

December 7, 2021



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

Third Quarter 2021

Executive Summary

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**Thomas H. Shingler**  
Senior Vice President

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**Britton M. Murdoch**  
Vice President

Callan

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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
<b>U.S. Equity</b>					
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
<b>Global ex-U.S. Equity</b>					
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
<b>Fixed Income</b>					
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
<b>Real Estate</b>					
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
<b>Alternatives</b>					
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
<b>Inflation - CPI-U</b>	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

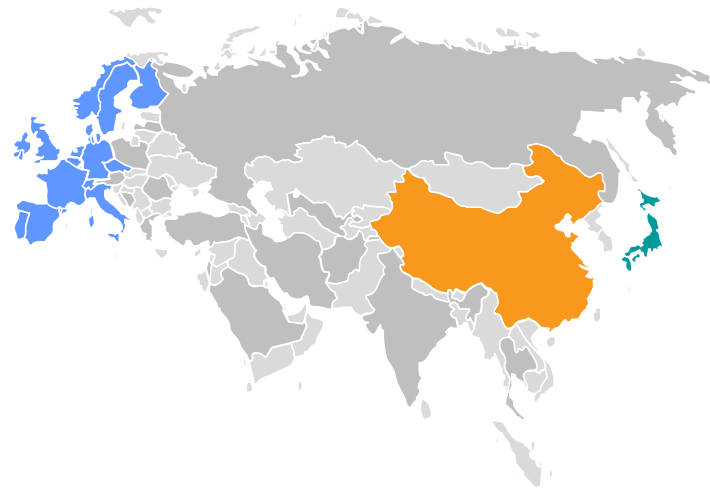
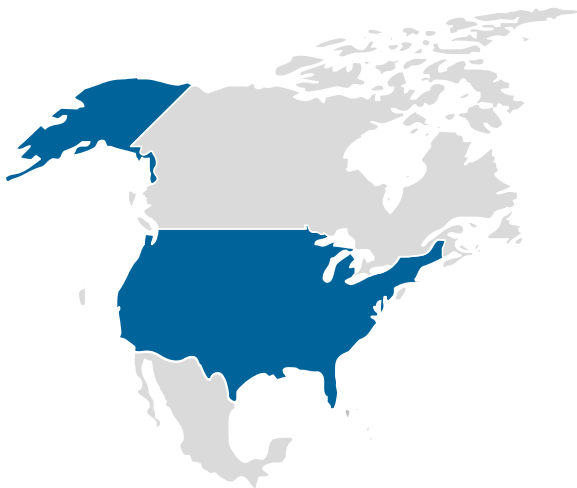
Strong growth worldwide during the first half of 2021, but slowdown hit in 3Q

### 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

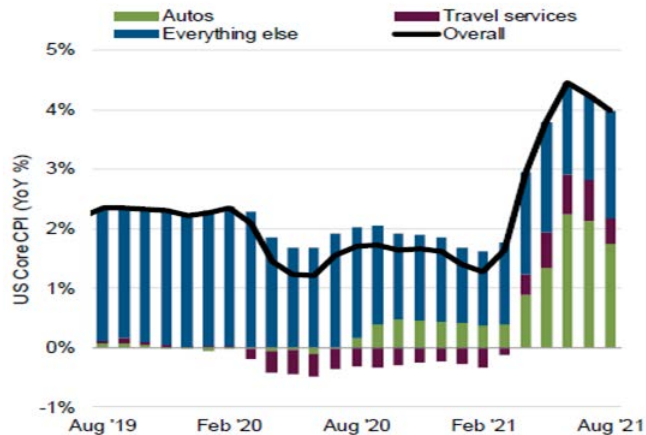
## Fed reiterates that current price pressures are transitory

- 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)



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

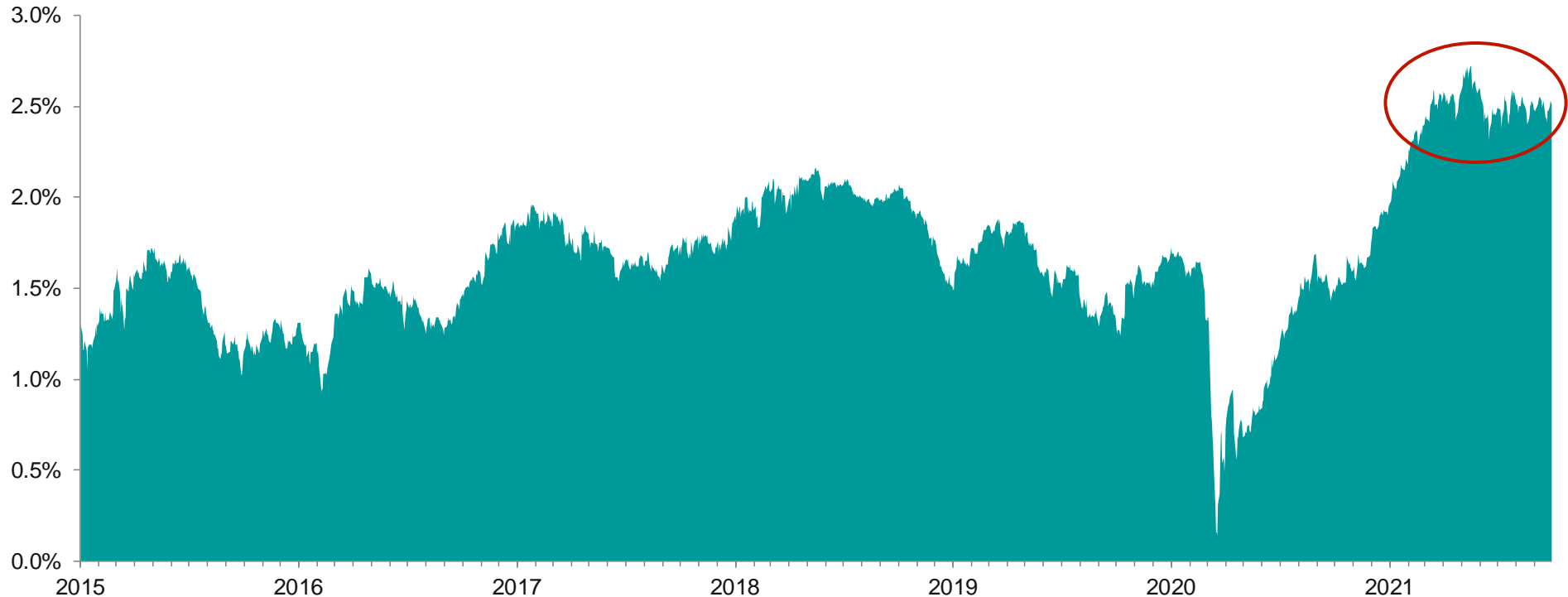
## Core CPI Changes by Category (Snapshot)

