

Wilshire

Prepared for



Public Employees Retirement Association of New Mexico

Investment Performance Review

Stephen DiGirolamo, CFA, CAIA – Managing Director
Joanna Bewick, CFA – Senior Vice President

Q4 FY23

Table of Contents

- [Scorecard](#)
- [Total Fund](#)
 - Global Equity
 - Credit Oriented Fixed Income
 - Risk Reduction & Mitigation
 - Real Assets
 - Multi-Risk Allocation
- [Peer Review](#)
- [Manager Listing](#)
- [Placement Agent Disclosure](#)
- [Additional Information](#)

Scorecard

Scorecard: Strategic Asset Allocation

- As of June 30, 2023, 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 6.52%.

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	4.23%	7.25%	-3.02%	Below
	•1 year	4.23%	7.25%	-3.02%	Below
	•3 years	8.33%	7.25%	1.08%	Meets
	•5 Years	5.90%	7.25%	-1.35%	Below
	•7 years	6.77%	7.27%	-0.50%	Below
	•10 years	6.60%	7.40%	-0.80%	Below
	•20 years	6.52%	7.58%	-1.06%	Below
	•30 years	7.56%	7.63%	-0.07%	Below
NOTE: 7.25 Annual (7.75 before July 2016)	•ITD	8.58%	7.66%	0.92%	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	38.0%	38.9%	0.9%	+/- 5%
Credit	19.0%	18.6%	-0.4%	+/- 4%
Risk Mitigation	17.0%	16.7%	-0.3%	+/- 3%
Real Assets	18.0%	17.7%	-0.4%	+/- 4%
Multi-Risk	8.0%	8.3%	0.3%	+/- 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	0.97%	1.25%	1.0% - 2.0%
Ex-Post Total Fund Tracking Error	5.34%	2.50%	2.0% - 3.0%
Ex-Post Excess Return	0.11%	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:

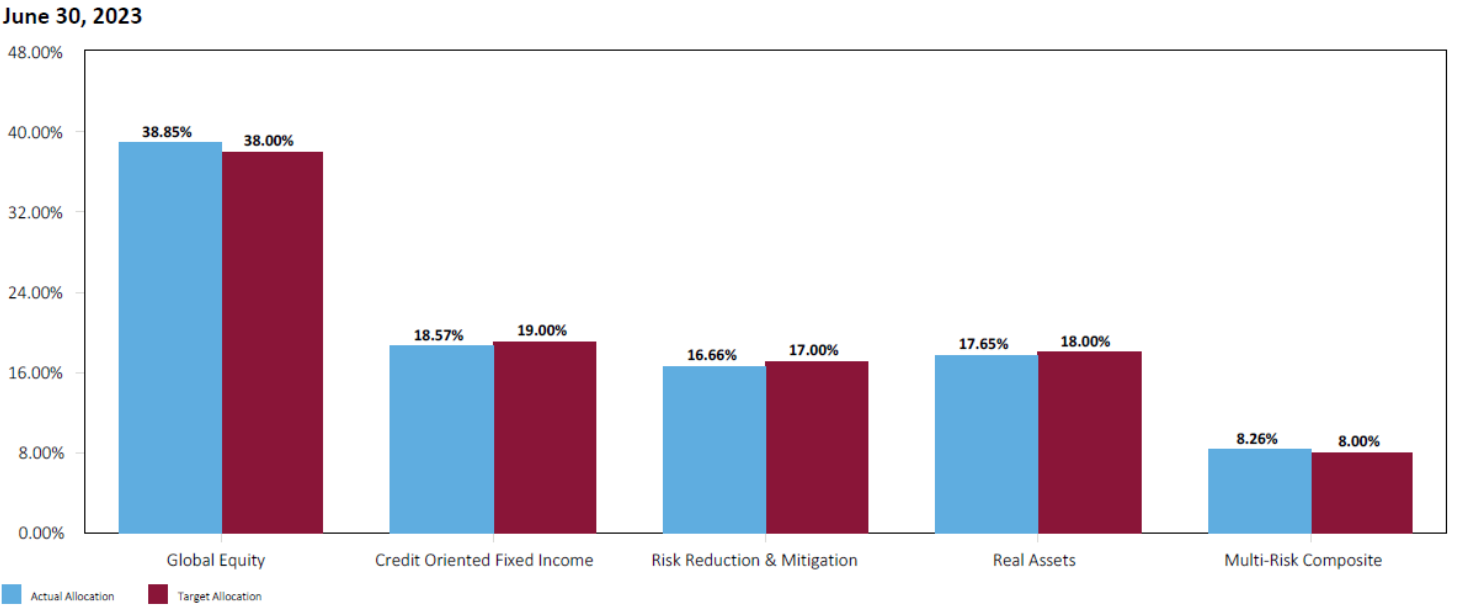
Liquidity Allocation			
Tier	Actuals \$M	Actuals %	Guideline
Tier 1 (1-5 Days)	\$2,594	16%	Tier 1 Assets ≥ 10% Fund NAV
Tier 2 (5-90 Days)	\$7,017	42%	
Tier 3 (90-365 Days)	\$883	5%	
Tier 4 (1 Year +)	\$6,163	37%	
	\$16,658	100%	

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	4.23%	6.89%	-2.66%	Below
	•1 Year	4.23%	6.89%	-2.66%	Below
	•3 years	8.33%	5.76%	2.57%	Meets
	•5 Years	5.90%	4.51%	1.39%	Meets
	•7 years	6.77%	5.62%	1.15%	Meets
	•10 years	6.60%	5.91%	0.69%	Meets
	•20 years	6.52%	6.44%	0.08%	Meets
	•30 years	7.56%	6.91%	0.65%	Meets
	•ITD	8.58%	8.21%	0.37%	Meets
Meet or exceed the Policy Portfolio over the long-term	Peer Rankings				
	Fund Sharpe	Fund Ranking	No. of Funds		
	•1 Year	0.11	98	67	Below
	•3 years	0.89	27	66	Meets
	•5 Years	0.56	34	66	Meets
	•7 Years	0.77	36	66	Meets
Median risk adjusted peer performance ranking over the long-term (InvestMetrics)	•10 years	0.81	38	62	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



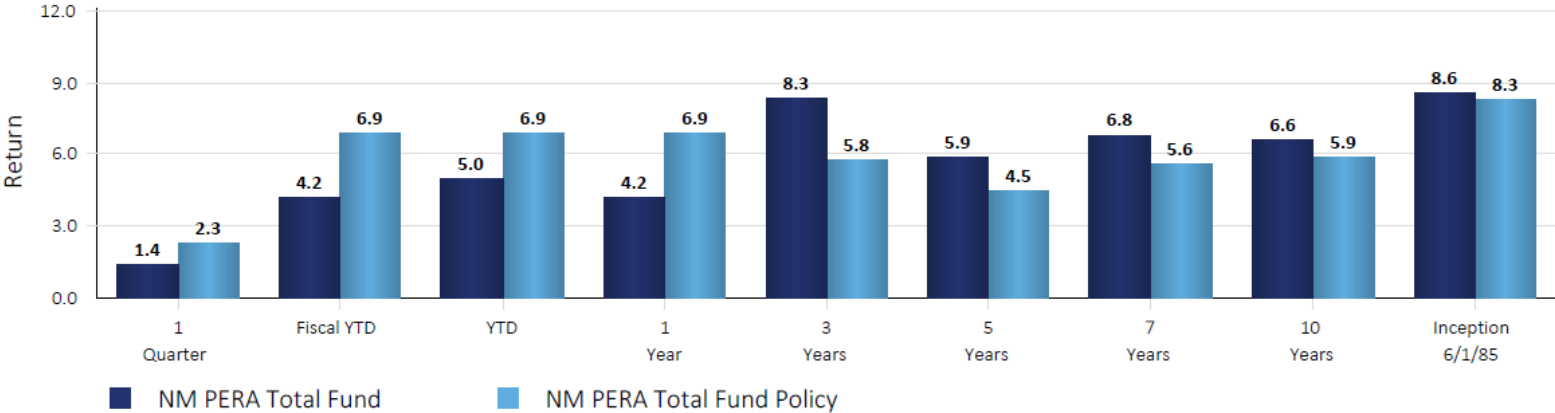
June 30, 2023

	Market Value \$	Allocation (%)	Target (%)
Global Equity	6,471,229,887	38.85	38.00
Credit Oriented Fixed Income	3,094,073,301	18.57	19.00
Risk Reduction & Mitigation	2,775,859,414	16.66	17.00
Real Assets	2,940,462,880	17.65	18.00
Multi-Risk Composite	1,376,156,249	8.26	8.00
Total Fund	16,657,781,731	100.00	100.00

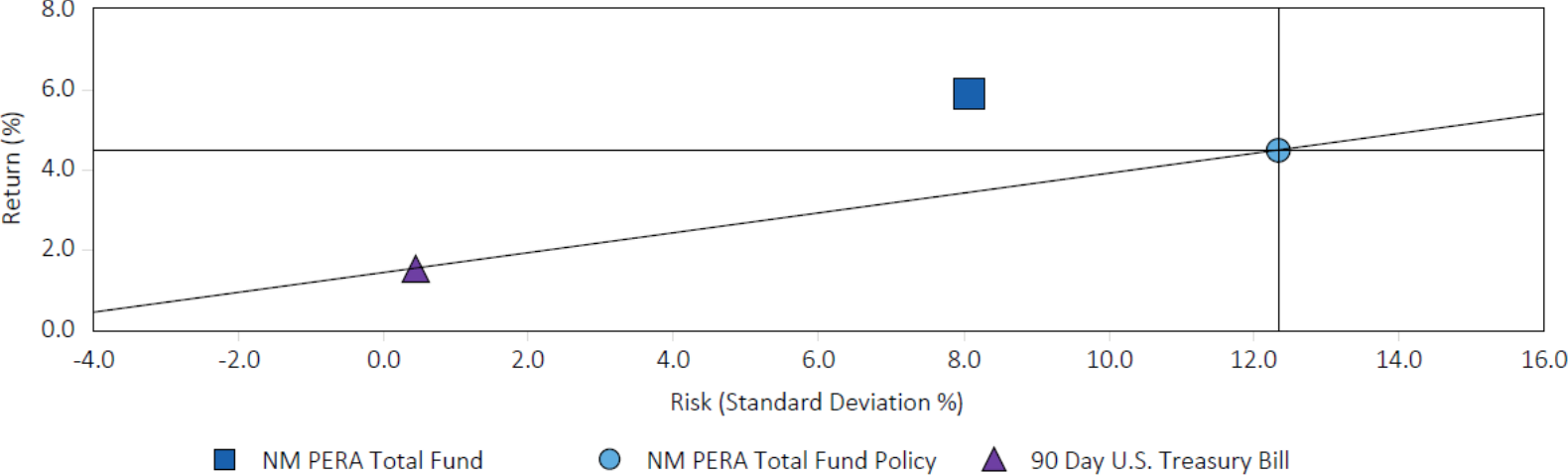
STO Balance as of 06/30/23 is \$54,287,696; Total Market Value with STO is \$16,712,069,427

Total Fund Performance Summary as of June 30, 2023

Comparative Performance



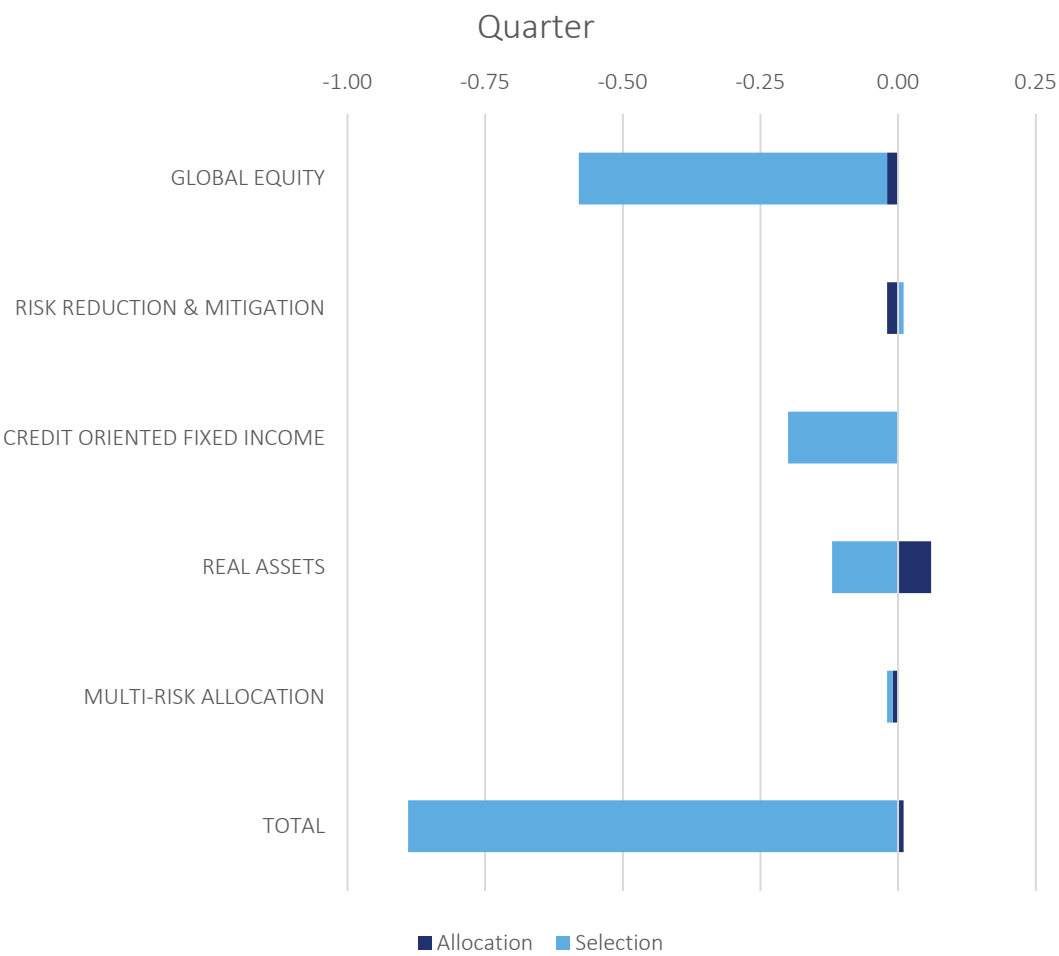
Risk vs. Return - 5 Years



Total Fund Composites

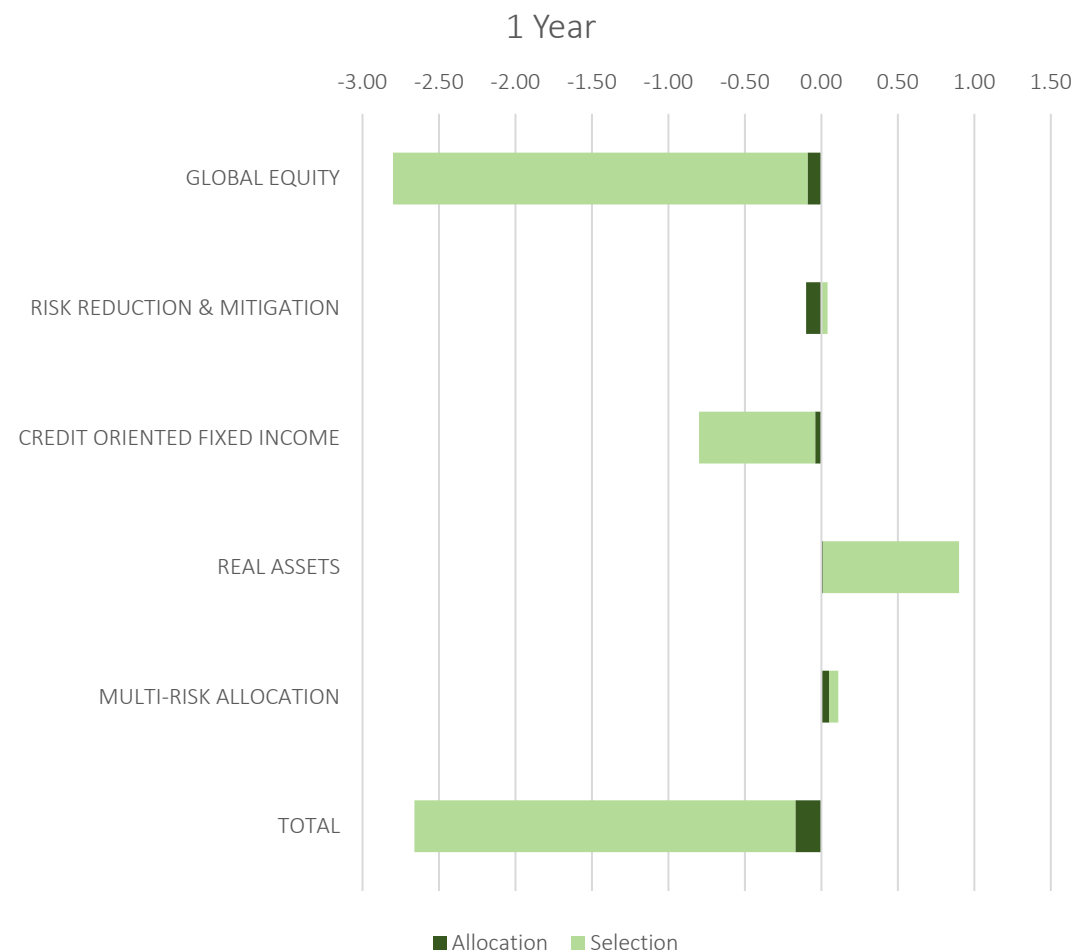
COMPOSITE/MANAGER	Quarter	CYTD	FYTD / 1 Year	3 Years	5 Years	7 Years	10 Years	ITD	Inception Date	Market Value	% of Total
NEW MEXICO PERA TOTAL FUND	1.42	4.96	4.23	8.33	5.90	6.77	6.60	8.58	6/1/1985	\$ 16,657,781,731	100.00
Total Policy Benchmark	2.30	6.89	6.89	5.76	4.51	5.62	5.91	8.21			
Excess Return	-0.88	-1.93	-2.66	2.57	1.39	1.16	0.69	0.37			
7.25 Annual (7.75 before 7/16)	1.77	3.56	7.25	7.25	7.25	7.25	7.40	7.66			
Excess Return	-0.35	1.40	-3.02	1.08	-1.35	-0.48	-0.80	0.93			
GLOBAL EQUITY	3.88	7.75	6.99	13.09	9.23	10.92	9.61	9.44	4/1/2013	\$ 6,471,229,887	38.85
86.84% MSCI ACWI IMI (\$N) / 13.16% MSCI ACWI Min Vol (\$N)	5.41	11.98	14.74	10.18	7.38	9.28	8.99	8.98			
Excess Return	-1.53	-4.23	-7.75	2.91	1.86	1.65	0.62	0.46			
CREDIT ORIENTED FIXED INCOME	0.92	3.99	4.02	6.39	3.75	4.49	3.93	4.25	4/1/2013	\$ 3,094,073,301	18.57
Bloomberg Global High Yield (USDH)	1.99	4.94	9.79	1.03	2.03	3.18	3.46	3.35			
Excess Return	-1.07	-0.95	-5.76	5.36	1.72	1.30	0.48	0.90			
RISK REDUCTION & MITIGATION	-0.93	2.27	-0.83	-2.57	1.20	0.87	1.95	1.60	4/1/2013	\$ 2,775,859,414	16.66
Bloomberg U.S. Aggregate Bond Index	-0.84	2.09	-0.86	-3.86	0.77	0.49	1.56	1.30			
Excess Return	-0.09	0.18	0.03	1.29	0.43	0.38	0.39	0.30			
REAL ASSETS	-0.14	0.59	4.05	12.79	6.76	6.68	6.02	5.89	4/1/2013	\$ 2,940,462,880	17.65
38.9% Wilshire GREIT/50% DJ Gbl Infra/11.1% BBG CommodityTR	0.17	1.40	-0.14	10.62	4.57	5.33	4.65	4.74			
Excess Return	-0.31	-0.80	4.19	2.17	2.19	1.35	1.37	1.14			
MULTI-RISK ALLOCATION	-0.52	10.00	2.45	5.00				3.08	5/1/2019	\$ 1,376,156,249	8.26
Wilshire Risk Parity 15% Target Volatility Index	-0.36	10.16	1.74	4.92				3.29			
Excess Return	-0.16	-0.16	0.71	0.09				-0.21			

