

City of Phoenix Employees' Retirement System

September 30, 2023

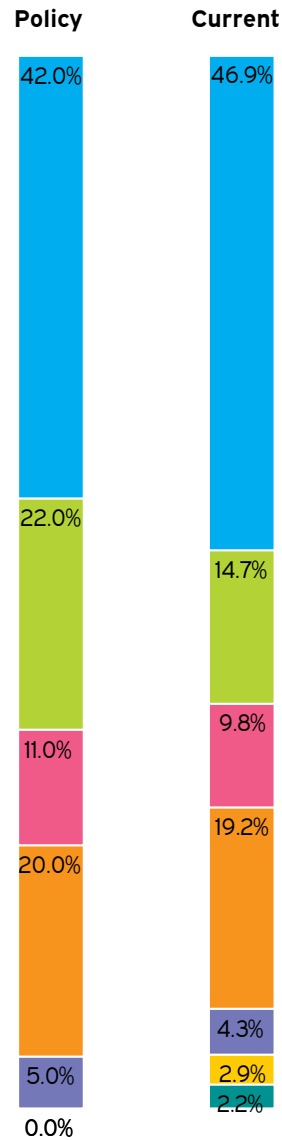
Performance Update

Index Returns – September Update¹

	September 2023 (%)	QTD (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
Domestic Equity							
Russell 3000	-4.8	-3.3	12.4	20.5	9.4	9.1	11.3
Russell 1000	-4.7	-3.1	13.0	21.2	9.5	9.6	11.6
Russell 1000 Growth	-5.4	-3.1	25.0	27.7	8.0	12.4	14.5
Russell 1000 Value	-3.9	-3.2	1.8	14.4	11.0	6.2	8.4
Russell MidCap	-5.0	-4.7	3.9	13.4	8.1	6.4	9.0
Russell MidCap Growth	-4.9	-5.2	9.9	17.5	2.6	7.0	9.9
Russell MidCap Value	-5.1	-4.5	0.5	11.0	11.0	5.2	7.9
Russell 2000	-5.9	-5.1	2.5	8.9	7.2	2.4	6.6
Russell 2000 Growth	-6.6	-7.3	5.2	9.6	1.1	1.6	6.7
Russell 2000 Value	-5.2	-3.0	-0.5	7.8	13.3	2.6	6.2
Foreign Equity							
MSCI ACWI ex USA	-3.2	-3.8	5.3	20.4	3.7	2.6	3.3
MSCI EAFE	-3.4	-4.1	7.1	25.6	5.8	3.2	3.8
MSCI EAFE Small Cap	-4.4	-3.5	1.8	17.9	1.1	0.8	4.3
MSCI Emerging Markets	-2.6	-2.9	1.8	11.7	-1.7	0.6	2.1
Fixed Income							
Bloomberg US Universal TR	-2.4	-2.9	-0.6	1.6	-4.7	0.3	1.4
Bloomberg US Aggregate TR	-2.5	-3.2	-1.2	0.6	-5.2	0.1	1.1
Bloomberg US TIPS TR	-1.8	-2.6	-0.8	1.2	-2.0	2.1	1.7
Bloomberg US High Yield TR	-1.2	0.5	5.9	10.3	1.8	3.0	4.2
JP Morgan GBI EM Global Diversified TR USD	-3.4	-3.3	4.3	13.1	-2.7	0.0	-0.8
JP Morgan GBI EM Global Diversified TR LCL	-1.3	-0.7	5.0	9.0	-0.5	3.8	4.9
Other							
NAREIT Equity	-6.8	-7.1	-2.1	3.0	5.8	2.8	6.0
Bloomberg Commodity Index TR USD	-0.7	4.7	-3.4	-1.3	16.2	6.1	-0.7

¹ Source: Thomson Reuters.

Asset Allocation Compliance | As of September 30, 2023



Allocation vs. Targets and Policy						
	Current Balance (\$)	Current Allocation	Policy	Difference	Policy Range	Within IPS Range?
Equity	1,557,671,389	47	42	5	22 - 62	Yes
U.S. Equity	715,933,958	22	16	6	11 - 21	No
Developed Market Equity	399,589,103	12	9	3	4 - 14	Yes
Emerging Market Equity	183,393,846	6	8	-2	3 - 13	Yes
Private Equity	258,754,482	8	9	-1	4 - 14	Yes
Rate-Sensitive	487,305,055	15	22	-7	12 - 32	Yes
Investment Grade Bonds	343,242,927	10	15	-5	10 - 20	Yes
TIPS	144,062,127	4	7	-3	2 - 12	Yes
Credit	324,608,275	10	11	-1	0 - 22	Yes
High Yield Bonds	153,565,794	5	5	0	0 - 10	Yes
Bank Loans	95,974,800	3	3	0	0 - 6	Yes
Emerging Market Bonds	75,067,681	2	3	-1	0 - 6	Yes
Real Assets	639,245,642	19	20	-1	7 - 33	Yes
Real Estate	485,522,364	15	12	3	7 - 17	Yes
Infrastructure	91,782,863	3	4	-1	0 - 8	Yes
Natural Resources	61,940,415	2	4	-2	0 - 8	Yes
Hedge Funds	142,389,273	4	5	-1	0 - 10	Yes
Hedge Funds	142,389,273	4	5	-1	0 - 10	Yes
GTAA	97,896,733	3	0	3	0 - 0	No
Cash Equivalents	72,465,126	2	0	2	0 - 5	Yes
Cash Equivalents	72,465,126	2	0	2	0 - 5	Yes
Total	3,321,581,492	100	100	0		

