



Public Employees Retirement Association of New Mexico

INVESTMENT PERFORMANCE REVIEW

Q4 FY21

Rose Dean, CFA – Managing Director

Stephen DiGirolamo, CFA, CAIA – Managing Director

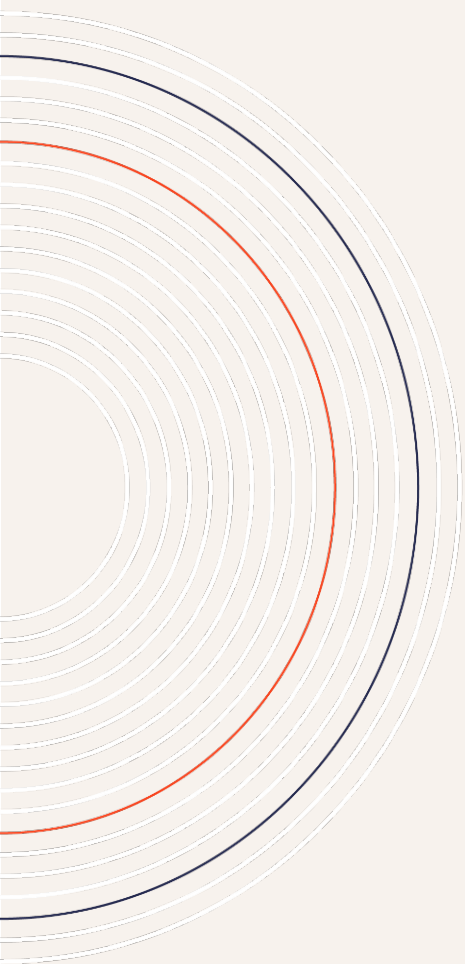
Thomas Toth, CFA – Managing Director

Prepared for



Wilshire

Table of Contents



- Scorecard
- Total Fund
 - Global Equity
 - Risk Reduction & Mitigation
 - Credit Oriented Fixed Income
 - Real Assets
- Peer Review
- Manager Listing
- Placement Agent Disclosure
- Additional Information

Scorecard

Wilshire

Scorecard: Strategic Asset Allocation

- As of June 30, 2020, PERA meets or is near the assumed rate of return for all reasonable intermediate and long-term periods, except for the 7- and 20-year periods.
- The 20-year period includes the Great Recession and Dotcom era bust. Returns are at 6.47%.

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	24.02%	7.25%	16.77%	Meets
	•3 years	9.12%	7.25%	1.87%	Meets
	•5 Years	9.07%	7.25%	1.82%	Meets
	•7 years	6.76%	7.39%	-0.63%	Below
	•10 years	7.62%	7.50%	0.12%	Meets
	•20 years	6.47%	7.63%	-1.16%	Below
	•30 years	8.44%	7.67%	0.77%	Meets
	•ITD	9.01%	7.68%	1.33%	Meets

NOTE: 7.25 Annual (7.75 before July 2016)

Scorecard: Strategic Asset Allocation, continued

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

Capital Allocation				
Asset Class	Target %	Actuals %	Difference Δ	IPS Ranges %
Global Equity	35.5%	35.9%	0.4%	+/- 5%
Credit	15.0%	14.9%	-0.2%	+/- 4%
Risk Mitigation	19.5%	18.5%	-1.0%	+/- 3%
Real Assets	20.0%	20.5%	0.5%	+/- 4%
Multi-Risk	10.0%	10.3%	0.3%	+/- 4%
Total Fund	100.00%	100.00%		

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

Active Risk Allocation			
	4-Year Results	Target	Range
Ex-Post Tracking Error vs. Policy Portfolio	4.08%	1.5%	1.0% - 2.0%
Ex-Post Excess Return vs. Policy Portfolio	0.04%	1.0%	0.0% - 2.0%
Source: Board Risk Report (BNYM)			

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

Liquidity Allocation			
Tier	Actuals \$M	Actuals %	Guideline
Tier 1 (1-5 Days)	\$2,815	16%	Tier 1 Assets ≥ 10% Fund NAV
Tier 2 (5-90 Days)	\$8,287	47%	
Tier 3 (90-365 Days)	\$1,294	7%	
Tier 4 (1 Year +)	\$5,182	29%	
	\$17,578	100%	

Scorecard: Market Performance

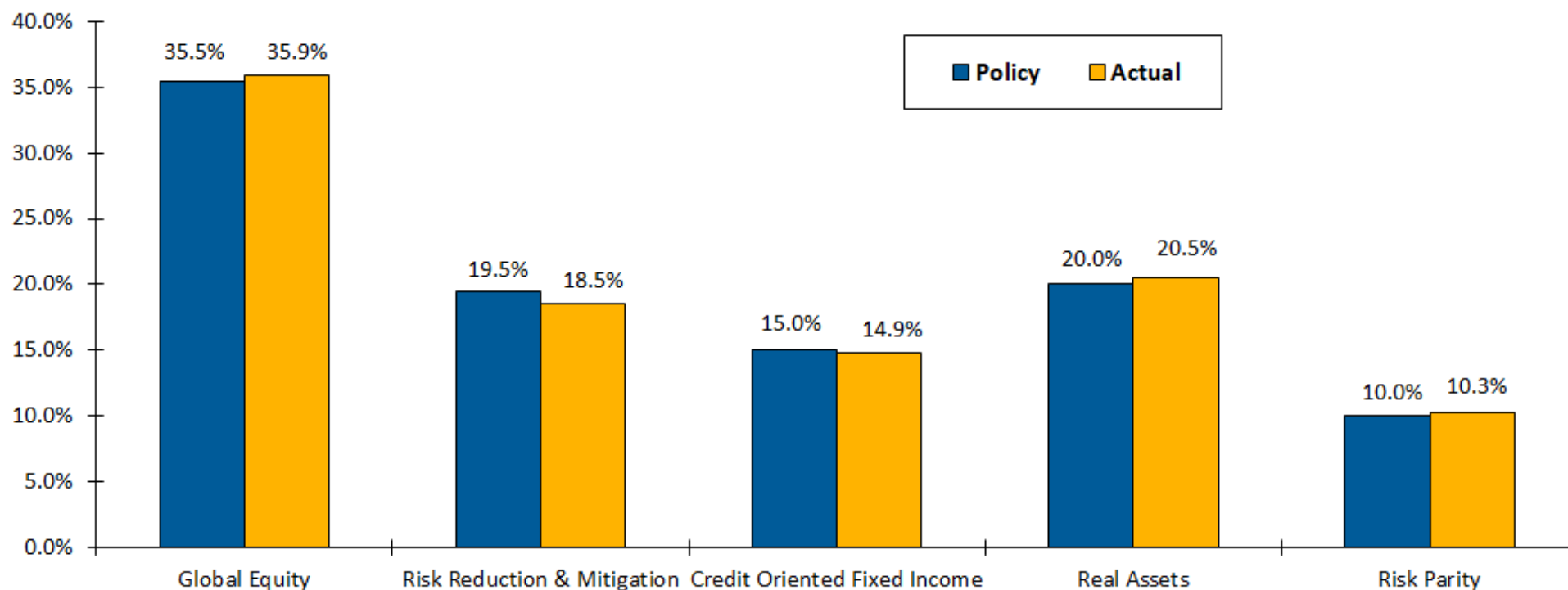
PERA Investment Goal	Measurement	Total Fund Results	Benchmark Return	Excess Return	Scorecard
Produce returns that meet or exceed Board approved Total Fund benchmarks: Meet or exceed the Policy Portfolio over the long-term	Policy Portfolio:				
	•FYTD	24.02%	24.17%	-0.15%	Below
	•3 years	9.12%	9.36%	-0.24%	Below
	•5 Years	9.07%	8.98%	0.09%	Meets
	•7 years	6.76%	6.99%	-0.23%	Below
	•10 years	7.62%	7.61%	0.01%	Meets
	•20 years	6.47%	6.49%	-0.02%	Below
	•30 years	8.44%	8.12%	0.32%	Meets
	•ITD	9.01%	8.93%	0.08%	Meets
	Reference Portfolio:				
	•FYTD	24.02%	22.23%	1.79%	Meets
	•3 years	9.12%	10.89%	-1.77%	Below
	•5 Years	9.07%	9.88%	-0.81%	Below
	•7 years	6.76%	7.23%	-0.47%	Below
Meet or exceed the Reference Portfolio over the long- term	•10 years	7.62%	7.40%	0.22%	Meets
	•20 years	6.47%	6.71%	-0.24%	Below
	•30 years	8.44%	7.35%	1.09%	Meets
	•ITD	9.01%	8.53%	0.48%	Meets
Median risk adjusted peer performance ranking over the long-term (InvestMetrics)	Peer Rankings	Fund Sharpe	Fund Ranking	No. of Funds	
	•1 Year	3.37	20	94	Meets
	•3 years	0.94	39	94	Meets
	•5 Years	1.15	31	94	Meets
	•7 Years	0.87	45	91	Meets
	•10 Years	0.95	50	88	Meets
	•20 Years	0.58	71	67	Below
	•30 years	0.65	45	40	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

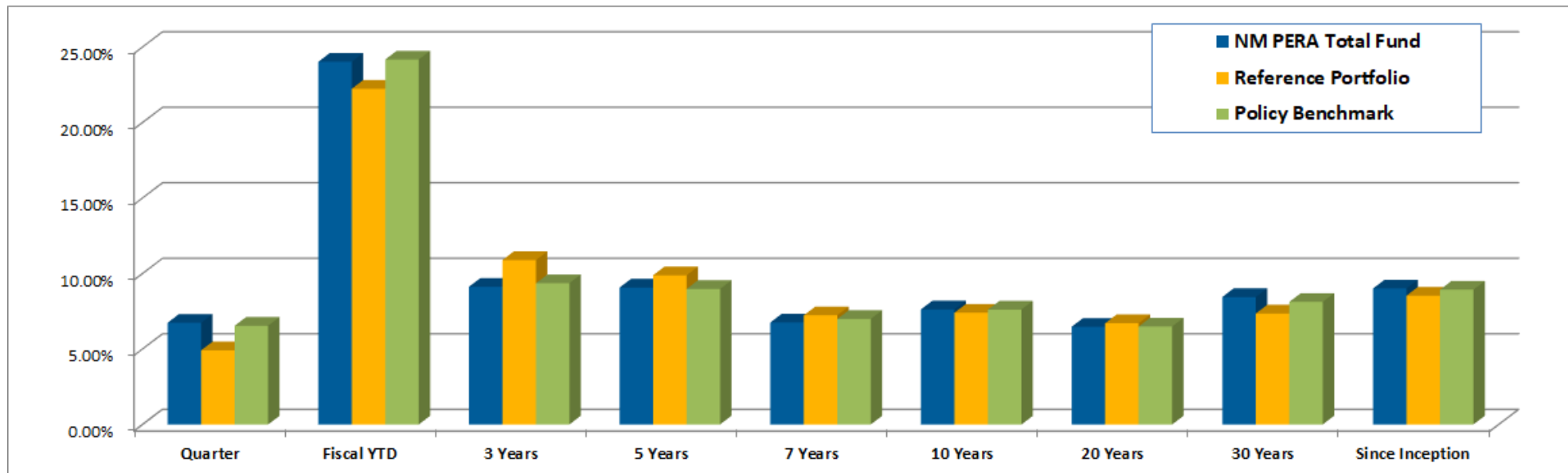
Wilshire

Total Fund Asset Allocation

- **Total Fund Market Value (6/30/21): \$17.6 Billion**
- **STO Cash Balance: \$19.2 Million**
- **Previous Quarter Market Value (3/31/21): \$16.6 Billion**
 - Change from previous quarter: +\$954.9 Million:
 - \$220.4 Million in net distributions
 - \$1,175.4 Million in investment gains



Total Fund Performance as of 6/30/21



Composite/Manager	Quarter	Fiscal YTD	3 Years	5 Years	7 Years	10 Years	20 Years	30 Years	ITD	Inception Date
NM PERA TOTAL FUND	6.74	24.02	9.12	9.07	6.76	7.62	6.47	8.44	9.01	6/1/1985
7.25 Annual (7.75 before 7/16)	1.77	7.25	7.25	7.25	7.39	7.50	7.63	7.67	7.68	6/1/1985
Excess Return VS 7.25 Annual (7.75 before 7/16)	4.98	16.77	1.87	1.82	-0.64	0.12	-1.15	0.77	1.32	6/1/1985
Total Policy Benchmark	6.54	24.17	9.36	8.98	6.99	7.61	6.49	8.12	8.93	6/1/1985
Excess Return VS Total Policy Benchmark	0.20	-0.15	-0.24	0.09	-0.23	0.01	-0.02	0.32	0.08	6/1/1985
Total Policy Dynamic BM	6.25	23.65	8.87	8.91	6.52					6/1/1985
Excess Return VS Total Policy Dynamic BM	0.50	0.37	0.25	0.16	0.24					6/1/1985
Allocation Return (Dynamic - Policy)	-0.29	-0.52	-0.49	-0.07	-0.47					
Total Fund Reference Index	4.91	22.23	10.89	9.88	7.23	7.40	6.71	7.35	8.53	6/1/1985
Excess Return VS Total Fund Ref Index	1.83	1.79	-1.77	-0.81	-0.48	0.22	-0.24	1.09	0.48	6/1/1985
Beta		0.74	0.66	0.67	0.73	0.82	0.95	0.82		
Information Ratio		-0.10	-0.13	-0.04	-0.11	0.03	-0.02	0.05		
Sharpe Ratio		3.37	0.94	1.15	0.87	0.95	0.58	0.65		
Index Sharpe Ratio		2.58	0.69	0.82	0.72	0.80	0.57	0.64		
Standard Deviation		6.47	8.08	6.64	6.75	7.37	9.17	9.29		
Index Standard Deviation		8.57	11.94	9.54	8.70	8.62	9.37	9.00		

