



2Q 2023 QUARTERLY PERFORMANCE REPORT EXECUTIVE SUMMARY

SEPTEMBER 28, 2023

Samuel Austin, Partner



TOTAL FUND PERFORMANCE SUMMARY

COMPARED TO ASSET ALLOCATION BENCHMARK & STRATEGIC TARGET ALLOCATION

	Market Value (\$)	1 Yr (%)	5 Yrs (%)	10 Yrs (%)
Total Fund, Net of Fees	37,446,535,211	8.17	5.99	6.50
Actual Allocation Benchmark		3.91	4.71	5.70
Over/Under		4.26	1.28	0.80
Strategic Target Allocation Index		4.59	5.68	6.51
Over/Under		3.58	0.31	-0.01

- **For the one-year period ended June 30, 2023, the Trust Fund returned 8.17%, exceeding the Asset Allocation Benchmark by 4.26%.**
 - Fixed Income, Other Public and Private Markets, Real Estate, Hedge Funds, and Private Equity exceeded their respective benchmarks, while Global Equity trailed.
- **For the five-year ended June 30, 2023, the Trust Fund returned 5.99%, exceeding the Asset Allocation Benchmark by 1.28%.**
 - Fixed Income, Other Public and Private Markets, Real Estate, Hedge Funds, and Private Equity exceeded their respective benchmarks, while Global Equity trailed.



TOTAL FUND PERFORMANCE SUMMARY

COMPARED TO OTHER PUBLIC PENSION PLANS GREATER THAN \$10 BILLION IN ASSETS

	1 Yr (%)	Quartile Rank	5 Yrs (%)	Quartile Rank	10 Yrs (%)	Quartile Rank
Total Fund, Net of Fees	8.17	1st	5.99	4th	6.50	4th
Actual Allocation Benchmark	3.91	4 th	4.71	4 th	5.70	4 th
Strategic Target Allocation Index	4.59	4 th	5.68	4 th	6.51	4 th
<i>InvMetrics Public DB > \$10 Billion Median</i>	<i>7.07</i>		<i>6.96</i>		<i>7.52</i>	

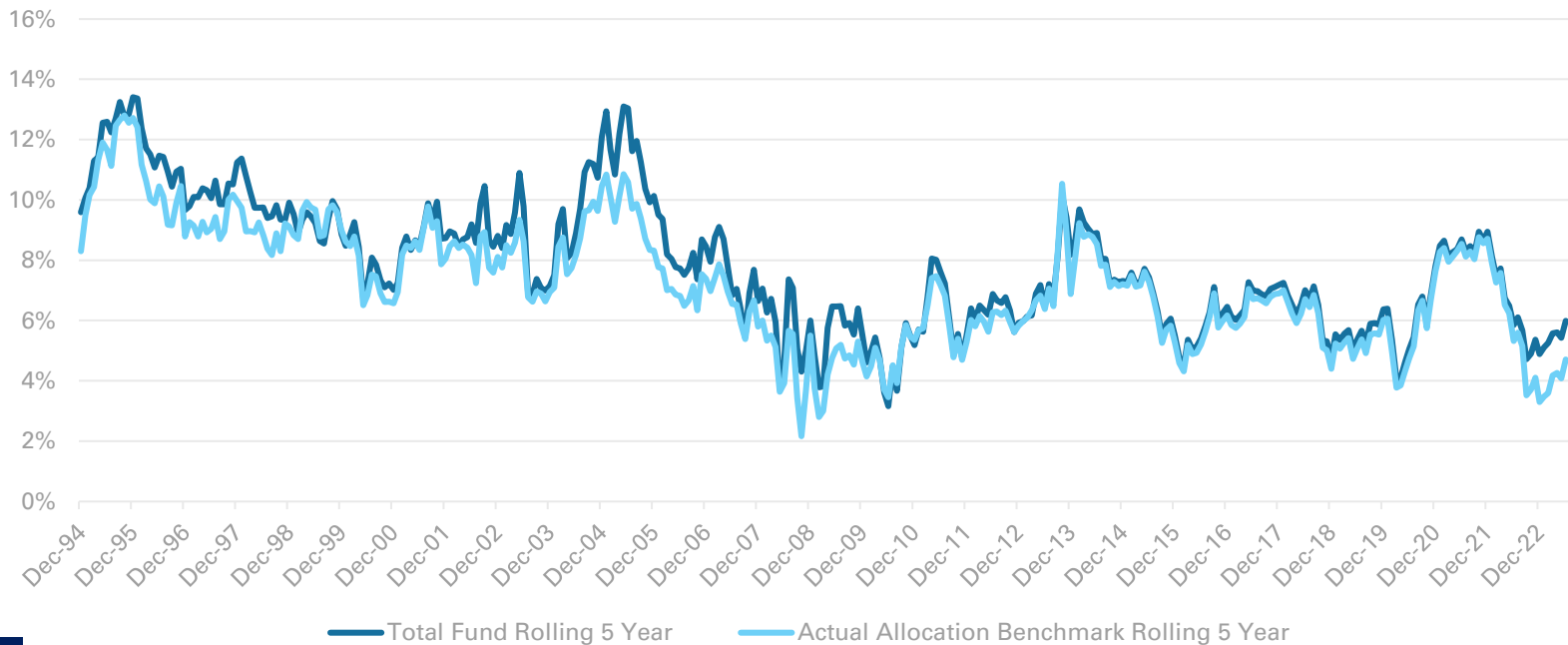
- **For the one-year ended June 30, 2023, the Trust Fund returned 8.17% and ranked in the first quartile among other Public Defined Benefit Plans greater than \$10 billion in assets.**
- **For the five-years ended June 30, 2023, the Trust Fund returned 5.99% and ranked in the fourth quartile among other Public Defined Benefit Plans greater than \$10 billion in assets.**

