



# 1Q 2023 QUARTERLY PERFORMANCE REPORT EXECUTIVE SUMMARY

**MAY 25, 2023**

Samuel Austin, Partner



# TOTAL FUND PERFORMANCE SUMMARY

## COMPARED TO ASSET ALLOCATION BENCHMARK & STRATEGIC TARGET ALLOCATION

	Market Value (\$)	1 Yr (%)	5 Yrs (%)	10 Yrs (%)
<b>Total Fund</b>	<b>36,513,805,796</b>	<b>-0.91</b>	<b>5.58</b>	<b>6.05</b>
Actual Allocation Benchmark		-7.21	4.18	5.20
Over/Under		6.30	1.40	0.85
Strategic Target Allocation Index		-6.86	5.16	6.08
Over/Under		5.95	0.42	-0.03

- **For the one-year period ended March 31, 2023, the Trust fund returned -0.91%, exceeding the Asset Allocation Benchmark by 6.30%.**
  - Non-Core Fixed Income, Other Public and Private Markets, Real Estate, Hedge Funds, and Private Equity exceeded the Benchmark, while Global Equity and Core Fixed Income trailed.
- **For the five-year ended March 31, 2023, the Trust Fund returned 5.58%, exceeding the Asset Allocation Benchmark by 1.40%.**
  - Fixed Income, Other Public and Private Markets, Real Estate, and Private Equity exceeded the benchmark, while Global Equity and Hedge Funds trailed.



Performance returns are net of fees.

# 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
<b>Total Fund</b>	<b>-0.91</b>	<b>1<sup>st</sup></b>	<b>5.58</b>	<b>4<sup>th</sup></b>	<b>6.05</b>	<b>4<sup>th</sup></b>
Actual Allocation Benchmark	-7.21	4 <sup>th</sup>	4.18	4 <sup>th</sup>	5.20	4 <sup>th</sup>
Strategic Target Allocation Index	-6.86	4 <sup>th</sup>	5.16	4 <sup>th</sup>	6.08	4 <sup>th</sup>
<i>InvMetrics Public DB &gt; \$10 Billion Median</i>	<i>-3.58</i>		<i>6.71</i>		<i>7.42</i>	

- **For the one-year ended March 31, 2023, the Trust Fund returned -0.91% and ranked in the first quartile among other Public Defined Benefit plans greater than \$10 billion in assets. This is the first time that the Trust Fund has ranked in the top quartile for the one-year period in three consecutive quarters.**
- **For the five-years ended March 31, 2023, the Trust Fund returned 5.58% and ranked in the fourth quartile among other Public Defined Benefit plans greater than \$10 billion in assets.**



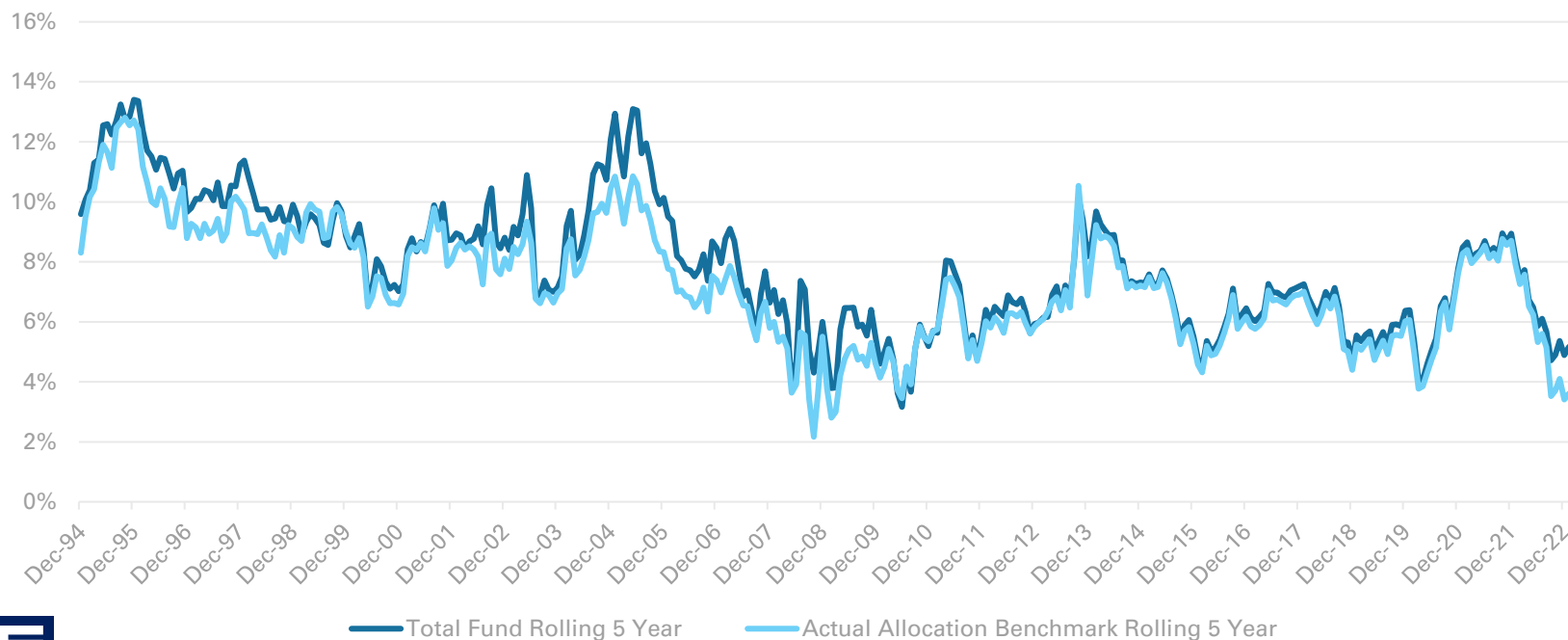
Performance returns are net of fees.