Total Fund Attribution – Quarter



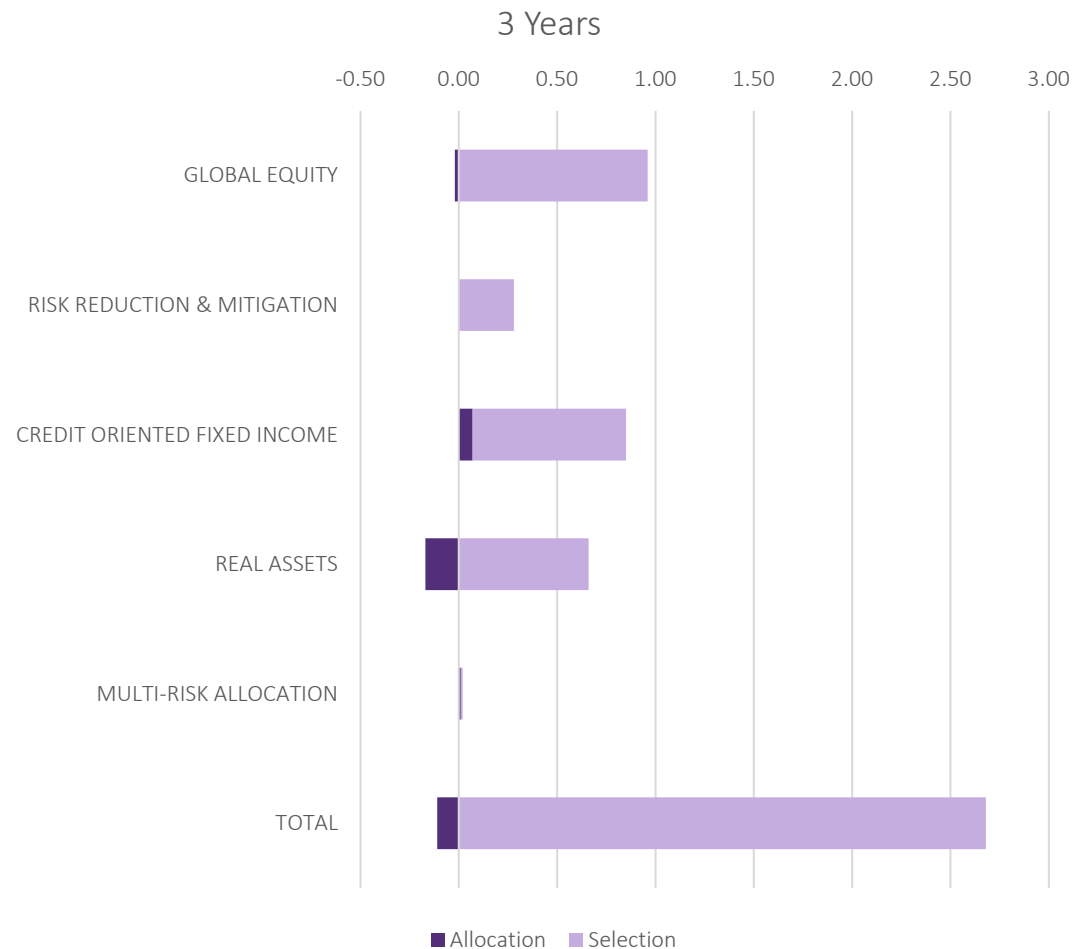
Quarter - 6/30/2023	NM PERA		Policy		Net Management Effects		
	Weight	Return	Weight	Return	Allocation	Selection	Total
COMPOSITE							
GLOBAL EQUITY	37.97	3.88	38.00	5.41	-0.02	-0.56	-0.58
Global Public Stock	18.46	5.58	16.00	5.89	0.09	-0.05	0.03
Global Low Volatility	5.59	2.28	5.00	2.22	0.00	0.00	0.00
Private Equity	13.92	2.29	17.00	5.89	-0.10	-0.51	-0.61
RISK REDUCTION & MITIGATION	17.14	-0.93	17.00	-0.84	-0.02	0.01	-0.02
Domestic Core Fixed Income	11.19	-0.80	17.00	-0.84	0.18	0.01	0.19
Bonds Plus	4.49	-2.06	0.00	0.00	-0.20	0.00	-0.20
Global Core Fixed Income	0.00	1.82	0.00	0.00	0.00	0.00	0.00
Cash	1.46	1.63	0.00	0.00	-0.01	0.00	-0.01
CREDIT ORIENTED FIXED INCOME	18.73	0.92	19.00	1.99	0.00	-0.20	-0.20
Liquid Credit	12.19	1.31	4.00	1.99	-0.03	-0.08	-0.11
Emerging Market Debt	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Illiquid Credit	2.07	-0.27	8.00	1.99	0.02	-0.05	-0.03
Alt Liquid Credit	4.47	0.41	7.00	1.99	0.01	-0.07	-0.06
REAL ASSETS	17.84	-0.14	18.00	0.17	0.06	-0.12	-0.06
Liquid Real Estate	0.00	1.44	0.00	0.00	0.00	0.00	0.00
Illiquid Real Estate	8.96	-3.05	7.00	2.18	0.00	-0.47	-0.48
Liquid Real Assets	1.00	1.35	3.00	-0.79	0.06	0.02	0.08
Illiquid Real Assets	7.88	3.04	8.00	-1.22	0.00	0.33	0.34
Market Neutral HF	0.00	0.65	0.00	0.00	0.00	0.00	0.00
MULTI-RISK ALLOCATION	8.32	-0.52	8.00	-0.36	-0.01	-0.01	-0.02
TOTAL	100.00	1.42	100.00	2.30	0.01	-0.89	-0.88

Total Fund Attribution – 1 Year



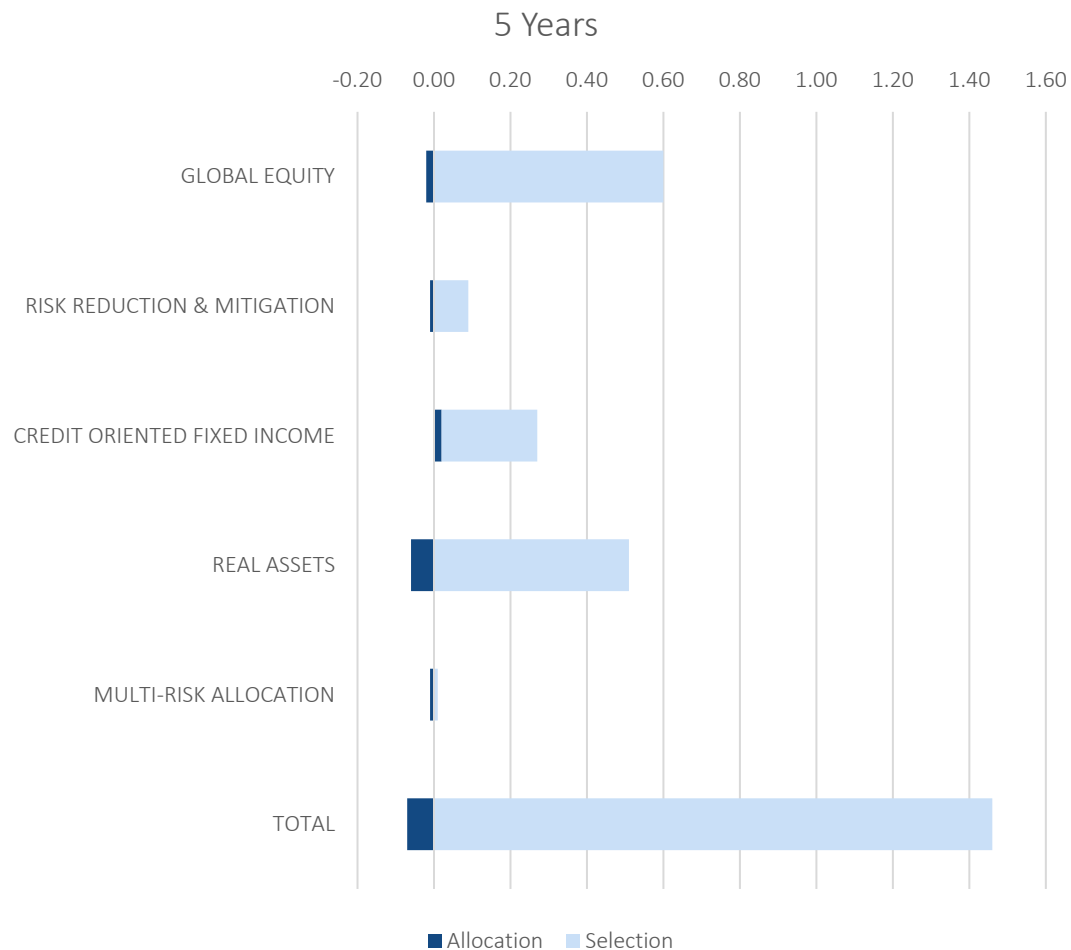
1 year -6/30/2023 COMPOSITE	NM PERA		Policy		Net Management Effects		
	Weight	Return	Weight	Return	Allocation	Selection	Total
GLOBAL EQUITY	36.49	6.99	36.75	14.74	-0.09	-2.71	-2.80
Global Public Stock	17.14	16.42	17.75	16.14	-0.02	0.05	0.03
Global Low Volatility	5.36	6.00	6.00	5.79	-0.06	0.01	-0.05
Private Equity	13.98	-3.16	13.00	16.14	-0.01	-2.77	-2.78
LGIMA Global Equity Overlay	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RISK REDUCTION & MITIGATION	18.33	-0.83	18.25	-0.86	-0.10	0.04	-0.06
Domestic Core Fixed Income	11.21	-1.21	14.50	-0.94	0.29	-0.03	0.26
Bonds Plus	4.96	-1.11	2.50	0.00	-0.27	0.03	-0.23
Global Core Fixed Income	1.13	5.51	1.25	0.00	-0.02	0.04	0.02
Cash	1.03	-2.23	0.00	0.00	-0.11	0.00	-0.11
LGIMA Overlay Collateral	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LGIMA TAA Overlay	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CREDIT ORIENTED FIXED INCOME	16.83	4.02	17.00	9.79	-0.04	-0.76	-0.80
Liquid Credit	7.66	10.08	3.00	10.12	0.04	-0.05	-0.01
Emerging Market Debt	0.93	0.00	1.50	0.00	-0.13	-0.12	-0.25
Illiquid Credit	2.21	5.51	7.00	10.12	-0.08	-0.09	-0.17
Alt Liquid Credit	6.03	2.16	5.50	10.12	0.13	-0.50	-0.37
LGIMA Credit Overlay	0.00	0.00	0.00	0.00	0.00	0.00	0.00
REAL ASSETS	19.91	4.05	19.00	-0.14	0.01	0.89	0.89
Liquid Real Estate	0.33	-78.79	1.00	0.00	0.07	0.02	0.09
Illiquid Real Estate	8.96	1.76	6.00	-1.41	-0.26	0.21	-0.05
Liquid Real Assets	2.97	0.94	4.00	7.43	0.17	-0.52	-0.34
Illiquid Real Assets	7.65	11.57	8.00	-3.89	0.02	1.18	1.20
Market Neutral HF	0.00	0.45	0.00	0.00	0.00	0.00	0.00
MULTI-RISK ALLOCATION	8.44	2.41	9.00	1.74	0.05	0.06	0.10
TOTAL	100.0	4.23	100.0	6.89	-0.17	-2.49	-2.66

Total Fund Attribution – 3 Years



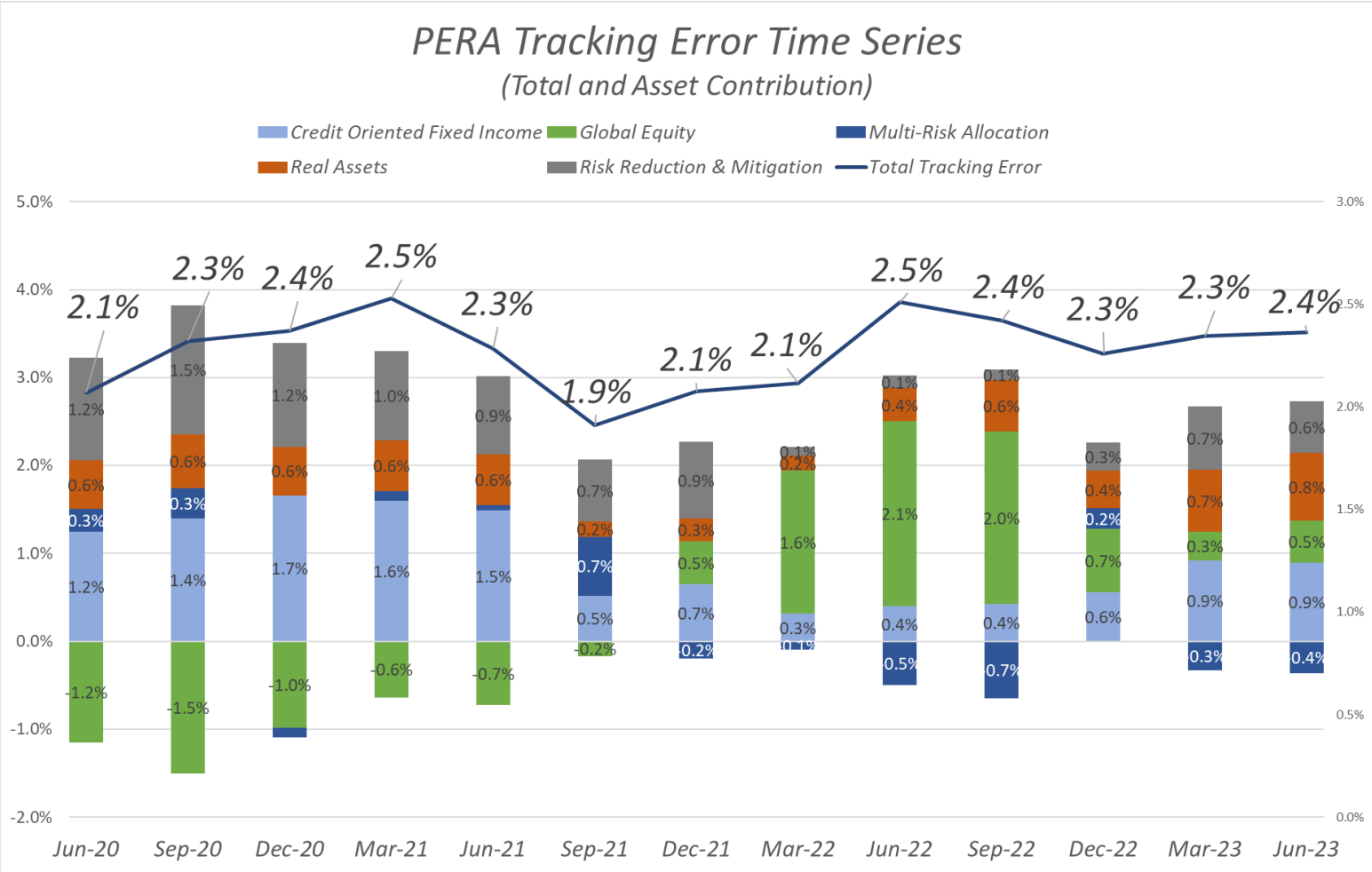
3 Years - 6/30/2023	NM PERA		Policy		Net Management Effects		
	Weight	Return	Weight	Return	Allocation	Selection	Total
COMPOSITE							
GLOBAL EQUITY	36.20	13.09	35.92	10.18	-0.02	0.96	0.95
Global Public Stock	18.31	8.70	18.92	10.97	0.11	-0.41	-0.31
Global Low Volatility	6.15	5.98	6.67	5.72	-0.04	0.01	-0.03
Private Equity	11.72	25.25	10.33	10.97	-0.11	1.36	1.24
LGIMA Global Equity Overlay	0.01	0.00	0.00	0.00	0.04	0.00	0.04
RISK REDUCTION & MITIGATION	18.70	-2.57	19.08	-3.86	0.00	0.28	0.29
Domestic Core Fixed Income	10.89	-3.78	13.33	-3.97	0.30	0.02	0.33
Bonds Plus	4.36	2.01	3.67	0.00	-0.07	0.25	0.18
Global Core Fixed Income	2.05	-1.22	2.08	0.00	-0.02	0.02	0.00
Cash	1.12	-1.47	0.00	0.00	-0.15	0.00	-0.15
LGIMA Overlay Collateral	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LGIMA TAA Overlay	0.27	0.00	0.00	0.00	-0.06	0.00	-0.06
CREDIT ORIENTED FIXED INCOME	15.47	6.39	15.67	1.03	0.07	0.78	0.84
Liquid Credit	4.30	1.66	2.33	1.92	-0.02	-0.03	-0.04
Emerging Market Debt	1.99	0.00	2.50	0.00	0.00	-0.05	-0.05
Illiquid Credit	3.15	11.88	6.33	1.92	0.07	0.30	0.37
Alt Liquid Credit	6.02	10.23	4.50	1.92	-0.05	0.55	0.50
LGIMA Credit Overlay	0.01	0.00	0.00	0.00	0.07	0.00	0.07
REAL ASSETS	20.23	12.79	19.67	10.62	-0.17	0.66	0.49
Liquid Real Estate	1.27	-36.09	1.67	0.00	0.06	-0.02	0.03
Illiquid Real Estate	7.05	11.90	5.33	6.94	-0.10	0.51	0.41
Liquid Real Assets	5.69	10.22	4.67	10.92	0.12	-0.09	0.04
Illiquid Real Assets	6.22	15.26	8.00	13.09	-0.25	0.26	0.01
Market Neutral HF	0.01	2.92	0.00	0.00	0.00	0.00	0.00
MULTI-RISK ALLOCATION	9.39	5.00	9.67	4.92	0.01	0.01	0.01
TOTAL	100.00	8.33	100.00	5.76	-0.11	2.68	2.57