TOTAL FUND PERFORMANCE

VERSUS ACTUAL ALLOCATION BENCHMARK

- **The Trust Fund performance expectation is to exceed the Actual Allocation Benchmark over rolling five-year periods.**
- **In the five-year period ended June 30, 2023, TMRS outperformed the Actual Allocation Benchmark by 1.28%, net of fees.**

Rolling 5 Year Total Fund Performance vs. Actual Allocation Benchmark

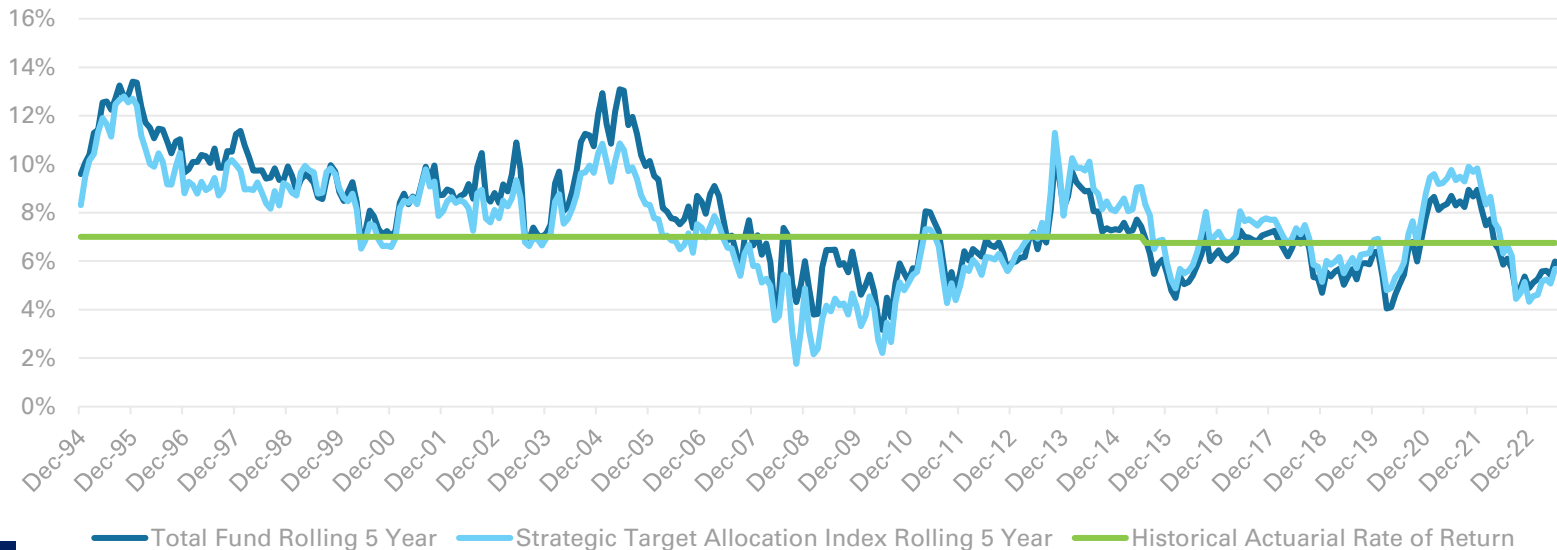


TOTAL FUND PERFORMANCE

VERSUS STRATEGIC TARGET ALLOCATION INDEX AND ASSUMED RATE OF RETURN

- For the five-year period ended June 30, 2023, the Trust Fund's return of 5.99%, net of fees, trailed the Board's Assumed Long-Term Rate of Return of 6.75%.
- The five-year return for the Strategic Target Allocation Index was 5.68%, as of June 30, 2023.

Rolling 5 Year Total Fund Performance vs. Strategic Target Allocation Index vs. Historical Actuarial Rate of Return



TOTAL FUND PERFORMANCE SUMMARY

RISK, NET RETURN AND RISK-ADJUSTED RETURNS

1 Year Ending June 30, 2023						
	Risk	Quartile Rank	Return	Quartile Rank	Risk-Adjusted Return	Quartile Rank
Total Fund	7.26	1st	8.17	1st	0.63	1st
Actual Allocation Benchmark	10.30	3 rd	3.91	4 th	0.08	4 th

- **TMRS' Trust Fund ranks in the first quartile among other Public Defined Benefit Plans with more than \$10 billion in assets for the one-year period ending June 30, 2023, as measured by standard deviation.**