	Weight	Sep 21	Chg since Feb 2020	oya % change
<b>All items less food and energy</b>	<b>100</b>	<b>0.24%</b>	<b>4.7%</b>	<b>4.0%</b>
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%

# 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

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## 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

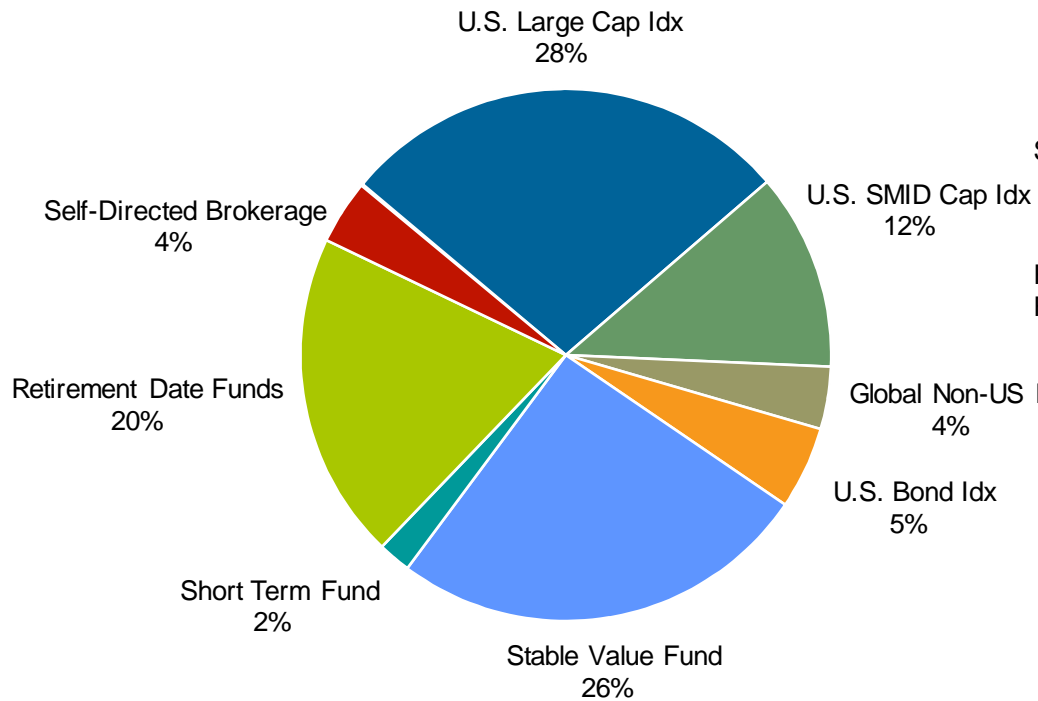
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**PA SERS 457(b) Plan Performance Review**

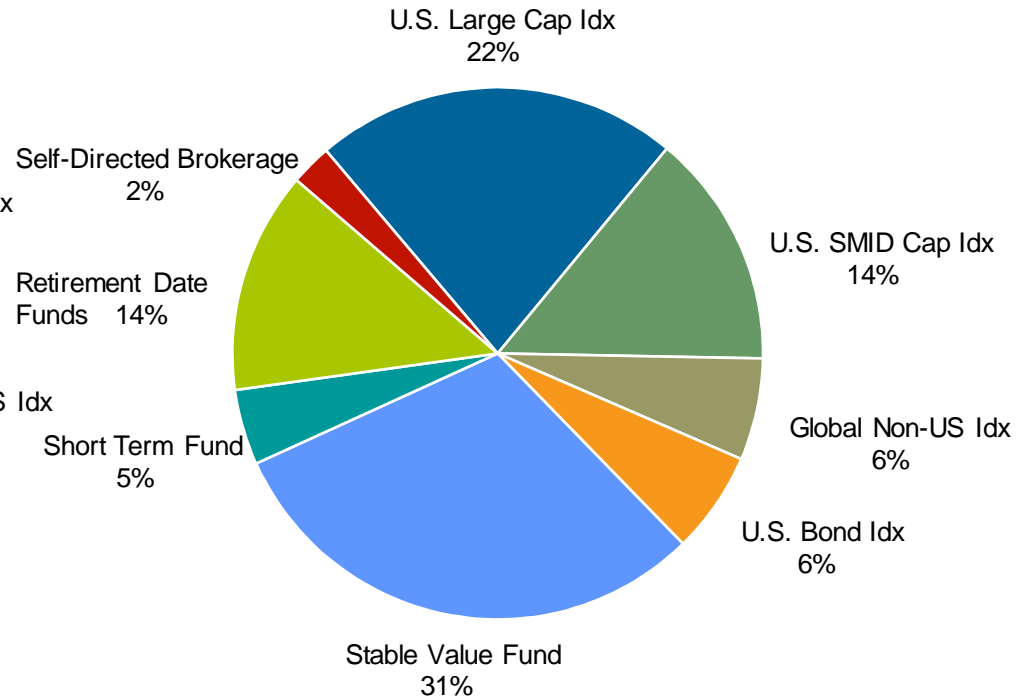
# 457(b) Plan Asset Allocation & Contributions

