%
SERS 2045 Retirement Fund	6,578,874	10.50%	403,593	(62,235)	6,237,516	11.40%
SERS 2050 Retirement Fund	7,448,959	11.89%	913,755	(85,605)	6,620,810	12.10%
SERS 2055 Retirement Fund	7,335,942	11.71%	837,478	(83,428)	6,581,892	12.02%
SERS 2060 Retirement Fund	7,183,866	11.47%	785,862	(81,477)	6,479,480	11.84%
SERS 2065 Retirement Fund	4,239,205	6.77%	567,696	(50,456)	3,721,965	6.80%
SERS U.S. Equity	\$3,880,182	6.19%	\$390,928	\$(14,044)	\$3,503,298	6.40%
SERS U.S. Large Company Idx Fund	2,221,366	3.55%	166,445	8,712	2,046,209	3.74%
SERS U.S. All Company Idx Fund	1,044,740	1.67%	133,888	(4,124)	914,976	1.67%
SERS U.S. SMID Company Idx Fund	614,077	0.98%	90,596	(18,632)	542,112	0.99%
SERS Non-U.S. Equity						
SERS Global Non-U.S. Index Fund	1,278,072	2.04%	182,092	(42,911)	1,138,891	2.08%
SERS Fixed Income	\$3,648,073	5.82%	\$1,076,502	\$1,945	\$2,569,626	4.69%
SERS Short Term Investment Fund	2,880,512	4.60%	1,025,619	273	1,854,621	3.39%
SERS U.S. Short Term Bond Idx Fund	43,396	0.07%	(28,563)	19	71,940	0.13%
SERS U.S. TIPS Index Fund	149,710	0.24%	5,194	2,340	142,177	0.26%
SERS U.S. Bond Index Fund	574,455	0.92%	74,253	(686)	500,889	0.92%
Self-Directed Brokerage						
SERS Self-Directed Brokerage	81,372	0.13%	30,031	(6,477)	57,818	0.11%
Total Fund	\$62,649,071	100.0%	\$8,498,469	\$(585,684)	\$54,736,287	100.0%

Changes in Market Values and Contributions

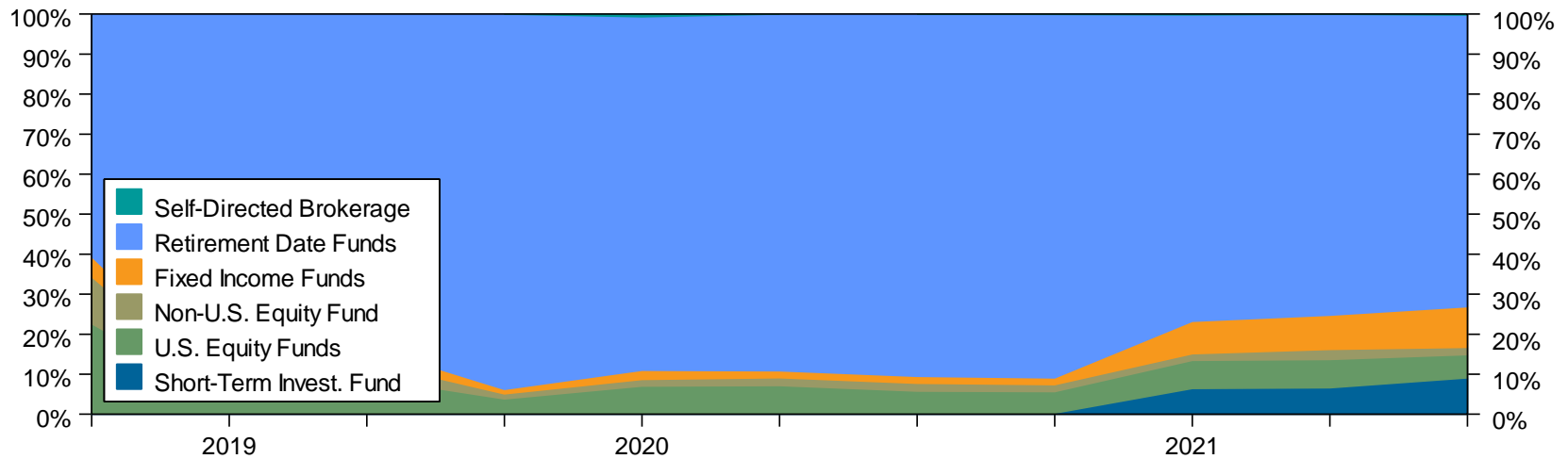
As of September 30, 2021

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.