- **The risk-adjusted return ranked in the first quartile which indicates that the Trust Fund generated more return given its risk profile among other Public Defined Benefit Plans with more than \$10 billion in assets for the one-year period ending June 30, 2023, as measured by the Sharpe ratio.**



The Standard Deviation interquartile range is defined as the lowest Standard Deviation measuring in the first quartile. This is a change from prior quarters where the lowest Standard Deviation was measured in the fourth quartile.

TOTAL FUND PERFORMANCE SUMMARY

RISK, NET RETURN AND RISK-ADJUSTED RETURNS

5 Years Ending June 30, 2023						
	Risk	Quartile Rank	Return	Quartile Rank	Risk-Adjusted Return	Quartile Rank
Total Fund	6.95	1 st	5.99	4 th	0.65	2 nd
Actual Allocation Benchmark	7.74	1 st	4.71	4 th	0.43	4 th

- **The Trust Fund’s risk profile, as measured by standard deviation, ranks in the first quartile among other Public Defined Benefit Plans with greater than \$10 billion in assets for the five-year period ending June 30, 2023.**
- **The risk-adjusted return ranked in the second quartile among other Public Defined Benefit Plans with more than \$10 billion in assets for the five-year period ending June 30, 2023, as measured by the Sharpe ratio.**



The Standard Deviation interquartile range is defined as the lowest Standard Deviation measuring in the first quartile. This is a change from prior quarters where the lowest Standard Deviation was measured in the fourth quartile.