Total Fund Composites

Composite/Manager	Quarter	Fiscal YTD	3 Years	5 Years	7 Years	ITD	Inception Date	Market Value	% of Total
NM PERA TOTAL FUND	6.74	24.02	9.12	9.07	6.76	9.01	6/1/1985	\$17,577,414,361	100.00
7.25 Annual (7.75 before 7/16)	1.77	7.25	7.25	7.25	7.39	7.68	6/1/1985		
Excess Return VS 7.25 Annual (7.75 before 7/16)	4.98	16.77	1.87	1.82	-0.64	1.32	6/1/1985		
Total Policy Benchmark	6.54	24.17	9.36	8.98	6.99	8.93	6/1/1985		
Excess Return VS Total Policy Benchmark	0.20	-0.15	-0.24	0.09	-0.23	0.08	6/1/1985		
Total Policy Dynamic BM	6.25	23.65	8.87	8.91	6.52		6/1/1985		
Excess Return VS Total Policy Dynamic BM	0.50	0.37	0.25	0.16	0.24		6/1/1985		
Allocation Return (<i>Dynamic - Policy</i>)	-0.29	-0.52	-0.49	-0.07	-0.47				
Total Fund Reference Index	4.91	22.23	10.89	9.88	7.23	8.53	6/1/1985		
Excess Return VS Total Fund Ref Index	1.83	1.79	-1.77	-0.81	-0.48	0.48	6/1/1985		
GLOBAL EQUITY	8.83	38.24	14.13	14.58	10.01	11.25	4/1/2013	\$ 6,307,161,619	35.88
Global Equity BM	6.80	36.47	13.35	13.68	10.06	11.54	4/1/2013		
Excess Return VS Global Equity BM	2.02	1.77	0.78	0.91	-0.04	-0.29	4/1/2013		
Global Equity Dynamic BM	8.02	40.66	14.22	14.70	10.07	11.26	4/1/2013		
Excess Return VS Global Equity Dynamic BM	0.81	-2.42	-0.09	-0.12	-0.05	-0.01	4/1/2013		
Allocation Return (<i>Dynamic - Policy</i>)	1.22	4.19	0.87	1.02	0.01	-0.28			
RISK REDUCTION & MITIGATION	2.04	2.45	5.54	3.31	3.46	3.27	4/1/2013	\$ 3,258,755,598	18.54
Risk Reduction & Mitigation BM	1.72	-0.28	5.25	3.03	3.30	3.05	4/1/2013		
Excess Return VS Risk Reduction & Mitigation BM	0.32	2.73	0.29	0.28	0.16	0.22	4/1/2013		
Risk Red & Mitigation Dyn BM	1.77	-0.20	5.33	3.12	3.38	3.13	4/1/2013		
Excess Return VS Risk Red & Mitigation Dyn BM	0.27	2.65	0.21	0.19	0.09	0.13	4/1/2013		
Allocation Return (<i>Dynamic - Policy</i>)	0.05	0.08	0.08	0.09	0.08	0.08			
CREDIT ORIENTED FIXED INCOME	4.72	21.45	6.63	6.52	4.51	5.41	4/1/2013	\$ 2,609,797,298	14.85
Credit Oriented FI BM	3.11	12.29	6.39	6.28	4.54	5.26	4/1/2013		
Excess Return VS Credit Oriented FI BM	1.61	9.16	0.24	0.24	-0.03	0.16	4/1/2013		
Credit Oriented FI Dynamic BM	3.23	15.68	5.01	5.88	4.36	5.69	4/1/2013		
Excess Return VS Credit Oriented FI Dynamic BM	1.48	5.77	1.62	0.64	0.16	-0.28	4/1/2013		
Allocation Return (<i>Dynamic - Policy</i>)	0.12	3.39	-1.38	-0.40	-0.18	0.43			
REAL ASSETS	6.65	19.32	4.88	5.52	4.20	5.00	4/1/2013	\$ 3,595,522,009	20.46
Real Assets BM	11.05	34.37	7.31	7.28	4.84	5.77	4/1/2013		
Excess Return VS Real Assets BM	-4.40	-15.04	-2.43	-1.76	-0.65	-0.77	4/1/2013		
Real Assets Dynamic BM	6.92	20.57	4.81	5.23	3.78	4.30	4/1/2013		
Excess Return VS Real Assets Dynamic BM	-0.28	-1.25	0.07	0.29	0.42	0.70	4/1/2013		
Allocation Return (<i>Dynamic - Policy</i>)	-4.13	-13.80	-2.50	-2.05	-1.06	-1.47			
MULTI-RISK ALLOCATION	11.48	32.33				12.75	5/1/2019	\$ 1,806,177,837	10.28
Wilshire Risk Parity 15% Vol Idx	11.49	32.53				13.41	5/1/2019		
Excess Return VS Wilshire Risk Parity 15% Vol Idx	0.00	-0.20				-0.66	5/1/2019		

Total Fund Attribution – Quarter

Quarter - 6/30/2021	NM PERA		Policy		Difference		Net Management Effects		
	Weight	Return	Weight	Return	Weight	Return	Allocation	Selection	Total
GLOBAL EQUITY	36.05	8.83	35.50	6.81	0.55	2.02	0.27	0.46	0.73
Global Public Stock	18.82	6.50	19.50	7.18	-0.68	-0.68	-0.01	-0.13	-0.13
Global Low Volatility	7.07	5.37	7.00	5.30	0.07	0.07	0.00	0.01	0.01
Hedged Equity	0.00	0.54	0.00	0.00	0.00	0.54	0.00	0.00	0.00
Private Equity	10.13	12.99	9.00	7.18	1.13	5.81	0.01	0.58	0.59
LGIMA Global Equity Overlay	0.03	0.00	0.00	0.00	0.03	0.00	0.27	0.00	0.27
RISK REDUCTION & MITIGATION	18.43	2.04	19.50	1.72	-1.07	0.32	0.05	0.06	0.11
Domestic Core Fixed Income	14.24	2.24	17.00	1.83	-2.76	0.41	0.14	0.06	0.20
Global Core Fixed Income	2.44	1.00	2.50	0.98	-0.06	0.02	0.00	0.00	0.00
Cash	1.04	4.74	0.00	0.00	1.04	4.74	-0.03	0.00	-0.03
LGIMA Overlay Collateral	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LGIMA TAA Overlay	0.71	-2.41	0.00	0.00	0.71	-2.41	-0.06	0.00	-0.06
CREDIT ORIENTED FIXED INCOME	14.94	4.72	15.00	3.11	-0.06	1.61	0.04	0.20	0.24
Liquid Credit	6.90	4.30	3.00	2.94	3.90	1.36	-0.11	0.12	0.00
Emerging Market Debt	2.26	3.58	3.00	3.81	-0.74	-0.23	0.02	-0.01	0.02
Illiquid Credit - PE/RE Debt	3.49	3.26	6.00	2.94	-2.51	0.32	0.06	-0.01	0.05
Illiquid Credit - CO HF	2.27	6.96	3.00	2.94	-0.73	4.02	0.03	0.09	0.12
LGIMA Credit Overlay	0.01	0.00	0.00	0.00	0.01	0.00	0.05	0.00	0.05
REAL ASSETS	20.54	6.65	20.00	11.05	0.54	-4.40	0.03	-0.91	-0.88
Liquid Real Estate	1.99	10.90	2.00	11.68	-0.01	-0.78	0.00	-0.02	-0.02
Illiquid Real Estate	5.54	2.44	5.00	11.68	0.54	-9.24	0.03	-0.51	-0.48
Liquid Real Assets	7.43	9.18	8.00	10.22	-0.57	-1.04	-0.02	-0.07	-0.10
Illiquid Real Assets	5.57	5.88	5.00	11.44	0.57	-5.56	0.03	-0.31	-0.28
Market Neutral HF	0.01	20.07	0.00	0.00	0.01	20.07	0.00	0.00	0.00
MULTI-RISK ALLOCATION	10.04	11.48	10.00	11.49	0.04	-0.01	-0.01	0.00	-0.01
TOTAL	100.0	6.74	100.0	6.55			0.38	-0.18	0.20

Total Fund Attribution – FYTD (1-year)

1 year - 6/30/2021	NM PERA		Policy		Difference		Net Management Effects		
	Weight	Return	Weight	Return	Weight	Return	Allocation	Selection	Total
GLOBAL EQUITY	36.51	38.25	35.50	36.47	1.01	1.78	-0.03	0.70	0.67
Global Public Stock	20.49	37.01	19.50	40.94	0.99	-3.93	0.22	-0.71	-0.49
Global Low Volatility	7.02	19.75	7.00	19.35	0.02	0.40	-0.01	0.03	0.02
Hedged Equity	0.00	1.63	0.00	0.00	0.00	1.63	0.00	0.00	0.00
Private Equity	8.98	58.20	9.00	40.94	-0.02	17.26	-0.06	1.38	1.32
LGIMA Global Equity Overlay	0.01	0.00	0.00	0.00	0.01	0.00	-0.18	0.00	-0.18
RISK REDUCTION & MITIGATION	18.91	2.45	19.50	-0.28	-0.59	2.73	0.06	0.70	0.76
Domestic Core Fixed Income	14.22	3.75	17.00	-0.33	-2.78	4.08	0.74	0.70	1.44
Global Core Fixed Income	2.63	0.08	2.50	0.08	0.13	0.00	-0.04	0.00	-0.04
Cash	1.50	-0.56	0.00	0.00	1.50	-0.56	-0.46	0.00	-0.46
LGIMA Overlay Collateral	0.00	3.54	0.00	0.00	0.00	3.54	0.00	0.00	0.00
LGIMA TAA Overlay	0.56	-4.43	0.00	0.00	0.56	-4.43	-0.18	0.00	-0.18
CREDIT ORIENTED FIXED INCOME	14.78	21.45	15.00	12.29	-0.22	9.16	0.25	1.19	1.44
Liquid Credit	5.37	20.54	3.00	13.62	2.37	6.92	-0.26	0.41	0.15
Emerging Market Debt	2.36	9.27	3.00	7.07	-0.64	2.20	0.11	0.06	0.17
Illiquid Credit - PE/RE Debt	4.89	21.18	6.00	13.62	-1.11	7.56	0.10	0.41	0.51
Illiquid Credit - CO HF	2.15	26.15	3.00	13.62	-0.85	12.53	0.08	0.32	0.40
LGIMA Credit Overlay	0.02	0.00	0.00	0.00	0.02	0.00	0.21	0.00	0.21
REAL ASSETS	20.11	19.32	20.00	34.37	0.11	-15.05	0.07	-3.02	-2.96
Liquid Real Estate	1.86	34.40	2.00	37.04	-0.14	-2.64	-0.02	-0.05	-0.06
Illiquid Real Estate	5.40	9.21	5.00	37.04	0.40	-27.83	0.06	-1.55	-1.49
Liquid Real Assets	7.56	27.90	8.00	29.76	-0.44	-1.86	-0.02	-0.14	-0.17
Illiquid Real Assets	5.28	13.31	5.00	37.73	0.28	-24.42	0.04	-1.28	-1.24
Market Neutral HF	0.01	21.54	0.00	0.00	0.01	21.54	0.00	0.00	0.00
MULTI-RISK ALLOCATION	9.69	32.33	10.00	32.53	-0.31	-0.20	-0.05	-0.02	-0.07
TOTAL	100.0	24.02	100.0	24.17			0.30	-0.45	-0.15

Total Fund Attribution – 3 years

3 Years - 6/30/2021	NM PERA		Policy		Difference		Net Management Effects		
	Weight	Return	Weight	Return	Weight	Return	Allocation	Selection	Total
GLOBAL EQUITY	39.58	14.12	39.13	13.35	0.45	0.77	-0.02	0.26	0.25
Global Public Stock	25.21	12.85	23.26	14.24	1.95	-1.39	0.04	-0.30	-0.25
Global Low Volatility	6.64	9.97	5.89	9.55	0.75	0.42	0.02	0.03	0.04
Hedged Equity	0.15	-0.94	1.03	0.00	-0.88	-0.94	-0.04	-0.01	-0.05
Private Equity	7.57	23.09	8.95	14.96	-1.38	8.13	-0.02	0.54	0.52
LGIMA Global Equity Overlay	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	0.00	-0.01
RISK REDUCTION & MITIGATION	20.22	5.54	20.43	5.25	-0.21	0.29	0.00	0.07	0.06
Domestic Core Fixed Income	16.20	5.98	17.85	5.35	-1.65	0.63	0.17	0.07	0.24
Global Core Fixed Income	2.68	4.12	2.51	4.59	0.17	-0.47	-0.01	-0.01	-0.02
Cash	1.10	6.80	0.07	0.00	1.03	6.80	-0.10	0.01	-0.10
LGIMA Overlay Collateral	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LGIMA TAA Overlay	0.24	0.00	0.00	0.00	0.24	0.00	-0.06	0.00	-0.06
CREDIT ORIENTED FIXED INCOME	14.80	6.64	15.00	6.39	-0.20	0.25	0.05	-0.01	0.04
Liquid Credit	5.47	6.24	3.00	6.60	2.47	-0.36	-0.06	0.03	-0.04
Emerging Market Debt	2.47	7.43	3.00	5.46	-0.53	1.97	0.02	0.05	0.06
Illiquid Credit - PE/RE Debt	4.55	5.19	6.00	6.60	-1.45	-1.41	0.02	-0.10	-0.08
Illiquid Credit - CO HF	2.31	5.88	3.00	6.60	-0.69	-0.72	0.00	0.02	0.02
LGIMA Credit Overlay	0.01	0.00	0.00	0.00	0.01	0.00	0.07	0.00	0.07
REAL ASSETS	20.08	4.88	20.00	7.31	0.08	-2.43	-0.01	-0.54	-0.56
Liquid Real Estate	2.43	11.60	2.00	8.60	0.43	3.00	0.02	0.05	0.07
Illiquid Real Estate	4.70	6.68	5.00	8.60	-0.30	-1.92	-0.01	-0.17	-0.18
Liquid Real Assets	7.97	5.05	8.00	6.85	-0.03	-1.80	-0.04	-0.15	-0.19
Illiquid Real Assets	4.96	1.54	5.00	5.59	-0.04	-4.05	0.02	-0.28	-0.26
Market Neutral HF	0.02	6.90	0.00	0.00	0.02	6.90	0.00	0.00	0.00
MULTI-RISK ALLOCATION	5.33		5.44		-0.11	0.00	-0.04	0.01	-0.03
TOTAL	100.0	9.12	100.0	9.36			-0.03	-0.21	-0.24