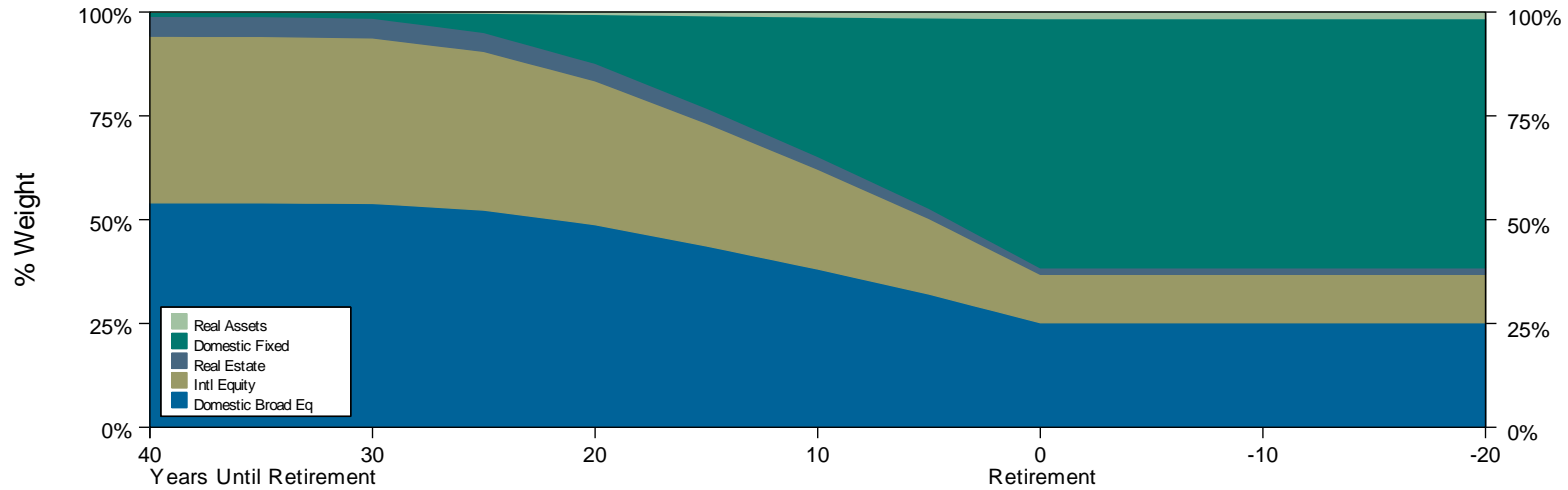
Historical Allocation of Contributions



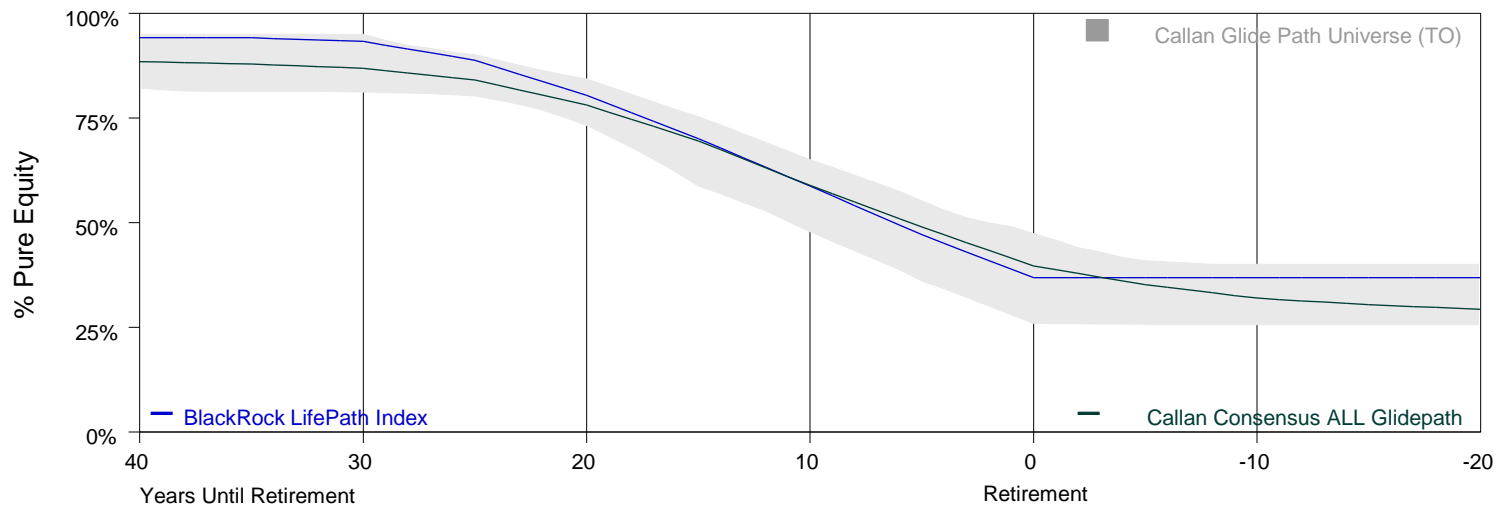
Blackrock LifePath Retirement Funds

Glidepath and Equity Roll-down Exposure as of September 30, 2021

BlackRock LifePath Retirement Funds Glidepath



BlackRock LifePath Retirement Funds Equity Roll-down Exposure



Cumulative Performance - Net of Fees

As of September 30, 2021

	Last Quarter	Year to Date	Last Year	Last 3 Years	Last 5 Years
Net Performance					
Target Date Funds					
SERS Post Retirement Fund	(0.20%)	4.33%	11.39%	8.78%	7.34%
BlackRock Post Retirement Index	(0.19%)	4.32%	11.38%	8.74%	7.29%
Callan Tgt Date 2000-2010	(0.23%)	5.10%	12.65%	8.44%	7.62%
SERS 2025 Retirement Fund	(0.30%)	5.69%	14.55%	9.40%	8.76%
BlackRock 2025 Index	(0.29%)	5.69%	14.54%	9.34%	8.68%
Callan Target Date 2025	(0.45%)	6.23%	15.82%	9.40%	9.14%
SERS 2030 Retirement Fund	(0.45%)	7.20%	18.02%	10.31%	9.85%
BlackRock 2030 Index	(0.43%)	7.22%	18.03%	10.23%	9.75%
Callan Target Date 2030	(0.68%)	7.29%	18.60%	10.18%	10.15%
SERS 2035 Retirement Fund	(0.60%)	8.69%	21.45%	11.17%	10.90%
BlackRock 2035 Index	(0.58%)	8.69%	21.43%	11.09%	10.78%