Performance Summary											
	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Fund	3,321,581,492	100.0	-1.5	-1.3	3.2	7.8	5.2	5.1	5.8	7.2	Dec-87
<i>COPERS Policy Benchmark</i>			<i>-1.3</i>	<i>-1.2</i>	<i>5.5</i>	<i>9.2</i>	<i>5.2</i>	<i>5.5</i>	<i>6.4</i>	<i>8.1</i>	
<i>COPERS Custom Benchmark</i>			<i>-1.6</i>	<i>-1.2</i>	<i>5.5</i>	<i>9.2</i>	<i>5.2</i>	<i>5.4</i>	<i>6.4</i>	<i>8.2</i>	
Equity	1,557,671,389	46.9									
US Equity	715,933,958	21.6	-2.3	-1.1	4.6	15.1	7.9	6.2	8.9	7.9	Mar-05
<i>Russell 3000 Index</i>			<i>-4.8</i>	<i>-3.3</i>	<i>12.4</i>	<i>20.5</i>	<i>9.4</i>	<i>9.1</i>	<i>11.3</i>	<i>9.1</i>	
Developed Market Equity (non-U.S.)	399,589,103	12.0	-3.8	-6.0	4.9	20.7	-0.6	2.0	4.1	4.4	Mar-05
<i>MSCI EAFE (Net)</i>			<i>-3.4</i>	<i>-4.1</i>	<i>7.1</i>	<i>25.6</i>	<i>5.8</i>	<i>3.2</i>	<i>3.8</i>	<i>4.3</i>	
Emerging Markets Equity	183,393,846	5.5	0.0	1.5	14.0	24.0	5.3	--	--	5.6	Nov-19
<i>MSCI Emerging Markets (Net)</i>			<i>-2.6</i>	<i>-2.9</i>	<i>1.8</i>	<i>11.7</i>	<i>-1.7</i>	<i>0.6</i>	<i>2.1</i>	<i>0.2</i>	
Private Equity	258,754,482	7.8	1.8	1.8	5.6	3.4	21.8	17.7	--	13.7	Apr-15
<i>Russell 3000 +2% (Q Lag)</i>			<i>7.0</i>	<i>8.9</i>	<i>26.4</i>	<i>21.3</i>	<i>16.2</i>	<i>13.6</i>	<i>14.6</i>	<i>13.2</i>	
Rate-Sensitive	487,305,055	14.7									
Investment Grade Bonds	343,242,927	10.3	-2.8	-3.4	-1.1	0.6	-5.3	0.0	1.4	3.2	Mar-05
<i>Blmbg. U.S. Aggregate Index</i>			<i>-2.5</i>	<i>-3.2</i>	<i>-1.2</i>	<i>0.6</i>	<i>-5.2</i>	<i>0.1</i>	<i>1.1</i>	<i>2.8</i>	
TIPS	144,062,127	4.3	-1.8	-2.6	-0.6	1.2	-2.0	2.1	--	1.8	Feb-18
<i>Blmbg. U.S. TIPS</i>			<i>-1.8</i>	<i>-2.6</i>	<i>-0.8</i>	<i>1.2</i>	<i>-2.0</i>	<i>2.1</i>	<i>1.7</i>	<i>1.9</i>	

Fiscal Year begins July 1.
The Policy Benchmark, Custom Benchmark, and Emerging Market Debt Custom Benchmark formulas are shown on Benchmark History page.