Total Fund Attribution – 5 years

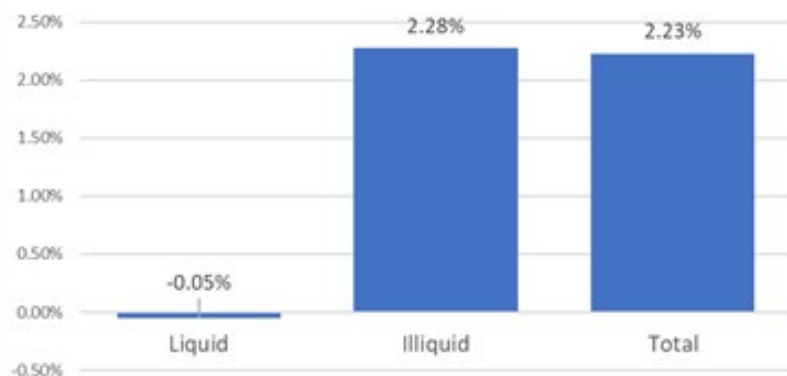
5 Years - 6/30/2021							Net Management Effects		
	NM PERA		Policy		Difference		Allocation	Selection	Total
	Weight	Return	Weight	Return	Weight	Return			
GLOBAL EQUITY	43.01	14.58	40.88	13.68	2.13	0.90	0.21	0.27	0.47
Global Public Stock	30.50	14.04	25.27	14.55	5.23	-0.51	0.32	-0.05	0.27
Global Low Volatility	5.54	0.00	5.28	8.40	0.26	-8.40	0.07	0.03	0.10
Hedged Equity	0.50	3.68	1.49	0.00	-0.99	3.68	-0.03	-0.01	-0.04
Private Equity	6.47	19.80	8.85	15.58	-2.38	4.22	-0.14	0.30	0.16
LGIMA Global Equity Overlay	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	0.00	-0.01
RISK REDUCTION & MITIGATION	22.12	3.31	20.86	3.03	1.26	0.28	-0.18	0.07	-0.12
Domestic Core Fixed Income	17.69	3.48	18.11	3.03	-0.42	0.45	0.00	0.06	0.06
Global Core Fixed Income	2.86	2.75	2.54	2.98	0.32	-0.23	-0.03	-0.01	-0.03
Cash	1.43	4.91	0.21	0.00	1.22	4.91	-0.12	0.02	-0.11
LGIMA Overlay Collateral	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LGIMA TAA Overlay	0.14	0.00	0.00	0.00	0.14	0.00	-0.04	0.00	-0.04
CREDIT ORIENTED FIXED INCOME	13.84	6.52	15.00	6.28	-1.16	0.24	-0.01	0.07	0.06
Liquid Credit	5.17	6.61	3.00	6.51	2.17	0.10	-0.06	0.04	-0.01
Emerging Market Debt	2.68	4.77	3.00	4.00	-0.32	0.77	0.01	0.01	0.02
Illiquid Credit - PE/RE Debt	3.69	7.28	6.00	7.52	-2.31	-0.24	-0.01	-0.03	-0.04
Illiquid Credit - CO HF	2.31	6.38	3.00	5.77	-0.69	0.61	0.00	0.05	0.05
LGIMA Credit Overlay	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.04
REAL ASSETS	17.84	5.52	20.00	7.28	-2.16	-1.76	-0.01	-0.30	-0.31
Liquid Real Estate	2.38	8.23	1.70	6.02	0.68	2.21	-0.01	0.04	0.03
Illiquid Real Estate	3.97	7.88	5.78	8.06	-1.81	-0.18	0.02	-0.08	-0.05
Liquid Real Assets	6.37	2.82	6.20	3.29	0.17	-0.47	-0.01	-0.08	-0.08
Illiquid Real Assets	4.81	5.45	6.02	7.54	-1.21	-2.09	-0.03	-0.17	-0.20
Market Neutral HF	0.31	3.82	0.30	0.00	0.01	3.82	0.00	-0.01	-0.01
MULTI-RISK ALLOCATION	3.20		3.26		-0.06	0.00	-0.02	0.01	-0.02
TOTAL	100.0	9.07	100.0	8.98			-0.03	0.12	0.09

Risk Dashboard Snapshot

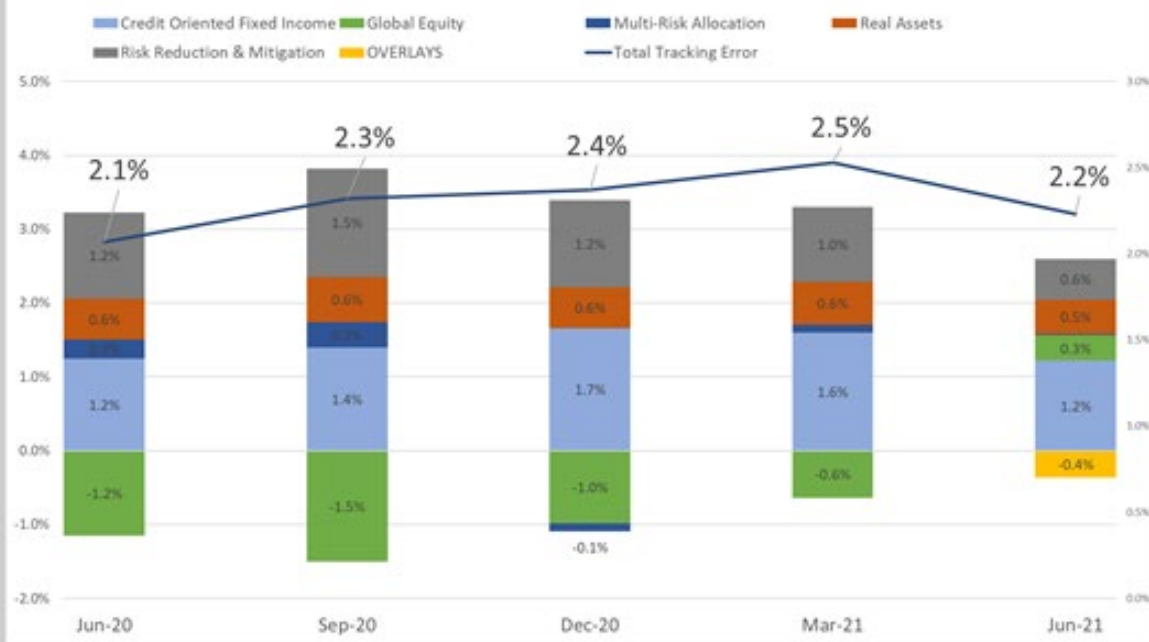
Allocation vs Tracking Error Contribution
June 2021



Tracking Error Contribution
June 2021



PERA Tracking Error Time Series
(Total and Asset Contribution)



A series of thin, parallel diagonal lines in a light gray and reddish-orange color, extending from the bottom right corner towards the top right of the slide.

Global Equity

Wilshire

Global Equity Structure

GLOBAL EQUITY				
Manager	Benchmark		Market Value	Actual %
SSgA ACWI IMI Index	MSCI ACWI IMI Index	\$	1,218,491,434	38.1%
Global Equity Overlay	Global Equity Blend	\$	137,604,164	4.3%
Portable Alpha	S&P 500	\$	4,824,628	0.2%
TimesSquare SMID Growth	Russell 2500 Growth	\$	248,275,971	7.8%
Kayne Anderson Small Core	Russell 2000	\$	366,863,251	11.5%
DFA US Targeted Value	Russell 2000 Value	\$	8,962	0.0%
NT MSCI ACWI x-US Index	MSCI ACWI ex-US	\$	3,088,177	0.1%
Acadian International Equity	MSCI EAFE Index	\$	385,154,270	12.0%
KBI Global Investors EAFE Dev	MSCI EAFE Value	\$	1,325,506	0.0%
MFS International Value	MSCI EAFE Index	\$	254,986,878	8.0%
Principal International Small Cap	MSCI World ex-US Small	\$	208,408,427	6.5%
Schroder International Small	MSCI EAFE Small	\$	741,778	0.0%
Axiom Emerging Markets	MSCI Emerging Markets	\$	368,728,122	11.5%
Russell Transition	MSCI Emerging Markets	\$	1,753,010	0.1%
BlackRock Equity Transition	n/a	\$	103,155	0.0%
Global Public Equity Composite	MSCI ACWI IMI (\$n)	\$	3,200,357,734	50.7%
BlackRock MSCI ACWI Minimum Volatility	MSCI ACWI Min Vol (\$n)	\$	1,238,741,231	
Global Low Volatility Equity Comp	MSCI ACWI Min Vol (\$n)	\$	1,238,741,231	19.6%
Hedged Equity Composite	MSCI ACWI Min Vol (\$n)	\$	685,997	0.0%
Private Equity Composite	Russell 3000	\$	1,843,216,373	29.2%
LGIMA Global Equity Overlay		\$	24,160,284	0.4%
TOTAL GLOBAL EQUITY COMPOSITE	80% MSCI ACWI IMI (\$n) / 20% MSCI ACWI Min Vol (\$n)	\$	6,307,161,619	

Global Equity Composite Performance

Composite/Manager	Quarter	Fiscal YTD	3 Years	5 Years	7 Years	ITD	Inception Date	Market Value	% of Total
GLOBAL EQUITY	8.83	38.24	14.13	14.58	10.01	11.25	4/1/2013	\$ 6,307,161,619	35.88
Global Equity BM	6.80	36.47	13.35	13.68	10.06	11.54	4/1/2013		
Excess Return VS Global Equity BM	2.02	1.77	0.78	0.91	-0.04	-0.29	4/1/2013		
Global Equity Dynamic BM	8.02	40.66	14.22	14.70	10.07	11.26	4/1/2013		
Excess Return VS Global Equity Dynamic BM	0.81	-2.42	-0.09	-0.12	-0.05	-0.01	4/1/2013		
Allocation Return (<i>Dynamic - Policy</i>)	1.22	4.19	0.87	1.02	0.01	-0.28			
<i>Beta</i>		0.79	0.78	0.79	0.85				
<i>Information Ratio</i>		0.28	0.04	0.12	-0.07				
<i>Sharpe Ratio</i>		3.17	0.94	1.17	0.83				
<i>Index Sharpe Ratio</i>		2.52	0.74	0.92	0.76				
<i>Standard Deviation</i>		10.50	13.51	11.10	11.18				
<i>Index Standard Deviation</i>		12.76	17.03	13.71	12.61				
Global Public Stock	6.50	37.01	12.85	14.04	9.22	8.77	10/1/2004	\$ 3,200,357,734	18.21
Public Equity Benchmark	7.18	40.94	14.24	14.55	10.29		10/1/2004		
Excess Return VS Public Equity Benchmark	-0.67	-3.92	-1.39	-0.51	-1.06		10/1/2004		
MSCI ACWI IMI Index	7.18	40.94	14.24	14.55	9.70	8.76	10/1/2004		
Excess Return VS MSCI ACWI IMI Index	-0.67	-3.92	-1.39	-0.51	-0.47	0.01	10/1/2004		
Global Public Stock Dynamic BM	5.98	41.61	13.55	14.37	9.55		10/1/2004		
Excess Return VS Global Public Stock Dynamic BM	0.52	-4.60	-0.70	-0.33	-0.33		10/1/2004		
Allocation Return (<i>Dynamic - Policy</i>)	-1.20	0.67	-0.69	-0.18	-0.74				
<i>Beta</i>		0.85	0.97	0.97	0.98				
<i>Information Ratio</i>		-1.18	-0.77	-0.35	-0.51				
<i>Sharpe Ratio</i>		2.73	0.70	0.90	0.64				
<i>Index Sharpe Ratio</i>		2.57	0.75	0.91	0.68				
<i>Standard Deviation</i>		11.89	17.70	14.40	13.93				
<i>Index Standard Deviation</i>		13.89	18.22	14.76	14.20				
Global Low Volatility Equity	5.37	19.75	10.01			10.33	11/1/2016	\$ 1,238,741,231	7.05
MSCI ACWI Min Vol Index	5.30	19.35	9.55			9.80	11/1/2016		
Excess Return VS MSCI ACWI Min Vol Index	0.08	0.40	0.46			0.52	11/1/2016		
<i>Beta</i>		0.99	1.00						
<i>Information Ratio</i>		1.89	2.65						
<i>Sharpe Ratio</i>		1.98	0.73						
<i>Index Sharpe Ratio</i>		1.93	0.69						
<i>Standard Deviation</i>		9.36	12.28						
<i>Index Standard Deviation</i>		9.41	12.28						

Global Equity Composite Performance

Composite/Manager	Quarter	Fiscal YTD	3 Years	5 Years	7 Years	ITD	Inception Date	Market Value	% of Total
Hedged Equity	0.54	1.63	-0.94	3.68	1.76	3.43	4/1/2013	\$ 685,997	0.00
Hedged Equity BM	5.30	19.35	9.55	9.11	6.06	6.62	4/1/2013		
Excess Return VS Hedged Equity BM	-4.75	-17.72	-10.49	-5.43	-4.30	-3.20	4/1/2013		
MSCI ACWI Min Vol Index	5.30	19.35	9.55	8.40	8.58	8.64	4/1/2013		
Excess Return VS MSCI ACWI Min Vol Index	-4.75	-17.72	-10.49	-4.72	-6.82	-5.21	4/1/2013		
Hedged Equity Dynamic BM	4.63	38.91	10.99	10.10	6.55	7.09	4/1/2013		
Excess Return VS Hedged Equity Dynamic BM	-4.08	-37.28	-11.93	-6.42	-4.79	-3.67	4/1/2013		
Allocation Return (<i>Dynamic - Policy</i>)	-0.67	19.56	1.44	0.99	0.49	0.47			
<i>Beta</i>		-0.08	0.07	0.05	0.11				
<i>Information Ratio</i>		-1.59	-0.86	-0.47	-0.45				
<i>Sharpe Ratio</i>		0.65	-0.42	0.40	0.17				
<i>Index Sharpe Ratio</i>		1.93	0.69	0.81	0.62				
<i>Standard Deviation</i>		2.39	5.16	6.64	6.30				
<i>Index Standard Deviation</i>		9.41	12.28	9.93	9.17				
Private Equity	12.99	58.20	23.15	19.83	18.50	8.47	12/1/2006	\$ 1,843,216,373	10.49
Private Equity BM	7.18	40.94	14.96	15.58	13.61		12/1/2006		
Excess Return VS Private Equity BM	5.81	17.26	8.19	4.25	4.89		12/1/2006		
MSCI ACWI IMI Index	7.18	40.94	14.24	14.55	9.70	7.17	12/1/2006		
Excess Return VS MSCI ACWI IMI Index	5.81	17.26	8.91	5.28	8.80	1.30	12/1/2006		
Private Equity Dynamic BM	11.99	59.77	24.86	20.95	18.08		12/1/2006		
Excess Return VS Private Equity Dynamic BM	0.99	-1.58	-1.70	-1.12	0.42		12/1/2006		
Allocation Return (<i>Dynamic - Policy</i>)	4.81	18.83	9.90	5.37	4.47				
<i>Beta</i>		0.42	0.05	0.05	0.06				
<i>Information Ratio</i>		1.01	0.28	0.16	0.29				
<i>Sharpe Ratio</i>		4.68	2.11	2.23	2.33				
<i>Index Sharpe Ratio</i>		2.57	0.77	0.97	0.84				
<i>Standard Deviation</i>		10.10	9.49	7.73	7.05				
<i>Index Standard Deviation</i>		13.89	18.57	15.07	14.30				

