

**Wilshire**



# Public Employees Retirement Association of New Mexico

## Investment Performance Review

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Q1 FY23

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# Scorecard

## Scorecard: Strategic Asset Allocation

- As of September 30, 2022, PERA is below the assumed rate of return for most time periods, but above the assumed rate of return since inception.
- The 20-year period includes the Great Recession and Dotcom era bust. Returns are at 6.64%.

PERA Investment Goal	Measurement	Total Fund Results	Assumed Return	Excess Return	Scorecard
Set Strategic Asset Allocation (Policy Portfolio) to meet the assumed return and funding goals over the long-term (10 years and longer)	•FYTD	-4.51%	1.77%	-6.28%	Below
	•1 year	-8.21%	7.25%	-15.46%	Below
	•3 years	4.23%	7.25%	-3.02%	Below
	•5 Years	4.84%	7.25%	-2.41%	Below
	•7 years	6.25%	7.30%	-1.05%	Below
	•10 years	6.47%	7.44%	-0.97%	Below
	•20 years	6.64%	7.59%	-0.95%	Below
	•30 years	7.57%	7.65%	-0.08%	Below
NOTE: 7.25 Annual (7.75 before July 2016)	•ITD	8.51%	7.67%	0.84%	Meets

## Scorecard: Strategic Asset Allocation, continued

- ✓ PERA's capital allocations were in line with SAA targets:

Capital Allocation				
Asset Class	Target %	Actuals %	Difference Δ	IPS Ranges %
Global Equity	35.5%	34.2%	-1.3%	+/- 5%
Credit	15.0%	14.5%	-0.5%	+/- 4%
Risk Mitigation	19.5%	19.9%	0.4%	+/- 3%
Real Assets	20.0%	23.1%	3.1%	+/- 4%
Multi-Risk	10.0%	8.3%	-1.7%	+/- 4%
Total Fund	100.0%	100.0%		

- PERA's 4-year tracking error was outside of ranges, while excess return was within ranges:

Active Risk Allocation versus Policy Portfolio			
	4-Year Results	Target	Range
Ex-Post Actionable Total Fund Tracking Error	0.94%	1.25%	1.0% - 2.0%
Ex-Post Total Fund Tracking Error	5.08%	2.50%	2.0% - 3.0%
Ex-Post Excess Return	0.19%	1.0%	0.0% - 2.0%
Source: Board Risk Report (BNYM) / Calculations are based on NOF figures.			

- ✓ PERA's liquidity allocations were in line with liquidity guidelines:

Liquidity Allocation			
Tier	Actuals \$M	Actuals %	Guideline
Tier 1 (1-5 Days)	\$2,336	15%	Tier 1 Assets ≥ 10% Fund NAV
Tier 2 (5-90 Days)	\$6,104	39%	
Tier 3 (90-365 Days)	\$1,125	7%	
Tier 4 (1 Year + )	\$6,161	39%	
	\$15,727	100%	

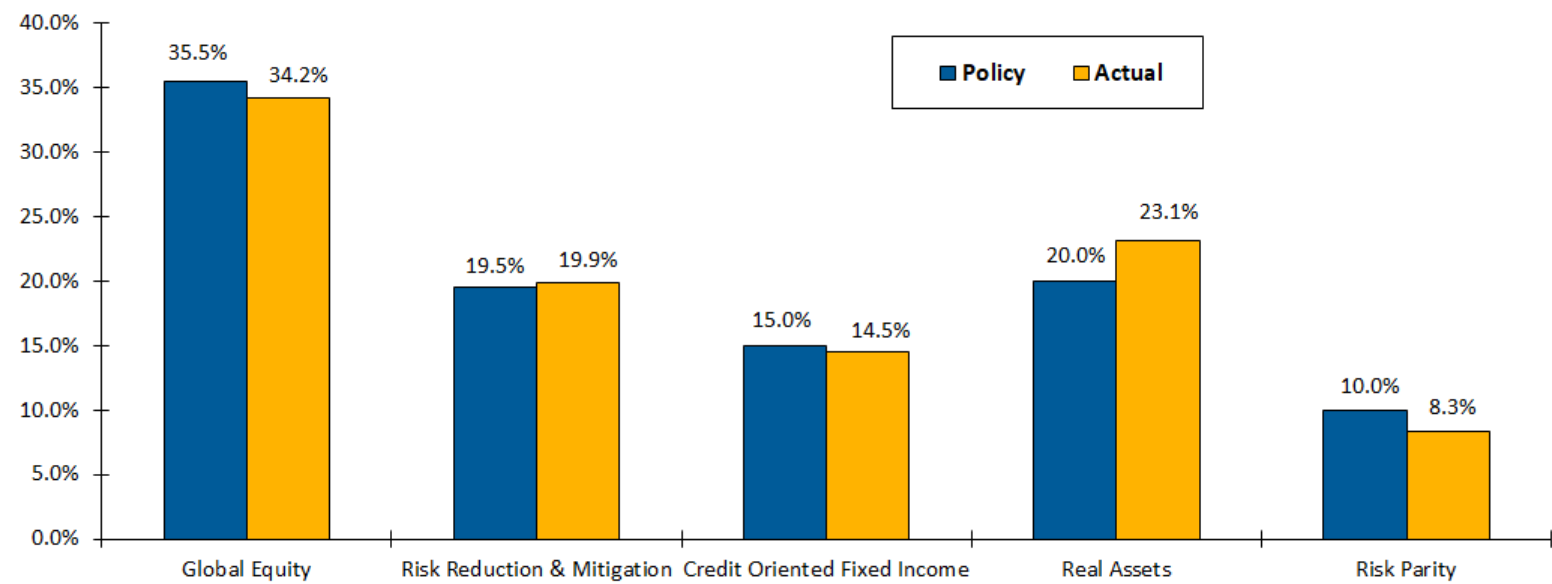
# Scorecard: Market Performance

PERA Investment Goal	Measurement	Total Fund Results	Benchmark Return	Excess Return	Scorecard
Produce returns that meet or exceed Board approved Total Fund benchmarks:	Policy Portfolio:				
	•FYTD	-4.51%	-6.03%	1.52%	Meets
	•1 Year	-8.21%	-16.06%	7.85%	Meets
	•3 years	4.23%	0.42%	3.81%	Meets
	•5 Years	4.84%	2.38%	2.46%	Meets
	•7 years	6.25%	4.58%	1.67%	Meets
	•10 years	6.47%	5.22%	1.25%	Meets
	•20 years	6.64%	6.50%	0.14%	Meets
	•30 years	7.57%	6.76%	0.81%	Meets
	•ITD	8.51%	8.01%	0.50%	Meets
Meet or exceed the Policy Portfolio over the long-term					
Median risk adjusted peer performance ranking over the long-term (InvestMetrics)	Peer Rankings Fund Sharpe Fund Ranking No. of Funds				
	•1 Year	-1.08	39	59	Meets
	•3 years	0.44	34	57	Meets
	•5 Years	0.50	29	57	Meets
	•7 Years	0.75	30	57	Meets
	•10 years	0.85	38	54	Meets
ITD Reference Portfolio Benchmark Return: 58% MSCI ACWI IMI (\$n), 42% Bloomberg Barclays U.S. Aggregate 12/31/08 - Present. 62% MSCI ACWI IMI (\$n), 38% Bloomberg Barclays U.S. Aggregate from 05/31/94 - 12/31/08. 62% Russell 3000 Index, 38% Bloomberg Barclays U.S. Aggregate from Inception - 05/31/94.					

Total Fund

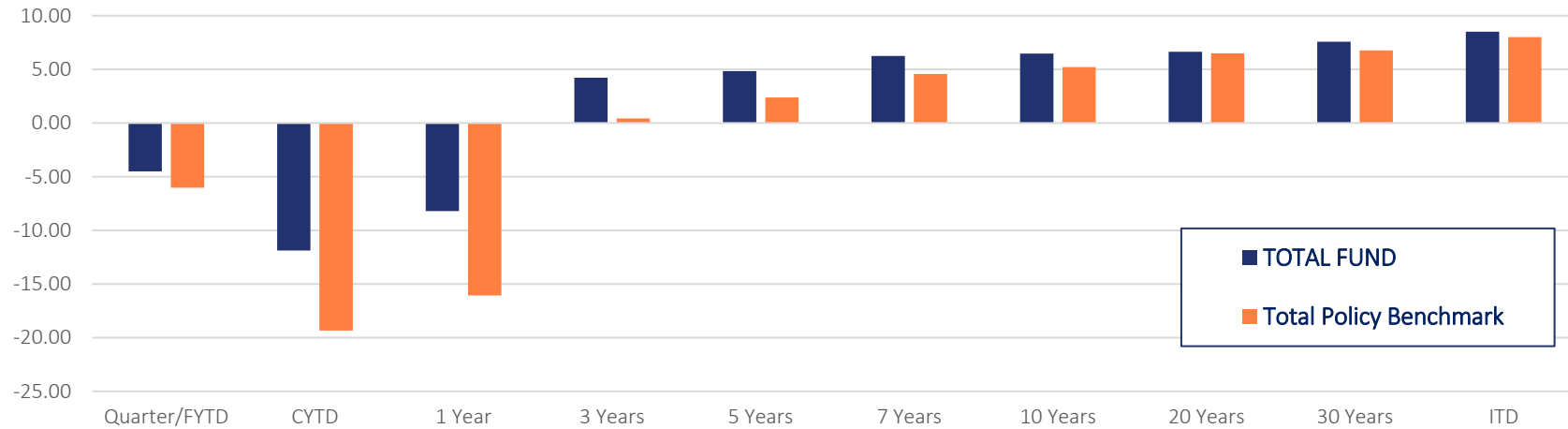
# Total Fund Asset Allocation

- Total Fund Market Value (9/30/22): \$15.7 Billion
- STO Cash Balance: \$9.4 Million
- Previous Quarter Market Value (6/30/22): \$16.6 Billion
  - Change from previous quarter: -\$902 Million:
    - \$159.6 Million in net distributions
    - \$742.2 Million in investment losses





# Total Fund Performance as of September 30, 2022



Composite/Manager	Quarter /FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	20 Years	30 Years	ITD	Inception Date
<b>TOTAL FUND</b>	<b>-4.51</b>	<b>-11.88</b>	<b>-8.21</b>	<b>4.23</b>	<b>4.84</b>	<b>6.25</b>	<b>6.47</b>	<b>6.64</b>	<b>7.57</b>	<b>8.51</b>	<b>6/1/1985</b>
7.25 Annual (7.75 before 7/16)	1.77	5.39	7.25	7.25	7.25	7.30	7.44	7.59	7.65	7.67	6/1/1985
Excess Return VS 7.25 Annual (7.75 before 7/16)	-6.28	-17.27	-15.46	-3.02	-2.41	-1.06	-0.97	-0.95	-0.08	0.84	6/1/1985
Total Policy Benchmark	-6.03	-19.34	-16.06	0.42	2.38	4.58	5.22	6.50	6.76	8.01	6/1/1985
Excess Return VS Total Policy Benchmark	1.51	7.46	7.85	3.81	2.46	1.67	1.25	0.15	0.81	0.50	6/1/1985
Total Policy Dynamic BM	-4.29	-10.75	-7.47	4.28	4.84	6.23					6/1/1985
Excess Return VS Total Policy Dynamic BM	-0.23	-1.13	-0.74	-0.05	0.00	0.01					6/1/1985
Allocation Return (Dynamic - Policy)	1.74	8.59	8.59	3.86	2.46	1.65					
Beta			0.60	0.64	0.65	0.68	0.73				
Information Ratio			1.45	0.57	0.44	0.33	0.30				
Sharpe Ratio			-1.08	0.44	0.50	0.75	0.85				
Index Sharpe Ratio			-1.26	0.07	0.17	0.40	0.53				
Standard Deviation			8.18	9.00	7.80	7.20	6.91				
Index Standard Deviation			13.25	13.64	11.59	10.12	8.98				

# Total Fund Composites

Composite/Manager	Quarter /FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	ITD	Inception Date	Market Value	% of Total
<b>TOTAL FUND</b>	<b>-4.51</b>	<b>-11.88</b>	<b>-8.21</b>	<b>4.23</b>	<b>4.84</b>	<b>6.25</b>	<b>8.51</b>	<b>6/1/1985</b>	<b>\$15,727,050,400</b>	<b>100.00</b>
7.25 Annual (7.75 before 7/16)	1.77	5.39	7.25	7.25	7.25	7.30	7.67	6/1/1985		
Excess Return VS 7.25 Annual (7.75 before 7/16)	-6.28	-17.27	-15.46	-3.02	-2.41	-1.06	0.84	6/1/1985		
Total Policy Benchmark	-6.03	-19.34	-16.06	0.42	2.38	4.58	8.01	6/1/1985		
Excess Return VS Total Policy Benchmark	1.51	7.46	7.85	3.81	2.46	1.67	0.50	6/1/1985		
Total Policy Dynamic BM	-4.29	-10.75	-7.47	4.28	4.84	6.23		6/1/1985		
Excess Return VS Total Policy Dynamic BM	-0.23	-1.13	-0.74	-0.05	0.00	0.01		6/1/1985		
Allocation Return (Dynamic - Policy)	1.74	8.59	8.59	3.86	2.46	1.65				
<b>GLOBAL EQUITY</b>	<b>-6.52</b>	<b>-17.50</b>	<b>-11.64</b>	<b>8.02</b>	<b>7.56</b>	<b>9.72</b>	<b>8.67</b>	<b>4/1/2013</b>	<b>\$ 5,371,776,435</b>	<b>34.16</b>
Global Equity BM	-6.50	-24.09	-19.42	2.96	4.26	7.09	7.38	4/1/2013		
Excess Return VS Global Equity BM	-0.02	6.59	7.78	5.06	3.30	2.62	1.29	4/1/2013		
Global Equity Dynamic BM	-5.78	-15.40	-10.44	8.97	8.12	10.03	8.88	4/1/2013		
Excess Return VS Global Equity Dynamic BM	-0.74	-2.10	-1.20	-0.95	-0.56	-0.31	-0.22	4/1/2013		
Allocation Return (Dynamic - Policy)	0.72	8.69	8.98	6.01	3.86	2.94	1.50			
<b>RISK REDUCTION &amp; MITIGATION</b>	<b>-4.60</b>	<b>-13.44</b>	<b>-13.58</b>	<b>-2.62</b>	<b>0.22</b>	<b>1.13</b>	<b>1.32</b>	<b>4/1/2013</b>	<b>\$ 3,125,954,328</b>	<b>19.88</b>
Risk Reduction & Mitigation BM	-4.57	-14.29	-14.28	-3.23	-0.19	0.61	1.00	4/1/2013		
Excess Return VS Risk Reduction & Mitigation BM	-0.03	0.85	0.70	0.61	0.41	0.53	0.32	4/1/2013		
Risk Red & Mitigation Dyn BM	-4.70	-14.33	-14.34	-3.16	-0.13	0.66	1.06	4/1/2013		
Excess Return VS Risk Red & Mitigation Dyn BM	0.10	0.89	0.76	0.54	0.35	0.48	0.26	4/1/2013		
Allocation Return (Dynamic - Policy)	-0.13	-0.04	-0.06	0.07	0.06	0.05	0.06			
<b>CREDIT ORIENTED FIXED INCOME</b>	<b>-1.78</b>	<b>-8.51</b>	<b>-7.82</b>	<b>2.48</b>	<b>3.10</b>	<b>4.15</b>	<b>3.96</b>	<b>4/1/2013</b>	<b>\$ 2,287,275,932</b>	<b>14.54</b>
Credit Oriented FI BM	-2.02	-17.36	-17.82	-3.22	-0.55	2.09	2.38	4/1/2013		
Excess Return VS Credit Oriented FI BM	0.24	8.85	10.00	5.69	3.65	2.05	1.58	4/1/2013		
Credit Oriented FI Dynamic BM	-1.02	-7.33	-6.92	1.10	2.16	4.01	4.28	4/1/2013		
Excess Return VS Credit Oriented FI Dynamic BM	-0.76	-1.18	-0.90	1.37	0.93	0.14	-0.32	4/1/2013		
Allocation Return (Dynamic - Policy)	1.00	10.03	10.90	4.32	2.71	1.92	1.90			
<b>REAL ASSETS</b>	<b>-0.32</b>	<b>6.69</b>	<b>11.32</b>	<b>8.06</b>	<b>6.76</b>	<b>6.29</b>	<b>5.89</b>	<b>4/1/2013</b>	<b>\$ 3,635,410,894</b>	<b>23.12</b>
Real Assets BM	-6.93	-12.10	-6.25	2.95	3.51	4.04	4.36	4/1/2013		
Excess Return VS Real Assets BM	6.61	18.78	17.57	5.11	3.25	2.26	1.53	4/1/2013		
Real Assets Dynamic BM	-0.83	8.40	12.90	7.94	6.65	6.49	5.46	4/1/2013		
Excess Return VS Real Assets Dynamic BM	0.52	-1.71	-1.58	0.12	0.12	-0.20	0.43	4/1/2013		
Allocation Return (Dynamic - Policy)	6.10	20.50	19.15	4.99	3.14	2.45	1.10			
<b>MULTI-RISK ALLOCATION</b>	<b>-11.24</b>	<b>-29.05</b>	<b>-24.62</b>	<b>-4.88</b>			<b>-0.50</b>	<b>5/1/2019</b>	<b>\$ 1,306,632,813</b>	<b>8.31</b>
Wilshire Risk Parity 15% Vol Index	-11.74	-29.34	-24.90	-4.75			-0.21	5/1/2019		
Excess Return VS Wilshire Risk Parity 15% Vol Index	0.50	0.29	0.28	-0.12			-0.29	5/1/2019		

# Total Fund Attribution – Quarter

Quarter - 9/30/2022	NM PERA		Policy		Difference		Net Management Effects		
	Weight	Return	Weight	Return	Weight	Return	Allocation	Selection	Total
<b>GLOBAL EQUITY</b>	<b>34.83</b>	<b>-6.52</b>	<b>35.50</b>	<b>-6.50</b>	-0.67	-0.02	<b>0.00</b>	<b>-0.03</b>	<b>-0.03</b>
Global Public Stock	15.84	-7.10	19.50	-6.64	-3.66	-0.46	0.01	-0.07	-0.06
Global Low Volatility	5.11	-6.11	7.00	-6.03	-1.89	-0.08	0.00	0.00	0.00
Private Equity	13.87	-6.10	9.00	-6.64	4.87	0.54	-0.02	0.05	0.04
LGIMA Global Equity Overlay	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>RISK REDUCTION &amp; MITIGATION</b>	<b>19.53</b>	<b>-4.60</b>	<b>19.50</b>	<b>-4.57</b>	0.03	-0.03	<b>-0.01</b>	<b>0.00</b>	<b>-0.01</b>
Domestic Core Fixed Income	11.33	-5.06	12.00	-4.75	-0.67	-0.31	-0.01	-0.04	-0.05
Bonds Plus	5.25	-4.12	5.00	-4.75	0.25	0.63	0.01	0.04	0.04
Global Core Fixed Income	2.48	-3.45	2.50	-3.34	-0.02	-0.11	0.00	0.00	0.00
Cash	0.47	-5.68	0.00	0.00	0.47	-5.68	-0.01	0.00	-0.01
LGIMA Overlay Collateral	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LGIMA TAA Overlay	0.00	-1.00	0.00	0.00	0.00	-1.00	0.00	0.00	0.00
<b>CREDIT ORIENTED FIXED INCOME</b>	<b>14.67</b>	<b>-1.78</b>	<b>15.00</b>	<b>-2.02</b>	-0.33	0.24	<b>-0.01</b>	<b>0.03</b>	<b>0.03</b>
Liquid Credit	3.23	-2.95	2.00	-1.36	1.23	-1.59	0.06	-0.05	0.01
Emerging Market Debt	2.43	-5.37	3.00	-4.64	-0.57	-0.73	-0.01	-0.02	-0.03
Illiquid Credit	2.26	2.59	6.00	-1.36	-3.74	3.95	-0.17	0.09	-0.08
Alt Liquid Credit	6.75	-1.30	4.00	-1.36	2.75	0.06	0.12	0.01	0.13
LGIMA Credit Overlay	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>REAL ASSETS</b>	<b>21.96</b>	<b>-0.32</b>	<b>20.00</b>	<b>-6.93</b>	1.96	6.61	<b>-0.02</b>	<b>1.46</b>	<b>1.44</b>
Liquid Real Estate	0.74	-7.90	2.00	-11.15	-1.26	3.25	0.06	0.02	0.09
Illiquid Real Estate	7.07	0.35	5.00	-11.15	2.07	11.50	-0.11	0.83	0.72
Liquid Real Assets	5.61	-6.17	5.00	0.05	0.61	-6.22	0.04	-0.34	-0.31
Illiquid Real Assets	8.54	3.54	8.00	-7.54	0.54	11.08	-0.02	0.96	0.94
Market Neutral HF	0.00	-0.46	0.00	0.00	0.00	-0.46	0.00	0.00	0.00
<b>MULTI-RISK ALLOCATION</b>	<b>9.01</b>	<b>-11.24</b>	<b>10.00</b>	<b>-11.75</b>	-0.99	0.51	<b>0.05</b>	<b>0.05</b>	<b>0.09</b>
<b>TOTAL</b>	<b>100.0</b>	<b>-4.51</b>	<b>100.0</b>	<b>-6.03</b>			<b>0.00</b>	<b>1.51</b>	<b>1.52</b>