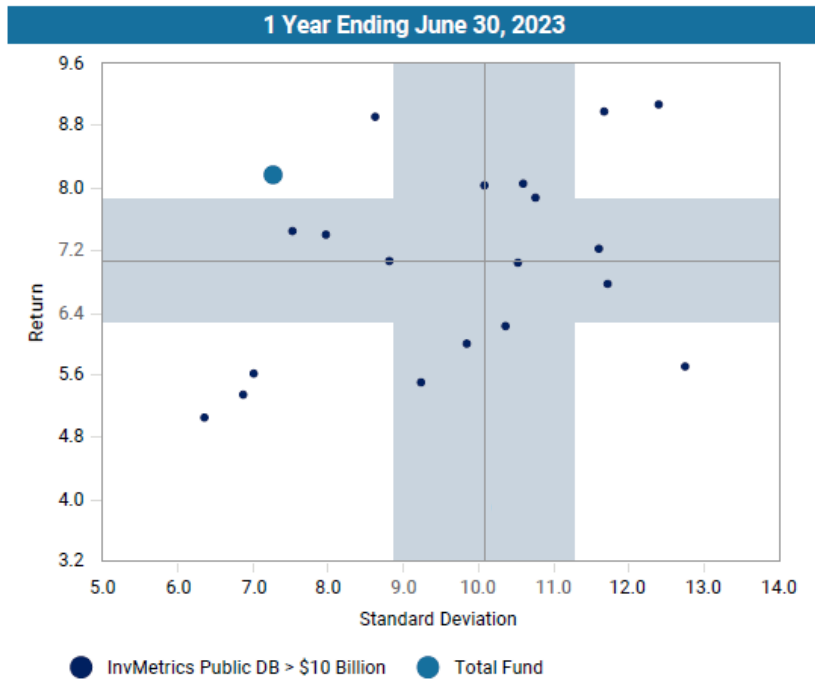
ASSET ALLOCATION COMPLIANCE

ACTUAL ASSET ALLOCATION VS. INVESTMENT POLICY ALLOCATION

	Current (\$)	Current (%)	Policy (%)	Differences* (%)	Policy Range (%)	Within Range
■ Core Fixed Income	1,654,300,916	4.4	6.0	-1.6	1.0 - 11.0	Yes
■ Non-Core Fixed Income	6,976,104,801	18.6	20.0	-1.4	15.0 - 25.0	Yes
■ Global Equity	13,057,526,887	34.9	35.0	-0.1	25.0 - 45.0	Yes
■ Real Estate	4,997,903,297	13.3	12.0	1.3	7.0 - 17.0	Yes
■ Other Public and Private Markets	4,575,130,815	12.2	12.0	0.2	7.0 - 17.0	Yes
■ Hedge Funds	1,989,433,496	5.3	5.0	0.3	0.0 - 10.0	Yes
■ Private Equity	3,998,066,478	10.7	10.0	0.7	5.0 - 15.0	Yes
■ Cash Composite	198,068,521	0.5	0.0	0.5	0.0 - 3.0	Yes
Total Fund	37,446,535,211	100.0	100.0	0.0		

- **Actual asset class allocations are in compliance with Investment Policy ranges as of June 30, 2023.**

TOTAL FUND RISK VS. NET RETURN: ONE YEAR

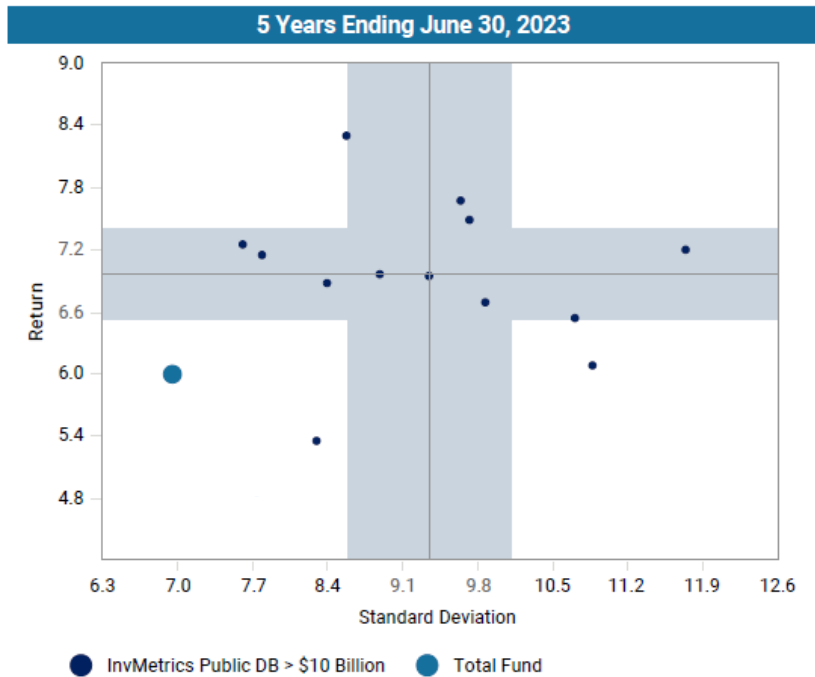


The Trust Fund generated a first quartile net investment return with lower risk, as measured by standard deviation, among other Public Defined Benefit Plans with more than \$10 billion in assets for the 1-year period ended June 30, 2023.

1 Year Ending June 30, 2023				
	Risk	Quartile Rank	Return	Quartile Rank
Total Fund	7.26	1st	8.17	1st
<i>InvMetrics Public DB > \$10 Billion Median</i>	<i>10.07</i>		<i>7.07</i>	

- The Standard Deviation interquartile range is defined as the lowest Standard Deviation measuring in the first quartile. This is a change from prior quarters where the lowest Standard Deviation was measured in the fourth quartile.
- InvMetrics Public DB > \$10B Median includes 19 observations.

