

December 31, 2022



**City of Milwaukee Employees'  
Retirement System  
Executive Summary**

**Investment Measurement Service  
Quarterly Review**

---

## Table of Contents

### December 31, 2022

---

<b>Capital Markets Review</b>	<b>1</b>
<hr/>	
<b>Total Fund</b>	
Allocation Across Investment Managers	7
Actual vs. Target Asset Allocation	8
Total Fund vs. Total Public Fund Database	10
Investment Manager Returns - Gross of Fee	13
Investment Manager Returns - Net of Fee	17
Asset Class Rankings	21
Active Share Structure Analysis	23
Total Equity Style Analysis	24
Manager Comparison Style Analysis	26
<hr/>	
<b>Callan Research/Education</b>	<b>27</b>
<hr/>	
<b>Disclosures</b>	<b>30</b>



**U.S. EQUITY**

**Markets fall in final month of quarter after gains**

- The S&P 500 Index posted positive returns in both October and November but fell in December. The index was up 7.6% during 4Q22 but ended 2022 down 18.1%.
- Energy was the best-performing sector during the quarter and 2022, returning 23% and 66% respectively. Consumer Discretionary and Communication Services were the only two sectors that posted negative returns in 4Q.
- Value stocks outperformed growth across the market capitalization spectrum, and for both 4Q and the full year.
- Large cap stocks (Russell 1000) outperformed small caps (Russell 2000) last quarter and for the year.
- Continued macroeconomic concerns (e.g., inflation, potential recession, geopolitical issues) led to higher volatility and a down-year for U.S. equities.

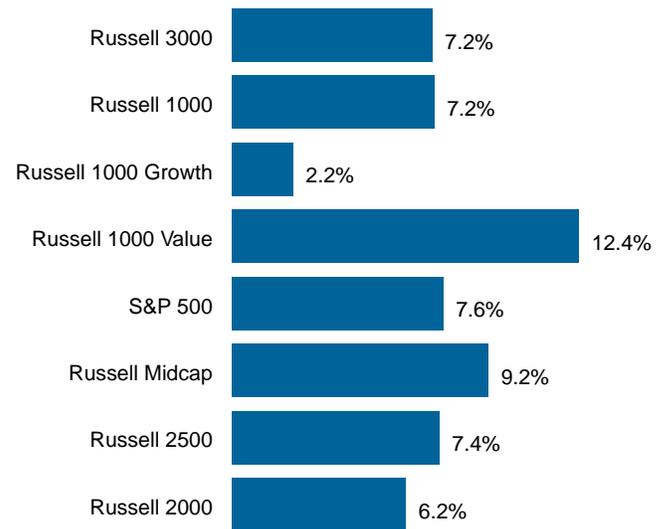
**Market valuations have reset with the broad-based sell-off**

- The drop for equities in 2022 was broad-based, and almost every sector experienced negative returns. Higher interest rates impacted the growth-oriented sectors the most (e.g., Technology, Communication Services).
- Mega-cap technology stocks have underperformed, ending an extended period of market leadership.
- Large cap stocks are now trading around their average P/E ratio, but they are not yet “cheap.”
- Despite the recent outperformance of value stocks, value still looks attractive relative to growth heading into 2023.

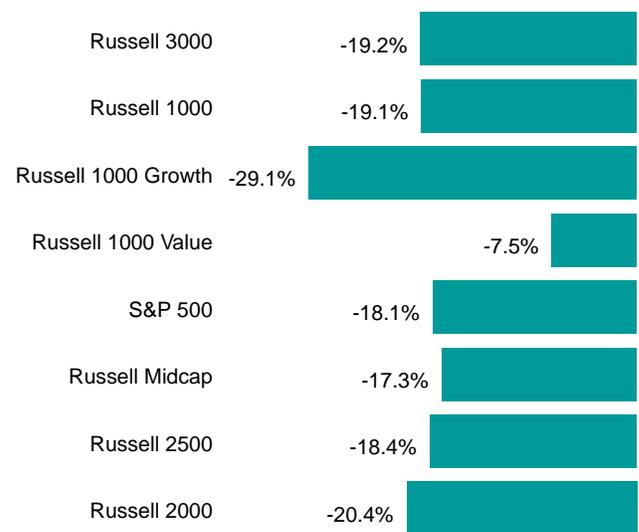
**Small cap valuations are attractive relative to large cap**

- During 4Q22, the Russell 2000 was trading at a 30% discount to its historical P/E average.
- Relative to large caps, the Russell 2000’s forward 12 months P/E is trading at the lowest level versus large-cap stocks since the Dot-Com Bubble.
- Relative to large and mid caps, small caps have looked significantly cheaper on various valuation metrics recently.

**U.S. Equity: Quarterly Returns**

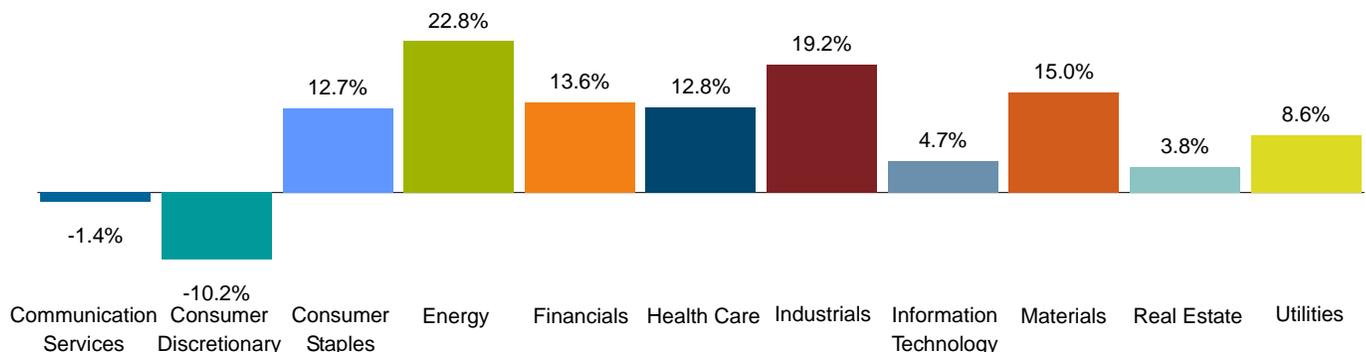


**U.S. Equity: One-Year Returns**



Sources: FTSE Russell, S&P Dow Jones Indices

**S&P Sector Returns, Quarter Ended 12/31/22**



Source: S&P Dow Jones Indices

**GLOBAL EQUITY**

**Ending on a high note**

4Q22 was a bright spot during a tough calendar year in global and global ex-U.S. equity markets.

**Encouraging signs**

- Lower-than-expected U.S. inflation data buoyed market optimism at the end of the year.
- The Fed slowed its pace of tightening, with further slowing expected in 2023.
- China reversed its zero-COVID policies, prompting exuberance from investors.

**Value outpaces growth**

- Value outpaced growth in developed and emerging markets.
- Economically sensitive sectors (e.g., Financials and Industrials) benefited from the anticipation of improved growth; Energy was the largest outperformer.

**U.S. dollar vs. other currencies**

- After reaching a multi-decade high, the dollar fell against all major currencies with signs of inflation easing.
- Despite the 7.7% decline in 4Q22, the dollar still gained nearly 8% over the full year.
- Global central banks’ rate hikes and the U.S. Federal Reserve’s slowing pace of tightening could prolong U.S. dollar decline.
- Continued weakening of the U.S. dollar would be a tailwind for non-U.S. equities.

**What about style?**

- A sustained shift to value after the recent prolonged growth cycle would likely favor non-U.S. equities over U.S. equities given higher representation of traditional value sectors in non-U.S. equity universes.

**China’s reopening spurs hopes for emerging markets**

- In addition to pivoting from its zero-COVID policy, Chinese regulators shifted to supportive policies to stabilize the property sector and tech/platform industry.

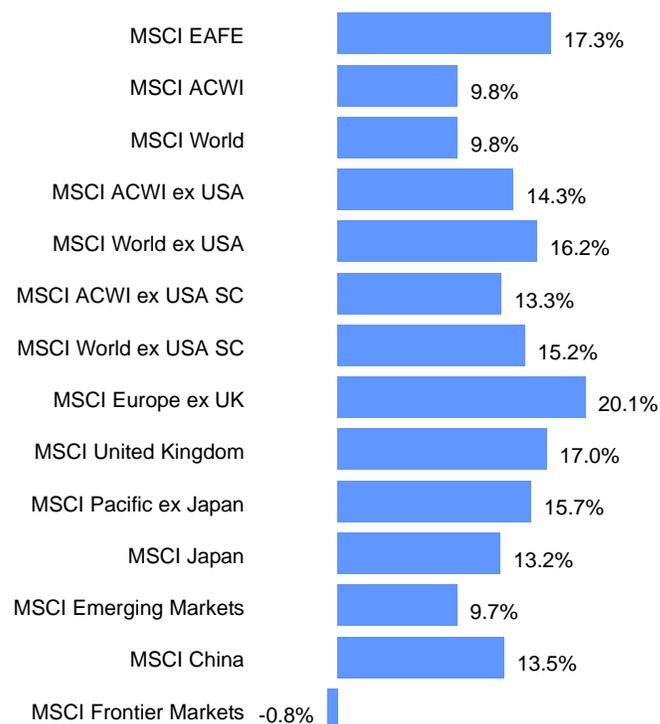
**Reopening is expected to jump-start Chinese economy**

- China’s real GDP growth is estimated to reach 5.5% in 2023 and nearly 7% on a 4Q/4Q basis.
- Real consumption is projected to grow by 8.5% in 2023 as Chinese households have amassed \$2.6 trillion in savings.

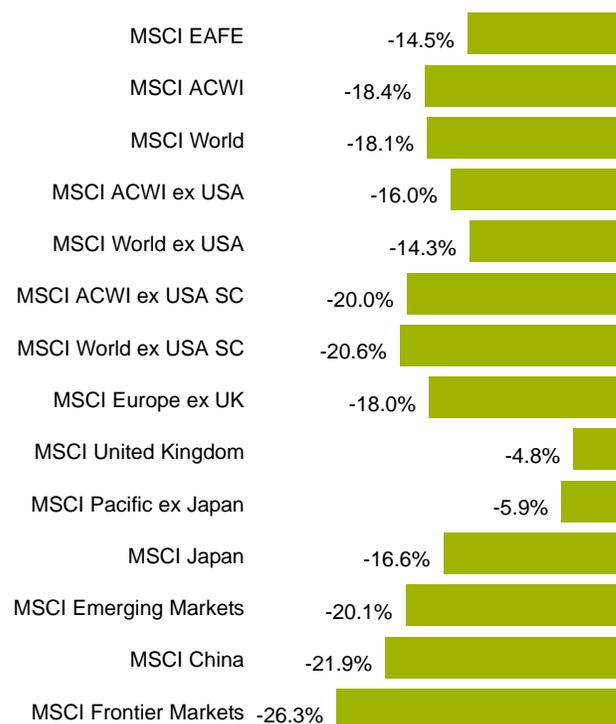
**Recovery in China will spill over to other EM regions**

- Growth in Chinese consumption is expected to have positive impact on tourism in Southeast Asia; goods exports in Europe, the Middle East, and Africa; and commodities in Latin America.

**Global Equity: Quarterly Returns**



**Global Equity: One-Year Returns**



Source: MSCI

**U.S. FIXED INCOME**

**Bonds were up in 4Q but 2022 results remain negative**

- Gain for the Bloomberg US Aggregate Bond Index driven by coupon income and spread tightening; interest rates rose modestly

**Rates were volatile intra-quarter**

- U.S. Treasury 10-year yield: high 4.22% on 11/7; low 3.42% on 12/7
- Curve remained inverted at quarter-end: 10-year yield 3.88% and 2-year yield 4.41%; most since 1981

**Fed raised rates bringing target to 4.25%-4.50%**

- Median expectation from Fed is 5.1% for year-end 2023
- Inflation showed signs of moderating but job market remained tight with solid wage growth

**Corporates and mortgages outperformed Treasuries in 4Q**

- 4Q: Corporates +289 bps excess return; residential mortgage-backed securities (RMBS) +110 bps
- 2022: Corporates -125 bps excess return; RMBS -223 bps
- RMBS had worst month ever (September: -191 bps) and best month ever (November: +135 bps) in excess returns

**Valuations fair**

- While absolute yields are higher, spreads have not widened materially, and most are close to historical averages.
- An economic slowdown could impact credit spreads.
- Higher yields have boosted forward-looking returns across sectors.

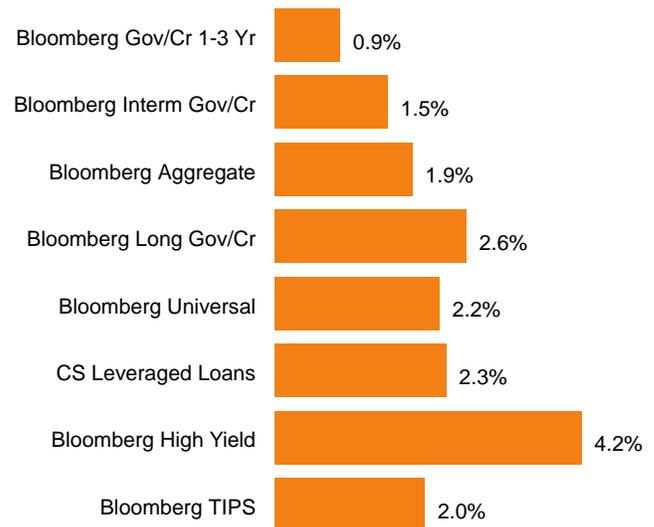
**Economic slowdown clouds the corporate credit picture**

- Despite prospects for an economic slowdown in 2023, fundamental credit metrics for many issuers are strong.
- Default rates are expected to tick up, albeit not to the same extent as in previous recessions.
- Investors may be biased toward higher-quality investment grade issuers as they weigh the threat of a looming recession and potential implications for increased volatility in lower-quality corporate credit markets.

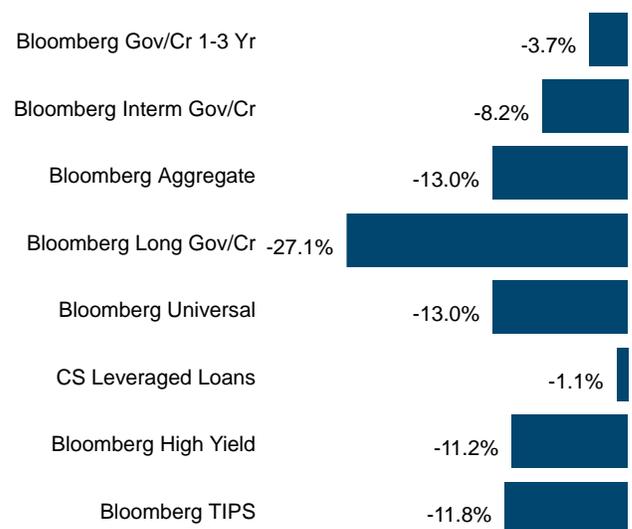
**TIPS: Beware of duration**

- Despite a rise in inflation, TIPS saw marked declines in 2022 amid rising interest rates.
- TIPS, like nominal Treasuries, are sensitive to changes in interest rates, and as a result, shorter-duration TIPS fared better than full spectrum TIPS in 2022.
- Shorter-term TIPS exhibit a higher correlation to realized inflation but also provide a similar risk-adjusted return as that of full spectrum TIPS.

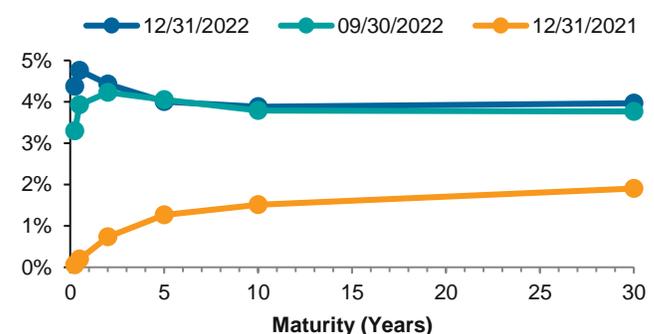
**U.S. Fixed Income: Quarterly Returns**



**U.S. Fixed Income: One-Year Returns**



**U.S. Treasury Yield Curves**



Sources: Bloomberg, Credit Suisse

**MUNICIPAL BONDS**

**Gains in 4Q but most 2022 results remain negative**

- Municipal Bond Index calendar year return worst since 1981
- Higher quality outperformed in 4Q (AAA: +4.3%; AA: +4.1%; A: +4.0%; BBB: +3.9%; High Yield: +3.5%) and in 2022
- Munis outperformed most other fixed income sectors in 4Q and in 2022

**Valuations relative to U.S. Treasuries on the rich side**

- 10-year AAA Muni/10-year U.S. Treasury yield ratio 68%; below 10-year average of 88%
- After-tax yield of Muni Bond Index = 6.0% (Source: Eaton Vance)

**Supply/demand**

- Mutual fund outflows hit a record \$122 billion in 2022, with tax loss harvesting being a key driver
- ETFs saw inflows as some investors reinvested in them.
- Supply also down; \$71 billion in 4Q and the lowest in 13 years; 2022 issuance off roughly 20% from 2021

**Credit quality remained stable**

- State and local tax collections robust and reserves elevated; state revenues up 16% on average vs. 2021

**GLOBAL FIXED INCOME**

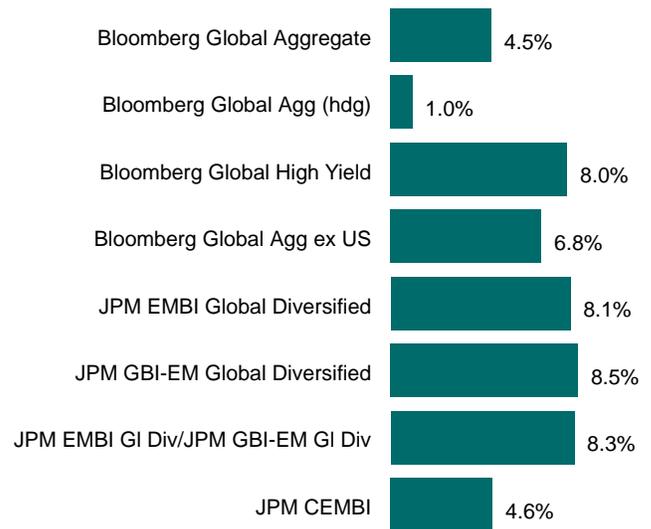
**4Q returns driven largely by U.S. dollar weakness**

- U.S. dollar down 9% vs. euro, 10% vs. yen, 8% vs. pound
- For the year, dollar up 6% vs. euro, 13% vs. yen, and 11% vs. pound
- Rates up across most of Europe and in Japan
- Rates fell in the U.K.