Callan Target Date 2035	(0.82%)	8.62%	21.62%	10.88%	11.03%
SERS 2040 Retirement Fund	(0.75%)	10.00%	24.58%	11.90%	11.81%
BlackRock 2040 Index	(0.73%)	9.97%	24.52%	11.82%	11.67%
Callan Target Date 2040	(0.97%)	9.75%	24.27%	11.42%	11.73%
SERS 2045 Retirement Fund	(0.88%)	11.06%	27.10%	12.55%	12.48%
BlackRock 2045 Index	(0.86%)	11.03%	27.04%	12.42%	12.31%
Callan Target Date 2045	(1.02%)	10.48%	26.06%	11.78%	12.17%
SERS 2050 Retirement Fund	(0.96%)	11.63%	28.43%	12.88%	12.78%
BlackRock 2050 Index	(0.95%)	11.57%	28.33%	12.77%	12.62%
Callan Target Date 2050	(1.08%)	10.65%	26.78%	11.87%	12.32%
SERS 2055 Retirement Fund	(0.98%)	11.71%	28.62%	12.96%	12.82%
BlackRock 2055 Index	(0.97%)	11.67%	28.59%	12.86%	12.67%
Callan Target Date 2055	(1.08%)	10.76%	27.38%	12.01%	12.54%
SERS 2060 Retirement Fund	(0.98%)	11.69%	28.60%	12.94%	12.80%
BlackRock 2060 Index	(0.97%)	11.67%	28.58%	12.86%	12.67%
Callan Target Date 2060	(1.12%)	10.74%	27.26%	12.15%	12.71%
SERS 2065 Retirement Fund	(0.97%)	11.67%	28.51%	-	-
BlackRock 2065 Index	(0.97%)	11.66%	28.57%	-	-
Callan Target Date 2065	(1.27%)	10.69%	27.32%	12.18%	-