# Total Fund Attribution – 1 Year

1 year - 9/30/2022	NM PERA		Policy		Difference		Net Management Effects		
	Weight	Return	Weight	Return	Weight	Return	Allocation	Selection	Total
<b>GLOBAL EQUITY</b>	<b>35.30</b>	<b>-11.64</b>	<b>35.50</b>	<b>-19.42</b>	-0.20	7.78	<b>-0.02</b>	<b>2.82</b>	<b>2.80</b>
Global Public Stock	16.77	-23.83	19.50	-21.18	-2.73	-2.65	0.11	-0.51	-0.40
Global Low Volatility	5.58	-12.07	7.00	-12.12	-1.42	0.05	-0.05	0.00	-0.05
Private Equity	12.95	5.72	9.00	-21.18	3.95	26.90	-0.22	3.33	3.11
LGIMA Global Equity Overlay	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.14
<b>RISK REDUCTION &amp; MITIGATION</b>	<b>19.09</b>	<b>-13.58</b>	<b>19.50</b>	<b>-14.28</b>	-0.41	0.70	<b>0.05</b>	<b>0.10</b>	<b>0.14</b>
Domestic Core Fixed Income	10.90	-15.37	12.00	-14.60	-1.10	-0.77	0.02	-0.09	-0.07
Bonds Plus	5.01	-10.95	5.00	-14.60	0.01	3.65	0.02	0.19	0.20
Global Core Fixed Income	2.43	-11.88	2.50	-12.05	-0.07	0.17	0.00	0.00	0.00
Cash	0.73	-6.77	0.00	0.00	0.73	-6.77	0.04	0.00	0.04
LGIMA Overlay Collateral	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LGIMA TAA Overlay	0.03	0.00	0.00	0.00	0.03	0.00	-0.03	0.00	-0.03
<b>CREDIT ORIENTED FIXED INCOME</b>	<b>14.80</b>	<b>-7.82</b>	<b>15.00</b>	<b>-17.82</b>	-0.20	10.00	<b>0.01</b>	<b>1.50</b>	<b>1.51</b>
Liquid Credit	2.75	-17.01	2.00	-16.64	0.75	-0.37	0.04	-0.02	0.02
Emerging Market Debt	2.61	-25.35	3.00	-22.45	-0.39	-2.90	0.01	-0.09	-0.08
Illiquid Credit	2.30	8.48	6.00	-16.64	-3.70	25.12	0.02	0.54	0.56
Alt Liquid Credit	7.13	-1.63	4.00	-16.64	3.13	15.01	-0.06	1.06	1.01
LGIMA Credit Overlay	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
<b>REAL ASSETS</b>	<b>21.13</b>	<b>11.32</b>	<b>20.00</b>	<b>-6.25</b>	1.13	17.57	<b>-0.10</b>	<b>3.40</b>	<b>3.31</b>
Liquid Real Estate	1.28	-15.19	2.00	-20.02	-0.72	4.83	0.14	0.01	0.15
Illiquid Real Estate	6.40	18.91	5.00	-20.02	1.40	38.93	-0.13	2.35	2.22
Liquid Real Assets	6.19	-3.88	5.00	0.49	1.19	-4.37	0.14	-0.23	-0.09
Illiquid Real Assets	7.26	19.77	8.00	2.00	-0.74	17.77	-0.25	1.28	1.03
Market Neutral HF	0.01	-17.57	0.00	0.00	0.01	-17.57	0.00	0.00	0.00
<b>MULTI-RISK ALLOCATION</b>	<b>9.68</b>	<b>-24.61</b>	<b>10.00</b>	<b>-24.90</b>	-0.32	0.29	<b>0.06</b>	<b>0.03</b>	<b>0.09</b>
<b>TOTAL</b>	<b>100.0</b>	<b>-8.21</b>	<b>100.0</b>	<b>-16.06</b>			<b>0.00</b>	<b>7.84</b>	<b>7.85</b>

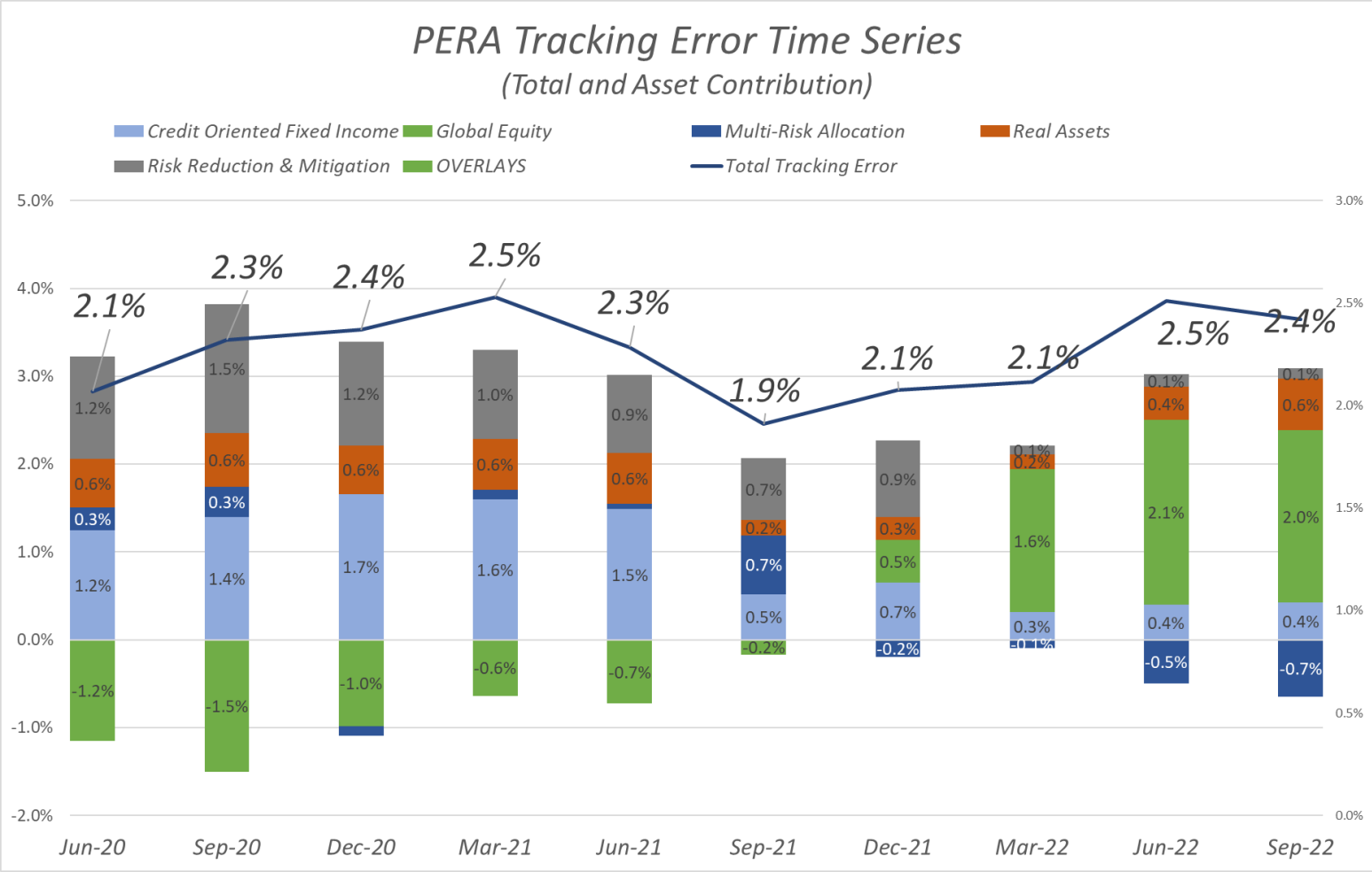
# Total Fund Attribution – 3 Years

3 Years - 9/30/2022	NM PERA		Policy		Difference		Net Management Effects		
	Weight	Return	Weight	Return	Weight	Return	Allocation	Selection	Total
<b>GLOBAL EQUITY</b>	<b>36.51</b>	<b>8.02</b>	<b>36.04</b>	<b>2.96</b>	0.47	5.06	<b>0.06</b>	<b>1.66</b>	<b>1.72</b>
Global Public Stock	19.84	1.16	20.04	3.64	-0.20	-2.48	0.14	-0.47	-0.32
Global Low Volatility	6.52	0.13	6.83	-0.13	-0.31	0.26	-0.03	0.02	-0.02
Private Equity	10.12	23.57	9.00	3.64	1.12	19.93	-0.12	2.11	1.99
LGIMA Global Equity Overlay	0.01	0.00	0.00	0.00	0.01	0.00	0.07	0.00	0.07
<b>RISK REDUCTION &amp; MITIGATION</b>	<b>19.26</b>	<b>-2.62</b>	<b>19.63</b>	<b>-3.23</b>	-0.37	0.61	<b>0.03</b>	<b>0.12</b>	<b>0.15</b>
Domestic Core Fixed Income	12.02	-3.93	13.38	-3.26	-1.36	-0.67	0.27	-0.12	0.14
Bonds Plus	3.34	0.00	3.75	0.00	-0.41	0.00	-0.08	0.24	0.16
Global Core Fixed Income	2.55	-3.06	2.50	-3.07	0.05	0.01	-0.02	0.00	-0.02
Cash	1.03	-0.31	0.00	0.00	1.03	-0.31	-0.08	0.00	-0.08
LGIMA Overlay Collateral	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LGIMA TAA Overlay	0.32	16.89	0.00	0.00	0.32	16.89	-0.06	0.00	-0.06
<b>CREDIT ORIENTED FIXED INCOME</b>	<b>14.66</b>	<b>2.49</b>	<b>15.00</b>	<b>-3.22</b>	-0.34	5.71	<b>0.06</b>	<b>0.82</b>	<b>0.88</b>
Liquid Credit	3.43	-3.72	2.53	-2.25	0.90	-1.47	0.00	-0.02	-0.02
Emerging Market Debt	2.44	-5.61	3.00	-7.07	-0.56	1.46	0.03	0.03	0.07
Illiquid Credit	3.75	6.85	6.00	-2.25	-2.25	9.10	0.02	0.17	0.20
Alt Liquid Credit	4.74	0.00	3.22	0.00	1.52	0.00	-0.06	0.67	0.61
LGIMA Credit Overlay	0.01	0.00	0.00	0.00	0.01	0.00	0.07	0.00	0.07
<b>REAL ASSETS</b>	<b>20.43</b>	<b>8.06</b>	<b>20.00</b>	<b>2.95</b>	0.43	5.11	<b>-0.03</b>	<b>1.09</b>	<b>1.05</b>
Liquid Real Estate	1.72	-0.02	2.00	-4.13	-0.28	4.11	0.05	0.04	0.10
Illiquid Real Estate	5.70	11.21	5.00	-4.13	0.70	15.34	-0.05	0.94	0.90
Liquid Real Assets	7.10	3.71	5.25	6.00	1.85	-2.29	0.04	-0.17	-0.12
Illiquid Real Assets	5.90	8.89	7.75	7.15	-1.85	1.74	-0.08	0.27	0.19
Market Neutral HF	0.01	-1.38	0.00	0.00	0.01	-1.38	0.00	0.00	0.00
<b>MULTI-RISK ALLOCATION</b>	<b>9.14</b>	<b>-4.59</b>	<b>9.33</b>	<b>-4.75</b>	-0.19	0.16	<b>-0.02</b>	<b>0.02</b>	<b>0.00</b>
<b>TOTAL</b>	<b>100.0</b>	<b>4.23</b>	<b>100.0</b>	<b>0.42</b>			<b>0.10</b>	<b>3.71</b>	<b>3.81</b>

# Total Fund Attribution – 5 Years

5 Years - 9/30/2022	NM PERA		Policy		Difference		Net Management Effects		
	Weight	Return	Weight	Return	Weight	Return	Allocation	Selection	Total
<b>GLOBAL EQUITY</b>	<b>39.36</b>	<b>7.56</b>	<b>38.88</b>	<b>4.26</b>	0.48	3.30	<b>0.01</b>	<b>1.13</b>	<b>1.14</b>
Global Public Stock	24.51	2.52	23.07	4.17	1.44	-1.65	0.10	-0.33	-0.23
Global Low Volatility	6.23	4.17	5.94	3.85	0.29	0.32	0.00	0.02	0.02
Private Equity	8.48	19.89	8.93	5.17	-0.45	14.72	-0.11	1.44	1.33
LGIMA Global Equity Overlay	0.01	0.00	0.00	0.00	0.01	0.00	0.04	0.00	0.04
<b>RISK REDUCTION &amp; MITIGATION</b>	<b>20.11</b>	<b>0.22</b>	<b>20.36</b>	<b>-0.19</b>	-0.25	0.41	<b>0.00</b>	<b>0.07</b>	<b>0.07</b>
Domestic Core Fixed Income	14.20	-0.62	15.48	-0.27	-1.28	-0.35	0.15	-0.06	0.09
Bonds Plus	2.01	0.00	2.25	0.00	-0.24	0.00	-0.05	0.15	0.10
Global Core Fixed Income	2.67	-0.14	2.52	0.32	0.15	-0.46	-0.01	-0.02	-0.02
Cash	1.05	2.55	0.11	0.00	0.94	2.55	-0.06	0.00	-0.06
LGIMA Overlay Collateral	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LGIMA TAA Overlay	0.20	0.00	0.00	0.00	0.20	0.00	-0.04	0.00	-0.04
<b>CREDIT ORIENTED FIXED INCOME</b>	<b>14.80</b>	<b>3.10</b>	<b>15.00</b>	<b>-0.55</b>	-0.20	3.65	<b>0.01</b>	<b>0.55</b>	<b>0.56</b>
Liquid Credit	4.17	-0.83	2.72	-0.12	1.45	-0.71	-0.02	0.01	-0.01
Emerging Market Debt	2.66	-3.03	3.00	-3.19	-0.34	0.16	0.01	0.00	0.01
Illiquid Credit	3.76	6.97	6.00	0.32	-2.24	6.65	0.02	0.13	0.15
Alt Liquid Credit	2.84	0.00	1.93	0.00	0.91	0.00	-0.04	0.41	0.37
LGIMA Credit Overlay	0.01	0.00	0.00	0.00	0.01	0.00	0.04	0.00	0.04
<b>REAL ASSETS</b>	<b>20.08</b>	<b>6.76</b>	<b>20.00</b>	<b>3.51</b>	0.08	3.25	<b>0.02</b>	<b>0.68</b>	<b>0.69</b>
Liquid Real Estate	2.28	4.06	1.95	1.41	0.33	2.65	0.05	0.02	0.07
Illiquid Real Estate	4.85	11.37	5.13	1.24	-0.28	10.13	-0.04	0.56	0.52
Liquid Real Assets	7.51	2.16	6.05	4.05	1.46	-1.89	0.03	-0.14	-0.10
Illiquid Real Assets	5.41	7.11	6.82	4.24	-1.41	2.87	-0.04	0.24	0.20
Market Neutral HF	0.03	1.16	0.05	0.00	-0.02	1.16	0.00	0.00	-0.01
<b>MULTI-RISK ALLOCATION</b>	<b>5.66</b>		<b>5.76</b>		-0.10	0.00	<b>-0.01</b>	<b>0.01</b>	<b>0.00</b>
<b>TOTAL</b>	<b>100.0</b>	<b>4.84</b>	<b>100.0</b>	<b>2.38</b>			<b>0.03</b>	<b>2.43</b>	<b>2.46</b>

# Forecasted Risk Snapshot

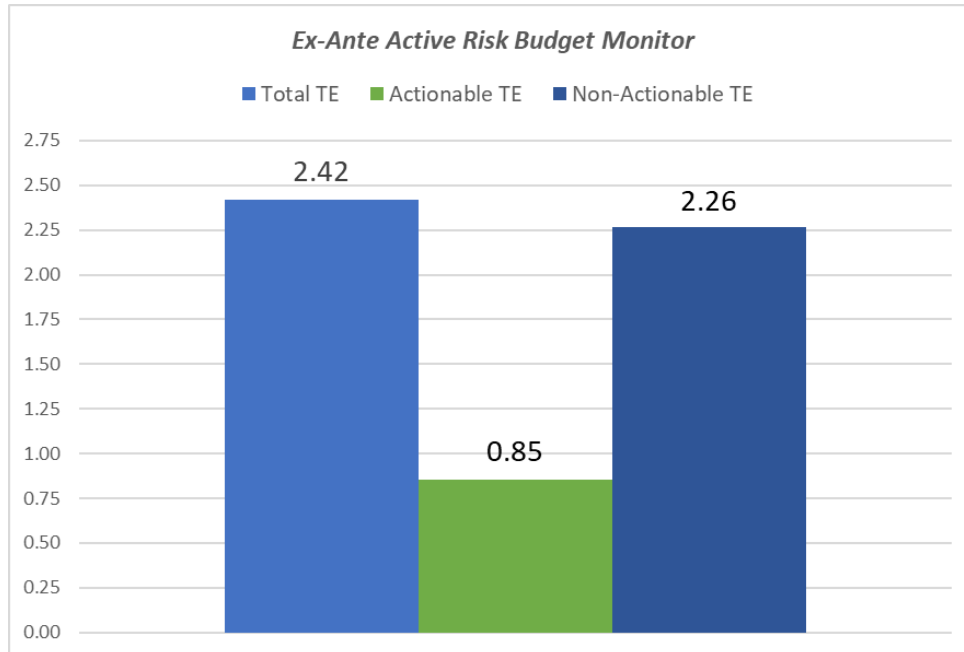


Tracking Error and Contributions are calculated using factor exposures, asset class allocations, and utilizes Wilshire's factor risk covariance matrix



# PERA Ex-Ante Risk Dashboard Snapshot

Manager	Benchmark	Portfolio Market Value	Weight	Portfolio Risk	Benchmark Risk	Tracking Error	Portfolio Risk Contribution	Benchmark Risk Contribution	Tracking Error Risk Contribution	Portfolio Risk Contribution (%)	Tracking Error Risk Contribution (%)
Credit Oriented FI	TOT CREDIT POLICY	2,285,969,850.09	14.51%	3.23	4.45	3.96	0.08	1.11	0.42	1.02%	17.19%
Global Equity	TOT GLB EQ POLICY	5,394,727,369.24	34.24%	16.87	13.67	6.69	5.09	2.61	1.97	69.04%	81.12%
Multi Risk	Risk Parity	1,306,632,796.38	8.29%	32.20	32.20		0.56	0.63	-0.65	7.59%	-26.92%
Real Assets	TOT REAL ASTS POLICY	3,624,394,937.32	23.00%	3.89	12.66	9.04	1.32	1.75	0.58	17.90%	23.78%
Risk Reduction	TOT RISKMIT POLICY	3,143,317,707.11	19.95%	5.52	5.39	0.90	0.33	1.52	0.12	4.44%	4.83%
<b>Total</b>		<b>15,755,042,660.13</b>	<b>100.00%</b>	<b>7.37</b>	<b>7.62</b>	<b>2.42</b>	<b>7.37</b>	<b>7.62</b>	<b>2.42</b>	<b>100.00%</b>	<b>100.00%</b>



- **Total TE Target is 2.5% (Range 2-3%)**
- **Actionable TE Target is 1.25%**
- **Current Ex-Post Actionable TE is 0.94%**
- Tracking Error and Contributions are calculated using factor exposures, asset class allocations, and utilizes Wilshire's current factor risk covariance matrix
- Actionable Tracking Error (TE) is defined as the portion of tracking error in the plan/composite which results from factor exposure differences, actual vs. target allocations, and security specific contributions within the public market segment of the plan/composite
- Non-Actionable Tracking Error (TE) is defined as the remaining portion of overall tracking error in the plan/composite and is the inherent tracking error risk in the plan/composite vs. policy definition. Largely, this comes from the overall nature of private markets, the difficulty in rebalancing these assets, and their benchmarking to public market assets



# Global Equity

# Global Equity Structure

GLOBAL EQUITY				
Manager	Benchmark		Market Value	Actual %
SSgA ACWI IMI Index	MSCI ACWI IMI Index	\$	510,793,469	21.7%
Global Equity Overlay	Global Equity Blend	\$	71,120,916	3.0%
Portable Alpha	S&P 500	\$	2,741,376	0.1%
SSgA Russell 1000 Index	Russell 1000	\$	806,912,155	34.2%
Kayne Anderson Small Core	Russell 2000	\$	223,845,095	9.5%
DFA US Targeted Value	Russell 2000 Value	\$	313	0.0%
TimesSquare	Russell 2500 Growth	\$	137	0.0%
NT MSCI ACWI x-US Index	MSCI ACWI ex-US	\$	264,176	0.0%
Acadian International Equity	MSCI EAFE Index	\$	222,830,470	9.5%
Alliance Bernstein	MSCI EAFE Index	\$	177,500,625	7.5%
KBI Global Investors EAFE Dev	MSCI EAFE Value	\$	357,813	0.0%
MFS International Value	MSCI EAFE Index	\$	178,573,896	7.6%
Principal International Small Cap	MSCI World ex-US Small	\$	460,182	0.0%
Schroder International Small	MSCI EAFE Small	\$	163,468	0.0%
Axiom Emerging Markets	MSCI Emerging Markets	\$	159,356,440	6.8%
Russell Transition	MSCI Emerging Markets	\$	1,556,868	0.1%
BlackRock Equity Transition	n/a	\$	10,826	0.0%
<b>Global Public Stock Composite</b>	MSCI ACWI IMI (\$n)	\$	<b>2,356,488,224</b>	<b>43.9%</b>
BlackRock MSCI ACWI Minimum Volatility	MSCI ACWI Min Vol (\$n)	\$	794,759,931	
<b>Global Low Volatility Equity Comp</b>	MSCI ACWI Min Vol (\$n)	\$	<b>794,759,931</b>	<b>14.8%</b>
<b>Hedged Equity Composite</b>	MSCI ACWI Min Vol (\$n)	\$	<b>649,355</b>	<b>0.0%</b>
<b>Private Equity Composite</b>	MSCI ACWI IMI (\$n)	\$	<b>2,219,878,924</b>	<b>41.3%</b>
<b>TOTAL GLOBAL EQUITY COMPOSITE</b>	80% MSCI ACWI IMI (\$n) / 20% MSCI ACWI Min Vol (\$n)	\$	<b>5,371,776,435</b>	