Total Fund Attribution – 5 Years



5 Years - 6/30/2023	NM PERA		Policy		Net Management Effects		
	Weight	Return	Weight	Return	Allocation	Selection	Total
COMPOSITE							
GLOBAL EQUITY	38.17	9.23	37.93	7.38	-0.02	0.60	0.59
Global Public Stock	22.02	6.15	21.41	7.65	0.05	-0.29	-0.25
Global Low Volatility	6.27	5.74	6.14	5.42	-0.02	0.02	-0.01
Private Equity	9.78	18.30	9.77	8.06	-0.07	0.88	0.81
LGIMA Global Equity Overlay	0.01	0.00	0.00	0.00	0.04	0.00	0.04
RISK REDUCTION & MITIGATION	19.57	1.20	19.81	0.77	-0.01	0.09	0.08
Domestic Core Fixed Income	13.29	0.41	15.01	0.77	0.21	-0.07	0.15
Bonds Plus	2.74	0.00	2.50	0.00	-0.10	0.15	0.04
Global Core Fixed Income	2.32	1.68	2.26	0.00	-0.01	0.00	-0.01
Cash	1.03	3.22	0.04	0.00	-0.07	0.01	-0.07
LGIMA Overlay Collateral	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	-0.04	0.00	-0.04
CREDIT ORIENTED FIXED INCOME	15.21	3.76	15.40	2.03	0.02	0.25	0.27
Liquid Credit	4.72	0.90	2.77	2.45	-0.01	-0.06	-0.06
Emerging Market Debt	2.20	0.00	2.70	0.00	-0.01	-0.01	-0.03
Illiquid Credit	3.65	6.10	6.20	2.45	0.03	0.05	0.09
Alt Liquid Credit	3.71	0.00	2.83	0.00	-0.04	0.31	0.28
LGIMA Credit Overlay	0.01	0.00	0.00	0.00	0.04	0.00	0.04
REAL ASSETS	20.16	6.76	19.80	4.57	-0.06	0.51	0.45
Liquid Real Estate	1.85	-23.04	1.80	0.00	0.05	0.03	0.07
Illiquid Real Estate	5.97	9.27	5.20	2.71	-0.07	0.47	0.39
Liquid Real Assets	6.69	3.95	5.70	5.75	0.05	-0.17	-0.12
Illiquid Real Assets	5.65	7.19	7.10	4.74	-0.08	0.19	0.11
Market Neutral HF	0.01	1.84	0.00	0.00	0.00	0.00	0.00
MULTI-RISK ALLOCATION	6.89		7.06		-0.01	0.01	0.00
TOTAL	100.0	5.90	100.0	4.51	-0.07	1.46	1.39

Forecasted Risk Snapshot

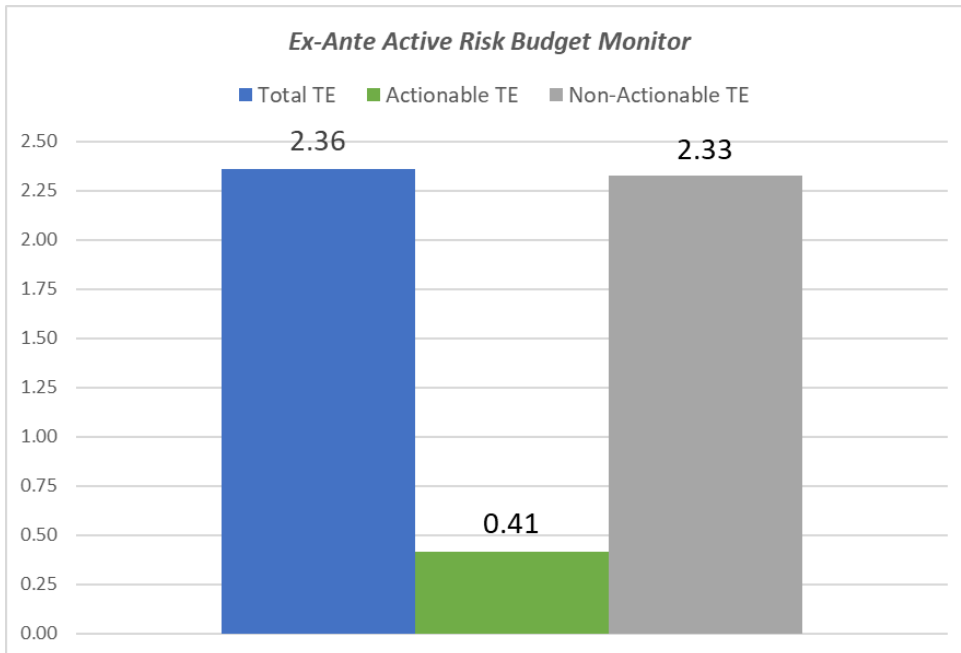


- **This chart tracks the time series of total plan ex-ante tracking error (line) and contribution to tracking error by composite (bars)**
- *This page can be used to ensure total plan tracking error is within the defined range of 2-3%, with a target of 2.5%*
- *At a glance, should total tracking error approach the limits of the defined range, one can quickly identify if particular composite(s) are consuming appropriate levels of tracking error*
 - *This should be considered in conjunction with plan-level decisions such as asset allocation and risk/return assumptions*

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

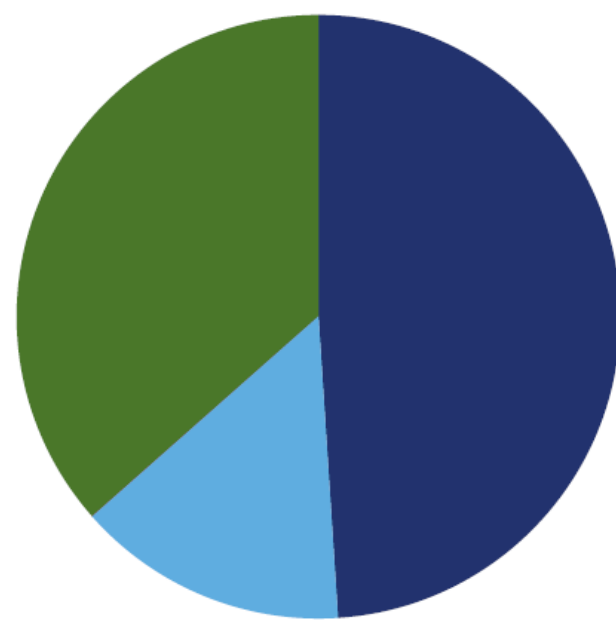
Composite	Benchmark	Weight	Tracking Error vs Composite Benchmark	Total Plan Tracking Error Contribution	Total Plan Tracking Error Contribution(%)	Total Portfolio Absolute Risk Contribution(%)
Credit Oriented FI	TOT CREDIT POLICY	18.57%	3.18	0.90	37.96%	2.56%
Global Equity	TOT GLB EQ POLICY	38.82%	4.79	0.47	19.95%	63.20%
Multi Risk	Risk Parity	8.26%	0.00	-0.36	-15.43%	17.75%
Real Assets	TOT REAL ASTS POLICY	17.64%	12.36	0.78	32.88%	12.14%
Risk Reduction	TOT RISKMIT POLICY	16.70%	0.80	0.58	24.63%	4.36%
Total		100.00%	2.36	2.36	100.00%	100.00%



- **Ex-Ante Tracking Error (TE) Target is 2.5% (Range 2-3%)**
- **Actionable Ex-Ante TE Target is 1.25%**
- Actionable Tracking Error is defined as the portion of tracking error in the plan/composite attributable to the public market segments of the plan
 - Combination of factor exposure differences, actual vs. target allocation differences, and security specific contributions
- Non-Actionable Tracking Error is defined as the remaining portion of overall tracking error in the plan/composite
 - This is the inherent tracking error risk in the plan vs. the policy. Largely, this portion comes from the overall nature of private markets, the difficulty in rebalancing these assets, and their benchmarking to public market assets
- **Current Ex-Post Actionable TE is 0.97%**

Global Equity

Global Equity Composite

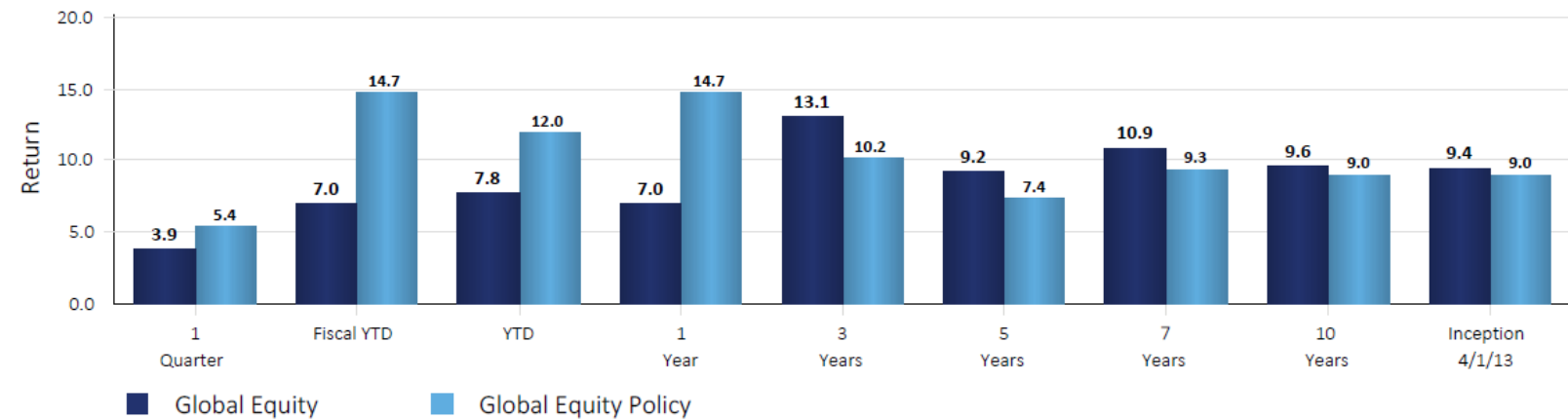


Jun-2023 : 6,471,229,887

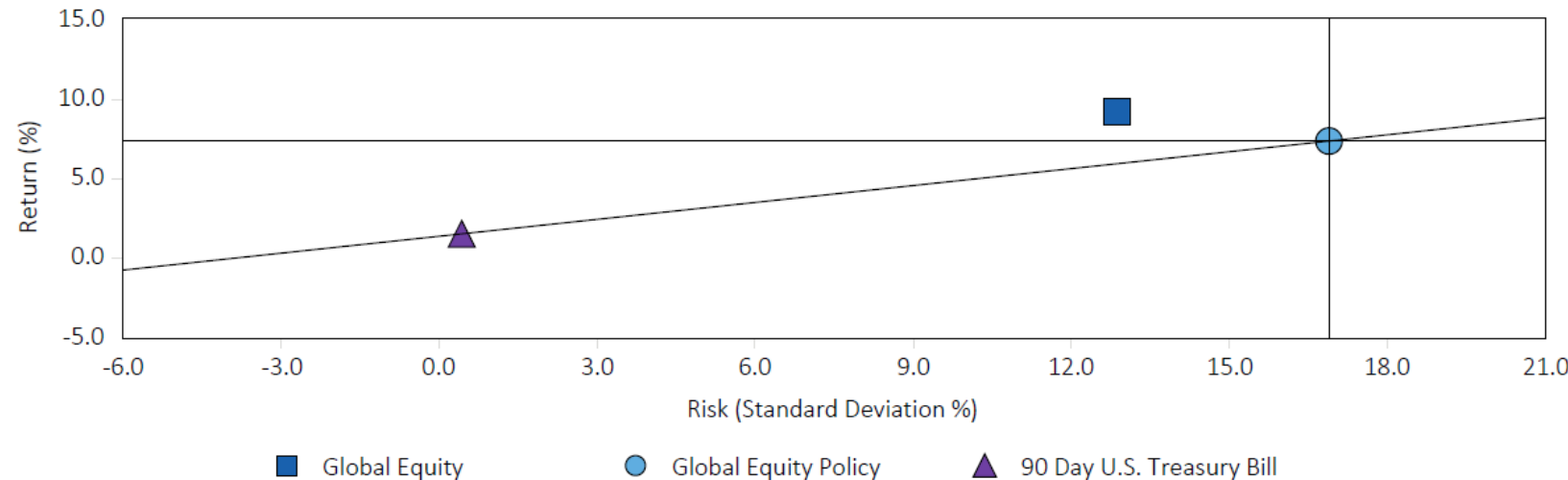
	Market Value	Allocation
	\$	(%)
Global Public Stock	3,169,144,885	49.0
Global Low Volatility Equity	938,971,055	14.5
Hedged Equity Comp	817,759	0.0
Private Equity Comp	2,362,296,188	36.5

Global Equity Composite Performance Summary

Comparative Performance



Risk vs. Return - 5 Years



Global Equity Performance – Composites

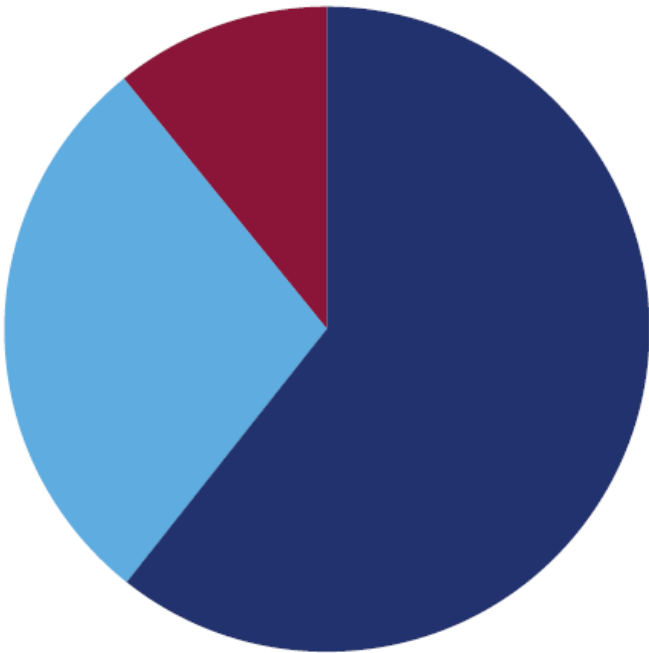
COMPOSITE/MANAGER	Quarter	CYTD	FYTD / 1 Year	3 Years	5 Years	7 Years	10 Years	ITD	Inception Date	Market Value	% of Total
GLOBAL EQUITY	3.88	7.75	6.99	13.09	9.23	10.92	9.61	9.44	4/1/2013	\$ 6,471,229,887	38.85
86.84% MSCI ACWI IMI (\$N) / 13.16% MSCI ACWI Min Vol (\$N)	5.41	11.98	14.74	10.18	7.38	9.28	8.99	8.98			
Excess Return	-1.53	-4.23	-7.75	2.91	1.86	1.65	0.62	0.46			
Global Public Stock	5.58	13.55	16.42	8.70	6.15	8.83	7.80	7.43	10/1/2004	\$ 3,169,144,885	19.03
MSCI ACWI IMI Index (\$N)	5.89	13.25	16.14	10.97	7.65	9.70	9.15				
Excess Return	-0.31	0.30	0.28	-2.26	-1.50	-0.87	-1.34				
Global Low Volatility Equity	2.28	4.02	6.00	5.98	5.77			7.03	11/1/2016	\$ 938,971,055	5.64
MSCI ACWI Min Vol (\$N)	2.22	3.78	5.79	5.72	5.42			6.61			
Excess Return	0.06	0.24	0.21	0.26	0.35			0.42			
Hedged Equity	28.63	28.63	17.67	6.60	2.99	5.22	4.43	4.53	4/1/2013	\$ 817,759	0.00
MSCI ACWI Min Vol (\$N)	2.22	3.78	5.79	5.72	5.42	6.27	5.34	5.20			
Excess Return	26.41	24.85	11.89	0.88	-2.43	-1.05	-0.90	-0.67			
Private Equity	2.29	2.02	-3.16	25.25	18.33	17.38	17.35	8.83	12/1/2006	\$ 2,362,296,188	14.18
MSCI ACWI IMI Index (\$N)	5.89	13.25	16.14	10.97	8.06	10.41	11.52				
Excess Return	-3.60	-11.22	-19.30	14.29	10.28	6.97	5.83				