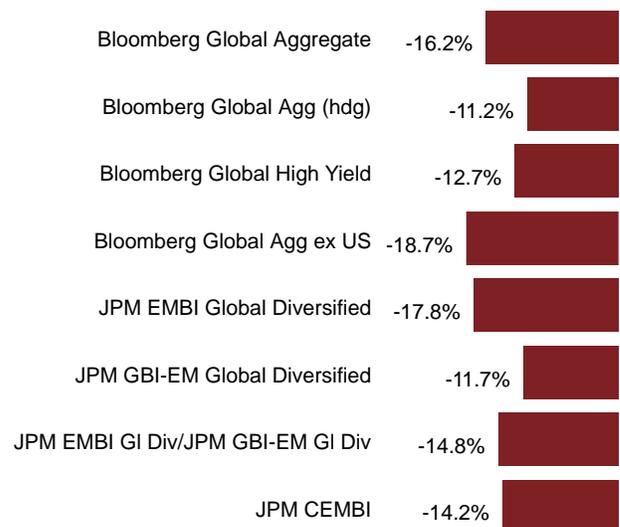
**Emerging market debt also did well**

- Returns varied across countries but most were positive

**Global Fixed Income: Quarterly Returns**

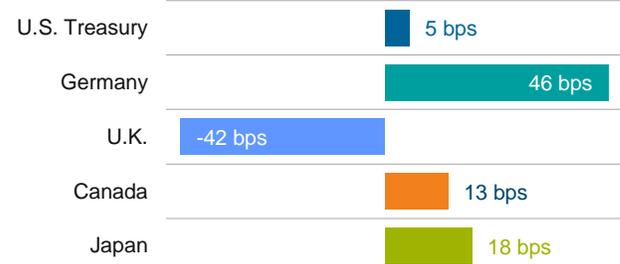


**Global Fixed Income: One-Year Returns**



**Change in 10-Year Global Government Bond Yields**

**3Q22 to 4Q22**



Sources: Bloomberg, JP Morgan



## Investment Manager Asset Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of December 31, 2022, with the distribution as of September 30, 2022. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

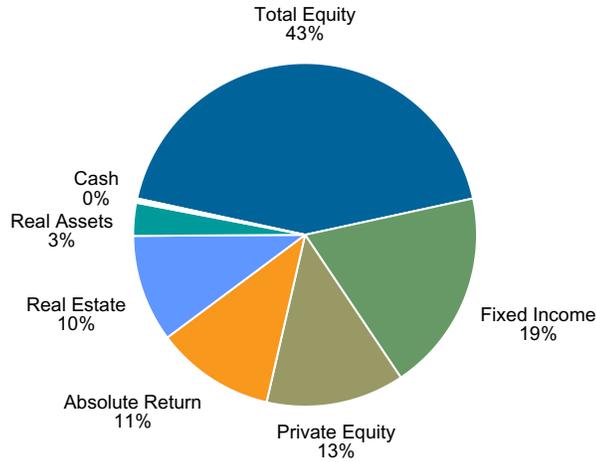
### Asset Distribution Across Investment Managers

	December 31, 2022			Inv. Return	September 30, 2022	
	Market Value	Weight	Net New Inv.		Market Value	Weight
<b>Total Domestic Equity</b>	<b>\$1,060,015,651</b>	<b>19.38%</b>	<b>\$(37,000,000)</b>	<b>\$92,593,166</b>	<b>\$1,004,422,485</b>	<b>19.04%</b>
BlackRock Russell 1000 Value	207,275,410	3.79%	0	22,895,108	184,380,302	3.49%
DFA Large Cap Value	152,173,545	2.78%	0	19,012,416	133,161,129	2.52%
Northern Trust Global	207,065,072	3.79%	(21,000,000)	14,546,549	213,518,523	4.05%
Polen Capital Management	119,918,251	2.19%	(9,000,000)	1,028,912	127,889,338	2.42%
Earnest Partners LLC	105,425,034	1.93%	0	7,570,602	97,854,432	1.85%
DFA Small Cap Value	186,040,977	3.40%	(7,000,000)	24,632,145	168,408,832	3.19%
CastleArk Management	82,117,362	1.50%	0	2,907,433	79,209,929	1.50%
<b>Total Global Equity</b>	<b>\$441,043,357</b>	<b>8.06%</b>	<b>\$7,000,000</b>	<b>\$44,425,848</b>	<b>\$389,617,509</b>	<b>7.38%</b>
BlackRock Global Alpha Tilts	261,491,713	4.78%	7,000,000	27,026,476	227,465,237	4.31%
MFS Investment Management	179,551,644	3.28%	0	17,399,371	162,152,272	3.07%
<b>Total International Equity</b>	<b>\$859,602,635</b>	<b>15.72%</b>	<b>\$(32,785,915)</b>	<b>\$130,274,608</b>	<b>\$762,113,942</b>	<b>14.44%</b>
AQR Emerging Markets	90,281,542	1.65%	13,813,020	7,963,814	68,504,708	1.30%
Brandes Investment Partners	338,928,814	6.20%	(21,500,000)	62,961,787	297,467,028	5.64%
William Blair & Company	249,021,617	4.55%	(18,598,935)	29,007,167	238,613,385	4.52%
DFA International Small Cap	181,370,662	3.32%	(6,500,000)	30,341,841	157,528,821	2.99%
<b>Total Fixed Income</b>	<b>\$1,040,326,666</b>	<b>19.02%</b>	<b>\$(73,000,000)</b>	<b>\$26,016,826</b>	<b>\$1,087,309,840</b>	<b>20.61%</b>
BlackRock US Govt Bond	218,293,738	3.99%	(45,000,000)	740,451	262,553,288	4.98%
Reams Asset Management	488,043,618	8.92%	(16,500,000)	16,234,749	488,308,869	9.26%
Loomis, Sayles & Company, L.P.	333,989,311	6.11%	(11,500,000)	9,041,627	336,447,684	6.38%
<b>Total Private Equity</b>	<b>\$713,288,884</b>	<b>13.04%</b>	<b>\$2,714,834</b>	<b>\$(15,468,148)</b>	<b>\$726,042,198</b>	<b>13.76%</b>
Abbott Capital Management 2010	21,757,945	0.40%	(873,046)	(716,055)	23,347,046	0.44%
Abbott Capital Management 2011	44,301,290	0.81%	(818,002)	(2,203,916)	47,323,208	0.90%
Abbott Capital Management 2012	39,671,968	0.73%	(596,519)	(1,585,759)	41,854,246	0.79%
Abbott Capital Management 2013	38,592,485	0.71%	(509,736)	(1,618,998)	40,721,219	0.77%
Abbott Capital Management 2014	42,526,577	0.78%	(2,274,309)	(1,292,217)	46,093,103	0.87%
Abbott Capital Management 2015	33,053,989	0.60%	(2,137,500)	(78,927)	35,270,416	0.67%
Abbott Capital Management 2016	27,797,060	0.51%	(320,000)	(136,865)	28,253,925	0.54%
Abbott Capital Management 2018	21,015,376	0.38%	785,000	(162,110)	20,392,486	0.39%
Abbott Capital Management 2019	17,540,326	0.32%	660,000	(55,090)	16,935,416	0.32%
Abbott Capital Management 2020	20,292,024	0.37%	3,415,000	(316,905)	17,193,929	0.33%
Abbott Capital Management 2021	6,691,140	0.12%	532,500	(10,620)	6,169,260	0.12%
Abbott Capital Management 2022	5,873,568	0.11%	805,000	(315,248)	5,383,816	0.10%
Mesirow V	44,347,229	0.81%	(1,575,000)	(1,749,477)	47,671,706	0.90%
Mesirow VI	70,353,975	1.29%	(2,160,000)	(2,247,845)	74,761,820	1.42%
Mesirow VII	119,928,011	2.19%	(500,000)	(1,317,396)	121,745,407	2.31%
Mesirow VIII	42,644,326	0.78%	7,800,000	(1,724,981)	36,569,307	0.69%
NB Secondary Opp Fund III	7,498,394	0.14%	(318,953)	(82,385)	7,899,732	0.15%
NB Secondary Opp Fund IV	17,754,668	0.32%	(204,837)	(280,925)	18,240,430	0.35%
NB Secondary Opp Fund V	12,470,436	0.23%	3,115,181	(1,406,380)	10,761,635	0.20%
Private Advisors VI	21,328,797	0.39%	(1,529,351)	(12,334)	22,870,482	0.43%
Private Advisors VII	14,770,032	0.27%	(580,415)	36,756	15,313,691	0.29%
Private Advisors VIII	16,995,075	0.31%	(179)	435,482	16,559,772	0.31%
Private Advisors IX	26,084,193	0.48%	0	1,374,047	24,710,146	0.47%
<b>Absolute Return</b>	<b>\$610,964,186</b>	<b>11.17%</b>	<b>\$40,500,000</b>	<b>\$18,600,029</b>	<b>\$551,864,157</b>	<b>10.46%</b>
Aptitude	157,016,049	2.87%	68,500,000	3,278,049	85,238,000	1.62%
UBS A & Q	453,948,137	8.30%	(28,000,000)	15,321,981	466,626,157	8.84%
<b>Real Assets</b>	<b>\$169,969,783</b>	<b>3.11%</b>	<b>\$(12,275,093)</b>	<b>\$13,356,933</b>	<b>\$168,887,943</b>	<b>3.20%</b>
Principal DRA	169,969,783	3.11%	(12,275,093)	13,356,933	168,887,943	3.20%
<b>Total Real Estate</b>	<b>\$550,318,579</b>	<b>10.06%</b>	<b>\$(4,696,788)</b>	<b>\$(14,068,805)</b>	<b>\$569,084,172</b>	<b>10.79%</b>
Real Estate	550,318,579	10.06%	(4,696,788)	(14,068,805)	569,084,172	10.79%
<b>Total Cash</b>	<b>\$23,842,475</b>	<b>0.44%</b>	<b>\$6,610,574</b>	<b>\$442,834</b>	<b>\$16,789,067</b>	<b>0.32%</b>
Cash	23,842,475	0.44%	6,610,574	442,834	16,789,067	0.32%
<b>Total Fund</b>	<b>\$5,469,372,216</b>	<b>100.0%</b>	<b>\$(102,932,388)</b>	<b>\$296,173,291</b>	<b>\$5,276,131,314</b>	<b>100.0%</b>

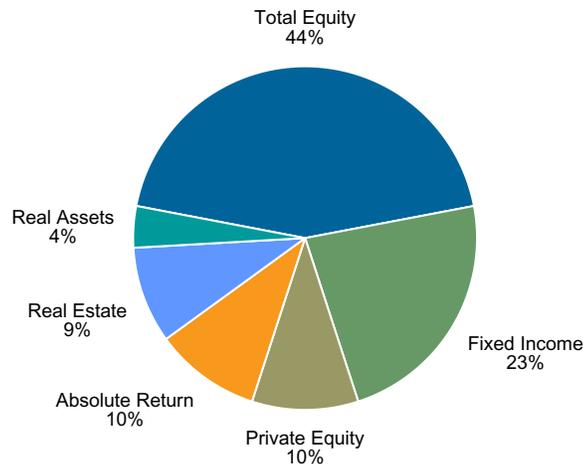
## Actual vs Target Asset Allocation As of December 31, 2022

The first chart below shows the Fund's asset allocation as of December 31, 2022. The second chart shows the Fund's target asset allocation as outlined in the investment policy statement.

### Actual Asset Allocation



### Target Asset Allocation



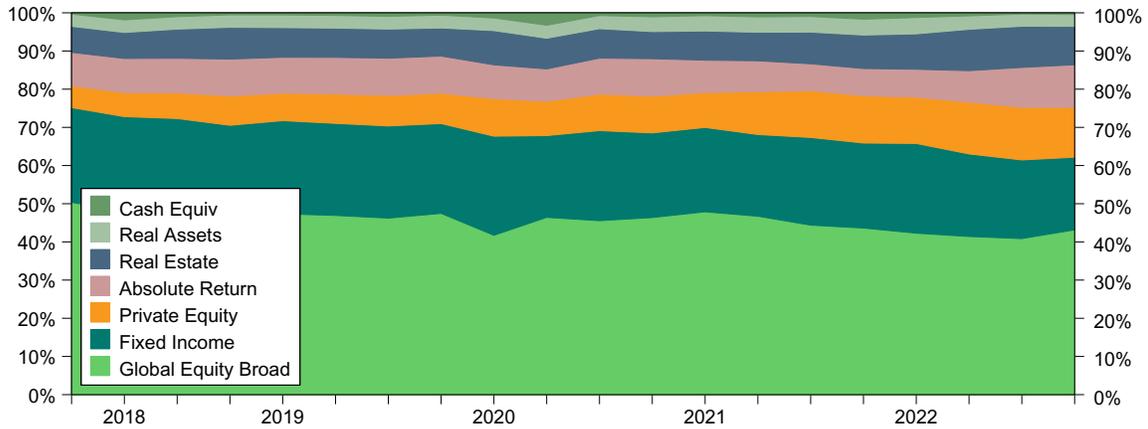
Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Total Equity	2,360,662	43.2%	44.0%	(0.8%)	(45,862)
Fixed Income	1,040,327	19.0%	23.0%	(4.0%)	(217,629)
Private Equity	713,289	13.0%	10.0%	3.0%	166,352
Absolute Return	610,964	11.2%	10.0%	1.2%	64,027
Real Estate	550,319	10.1%	9.1%	1.0%	52,606
Real Assets	169,970	3.1%	3.9%	(0.8%)	(43,336)
Cash	23,842	0.4%	0.0%	0.4%	23,842
Total	5,469,372	100.0%	100.0%		

\* Current Quarter Target = 44.0% MSCI ACWI IMI, 23.0% Blmbg Aggregate, 10.0% Russell 3000 Index lagged 3 months+2.0%, 10.0% 3-month Treasury Bill+3.0%, 9.1% NCREIF NFI-ODCE Eq Wt Net lagged 3 months and 3.9% Principal DRA Blend Index.

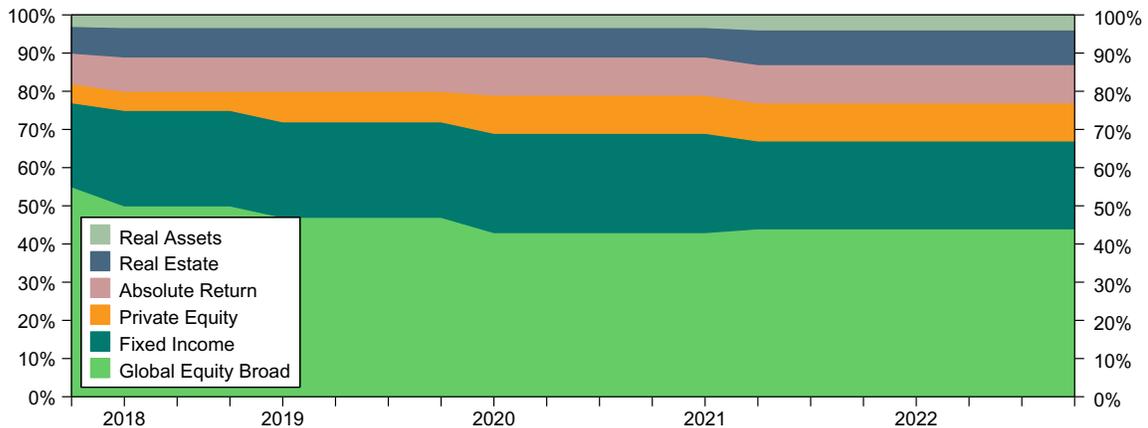
## Actual vs Target Historical Asset Allocation

The Historical asset allocation for a fund is by far the largest factor explaining its performance. The charts below show the fund's historical actual asset allocation, the fund's historical target asset allocation, and the historical asset allocation of the average fund in the Callan Public Fund Sponsor Database.