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, 2021

	Last 7 Years	Last 10 Years	Last 15 Years	Last 20 Years
Net Performance				
Target Date Funds				
SERS Post Retirement Fund	6.24%	6.74%	5.85%	-
BlackRock Post Retirement Index	6.20%	6.69%	5.82%	6.00%
Callan Tgt Date 2000-2010	6.44%	7.87%	5.81%	5.93%
SERS 2025 Retirement Fund	7.29%	8.61%	6.20%	-
BlackRock 2025 Index	7.21%	8.52%	6.14%	6.71%
Callan Target Date 2025	7.53%	9.39%	6.18%	-
SERS 2030 Retirement Fund	8.08%	9.51%	6.56%	-
BlackRock 2030 Index	7.97%	9.40%	6.50%	7.07%
Callan Target Date 2030	8.31%	10.26%	6.83%	6.92%
SERS 2035 Retirement Fund	8.82%	10.34%	6.91%	-
BlackRock 2035 Index	8.70%	10.21%	6.83%	7.39%
Callan Target Date 2035	8.92%	11.15%	7.04%	-
SERS 2040 Retirement Fund	9.46%	11.08%	7.19%	-
BlackRock 2040 Index	9.32%	10.92%	7.09%	7.65%
Callan Target Date 2040	9.43%	11.63%	7.57%	7.31%
SERS 2045 Retirement Fund	9.94%	11.67%	7.38%	-
BlackRock 2045 Index	9.77%	11.51%	7.29%	7.82%
Callan Target Date 2045	9.84%	11.87%	7.52%	-
SERS 2050 Retirement Fund	10.15%	12.07%	-	-
BlackRock 2050 Index	9.99%	11.90%	7.56%	8.43%
Callan Target Date 2050	10.00%	11.97%	7.31%	-
SERS 2055 Retirement Fund	10.18%	12.30%	-	-
BlackRock 2055 Index	10.04%	12.14%	-	-
Callan Target Date 2055	10.11%	12.21%	-	-

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, 2021

	Last Quarter	Year to Date	Last Year	Last 3 Years	Last 5 Years
Net Performance					
Domestic Equity					
SERS U.S. Large Company Index Fund	0.58%	15.92%	30.02%	16.01%	16.91%
S&P 500 Index	0.58%	15.92%	30.00%	15.99%	16.90%
Callan Lg Cap Broad MF	0.01%	14.96%	29.28%	15.75%	16.44%
SERS U.S. All Company Index Fund	(0.09%)	14.95%	31.78%	15.94%	16.79%
Russell 3000 Index	(0.10%)	14.99%	31.88%	16.00%	16.85%
Callan Multi Cap Brd MF	(0.45%)	14.57%	30.87%	13.96%	14.83%
SERS U.S. SMID Company Idx Fund	(3.16%)	11.96%	42.74%	15.75%	16.51%
Dow Jones US Completion	(3.29%)	11.61%	42.20%	15.54%	16.30%
Callan SMID Broad MFs	(1.54%)	13.48%	39.99%	12.38%	15.79%
International Equity					
SERS Global Non-U.S. Index Fund	(3.32%)	5.71%	23.64%	8.20%	9.11%
MSCI ACWI ex US	(2.99%)	5.90%	23.92%	8.03%	8.94%
Callan Non US Equity MFs	(1.03%)	7.79%	25.46%	8.46%	8.96%
Domestic Fixed Income					
SERS Short Term Investment Fund	0.01%	0.06%	0.10%	1.21%	1.28%
3-month Treasury Bill	0.01%	0.04%	0.07%	1.18%	1.16%
Callan Cash Database(1)	0.05%	0.18%	0.29%	1.52%	1.49%
SERS U.S. Short Term Bond Idx Fund	0.09%	0.06%	0.26%	2.86%	-
Blmbg Gov/Cred 1-3 Yr	0.09%	0.09%	0.30%	2.87%	1.89%
Callan Short US Govt MFs	(0.03%)	(0.47%)	(0.32%)	2.65%	1.45%
SERS U.S. TIPS Index Fund	1.75%	3.49%	5.16%	7.43%	-
Blmbg US TIPS	1.75%	3.51%	5.19%	7.45%	4.34%
Callan TIPS MFs	1.63%	3.54%	5.43%	6.97%	4.13%
SERS U.S. Bond Index Fund	0.05%	(1.59%)	(0.96%)	5.35%	2.93%
Blmbg Aggregate	0.05%	(1.55%)	(0.90%)	5.36%	2.94%
Callan Core Bond MFs	0.09%	(1.05%)	0.11%	5.97%	3.45%

