



# Q2 2023 INVESTMENT SUMMARY: BOARD REPORT

MODOT & PATROL EMPLOYEES'  
RETIREMENT SYSTEM

SEPTEMBER 2023

Kevin Leonard, Partner

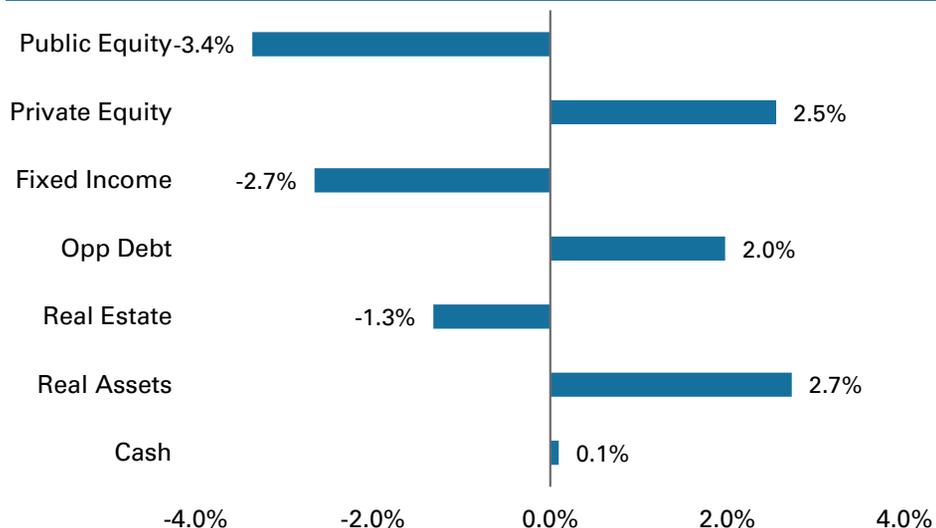
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Kiley Fischer, Sr. Analyst