Global Public Stock Performance

Composite/Manager	Quarter	Fiscal YTD	3 Years	5 Years	7 Years	ITD	Inception Date	Market Value	% of Total
NTGI ACWI X US	0.43	3.41	0.35	2.74	-0.31	1.89	1/1/2011	3,088,176.73	0.02
SSGA ACWI IMI	7.22	40.91	14.47			14.36	10/1/2016	1,218,491,434.17	6.93
Blackrock Equity Transition	2.05	15.14	13.60			6.05	8/1/2016	103,155.13	0.00
Equity Cash Overlay	11.74	-7.35	-7.94	16.36		16.36	7/1/2016	137,604,164.29	0.78
Active U.S. Equity	4.15	39.04	15.73	16.24	11.87	10.80	10/1/2004	619,972,811.83	3.53
MSCI ACWI IMI Index	7.18	40.94	14.24	14.55	9.70	8.76	10/1/2004		
Excess Return VS MSCI ACWI IMI Index	-3.02	-1.90	1.49	1.70	2.17	2.04	10/1/2004		
Active U.S. Equity Dynamic BM	5.01	56.58	18.56	18.50	13.70		10/1/2004		
Excess Return VS Active U.S. Equity Dynamic BM	-0.85	-17.55	-2.83	-2.25	-1.83		10/1/2004		
Allocation Return (Dynamic - Policy)	-2.17	15.64	4.32	3.95	4.00				
Beta		0.84	1.01	1.00	0.98				
Information Ratio		-0.26	0.25	0.28	0.37				
Sharpe Ratio		2.63	0.78	0.95	0.76				
Index Sharpe Ratio		2.57	0.75	0.91	0.66				
Standard Deviation		12.97	19.51	15.96	15.07				
Index Standard Deviation		13.89	18.22	14.76	14.20				
Kayne Anderson SCC	3.76	37.45				15.62	9/1/2018	\$ 366,863,251	2.09
Russell 2000 Index	4.29	62.03				11.99	9/1/2018		
Excess Return VS Russell 2000 Index	-0.53	-24.58				3.63	9/1/2018		
MSCI ACWI IMI Index	7.18	40.94				13.67	9/1/2018		
Excess Return VS MSCI ACWI IMI Index	-3.42	-3.49				1.95	9/1/2018		
Beta		0.54							
Information Ratio		-1.67							
Sharpe Ratio		2.76							
Index Sharpe Ratio		2.80							
Standard Deviation		11.88							
Index Standard Deviation		18.12							
TimesSquare	4.63	42.18	19.17	18.45	12.73	13.21	4/1/2005	\$ 248,275,971	1.41
Russell 2500 Growth Index	6.04	49.63	20.15	20.68	14.81	12.25	4/1/2005		
Excess Return VS Russell 2500 Growth Index	-1.41	-7.46	-0.98	-2.23	-2.09	0.97	4/1/2005		
MSCI ACWI IMI Index	7.18	40.94	14.24	14.55	9.70	8.31	4/1/2005		
Excess Return VS MSCI ACWI IMI Index	-2.55	1.24	4.93	3.90	3.03	4.91	4/1/2005		
Beta		0.98	1.01	0.99	0.97				
Information Ratio		-1.17	-0.17	-0.49	-0.51				
Sharpe Ratio		2.21	0.79	0.91	0.70				
Index Sharpe Ratio		2.58	0.83	1.00	0.79				
Standard Deviation		16.70	24.49	19.66	18.42				
Index Standard Deviation		16.35	24.00	19.52	18.54				
Portable Alpha Composite	10.41	16.62	7.54	11.14	9.08	6.80	10/1/2007	\$ 4,824,628	0.03
DFA							10/1/2010	\$ 8,962	0.00

Global Public Stock Performance

Composite/Manager	Quarter	Fiscal YTD	3 Years	5 Years	7 Years	ITD	Inception Date	Market Value	% of Total
Active Non-US Developed Equity	6.62	34.51	9.36	11.62	5.93	4.50	12/1/2007	\$ 850,616,860	4.84
MSCI ACWI IMI Index	7.18	40.94	14.24	14.55	9.70	6.62	12/1/2007		
Excess Return VS MSCI ACWI IMI Index	-0.55	-6.42	-4.88	-2.93	-3.76	-2.13	12/1/2007		
Active Non U.S. Equity Dynamic	5.08	34.72	8.14	11.02	5.69		12/1/2007		
Excess Return VS Active Non U.S. Equity Dynamic	1.54	-0.21	1.22	0.59	0.24		12/1/2007		
Allocation Return (<i>Dynamic - Policy</i>)	-2.10	-6.22	-6.10	-3.53	-4.01				
<i>Beta</i>		0.89	0.90	0.91	0.92				
<i>Information Ratio</i>		-1.04	-1.12	-0.62	-0.66				
<i>Sharpe Ratio</i>		2.33	0.54	0.77	0.42				
<i>Index Sharpe Ratio</i>		2.57	0.75	0.91	0.66				
<i>Standard Deviation</i>		13.19	16.74	14.04	14.13				
<i>Index Standard Deviation</i>		13.89	18.22	14.76	14.20				
Acadian Intl Equity	7.35	39.59	10.80			9.46	5/1/2018	\$ 385,154,270	2.19
MSCI EAFE Net Dividend Index	5.17	32.35	8.27			6.63	5/1/2018		
Excess Return VS MSCI EAFE Net Dividend Index	2.18	7.24	2.53			2.83	5/1/2018		
MSCI ACWI IMI Index	7.18	40.94	14.24			13.37	5/1/2018		
Excess Return VS MSCI ACWI IMI Index	0.18	-1.35	-3.44			-3.91	5/1/2018		
<i>Beta</i>		0.77	0.93						
<i>Information Ratio</i>		0.92	0.51						
<i>Sharpe Ratio</i>		2.58	0.61						
<i>Index Sharpe Ratio</i>		1.78	0.46						
<i>Standard Deviation</i>		13.41	16.84						
<i>Index Standard Deviation</i>		16.60	17.49						
MFS	7.30	25.27	12.19	11.49	8.74	10.66	4/1/2010	\$ 254,986,878	1.45
MSCI EAFE Net Dividend Index	5.17	32.35	8.27	10.28	4.96	6.30	4/1/2010		
Excess Return VS MSCI EAFE Net Dividend Index	2.13	-7.08	3.92	1.22	3.79	4.36	4/1/2010		
MSCI ACWI IMI Index	7.18	40.94	14.24	14.55	9.70	10.15	4/1/2010		
Excess Return VS MSCI ACWI IMI Index	0.12	-15.66	-2.05	-3.06	-0.95	0.51	4/1/2010		
<i>Beta</i>		0.69	0.71	0.73	0.73				
<i>Information Ratio</i>		-0.70	0.34	0.04	0.44				
<i>Sharpe Ratio</i>		1.76	0.82	0.87	0.70				
<i>Index Sharpe Ratio</i>		1.78	0.49	0.70	0.38				
<i>Standard Deviation</i>		13.38	13.56	11.93	11.66				
<i>Index Standard Deviation</i>		16.60	17.48	14.53	14.40				

Global Public Stock Performance

Composite/Manager	Quarter	Fiscal YTD	3 Years	5 Years	7 Years	ITD	Inception Date	Market Value	% of Total
Principal	4.57	38.10	6.57	11.35	7.61	6.02	12/1/2007	\$ 208,408,427	1.19
MSCI World Ex US Small Cap Net Index	4.81	42.28	8.92	11.88	7.20	5.41	12/1/2007		
Excess Return VS MSCI World Ex US Small Cap Net	-0.24	-4.18	-2.36	-0.53	0.41	0.62	12/1/2007		
MSCI ACWI IMI Index	7.18	40.94	14.24	14.55	9.70	6.62	12/1/2007		
Excess Return VS MSCI ACWI IMI Index	-2.60	-2.83	-7.67	-3.20	-2.09	-0.60	12/1/2007		
<i>Beta</i>		0.90	1.01	1.01	1.00				
<i>Information Ratio</i>		-1.17	-0.70	-0.16	0.14				
<i>Sharpe Ratio</i>		2.37	0.35	0.64	0.48				
<i>Index Sharpe Ratio</i>		2.38	0.45	0.68	0.46				
<i>Standard Deviation</i>		14.19	20.95	17.34	16.26				
<i>Index Standard Deviation</i>		15.47	20.61	16.87	16.02				
KBI	0.85	3.56	-0.14	6.51	1.90	4.76	4/1/2010	\$ 1,325,506	0.01
Schroder	-0.35	-0.11	-5.10	4.29	2.24	6.02	5/1/2012	\$ 741,778	0.00
Active Emerging Market Equity	6.73	43.39	16.01	13.40	7.17	6.50	7/1/2006	\$ 370,481,132	2.11
MSCI Emerging Markets Index (\$N)	5.05	40.90	11.27	13.03	6.35	6.61	7/1/2006		
Excess Return VS MSCI Emerging Markets Index (\$N)	1.69	2.49	4.74	0.37	0.81	-0.11	7/1/2006		
MSCI ACWI IMI Index	7.18	40.94	14.24	14.55	9.70	7.74	7/1/2006		
Excess Return VS MSCI ACWI IMI Index	-0.44	2.46	1.77	-1.15	-2.53	-1.24	7/1/2006		
<i>Beta</i>		1.00	0.95	0.94	0.92				
<i>Information Ratio</i>		0.36	0.92	-0.02	0.06				
<i>Sharpe Ratio</i>		2.80	0.84	0.81	0.46				
<i>Index Sharpe Ratio</i>		2.89	0.62	0.79	0.42				
<i>Standard Deviation</i>		13.34	18.00	15.68	15.89				
<i>Index Standard Deviation</i>		12.25	18.55	16.11	16.82				
AXIOM INVESTORS	6.77	43.67				24.08	1/1/2019	\$ 368,728,122	2.10
MSCI Emerging Markets Index (\$N)	5.05	40.90				17.78	1/1/2019		
Excess Return VS MSCI Emg Mkts Index (\$N)	1.72	2.76				6.31	1/1/2019		
MSCI ACWI IMI Index	7.18	40.94				22.33	1/1/2019		
Excess Return VS MSCI ACWI IMI Index	-0.41	2.73				1.75	1/1/2019		
<i>Beta</i>		1.00							
<i>Information Ratio</i>		0.40							
<i>Sharpe Ratio</i>		2.80							
<i>Index Sharpe Ratio</i>		2.89							
<i>Standard Deviation</i>		13.40							
<i>Index Standard Deviation</i>		12.25							
Russell Transition	0.13	2.23	3.97	6.72	2.23	1.81	11/1/2007	\$ 1,753,010	0.01

Risk Reduction & Mitigation

Wilshire

Risk Reduction & Mitigation Investment Structure

RISK REDUCTION & MITIGATION					
Manager	Benchmark		Market Value	Actual %	
BlackRock Core Active	Bloomberg U.S. Aggregate	\$	1,090,313,444	60.3%	
Prudential Core Conservative	Bloomberg U.S. Aggregate	\$	651,664,775	36.0%	
Risk Reduction Cash Overlay	Bloomberg U.S. Aggregate	\$	66,151,666	3.7%	
Domestic Core Fixed Income Comp		\$	1,808,129,883	55.5%	
BlackRock Global Fixed Income	Bloomberg Global Aggregate Hdg	\$	418,788,967		
Global Core Fixed Income Comp		\$	418,788,968	12.9%	
Dorsal	Bloomberg U.S. Aggregate	\$	92,324,142	11.3%	
Elliott	Bloomberg U.S. Aggregate	\$	104,644,043	12.8%	
Garda	Bloomberg U.S. Aggregate	\$	55,131,746	6.8%	
Glazer	Bloomberg U.S. Aggregate	\$	99,882,060	12.2%	
Marshall Wace Eureka	Bloomberg U.S. Aggregate	\$	92,290,674	11.3%	
Millennium	Bloomberg U.S. Aggregate	\$	72,046,868	8.8%	
Pacific AA	Bloomberg U.S. Aggregate	\$	106,889,370	13.1%	
Pharo Gaia Fund	Bloomberg U.S. Aggregate	\$	42,733,917	5.2%	
Systematica	Bloomberg U.S. Aggregate	\$	67,796,079	8.3%	
Parametric Bonds Plus	Bloomberg U.S. Aggregate	\$	43,159,051	5.3%	
Two Sigma	Bloomberg U.S. Aggregate	\$	39,434,331	4.8%	
Bonds Plus Comp		\$	816,332,280	25.1%	
Cash Composite		3 month Treasury Bills	\$	86,261,173	2.6%
LGIMA Overlay Collateral		\$	314,197	0.0%	
LGIMA TAA Overlay		\$	128,929,098	4.0%	
RISK REDUCTION & MITIGATION COMPOSITE		87.2% Bloomberg U.S. Aggregate / 12.8% Bloomberg Global Aggregate Hdg	\$	3,258,755,598	

NOF Performance calculated and provided by BNY Mellon.