TOTAL FUND RISK VS. NET RETURN: FIVE YEARS



The Trust Fund underperformed in its peer universe due to having the least amount of risk as measured by standard deviation in the 5-year period, among other Public Defined Benefit Plans with more than \$10 billion in assets.

5 Years Ending June 30, 2023				
	Risk	Quartile Rank	Return	Quartile Rank
Total Fund	6.95	1st	5.99	4th
<i>InvMetrics Public DB > \$10 Billion Median</i>	<i>9.35</i>		<i>6.96</i>	

- The Standard Deviation interquartile range is defined as the lowest Standard Deviation measuring in the first quartile. This is a change from prior quarters where the lowest Standard Deviation was measured in the fourth quartile.
- InvMetrics Public DB > \$10B Median includes 13 observations.

PERFORMANCE DETAIL

	Allocation		Performance (%)								
	Market Value (\$)	% of Portfolio	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Fund	37,446,535,211	100.0	2.79	6.32	8.17	8.09	5.99	6.87	6.50	8.15	Jan-89
<i>Actual Allocation Benchmark</i>			<u>3.39</u>	<u>7.76</u>	<u>3.91</u>	<u>5.95</u>	<u>4.71</u>	<u>5.78</u>	<u>5.70</u>	<u>7.49</u>	
Over/Under			-0.60	-1.44	4.26	2.14	1.28	1.09	0.80	0.66	
<i>Strategic Target Allocation Index</i>			<u>3.47</u>	<u>8.14</u>	<u>4.59</u>	<u>7.14</u>	<u>5.68</u>	<u>6.81</u>	<u>6.51</u>	<u>7.76</u>	
Over/Under			-0.68	-1.82	3.58	0.95	0.31	0.06	-0.01	0.39	
Global Equity	13,057,526,887	34.9	5.81	13.18	16.01	10.27	6.88	9.21	8.64	5.91	Jan-08
<i>Total Equity Index</i>			<u>5.89</u>	<u>13.25</u>	<u>16.14</u>	<u>10.97</u>	<u>7.70</u>	<u>9.84</u>	<u>9.00</u>	<u>6.09</u>	
Over/Under			-0.08	-0.07	-0.13	-0.70	-0.82	-0.63	-0.36	-0.18	
Core Fixed Income	1,654,300,916	4.4	-0.79	2.05	-0.82	-3.77	1.02	0.73	1.71	6.53	Jan-89
<i>Fixed Income Benchmark</i>			<u>-0.84</u>	<u>2.09</u>	<u>-0.94</u>	<u>-3.97</u>	<u>0.77</u>	<u>0.44</u>	<u>1.52</u>	<u>6.03</u>	
Over/Under			0.05	-0.04	0.12	0.20	0.25	0.29	0.19	0.50	
Non-Core Fixed Income	6,976,104,801	18.6	1.87	4.20	3.98	5.36	4.15	4.78		4.14	Oct-14
<i>Total Non-Core Fixed Income Weighted Index</i>			<u>2.11</u>	<u>3.95</u>	<u>-1.26</u>	<u>1.81</u>	<u>1.70</u>	<u>2.73</u>		<u>2.34</u>	
Over/Under			-0.24	0.25	5.24	3.55	2.45	2.05		1.80	
Other Public and Private Markets	4,575,130,815	12.2	3.49	9.33	12.97	9.66	5.53	5.05	4.31	4.32	Feb-11
<i>Total Real Return Index</i>			<u>6.57</u>	<u>16.03</u>	<u>2.51</u>	<u>5.07</u>	<u>2.65</u>	<u>3.20</u>	<u>3.16</u>	<u>3.25</u>	
Over/Under			-3.08	-6.70	10.46	4.59	2.88	1.85	1.15	1.07	
Real Estate	4,997,903,297	13.3	-1.22	-2.61	2.99	11.05	9.04	9.48	10.80	10.23	Nov-11
<i>Real Estate Benchmark</i>			<u>-3.38</u>	<u>-8.37</u>	<u>-3.91</u>	<u>7.75</u>	<u>7.13</u>	<u>7.43</u>	<u>9.26</u>	<u>9.69</u>	
Over/Under			2.16	5.76	6.90	3.30	1.91	2.05	1.54	0.54	
Hedge Funds	1,989,433,496	5.3	0.65	2.90	5.36	5.52	4.10	5.27		4.33	Aug-14
<i>Hedge Funds Benchmark</i>			<u>-0.93</u>	<u>0.50</u>	<u>-1.37</u>	<u>6.61</u>	<u>4.06</u>	<u>4.38</u>		<u>3.33</u>	
Over/Under			1.58	2.40	6.73	-1.09	0.04	0.89		1.00	
Private Equity	3,998,066,478	10.7	1.81	1.23	-0.45	25.96	19.26	18.10		16.14	Dec-15
<i>Private Equity Index</i>			<u>6.95</u>	<u>17.48</u>	<u>-7.68</u>	<u>14.35</u>	<u>12.54</u>	<u>13.31</u>		<u>11.78</u>	
Over/Under			-5.14	-16.25	7.23	11.61	6.72	4.79		4.36	
Cash Composite	198,068,521	0.5	1.21	2.70	4.15	1.50	1.62	1.38	1.11	0.83	Jun-08
<i>FTSE 1 Month US T-Bill index</i>			<u>1.21</u>	<u>2.31</u>	<u>3.70</u>	<u>1.29</u>	<u>1.50</u>	<u>1.31</u>	<u>0.93</u>	<u>0.68</u>	
Over/Under			0.00	0.39	0.45	0.21	0.12	0.07	0.18	0.15	