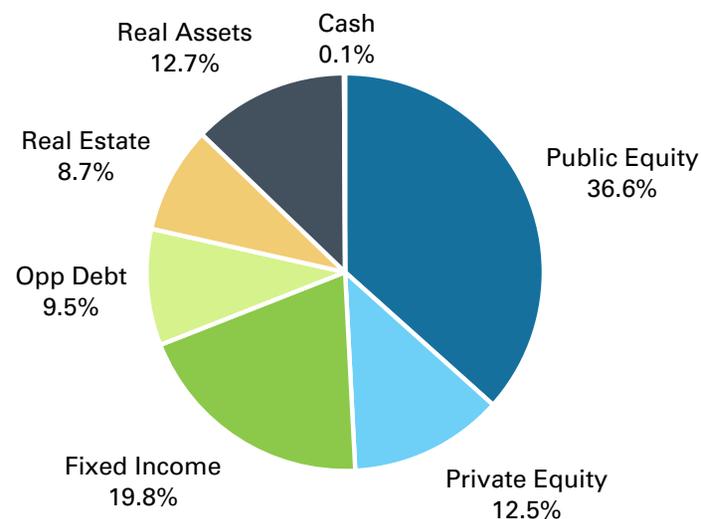


# ASSET ALLOCATION – CURRENT vs. POLICY

## Current Notional Allocation vs. Policy



## Current Notional Allocation

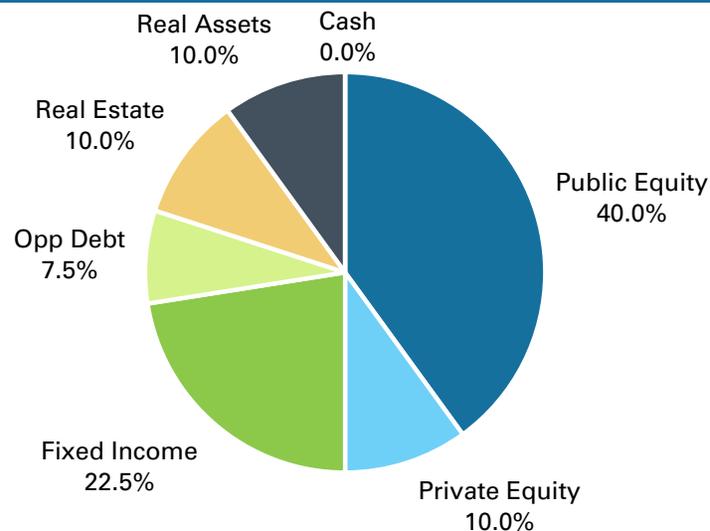


## Current Notional Allocation vs. Policy

	Current (\$)	Current %	Policy %	Difference*
<b>Public Equity</b>	\$1,326,766,822	36.6%	40.0%	-3.4%
<b>Private Equity</b>	\$454,431,252	12.5%	10.0%	2.5%
<b>Fixed Income</b>	\$718,485,081	19.8%	22.5%	-2.7%
<b>Opp Debt</b>	\$343,070,440	9.5%	7.5%	2.0%
<b>Real Estate</b>	\$314,321,126	8.7%	10.0%	-1.3%
<b>Real Assets</b>	\$460,801,184	12.7%	10.0%	2.7%
<b>Cash</b>	\$3,456,652	0.1%	0.0%	0.1%
<b>Total</b>	<b>\$3,621,332,559</b>	<b>100.0%</b>	<b>100.0%</b>	

