

City of Phoenix Employees' Retirement System

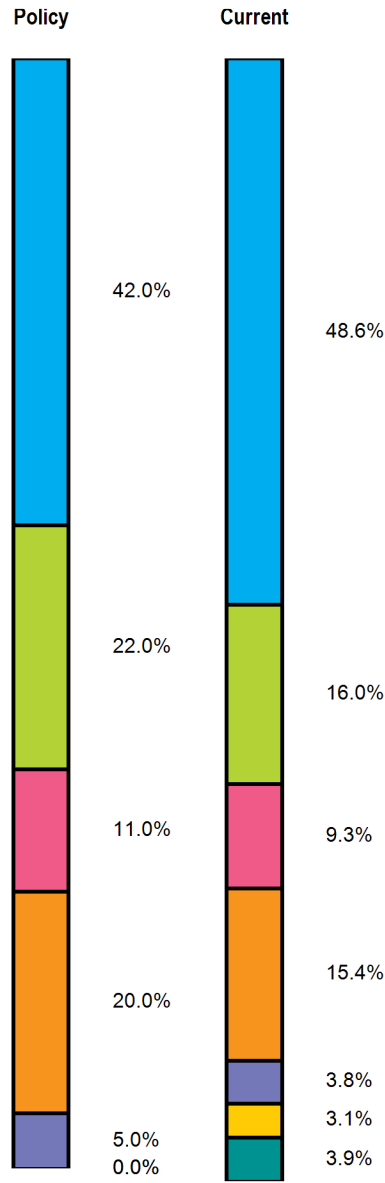
December 31, 2021

Performance Update

Index Returns – December Update¹

	December						
	2021	QTD	YTD	1 YR	3 YR	5 YR	10 YR
	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Domestic Equity							
Russell 3000	3.9	9.3	25.7	25.7	25.8	18.0	16.3
Russell 1000	4.1	9.8	26.5	26.5	26.2	18.4	16.5
Russell 1000 Growth	2.1	11.6	27.6	27.6	34.1	25.3	19.8
Russell 1000 Value	6.3	7.8	25.2	25.2	17.6	11.2	13.0
Russell MidCap	4.1	6.4	22.6	22.6	23.3	15.1	14.9
Russell MidCap Growth	0.4	2.8	12.7	12.7	27.5	19.8	16.6
Russell MidCap Value	6.3	8.5	28.3	28.3	19.6	11.2	13.4
Russell 2000	2.2	2.1	14.8	14.8	20.0	12.0	13.2
Russell 2000 Growth	0.4	0.0	2.8	2.8	21.2	14.5	14.1
Russell 2000 Value	4.1	4.4	28.3	28.3	18.0	9.1	12.0
Foreign Equity							
MSCI ACWI ex USA	4.1	1.8	7.8	7.8	13.2	9.6	7.3
MSCI EAFE	5.1	2.7	11.3	11.3	13.5	9.5	8.0
MSCI EAFE Small Cap	4.4	0.1	10.1	10.1	15.6	11.0	10.8
MSCI Emerging Markets	1.9	-1.3	-2.5	-2.5	10.9	9.9	5.5
Fixed Income							
BBgBarc US Universal TR	-0.1	0.0	-1.1	-1.1	5.2	3.8	3.3
BBgBarc US Aggregate TR	-0.3	0.0	-1.5	-1.5	4.8	3.6	2.9
BBgBarc US TIPS TR	0.3	2.4	6.0	6.0	8.4	5.3	3.1
BBgBarc US High Yield TR	1.9	0.7	5.3	5.3	8.8	6.3	6.8
JP Morgan GBI EM Global Diversified TR USD	1.6	-2.5	-8.7	-8.7	2.1	2.8	0.7
JP Morgan GBI EM Global Diversified TR LCL	0.4	-0.9	-2.9	-2.9	5.7	6.0	6.3
Other							
NAREIT Equity	8.8	16.3	43.2	43.2	18.4	10.8	11.4
Bloomberg Commodity Index TR USD	3.5	-1.6	27.1	27.1	9.9	3.7	-2.9

¹ Source: Thomson Reuters.