# Global Equity Composite Performance

Composite/Manager	Fiscal YTD	YTD	1 Year	3 Years	5 Years	7 Years	ITD	Inception Date	Market Value	% of Total
<b>GLOBAL EQUITY</b>	<b>-6.52</b>	<b>-17.50</b>	<b>-11.64</b>	<b>8.02</b>	<b>7.56</b>	<b>9.72</b>	<b>8.67</b>	<b>4/1/2013</b>	<b>\$ 5,371,776,435</b>	<b>34.16</b>
Global Equity BM	-6.50	-24.09	-19.42	2.96	4.26	7.09	7.38	4/1/2013		
Excess Return VS Global Equity BM	-0.02	6.59	7.78	5.06	3.30	2.62	1.29	4/1/2013		
Global Equity Dynamic BM	-5.78	-15.40	-10.44	8.97	8.12	10.03	8.88	4/1/2013		
Excess Return VS Global Equity Dynamic BM	-0.74	-2.10	-1.20	-0.95	-0.56	-0.31	-0.22	4/1/2013		
Allocation Return (Dynamic - Policy)	0.72	8.69	8.98	6.01	3.86	2.94	1.50			
Beta			0.68	0.75	0.77	0.79				
Information Ratio			1.37	0.74	0.57	0.49				
Sharpe Ratio			-1.01	0.58	0.55	0.77				
Index Sharpe Ratio			-1.19	0.22	0.27	0.49				
Standard Deviation			12.01	13.99	12.69	11.68				
Index Standard Deviation			17.12	18.21	16.18	14.17				
<b>Global Public Stock</b>	<b>-7.10</b>	<b>-27.88</b>	<b>-23.83</b>	<b>1.16</b>	<b>2.52</b>	<b>6.36</b>	<b>6.41</b>	<b>10/1/2004</b>	<b>\$ 2,356,488,224</b>	<b>14.98</b>
Public Equity Benchmark	-6.64	-25.72	-21.18	3.64	4.16	7.28		10/1/2004		
Excess Return VS Public Equity Benchmark	-0.47	-2.17	-2.64	-2.48	-1.65	-0.92		10/1/2004		
MSCI ACWI IMI (\$N)	-6.64	-25.72	-21.18	3.64	4.16	7.27	6.64	10/1/2004		
Excess Return VS MSCI ACWI IMI (\$N)	-0.47	-2.17	-2.64	-2.48	-1.65	-0.91	-0.23	10/1/2004		
Global Public Stock Dynamic BM	-6.40	-25.58	-22.28	2.67	3.26	6.72		10/1/2004		
Excess Return VS Global Public Stock Dynamic BM	-0.71	-2.30	-1.55	-1.51	-0.74	-0.36		10/1/2004		
Allocation Return (Dynamic - Policy)	0.24	0.14	-1.10	-0.97	-0.90	-0.56				
Beta			1.03	0.98	0.99	0.99				
Information Ratio			-1.70	-1.26	-0.99	-0.60				
Sharpe Ratio			-1.34	0.13	0.16	0.42				
Index Sharpe Ratio			-1.22	0.25	0.26	0.47				
Standard Deviation			19.09	19.27	17.20	15.52				
Index Standard Deviation			18.37	19.55	17.32	15.60				
<b>Global Low Volatility Equity (BlackRock)</b>	<b>-6.11</b>	<b>-17.05</b>	<b>-12.07</b>	<b>0.13</b>	<b>4.19</b>		<b>5.76</b>	<b>11/1/2016</b>	<b>\$ 794,759,931</b>	<b>5.05</b>
MSCI ACWI Min Vol (\$N)	-6.03	-17.32	-12.12	-0.13	3.85		5.35	11/1/2016		
Excess Return VS MSCI ACWI Min Vol (\$N)	-0.07	0.27	0.05	0.26	0.35		0.42	11/1/2016		
Beta			0.98	0.99	1.00					
Information Ratio			0.06	0.77	1.16					
Sharpe Ratio			-0.98	0.03	0.31					
Index Sharpe Ratio			-0.97	0.01	0.28					
Standard Deviation			12.70	13.42	11.81					
Index Standard Deviation			12.90	13.49	11.85					

# Global Equity Composite Performance

Composite/Manager	Quarter /FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	ITD	Inception Date	Market Value	% of Total
<b>Hedged Equity</b>	<b>-6.56</b>	<b>-2.80</b>	<b>-4.86</b>	<b>-4.62</b>	<b>1.24</b>	<b>0.69</b>	<b>2.38</b>	<b>4/1/2013</b>	<b>\$ 649,355</b>	<b>0.00</b>
Hedged Equity BM	-6.03	-17.32	-12.12	-0.13	3.59	4.45	4.31	4/1/2013		
Excess Return VS Hedged Equity BM	-0.53	14.52	7.27	-4.49	-2.35	-3.76	-1.93	4/1/2013		
MSCI ACWI Min Vol (\$N)	-6.03	-17.32	-12.12	-0.13	3.85	6.32	6.02	4/1/2013		
Excess Return VS MSCI ACWI Min Vol (\$N)	-0.53	14.52	7.27	-4.49	-2.61	-5.62	-3.64	4/1/2013		
Hedged Equity Dynamic BM	-2.05	-8.57	-10.14	7.15	5.30	5.53	5.02	4/1/2013		
Excess Return VS Hedged Equity Dynamic BM	-4.51	5.77	5.28	-11.77	-4.06	-4.84	-2.65	4/1/2013		
Allocation Return (Dynamic - Policy)	3.98	8.75	1.98	7.28	1.71	1.08	0.71			
Beta			-0.14	0.00	0.00	0.04				
Information Ratio			0.45	-0.36	-0.20	-0.33				
Sharpe Ratio			-0.69	-0.79	0.05	0.00				
Index Sharpe Ratio			-0.97	0.01	0.26	0.38				
Standard Deviation			7.56	6.37	7.41	6.80				
Index Standard Deviation			12.90	13.49	11.82	10.43				
<b>Private Equity</b>	<b>-6.09</b>	<b>-2.48</b>	<b>5.72</b>	<b>23.57</b>	<b>19.93</b>	<b>17.71</b>	<b>9.05</b>	<b>12/1/2006</b>	<b>\$ 2,219,878,924</b>	<b>14.12</b>
Private Equity BM	-6.64	-25.72	-21.18	3.64	5.17	7.36		12/1/2006		
Excess Return VS Private Equity BM	0.54	23.23	26.91	19.93	14.76	10.35		12/1/2006		
MSCI ACWI IMI (\$N)	-6.64	-25.72	-21.18	3.64	4.16	7.27	4.92	12/1/2006		
Excess Return VS MSCI ACWI IMI (\$N)	0.54	23.23	26.91	19.93	15.77	10.44	4.13	12/1/2006		
Private Equity Dynamic BM	-5.69	-0.77	6.14	24.60	21.78	17.96		12/1/2006		
Excess Return VS Private Equity Dynamic BM	-0.40	-1.71	-0.41	-1.03	-1.85	-0.25		12/1/2006		
Allocation Return (Dynamic - Policy)	0.95	24.95	27.32	20.96	16.61	10.60				
Beta			0.11	0.15	0.09	0.08				
Information Ratio			1.57	0.83	0.66	0.49				
Sharpe Ratio			0.74	1.93	1.91	1.98				
Index Sharpe Ratio			-1.22	0.25	0.31	0.47				
Standard Deviation			6.85	10.98	9.12	7.93				
Index Standard Deviation			18.37	19.55	17.57	16.02				

# Global Equity Performance

Composite/Manager	Quarter /FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	ITD	Inception Date	Market Value	% of Total
NTGI ACWI X US	-6.60	-31.96	-69.63	-31.89	-21.60	-13.93	-8.26	1/1/2011	\$ 264,176	0.00
SSGA ACWI IMI	-6.55	-24.87	-20.23	4.13	4.60		6.91	10/1/2016	\$ 510,793,469	3.25
SSGA R1000 Index	-4.61	-24.55					-24.10	11/1/2021	\$ 806,912,155	5.13
Equity Cash Overlay	-23.48	-56.17	-48.96	-30.99	-14.57		0.82	7/1/2016	\$ 71,120,916	0.45
Active U.S. Equity	-2.59	-17.80	-11.05	8.63	8.24	10.57	9.24	10/1/2004	\$ 226,586,921	1.44
MSCI ACWI IMI (\$N)	-6.64	-25.72	-21.18	3.64	4.16	7.27	6.64	10/1/2004		
Excess Return VS MSCI ACWI IMI (\$N)	4.04	7.92	10.13	4.99	4.07	3.30	2.60	10/1/2004		
Active U.S. Equity Dynamic BM	-2.22	-25.07	-23.08	5.53	6.30	9.35		10/1/2004		
Excess Return VS Active U.S. Equity Dynamic BM	-0.37	7.27	12.03	3.10	1.94	1.22		10/1/2004		
Allocation Return (Dynamic - Policy)	4.42	0.65	-1.90	1.89	2.14	2.08				
Beta			0.90	0.91	0.97	0.97				
Information Ratio			1.70	0.67	0.65	0.53				
Sharpe Ratio			-0.61	0.50	0.47	0.64				
Index Sharpe Ratio			-1.22	0.25	0.26	0.47				
Standard Deviation			17.75	18.94	17.79	16.16				
Index Standard Deviation			18.37	19.55	17.32	15.59				
Kayne Anderson SCC	-2.53	-17.94	-12.06	6.77			6.88	9/1/2018	\$ 223,845,095	1.42
Russell 2000 Index	-2.19	-25.10	-23.50	4.29			0.21	9/1/2018		
Excess Return VS Russell 2000 Index	-0.35	7.17	11.44	2.49			6.67	9/1/2018		
MSCI ACWI IMI (\$N)	-6.64	-25.72	-21.18	3.64			2.82	9/1/2018		
Excess Return VS MSCI ACWI IMI (\$N)	4.10	7.78	9.13	3.13			4.06	9/1/2018		
Beta			0.82	0.65						
Information Ratio			1.86	0.07						
Sharpe Ratio			-0.63	0.42						
Index Sharpe Ratio			-1.15	0.27						
Standard Deviation			18.41	17.88						
Index Standard Deviation			21.40	25.11						
DFA	5.08	38.50	90.86					10/1/2010	\$ 313	0.00
TimesSquare	0.28							4/1/2005	\$ 137	0.00
Portable Alpha Composite	-5.83	-9.80	-9.39	1.08	4.63	7.80	5.62	10/1/2007	\$ 2,741,376	0.02

# Global Equity Performance

Composite/Manager	Quarter /FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	ITD	Inception Date	Market Value
<b>Active Non-US Developed Equity</b>	<b>-8.08</b>	<b>-28.98</b>	<b>-26.28</b>	<b>-0.06</b>	<b>-0.14</b>	<b>3.97</b>	<b>1.95</b>	<b>12/1/2007</b>	<b>\$ 579,886,453</b>
MSCI ACWI IMI (\$N)	-6.64	-25.72	-21.18	3.64	4.16	7.27	4.28	12/1/2007	
Excess Return VS MSCI ACWI IMI (\$N)	-1.44	-3.26	-5.10	-3.70	-4.30	-3.30	-2.33	12/1/2007	
Active Non U.S. Equity Dynamic	-8.52	-26.35	-24.52	-0.74	-0.48	3.60		12/1/2007	
Excess Return VS Active Non U.S. Equity Dynamic	0.45	-2.63	-1.76	0.68	0.34	0.37		12/1/2007	
Allocation Return ( <i>Dynamic - Policy</i> )	-1.88	-0.63	-3.34	-4.38	-4.64	-3.67			
Beta			0.96	0.93	0.92	0.93			
Information Ratio			-1.30	-0.84	-1.06	-0.73			
Sharpe Ratio			-1.57	0.06	0.01	0.27			
Index Sharpe Ratio			-1.22	0.25	0.26	0.47			
Standard Deviation			18.33	18.71	16.38	15.10			
Index Standard Deviation			18.37	19.55	17.32	15.59			
<b>Acadian Intl Equity</b>	<b>-8.33</b>	<b>-29.02</b>	<b>-26.47</b>	<b>0.99</b>			<b>-0.76</b>	<b>5/1/2018</b>	<b>\$ 222,830,470</b>
MSCI EAFE Index (\$N)	-9.36	-27.09	-25.13	-1.83			-2.03	5/1/2018	
Excess Return VS MSCI EAFE Index (\$N)	1.03	-1.93	-1.33	2.83			1.27	5/1/2018	
MSCI ACWI IMI (\$N)	-6.64	-25.72	-21.18	3.64			3.41	5/1/2018	
Excess Return VS MSCI ACWI IMI (\$N)	-1.70	-3.30	-5.28	-2.65			-4.17	5/1/2018	
Beta			1.16	4.00					
Information Ratio			-0.25	0.67					
Sharpe Ratio			-1.45	0.13					
Index Sharpe Ratio			-1.64	-0.03					
Standard Deviation			19.88	19.39					
Index Standard Deviation			16.82	18.85					
<b>Alliance Bernstein</b>	<b>-8.48</b>						<b>-15.25</b>	<b>6/1/2022</b>	<b>\$ 177,500,625</b>
MSCI ACWI IMI (\$N)	-6.64						-14.69	6/1/2022	
Excess Return VS MSCI ACWI IMI (\$N)	-1.84						-0.57	6/1/2022	
<b>MFS</b>	<b>-7.36</b>	<b>-32.74</b>	<b>-29.27</b>	<b>-2.27</b>	<b>0.71</b>	<b>4.01</b>	<b>6.42</b>	<b>4/1/2010</b>	<b>\$ 178,573,896</b>
MSCI EAFE Index (\$N)	-9.36	-27.09	-25.13	-1.83	-0.84	2.84	3.19	4/1/2010	
Excess Return VS MSCI EAFE Index (\$N)	1.99	-5.64	-4.14	-0.43	1.55	1.17	3.23	4/1/2010	
MSCI ACWI IMI (\$N)	-6.64	-25.72	-21.18	3.64	4.16	7.27	6.94	4/1/2010	
Excess Return VS MSCI ACWI IMI (\$N)	-0.73	-7.02	-8.09	-5.91	-3.45	-3.26	-0.51	4/1/2010	
Beta			0.95	0.81	0.80	0.79			
Information Ratio			-0.72	-0.10	0.18	0.13			
Sharpe Ratio			-1.87	-0.09	0.05	0.29			
Index Sharpe Ratio			-1.64	-0.03	-0.04	0.20			
Standard Deviation			17.64	16.86	14.59	13.55			
Index Standard Deviation			16.82	18.85	16.51	15.29			

# Global Equity Performance

Composite/Manager	Quarter /FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	ITD	Inception Date	Market Value	% of Total
KBI	-4.55	-13.41	-44.12	-16.45	-9.99	-3.97	-0.60	4/1/2010	\$ 357,813	0.00
Principal	-4.01	-11.61	-11.70	3.99	2.22	6.58	4.63	12/1/2007	\$ 460,182	0.00
Schroder	-5.08	-19.23	-34.84	-13.66	-10.41	-3.20	0.93	5/1/2012	\$ 163,468	0.00
<b>Active Emerging Market Equity</b>	<b>-13.74</b>	<b>-34.54</b>	<b>-34.59</b>	<b>-3.19</b>	<b>-2.08</b>	<b>3.33</b>	<b>2.73</b>	<b>7/1/2006</b>	<b>\$ 160,913,308</b>	<b>1.02</b>
MSCI Emg Mkts Index (\$N)	-11.57	-27.16	-28.11	-2.07	-1.81	3.88	3.42	7/1/2006		
Excess Return VS MSCI Emg Mkts Index (\$N)	-2.17	-7.38	-6.48	-1.13	-0.27	-0.56	-0.69	7/1/2006		
MSCI ACWI IMI (\$N)	-6.64	-25.72	-21.18	3.64	4.16	7.27	5.49	7/1/2006		
Excess Return VS MSCI ACWI IMI (\$N)	-7.11	-8.82	-13.41	-6.84	-6.25	-3.95	-2.76	7/1/2006		
Beta			0.89	0.99	0.97	0.95				
Information Ratio			-1.60	-0.28	-0.14	-0.22				
Sharpe Ratio			-3.22	-0.10	-0.09	0.22				
Index Sharpe Ratio			-2.47	-0.03	-0.06	0.28				
Standard Deviation			12.80	19.40	17.56	16.57				
Index Standard Deviation			12.96	18.92	17.54	16.89				
<b>AXIOM INVESTORS</b>	<b>-13.84</b>	<b>-34.74</b>	<b>-35.70</b>	<b>-3.21</b>			<b>0.40</b>	<b>1/1/2019</b>	<b>\$ 159,356,440</b>	<b>1.01</b>
MSCI Emg Mkts Index (\$N)	-11.57	-27.16	-28.11	-2.07			-0.15	1/1/2019		
Excess Return VS MSCI Emg Mkts Index (\$N)	-2.27	-7.58	-7.58	-1.14			0.54	1/1/2019		
MSCI ACWI IMI (\$N)	-6.64	-25.72	-21.18	3.64			7.03	1/1/2019		
Excess Return VS MSCI ACWI IMI (\$N)	-7.21	-9.02	-14.51	-6.85			-6.63	1/1/2019		
Beta			0.91	1.01						
Information Ratio			-1.98	-0.27						
Sharpe Ratio			-3.31	-0.09						
Index Sharpe Ratio			-2.47	-0.03						
Standard Deviation			12.91	19.84						
Index Standard Deviation			12.96	18.92						
<b>Russell Transition</b>	<b>-2.39</b>	<b>-5.91</b>	<b>-5.70</b>	<b>-1.31</b>	<b>0.49</b>	<b>5.06</b>	<b>1.20</b>	<b>11/1/2007</b>	<b>\$ 1,556,868</b>	<b>0.01</b>

# Risk Reduction & Mitigation



# Risk Reduction & Mitigation Structure

RISK REDUCTION & MITIGATION				
Manager	Benchmark		Market Value	Actual %
BlackRock Core Active	Bloomberg U.S. Aggregate	\$	1,235,275,709	68.6%
Prudential Core Conservative	Bloomberg U.S. Aggregate	\$	554,709,621	30.8%
Risk Reduction Cash Overlay	Bloomberg U.S. Aggregate	\$	11,621,839	0.6%
<b>Domestic Core Fixed Income Comp</b>	Bloomberg U.S. Aggregate	\$	<b>1,801,607,167</b>	<b>57.6%</b>
BlackRock Global Fixed Income	Bloomberg Global Aggregate Hdg	\$	397,510,973	
<b>Global Core Fixed Income Comp</b>	Bloomberg Global Aggregate Hdg	\$	<b>397,510,974</b>	<b>12.7%</b>
Dorsal	Bloomberg U.S. Aggregate	\$	89,114,042	10.1%
Elliott	Bloomberg U.S. Aggregate	\$	135,015,535	15.2%
Garda	Bloomberg U.S. Aggregate	\$	59,464,747	6.7%
Glazer	Bloomberg U.S. Aggregate	\$	102,367,984	11.6%
Marshall Wace Eureka	Bloomberg U.S. Aggregate	\$	66,058,170	7.5%
Millennium	Bloomberg U.S. Aggregate	\$	111,833,966	12.6%
Pacific AA	Bloomberg U.S. Aggregate	\$	105,437,083	11.9%
Pharo Gaia Fund	Bloomberg U.S. Aggregate	\$	33,909,552	3.8%
Systematica	Bloomberg U.S. Aggregate	\$	89,150,461	10.1%
Parametric Bonds Plus	Bloomberg U.S. Aggregate	\$	47,466,350	5.4%
Two Sigma	Bloomberg U.S. Aggregate	\$	45,961,105	5.2%
<b>Bonds Plus Comp</b>	Bloomberg U.S. Aggregate	\$	<b>885,778,994</b>	<b>28.3%</b>
<b>Cash Composite</b>	3 month Treasury Bills	\$	<b>41,057,194</b>	<b>1.3%</b>
<b>RISK REDUCTION &amp; MITIGATION COMPOSITE</b>	87.2% Bloomberg U.S. Aggregate / 12.8% Bloomberg Global Aggregate Hdg	\$	<b>3,125,954,328</b>	