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

Cumulative Performance - Net of Fees

As of September 30, 2021

	Last 7 Years	Last 10 Years	Last 15 Years	Last 20 Years
Net Performance				
Domestic Equity				
SERS U.S. Large Company Index Fund	14.03%	16.65%	10.41%	9.55%
S&P 500 Index	14.01%	16.63%	10.37%	9.51%
Callan Lg Cap Broad MF	13.38%	16.13%	10.23%	9.36%
SERS U.S. All Company Index Fund	13.91%	16.58%	-	-
Russell 3000 Index	13.93%	16.60%	10.44%	9.85%
Callan Multi Cap Brd MF	11.76%	14.95%	9.37%	9.56%
SERS U.S. SMID Company Idx Fund	13.52%	16.39%	11.10%	11.87%
Dow Jones US Completion	13.32%	16.16%	10.88%	11.70%
Callan SMID Broad MFs	13.05%	15.07%	10.54%	11.15%
International Equity				
SERS Global Non-U.S. Index Fund	5.91%	7.77%	-	-
MSCI ACWI ex US	5.69%	7.48%	4.38%	7.15%
Callan Non US Equity MFs	6.04%	8.56%	5.05%	7.06%
Domestic Fixed Income				
SERS Short Term Investment Fund	1.00%	0.76%	1.19%	-
3-month Treasury Bill	0.87%	0.63%	1.00%	1.32%
Callan Cash Database(1)	1.27%	1.07%	1.46%	1.73%
Blmbg Gov/Cred 1-3 Yr	1.71%	1.47%	2.35%	2.57%
Callan Short US Govt MFs	1.44%	1.20%	2.28%	2.53%
Blmbg US TIPS	3.90%	3.12%	4.43%	5.13%
Callan TIPS MFs	3.58%	2.87%	4.22%	4.82%
SERS U.S. Bond Index Fund	3.24%	2.97%	4.13%	4.29%
Blmbg Aggregate	3.26%	3.01%	4.17%	4.33%
Callan Core Bond MFs	3.59%	3.50%	4.50%	4.54%

(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, 2021

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	-0.2 57	11.4 29	8.8 10	7.3 16	6.2 15	6.7 20			0.08 81
BlackRock Post Retirement Index	-0.2 55	11.4 29	8.7 12	7.3 18	6.2 16	6.7 20			
SERS 2025 Retirement Fund Callan Target Date 2025	-0.3 27	14.5 71	9.4 50	8.8 61	7.3 58	8.6 75			0.08 80
BlackRock 2025 Index	-0.3 26	14.5 71	9.3 54	8.7 66	7.2 65	8.5 76			
SERS 2030 Retirement Fund Callan Target Date 2030	-0.4 26	18.0 64	10.3 45	9.8 62	8.1 58	9.5 74			0.08 79
BlackRock 2030 Index	-0.4 25	18.0 63	10.2 47	9.7 65	8.0 63	9.4 74			
SERS 2035 Retirement Fund Callan Target Date 2035	-0.6 25	21.4 54	11.2 37	10.9 55	8.8 54	10.3 78			0.08 80
BlackRock 2035 Index	-0.6 24	21.4 55	11.1 40	10.8 61	8.7 65	10.2 79			
SERS 2040 Retirement Fund Callan Target Date 2040	-0.8 27	24.6 43	11.9 33	11.8 45	9.5 49	11.1 68			0.08 79
BlackRock 2040 Index	-0.7 24	24.5 44	11.8 35	11.7 53	9.3 57	10.9 72			
SERS 2045 Retirement Fund Callan Target Date 2045	-0.9 34	27.1 29	12.5 30	12.5 35	9.9 45	11.7 60			0.08 80
BlackRock 2045 Index	-0.9 31	27.0 32	12.4 32	12.3 45	9.8 52	11.5 70			
SERS 2050 Retirement Fund Callan Target Date 2050	-1.0 34	28.4 16	12.9 21	12.8 29	10.1 36	12.1 45			0.08 79
BlackRock 2050 Index	-0.9 33	28.3 18	12.8 25	12.6 39	10.0 51	11.9 53			
SERS 2055 Retirement Fund Callan Target Date 2055	-1.0 32	28.6 18	13.0 20	12.8 30	10.2 42	12.3 46			0.08 83
BlackRock 2055 Index	-1.0 32	28.6 18	12.9 25	12.7 41	10.0 57	12.1 55			
SERS 2060 Retirement Fund Callan Target Date 2060	-1.0 32	28.6 21	12.9 24	12.8 39					0.08 81
BlackRock 2060 Index	-1.0 32	28.6 21	12.9 29	12.7 53					