As of September 30, 2021

## Asset Allocation



## Contributions



# Asset Allocation

As of September 30, 2021

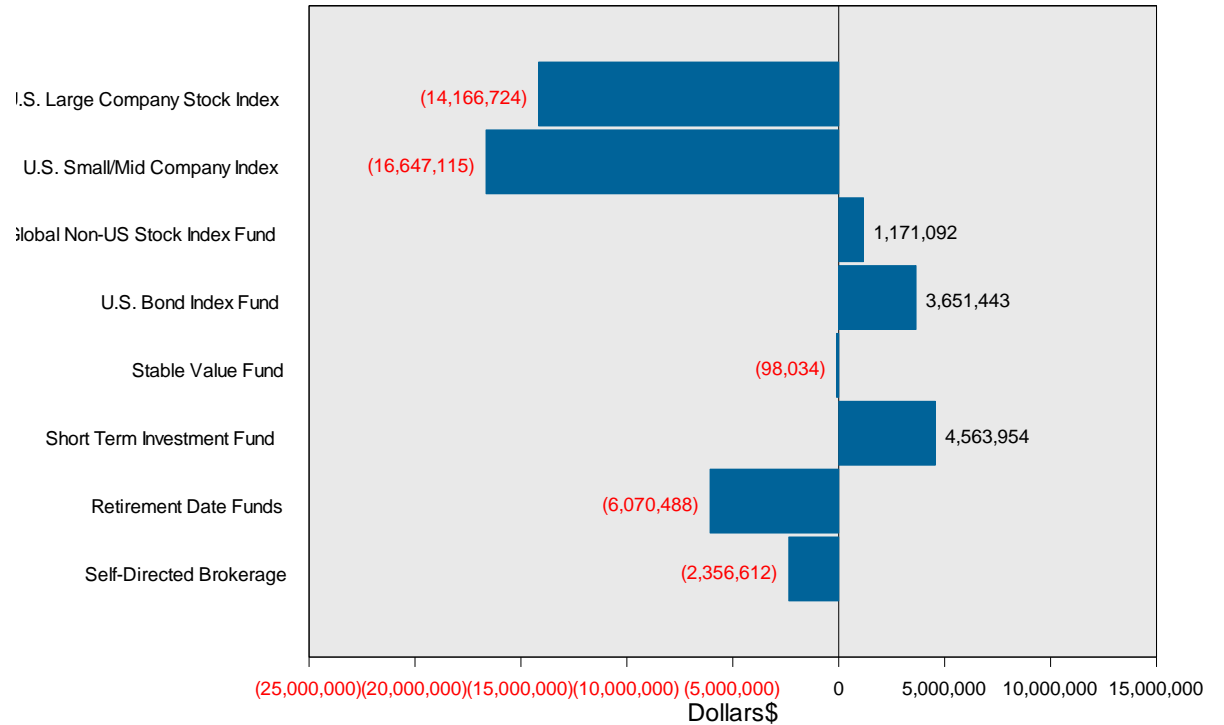
	September 30, 2021		Net New Inv. \$(000)	Inv. Return \$(000)	June 30, 2021	
	Market Value \$(000)	% of Total Weight			Market Value \$(000)	% of Total Weight
<b>SERS Retirement Date Funds</b>	<b>\$922,602</b>	<b>19.95%</b>	<b>\$(1,497)</b>	<b>\$(4,574)</b>	<b>\$928,672</b>	<b>19.95%</b>
SERS Post Retirement Fund	262,284	5.67%	(5,282)	(513)	268,079	5.76%
SERS 2025 Retirement Fund	166,369	3.60%	945	(531)	165,955	3.56%
SERS 2030 Retirement Fund	154,321	3.34%	(633)	(726)	155,680	3.34%
SERS 2035 Retirement Fund	131,847	2.85%	473	(846)	132,220	2.84%
SERS 2040 Retirement Fund	82,574	1.79%	(71)	(670)	83,315	1.79%
SERS 2045 Retirement Fund	64,913	1.40%	927	(623)	64,609	1.39%
SERS 2050 Retirement Fund	39,273	0.85%	489	(414)	39,197	0.84%
SERS 2055 Retirement Fund	12,883	0.28%	755	(152)	12,280	0.26%
SERS 2060 Retirement Fund	4,743	0.10%	284	(60)	4,518	0.10%
SERS 2065 Retirement Fund	3,396	0.07%	616	(39)	2,819	0.06%
<b>SERS U.S. Equity</b>	<b>\$1,835,164</b>	<b>39.67%</b>	<b>\$(20,118)</b>	<b>\$(10,696)</b>	<b>\$1,865,978</b>	<b>40.08%</b>
SERS U.S. Large Company Index	1,278,445	27.64%	(21,858)	7,691	1,292,612	27.76%
SERS U.S. SMID Company Index	556,719	12.04%	1,740	(18,387)	573,366	12.32%
<b>SERS Non-U.S. Equity</b>	<b>\$176,081</b>	<b>3.81%</b>	<b>\$7,403</b>	<b>\$(6,232)</b>	<b>\$174,910</b>	<b>3.76%</b>
SERS Global Non-US IdxFund	176,081	3.81%	7,403	(6,232)	174,910	3.76%
<b>SERS Fixed Income</b>	<b>\$1,512,547</b>	<b>32.70%</b>	<b>\$4,066</b>	<b>\$4,052</b>	<b>\$1,504,429</b>	<b>32.31%</b>
SERS Short Term Investment Fund	92,286	2.00%	4,610	(46)	87,722	1.88%
SERS Stable Value Fund	1,189,252	25.71%	(4,246)	4,148	1,189,350	25.55%
SERS U.S. Bond Index Fund	231,009	4.99%	3,701	(50)	227,358	4.88%
<b>Self-Directed Brokerage</b>						
Self-Directed Brokerage Account	179,221	3.87%	(308)	(2,048)	181,578	3.90%
<b>SERS 457(b) Total Fund</b>	<b>\$4,625,615</b>	<b>100.0%</b>	<b>\$(10,454)</b>	<b>\$(19,498)</b>	<b>\$4,655,568</b>	<b>100.0%</b>