Asset Allocation & Performance | As of September 30, 2023

	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Credit	324,608,275	9.8									
High Yield Bonds	153,565,794	4.6	-1.5	2.1	8.0	9.6	4.3	3.1	--	3.2	Aug-18
<i>Blmbg. U.S. Corp: High Yield Index</i>			<i>-1.2</i>	<i>0.5</i>	<i>5.9</i>	<i>10.3</i>	<i>1.8</i>	<i>3.0</i>	<i>4.2</i>	<i>3.1</i>	
Bank Loans	95,974,800	2.9	0.0	2.6	9.8	12.9	5.7	4.4	--	4.4	Sep-18
<i>Credit Suisse Leveraged Loan Index</i>			<i>0.9</i>	<i>3.4</i>	<i>9.9</i>	<i>12.5</i>	<i>5.9</i>	<i>4.3</i>	<i>4.3</i>	<i>4.4</i>	
Emerging Market Bonds	75,067,681	2.3	-2.4	-2.1	4.1	12.9	-1.9	1.6	3.3	2.6	Feb-13
<i>Emerging Market Debt Custom Benchmark</i>			<i>-2.3</i>	<i>-2.0</i>	<i>2.9</i>	<i>9.9</i>	<i>-2.8</i>	<i>1.1</i>	<i>3.2</i>	<i>2.5</i>	
Real Assets	639,245,642	19.2									
Real Estate	485,522,364	14.6	-1.5	-1.6	-4.3	-5.9	9.2	6.8	8.2	6.6	Dec-06
<i>NCREIF ODCE (VW) (Gross) (Monthly)</i>			<i>-2.0</i>	<i>-2.0</i>	<i>-7.6</i>	<i>-12.2</i>	<i>7.1</i>	<i>5.6</i>	<i>8.1</i>	<i>6.2</i>	
Core Real Estate	209,338,503	6.3	-0.4	-0.8	-5.8	-8.9	7.8	5.9	8.2	6.4	Jan-09
<i>NCREIF ODCE (VW) (Gross) (Monthly)</i>			<i>-2.0</i>	<i>-2.0</i>	<i>-7.6</i>	<i>-12.2</i>	<i>7.1</i>	<i>5.6</i>	<i>8.1</i>	<i>6.5</i>	
Non-Core Real Estate	276,183,862	8.3	-2.2	-2.2	-2.9	-3.2	10.5	7.9	7.9	8.0	Feb-09
<i>NCREIF ODCE (VW) (Gross) (Monthly)</i>			<i>-2.0</i>	<i>-2.0</i>	<i>-7.6</i>	<i>-12.2</i>	<i>7.1</i>	<i>5.6</i>	<i>8.1</i>	<i>6.6</i>	
<i>NCREIF ODCE 1Q Lagged</i>			<i>-2.7</i>	<i>-2.7</i>	<i>-10.4</i>	<i>-10.0</i>	<i>8.0</i>	<i>6.5</i>	<i>8.7</i>	<i>5.9</i>	
Natural Resources	61,940,415	1.9	1.2	1.2	11.7	21.2	28.1	--	--	10.1	Sep-19
<i>S&P Global Natural Resources (1-Qtr Lag)</i>			<i>6.5</i>	<i>-3.9</i>	<i>13.0</i>	<i>7.6</i>	<i>17.8</i>	<i>5.2</i>	<i>5.1</i>	<i>10.1</i>	
Infrastructure	91,782,863	2.8	2.0	2.0	13.5	13.6	8.6	--	--	5.9	Sep-19
<i>CPI +3% (Seasonally Adjusted) (Q Lag)</i>			<i>0.4</i>	<i>1.4</i>	<i>4.8</i>	<i>6.2</i>	<i>8.9</i>	<i>7.0</i>	<i>5.8</i>	<i>7.5</i>	
Hedge Funds	142,389,273	4.3	1.1	0.0	0.9	-1.8	9.1	5.1	--	3.1	Jan-14
<i>HFRI Fund Weighted Composite Index</i>			<i>-0.6</i>	<i>0.5</i>	<i>3.9</i>	<i>6.3</i>	<i>6.7</i>	<i>5.0</i>	<i>4.5</i>	<i>4.3</i>	
GTAA	97,896,733	2.9	-2.5	-2.2	1.7	9.1	5.3	4.1	3.6	2.5	Jul-07
<i>CPI +4% (Unadjusted)</i>			<i>0.6</i>	<i>1.9</i>	<i>6.8</i>	<i>7.8</i>	<i>10.0</i>	<i>8.2</i>	<i>6.9</i>	<i>6.5</i>	
Cash Equivalents	72,465,126	2.2	0.4	1.3	3.7	4.6	1.7	1.6	1.1	1.3	Mar-05
<i>ICE BofA 3 Month U.S. T-Bill</i>			<i>0.5</i>	<i>1.3</i>	<i>3.6</i>	<i>4.5</i>	<i>1.7</i>	<i>1.7</i>	<i>1.1</i>	<i>1.4</i>	

Trailing Net Performance											
	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Fund	3,321,581,492	100.0	-1.5	-1.3	3.2	7.8	5.2	5.1	5.8	7.2	Dec-87
<i>COPERS Policy Benchmark</i>			-1.3	-1.2	5.5	9.2	5.2	5.5	6.4	8.1	
<i>COPERS Custom Benchmark</i>			-1.6	-1.2	5.5	9.2	5.2	5.4	6.4	8.2	
Equity	1,557,671,389	46.9									
US Equity	715,933,958	21.6	-2.3	-1.1	4.6	15.1	7.9	6.2	8.9	7.9	Mar-05
<i>Russell 3000 Index</i>			-4.8	-3.3	12.4	20.5	9.4	9.1	11.3	9.1	
SSgA FTSE RAFI U.S. Low Volatility	218,925,034	6.6	-2.3	-1.3	-1.7	12.0	12.1	7.1	--	7.7	Jan-15
<i>FTSE RAFI USD Low Volatility Index</i>			-2.2	-1.2	-1.7	12.1	12.2	7.3	9.2	7.8	
<i>Russell 3000 Index</i>			-4.8	-3.3	12.4	20.5	9.4	9.1	11.3	10.3	
Artisan Global Opportunities	195,914,561	5.9	0.0	-0.3	15.1	21.5	0.5	8.2	--	10.2	Dec-14
<i>MSCI AC World Index (Net)</i>			-4.1	-3.4	10.1	20.8	6.9	6.5	7.6	7.0	
Robeco BP Large Cap Value	181,198,847	5.5	-2.6	0.6	4.9	18.1	15.9	7.5	9.3	9.9	May-13
<i>Russell 1000 Value Index</i>			-3.9	-3.2	1.8	14.4	11.1	6.2	8.4	8.7	
Eagle Small Cap Growth	63,130,574	1.9	-6.0	-5.9	2.9	6.3	-1.5	1.8	7.6	9.4	Jul-05
<i>Russell 2000 Growth Index</i>			-6.6	-7.3	5.2	9.6	1.1	1.6	6.7	7.8	
CRM Small Cap Value	56,764,942	1.7	-5.3	-3.2	-1.0	8.7	13.7	1.9	6.0	6.6	Feb-08
<i>Russell 2000 Value Index</i>			-5.2	-3.0	-0.5	7.8	13.3	2.6	6.2	6.8	

The Policy Benchmark and Custom Benchmark formulas are shown on the Benchmark History page.
Value for Artisan Global Opportunities is as of previous month-end.