# Risk Reduction & Mitigation Performance

Composite/Manager	Fiscal YTD	YTD	1 Year	3 Years	5 Years	7 Years	ITD	Inception Date	Market Value	% of Total
<b>RISK REDUCTION &amp; MITIGATION</b>	<b>-4.60</b>	<b>-13.44</b>	<b>-13.58</b>	<b>-2.62</b>	<b>0.22</b>	<b>1.13</b>	<b>1.32</b>	<b>4/1/2013</b>	<b>\$ 3,125,954,328</b>	<b>19.88</b>
Risk Reduction & Mitigation BM	-4.57	-14.29	-14.28	-3.23	-0.19	0.61	1.00	4/1/2013		
Excess Return VS Risk Reduction & Mitigation BM	-0.03	0.85	0.70	0.61	0.41	0.53	0.32	4/1/2013		
Risk Red & Mitigation Dyn BM	-4.70	-14.33	-14.34	-3.16	-0.13	0.66	1.06	4/1/2013		
Excess Return VS Risk Red & Mitigation Dyn BM	0.10	0.89	0.76	0.54	0.35	0.48	0.26	4/1/2013		
Allocation Return (Dynamic - Policy)	-0.13	-0.04	-0.06	0.07	0.06	0.05	0.06			
Beta			0.98	0.96	0.97	0.97				
Information Ratio			0.99	0.45	0.38	0.51				
Sharpe Ratio			-2.29	-0.59	-0.17	0.07				
Index Sharpe Ratio			-2.39	-0.72	0.27	-0.06				
Standard Deviation			6.39	5.17	4.61	4.18				
Index Standard Deviation			6.44	5.16	4.61	4.17				
<b>Domestic Core Fixed Income</b>	<b>-5.15</b>	<b>-15.36</b>	<b>-15.34</b>	<b>-3.30</b>	<b>-0.20</b>	<b>0.64</b>	<b>6.21</b>	<b>6/1/1985</b>	<b>\$ 1,801,607,167</b>	<b>11.46</b>
Bloomberg US Agg Bond Index	-4.75	-14.61	-14.60	-3.26	-0.27	0.54	5.81	6/1/1985		
Excess Return VS Bloomberg US Agg Bond Index	-0.40	-0.75	-0.74	-0.04	0.07	0.10	0.40	6/1/1985		
Beta			1.03	1.08	1.06	1.05				
Information Ratio			-1.35	-0.01	0.10	0.15				
Sharpe Ratio			-2.44	-0.64	-0.24	-0.04				
Index Sharpe Ratio			-2.39	-0.70	-0.28	-0.07				
Standard Deviation			6.81	5.80	5.10	4.57				
Index Standard Deviation			6.61	5.29	4.73	4.28				
<b>Global Core Fixed Income (BlackRock)</b>	<b>-3.45</b>	<b>-11.96</b>	<b>-11.88</b>	<b>-3.06</b>	<b>-0.21</b>	<b>0.81</b>	<b>2.42</b>	<b>5/1/2011</b>	<b>\$ 397,510,974</b>	<b>2.53</b>
Bloomberg Global Agg (USDH)	-3.34	-12.09	-12.05	-3.07	0.32	1.11	2.30	5/1/2011		
Excess Return VS Bloomberg Global Agg (USDH)	-0.11	0.13	0.17	0.01	-0.53	-0.30	0.12	5/1/2011		
Beta			1.00	4.00	0.97	0.97				
Information Ratio			0.83	0.05	-0.77	-0.46				
Sharpe Ratio			-2.36	-0.80	-0.33	-0.02				
Index Sharpe Ratio			-2.39	-0.80	-0.19	0.07				
Standard Deviation			5.41	4.41	3.93	3.62				
Index Standard Deviation			5.43	4.42	3.99	3.66				
<b>Bonds Plus</b>	<b>-4.12</b>	<b>-11.20</b>	<b>-10.95</b>				<b>-1.35</b>	<b>1/1/2020</b>	<b>\$ 885,778,994</b>	<b>5.63</b>
Bloomberg US Agg Bond Index	-4.75	-14.61	-14.60				-3.61	1/1/2020		
Excess Return VS Bloomberg US Agg Bond Index	0.63	3.41	3.65				2.26	1/1/2020		
<b>Cash</b>	<b>0.46</b>	<b>4.23</b>	<b>3.58</b>	<b>4.17</b>	<b>4.64</b>	<b>3.92</b>	<b>4.69</b>	<b>3/1/1989</b>	<b>\$ 41,057,194</b>	<b>0.26</b>
ICE BofA US 3-mo T-Bill Index	0.47	0.61	0.62	0.60	1.15	0.95	2.88	3/1/1989		
Excess Return VS ICE BofA US 3-mo T-Bill Index	-0.01	3.61	2.96	3.57	3.49	2.97	1.81	3/1/1989		

# Risk Reduction & Mitigation Performance

Composite/Manager	Fiscal YTD	YTD	1 Year	3 Years	5 Years	7 Years	ITD	Inception Date	Market Value	% of Total
<b>BlackRock Core</b>	<b>-5.06</b>	<b>-15.63</b>	<b>-15.69</b>	<b>-2.92</b>	<b>0.10</b>	<b>0.93</b>	<b>4.67</b>	<b>7/1/1995</b>	<b>\$ 1,235,275,709</b>	<b>7.85</b>
Bloomberg US Agg Bond Index	-4.75	-14.61	-14.60	-3.26	-0.27	0.54	4.29	7/1/1995		
Excess Return VS Bloomberg US Agg Bond Index	-0.31	-1.03	-1.09	0.33	0.37	0.38	0.38	7/1/1995		
Beta			1.01	1.08	1.06	1.05				
Information Ratio			-1.81	0.36	0.45	0.49				
Sharpe Ratio			-2.52	-0.55	-0.16	0.04				
Index Sharpe Ratio			-2.39	-0.70	-0.28	-0.07				
Standard Deviation			6.71	5.83	5.12	4.58				
Index Standard Deviation			6.61	5.29	4.73	4.28				
<b>Prudential</b>	<b>-5.05</b>	<b>-14.91</b>	<b>-14.85</b>	<b>-3.37</b>	<b>-0.34</b>	<b>0.51</b>	<b>1.63</b>	<b>6/1/2012</b>	<b>\$ 554,709,621</b>	<b>3.53</b>
Bloomberg US Agg Bond Index	-4.75	-14.61	-14.60	-3.26	-0.27	0.54	1.02	6/1/2012		
Excess Return VS Bloomberg US Agg Bond Index	-0.30	-0.30	-0.25	-0.11	-0.07	-0.03	0.61	6/1/2012		
Beta			1.01	1.02	1.02	1.02				
Information Ratio			-0.76	-0.17	-0.11	-0.04				
Sharpe Ratio			-2.40	-0.70	-0.28	-0.07				
Index Sharpe Ratio			-2.39	-0.70	-0.28	-0.07				
Standard Deviation			6.70	5.44	4.84	4.38				
Index Standard Deviation			6.61	5.29	4.73	4.28				
<b>Blackrock Glb Fixed Income</b>	<b>-3.45</b>	<b>-11.96</b>	<b>-11.88</b>	<b>-3.06</b>			<b>-1.19</b>	<b>5/1/2019</b>	<b>\$ 397,510,973</b>	<b>2.53</b>
Bloomberg Global Agg (USDH)	-3.34	-12.09	-12.05	-3.07			-1.16	5/1/2019		
Excess Return VS Bloomberg Global Agg (USDH)	-0.11	0.13	0.17	0.01			-0.03	5/1/2019		
Beta			1.00	1.00						
Information Ratio			0.83	0.04						
Sharpe Ratio			-2.36	-0.80						
Index Sharpe Ratio			-2.39	-0.80						
Standard Deviation			5.41	4.41						
Index Standard Deviation			5.43	4.42						
<b>Risk Reduction Cash Overlay</b>	<b>-15.76</b>	<b>-23.58</b>	<b>-22.30</b>	<b>-6.00</b>	<b>-2.10</b>	<b>4.90</b>	<b>1.63</b>	<b>9/1/2014</b>	<b>\$ 11,621,839</b>	<b>0.07</b>
Risk Reduction & Mitigation BM	-4.57	-14.29	-14.28	-3.23	-0.19	0.61	0.80	9/1/2014		
Excess Return VS Risk Reduction & Mitigation BM	-11.18	-9.29	-8.02	-2.78	-1.91	4.29	0.83	9/1/2014		

# Risk Reduction & Mitigation Performance

Composite/Manager	Quarter /FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	ITD	Inception Date	Market Value	% of Total
<b>Bonds Plus</b>	<b>-4.12</b>	<b>-11.20</b>	<b>-10.95</b>				<b>-1.35</b>	<b>1/1/2020</b>	<b>\$ 885,778,994</b>	<b>5.63</b>
Bloomberg US Agg Bond Index	-4.75	-14.61	-14.60				-3.61	1/1/2020		
Excess Return VS Bloomberg US Agg Bond Index	0.63	3.41	3.65				2.26	1/1/2020		
<b>Dorsal</b>	<b>-2.02</b>	<b>-2.88</b>	<b>-6.15</b>				<b>2.73</b>	<b>6/1/2020</b>	<b>\$ 89,114,042</b>	<b>0.57</b>
Libor + 30 bps 1 MA	0.63	1.08	1.18				0.81	6/1/2020		
Excess Return VS Libor + 30 bps 1 MA	-2.65	-3.95	-7.33				1.92	6/1/2020		
<b>ELLIOTT</b>	<b>-0.10</b>	<b>9.16</b>	<b>12.26</b>				<b>11.17</b>	<b>1/1/2020</b>	<b>\$ 135,015,535</b>	<b>0.86</b>
Libor + 30 bps 1 MA	0.63	1.08	1.18				0.98	1/1/2020		
Excess Return VS Libor + 30 bps 1 MA	-0.73	8.08	11.08				10.19	1/1/2020		
<b>Garda</b>	<b>2.68</b>	<b>10.13</b>	<b>8.60</b>				<b>8.01</b>	<b>7/1/2020</b>	<b>\$ 59,464,747</b>	<b>0.38</b>
Libor + 30 bps 1 MA	0.63	1.08	1.18				0.81	7/1/2020		
Excess Return VS Libor + 30 bps 1 MA	2.06	9.05	7.42				7.20	7/1/2020		
<b>Glazer</b>	<b>1.90</b>	<b>-1.22</b>	<b>1.95</b>				<b>20.12</b>	<b>6/1/2020</b>	<b>\$ 102,367,984</b>	<b>0.65</b>
Libor + 30 bps 1 MA	0.63	1.08	1.18				0.81	6/1/2020		
Excess Return VS Libor + 30 bps 1 MA	1.27	-2.29	0.76				19.31	6/1/2020		
<b>Marshall Wace Eureka</b>	<b>1.24</b>	<b>4.12</b>	<b>5.96</b>				<b>11.15</b>	<b>8/1/2020</b>	<b>\$ 66,058,170</b>	<b>0.42</b>
Libor + 30 bps 1 MA	0.63	1.08	1.18				0.82	8/1/2020		
Excess Return VS Libor + 30 bps 1 MA	0.61	3.04	4.77				10.33	8/1/2020		
<b>Millenium</b>	<b>3.19</b>	<b>9.88</b>	<b>12.63</b>				<b>13.46</b>	<b>10/1/2020</b>	<b>\$ 111,833,966</b>	<b>0.71</b>
Libor + 30 bps 1 MA	0.63	1.08	1.18				0.84	10/1/2020		
Excess Return VS Libor + 30 bps 1 MA	2.56	8.81	11.45				12.62	10/1/2020		
<b>Pacific AA</b>	<b>-0.41</b>	<b>0.46</b>	<b>-1.90</b>				<b>3.40</b>	<b>6/1/2020</b>	<b>\$ 105,437,083</b>	<b>0.67</b>
Libor + 30 bps 1 MA	0.63	1.08	1.18				0.81	6/1/2020		
Excess Return VS Libor + 30 bps 1 MA	-1.04	-0.61	-3.08				2.59	6/1/2020		
<b>Pharo Gaia Fund</b>	<b>-2.50</b>	<b>-15.06</b>	<b>-20.32</b>				<b>-6.83</b>	<b>6/1/2020</b>	<b>\$ 33,909,552</b>	<b>0.22</b>
Libor + 30 bps 1 MA	0.63	1.08	1.18				0.81	6/1/2020		
Excess Return VS Libor + 30 bps 1 MA	-3.12	-16.13	-21.50				-7.65	6/1/2020		
<b>SYSTEMATICA</b>	<b>5.13</b>	<b>20.47</b>	<b>24.34</b>				<b>19.07</b>	<b>6/1/2020</b>	<b>\$ 89,150,461</b>	<b>0.57</b>
Libor + 30 bps 1 MA	0.63	1.08	1.18				0.81	6/1/2020		
Excess Return VS Libor + 30 bps 1 MA	4.50	19.40	23.16				18.26	6/1/2020		
<b>TWO SIGMA</b>	<b>4.20</b>	<b>12.05</b>	<b>11.20</b>				<b>10.30</b>	<b>5/1/2021</b>	<b>\$ 45,961,105</b>	<b>0.29</b>
Libor + 30 bps 1 MA	0.63	1.08	1.18				0.97	5/1/2021		
Excess Return VS Libor + 30 bps 1 MA	3.57	10.97	10.02				9.33	5/1/2021		
<b>Parametric Bonds Plus</b>	<b>-5.34</b>	<b>-15.39</b>	<b>-15.49</b>				<b>-4.40</b>	<b>1/1/2020</b>	<b>\$ 47,466,350</b>	<b>0.30</b>

# Credit Oriented Fixed Income

# Credit Oriented Fixed Income Structure

CREDIT ORIENTED FIXED INCOME				
Manager	Benchmark		Market Value	Actual %
PineBridge High Yield	Bloomberg Global High Yield Hedged	\$	396,841,077	96.9%
Guggenheim Global High Yield	Bloomberg Global High Yield Hedged	\$	(5,114)	0.0%
Credit Cash Overlay	Credit Oriented FI Blend	\$	12,498,356	3.1%
<b>Liquid Credit Composite</b>		<b>\$</b>	<b>409,334,319</b>	<b>17.9%</b>
Leveraged Loan/Structured Credit	Bloomberg Global High Yield Hedged	\$	794,856,627	70.7%
Hedged Credit 2	Bloomberg Global High Yield Hedged	\$	328,709,569	29.3%
<b>Alternative Liquid Credit</b>		<b>\$</b>	<b>1,123,566,196</b>	<b>49.1%</b>
Lazard Emerging Market Debt	JP Morgan EMD Blend	\$	381,430,657	100.0%
<b>Emerging Market Debt Composite</b>		<b>\$</b>	<b>381,430,657</b>	<b>16.7%</b>
Private Debt	Bloomberg Global High Yield Hedged	\$	108,568,672	29.1%
High Return Seeking Debt	Bloomberg Global High Yield Hedged	\$	264,376,088	70.9%
<b>Illiquid Credit Composite</b>		<b>\$</b>	<b>372,944,760</b>	<b>16.3%</b>
<b>CREDIT ORIENTED FIXED INCOME COMPOSITE</b>		<b>\$</b>	<b>2,287,275,932</b>	
80% Bloomberg Global High Yield Hdg / 20% JP Morgan EMD Blend				

# Credit Oriented Fixed Income Performance

Composite/Manager	Fiscal YTD	YTD	1 Year	3 Years	5 Years	7 Years	ITD	Inception Date	Market Value	% of Total
<b>CREDIT ORIENTED FIXED INCOME</b>	<b>-1.78</b>	<b>-8.51</b>	<b>-7.82</b>	<b>2.48</b>	<b>3.10</b>	<b>4.15</b>	<b>3.96</b>	<b>4/1/2013</b>	<b>\$ 2,287,275,932</b>	<b>14.54</b>
Credit Oriented FI BM	-2.02	-17.36	-17.82	-3.22	-0.55	2.09	2.38	4/1/2013		
Excess Return VS Credit Oriented FI BM	0.24	8.85	10.00	5.69	3.65	2.05	1.58	4/1/2013		
Credit Oriented FI Dynamic BM	-1.02	-7.33	-6.92	1.10	2.16	4.01	4.28	4/1/2013		
Excess Return VS Credit Oriented FI Dynamic BM	-0.76	-1.18	-0.90	1.37	0.93	0.14	-0.32	4/1/2013		
Allocation Return (Dynamic - Policy)	1.00	10.03	10.90	4.32	2.71	1.92	1.90			
Beta			0.32	0.31	0.30	0.30				
Information Ratio			1.61	0.55	0.41	0.25				
Sharpe Ratio			-2.29	0.32	0.40	0.71				
Index Sharpe Ratio			-2.07	-0.27	-0.13	0.18				
Standard Deviation			3.74	6.41	5.08	4.52				
Index Standard Deviation			9.43	11.51	9.54	8.32				
<b>Liquid Credit</b>	<b>-2.95</b>	<b>-16.63</b>	<b>-17.01</b>	<b>-3.72</b>	<b>-0.83</b>	<b>1.42</b>	<b>0.78</b>	<b>4/1/2013</b>	<b>\$ 409,334,319</b>	<b>2.60</b>
Bloomberg Global HY (USDH)	-1.36	-16.38	-16.64	-2.25	0.13	3.22	3.06	4/1/2013		
Excess Return VS Bloomberg Global HY (USDH)	-1.59	-0.25	-0.37	-1.47	-0.96	-1.81	-2.28	4/1/2013		
Liquid Credit Dynamic BM	-1.53	-16.69	-17.03	-2.86	-0.14	2.55	3.02	4/1/2013		
Excess Return VS Liquid Credit Dynamic BM	-1.42	0.06	0.02	-0.87	-0.69	-1.13	-2.25	4/1/2013		
Allocation Return (Dynamic - Policy)	-0.17	-0.31	-0.39	-0.61	-0.27	-0.67	-0.04			
Beta			0.94	0.57	0.53	0.54				
Information Ratio			-0.30	-0.24	-0.14	-0.31				
Sharpe Ratio			-2.01	-0.45	-0.25	0.11				
Index Sharpe Ratio			-1.87	-0.19	-0.08	0.28				
Standard Deviation			9.20	8.73	6.92	6.21				
Index Standard Deviation			9.69	11.58	9.53	8.72				
<b>Alternative Liquid Credit</b>	<b>-1.30</b>	<b>-3.46</b>	<b>-1.67</b>				<b>15.49</b>	<b>5/1/2020</b>	<b>\$ 1,123,566,196</b>	<b>7.14</b>
Bloomberg Global HY (USDH)	-1.36	-16.38	-16.64				0.66	5/1/2020		
Excess Return VS Bloomberg Global HY (USDH)	0.06	12.93	14.98				14.83	5/1/2020		
Alt Liquid Credit Dynamic BM	0.78	-0.79	-0.33				9.82	5/1/2020		
Excess Return VS Alt Liquid Credit Dynamic BM	-2.08	-2.67	-1.34				5.67	5/1/2020		
Allocation Return (Dynamic - Policy)	2.14	15.59	16.31				9.16			
Beta			-0.14							
Information Ratio			1.35							
Sharpe Ratio			-0.47							
Index Sharpe Ratio			-1.87							
Standard Deviation			4.65							
Index Standard Deviation			9.69							



# Credit Oriented Fixed Income Performance

Composite/Manager	Quarter /FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	ITD	Inception Date	Market Value	% of Total
<b>Emerging Markets Debt Composite (Lazard)</b>	<b>-5.37</b>	<b>-23.65</b>	<b>-25.35</b>	<b>-5.61</b>	<b>-3.03</b>	<b>-0.18</b>	<b>-0.63</b>	<b>8/1/2015</b>	<b>\$ 381,430,657</b>	<b>2.43</b>
JPM EMD Sov50/LM50 Index~	-4.64	-21.28	-22.45	-7.07	-3.22	0.71	-0.06	8/1/2015		
Excess Return VS JPM EMD Sov50/LM50 Index~	-0.73	-2.37	-2.90	1.46	0.19	-0.89	-0.58	8/1/2015		
Beta			1.17	0.93	0.93	0.91				
Information Ratio			-1.56	0.41	0.04	-0.20				
Sharpe Ratio			-2.55	-0.49	-0.35	-0.08				
Index Sharpe Ratio			-2.64	-0.60	-0.37	0.00				
Standard Deviation			11.29	11.58	10.34	9.11				
Index Standard Deviation			9.55	11.87	10.34	9.38				
<b>Illiquid Credit</b>	<b>2.59</b>	<b>6.49</b>	<b>8.48</b>	<b>6.85</b>	<b>6.97</b>	<b>7.15</b>	<b>7.47</b>	<b>12/1/2006</b>	<b>\$ 372,944,760</b>	<b>2.37</b>
Illiquid Credit BM	-1.36	-16.38	-16.64	-2.25	0.32	2.66		12/1/2006		
Excess Return VS Illiquid Credit BM	3.94	22.87	25.12	9.10	6.65	4.50		12/1/2006		
Bloomberg Global HY (USDH)	-1.36	-16.38	-16.64	-2.25	0.13	3.22	5.54	12/1/2006		
Excess Return VS Bloomberg Global HY (USDH)	3.94	22.87	25.12	9.10	6.84	3.93	1.93	12/1/2006		
Illiquid Credit Dynamic BM	-1.52	2.95	6.54	8.96	8.28	7.77		12/1/2006		
Excess Return VS Illiquid Credit Dynamic BM	4.11	3.55	1.94	-2.12	-1.31	-0.62		12/1/2006		
Allocation Return (Dynamic - Policy)	-0.16	19.33	23.18	11.21	7.96	5.11				
Beta			0.03	-0.04	-0.05	-0.05				
Information Ratio			2.52	0.60	0.53	0.38				
Sharpe Ratio			1.88	0.82	0.95	1.11				
Index Sharpe Ratio			-1.87	-0.19	-0.04	0.24				
Standard Deviation			4.02	7.73	6.11	5.51				
Index Standard Deviation			9.69	11.58	9.56	8.81				
<b>Parametric Credit Cash Overlay</b>	<b>-0.47</b>	<b>-14.33</b>	<b>-14.13</b>	<b>-2.71</b>			<b>-1.29</b>	<b>5/1/2019</b>	<b>\$ 12,498,356</b>	<b>0.08</b>
Parametric Credit BM	-3.17	-20.29	-20.78	-4.10			-2.97	5/1/2019		
Excess Return VS Parametric Credit BM	2.70	5.96	6.65	1.39			1.68	5/1/2019		
<b>PINEBRIDGE HY</b>	<b>-2.23</b>	<b>-18.15</b>	<b>-18.98</b>	<b>-2.89</b>			<b>-0.58</b>	<b>10/1/2018</b>	<b>\$ 396,841,077</b>	<b>2.52</b>
Bloomberg Global HY (USDH)	-1.36	-16.38	-16.64	-2.25			-0.10	10/1/2018		
Excess Return VS Bloomberg Global HY (USDH)	-0.88	-1.77	-2.33	-0.65			-0.48	10/1/2018		
Beta			1.07	0.98						
Information Ratio			-2.65	0.32						
Sharpe Ratio			-2.00	-0.23						
Index Sharpe Ratio			-1.87	-0.25						
Standard Deviation			10.45	12.11						
Index Standard Deviation			9.69	12.26						
<b>GUGGENHEIM GLOBAL HY</b>	<b>59.40</b>							<b>11/1/2015</b>	<b>\$ (5,114)</b>	<b>0.00</b>