# Changes in Market Values and Contributions

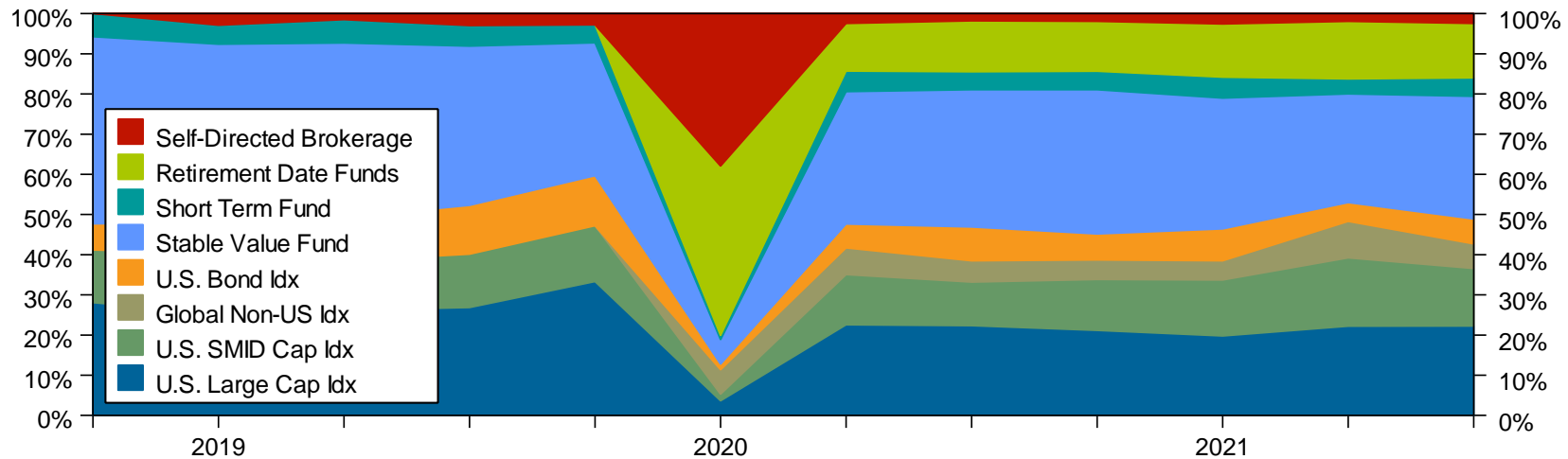
As of September 30, 2021

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.



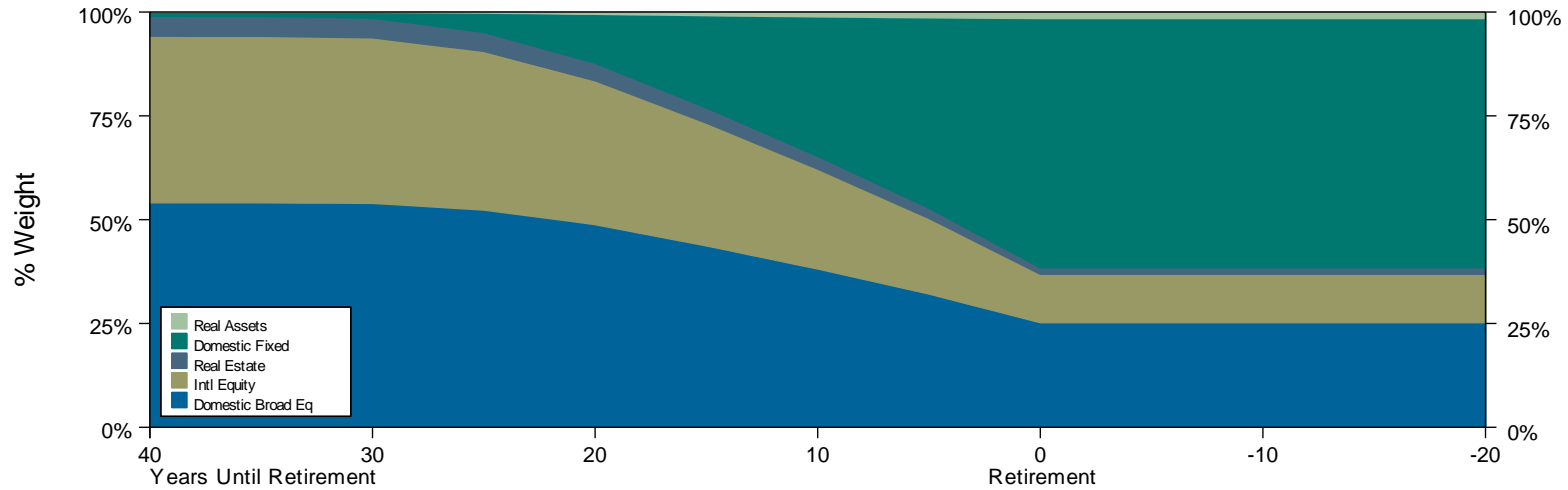
## Historical Allocation of Contributions