Allocation vs. Targets and Policy							
	Current Balance	Current Allocation	Target Allocation	Difference	Target Allocation Range	Within IPS Range?	
Equity	\$1,731,960,804	48.6%	42.0%	6.6%	22.0% - 62.0%	Yes	
U.S. Equity	\$785,043,028	22.0%	16.0%	6.0%	11.0% - 21.0%	No	
Developed Market Equity	\$478,582,279	13.4%	9.0%	4.4%	4.0% - 14.0%	Yes	
Emerging Market Equity	\$192,932,021	5.4%	8.0%	-2.6%	3.0% - 13.0%	Yes	
Private Equity	\$275,403,476	7.7%	9.0%	-1.3%	4.0% - 14.0%	Yes	
Rate-Sensitive	\$568,360,722	16.0%	22.0%	-6.0%	12.0% - 32.0%	Yes	
Investment Grade Bonds	\$403,656,550	11.3%	15.0%	-3.7%	10.0% - 20.0%	Yes	
TIPS	\$164,704,172	4.6%	7.0%	-2.4%	2.0% - 12.0%	Yes	
Credit	\$330,926,274	9.3%	11.0%	-1.7%	0.0% - 22.0%	Yes	
High Yield Bonds	\$159,886,469	4.5%	5.0%	-0.5%	0.0% - 10.0%	Yes	
Bank Loans	\$87,891,517	2.5%	3.0%	-0.5%	0.0% - 6.0%	Yes	
Emerging Market Bonds	\$83,148,289	2.3%	3.0%	-0.7%	0.0% - 6.0%	Yes	
Real Assets	\$546,849,702	15.4%	20.0%	-4.6%	7.0% - 33.0%	Yes	
Real Estate	\$469,499,689	13.2%	12.0%	1.2%	7.0% - 17.0%	Yes	
Infrastructure	\$52,172,868	1.5%	4.0%	-2.5%	0.0% - 8.0%	Yes	
Natural Resources	\$25,177,145	0.7%	4.0%	-3.3%	0.0% - 8.0%	Yes	
Hedge Funds	\$135,676,684	3.8%	5.0%	-1.2%	0.0% - 10.0%	Yes	
GTAA	\$108,832,369	3.1%	--	3.1%	--	No	
Cash Equivalents	\$139,862,464	3.9%	0.0%	3.9%	0.0% - 5.0%	Yes	
Total	\$3,562,469,020	100.0%	100.0%				

Performance Summary

	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Fund	3,562,469,020	100.0	3.1	3.0	4.2	12.3	12.5	9.6	8.5	7.8	Dec-87
<i>COPERS Policy Benchmark</i>			<i>2.0</i>	<i>2.8</i>	<i>4.3</i>	<i>13.4</i>	<i>12.6</i>	<i>10.1</i>	<i>9.1</i>	<i>8.7</i>	<i>Dec-87</i>
<i>COPERS Custom Benchmark</i>			<i>2.5</i>	<i>3.6</i>	<i>4.8</i>	<i>13.1</i>	<i>12.9</i>	<i>10.1</i>	<i>9.0</i>	<i>--</i>	<i>Dec-87</i>
Equity	1,731,960,804	48.6									
US Equity	785,043,028	22.0	4.4	6.2	5.2	19.0	20.4	14.0	13.9	9.3	Mar-05
<i>Russell 3000</i>			<i>3.9</i>	<i>9.3</i>	<i>9.2</i>	<i>25.7</i>	<i>25.8</i>	<i>18.0</i>	<i>16.3</i>	<i>10.8</i>	<i>Mar-05</i>
Developed Market Equity (non-U.S.)	478,582,279	13.4	3.9	0.5	-3.4	3.1	15.1	11.2	8.9	6.0	Mar-05
<i>MSCI EAFE</i>			<i>5.1</i>	<i>2.7</i>	<i>2.2</i>	<i>11.3</i>	<i>13.5</i>	<i>9.5</i>	<i>8.0</i>	<i>5.3</i>	<i>Mar-05</i>
Emerging Markets Equity	192,932,021	5.4	3.3	0.4	-4.2	4.3	--	--	--	13.1	Nov-19
<i>MSCI Emerging Markets</i>			<i>1.9</i>	<i>-1.3</i>	<i>-9.3</i>	<i>-2.5</i>	<i>10.9</i>	<i>9.9</i>	<i>5.5</i>	<i>10.3</i>	<i>Nov-19</i>
Private Equity	275,403,476	7.7	5.2	5.2	22.7	51.8	25.5	21.3	--	16.3	Apr-15
<i>Russell 3000 + 2% 1Q Lagged</i>			<i>-4.3</i>	<i>0.4</i>	<i>9.2</i>	<i>34.5</i>	<i>18.3</i>	<i>19.2</i>	<i>18.9</i>	<i>15.9</i>	<i>Apr-15</i>
Rate-Sensitive	568,360,722	16.0									
Investment Grade Bonds	403,656,550	11.3	-0.2	0.0	0.0	-1.2	5.2	4.2	3.5	4.5	Mar-05
<i>Bloomberg US Aggregate TR</i>			<i>-0.3</i>	<i>0.0</i>	<i>0.1</i>	<i>-1.5</i>	<i>4.8</i>	<i>3.6</i>	<i>2.9</i>	<i>4.0</i>	<i>Mar-05</i>
TIPS	164,704,172	4.6	0.3	2.3	4.1	5.9	8.4	--	--	6.3	Feb-18
<i>Bloomberg US TIPS TR</i>			<i>0.3</i>	<i>2.4</i>	<i>4.2</i>	<i>6.0</i>	<i>8.4</i>	<i>5.3</i>	<i>3.1</i>	<i>6.3</i>	<i>Feb-18</i>
Credit	330,926,274	9.3									
High Yield Bonds	159,886,469	4.5	1.4	0.6	2.2	10.0	8.6	--	--	6.2	Aug-18
<i>Bloomberg US High Yield TR</i>			<i>1.9</i>	<i>0.7</i>	<i>1.6</i>	<i>5.3</i>	<i>8.8</i>	<i>6.3</i>	<i>6.8</i>	<i>6.7</i>	<i>Aug-18</i>
Bank Loans	87,891,517	2.5	0.6	0.9	2.0	5.2	5.5	--	--	4.0	Sep-18
<i>Credit Suisse Leveraged Loans</i>			<i>0.6</i>	<i>0.7</i>	<i>1.9</i>	<i>5.4</i>	<i>5.4</i>	<i>4.3</i>	<i>4.8</i>	<i>4.1</i>	<i>Sep-18</i>