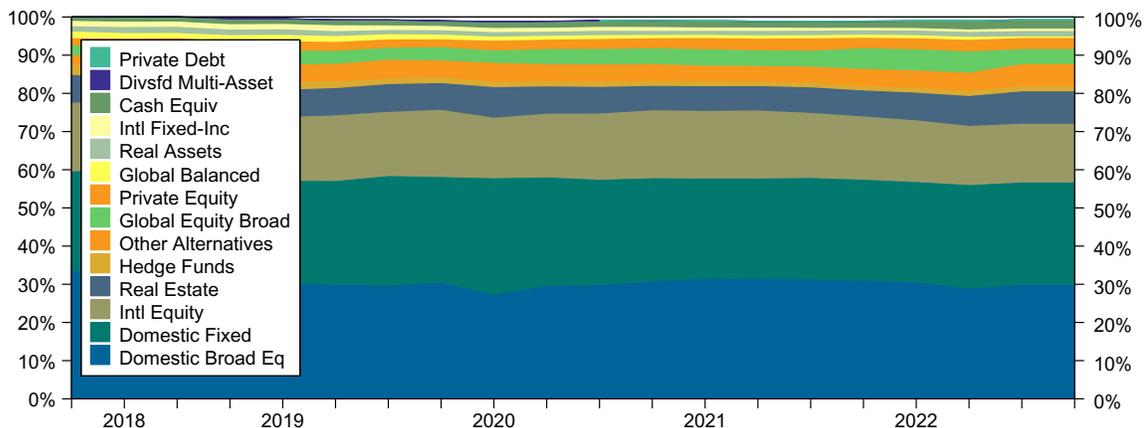
### Actual Historical Asset Allocation



### Target Historical Asset Allocation



### Average Callan Public Fund Sponsor Database Historical Asset Allocation



\* Current Quarter Target = 44.0% MSCI ACWI IMI, 23.0% Blmbg Aggregate, 10.0% Russell 3000 Index lagged 3 months+2.0%, 10.0% 3-month Treasury Bill+3.0%, 9.1% NCREIF NFI-ODCE Eq Wt Net lagged 3 months and 3.9% Principal DRA Blend Index.

# Total Fund

## Period Ended December 31, 2022

### Investment Philosophy

The Public Fund Sponsor Database consists of public employee pension total funds including both Callan Associates client and surveyed non-client funds. Current Quarter Target = 44.0% MSCI ACWI IMI, 23.0% Blmbg Aggregate, 10.0% Russell 3000 Index lagged 3 months+2.0%, 10.0% 3-month Treasury Bill+3.0%, 9.1% NCREIF NFI-ODCE Eq Wt Net lagged 3 months and 3.9% Principal Blended Benchmark.

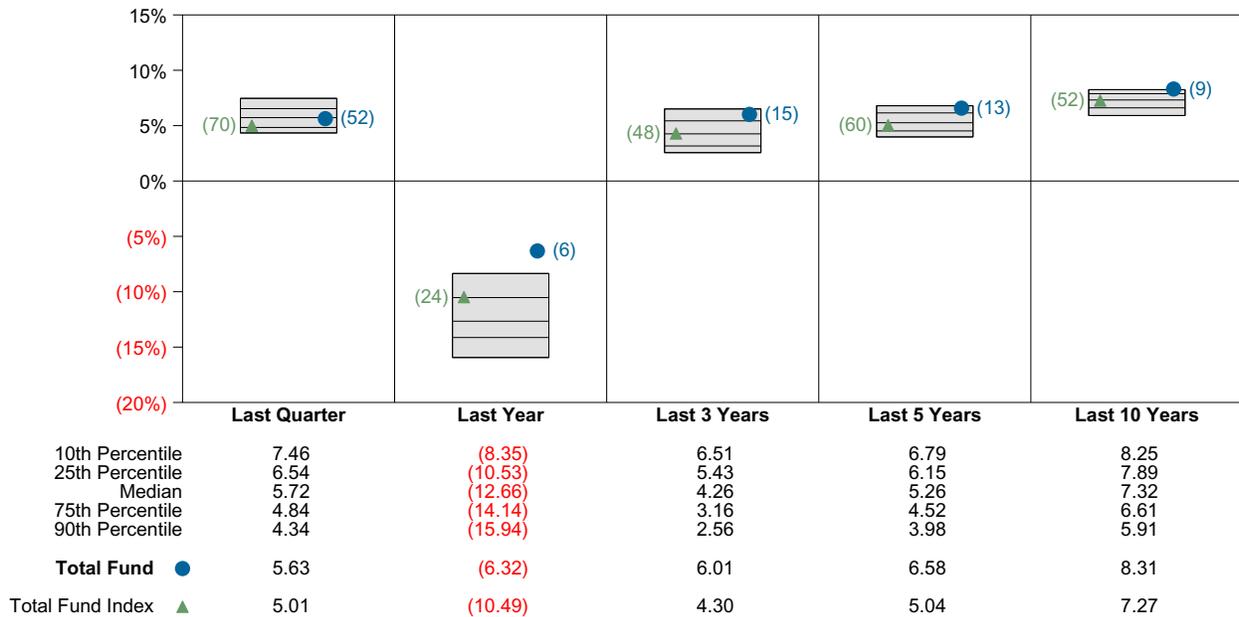
### Quarterly Summary and Highlights

- Total Fund's portfolio posted a 5.63% return for the quarter placing it in the 52 percentile of the Callan Public Fund Sponsor Database group for the quarter and in the 6 percentile for the last year.
- Total Fund's portfolio outperformed the Total Fund Index by 0.62% for the quarter and outperformed the Total Fund Index for the year by 4.17%.

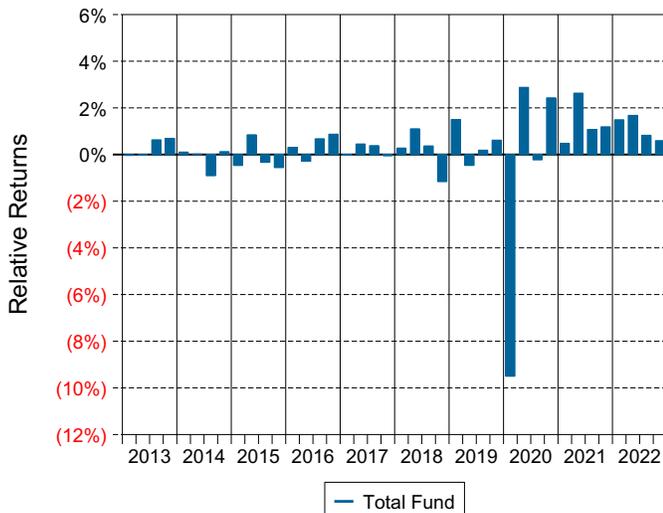
### Quarterly Asset Growth

Beginning Market Value	\$5,276,131,314
Net New Investment	\$-102,932,388
Investment Gains/(Losses)	\$296,173,291
Ending Market Value	\$5,469,372,216

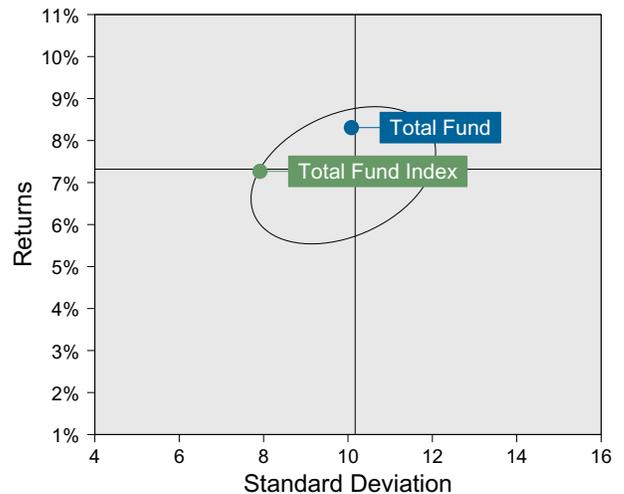
### Performance vs Callan Public Fund Sponsor Database (Gross)



### Relative Return vs Total Fund Index



### Callan Public Fund Sponsor Database (Gross) Annualized Ten Year Risk vs Return

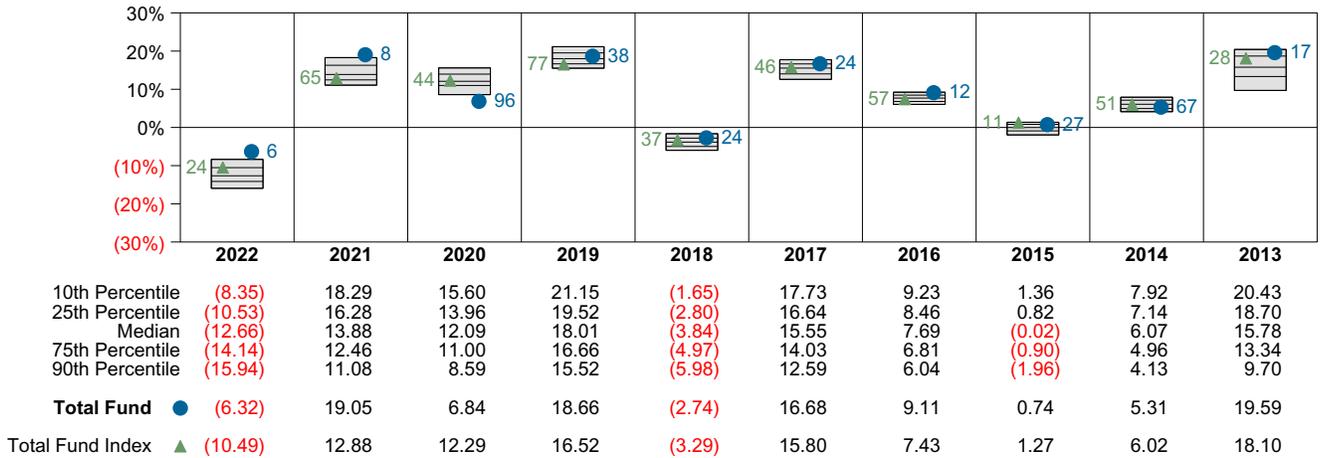


# Total Fund Return Analysis Summary

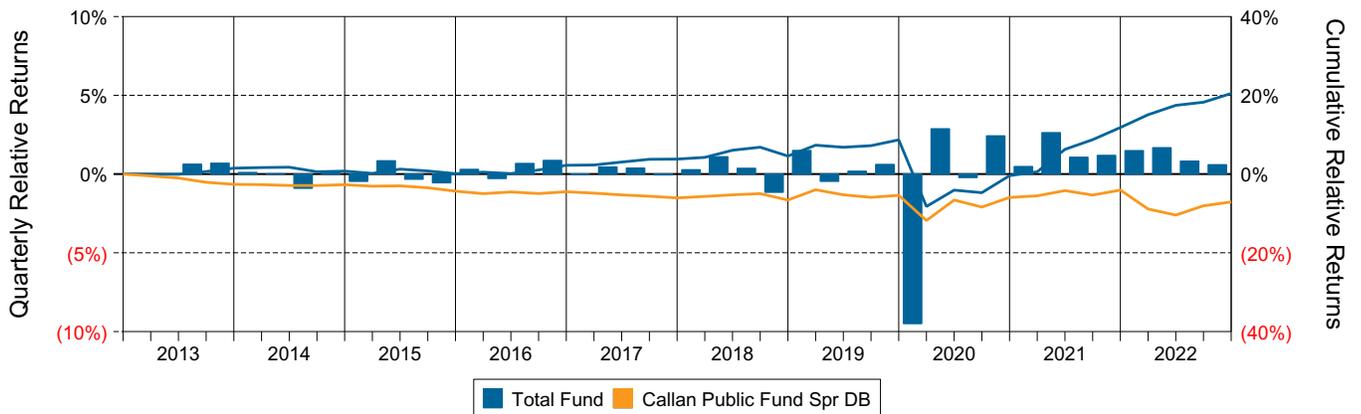
## Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

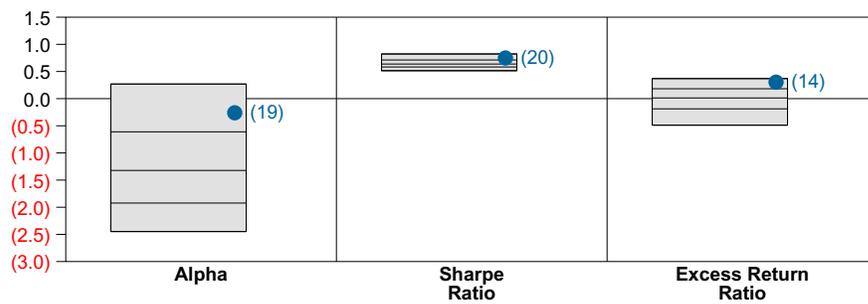
### Performance vs Callan Public Fund Sponsor Database (Gross)



### Cumulative and Quarterly Relative Returns vs Total Fund Index



### Risk Adjusted Return Measures vs Total Fund Index Rankings Against Callan Public Fund Sponsor Database (Gross) Ten Years Ended December 31, 2022



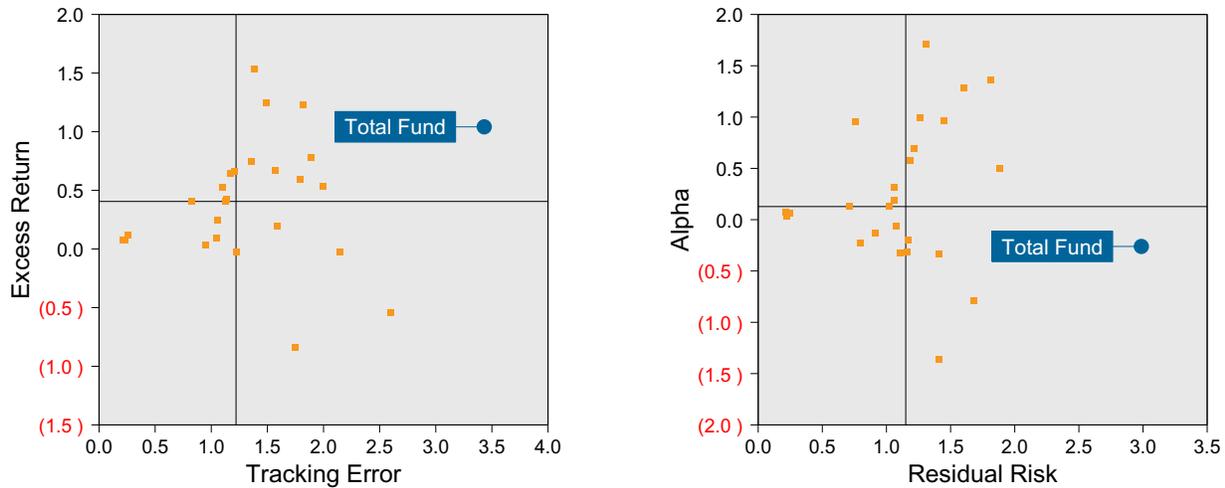
# Total Fund

## Total Fund vs Target Risk Analysis

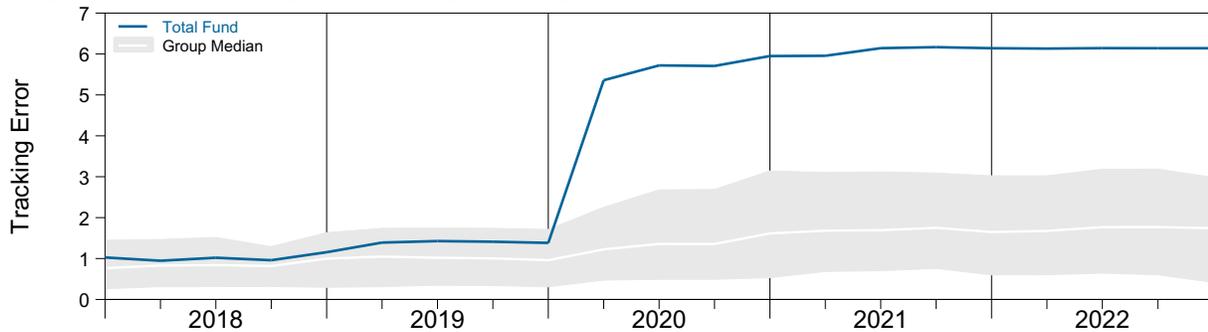
### Risk Analysis

The graphs below analyze the performance and risk of the fund relative to the appropriate target mix. This relative performance is compared to a peer group of funds wherein each member fund is measured against its own target mix. The first scatter chart illustrates the relationship, called Excess Return Ratio, between excess return and tracking error relative to the target. The second scatter chart displays the relationship, sometimes called Information Ratio, between alpha (market-risk or "beta" adjusted return) and residual risk (non-market or "unsystematic" risk). The third chart shows tracking error patterns over time compared to the range of tracking error patterns for the peer group. The last two charts show the ranking of the fund's risk statistics versus the peer group.