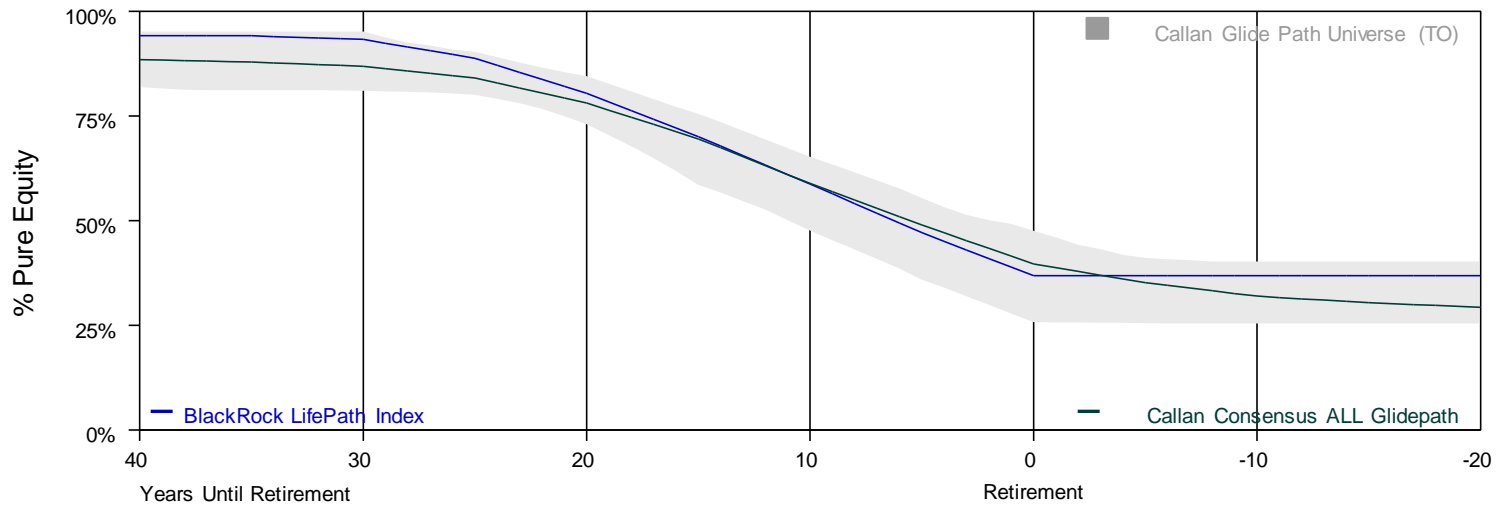
# BlackRock LifePath Retirement Funds

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
<b>Net Performance</b>					
<b>Retirement Date Funds</b>					
SERS Post Retirement Fund	(0.20%)	4.33%	11.39%	8.78%	7.34%
BlackRock Post Retirement NL Index	(0.19%)	4.33%	11.39%	8.73%	7.29%
Callan Tgt Date Ret Inc	(0.15%)	3.97%	10.18%	7.51%	6.30%
SERS 2025 Retirement Fund	(0.30%)	5.69%	14.55%	9.40%	8.76%
BlackRock 2025 NL Index	(0.29%)	5.69%	14.55%	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 NL Index	(0.43%)	7.22%	18.02%	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 NL Index	(0.58%)	8.68%	21.42%	11.08%	10.76%
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 NL Index	(0.73%)	9.99%	24.53%	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 NL Index	(0.86%)	11.04%	27.04%	12.43%	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 NL Index	(0.95%)	11.56%	28.33%	12.77%	12.61%
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 NL Index	(0.97%)	11.67%	28.57%	12.84%	12.66%
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 NL Index	(0.97%)	11.66%	28.56%	12.84%	12.65%
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 NL Index	(0.97%)	11.65%	28.55%	-	-
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.  
\*Target Date funds replaced risk-based funds in 1Q20.