\* Difference between the Policy (unlevered) and Current Notional Allocation

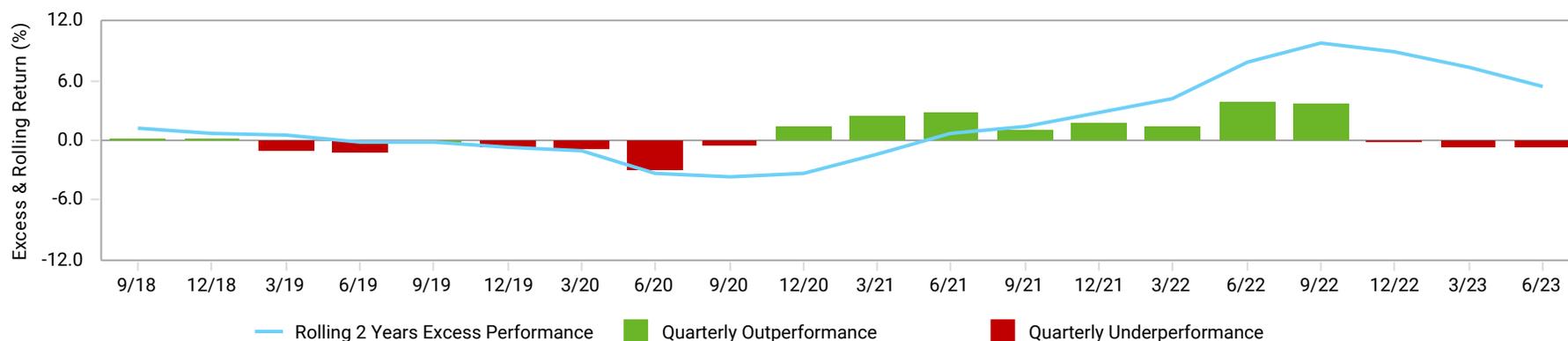
## Policy Allocation - Unlevered



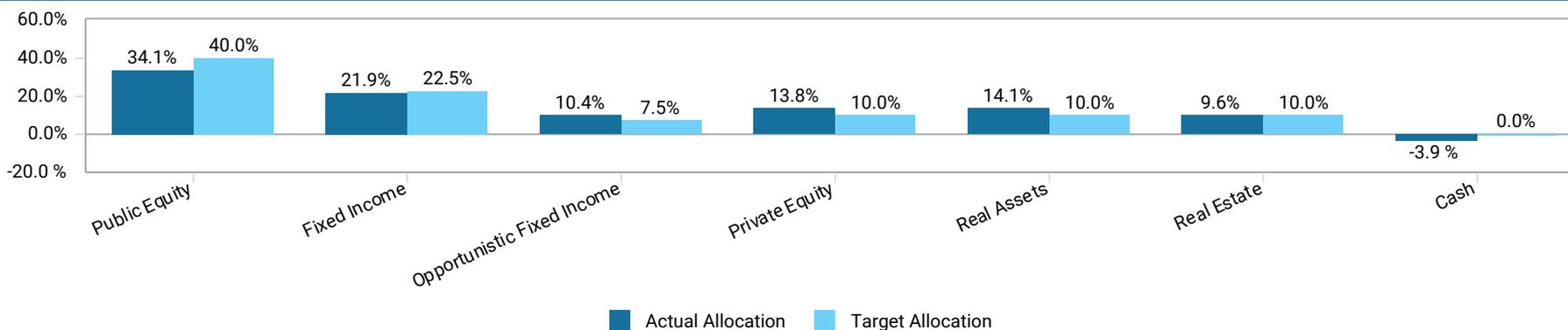
# TOTAL FUND PERFORMANCE SUMMARY

	Market Value (\$)	3 Mo (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	20 Yrs (%)
<b>Total Composite</b>	<b>3,275,163,126</b>	<b>2.4 (85)</b>	<b>8.9 (55)</b>	<b>14.0 (1)</b>	<b>9.5 (1)</b>	<b>9.3 (1)</b>	<b>8.3 (1)</b>
<i>Policy Index</i>		3.1 (61)	6.4 (90)	7.9 (35)	7.3 (14)	7.6 (25)	7.5 (15)
<i>All Public DB Plans Median</i>		3.3	9.1	7.4	6.4	7.1	6.7