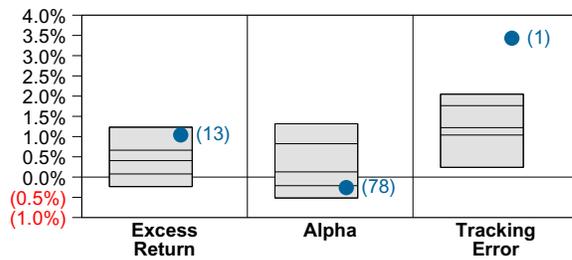
### Risk Analysis vs Callan Public Fund Sponsor Database Ten Years Ended December 31, 2022



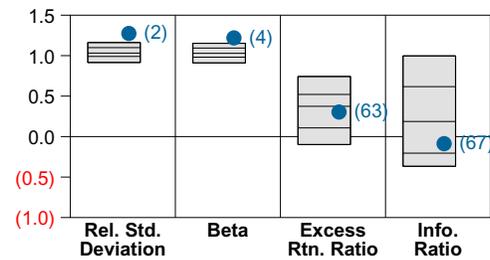
### Rolling 12 Quarter Tracking Error vs Targets Compared to Callan Public Fund Sponsor Database



### Risk Statistics Rankings vs Targets Rankings Against Callan Public Fund Sponsor Database Ten Years Ended December 31, 2022



	Excess Return	Alpha	Tracking Error
10th Percentile	1.23	1.32	2.05
25th Percentile	0.66	0.82	1.76
Median	0.41	0.13	1.22
75th Percentile	0.08	(0.21)	1.04
90th Percentile	(0.24)	(0.52)	0.24
<b>Total Fund</b>	<b>1.04</b>	<b>(0.26)</b>	<b>3.43</b>



	Rel. Std. Deviation	Beta	Excess Rtn. Ratio	Info. Ratio
10th Percentile	1.16	1.15	0.74	1.00
25th Percentile	1.10	1.09	0.52	0.62
Median	1.03	1.03	0.37	0.19
75th Percentile	0.99	0.98	0.11	(0.20)
90th Percentile	0.92	0.91	(0.10)	(0.37)
<b>Total Fund</b>	<b>1.27</b>	<b>1.22</b>	<b>0.30</b>	<b>(0.09)</b>

## Investment Manager Returns and Peer Group Rankings

The table below details the rates of return and peer group rankings for the Fund's investment managers over various time periods ended December 31, 2022. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

### Returns and Rankings for Periods Ended December 31, 2022

	Last Quarter		Last Year		Last 3 Years		Last 5 Years		Since Inception	
<b>Total Public Equity</b>	<b>12.35%</b>		<b>(15.78%)</b>		<b>5.34%</b>		<b>6.03%</b>		<b>9.01%</b>	(1/16)
MSCI ACWI IMI	9.84%		(18.40%)		3.89%		4.96%		7.98%	(1/16)
<b>Total Domestic Equity</b>	<b>9.35%</b>	<b>3</b>	<b>(15.68%)</b>	<b>9</b>	<b>7.92%</b>	<b>17</b>	<b>8.88%</b>	<b>25</b>	<b>7.64%</b>	(7/98)
Russell 3000 Index	7.18%	71	(19.21%)	76	7.07%	46	8.79%	32	7.22%	(7/98)
Pub Pln- Dom Equity	7.62%		(18.16%)		7.00%		8.40%		-	
BlackRock Russell 1000 Value	12.42%	67	(7.54%)	80	6.13%	91	6.85%	69	7.73%	(4/17)
Russell 1000 Value Index	12.42%	67	(7.54%)	80	5.96%	93	6.67%	71	7.55%	(4/17)
Callan Large Cap Value	13.33%		(4.92%)		7.79%		7.55%		-	
DFA Large Cap Value	14.28%	32	(4.95%)	50	6.07%	91	5.78%	94	6.99%	(11/17)
Russell 1000 Value Index	12.42%	67	(7.54%)	80	5.96%	93	6.67%	71	7.37%	(11/17)
Callan Large Cap Value	13.33%		(4.92%)		7.79%		7.55%		-	
Northern Trust Global	7.56%	58	(18.08%)	61	7.68%	62	9.45%	43	10.38%	(8/88)
S&P 500 Index	7.56%	57	(18.11%)	61	7.66%	63	9.42%	43	10.33%	(8/88)
Callan Large Cap Core	7.71%		(17.42%)		7.96%		9.24%		-	
Polen Capital Management	0.45%	85	(37.72%)	90	1.66%	90	9.75%	51	13.02%	(7/12)
S&P 500 Index	7.56%	17	(18.11%)	5	7.66%	30	9.42%	60	12.55%	(7/12)
Callan Large Cap Growth	3.59%		(29.99%)		6.21%		9.95%		-	
Earnest Partners LLC	7.74%	67	(15.13%)	53	9.18%	18	10.19%	10	10.94%	(5/05)
Russell MidCap Index	9.18%	54	(17.32%)	58	5.88%	64	7.10%	52	9.27%	(5/05)
Callan Mid Capitalization	9.62%		(14.05%)		6.64%		7.35%		-	
DFA Small Cap Value	14.50%	9	(1.69%)	10	12.81%	6	7.75%	19	11.64%	(11/96)
Russell 2000 Value Index	8.42%	91	(14.48%)	83	4.70%	77	4.13%	84	8.84%	(11/96)
Callan Small Cap Value	10.92%		(10.56%)		7.24%		5.28%		-	
CastleArk Management	3.67%	55	(28.21%)	62	5.37%	38	8.30%	51	9.65%	(9/13)
Russell 2000 Growth Index	4.13%	45	(26.36%)	45	0.65%	90	3.51%	95	7.40%	(9/13)
Callan Small Cap Growth	3.89%		(27.01%)		4.94%		8.44%		-	
<b>Total Global Equity</b>	<b>11.21%</b>	<b>49</b>	<b>(17.35%)</b>	<b>47</b>	<b>5.33%</b>	<b>41</b>	<b>7.05%</b>	<b>33</b>	<b>8.49%</b>	(4/10)
MSCI World	9.77%	72	(18.14%)	52	4.94%	49	6.14%	52	8.31%	(4/10)
Callan Global Equity	11.14%		(17.98%)		4.93%		6.27%		-	
BlackRock Global Alpha Tilts	11.54%	42	(16.80%)	45	4.81%	56	5.34%	62	10.27%	(3/16)
MSCI ACWI Gross	9.88%	70	(17.96%)	50	4.49%	62	5.75%	57	9.97%	(3/16)
Callan Global Equity	11.14%		(17.98%)		4.93%		6.27%		-	
MFS Investment Management	10.73%	57	(18.14%)	52	6.21%	23	9.63%	5	11.35%	(12/12)
MSCI ACWI Gross	9.88%	70	(17.96%)	50	4.49%	62	5.75%	57	8.71%	(12/12)
Callan Global Equity	11.14%		(17.98%)		4.93%		6.27%		-	
<b>Total International Equity</b>	<b>16.85%</b>	<b>6</b>	<b>(15.36%)</b>	<b>23</b>	<b>1.99%</b>	<b>24</b>	<b>1.83%</b>	<b>51</b>	<b>6.53%</b>	(5/96)
MSCI EAFE	17.34%	2	(14.45%)	16	0.87%	53	1.54%	60	4.28%	(5/96)
Pub Pln- Intl Equity	15.14%		(16.88%)		1.14%		1.94%		-	
AQR Emerging Markets	9.45%	71	(20.29%)	39	(1.55%)	34	(1.24%)	56	4.13%	(8/16)
MSCI EM Gross	9.79%	67	(19.74%)	36	(2.34%)	40	(1.02%)	47	4.22%	(8/16)
Callan Emerging Broad	10.65%		(22.04%)		(2.78%)		(1.14%)		-	
Brandes Investment Partners	21.28%	4	(6.79%)	4	1.72%	43	2.05%	49	7.22%	(2/98)
MSCI EAFE	17.34%	30	(14.45%)	42	0.87%	60	1.54%	63	4.32%	(2/98)
Callan NonUS Eq	16.03%		(15.29%)		1.39%		1.99%		-	
William Blair & Company	12.05%	94	(28.57%)	94	2.07%	37	3.07%	21	7.03%	(12/03)
MSCI ACWIxUS Gross	14.37%	76	(15.57%)	51	0.53%	66	1.36%	67	6.04%	(12/03)
Callan NonUS Eq	16.03%		(15.29%)		1.39%		1.99%		-	
DFA International Small Cap	19.41%	11	(9.42%)	5	2.30%	21	(0.03%)	52	4.40%	(5/06)
MSCI EAFE Small	15.79%	59	(21.39%)	55	(0.93%)	66	(0.05%)	52	3.71%	(5/06)
Callan Intl Small Cap	16.02%		(20.64%)		0.14%		0.06%		-	

## Investment Manager Returns and Peer Group Rankings

The table below details the rates of return and peer group rankings for the Fund's investment managers over various time periods ended December 31, 2022. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

### Returns and Rankings for Periods Ended December 31, 2022

	Last Quarter		Last Year		Last 3 Years		Last 5 Years		Since Inception	
<b>Total Fixed Income</b>	<b>2.63%</b>	<b>16</b>	<b>(6.83%)</b>	<b>7</b>	<b>(3.04%)</b>	<b>98</b>	<b>0.32%</b>	<b>80</b>	<b>6.59%</b>	(12/87)
Bimbg Aggregate	1.87%	61	(13.01%)	70	(2.71%)	95	0.02%	97	5.46%	(12/87)
Pub Pln- Dom Fixed	1.98%		(12.05%)		(1.44%)		0.79%		-	
BlackRock US Govt Bond	0.48%	100	(12.43%)	23	-	-	-		(11.79%)	(12/21)
Bimbg Government	0.72%	100	(12.32%)	19	(2.57%)	88	(0.06%)	99	(11.84%)	(12/21)
Callan Core Bond FI	1.87%		(12.90%)		(2.16%)		0.48%		-	
Reams Asset Management	3.46%	2	(11.39%)	14	0.87%	2	2.62%	2	4.94%	(1/01)
Bimbg Aggregate	1.87%	66	(13.01%)	42	(2.71%)	93	0.02%	96	3.65%	(1/01)
Callan Core Plus FI	2.09%		(13.28%)		(1.90%)		0.74%		-	
Loomis, Sayles & Company, L.P.	2.79%	13	(12.12%)	19	(1.30%)	19	1.49%	11	8.11%	(12/87)
Bimbg Aggregate	1.87%	66	(13.01%)	42	(2.71%)	93	0.02%	96	5.46%	(12/87)
Callan Core Plus FI	2.09%		(13.28%)		(1.90%)		0.74%		-	
<b>Total Private Equity</b>	<b>(2.13%)</b>		<b>(4.88%)</b>		<b>24.89%</b>		<b>22.51%</b>		<b>13.48%</b>	(6/10)
Private Equity Benchmark (3)	(3.66%)		(15.10%)		10.33%		11.57%		-	
Abbott Capital Management 2010	(3.13%)		(16.87%)		19.64%		20.42%		1.66%	(6/10)
Abbott Capital Management 2011	(4.70%)		(18.97%)		22.64%		22.64%		5.25%	(6/11)
Abbott Capital Management 2012	(3.82%)		(13.14%)		24.67%		23.23%		12.74%	(7/12)
Abbott Capital Management 2013	(4.00%)		(12.51%)		24.20%		23.77%		13.61%	(5/13)
Abbott Capital Management 2014	(2.88%)		(9.41%)		26.24%		24.18%		13.29%	(4/14)
Abbott Capital Management 2015	(0.23%)		(0.79%)		26.70%		21.61%		15.23%	(4/15)
Abbott Capital Management 2016	(0.49%)		2.90%		28.31%		20.32%		14.27%	(3/16)
Abbott Capital Management 2018	(0.78%)		7.44%		24.70%		-		17.04%	(7/18)
Abbott Capital Management 2019	(0.32%)		7.54%		22.99%		-		22.99%	(1/20)
Abbott Capital Management 2020	(1.72%)		0.81%		-		-		29.11%	(1/21)
Abbott Capital Management 2021	(0.16%)		1.72%		-		-		6.72%	(2/21)
Abbott Capital Management 2022	(5.43%)		-		-		-		(6.81%)	(2/22)
Mesirow V	(3.68%)		(19.60%)		20.33%		19.05%		15.53%	(6/10)
Mesirow VI	(3.07%)		(13.41%)		28.15%		26.39%		14.69%	(7/13)
Mesirow VII	(1.08%)		(0.68%)		22.83%		12.04%		3.39%	(6/17)
Mesirow VIII	(4.14%)		(2.15%)		-		-		(2.63%)	(9/20)
NB Secondary Opp Fund III	(1.07%)		(2.34%)		9.88%		11.66%		11.62%	(12/13)
NB Secondary Opp Fund IV	(1.55%)		0.29%		19.64%		27.02%		21.99%	(4/17)
NB Secondary Opp Fund V	(11.81%)		-		-		-		132.55%	(3/22)
Private Advisors VI	(0.06%)		9.97%		33.05%		26.20%		15.11%	(4/15)
Private Advisors VII	0.24%		21.61%		24.48%		20.62%		16.25%	(1/17)
Private Advisors VIII	2.63%		27.61%		29.57%		-		21.61%	(8/18)
Private Advisors IX	5.56%		24.00%		-		-		29.03%	(2/20)
<b>Absolute Return</b>	<b>3.30%</b>		<b>26.46%</b>		<b>5.77%</b>		<b>6.28%</b>		<b>5.93%</b>	(6/14)
90 Day T-Bill + 3%	1.57%		4.46%		3.72%		4.26%		3.88%	(6/14)
Aptitude	2.89%	20	-		-		-		2.89%	(9/22)
1-month LIBOR + 4%	1.95%	30	5.80%	29	4.84%	73	5.37%	37	2.49%	(9/22)
Callan Abs Rtn Hedge FoF	1.49%		4.02%		5.62%		4.75%		-	
UBS A & Q	3.44%	15	8.85%	18	9.69%	14	8.21%	11	6.37%	(12/14)
1-month LIBOR + 4%	1.95%	30	5.80%	29	4.84%	73	5.37%	37	5.07%	(12/14)
Callan Abs Rtn Hedge FoF	1.49%		4.02%		5.62%		4.75%		-	
<b>Real Assets</b>	<b>7.76%</b>		<b>(5.29%)</b>		<b>5.44%</b>		<b>4.60%</b>		<b>5.71%</b>	(1/16)
Principal DRA	7.76%	15	(5.29%)	84	5.44%	76	4.60%	60	5.71%	(1/16)
Principal DRA Blend Index (1)	8.12%	13	(5.07%)	84	3.94%	79	3.64%	78	5.03%	(1/16)
Callan Alternative Inv DB	2.64%		11.35%		11.38%		5.72%		-	
<b>Total Real Estate</b>	<b>(2.47%)</b>		<b>13.88%</b>		<b>12.43%</b>		<b>10.51%</b>		<b>7.15%</b>	(7/86)
Real Estate	(2.47%)	83	13.88%	15	12.43%	10	10.51%	12	7.15%	(7/86)
Blended Benchmark (2)	0.77%	62	21.68%	3	12.13%	11	9.87%	18	-	
Callan Tot Real Est DB	1.31%		6.74%		7.87%		7.58%		-	
<b>Total Fund</b>	<b>5.63%</b>	<b>52</b>	<b>(6.32%)</b>	<b>6</b>	<b>6.01%</b>	<b>15</b>	<b>6.58%</b>	<b>13</b>	<b>-</b>	
Total Fund Index*	5.01%	70	(10.49%)	24	4.30%	48	5.04%	60	-	
Callan Public Fund Spr DB	5.72%		(12.66%)		4.26%		5.26%		-	

\* Current Quarter Target = 44.0% MSCI ACWI IMI, 23.0% Bimbg Aggregate, 10.0% Russell 3000 Index lagged 3 months+2.0%, 10.0% 3-month Treasury Bill+3.0%, 9.1% NCREIF NFI-ODCE Eq Wt Net lagged 3 months and 3.9% Principal DRA Blend Index.

(1) Current Principal DRA Blend Index = 15% Bloomberg US TIPS Idx, 15% Bloomberg Commodity Idx, 30% S&P Global Infrastructure Idx, 15% S&P Global Natural Resources Idx and 25% FTSE EPRA/NAREIT Developed Market Idx.

(2) Blended Benchmark = NCREIF (NPI) through 6/30/06, NCREIF (NPI 1 Qtr Arrears) through 12/31/13 and NFI-ODCE (1 Qtr Arrears) thereafter.

(3) Private Equity Benchmark = Russell 3000 Index lagged 3 months+3.0% through 12/31/19, Russell 3000 Index lagged 3 months+2.0% thereafter.