# Cumulative Performance - Net of Fees

As of September 30, 2021

	Last 7 Years	Last 10 Years	Last 15 Years	Last 20 Years
<b>Net Performance</b>				
<b>Retirement Date Funds</b>				
SERS Post Retirement Fund	6.24%	6.74%	5.85%	-
BlackRock Post Retirement NL Index	6.21%	6.68%	-	-
Callan Tgt Date Ret Inc	5.37%	5.91%	5.11%	4.56%
SERS 2025 Retirement Fund	7.29%	8.61%	6.20%	-
BlackRock 2025 NL Index	7.22%	8.53%	-	-
Callan Target Date 2025	7.53%	9.39%	6.18%	-
SERS 2030 Retirement Fund	8.08%	9.51%	6.56%	-
BlackRock 2030 NL Index	7.99%	9.42%	-	-
Callan Target Date 2030	8.31%	10.26%	6.83%	6.92%
SERS 2035 Retirement Fund	8.82%	10.34%	6.91%	-
BlackRock 2035 NL Index	8.70%	10.24%	-	-
Callan Target Date 2035	8.92%	11.15%	7.04%	-
SERS 2040 Retirement Fund	9.46%	11.08%	7.19%	-
BlackRock 2040 NL Index	9.33%	10.96%	-	-
Callan Target Date 2040	9.43%	11.63%	7.57%	7.31%
SERS 2045 Retirement Fund	9.94%	11.67%	7.38%	-
BlackRock 2045 NL Index	9.77%	11.55%	-	-
Callan Target Date 2045	9.84%	11.87%	7.52%	-
SERS 2050 Retirement Fund	10.15%	12.07%	-	-
BlackRock 2050 NL Index	10.00%	11.95%	-	-
Callan Target Date 2050	10.00%	11.97%	7.31%	-
SERS 2055 Retirement Fund	10.18%	12.30%	-	-
BlackRock 2055 NL Index	10.04%	12.19%	-	-
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.

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

# Cumulative Performance - Net of Fees

As of September 30, 2021

	Last Quarter	Year to Date	Last Year	Last 3 Years	Last 5 Years
<b>Net Performance</b>					
<b>Domestic Equity</b>					
SERS U.S. Large Company Index	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. SMID Company Index	(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%
<b>International Equity</b>					
SERS Global Non-US Index	(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%
<b>Domestic Fixed Income</b>					
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 Stable Value Fund	0.38%	1.26%	1.78%	2.26%	2.17%
3-month Treasury Bill	0.01%	0.04%	0.07%	1.18%	1.16%
Callan Stable Value	0.42%	1.32%	1.83%	2.33%	2.23%
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.

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



# Cumulative Performance - Net of Fees

As of September 30, 2021

	Last 7 Years	Last 10 Years	Last 15 Years	Last 20 Years
<b>Net Performance</b>				
<b>Domestic Equity</b>				
SERS U.S. Large Company Index	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. SMID Company Index	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%
<b>International Equity</b>				
SERS Global Non-US Index	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%
<b>Domestic Fixed Income</b>				
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%
SERS Stable Value Fund	2.16%	2.32%	3.00%	-
3-month Treasury Bill	0.87%	0.63%	1.00%	1.32%
Callan Stable Value	2.13%	2.18%	2.62%	3.19%
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.