## Quarterly and Cumulative Excess Performance

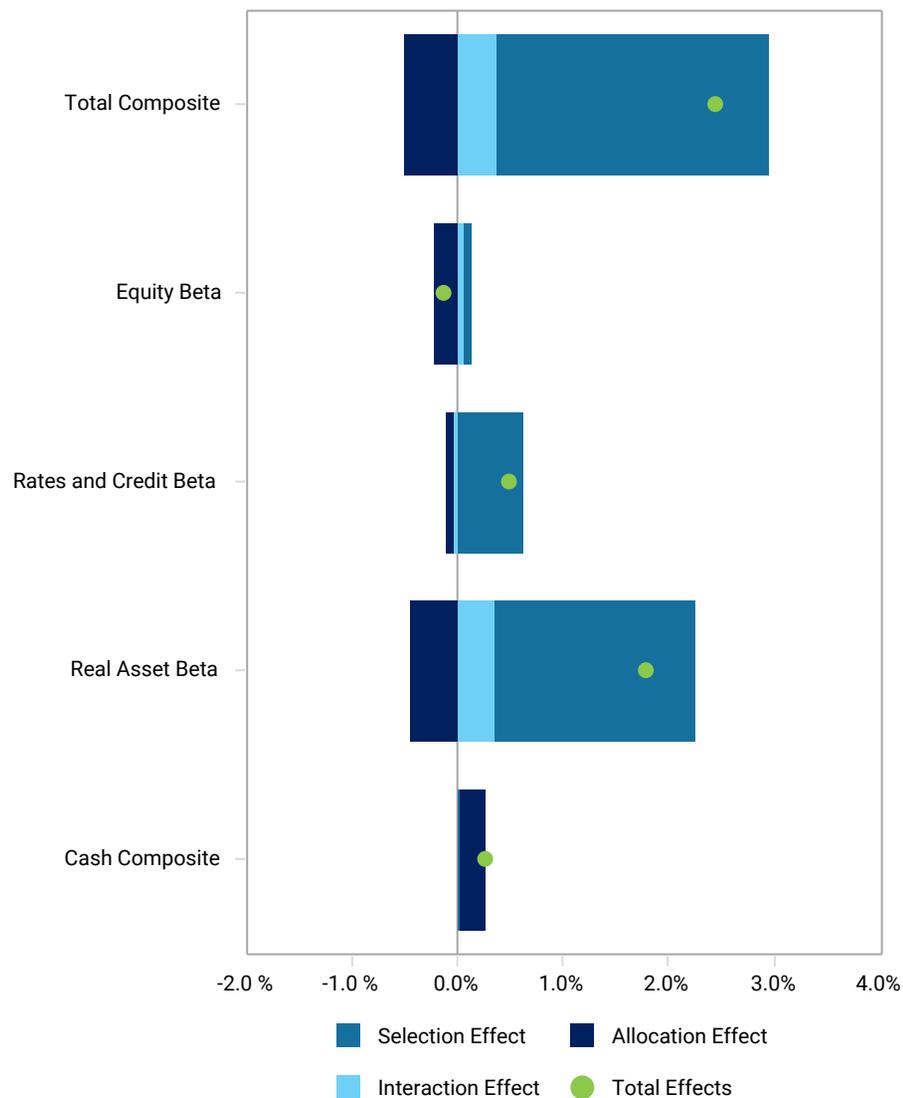


## Asset Allocation vs. Target



# TOTAL FUND ATTRIBUTION ANALYSIS

**Attribution Effects**  
1 Year Ending June 30, 2023



**Attribution Summary**  
1 Year Ending June 30, 2023

	Wtd. Actual Return (%)	Wtd. Index Return (%)	Excess Return (%)	Selection Effect (%)	Allocation Effect (%)	Interaction Effects (%)	Total Effects (%)
Equity Beta	12.7	12.4	0.3	0.1	-0.2	0.1	-0.1
Rates and Credit Beta	3.5	1.7	1.8	0.6	-0.1	0.0	0.5
Real Asset Beta	7.1	-2.0	9.1	1.9	-0.5	0.4	1.8
Cash Composite	3.5	3.6	-0.1	0.0	0.3	0.0	0.3
<b>Total Composite</b>	<b>8.9</b>	<b>6.4</b>	<b>2.4</b>	<b>2.6</b>	<b>-0.5</b>	<b>0.4</b>	<b>2.4</b>

Note: Plan attribution calculations are returns based and the results shown reflect the composites shown. As a result, the total returns shown may vary from the calculated return shown on the performance summary.

The target return shown for each composite is a custom index, based on aggregated policy indices. This policy index asset weights the underlying policy indices of each option in the plan and the respective benchmark return.

The allocation, selection, and interaction effects are calculated using the custom index described above along with the policy or target weight of each composite.

May not add due to rounding

Allocation Effect - The return attributable to the asset allocation of the portfolio

Selection Effect - The return attributable to the managers' security selection

Interaction Effect - The return attributable to the interaction between the Allocation and Selection Effects