# 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 March 31, 2023, TMRS outperformed the Actual Allocation Benchmark by 1.40%, net of fees.**

Rolling 5 Year Total Fund Performance vs. Actual Allocation Benchmark

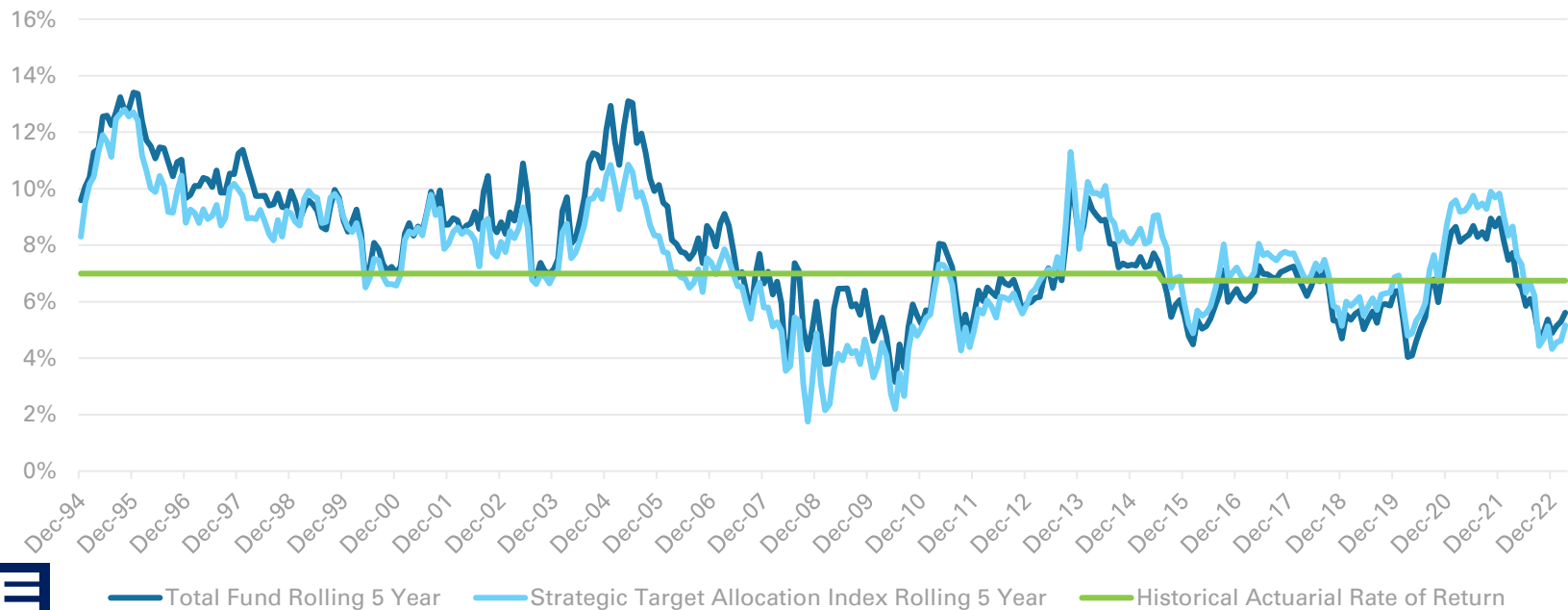


# TOTAL FUND PERFORMANCE

## VERSUS STRATEGIC TARGET ALLOCATION INDEX AND ASSUMED RATE OF RETURN

- For the five-year period ended March 31, 2023, the Trust Fund's return of 5.58% trailed the Board's Assumed Long-Term Rate of Return of 6.75%.
- The five-year return for the Strategic Target Allocation Index was 5.16% as of March 31, 2023.

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



# TOTAL FUND PERFORMANCE SUMMARY

## RISK, RETURN AND RISK-ADJUSTED RETURNS

1 Year Ending March 31, 2023						
	Risk	Quartile Rank	Return	Quartile Rank	Risk-Adjusted Return	Quartile Rank
<b>Total Fund</b>	<b>8.35</b>	<b>4<sup>th</sup></b>	<b>-0.91</b>	<b>1<sup>st</sup></b>	<b>-0.38</b>	<b>1<sup>st</sup></b>
Actual Allocation Benchmark	11.12	3 <sup>rd</sup>	-7.21	4 <sup>th</sup>	-0.85	4 <sup>th</sup>
Strategic Target Allocation Index	11.72	3 <sup>rd</sup>	-6.86	4 <sup>th</sup>	-0.77	4 <sup>th</sup>
<i>InvMetrics Public DB &gt; \$10 Billion Median</i>	<i>11.83</i>		<i>-3.58</i>		<i>-0.46</i>	

- **TMRS' Trust Fund ranks in the fourth quartile among other Public Defined Benefit Plans with more than \$10 billion in assets for the one-year period ending March 31, 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 the peer universe.**

