

February 9, 2024



**Pennsylvania State Employees'
Retirement System – Defined
Benefit Plan**

Fourth Quarter 2023

Executive Summary

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Market Environment

Equity Markets Surge in 4Q, Following Decline in 3Q

Stocks have recovered losses of 2022, bonds still have ground to make up

S&P 500 surged 11.7% in 4Q23

- Loss through first three quarters of 2022 was 23.9%; the rebound in the following five quarters brought the index back to a positive return of 1.7% over the past two years.

Fixed income recovered in 4Q

- The Bloomberg Aggregate surged 6.8% after suffering a sharp loss of 3.2% in 3Q.
- The Aggregate was on track for another negative year through 3Q; softening Fed language on rates in 4Q turned the market around.
- CPI-U: declined in 4Q compared to 3Q but is still up 3.4% year-over-year, and the index is 10% higher than it was at the start of 2022

Economy defied recession fears

- GDP growth came in at 2.1% in 1Q, 2.2% in 2Q, 4.9% in 3Q, and a very healthy 3.3% in 4Q.

Returns for Periods ended 12/31/23

	Quarter	1 Year	2 Years	5 Years	10 Years	25 Years
U.S. Equity						
Russell 3000	12.07	25.96	0.88	15.16	11.48	7.74
S&P 500	11.69	26.29	1.69	15.69	12.03	7.56
Russell 2000	14.03	16.93	-3.55	9.97	7.16	7.91
Global ex-U.S. Equity						
MSCI World ex USA	10.51	17.94	0.54	8.45	4.32	4.62
MSCI Emerging Markets	7.86	9.83	-6.32	3.69	2.66	--
MSCI ACWI ex USA Small Cap	10.12	15.66	-3.79	7.89	4.88	7.28
Fixed Income						
Bloomberg Aggregate	6.82	5.53	-4.19	1.10	1.81	3.85
90-day T-Bill	1.37	5.01	3.22	1.88	1.25	1.90
Bloomberg Long Gov/Credit	13.24	7.13	-11.62	1.12	3.22	5.21
Bloomberg Global Agg ex-US	9.21	5.72	-7.29	-1.56	-0.79	2.25
Real Estate						
NCREIF Property Index	-3.02	-7.94	-1.44	4.33	6.80	8.03
FTSE Nareit Equity	16.22	13.73	-7.25	7.39	7.65	9.27
Alternatives						
HFRI Fund Weighted	3.64	7.57	1.55	7.01	4.54	6.31
Cambridge Private Equity*	-0.42	4.17	0.19	14.59	14.27	13.87
Bloomberg Commodity	-4.63	-7.91	3.40	7.23	-1.11	2.83
Gold Spot Price	11.02	13.45	6.44	10.09	5.59	8.19
Inflation - CPI-U	-0.34	3.35	4.89	4.07	2.79	2.54

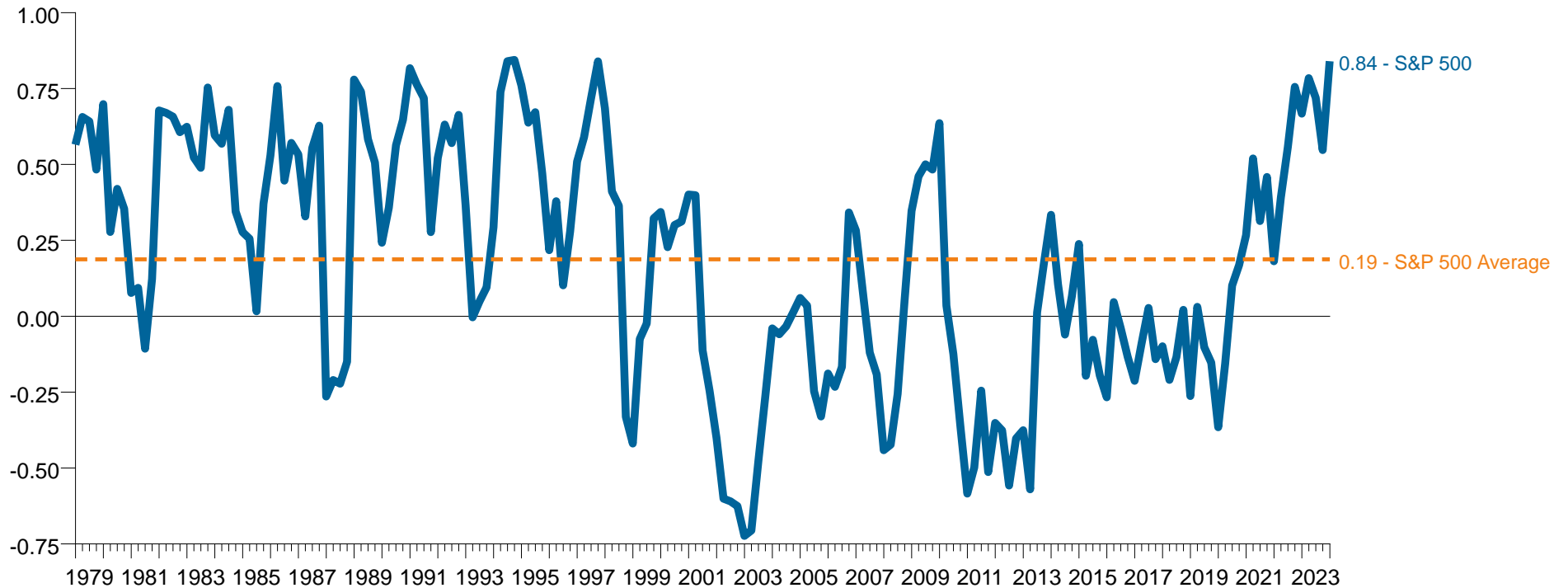
*Cambridge PE data as of 9/30/23.

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

Is the Stock-bond Correlation Shifting to a Higher Level?

Stocks and bonds rebound strongly together in 4Q23

Rolling 1 Year Correlation of S&P 500 to Bloomberg Aggregate for 45 Years Ended 12/31/23



- ▶ Forward-looking bond returns are now much higher thanks to the rise in interest rates and the resulting higher yields.
- ▶ However, the equity risk premium has likely narrowed, and we may be seeing a return to a regime of higher correlation between stocks and bonds, potentially lessening the diversification benefit of bonds to stocks.

Sources: Bloomberg, Callan, S&P Dow Jones Indices

U.S. Equity Performance: 4Q23

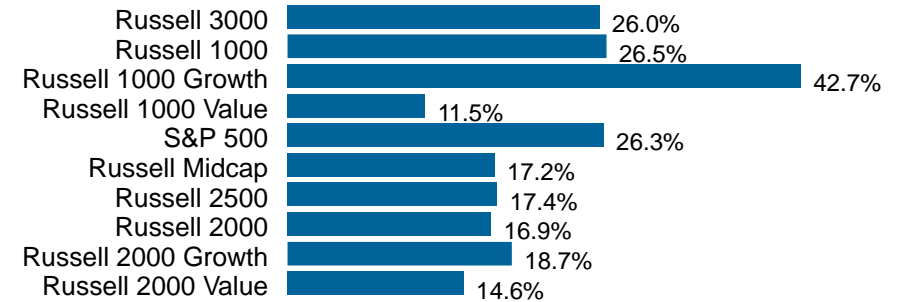
The U.S. equity market rallied in 4Q, closing the year near record highs

- U.S. equity markets rebounded in the last two months of the year as possible rate cuts in 2024 started to get priced in.
- 2023 saw the narrowest breadth of leadership (“the Magnificent Seven”) since 1987 with just 27% of stocks outperforming the S&P 500. Historically such concentrated leadership has not been the sign of a healthy market.
- However, gains started broadening out in the last two months of the year with the equal-weighted S&P index outperforming the capitalization-weighted version.
- Smaller cap stocks also outperformed their large cap counterparts in 4Q23, further proof of the broadening out of returns. For the full year large cap stocks outperformed small cap stocks by almost 10 percentage points.
- Growth vs. value performance was mixed across market capitalization during the quarter. Within large cap growth outperformed value; the opposite was true within small cap.

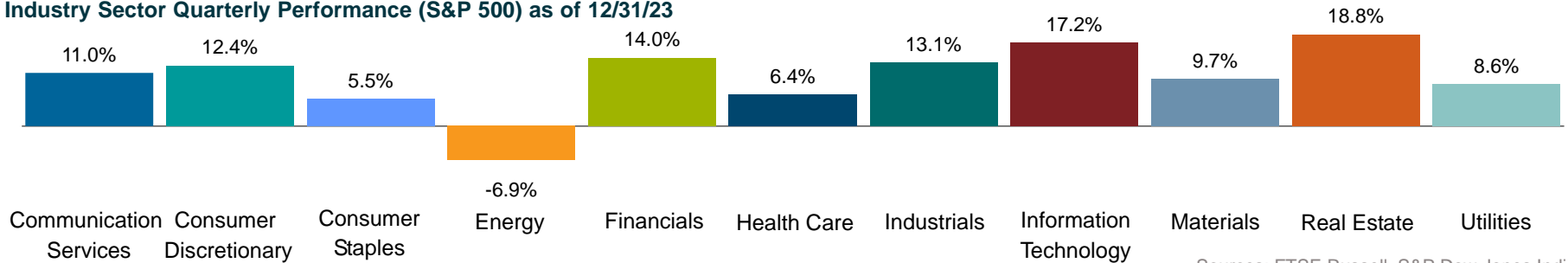
U.S. Equity: Quarter Ended 12/31/23



U.S. Equity: One Year Ended 12/31/23



Industry Sector Quarterly Performance (S&P 500) as of 12/31/23



Sources: FTSE Russell, S&P Dow Jones Indices

Global/Global ex-U.S. Equity Performance: 4Q23

Dovish central banks drove market higher

Broad market

- Dovish signaling from central banks and dropping yields led to a broad market rally in 4Q.
- Global ex-U.S. small caps reclaimed some of their lagging performance in 4Q but ended the year as the worst-performing broad-based index, albeit up over 12%. Elevated borrowing costs and the persistent risk of a recession have kept investors away.
- Japan's low rates have benefited exporters, and the threat of being delisted spurred a stock buy-back spree. Coupled with an increased focus on governance, Japan hit a multi-decade high.

Emerging markets

- Emerging markets underperformed developed markets.
 - India's rally couldn't overcome China's weakness, whose economic growth was near the government's target, but investor concerns around stimulus and a surprisingly sluggish reopening drove stocks lower.

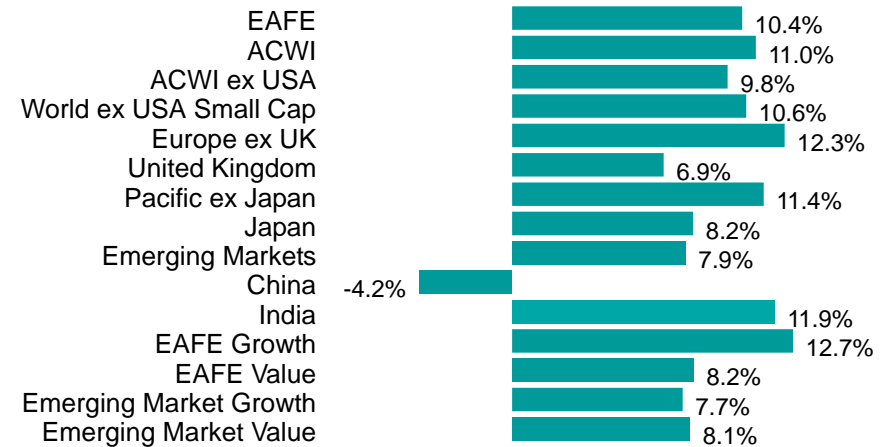
Growth vs. value

- Energy, a volatile area in the market, pulled back value's rally after having a strong 3Q. Global ex-U.S. growth rallied on lowering yields but couldn't overcome earlier underperformance and ended the year behind its value peers in both emerging and developed markets.

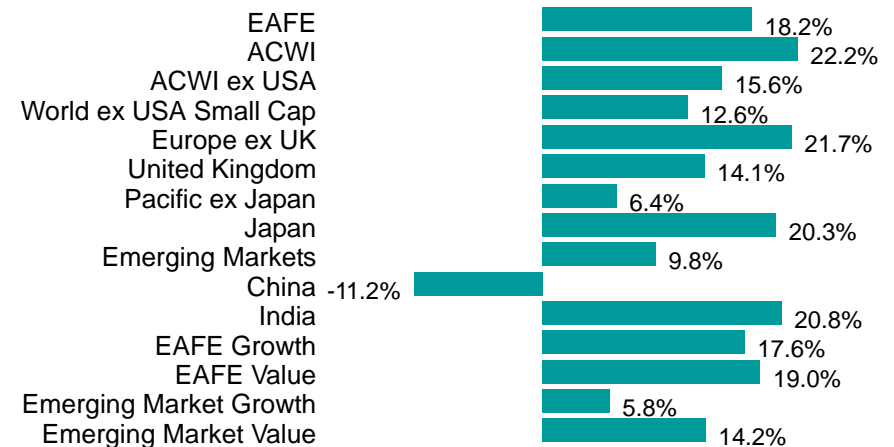
U.S. dollar vs. other currencies

- The U.S. dollar weakened in 4Q as investors believed that U.S. interest rates would fall faster than much of the developed world.

Global Equity Returns: Quarter Ended 12/31/23



Global Equity Returns: One Year Ended 12/31/23



Source: MSCI

Global/Global ex-U.S. Equity Key Themes

Tailwinds include currency, interest rates

Interest Rates

- Increased dispersion between central bank actions, such as potential interest rate cuts in the U.S. while the rest of the world holds or increases interest rates, could increase capital flows outside of the U.S.

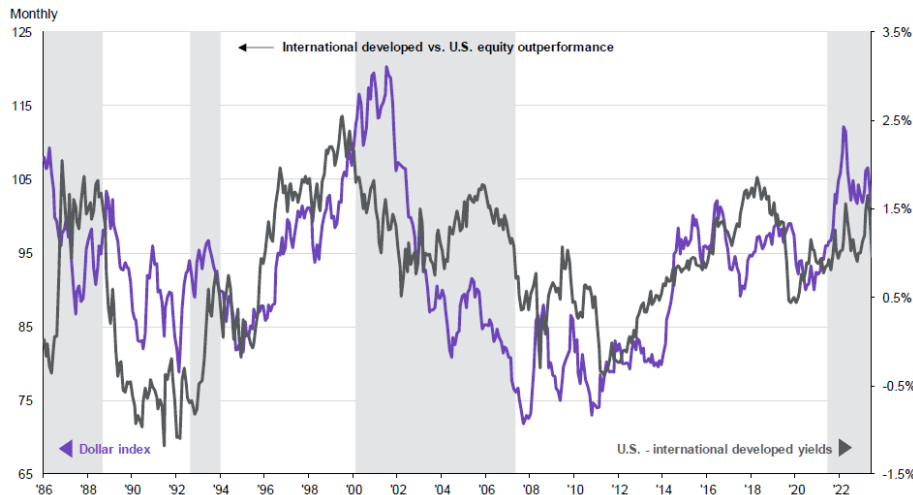
Currency

- A decrease in the interest rate differential between the U.S. and global ex-U.S. countries may put pressure on the U.S. dollar and provide support for global ex-U.S. equities.

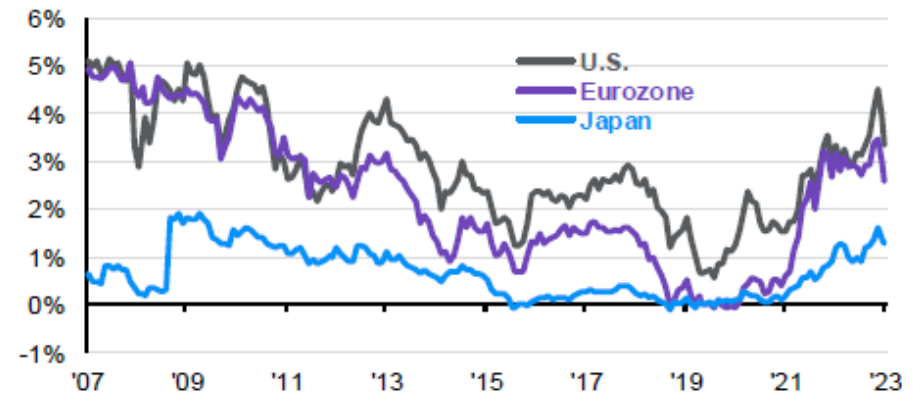
Valuation

- With valuations at relative discounts to history and the U.S., global ex-U.S. equities could provide attractive opportunities should interest rate and currency shift course.

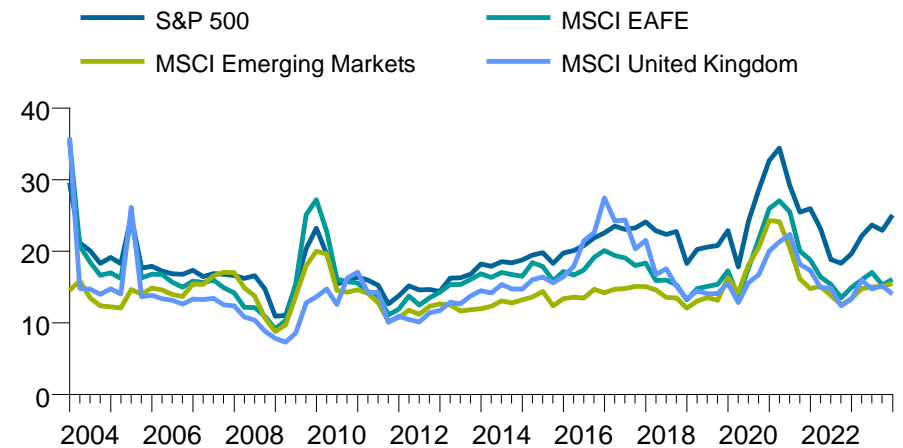
U.S. Dollar and Interest Rate Differentials



Interest Rate Expectations by Country Based on 5Y5Y swaps



Price/Earnings Ratio (inc neg) for 20 Years Ended 12/31/23



Sources: Bank of Canada, Bloomberg, FactSet, Federal Reserve Economic Data (FRED), J.P. Morgan Asset Management, Ministry of Finance of Japan, MSC, OECD, S&P Dow Jones Indices

U.S. Fixed Income Performance: 4Q23

Bonds bounce back at year-end; U.S. Treasury yield has volatile 2023

Strong returns at end of year

- Driven by falling rates and strong risk-on sentiment, the Agg returned 6.8%, the highest quarterly return since 2Q89 (when the 90-day T-bill was over 8% and inflation hit 14% earlier in the decade)!
- 10-year U.S. Treasury yield closed the year at 3.88%.
 - A round trip from 12/2022, masking significant volatility during the year
 - High was 4.98% in October and low was 3.30% in April
- Corporates and mortgages outperformed Treasuries for the quarter and year.
- High yield corporates soared as defaults remained low, economy resilient.