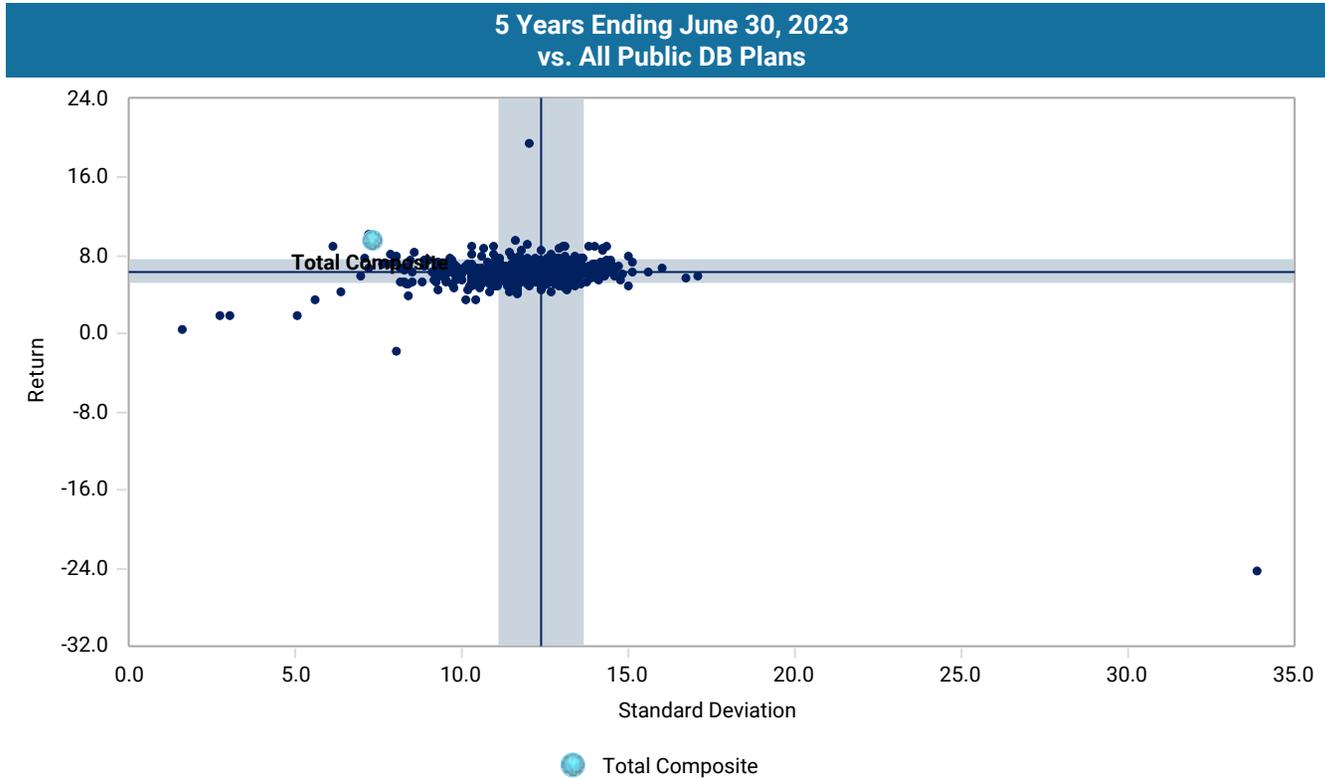
# TOTAL FUND ALLOCATION AND RETURN SUMMARY