Note: Risk-Adjusted Return is measured by the Sharpe Ratio.

Risk is measured by the Standard Deviation.

The Standard Deviation interquartile range, here, is defined as the lowest Standard Deviation measuring in the lowest quartile.

Performance returns are reported net of fees.



# TOTAL FUND PERFORMANCE SUMMARY

## RISK, RETURN AND RISK-ADJUSTED RETURNS

5 Years Ending March 31, 2023						
	Risk	Quartile Rank	Return	Quartile Rank	Risk-Adjusted Return	Quartile Rank
<b>Total Fund</b>	<b>6.86</b>	<b>4<sup>th</sup></b>	<b>5.58</b>	<b>4<sup>th</sup></b>	<b>0.62</b>	<b>2<sup>nd</sup></b>
Actual Allocation Benchmark	7.63	4 <sup>th</sup>	4.18	4 <sup>th</sup>	0.39	4 <sup>th</sup>
Strategic Target Allocation Index	7.68	4 <sup>th</sup>	5.16	4 <sup>th</sup>	0.51	4 <sup>th</sup>
<i>InvMetrics Public DB &gt; \$10 Billion Median</i>	<i>9.52</i>		<i>6.71</i>		<i>0.60</i>	

- **The Trust Fund's risk profile, as measured by standard deviation, ranks in the fourth quartile among other Public Defined Benefit plans with greater than \$10 billion in assets for the five-year period ending March 31, 2023.**
- **The risk-adjusted return ranked in the second quartile.**

Note: Risk-Adjusted Return is measured by the Sharpe Ratio.

Risk is measured by the Standard Deviation.

The Standard Deviation interquartile range, here, is defined as the lowest Standard Deviation measuring in the lowest quartile.

Performance returns are reported net of fees.