Asset Allocation & Performance | As of September 30, 2023

	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Developed Market Equity (non-U.S.)	399,589,103	12.0	-3.8	-6.0	4.9	20.7	-0.6	2.0	4.1	4.4	Mar-05
<i>MSCI EAFE (Net)</i>			<i>-3.4</i>	<i>-4.1</i>	<i>7.1</i>	<i>25.6</i>	<i>5.8</i>	<i>3.2</i>	<i>3.8</i>	<i>4.3</i>	
Baillie Gifford ACWI ex-U.S. Alpha Equities	208,986,673	6.3	-6.3	-10.4	3.1	18.9	-5.6	1.0	3.9	4.3	Jul-11
<i>MSCI AC World ex USA Growth (Net)</i>			<i>-5.3</i>	<i>-7.3</i>	<i>2.6</i>	<i>15.8</i>	<i>-1.9</i>	<i>2.5</i>	<i>3.9</i>	<i>3.8</i>	
<i>MSCI AC World ex USA index</i>			<i>-3.1</i>	<i>-3.7</i>	<i>5.8</i>	<i>21.0</i>	<i>4.2</i>	<i>3.1</i>	<i>3.8</i>	<i>3.8</i>	
SSgA FTSE RAFI Dev. ex-U.S. Low Volatility Index	91,394,779	2.8	-1.7	-1.4	7.3	25.6	9.1	2.5	--	3.9	Aug-15
<i>FTSE RAFI Developed ex-U.S. Low Volatility Index</i>			<i>-1.7</i>	<i>-1.3</i>	<i>7.0</i>	<i>25.2</i>	<i>9.0</i>	<i>2.3</i>	<i>--</i>	<i>3.7</i>	
<i>MSCI EAFE Index</i>			<i>-3.4</i>	<i>-4.0</i>	<i>7.6</i>	<i>26.3</i>	<i>6.3</i>	<i>3.7</i>	<i>4.3</i>	<i>4.2</i>	
First Eagle International Value	76,841,030	2.3	0.0	-0.7	6.2	18.9	--	--	--	2.3	Dec-20
<i>MSCI EAFE Value Index (Net)</i>			<i>-0.8</i>	<i>0.6</i>	<i>9.9</i>	<i>31.5</i>	<i>11.1</i>	<i>2.8</i>	<i>3.0</i>	<i>6.7</i>	
<i>MSCI EAFE Index</i>			<i>-3.4</i>	<i>-4.0</i>	<i>7.6</i>	<i>26.3</i>	<i>6.3</i>	<i>3.7</i>	<i>4.3</i>	<i>2.8</i>	
Driehaus International Small Cap Growth	22,366,621	0.7	-0.2	2.5	7.9	25.9	--	--	--	-7.3	May-21
<i>MSCI AC World ex USA Small Growth Index (Net)</i>			<i>-5.0</i>	<i>-3.7</i>	<i>3.6</i>	<i>15.7</i>	<i>-0.3</i>	<i>2.1</i>	<i>4.4</i>	<i>-9.4</i>	
<i>MSCI AC World ex USA index</i>			<i>-3.1</i>	<i>-3.7</i>	<i>5.8</i>	<i>21.0</i>	<i>4.2</i>	<i>3.1</i>	<i>3.8</i>	<i>-4.0</i>	
Emerging Markets Equity	183,393,846	5.5	0.0	1.5	14.0	24.0	5.3	--	--	5.6	Nov-19
<i>MSCI Emerging Markets (Net)</i>			<i>-2.6</i>	<i>-2.9</i>	<i>1.8</i>	<i>11.7</i>	<i>-1.7</i>	<i>0.6</i>	<i>2.1</i>	<i>0.2</i>	
GQG Emerging Markets Equity	94,599,418	2.8	0.0	1.9	16.9	21.0	1.1	--	--	5.8	Jan-20
<i>MSCI Emerging Markets Growth (Net)</i>			<i>-4.1</i>	<i>-4.9</i>	<i>-1.8</i>	<i>7.7</i>	<i>-7.2</i>	<i>0.6</i>	<i>2.8</i>	<i>-2.8</i>	
LSV Emerging Markets Value	88,794,428	2.7	0.0	1.1	11.1	27.3	10.8	--	--	4.3	Nov-19
<i>MSCI Emerging Markets Value (Net)</i>			<i>-1.0</i>	<i>-0.8</i>	<i>5.7</i>	<i>16.0</i>	<i>4.4</i>	<i>0.4</i>	<i>1.2</i>	<i>0.9</i>	

Values for First Eagle International Value, GQG Emerging Markets Equity, and LSV Emerging Markets Value are as of previous month-end.