Fiscal Year begins July 1.

The Policy Benchmark and Custom Benchmark formulas are shown on Benchmark History page.

	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Emerging Market Bonds	83,148,289	2.3	1.6	-1.5	-2.5	-3.7	6.7	5.3	--	4.3	Feb-13
<i>Emerging Market Debt Custom Benchmark</i>			<i>1.1</i>	<i>-1.0</i>	<i>-2.0</i>	<i>-2.9</i>	<i>6.3</i>	<i>4.9</i>	<i>--</i>	<i>4.3</i>	<i>Feb-13</i>
Real Assets	546,849,702	15.4									
Real Estate	469,499,689	13.2	5.2	6.2	12.9	20.9	9.2	8.8	10.0	7.0	Dec-06
<i>NCREIF ODCE</i>			<i>8.0</i>	<i>8.0</i>	<i>15.1</i>	<i>22.2</i>	<i>9.2</i>	<i>8.7</i>	<i>10.4</i>	<i>7.0</i>	<i>Dec-06</i>
Core Real Estate	216,599,535	6.1	7.1	9.5	16.2	21.6	9.1	8.7	10.5	7.3	Jan-09
<i>NCREIF ODCE</i>			<i>8.0</i>	<i>8.0</i>	<i>15.1</i>	<i>22.2</i>	<i>9.2</i>	<i>8.7</i>	<i>10.4</i>	<i>7.5</i>	<i>Jan-09</i>
Non-Core Real Estate	252,900,154	7.1	3.7	3.7	10.2	20.4	9.7	9.3	9.1	8.4	Feb-09
<i>NCREIF ODCE</i>			<i>8.0</i>	<i>8.0</i>	<i>15.1</i>	<i>22.2</i>	<i>9.2</i>	<i>8.7</i>	<i>10.4</i>	<i>7.5</i>	<i>Feb-09</i>
<i>NCREIF ODCE 1Q Lagged</i>			<i>6.6</i>	<i>6.6</i>	<i>10.8</i>	<i>14.6</i>	<i>7.1</i>	<i>7.5</i>	<i>9.9</i>	<i>6.0</i>	<i>Feb-09</i>
Natural Resources	25,177,145	0.7									Sep-19
Infrastructure	52,172,868	1.5									Sep-19
Hedge Funds	135,676,684	3.8	2.4	1.0	2.1	12.1	8.1	4.3	--	3.1	Jan-14
<i>HFRI Fund Weighted Composite Index</i>			<i>1.2</i>	<i>0.4</i>	<i>0.0</i>	<i>10.2</i>	<i>10.8</i>	<i>7.1</i>	<i>5.8</i>	<i>5.3</i>	<i>Jan-14</i>
GTAA	108,832,369	3.1	3.7	3.2	2.6	15.6	12.0	8.8	5.1	3.6	Jul-07
<i>CPI + 4%</i>			<i>0.6</i>	<i>2.6</i>	<i>4.5</i>	<i>11.0</i>	<i>7.5</i>	<i>6.9</i>	<i>6.1</i>	<i>6.0</i>	<i>Jul-07</i>
Cash Equivalents	139,862,464	3.9	0.0	0.0	0.0	0.0	0.8	1.0	0.5	1.1	Mar-05
<i>91 Day T-Bills</i>			<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.8</i>	<i>1.1</i>	<i>0.6</i>	<i>1.2</i>	<i>Mar-05</i>

Emerging Market Debt Custom Benchmark formula is shown on Benchmark History page.