# ASSET ALLOCATION COMPLIANCE

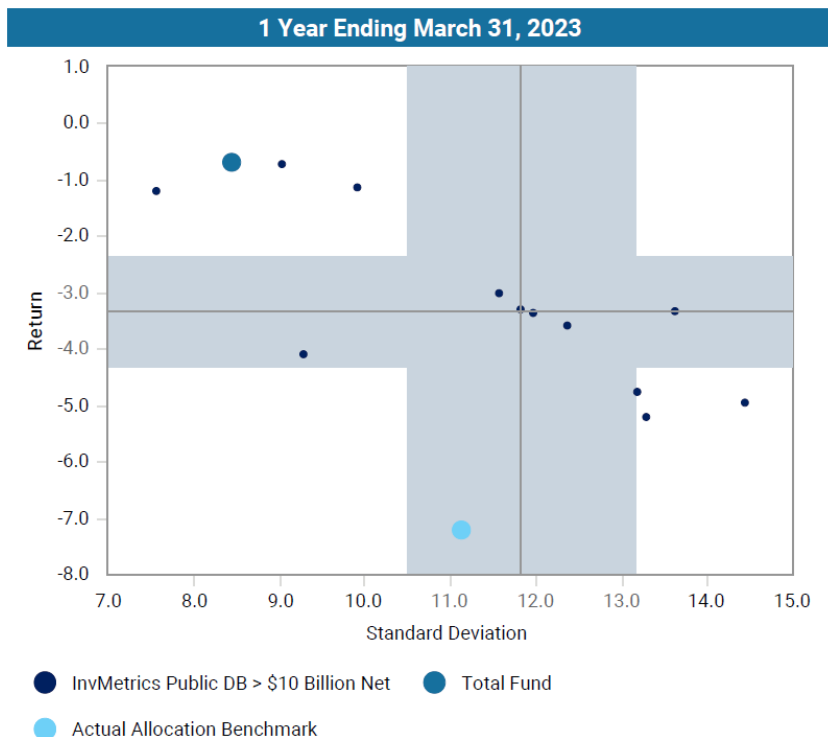
## ACTUAL ASSET ALLOCATION VS. INVESTMENT POLICY ALLOCATION

	Current (\$)	Current (%)	Policy (%)	Differences* (%)	Policy Range (%)	Within Range
Core Fixed Income	1,667,449,835	4.6	6.0	-1.4	1.0 - 11.0	Yes
Non-Core Fixed Income	6,924,318,123	19.0	20.0	-1.0	15.0 - 25.0	Yes
Global Equity	12,436,982,387	34.1	35.0	-0.9	25.0 - 45.0	Yes
Real Estate	4,987,584,387	13.7	12.0	1.7	7.0 - 17.0	Yes
Other Public and Private Markets	4,447,328,559	12.2	12.0	0.2	7.0 - 17.0	Yes
Hedge Funds	2,214,191,456	6.1	5.0	1.1	0.0 - 10.0	Yes
Private Equity	3,715,894,786	10.2	10.0	0.2	5.0 - 15.0	Yes
Cash Composite	120,056,263	0.3	0.0	0.3	0.0 - 3.0	Yes
<b>Total Fund</b>	<b>36,513,805,796</b>	<b>100.0</b>	<b>100.0</b>	<b>0.0</b>		

- **Actual asset class allocations are in compliance with Investment Policy ranges as of March 31, 2023.**



# TOTAL FUND RISK VS. RETURN: ONE YEAR



**The Trust Fund generated the second highest net investment return using the second least amount of risk in its peer universe for the 1-year period ended March 31, 2023.**

1 Year Ending March 31, 2023				
	Risk	Quartile Rank	Return	Quartile Rank
<b>Total Fund</b>	<b>8.35</b>	<b>4<sup>th</sup></b>	<b>-0.91</b>	<b>1<sup>st</sup></b>
Actual Allocation Benchmark	11.12	3 <sup>rd</sup>	-7.21	4 <sup>th</sup>
<i>InvMetrics Public DB &gt; \$10 Billion Median</i>	<i>11.83</i>		<i>-6.86</i>	