# Real Assets

# Real Assets Structure

REAL ASSETS				
Manager/Composite	Benchmark		Market Value	Actual %
Deutsche Listed Infrastructure	DJ Brookfield Global Infrastructure	\$	215,622,439	25.5%
Harvest MLP Alpha	Alerian MLP Index	\$	435,916	0.1%
PIMCO TIPS	Bloomberg U.S. TIPS Index	\$	454,011,822	53.7%
PIMCO Commodities	Bloomberg Commodity Index	\$	160,360,323	19.0%
Real Assets Cash Overlay	Real Assets BM	\$	15,109,410	1.8%
	Blend (18.75% Infrastructure / 25%			
Liquid Real Assets	Alerian MLP / 37.5% TIPS / 18.75% Commodity)	\$	845,539,910	23.3%
	Blend (30% Infrastructure /			
Illiquid Real Assets	70% Commodity)	\$	1,207,977,405	33.2%
DFA Real Estate Securities	Wilshire Global REIT	\$	270,370	0.2%
Security Capital Alpha	Wilshire U.S. REIT	\$	104,233,138	95.6%
Security Capital Beta	Wilshire Global REIT	\$	4,493,805	4.1%
	Wilshire Global REIT	\$	108,997,313	3.0%
Liquid Real Estate	Wilshire Global REIT	\$	1,472,237,281	40.5%
Illiquid Real Estate	Wilshire Global REIT	\$		
Market Neutral Hedge Funds / Risk Premia		\$	658,985	0.0%
	35% Wilshire Global REIT / 10% Alerian MLP / 15% DJ Brookfield Global Infrastructure / 15% TIPS / 25% Bloomberg Commodity	\$	3,635,410,894	
REAL ASSETS COMPOSITE				

# Real Assets Performance

Composite/Manager	Quarter /FYTD	YTD	1 Year	3 Years	5 Years	7 Years	ITD	Inception Date	Market Value	% of Total
<b>REAL ASSETS</b>	<b>-0.32</b>	<b>6.69</b>	<b>11.32</b>	<b>8.06</b>	<b>6.76</b>	<b>6.29</b>	<b>5.89</b>	<b>4/1/2013</b>	<b>\$ 3,635,410,894</b>	<b>23.12</b>
Real Assets BM	-6.93	-12.10	-6.25	2.95	3.51	4.04	4.36	4/1/2013		
Excess Return VS Real Assets BM	6.61	18.78	17.57	5.11	3.25	2.26	1.53	4/1/2013		
Real Assets Dynamic BM	-0.83	8.40	12.90	7.94	6.65	6.49	5.46	4/1/2013		
Excess Return VS Real Assets Dynamic BM	0.52	-1.71	-1.58	0.12	0.12	-0.20	0.43	4/1/2013		
Allocation Return (Dynamic - Policy)	6.10	20.50	19.15	4.99	3.14	2.45	1.10			
Beta			0.28	0.36	0.38	0.37				
Information Ratio			1.13	0.23	0.18	0.14				
Sharpe Ratio			1.75	0.99	0.85	0.88				
Index Sharpe Ratio			-0.25	0.26	0.25	0.31				
Standard Deviation			5.77	7.41	6.49	6.05				
Index Standard Deviation			17.86	18.04	15.07	13.00				
<b>Liquid Real Estate</b>	<b>-7.90</b>	<b>-23.95</b>	<b>-15.19</b>	<b>-0.01</b>	<b>4.06</b>	<b>5.33</b>	<b>9.23</b>	<b>12/1/2008</b>	<b>\$ 108,997,313</b>	<b>0.69</b>
Liquid Real Estate Dyn BM	-10.38	-29.33	-18.74	-3.79	1.60	3.50		12/1/2008		
Excess Return VS Liquid Real Estate Dyn BM	2.48	5.38	3.56	3.77	2.46	1.83		12/1/2008		
Beta			0.91	0.89	0.88	0.89				
Information Ratio			1.18	0.93	0.59	0.50				
Sharpe Ratio			-0.65	0.07	0.25	0.35				
Index Sharpe Ratio			-0.82	-0.09	0.11	0.22				
Standard Deviation			22.18	20.29	17.15	15.86				
Index Standard Deviation			24.08	22.66	19.32	17.53				
<b>Illiquid Real Estate</b>	<b>1.64</b>	<b>17.36</b>	<b>21.49</b>	<b>11.96</b>	<b>11.82</b>	<b>10.80</b>	<b>7.76</b>	<b>5/1/2007</b>	<b>\$ 1,472,237,281</b>	<b>9.36</b>
Wilshire Global REIT TR Index	-11.14	-30.18	-20.02	-4.13	1.41	3.27	2.64	5/1/2007		
Excess Return VS Wilshire Global REIT TR Index	12.79	47.54	41.51	16.10	10.41	7.54	5.12	5/1/2007		
NCREIF OEDC 1QA	4.77	21.46	29.51	12.66	10.54	10.34	7.40	5/1/2007		
Excess Return VS NCREIF OEDC 1QA	-3.13	-4.10	-8.02	-0.70	1.29	0.47	0.36	5/1/2007		
Beta			0.03	-0.01	-0.01	0.00				
Information Ratio			1.61	0.55	0.40	0.31				
Sharpe Ratio			3.02	1.56	1.68	1.75				
Index Sharpe Ratio			-0.82	-0.09	0.11	0.22				
Standard Deviation			6.27	7.07	6.12	5.45				
Index Standard Deviation			24.08	22.66	19.32	17.48				

# Real Assets Performance

Composite/Manager	Quarter /FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	ITD	Inception Date	Market Value	% of Total
<b>Liquid Real Assets</b>	<b>-6.17</b>	<b>-6.75</b>	<b>-3.88</b>	<b>3.71</b>	<b>2.16</b>	<b>2.83</b>	<b>0.24</b>	<b>9/1/2009</b>	<b>\$ 845,539,910</b>	<b>5.38</b>
Liquid Real Assets BM	0.05	-1.24	0.49	6.00	4.05	4.09		9/1/2009		
Excess Return VS Liquid Real Assets BM	-6.22	-5.51	-4.37	-2.28	-1.89	-1.26		9/1/2009		
Liquid Real Assets Dyn BM	-6.49	-8.37	-6.35	2.17	1.56	3.41		9/1/2009		
Excess Return VS Liquid Real Assets Dyn BM	0.32	1.62	2.48	1.55	0.60	-0.58		9/1/2009		
Allocation Return (Dynamic - Policy)	-6.54	-7.13	-6.84	-3.83	-2.49	-0.68				
Beta			0.76	0.76	0.79	0.86				
Information Ratio			-0.98	-0.49	-0.46	-0.34				
Sharpe Ratio			-0.30	0.28	0.15	0.20				
Index Sharpe Ratio			0.12	0.39	0.27	0.28				
Standard Deviation			12.52	14.50	12.52	14.33				
Index Standard Deviation			15.46	18.20	15.21	16.01				
<b>Illiquid Real Assets</b>	<b>2.62</b>	<b>12.50</b>	<b>17.37</b>	<b>8.23</b>	<b>6.71</b>	<b>5.20</b>	<b>-7.55</b>	<b>1/1/2007</b>	<b>\$ 1,207,977,405</b>	<b>7.68</b>
Illiquid Real Assets BM	-7.54	-0.97	2.00	7.15	4.24	3.01		1/1/2007		
Excess Return VS Illiquid Real Assets BM	10.16	13.48	15.36	1.08	2.48	2.20		1/1/2007		
Illiquid Real Assets Dyn BM	-3.38	9.96	11.03	6.09	6.09	4.81		1/1/2007		
Excess Return VS Illiquid Real Assets Dyn BM	6.00	2.54	6.33	2.13	0.62	0.39		1/1/2007		
Allocation Return (Dynamic - Policy)	4.16	10.93	9.03	-1.06	1.85	1.80				
Beta			0.03	0.05	0.04	0.06				
Information Ratio			0.43	-0.15	0.01	0.03				
Sharpe Ratio			4.47	1.19	1.01	0.75				
Index Sharpe Ratio			0.36	0.60	0.38	0.29				
Standard Deviation			3.39	6.30	5.42	5.79				
Index Standard Deviation			19.85	16.84	14.13	13.41				
<b>Real Assets Cash Overlay</b>	<b>57.73</b>	<b>57.13</b>	<b>66.15</b>	<b>22.60</b>			<b>20.74</b>	<b>5/1/2019</b>	<b>\$ 15,109,410</b>	<b>0.10</b>
Real Assets BM	-6.93	-12.10	-6.25	2.95			3.61	5/1/2019		
Excess Return VS Real Assets BM	64.66	69.23	72.40	19.65			17.13	5/1/2019		
<b>Market Neutral Hedge Fund</b>	<b>-0.46</b>	<b>-24.82</b>	<b>-17.57</b>	<b>-1.38</b>	<b>1.16</b>	<b>0.89</b>	<b>1.73</b>	<b>4/1/2013</b>	<b>\$ 658,985</b>	<b>0.00</b>
Libor + 2% 1 MA	1.04	2.36	2.88	2.80	3.36	3.20	2.95	4/1/2013		
Excess Return VS Libor + 2% 1 MA	-1.50	-27.18	-20.45	-4.17	-2.21	-2.31	-1.22	4/1/2013		

# Real Assets Performance

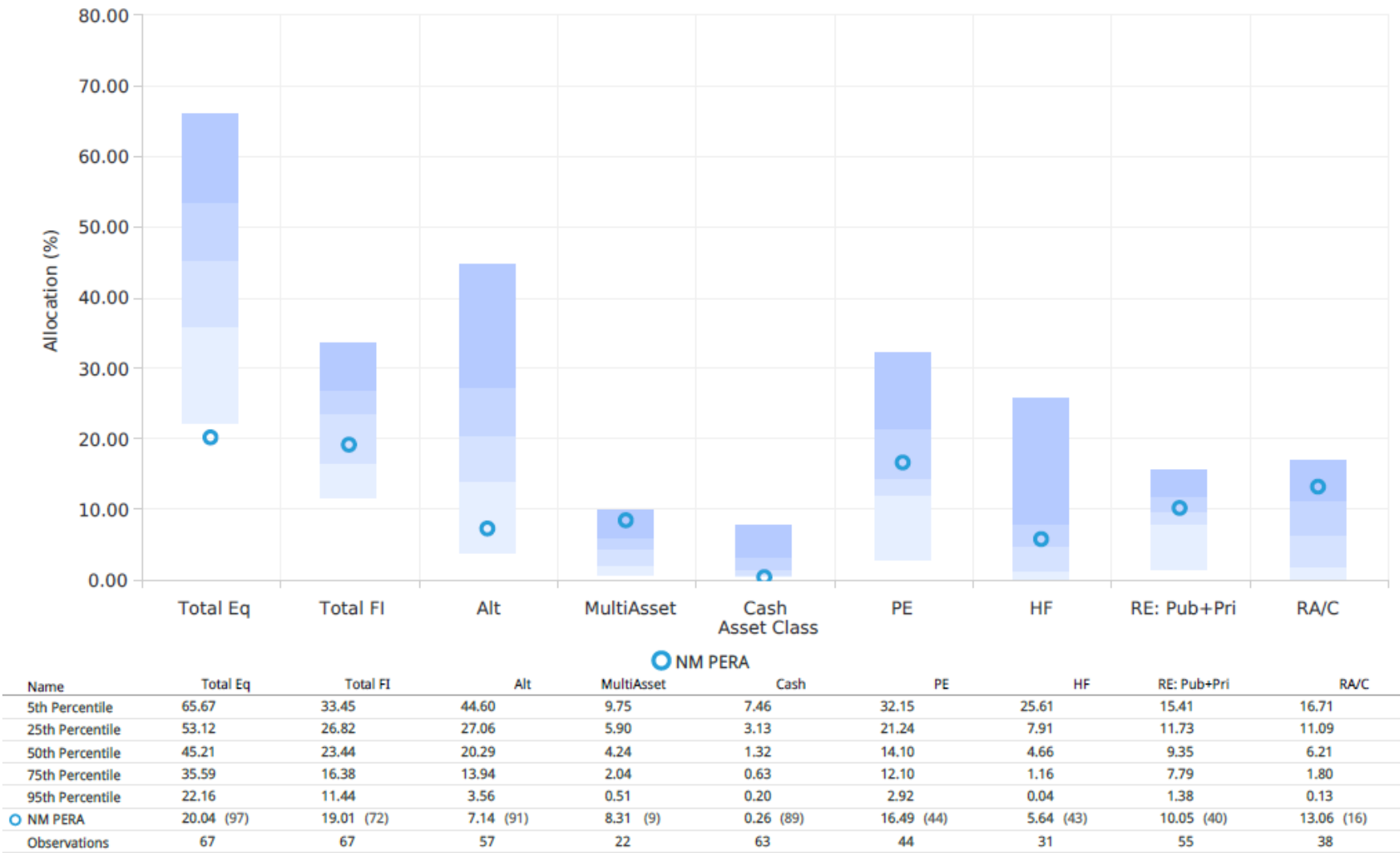
Composite/Manager	Quarter /FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	ITD	Inception Date	Market Value	% of Total
<b>Security Capital Alpha</b>	<b>-7.76</b>	<b>-25.15</b>	<b>-16.50</b>				<b>12.84</b>	<b>5/1/2020</b>	<b>\$ 104,233,138</b>	<b>0.66</b>
Wilshire US REITS	-10.23	-29.66	-17.60				6.88	5/1/2020		
Excess Return VS Wilshire US REITS	2.48	4.50	1.09				5.96	5/1/2020		
Security Capital BM	-10.98	-29.20	-18.89				5.54	5/1/2020		
Excess Return VS Security Capital BM	3.22	4.04	2.39				7.30	5/1/2020		
Beta			0.87							
Information Ratio			0.12							
Sharpe Ratio			-0.71							
Index Sharpe Ratio			-0.67							
Standard Deviation			22.33							
Index Standard Deviation			24.97							
<b>Security Capital Beta</b>	<b>-11.00</b>	<b>-31.97</b>	<b>-24.04</b>				<b>2.10</b>	<b>5/1/2020</b>	<b>\$ 4,493,805</b>	<b>0.03</b>
Security Capital BM	-10.98	-29.20	-18.89				5.54	5/1/2020		
Excess Return VS Security Capital BM	-0.02	-2.77	-5.15				-3.43	5/1/2020		
Beta			0.98							
Information Ratio			-1.35							
Sharpe Ratio			-1.06							
Index Sharpe Ratio			-0.82							
Standard Deviation			23.85							
Index Standard Deviation			24.08							
<b>DFA REIT</b>	<b>-8.68</b>	<b>-30.46</b>	<b>-22.29</b>	<b>-4.90</b>	<b>1.35</b>		<b>1.83</b>	<b>5/1/2017</b>	<b>\$ 270,370</b>	<b>0.00</b>
S&P Global REIT Index	-10.89	-28.71	-19.75	-4.27	1.22		1.63	5/1/2017		
Excess Return VS S&P Global REIT Index	2.21	-1.75	-2.54	-0.62	0.13		0.20	5/1/2017		

# Real Assets Performance

Composite/Manager	Quarter /FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	ITD	Inception Date	Market Value	% of Total
<b>Deutsche Listed Infrastructure</b>	<b>-10.89</b>	<b>-15.11</b>	<b>-8.36</b>	<b>2.04</b>	<b>4.42</b>		<b>5.03</b>	<b>9/1/2016</b>	<b>\$ 215,622,439</b>	<b>1.37</b>
DJ Brookfield Global Infra Index	-10.93	-14.25	-7.65	0.44	3.40		4.92	9/1/2016		
Excess Return VS DJ Brookfield Global Infra Index	0.04	-0.85	-0.72	1.60	1.02		0.11	9/1/2016		
Beta			1.01	0.94	0.94					
Information Ratio			-0.33	0.63	0.41					
Sharpe Ratio			-0.33	0.17	0.29					
Index Sharpe Ratio			-0.31	0.08	0.21					
Standard Deviation			20.65	17.59	15.03					
Index Standard Deviation			20.46	18.62	15.83					
<b>PIMCO TIPS</b>	<b>-6.23</b>	<b>-14.22</b>	<b>-12.35</b>	<b>0.99</b>			<b>1.88</b>	<b>11/1/2017</b>	<b>\$ 454,011,822</b>	<b>2.89</b>
Bloomberg U.S. Treasury: US TIPS Index	-5.14	-13.61	-11.57	0.79			1.94	11/1/2017		
Excess Return VS Bloomberg U.S. Treasury: US TIP	-1.09	-0.61	-0.78	0.20			-0.06	11/1/2017		
Beta			1.04	1.07						
Information Ratio			-0.51	0.15						
Sharpe Ratio			-1.36	0.09						
Index Sharpe Ratio			-1.33	0.06						
Standard Deviation			9.62	7.37						
Index Standard Deviation			9.16	6.77						
<b>PIMCO Commodities</b>	<b>-5.49</b>	<b>16.97</b>	<b>20.66</b>	<b>16.45</b>			<b>8.88</b>	<b>1/1/2018</b>	<b>\$ 160,360,323</b>	<b>1.02</b>
Bloomberg Commodity TR Index	-4.11	13.57	11.80	13.45			6.30	1/1/2018		
Excess Return VS Bloomberg Commodity TR Index	-1.38	3.40	8.86	2.99			2.58	1/1/2018		
Beta			1.13	1.25						
Information Ratio			1.27	0.47						
Sharpe Ratio			0.85	0.73						
Index Sharpe Ratio			0.60	0.74						
Standard Deviation			25.09	24.11						
Index Standard Deviation			21.62	18.50						
<b>Harvest MLP</b>								<b>6/1/2014</b>	<b>\$ 435,916</b>	<b>0.00</b>

# Peer Review

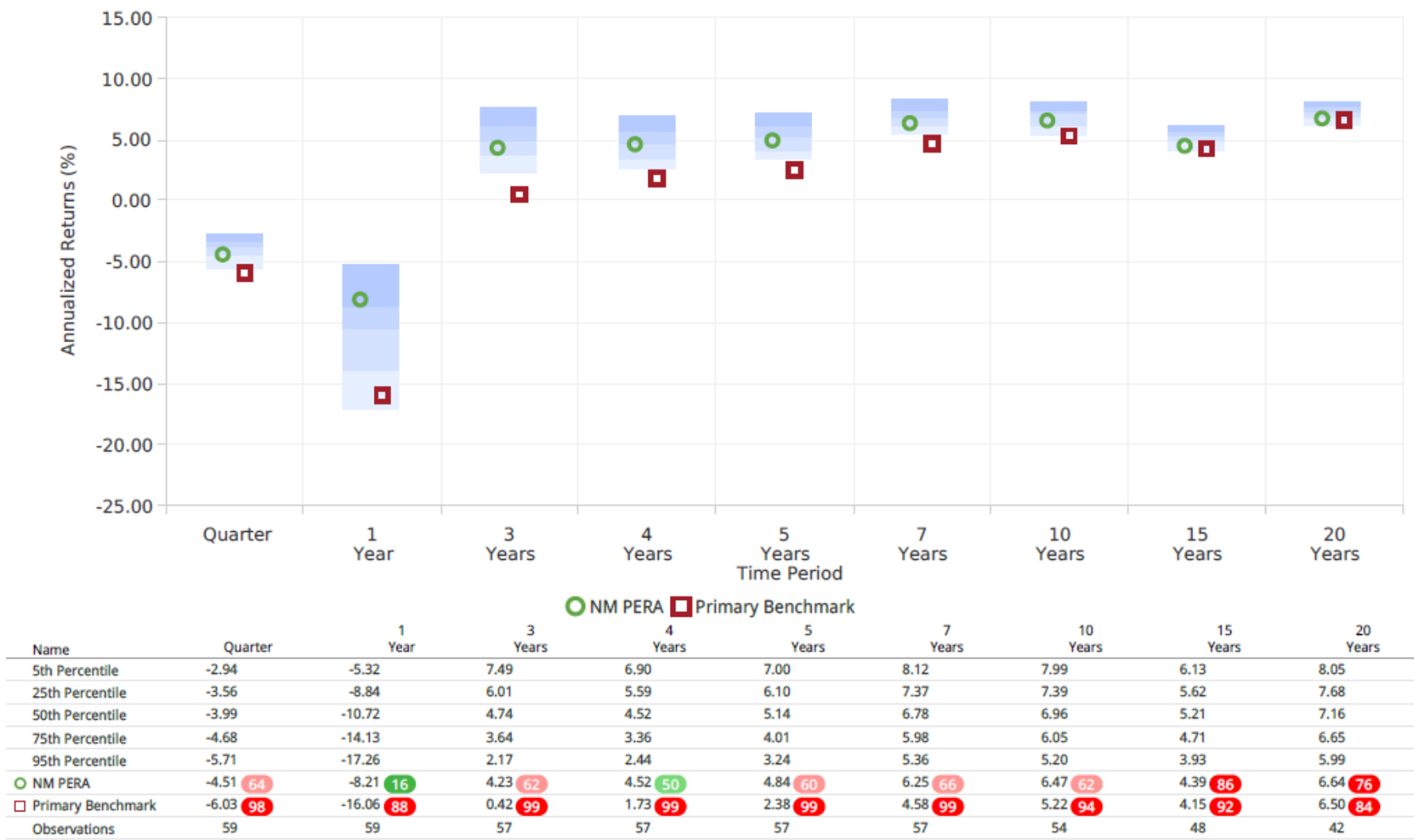
# Asset Allocation Comparison



Performance is NOF, calculated and provided by BNY Mellon. Universe source: InvestmentMetrics, Public >\$1B.



# Total Fund – Return Comparison



Performance is NOF, calculated and provided by BNY Mellon. Universe source: InvestmentMetrics. , Public >\$1B.