Risk Reduction & Mitigation – Performance

Composite/Manager	Quarter	Fiscal YTD	3 Years	5 Years	7 Years	ITD	Inception Date	Market Value	% of Total
RISK REDUCTION & MITIGATION	2.04	2.45	5.54	3.31	3.46	3.27	4/1/2013	\$ 3,258,755,598	18.54
Risk Reduction & Mitigation BM	1.72	-0.28	5.25	3.03	3.30	3.05	4/1/2013		
Excess Return VS Risk Reduction & Mitigation BM	0.32	2.73	0.29	0.28	0.16	0.22	4/1/2013		
Risk Red & Mitigation Dyn BM	1.77	-0.20	5.33	3.12	3.38	3.13	4/1/2013		
Excess Return VS Risk Red & Mitigation Dyn BM	0.27	2.65	0.21	0.19	0.09	0.13	4/1/2013		
Allocation Return (<i>Dynamic - Policy</i>)	0.05	0.08	0.08	0.09	0.08	0.08			
<i>Beta</i>		1.04	0.95	0.95	0.94				
<i>Information Ratio</i>		3.72	0.23	0.28	0.16				
<i>Sharpe Ratio</i>		0.76	1.21	0.70	0.86				
<i>Index Sharpe Ratio</i>		-0.11	1.17	0.61	0.82				
<i>Standard Deviation</i>		3.15	3.47	3.16	3.07				
<i>Index Standard Deviation</i>		2.96	3.36	3.12	3.01				
Domestic Core Fixed Income	2.27	0.53	5.78	3.36	3.51	6.93	6/1/1985	\$ 1,808,129,883	10.29
BBG U.S. Agg Bond Index	1.83	-0.33	5.34	3.03	3.28	6.48	6/1/1985		
Excess Return VS BBG U.S. Agg Bond Index	0.44	0.87	0.43	0.33	0.23	0.45	6/1/1985		
<i>Beta</i>		1.18	1.12	1.09	1.06				
<i>Information Ratio</i>		1.13	0.41	0.41	0.32				
<i>Sharpe Ratio</i>		0.14	1.10	0.62	0.80				
<i>Index Sharpe Ratio</i>		-0.12	1.17	0.59	0.79				
<i>Standard Deviation</i>		3.68	3.98	3.59	3.37				
<i>Index Standard Deviation</i>		3.07	3.44	3.23	3.10				
Global Core Fixed Income	1.00	0.08	4.00	2.67	2.55	4.01	5/1/2011	\$ 418,788,968	2.38
BBG Global Aggregate (Hdg)	0.98	0.08	4.59	2.98	3.60	3.88	5/1/2011		
Excess Return VS BBG Global Aggregate (Hdg)	0.02	0.00	-0.60	-0.31	-1.05	0.13	5/1/2011		
<i>Beta</i>		1.04	0.98	0.97	0.98				
<i>Information Ratio</i>		0.04	-0.64	-0.34	0.24				
<i>Sharpe Ratio</i>		0.01	0.93	0.60	0.49				
<i>Index Sharpe Ratio</i>		0.00	1.08	0.68	0.42				
<i>Standard Deviation</i>		2.44	3.04	2.74	3.73				
<i>Index Standard Deviation</i>		2.34	3.03	2.75	3.03				
Bonds Plus	2.49	13.40				4.02	1/1/2020	\$ 816,332,280	4.64
BBG U.S. Agg Bond Index	1.83	-0.33				3.82	1/1/2020		
Excess Return VS BBG U.S. Agg Bond Index	0.66	13.73				0.20	1/1/2020		
Cash	2.44	7.16	6.04	4.71	3.43	4.78	3/1/1989	\$ 86,261,173	0.49
ICE BofA US 3 Mo T-Bill Index	0.00	0.09	1.34	1.17	0.87	2.97	3/1/1989		
Excess Return VS ICE BofA US 3 Mo T-Bill Index	2.44	7.06	4.70	3.54	2.57	1.82	3/1/1989		

Risk Reduction & Mitigation – Performance

Composite/Manager	Quarter	Fiscal YTD	3 Years	5 Years	7 Years	ITD	Inception Date	Market Value	% of Total
BlackRock Core	2.09	1.75	6.34	3.78	3.92	5.59	7/1/1995	\$ 1,090,313,444	6.20
BBG U.S. Agg Bond Index	1.83	-0.33	5.34	3.03	3.28	5.13	7/1/1995		
Excess Return VS BBG U.S. Agg Bond Index	0.26	2.08	1.00	0.75	0.64	0.45	7/1/1995		
Beta		1.13	1.11	1.08	1.05				
Information Ratio		2.74	0.87	0.82	0.77				
Sharpe Ratio		0.49	1.26	0.75	0.92				
Index Sharpe Ratio		-0.12	1.17	0.59	0.79				
Standard Deviation		3.52	4.01	3.62	3.38				
Index Standard Deviation		3.07	3.44	3.23	3.10				
Prudential	1.99	0.01	5.39	3.03	3.36	3.69	6/1/2012	\$ 651,664,775	3.71
BBG U.S. Agg Bond Index	1.83	-0.33	5.34	3.03	3.28	2.93	6/1/2012		
Excess Return VS BBG U.S. Agg Bond Index	0.16	0.35	0.05	0.01	0.08	0.76	6/1/2012		
Beta		1.05	1.04	1.03	1.04				
Information Ratio		0.84	0.15	0.06	0.19				
Sharpe Ratio		-0.01	1.13	0.58	0.78				
Index Sharpe Ratio		-0.12	1.17	0.59	0.79				
Standard Deviation		3.25	3.59	3.34	3.26				
Index Standard Deviation		3.07	3.44	3.23	3.10				
Blackrock Glb Fixed Income	1.00	0.08				4.03	5/1/2019	\$ 418,788,967	2.38
BBG Global Aggregate (Hdg)	0.98	0.08				4.14	5/1/2019		
Excess Return VS BBG Global Aggregate (Hdg)	0.02	0.00				-0.11	5/1/2019		
Beta		1.04							
Information Ratio		0.03							
Sharpe Ratio		0.01							
Index Sharpe Ratio		0.00							
Standard Deviation		2.44							
Index Standard Deviation		2.34							
Risk Reduction Cash Overlay	5.68	-1.63	9.42	4.31		5.90	9/1/2014	\$ 66,151,666	0.38
Risk Reduction & Mitigation BM	1.72	-0.28	5.25	3.03		3.25	9/1/2014		
Excess Return VS Risk Reduction & Mitigation BM	3.96	-1.36	4.17	1.28		2.66	9/1/2014		
LGIMA OVRLY COLL	0.00	3.54				860.47	8/1/2019	\$ 314,197	0.00
LGIMA TAA OVERLAY	-2.41	-4.43				-5.23	8/1/2019	\$ 128,929,098	0.73

Risk Reduction & Mitigation – Performance

	Quarter	Fiscal YTD	3 Years	5 Years	7 Years	ITD	Inception Date	Market Value	% of Total
Bonds Plus	2.49	13.40				4.02	1/1/2020	\$ 816,332,280	4.64
BBG U.S. Agg Bond Index	1.83	-0.33				3.82	1/1/2020		
Excess Return VS BBG U.S. Agg Bond Index	0.66	13.73				0.20	1/1/2020		
Dorsal	-0.47	10.32				9.49	6/1/2020	\$ 92,324,142	0.53
Libor + 30 bps 1 MA	0.12	0.53				0.56	6/1/2020		
Excess Return VS Libor + 30 bps 1 MA	-0.59	9.78				8.93	6/1/2020		
ELLIOTT	2.89	14.05				10.98	1/1/2020	\$ 104,644,043	0.60
Libor + 30 bps 1 MA	0.12	0.53				0.94	1/1/2020		
Excess Return VS Libor + 30 bps 1 MA	2.76	13.52				10.04	1/1/2020		
Garda	1.10	10.26				10.26	7/1/2020	\$ 55,131,746	0.31
Libor + 30 bps 1 MA	0.12	0.53				0.53	7/1/2020		
Excess Return VS Libor + 30 bps 1 MA	0.98	9.73				9.73	7/1/2020		
Glazer	-5.54	49.66				45.09	6/1/2020	\$ 99,882,060	0.57
Libor + 30 bps 1 MA	0.12	0.53				0.56	6/1/2020		
Excess Return VS Libor + 30 bps 1 MA	-5.66	49.13				44.53	6/1/2020		
Marshall Wace Eureka	-0.54					13.79	8/1/2020	\$ 92,290,674	0.53
Libor + 30 bps 1 MA	0.12					0.48	8/1/2020		
Excess Return VS Libor + 30 bps 1 MA	-0.66					13.31	8/1/2020		
Millenium	1.84					11.32	10/1/2020	\$ 72,046,868	0.41
Libor + 30 bps 1 MA	0.12					0.39	10/1/2020		
Excess Return VS Libor + 30 bps 1 MA	1.72					10.93	10/1/2020		
Pacific AA	0.88	9.61				8.84	6/1/2020	\$ 106,889,370	0.61
Libor + 30 bps 1 MA	0.12	0.53				0.56	6/1/2020		
Excess Return VS Libor + 30 bps 1 MA	0.76	9.08				8.28	6/1/2020		
Pharo Gaia Fund	-1.44	6.83				6.29	6/1/2020	\$ 42,733,917	0.24
Libor + 30 bps 1 MA	0.12	0.53				0.56	6/1/2020		
Excess Return VS Libor + 30 bps 1 MA	-1.56	6.30				5.74	6/1/2020		
SYSTEMATICA	14.41	14.28				13.12	6/1/2020	\$ 67,796,079	0.39
Libor + 30 bps 1 MA	0.12	0.53				0.56	6/1/2020		
Excess Return VS Libor + 30 bps 1 MA	14.29	13.75				12.56	6/1/2020		
TWO SIGMA						-1.41	5/1/2021	\$ 39,434,331	0.22
Parametric Bonds Plus	1.66	-0.97				3.07	1/1/2020	\$ 43,159,051	0.25

Credit Oriented Fixed Income

Wilshire

Credit Oriented Fixed Income Structure

CREDIT ORIENTED FIXED INCOME				
Manager	Benchmark		Market Value	Actual %
PineBridge High Yield	Bloomberg Global High Yield Hedged	\$	210,845,860	43.0%
Guggenheim Global High Yield	Bloomberg Global High Yield Hedged	\$	722	0.0%
Credit Cash Overlay	Credit Oriented FI Blend	\$	279,787,444	57.0%
Liquid Credit Composite		\$	490,634,026	18.8%
Leveraged Loan/Structured Credit	Bloomberg Global High Yield Hedged	\$	874,785,412	67.7%
Hedged Credit 2	Bloomberg Global High Yield Hedged	\$	409,136,163	31.7%
Credit Beta Overlay	Bloomberg Global High Yield Hedged	\$	8,040,066	0.6%
Alternative Liquid Credit		\$	1,291,961,641	49.5%
Lazard Emerging Market Debt	JP Morgan EMD Blend	\$	391,498,179	100.0%
Emerging Market Debt Composite		\$	391,498,179	15.0%
Private Debt	Bloomberg Global High Yield Hedged	\$	135,400,361	31.1%
High Return Seeking Debt	Bloomberg Global High Yield Hedged	\$	300,303,091	68.9%
Illiquid Credit Composite		\$	435,703,452	16.7%
CREDIT ORIENTED FIXED INCOME COMPOSITE		\$	2,609,797,298	
80% Bloomberg Global High Yield Hdg / 20% JP Morgan EMD Blend				

Credit Oriented Fixed Income – Performance

Composite/Manager	Quarter	Fiscal YTD	3 Years	5 Years	7 Years	ITD	Inception Date	Market Value	% of Total	Month
CREDIT ORIENTED FIXED INCOME	4.72	21.45	6.63	6.52	4.51	5.41	4/1/2013	\$ 2,609,797,298	14.85	1.30
Credit Oriented FI BM	3.11	12.29	6.39	6.28	4.54	5.26	4/1/2013			0.61
Excess Return VS Credit Oriented FI BM	1.61	9.16	0.24	0.24	-0.03	0.16	4/1/2013			0.69
Credit Oriented FI Dynamic BM	3.23	15.68	5.01	5.88	4.36	5.69	4/1/2013			1.39
Excess Return VS Credit Oriented FI Dynamic BM	1.48	5.77	1.62	0.64	0.16	-0.28	4/1/2013			-0.09
Allocation Return (<i>Dynamic - Policy</i>)	0.12	3.39	-1.38	-0.40	-0.18	0.43				
Beta		0.63	0.25	0.26	0.29					
Information Ratio		2.98	-0.02	-0.01	-0.03					
Sharpe Ratio		4.89	0.90	1.14	0.84					
Index Sharpe Ratio		2.00	0.52	0.64	0.52					
Standard Deviation		4.01	5.71	4.55	4.35					
Index Standard Deviation		5.87	10.23	8.18	7.33					
Liquid Credit	2.51	12.07	3.70	5.08	4.23	3.25	4/1/2013	\$ 490,634,026	2.79	0.73
BBG Global High Yield (Hdg)	2.94	13.62	6.83	6.65	5.36	5.82	4/1/2013			0.82
Excess Return VS BBG Global High Yield (Hdg)	-0.43	-1.55	-3.13	-1.57	-1.13	-2.57	4/1/2013			-0.09
Liquid Credit Dynamic BM	3.04	12.87	5.48	6.08	4.96	5.86	4/1/2013			0.70
Excess Return VS Liquid Credit Dynamic BM	-0.53	-0.80	-1.78	-1.00	-0.74	-2.61	4/1/2013			0.03
Allocation Return (<i>Dynamic - Policy</i>)	0.10	-0.75	-1.35	-0.57	-0.40	0.04				
Beta		1.31	0.37	0.37	0.42					
Information Ratio		-0.59	-0.38	-0.24	-0.07					
Sharpe Ratio		1.58	0.39	0.77	0.59					
Index Sharpe Ratio		2.32	0.54	0.66	0.49					
Standard Deviation		7.38	6.33	5.03	5.90					
Index Standard Deviation		5.55	10.24	8.29	7.95					
Alternative Liquid Credit	6.56	33.02				33.39	5/1/2020	\$ 1,291,961,641	7.35	2.48
BBG Global High Yield (Hdg)	2.94	13.62				18.35	5/1/2020			0.82
Excess Return VS BBG Global High Yield (Hdg)	3.62	19.41				15.04	5/1/2020			1.66
Alt Liquid Credit Dynamic BM	1.78	16.17				20.91	5/1/2020			0.71
Excess Return VS Alt Liquid Credit Dynamic BM	4.78	16.85				12.49	5/1/2020			1.77
Allocation Return (<i>Dynamic - Policy</i>)	-1.16	2.55				2.56				
Beta		0.31								
Information Ratio		2.99								
Sharpe Ratio		6.96								
Index Sharpe Ratio		2.32								
Standard Deviation		4.15								
Index Standard Deviation		5.55								