## Investment Manager Returns and Peer Group Rankings

The table below details the rates of return and peer group rankings for the Fund's investment managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

	2022		2021		2020		2019		2018	
<b>Total Public Equity</b>	<b>(15.78%)</b>		<b>20.92%</b>		<b>14.78%</b>		<b>26.90%</b>		<b>(9.67%)</b>	
MSCI ACWI IMI	(18.40%)		18.22%		16.25%		26.35%		(10.08%)	
<b>Total Domestic Equity</b>	<b>(15.68%)</b>	<b>9</b>	<b>28.12%</b>	<b>14</b>	<b>16.35%</b>	<b>75</b>	<b>29.24%</b>	<b>74</b>	<b>(5.80%)</b>	<b>48</b>
Russell 3000 Index	(19.21%)	76	25.66%	55	20.89%	26	31.02%	29	(5.24%)	33
Pub Pln- Dom Equity	(18.16%)		25.80%		18.70%		30.26%		(5.84%)	
BlackRock Russell 1000 Value	(7.54%)	80	25.18%	79	3.28%	46	26.79%	45	(8.12%)	43
Russell 1000 Value Index	(7.54%)	80	25.16%	79	2.80%	52	26.54%	49	(8.27%)	45
Callan Large Cap Value	(4.92%)		28.39%		3.04%		26.42%		(8.70%)	
DFA Large Cap Value	(4.95%)	50	27.52%	65	(1.56%)	90	26.71%	46	(12.40%)	84
Russell 1000 Value Index	(7.54%)	80	25.16%	79	2.80%	52	26.54%	49	(8.27%)	45
Callan Large Cap Value	(4.92%)		28.39%		3.04%		26.42%		(8.70%)	
Northern Trust Global	(18.08%)	61	28.69%	53	18.42%	53	31.54%	39	(4.34%)	31
S&P 500 Index	(18.11%)	61	28.71%	53	18.40%	53	31.49%	39	(4.38%)	32
Callan Large Cap Core	(17.42%)		28.98%		19.19%		30.50%		(5.41%)	
Polen Capital Management	(37.72%)	90	24.84%	43	35.13%	55	38.85%	11	9.14%	4
S&P 500 Index	(18.11%)	5	28.71%	20	18.40%	98	31.49%	76	(4.38%)	91
Callan Large Cap Growth	(29.99%)		24.26%		35.57%		34.55%		0.51%	
Earnest Partners LLC	(15.13%)	53	26.09%	48	21.61%	41	38.38%	12	(9.80%)	45
Russell MidCap Index	(17.32%)	58	22.58%	58	17.10%	48	30.54%	52	(9.06%)	41
Callan Mid Capitalization	(14.05%)		25.38%		16.17%		31.00%		(10.60%)	
DFA Small Cap Value	(1.69%)	10	40.61%	16	3.85%	45	18.79%	89	(14.84%)	53
Russell 2000 Value Index	(14.48%)	83	28.27%	64	4.63%	37	22.39%	64	(12.86%)	23
Callan Small Cap Value	(10.56%)		31.82%		2.88%		24.31%		(14.79%)	
CastleArk Management	(28.21%)	62	12.30%	42	45.10%	46	23.28%	86	3.29%	15
Russell 2000 Growth Index	(26.36%)	45	2.83%	80	34.63%	73	28.48%	54	(9.31%)	84
Callan Small Cap Growth	(27.01%)		10.91%		44.48%		30.25%		(2.91%)	
<b>Total Global Equity</b>	<b>(17.35%)</b>	<b>47</b>	<b>19.03%</b>	<b>54</b>	<b>18.78%</b>	<b>43</b>	<b>31.05%</b>	<b>27</b>	<b>(8.18%)</b>	<b>40</b>
MSCI World	(18.14%)	52	21.82%	28	15.90%	55	27.67%	49	(8.71%)	44
Callan Global Equity	(17.98%)		19.50%		17.13%		27.49%		(9.52%)	
BlackRock Global Alpha Tilts	(16.80%)	45	18.73%	57	16.53%	52	26.86%	53	(11.20%)	67
MSCI ACWI Gross	(17.96%)	50	19.04%	54	16.82%	51	27.30%	51	(8.93%)	46
Callan Global Equity	(17.98%)		19.50%		17.13%		27.49%		(9.52%)	
MFS Investment Management	(18.14%)	52	19.56%	50	22.42%	32	37.31%	4	(3.75%)	11
MSCI ACWI Gross	(17.96%)	50	19.04%	54	16.82%	51	27.30%	51	(8.93%)	46
Callan Global Equity	(17.98%)		19.50%		17.13%		27.49%		(9.52%)	
<b>Total International Equity</b>	<b>(15.36%)</b>	<b>23</b>	<b>13.08%</b>	<b>12</b>	<b>10.84%</b>	<b>73</b>	<b>21.68%</b>	<b>75</b>	<b>(15.19%)</b>	<b>69</b>
MSCI EAFE	(14.45%)	16	11.26%	23	7.82%	91	22.01%	64	(13.79%)	42
Pub Pln- Intl Equity	(16.88%)		8.41%		13.09%		22.93%		(14.04%)	
AQR Emerging Markets	(20.29%)	39	1.23%	36	18.26%	49	20.54%	63	(18.31%)	86
MSCI EM Gross	(19.74%)	36	(2.22%)	55	18.69%	44	18.90%	71	(14.24%)	28
Callan Emerging Broad	(22.04%)		(0.57%)		18.17%		22.12%		(15.34%)	
Brandes Investment Partners	(6.79%)	4	14.42%	18	(1.30%)	96	15.31%	98	(8.79%)	6
MSCI EAFE	(14.45%)	42	11.26%	52	7.82%	66	22.01%	65	(13.79%)	36
Callan NonUS Eq	(15.29%)		11.45%		11.47%		23.64%		(15.12%)	
William Blair & Company	(28.57%)	94	13.27%	30	31.44%	6	31.58%	9	(16.86%)	73
MSCI ACWIxUS Gross	(15.57%)	51	8.29%	72	11.13%	51	22.13%	64	(13.77%)	36
Callan NonUS Eq	(15.29%)		11.45%		11.47%		23.64%		(15.12%)	
DFA International Small Cap	(9.42%)	5	16.47%	14	1.47%	89	21.62%	81	(23.31%)	91
MSCI EAFE Small	(21.39%)	55	10.10%	72	12.34%	45	24.96%	50	(17.89%)	30
Callan Intl Small Cap	(20.64%)		12.78%		11.08%		24.96%		(19.67%)	

## Investment Manager Returns and Peer Group Rankings

The table below details the rates of return and peer group rankings for the Fund's investment managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

	2022		2021		2020		2019		2018	
<b>Total Fixed Income</b>	<b>(6.83%)</b>	<b>7</b>	<b>(0.36%)</b>	<b>44</b>	<b>(1.82%)</b>	<b>98</b>	<b>11.82%</b>	<b>5</b>	<b>(0.33%)</b>	<b>72</b>
Blmbg Aggregate	(13.01%)	70	(1.54%)	91	7.51%	66	8.72%	58	0.01%	57
Pub Pln- Dom Fixed	(12.05%)		(0.70%)		8.40%		8.97%		0.11%	
BlackRock US Govt Bond	(12.43%)	23	-		-		-		-	
Blmbg Government	(12.32%)	19	(2.28%)	100	7.94%	85	6.83%	100	0.88%	4
Callan Core Bond FI	(12.90%)		(1.04%)		8.70%		9.17%		0.11%	
Reams Asset Management	(11.39%)	14	(1.23%)	91	17.28%	2	8.82%	92	1.91%	1
Blmbg Aggregate	(13.01%)	42	(1.54%)	97	7.51%	91	8.72%	93	0.01%	30
Callan Core Plus FI	(13.28%)		(0.27%)		9.25%		10.03%		(0.24%)	
Loomis, Sayles & Company, L.P.	(12.12%)	19	2.13%	5	7.14%	92	14.42%	1	(2.11%)	98
Blmbg Aggregate	(13.01%)	42	(1.54%)	97	7.51%	91	8.72%	93	0.01%	30
Callan Core Plus FI	(13.28%)		(0.27%)		9.25%		10.03%		(0.24%)	
<b>Total Private Equity</b>	<b>(4.88%)</b>		<b>67.66%</b>		<b>22.14%</b>		<b>16.63%</b>		<b>21.48%</b>	
Private Equity Benchmark (3)	(15.10%)		34.08%		17.99%		6.65%		20.71%	
Abbott Capital Management 2010	(16.87%)		65.55%		24.43%		16.52%		26.90%	
Abbott Capital Management 2011	(18.97%)		76.29%		29.13%		19.64%		25.70%	
Abbott Capital Management 2012	(13.14%)		72.85%		29.04%		17.91%		24.39%	
Abbott Capital Management 2013	(12.51%)		70.21%		28.65%		21.13%		25.17%	
Abbott Capital Management 2014	(9.41%)		75.52%		26.51%		19.74%		22.58%	
Abbott Capital Management 2015	(0.79%)		75.81%		16.62%		15.14%		13.57%	
Abbott Capital Management 2016	2.90%		71.04%		20.02%		9.08%		9.43%	
Abbott Capital Management 2018	7.44%		47.06%		22.73%		7.26%		-	
Abbott Capital Management 2019	7.54%		57.22%		10.04%		-		-	
Abbott Capital Management 2020	0.81%		65.36%		-		-		-	
Abbott Capital Management 2021	1.72%		-		-		-		-	
Mesirow V	(19.60%)		78.52%		21.39%		16.29%		18.01%	
Mesirow VI	(13.41%)		88.26%		29.10%		22.73%		24.87%	
Mesirow VII	(0.68%)		60.27%		16.43%		3.33%		(7.82%)	
Mesirow VIII	(2.15%)		10.14%		-		-		-	
NB Secondary Opp Fund III	(2.34%)		30.34%		4.23%		12.18%		16.65%	
NB Secondary Opp Fund IV	0.29%		48.73%		14.80%		14.76%		68.26%	
Private Advisors VI	9.97%		83.78%		16.54%		17.98%		15.19%	
Private Advisors VII	21.61%		52.55%		3.97%		11.23%		19.02%	
Private Advisors VIII	27.61%		47.25%		15.78%		(4.08%)		-	
Private Advisors IX	24.00%		37.25%		-		-		-	
<b>Absolute Return</b>	<b>26.46%</b>		<b>8.87%</b>		<b>(14.04%)</b>		<b>12.79%</b>		<b>1.61%</b>	
90 Day T-Bill + 3%	4.46%		3.05%		3.67%		5.28%		4.85%	
UBS A & Q	8.85%	18	8.08%	45	12.18%	14	9.53%	5	2.65%	12
1-month LIBOR + 4%	5.80%	29	4.11%	71	4.63%	45	6.32%	30	6.03%	2
Callan Abs Rtn Hedge FoF	4.02%		6.76%		4.03%		4.71%		0.51%	
<b>Real Assets</b>	<b>(5.29%)</b>		<b>18.24%</b>		<b>4.69%</b>		<b>15.39%</b>		<b>(7.47%)</b>	
Principal DRA	(5.29%)	84	18.24%	42	4.69%	25	15.39%	15	(7.47%)	50
Principal DRA Blend Index (1)	(5.07%)	84	15.87%	45	2.08%	34	14.86%	16	(7.27%)	49
Callan Alternative Inv DB	11.35%		13.57%		(0.39%)		7.87%		(7.43%)	
<b>Total Real Estate</b>	<b>13.88%</b>		<b>23.85%</b>		<b>0.76%</b>		<b>6.21%</b>		<b>9.18%</b>	
Real Estate	13.88%	15	23.85%	35	0.76%	54	6.21%	65	9.18%	39
Blended Benchmark (2)	21.68%	3	14.83%	59	0.89%	52	5.26%	72	7.89%	50
Callan Tot Real Est DB	6.74%		19.19%		1.17%		7.69%		7.89%	
<b>Total Fund</b>	<b>(6.32%)</b>	<b>6</b>	<b>19.05%</b>	<b>8</b>	<b>6.84%</b>	<b>96</b>	<b>18.66%</b>	<b>38</b>	<b>(2.74%)</b>	<b>24</b>
Total Fund Index*	(10.49%)	24	12.88%	65	12.29%	44	16.52%	77	(3.29%)	37
Callan Public Fund Spr DB	(12.66%)		13.88%		12.09%		18.01%		(3.84%)	

\* Current Quarter Target = 44.0% MSCI ACWI IMI, 23.0% Blmbg Aggregate, 10.0% Russell 3000 Index lagged 3 months+2.0%, 10.0% 3-month Treasury Bill+3.0%, 9.1% NCREIF NFI-ODCE Eq Wt Net lagged 3 months and 3.9% Principal DRA Blend Index.

(1) Current Principal DRA Blend Index = 15% Bloomberg US TIPS Idx, 15% Bloomberg Commodity Idx, 30% S&P Global Infrastructure Idx, 15% S&P Global Natural Resources Idx and 25% FTSE EPRA/NAREIT Developed Market Idx.

(2) Blended Benchmark = NCREIF (NPI) through 6/30/06, NCREIF (NPI 1 Qtr Arrears) through 12/31/13 and NFI-ODCE (1 Qtr Arrears) thereafter.

(3) Private Equity Benchmark = Russell 3000 Index lagged 3 months+3.0% through 12/31/19, Russell 3000 Index lagged 3 months+2.0% thereafter.

## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended December 31, 2022. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

### Returns for Periods Ended December 31, 2022

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
<b>Net of Fee Returns</b>					
<b>Total Domestic Equity</b>	<b>9.27%</b>	<b>(15.89%)</b>	<b>7.68%</b>	<b>8.62%</b>	<b>11.84%</b>
Russell 3000 Index	7.18%	(19.21%)	7.07%	8.79%	12.13%
BlackRock Russell 1000 Value	12.41%	(7.55%)	6.12%	6.83%	-
Russell 1000 Value Index	12.42%	(7.54%)	5.96%	6.67%	10.29%
DFA Large Cap Value	14.23%	(5.12%)	5.87%	5.57%	-
Russell 1000 Value Index	12.42%	(7.54%)	5.96%	6.67%	10.29%
Northern Trust Global	7.55%	(18.09%)	7.66%	9.44%	12.59%
S&P 500 Index	7.56%	(18.11%)	7.66%	9.42%	12.56%
Polen Capital Management	0.35%	(37.97%)	1.25%	9.28%	12.72%
S&P 500 Index	7.56%	(18.11%)	7.66%	9.42%	12.56%
Earnest Partners LLC	7.59%	(15.58%)	8.64%	9.63%	12.77%
Russell MidCap Index	9.18%	(17.32%)	5.88%	7.10%	10.96%
DFA Small Cap Value	14.32%	(2.12%)	12.54%	7.44%	10.58%
Russell 2000 Value Index	8.42%	(14.48%)	4.70%	4.13%	8.48%
CastleArk Management	3.50%	(28.58%)	4.71%	7.61%	-
Russell 2000 Growth Index	4.13%	(26.36%)	0.65%	3.51%	9.20%
<b>Total Global Equity</b>	<b>11.12%</b>	<b>(17.55%)</b>	<b>5.08%</b>	<b>6.75%</b>	<b>9.28%</b>
MSCI World	9.77%	(18.14%)	4.94%	6.14%	8.85%
BlackRock Global Alpha Tilts	11.48%	(16.89%)	4.71%	5.20%	-
MSCI ACWI Gross	9.88%	(17.96%)	4.49%	5.75%	8.54%
MFS Investment Management	10.61%	(18.50%)	5.75%	9.16%	10.74%
MSCI ACWI Gross	9.88%	(17.96%)	4.49%	5.75%	8.54%
<b>Total International Equity</b>	<b>16.72%</b>	<b>(15.75%)</b>	<b>1.51%</b>	<b>1.34%</b>	<b>5.28%</b>
MSCI EAFE Index	17.34%	(14.45%)	0.87%	1.54%	4.67%
AQR Emerging Markets	9.22%	(20.93%)	(2.30%)	(1.99%)	-
MSCI EM Gross	9.79%	(19.74%)	(2.34%)	(1.02%)	1.81%
Brandes Investment Partners	21.17%	(7.15%)	1.33%	1.66%	5.09%
MSCI EAFE Index	17.34%	(14.45%)	0.87%	1.54%	4.67%
William Blair & Company	11.92%	(28.91%)	1.60%	2.62%	5.66%
MSCI ACWI ex-US Index	14.37%	(15.57%)	0.53%	1.36%	4.28%
DFA International Small Cap	19.29%	(9.80%)	1.76%	(0.45%)	5.86%
MSCI EAFE Small	15.79%	(21.39%)	(0.93%)	(0.05%)	6.21%

\*Net returns are simulated with the use of fee schedules through March 31, 2019. Actual fees paid are used thereafter.

## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended December 31, 2022. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

### Returns for Periods Ended December 31, 2022

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
<b>Net of Fee Returns</b>					
<b>Total Fixed Income</b>	<b>2.60%</b>	<b>(6.93%)</b>	<b>(3.14%)</b>	<b>0.20%</b>	<b>1.35%</b>
Blmbg Aggregate	1.87%	(13.01%)	(2.71%)	0.02%	1.06%
BlackRock US Govt Bond	0.47%	(12.44%)	-	-	-
Blmbg Government	0.72%	(12.32%)	(2.57%)	(0.06%)	0.60%
Reams Asset Management	3.43%	(11.50%)	0.74%	2.48%	2.29%
Blmbg Aggregate	1.87%	(13.01%)	(2.71%)	0.02%	1.06%
Loomis, Sayles & Company, L.P.	2.75%	(12.26%)	(1.44%)	1.35%	2.96%
Blmbg Aggregate	1.87%	(13.01%)	(2.71%)	0.02%	1.06%
<b>Total Private Equity</b>	<b>(2.13%)</b>	<b>(4.88%)</b>	<b>24.89%</b>	<b>22.51%</b>	<b>17.40%</b>
Private Equity Benchmark	(3.66%)	(15.10%)	10.33%	11.57%	-
Abbott Capital Management 2010	(3.13%)	(16.87%)	19.64%	20.42%	16.41%
Abbott Capital Management 2011	(4.70%)	(18.97%)	22.64%	22.64%	16.08%
Abbott Capital Management 2012	(3.82%)	(13.14%)	24.67%	23.23%	14.42%
Abbott Capital Management 2013	(4.00%)	(12.51%)	24.20%	23.77%	-
Abbott Capital Management 2014	(2.88%)	(9.41%)	26.24%	24.18%	-
Abbott Capital Management 2015	(0.23%)	(0.79%)	26.70%	21.61%	-
Abbott Capital Management 2016	(0.49%)	2.90%	28.31%	20.32%	-
Abbott Capital Management 2018	(0.78%)	7.44%	24.70%	-	-
Abbott Capital Management 2019	(0.32%)	7.54%	22.99%	-	-
Abbott Capital Management 2020	(1.72%)	0.81%	-	-	-
Abbott Capital Management 2021	(0.16%)	1.72%	-	-	-
Abbott Capital Management 2022	(5.43%)	-	-	-	-
Mesirow V	(3.68%)	(19.60%)	20.33%	19.05%	18.26%
Mesirow IV	(3.07%)	(13.41%)	28.15%	26.39%	-
Mesirow VII	(1.08%)	(0.68%)	22.83%	12.04%	-
Mesirow VIII	(4.14%)	(2.15%)	-	-	-
NB Secondary Opp Fund III	(1.07%)	(2.34%)	9.88%	11.66%	-
NB Secondary Opp Fund IV	(1.55%)	0.29%	19.64%	27.02%	-
NB Secondary Opp Fund V	(11.81%)	-	-	-	-
Private Advisors VI	(0.06%)	9.97%	33.05%	26.20%	-
Private Advisors VII	0.24%	21.61%	24.48%	20.62%	-
Private Advisors VIII	2.63%	27.61%	29.57%	-	-
Private Advisors IX	5.56%	24.00%	-	-	-
<b>Absolute Return</b>	<b>3.30%</b>	<b>26.46%</b>	<b>5.67%</b>	<b>6.17%</b>	<b>-</b>
90 Day T-Bill + 3%	1.57%	4.46%	3.72%	4.26%	3.76%
Aptitude	2.89%	-	-	-	-
1-month LIBOR + 4%	1.95%	5.80%	4.84%	5.37%	4.90%
UBS A & Q	3.44%	8.85%	9.69%	8.21%	-
1-month LIBOR + 4%	1.95%	5.80%	4.84%	5.37%	4.90%
<b>Real Assets</b>	<b>7.59%</b>	<b>(5.91%)</b>	<b>4.77%</b>	<b>4.10%</b>	<b>-</b>
Principal DRA	7.59%	(5.91%)	4.77%	4.10%	-
Principal DRA Blend Index	8.12%	(5.07%)	3.94%	3.64%	-
<b>Total Real Estate</b>	<b>(2.52%)</b>	<b>13.58%</b>	<b>12.07%</b>	<b>10.19%</b>	<b>11.07%</b>
Real Estate	(2.52%)	13.58%	12.07%	10.19%	11.07%
Blended Benchmark	0.77%	21.68%	12.13%	9.87%	10.19%
<b>Total Fund</b>	<b>5.57%</b>	<b>(6.51%)</b>	<b>5.78%</b>	<b>6.32%</b>	<b>8.03%</b>
Total Fund Index	5.01%	(10.49%)	4.30%	5.04%	7.27%

\*Net returns are simulated with the use of fee schedules through March 31, 2019. Actual fees paid are used thereafter.

## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

	2022	2021	2020	2019	2018
<b>Net of Fee Returns</b>					
<b>Total Domestic Equity</b>	<b>(15.89%)</b>	<b>27.88%</b>	<b>16.09%</b>	<b>28.94%</b>	<b>(6.10%)</b>
Russell 3000 Index	(19.21%)	25.66%	20.89%	31.02%	(5.24%)
BlackRock Russell 1000 Value Russell 1000 Value Index	(7.55%) (7.54%)	25.17% 25.16%	3.27% 2.80%	26.77% 26.54%	(8.13%) (8.27%)
DFA Large Cap Value Russell 1000 Value Index	(5.12%) (7.54%)	27.35% 25.16%	(1.78%) 2.80%	26.42% 26.54%	(12.60%) (8.27%)
Northern Trust Global S&P 500 Index	(18.09%) (18.11%)	28.68% 28.71%	18.41% 18.40%	31.53% 31.49%	(4.37%) (4.38%)
Polen Capital Management S&P 500 Index	(37.97%) (18.11%)	24.34% 28.71%	34.59% 18.40%	38.27% 31.49%	8.60% (4.38%)
Earnest Partners LLC Russell MidCap Index	(15.58%) (17.32%)	25.59% 22.58%	20.96% 17.10%	37.65% 30.54%	(10.29%) (9.06%)
DFA Small Cap Value Russell 2000 Value Index	(2.12%) (14.48%)	40.38% 28.27%	3.74% 4.63%	18.58% 22.39%	(15.30%) (12.86%)
CastleArk Management Russell 2000 Growth Index	(28.58%) (26.36%)	11.55% 2.83%	44.12% 34.63%	22.47% 28.48%	2.60% (9.31%)
<b>Total Global Equity</b>	<b>(17.55%)</b>	<b>18.80%</b>	<b>18.48%</b>	<b>30.55%</b>	<b>(8.51%)</b>
MSCI World	(18.14%)	21.82%	15.90%	27.67%	(8.71%)
BlackRock Global Alpha Tilts MSCI ACWI Gross	(16.89%) (17.96%)	18.67% 19.04%	16.39% 16.82%	26.48% 27.30%	(11.24%) (8.93%)
MFS Investment Management MSCI ACWI Gross	(18.50%) (17.96%)	19.05% 19.04%	21.88% 16.82%	36.74% 27.30%	(4.16%) (8.93%)
<b>Total International Equity</b>	<b>(15.75%)</b>	<b>12.57%</b>	<b>10.28%</b>	<b>21.08%</b>	<b>(15.60%)</b>
MSCI EAFE Index	(14.45%)	11.26%	7.82%	22.01%	(13.79%)
AQR Emerging Markets MSCI EM Gross	(20.93%) (19.74%)	0.47% (2.22%)	17.38% 18.69%	19.64% 18.90%	(18.93%) (14.24%)
Brandes Investment Partners MSCI EAFE Index	(7.15%) (14.45%)	14.00% 11.26%	(1.69%) 7.82%	14.86% 22.01%	(9.17%) (13.79%)
William Blair & Company MSCI ACWI ex-US Index	(28.91%) (15.57%)	12.77% 8.29%	30.84% 11.13%	31.01% 22.13%	(17.20%) (13.77%)
DFA International Small Cap MSCI EAFE Small	(9.80%) (21.39%)	15.89% 10.10%	0.81% 12.34%	21.00% 24.96%	(23.31%) (17.89%)

\*Net returns are simulated with the use of fee schedules through March 31, 2019. Actual fees paid are used thereafter.

## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

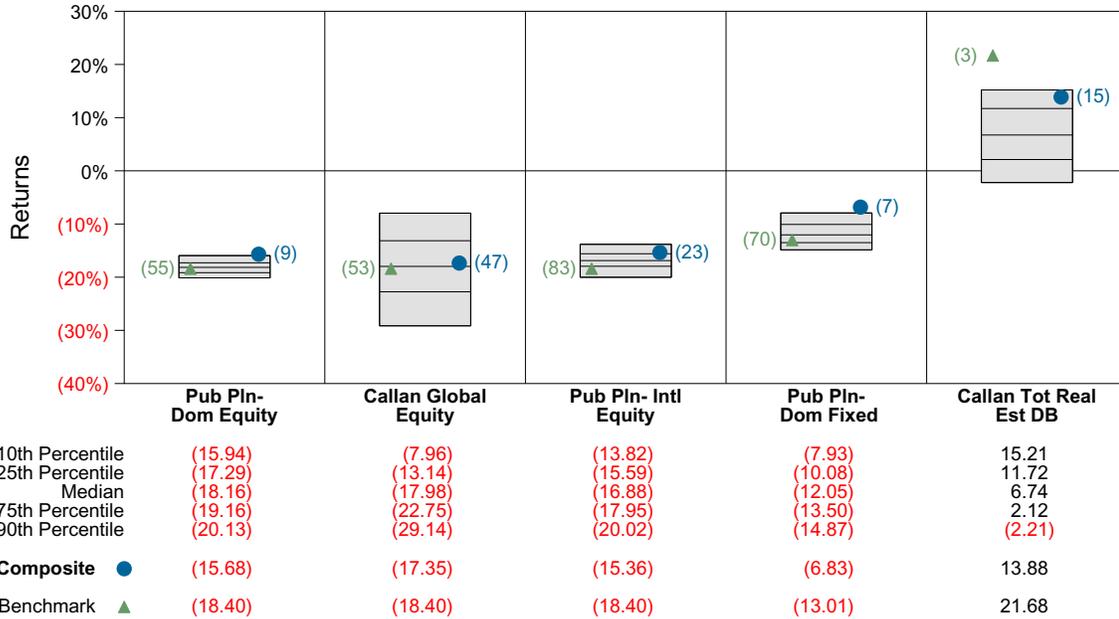
	2022	2021	2020	2019	2018
<b>Net of Fee Returns</b>					
<b>Total Fixed Income</b>	<b>(6.93%)</b>	<b>(0.45%)</b>	<b>(1.91%)</b>	<b>11.68%</b>	<b>(0.47%)</b>
Blmbg Aggregate	(13.01%)	(1.54%)	7.51%	8.72%	0.01%
BlackRock US Govt Bond Blmbg Government	(12.44%) (12.32%)	- (2.28%)	- 7.94%	- 6.83%	- 0.88%
Reams Asset Management Blmbg Aggregate	(11.50%) (13.01%)	(1.36%) (1.54%)	17.11% 7.51%	8.65% 8.72%	1.76% 0.01%
Loomis, Sayles & Company, L.P. Blmbg Aggregate	(12.26%) (13.01%)	1.98% (1.54%)	6.99% 7.51%	14.25% 8.72%	(2.24%) 0.01%
<b>Total Private Equity</b>	<b>(4.88%)</b>	<b>67.66%</b>	<b>22.14%</b>	<b>16.63%</b>	<b>21.48%</b>
Private Equity Benchmark	(15.10%)	34.08%	17.99%	6.65%	20.71%
Abbott Capital Management 2010	(16.87%)	65.55%	24.43%	16.52%	26.90%
Abbott Capital Management 2011	(18.97%)	76.29%	29.13%	19.64%	25.70%
Abbott Capital Management 2012	(13.14%)	72.85%	29.04%	17.91%	24.39%
Abbott Capital Management 2013	(12.51%)	70.21%	28.65%	21.13%	25.17%
Abbott Capital Management 2014	(9.41%)	75.52%	26.51%	19.74%	22.58%
Abbott Capital Management 2015	(0.79%)	75.81%	16.62%	15.14%	13.57%
Abbott Capital Management 2016	2.90%	71.04%	20.02%	9.08%	9.43%
Abbott Capital Management 2018	7.44%	47.06%	22.73%	7.26%	-
Abbott Capital Management 2019	7.54%	57.22%	10.04%	-	-
Abbott Capital Management 2020	0.81%	65.36%	-	-	-
Abbott Capital Management 2021	1.72%	-	-	-	-
Mesirow V	(19.60%)	78.52%	21.39%	16.29%	18.01%
Mesirow IV	(13.41%)	88.26%	29.10%	22.73%	24.87%
Mesirow VII	(0.68%)	60.27%	16.43%	3.33%	(7.82%)
Mesirow VIII	(2.15%)	10.14%	-	-	-
NB Secondary Opp Fund III	(2.34%)	30.34%	4.23%	12.18%	16.65%
NB Secondary Opp Fund IV	0.29%	48.73%	14.80%	14.76%	68.26%
Private Advisors VI	9.97%	83.78%	16.54%	17.98%	15.19%
Private Advisors VII	21.61%	52.55%	3.97%	11.23%	19.02%
Private Advisors VIII	27.61%	47.25%	15.78%	(4.08%)	-
Private Advisors IX	24.00%	37.25%	-	-	-
<b>Absolute Return</b>	<b>26.46%</b>	<b>8.77%</b>	<b>(14.21%)</b>	<b>12.52%</b>	<b>1.61%</b>
90 Day T-Bill + 3%	4.46%	3.05%	3.67%	5.28%	4.85%
UBS A & Q	8.85%	8.08%	12.18%	9.53%	2.65%
1-month LIBOR + 4%	5.80%	4.11%	4.63%	6.32%	6.03%
<b>Real Assets</b>	<b>(5.91%)</b>	<b>17.51%</b>	<b>4.02%</b>	<b>14.84%</b>	<b>(7.47%)</b>
Principal DRA	(5.91%)	17.51%	4.02%	14.84%	(7.47%)
Principal DRA Blend Index	(5.07%)	15.87%	2.08%	14.86%	(7.27%)
<b>Total Real Estate</b>	<b>13.58%</b>	<b>23.45%</b>	<b>0.39%</b>	<b>5.95%</b>	<b>8.94%</b>
Real Estate	13.58%	23.45%	0.39%	5.95%	8.94%
Blended Benchmark	21.68%	14.83%	0.89%	5.26%	7.89%
<b>Total Fund</b>	<b>(6.51%)</b>	<b>18.80%</b>	<b>6.59%</b>	<b>18.34%</b>	<b>(3.01%)</b>
Total Fund Index	(10.49%)	12.88%	12.29%	16.52%	(3.29%)

\*Net returns are simulated with the use of fee schedules through March 31, 2019. Actual fees paid are used thereafter.

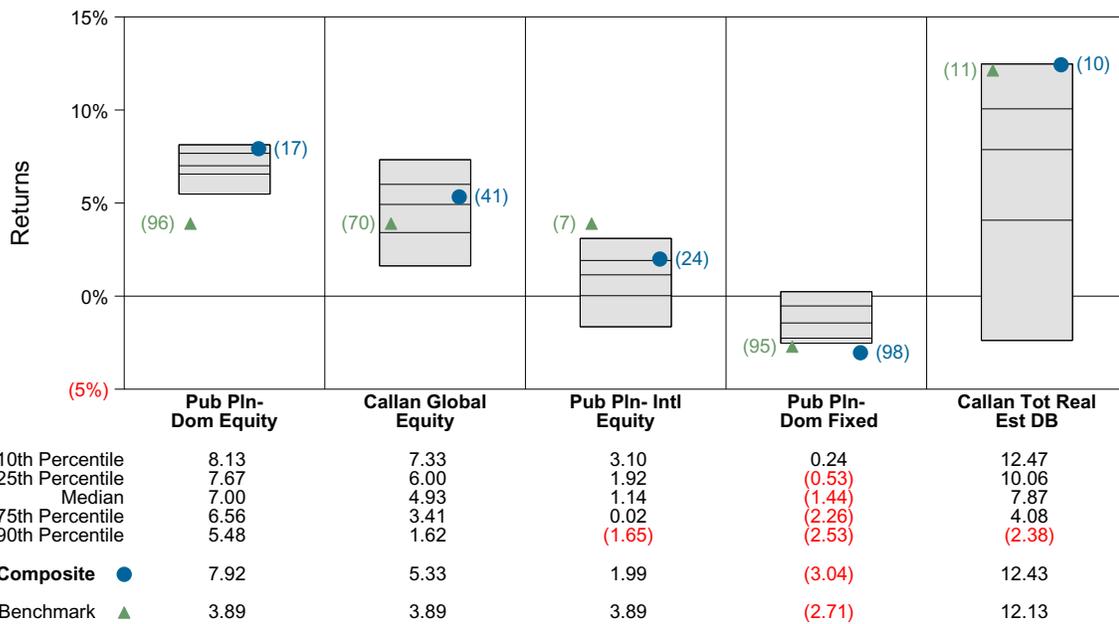
## Asset Class Rankings

The charts below show the rankings of each asset class component of the Total Fund relative to appropriate comparative databases.

### Total Asset Class Performance One Year Ended December 31, 2022



### Total Asset Class Performance Three Years Ended December 31, 2022

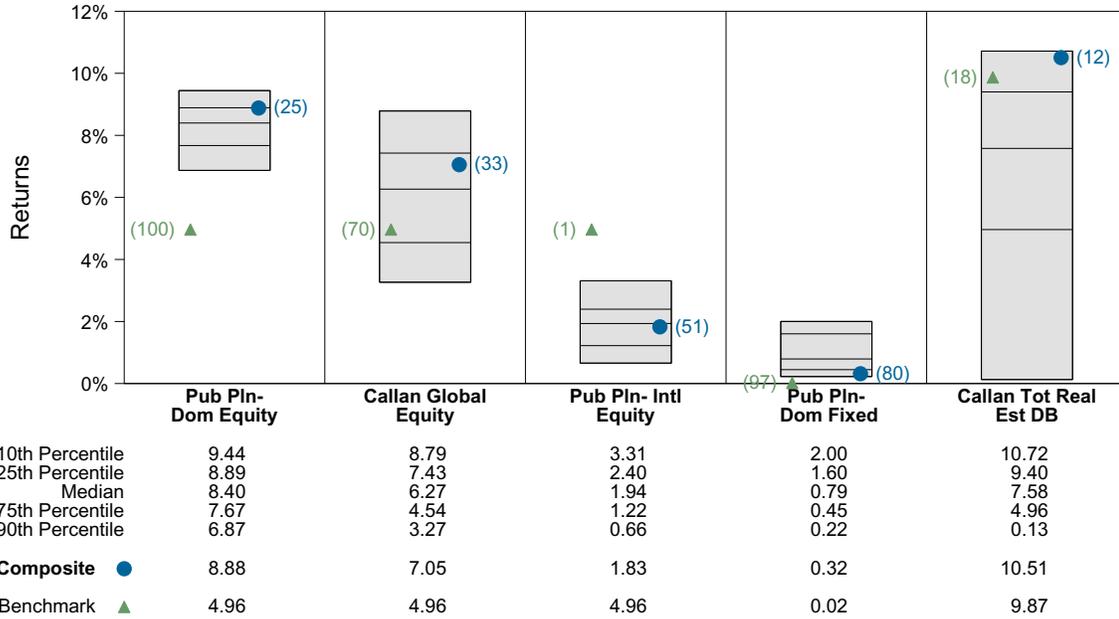


\* Current Quarter Target = 44.0% MSCI ACWI IMI, 23.0% Blmbg Aggregate, 10.0% Russell 3000 Index lagged 3 months+2.0%, 10.0% 3-month Treasury Bill+3.0%, 9.1% NCREIF NFI-ODCE Eq Wt Net lagged 3 months and 3.9% Principal DRA Blend Index.