# Total Fund – Sharpe Ratio Comparison



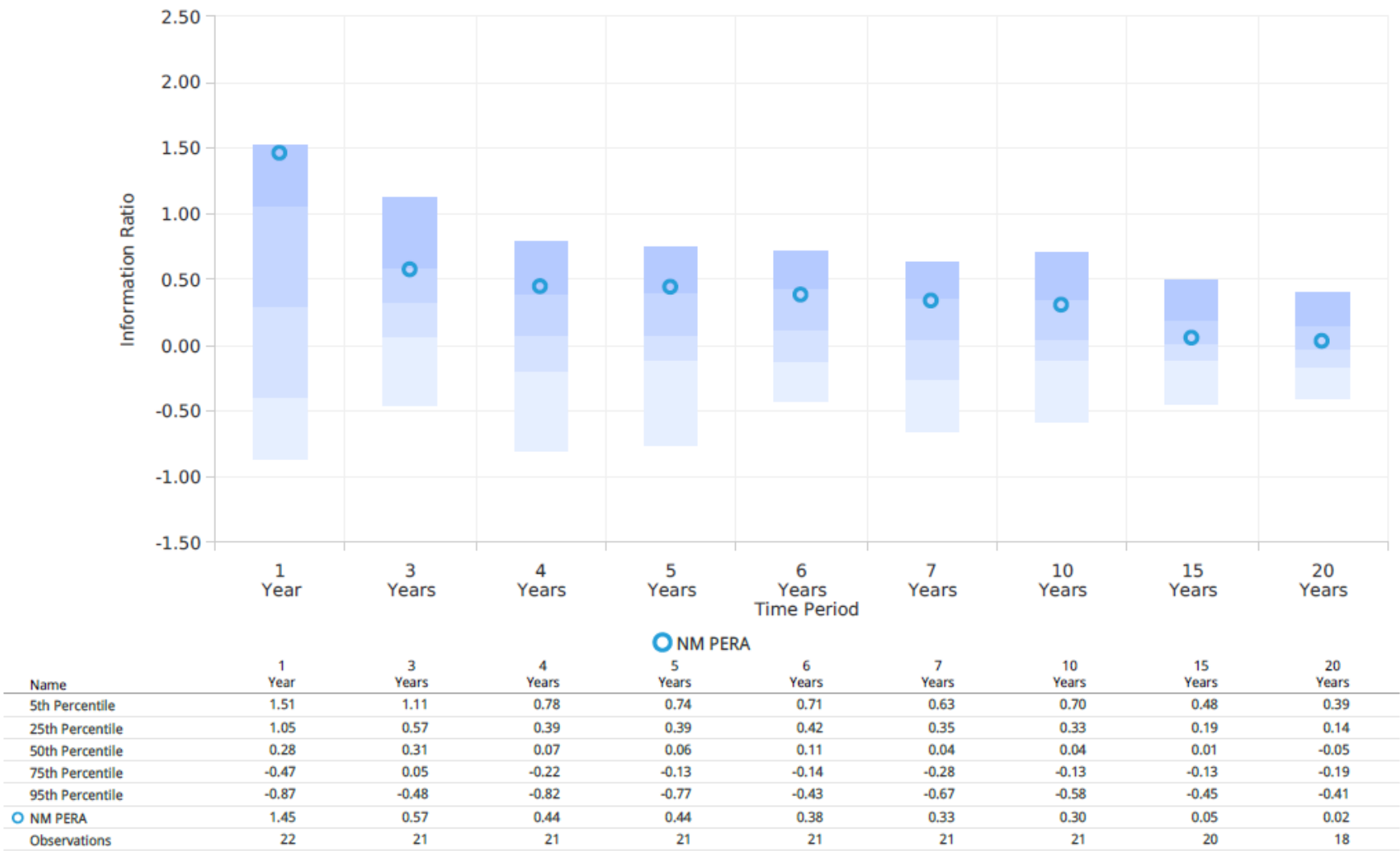
Performance is NOF, calculated and provided by BNY Mellon. Universe source: InvestmentMetrics. , Public >\$1B.

# Total Fund – Standard Deviation Comparison



Performance is NOF, calculated and provided by BNY Mellon. Universe source: InvestmentMetrics , Public >\$1B.

# Total Fund – Information Ratio Comparison



Performance is NOF, calculated and provided by BNY Mellon. Universe source: InvestmentMetrics , Public >\$1B.

# Manager Listing

# Manager Listing

As of September 30, 2022

	Total Fund	
	\$	%
NM PERA Total Fund	15,727,050,400	100.00
Global Equity	5,371,776,435	34.16
Global Public Stock	2,356,488,224	14.98
BlackRock Equity Transition	10,826	0.00
NT MSCI ACWI X US Index Fund	264,176	0.00
SSgA ACWI IMI Index Fund	510,793,469	3.25
Active US Equity	226,586,921	1.44
DFA US Target Value	313	0.00
Kayne Anderson SCC	223,845,095	1.42
TimesSquare Capital SMID Cap Growth	137	0.00
Portable Alpha Composite	2,741,376	0.02
Portable Alpha	2,741,376	0.02
Active Non-US Developed Equity	579,886,453	3.69
Alliance Bernstein	177,500,625	1.13
Acadian International Equity	222,830,470	1.42
KBI Global Investors EAFE Developed	357,813	0.00
MFS International Value Equity	178,573,896	1.14
Principal Intl Small Cap Equity	460,182	0.00
Schroder Intl Small Composite	163,468	0.00
Active Emerging Markets Equity	160,913,308	1.02
Axiom Investors	159,356,440	1.01
Russell Transition	1,556,868	0.01
Global Equity Overlay	71,120,916	0.45
SSGA Russell 1000 Index Fund	806,912,155	5.13
Global Low Volatility Equity	794,759,931	5.05
BlackRock MSCI ACWI Minimum Volatility	794,759,931	5.05
Hedged Equity Comp	649,355	0.00
TPG-Axon Partners, LP	649,355	0.00

# Manager Listing

As of September 30, 2022

	Total Fund	
	\$	%
Private Equity Comp	2,219,878,924	14.12
Altaris Con Partners IV	25,460,156	0.16
Altaris Health Partners IV	38,825,026	0.25
CVC European Equity Partners V	740,905	0.00
CVC VII	157,475,268	1.00
Carlyle Partners VI LP	20,983,976	0.13
Carlyle Partners V, L.P.	2,918,338	0.02
Century Focused Fund IV	32,432,358	0.21
Charterhouse Capital Partners IX	593,724	0.00
Charterhouse Capital Partners X	79,386,671	0.50
Coller International Partners V, L.P.	297,520	0.00
DFJ Fund XII LP	67,850,612	0.43
Draper Fisher Jurveston X, LP	17,036,338	0.11
FountainVest Fund II	86,817,434	0.55
GTCR XI, L.P.	55,127,941	0.35
GTCR X, L.P.	163,875	0.00
Hellman & Friedman Cap. Partners VII	3,801,446	0.02
Hellman & Friedman Cap. Part. VI		0.00
Glide Buy-Out Fund IV	1,315,244	0.01
Institutional Venture Partners XIV LP	27,002,004	0.17
Institutional Venture Partners XIII	4,652,931	0.03
JMI Equity Fund VII, L.P.	2,182,579	0.01
JMI Equity Fund VI, L.P.	368,314	0.00
KRG Capital Fund IV, L.P.	1,254,783	0.01
Kelso Investment Associates IX	3,115,904	0.02
Kelso Investment Advisors IX	30,241,749	0.19
Kelso Investments Assoc. VIII, L.P.	1,462,052	0.01
Kelso Investment Associates X	80,575,715	0.51
Helm & Frid Spock 1	11,116,343	0.07

# Manager Listing

As of September 30, 2022

	Total Fund	
	\$	%
Lincolnshire Equity Fund IV, L.P.	6,499,613	0.04
Madison Dearburn Cap. Partners VI, LP	3,519,039	0.02
New Enterprise Associates 13	4,536,503	0.03
New Enterprise Associates 14	39,874,487	0.25
Onex Partners IV L.P.	27,970,476	0.18
Onex Partners V, L.P.	73,601,778	0.47
Onex Partners III, L.P.	4,363,952	0.03
Patria PE Fund VI	35,746,603	0.23
Petershill	75,088,249	0.48
Pine Bridge Passport I	132,723,139	0.84
Providence Equity Partners VI, L.P.	1,577,388	0.01
RCP Fund of One	93,961,478	0.60
RRJ Capital Master Fund III LP	16,236,967	0.10
Ristra MDP Co Invest	5,189,567	0.03
Sun Capital Partners V, L.P.	2,977,221	0.02
TPG Asia V, L.P.	3,522,710	0.02
TPG Partners VI, LP	1,734,694	0.01
Technology Crossover Ventures VII, L.P	1,901,351	0.01
Technology Crossover Ventures IX, LP	53,216,211	0.34
Technology Crossover Ventures X, LP	91,527,513	0.58
The Resolute Fund III, L.P.	21,069,228	0.13
The Resolute Fund IV, L.P.	93,402,241	0.59
Trident IX LP	4,456,786	0.03
Trinity Ventures XII	67,278,175	0.43
Warburg Pincus PE XII	106,155,910	0.67
Warburg Pincus 14	9,743,947	0.06
Warburg Pincus GG	132,123,241	0.84
Petershill IV	7,197,578	0.05
Enchantment PH Co-Invest	21,635,160	0.14



# Manager Listing

As of September 30, 2022

	Total Fund	
	\$	%
Hellman Arrow 1	5,923,700	0.04
ON Dearborn VIII	43,233,438	0.27
Hellman Samsn Hcky 1	5,247,648	0.03
Hellman Samsn Shield	10,767,306	0.07
Montagu VI	33,530,123	0.21
Altaris Health Partners V	38,693,970	0.25
Hellman Samson Brunello SPV	3,775,747	0.02
Madison Dearborn Patriot SPV	6,054,818	0.04
Tenex Capital Partners III	19,413,827	0.12
White Sands Tenex Co-Inv	9,596,183	0.06
General Catalyst Endurance	27,635,236	0.18
General Catalyst Ignition	10,015,248	0.06
The Resolute Fund V, L.P.	74,355,475	0.47
Hellman X	25,270,716	0.16
Orchid Asia	4,367,335	0.03
1912 Orchid Asia Coinvest	1,335,088	0.01
Montagu Petroglyph Coinvest	5,073,977	0.03
General Catalyst XI CRTN	3,558,679	0.02
<b>Credit Oriented Fixed Income</b>	<b>2,287,275,932</b>	<b>14.54</b>
<b>Liquid Credit</b>	<b>409,334,319</b>	<b>2.60</b>
<b>High Yield Debt Composite</b>	<b>396,835,963</b>	<b>2.52</b>
Guggenheim Global High Yield	-5,114	0.00
PineBridge High Yield	396,841,077	2.52
Parametric Credit Cash Overlay	12,498,356	0.08
<b>Alternative Liquid Credit</b>	<b>1,123,566,196</b>	<b>7.14</b>
<b>Leveraged Loans/Structured Credit</b>	<b>794,856,627</b>	<b>5.05</b>
Mudrick Stressed CR FKA CVC	177,396,478	1.13
Ellington HF	154,830,015	0.98

# Manager Listing

As of September 30, 2022

	Total Fund	
	\$	%
Eagle Point	9,281,171	0.06
Eagle Point Credit PRT	101,933,796	0.65
Napier Park Class B	205,768,873	1.31
Wheeler Peak Rotational Credit	145,646,294	0.93
<b>Credit Oriented Hedge Funds</b>	<b>328,709,569</b>	<b>2.09</b>
Canyon Value Realization Fund, L.P.	41,946,392	0.27
King Street Capital, L.P.	2,882,261	0.02
Silver Point Capital Fund, L.P.	52,649,729	0.33
Anchorage	85,033,559	0.54
Napier Park Class A	146,197,629	0.93
<b>Emerging Markets Debt Composite</b>	<b>381,430,657</b>	<b>2.43</b>
Lazard Emerging Markets Debt	381,430,657	2.43
<b>Illiquid Credit Comp</b>	<b>372,944,760</b>	<b>2.37</b>
Atalaya SOF VI	7,530,506	0.05
Athyrium Opportunities Fund II, L.P.	18,058,538	0.11
Cerberus Global RPL	156,679,147	1.00
Cerberus Inst. Partners L.P.- Series 4	729,119	0.00
Cheyne V	48,671,852	0.31
European Real Estate Debt Fund III	47,065,240	0.30
European Real Estate Debt Fund II	1,851,437	0.01
Garrison Opportunity Fund IV A LLC	22,051,672	0.14
Madison Real Estate Debt	41,469,265	0.26
OCM Opportunities Fund VII, L.P.	125,169	0.00
OCM Opportunities Fund VIIb, L.P.	14,038	0.00
OCM Opportunities Fund VIII, L.P.	149,679	0.00
Oaktree Eur. Prin. Fund III(US), LP	10,590,599	0.07
Selene Res. Mortgage Opp. Fund II LP	124,191	0.00
Sixth Street Ops III	11,586,136	0.07
Wayzata Opportunities Fund III, L.P.	4,580,901	0.03

# Manager Listing

As of September 30, 2022

	Total Fund	
	\$	%
HIG Bayside Loan Opportunity Fund II	1,667,270	0.01
<b>Risk Reduction &amp; Mitigation</b>	<b>3,125,954,328</b>	<b>19.88</b>
<b>Domestic Core Fixed Income</b>	<b>1,801,607,167</b>	<b>11.46</b>
BlackRock Core Active	1,235,275,709	7.85
Prudential Core Conservative	554,709,621	3.53
Risk Mitigation Overlay	11,621,839	0.07
<b>Global Core Fixed Income</b>	<b>397,510,974</b>	<b>2.53</b>
BlackRock Global FI	397,510,973	2.53
<b>Cash Composite</b>	<b>41,057,194</b>	<b>0.26</b>
Cash Account	38,574,107	0.25
Cash-Corporate Action	2,483,086	0.02
<b>Bonds Plus Composite</b>	<b>885,778,994</b>	<b>5.63</b>
Elliot	135,015,535	0.86
Parametric Bonds Plus	47,466,350	0.30
Pharo Gaia Fund	33,909,552	0.22
Dorsal	89,114,042	0.57
Garda	59,464,747	0.38
Glazer	102,367,984	0.65
Pacific AA	105,437,083	0.67
Systematica	89,150,461	0.57
Marshall Wace Eureka	66,058,170	0.42
Millenium	111,833,966	0.71
Two Sigma	45,961,105	0.29
<b>Real Assets</b>	<b>3,635,410,894</b>	<b>23.12</b>
<b>Real Estate Only Comp</b>	<b>1,581,234,594</b>	<b>10.05</b>
<b>Liquid Real Estate Comp</b>	<b>108,997,313</b>	<b>0.69</b>
DFA Real Estate Securities	270,370	0.00

# Manager Listing

As of September 30, 2022

	Total Fund	
	\$	%
Security Capital Alpha	104,233,138	0.66
Security Capital Beta	4,493,805	0.03
<b>Illiquid Real Estate Comp</b>	<b>1,472,237,281</b>	<b>9.36</b>
Aermont Cap RE Fund IV	27,228,779	0.17
Blackstone Real Estate Partners VII	9,154,367	0.06
Blackstone Real Estat Part Euro III LP	1,944,387	0.01
Carlyle Realty Partners VI, L.P.	1,587,991	0.01
Carlyle Realty Partners V L.P.	51,629	0.00
Harrison Street Real Estate Partners V	25,859,111	0.16
Harrison Street Real Estate Partners VII	62,728,837	0.40
KSL Capital Partners IV	64,723,850	0.41
North Haven VII	246,664	0.00
Rockwood Cap. Real Estate Part. IX, LP	6,081,258	0.04
Rockwood Cap. Real Estate Part. X, LP	40,383,243	0.26
Starwood Global Opportunity VIII, LP	1,518,922	0.01
Starwood Opportunity Fund X	13,691,402	0.09
Starwood Global Opportunity XI	66,657,321	0.42
Starwood Distressed Opportunity IX, LP	1,769,744	0.01
Walton Street Real Estate Fund VI	11,904,584	0.08
Wheelock Street Real Estate Fund II	19,282,738	0.12
Rockpoint Fund II	66,587,492	0.42
Perella Weinberg III	107,837,134	0.69
Harrison Street Real Estate Partners VI	53,003,952	0.34
NEW ROCK CORE FUND	291,946,287	1.86
GEM RLTY EVERGREEN	130,419,776	0.83
Rockwood Cap. Real Estate XI	32,112,025	0.20
Rockpoint Fund III	18,756,783	0.12
Rockwood MultiFamily PT LP	40,743,497	0.26
Stockbridge NLF	259,092,825	1.65

# Manager Listing

As of September 30, 2022

	Total Fund	
	\$	%
Harrison Street Real Estate VIII	45,704,520	0.29
Stockbridge Value Fund IV	59,741,974	0.38
Starwood XII	11,476,189	0.07
<b>Real Assets Only Comp</b>	<b>2,053,517,315</b>	<b>13.06</b>
<b>Liquid Real Assets Comp</b>	<b>845,539,910</b>	<b>5.38</b>
PIMCO Commodities	160,360,323	1.02
PIMCO TIPS	454,011,822	2.89
Deutsche Listed Infrastructure	215,622,439	1.37
Harvest MLP Alpha	435,916	0.00
Real Assets Cash Overlay	15,109,410	0.10
<b>Illiquid Real Assets Comp</b>	<b>1,207,977,405</b>	<b>7.68</b>
ACM II	27,164,255	0.17
Antin III	75,518,954	0.48
Ardian V	33,738,622	0.21
Ardian Infrastructure IV	38,425,668	0.24
BEP Legacy A LP	36,681	0.00
Brookfield Infrastructure Fund II LP	34,743,148	0.22
Brookfield Infrastructure Fund III	69,562,795	0.44
Carlyle Power Partners II	65,475,333	0.42
Denham Cap. Part. VI Coinvestment	50,794	0.00
Denham Commodity Partners Fund VI, LP	11,206,339	0.07
Encap Energy Capital VIII, L.P.	11,077,733	0.07
Encap Energy Capital Fund IX, L.P.	11,619,163	0.07
EnCap Flatrock Midstream Fund III	20,360,916	0.13
EnCap Energy Capital XI, L.P.	93,715,306	0.60
Encap Energy Capital VII, L.P.	102,272	0.00
First Reserve Fund XII, LP	53,582	0.00
IFM Global Infrastructure Fund, L.P.	189,080,859	1.20
KKR Global Infrastructure Investors II	25,588,030	0.16

# Manager Listing

As of September 30, 2022

	Total Fund	
	\$	%
Kayne Anderson Energy Fund V, LP	6,154,584	0.04
Lime Rock Partners VI, L.P.	93,164	0.00
Lime Rock Resources III	31,446,914	0.20
Lime Rock Partners V, L.P.	1,540,373	0.01
MINA III	43,823,094	0.28
Natural Gas Partners Fund IX	109,429	0.00
Natural Gas Partners X	3,695,648	0.02
NGP Natural Resources XI, L.P.	39,774,166	0.25
NGP XII	58,805,550	0.37
Paine and Partners Capital Fund IV	35,770,463	0.23
Quantum Energy Partners V, L.P.	1,947,248	0.01
R/C Renewable and Alt. Energy II	201,704	0.00
Riverstone Global Energy & Power Fd V	12,206,845	0.08
R/C Global Energy & Power Fund IV	141,636	0.00
Tillridge	35,567,913	0.23
Mass Ascension Co-Invest	136,698,112	0.87
Four Corners FF	85,174,607	0.54
Ardian Americas V	7,305,507	0.05
<b>Market Neutral Hedge Fund Comp</b>	<b>658,985</b>	<b>0.00</b>
Farallon Capital Inst. Partners, LP	120,189	0.00
Stark Investments	538,796	0.00
<b>Multi-Risk Composite</b>	<b>1,306,632,813</b>	<b>8.31</b>
Zia Risk Parity Fund	1,306,632,813	8.31

# Placement Agent Disclosure

Pursuant to New Mexico statute PERA shall not make any investment, other than investments in publicly traded equities or publicly traded fixed-income securities, unless the recipient of the investment discloses the identity of any third-party marketer who rendered services on behalf of the recipient in obtaining the investment and discloses the amount of any fee, commission or retainer paid to the third-party marketer for the services rendered. “Third-party marketer” means a person who, on behalf of an investment fund manager or other person seeking an investment from the fund and under a written or implied agreement, receives a fee, commission or retainer for such services from the person seeking an investment from the fund.

**The following investments were approved during the quarter, with disclosures made under the policy:**

Antin Infrastructure Partners Fund V – NM PERA committed €100 million to Antin Infrastructure Partners Fund V, a 2022 vintage year in the Real Asset allocation. Antin Infrastructure Partners has confirmed that Evercore Group LLC was engaged as placement agent for Fund V. NM PERA will not be liable for any placement agent fees in relation to its commitment to Antin Fund V. Neither Evercore nor Antin has compensated or agreed to compensate, directly or indirectly, any Person or entity to act as a placement agent in connection with any commitment by NM PERA.

**Investments approved prior to the current quarter for which the fund engaged a placement agent follow:**

Warburg Pincus Global Growth 14 – NM PERA committed \$100 million to Warburg Pincus LLC a 2022 vintage year in the Equity allocation. Warburg Pincus has engaged and expects to engage placement agents and/or feeder sponsors in certain jurisdictions, including outside of the United States. In connection with these engagements, the firm expects to pay placement fees that it believes are customary in each respective jurisdiction. Warburg Pincus Global Growth 14, L.P. will not be responsible for placement fees payable to any placement agents. The firm has also engaged and expects to engage financial institutions to sponsor or arrange feeder funds that target high net worth individuals. In connection with the engagements, the firm may pay placement fees to such financial institutions. Any placement fees paid to such financial institutions would be borne by Warburg Pincus and/or the respective feeder fund.