Trailing Net Performance											
	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Fund	3,562,469,020	100.0	3.1	3.0	4.2	12.3	12.5	9.6	8.5	7.8	Dec-87
<i>COPERS Policy Benchmark</i>			2.0	2.8	4.3	13.4	12.6	10.1	9.1	8.7	Dec-87
<i>COPERS Custom Benchmark</i>			2.5	3.6	4.8	13.1	12.9	10.1	9.0	--	Dec-87
Equity	1,731,960,804	48.6									
US Equity	785,043,028	22.0	4.4	6.2	5.2	19.0	20.4	14.0	13.9	9.3	Mar-05
<i>Russell 3000</i>			3.9	9.3	9.2	25.7	25.8	18.0	16.3	10.8	Mar-05
Artisan Global Opportunities	243,555,458	6.8	1.0	4.6	6.7	14.2	29.7	21.4	--	16.5	Dec-14
<i>MSCI ACWI</i>			4.0	6.7	5.6	18.5	20.4	14.4	--	10.5	Dec-14
SSgA FTSE RAFI U.S. Low Volatility	216,103,806	6.1	7.5	8.6	7.1	24.6	15.7	10.6	--	9.5	Jan-15
<i>FTSE RAFI U.S. Low Volatility Index</i>			7.6	8.6	7.1	24.7	15.8	10.7	--	9.6	Jan-15
<i>Russell 3000</i>			3.9	9.3	9.2	25.7	25.8	18.0	--	14.5	Jan-15
Robeco BP Large Cap Value	180,400,801	5.1	6.8	9.4	7.6	30.5	18.2	12.6	--	11.9	May-13
<i>Russell 1000 Value</i>			6.3	7.8	6.9	25.2	17.6	11.2	--	11.3	May-13
Eagle Small Cap Growth	84,231,368	2.4	1.6	-0.9	-3.5	1.4	22.4	17.8	15.5	12.4	Jul-05
<i>Russell 2000 Growth</i>			0.4	0.0	-5.6	2.8	21.2	14.5	14.1	10.4	Jul-05
CRM Small Cap Value	60,751,595	1.7	4.8	6.0	-0.7	17.5	12.8	6.9	10.9	8.0	Feb-08
<i>Russell 2000 Value</i>			4.1	4.4	1.2	28.3	18.0	9.1	12.0	8.9	Feb-08

Fiscal Year begins July 1.

The Policy Benchmark and Custom Benchmark formulas are shown on Benchmark History page.