Global Equity Performance – Managers

COMPOSITE/MANAGER	Quarter	CYTD	FYTD / 1 Year	3 Years	5 Years	7 Years	10 Years	ITD	Inception Date	Market Value	% of Total
SSGA ACWI IMI	6.08	13.73	16.96	11.67	8.19			9.71	10/1/2016	\$ 689,800,725	4.14
MSCI ACWI IMI Index (\$N)	5.89	13.25	16.14	10.97	7.65			9.20			
Excess Return	0.19	0.49	0.82	0.70	0.54			0.51			
SSGA R1000 Index	8.59	16.65	19.43					-3.01	11/1/2021	\$ 1,091,890,716	6.55
Russell 1000 Benchmark	8.58	16.68	19.36					-3.07			
Excess Return	0.01	-0.03	0.07					0.06			
Kayne Andrsn Rdnick SmCap Core	5.67	16.90	23.31	14.79				11.06	9/1/2018	\$ 284,737,745	1.71
Russell 2000 Index	5.21	8.09	12.31	10.82				3.08			
Excess Return	0.47	8.82	11.00	3.97				7.98			
Acadian Intl Equity	0.62	5.49	11.06	7.09	3.66			3.11	5/1/2018	\$ 270,670,532	1.62
MSCI EAFE Index (\$N)	2.95	11.67	18.77	8.93	4.39			3.54			
Excess Return	-2.33	-6.18	-7.72	-1.84	-0.73			-0.43			
MFS Intl Intrinsic Val Eq exUS	3.70	12.70	16.77	3.25	4.41	6.10	6.74	7.92	4/1/2010	\$ 225,306,415	1.35
MSCI EAFE Index (\$N)	2.95	11.67	18.77	8.93	4.39	6.88	5.41	5.13			
Excess Return	0.74	1.03	-2.00	-5.68	0.02	-0.77	1.33	2.79			
Axiom Emerging Mkts Eqty	-1.23	2.84	-5.69	-2.36				2.37	1/1/2019	\$ 251,393,620	1.51
MSCI Emg Mkts Index (\$N)	0.90	4.89	1.75	2.32				3.04			
Excess Return	-2.13	-2.05	-7.44	-4.68				-0.67			
Alliance Bernstein Gbl Core Eq	4.39	13.60	16.35					7.12	6/1/2022	\$ 277,327,773	1.66
MSCI ACWI IMI Index (\$N)	5.89	13.25	16.14					5.64			
Excess Return	-1.50	0.35	0.21					1.48			
Parametric Gbl Equity Overlay	6.27	13.72	16.30	-5.30	-3.30	1.48		1.48	7/1/2016	\$ 73,974,370	0.44
MSCI ACWI IMI Index (\$N)	5.89	13.25	16.14	-6.16	-4.95	0.37		0.37			
Excess Return	0.38	0.47	0.16	0.86	1.65	1.11		1.11			
Portable Alpha	6.00	-4.88	-12.23	-0.01	1.29	5.49	7.42	4.88	10/1/2007	\$ 2,448,571	0.01
S&P 500 - Total Return + 1%	8.81	17.18	20.59	15.62	13.32	14.39	13.87	10.22			
Excess Return	-2.80	-22.06	-32.82	-15.63	-12.03	-8.90	-6.45	-5.35			

Credit Oriented Fixed Income

Credit Oriented Fixed Income Composite

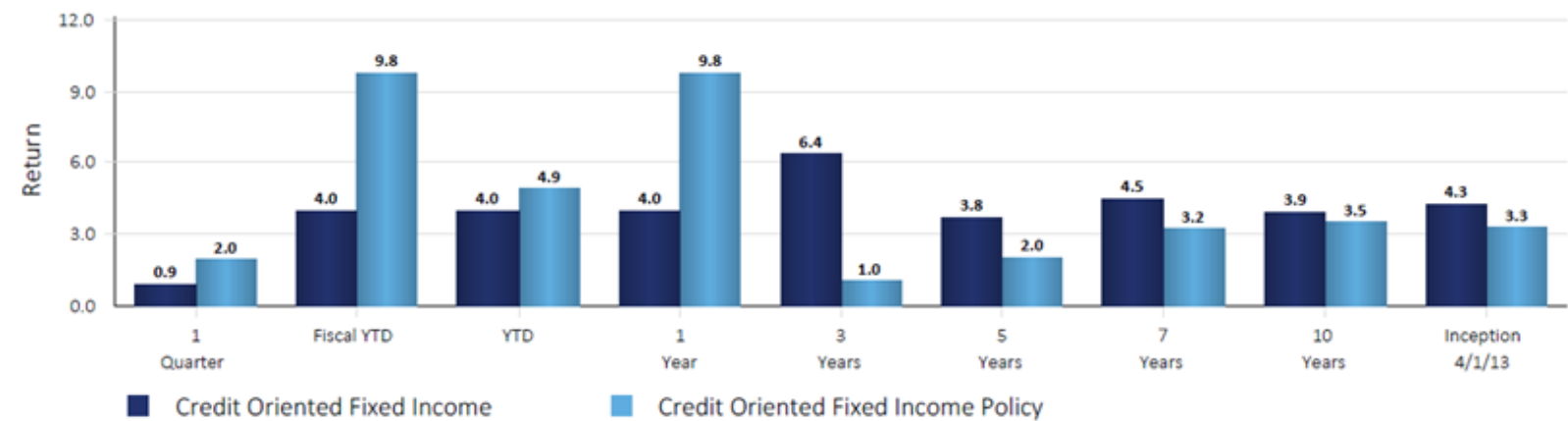


Jun-2023 : 3,094,073,301

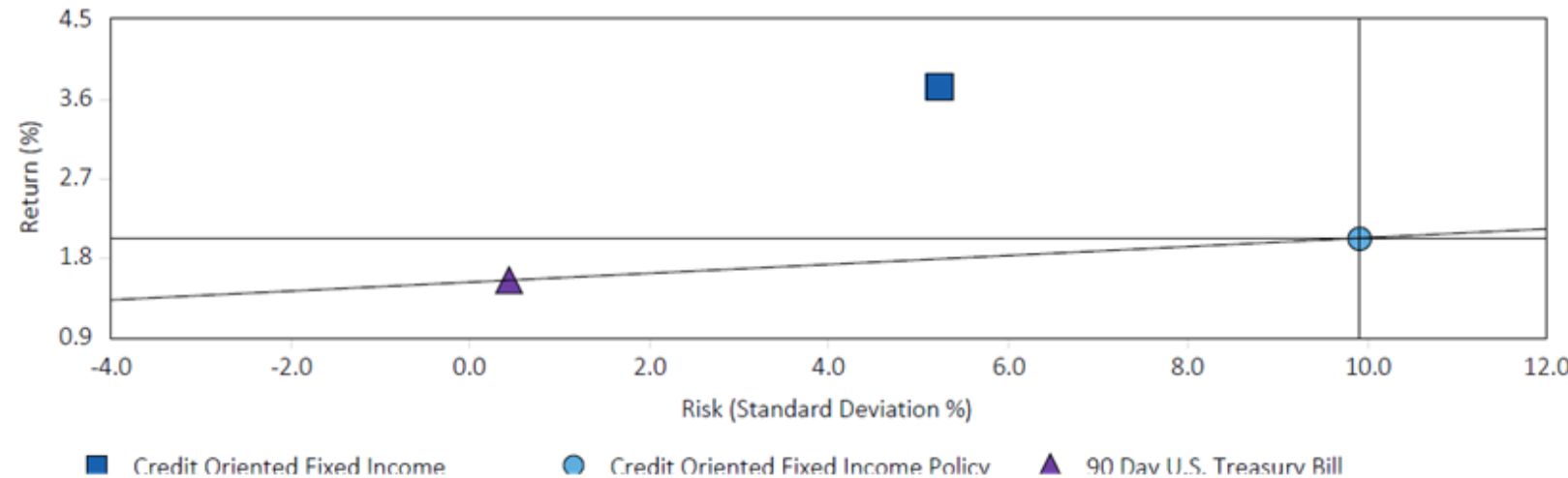
	Market Value \$	Allocation (%)
■ Liquid Credit	1,876,606,900	60.7
■ Alternative Liquid Credit	881,744,322	28.5
■ Illiquid Credit Comp	335,722,079	10.9

Credit Oriented Fixed Income Composite Performance Summary

Comparative Performance



Risk vs. Return - 5 Years



Credit Oriented Fixed Income Performance – Composites

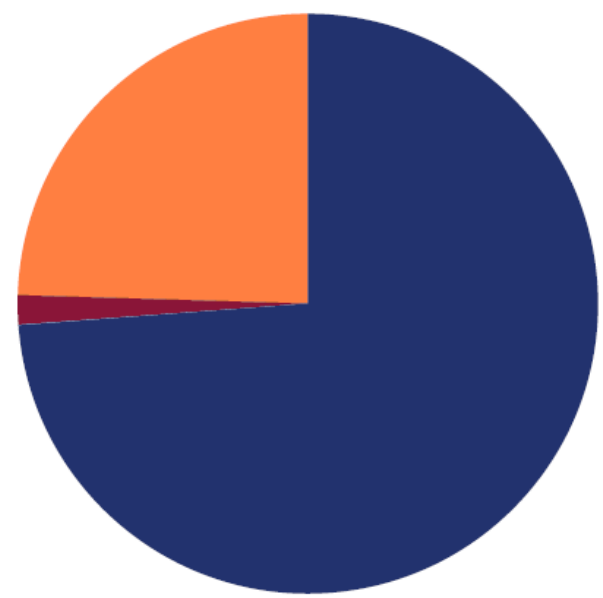
COMPOSITE/MANAGER	Quarter	CYTD	FYTD / 1 Year	3 Years	5 Years	7 Years	10 Years	ITD	Inception Date	Market Value	% of Total
CREDIT ORIENTED FIXED INCOME	0.92	3.99	4.02	6.39	3.75	4.49	3.93	4.25	4/1/2013	\$ 3,094,073,301	18.57
Bloomberg Global High Yield (USDH)	1.99	4.94	9.79	1.03	2.03	3.18	3.46	3.35			
Excess Return	-1.07	-0.95	-5.76	5.36	1.72	1.30	0.48	0.90			
Liquid Credit	1.16	4.47	9.92	1.61	0.87	2.63	2.25	1.95	4/1/2013	\$ 1,876,606,900	11.27
Bloomberg Global High Yield (USDH)	1.99	4.94	10.12	1.92	2.59	3.65	4.21	3.94			
Excess Return	-0.83	-0.47	-0.19	-0.31	-1.72	-1.02	-1.96	-1.99			
Alternative Liquid Credit	0.90	4.70	2.65	11.87				13.01	5/1/2020	\$ 881,744,322	5.29
Bloomberg Global High Yield (USDH)	1.99	4.94	10.12	1.92				4.06			
Excess Return	-1.09	-0.25	-7.46	9.95				8.95			
Illiquid Credit	-0.27	0.18	5.51	11.88	6.10	7.33	7.10	7.30	12/1/2006	\$ 335,722,079	2.02
Illiquid Credit BM	1.99	4.94	10.12	1.92	2.45	4.25	3.98				
Excess Return	-2.26	-4.76	-4.60	9.96	3.64	3.08	3.11				

Credit Oriented Fixed Income Performance – Managers

COMPOSITE/MANAGER	Quarter	CYTD	FYTD / 1 Year	3 Years	5 Years	7 Years	10 Years	ITD	Inception Date	Market Value	% of Total
PineBridge High Yield	1.38	4.38	9.24	1.29				1.86	10/1/2018	\$ 1,551,589,628	9.31
Bloomberg Global High Yield (USDH)	1.99	4.94	10.12	1.92				2.25			
Excess Return	-0.61	-0.57	-0.88	-0.63				-0.39			
Eagle Point CLO Eqty I LLC	5.55	5.57	-7.26	29.45	10.71			9.89	11/1/2017	\$ 8,320,389	0.05
Bloomberg Global High Yield (USDH)	1.99	4.94	10.12	1.92	2.59			1.96			
Excess Return	3.56	0.63	-17.37	27.54	8.12			7.93			
Eagle Point Credit Onshore LP	-5.72	2.15	0.27					-5.81	1/1/2022	\$ 75,640,356	0.45
Bloomberg Global High Yield (USDH)	1.99	4.94	10.12					-4.49			
Excess Return	-7.71	-2.79	-9.84					-1.32			
Ellington Enh Incme A LLC	2.04	5.26	2.59	7.98	3.06			3.39	1/1/2017	\$ 163,879,904	0.98
Bloomberg Global High Yield (USDH)	1.99	4.94	10.12	1.92	2.59			2.97			
Excess Return	0.05	0.31	-7.53	6.06	0.48			0.42			
Mudrick Stressed Cr A LP	-1.41	0.47	-0.73	12.98	2.96	5.23		4.58	11/1/2015	\$ 162,921,742	0.98
Bloomberg Global High Yield (USDH)	1.99	4.94	10.12	1.92	2.59	3.65		4.01			
Excess Return	-3.40	-4.47	-10.84	11.06	0.37	1.58		0.57			
Napier Park C	-1.53	0.98	3.66					9.43	8/1/2020	\$ 49,290,016	0.30
Bloomberg Global High Yield (USDH)	1.99	4.94	10.12					0.74			
Excess Return	-3.52	-3.96	-6.46					8.69			
SixthSt Wheeler Pk Cr I LLC	4.60	11.14	2.08	8.96				8.24	4/1/2020	\$ 156,609,858	0.94
Bloomberg Global High Yield (USDH)	1.99	4.94	10.12	1.92				5.33			
Excess Return	2.61	6.20	-8.04	7.04				2.91			
Parametric Credit Cash Ovrly	0.43	4.32	10.06	-0.10				1.36	5/1/2019	\$ 325,020,653	1.95
BBG Global HY TR Value Index Hdg	1.99	4.94	11.73	0.98				0.97			
Excess Return	-1.56	-0.62	-1.66	-1.08				0.39			

Risk Reduction & Mitigation

Risk Reduction & Mitigation Composite

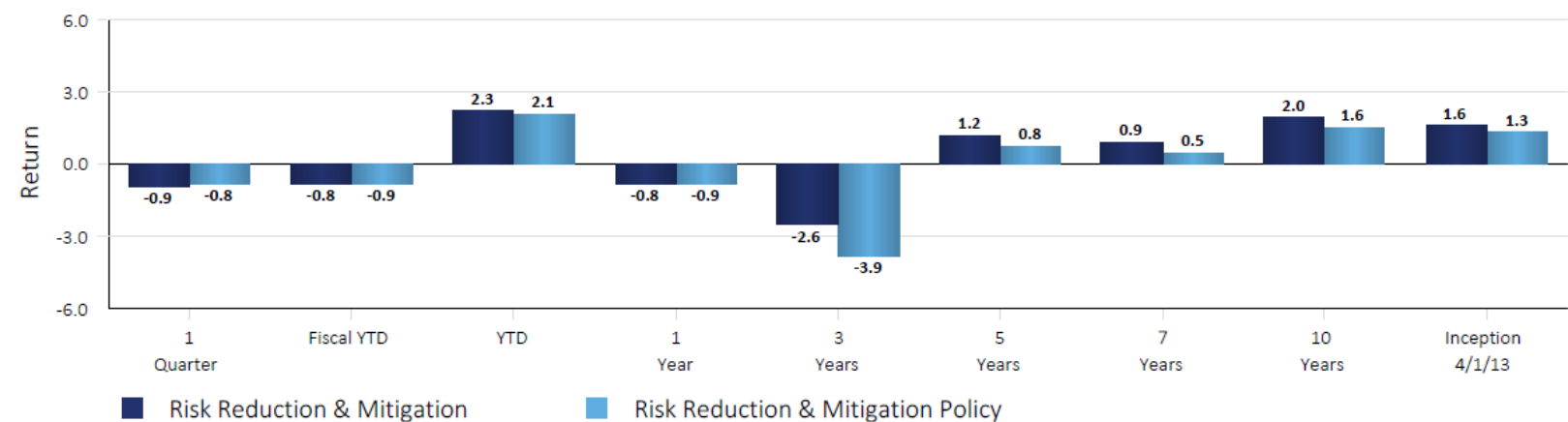


Jun-2023 : 2,775,859,414

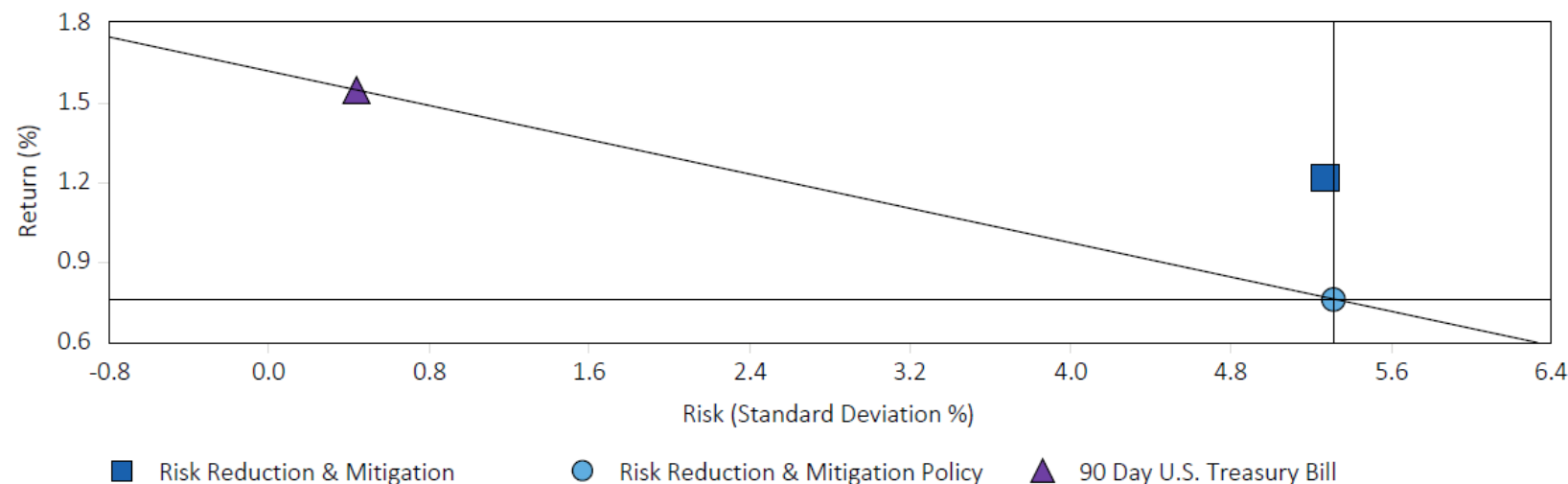
	Market Value	Allocation
	\$	(%)
Domestic Core Fixed Income	2,048,931,999	73.8
Global Core Fixed Income	439,019	0.0
Cash Composite	45,490,308	1.6
Bonds Plus Composite	680,998,083	24.5