JMI Equity Fund XI, L.P. – NM PERA committed \$50 million to JMI Equity Fund XI, L.P., a 2022 vintage year in the Equity allocation. JMI Equity Fund XI, L.P. has stated that they did use a placement agent, however, no placement agent has provided any services or is expected to provide any services related to PERA’s commitment, thus no fees will be paid in relation to PERA’s commitment.

Rockwood Multifamily Partners, L.P. Fund – NMPERA committed \$100 million to Rockwood Multifamily Partners Fund, a 2021 vintage year in the Real Estate allocation. Rockwood Multifamily Partners, L.P. Fund has stated that they did not use a placement agent while soliciting PERAs investment.

Stockbridge Niche Logistics Fund – NM PERA committed an additional \$100 million to Stockbridge Niche Logistics Fund, a 2020 vintage year in the Real Estate allocation. Stockbridge Niche Logistics Fund has stated that they did not use a placement agent while soliciting PERAs

## Placement Agent Disclosure

As provided by PERA of New Mexico



investment.

General Catalyst XI; Creation, Endurance, Ignition – NMPERA committed \$85 million to General Catalyst XI, a 2021 vintage year in the Equity allocation. General Catalyst XI has stated that they did not use a placement agent while soliciting PERAs investment.

Kelso Investment Associates XI– NM PERA committed \$60 million to Kelso Investment Associates XI, a 2021 vintage year in the Equity allocation. Kelso Investment Associates has stated that they did not use a placement agent while soliciting PERAs investment.

Trident IX– NM PERA committed \$50 million to Trident IX, a 2021 vintage year in the Equity allocation. Trident has stated that they did not use a placement agent while soliciting PERAs investment.

Orchid Asia VIII– NM PERA committed \$75 million to Orchid Asia VIII, a 2021 vintage year in the Equity allocation. Orchid Asia has stated that they did not use a placement agent while soliciting PERAs investment.

Hellman & Freidman X– NM PERA committed \$50 million to Hellman & Freidman X, a 2021 vintage year in the Equity allocation. Hellman & Freidman has stated that they did not use a placement agent while soliciting PERAs investment.

Ristra MDP Co-Invest– NM PERA committed \$20 million to Ristra MDP Co-Invest, a 2021 vintage year in the Equity allocation. MDP has stated that they did not use a placement agent while soliciting PERAs investment.

Ardian Americas Infrastructure Fund V– NM PERA committed \$75 million to Ardian Americas Infrastructure Fund V, a 2021 vintage year in the infrastructure allocation. Ardian Americas has stated that they did not use a placement agent while soliciting PERAs investment.

D.E. Shaw – NM PERA committed u\$120 million to D.E. Shaw Composite Fund and/or Multi-Asset Fund, diversified multi-strategy fund. This is a portable alpha allocation. D.E. Shaw & Co. has stated that they did not use a placement agent while soliciting PERAs investment.

Starwood XIII – NM PERA committed \$50 million to Starwood XIII a 2020 vintage year in the Real Estate allocation. Starwood XIII has stated that they did not use a placement agent while soliciting PERAs investment.

Harrison Street Real Estate Fund VIII – NM PERA has committed \$75 million to Harrison Street Real Estate Fund VIII a 2020 vintage year in the Real Estate allocation. Harrison Street Real Estate has stated that they did not use a placement agent while soliciting PERAs investment.

Stockbridge Niche Logistics Fund – NM PERA committed \$100 million to Stockbridge Niche Logistics Fund a 2020 vintage year in the Real Estate allocation. Stockbridge Niche Logistics Fund has stated that they did not use a placement agent while soliciting PERAs investment.

Two Sigma – NM PERA has committed \$75 million to Two Sigma a Portable Alpha allocation. Two Sigma has stated that they did not use a placement agent while soliciting PERAs investment.

Millennium USA Fund – NM PERA increased commitment by \$50 million to Millennium USA Fund in the Portable Alpha allocation. Millennium has

## Placement Agent Disclosure

As provided by PERA of New Mexico

stated that they did not use a placement agent while soliciting PERAs investment.

Stockbridge Value Fund IV, LP – NM PERA committed \$75 million to Stockbridge Value Fund IV, LP's 2020 vintage year in the Real Estate allocation. Stockbridge Core and Value-Add Advisors, LLC ("CVA") stated that they did not use placement agents during the fundraising period.

Montagu VI, LP – NM PERA increased commitment by \$25 million to Montagu VI in the Equity allocation. Montagu Private Equity LLP has stated that it did not use placement agents during the fundraising period.

Millennium USA Fund – NM PERA committed \$100 million to Millennium USA Fund a Portable Alpha allocation. Millennium has stated that they did not use a placement agent while soliciting PERAs investment.

Marshall Wace Fund – NM PERA committed \$50 million to Marshall Wace Fund a Portable Alpha allocation. Marshall Wace has stated that they did not use a placement agent while soliciting PERAs investment.

Tenex Capital Partners III L.P. & PERA White Sands Tenex Co-Invest – NM PERA committed \$45 million to Tenex Capital Partners III L.P. & PERA White Sands Tenex Co-Invest a 2020 vintage year in the Private Equity allocation. The Tenex Capital has stated that they did not use a placement agent while soliciting PERAs investment.

Jordan Resolute V, L.P. – NM PERA committed \$75 million to Jordan Resolute V, L.P. a 2020 vintage year in the Private Equity allocation. The Jordan Company, LP has stated that they did not use a placement agent while soliciting PERAs investment.

Garda FIRVO Fund – NM PERA committed \$50 million to Garda FIRVO Fund a Portable Alpha allocation. Garda Capital Partners has stated that they did not use a placement agent during fundraising.

Ardian NM Co-Invest (Mass Ascension), L.P. – NM PERA committed \$125 million to Ardian NM Co-invest a 2020 vintage year in the Real Assets allocation. Ardian FRANCE has stated that they may use placement agents in certain geographies where they do not have a presence. However, in any case, placement fees would not be payable by the fund.

AgIS Club Fund (Four Corners), L.P. – NM PERA committed \$150 million to Agis Club Fund a 2020 vintage year in the Real Asset allocation. AgIS Capital LLC has stated that they did not use a placement agent during fundraising, however in any case, placement fees would not be payable by the fund.

Altaris Health Partners V, L.P. – NM PERA committed \$75 million to Altaris Health Partners V, L.P. a 2020 vintage year in the Private Equity allocation. Altaris Capital Partners, LLC has stated that they did not use a placement agent during fundraising, however in any case, placement fees would not be payable by the fund.

## Placement Agent Disclosure

As provided by PERA of New Mexico

Systematica Alternative Markets Fund – NM PERA committed \$75 million to Systematica Alternative Markets Fund a Portable Alpha allocation. Systematica has stated that they did not use a placement agent during fundraising, however in any case, placement fees would not be payable by the fund.

Pharo Gaia Fund – NM PERA committed \$40 million to Pharo Gaia Fund a Portable Alpha allocation. Pharo Management has stated that they did not use a placement agent during fundraising, however in any case, placement fees would not be payable by the fund.

Pacific Alliance Asia Opportunity Fund – NM PERA committed \$70 million to Pacific Alliance Asia Opportunity Fund a 2020 vintage year in the Portable Alpha allocation. PAG has stated that they did not use a placement agent during fundraising, however in any case, placement fees would not be payable by the fund.

Glazer Enhanced Fund – NM PERA committed \$40 million to Dorsal Enhanced Fund a Portable Alpha allocation. Glazer Capital Management has stated that they did not use a placement agent during fundraising, however in any case, placement fees would not be payable by the fund.

Dorsal Fund – NM PERA committed \$70 million to The Dorsal Fund a Portable Alpha allocation. Dorsal Capital Management has stated that they did not use a placement agent during fundraising, however in any case, placement fees would not be payable by the fund.

Madison Dearborn Capital Partners VIII, L.P. – NM PERA committed \$75 million to Madison Dearborn Capital Partners VIII, L.P. a 2019 vintage year in the Equity allocation. Madison Dearborn Capital Partners has stated that a placement agent was used for certain funds, but these fees are offset 100% by managements fees.

TSSP NM Contingent Capital Fund NM PERA committed \$150 million to TSSP NM Contingent Capital Funs a 2019 vintage year in the Private Credit allocation. TPG Sixth Street Partners Group has stated that they did not use a placement agent during fundraising, however in any case, placement fees would not be payable by the fund.

Petershill IV, L.P. – NM PERA committed \$70 million to Petershill IV, L.P. a 2019 vintage year in the Equity allocation. The Goldman Sachs Group, Inc. AIMS Group has stated that it did not use placement agents during the fundraising period.

Rockwood Capital Real Estate Partners Fund XI, L.P. – NM PERA committed \$50 million to Rockwood Capital a 2019 vintage year in the Real Estate allocation. Rockwood Capital has stated that it does use placement agent fees in some situations. However, all placement agent fees are incurred by the General Partner or its affiliates and not by the Fund.

Montagu VI., LP – NM PERA committed \$75 million to Montagu Private Equity LLP a 2019 vintage year in the Real Estate allocation. Montagu Private Equity LLP has stated that it did not use placement agents during the fundraising period.

# Placement Agent Disclosure

As provided by PERA of New Mexico

Ardian Infrastructure V, L.P. – NM PERA committed €60 million to Ardian Group a 2018 vintage year Real Assets allocation. Ardian Group has stated that it does use placement agent fees in some situations. However, all placement agent fees are incurred by the General Partner or its affiliates and not by the Fund. Axiom Emerging Markets Equity Fund. – Axiom Investors received final approval in the quarter for an investment of \$215 million in the Liquid Equity Assets allocation. Axiom Investors did not use placement agents for our investment in the fund.

Aermont Capital Real Estate Fund IV SCPs –NM PERA committed €50 million to Aermont Capital LLP a 2018 vintage year in the Real Estate allocation. Aermont Capital LLP has stated that the Fund will pay all fees, costs and expenses relating to the formation and launch of the Fund, the General Partner and any Feeder Fund provided that the amount of such costs and expenses will not exceed 0.15% of Total Commitments (inclusive of VAT). Any fees, costs and expenses in excess of such amount will be borne by Aermont

Harrison Real Estate Partners VII, L.P. – NM PERA committed \$75 million to Harrison Street Real Estate Capital, LLC a 2018 vintage year in the Real Estate allocation. Harrison Street Real Estate Capital, LLC has confirmed that no placement agents were used for this commitment.

TCV X, L.P. – NM PERA has committed \$70 million to Technology Crossover Ventures a 2018 vintage year in the Equity allocation. Technology Crossover Ventures has stated that all placement agent fees will be borne by the GP.

Kayne Anderson Rudnick Investment Management LLC – NM PERA committed up to \$350 million to Kayne Anderson Rudnick Investment Management LLC a 2018 vintage year in the Equity allocation. Kayne Anderson Rudnick Investment Management LLC has confirmed that no placement agents were used for this commitment.

Pine Bridge High Yield Fixed Income – NM PERA committed \$350 million to PineBridge Investments a 2018 vintage year in the Risk Mitigation allocation. PineBridge Investments has confirmed that no placement agents were used for this commitment.

Rock Point Growth and Income Real Estate Fund III, L.P. – NM PERA committed \$60 million to Rockpoint Group LLC a 2018 vintage year in the Equity allocation. Rockpoint Group LLC may engage one or more placement agents on a limited basis for engagement solely with a small number of investors outside of the United States. If a placement agent fee is paid in connection with Growth and Income Fund III, the General Partner will be responsible for all such fees and expenses.

Warburg Pincus Global Growth, L.P. – NM PERA committed \$115 million to Warburg Pincus LLC a 2018 vintage year in the Equity allocation. Warburg Pincus LLC does not expect to engage a placement agent in the U.S., although the firm has engaged financial institutions to sponsor or arrange feeder funds that target high net worth individuals to invest in WPGG. In connection with the engagements, the firm may pay customary fees to such financial institutions. Any fees paid to such financial institutions would be borne by Warburg Pincus and/or the respective feeder fund.

Kelso Investment Associates X, L.P. – NM PERA committed \$60 million to Kelso Investment Associates X, L.P. a 2018 vintage year Equity

## Placement Agent Disclosure

As provided by PERA of New Mexico



allocation. Kelso & Company has confirmed that it did use placement agents for this commitment. It was stated that “Kelso will bear the economic burden of all placement agent fees.”

Acadian Asset Management LLC – NM PERA committed \$285 million to Acadian Asset Management LLC a 2018 vintage year in the Equity allocation. Acadian Asset Management has confirmed that no placement agents were used for this commitment.

Patria Private Equity VI, L.P. – NM PERA committed \$50 million to Patria Finance Limited a 2018 vintage year Real Assets allocation. Patria Finance Limited has confirmed that no placement agents were used for this commitment.

Jordan Resolute IV, L.P. – NM PERA committed \$65 million to The Jordan Company a 2018 vintage year in the Real Assets allocation. The Jordan Company has confirmed that no placement agents were used for this commitment.

PIMCO Liquid Real Assets Completion Portfolio – NM PERA committed \$300 million to Pacific Investment Management Company a 2017 vintage year in the Real Assets allocation. There was no placement agent was engaged.

NGP Natural Resources XII, L.P. – NM PERA committed \$75 million to Natural Gas Partners a 2017 vintage year in the Real Assets allocation. Natural Gas Partners has confirmed that placement fees will be paid by the fund. However, all placement agent fees paid by the fund will be offset.

Altaris Health Partners IV, L.P. – NM PERA committed \$50 million to Altaris Health Partners a 2017 vintage year in the Private Equity allocation. Altaris Health Partners has confirmed that no placement agent was engaged.

Altaris Constellation Partners IV, L.P. – NM PERA committed \$25 million to Altaris Health Partners a 2017 vintage year in the Private Equity allocation. Altaris Constellation Partners has that there was no placement agent used for fundraising

CVC Capital Partners VII, L.P. – NM PERA committed €100 million to CVC Capital Partners a 2017 vintage year in the Real Estate allocation. CVC Capital Partners has confirmed that CVC Funding, LLC is to conduct activities as a distributor and/or placement agent for private funds managed by or otherwise affiliated with CVC Credit Partners or a CVC Entity. The Distributor does not sit within the same corporate group as the General Partner. No placement agent fees, or expenses will be borne by the Fund.

EnCap Energy Capital Fund XI, L.P. – NM PERA committed \$100 million to EnCap Investments. L.P. a 2017 vintage year in the Private Equity allocation. EnCap Investments. L.P. has confirmed that there was no placement agent used for fundraising.

Cerberus Global Residential Mortgage Opportunity Fund, L.P. – NM PERA committed \$100 million to Cerberus Capital Management a 2017 vintage year in the Credit allocation. Cerberus Capital Management has confirmed that there was no placement agent used for fundraising.

## Placement Agent Disclosure

As provided by PERA of New Mexico

Eagle Point Credit Partners, L.P. – NM PERA committed \$100 million to Eagle Point Credit Partners, L.P. a 2017 vintage year in the Credit allocation. Eagle Point Credit Partners, L.P. has confirmed that there was no placement agent used for fundraising.

Meridiam Infrastructure North America Fund III, L.P. – NM PERA committed \$75 million to Meridiam Infrastructure Partners a 2017 vintage year in the Real Assets allocation. Meridiam Infrastructure Partners has confirmed that the have used CL to act as placement agent for the Fund. Meridiam or its affiliates will bear the cost of all placement fees.

Onex Partners V, L.P. – NM PERA committed \$75 million to Onex Partners Manager LP a 2017 vintage year in the Private Equity allocation. Onex Partners Manager LP Partners has confirmed that Credit Suisse to act as placement agent for the Fund. Meridiam or its affiliates will bear the cost of all placement fees. 100% of any advisory, monitoring, transaction, topping, break-up, or directors' fees and other fees received, including placement agent fees will be offset by management fees.

Cheyne Real Estate Credit Fund V –Opportunistic L.P. – NM PERA committed \$90 million to Cheyne Real Estate Credit Fund V –Opportunistic L.P. a 2016 vintage year in the Credit allocation. Cheyne Capital has communicated that there was no placement agent used for fundraising

Rockpoint Growth and Income Real Estate Fund II – NM PERA committed \$75 million to Rockpoint Growth and Income Real Estate Fund II, L.P a 2017 vintage year in the Real Estate allocation. Rockpoint Group, L.L.C. has confirmed that Hodes Weill UK LLP on a limited basis for engagement solely with a small number of investors outside of the United States. If a placement agent fee is paid in connection with Growth and Income Fund II, the General Partner will be responsible for all such fees and expenses.

NewRock Core Real Estate (Rockwood Capital) – NM PERA committed \$150 million to NewRock a 2017 vintage year in the Real Estate allocation. Rockwood Capital, L.L.C. has communicated that there was no placement agent used for fundraising.

GEM Realty Evergreen Fund, L.P. –NM PERA committed \$100 million to GEM Realty Evergreen Fund, L.P. a 2017 vintage year in the Real Estate allocation. GEM Realty Capital, Inc. has confirmed that they have not engaged a private placement agent to assist with its current fundraising efforts.

Petershill Private Equity L.P. – NM PERA committed \$150 million to Petershill Private Equity LP. a 2017 vintage year in the illiquid Private Equity allocation. GSAM –Petershill Alternative Investments & Manager Selection (AIMS) has communicated that there was no placement agent used for fundraising.

Antin Infrastructure Partners III, L.P. – NM PERA committed \$76 million to Antin Infrastructure Partners III, L.P. a 2017 vintage year in the Real Assets allocation. Antin Infrastructure Partners has confirmed that Campbell Lutyens & Co. Ltd are engaged as placement agent. The fee terms are as follows: GP will incur all costs associated with the hiring of said placement agent.

## Placement Agent Disclosure

As provided by PERA of New Mexico

Tennenbaum Capital Partners, Direct Lending Fund of One – NM PERA committed \$200 million to Tennenbaum Capital Partners, Direct Lending Fund of One a 2017 vintage year the Credit allocation. Tennenbaum Capital Partners has they did not engage a placement agent or third-party marketer with respect to the NM PERA commitment.

RCP Small & Emerging Manager Fund of One – NM PERA committed \$75 million to RCP Small & Emerging Manager Fund of One a 2017 vintage year in the Global Equity allocation. RCP Advisors has confirmed that they did not engage a placement agent or third-party marketer with respect to the NM PERA commitment.

Napier Park Global Capital Specialized & Complex Credit – NM PERA committed \$300 million to Napier Park Global Capital Specialized & Complex Credit a 2016 vintage year in the Credit allocation. Napier Park Global Capital (US) has confirmed that they did not engage a placement agent or third-party marketer with respect to the NM PERA commitment.

FountainVest China Capital Partners III, L.P. – NM PERA committed \$83 million to FountainVest China Capital Partners III, L.P. a 2016 vintage year in the Global Equity allocation. FountainVest Advisors Ltd. has confirmed that UBS are engaged as placement agent. The fee terms are as follows: FountainVest believes that the amount that will be paid to UBS which relates to NM PERA's investment is between 0.3% and 1.75% of NM PERA's commitment. The actual dollar amount of placement fees payable being US\$685,201. As per the LPA, as the entire placement agent fee is not treated as a fund expense but a GP expense, NM PERA will in effect be paying US\$0 to the placement agent.

Harrison Street Real Estate Partners VI, L.P. – NM PERA committed \$75 million to Harrison Street Real Estate Partners VI, L.P. a 2016 vintage year in the Real Estate allocation. Harrison Street Real Estate Capital, LLC has confirmed that they did not engage a placement agent or third-party marketer with respect to the NM PERA commitment.

Tillridge Global Agribusiness Partners II, L.P. – NM PERA committed \$75 million to Tillridge Global Agribusiness Partners II, L.P. a 2016 vintage year in the Real Assets allocation. Tillridge is a NGP affiliate, a 35% owner. Tillridge Capital Partners, LLC has confirmed that they did not engage a placement agent or third-party marketer with respect to the NM PERA commitment.

Charterhouse Capital Partners X, L.P. – NM PERA committed \$117 million to Charterhouse Capital Partners X, L.P. a 2016 vintage year in the Illiquid Credit allocation Charterhouse Capital Partners LLP LLC has confirmed that they did not engage a placement agent or third party marketer with respect to the NM PERA commitment.

ACM Fund II, LLC. – NM PERA committed \$40 million to ACM Fund II, LLC. a 2016 vintage year in the Real Assets allocation. ACM Management Company, LLC. ACM is working with Equilibrium Capital to fundraise for Fund II. Equilibrium Capital is a founding member of ACM, a significant minority shareholder and a member of the Investment and Management Committees. For the current Fund, ECS will receive 1.5 percent of total committed capital paid over two years, as compensation for these services. For Fund I, ECS was also paid 1.5 percent of total

## Placement Agent Disclosure

As provided by PERA of New Mexico

committed capital, paid over three years, for these services. No placement fees will be paid by the Fund. The GP will pay placement costs out of its management fee. The amount relating to NM PERA commitment of \$40 million is therefore \$600,000.

DRC European Real Estate Debt Fund III, L.P. – NM PERA committed \$73 million to DRC European Real Estate Debt Fund III, L.P. a 2016 vintage year in the Private Credit allocation. DRC Capital Partners has confirmed that Evercore Partners International are engaged as placement agent. The fee terms are as follows: “New” Capital Commitments (new investors & element of re-ups exceeding Fund II commitment level) – 1.5%. “Existing” Capital Commitments (existing investors with re-ups up to Fund II commitment level) – 1.0%

Starwood XI Management, L.P. – NM PERA committed \$75 million to Starwood XI Management, L.P. a 2016 vintage year in the Real Estate allocation. Starwood Capital has confirmed that they did not engage a placement agent or third-party marketer with respect to the NM PERA commitment.