Credit Oriented Fixed Income – Performance

Composite/Manager	Quarter	Fiscal YTD	3 Years	5 Years	7 Years	ITD	Inception Date	Market Value	% of Total
Emerging Markets Debt Composite	3.58	9.27	7.43	4.77		4.63	8/1/2015	\$ 391,498,179	2.23
JPM EMD Sov50LM50 Idx~	3.81	7.07	5.46	4.11		4.66	8/1/2015		
Excess Return VS JPM EMD Sov50LM50 Idx~	-0.22	2.20	1.96	0.66		-0.03	8/1/2015		
<i>Beta</i>		1.06	0.83	0.83					
<i>Information Ratio</i>		0.83	0.39	0.17					
<i>Sharpe Ratio</i>		1.07	0.63	0.46					
<i>Index Sharpe Ratio</i>		0.91	0.42	0.35					
<i>Standard Deviation</i>		8.58	9.93	8.30					
<i>Index Standard Deviation</i>		7.76	10.84	9.16					
Illiquid Credit	3.30	21.23	5.19	7.28	6.22	7.28	12/1/2006	\$ 435,703,452	2.48
Illiquid Credit BM	2.94	13.62	6.60	7.51	5.37		12/1/2006		
Excess Return VS Illiquid Credit BM	0.36	7.62	-1.42	-0.24	0.86		12/1/2006		
BBG Global High Yield (Hdg)	2.94	13.62	6.83	6.65	5.36	7.35	12/1/2006		
Excess Return VS BBG Global High Yield (Hdg)	0.36	7.62	-1.65	0.63	0.86	-0.07	12/1/2006		
Illiquid Credit Dynamic BM	4.43	22.85	6.52	8.19	7.08		12/1/2006		
Excess Return VS Illiquid Credit Dynamic BM	-1.13	-1.61	-1.33	-0.91	-0.85		12/1/2006		
Allocation Return (<i>Dynamic - Policy</i>)	1.49	9.23	-0.08	0.68	1.71				
<i>Beta</i>		0.31	-0.07	-0.07	-0.05				
<i>Information Ratio</i>		1.34	-0.12	-0.04	0.10				
<i>Sharpe Ratio</i>		5.64	0.55	1.01	0.99				
<i>Index Sharpe Ratio</i>		2.32	0.54	0.77	0.54				
<i>Standard Deviation</i>		3.44	7.28	6.00	5.39				
<i>Index Standard Deviation</i>		5.55	10.24	8.40	8.02				
Credit Cash Overlay	2.35	9.68				7.49	5/1/2019	\$ 279,787,444	1.59
Credit Oriented FI BM	3.11	12.29				6.09	5/1/2019		
Excess Return VS Credit Oriented FI BM	-0.76	-2.62				1.40	5/1/2019		

Credit Oriented Fixed Income – Performance

Composite/Manager	Quarter	Fiscal YTD	3 Years	5 Years	7 Years	ITD	Inception Date	Market Value	% of Total
PINEBRIDGE HY	2.72	15.20				7.17	10/1/2018	\$ 210,845,860	1.20
BBG Global High Yield (Hdg)	2.94	13.62				6.63	10/1/2018		
Excess Return VS BBG Global High Yield (Hdg)	-0.22	1.58				0.54	10/1/2018		
<i>Beta</i>		1.07							
<i>Information Ratio</i>		1.77							
<i>Sharpe Ratio</i>		2.40							
<i>Index Sharpe Ratio</i>		2.32							
<i>Standard Deviation</i>		5.97							
<i>Index Standard Deviation</i>		5.55							
LAZARD EM MKT DEBT TR	3.58	9.27	7.43	4.77		4.63	8/1/2015	\$ 391,498,179	2.23
JPM EMD Sov50LM50 Idx~	3.81	7.07	5.46	4.11		4.66	8/1/2015		
Excess Return VS JPM EMD Sov50LM50 Idx~	-0.22	2.20	1.96	0.66		-0.03	8/1/2015		
<i>Beta</i>		1.06	0.83	0.83					
<i>Information Ratio</i>		0.83	0.39	0.17					
<i>Sharpe Ratio</i>		1.07	0.63	0.46					
<i>Index Sharpe Ratio</i>		0.91	0.42	0.35					
<i>Standard Deviation</i>		8.58	9.93	8.30					
<i>Index Standard Deviation</i>		7.76	10.84	9.16					
GUGGENHEIM GLOBAL HY							11/1/2015	\$ 722	0.00

Real Assets

Wilshire

Real Assets – Investment Structure

REAL ASSETS				
Manager/Composite	Benchmark		Market Value	Actual %
Deutsche Listed Infrastructure	DJ Brookfield Global Infrastructure	\$	108,762,482	8.5%
Harvest MLP Alpha	Alerian MLP Index	\$	292,658,292	22.8%
PIMCO TIPS	Bloomberg U.S. TIPS Index	\$	538,337,784	42.0%
PIMCO Commodities	Bloomberg Commodity Index	\$	255,791,079	19.9%
Real Assets Cash Overlay	Real Assets BM	\$	87,515,930	6.8%
Liquid Real Assets		Blend (18.75% Infrastructure / 25% Alerian MLP / 37.5% TIPS / 18.75% Commodity)	\$ 1,283,065,566	35.7%
Illiquid Real Assets		Blend (30% Infrastructure / 70% Commodity)	\$ 936,305,590	26.0%
DFA Real Estate Securities	Wilshire Global REIT	\$	170,040,685	47.6%
Security Capital Alpha	Wilshire U.S. REIT	\$	51,909,082	14.5%
Security Capital Beta	Wilshire Global REIT	\$	135,288,428	37.9%
Liquid Real Estate		Wilshire Global REIT	\$ 357,238,196	9.9%
Illiquid Real Estate		Wilshire Global REIT	\$ 1,017,717,120	28.3%
Market Neutral Hedge Funds / Risk Premia			\$ 1,195,538	0.0%
REAL ASSETS COMPOSITE		35% Wilshire Global REIT / 10% Alerian MLP / 15% DJ Brookfield Global Infrastructure / 15% TIPS / 25% Bloomberg Commodity	\$ 3,595,522,009	

Real Assets Composite – Performance

Composite/Manager	Quarter	Fiscal YTD	3 Years	5 Years	7 Years	ITD	Inception Date	Market Value	% of Total
REAL ASSETS	6.65	19.32	4.88	5.52	4.20	5.00	4/1/2013	\$ 3,595,522,009	20.46
Real Assets BM	11.05	34.37	7.31	7.28	4.84	5.77	4/1/2013		
Excess Return VS Real Assets BM	-4.40	-15.04	-2.43	-1.76	-0.65	-0.77	4/1/2013		
Real Assets Dynamic BM	6.92	20.57	4.81	5.23	3.78	4.30	4/1/2013		
Excess Return VS Real Assets Dynamic BM	-0.28	-1.25	0.07	0.29	0.42	0.70	4/1/2013		
Allocation Return (<i>Dynamic - Policy</i>)	-4.13	-13.80	-2.50	-2.05	-1.06	-1.47			
<i>Beta</i>		0.45	0.42	0.41	0.40				
<i>Information Ratio</i>		-2.05	-0.38	-0.28	-0.13				
<i>Sharpe Ratio</i>		3.48	0.51	0.72	0.58				
<i>Index Sharpe Ratio</i>		2.89	0.46	0.52	0.39				
<i>Standard Deviation</i>		5.12	7.20	6.06	5.94				
<i>Index Standard Deviation</i>		10.47	15.97	12.93	11.31				
Liquid Real Estate	10.90	34.40	11.60	8.23	8.47	11.70	12/1/2008	\$ 357,238,196	2.03
Wilshire Global REIT TR Index	11.68	37.04	8.60	6.02	7.08	12.77	12/1/2008		
Excess Return VS Wilshire Global REIT TR Index	-0.78	-2.64	3.00	2.22	1.39	-1.07	12/1/2008		
Liquid Real Estate Dyn BM	11.12	38.14	8.41	5.53	7.31		12/1/2008		
Excess Return VS Liquid Real Estate Dyn BM	-0.22	-3.74	3.20	2.70	1.16		12/1/2008		
Allocation Return (<i>Dynamic - Policy</i>)	-0.56	1.10	-0.19	-0.49	0.23				
<i>Beta</i>		0.96	0.86	0.87	0.91				
<i>Information Ratio</i>		-1.28	0.34	0.55	0.54				
<i>Sharpe Ratio</i>		2.31	0.67	0.55	0.58				
<i>Index Sharpe Ratio</i>		2.38	0.51	0.37	0.41				
<i>Standard Deviation</i>		13.27	16.54	14.15	14.27				
<i>Index Standard Deviation</i>		13.76	19.11	16.11	15.31				
Illiquid Real Estate	2.37	9.07	6.63	7.85	10.07	6.58	5/1/2007	\$ 1,017,717,120	5.79
Wilshire Global REIT TR Index	11.68	37.04	8.60	6.02	7.08	4.47	5/1/2007		
Excess Return VS Wilshire Global REIT TR Index	-9.31	-27.97	-1.97	1.84	2.99	2.11	5/1/2007		
NCREIF OEDC Fd 1QA^	2.11	2.32	4.88	6.20	8.25	5.83	5/1/2007		
Excess Return VS NCREIF OEDC Fd 1QA^	0.27	6.75	1.75	1.65	1.82	0.74	5/1/2007		
<i>Beta</i>		0.11	-0.01	-0.02	0.01				
<i>Information Ratio</i>		-1.80	-0.23	0.03	0.10				
<i>Sharpe Ratio</i>		1.67	0.97	1.30	1.77				
<i>Index Sharpe Ratio</i>		2.38	0.51	0.37	0.46				
<i>Standard Deviation</i>		5.24	5.54	5.10	5.05				
<i>Index Standard Deviation</i>		13.76	19.11	16.11	15.55				

Real Assets Composite – Performance

Composite/Manager	Quarter	Fiscal YTD	3 Years	5 Years	7 Years	ITD	Inception Date	Market Value	% of Total
Liquid Real Assets	9.18	27.90	5.05	2.82	-2.17	0.50	9/1/2009	\$ 1,283,065,566	7.30
Liquid Real Assets BM	10.22	29.76	6.85	3.29	-2.81		9/1/2009		
Excess Return VS Liquid Real Assets BM	-1.04	-1.85	-1.81	-0.46	0.64		9/1/2009		
Liquid Real Assets Dyn BM	9.98	27.34	4.87	3.74	-2.50		9/1/2009		
Excess Return VS Liquid Real Assets Dyn BM	-0.80	0.57	0.18	-0.92	0.34		9/1/2009		
Allocation Return (<i>Dynamic - Policy</i>)	-0.24	-2.42	-1.98	0.45	0.31				
Beta		0.73	0.79	0.81	0.88				
Information Ratio		-0.44	-0.40	-0.15	0.09				
Sharpe Ratio		3.22	0.33	0.20	-0.11				
Index Sharpe Ratio		2.64	0.40	0.22	-0.12				
Standard Deviation		7.77	13.69	12.14	15.85				
Index Standard Deviation		10.09	16.70	14.45	17.45				
Illiquid Real Assets	6.08	13.53	1.61	5.49	1.47	-9.53	1/1/2007	\$ 936,305,590	5.33
Illiquid Real Assets BM	11.44	37.73	5.59	7.54	1.38		1/1/2007		
Excess Return VS Illiquid Real Assets BM	-5.35	-24.20	-3.99	-2.05	0.09		1/1/2007		
Illiquid Real Assets Dyn BM	6.22	24.49	2.93	6.13	1.25		1/1/2007		
Excess Return VS Illiquid Real Assets Dyn BM	-0.14	-10.96	-1.32	-0.64	0.22		1/1/2007		
Allocation Return (<i>Dynamic - Policy</i>)	-5.22	-13.24	-2.66	-1.41	-0.13				
Beta		0.19	0.04	0.04	0.06				
Information Ratio		-2.36	-0.32	-0.20	-0.03				
Sharpe Ratio		2.89	0.07	0.82	0.12				
Index Sharpe Ratio		3.57	0.36	0.58	0.10				
Standard Deviation		4.41	5.70	5.30	7.19				
Index Standard Deviation		9.15	13.84	11.83	12.40				
Real Assets Cash Overlay	5.64	27.54				8.36	5/1/2019	\$ 87,515,930	0.50
Real Assets BM	11.05	34.37				8.66	5/1/2019		
Excess Return VS Real Assets BM	-5.40	-6.82				-0.30	5/1/2019		
Market Neutral Hedge Fund	20.07	21.54	6.90	3.82	3.46	3.46	4/1/2013	\$ 1,195,538	0.01
Libor + 2% 1 MA	0.55	2.23	3.53	3.43	3.12	2.98	4/1/2013		
Excess Return VS Libor + 2% 1 MA	19.53	19.31	3.37	0.39	0.34	0.48	4/1/2013		
HFRI EH: Equity Market Neutral Index	3.14	7.83	1.79	2.63	2.70	3.03	4/1/2013		
Excess Return VS HFRI EH: Equity Mkt Neutral Index	16.94	13.72	5.11	1.19	0.75	0.43	4/1/2013		

Real Assets – Performance

Composite/Manager	Quarter	Fiscal YTD	3 Years	5 Years	7 Years	ITD	Inception Date	Market Value	% of Total
Security Capital Alpha	17.47	52.58				53.66	5/1/2020	\$ 51,909,082	0.30
Wilshire US REITS	12.84	37.52				33.62	5/1/2020		
Excess Return VS Wilshire US REITS	4.63	15.07				20.04	5/1/2020		
Wilshire Global REIT TR Index	11.68	37.04				33.15	5/1/2020		
Excess Return VS Wilshire Global REIT TR Index	5.79	15.54				20.51	5/1/2020		
<i>Beta</i>		1.23							
<i>Information Ratio</i>		1.53							
<i>Sharpe Ratio</i>		2.55							
<i>Index Sharpe Ratio</i>		2.53							
<i>Standard Deviation</i>		17.40							
<i>Index Standard Deviation</i>		13.04							
DFA REIT	10.57	32.02	9.77			8.85	5/1/2017	\$ 170,040,685	0.97
Wilshire Global REIT TR Index	11.68	37.04	8.60			7.90	5/1/2017		
Excess Return VS Wilshire Global REIT TR Index	-1.11	-5.02	1.17			0.96	5/1/2017		
S&P Global REIT Index	10.43	36.11	8.40			7.63	5/1/2017		
Excess Return VS S&P Global REIT Index	0.14	-4.09	1.37			1.23	5/1/2017		
<i>Beta</i>		0.94	0.94						
<i>Information Ratio</i>		-2.56	-0.07						
<i>Sharpe Ratio</i>		2.21	0.53						
<i>Index Sharpe Ratio</i>		2.38	0.51						
<i>Standard Deviation</i>		13.06	18.16						
<i>Index Standard Deviation</i>		13.76	19.11						
Security Capital Beta	9.76	32.79				32.27	5/1/2020	\$ 135,288,428	0.77
Wilshire Global REIT TR Index	11.68	37.04				33.15	5/1/2020		
Excess Return VS Wilshire Global REIT TR Index	-1.92	-4.25				-0.88	5/1/2020		
<i>Beta</i>		0.86							
<i>Information Ratio</i>		-2.17							
<i>Sharpe Ratio</i>		2.14							
<i>Index Sharpe Ratio</i>		2.38							
<i>Standard Deviation</i>		12.08							
<i>Index Standard Deviation</i>		13.76							