U.S. Treasury yield curve remained inverted, but less so

- 106 bps as of 6/30; 44 bps as of 9/30; 35 bps as of 12/31

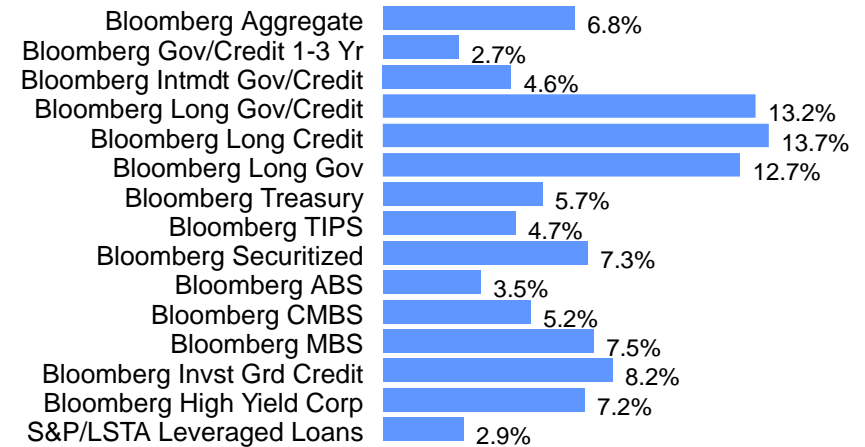
Fed kept Fed Funds rate on hold and softened language

- Pivoted from “higher for longer” to projected rate cuts in 2024
- Inflation over past six months below Fed’s 2% target
 - Core PCE Price Index was 1.9% annualized in November
- Markets expect six rate cuts in 2024 versus three in the Fed’s Summary of Economic Projections

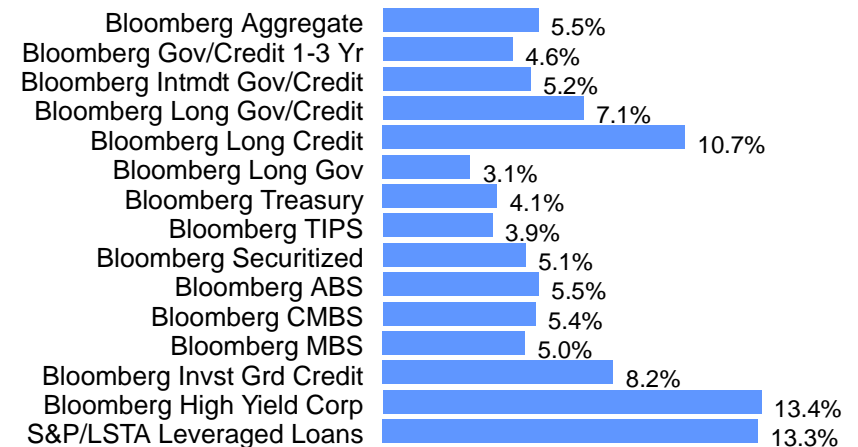
Valuations

- Investment grade and high yield corporate spreads now below 10-year averages

U.S. Fixed Income Returns: Quarter Ended 12/31/23



U.S. Fixed Income Returns: One Year Ended 12/31/23

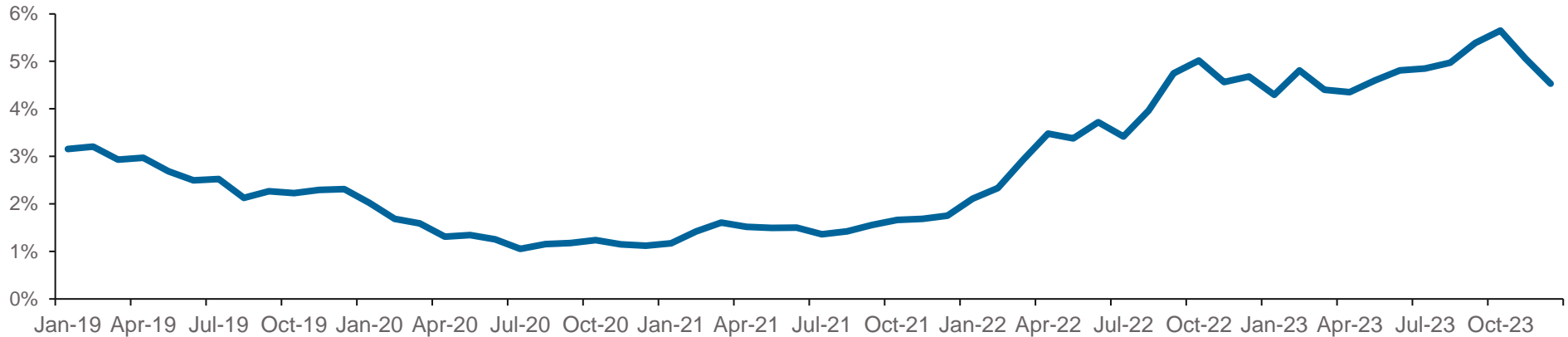


Sources: Bloomberg, Callan, S&P Dow Jones Indices

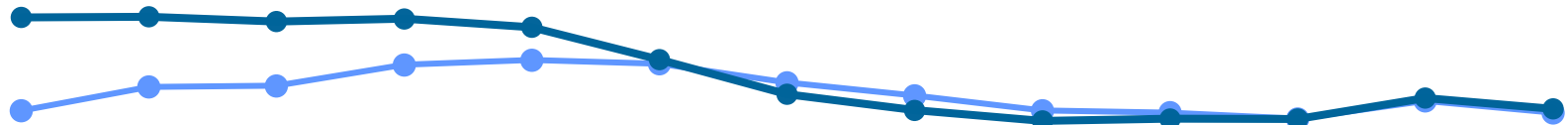
Fixed Income Themes

Yields continue to bode well for fixed income

U.S. Aggregate Index Yield



U.S. Treasury Yield Curve



	1M	2M	3M	4M	6M	1Y	2Y	3Y	5Y	7Y	10Y	20Y	30Y
12/31/22	4.00	4.36	4.37	4.69	4.76	4.71	4.42	4.23	4.00	3.97	3.88	4.15	3.97
12/29/23	5.40	5.41	5.34	5.38	5.26	4.77	4.25	4.01	3.85	3.88	3.88	4.19	4.03

- Despite tight credit spreads and a fourth quarter rally, yields remain elevated.
- This bodes well for fixed income in the long term, as starting yields are an important driver of total return.
- The yield curve remains inverted but is expected to normalize when the Fed begins to cut rates.

Sources: Bloomberg

Diversification Remains Key Risk Control

Periodic Table of Investment Returns

2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
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	Real Estate Funds	Large Cap
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%	28.71%	6.55%	26.29%
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	Cash Equivalent	Non-U.S. Equity
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%	21.02%	1.46%	17.94%
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	Hedge Funds	Small Cap
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%	14.82%	1.06%	16.93%
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	High Yield	High Yield
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%	12.62%	-11.19%	13.44%
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	Hedge Funds	U.S. Fixed	Emerging Markets
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%	8.23%	-13.01%	9.83%
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	High Yield	Non-U.S. Equity	Hedge Funds
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%	5.28%	-14.29%	5.83%
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	Cash Equivalent	Large Cap	Non-U.S. Fixed
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%	0.05%	-18.11%	5.72%
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	Non-U.S. Fixed	U.S. Fixed
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%	-1.54%	-18.70%	5.53%
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	Emerging Markets	Emerging Markets	Cash Equivalent
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%	-2.54%	-20.09%	5.01%
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	Non-U.S. Fixed	Small Cap	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%	-7.05%	-20.44%	-12.73%

- 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

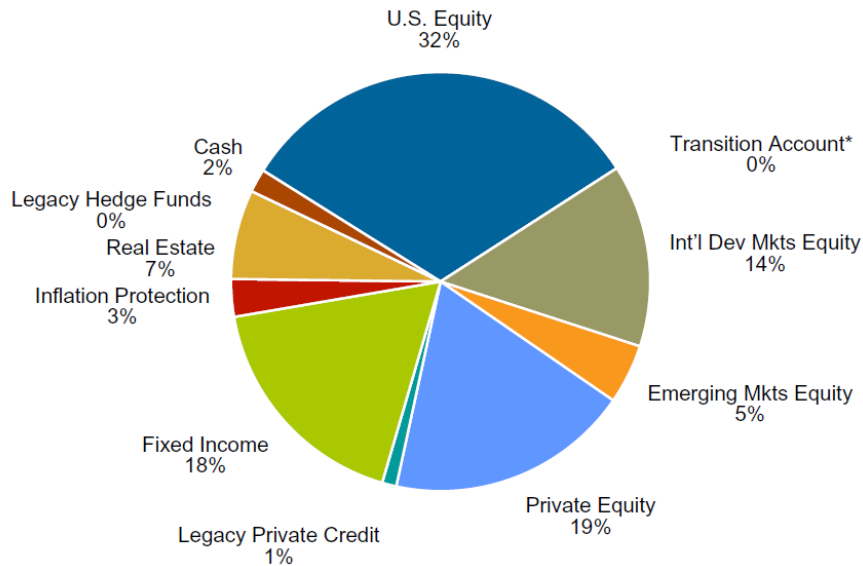
Callan

**PA SERS Defined Benefit Plan
Performance Review**

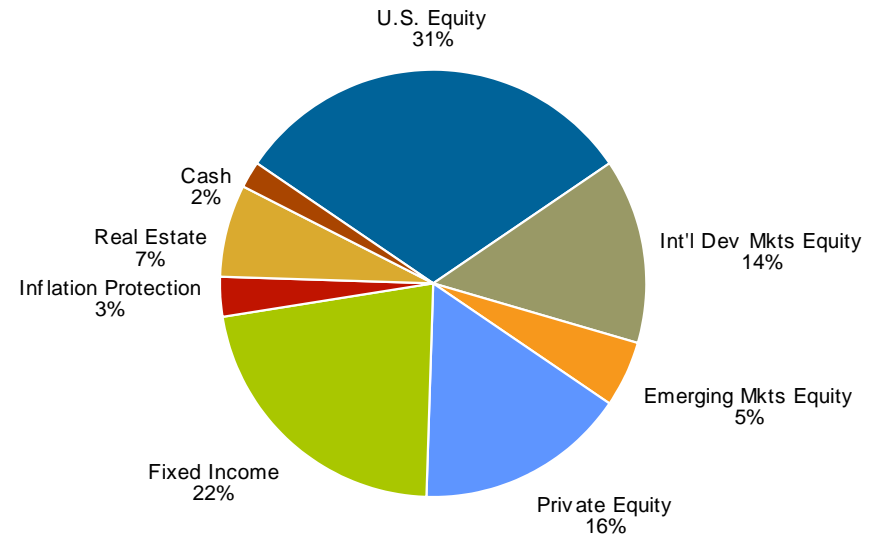
Total Fund

Actual Asset Allocation versus Target as of December 31, 2023

Actual Asset Allocation



Target Asset Allocation



Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
U.S. Equity	11,667,636	32.0%	31.0%	1.0%	374,347
Transition Account*	1,015	0.0%	0.0%	0.0%	1,015
Int'l Dev Mkts Equity	5,150,792	14.1%	14.0%	0.1%	50,597
Emerging Mkts Equity	1,661,759	4.6%	5.0%	(0.4%)	(159,739)
Private Equity	6,860,223	18.8%	16.0%	2.8%	1,031,429
Legacy Private Credit	393,410	1.1%	0.0%	1.1%	393,410
Fixed Income	6,472,712	17.8%	22.0%	(4.2%)	(1,541,880)
Inflation Protection	1,044,578	2.9%	3.0%	(0.1%)	(48,321)
Real Estate	2,517,663	6.9%	7.0%	(0.1%)	(32,434)
Legacy Hedge Funds	15,921	0.0%	0.0%	0.0%	15,921
Cash	644,255	1.8%	2.0%	(0.2%)	(84,345)
Total	36,429,964	100.0%	100.0%		

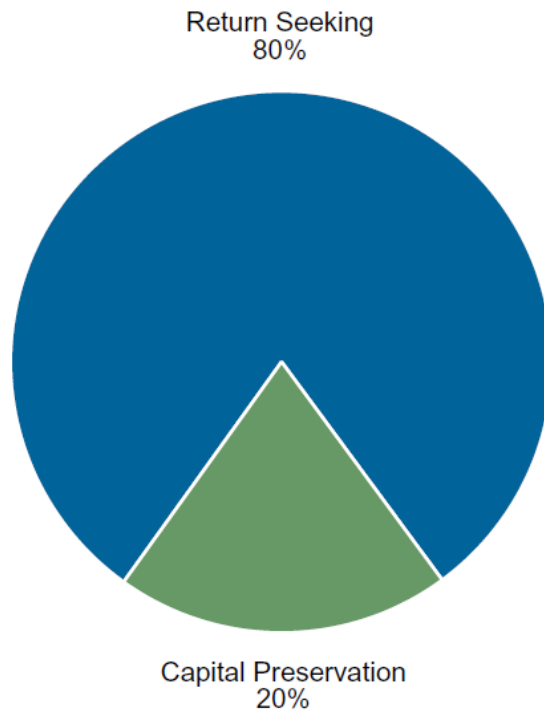
*Market values are shown net of accrued fees.

*Transition account market values are not included in any asset class and are excluded from these charts.

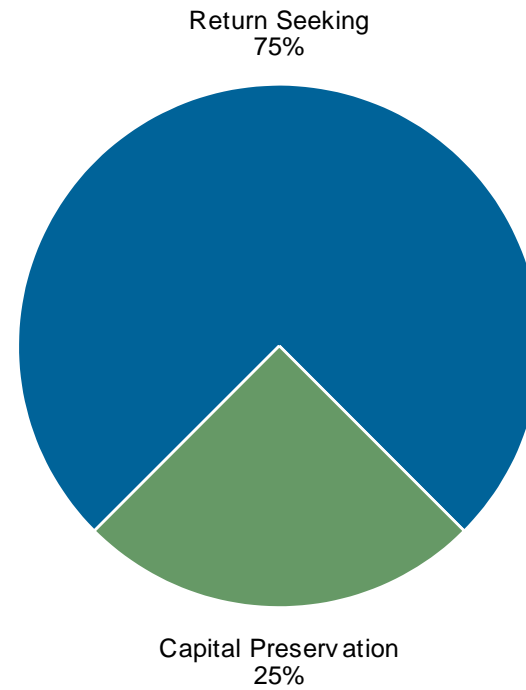
Return Seeking and Capital Preservation Assets

As of December 31, 2023

Actual Asset Allocation



Target Asset Allocation



*Return Seeking Assets: U.S. Equity, Int'l Developed Markets Equity, Emerging Markets Equity, Transition Account, Private Equity, Real Estate, Opportunistic Fixed Income, Legacy Hedge Funds and Legacy Private Credit.

*Capital Preservation Assets: Core Fixed Income, Nominal U.S. Treasuries, Inflation Protection (TIPS) and Cash.

*Market values are shown net of accrued fees.

Projected Risk, Liquidity and Correlation

	Capital Preservation Assets				Return Seeking Assets					
	Cash	Inflation Protection (TIPS)	Treasuries	Core Fixed Income	U.S. Equity	Developed International Equity	Emerging Markets Equity	Opportunistic Fixed Income	Real Estate	Private Equity
Policy Target Asset Allocation	2%	3%	5%	15%	31%	14%	5%	2%	7%	16%
Projected Return* (Geometric)	3.00%	5.05%	4.70%	5.25%	7.65%	7.50%	7.70%	7.40%	7.65%	8.75%
Projected Risk* (Standard Deviation)	0.90%	5.40%	5.55%	4.25%	17.40%	20.15%	25.60%	15.70%	15.75%	27.60%
Liquidity	High	High	High	High	High	High	Medium	Low	Low	Low
Correlation to U.S. Equity*	-0.03	-0.03	-0.05	0.08	1.00	0.73	0.84	0.68	0.68	0.80
Months of Benefit Payments**	1.9	3.1	2.6	13.9						
Months of Benefit Payments (Includes EE & ER Contributions)**	5.8	9.5	8.0	41.9						
Cumulative Months of Benefit Payments (Includes EE & ER Contributions)**			65.1							

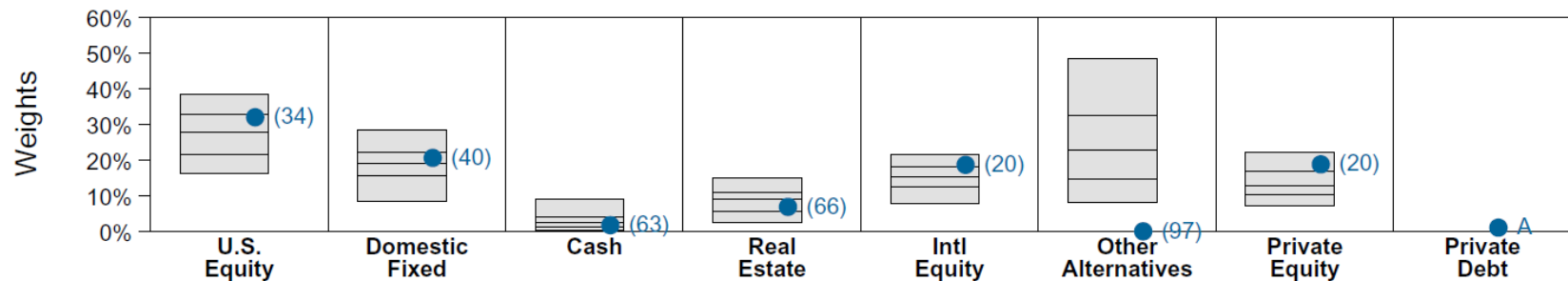
*Callan 2024 Capital Market Projections

**Provided by SERS IO as of 12/31/2023.

Total Fund

Actual Asset Allocation versus Very Large Public DB Plan (>\$10B) Peers as of December 31, 2023

Asset Class Weights vs Callan Public Fund Spons- V Lg DB (>10B)



	U.S. Equity	Domestic Fixed	Cash	Real Estate	Intl Equity	Other Alternatives	Private Equity	Private Debt
10th Percentile	38.50	28.38	8.94	15.03	21.55	48.63	22.34	-
25th Percentile	32.93	22.27	3.92	10.81	18.27	32.56	16.90	-
Median	27.90	18.95	2.52	8.95	15.40	22.83	12.85	-
75th Percentile	21.64	15.75	1.20	5.63	12.57	14.75	10.33	-
90th Percentile	16.34	8.58	0.44	2.61	7.69	8.25	7.18	-
Fund ●	32.03	20.63	1.77	6.91	18.70	0.04	18.83	1.08
% Group Invested	100.00%	96.97%	90.91%	96.97%	100.00%	90.91%	15.15%	0.00%

* Current Quarter Target = 22% Bloomberg U.S. Agg Bond Index, 16% SERS Private Equity Composite, 31% Russell 3000 Index, 14% MSCI World ex US IMI Index, 7% NCREIF NFI-ODCE (Quarter lag), 5% MSCI Emerging Markets IMI Index, 3% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index.

Total Fund

One Quarter Attribution Analysis versus Target – Net of Fees as of December 31, 2023

Note: Attribution is a snapshot in time. Asset allocation effect utilizes monthly asset class weights to calculate the overall effect on attribution. Asset class weights fluctuate month to month and are combined to calculate a quarterly attribution effect.