PERFORMANCE DETAIL

Composite Benchmark Comments

The Actual Allocation Benchmark is calculated monthly using beginning of month asset class weights applied to each corresponding benchmark return and currently consists of the following:

- Total Equity Benchmark
- Fixed Income Benchmark
- Non-Core Fixed Income Benchmark
- OPPM Benchmark
- Real Estate Benchmark
- Hedge Funds Benchmark
- Private Equity Benchmark
- FTSE 30 Day T-Bill Index

The Strategic Target Allocation Index represents asset allocation targets adopted historically and currently consists of the following:

- 35.0% Total Equity Benchmark
- 6.0% Fixed Income Benchmark
- 20.0% Non-Core Fixed Income Benchmark
- 12.0% OPPM Benchmark
- 12.0% Real Estate Benchmark
- 5.0% Hedge Funds Benchmark
- 10.0% Private Equity Benchmark

Asset Class Composite Benchmarks:

The Total Equity Benchmark is calculated monthly and consists of 50% Russell 3000 Index and 50% MSCI EAFE Index (USD) (Net) through 07/31/2010; a blend of the Russell 3000 Index, MSCI ACW Ex US IM Index (USD) (Net) and MSCI EAFE Index (USD) (Net) at beginning of month investment weights through 11/30/2012; and a blend of the Russell 3000 Index and MSCI ACW Ex US IM Index (USD) (Net) at beginning of the month weights through 12/31/2018; and MSCI ACW IM Index (USD) (Net) thereafter.

The Fixed Income Benchmark is calculated monthly and consists of the Bloomberg US Gov't Crdt Lng Trm Bond Index through 06/30/2009; Bloomberg US Agg Bond Index thereafter.

The Non-Core Fixed Income Benchmark is calculated monthly using beginning of the month sub-asset class weights within the Non-Core Fixed Income Composite applied to each sub-asset class primary benchmark return through 6/30/2021, and the Bloomberg US Agg Bond Index + 1.5% on an unlagged, month lagged, or quarter lagged basis in proportion of the managers in the composite on an unlagged, month lagged, or quarter lagged basis.

The OPPM Benchmark is calculated monthly using beginning of the month sub-asset class weights within the OPPM Composite applied to each sub-asset class primary benchmark return through 6/30/2021, and the MSCI ACW IM Index (USD) (Net) on an unlagged, month lagged, or quarter lagged basis in proportion of the managers in the composite on an unlagged, month lagged, or quarter lagged basis.

The Real Estate Benchmark is the NCREIF ODCE Index (Gross), one quarter lag through 06/30/2021, and NCREIF ODCE Index (Net), one quarter lag thereafter.

The Hedge Funds Benchmark is calculated monthly and consists of the HFRI FOF: Dv'd Index (1 Mo Lag) through 6/30/2021, and HFRI Asset Weighted Composite Index (1 Mo Lag) thereafter.

The Private Equity Benchmark is set equal to the Composite return through 6/30/2021, and MSCI ACW IM Index (USD) (Net), one quarter lag thereafter.