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

# 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
<b>Net of Fee Performance</b>									
<b>Retirement Date Funds</b>									
<b>SERS Post Retirement Fund</b> 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 NL Index	-0.2 55	11.4 29	8.7 12	7.3 18	6.2 15	6.7 20			
<b>SERS 2025 Retirement Fund</b> 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 NL Index	-0.3 26	14.5 71	9.3 54	8.7 66	7.2 65	8.5 75			
<b>SERS 2030 Retirement Fund</b> 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 NL Index	-0.4 25	18.0 64	10.2 47	9.7 65	8.0 62	9.4 74			
<b>SERS 2035 Retirement Fund</b> 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 NL Index	-0.6 24	21.4 55	11.1 40	10.8 61	8.7 65	10.2 78			
<b>SERS 2040 Retirement Fund</b> 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 NL Index	-0.7 24	24.5 43	11.8 35	11.7 53	9.3 56	11.0 72			
<b>SERS 2045 Retirement Fund</b> 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 NL Index	-0.9 31	27.0 32	12.4 32	12.3 45	9.8 52	11.5 69			
<b>SERS 2050 Retirement Fund</b> 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 NL Index	-0.9 33	28.3 18	12.8 25	12.6 40	10.0 50	11.9 51			
<b>SERS 2055 Retirement Fund</b> 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 NL Index	-1.0 32	28.6 19	12.8 26	12.7 42	10.0 57	12.2 52			
<b>SERS 2060 Retirement Fund</b> Callan Target Date 2060	-1.0 32	28.6 21	12.9 24	12.8 39					0.08 81
BlackRock 2060 NL Index	-1.0 32	28.6 21	12.8 30	12.7 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 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
<b>SERS 2065 Retirement Fund</b> Callan Target Date 2065	-1.0 <sup>24</sup>	28.5 <sup>21</sup>							0.08 <sup>53</sup>
BlackRock 2065 NL Index	-1.0 <sup>24</sup>	28.6 <sup>20</sup>							
<b>Domestic Equity</b>									
<b>SERS U.S. Large Company Index</b> Callan Lg Cap Broad MF	0.6 <sup>27</sup>	30.0 <sup>45</sup>	16.0 <sup>49</sup>	16.9 <sup>47</sup>	14.0 <sup>45</sup>	16.6 <sup>43</sup>			0.02 <sup>99</sup>
S&P 500 Index	0.6 <sup>27</sup>	30.0 <sup>45</sup>	16.0 <sup>49</sup>	16.9 <sup>47</sup>	14.0 <sup>45</sup>	16.6 <sup>44</sup>			
<b>SERS U.S. Small/Mid Company Index</b> Callan SMID Broad MFs	-3.2 <sup>88</sup>	42.7 <sup>38</sup>	15.8 <sup>34</sup>	16.5 <sup>39</sup>	13.5 <sup>45</sup>	16.4 <sup>33</sup>			0.03 <sup>100</sup>
Dow Jones US Completion	-3.3 <sup>88</sup>	42.2 <sup>39</sup>	15.5 <sup>35</sup>	16.3 <sup>42</sup>	13.3 <sup>48</sup>	16.2 <sup>40</sup>			
<b>International Equity</b>									
<b>SERS Global Non-U.S. Index Fund</b> Callan Non US Equity MFs	-3.3 <sup>79</sup>	23.6 <sup>66</sup>	8.2 <sup>52</sup>	9.1 <sup>48</sup>	5.9 <sup>55</sup>	7.8 <sup>66</sup>			0.06 <sup>99</sup>
MSCI ACWI ex US	-3.0 <sup>77</sup>	23.9 <sup>65</sup>	8.0 <sup>53</sup>	8.9 <sup>51</sup>	5.7 <sup>59</sup>	7.5 <sup>72</sup>			
<b>Domestic Fixed Income</b>									
<b>SERS Short Term Investment Fund</b> Callan Cash Database	0.0 <sup>99</sup>	0.1 <sup>90</sup>	1.2 <sup>88</sup>	1.3 <sup>85</sup>	1.0 <sup>86</sup>	0.8 <sup>86</sup>			0.00 <sup>100</sup>
3-month Treasury Bill	0.0 <sup>97</sup>	0.1 <sup>96</sup>	1.2 <sup>90</sup>	1.2 <sup>97</sup>	0.9 <sup>100</sup>	0.6 <sup>99</sup>			
<b>Comments:</b> Callan Cash Database includes STIF, enhanced cash, and money market funds.									
<b>SERS Stable Value Fund</b> Callan Stable Value	0.4 <sup>25</sup>	1.8 <sup>6</sup>	2.3 <sup>1</sup>	2.2 <sup>3</sup>	2.2 <sup>2</sup>	2.3 <sup>1</sup>			
3-month Treasury Bill	0.0 <sup>99</sup>	0.1 <sup>99</sup>	1.2 <sup>98</sup>	1.2 <sup>97</sup>	0.9 <sup>99</sup>	0.6 <sup>100</sup>			
<b>SERS U.S. Bond Index Fund</b> Callan Core Bond MFs	0.1 <sup>65</sup>	-1.0 <sup>94</sup>	5.4 <sup>91</sup>	2.9 <sup>94</sup>	3.2 <sup>85</sup>	3.0 <sup>95</sup>			0.03 <sup>98</sup>
Blmbg Aggregate	0.1 <sup>65</sup>	-0.9 <sup>94</sup>	5.4 <sup>91</sup>	2.9 <sup>92</sup>	3.3 <sup>81</sup>	3.0 <sup>94</sup>			

Returns:  
■ above median  
■ third quartile  
■ fourth quartile

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

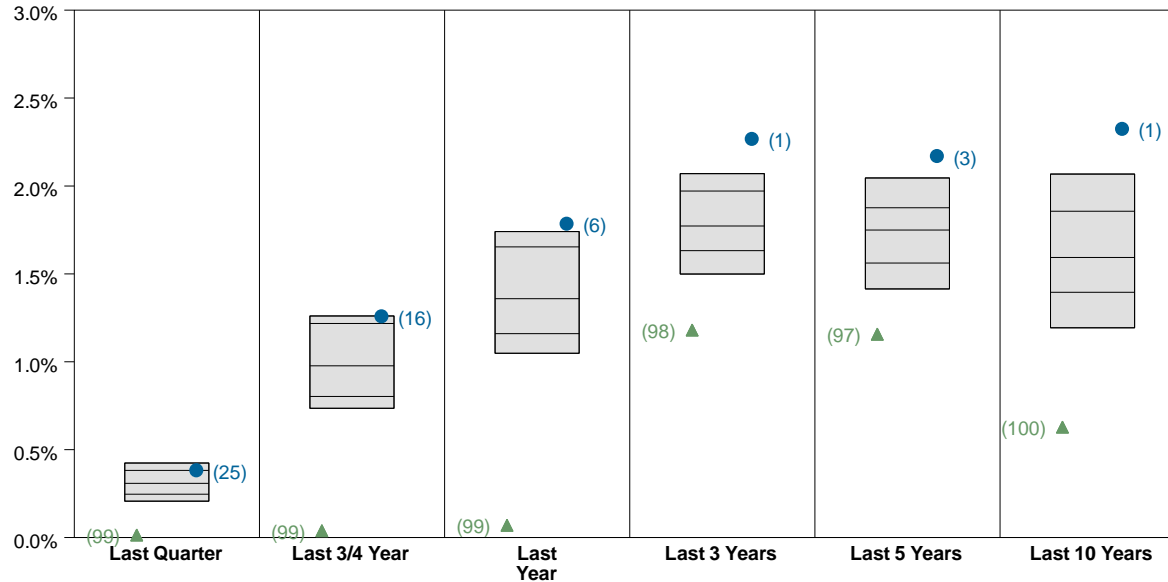
Risk Quadrant:  
  