Relative Attribution Effects for Quarter ended December 31, 2023

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
U.S. Equity	31%	31%	12.23%	12.07%	0.05%	(0.02%)	0.03%
Int'l Dev. Mkts Equity	14%	14%	10.61%	10.52%	0.01%	(0.02%)	(0.01%)
Emerging Markets	4%	5%	8.48%	8.02%	0.02%	(0.01%)	0.01%
Private Equity**	20%	16%	0.61%	0.61%	0.00%	(0.28%)	(0.28%)
Legacy Private Credit**	1%	0%	2.99%	2.99%	0.00%	(0.05%)	(0.05%)
Fixed Income	18%	22%	6.14%	6.82%	(0.12%)	0.01%	(0.11%)
Inflation Protection	3%	3%	4.92%	4.71%	0.01%	0.00%	0.01%
Real Estate	7%	7%	(2.35%)	(2.12%)	(0.03%)	(0.03%)	(0.05%)
Legacy Hedge Funds	0%	0%	(3.84%)	(3.84%)	0.00%	(0.01%)	(0.01%)
Cash	2%	2%	1.36%	1.37%	(0.00%)	0.00%	0.00%
Total			6.78%	= 7.23%	+	(0.06%) + (0.39%)	(0.45%)

- **What helped relative attribution?**
 - Outperformance relative to target from U.S. Equity and Emerging Markets helped performance (attribution based on target return)
- **What hurt relative attribution?**
 - An overweight to Private Equity and Legacy Private Credit hurt performance (attribution based on target return)
 - Underperformance relative to target from Fixed Income and Real Estate managers

* Current Quarter Target = 22% Bloomberg U.S. Agg Bond Index, 16% SERS Private Equity Composite, 31% Russell 3000 Index, 14% MSCI World ex US IMI Index, 7% NCREIF NFI-ODCE (Quarter lag), 5% MSCI Emerging Markets IMI Index, 3% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index.

**For this analysis, PE and PC are benchmarked to the SERS' PE and PC program returns, respectively.

Returns are shown net of fees

Total Fund

One Year Attribution Analysis versus Target – Net of Fees as of December 31, 2023

Note: Attribution is a snapshot in time. Asset allocation effect utilizes monthly asset class weights to calculate the overall effect on attribution. Asset class weights fluctuate month to month and are combined to calculate an annual attribution effect.

One Year Relative Attribution Effects

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
U.S. Equity	31%	31%	25.56%	25.96%	(0.10%)	(0.03%)	(0.13%)
Int'l Dev. Mkts Equity	14%	14%	18.99%	17.18%	0.23%	(0.07%)	0.16%
Emerging Markets	4%	5%	11.40%	11.67%	(0.02%)	(0.01%)	(0.03%)
Private Equity**	19%	16%	6.59%	6.59%	0.00%	(0.26%)	(0.26%)
Legacy Private Credit**	1%	0%	10.85%	10.85%	0.00%	(0.02%)	(0.02%)
Fixed Income	18%	22%	5.57%	5.53%	0.01%	0.27%	0.28%
Inflation Protection	3%	3%	3.85%	3.90%	(0.00%)	0.00%	(0.00%)
Real Estate	8%	7%	(11.91%)	(13.08%)	0.13%	(0.30%)	(0.17%)
Legacy Hedge Funds	0%	0%	(4.46%)	(4.46%)	0.00%	(0.01%)	(0.01%)
Cash	2%	2%	5.14%	5.01%	0.00%	0.05%	0.05%

Total	12.22% = 12.35% + 0.25% + (0.37%)	(0.13%)
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- **What helped relative attribution?**
 - Outperformance relative to target from non-U.S. Developed Markets Equity and Real Estate and managers
 - An underweight as compared to target to Fixed Income helped performance (attribution based on target return)
- **What hurt relative attribution?**
 - An overweight as compared to target to Real Estate and Private Equity hurt performance (attribution based on target return)
 - Underperformance relative to target from U.S. Equity managers
 - A slight underweight as compared to target to U.S. Equity and non-U.S. Developed Markets Equity

* Current Quarter Target = 22% Bloomberg U.S. Agg Bond Index, 16% SERS Private Equity Composite, 31% Russell 3000 Index, 14% MSCI World ex US IMI Index, 7% NCREIF NFI-ODCE (Quarter lag), 5% MSCI Emerging Markets IMI Index, 3% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index.

**For this analysis, PE and PC are benchmarked to the SERS' PE and PC program returns, respectively.

Returns are shown net of fees.

Total Fund

Three Year Attribution Analysis versus Target – Net of Fees as of December 31, 2023

Note: Attribution is a snapshot in time. Asset allocation effect utilizes monthly asset class weights to calculate the overall effect on attribution. Asset class weights fluctuate month to month and are combined to calculate an annual attribution effect.

Three Year Annualized Relative Attribution Effects

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
U.S. Equity	30%	30%	8.19%	8.54%	(0.10%)	(0.11%)	(0.21%)
Int'l Dev. Mkts Equity	13%	14%	4.94%	3.73%	0.16%	(0.01%)	0.15%
Emerging Markets	4%	5%	(5.06%)	(3.71%)	(0.06%)	0.06%	0.01%
Private Equity**	17%	14%	15.64%	15.64%	0.00%	0.15%	0.15%
Legacy Private Credit**	3%	2%	13.22%	13.22%	0.00%	(0.09%)	(0.09%)
Fixed Income	21%	23%	(2.80%)	(3.31%)	0.13%	0.09%	0.22%
Inflation Protection	3%	3%	(1.69%)	(1.00%)	(0.02%)	(0.00%)	(0.02%)
Real Estate	8%	7%	3.31%	6.23%	(0.24%)	(0.03%)	(0.27%)
Legacy Hedge Funds	0%	0%	(2.40%)	(4.20%)	0.00%	(0.00%)	(0.00%)
Cash	2%	2%	2.26%	2.15%	0.00%	0.02%	0.02%
Total			4.95%	5.01%	+ (0.13%)	+ 0.07%	(0.06%)

- **What helped relative attribution?**
 - Outperformance relative to target from non-U.S. Developed Markets Equity and Fixed Income managers
 - An overweight as compared to target to Private Equity helped performance (attribution based on target return)
 - An underweight as compared to target to Fixed Income and Emerging Markets Equity helped performance (attribution based on target return)
- **What hurt relative attribution?**
 - Underperformance relative to target from Real Estate, U.S. Equity and Emerging Markets Equity managers
 - A slight underweight as compared to target to U.S. Equity hurt performance (attribution based on target return)
 - A slight overweight as compared to target to Legacy Private Credit and Real Estate hurt performance (attribution based on target return)

* Current Quarter Target = 22% Bloomberg U.S. Agg Bond Index, 16% SERS Private Equity Composite, 31% Russell 3000 Index, 14% MSCI World ex US IMI Index, 7% NCREIF NFI-ODCE (Quarter lag), 5% MSCI Emerging Markets IMI Index, 3% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index.

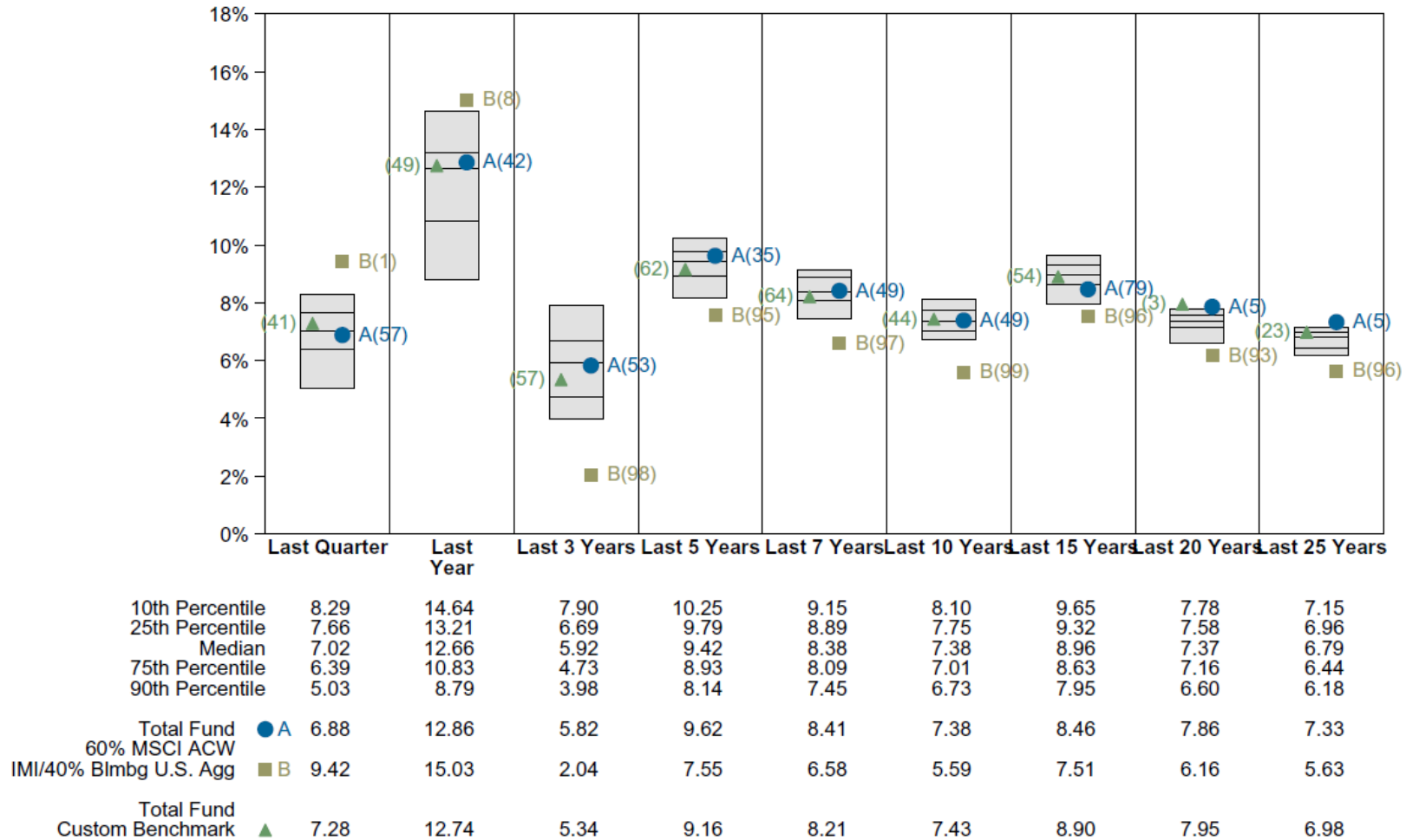
**For this analysis, PE and PC are benchmarked to the SERS' PE and PC program returns, respectively.

Returns are shown net of fees.

Total Fund

Gross of Fee Performance versus Very Large Public DB Plan (>\$10B) Peers and Benchmark as of December 31, 2023

Performance vs Callan Public Fund Spons- V Lg DB (>10B) (Gross)

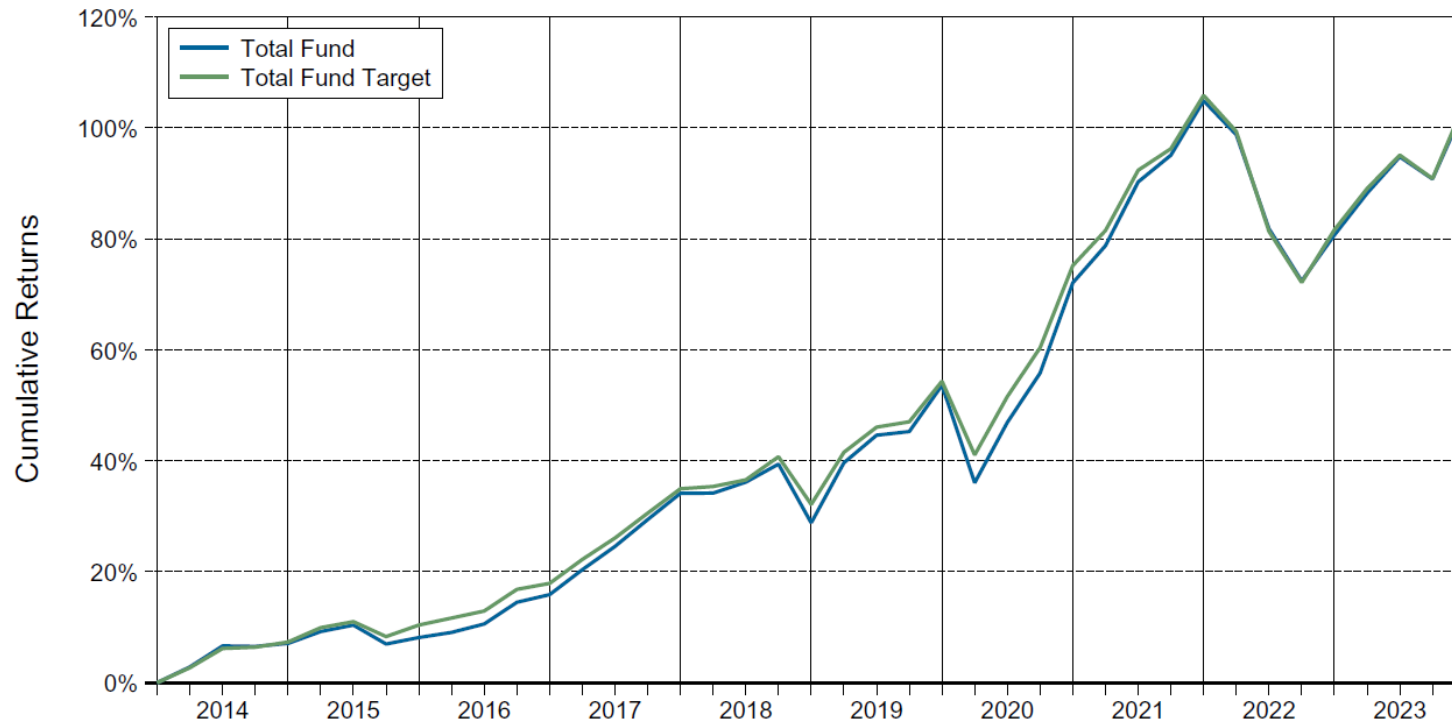


* Current Quarter Target = 22% Bloomberg U.S. Agg Bond Index, 16% SERS Private Equity Composite, 31% Russell 3000 Index, 14% MSCI World ex US IMI Index, 7% NCREIF NFI-ODCE (Quarter lag), 5% MSCI Emerging Markets IMI Index, 3% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index.

Total Fund

Cumulative 10-year Returns vs Target as of December 31, 2023

Cumulative Returns Actual vs Target

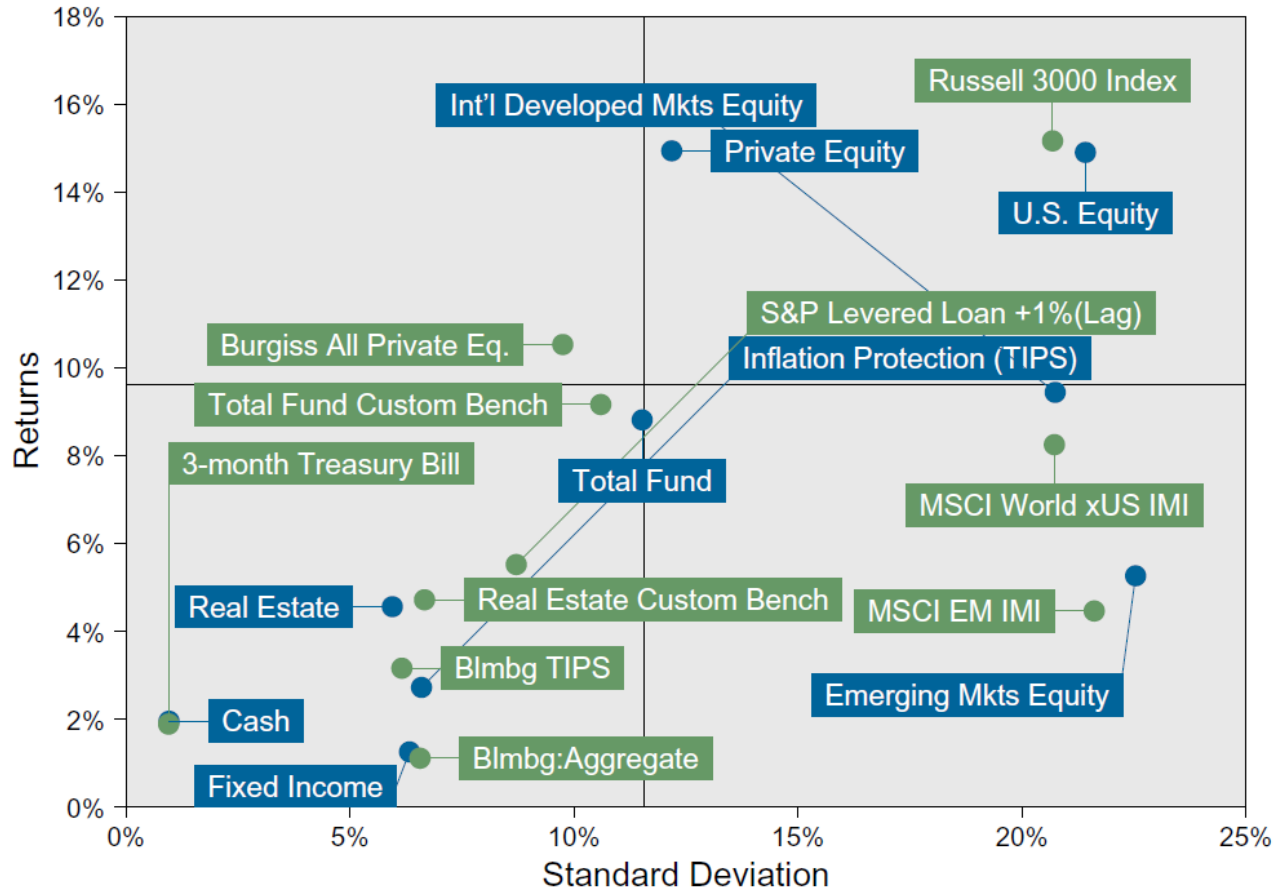


* Current Quarter Target = 22% Bloomberg U.S. Agg Bond Index, 16% SERS Private Equity Composite, 31% Russell 3000 Index, 14% MSCI World ex US IMI Index, 7% NCREIF NFI-ODCE (Quarter lag), 5% MSCI Emerging Markets IMI Index, 3% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index.

Total Fund

Asset Class Risk and Return as of December 31, 2023

Five Year Annualized Risk vs Return
Asset Classes vs Benchmark Indices



* Current Quarter Target = 22% Bloomberg U.S. Agg Bond Index, 16% SERS Private Equity Composite, 31% Russell 3000 Index, 14% MSCI World ex US IMI Index, 7% NCREIF NFI-ODCE (Quarter lag), 5% MSCI Emerging Markets IMI Index, 3% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index.