Asset Allocation & Performance | As of September 30, 2023

	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Private Equity	258,754,482	7.8	1.8	1.8	5.6	3.4	21.8	17.7	--	13.7	Apr-15
<i>Russell 3000 +2% (Q Lag)</i>			<i>7.0</i>	<i>8.9</i>	<i>26.4</i>	<i>21.3</i>	<i>16.2</i>	<i>13.6</i>	<i>14.6</i>	<i>13.2</i>	
Neuberger Berman Sonoran Tranche A (P.E.)	131,506,775	4.0	1.4	1.4	3.4	0.9	18.9	16.2	--	12.9	Apr-15
Neuberger Berman Sonoran Tranche B (P.E.)	118,661,296	3.6	2.1	2.1	8.0	6.4	27.4	--	--	1.4	Jan-19
Neuberger Berman Sonoran Tranche E (P.E.)	8,586,411	0.3									
Rate-Sensitive	487,305,055	14.7									
Investment Grade Bonds	343,242,927	10.3	-2.8	-3.4	-1.1	0.6	-5.3	0.0	1.4	3.2	Mar-05
<i>Blmbg. U.S. Aggregate Index</i>			<i>-2.5</i>	<i>-3.2</i>	<i>-1.2</i>	<i>0.6</i>	<i>-5.2</i>	<i>0.1</i>	<i>1.1</i>	<i>2.8</i>	
SSgA US Aggregate Bond Index	149,093,204	4.5	-2.5	-3.2	-1.0	0.7	-5.2	0.1	--	0.1	Apr-18
<i>Blmbg. U.S. Aggregate Index</i>			<i>-2.5</i>	<i>-3.2</i>	<i>-1.2</i>	<i>0.6</i>	<i>-5.2</i>	<i>0.1</i>	<i>1.1</i>	<i>0.1</i>	
Longfellow Core Fixed Income	97,733,577	2.9	-2.7	-3.3	-1.1	0.4	-4.7	0.2	--	0.3	May-18
<i>Blmbg. U.S. Aggregate Index</i>			<i>-2.5</i>	<i>-3.2</i>	<i>-1.2</i>	<i>0.6</i>	<i>-5.2</i>	<i>0.1</i>	<i>1.1</i>	<i>0.2</i>	
Western Asset U.S. Core	96,416,146	2.9	-3.3	-3.9	-1.3	0.8	-6.0	-0.2	1.7	3.2	Feb-05
<i>Blmbg. U.S. Aggregate Index</i>			<i>-2.5</i>	<i>-3.2</i>	<i>-1.2</i>	<i>0.6</i>	<i>-5.2</i>	<i>0.1</i>	<i>1.1</i>	<i>2.8</i>	
TIPS	144,062,127	4.3	-1.8	-2.6	-0.6	1.2	-2.0	2.1	--	1.8	Feb-18
<i>Blmbg. U.S. TIPS</i>			<i>-1.8</i>	<i>-2.6</i>	<i>-0.8</i>	<i>1.2</i>	<i>-2.0</i>	<i>2.1</i>	<i>1.7</i>	<i>1.9</i>	
SSgA U.S. TIPS	144,062,127	4.3	-1.8	-2.6	-0.6	1.2	-2.0	2.1	--	1.8	Feb-18
<i>Blmbg. U.S. TIPS</i>			<i>-1.8</i>	<i>-2.6</i>	<i>-0.8</i>	<i>1.2</i>	<i>-2.0</i>	<i>2.1</i>	<i>1.7</i>	<i>1.9</i>	

Asset Allocation & Performance | As of September 30, 2023

	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Credit	324,608,275	9.8									
High Yield Bonds	153,565,794	4.6	-1.5	2.1	8.0	9.6	4.3	3.1	--	3.2	Aug-18
<i>Blmbg. U.S. Corp: High Yield Index</i>			<i>-1.2</i>	<i>0.5</i>	<i>5.9</i>	<i>10.3</i>	<i>1.8</i>	<i>3.0</i>	<i>4.2</i>	<i>3.1</i>	
Brigade Traditional High Yield	78,843,892	2.4	-1.9	2.8	7.3	9.1	4.4	3.5	--	3.6	Aug-18
<i>Blmbg. U.S. Corp: High Yield Index</i>			<i>-1.2</i>	<i>0.5</i>	<i>5.9</i>	<i>10.3</i>	<i>1.8</i>	<i>3.0</i>	<i>4.2</i>	<i>3.1</i>	
Polen Capital Management	74,721,903	2.2	-1.0	1.3	8.7	10.1	4.2	2.7	--	2.8	Sep-18
<i>Blmbg. U.S. Corp: High Yield Index</i>			<i>-1.2</i>	<i>0.5</i>	<i>5.9</i>	<i>10.3</i>	<i>1.8</i>	<i>3.0</i>	<i>4.2</i>	<i>3.0</i>	
Bank Loans	95,974,800	2.9	0.0	2.6	9.8	12.9	5.7	4.4	--	4.4	Sep-18
<i>Credit Suisse Leveraged Loan Index</i>			<i>0.9</i>	<i>3.4</i>	<i>9.9</i>	<i>12.5</i>	<i>5.9</i>	<i>4.3</i>	<i>4.3</i>	<i>4.4</i>	
Pacific Asset Management	95,974,800	2.9	0.0	2.6	9.8	12.9	5.7	4.4	--	4.4	Sep-18
<i>Credit Suisse Leveraged Loan Index</i>			<i>0.9</i>	<i>3.4</i>	<i>9.9</i>	<i>12.5</i>	<i>5.9</i>	<i>4.3</i>	<i>4.3</i>	<i>4.4</i>	
Emerging Market Bonds	75,067,681	2.3	-2.4	-2.1	4.1	12.9	-1.9	1.6	3.3	2.6	Feb-13
<i>Emerging Market Debt Custom Benchmark</i>			<i>-2.3</i>	<i>-2.0</i>	<i>2.9</i>	<i>9.9</i>	<i>-2.8</i>	<i>1.1</i>	<i>3.2</i>	<i>2.5</i>	
MetLife Emerging Markets Debt Collective Trust	75,067,681	2.3	-2.4	-2.1	4.1	12.9	-1.9	--	--	-0.6	Sep-19
<i>MetLife Custom Benchmark</i>			<i>-2.3</i>	<i>-2.0</i>	<i>2.9</i>	<i>9.9</i>	<i>-2.8</i>	<i>0.7</i>	<i>1.8</i>	<i>-1.4</i>	

The MetLife Custom Benchmark composition is included in the Emerging Market Debt Custom Benchmark detail shown on the Benchmark History page.
Value for Pacific Asset Management is as of previous month-end.