	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Developed Market Equity (non-U.S.)	478,582,279	13.4	3.9	0.5	-3.4	3.1	15.1	11.2	8.9	6.0	Mar-05
<i>MSCI EAFE</i>			<i>5.1</i>	<i>2.7</i>	<i>2.2</i>	<i>11.3</i>	<i>13.5</i>	<i>9.5</i>	<i>8.0</i>	<i>5.3</i>	<i>Mar-05</i>
Baillie Gifford ACWI ex-U.S. Alpha Equities	283,772,503	8.0	3.2	-0.6	-5.9	-0.6	18.5	13.4	10.3	8.1	Jul-11
<i>MSCI ACWI ex USA Growth</i>			<i>3.0</i>	<i>2.4</i>	<i>-1.3</i>	<i>5.1</i>	<i>17.8</i>	<i>13.1</i>	<i>9.1</i>	<i>6.8</i>	<i>Jul-11</i>
<i>MSCI ACWI ex USA</i>			<i>4.1</i>	<i>1.8</i>	<i>-1.2</i>	<i>7.8</i>	<i>13.2</i>	<i>9.6</i>	<i>7.3</i>	<i>5.1</i>	<i>Jul-11</i>
SSgA FTSE RAFI Dev. ex-U.S. Low Volatility Index	89,936,458	2.5	6.3	2.6	1.6	12.6	7.5	6.3	--	4.7	Aug-15
<i>FTSE RAFI Developed ex-U.S. Low Volatility Index</i>			<i>6.4</i>	<i>2.7</i>	<i>1.7</i>	<i>12.5</i>	<i>7.1</i>	<i>6.0</i>	<i>--</i>	<i>4.5</i>	<i>Aug-15</i>
<i>MSCI EAFE</i>			<i>5.1</i>	<i>2.7</i>	<i>2.2</i>	<i>11.3</i>	<i>13.5</i>	<i>9.5</i>	<i>--</i>	<i>6.2</i>	<i>Aug-15</i>
First Eagle International Value	78,214,632	2.2	3.7	2.3	-0.4	5.3	--	--	--	7.9	Dec-20
<i>MSCI EAFE Value</i>			<i>6.0</i>	<i>1.2</i>	<i>0.2</i>	<i>10.9</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>14.5</i>	<i>Dec-20</i>
<i>MSCI EAFE</i>			<i>5.1</i>	<i>2.7</i>	<i>2.2</i>	<i>11.3</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>15.1</i>	<i>Dec-20</i>
Driehaus International Small Cap Growth	26,658,687	0.7	3.5	0.7	-0.3	--	--	--	--	1.1	May-21
<i>MSCI ACWI ex US Small Cap Growth NR USD</i>			<i>3.4</i>	<i>0.7</i>	<i>1.1</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>3.0</i>	<i>May-21</i>
<i>MSCI ACWI ex USA</i>			<i>4.1</i>	<i>1.8</i>	<i>-1.2</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>1.2</i>	<i>May-21</i>
Emerging Markets Equity	192,932,021	5.4	3.3	0.4	-4.2	4.3	--	--	--	13.1	Nov-19
<i>MSCI Emerging Markets</i>			<i>1.9</i>	<i>-1.3</i>	<i>-9.3</i>	<i>-2.5</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>10.3</i>	<i>Nov-19</i>
GQG Emerging Markets Equity	102,781,765	2.9	2.0	0.0	-6.5	-2.5	--	--	--	16.0	Jan-20
<i>MSCI Emerging Markets Growth NR USD</i>			<i>0.4</i>	<i>-2.1</i>	<i>-12.8</i>	<i>-8.4</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>9.7</i>	<i>Jan-20</i>
LSV Emerging Markets Value	90,150,256	2.5	4.8	0.8	-1.4	13.3	--	--	--	9.1	Nov-19
<i>MSCI Emerging Markets Value NR USD</i>			<i>3.5</i>	<i>-0.4</i>	<i>-5.5</i>	<i>4.0</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>7.3</i>	<i>Nov-19</i>

Fiscal Year begins July 1.

	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Private Equity	275,403,476	7.7	5.2	5.2	22.7	51.8	25.5	21.3	--	16.3	Apr-15
<i>Russell 3000 + 2% 1Q Lagged</i>			-4.3	0.4	9.2	34.5	18.3	19.2	--	15.9	Apr-15
Neuberger Berman Sonoran Tranche A (P.E.)	183,436,873	5.1	4.1	4.1	20.4	47.7	24.8	20.8	--	16.0	Apr-15
Neuberger Berman Sonoran Tranche B (P.E.)	91,966,603	2.6									
Rate-Sensitive	568,360,722	16.0									
Investment Grade Bonds	403,656,550	11.3	-0.2	0.0	0.0	-1.2	5.2	4.2	3.5	4.5	Mar-05
<i>Bloomberg US Aggregate TR</i>			-0.3	0.0	0.1	-1.5	4.8	3.6	2.9	4.0	Mar-05
SSgA US Aggregate Bond Index	173,389,061	4.9	-0.3	0.0	0.0	-1.6	4.8	--	--	4.2	Apr-18
<i>Bloomberg US Aggregate TR</i>			-0.3	0.0	0.1	-1.5	4.8	--	--	4.2	Apr-18
Western Asset U.S. Core	116,481,657	3.3	0.0	0.0	0.1	-1.5	5.8	4.8	4.2	4.7	Feb-05
<i>Bloomberg US Aggregate TR</i>			-0.3	0.0	0.1	-1.5	4.8	3.6	2.9	4.0	Feb-05
Longfellow Core Fixed Income	113,785,832	3.2	-0.3	-0.1	0.0	-0.4	5.3	--	--	4.8	May-18
<i>Bloomberg US Aggregate TR</i>			-0.3	0.0	0.1	-1.5	4.8	--	--	4.5	May-18
TIPS	164,704,172	4.6	0.3	2.3	4.1	5.9	8.4	--	--	6.3	Feb-18
<i>Bloomberg US TIPS TR</i>			0.3	2.4	4.2	6.0	8.4	--	--	6.3	Feb-18
SSgA U.S. TIPS	164,704,172	4.6	0.3	2.3	4.1	5.9	8.4	--	--	6.3	Feb-18
<i>Bloomberg US TIPS TR</i>			0.3	2.4	4.2	6.0	8.4	--	--	6.3	Feb-18

Fiscal Year begins July 1.