Total Fund

Rolling 3-year Gross of Fee Performance versus Benchmark as of December 31, 2023

Rolling 12 Quarter Gross of Fee Returns
for 15 Years Ended December 31, 2023

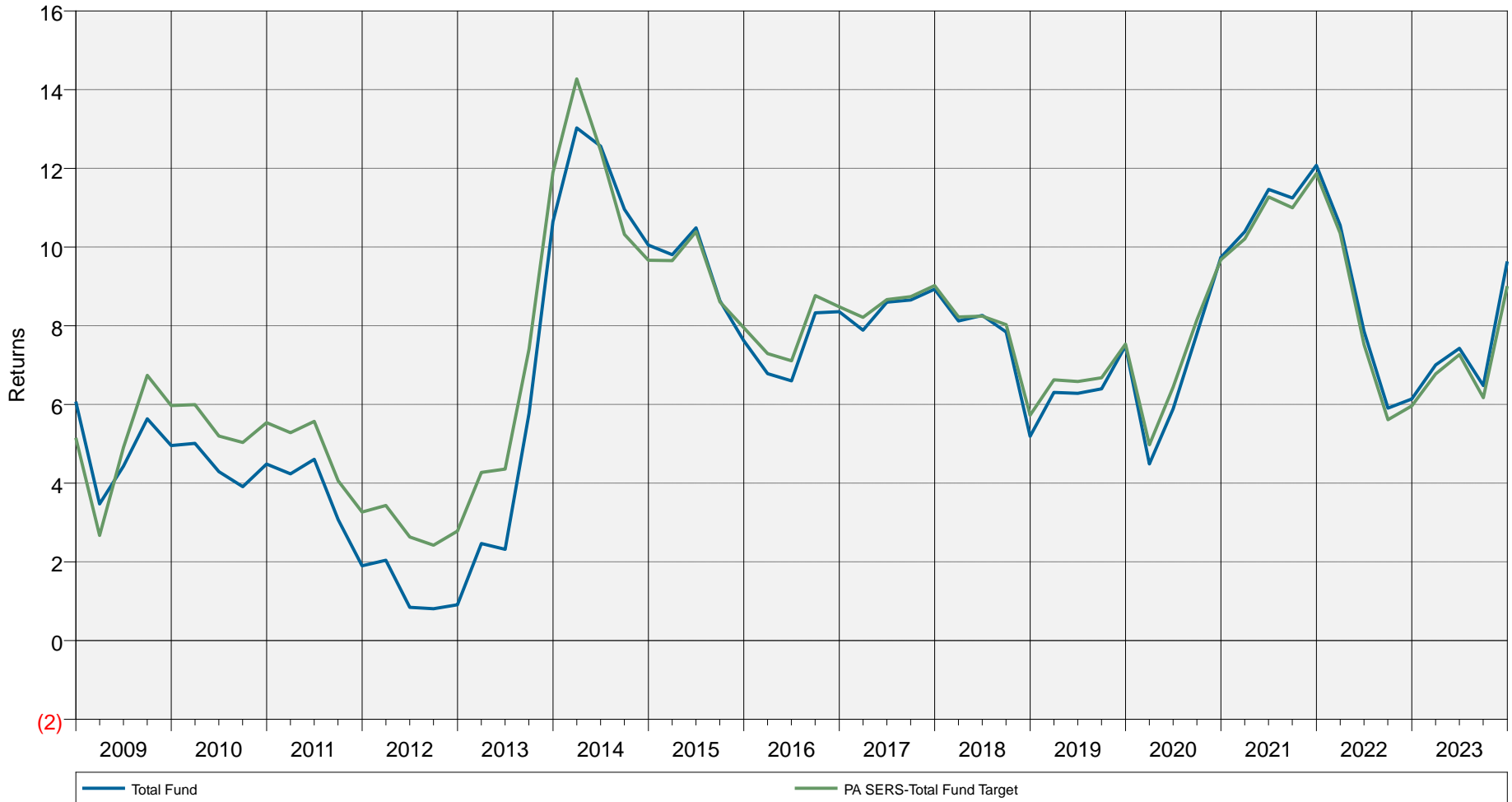


* Current Quarter Target = 22% Bloomberg U.S. Agg Bond Index, 16% SERS Private Equity Composite, 31% Russell 3000 Index, 14% MSCI World ex US IMI Index, 7% NCREIF NFI-ODCE (Quarter lag), 5% MSCI Emerging Markets IMI Index, 3% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index.

Total Fund

Rolling 5-year Gross of Fee Performance versus Benchmark as of December 31, 2023

Rolling 20 Quarter Gross of Fee Returns
for 15 Years Ended December 31, 2023



* Current Quarter Target = 22% Bloomberg U.S. Agg Bond Index, 16% SERS Private Equity Composite, 31% Russell 3000 Index, 14% MSCI World ex US IMI Index, 7% NCREIF NFI-ODCE (Quarter lag), 5% MSCI Emerging Markets IMI Index, 3% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index.

Asset Class Returns

As of December 31, 2023

	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last 3 Years	Last 5 Years
Net Performance						
Total Fund	\$36,430	100.00%	6.78%	12.22%	4.95%	8.81%
Total Fund Custom Benchmark(1)	-	-	7.28%	12.74%	5.34%	9.16%
Public Market Equiv Benchmark(2)	-	-	7.04%	17.12%	4.73%	8.63%
60/40 Index(3)	-	-	9.42%	15.03%	2.04%	7.55%
U.S. Equity	\$11,668	32.03%	12.23%	25.56%	8.19%	14.90%
Russell 3000 Index (4)	-	-	12.07%	25.96%	8.54%	15.16%
S&P 1500 Index	-	-	11.78%	25.47%	9.83%	15.39%
Int'l Developed Mkts Equity	\$5,151	14.14%	10.61%	18.99%	4.94%	9.43%
MSCI World ex US IMI	-	-	10.52%	17.18%	3.73%	8.24%
Emerging Mkts Equity	\$1,662	4.56%	8.48%	11.40%	(5.06%)	5.26%
MSCI EM IMI	-	-	8.02%	11.67%	(3.71%)	4.46%
Private Equity	\$6,860	18.83%	0.61%	6.59%	15.64%	14.93%
Burgiss Private Equity Index (Qtr lag)	-	-	0.00%	0.03%	10.79%	10.52%
Global Equity + 3% (Qtr lag)(5)	-	-	(2.57%)	24.90%	12.22%	11.73%
Legacy Private Credit Funds (6)	\$393	1.08%	2.99%	10.85%	13.22%	10.18%
S&P Levered Loan Index + 1% (Qtr lag)	-	-	3.68%	14.06%	7.09%	5.51%
Fixed Income	\$6,473	17.77%	6.14%	5.57%	(2.80%)	1.25%
Blmbg U.S. Agg Bond Index	-	-	6.82%	5.53%	(3.31%)	1.10%
Inflation Protection (TIPS)	\$1,045	2.87%	4.92%	3.85%	(1.69%)	2.72%
Blmbg U.S. TIPS Index	-	-	4.71%	3.90%	(1.00%)	3.15%
Real Estate	\$2,518	6.91%	(2.35%)	(11.91%)	3.31%	4.55%
Real Estate Custom Bench (Qtr lag)(7)	-	-	(2.12%)	(13.08%)	6.23%	4.71%
CPI + 3% (Qtr lag)	-	-	1.60%	6.70%	8.75%	7.05%
Cash	\$644	1.77%	1.36%	5.14%	2.26%	1.95%
3-month Treasury Bill	-	-	1.37%	5.01%	2.15%	1.88%

* All returns on this report are shown with 2- decimal precision. This may differ from the decimal precision shown in BNY Mellon reports.

(1) Current Quarter Target = 22% Bloomberg U.S. Agg Bond Index, 16% SERS Private Equity Composite, 31% Russell 3000 Index, 14% MSCI World ex US IMI Index, 7% NCREIF NFI-ODCE (Quarter lag), 5% MSCI Emerging Markets IMI Index, 3% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index. See page 77 for full benchmark history.

(2) The current public equivalent benchmark consists of: 22% Bloomberg U.S. Agg Bond Index, 31% Russell 3000, 14% MSCI World ex US IMI Index, 12% Russell 3000+ 3% (Qtr lag), 7% CPI+3% (Qtr Lag), 3% Bloomberg US TIPS Index, 5% MSCI EM IMI Index, 4% MSCI World ex US +3% (Qtr lag), 2% ICE BofAML 3 Mo US T-Bill Index. See page 77 for full benchmark history.

(3) Benchmark consists of 60% MSCI ACW IMI Index and 40% Bloomberg U.S. Agg Bond Index.

(4) Benchmark history is a blend of current and past benchmark indices. History prior to 12/31/2018 is provided by RVK.

(5) As of 01/01/2020 benchmark consists of 25% MSCI World ex US +3% (Qtr lag) and 75% Russell 3000 + 3% (Qtr lag). Benchmark performance represents the historical benchmark (Russell 3000 +3% Qtr lag) linked to the current benchmark.

(6) Legacy Private Credit performance is included in the total fund starting at the composite's true inception date, 07/01/2022. The history is calculated and shown for informational purposes.

(7) As of 07/01/2022, the benchmark consists of 100% NCREIF NFI-ODCE (Qtr lag). From 03/31/2019 to 07/01/2022, the benchmark consists of 90% NCREIF ODCE Index (Qtr lag) and 10% FTSE NAREIT Index (unlagged).

Asset Class Returns

As of December 31, 2023

	Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception
Net Performance					
Total Fund	6.66%	7.70%	7.05%	6.55%	9.26% ^(1/81)
Total Fund Custom Benchmark(1)	7.43%	8.90%	7.95%	6.98%	-
Public Market Equiv Benchmark(2)	7.39%	8.98%	8.01%	7.03%	-
60/40 Index(3)	5.59%	7.51%	6.16%	5.63%	-
U.S. Equity	10.63%	13.33%	8.96%	7.46%	10.79% ^(1/81)
Russell 3000 Index (4)	11.48%	13.84%	9.67%	7.74%	11.09% ^(1/81)
S&P 1500 Index	11.76%	13.91%	9.74%	7.80%	-
Int'l Developed Mkts Equity	5.10%	8.27%	6.03%	-	6.35% ^(1/02)
MSCI World ex US IMI	4.35%	7.20%	5.86%	4.92%	6.26% ^(1/02)
Emerging Mkts Equity	3.41%	5.97%	5.18%	-	6.43% ^(1/02)
MSCI EM IMI	3.00%	6.97%	7.11%	7.33%	8.22% ^(1/02)
Private Equity	12.53%	11.24%	12.75%	12.09%	11.46% ^(1/86)
Burgiss Private Equity Index (Qtr lag)	11.85%	10.91%	12.91%	12.55%	16.25% ^(1/86)
Global Equity + 3% (Qtr lag)(5)	14.15%	14.26%	12.90%	11.39%	14.35% ^(1/86)
Legacy Private Credit Funds (6)	-	-	-	-	10.31% ^(4/18)
S&P Levered Loan Index + 1% (Qtr lag)	-	-	-	-	5.63% ^(4/18)
Fixed Income	1.87%	4.88%	3.97%	4.44%	7.52% ^(1/81)
Bimbg U.S. Agg Bond Index	1.81%	2.68%	3.17%	3.85%	6.83% ^(1/81)
Inflation Protection (TIPS)	2.23%	2.84%	2.87%	-	2.89% ^(2/03)
Bimbg U.S. TIPS Index	2.42%	3.48%	3.63%	4.79%	3.83% ^(2/03)
Real Estate	4.60%	3.03%	5.66%	6.30%	7.83% ^(3/84)
Real Estate Custom Bench (Qtr lag)(7)	7.01%	4.97%	6.89%	7.26%	-
CPI + 3% (Qtr lag)	5.77%	5.30%	5.57%	5.56%	5.83% ^(3/84)
Cash	1.51%	1.11%	1.73%	2.21%	3.44% ^(1/87)
3-month Treasury Bill	1.25%	0.87%	1.46%	1.90%	3.17% ^(1/87)

* All returns on this report are shown with 2- decimal precision. This may differ from the decimal precision shown in BNY Mellon reports.

(1)The current total fund benchmark consists of: 22% Bloomberg U.S. Agg Bond Index, 16% SERS Private Equity Composite, 31% Russell 3000 Index, 14% MSCI World ex US IMI Index, 7% NCREIF NFI-ODCE (Qtr lag), 5% MSCI Emerging Markets IMI Index, 3% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index. See page 77 for full benchmark history.

(2) The current public equivalent benchmark consists of: 22% Bloomberg U.S. Agg Bond Index, 31% Russell 3000, 14% MSCI World ex US IMI Index, 12% Russell 3000+ 3% (Qtr lag), 7% CPI+3% (Qtr Lag), 3% Bloomberg US TIPS Index, 5% MSCI EM IMI Index, 4% MSCI World ex US +3% (Qtr lag), 2% ICE BofAML 3 Mo US T-Bill Index. See page 77 for full benchmark history.

(3) Benchmark consists of 60% MSCI ACW IMI Index and 40% Bloomberg U.S. Agg Bond Index

(4) Benchmark history is a blend of current and past benchmark indices. History prior to 12/31/2018 is provided by RVK.

(5) As of 01/01/2020 benchmark consists of 25% MSCI World ex US +3% (Qtr lag) and 75% Russell 3000 + 3% (Qtr lag). Benchmark performance represents the historical benchmark (Russell 3000 +3% Qtr lag) linked to the current benchmark.

(6) Legacy Private Credit performance is included in the total fund starting at the composite's true inception date, 07/01/2022. The history is calculated and shown for informational purposes.

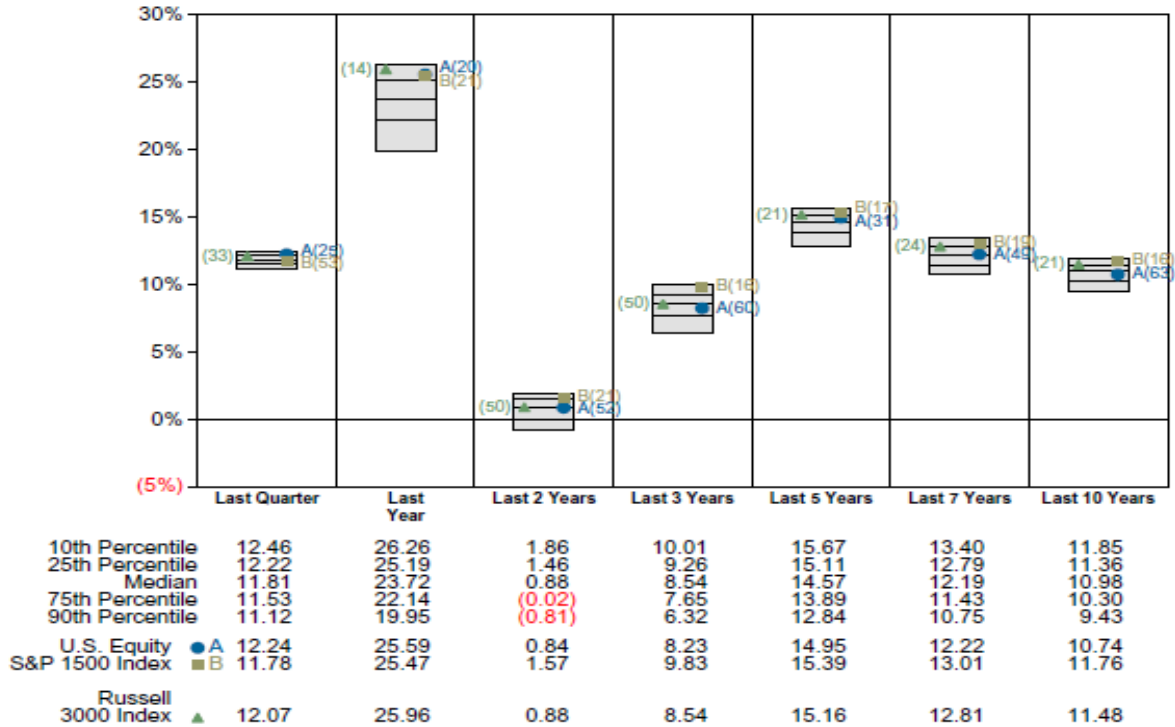
(7) As of 07/01/2022, the benchmark consists of 100% NCREIF NFI-ODCE (Qtr lag). From 03/31/2019 to 07/01/2022 the benchmark consists of 90% NCREIF ODCE Index (Qtr lag) and 10% FTSE NAREIT Index (unlagged).

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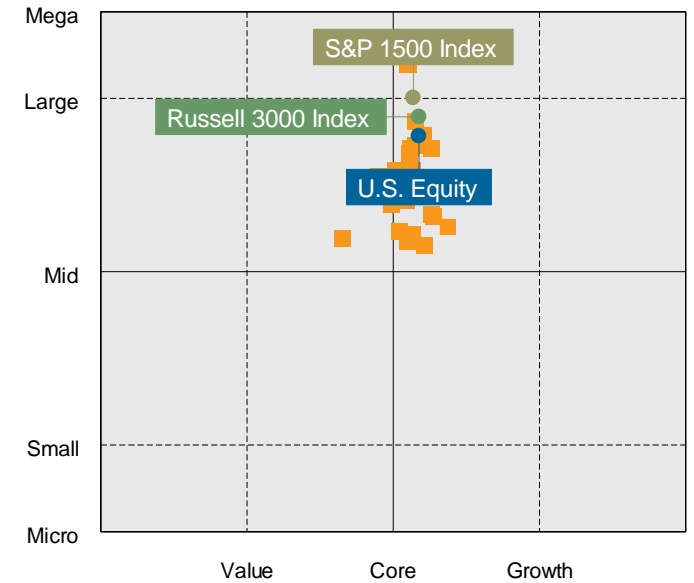
**Appendix I – Asset Class and Manager
Performance**

U.S. Equity as of December 31, 2023

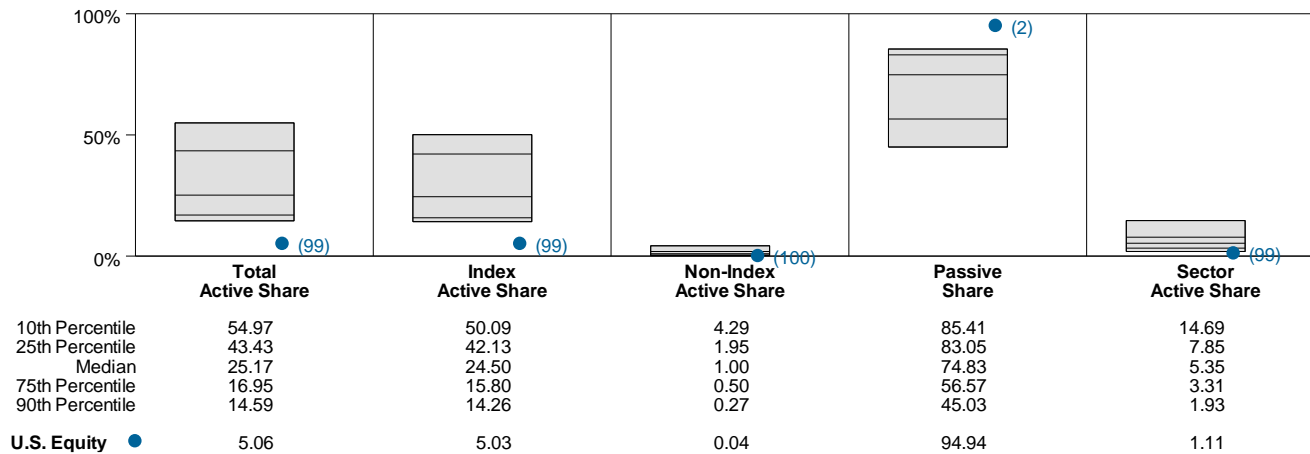
Performance vs Public Fund - Domestic Equity (Gross)