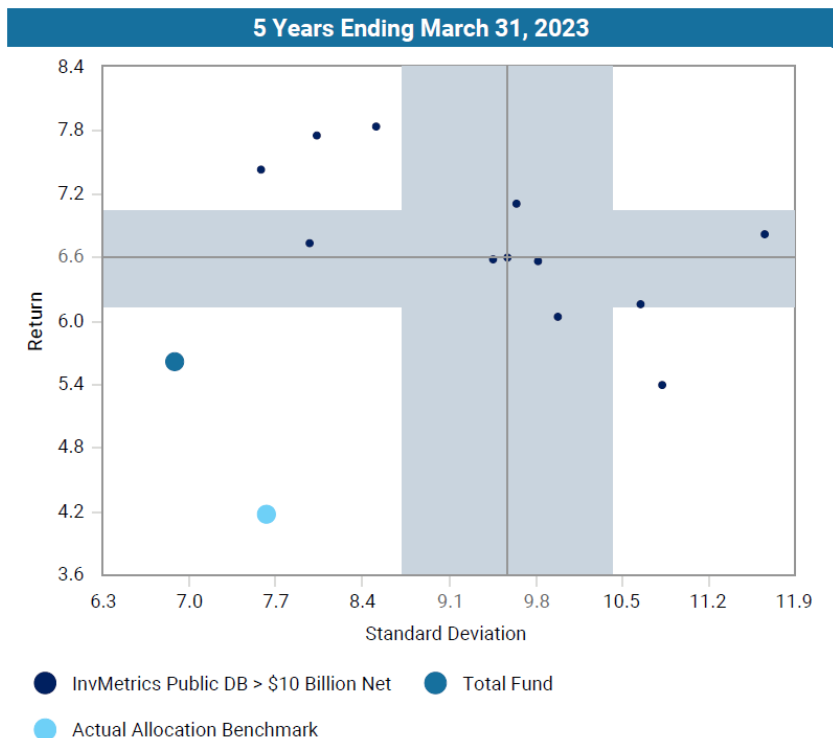
Risk is measured by the Standard Deviation.

The Standard Deviation interquartile range, here, is defined as the lowest Standard Deviation measuring in the lowest quartile.

Performance returns are reported net of fees.

InvMetrics Public DB>\$10B Median includes 17 observations.

# TOTAL FUND RISK VS. RETURN: FIVE YEARS



**The Trust Fund underperformed in its peer universe due to having the least amount of risk as measured by standard deviation.**

5 Years Ending March 31, 2023				
	Risk	Quartile Rank	Return	Quartile Rank
<b>Total Fund</b>	<b>6.86</b>	<b>4<sup>th</sup></b>	<b>5.58</b>	<b>4<sup>th</sup></b>
<b>Actual Allocation Benchmark</b>	<b>7.63</b>	<b>4<sup>th</sup></b>	<b>4.18</b>	<b>4<sup>th</sup></b>
<i>InvMetrics Public DB &gt; \$10 Billion Median</i>	<i>9.52</i>		<i>6.71</i>	

Risk is measured by the Standard Deviation.

The Standard Deviation interquartile range, here, is defined as the lowest Standard Deviation measuring in the lowest quartile.

Performance returns are reported net of fees.

InvMetrics Public DB>\$10B Median includes 16 observations.