	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Credit	330,926,274	9.3									
High Yield Bonds	159,886,469	4.5	1.4	0.6	2.2	10.0	8.6	--	--	6.2	Aug-18
<i>Bloomberg US High Yield TR</i>			<i>1.9</i>	<i>0.7</i>	<i>1.6</i>	<i>5.3</i>	<i>8.8</i>	--	--	<i>6.7</i>	<i>Aug-18</i>
Brigade Traditional High Yield	83,352,827	2.3	1.9	0.8	2.5	11.7	10.2	--	--	7.3	Aug-18
<i>Bloomberg US High Yield TR</i>			<i>1.9</i>	<i>0.7</i>	<i>1.6</i>	<i>5.3</i>	<i>8.8</i>	--	--	<i>6.7</i>	<i>Aug-18</i>
DDJ Capital Management	76,533,642	2.1	0.8	0.5	1.9	8.2	6.9	--	--	5.0	Sep-18
<i>Bloomberg US High Yield TR</i>			<i>1.9</i>	<i>0.7</i>	<i>1.6</i>	<i>5.3</i>	<i>8.8</i>	--	--	<i>6.6</i>	<i>Sep-18</i>
Bank Loans	87,891,517	2.5	0.6	0.9	2.0	5.2	5.5	--	--	4.0	Sep-18
<i>Credit Suisse Leveraged Loans</i>			<i>0.6</i>	<i>0.7</i>	<i>1.9</i>	<i>5.4</i>	<i>5.4</i>	--	--	<i>4.1</i>	<i>Sep-18</i>
Pacific Asset Management	87,891,517	2.5	0.6	0.9	2.0	5.2	5.5	--	--	4.0	Sep-18
<i>Credit Suisse Leveraged Loans</i>			<i>0.6</i>	<i>0.7</i>	<i>1.9</i>	<i>5.4</i>	<i>5.4</i>	--	--	<i>4.1</i>	<i>Sep-18</i>
Emerging Market Bonds	83,148,289	2.3	1.6	-1.5	-2.5	-3.7	6.7	5.3	--	4.3	Feb-13
<i>Emerging Market Debt Custom Benchmark</i>			<i>1.1</i>	<i>-1.0</i>	<i>-2.0</i>	<i>-2.9</i>	<i>6.3</i>	<i>4.9</i>	--	<i>4.3</i>	<i>Feb-13</i>
MetLife Emerging Markets Debt Collective Trust	83,148,289	2.3	1.6	-1.5	-2.5	-3.7	--	--	--	3.3	Sep-19
<i>MetLife Custom Benchmark</i>			<i>1.1</i>	<i>-1.0</i>	<i>-2.0</i>	<i>-2.9</i>	--	--	--	<i>2.5</i>	<i>Sep-19</i>

Fiscal Year begins July 1.

The MetLife Custom Benchmark composition is included in the Emerging Market Debt Custom Benchmark detail shown on the Benchmark History page.