Style Map vs Pub Pln- Dom Equity Holdings as of December 31, 2023

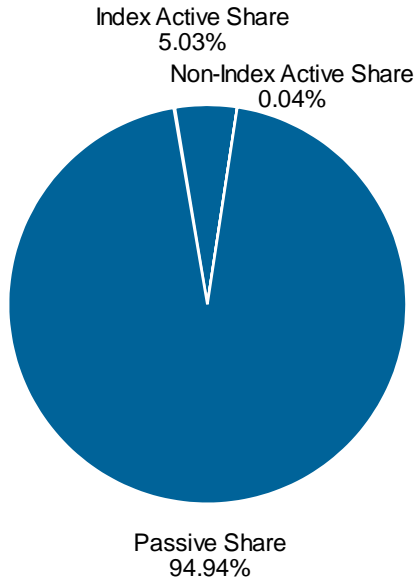


Active Share vs. Pub Pln- Dom Equity

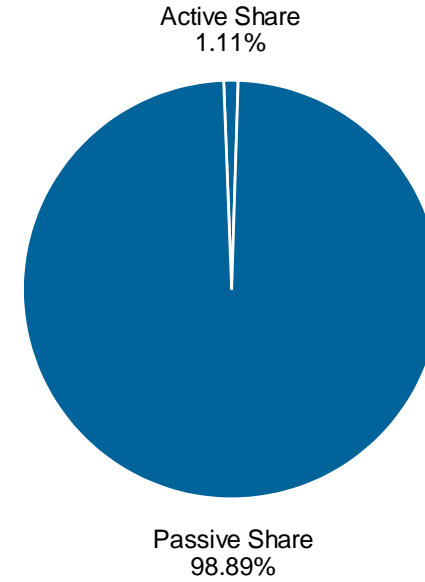


U.S. Equity as of December 31, 2023

Holdings-Level Active Share



Sector Exposure Active Share



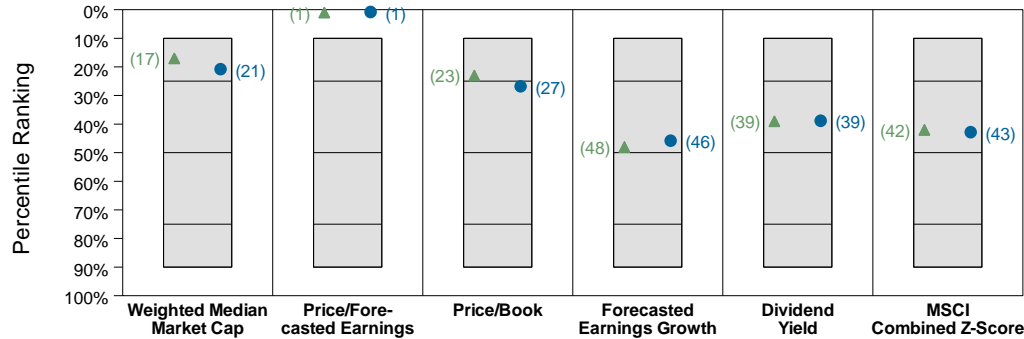
Total Active Share: 5.06%

	Index Active Share Within Sector	Non-Index Active Share Within Sector	Total Active Share Within Sector	Index Weight	Manager Weight	Contribution to Total Portfolio Active Share
Communication Services	1.14%	0.00%	1.14%	7.99%	7.68%	0.23%
Consumer Discretionary	4.68%	0.11%	4.80%	10.93%	10.87%	0.54%
Consumer Staples	3.47%	0.00%	3.47%	5.68%	5.61%	0.24%
Energy	7.12%	0.00%	7.12%	4.00%	4.13%	0.24%
Financials	6.09%	0.06%	6.15%	13.70%	13.93%	0.75%
Health Care	8.16%	0.06%	8.22%	12.59%	13.00%	0.89%
Industrials	7.49%	0.00%	7.49%	9.95%	10.16%	0.68%
Information Technology	2.77%	0.00%	2.77%	27.12%	26.48%	1.04%
Materials	6.97%	0.00%	6.97%	2.73%	2.76%	0.17%
Miscellaneous	0.00%	100.00%	100.00%	-	0.00%	0.00%
Pooled Vehicles	0.00%	100.00%	100.00%	-	0.01%	0.01%
Real Estate	7.22%	0.00%	7.22%	3.04%	3.13%	0.18%
Utilities	3.07%	0.00%	3.07%	2.27%	2.24%	0.09%
Total	5.03%	0.04%	5.06%	100.00%	100.00%	5.06%

U.S. Equity

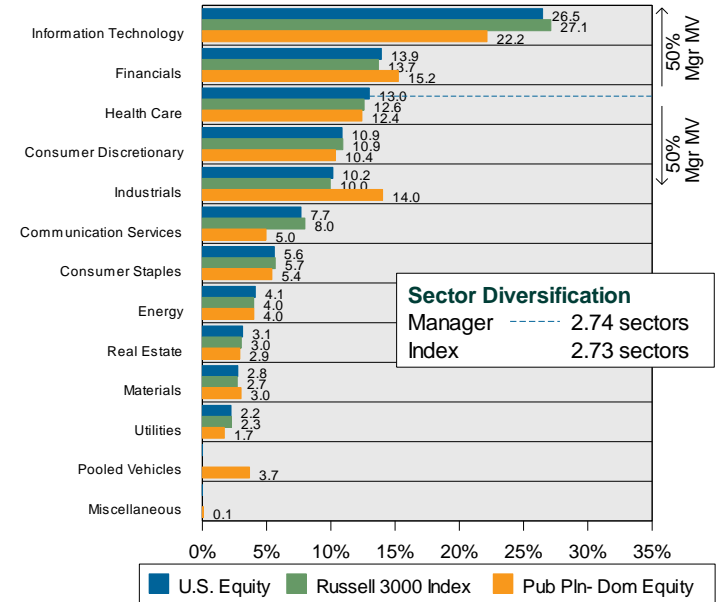
As of December 31, 2023

Portfolio Characteristics Percentile Rankings
Rankings Against Public Fund - Domestic Equity
as of December 31, 2023

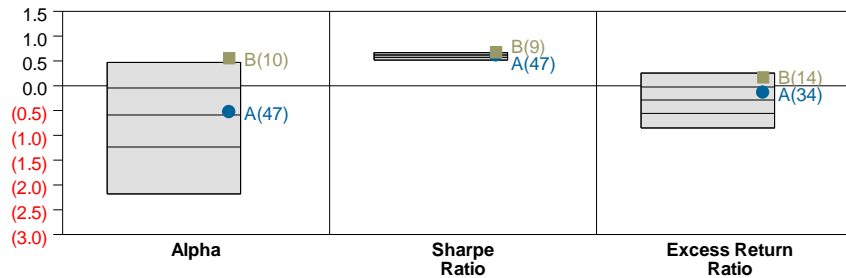


	Weighted Median Market Cap	Price/Forecasted Earnings	Price/Book	Forecasted Earnings Growth	Dividend Yield	MSCI Combined Z-Score
10th Percentile	208.52	19.70	4.03	15.45	1.50	0.10
25th Percentile	118.50	19.59	3.62	14.83	1.47	0.04
Median	94.68	19.15	3.33	14.42	1.37	(0.02)
75th Percentile	61.36	18.48	3.12	14.22	1.30	(0.05)
90th Percentile	42.51	16.93	2.73	13.17	1.20	(0.13)
U.S. Equity	● 127.02	● 20.15	● 3.54	● 14.57	● 1.42	● (0.01)
Russell 3000 Index	▲ 142.88	▲ 19.99	▲ 3.68	▲ 14.49	▲ 1.43	▲ (0.01)

Sector Allocation December 31, 2023



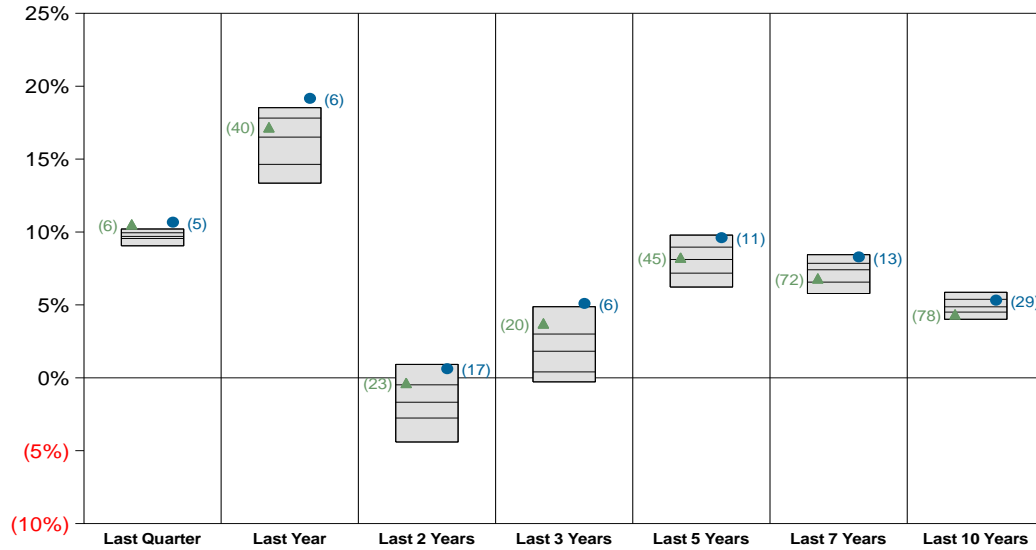
Risk Adjusted Return Measures vs Russell 3000 Index Rankings Against Public Fund - Domestic Equity (Gross) Five Years Ended December 31, 2023



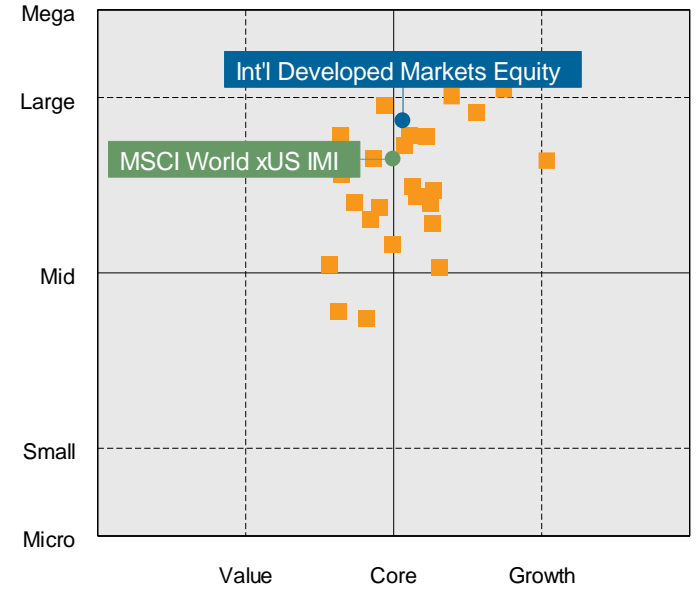
	Alpha	Sharpe Ratio	Excess Return Ratio
10th Percentile	0.47	0.67	0.26
25th Percentile	(0.05)	0.64	(0.02)
Median	(0.59)	0.61	(0.29)
75th Percentile	(1.24)	0.57	(0.56)
90th Percentile	(2.18)	0.52	(0.85)
U.S. Equity	● A	0.61	(0.14)
S&P 1500 Index	■ B	0.67	0.17

International Equity as of December 31, 2023

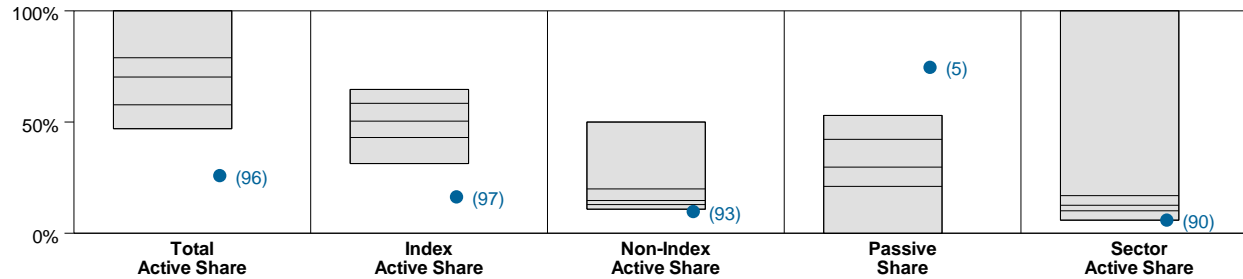
Performance vs Public Fund - International Equity (Gross)



Style Map vs Pub Pln- Intl Equity Holdings as of December 31, 2023

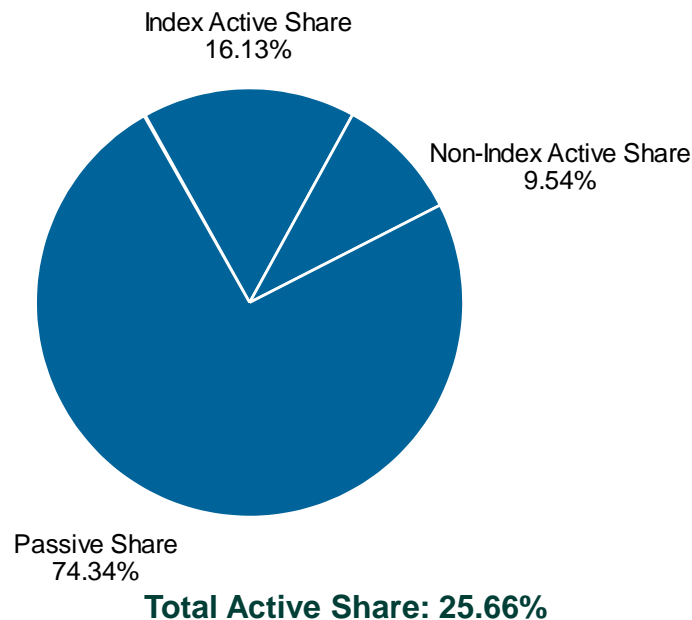


Active Share vs. Pub Pln- Intl Equity

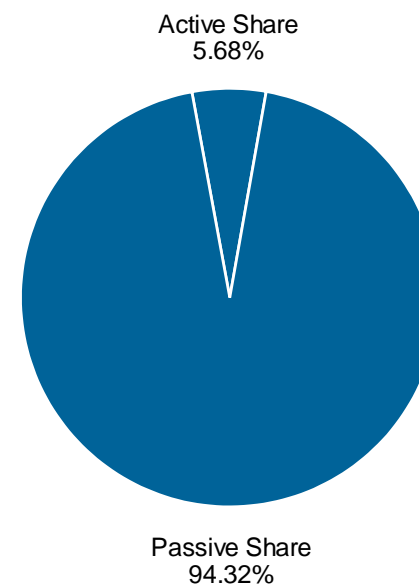


International Equity as of December 31, 2023

Holdings-Level Active Share



Sector Exposure Active Share

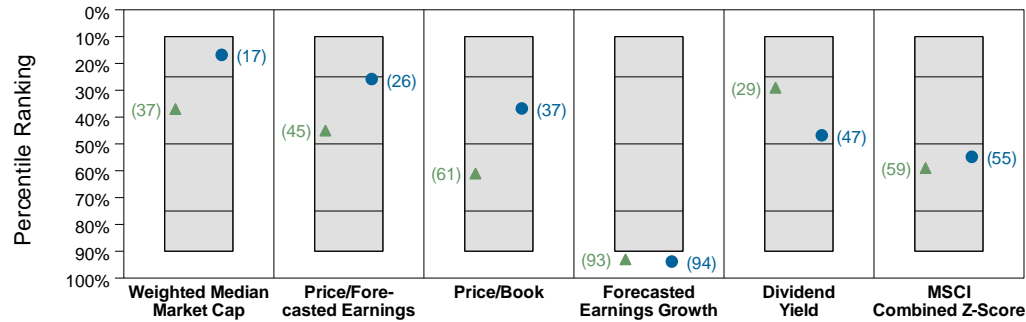


	Index Active Share Within Sector	Non-Index Active Share Within Sector	Total Active Share Within Sector	Index Weight	Manager Weight	Contribution to Total Portfolio Active Share
Communication Services	14.67%	8.80%	23.46%	3.81%	4.06%	0.84%
Consumer Discretionary	19.22%	9.19%	28.42%	11.11%	11.81%	3.11%
Consumer Staples	12.23%	7.22%	19.45%	8.44%	8.77%	1.59%
Energy	22.32%	14.95%	37.27%	5.63%	4.71%	1.93%
Financials	8.72%	3.72%	12.44%	19.45%	17.92%	2.91%
Health Care	20.74%	17.37%	38.10%	10.68%	11.86%	4.05%
Industrials	18.17%	7.91%	26.07%	16.88%	16.49%	4.46%
Information Technology	20.45%	16.06%	36.52%	8.80%	11.48%	3.23%
Materials	14.22%	3.97%	18.19%	8.45%	7.45%	1.61%
Miscellaneous	50.00%	50.00%	100.00%	-	0.54%	0.27%
Pooled Vehicles	0.00%	100.00%	100.00%	-	0.00%	0.00%
Real Estate	35.85%	8.90%	44.74%	3.38%	2.11%	1.05%
Utilities	14.01%	4.60%	18.62%	3.36%	2.80%	0.59%
Total	16.13%	9.54%	25.66%	100.00%	100.00%	25.65%

International Equity

As of December 31, 2023

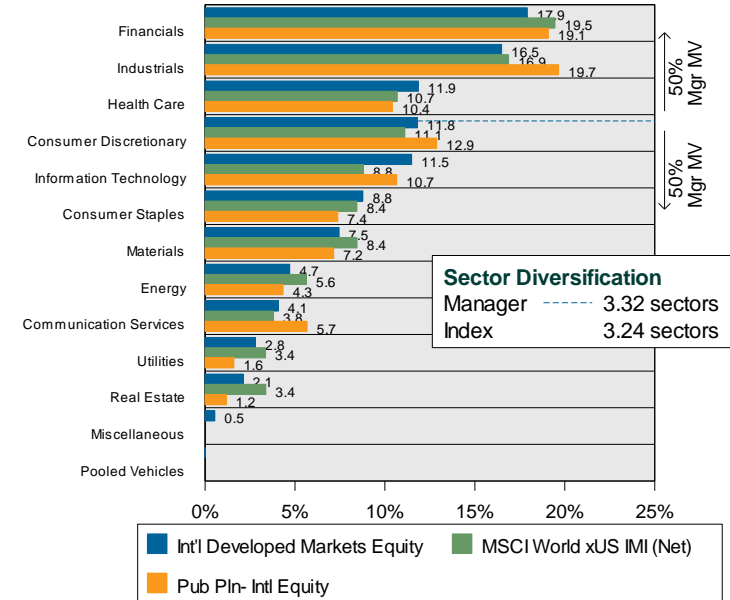
Portfolio Characteristics Percentile Rankings
Rankings Against Public Fund - International Equity
as of December 31, 2023