# PERFORMANCE DETAIL

	Allocation		Performance (%)							
	Market Value (\$)	% of Portfolio	3 Mo (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Total Fund</b>	<b>36,513,805,796</b>	<b>100.0</b>	<b>3.44</b>	<b>-0.91</b>	<b>8.77</b>	<b>5.58</b>	<b>6.74</b>	<b>6.05</b>	<b>8.13</b>	<b>Jan-89</b>
Actual Allocation Benchmark			<u>4.22</u>	<u>-7.21</u>	<u>6.37</u>	<u>4.18</u>	<u>5.54</u>	<u>5.20</u>	<u>7.44</u>	
Over/Under			-0.78	6.30	2.40	1.40	1.20	0.85	0.69	
Strategic Target Allocation Index			<u>4.51</u>	<u>-6.86</u>	<u>7.28</u>	<u>5.16</u>	<u>6.61</u>	<u>6.08</u>	<u>7.71</u>	
Over/Under			-1.07	5.95	1.49	0.42	0.13	-0.03	0.42	
<b>Global Equity</b>	<b>12,436,982,387</b>	<b>34.1</b>	<b>6.96</b>	<b>-7.73</b>	<b>14.59</b>	<b>5.81</b>	<b>8.60</b>	<b>8.01</b>	<b>5.61</b>	<b>Jan-08</b>
Total Equity Index			<u>6.95</u>	<u>-7.68</u>	<u>15.64</u>	<u>6.66</u>	<u>9.16</u>	<u>8.36</u>	<u>5.80</u>	
Over/Under			0.01	-0.05	-1.05	-0.85	-0.56	-0.35	-0.19	
<b>Core Fixed Income</b>	<b>1,667,449,835</b>	<b>4.6</b>	<b>2.86</b>	<b>-4.82</b>	<b>-2.35</b>	<b>1.18</b>	<b>1.16</b>	<b>1.54</b>	<b>6.60</b>	<b>Jan-89</b>
Fixed Income Benchmark			<u>2.96</u>	<u>-4.78</u>	<u>-2.77</u>	<u>0.90</u>	<u>0.88</u>	<u>1.36</u>	<u>6.10</u>	
Over/Under			-0.10	-0.04	0.42	0.28	0.28	0.18	0.50	
<b>Non-Core Fixed Income</b>	<b>6,924,318,123</b>	<b>19.0</b>	<b>2.28</b>	<b>-0.10</b>	<b>3.88</b>	<b>3.77</b>	<b>4.81</b>		<b>4.04</b>	<b>Oct-14</b>
Total Non-Core Fixed Income Weighted Index			<u>1.79</u>	<u>-8.39</u>	<u>-0.77</u>	<u>1.32</u>	<u>2.70</u>		<u>2.16</u>	
Over/Under			0.49	8.29	4.65	2.45	2.11		1.88	
<b>Other Public and Private Markets</b>	<b>4,447,328,559</b>	<b>12.2</b>	<b>5.65</b>	<b>1.91</b>	<b>8.36</b>	<b>5.15</b>	<b>4.93</b>	<b>3.37</b>	<b>4.11</b>	<b>Feb-11</b>
Total Real Return Index			<u>8.88</u>	<u>-14.26</u>	<u>2.67</u>	<u>1.71</u>	<u>2.64</u>	<u>1.80</u>	<u>2.78</u>	
Over/Under			-3.23	16.17	5.69	3.44	2.29	1.57	1.33	
<b>Real Estate</b>	<b>4,987,584,387</b>	<b>13.7</b>	<b>-1.40</b>	<b>13.20</b>	<b>10.70</b>	<b>9.81</b>	<b>10.06</b>	<b>11.03</b>	<b>10.58</b>	<b>Nov-11</b>
Real Estate Benchmark			<u>-5.17</u>	<u>6.55</u>	<u>9.35</u>	<u>8.34</u>	<u>8.29</u>	<u>9.92</u>	<u>10.25</u>	
Over/Under			3.77	6.65	1.35	1.47	1.77	1.11	0.33	
<b>Hedge Funds</b>	<b>2,214,191,456</b>	<b>6.1</b>	<b>2.23</b>	<b>4.24</b>	<b>4.33</b>	<b>4.17</b>	<b>5.52</b>		<b>4.38</b>	<b>Aug-14</b>
Hedge Funds Benchmark			<u>1.44</u>	<u>2.41</u>	<u>6.23</u>	<u>4.35</u>	<u>4.68</u>		<u>3.54</u>	
Over/Under			0.79	1.83	-1.90	-0.18	0.84		0.84	
<b>Private Equity</b>	<b>3,715,894,786</b>	<b>10.2</b>	<b>-0.57</b>	<b>1.92</b>	<b>21.42</b>	<b>20.16</b>	<b>15.38</b>		<b>16.44</b>	<b>Dec-15</b>
Private Equity Index			<u>9.84</u>	<u>-18.40</u>	<u>8.44</u>	<u>12.28</u>	<u>9.92</u>		<u>11.18</u>	
Over/Under			-10.41	20.32	12.98	7.88	5.46		5.26	
<b>Cash Composite</b>	<b>120,056,263</b>	<b>0.3</b>	<b>1.47</b>	<b>3.17</b>	<b>1.10</b>	<b>1.47</b>	<b>1.21</b>	<b>1.00</b>	<b>0.76</b>	<b>Jun-08</b>
FTSE 1 Month US T-Bill index			<u>1.09</u>	<u>2.57</u>	<u>0.89</u>	<u>1.35</u>	<u>1.15</u>	<u>0.81</u>	<u>0.61</u>	
Over/Under			0.38	0.60	0.21	0.12	0.06	0.19	0.15	

# Texas Municipal Retirement System

## PERFORMANCE DETAIL

March 31, 2023

### 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.