Asset Allocation					Returns (%)									
	Capital Allocation (\$)	Notional Allocation (\$)	Notional Allocation	Target Allocation	1 Yr	Rank	3 Yrs	Rank	5 Yrs	Rank	10 Yrs	Rank	20 Yrs	Rank
<b>Total Composite</b>	<b>\$3,275,163,126</b>	<b>\$3,621,332,559</b>	<b>100.0%</b>	<b>100.0%</b>	<b>8.88</b>	<b>55</b>	<b>13.97</b>	<b>1</b>	<b>9.50</b>	<b>1</b>	<b>9.27</b>	<b>1</b>	<b>8.32</b>	<b>1</b>
<i>Policy Index</i>					6.44	90	7.93	35	7.30	14	7.62	25	7.48	15
<b>Equity Beta</b>	<b>\$1,565,128,642</b>	<b>\$1,781,198,075</b>	<b>49.2%</b>	<b>50.0%</b>	<b>12.73</b>		<b>17.87</b>							
<b>Public Equities</b>	<b>\$1,110,697,389</b>	<b>\$1,326,766,822</b>	<b>36.6%</b>	<b>40.0%</b>	<b>18.08</b>	<b>36</b>	<b>15.64</b>	<b>10</b>	<b>8.35</b>	<b>43</b>	<b>8.76</b>	<b>46</b>	<b>8.60</b>	<b>44</b>
<i>MSCI ACWI</i>					16.53	47	10.99	47	8.10	46	8.75	46	8.17	55
<b>Private Equity</b>	<b>\$454,431,252</b>	<b>\$454,431,252</b>	<b>12.5%</b>	<b>10.0%</b>	<b>1.28</b>		<b>22.86</b>		<b>17.38</b>		<b>15.73</b>			
<i>MO Hwy PE. Index - Lagged</i>					-4.94		22.12		14.50		15.58			
<b>Rates and Credit Beta</b>	<b>\$1,061,555,521</b>	<b>\$1,061,555,521</b>	<b>29.3%</b>	<b>30.0%</b>	<b>3.49</b>		<b>5.19</b>							
<b>Traditional Fixed Income</b>	<b>\$718,485,081</b>	<b>\$718,485,081</b>	<b>19.8%</b>	<b>22.5%</b>	<b>2.28</b>	<b>54</b>	<b>-1.28</b>	<b>54</b>	<b>2.99</b>	<b>15</b>	<b>4.25</b>	<b>9</b>	<b>4.78</b>	<b>19</b>
<i>Fixed Inc. Custom Benchmark</i>					-0.70	84	-4.11	81	1.03	54	1.79	53	3.31	54
<b>Opportunistic Debt</b>	<b>\$343,070,440</b>	<b>\$343,070,440</b>	<b>9.5%</b>	<b>7.5%</b>	<b>5.45</b>	<b>94</b>	<b>15.27</b>	<b>1</b>	<b>9.35</b>	<b>1</b>				
<i>Bloomberg US High Yield</i>					9.06	30	3.13	52	3.36	43				
<b>Real Assets Beta</b>	<b>\$775,122,310</b>	<b>\$775,122,310</b>	<b>21.4%</b>	<b>20.0%</b>	<b>7.11</b>		<b>15.78</b>							
<b>Real Assets</b>	<b>\$460,801,184</b>	<b>\$460,801,184</b>	<b>12.7%</b>	<b>10.0%</b>	<b>9.83</b>		<b>17.79</b>		<b>9.07</b>		<b>7.48</b>			
<i>CPI + 4% (Unadjusted)</i>					7.09		10.01		8.06		6.82			
<b>Real Estate</b>	<b>\$314,321,126</b>	<b>\$314,321,126</b>	<b>8.7%</b>	<b>10.0%</b>	<b>2.81</b>		<b>12.74</b>		<b>10.45</b>		<b>11.01</b>			
<i>MoDOT Real Estate Blend</i>					-10.51		7.59		6.07		8.12			
<b>Cash Composite</b>	<b>\$3,456,652</b>	<b>\$3,456,652</b>	<b>0.1%</b>	<b>0.0%</b>	<b>3.53</b>		<b>1.24</b>		<b>1.47</b>		<b>0.93</b>		<b>1.35</b>	
<i>90 Day T-Bills</i>					3.59		1.27		1.55		0.97		1.32	
<b>Bank Line</b>	<b>\$130,100,000</b>													

<u>Leverage Metrics</u>	
Fund Leverage (%)	10.6%
Fund Leverage (\$)	\$ 346,169,433
<u>Leverage by Type</u>	
Public Equities	\$ 216,069,433
Bank Line	\$ 130,100,000
	-----
	\$ 346,169,433