	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Real Assets	546,849,702	15.4									
Real Estate	469,499,689	13.2	5.2	6.2	12.9	20.9	9.2	8.8	10.0	7.0	Dec-06
<i>NCREIF ODCE</i>			<i>8.0</i>	<i>8.0</i>	<i>15.1</i>	<i>22.2</i>	<i>9.2</i>	<i>8.7</i>	<i>10.4</i>	<i>7.0</i>	<i>Dec-06</i>
Non-Core Real Estate	252,900,154	7.1	3.7	3.7	10.2	20.4	9.7	9.3	9.1	8.4	Feb-09
<i>NCREIF ODCE</i>			<i>8.0</i>	<i>8.0</i>	<i>15.1</i>	<i>22.2</i>	<i>9.2</i>	<i>8.7</i>	<i>10.4</i>	<i>7.5</i>	<i>Feb-09</i>
<i>NCREIF ODCE 1Q Lagged</i>			<i>6.6</i>	<i>6.6</i>	<i>10.8</i>	<i>14.6</i>	<i>7.1</i>	<i>7.5</i>	<i>9.9</i>	<i>6.0</i>	<i>Feb-09</i>
Core Real Estate	216,599,535	6.1	7.1	9.5	16.2	21.6	9.1	8.7	10.5	7.3	Jan-09
<i>NCREIF ODCE</i>			<i>8.0</i>	<i>8.0</i>	<i>15.1</i>	<i>22.2</i>	<i>9.2</i>	<i>8.7</i>	<i>10.4</i>	<i>7.5</i>	<i>Jan-09</i>
Natural Resources	25,177,145	0.7									Sep-19
Neuberger Berman Sonoran Tranche C (N.R.)	25,177,145	0.7									Sep-19
Infrastructure	52,172,868	1.5									Sep-19
Neuberger Berman Sonoran Tranche D (Infra)	52,172,868	1.5									Sep-19
Hedge Funds	135,676,684	3.8	2.4	1.0	2.1	12.1	8.1	4.3	--	3.1	Jan-14
<i>HFRI Fund Weighted Composite Index</i>			<i>1.2</i>	<i>0.4</i>	<i>0.0</i>	<i>10.2</i>	<i>10.8</i>	<i>7.1</i>	<i>--</i>	<i>5.3</i>	<i>Jan-14</i>
Fir Tree International Value Fund, L.P.	52,470,055	1.5	4.1	0.5	-0.9	14.0	9.5	4.2	--	1.8	Nov-14
<i>HFRI Event-Driven (Total) Index</i>			<i>1.2</i>	<i>1.0</i>	<i>0.6</i>	<i>12.4</i>	<i>9.7</i>	<i>6.8</i>	<i>--</i>	<i>5.7</i>	<i>Nov-14</i>
Carlson Double Black Diamond, Ltd.	47,299,804	1.3	2.8	2.4	7.1	12.4	6.5	3.6	--	3.3	Aug-14
<i>HFRI Relative Value (Total) Index</i>			<i>0.3</i>	<i>0.2</i>	<i>1.0</i>	<i>7.6</i>	<i>6.1</i>	<i>4.6</i>	<i>--</i>	<i>4.0</i>	<i>Aug-14</i>
BH-DG Systematic Trading	35,666,611	1.0	-0.5	-0.1	0.3	9.2	9.7	--	--	7.5	Mar-18
<i>Barclay CTA Index</i>			<i>0.6</i>	<i>0.7</i>	<i>1.3</i>	<i>5.9</i>	<i>5.5</i>	<i>--</i>	<i>--</i>	<i>3.7</i>	<i>Mar-18</i>
PAAMCO Newport Phoenix, LLC	240,214	0.0									

Fiscal Year begins July 1.

	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
GTAA	108,832,369	3.1	3.7	3.2	2.6	15.6	12.0	8.8	5.1	3.6	Jul-07
<i>CPI + 4%</i>			<i>0.6</i>	<i>2.6</i>	<i>4.5</i>	<i>11.0</i>	<i>7.5</i>	<i>6.9</i>	<i>6.1</i>	<i>6.0</i>	<i>Jul-07</i>
PIMCO All Asset	108,832,369	3.1	3.7	3.2	2.6	15.6	12.0	8.8	--	5.9	Dec-13
<i>All Asset Custom Benchmark</i>			<i>1.3</i>	<i>1.8</i>	<i>1.7</i>	<i>5.0</i>	<i>8.8</i>	<i>6.6</i>	<i>--</i>	<i>5.2</i>	<i>Dec-13</i>
Cash Equivalents	139,862,464	3.9	0.0	0.0	0.0	0.0	0.8	1.0	0.5	1.1	Mar-05
<i>91 Day T-Bills</i>			<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.8</i>	<i>1.1</i>	<i>0.6</i>	<i>1.2</i>	<i>Mar-05</i>
Dreyfus Government Cash Management Institutional	139,862,464	3.9	0.0	0.0	0.0	0.0	0.8	1.0	0.5	1.2	Mar-05
<i>91 Day T-Bills</i>			<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.8</i>	<i>1.1</i>	<i>0.6</i>	<i>1.2</i>	<i>Mar-05</i>