10th Percentile	48.19	16.37	2.73	15.47	3.47	0.62
25th Percentile	40.94	14.25	2.18	14.21	3.11	0.31
Median	31.00	12.96	1.76	12.91	2.54	0.16
75th Percentile	24.64	11.17	1.45	12.34	2.27	(0.06)
90th Percentile	14.26	10.35	1.28	11.23	2.02	(0.23)

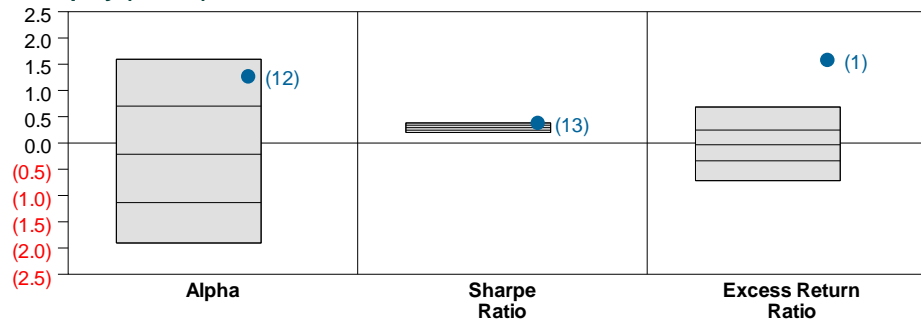
Int'l Developed Markets Equity	●	43.88	14.14	1.91	10.93	2.59	0.10
MSCI World xUS IMI (Net)	▲	36.64	13.41	1.70	11.11	2.99	0.05

Sector Allocation December 31, 2023



Sector Diversification
Manager 3.32 sectors
Index 3.24 sectors

Risk Adjusted Return Measures vs MSCI World xUS IMI
Rankings Against Public Fund - International Equity (Gross)
Five Years Ended December 31, 2023

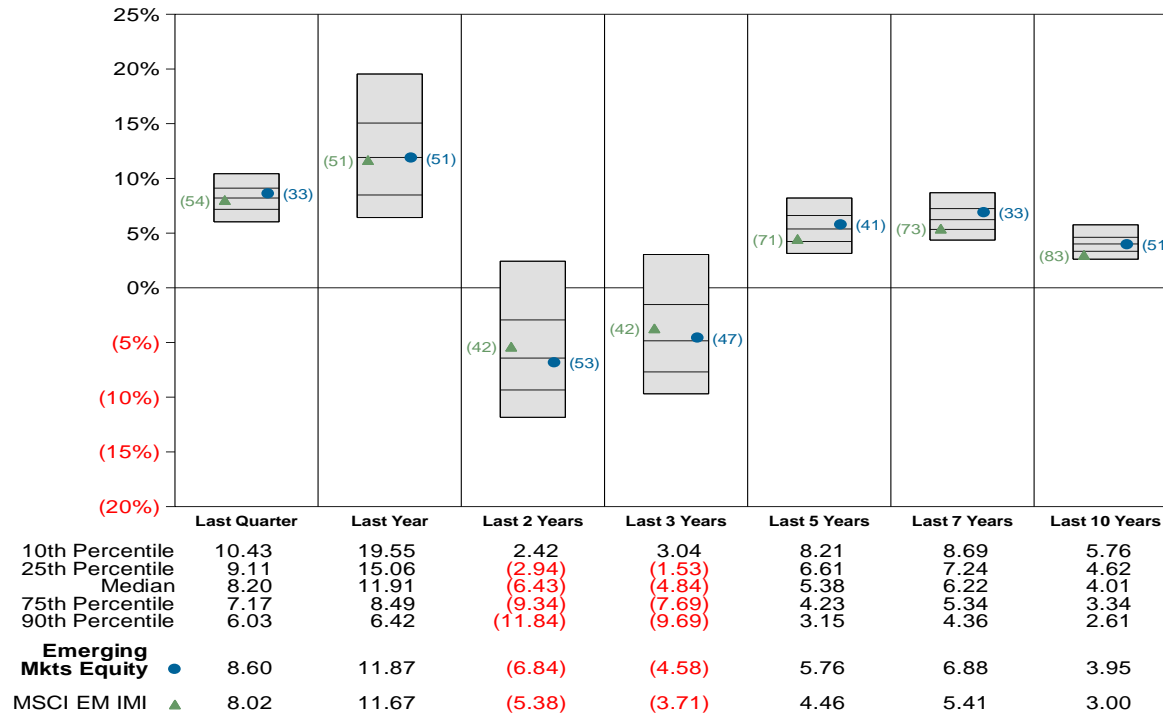


10th Percentile	1.59	0.38	0.69
25th Percentile	0.70	0.34	0.25
Median	(0.21)	0.29	(0.03)
75th Percentile	(1.13)	0.24	(0.34)
90th Percentile	(1.91)	0.20	(0.72)

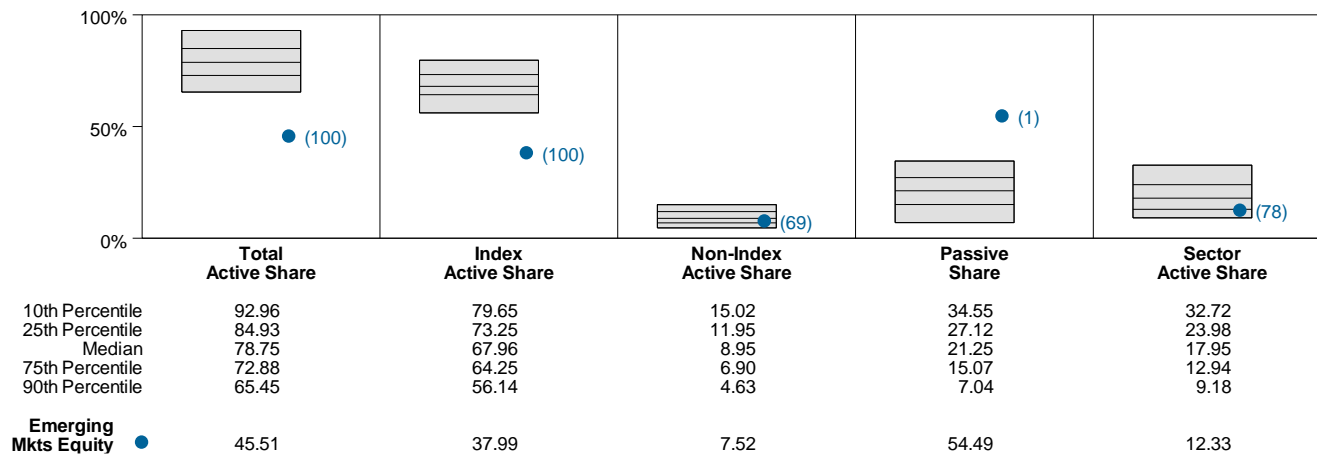
Int'l Developed Markets Equity	●	1.26	0.37	1.57
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Emerging Markets Equity as of December 31, 2023

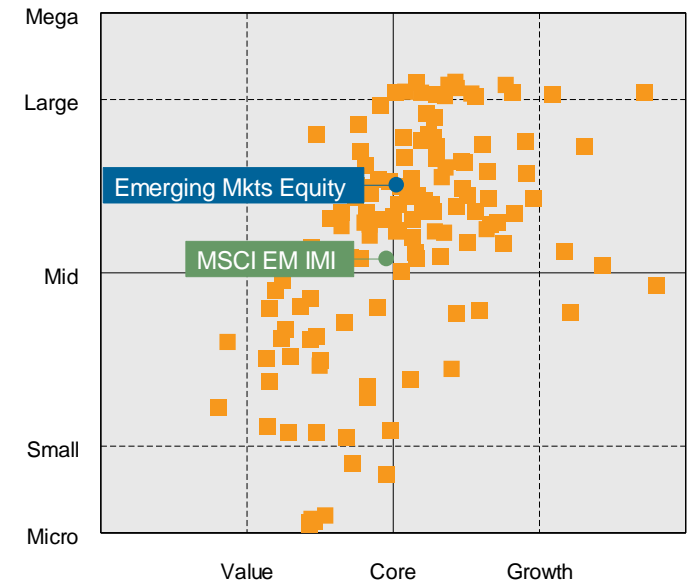
Performance vs Callan Emerging Broad (Gross)



Active Share vs. Callan Emerging Broad

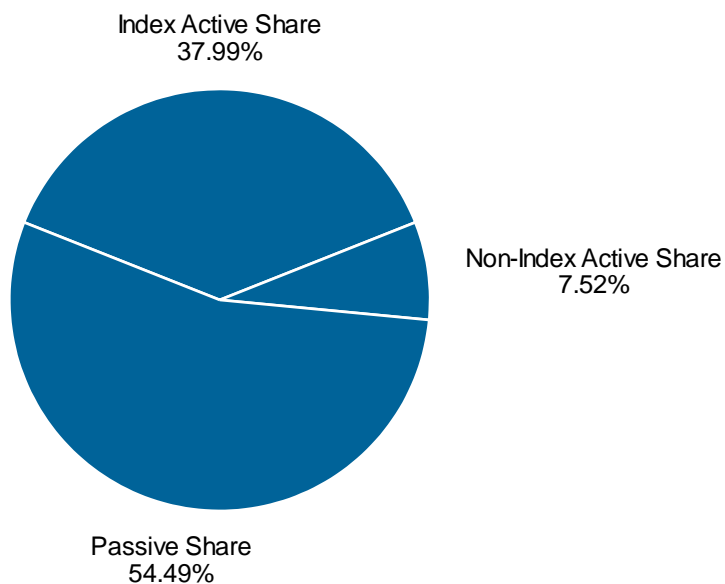


Style Map vs Callan Emerging Broad Holdings as of December 31, 2023

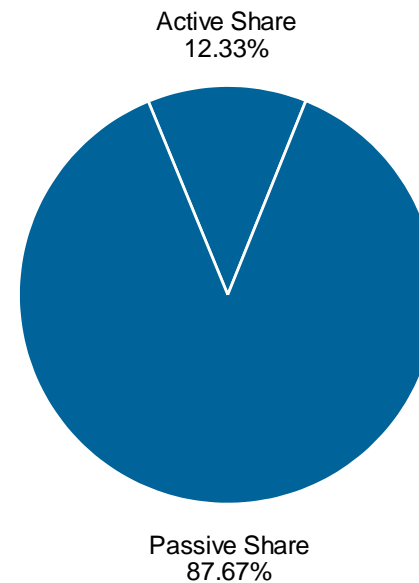


Emerging Markets Equity as of December 31, 2023

Holdings-Level Active Share



Sector Exposure Active Share



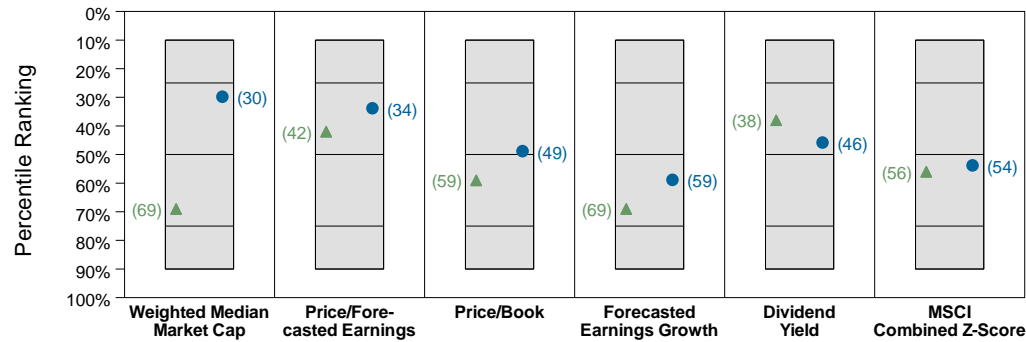
Total Active Share: 45.51%

	Index Active Share Within Sector	Non-Index Active Share Within Sector	Total Active Share Within Sector	Index Weight	Manager Weight	Contribution to Total Portfolio Active Share
Communication Services	42.32%	4.90%	47.22%	8.11%	8.03%	3.83%
Consumer Discretionary	33.10%	13.23%	46.33%	12.61%	10.52%	5.72%
Consumer Staples	46.69%	4.27%	50.97%	6.07%	6.88%	3.25%
Energy	32.81%	6.21%	39.03%	4.66%	5.82%	1.75%
Financials	35.81%	4.32%	40.13%	20.66%	18.74%	8.20%
Health Care	46.92%	10.57%	57.49%	4.56%	3.32%	2.39%
Industrials	51.57%	3.73%	55.30%	8.20%	5.86%	4.19%
Information Technology	30.06%	2.89%	32.95%	21.50%	27.27%	7.93%
Materials	38.91%	8.10%	47.01%	8.54%	6.72%	3.83%
Miscellaneous	50.00%	50.27%	100.27%	-	1.62%	0.79%
Pooled Vehicles	50.00%	50.00%	100.00%	-	2.97%	1.49%
Real Estate	36.30%	5.49%	41.79%	2.29%	0.86%	0.94%
Utilities	34.29%	2.71%	36.99%	2.81%	1.39%	1.12%
Total	37.99%	7.52%	45.51%	100.00%	100.00%	45.42%

Emerging Markets Equity

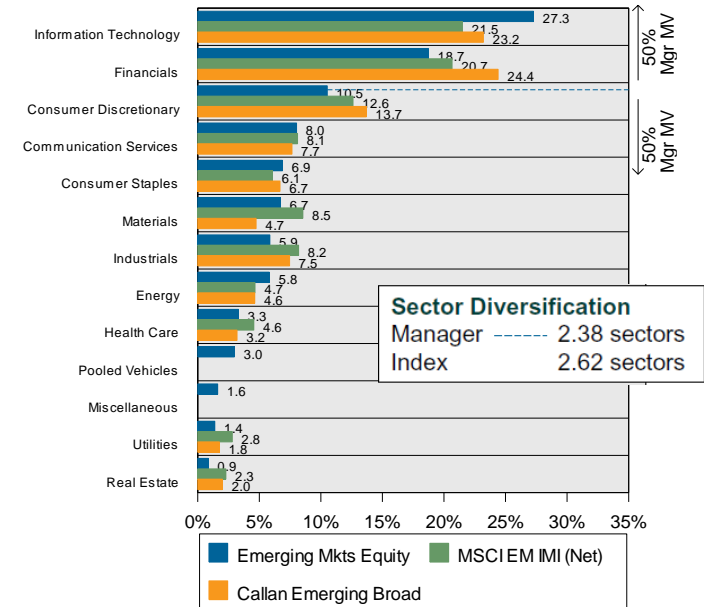
As of December 31, 2023

Portfolio Characteristics Percentile Rankings
Rankings Against Callan Emerging Broad
as of December 31, 2023

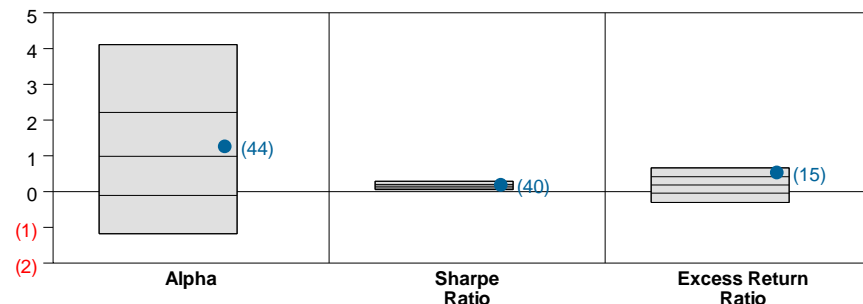


10th Percentile	53.70	17.26	3.40	24.05	4.25	0.70
25th Percentile	35.03	13.75	2.31	20.31	3.37	0.39
Median	24.47	11.26	1.63	17.56	2.44	0.12
75th Percentile	13.44	9.41	1.33	14.44	1.75	(0.24)
90th Percentile	6.15	7.81	1.00	11.61	1.24	(0.54)
Emerging Mkts Equity	31.91	12.74	1.67	16.88	2.52	0.07
MSCI EM IMI (Net)	17.82	11.81	1.49	15.59	2.76	0.01

Sector Allocation December 31, 2023



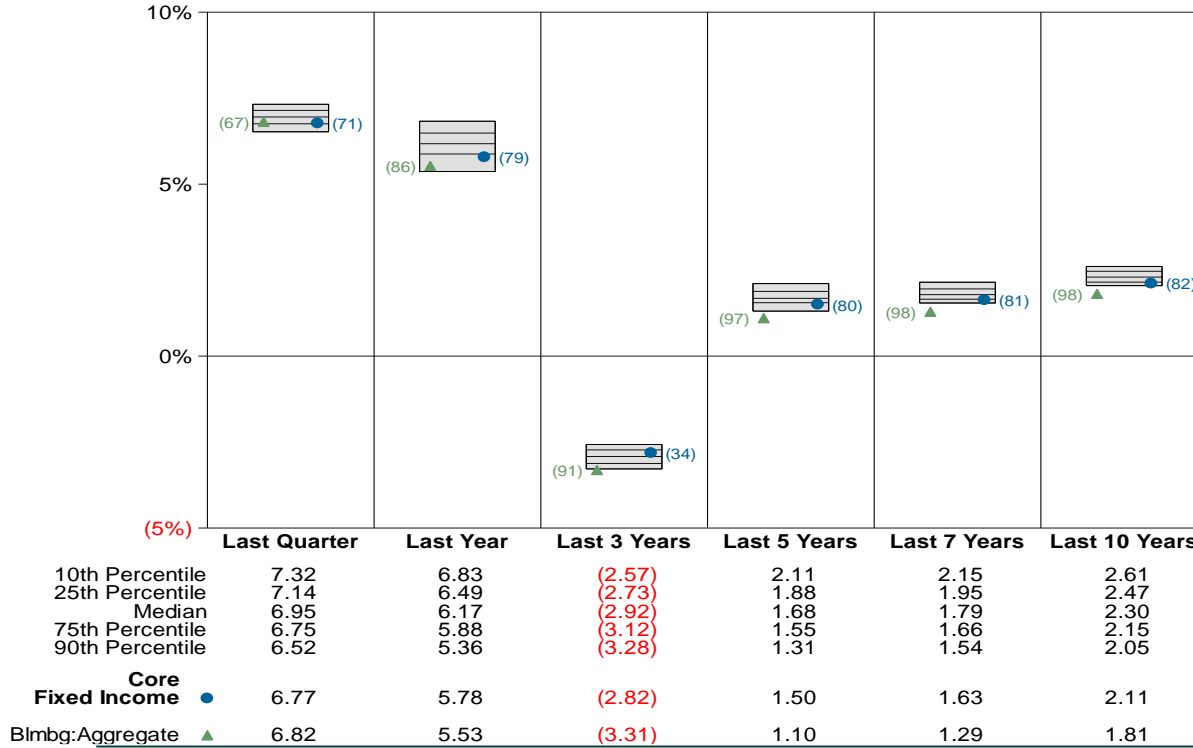
Risk Adjusted Return Measures vs MSCI EM IMI
Rankings Against Callan Emerging Broad (Gross)
Five Years Ended December 31, 2023