Risk Reduction & Mitigation Composite Performance Summary

Comparative Performance



Risk vs. Return - 5 Years



Risk Reduction & Mitigation Performance – Composites

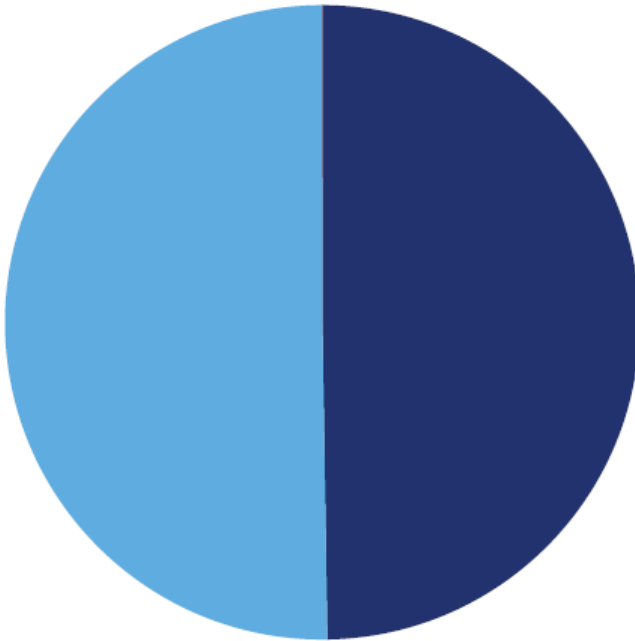
COMPOSITE/MANAGER	Quarter	CYTD	FYTD / 1 Year	3 Years	5 Years	7 Years	10 Years	ITD	Inception Date	Market Value	% of Total
RISK REDUCTION & MITIGATION	-0.93	2.27	-0.83	-2.57	1.20	0.87	1.95	1.60	4/1/2013	\$ 2,775,859,414	16.66
Bloomberg U.S. Aggregate Bond Index	-0.84	2.09	-0.86	-3.86	0.77	0.49	1.56	1.30			
Excess Return	-0.09	0.18	0.03	1.29	0.43	0.38	0.39	0.30			
Domestic Core Fixed Income	-0.73	2.19	-1.79	-4.13	0.73	0.48	1.64	6.18	6/1/1985	\$ 2,048,931,999	12.30
Bloomberg U.S. Aggregate Bond Index	-0.84	2.09	-0.94	-3.96	0.77	0.44	1.52	5.80			
Excess Return	0.12	0.09	-0.85	-0.17	-0.03	0.03	0.12	0.38			
Bonds Plus	-2.06	1.40	-1.11	2.03				-0.18	1/1/2020	\$ 680,998,083	4.09
Bloomberg U.S. Aggregate Bond Index	-0.84	2.09	-0.94	-3.96				-1.75			
Excess Return	-1.21	-0.69	-0.17	6.00				1.57			
Cash	7.64	16.26	21.28	9.95	8.14	6.57	4.76	5.16	3/1/1989	\$ 45,490,308	0.27
ICE BofA 3-Mo T-Bill	1.18	2.27	3.62	1.28	1.56	1.38	0.99	2.90			
Excess Return	6.47	13.99	17.66	8.67	6.59	5.20	3.77	2.25			
Global Core Fixed Income										\$ 439,019	0.00

Risk Reduction & Mitigation Performance – Managers

COMPOSITE/MANAGER	Quarter	CYTD	FYTD / 1 Year	3 Years	5 Years	7 Years	10 Years	ITD	Inception Date	Market Value	% of Total
Blackrock US Agg Bond Index	-0.79							2.60	3/1/2023	\$ 1,837,509,029	11.03
Bloomberg U.S. Aggregate Bond Index	-0.84							1.67			
Excess Return	0.05							0.92			
Dorsal Capital Partners LP	3.91	9.10	6.94	5.14				5.00	6/1/2020	\$ 97,266,529	0.58
Libor + 30 bps 1 MA	1.34	2.61	4.29	1.81				1.79			
Excess Return	2.56	6.49	2.65	3.33				3.21			
Elliott Associates LP	1.64	1.03	2.06	10.07				9.34	1/1/2020	\$ 113,314,317	0.68
Libor + 30 bps 1 MA	1.34	2.61	4.29	1.81				1.81			
Excess Return	0.29	-1.58	-2.23	8.25				7.54			
Garda FI Rel Val Oppty Ltd	1.32	7.27	13.76	9.63				9.63	7/1/2020	\$ 65,880,884	0.40
Libor + 30 bps 1 MA	1.34	2.61	4.29	1.81				1.81			
Excess Return	-0.03	4.66	9.47	7.82				7.82			
Glazer Enhanced LP	1.47	3.58	8.87	17.90				17.37	6/1/2020	\$ 59,038,011	0.35
Libor + 30 bps 1 MA	1.34	2.61	4.29	1.81				1.79			
Excess Return	0.13	0.97	4.58	16.08				15.59			
Millennium USA LP	1.13	3.78	8.87					11.77	10/1/2020	\$ 117,992,003	0.71
Libor + 30 bps 1 MA	1.34	2.61	4.29					1.92			
Excess Return	-0.22	1.18	4.58					9.85			
Pac Allnce Asia Opp IV LP	-3.50	-5.59	-6.63	0.46				0.45	6/1/2020	\$ 29,685,493	0.18
Libor + 30 bps 1 MA	1.34	2.61	4.29	1.81				1.79			
Excess Return	-4.84	-8.19	-10.91	-1.35				-1.34			
Pharo Gaia Ltd	-1.12	-0.11	-6.61	-6.71				-6.53	6/1/2020	\$ 1,626,319	0.01
Libor + 30 bps 1 MA	1.34	2.61	4.29	1.81				1.79			
Excess Return	-2.47	-2.72	-10.90	-8.52				-8.32			
Systematica Alt Mkts LP CIB	-7.56	-6.70	-1.80	11.97				11.63	6/1/2020	\$ 83,272,388	0.50
Libor + 30 bps 1 MA	1.34	2.61	4.29	1.81				1.79			
Excess Return	-8.90	-9.30	-6.09	10.15				9.84			
Two Sigma Abs Return LP	1.93	4.58	9.83					9.24	5/1/2021	\$ 69,555,401	0.42
Libor + 30 bps 1 MA	1.34	2.61	4.29					2.31			
Excess Return	0.58	1.97	5.54					6.94			
Parametric Bonds Plus	-2.14	-0.41	-4.90	-5.65				-3.35	1/1/2020	\$ 43,366,738	0.26
BlackRock Core									7/1/1995	\$ 5,148	0.00
Blackrock Glb Fixed Income									5/1/2019	\$ 439,015	0.00

Real Assets

Real Assets Composite

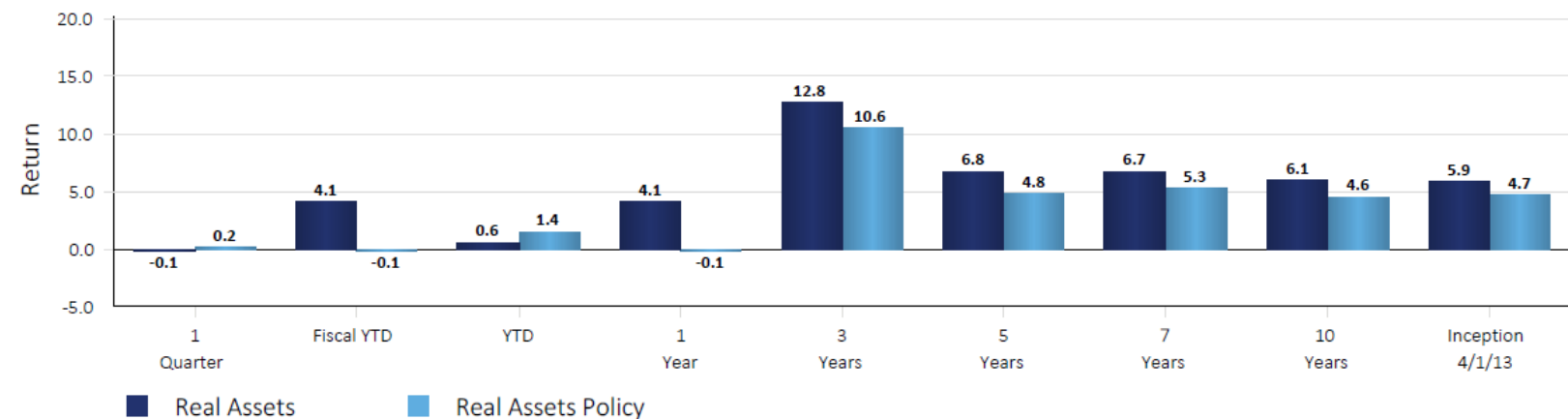


Jun-2023 : 2,940,462,880

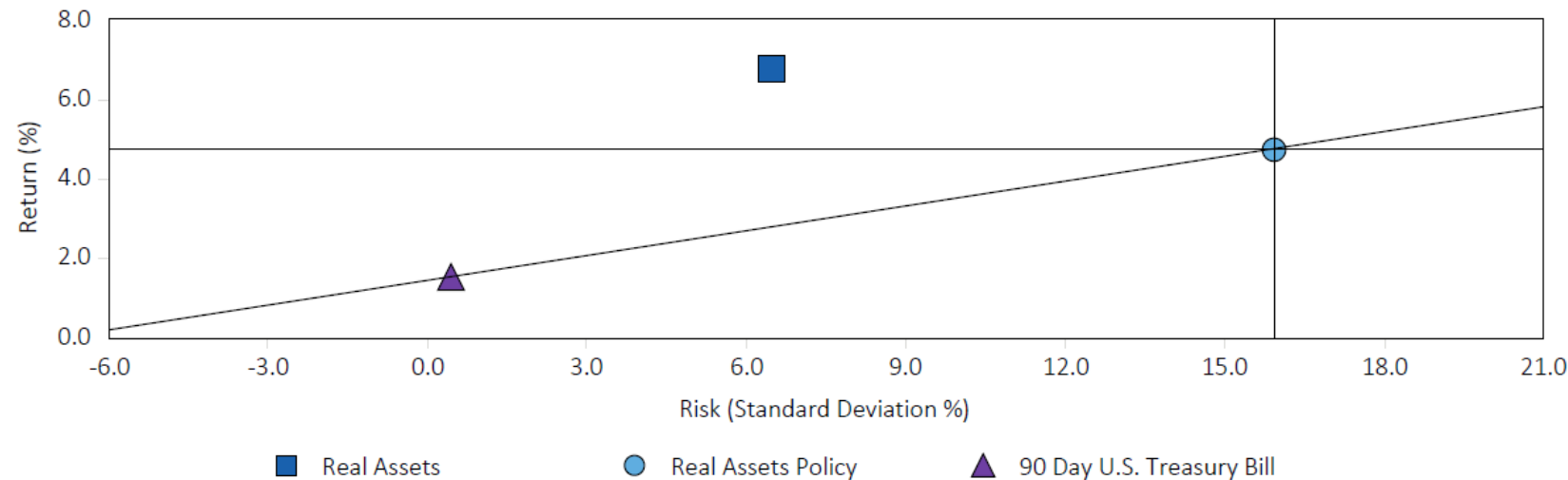
	Market Value \$	Allocation (%)
Real Estate Only Comp	1,462,966,484	49.8
Real Assets Only Comp	1,476,845,808	50.2
Market Neutral Hedge Fund Comp	650,589	0.0

Real Assets Composite Performance Summary

Comparative Performance



Risk vs. Return - 5 Years

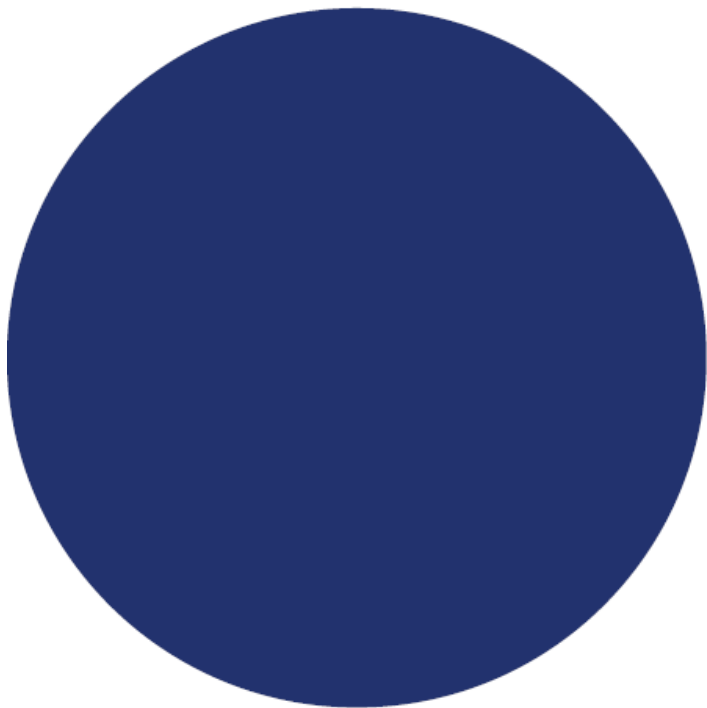


Real Assets Performance – Composites

COMPOSITE/MANAGER	Quarter	CYTD	FYTD / 1 Year	3 Years	5 Years	7 Years	10 Years	ITD	Inception Date	Market Value	% of Total
REAL ASSETS	-0.14	0.59	4.05	12.79	6.76	6.68	6.02	5.89	4/1/2013	\$ 2,940,462,880	17.65
38.9% Wilshire GREIT/50% DJ Gbl Infra/11.1% BBG CommodityTR	0.17	1.40	-0.14	10.62	4.57	5.33	4.65	4.74			
Excess Return	-0.31	-0.80	4.19	2.17	2.19	1.35	1.37	1.14			
Illiquid Real Estate	-3.05	-2.66	1.76	11.90	9.27	9.39	11.59	7.39	5/1/2007	\$ 1,462,667,644	8.78
Wilshire Global REIT Total Return Index	2.18	4.87	-1.41	6.94	2.71	2.58	5.24	3.18			
Excess Return	-5.23	-7.53	3.17	4.96	6.56	6.81	6.35	4.22			
Liquid Real Assets	1.35	4.25	0.94	10.22	3.95	2.68	-0.27	0.76	9/1/2009	\$ 168,361,795	1.01
Dow Jones Brookfield Global Infrastructure Index	-0.79	1.87	7.43	10.92	5.75	3.53	0.77				
Excess Return	2.14	2.38	-6.49	-0.70	-1.81	-0.85	-1.04				
Illiquid Real Assets	3.04	4.04	11.57	15.26	7.18	8.43	5.82	-6.75	1/1/2007	\$ 1,308,484,014	7.86
75% DJ Global Infra / 25% Bloomberg Commodity TR	-1.22	-1.96	-3.89	13.09	4.74	6.38	2.40				
Excess Return	4.26	6.00	15.46	2.17	2.45	2.05	3.42				
Market Neutral Hedge Fund	0.65	0.25	0.45	2.92	1.84	1.13	1.82	1.69	4/1/2013	\$ 650,589	0.00
Libor + 2% 1 MA	1.76	3.45	5.99	3.51	3.78	3.63	3.24	3.21			
Excess Return	-1.10	-3.21	-5.54	-0.59	-1.94	-2.50	-1.42	-1.52			
Liquid Real Estate									12/1/2008	\$ 298,839	0.00