Asset Allocation & Performance | As of September 30, 2023

	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Real Assets	639,245,642	19.2									
Real Estate	485,522,364	14.6	-1.5	-1.6	-4.3	-5.9	9.2	6.8	8.2	6.6	Dec-06
<i>NCREIF ODCE (VW) (Gross) (Monthly)</i>			<i>-2.0</i>	<i>-2.0</i>	<i>-7.6</i>	<i>-12.2</i>	<i>7.1</i>	<i>5.6</i>	<i>8.1</i>	<i>6.2</i>	
Non-Core Real Estate	276,183,862	8.3	-2.2	-2.2	-2.9	-3.2	10.5	7.9	7.9	8.0	Feb-09
<i>NCREIF ODCE (VW) (Gross) (Monthly)</i>			<i>-2.0</i>	<i>-2.0</i>	<i>-7.6</i>	<i>-12.2</i>	<i>7.1</i>	<i>5.6</i>	<i>8.1</i>	<i>6.6</i>	
<i>NCREIF ODCE 1Q Lagged</i>			<i>-2.7</i>	<i>-2.7</i>	<i>-10.4</i>	<i>-10.0</i>	<i>8.0</i>	<i>6.5</i>	<i>8.7</i>	<i>5.9</i>	
Core Real Estate	209,338,503	6.3	-0.4	-0.8	-5.8	-8.9	7.8	5.9	8.2	6.4	Jan-09
<i>NCREIF ODCE (VW) (Gross) (Monthly)</i>			<i>-2.0</i>	<i>-2.0</i>	<i>-7.6</i>	<i>-12.2</i>	<i>7.1</i>	<i>5.6</i>	<i>8.1</i>	<i>6.5</i>	
Natural Resources	61,940,415	1.9	1.2	1.2	11.7	21.2	28.1	--	--	10.1	Sep-19
<i>S&P Global Natural Resources (1-Qtr Lag)</i>			<i>6.5</i>	<i>-3.9</i>	<i>13.0</i>	<i>7.6</i>	<i>17.8</i>	<i>5.2</i>	<i>5.1</i>	<i>10.1</i>	
Neuberger Berman Sonoran Tranche C (N.R.)	61,940,415	1.9	1.2	1.2	11.7	21.2	28.1	--	--	9.9	Aug-19
<i>S&P Global Natural Resources (1-Qtr Lag)</i>			<i>6.5</i>	<i>-3.9</i>	<i>13.0</i>	<i>7.6</i>	<i>17.8</i>	<i>5.2</i>	<i>5.1</i>	<i>7.7</i>	
Infrastructure	91,782,863	2.8	2.0	2.0	13.5	13.6	8.6	--	--	5.9	Sep-19
<i>CPI +3% (Seasonally Adjusted) (Q Lag)</i>			<i>0.4</i>	<i>1.4</i>	<i>4.8</i>	<i>6.2</i>	<i>8.9</i>	<i>7.0</i>	<i>5.8</i>	<i>7.5</i>	
Neuberger Berman Sonoran Tranche D (Infra)	71,211,380	2.1	1.1	1.1	13.6	13.7	8.6	--	--	5.8	Aug-19
<i>CPI +3% (Seasonally Adjusted) (Q Lag)</i>			<i>0.4</i>	<i>1.4</i>	<i>4.8</i>	<i>6.2</i>	<i>8.9</i>	<i>7.0</i>	<i>5.8</i>	<i>7.4</i>	
Neuberger Berman Sonoran Tranche F (Infra)	20,571,483	0.6									