 Return  
 Risk

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 September 30, 2021

## Performance vs Callan Stable Value CT (Institutional Net)



10th Percentile	0.42	1.26	1.74	2.07	2.05	2.07
25th Percentile	0.38	1.22	1.65	1.97	1.88	1.86
Median	0.31	0.98	1.36	1.77	1.75	1.59
75th Percentile	0.25	0.80	1.16	1.63	1.56	1.39
90th Percentile	0.21	0.74	1.05	1.50	1.41	1.19
<b>SERS Stable Value Fund</b> ●	0.38	1.26	1.78	2.26	2.17	2.32
3-month Treasury Bill ▲	0.01	0.04	0.07	1.18	1.16	0.63

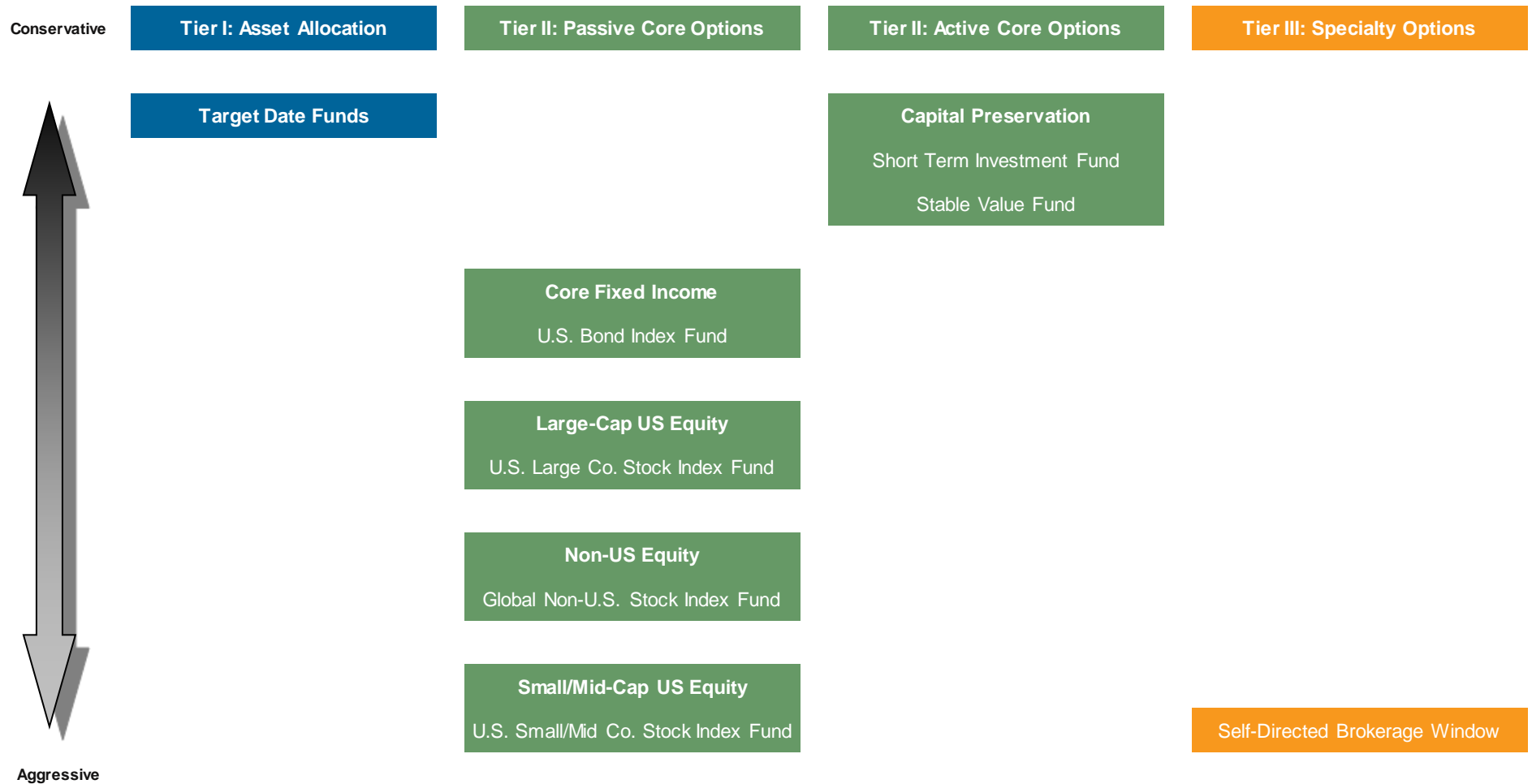
### Wrap Provider Exposure\*

Contract Issuer	Portfolio	Average Fee	Moody's Rating	S&P Rating	Fitch Rating
Nationwide Life Insurance	20.58%	0.15%	A1	A+	NR
Transamerica	20.46%	0.15%	A1	A+	WD
Prudential Insurance Co.	15.44%	0.15%	Aa3	AA-	AA-
RGA	15.43%	0.15%	A1	AA-	A
State Street Bank	12.89%	0.15%	Aa2	AA-	AA+
Pacific Life Insurance Co.	12.87%	0.16%	Aa3	AA-	AA-
	97.67%	0.15%			

\*Source: Invesco

# 457(b) Plan Investment Structure

## Lineup Mapped to Callan's Clean Sheet



Callan

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**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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## Disclaimers

This report is for informational purposes only and should not be construed as legal or tax advice on any matter. Any decision you make on the basis of this content is your sole responsibility. You should consult with legal and tax advisers before applying any of this information to your particular situation.

This report may consist of statements of opinion, which are made as of the date they are expressed and are not statements of fact.

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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.