Multi-Risk Allocation

Multi-Risk Allocation Composite

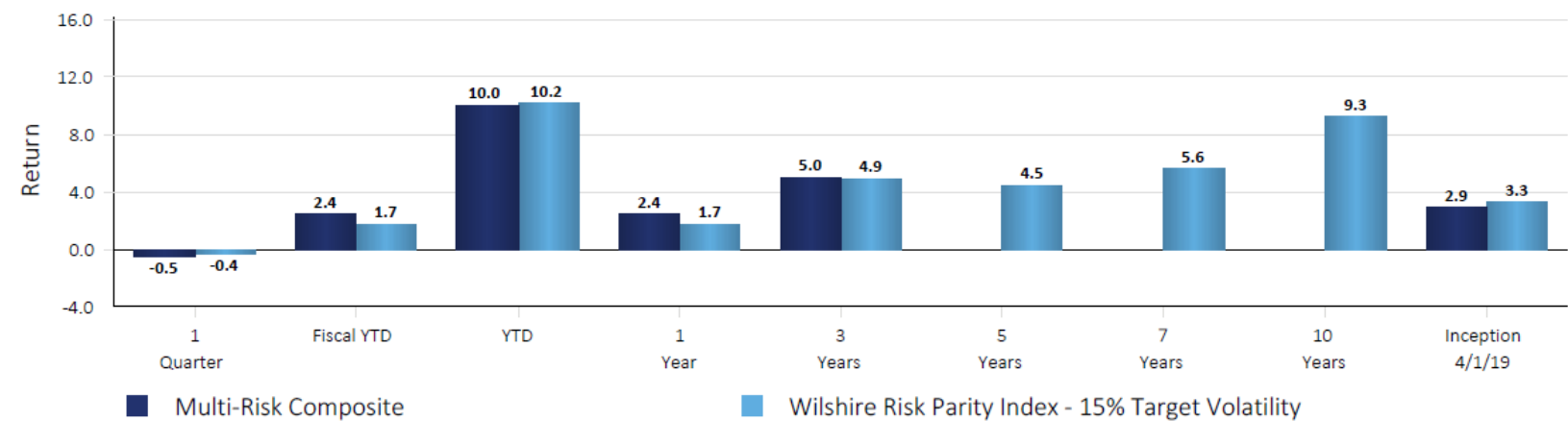


Jun-2023 : 1,376,156,249

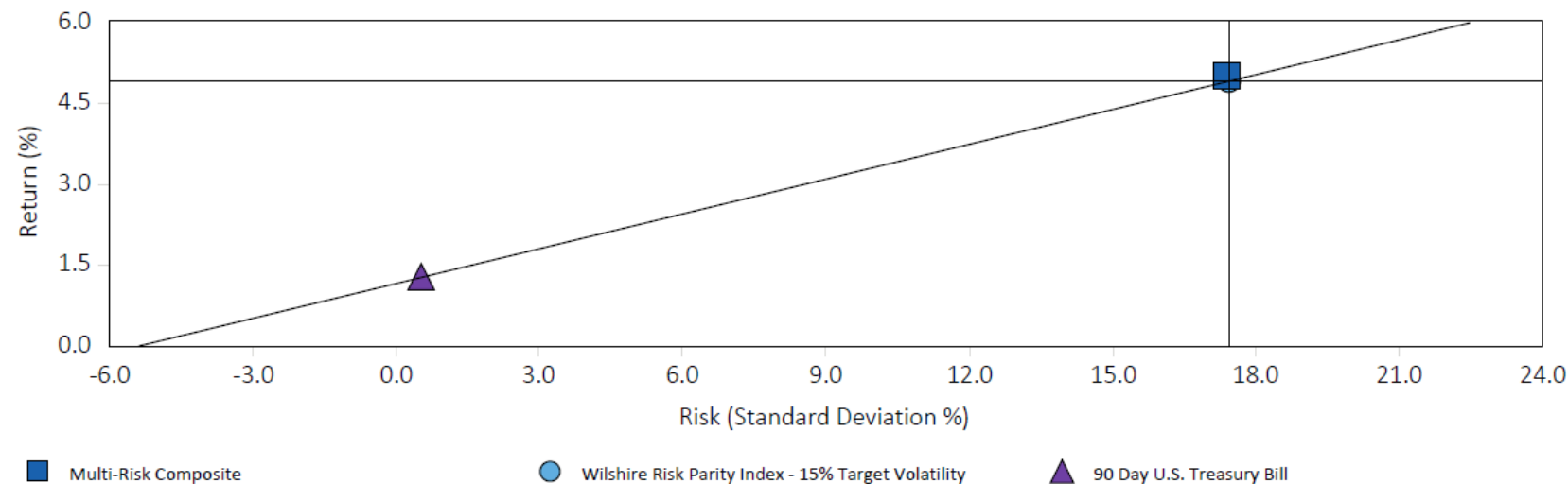
	Market Value \$	Allocation (%)
■ Zia Risk Parity LP	1,376,156,249	100.0

Multi-Risk Allocation Composite Performance Summary

Comparative Performance

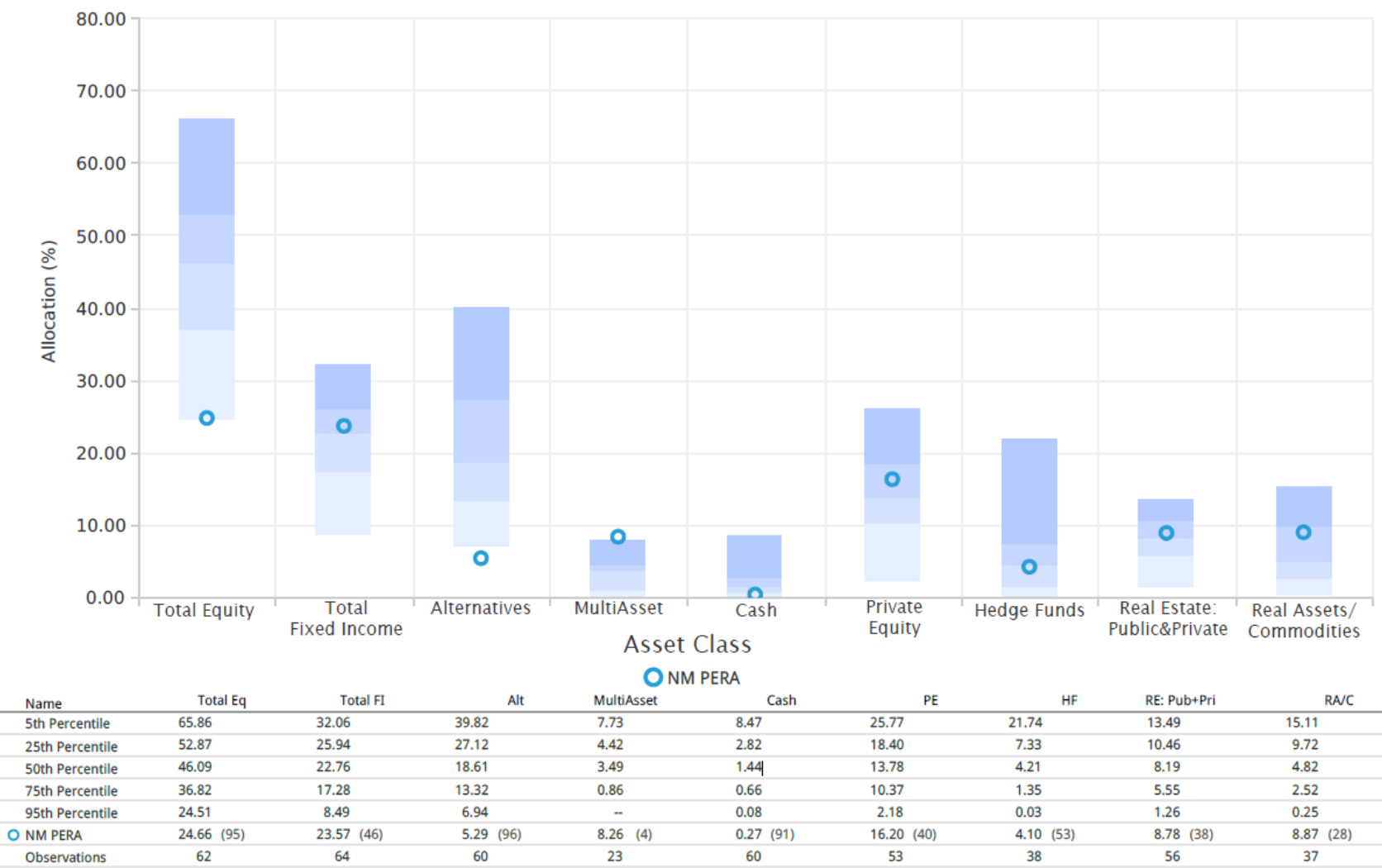


Risk vs. Return - 3 Years



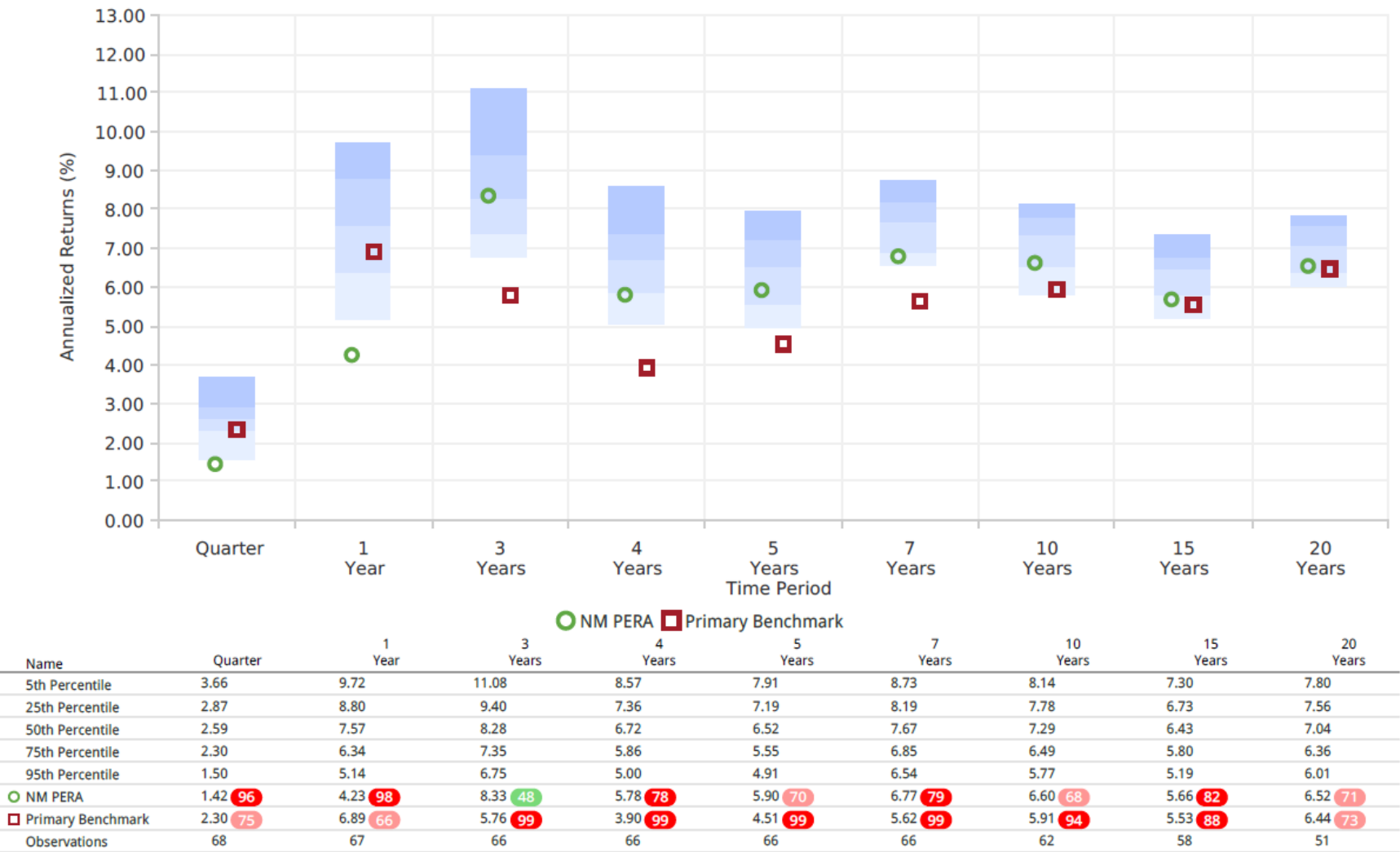
Peer Review

Asset Allocation Comparison



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

Total Fund – Return Comparison



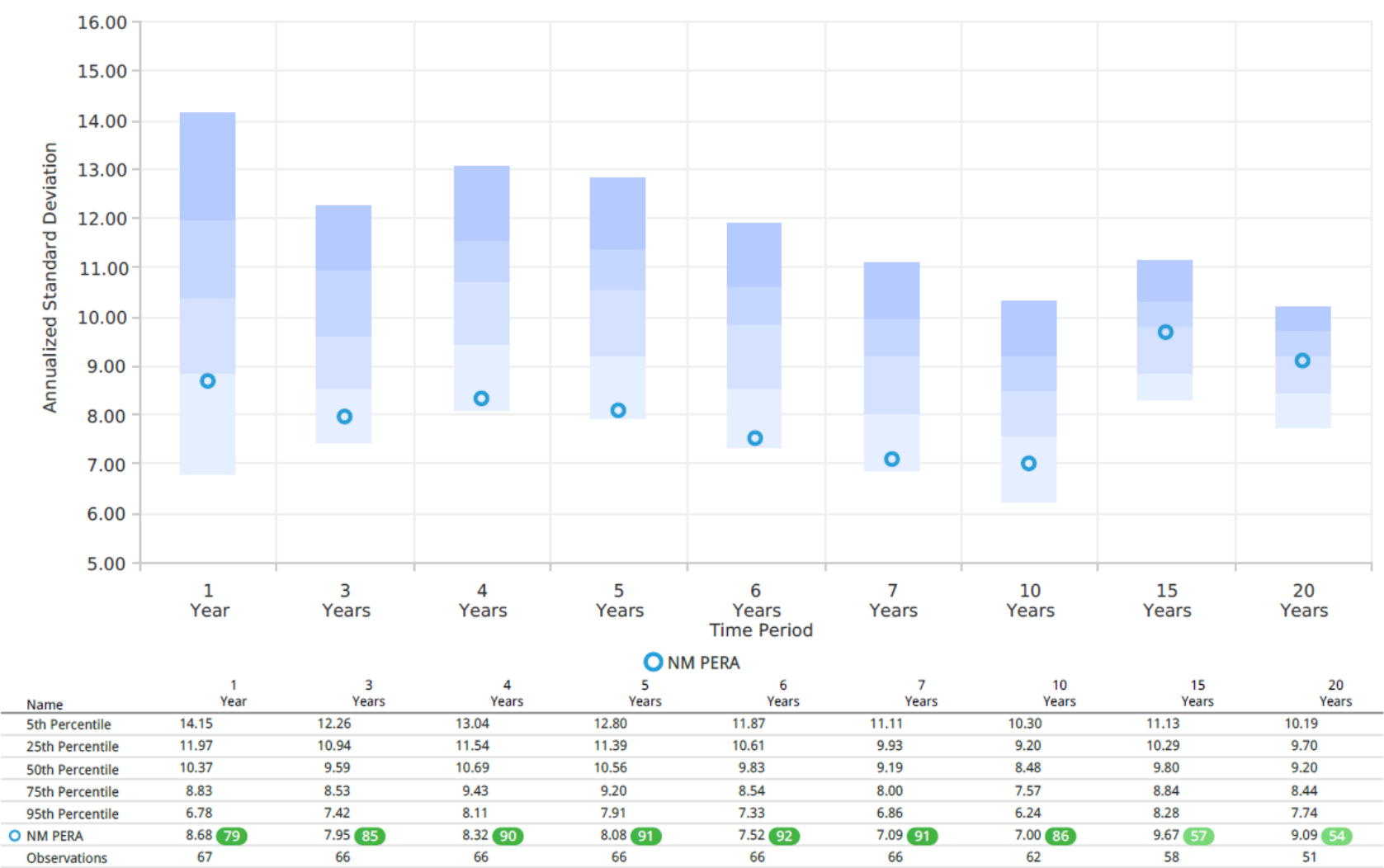
Performance is NOF, calculated and provided by BNY Mellon. Universe source: InvestmentMetrics. , Public >\$1B.