Asset Allocation & Performance | As of September 30, 2023

	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Hedge Funds	142,389,273	4.3	1.1	0.0	0.9	-1.8	9.1	5.1	--	3.1	Jan-14
<i>HFRI Fund Weighted Composite Index</i>			<i>-0.6</i>	<i>0.5</i>	<i>3.9</i>	<i>6.3</i>	<i>6.7</i>	<i>5.0</i>	<i>4.5</i>	<i>4.3</i>	
Carlson Double Black Diamond, Ltd.	49,711,053	15	0.6	-0.8	-1.0	2.4	7.5	4.4	--	3.2	Aug-14
<i>HFRI Relative Value (Total) Index</i>			<i>0.2</i>	<i>1.5</i>	<i>4.1</i>	<i>5.6</i>	<i>5.4</i>	<i>3.6</i>	<i>4.0</i>	<i>3.6</i>	
BH-DG Systematic Trading	45,972,651	14	3.1	-2.3	-2.8	-11.8	16.6	11.3	--	10.0	Mar-18
<i>Barclay CTA Index</i>			<i>1.0</i>	<i>0.8</i>	<i>1.3</i>	<i>-0.8</i>	<i>5.7</i>	<i>4.5</i>	<i>2.8</i>	<i>3.9</i>	
Fir Tree International Value Fund, L.P.	46,683,231	14	-0.1	3.1	7.1	5.3	4.9	1.9	--	0.1	Nov-14
<i>HFRI Event-Driven (Total) Index</i>			<i>-0.3</i>	<i>2.4</i>	<i>4.9</i>	<i>8.2</i>	<i>7.8</i>	<i>4.6</i>	<i>4.5</i>	<i>4.5</i>	
PAAMCO Newport Phoenix, LLC	22,338	0.0									
GTAA	97,896,733	2.9	-2.5	-2.2	1.7	9.1	5.3	4.1	3.6	2.5	Jul-07
<i>CPI +4% (Unadjusted)</i>			<i>0.6</i>	<i>1.9</i>	<i>6.8</i>	<i>7.8</i>	<i>10.0</i>	<i>8.2</i>	<i>6.9</i>	<i>6.5</i>	
PIMCO All Asset	97,896,733	2.9	-2.5	-2.2	1.7	9.1	5.3	4.1	--	3.7	Dec-13
<i>All Asset Custom Benchmark</i>			<i>-1.9</i>	<i>-1.6</i>	<i>3.6</i>	<i>8.3</i>	<i>0.9</i>	<i>2.9</i>	<i>3.5</i>	<i>3.3</i>	
Cash Equivalents	72,465,126	2.2	0.4	1.3	3.7	4.6	1.7	1.6	1.1	1.3	Mar-05
<i>ICE BofA 3 Month U.S. T-Bill</i>			<i>0.5</i>	<i>1.3</i>	<i>3.6</i>	<i>4.5</i>	<i>1.7</i>	<i>1.7</i>	<i>1.1</i>	<i>1.4</i>	
Dreyfus Government Cash Management Institutional	72,465,126	2.2	0.4	1.3	3.7	4.6	1.7	1.6	1.0	1.4	Mar-05
<i>ICE BofA 3 Month U.S. T-Bill</i>			<i>0.5</i>	<i>1.3</i>	<i>3.6</i>	<i>4.5</i>	<i>1.7</i>	<i>1.7</i>	<i>1.1</i>	<i>1.4</i>	

Value for PAAMCO Newport Phoenix is as of previous month-end.

Benchmark History
As of September 30, 2023

COPERS Policy Benchmark

9/1/2019	Present	16% Russell 3000 / 9% MSCI EAFE / 8% MSCI Emerging Markets / 9% Russell 3000 + 2% (1-Qtr Lag) / 15% BBgBarc US Aggregate TR / 7% BBgBarc US TIPS TR / 5% BBgBarc US High Yield TR / 3% Credit Suisse Leveraged Loans / 3% EMD Blend (35% JPM EMBI Global TR, 35% JPM CEMBI Broad Diversified TR USD, 30% JPM GBI EM Global Diversified TR USD) / 12% NCREIF ODCE / 4% CPI+3% (1-Qtr Lag) / 4% S&P Global Natural Resources Index TR USD (1-Qtr Lag) / 5% HFRI Fund Weighted Composite Index
10/1/2017	8/31/2019	16% Russell 3000 / 9% MSCI EAFE / 8% MSCI Emerging Markets / 9% Russell 3000 + 2% (1-Qtr Lag) / 15% BBgBarc US Aggregate TR / 7% BBgBarc US TIPS TR / 5% BBgBarc US High Yield TR / 3% Credit Suisse Leveraged Loans / 3% JP Morgan EMBI Global Diversified / 12% NCREIF ODCE / 4% CPI+3% (1-Qtr Lag) / 4% S&P Global Natural Resources Index TR USD (1-Qtr Lag) / 5% HFRI Fund Weighted Composite Index
1/1/2015	9/30/2017	22% Russell 3000 / 19% MSCI ACWI ex USA IMI / 20% BBgBarc US Aggregate TR / 5% JP Morgan EMBI Global Diversified / 8% CPI+4% / 15% NCREIF ODCE / 1% Russell 3000 +3% (1-Qtr Lag) / 10% ARS Custom Benchmark
Inception	12/31/2014	Policy benchmark input by previous consultant

COPERS Custom Benchmark

1/1/2015	Present	The Custom Benchmark is calculated monthly using the beginning of month asset class weights applied to each corresponding primary benchmark return.
Inception	12/31/2014	Custom benchmark input by previous consultant

COPERS Emerging Market Debt Custom Benchmark

9/1/2019	Present	MetLife Custom Benchmark (35% JPM EMBI Global TR, 35% JPM CEMBI Broad Diversified TR USD, 30% JPM GBI EM Global Diversified TR USD)
Inception	8/31/2019	JP Morgan EMBI Global Diversified