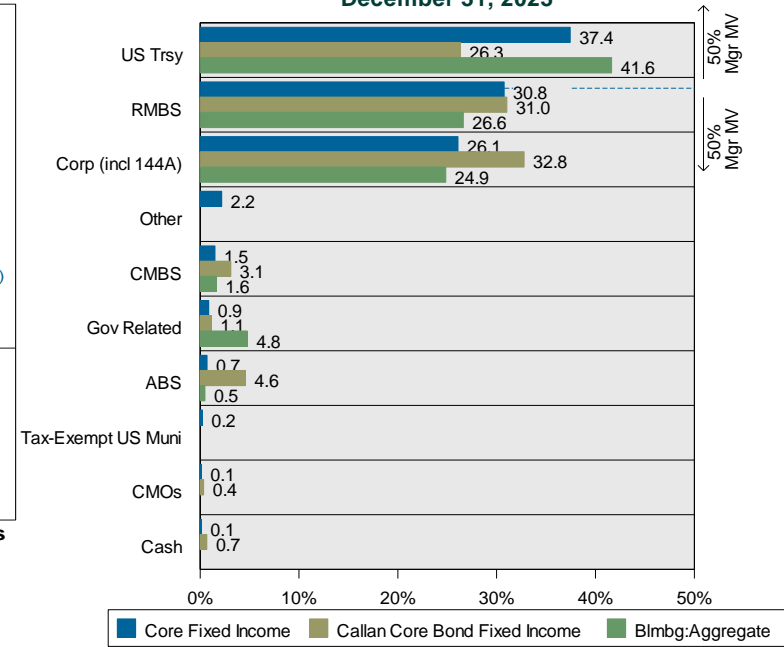
10th Percentile	4.11	0.29	0.66
25th Percentile	2.21	0.20	0.42
Median	0.99	0.15	0.19
75th Percentile	(0.11)	0.10	(0.04)
90th Percentile	(1.18)	0.05	(0.31)
Emerging Mkts Equity	1.25	0.17	0.52

Core Fixed Income As of December 31, 2023

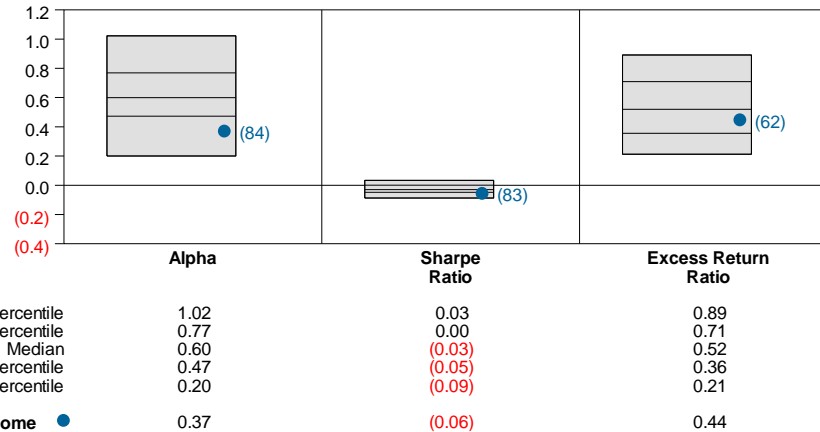
Performance vs Callan Core Bond Fixed Income (Gross)



Sector Allocation December 31, 2023



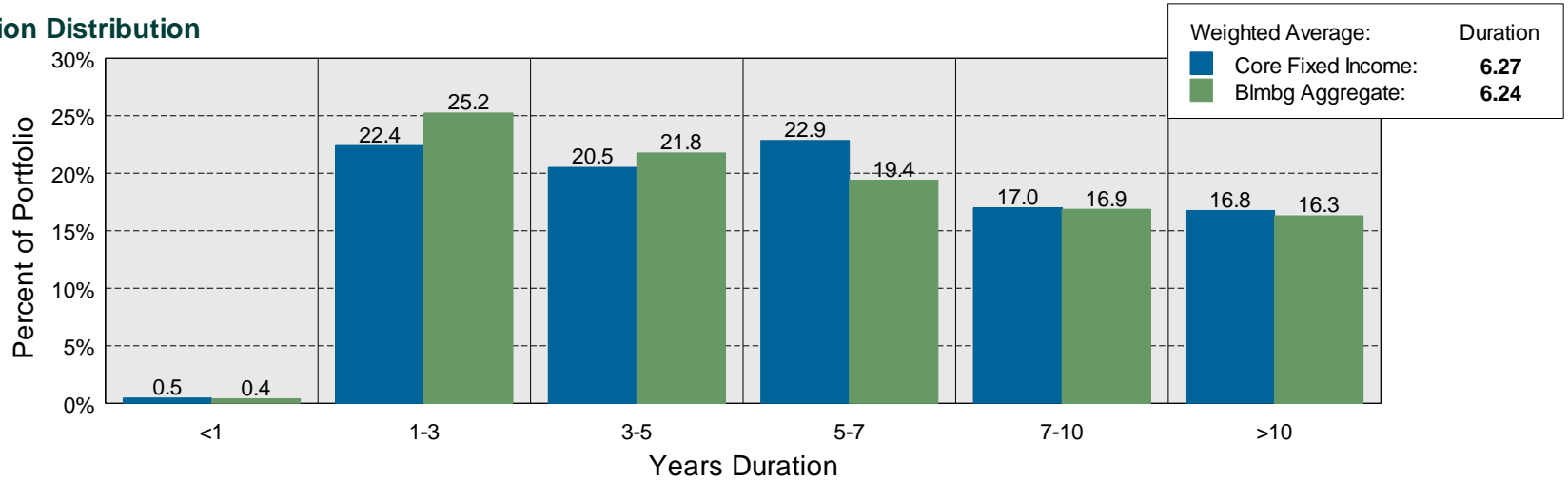
Risk Adjusted Return Measures vs Blmbg:Aggregate Rankings Against Callan Core Bond Fixed Income (Gross) Five Years Ended December 31, 2023



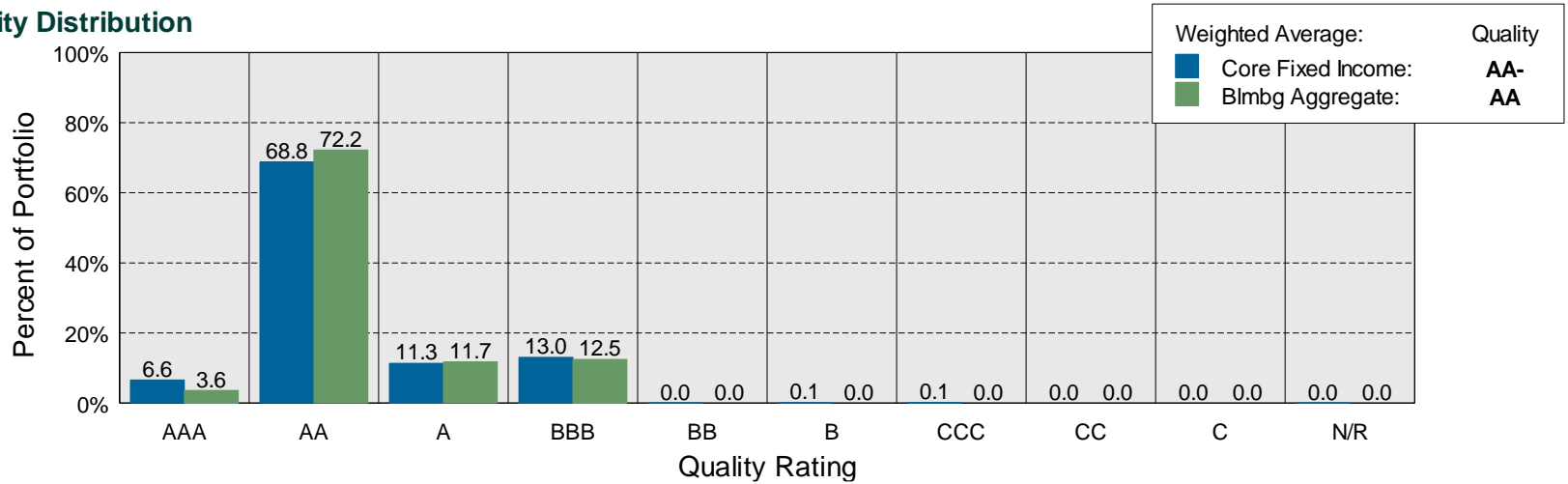
Core Fixed Income

As of December 31, 2023

Duration Distribution

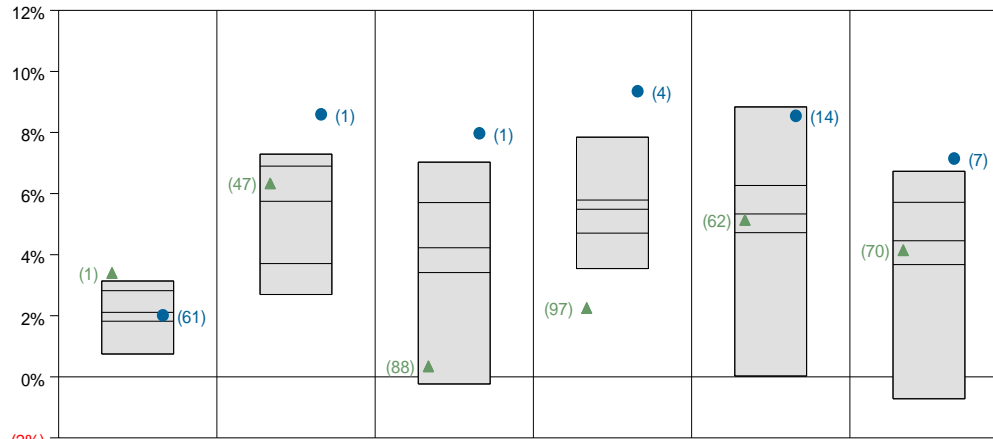


Quality Distribution



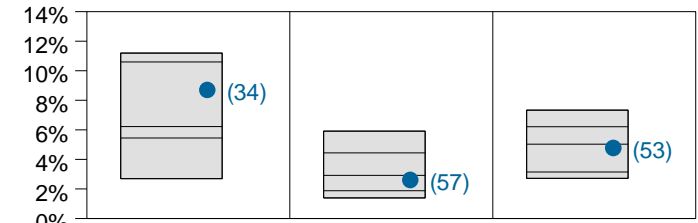
Opportunistic Fixed Income As of December 31, 2023

Performance vs Callan Absolute Rtn Hedge Fund of Funds (Net)



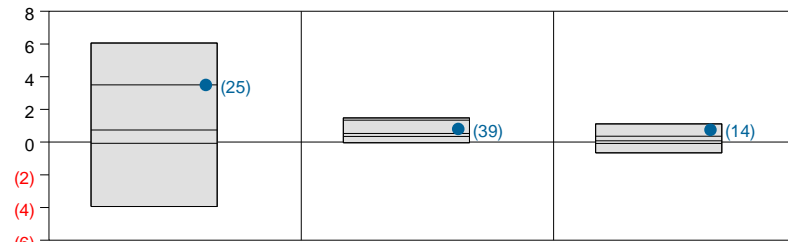
	Last Quarter	Last Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 7 Years
10th Percentile	3.14	7.29	7.03	7.85	8.84	6.73
25th Percentile	2.82	6.90	5.71	5.79	6.27	5.72
Median	2.11	5.75	4.23	5.49	5.34	4.45
75th Percentile	1.82	3.71	3.41	4.71	4.72	3.67
90th Percentile	0.75	2.69	(0.24)	3.55	0.02	(0.72)
Blackstone Keystone	2.00	8.58	7.96	9.33	8.53	7.13
HFRI Fund of Funds Composite Index	3.40	6.34	0.34	2.25	5.14	4.15

Risk Statistics Rankings vs HFRI Fund of Funds Composite Index Rankings Against Callan Absolute Rtn Hedge Fund of Funds (Net) Five Years Ended December 31, 2023



	Standard Deviation	Downside Risk	Tracking Error
10th Percentile	11.20	5.92	7.34
25th Percentile	10.60	4.44	6.21
Median	6.22	2.92	5.03
75th Percentile	5.45	1.89	3.15
90th Percentile	2.70	1.40	2.72
Blackstone Keystone	8.65	2.57	4.73

Risk Adjusted Return Measures vs HFRI Fund of Funds Composite Index Rankings Against Callan Absolute Rtn Hedge Fund of Funds (Net) Five Years Ended December 31, 2023



	Alpha	Sharpe Ratio	Excess Return Ratio
10th Percentile	6.05	1.48	1.11
25th Percentile	3.50	1.34	0.36
Median	0.74	0.53	0.08
75th Percentile	(0.07)	0.35	(0.08)
90th Percentile	(3.94)	(0.04)	(0.66)
Blackstone Keystone	3.46	0.77	0.72

Investment Manager Returns

As of December 31, 2023

	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last 3 Years	Last 5 Years	
Net Performance- Domestic Equity							
U.S. Equity	\$11,668	100.00%	12.23%	25.56%	8.19%	14.90%	
Russell 3000 Index (1)	-	-	12.07%	25.96%	8.54%	15.16%	
S&P 1500 Index	-	-	11.78%	25.47%	9.83%	15.39%	
MCM Russell 1000 Index	10,533	90.28%	11.97%	26.60%	9.16%	15.61%	
Russell 1000 Index	-	-	11.96%	26.53%	8.97%	15.52%	
S&P 500 Index	-	-	11.69%	26.29%	10.00%	15.69%	
MCM Russell 2000 Core Index	368	3.16%	13.97%	17.03%	2.99%	10.30%	
Russell 2000 Index	-	-	14.03%	16.93%	2.22%	9.97%	
S&P 600 Index	-	-	15.12%	16.05%	7.28%	11.03%	
MCM Russell 2000 Val Index	369	3.16%	15.24%	14.69%	8.04%	10.06%	
Russell 2000 Value Index	-	-	15.26%	14.65%	7.94%	10.00%	
S&P 600 Value Index	-	-	15.84%	14.89%	10.20%	11.31%	
Emerald Asset Management	397	3.41%	14.90%	18.59%	(2.39%)	10.56%	
Russell 2000 Growth Index	-	-	12.75%	18.66%	(3.50%)	9.22%	
S&P 600 Growth Index	-	-	14.28%	17.10%	4.26%	10.42%	
			Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception

Net Performance- Domestic Equity						
U.S. Equity	10.63%	13.33%	8.96%	7.46%	10.79%	(1/81)
Russell 3000 Index (1)	11.48%	13.84%	9.67%	7.74%	11.09%	(1/81)
S&P 1500 Index	11.76%	13.91%	9.74%	7.80%	-	
MCM Russell 1000 Index	11.87%	-	-	-	13.85%	(1/12)
Russell 1000 Index	11.80%	14.02%	9.78%	7.72%	13.83%	(1/12)
S&P 500 Index	12.03%	13.97%	9.69%	7.56%	13.93%	(1/12)
MCM Russell 2000 Core Index	-	-	-	-	7.88%	(12/16)
Russell 2000 Index	7.16%	11.30%	8.11%	7.91%	7.66%	(12/16)
S&P 600 Index	8.66%	12.74%	9.65%	9.65%	8.72%	(12/16)
MCM Russell 2000 Val Index	-	-	-	-	6.66%	(12/16)
Russell 2000 Value Index	6.76%	10.27%	7.68%	8.58%	6.63%	(12/16)
S&P 600 Value Index	8.17%	12.02%	9.11%	9.49%	7.94%	(12/16)
Emerald Asset Management	-	-	-	-	9.29%	(12/16)
Russell 2000 Growth Index	7.16%	12.07%	8.28%	6.75%	8.18%	(12/16)
S&P 600 Growth Index	8.96%	13.36%	10.09%	9.40%	9.25%	(12/16)

* All returns on this report are shown with 2- decimal precision. This may differ from the decimal precision shown in BNY Mellon reports.

** Market values may not sum as a result of accounts funded within the quarter or accounts in the process of liquidation. The market values and performance of such accounts are included within their relevant composites.

(1) Benchmark history is a blend of current and past benchmark indices. History prior to 12/31/2018 is provided by RVK.

Investment Manager Returns

As of December 31, 2023

	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last 3 Years	Last 5 Years
Net Performance- International Equity						
Int'l Developed Mkts Equity	\$5,151	100.00%	10.61%	18.99%	4.94%	9.43%
MSCI World ex US IMI	-	-	10.52%	17.18%	3.73%	8.24%
Walter Scott & Partners(1)	761	14.78%	11.74%	22.91%	6.03%	13.61%
MSCI World	-	-	11.42%	23.79%	7.27%	12.80%
BlackRock MSCI World Ex US Index	4,000	77.65%	10.48%	18.40%	4.88%	8.91%
MSCI World ex US	-	-	10.51%	17.94%	4.42%	8.45%
Xponance Non-U.S. Small Cap	235	4.56%	9.01%	15.89%	0.06%	6.12%
MSCI ACWI ex US Small Cap	-	-	10.12%	15.66%	1.49%	7.89%
Harris Assoc Int'l SCV	151	2.94%	11.29%	20.11%	6.99%	11.78%
MSCI World ex US Sm Cap	-	-	10.60%	12.62%	(0.20%)	7.05%
MSCI World ex US Sm Value	-	-	10.04%	14.70%	3.77%	7.08%

	Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception
Net Performance- International Equity					
Int'l Developed Mkts Equity	5.10%	8.27%	6.03%	-	6.35% ^(1/02)
MSCI World ex US IMI	4.35%	7.20%	5.86%	4.92%	6.26% ^(1/02)
Walter Scott & Partners(1)	10.45%	12.29%	-	-	9.55% ^(10/06)
MSCI World	8.60%	10.70%	7.79%	6.02%	7.01% ^(10/06)
BlackRock MSCI World Ex US Index	-	-	-	-	5.93% ^(6/17)
MSCI World ex US	4.32%	6.97%	5.69%	4.62%	5.47% ^(6/17)
Xponance Non-U.S. Small Cap	-	-	-	-	3.05% ^(10/18)
MSCI ACWI ex US Small Cap	4.88%	9.31%	7.45%	7.28%	4.36% ^(10/18)
Harris Assoc Int'l SCV	5.56%	11.39%	9.10%	-	10.22% ^(7/03)
MSCI World ex US Sm Cap	4.63%	9.04%	6.91%	-	8.23% ^(7/03)
MSCI World ex US Sm Value	4.20%	8.76%	7.17%	7.87%	8.41% ^(7/03)

* All returns on this report are shown with 2-decimal precision. This may differ from the decimal precision shown in BNY Mellon reports.

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(1) Walter Scott since inception returns were contained in the Global Mandates composite prior to 12/31/2019.