Brookfield Infrastructure Fund III, L.P. – NM PERA committed \$75 million to Brookfield Infrastructure Fund III, L.P. a 2016 vintage year in the Real Assets allocation. Brookfield Asset Management Inc. has confirmed that they did not engage a placement agent or third-party marketer with respect to the NM PERA commitment.

TCV IX Fund – NM PERA committed \$65 million to TCV IX Fund, L.P. a 2016 vintage year in the Private Equity allocation. Technology Crossover Ventures has confirmed that they did not engage a placement agent or third-party marketer with respect to the NM PERA commitment.

PineBridge Passport I, L.P. – NM PERA committed \$150 million to PineBridge Passport I, L.P. a 2016 vintage year in the Private Equity allocation. PineBridge has confirmed that they did not engage a placement agent or third-party marketer with respect to the NM PERA commitment.

Carlyle Power Partners II, L.P. – NM PERA committed \$65 million to Carlyle Power Partners II, L.P. a 2015 vintage year in the Private Equity allocation. Carlyle has confirmed that they did not engage a placement agent or third-party marketer with respect to the NM PERA commitment.

Warburg Pincus Private Equity XII, L.P. – NM PERA committed \$85 million to Warburg Pincus Private Equity XII, L.P. a 2015 vintage year in the Private Equity allocation. Warburg Pincus has confirmed that they did not engage a placement agent or third-party marketer with respect to the NM PERA commitment.

Madison Realty Capital Debt Fund III, L.P. – NM PERA committed \$50 million to Madison Realty Capital Debt Fund III, L.P. a 2015 vintage year in the Real Estate allocation. Madison has confirmed that they did not engage a placement agent or third-party marketer with respect to the NM PERA commitment.

Century Focused Fund IV, L.P. – NM PERA committed \$30 million to Century Focused Fund IV, L.P. a 2015 vintage year in the Private Equity allocation. Century Capital Management has confirmed that they did not engage a placement agent or third-party marketer with respect to the

## Placement Agent Disclosure

As provided by PERA of New Mexico



NM PERA commitment.

Trinity Ventures XII, L.P. – NM PERA committed \$30 million to Trinity Ventures XII, L.P. a 2015 vintage year in the Private Equity allocation. Trinity Ventures has confirmed that they did not engage a placement agent or third-party marketer with respect to the NM PERA commitment.

RRJ Capital Master Fund III, L.P. – NM PERA committed \$65 million to RRJ Capital Master Fund III, L.P. a 2015 vintage year in the Private Equity allocation. RRJ Capital III Ltd. has confirmed that they did not engage a placement agent or third-party marketer with respect to the NM PERA commitment.

Rockwood X, L.P. – NM PERA committed \$60 million to Rockwood X, L.P. a 2015 vintage year in the Real Estate allocation. Rockwood Capital has confirmed that they did not engage a placement agent or third-party marketer with respect to the NM PERA commitment.

Ardian Infrastructure IV, L.P. – NM PERA committed \$69 million to Ardan Infrastructure IV, L.P. a 2015 vintage year in the Real Assets allocation. Ardan has confirmed that they did not engage a placement agent or third-party marketer with respect to the NM PERA commitment.

Atalaya Special Opportunities Fund VI, L.P. – NM PERA committed \$50 million to Atalaya Special Opportunities Fund VI, L.P. a 2015 vintage year in the Private Equity-Credit allocation. Atalaya Capital Management has confirmed that they did not engage a placement agent or third-party marketer with respect to the NM PERA commitment.

Charterhouse Capital Partners X, L.P. – NM PERA committed \$117 million to Charterhouse Capital Partners X, L.P. a 2015 vintage year in the Private Equity allocation. Charterhouse Capital Partners LLP has confirmed that they did not engage a placement agent or third-party marketer with respect to the NM PERA commitment.

Athyrium Opportunities Fund II, L.P. – NM PERA committed \$57.9 million to Athyrium Opportunities Fund II, L.P. a 2015 vintage year in the Private Equity allocation. Neuberger Berman Alternatives Advisers LLC and its affiliates (“Neuberger Berman”) provide sub-advisory services and other ancillary services to Athyrium Capital Management LLC, including assistance with fundraising and marketing of the Fund. For investors introduced by Neuberger Berman, Neuberger Berman typically receives approximately 60% of one year’s management fee, paid out over a three-year period. Such fees are not paid by the fund, rather out of the management fee collected by Athyrium Capital Management, LLC. Neuberger Berman, LLC. is a FINRA regulated broker dealer.

KSL Capital Partners IV, L.P. – NM PERA committed \$60 million to KSL Capital Partners IV, L.P. a 2015 vintage year in the Real Estate allocation. KSL Capital Partners, LLC has confirmed that they did not engage a placement agent or third-party marketer with respect to the NM PERA commitment.

Garrison Opportunity Fund IV-A, LLC. – NM PERA committed \$60 million to Garrison Opportunity Fund IV-A, LLC a 2014 vintage year in the

## Placement Agent Disclosure

As provided by PERA of New Mexico

Private Equity allocation. Garrison Investment Group confirmed that they did not engage a placement agent or third-party marketer with respect to the NM PERA commitment.

Harrison Street Real Estate Partners V, L.P. – NM PERA committed \$45 million to Harrison Street Real Estate Partners V, L.P. a 2014 vintage year in the Real Estate allocation. Harrison Street confirmed that they did not engage a placement agent or third-party marketer with respect to the NM PERA commitment.

Paine & Partners Capital Fund IV, L.P. – NM PERA committed \$45 million to Paine & Partners Capital Fund IV, L.P. a 2014 vintage year in the Real Assets allocation. Paine & Partners confirmed that they did not engage a placement agent or third-party marketer with respect to the NM PERA commitment.

Kelso Investments Associates IX – NM PERA committed \$60 million to Kelso Investment Associates IX a 2014 vintage year in the Private Equity allocation. Kelso disclosed that TransPacific Group LLC and TransPacific Group (Asia) Ltd will act as a placement agent in relation to the targeted marketing of limited partner interests in KIA IX to certain specified prospective investors in East Asia and Hong Kong & China respectively. Kelso was introduced to Mark Mason, the founder of the TransPacific companies, by a former executive of a limited partner. KTB Investment & Securities Co., Ltd. is the sub-agent in Korea. The placement agent fee is 100% offset to management fees.

KKR Global Infrastructure Fund II – NM PERA committed \$50 million KKR Global Infrastructure Fund a 2014 vintage year in the Real Assets allocation. KKR confirmed that they did not engage a placement agent or third-party marketer with respect to the NM PERA commitment.

Natural Gas Partners XI – NM PERA committed \$50 million to Natural Gas Partners XI a 2014 vintage year in the Real Assets allocation. NGP confirmed that they did not engage a placement agent or third-party marketer with respect to the NM PERA commitment.

Starwood Global Opportunity X – NM PERA committed \$60 million to Starwood Global Opportunity X a 2014 vintage year for the Real Estate allocation. Starwood confirmed that they did not engage a placement agent or third-party marketer with respect to the NM PERA commitment.

EnCap Flatrock Midstream Energy III – NM PERA committed \$30 million to EnCap Flatrock III a 2014 vintage year for the Real Asset allocation. EnCap disclosed that no placement agent or third-party marketer was used.

Harvest MLP – NM PERA committed \$140 million a 2014 vintage year in the Real Assets allocation. Harvest disclosed that no placement agent or third-party marketer was used.

DRC European Real Estate Debt Fund II – NM PERA committed £26 million to DRC a 2013 vintage year fund in the Real Estate allocation. DRC engaged EverCore Private Funds Group for the marketing of ERED II in North America. The GP pays up to 2% on amounts raised by Evercore

## Placement Agent Disclosure

As provided by PERA of New Mexico

payable in installments over 3 years, or up to 520,000 on PERA's £26 million commitment. The GP pays the placement fee.

Onex Partners IV, LP – NM PERA committed \$45 million to Onex IV a 2013 vintage year fund in the US buyout allocation. Onex engage Credit Suisse for the marketing of Fund IV. Onex pays a flat fee. The GP pays the placement fee.

Blackstone Real Estate Partners VII – NM PERA committed \$35 million to Blackstone VII a 2012 vintage year fund in the Real Estate allocation. Blackstone engaged Park Hill Group LLC for the marketing of BREP VII. Although Blackstone engaged Park Hill in connection for certain clients, Park Hill was not used in connection with PERA's commitment, thus PERA did not pay any placement fees.

Gilde Buyout Fund IV – NM PERA committed €15 million Euro to Gilde IV a 2011 vintage year fund in the non-US buyout allocation. Gilde engaged MVision for the marketing of Fund IV. Gilde pays a 0.35% fee on aggregate commitments, or €52,500 on PERA's €15 million commitment. The GP pays the placement fee.

Selene Residential Mortgage Opportunity Fund II – NM PERA committed \$20 million to Selene II a 2011 vintage year fund in the Real Estate allocation. Selene engaged Capstone Partners for the marketing of Fund II. Selene pays a 1% fee, or \$200,000 on PERA's \$20 million commitment. The fee is offset by the management fee.

Blackstone Real Estate Partners Europe III – NM PERA committed \$25 million to BREP Europe III a 2008 vintage year fund in the Real Estate allocation. Blackstone engaged Park Hill Group LLC for the marketing of BREP Europe III. BREP's agreement is to pay Park Hill 1% on aggregate commitments, or \$250,000 on PERA's \$25 million commitment.

Onex Partners III – NM PERA committed \$25 million to Onex III a 2008 vintage year fund in the Private Equity buyout allocation. Onex engaged Credit Suisse for the marketing of Fund III. The approximate fee paid on PERA's \$25 million commitment was \$325,000.

Selene Residential Mortgage Opportunity Fund I – NM PERA committed \$30 million to Selene I, a 2008 vintage year fund in the Real Estate allocation. Selene engaged Capstone Partners for the marketing of Fund II. Selene pays a 1% fee, or \$300,000 on PERA's \$30 million commitment. The fee is offset by the management fee.

Jordan Resolute Fund II – NM PERA committed \$25 million to Jordan Resolute II a 2007 vintage year fund in the Private Equity buyout allocation. Jordan engaged Credit Suisse for the marketing of Fund II. Jordan pays Credit Suisse 0.5%, or \$113,354 on PERA's \$25 million commitment.

Kelso Investment Associates VIII, L.P. – NM PERA committed \$30 million to Kelso III a 2007 vintage year fund in the Private Equity buyout allocation. Kelso engaged Credit Suisse for the marketing of Fund VIII. Kelso pays Credit Suisse 0.143%, or \$43,045 on PERA's \$30 million commitment.

## Placement Agent Disclosure

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Wayzata Opportunities Fund II, L.P. – NM PERA committed \$30 million to Wayzata II a 2007 vintage year fund in the distressed private equity allocation. Wayzata engaged Park Hill Group LLC for the marketing of Fund II. Wayzata pays a fee of 0.35% on aggregate commitments, or \$105,000 on PERA’s \$30 million commitment. Wayzata II is now classified as an Illiquid Credit manager.

Cerberus Institutional Partners Series IV, L.P. – NM PERA committed \$25 million to Cerberus IV a 2006 vintage year fund in the distressed Private Equity allocation. Cerberus engaged Monument Group for the marketing of Fund IV.

Coller International Partners V, L.P. – NM PERA committed \$25 million to Coller V a 2006 vintage year fund in the Private Equity portfolio. Coller engaged Credit Suisse for the marketing of Fund V.

## Placement Agent Disclosure

As provided by PERA of New Mexico

# Additional Information



**Long-Term Target Allocation Index** consists of:

- 40% S&P 500 Index (Cap Wtd), 60% LB Aggregate Bond Index until 08/31/1992
- 55% S&P 500 Index (Cap Wtd), 45% LB Aggregate Bond Index until 08/31/1995
- 52.5% S&P 500 Index (Cap Wtd), 2.5% MSCI EAFE Blend, 45% LB Aggregate Bond Index until 11/30/1995
- 50% S&P 500 Index (Cap Wtd), 5% MSCI EAFE Blend, 45% LB Aggregate Bond Index until 02/29/1996
- 45% S&P 500 Index (Cap Wtd), 10% MSCI EAFE Blend, 45% LB Aggregate Bond Index until 11/30/1997
- 45% S&P 500 Index (Cap Wtd), 15% MSCI EAFE Blend, 40% LB Aggregate Bond Index until 02/28/1999
- 42% Russell 3000 Index, 18% MSCI EAFE Blend, 40% LB Aggregate Bond Index until 05/31/1999
- 45% Russell 3000 Index, 15% MSCI EAFE Index (Gross), 40% LB Aggregate Bond Index until 06/30/2000
- 42% Russell 3000 Index, 18% MSCI EAFE Index (Gross), 40% LB Aggregate Bond Index until 06/30/2005
- 40% Russell 3000 Index, 25% MSCI EAFE Index (Gross), 35% LB Aggregate Bond Index until 06/30/2007
- 35% Russell 3000 Index, 25% MSCI ACW Ex US Blended Index (Gross), 25% LB Aggregate Bond Index, 5% 3 Mo LIBOR Index + 4%, 5% Venture Economics All Private Equity Index (lagged one quarter), 2.5% NCREIF Property Index, and 2.5% CPI + 5% until 10/31/2009
- 35% Russell 3000 Index, 25% MSCI ACW Ex US Blended Index (Gross), 25% Barclays Global Agg Blended Index, 5% 3 Mo LIBOR Index + 4%, 5% Venture Economics All Private Equity Index (lagged one quarter), 2.5% NCREIF Property Index, 1% Barclays US TIPS Index, 1% S&P GSCI Light Energy Index, and 0.5% CPI + 5% until 06/30/2010
- 27% Russell 3000 Index, 27% MSCI ACW Ex US Blended Index (Gross), 26% Barclays Global Agg Blended Index, 9% HFRI Fund of Funds Composite Index, 5% Private Equity Custom Index, 3% Real Estate Custom Index, and 3% Real Assets Custom Index until 11/30/2012
- 29% Russell 3000 Index, 20% Int'l Equity Custom Index, 26% Fixed Income Custom Index, 5% Liquid Alpha Index, 7% HFRI Fund of Funds Composite Index, 5% Private Equity Custom Index, 3% Real Estate Custom Index, and 5% Real Assets Custom Index until 12/31/2012.
- 21.1% Russell 3000 Index, 24.8% Int'l Equity Custom Index, 26.1% Core and Global Fixed Income Custom Index, 5% Fixed Income Plus Sectors Custom Index, 4% HFRI Fund of Funds Composite Index, 7% Private Equity Custom Index, 5% Real Estate Custom Index, and 7% Real Assets Custom Index until 04/30/2016.
- 43.5% Global Equity. 21.5% Risk Reduction & Mitigation. 20% Real Assets. 15% Credit Oriented Fixed Income until 4/30/20

## Benchmarks

	Policy Index 1/1 - 4/30/19	Policy Index 5/1 - 5/31/19	Policy Index 6/1 - 6/30/19	Policy Index 7/1 - 7/31/19	Policy Index 8/1 - 8/31/19	Policy Index 9/1 - 9/30/19	Policy Index 10/1 - 10/31/19	Policy Index 11/1 - 11/30/19	Policy Index 12/1 - 12/31/19	Policy Index 1/1 - 1/31/20	Policy Index 2/1 - 2/28/20	Policy Index 3/1 - 3/31/20	Policy Index 4/1/2020
Global Equity	43.50%	42.85%	42.33%	41.81%	41.29%	40.77%	40.38%	39.74%	39.02%	38.22%	37.70%	37.22%	35.50%
MSCI ACWI IMI (\$net)	36.50%	35.85%	35.33%	34.81%	34.29%	33.77%	33.38%	32.74%	32.02%	31.22%	30.70%	30.22%	28.50%
MSCI ACWI Min Vol (\$net)	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%
Credit	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%
Barclays Global HY (Hedged)	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%
50% JPM EMBI(\$) / 50% JPM GBI (\$)	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Risk Mitigation	21.50%	21.50%	21.37%	21.24%	21.11%	20.98%	20.72%	20.56%	20.38%	20.18%	20.05%	19.93%	19.50%
Barclays U.S. Agg	19.00%	19.00%	18.87%	18.74%	18.61%	18.48%	18.22%	18.06%	17.88%	17.68%	17.55%	17.43%	17.00%
Barclays Global Agg (Hedged)	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
Real Assets	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%
Wilshire Global REIT	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%
Alerian MLP Index	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
DJB Global Infra Index	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Barclays U.S. TIPS	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Bloomberg Commodity Index (TR)	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Multi Risk	0.00%	0.65%	1.30%	1.95%	2.60%	3.25%	3.90%	4.70%	5.60%	7.25%	7.85%	7.85%	10.00%
Wilshire Risk Parity - 15%	0.00%	0.65%	1.30%	1.95%	2.60%	3.25%	3.90%	4.70%	5.60%	6.60%	7.25%	7.85%	10.00%
	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

# Glossary

Term	Definition
<b>Absolute Return</b>	An investment in a fund with a goal of consistent positive returns, one sub-category is referred to as "market neutral"
<b>Actual Allocation</b>	The actual current percentage weightings of a portfolio
<b>Alpha</b>	A measure of performance on risk-adjusted basis. Alpha takes the volatility of a fund and compares its risk-adjusted performance to a benchmark index. The excess return of the fund relative to the return of the benchmark index is a fund's alpha.
<b>Arithmetic Excess</b>	Excess return calculated by simply subtracting manager's return from index return for same period
<b>Asset Allocation Effect (Group Weight)</b>	Variance attributable to asset allocation decisions, deviations from target policy.
<b>Beta</b>	Volatility of portfolio versus market. Beta = 1: portfolio will move with the market. Beta < 1: portfolio will be less volatile than market.
<b>Duration</b>	Duration is a measure of the price volatility of fixed income securities. The greater the duration of the product, the greater its percentage value volatility. Options include: 1) short/cash duration focus of 0-3 years; 2) intermediate duration focus of 3-5 years; 3) core/market duration focus of 5-7 years; 4) long duration focus of 7+ years.
<b>Geometric Excess</b>	Excess return calculated using the following formula: $(1 + \text{Manager}) / (1 + \text{Index}) - 1$
<b>Holdings-based Attribution</b>	US Equity, Non-US Equity, and Fixed Income tables are holdings-based. The table details various attribution subcategories which impacted each manager's performance such as: selection, weighting, duration, yield, quality, etc.
<b>Information Ratio</b>	A ratio of portfolio returns above the returns of a benchmark (usually an index) to the volatility of those returns. The information ratio (IR) measures a portfolio manager's ability to generate excess returns relative to a benchmark, but also attempts to identify the consistency of the investor. In other words, a measure of risk-adjusted return of actively managed portfolio. This ratio will identify if a manager has beaten the benchmark by a lot in a few months or a little every month. The higher the IR, the more consistent a manager is and consistency is an ideal trait. Defined as amount of excess return per unit of excess risk taken, as in $IR = \text{excess return ("alpha")} / \text{tracking error (excess risk)}$ .
<b>Interaction Effect (Selection)</b>	Part of return variance that cannot be attributed solely to Asset Allocation Effect or Manager Performance. Mathematically, Interaction is the product of each group's active weight (i.e., over/underweight) and active return (i.e., out/underperformance). For example, a group with an overweight that outperformed its benchmark would contribute positively to Interaction.
<b>Internal Rate of Return (IRR)</b>	The discount rate often used in capital budgeting that makes the net present value of all cash flows from a particular project equal to zero. A preferred method of calculating Private Equity performance
<b>R-squared</b>	A statistical measure that describes how much of the fund's movements are explained by movements in an index. Its value ranges from 0 to 1.00. An R-squared of 1.00 means that all movements of a fund are completely explained by movements in the index. A fund with a low R-squared does not act much like the index.

# Glossary

Term	Definition
<b>Semi-Variance</b>	Measure of variability (or dispersion) of all returns that fall <u>below</u> mean. Measures only downside risk, or negative asset class or alpha returns. Estimates average loss that portfolio could incur.
<b>Sharpe Ratio</b>	A risk-adjusted measure calculated by using standard deviation and excess return to determine reward per unit of risk. The higher the Sharpe Ratio, the better the fund's historical risk-adjusted performance. For example, the one-year Sharpe Ratio, defined as the one-year return of the product minus the risk-free rate (90 day T-Bill), divided by the standard deviation of the product returns.
<b>Standard Deviation</b>	A measure of variability (or dispersion) of returns around mean return. A low standard deviation (e.g., 5%) indicates returns tend to be very close to mean return, whereas high standard deviation (e.g., 20%) indicates returns can be far from mean return. A manager with a one-year return of 5% and a standard deviation of 5 indicates the range of returns for this manager will likely fall between 0% and 10% during most annual time periods.
<b>Time Weighted Return</b>	The actual rate of return or earnings for the particular period, adjusted for cash flow additions or deletions
<b>Total Alpha</b>	Total Variance: sum of Asset Allocation, Interaction, Manager Performance, and Trading.
<b>Total Return</b>	The return of a particular portfolio that includes both increases or decreases in asset values as well as dividends received
<b>Tracking Error</b>	Standard deviation of excess return. Measure of closely portfolio follows index to which it is benchmarked. Traditional actively managed portfolio has higher tracking error (i.e., >4%). Passively managed portfolio has tracking error close to zero. / A measure of the difference between returns of the portfolio and that of the benchmark it was attempting to imitate; reported as a "standard deviation percentage" difference.
<b>Trading Effect</b>	Difference between buy/hold and total return.
<b>TUCS (Trust Universe Comparison Service)</b>	A collaborative effort between Wilshire Associates and custodial organizations. Custodians submit asset positions and performance data to be pooled into universes of managed tax-exempt portfolios. TUCS is a widely accepted benchmark for the performance of institutional assets.
<b>Variance</b>	Refers to the amount of movement in prices of a particular portfolio; a portfolio that moves a lot has a higher variance



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