Real Assets – Performance

Composite/Manager	Quarter	Fiscal YTD	3 Years	5 Years	7 Years	ITD	Inception Date	Market Value	% of Total
Deutsche Liquid Infrastructure	7.21	19.89	10.82			8.67	1/1/2018	\$ 108,762,482	0.62
DJ Brookfield Gbl Infrastructure Index	7.15	19.76	8.89			7.32	1/1/2018		
Excess Return VS DJ Brookfield Gbl Infra Index	0.06	0.13	1.93			1.35	1/1/2018		
Beta		0.91	0.90						
Information Ratio		0.20	0.65						
Sharpe Ratio		1.65	0.69						
Index Sharpe Ratio		1.48	0.52						
Standard Deviation		11.42	14.31						
Index Standard Deviation		12.39	15.81						
Harvest MLP	17.90	54.52	-0.37	0.38	-3.80	-2.83	6/1/2014	\$ 292,658,292	1.66
Alerian MLP Index	21.23	63.98	-0.33	-1.05	-5.74	-4.91	6/1/2014		
Excess Return VS Alerian MLP Index	-3.33	-9.45	-0.04	1.43	1.94	2.08	6/1/2014		
Beta		0.75	0.78	0.79	0.81				
Information Ratio		-1.00	-0.33	-0.10	0.03				
Sharpe Ratio		2.13	0.16	0.14	-0.01				
Index Sharpe Ratio		1.90	0.22	0.14	-0.02				
Standard Deviation		21.80	37.22	30.31	28.42				
Index Standard Deviation		28.64	47.10	37.70	32.23				
PIMCO TIPS - Inflation Linked Bonds	3.43	7.49	6.96			5.86	11/1/2017	\$ 538,337,784	3.06
Bloomberg Barclays U.S. Treasury: US TIPS Index	3.25	6.51	6.53			5.61	11/1/2017		
Excess Return VS BBG U.S. Treasury: US TIPS Index	0.18	0.97	0.42			0.26	11/1/2017		
Beta		1.11	1.10						
Information Ratio		0.53	0.33						
Sharpe Ratio		1.67	1.22						
Index Sharpe Ratio		1.77	1.29						
Standard Deviation		4.33	4.42						
Index Standard Deviation		3.57	3.89						
PIMCO Commodities	15.33	63.56	4.47				4/1/2013	\$ 255,791,079	1.46
Bloomberg Commodity Index Total Return	13.30	45.61	3.90				4/1/2013		
Excess Return VS Bloomberg Commodity Index Total	2.02	17.95	0.56				4/1/2013		
Beta		1.11	1.32						
Information Ratio		1.98	0.20						
Sharpe Ratio		3.58	0.25						
Index Sharpe Ratio		3.32	0.24						
Standard Deviation		14.28	21.28						
Index Standard Deviation		11.66	15.08						

A series of parallel diagonal lines in the top right corner of the slide. There are two prominent red lines and a series of thinner, lighter blue lines following the same diagonal path.

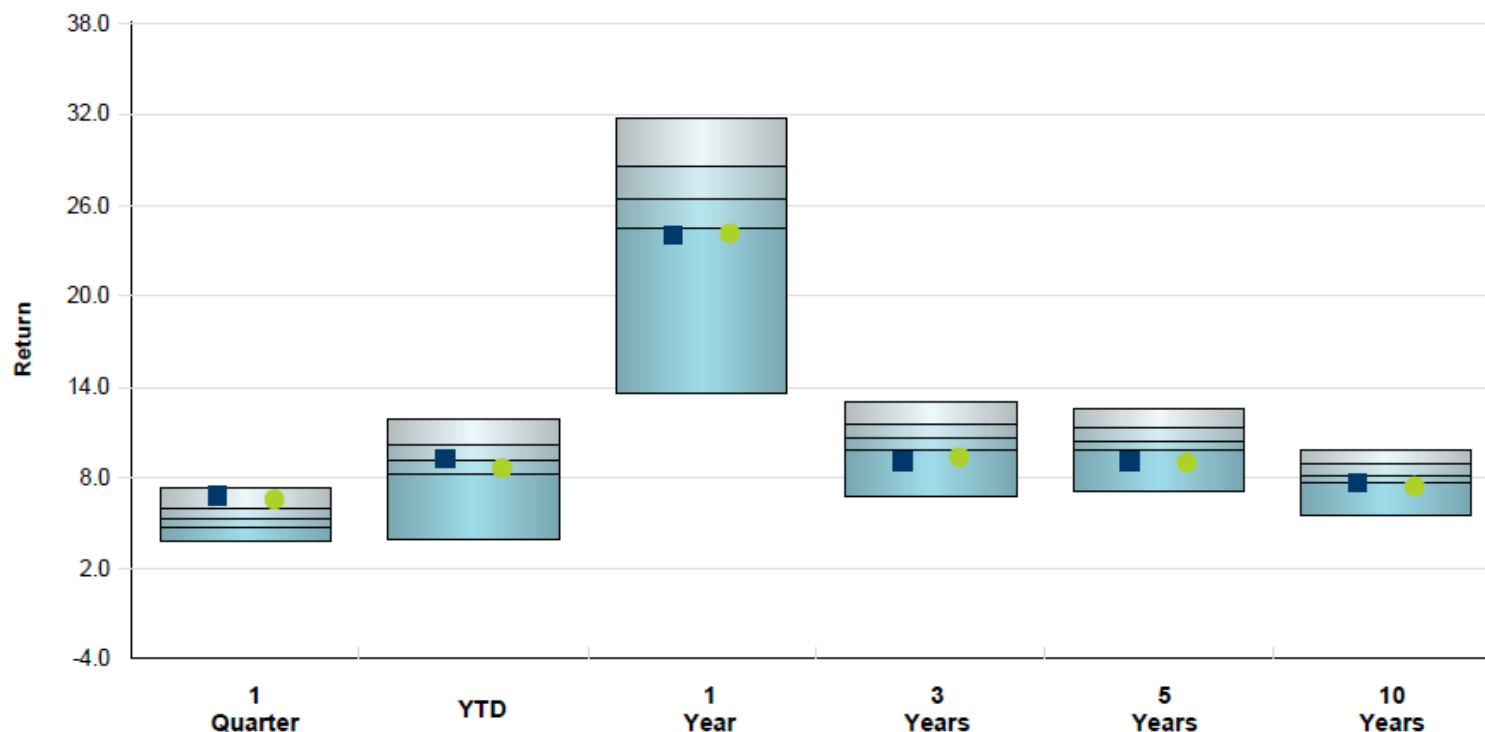
Peer Review

Wilshire

Total Fund – Peer Group Comparison (Public Plans >\$1B)

NM PERA Total Fund vs All Public Plans > \$1B-Total Fund

Periods Ended June 30, 2021



	1 Quarter	YTD	1 Year	3 Years	5 Years	10 Years
■ NM PERA Total Fund	6.75 (14)	9.19 (49)	24.02 (82)	9.13 (88)	9.07 (90)	7.60 (77)
● NM PERA Total Fund Policy	6.53 (16)	8.64 (65)	24.15 (81)	9.34 (85)	8.97 (91)	7.41 (83)
5th Percentile	7.25	11.85	31.86	12.98	12.48	9.83
1st Quartile	5.89	10.20	28.66	11.58	11.24	8.82
Median	5.26	9.13	26.51	10.55	10.48	8.10
3rd Quartile	4.75	8.21	24.57	9.83	9.78	7.64
95th Percentile	3.71	3.84	13.64	6.76	7.07	5.43
Population	94	94	94	94	94	88

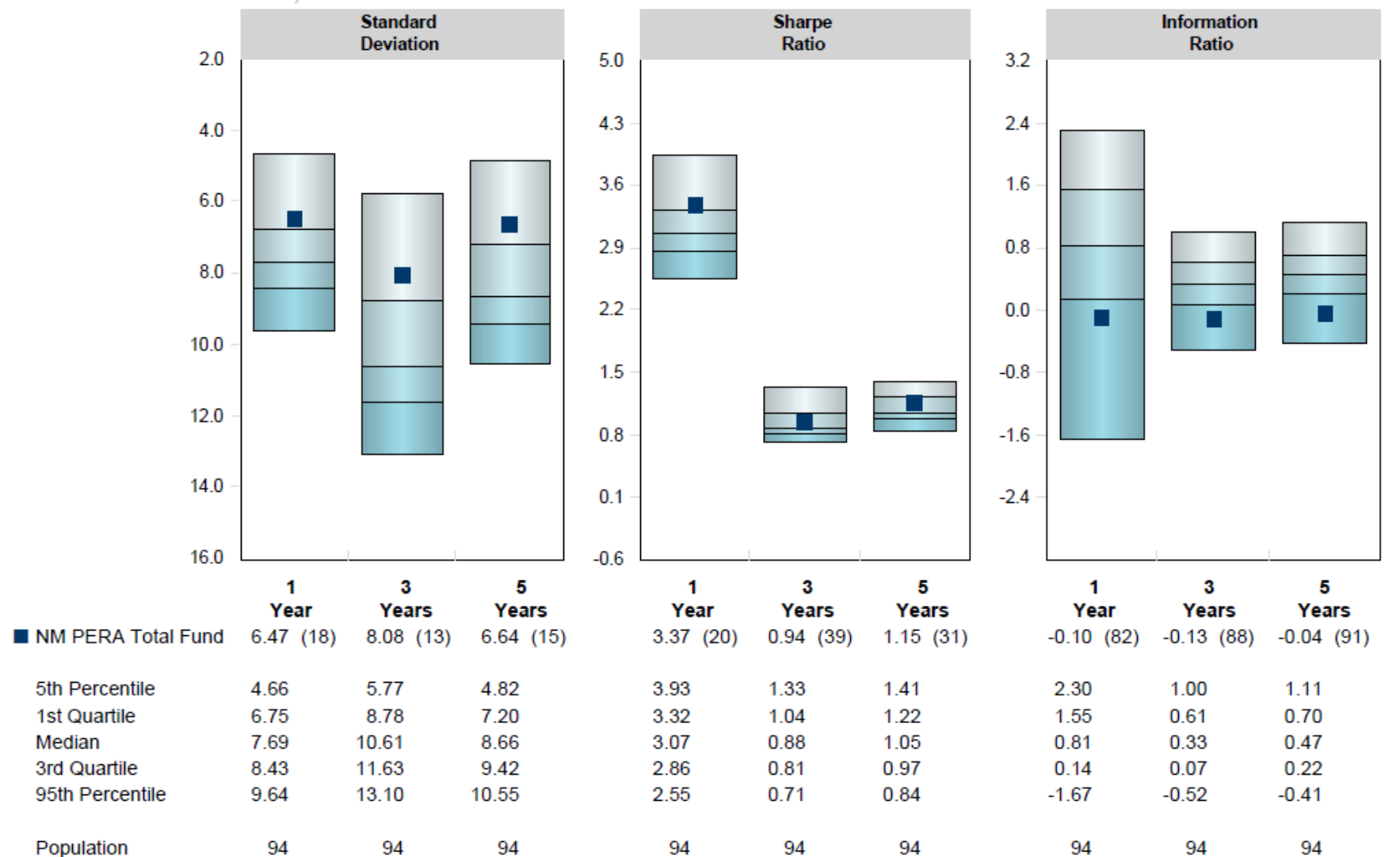
Parentheses contain percentile rankings.

Calculation based on monthly periodicity.

Performance is NOF. Universe source: InvestmentMetrics.

Multi-Stats Peer Group Comparison (Public Plans >\$1B)

NM PERA Total Fund vs All Public Plans > \$1B-Total Fund
Periods Ended June 30, 2021



Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Performance is NOF. Universe source: InvestmentMetrics.