Total Fund – Sharpe Ratio Comparison



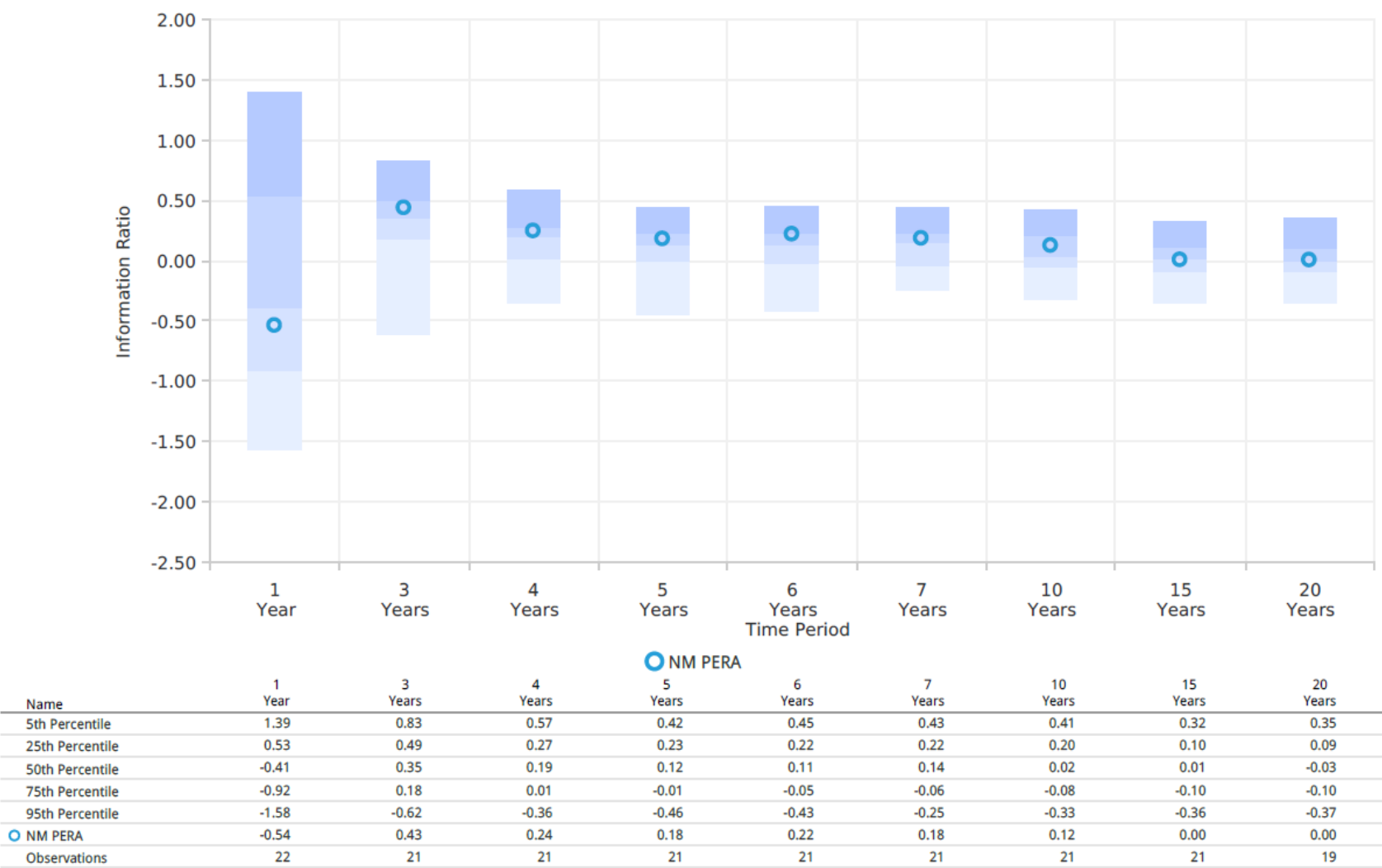
Performance is NOF, calculated and provided by BNY Mellon. Universe source: InvestmentMetrics. , Public >\$1B.

Total Fund – Standard Deviation Comparison



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

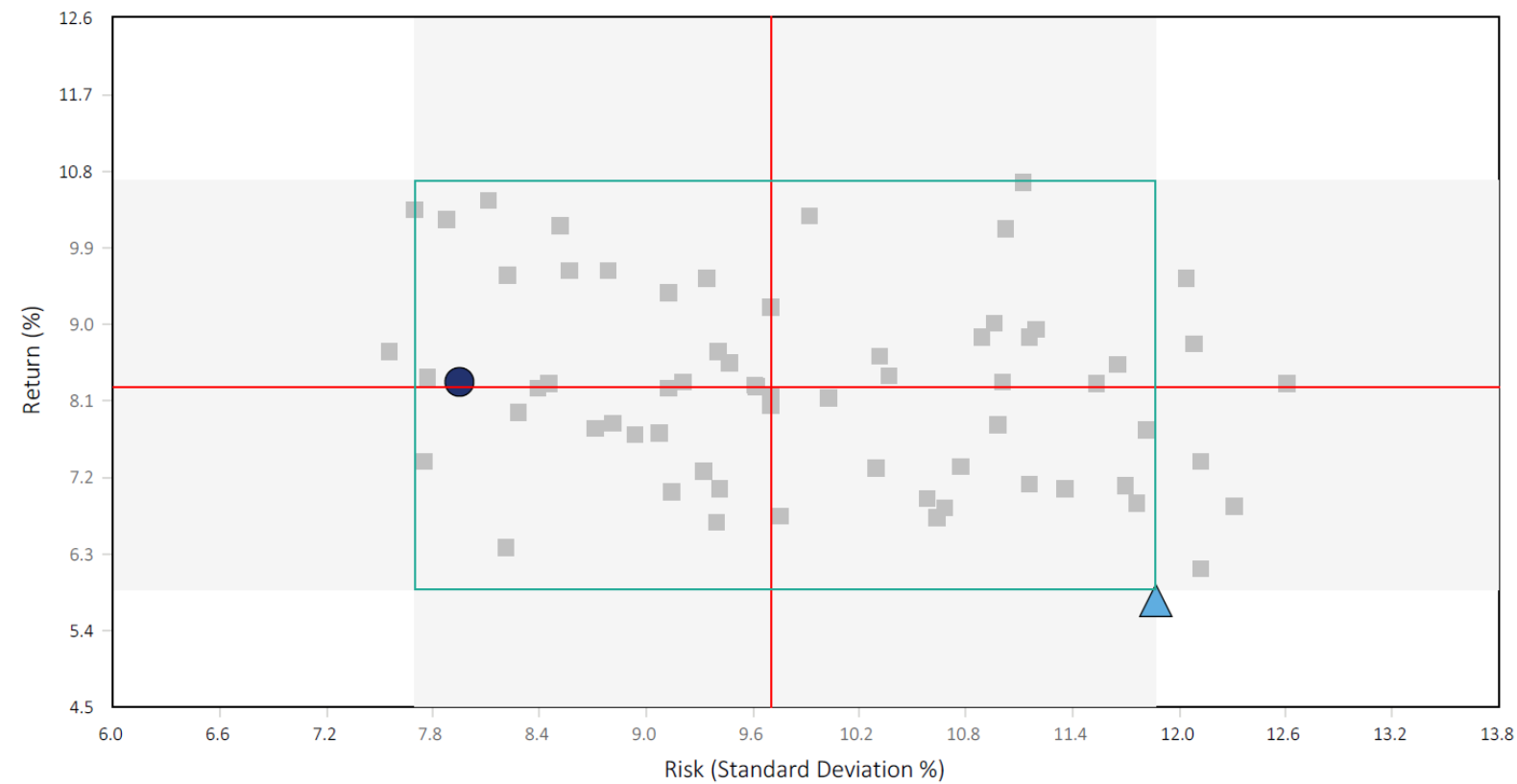
Total Fund – Information Ratio Comparison



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

Total Fund – Scattergram (3-year)

NM PERA Total Fund vs All Public Plans > \$1B-Total Fund
Periods Ended 3 Years Ending June 30, 2023

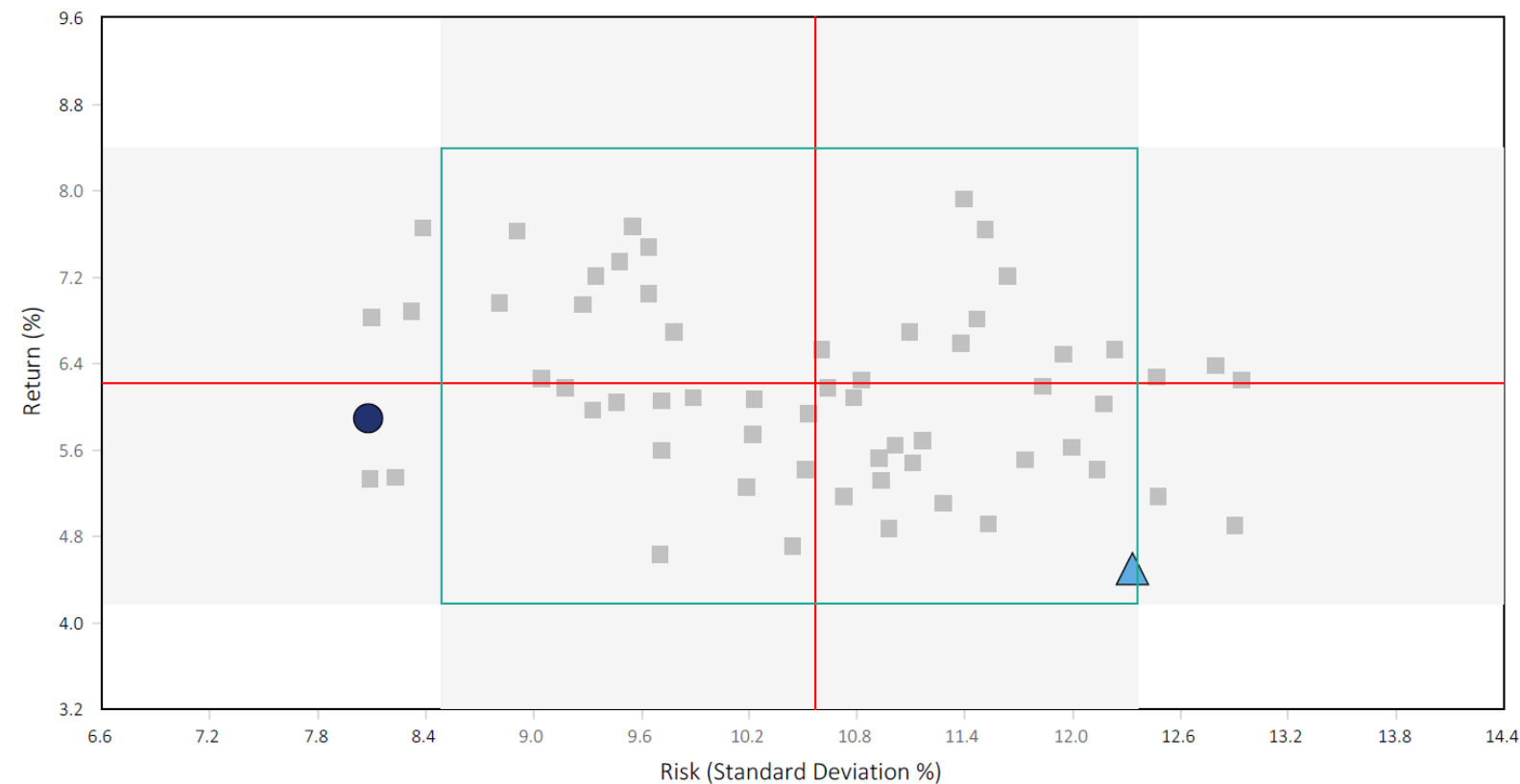


	Return	Standard Deviation
● NM PERA Total Fund	8.32	7.95
▲ NM PERA Total Fund Policy	5.75	11.87
— Median	8.27	9.70

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

Total Fund – Scattergram (5-year)

NM PERA Total Fund vs All Public Plans > \$1B-Total Fund
Periods Ended 5 Years Ending June 30, 2023



	Return	Standard Deviation
● NM PERA Total Fund	5.90	8.08
▲ NM PERA Total Fund Policy	4.50	12.33
— Median	6.22	10.57

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

Manager Listing

Manager Listing

As of June 30, 2023

	Total Fund	
	\$	%
NM PERA Total Fund	16,657,781,731	100.00
Global Equity	6,471,229,887	38.85
Global Public Stock	3,169,144,885	19.03
BlackRock Equity Transition	18,179	0.00
NT MSCI ACWI X US Index Fund	270,200	0.00
SSGA ACWI IMI	689,800,725	4.14
Active US Equity	287,186,317	1.72
DFA US Target Value		0.00
Kayne Andrsn Rdnick SmCap Core	284,737,745	1.71
TimesSquare Capital SMID Cap Growth		0.00
Portable Alpha Composite	2,448,571	0.01
Portable Alpha	2,448,571	0.01
Active Non-US Developed Equity	774,389,438	4.65
Alliance Bernstein Gbl Core Eq	277,327,773	1.66
Acadian Intl Equity	270,670,532	1.62
KBI Global Investors EAFE Developed	381,513	0.00
MFS Intl Intrinsic Val Eq exUS	225,306,415	1.35
Principal Intl Small Cap Equity	533,144	0.00
Schroder Intl Small Composite	170,062	0.00
Active Emerging Markets Equity	251,614,939	1.51
Axiom Emerging Mkts Eqty	251,393,620	1.51
Russell Transition	221,319	0.00
Parametric Eqty Ovly	73,974,370	0.44
SSGA R1000 Index	1,091,890,716	6.55
Global Low Volatility Equity	938,971,055	5.64
BlackRock Low Vol Intl Equity	938,971,055	5.64
Hedged Equity Comp	817,759	0.00
TPG Axon Ptnrs LP	817,759	0.00

Manager Listing

As of June 30, 2023

	Total Fund	
	\$	%
Private Equity Comp	2,362,296,188	14.18
Altaris Const Ptnrs IV LP	25,840,189	0.16
Altaris Health Ptnrs IV LP	39,308,049	0.24
CVC European Eqty Ptnrs V	526,699	0.00
CVC Cptl Ptnrs VII A LP	171,682,221	1.03
Carlyle Partners VI	17,806,320	0.11
Carlyle Partners V	1,431,409	0.01
Century Focused IV LP	32,621,728	0.20
Charterhouse Cap Ptnrs IX	390,606	0.00
Charterhouse Capital Ptnrs X	67,349,655	0.40
Collier Intl Ptnrs V-A LP	3,738	0.00
Threshold Ventures II LP	64,822,478	0.39
Draper Fisher Jurvetson X LP	15,022,115	0.09
FountainVest CP III LP	83,272,873	0.50
GTCR XI A & B	34,248,373	0.21
GTCR X A, B & A AIV		0.00
H&F VII LP	4,077,407	0.02
Hellman & Friedman Cap. Part. VI		0.00
Gilde Buy-Out IV	1,609,726	0.01
Instl Venture Ptnrs XIV LP	18,276,898	0.11
Instl Venture Ptnrs XIII LP	2,077,936	0.01
JMI Equity VII LP	2,433,341	0.01
JMI Equity VI LP		0.00
KRG Cptl IV LP	1,253,313	0.01
Kelso Inv Assoc XI LP	14,306,886	0.09
Kelso Inv Assoc IX LP	33,451,226	0.20
Kelso Inv Assoc VIII LP	1,334,893	0.01
Kelso Inv Assoc X LP	94,377,626	0.57
H&F Spock I SPV	11,315,461	0.07

Manager Listing

As of June 30, 2023

	Total Fund	
	\$	%
Lincolnshire Eqty IV A LP	6,450,178	0.04
Linsalata Capital Partners Fund VI, LP		0.00
Madison Dearborn VI	307,097	0.00
New Enterprise Assoc 13 LP	4,504,001	0.03
New Enterprise Assoc 14 LP	35,337,011	0.21
Nordic Capital Fund VII		0.00
Onex Ptnrs IV	28,895,503	0.17
Onex Ptnrs V	74,915,523	0.45
Onex Ptnrs III	4,260,223	0.03
Patria PE VI LP	42,762,245	0.26
Petershill PE LP	85,700,973	0.51
Pine Bridge Passport I LLC	128,614,620	0.77
Providence Eqty Ptnrs VI	511,641	0.00
RCP Small & Emg Parallel LP	93,465,298	0.56
RRJ Cptl Master III LP	18,712,133	0.11
Madison Dearborn Ristra Colnv	16,767,763	0.10
Sun Cptl Ptnrs V LP	1,376,317	0.01
TPG Asia V LP	1,786,309	0.01
TPG Ptnrs VI LP	440,640	0.00
TCV VII LP	1,000,279	0.01
TCV IX LP	54,522,034	0.33
TCV X LP	86,807,636	0.52
The Resolute Fund II,L.P.		0.00
Resolute III LP	21,738,415	0.13
Resolute IV LP	108,028,073	0.65
Trident IX LP	15,191,723	0.09
Trinity Ventures XII LP	46,926,417	0.28
Warburg Pincus PE XII	82,144,433	0.49
Warburg Pincus Global Gwth XIV	19,590,390	0.12

Manager Listing

As of June 30, 2023

	Total Fund	
	\$	%
Warburg Pincus Global Gwth	140,100,531	0.84
Petershill IV LLC	16,160,179	0.10
Petershill Enchmnt Colnv LLC	21,223,241	0.13
H&F Arrow 1 SPV	6,762,301	0.04
Madison Dearborn VIII	53,207,827	0.32
H&F Samson Hockey 1 SPV	6,045,605	0.04
H&F Samson Shield 1 SPV	11,849,606	0.07
Montagu VI	51,676,186	0.31
Altaris Health Ptnrs V LP	41,411,383	0.25
H&F Samson Brunello 1 SPV	5,685,421	0.03
Madison Dearborn Patriot SPV	6,902,684	0.04
Tenex Cptl Ptnrs III LP	35,481,819	0.21
Tenex White Sands Colnv LP	19,972,549	0.12
Gen Ctlyst Grp XI Endurance LP	34,285,778	0.21
Gen Ctlyst Grp XI Ignition LP	12,268,080	0.07
Resolute V LP	98,073,478	0.59
H&F X LP	36,700,492	0.22
Orchid Asia VIII LP	14,277,153	0.09
Orchid Asia 1912 Colnv LP	1,952,139	0.01
Montagu Petroglyph Colnv LP	19,528,858	0.12
Gen Ctlyst Grp XI Creation LP	5,643,896	0.03
JMI Equity XI LP	3,488,942	0.02
LGIMA Global Equity Overlay		0.00
Credit Oriented Fixed Income	3,094,073,301	18.57
Liquid Credit	1,876,606,900	11.27
High Yield Debt Composite	1,551,586,247	9.31
Guggenheim Global High Yield	-3,381	0.00
PineBridge High Yield	1,551,589,628	9.31