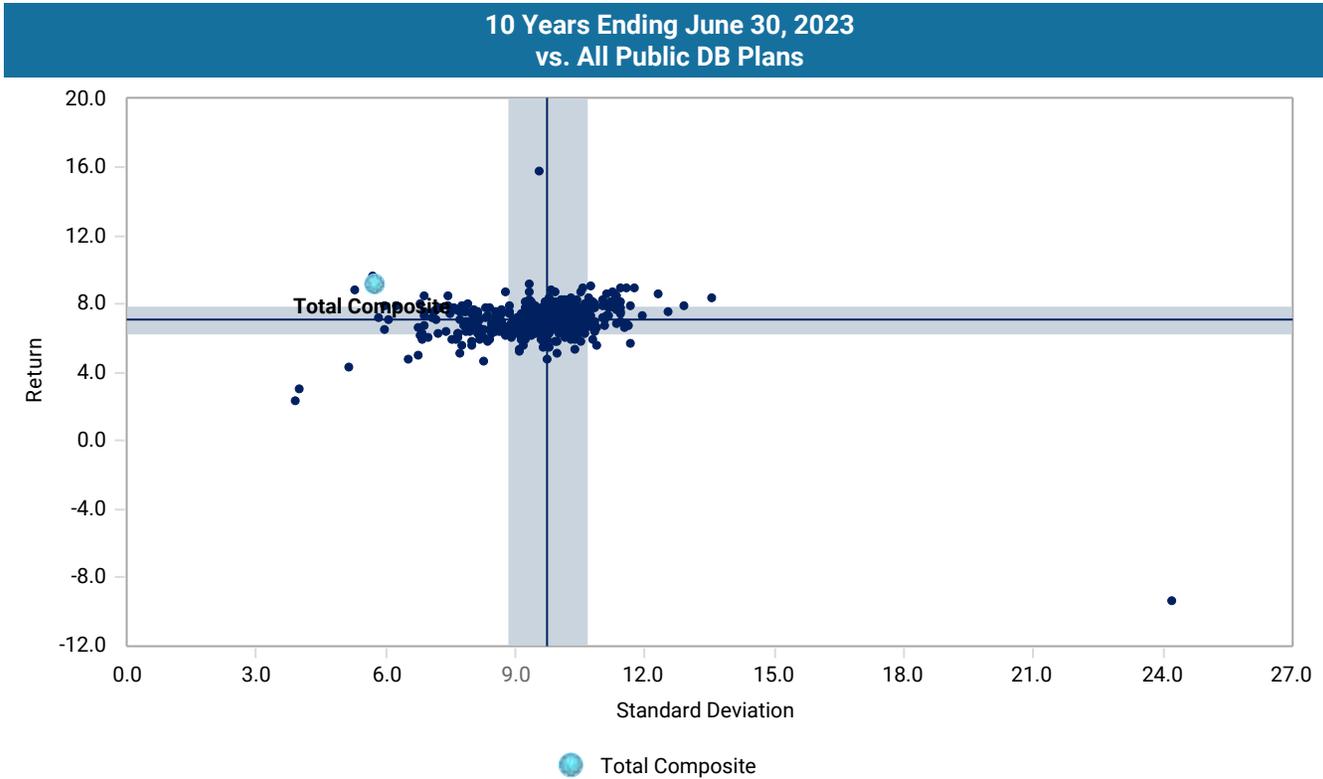


# TOTAL FUND RISK/RETURN - 5 YEARS



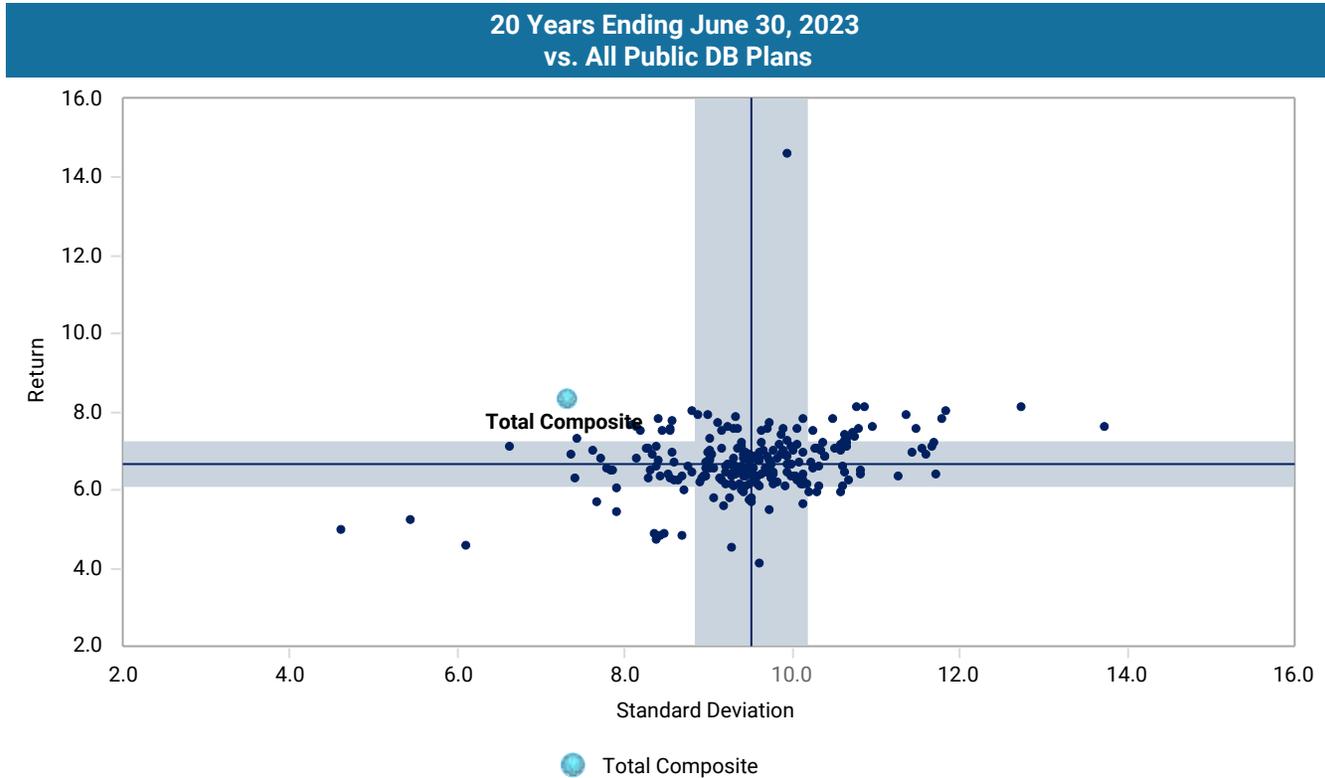
Statistics Summary 5 Years Ending June 30, 2023			
	5 Years Return	5 Years Standard Deviation	5 Years Sharpe Ratio
<b>Total Composite</b>	<b>9.5 (1)</b>	<b>7.3 (1)</b>	<b>1.1 (1)</b>
<i>Policy Index</i>	<i>7.3 (14)</i>	<i>8.5 (4)</i>	<i>0.7 (3)</i>

# TOTAL FUND RISK/RETURN - 10 YEARS



<b>Statistics Summary 10 Years Ending June 30, 2023</b>			
	<b>10 Years Return</b>	<b>10 Years Standard Deviation</b>	<b>10 Years Sharpe Ratio</b>
<b>Total Composite</b>	<b>9.3 (1)</b>	<b>5.7 (1)</b>	<b>1.4 (1)</b>
<i>Policy Index</i>	<i>7.6 (25)</i>	<i>6.6 (2)</i>	<i>1.0 (2)</i>

# TOTAL FUND RISK/RETURN - 20 YEARS



<b>Statistics Summary 20 Years Ending June 30, 2023</b>			
	<b>20 Years Return</b>	<b>20 Years Standard Deviation</b>	<b>20 Years Sharpe Ratio</b>
<b>Total Composite</b>	<b>8.3 (1)</b>	<b>7.3 (1)</b>	<b>0.9 (1)</b>
<i>Policy Index</i>	<i>7.5 (15)</i>	<i>7.3 (1)</i>	<i>0.8 (1)</i>

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A “since inception” return, if reported, begins with the first full month after funding, although actual inception dates (e.g. the middle of a month) and the timing of cash flows are taken into account in Composite return calculations.

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Source of private fund performance benchmark data: Cambridge Associates, via Refinitiv