**Cash Flow Summary
Month to Date**

	Beginning Market Value	Net Cash Flows	Net Investment Change	Ending Market Value
Adler Real Estate V	\$5,347,696	\$0	-\$45,575	\$5,302,120
American Landmark III	\$40,383,616	\$0	-\$2,128,042	\$38,255,574
Artisan Global Opportunities	\$195,914,561	\$0	\$0	\$195,914,561
Ascentris Value Add III	\$12,279,313	\$75,648	-\$2,207,187	\$10,147,774
Ascentris Value Add III - B	\$1,417,206	\$23,344	\$28,958	\$1,469,508
Baillie Gifford ACWI ex-U.S. Alpha Equities	\$223,129,676	\$0	-\$14,143,003	\$208,986,673
BH-DG Systematic Trading	\$44,603,537	\$0	\$1,369,114	\$45,972,651
Brigade Traditional High Yield	\$80,380,410	\$0	-\$1,536,518	\$78,843,892
Carlson Double Black Diamond, Ltd.	\$49,422,967	\$0	\$288,086	\$49,711,053
CRM Small Cap Value	\$59,923,964	\$0	-\$3,159,023	\$56,764,942
Dreyfus Government Cash Management Institutional	\$100,805,358	-\$28,710,847	\$370,615	\$72,465,126
Driehaus International Small Cap Growth	\$22,400,821	\$0	-\$34,200	\$22,366,621
Eagle Small Cap Growth	\$67,149,183	\$0	-\$4,018,609	\$63,130,574
Fir Tree International Value Fund, L.P.	\$46,733,953	\$0	-\$50,722	\$46,683,231
First Eagle International Value	\$76,841,030	\$0	\$0	\$76,841,030
Focus SH Fund	\$31,175,505	\$0	\$66,941	\$31,242,446
GQG Emerging Markets Equity	\$94,599,418	\$0	\$0	\$94,599,418
Hammes Partners III	\$16,660,009	-\$684,831	\$309,683	\$16,284,861
Hammes Partners IV	\$0	\$1,031,261	-\$238,130	\$793,131
HSI Real Estate V	\$433,843	\$0	\$18,365	\$452,208
JPMorgan Strategic Property	\$82,200,760	\$0	-\$1,961,438	\$80,239,322
Longfellow Core Fixed Income	\$100,429,983	\$0	-\$2,696,407	\$97,733,577

Values for Artisan Global Opportunities, First Eagle International Value, and GQG Emerging Markets Equity are as of previous month-end.

Financial Reconciliation | As of September 30, 2023

	Beginning Market Value	Net Cash Flows	Net Investment Change	Ending Market Value
LSV Emerging Markets Value	\$88,794,428	\$0	\$0	\$88,794,428
MetLife Emerging Markets Debt Collective Trust	\$76,941,445	\$0	-\$1,873,764	\$75,067,681
Morgan Stanley Prime Property	\$90,520,555	-\$893,884	\$893,884	\$90,520,555
Neuberger Berman Sonoran Tranche A (P.E.)	\$130,622,609	-\$1,000,000	\$1,884,166	\$131,506,775
Neuberger Berman Sonoran Tranche B (P.E.)	\$117,209,901	-\$1,000,000	\$2,451,395	\$118,661,296
Neuberger Berman Sonoran Tranche C (N.R.)	\$61,233,860	\$0	\$706,555	\$61,940,415
Neuberger Berman Sonoran Tranche D (Infra)	\$69,470,102	\$1,000,000	\$741,278	\$71,211,380
Neuberger Berman Sonoran Tranche E (P.E.)	\$8,254,528	\$0	\$331,883	\$8,586,411
Neuberger Berman Sonoran Tranche F (Infra)	\$17,578,618	\$2,000,000	\$992,865	\$20,571,483
Northwood Real Estate Partners, L.P. (Series IV)	\$27,523,146	-\$77,215	\$285,862	\$27,731,793
Northwood Real Estate Partners, L.P. (Series V)	\$36,602,655	-\$370,230	\$206,832	\$36,439,257
PAAMCO Newport Phoenix, LLC	\$22,338	\$0	\$0	\$22,338
Pacific Asset Management	\$95,974,800	\$0	\$0	\$95,974,800
Pan Asia Core Plus Real Estate Fund	\$32,134,687	\$0	-\$878,018	\$31,256,669
PIMCO All Asset	\$100,381,282	\$0	-\$2,484,549	\$97,896,733
Polen Capital Management	\$75,461,880	\$0	-\$739,977	\$74,721,903
Real Estate Capital Asia Partners III LP	\$2,481,473	\$0	-\$112,495	\$2,368,978
Real Estate Capital Asia Partners IV LP	\$12,031,664	\$0	-\$368,154	\$11,663,510
Real Estate Capital Partners V	\$20,868,584	\$0	-\$953,787	\$19,914,796
Realterm Logistics Income	\$38,371,561	\$0	\$207,065	\$38,578,626
Robeco BP Large Cap Value	\$185,968,404	\$0	-\$4,769,557	\$181,198,847

Values for LSV Emerging Markets Value, PAAMCO Newport Phoenix, and Pacific Asset Management are as of previous month-end.

Financial Reconciliation | As of September 30, 2023

	Beginning Market Value	Net Cash Flows	Net Investment Change	Ending Market Value
SSgA FTSE RAFI Dev. ex-U.S. Low Volatility Index	\$92,959,644	\$0	-\$1,564,865	\$91,394,779
SSgA FTSE RAFI U.S. Low Volatility	\$223,996,392	\$0	-\$5,071,358	\$218,925,034
SSgA U.S. TIPS	\$146,768,437	\$0	-\$2,706,310	\$144,062,127
SSgA US Aggregate Bond Index	\$152,975,944	\$0	-\$3,882,740	\$149,093,204
Western Asset U.S. Core	\$99,722,202	\$0	-\$3,306,056	\$96,416,146
Wheelock Real Estate Fund	\$3,052,835	\$935,602	\$76,914	\$4,065,351
Wheelock Street Partners	\$2,506,544	-\$243,810	-\$56,236	\$2,206,498
Wheelock Street Partners II	\$7,961,437	\$0	\$134,736	\$8,096,173
Wheelock Street Partners VI	\$17,050,936	-\$230,930	\$1,094	\$16,821,100
Wheelock Street V	\$12,065,675	\$0	-\$393,562	\$11,672,113
Total	\$3,399,741,376	-\$28,145,892	-\$50,013,991	\$3,321,581,492

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