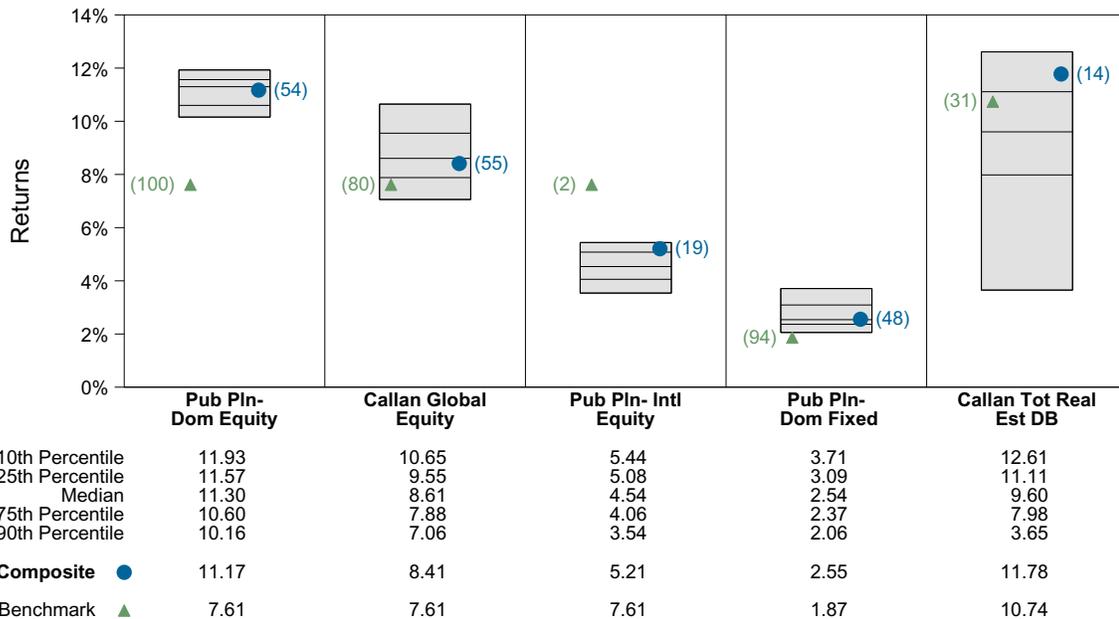
## Asset Class Rankings

The charts below show the rankings of each asset class component of the Total Fund relative to appropriate comparative databases.

### Total Asset Class Performance Five Years Ended December 31, 2022



### Total Asset Class Performance Twelve Years Ended December 31, 2022

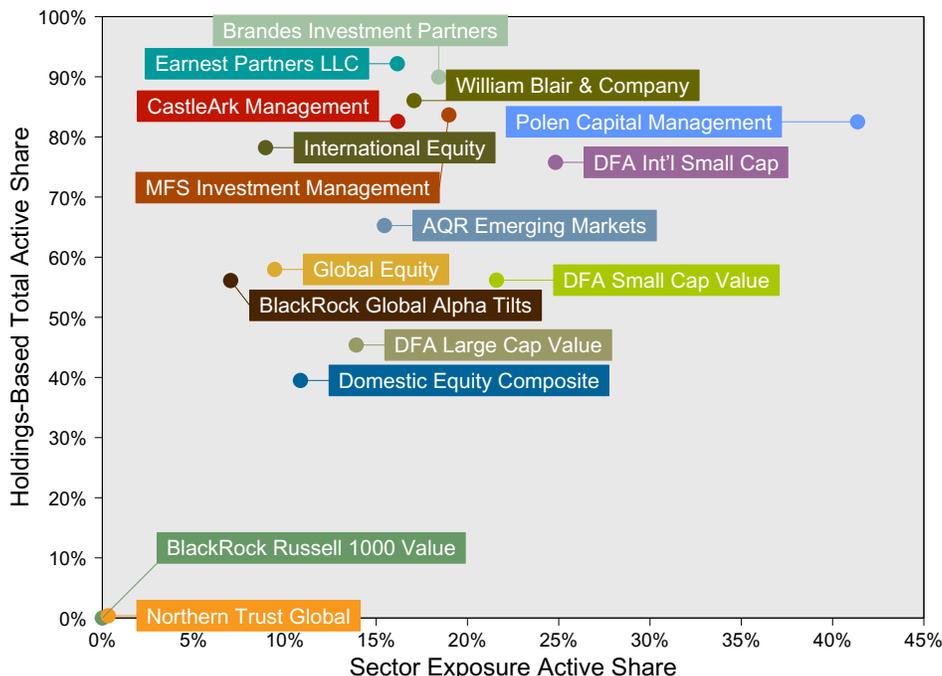


\* Current Quarter Target = 44.0% MSCI ACWI IMI, 23.0% Blmbg Aggregate, 10.0% Russell 3000 Index lagged 3 months+2.0%, 10.0% 3-month Treasury Bill+3.0%, 9.1% NCREIF NFI-ODCE Eq Wt Net lagged 3 months and 3.9% Principal DRA Blend Index.

## Active Share Structure Analysis For One Quarter Ended December 31, 2022

This analysis compares multiple portfolios and composites in an active share context, illustrating the varying degrees of active risk taken by individual portfolios, and how they combine into active risk profiles for composites and the equity structure. Two sources of active share (active risk) are shown: 1) Total Holdings-Based Active Share based on individual position comparisons to the index (and the subcomponent from holding non-index securities), and 2) Sector Exposure Active Share that quantifies the more macro-level sector differences from the index.

### Active Share Analysis Ended December 31, 2022



	Index	Total Act Share	Non-Idx Act Share	Sector Act Share	Number Securities	Security Diverse
<b>Domestic Equity Composite</b>	<b>Russell 3000</b>	<b>39.50%</b>	<b>0.68%</b>	<b>10.85%</b>	<b>1883</b>	<b>126.43</b>
BlackRock Russell 1000 Value	Russell 1000 Value	0.00%	0.00%	0.00%	852	62.97
DFA Large Cap Value	Russell 1000 Value	45.39%	0.56%	13.91%	314	38.57
Northern Trust Global	S&P 500	0.38%	0.00%	0.32%	502	46.41
Polen Capital Management	S&P 500	82.51%	2.45%	41.37%	22	7.38
Earnest Partners LLC	Russell MidCap	92.17%	10.48%	16.16%	60	23.93
DFA Small Cap Value	Russell 2000 Value	56.19%	15.45%	21.59%	958	123.71
CastleArk Management	Russell 2000 Growth	82.58%	19.20%	16.18%	109	34.32
<b>Global Equity</b>	<b>MSCI World</b>	<b>57.96%</b>	<b>7.01%</b>	<b>9.44%</b>	<b>866</b>	<b>55.30</b>
BlackRock Global Alpha Tilts	MSCI ACWI GD	56.12%	3.75%	7.03%	828	56.64
MFS Investment Management	MSCI ACWI GD	83.66%	3.23%	18.98%	76	22.72
<b>International Equity</b>	<b>MSCI EAFE</b>	<b>78.22%</b>	<b>28.01%</b>	<b>8.94%</b>	<b>2507</b>	<b>70.42</b>
AQR Emerging Markets	MSCI EM GD	65.26%	3.32%	15.45%	371	32.26
Brandes Investment Partners	MSCI EAFE	89.96%	15.61%	18.42%	65	22.55
William Blair & Company	MSCI ACWI xUS GD	86.05%	17.66%	17.07%	288	50.12
DFA Int'l Small Cap	MSCI EAFE Small	75.77%	15.56%	24.82%	1948	164.20

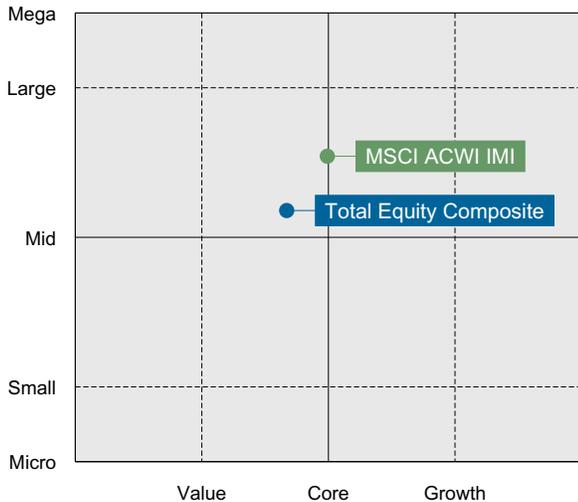
# Current Holdings Based Style Analysis

## Total Equity Composite

### As of December 31, 2022

This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various regional and style segments of the international/global equity market. The market is segmented quarterly by region and style. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each region/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

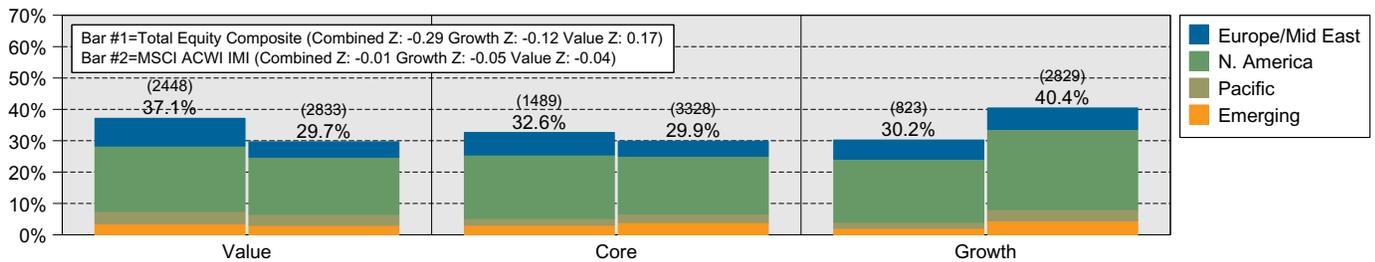
**Style Map vs Callan Public Fund Spr DB Holdings as of December 31, 2022**



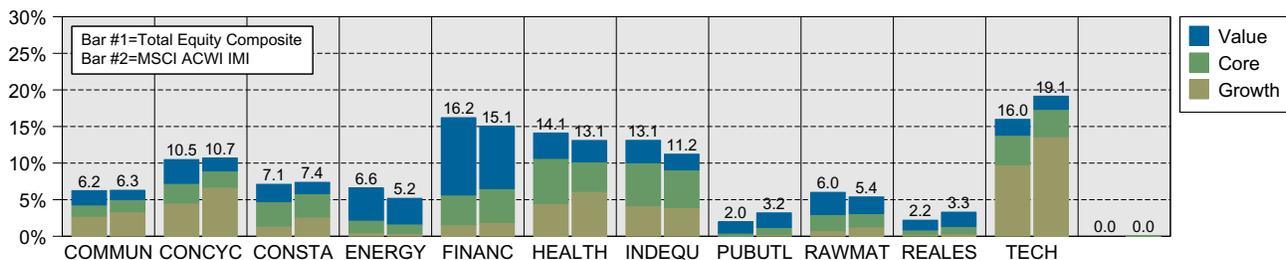
**Style Exposure Matrix Holdings as of December 31, 2022**

	Value	Core	Growth	Total
Europe/Mid East	8.9% (447)	7.2% (306)	6.1% (151)	22.1% (904)
	4.9% (483)	4.8% (526)	6.8% (492)	16.5% (1501)
N. America	20.8% (946)	20.2% (703)	20.1% (391)	61.2% (2040)
	18.3% (876)	18.4% (1160)	25.6% (808)	62.3% (2844)
Pacific	3.9% (860)	2.1% (295)	1.9% (121)	7.9% (1276)
	3.5% (497)	2.8% (540)	3.5% (513)	9.8% (1550)
Emerging	3.6% (195)	3.1% (185)	2.1% (160)	8.8% (540)
	3.0% (977)	3.9% (1102)	4.5% (1016)	11.4% (3095)
<b>Total</b>	<b>37.1% (2448)</b>	<b>32.6% (1489)</b>	<b>30.2% (823)</b>	<b>100.0% (4760)</b>
	29.7% (2833)	29.9% (3328)	40.4% (2829)	100.0% (8990)

**Combined Z-Score Style Distribution Holdings as of December 31, 2022**



**Sector Weights Distribution Holdings as of December 31, 2022**



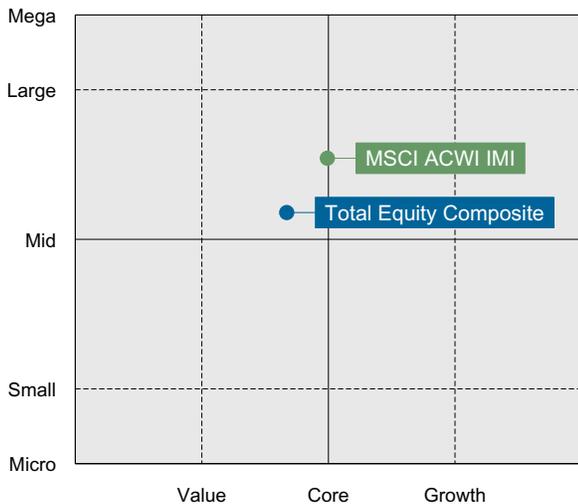
# Current Holdings Based Style Analysis

## Total Equity Composite

### As of December 31, 2022

This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various regional and style segments of the international/global equity market. The market is segmented quarterly by region and style. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each capitalization/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

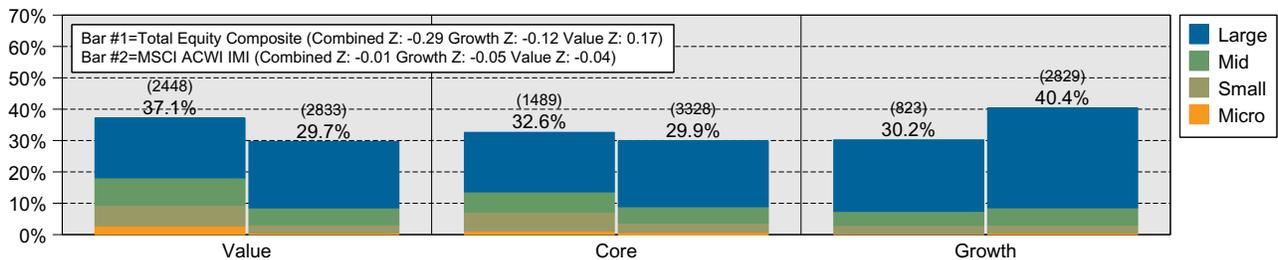
**Style Map vs Callan Public Fund Spr DB Holdings as of December 31, 2022**



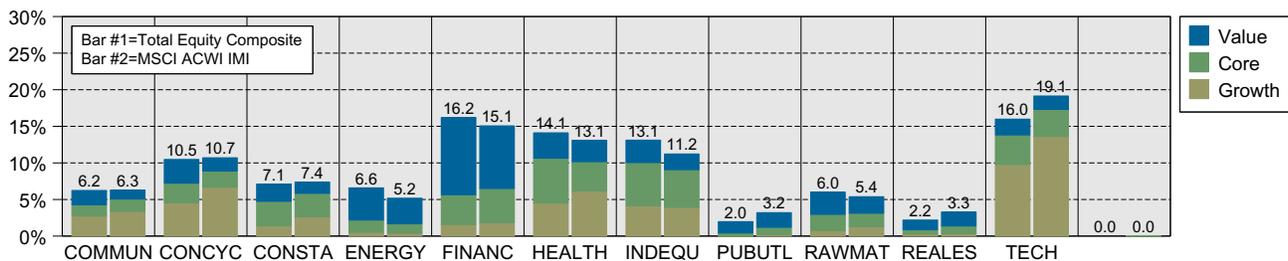
**Style Exposure Matrix Holdings as of December 31, 2022**

	Value	Core	Growth	Total
Large	19.0% (240)	19.0% (197)	22.8% (220)	60.9% (657)
	21.2% (320)	21.0% (261)	31.9% (318)	74.1% (899)
Mid	8.8% (313)	6.4% (326)	4.5% (254)	19.7% (893)
	5.4% (554)	5.2% (588)	5.4% (656)	16.0% (1798)
Small	6.6% (506)	6.1% (485)	2.7% (204)	15.3% (1195)
	2.6% (1096)	3.0% (1370)	2.6% (1130)	8.2% (3596)
Micro	2.7% (1389)	1.1% (481)	0.2% (145)	4.1% (2015)
	0.6% (863)	0.7% (1109)	0.5% (725)	1.8% (2697)
Total	37.1% (2448)	32.6% (1489)	30.2% (823)	100.0% (4760)
	29.7% (2833)	29.9% (3328)	40.4% (2829)	100.0% (8990)

**Combined Z-Score Style Distribution Holdings as of December 31, 2022**



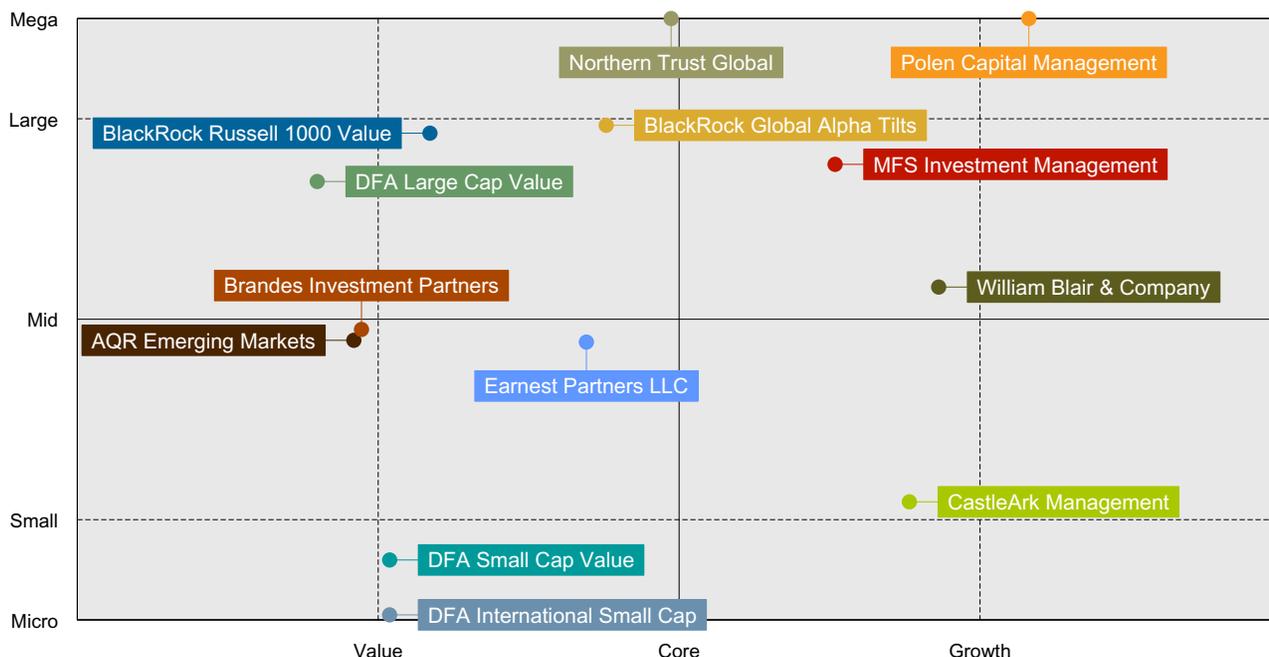
**Sector Weights Distribution Holdings as of December 31, 2022**



## Global Holdings Based Style Analysis For One Quarter Ended December 31, 2022

This page analyzes and compares the investment styles of multiple portfolios using a detailed holdings-based style analysis methodology. The size component of style is measured by the weighted median market capitalization of the holdings. The value/core/growth style dimension is captured by the "Combined Z-Score" of the portfolio. This score is based on eight fundamental factors used in the MSCI stock style scoring system. The table below gives a more detailed breakdown of several relevant style metrics on the portfolios.