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, 2021

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 BlackRock 2065 Index	-1.0 24	28.5 21							0.08 53
Domestic Equity									
SERS U.S. Large Company Stock Index Fund Callan Lg Cap Broad MF S&P 500 Index	0.6 27	30.0 45	16.0 49	16.9 47	14.0 45	16.6 43			0.02 99
SERS U.S. All Company Index Fund Callan Multi Cap Brd MF Russell 3000 Index	-0.1 39	31.8 46	15.9 38	16.8 37	13.9 32	16.6 30			0.03 99
U.S. Small/Mid Company Stock Index Fund Callan SMID Broad MFs Dow Jones US Completion	-3.2 88	42.7 38	15.8 34	16.5 39	13.5 45	16.4 33			0.03 100
International Equity									
SERS Global Non-U.S. Index Fund Callan Non US Equity MFs MSCI ACWI ex US	-3.3 79	23.6 66	8.2 52	9.1 48	5.9 55	7.8 66			0.06 99
SERS Short Term Investment Fund Callan Cash Database 3-month Treasury Bill	0.0 99	0.1 90	1.2 88	1.3 85	1.0 86	0.8 86			0.00 100
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 Blmbg Gov/Cred 1-3 Yr	0.1 8	0.3 16	2.9 30						0.03 99
SERS U.S. TIPS Index Fund Callan TIPS MFs Blmbg US TIPS	1.8 30	5.2 64	7.4 32						0.03 99

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, 2021

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	0.1 65	-1.0 94	5.4 91	2.9 94	3.2 85	3.0 95			0.03 98
Callan Core Bond MFs									
Bimbg Aggregate	0.1 65	-0.9 94	5.4 91	2.9 92	3.3 81	3.0 94			

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).

401(a) Plan Investment Structure

Lineup Mapped to Callan's Clean Sheet



Callan

Appendix – Callan Update

Published Research Highlights from 3Q21

Comparing Actuarial and Consultant Rates of Return



The Role of Target Date Funds in Retirement



Infrastructure and Real Estate Debt in Portfolios



Research Café: Property Technology



Recent Blog Posts

GPs Take 'Credit' for Higher IRRs

Jonathan Farr

Seeking Yield in All the Right Places

Nathan Wong

PCE vs. CPI: What's the Difference?

Fanglue Zhou

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

Callan College

Intro to Investments - Learn the Fundamentals

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

Join our next **LIVE session in Chicago** (1.5-day session):

December 1-2, 2021

Introductory Workshop for DC Plan Fiduciaries

This one-day workshop centers on the fundamentals of administering a defined contribution (DC) plan. Designed primarily for ERISA fiduciaries and supporting staff members, attendees will gain a better understanding of the key responsibilities of an ERISA fiduciary and best practices for executing those responsibilities.

Join our **LIVE session in San Francisco**:

March 23, 2022

Mark Your Calendar

2022 National Conference

April 25-27, 2022, in San Francisco

Palace Hotel
2 New Montgomery St, San Francisco, CA 94105

Watch your email for further details and an invitation.

Webinars

Research Café: DOL Cybersecurity Tips

Nov. 10, 2021 – 9:30am (PT)

Research Café: Dissecting the Overlap Between Listed Real Assets Categories and Benchmarks

Dec. 8, 2021 – 9:30am (PT)

Market Intelligence

Jan. 22, 2022 – 9:30am (PT)

Callan Updates

Firm updates by the numbers, as of September 30, 2021

Total Associates: ~200

Ownership

- 100% employees
- 22 new shareholders in 2021 - a firm record
- 55% of shareholders identify as women or minority

Total General and Fund Sponsor Consultants: more than 55

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 \$3 trillion

“I’m thrilled that nearly two-thirds of our employees are now owners of the firm,” said Callan CEO and Chief Research Officer Greg Allen. **“This sets us up to maintain our independence and stability as an organization for decades to come. It’s good for our clients and empowering for our employees.”**



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