Manager Listing

Wilshire

Manager Listing

	Total Fund	
	\$	%
NM PERA Total Fund	17,577,414,361	100.00
Global Equity	6,307,161,619	35.88
Global Public Stock	3,200,357,734	18.21
BlackRock Equity Transition	103,155	0.00
NT MSCI ACWI X US Index Fund	3,088,177	0.02
SSgA ACWI IMI Index Fund	1,218,491,434	6.93
Active US Equity	619,972,812	3.53
DFA US Target Value	8,962	0.00
Kayne Anderson SCC	366,863,251	2.09
TimesSquare Capital SMID Cap Growth	248,275,971	1.41
Portable Alpha Composite	4,824,628	0.03
Portable Alpha	4,824,628	0.03
Active Non-US Developed Equity	850,616,860	4.84
Acadian International Equity	385,154,270	2.19
KBI Global Investors EAFE Developed	1,325,506	0.01
MFS International Value Equity	254,986,878	1.45
Principal Intl Small Cap Equity	208,408,427	1.19
Schroder Intl Small Composite	741,778	0.00
Active Emerging Markets Equity	370,481,132	2.11
Axiom Investors	368,728,123	2.10
Russell Transition	1,753,010	0.01
Global Equity Overlay	137,604,164	0.78
Global Low Volatility Equity	1,238,741,231	7.05
BlackRock MSCI ACWI Minimum Volatility	1,238,741,231	7.05
Hedged Equity Comp	685,997	0.00
TPG-Axon Partners, LP	685,997	0.00
Private Equity Comp	1,843,216,373	10.49
Altaris Con Partners IV	21,432,499	0.12
Altaris Health Partners IV	49,672,522	0.28

Manager Listing

	Total Fund	
	\$	%
CVC European Equity Partners V	1,196,425	0.01
CVC VII	96,589,467	0.55
Carlyle Partners VI LP	48,002,404	0.27
Carlyle Partners V, L.P.	3,590,710	0.02
Century Focused Fund IV	21,619,366	0.12
Charterhouse Capital Partners IX	4,641,862	0.03
Charterhouse Capital Partners X	99,173,125	0.56
Coller International Partners V, L.P.	673,994	0.00
DFJ Fund XII LP	40,048,321	0.23
Draper Fisher Jurveston X, LP	18,796,581	0.11
FountainVest Fund II	81,140,304	0.46
GTCR XI, L.P.	63,293,818	0.36
GTCR X, L.P.	2,682,964	0.02
Hellman & Friedman Cap. Partners VII	9,217,563	0.05
Hellman & Friedman Cap. Part. VI	395,511	0.00
Glide Buy-Out Fund IV	2,976,205	0.02
Institutional Venture Partners XIV LP	40,643,924	0.23
Institutional Venture Partners XIII	14,137,359	0.08
JMI Equity Fund VII, L.P.	1,331,421	0.01
JMI Equity Fund VI, L.P.	472,444	0.00
KRG Capital Fund IV, L.P.	1,485,425	0.01
Kelso Investment Advisors IX	35,340,998	0.20
Kelso Investments Assoc. VIII, L.P.	4,661,083	0.03
Kelso Investment Associates X	47,708,981	0.27
Helm & Frid Spock 1	9,174,157	0.05
Lincolnshire Equity Fund IV, L.P.	7,164,423	0.04
Linsalata Capital Partners Fund VI, LP	87,465	0.00
Madison Dearburn Cap. Partners VI, LP	8,730,994	0.05
Madison Dearborn Cap. Partners VIII	20,633,087	0.12
New Enterprise Associates 13	10,409,112	0.06

Manager Listing

	Total Fund	
	\$	%
New Enterprise Associates 14	58,713,455	0.33
Nordic Capital Fund VII	5,688	0.00
Onex Partners IV L.P.	31,633,705	0.18
Onex Partners V, L.P.	42,340,696	0.24
Onex Partners III, L.P.	5,531,429	0.03
Patria PE Fund VI	20,607,982	0.12
Petershill	80,832,939	0.46
Pine Bridge Passport I	116,552,128	0.66
Providence Equity Partners VI, L.P.	1,817,319	0.01
RCP Fund of One	65,116,443	0.37
RRJ Capital Master Fund III LP	21,639,074	0.12
Sun Capital Partners V, L.P.	3,479,414	0.02
TPG Asia V, L.P.	4,581,911	0.03
TPG Partners VI, LP	3,056,833	0.02
Technology Crossover Ventures VII, L.P.	12,140,271	0.07
Technology Crossover Ventures IX, LP	107,218,373	0.61
Technology Crossover Ventures X, LP	82,969,733	0.47
The Resolute Fund II, L.P.	8,427,178	0.05
The Resolute Fund III, L.P.	23,634,872	0.13
The Resolute Fund IV, L.P.	65,914,129	0.37
Trinity Ventures XII	68,804,648	0.39
Warburg Pincus PE XII	108,190,366	0.62
Warburg Pincus GG	84,625,330	0.48
Petershill IV	4,513,682	0.03
Enchantment PH Co-Invest	15,285,129	0.09
Hellman Arrow 1	4,617,596	0.03
Hellman Samsn Hcky 1	3,796,326	0.02
Hellman Samsn Shield	9,665,666	0.05
Montagu VI	10,584,219	0.06
Altaris Health Partners V	2,046,204	0.01

Manager Listing

	Total Fund	
	\$	%
Hellman Samson Brunello SPV	2,458,914	0.01
Madison Dearborn Patriot SPV	9,748	0.00
Tenex Capital Partners III	3,280,458	0.02
White Sands Tenex Co-Inv	2,000,000	0.01
LGIMA Global Equity Overlay	24,160,284	0.14
Credit Oriented Fixed Income	2,609,797,298	14.85
Liquid Credit	490,634,026	2.79
High Yield Debt Composite	210,846,582	1.20
Guggenheim Global High Yield	722	0.00
PineBridge High Yield	210,845,860	1.20
Parametric Credit Cash Overlay	279,787,444	1.59
Alternative Liquid Credit	1,291,961,641	7.35
Leveraged Loans/Structured Credit	874,785,412	4.98
Mudrick Stressed CR FKA CVC	187,249,342	1.07
Ellington HF	210,712,886	1.20
Eagle Point	109,083,731	0.62
Napier Park Class B	213,218,493	1.21
Wheeler Peak Rotational Credit	154,520,960	0.88
Credit Oriented Hedge Funds	409,136,163	2.33
Canyon Value Realization Fund, L.P.	42,177,872	0.24
King Street Capital, L.P.	4,560,683	0.03
Silver Point Capital Fund, L.P.	46,871,627	0.27
Anchorage	169,965,303	0.97
Napier Park Class A	145,560,678	0.83
LGIMA Credit Overlay	8,040,066	0.05
Emerging Markets Debt Composite	391,498,179	2.23
Lazard Emerging Markets Debt	391,498,179	2.23
Illiquid Credit Comp	435,703,452	2.48
Atalaya SOF VI	18,699,222	0.11

Manager Listing

	Total Fund	
	\$	%
Athyrium Opportunities Fund II, L.P.	25,727,784	0.15
Cerberus Global RPL	112,453,416	0.64
Cerberus Inst. Partners L.P- Series 4	539,474	0.00
Cheyne V	93,596,790	0.53
European Real Estate Debt Fund III	63,261,678	0.36
European Real Estate Debt Fund II	2,051,643	0.01
Garrison Opportunity Fund IV A LLC	33,050,728	0.19
Madison Real Estate Debt	39,787,327	0.23
OCM Opportunities Fund VII, L.P.	89,199	0.00
OCM Opportunities Fund VIIb, L.P.	23,337	0.00
OCM Opportunities Fund VIII, L.P	194,952	0.00
Oaktree Eur. Prin. Fund III(US), LP	15,816,288	0.09
Selene Res. Mortgage Opp. Fund II LP	4,571,927	0.03
Sixth Street Ops III	18,304,627	0.10
Tennenbaum	1	0.00
Wayzata Opportunities Fund II, L.P.	829,332	0.00
Wayzata Opportunities Fund III, L.P.	5,261,479	0.03
HIG Bayside Loan Opportunity Fund II	1,444,247	0.01
Risk Reduction & Mitigation	3,258,755,599	18.54
Domestic Core Fixed Income	1,808,129,884	10.29
BlackRock Core Active	1,090,313,444	6.20
MacKay Shields Core Investment Grade	-1	0.00
Prudential Core Conservative	651,664,775	3.71
Risk Mitigation Overlay	66,151,666	0.38
Global Core Fixed Income	418,788,968	2.38
Manulife Core Global Agg. Fixed Income		0.00
BlackRock Global FI	418,788,967	2.38
Cash Composite	86,261,173	0.49
Cash Account	82,726,804	0.47

Manager Listing

	Total Fund	
	\$	%
Cash-Corporate Action	3,534,369	0.02
LGIMA Overlay	314,197	0.00
LGIMA TAA Overlay	128,929,098	0.73
Bonds Plus Composite	816,332,280	4.64
AQR SPF		0.00
Elliot	104,644,043	0.60
Parametric Bonds Plus	43,159,051	0.25
Pharo Gaia Fund	42,733,917	0.24
Dorsal	92,324,142	0.53
Garda	55,131,746	0.31
Glazer	99,882,060	0.57
Pacific AA	106,889,370	0.61
Systematica	67,796,079	0.39
Marshall Wace Eureka	92,290,674	0.53
Millenium	72,046,868	0.41
Two Sigma	39,434,331	0.22
Real Assets	3,595,522,009	20.46
Liquid Real Estate Comp	357,238,196	2.03
DFA Real Estate Securities	170,040,685	0.97
Security Capital Alpha	51,909,082	0.30
Security Capital Beta	135,288,428	0.77
Illiquid Real Estate Comp	1,017,717,120	5.79
Aermont Cap RE Fund IV	15,061,017	0.09
BPG Investment Partnership VIII	5,968	0.00
Blackstone Real Estate Partners VII	14,491,786	0.08
Blackstone Real Estat Part Euro III LP	2,875,723	0.02
Carlyle Realty Partners VI, L.P.	1,471,136	0.01
Carlyle Realty Partners V L.P.	4,579,641	0.03
Harrison Street Real Estate Partners V	32,288,434	0.18

Manager Listing

	Total Fund	
	\$	%
Harrison Street Real Estate Partners VII	57,808,466	0.33
KSL Capital Partners IV	61,310,138	0.35
North Haven VII	1,257,776	0.01
Rockwood Cap. Real Estate Part. IX, LP	6,576,868	0.04
Rockwood Real Estate Partners VIII		0.00
Rockwood Cap. Real Estate Part. X, LP	44,628,091	0.25
Starwood Global Opportunity VIII, LP	1,948,454	0.01
Starwood Opportunity Fund X	16,829,210	0.10
Starwood Global Opportunity XI	50,549,157	0.29
Starwood Distressed Opportunity IX, LP	7,560,088	0.04
Walton Street Real Estate Fund VI	9,872,564	0.06
Wheelock Street Real Estate Fund II	12,113,194	0.07
Rockpoint Fund II	86,662,929	0.49
Perella Weinberg III	80,518,169	0.46
Harrison Street Real Estate Partners VI	73,351,191	0.42
Sarofim	88,879,913	0.51
NEW ROCK CORE FUND	141,575,542	0.81
GEM RLTY EVERGREEN	97,327,801	0.55
Rockwood Cap. Real Estate XI	19,509,571	0.11
Rockpoint Fund III	7,791,056	0.04
Stockbridge NLF	54,651,170	0.31
Harrison Street Real Estate VIII	15,273,207	0.09
Stockbridge Value Fund IV	10,948,860	0.06
Liquid Real Assets Comp	1,283,065,566	7.30
PIMCO Commodities	255,791,079	1.46
PIMCO TIPS	538,337,784	3.06
Deutsche Listed Infrastructure	108,762,482	0.62
Harvest MLP Alpha	292,658,292	1.66
Real Assets Cash Overlay	87,515,930	0.50
Illiquid Real Assets Comp	936,305,590	5.33

Manager Listing

	Total Fund	
	\$	%
ACM II	27,472,561	0.16
Antin III	83,840,720	0.48
Ardian V	8,621,634	0.05
Ardian Infrastructure IV	45,128,552	0.26
BEP Legacy A LP	90,741	0.00
Brookfield Infrastructure Fund II LP	43,575,961	0.25
Brookfield Infrastructure Fund III	60,314,556	0.34
Carlyle Power Partners II	56,218,660	0.32
Denham Cap. Part. VI Coinvestment	549,386	0.00
Denham Commodity Partners Fund VI, LP	9,893,848	0.06
Encap Energy Capital VIII, L.P.	6,145,531	0.03
Encap Energy Capital Fund IX, L.P.	10,410,155	0.06
EnCap Flatrock Midstream Fund III	24,368,983	0.14
EnCap Energy Capital XI, L.P.	32,101,713	0.18
Encap Energy Capital VII, L.P.	1,000,301	0.01
First Reserve Fund XII, LP	1,660,290	0.01
IFM Global Infrastructure Fund, L.P.	173,440,327	0.99
KKR Global Infrastructure Investors II	39,508,565	0.22
Kayne Anderson Energy Fund V, LP	5,517,960	0.03
Lime Rock Partners VI, L.P.	5,015,604	0.03
Lime Rock Resources III	17,219,479	0.10
Lime Rock Partners V, L.P.	1,385,906	0.01
MINA III	6,205,766	0.04
Natural Gas Partners Fund IX	978,430	0.01
Natural Gas Partners X	3,264,132	0.02
NGP Natural Resources XI, L.P.	35,689,874	0.20
NGP XII	41,848,527	0.24
Paine and Partners Capital Fund IV	29,823,267	0.17
Quantum Energy Partners IV, L.P.	118,471	0.00
Quantum Energy Partners V, L.P.	7,966,358	0.05

Manager Listing

	Total Fund	
	\$	%
R/C Renewable and Alt. Energy II	833,067	0.00
Riverstone Global Energy & Power Fd V	10,826,116	0.06
R/C Global Energy & Power Fund IV	463,830	0.00
Tillridge	22,682,689	0.13
Mass Ascension Co-Invest	52,602,897	0.30
Four Corners FF	68,895,004	0.39
Market Neutral Hedge Fund Comp	1,195,538	0.01
Farallon Capital Inst. Partners, LP	224,503	0.00
AG Super Fund L.P.	485,631	0.00
OZ Domestic Partners II, L.P.		0.00
Stark Investments	485,404	0.00
Multi-Risk Composite	1,806,177,837	10.28
Zia Risk Parity Fund	1,806,177,837	10.28

Placement Agent Disclosure

Wilshire

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:

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

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

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

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

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.

Placement Agent Disclosure

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 did not use a placement agent while soliciting PERAs investment.

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

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

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

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

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

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

Placement Agent Disclosure

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

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

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

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

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

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

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

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

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

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

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

Placement Agent Disclosure

affiliates and not by the Fund. Axiom Emerging Markets Equity Fund. – Axiom Investors received final approval in the quarter for an investment of \$215 million in the Liquid Equity Assets allocation. Axiom Investors did not use placement agents for our investment in the fund.

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

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

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

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

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

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

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

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

Placement Agent Disclosure

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

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

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

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

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

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

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

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

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

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 they have used CL to act as placement agent for the Fund. Meridiam or its affiliates will bear the cost of all placement fees.

Placement Agent Disclosure

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

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

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

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

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

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

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

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

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 commitment.

Placement Agent Disclosure

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.

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

Placement Agent Disclosure

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.

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

Placement Agent Disclosure

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 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.

Placement Agent Disclosure

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.

Additional Information

Wilshire

Benchmarks

Long-Term Target Allocation Index consists of:

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

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

Glossary

Term	Definition
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

This material contains confidential and proprietary information of Wilshire Associates Incorporated (Wilshire), and is intended for the exclusive use of the person to whom it is provided. It may not be disclosed, reproduced or redistributed, in whole or in part, to any other person or entity without prior written permission from Wilshire. Third party information contained herein has been obtained from sources believed to be reliable. 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. Information and opinions are as of the date indicated, and are subject to change without notice.

This material is intended for informational purposes only and should not be construed as legal, accounting, tax, investment, or other professional advice.

This report may include estimates, projections and other "forward-looking statements." Due to numerous factors, actual events may differ substantially from those presented.

Wilshire® is a registered service mark of Wilshire Associates Incorporated, Santa Monica, California. All other trade names, trademarks, and/or service marks are the property of their respective holders.

Copyright © 2020 Wilshire Associates Incorporated. All rights reserved.