### Style Map Holdings for One Quarter Ended December 31, 2022



	Weight %	Wtd Median Mkt Cap	Combined Z-Score	Growth Z-Score	Value Z-Score	Number of Securities	Security Diversification
BlackRock Russell 1000 Value	8.78%	81.88	(0.73)	(0.36)	0.37	852	62.97
DFA Large Cap Value	6.45%	65.38	(1.06)	(0.37)	0.69	314	38.57
Northern Trust Global	8.77%	149.74	(0.02)	(0.04)	(0.02)	502	46.41
Polen Capital Management	5.08%	182.19	1.10	0.40	(0.70)	22	7.38
Earnest Partners LLC	4.47%	16.58	(0.27)	(0.13)	0.14	60	23.93
DFA Small Cap Value	7.88%	2.44	(0.84)	(0.21)	0.64	958	123.71
CastleArk Management	3.48%	4.41	0.72	0.20	(0.52)	109	34.32
MFS Investment Management	7.61%	71.23	0.49	0.01	(0.48)	76	22.72
BlackRock Global Alpha Tilts	11.08%	84.58	(0.21)	(0.10)	0.12	828	56.64
AQR Emerging Markets	3.82%	16.71	(0.95)	(0.19)	0.76	371	32.26
Brandes Investment Partners	14.36%	17.54	(0.93)	(0.33)	0.60	65	22.55
William Blair & Company	10.55%	29.31	0.82	0.22	(0.60)	288	50.12
DFA International Small Cap	7.68%	1.60	(0.84)	(0.18)	0.67	1948	164.20



## Quarterly Highlights

The Callan Institute provides research to update clients on the latest industry trends and carefully structured educational programs to enhance the knowledge of industry professionals. Visit [www.callan.com/research-library](http://www.callan.com/research-library) to see all of our publications, and [www.callan.com/blog](http://www.callan.com/blog) to view our blog. For more information contact Barb Gerraty at 415-274-3093 / [institute@callan.com](mailto:institute@callan.com).

## New Research from Callan's Experts

**2022 ESG Survey** | Callan's 10th annual survey assesses the status of environmental, social, and governance (ESG) investing in the U.S. institutional investment market.

**Considering Currency: A Guide for Institutional Investors** | This guide to currency trends over time provides institutional investors with multiple ways to benchmark and analyze their portfolios.

**2022 Nuclear Decommissioning Funding Study** | Julia Moriarty offers key insights into the status of nuclear decommissioning funding to make peer comparisons more accurate and relevant.

## Blog Highlights

**What DC Plan Sponsors Should Know About Recent Litigation Trends** | Callan reviewed lawsuits filed against DC plans between January 2019 and August 2022, to provide an analysis of trends in litigation centered on the fiduciary duties outlined in ERISA.

**How Does Your Public DB Plan Measure Up?** | Most public DB plans saw sharp losses for the fiscal year ended 6/30/22. However, plan returns for fiscal year 2021 were the strongest in three decades.

**Index Selection Within TDF Benchmarks Can Make a Big Difference** | Most TDF providers build a custom benchmark for performance comparisons. While this approach is useful, it does not capture differences in glidepath design and asset allocation that are the major drivers of relative performance.

## Webinar Replays

**Callan's 2023-2032 Capital Markets Assumptions** | During this webinar, Jay Kloepfer, Kevin Machiz, and Adam Lozinski described our 2023-2032 Capital Markets Assumptions, discussed the process

and rationale behind these long-term assumptions, and explained the potential implications for strategic recommendations.

**Corporate Pension Hibernation** | Callan specialists explore why closed and frozen plans might wish to hibernate in the current market, thereby deferring the decision to fully terminate until the future.

**Research Cafe: ESG Interview Series** | During this interview, Tom Shingler of Callan discusses with Sara Rosner, director of environment research and engagement for AllianceBernstein's responsible investing team, carbon emissions and why they matter to investors.

## Quarterly Periodicals

**Private Equity Update, 3Q22** | A high-level summary of private equity activity in the quarter through all the investment stages

**Active vs. Passive Charts, 3Q22** | A comparison of active managers alongside relevant benchmarks over the long term

**Market Pulse, 3Q22** | A quarterly market reference guide covering trends in the U.S. economy, developments for institutional investors, and the latest data on the capital markets

**Capital Markets Review, 3Q22** | Analysis and a broad overview of the economy and public and private markets activity each quarter across a wide range of asset classes

**Hedge Fund Update, 3Q22** | Commentary on developments for hedge funds and multi-asset class (MAC) strategies

**Real Assets Update, 3Q22** | A summary of market activity for real assets and private real estate during the quarter

**Private Credit Update, 3Q22** | A review of performance and fundraising activity for private credit during the quarter

## Events

---

A complete list of all upcoming events can be found on our website: [callan.com/events-education](https://callan.com/events-education).

*Please mark your calendar and look forward to upcoming invitations:*

### 2023 National Conference

April 2-4, 2023 – Scottsdale, AZ

### 2023 June Workshops

June 27, 2023 – New York

June 29, 2023 – Chicago

For more information about events, please contact Barb Gerraty: 415-274-3093 / [gerraty@callan.com](mailto:gerraty@callan.com)

## Education: By the Numbers

---

**50+**

Unique pieces of research the Institute generates each year

**525**

Attendees (on average) of the Institute's annual National Conference

**3,700**

Total attendees of the "Callan College" since 1994

---

## Education

---

Founded in 1994, the "Callan College" offers educational sessions for industry professionals involved in the investment decision-making process.

### Introduction to Investments

March 1-2 – Chicago

May 23-25 – Virtual

This program familiarizes institutional investor trustees and staff and asset management advisers with basic investment theory, terminology, and practices. Our virtual session is held over three days with virtual modules of 2.5-3 hours, while the in-person session lasts one-and-a-half days. This course is designed for individuals with less than two years of experience with asset-management oversight and/or support responsibilities. Virtual tuition is \$950 per person and includes instruction and digital materials. In-person tuition is \$2,350 per person and includes instruction, all materials, breakfast and lunch on each day, and dinner on the first evening with the instructors.

Additional information including registration can be found at: [callan.com/events-education](https://callan.com/events-education)



"Research is the foundation of all we do at Callan, and sharing our best thinking with the investment community is our way of helping to foster dialogue to raise the bar across the industry."

Greg Allen, CEO and Chief Research Officer



## List of Callan's Investment Manager Clients

Confidential – For Callan Client Use Only

Callan takes its fiduciary and disclosure responsibilities to clients very seriously. We recognize that there are numerous potential conflicts of interest encountered in the investment consulting industry, and that it is our responsibility to manage those conflicts effectively and in the best interest of our clients. At Callan, we employ a robust process to identify, manage, monitor, and disclose potential conflicts on an ongoing basis.

The list below is an important component of our conflicts management and disclosure process. It identifies those investment managers that pay Callan fees for educational, consulting, software, database, or reporting products and services. We update the list quarterly because we believe that our fund sponsor clients should know the investment managers that do business with Callan, particularly those investment manager clients that the fund sponsor clients may be using or considering using. Please note that if an investment manager receives a product or service on a complimentary basis (e.g., attending an educational event), they are not included in the list below. Callan is committed to ensuring that we do not consider an investment manager's business relationship with Callan, or lack thereof, in performing evaluations for or making suggestions or recommendations to its other clients. Please refer to Callan's ADV Part 2A for a more detailed description of the services and products that Callan makes available to investment manager clients through our Institutional Consulting Group, Independent Adviser Group, and Fund Sponsor Consulting Group. Due to the complex corporate and organizational ownership structures of many investment management firms, parent and affiliate firm relationships are not indicated on our list.

Fund sponsor clients may request a copy of the most currently available list at any time. Fund sponsor clients may also request specific information regarding the fees paid to Callan by particular fund manager clients. Per company policy, information requests regarding fees are handled exclusively by Callan's Compliance department.

Manager Name
abrdrn (Aberdeen Standard Investments)
Acadian Asset Management LLC
Adams Street Partners, LLC
AEGON USA Investment Management Inc.
AllianceBernstein
Allianz
Allspring Global Investments
American Century Investments
Amundi US, Inc.
Antares Capital LP
AQR Capital Management
Ares Management LLC
Ariel Investments, LLC
Aristotle Capital Management, LLC
Arrowmark Partners
ARS Investment Partners LLC
Atlanta Capital Management Co., LLC
AXA Investment Managers

Manager Name
Baillie Gifford International, LLC
Baird Advisors
Barings LLC
Baron Capital Management, Inc.
Barrow, Hanley, Mewhinney & Strauss, LLC
Belle Haven Investments
BentallGreenOak
BlackRock
Blackstone Group (The)
BNY Mellon Asset Management
Boston Partners
Brandes Investment Partners, L.P.
Brandywine Global Investment Management, LLC
Brookfield Asset Management Inc.
Brown Brothers Harriman & Company
Capital Group
Carillon Tower Advisers
Carlyle Group

**Manager Name**

CastleArk Management, LLC  
Chartwell Investment Partners  
ClearBridge Investments, LLC  
Clearlake Capital  
Cohen & Steers Capital Management, Inc.  
Columbia Threadneedle Investments North America  
Conestoga Capital Advisors  
Credit Suisse Asset Management, LLC  
Crescent Capital Group LP  
D.E. Shaw Investment Management, LLC  
DePrince, Race & Zollo, Inc.  
Diamond Hill Capital Management, Inc.  
Dimensional Fund Advisors L.P.  
Doubleline  
Duff & Phelps Investment Management Co.  
DWS  
EARNEST Partners, LLC  
Epoch Investment Partners, Inc.  
Fayez Sarofim & Company  
Federated Hermes, Inc.  
Fidelity Institutional Asset Management  
Fiera Capital Corporation  
First Hawaiian Bank Wealth Management Division  
First Sentier Investors  
Fisher Investments  
Franklin Templeton  
Fred Alger Management, LLC  
GAM (USA) Inc.  
GlobeFlex Capital, L.P.  
GoldenTree Asset Management, LP  
Goldman Sachs  
Golub Capital  
Guggenheim Investments  
GW&K Investment Management  
Harbor Capital Advisors  
HarbourVest Partners, LLC  
Hardman Johnston Global Advisors LLC  
Heitman LLC  
HPS Investment Partners, LLC  
Hotchkis & Wiley Capital Management, LLC

**Manager Name**

Impax Asset Management LLC  
Income Research + Management  
Insight Investment  
Intech Investment Management LLC  
Intercontinental Real Estate Corporation  
Invesco  
J.P. Morgan  
Janus  
Jennison Associates LLC  
J O Hambro Capital Management Limited  
Jobs Peak Advisors  
Johnson Asset Management  
KeyCorp  
Kohlberg Kravis Roberts & Co. (KKR)  
Lazard Asset Management  
LGIM America  
Lighthouse Investment Partners, LLC  
Lincoln National Corporation  
Longview Partners  
Loomis, Sayles & Company, L.P.  
Lord Abbett & Company  
LSV Asset Management  
MackKay Shields LLC  
Macquarie Asset Management  
Man Group  
Manning & Napier Advisors, LLC  
Manulife Investment Management  
Marathon Asset Management, L.P.  
McKinley Capital Management, LLC  
Mellon  
MetLife Investment Management  
MFS Investment Management  
MidFirst Bank  
MLC Asset Management  
Mondrian Investment Partners Limited  
Monroe Capital LLC  
Montag & Caldwell, LLC  
Morgan Stanley Investment Management  
MUFG Union Bank, N.A.  
Napier Park Global Capital

**Manager Name**

Natixis Investment Managers

Neuberger Berman

Newton Investment Management

Ninety One North America, Inc.

Northern Trust Asset Management

Nuveen

Oaktree Capital Management, L.P.

P/E Investments

Pacific Investment Management Company

Pantheon Ventures

Parametric Portfolio Associates LLC

Partners Group (USA) Inc.

Pathway Capital Management, LP

Peregrine Capital Management, LLC

PFM Asset Management LLC

PGIM Fixed Income

PGIM Quantitative Solutions LLC

Pictet Asset Management

PineBridge Investments

Polen Capital Management, LLC

Principal Asset (formerly Principal Global)

Pugh Capital Management Inc.

Putnam Investments, LLC

Pzena Investment Management, LLC

Raymond James Investment Management

RBC Global Asset Management

Regions Financial Corporation

Richard Bernstein Advisors LLC

Robeco Institutional Asset Management, US Inc.

**Manager Name**

Rothschild &amp; Co. Asset Management US

S&amp;P Dow Jones Indices

Schroder Investment Management North America Inc.

Segall Bryant &amp; Hamill

SLC Management

Smith Graham &amp; Co. Investment Advisors, L.P.

State Street Global Advisors

Strategic Global Advisors, LLC

Strategic Value Partners, LLC

T. Rowe Price Associates, Inc.

The TCW Group, Inc.

Thompson, Siegel &amp; Walmsley LLC

Thornburg Investment Management, Inc.

Tri-Star Trust Bank

UBS Asset Management

ULLICO Investment Advisors, Inc.

VanEck

Versus Capital Group

Victory Capital Management Inc.

Virtus Investment Partners, Inc.

Vontobel Asset Management

Voya

Walter Scott &amp; Partners Limited

WCM Investment Management

Wellington Management Company, LLP

Western Asset Management Company LLC

Westfield Capital Management Company, LP

Westwood Global Investments

William Blair &amp; Company LLC

## Important Disclosures

Information contained in this document may include confidential, trade secret and/or proprietary information of Callan and the client. It is incumbent upon the user to maintain such information in strict confidence. Neither this document nor any specific information contained herein is to be used other than by the intended recipient for its intended purpose.

The content of this document is particular to the client and should not be relied upon by any other individual or entity. There can be no assurance that the performance of any account or investment will be comparable to the performance information presented in this document.

Certain information herein has been compiled by Callan from a variety of sources believed to be reliable but for which Callan has not necessarily verified for accuracy or completeness. Information contained herein may not be current. Callan has no obligation to bring current the information contained herein. This content of this document may consist of statements of opinion, which are made as of the date they are expressed and are not statements of fact. The opinions expressed herein may change based upon changes in economic, market, financial and political conditions and other factors. Callan has no obligation to bring current the opinions expressed herein.

The statements made herein may include forward-looking statement regarding future results. The forward-looking statement herein: (i) are best estimations consistent with the information available as of the date hereof and (ii) involve known and unknown risks and uncertainties. Actual results may vary, perhaps materially, from the future result projected in this document. Undue reliance should not be placed on forward-looking statements.

Callan disclaims any responsibility for reviewing the risks of individual securities or the compliance/non-compliance of individual security holdings with a client's investment policy guidelines.

This document should not be construed as legal or tax advice on any matter. You should consult with legal and tax advisers before applying any of this information to your particular situation.

Reference to, or inclusion in this document of, any product, service or entity should not necessarily be construed as recommendation, approval, or endorsement or such product, service or entity by Callan. This document is provided in connection with Callan's consulting services and should not be viewed as an advertisement of Callan, or of the strategies or products discussed or referenced herein.

The issues considered and risks highlighted herein are not comprehensive and other risks may exist that the user of this document may deem material regarding the enclosed information. Any decision you make on the basis of this document is sole responsibility of the client, as the intended recipient, and it is incumbent upon you to make an independent determination of the suitability and consequences of such a decision.

Callan undertakes no obligation to update the information contained herein except as specifically requested by the client.

Past performance is no guarantee of future results.