Manager Listing

As of June 30, 2023

	Total Fund	
	\$	%
Parametric Credit Ovly	325,020,653	1.95
Alternative Liquid Credit	881,744,322	5.29
Leveraged Loans/Structured Credit	567,372,249	3.41
Mudrick Stressed Cr A LP	162,921,742	0.98
Ellington Enh Incme A LLC	163,879,904	0.98
Eagle Point CLO Eqty I LLC	8,320,389	0.05
Eagle Point Credit Onshore LP	75,640,356	0.45
Napier Park Beta		0.00
SixthSt Wheeler Pk Cr I LLC	156,609,858	0.94
Credit Oriented Hedge Funds	314,372,073	1.89
Canyon Value Realization LP		0.00
King Street Capital LP	2,488,770	0.01
Silver Point Cptl LP	53,999,075	0.32
Anchorage Cptl Ptnrs LP	57,589,948	0.35
Napier Park C	49,290,016	0.30
LGIMA Credit Overlay		0.00
Emerging Markets Debt Composite		0.00
Lazard EMD Tr LP		0.00
Illiquid Credit Comp	335,722,079	2.02
Atalaya Spcl Oppty VI LP B	3,606,780	0.02
Athyrium Oppty II LP	11,722,565	0.07
Cerberus Res Opp - Ext	155,475,090	0.93
Cerberus Inst Ptnrs IV	316,989	0.00
Cheyne RE Credit V LP	42,892,917	0.26
DRC Eur RE Debt III LP	41,002,601	0.25
DRC Eur RE Debt II LP	520,436	0.00
Garrison Opp IV A	19,567,893	0.12
Madison Rlty Cap Dbt III LP	40,268,500	0.24
Oaktree Oppty VII LP	119,585	0.00

Manager Listing

As of June 30, 2023

	Total Fund	
	\$	%
Oaktree Opptys VIIb LP	11,667	0.00
Oaktree Opptys VIII LP	58,033	0.00
Oaktree Eur Pncpl III LP	6,952,991	0.04
Selene Res. Mortgage Opp. Fund II LP		0.00
Sixth Street Oppty Ptrns III	8,381,651	0.05
Wayzata Opportunities Fund II, L.P.		0.00
Wyzata Opptys III LP	4,614,577	0.03
HIG Bayside Ln Oppty II LP	209,804	0.00
Risk Reduction & Mitigation	2,775,859,414	16.66
Domestic Core Fixed Income	2,048,931,999	12.30
BlackRock Core	5,148	0.00
MacKay Shields Core Investment Grade		0.00
Prudential Core Cons FI		0.00
Parametric Risk Mit Ovly	211,417,822	1.27
Blackrock US Agg Bond Index	1,837,509,029	11.03
Global Core Fixed Income	439,019	0.00
Manulife Core Global Agg. Fixed Income	5	0.00
BlackRock Glb Fixed Income	439,015	0.00
Cash Composite	45,490,308	0.27
Cash Account	32,437,193	0.19
Cash-Corporate Action	13,053,115	0.08
LGIMA Overlay		0.00
LGIMA TAA Overlay	4	0.00
Bonds Plus Composite	680,998,083	4.09
Elliott Associates LP	113,314,317	0.68
Parametric Bonds Plus	43,366,738	0.26
Pharo Gaia Ltd	1,626,319	0.01
Dorsal Capital Partners LP	97,266,529	0.58

Manager Listing

As of June 30, 2023

	Total Fund	
	\$	%
Garda FI Rel Val Oppty Ltd	65,880,884	0.40
Glazer Enhanced LP	59,038,011	0.35
Pac Allnce Asia Opp IV LP	29,685,493	0.18
Systematica Alt Mkts LP CIB	83,272,388	0.50
Marshall Wace Eureka		0.00
Millennium USA LP	117,992,003	0.71
Two Sigma Abs Return LP	69,555,401	0.42
Real Assets	2,940,462,880	17.65
Liquid Real Estate Comp	298,839	0.00
DFA Real Estate Securities	298,273	0.00
Security Capital Alpha	566	0.00
Security Capital Beta	1	0.00
Illiquid Real Estate Comp	1,462,667,644	8.78
Aermont Cap RE IV SCSp	32,506,019	0.20
BPG Investment Partnership VIII		0.00
Blackstone RE Ptnrs VII	7,361,716	0.04
Blackstone RE Ptnrs Eur III	1,877,400	0.01
Carlyle Rlty Ptnrs VI	1,675,802	0.01
Carlyle Rlty Ptnrs V	65,156	0.00
Harrison St RE Ptnrs V & V A	25,528,873	0.15
Harrison St RE Ptnrs VII, A	64,914,716	0.39
KSL Cptl Ptnrs IV LP	52,717,664	0.32
North Haven RE VII Gbl T LP	268,782	0.00
Rockwood Cap RE Ptnrs IX LP	5,950,028	0.04
Rockwood Cap RE Ptnrs X LP	32,979,581	0.20
Starwood Gbl Op VIII LP	1,549,448	0.01
Starwood Op X Gbl LP	12,519,156	0.08
Starwood Global Oppty XI LP	59,430,927	0.36

Manager Listing

As of June 30, 2023

	Total Fund	
	\$	%
Starwood Distd Op IX Gbl LP	1,940,128	0.01
Walton Street RE VI LP	13,137,472	0.08
Wheelock Street RE II LP	13,826,114	0.08
Rockpt Gwth & Inc RE II LP	56,885,676	0.34
Aermont Cap PW RE III LP	26,996,547	0.16
Harrison St RE Ptnrs VI, A	47,701,155	0.29
Sarofim		0.00
New Rock Core LP	278,110,025	1.67
GEM Rlty Evergreen PF NM LP	125,131,270	0.75
Rockwood Cap RE Ptnrs XI LP	37,911,154	0.23
Rockpt Gwth & Inc RE III LP	23,781,384	0.14
Rockwood MultiFamily PT LP	107,173,453	0.64
Stockbridge Niche Lgstcs LP	281,397,629	1.69
Harrison St RE Ptnrs VIII A, B	66,892,480	0.40
Stockbridge Value IV LP	71,391,680	0.43
Starwood Dist Op XII Gbl LP	11,046,211	0.07
Liquid Real Assets Comp	168,361,795	1.01
PIMCO Commodities	285	0.00
PIMCO TIPS	39,453	0.00
DWS Listed Infrastructure	54,377,651	0.33
Harvest MLP Alpha	435,916	0.00
Parametric Real Assets Ovly	113,508,490	0.68
Pavilion Global Transition		0.00
Illiquid Real Assets Comp	1,308,484,014	7.86
ACM II LLC	22,919,272	0.14
Antin Infra Ptnrs III LP	65,753,532	0.39
Ardian Infra V	56,253,836	0.34
Ardian Infra IV	49,780,776	0.30
BEP Legacy A LP	41,220	0.00

Manager Listing

As of June 30, 2023

	Total Fund	
	\$	%
Brookfield Infra II	34,140,969	0.20
Brookfield Infra III	76,327,375	0.46
Carlyle Power Partners II	73,137,383	0.44
Denham VI O&G LP	45,173	0.00
Denham CPF VI LP	11,796,685	0.07
EnCap Energy Cptl VIII LP	9,917,388	0.06
EnCap Energy Cptl IX LP	8,806,443	0.05
EnCap Flatrock Mdst III LP	20,409,977	0.12
EnCap Energy Cptl XI LP	101,580,499	0.61
EnCap Energy Cptl VII LP		0.00
First Reserve XII LP	36,590	0.00
IFM Global Infra LP	205,033,799	1.23
KKR Global Infra Inv II LP	25,339,110	0.15
Kayne Andrsn Energy V LP	4,355,548	0.03
Lime Rock Partners VI, L.P.	87,746	0.00
Lime Rock Resources III A LP	33,883,082	0.20
Lime Rock Ptnrs V LP	1,515,774	0.01
Meridiam Infra NA III LP	58,716,027	0.35
Natural Gas Ptnrs IX LP	74,832	0.00
Ntl Gas Ptnrs Ntl Res X LP	2,554,319	0.02
Ntl Gas Ptnrs Ntl Res XI LP	37,045,489	0.22
Ntl Gas Ptnrs Ntl Res XII LP	56,923,939	0.34
Paine Schwitz Food Chn IV LP	36,111,185	0.22
Quantum Energy Partners IV, L.P.		0.00
Quantum Energy Ptnrs V LP	781,126	0.00
Riverst Rnw&Alt Engy II LP	192,091	0.00
Riverst Gl Engy & Pwr V LP	9,125,502	0.05
Riverst Gbl Engy & Pwr IV	26,847	0.00
Tillridge Gbl Agri Ptnrs II LP	37,375,784	0.22

Manager Listing

As of June 30, 2023

	Total Fund	
	\$	%
Ardian Mass Ascension Colnv LP	149,369,320	0.90
Four Corners Farmland LLC	109,209,673	0.66
Ardian Americas Infra V LP	7,188,675	0.04
Antin Infra Ptnrs V LP	2,627,028	0.02
Market Neutral Hedge Fund Comp	650,589	0.00
Farallon Cptl Instl Ptnrs LP	115,720	0.00
AG Super Fund L.P.		0.00
Stark Select Asset LLC	534,869	0.00
Multi-Risk Composite	1,376,156,249	8.26
Zia Risk Parity LP	1,376,156,249	8.26

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:

Ares Pathfinder Core Fund, L.P. – NM PERA committed \$200 million to Ares Pathfinder Core Fund, L.P., an Evergreen fund with broad mandates across Private Markets. Ares has stated that no placement agent was used in relation to PERA’s commitment.

Apollo Defined Return Fund, L.P. – NM PERA committed \$200 million to Apollo Defined Return Fund, L.P., an Evergreen, multi-asset alternative Credit manager. Apollo has stated that they did not use a placement agent while soliciting PERAs investment.

CVC Capital Partners IX, L.P. – NM PERA committed €100 million to CVC Capital Partners IX, L.P., a 2023 vintage year in the Private Equity allocation. Noting the role of CVC’s internal Client & Product Solutions team, in certain regions where CVC has limited investor coverage or experience, CVC may consider the use of other third-party placement agents or where one is required for local regulatory reasons. Separately, in the case of attracting high net worth investors, CVC may engage with banks for a pooled investment from such investors. In the United States, this Questionnaire and interests in the Fund are being distributed by CVC Funding, LLC, a broker dealer registered with the SEC under the U.S. Exchange Act, a member of the Financial Industry Regulatory Authority (“FINRA”), a self-regulatory organization subject to oversight by the SEC, and a member of the Securities Investor Protection Corporation (“SIPC”). CVC Funding, LLC markets only to institutional accounts (as defined by FINRA Rule 4512(c)) on behalf of the Fund. Any related costs are borne by CVC and are not charged to the CVC Funds. CVC’s in-house Legal and Compliance Teams are involved in monitoring the use of placement agents and compliance with relevant laws in relation to solicitation and marketing.

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

Hellman & Friedman Capital Partners XI, L.P. – NM PERA committed \$75 million to Hellman & Friedman Capital Partners XI, L.P, a 2023 vintage year in the Private Equity allocation. Hellman & Freidman has stated that they did not use a placement agent while soliciting PERAs investment.

Kelso Chimayo Co-Invest – NM PERA committed \$15 million to PERA Chimayo Kelso Co-Invest, a 2022 vintage year in the Private Equity allocation. Kelso Investment Associates has stated that they did not use a placement agent while soliciting PERAs investment.

Placement Agent Disclosure

As provided by PERA of New Mexico

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.

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 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

Placement Agent Disclosure

As provided by PERA of New Mexico

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 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

Placement Agent Disclosure

As provided by PERA of New Mexico

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.

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.

Placement Agent Disclosure

As provided by PERA of New Mexico

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.

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

Placement Agent Disclosure

As provided by PERA of New Mexico

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 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.

Placement Agent Disclosure

As provided by PERA of New Mexico

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.

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, LP. – 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 Disclosure

As provided by PERA of New Mexico

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.

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

Placement Agent Disclosure

As provided by PERA of New Mexico

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 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

Placement Agent Disclosure

As provided by PERA of New Mexico

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 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.

Placement Agent Disclosure

As provided by PERA of New Mexico

Ardian Infrastructure IV, L.P. – NM PERA committed \$69 million to Ardian Infrastructure IV, L.P. a 2015 vintage year in the Real Assets allocation. Ardian 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 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.

Placement Agent Disclosure

As provided by PERA of New Mexico

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 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

Placement Agent Disclosure

As provided by PERA of New Mexico

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.

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

Benchmarks

2023 SAA Changes					
Composites	1/1/2023 - 2/28/2023				
	SAA	Policy Portfolio Targets	Composite %	Custom Benchmark Membership %	
Global Equity	38.00%	38.00%	100.00%	100.00%	
Global Public Stock	16.00%	33.00%	42.11%	86.84%	MSCI ACWI IMI (\$net)
Global Low Volatility Equity	5.00%	5.00%	13.16%	13.16%	MSCI ACWI Minimum Volatility (\$net)
Private Equity	17.00%		44.74%		
Risk Reduction & Mitigation	17.00%		100.00%	100.00%	
Core Fixed Income	17.00%		100.00%	100.00%	Barclays U.S. Aggregate
Credit Oriented Fixed Income	19.00%	19.00%	100.00%	100.00%	
Liquid Credit	4.00%	19.00%	21.05%	100.00%	Barclays Global High Yield (Hedged)
ALT LIQUID CREDIT	7.00%		36.84%		
Illiquid Credit	8.00%		42.11%		
Real Assets	18.00%	18.00%	100.00%	100.00%	
Illiquid Real Estate	7.00%	7.00%	38.89%	38.89%	Wilshire Global REIT
Liquid Real Assets	3.00%	3.00%	16.67%	16.67%	Dow Jones - Brookfield Global Infrastructure Index
Illiquid Real Assets	8.00%	8.00%	44.44%	22.22%	50% Dow Jones - Brookfield Global Infrastructure Index
				22.22%	50% Bloomberg Commodity - Commodity Index (Total Return)
Multi Risk	8.00%		100.00%	100.00%	Wilshire Risk Parity 15%

Composites	3/1/2023 - Present				
	SAA	Policy Portfolio Targets	Composite %	Custom Benchmark Membership %	
Global Equity	38.00%	38.00%	100.00%	100.00%	
Global Public Stock	16.00%	33.00%	42.11%	86.84%	MSCI ACWI IMI (\$net)
Global Low Volatility Equity	5.00%	5.00%	13.16%	13.16%	MSCI ACWI Minimum Volatility (\$net)
Private Equity	17.00%		44.74%		
Risk Reduction & Mitigation	17.00%		100.00%	100.00%	
Core Fixed Income	17.00%		100.00%	100.00%	Barclays U.S. Aggregate
Credit Oriented Fixed Income	19.00%	19.00%	100.00%	100.00%	
Liquid Credit	4.00%	19.00%	21.05%	100.00%	Barclays Global High Yield (Hedged)
ALT LIQUID CREDIT	7.00%		36.84%		
Illiquid Credit	8.00%		42.11%		
Real Assets	18.00%	18.00%	100.00%	100.00%	
Illiquid Real Estate	7.00%	7.00%	38.89%	38.89%	Wilshire Global REIT
Liquid Real Assets	3.00%	3.00%	16.67%	16.67%	Dow Jones - Brookfield Global Infrastructure Index
Illiquid Real Assets	8.00%	8.00%	44.44%	33.33%	75% Dow Jones - Brookfield Global Infrastructure Index
				11.11%	25% Bloomberg Commodity - Commodity Index (Total Return)
Multi Risk	8.00%		100.00%	100.00%	Wilshire Risk Parity 15%

Glossary

Term	Definition
Absolute Return	An investment in a fund with a goal of consistent positive returns, one sub-category is referred to as "market neutral"
Actual Allocation	The actual current percentage weightings of a portfolio
Alpha	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.
Arithmetic Excess	Excess return calculated by simply subtracting manager's return from index return for same period
Asset Allocation Effect (Group Weight)	Variance attributable to asset allocation decisions, deviations from target policy.
Beta	Volatility of portfolio versus market. Beta = 1: portfolio will move with the market. Beta < 1: portfolio will be less volatile than market.
Duration	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.
Geometric Excess	Excess return calculated using the following formula: $(1 + \text{Manager}) / (1 + \text{Index}) - 1$
Holdings-based Attribution	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.
Information Ratio	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 $IR = \text{excess return ("alpha")} / \text{tracking error (excess risk)}$.
Interaction Effect (Selection)	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.
Internal Rate of Return (IRR)	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
R-squared	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
Semi-Variance	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.
Sharpe Ratio	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.
Standard Deviation	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.
Time Weighted Return	The actual rate of return or earnings for the particular period, adjusted for cash flow additions or deletions
Total Alpha	Total Variance: sum of Asset Allocation, Interaction, Manager Performance, and Trading.
Total Return	The return of a particular portfolio that includes both increases or decreases in asset values as well as dividends received
Tracking Error	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.
Trading Effect	Difference between buy/hold and total return.
TUCS (Trust Universe Comparison Service)	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.
Variance	Refers to the amount of movement in prices of a particular portfolio; a portfolio that moves a lot has a higher variance

Important Information

Wilshire is a global financial services firm providing diverse services to various types of investors and intermediaries. Wilshire's products, services, investment approach and advice may differ between clients and all of Wilshire's products and services may not be available to all clients. For more information regarding Wilshire's services, please see Wilshire's ADV Part 2 available at www.wilshire.com/ADV.

Wilshire believes that the information obtained from third party sources contained herein is reliable, but has not undertaken to verify such information. Wilshire gives no representations or warranties as to the accuracy of such information, and accepts no responsibility or liability (including for indirect, consequential or incidental damages) for any error, omission or inaccuracy in such information and for results obtained from its use.

This material may include estimates, projections, assumptions and other "forward-looking statements." Forward-looking statements represent Wilshire's current beliefs and opinions in respect of potential future events. These statements are not guarantees of future performance and undue reliance should not be placed on them. Such forward-looking statements necessarily involve known and unknown risks and uncertainties, which may cause actual events, performance and financial results to differ materially from any projections. Forward-looking statements speak only as of the date on which they are made and are subject to change without notice. Wilshire undertakes no obligation to update or revise any forward-looking statements.

Wilshire Advisors, LLC (Wilshire) is an investment advisor registered with the SEC. Wilshire® is a registered service mark.

Copyright © 2023 Wilshire. All rights reserved.