Investment Manager Returns

As of December 31, 2023

	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last 3 Years	Last 5 Years
Net Performance- Emerging Mkts Equity						
Emerging Mkts Equity	\$1,662	100.00%	8.48%	11.40%	(5.06%)	5.26%
MSCI EM IMI	-	-	8.02%	11.67%	(3.71%)	4.46%
Macquarie Emg Mkts Equity	358	21.54%	12.12%	16.08%	(4.94%)	4.65%
MSCI EM	-	-	7.86%	9.83%	(5.08%)	3.69%
Martin Currie Emg Mkts Equity	358	21.55%	7.78%	6.48%	(8.90%)	4.18%
MSCI EM	-	-	7.86%	9.83%	(5.08%)	3.69%
BlackRock Emg Mkts Index	563	33.86%	7.47%	9.25%	(5.35%)	3.37%
MSCI EM	-	-	7.86%	9.83%	(5.08%)	3.69%
Leading Edge Emg Mkts Fund	232	13.97%	8.31%	8.09%	(6.02%)	3.65%
MSCI EM	-	-	7.86%	9.83%	(5.08%)	3.69%
GlobeFlex Emerging Small Cap	151	9.08%	5.90%	24.23%	10.83%	12.81%
MSCI EM Small Cap	-	-	8.95%	23.92%	6.45%	9.92%
	Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception	

Net Performance- Emerging Mkts Equity						
Emerging Mkts Equity	3.41%	5.97%	5.18%	-	6.43%	(1/02)
MSCI EM IMI	3.00%	6.97%	7.11%	7.33%	8.22%	(1/02)
Macquarie Emg Mkts Equity	3.18%	-	-	-	3.54%	(5/13)
MSCI EM	2.66%	6.56%	6.83%	-	2.33%	(5/13)
Martin Currie Emg Mkts Equity	3.28%	-	-	-	3.28%	(1/14)
MSCI EM	2.66%	6.56%	6.83%	-	2.66%	(1/14)
BlackRock Emg Mkts Index	-	-	-	-	2.38%	(7/17)
MSCI EM	2.66%	6.56%	6.83%	-	2.67%	(7/17)
Leading Edge Emg Mkts Fund	-	-	-	-	3.26%	(11/18)
MSCI EM	2.66%	6.56%	6.83%	-	3.84%	(11/18)
GlobeFlex Emerging Small Cap	6.98%	-	-	-	7.30%	(8/13)
MSCI EM Small Cap	5.34%	9.89%	8.71%	8.46%	5.54%	(8/13)

* All returns on this report are shown with 2-decimal precision. This may differ from the decimal precision shown in BNY Mellon reports.

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Investment Manager Returns

As of December 31, 2023

	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last 3 Years	Last 5 Years
Net Performance - Fixed Income						
Fixed Income (1)	\$6,473	100.00%	6.14%	5.57%	(2.80%)	1.25%
Blmbg U.S. Agg Bond Index	-	-	6.82%	5.53%	(3.31%)	1.10%
Core Fixed Income	\$4,623	71.43%	6.76%	5.76%	(2.86%)	1.44%
Blmbg U.S. Agg Bond Index	-	-	6.82%	5.53%	(3.31%)	1.10%
PIMCO Core Bond Fund	546	8.43%	7.39%	6.80%	(2.78%)	1.67%
Blmbg Agg ex Treasury	-	-	7.64%	6.58%	(2.97%)	1.42%
Mellon Bond Index	4,078	63.00%	6.68%	5.62%	(3.35%)	1.05%
Blmbg U.S. Agg Bond Index (2)	-	-	6.82%	5.53%	(3.31%)	1.10%
Opportunistic Fixed Income	\$882	13.62%	1.75%	7.62%	7.36%	7.13%
BAAM Keystone (3)	882	13.62%	1.75%	7.62%	8.41%	7.75%
HFRI FOF Comp Index	-	-	3.43%	6.37%	2.26%	5.15%
Nominal U.S. Treasuries	\$879	13.58%	8.53%	3.55%	(7.02%)	(0.58%)
Blmbg US Treas Bell 10Y	-	-	6.87%	3.21%	(5.93%)	0.06%
Mellon Intermediate Treasury Index	377	5.83%	3.90%	4.30%	-	-
Blmbg Intmtd Treasury	-	-	3.99%	4.28%	(1.86%)	1.02%
Mellon Long Duration Index	502	7.76%	12.29%	3.46%	(11.57%)	-
Blmbg Long Treasury	-	-	12.70%	3.06%	(11.41%)	(1.24%)
Legacy Fixed Income	\$88	1.36%	(2.71%)	(3.94%)	-	-
Fidelity HY CMBS (4)	88	1.36%	(2.73%)	(4.14%)	(1.36%)	(0.39%)
Blmbg US CMBS Ex AAA Index (5)	-	-	5.71%	3.63%	(2.72%)	1.14%
SEI Str.Credit: HY Bank Loans (6)	0	0.00%	4.25%	15.77%	12.37%	8.25%
FTSE HY Corp (1 month lag)	-	-	2.08%	8.87%	1.57%	4.01%

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The market values and performance of such accounts are included within their relevant composites.

(1) Fixed Income included the new fixed income sub-composite from 03/01/2021 to 06/30/2022. On 07/01/2022, the sub-composites of the new fixed income structure was liquidated and the managers reorganized under Core Fixed Income,

Opportunistic Fixed Income, Nominal US Treasuries and Legacy Fixed Income sub-composites.

(2) Benchmark history is a blend of current and past benchmark indices. History prior to 12/31/2018 is provided by RVK.

(3) Blackstone Keystone since inception returns were included in the Legacy Hedge Fund composite through 9/30/2017, included in the Multi-Strategy composite from 10/01/2017 through 12/31/2019, included in the Opportunistic Fixed composite from 01/01/2020 through 12/31/2020, included in the Private Credit from 01/01/2021 through 09/30/2021 and Opportunistic Fixed composite, thereafter.

(4) Fidelity was included in the Opportunistic Fixed composite prior to 03/01/2021, included in the High Yield under the new fixed income structure from 03/01/2021 through 06/30/2022, and Legacy Fixed Income Structure, thereafter.

(5) Fidelity's blended benchmark consists of FTSE High Yield Market Index prior to 12/31/2009 and Blmbg US CMBS Ex AAA Index, thereafter.

(6) SEI HY Bank Loans has a 1 month lag in valuation. On this chart, SEI's market value of \$15K has been rounded to \$0MM.

Investment Manager Returns

As of December 31, 2023

	Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception
Net Performance - Fixed Income					
Fixed Income (1)	1.87%	4.88%	3.97%	4.44%	7.52% (1/81)
Blmbg U.S. Agg Bond Index	1.81%	2.68%	3.17%	3.85%	6.83% (1/81)
Core Fixed Income	2.02%	3.79%	3.52%	-	3.86% (1/02)
Blmbg U.S. Agg Bond Index	1.81%	2.68%	3.17%	3.85%	3.52% (1/02)
PIMCO Core Bond Fund	2.18%	-	-	-	1.72% (1/13)
Blmbg Agg ex Treasury	2.11%	3.17%	-	-	1.77% (1/13)
Mellon Bond Index	1.77%	2.58%	3.07%	3.75%	6.30% (4/84)
Blmbg U.S. Agg Bond Index (2)	1.81%	2.68%	3.17%	3.86%	-
Opportunistic Fixed Income	4.86%	-	-	-	5.15% (10/12)
BAAM Keystone (3)	6.06%	-	-	-	7.36% (7/12)
HFRI FOF Comp Index	3.26%	3.79%	3.32%	4.39%	3.93% (7/12)
Nominal U.S. Treasuries	1.17%	-	-	-	0.82% (9/11)
Blmbg US Treas Bell 10Y	1.34%	1.52%	2.96%	3.33%	1.08% (9/11)
Mellon Intermediate Treasury Index	-	-	-	-	(1.63%) (3/21)
Blmbg Intmtd Treasury	1.25%	1.53%	2.48%	3.17%	(1.59%) (3/21)
Mellon Long Duration Index	-	-	-	-	(11.57%) (1/21)
Blmbg Long Treasury	2.28%	2.28%	4.10%	4.57%	(11.41%) (1/21)
Legacy Fixed Income	-	-	-	-	(3.76%) (7/22)
Fidelity HY CMBS (4)	2.40%	8.20%	5.34%	6.52%	6.85% (4/97)
Blmbg US CMBS Ex AAA Index (5)	2.21%	7.29%	1.00%	2.94%	3.31% (4/97)
SEI Str.Credit: HY Bank Loans (6)	7.81%	16.95%	-	-	11.40% (5/08)
FTSE HY Corp (1 month lag)	4.05%	9.13%	6.23%	5.95%	6.32% (5/08)

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(1) Fixed Income included the new fixed income sub-composite from 03/01/2021 to 06/30/2022. On 07/01/2022, the sub-composites of the new fixed income structure was liquidated and the managers reorganized under Core Fixed Income,

Opportunistic Fixed Income, Nominal US Treasuries and Legacy Fixed Income sub-composites.

(2) Benchmark history is a blend of current and past benchmark indices. History prior to 12/31/2018 is provided by RVK.

(3) Blackstone Keystone since inception returns were included in the Legacy Hedge Fund composite through 9/30/2017, included in the Multi-Strategy composite from 10/01/2017 through 12/31/2019, included in the Opportunistic Fixed composite from 01/01/2020 through 12/31/2020, included in the Private Credit from 01/01/2021 through 09/30/2021 and Opportunistic Fixed composite, thereafter.

(4) Fidelity was included in the Opportunistic Fixed composite prior to 03/01/2021, included in the High Yield under the new fixed income structure from 03/01/2021 through 06/30/2022, and Legacy Fixed Income Structure, thereafter.

(5) Fidelity's blended benchmark consists of FTSE High Yield Market Index prior to 12/31/2009 and Blmbg US CMBS Ex AAA Index, thereafter.

(6) SEI HY Bank Loans has a 1 month lag in valuation. On this chart, SEI's market value of \$15K has been rounded to \$0MM.

Investment Manager Returns

As of December 31, 2023

	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last 3 Years	Last 5 Years
Net Performance - Inflation Protection						
Inflation Protection (TIPS)	\$1,045	100.00%	4.92%	3.85%	(1.69%)	2.72%
Blmbg U.S. TIPS Index	-	-	4.71%	3.90%	(1.00%)	3.15%
NISA Inv Adv TIPS	455	43.52%	4.46%	3.81%	(1.04%)	3.09%
Blmbg U.S. TIPS Index (1)	-	-	4.71%	3.90%	(1.00%)	3.15%
Brown Brothers TIPS	476	45.57%	4.56%	3.51%	(1.10%)	3.02%
Blmbg U.S. TIPS Index	-	-	4.71%	3.90%	(1.00%)	3.15%
New Century Global TIPS	114	10.91%	8.34%	5.43%	(5.89%)	0.66%
Blmbg Wrld Inflation Linked Unhdg	-	-	8.05%	5.47%	(5.27%)	0.69%

	Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception
Net Performance - Inflation Protection					
Inflation Protection (TIPS)	2.23%	2.84%	2.87%	-	2.89% ^(2/03)
Blmbg U.S. TIPS Index	2.42%	3.48%	3.63%	4.79%	3.83% ^(2/03)
NISA Inv Adv TIPS	2.40%	2.82%	-	-	2.83% ^(4/07)
Blmbg U.S. TIPS Index (1)	2.42%	2.84%	3.09%	4.36%	2.85% ^(4/07)
Brown Brothers TIPS	2.41%	-	-	-	1.69% ^(2/12)
Blmbg U.S. TIPS Index	2.42%	3.48%	3.63%	4.79%	1.64% ^(2/12)
New Century Global TIPS	1.22%	-	-	-	1.04% ^(2/12)
Blmbg Wrld Inflation Linked Unhdg	1.06%	2.62%	3.11%	4.17%	0.83% ^(2/12)

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(1) Benchmark history is a blend of current and past benchmark indices. History prior to 12/31/2018 is provided by RVK.

Investment Manager Returns

As of December 31, 2023

	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last 3 Years	Last 5 Years	
Net Performance - Private Equity							
Private Equity	\$6,860	100.00%	0.61%	6.59%	15.64%	14.93%	
Burgiss Private Equity Index (Qtr lag)	-	-	0.00%	0.03%	10.79%	10.52%	
Global Equity + 3% (Qtr lag)(1)	-	-	(2.57%)	24.90%	12.22%	11.73%	
Buyouts	3,743	54.57%	0.18%	7.61%	14.94%	14.80%	
Burgiss Buyout Index (Qtr lag)	-	-	0.00%	0.07%	10.63%	9.54%	
Special Situations	1,685	24.57%	2.03%	8.78%	21.38%	18.05%	
Burgiss Special Situations Idx (Qtr lag)	-	-	0.01%	0.04%	5.22%	4.06%	
Growth Equity	1,231	17.94%	0.23%	1.36%	15.73%	21.15%	
Burgiss Venture Capital Index (Qtr lag)	-	-	(0.02%)	(0.08%)	14.51%	16.64%	
Keystone Legacy (2)	200	2.92%	(0.92%)	1.83%	(2.03%)	(2.89%)	
			Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception

Net Performance - Private Equity						
Private Equity	12.53%	11.24%	12.75%	12.09%	11.46%	(1/86)
Burgiss Private Equity Index (Qtr lag)	11.85%	10.91%	12.91%	12.55%	16.25%	(1/86)
Global Equity + 3% (Qtr lag)(1)	14.15%	14.26%	12.90%	11.39%	14.35%	(1/86)
Buyouts	13.60%	12.61%	14.86%	13.87%	13.46%	(4/86)
Burgiss Buyout Index (Qtr lag)	11.42%	10.62%	13.60%	12.08%	18.52%	(4/86)
Special Situations	12.50%	12.31%	13.91%	12.87%	13.19%	(1/95)
Burgiss Special Situations Idx (Qtr lag)	5.97%	7.24%	8.40%	9.09%	9.57%	(1/95)
Growth Equity	14.79%	11.20%	9.40%	8.07%	8.47%	(1/86)
Burgiss Venture Capital Index (Qtr lag)	16.72%	13.54%	12.29%	13.00%	14.00%	(1/86)
Keystone Legacy (2)	-	-	-	-	(3.26%)	(7/18)

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(1) As of 01/01/2020 benchmark consists of 25% MSCI World ex US and 75% Russell 3000 + 3% with a 1 quarter lag.

(2) As of 9/30/2023, Keystone Legacy SPV consists of 42 non-core funds, prior performance is reflected in previous sub-asset classes.

Investment Manager Returns

As of December 31, 2023

	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last 3 Years	Last 5 Years	
Net Performance - Real Estate							
Real Estate	\$2,518	100.00%	(2.35%)	(11.91%)	3.31%	4.55%	
Real Estate Custom Bench (Qtr lag) (1)	-	-	(2.12%)	(13.08%)	6.23%	4.71%	
CPI +3% (Qtr lag)	-	-	1.60%	6.70%	8.75%	7.05%	
Core/Core Plus Real Estate Funds	1,179	46.81%	(0.96%)	(6.17%)	6.69%	5.22%	
NCREIF ODCE Index (Qtr lag)	-	-	(2.12%)	(13.08%)	6.69%	5.22%	
Value Add/Oppportunistic SMA	437	17.37%	(9.95%)	(31.23%)	(7.88%)	(0.42%)	
NCREIF ODCE Index (Qtr lag)	-	-	(2.12%)	(13.08%)	6.69%	5.22%	
Value Add/Oppportunistic Funds	771	30.62%	(2.45%)	(10.80%)	7.16%	5.05%	
NCREIF ODCE Index (Qtr lag)	-	-	(2.12%)	(13.08%)	6.69%	5.22%	
REITS	131	5.20%	16.29%	13.21%	7.15%	8.37%	
FTSE NAREIT US Index	-	-	15.91%	13.27%	6.72%	6.44%	
			Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception

Net Performance - Real Estate						
Real Estate	4.60%	3.03%	5.66%	6.30%	7.83%	(3/84)
Real Estate Custom Bench (Qtr lag) (1)	7.01%	4.97%	6.89%	7.26%	-	-
CPI +3% (Qtr lag)	5.77%	5.30%	5.57%	5.56%	5.83%	(3/84)
Core/Core Plus Real Estate Funds	7.38%	6.12%	7.22%	7.50%	6.93%	(9/86)
NCREIF ODCE Index (Qtr lag)	7.55%	4.71%	6.62%	6.94%	5.92%	(9/86)
Value Add/Oppportunistic SMA	0.39%	(0.79%)	2.55%	3.80%	4.09%	(6/88)
NCREIF ODCE Index (Qtr lag)	7.55%	4.71%	6.62%	6.94%	5.96%	(6/88)
Value Add/Oppportunistic Funds	7.36%	4.10%	6.87%	7.58%	7.55%	(3/84)
NCREIF ODCE Index (Qtr lag)	7.55%	4.71%	6.62%	6.94%	6.16%	(3/84)
REITS	5.91%	6.76%	8.24%	8.92%	9.14%	(4/96)
FTSE NAREIT US Index	6.89%	6.41%	8.13%	8.75%	9.44%	(4/96)

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(1) As of 07/01/2022, the benchmark consists of 100% NCREIF NFI-ODCE (Qtr lag). From 03/31/2019 to 07/01/2022, the benchmark consists of 90% NCREIF ODCE Index (Qtr lag) and 10% FTSE NAREIT Index (unlagged). Prior to 03/31/2019, benchmark history was provided by RVK.

Callan

Appendix II – Callan Update

Published Research Highlights from 4Q23

**2023 Nuclear
Decommissioning Funding
Study**



**2023 Investment
Management Fee Study**



**2023 Asset Manager ESG
Study**



**Callan's Retirement
Conundrum Webinar**



Recent Blog Posts

**ILS on Pace for
Banner Year in
2023**

Sean Lee

**Carbon-
Footprinting
Basics for
Institutional
Investors**

Amit Bansal

**Key Issues to
Know for the
Proposed
Fiduciary Rule**

Jana Steele

Additional Reading

Alternatives Focus quarterly newsletter

Active vs. Passive quarterly charts

Capital Markets Review quarterly newsletter

Monthly Updates to the Periodic Table

Market Pulse Flipbook quarterly markets update

Real Estate Indicators market outlook

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 public plans, corporate plans, and nonprofits. This session familiarizes trustees and staff with basic investment theory, terminology, and practices.

- March 19-21, 2024 – Virtual Session via Zoom
- June 18-19, 2024 – In Person Session in Chicago

Intro to Alternatives

This course is for institutional investors, including trustees and staff members of public plans, corporate plans, and nonprofits. This session familiarizes trustees and staff with alternative investments like private equity, hedge funds, and real estate and how they can play a key role in any portfolio. You will learn about the importance of allocations to alternatives and how to consider integrating, evaluating, and monitoring them.

- February 21–22, 2024 – Virtual Session via Zoom

Please visit our website at callan.com/events-education as we add dates to our 2024 calendar!

Mark Your Calendar

2024 National Conference

April 8–10, 2024 – San Francisco

2024 Regional Workshops

June 25, 2024 – Atlanta

June 27, 2024 – San Francisco

October 22, 2024 – Denver

October 24, 2024 – Location TBD

Watch your email for further details and an invitation.

Webinars & Research Café Sessions

Webinar: Capital Markets Assumptions

January 17, 2024 – Virtual Session via Zoom

Webinar: Market Intelligence

January 19, 2024 – Virtual Session via Zoom

Research Café: ESG Interview Series

March 12, 2024 – Virtual Session via Zoom

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