Benchmark History

As of December 31, 2021

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 Flow	Net Investment Change	Ending Market Value
American Landmark III	\$24,103,511	\$3,840,185	\$1,802,225	\$29,745,920
Artisan Global Opportunities	\$241,196,429	\$0	\$2,359,030	\$243,555,458
Ascentris Value Add III	\$14,159,024	\$0	\$371,877	\$14,530,900
Baillie Gifford ACWI ex-U.S. Alpha Equities	\$274,982,518	\$0	\$8,789,985	\$283,772,503
BH-DG Systematic Trading	\$35,836,205	\$0	-\$169,595	\$35,666,611
Brigade Traditional High Yield	\$81,822,770	\$0	\$1,530,057	\$83,352,827
Carlson Double Black Diamond, Ltd.	\$46,002,731	\$0	\$1,297,073	\$47,299,804
CRM Small Cap Value	\$57,992,789	\$0	\$2,758,806	\$60,751,595
DDJ Capital Management	\$75,917,896	\$0	\$615,745	\$76,533,642
Dreyfus Government Cash Management Institutional	\$142,957,444	-\$3,104,680	\$9,700	\$139,862,464
Driehaus International Small Cap Growth	\$25,735,294	\$0	\$923,393	\$26,658,687
Eagle Small Cap Growth	\$82,865,498	\$0	\$1,365,869	\$84,231,368
Fir Tree International Value Fund, L.P.	\$50,404,823	\$0	\$2,065,232	\$52,470,055
First Eagle International Value	\$75,455,629	\$0	\$2,759,003	\$78,214,632
Focus SH Fund	\$23,668,982	\$0	\$564,203	\$24,233,185
GQG Emerging Markets Equity	\$100,772,066	\$0	\$2,009,699	\$102,781,765
Hammes Partners III	\$13,320,881	\$1,681,046	\$329,343	\$15,331,270
HSI Real Estate V	\$3,397,382	-\$229,573	-\$199,610	\$2,968,199
JDM Partners Opportunity Fund I	\$24,156,468	-\$21,800,000	-\$346,340	\$2,010,128
JPMorgan Strategic Property	\$85,292,710	\$0	\$2,245,169	\$87,537,879
Longfellow Core Fixed Income	\$114,122,196	\$0	-\$336,364	\$113,785,832
LSV Emerging Markets Value	\$85,985,127	\$0	\$4,165,129	\$90,150,256
MetLife Emerging Markets Debt Collective Trust	\$81,860,076	\$0	\$1,288,213	\$83,148,289

	Beginning Market Value	Net Cash Flow	Net Investment Change	Ending Market Value
Morgan Stanley Prime Property	\$86,302,919	-\$851,114	\$8,285,236	\$93,737,040
Neuberger Berman Sonoran Tranche A (P.E.)	\$181,119,097	-\$5,000,000	\$7,317,776	\$183,436,873
Neuberger Berman Sonoran Tranche B (P.E.)	\$80,715,684	\$5,000,000	\$6,250,919	\$91,966,603
Neuberger Berman Sonoran Tranche C (N.R.)	\$24,954,040	\$0	\$223,105	\$25,177,145
Neuberger Berman Sonoran Tranche D (Infra)	\$47,534,708	\$2,000,000	\$2,638,160	\$52,172,868
Northwood Real Estate Partners, L.P. (Series IV)	\$22,625,629	\$575,203	\$1,450,392	\$24,651,224
Northwood Real Estate Partners, L.P. (Series V)	\$31,450,938	\$797,283	\$1,615,130	\$33,863,351
PAAMCO Newport Phoenix, LLC	\$240,414	\$0	-\$200	\$240,214
Pacific Asset Management	\$87,326,087	\$0	\$565,430	\$87,891,517
Pan Asia Core Plus Real Estate Fund	\$32,620,355	\$0	\$1,185,929	\$33,806,283
PIMCO All Asset	\$104,961,380	\$0	\$3,870,989	\$108,832,369
Real Estate Capital Asia Partners III LP	\$2,566,351	\$0	-\$403,347	\$2,163,004
Real Estate Capital Asia Partners IV LP	\$15,313,612	\$27,577	\$434,273	\$15,775,462
Real Estate Capital Partners V	\$15,584,548	\$0	\$963,783	\$16,548,332
Realterm Logistics Income	\$31,357,133	\$0	\$3,967,483	\$35,324,616
Robeco BP Large Cap Value	\$168,851,021	\$0	\$11,549,780	\$180,400,801
SSgA FTSE RAFI Dev. ex-U.S. Low Volatility Index	\$84,622,576	\$0	\$5,313,882	\$89,936,458
SSgA FTSE RAFI U.S. Low Volatility	\$201,003,952	\$0	\$15,099,854	\$216,103,806
SSgA U.S. TIPS	\$164,215,390	\$0	\$488,782	\$164,704,172
SSgA US Aggregate Bond Index	\$173,883,773	\$0	-\$494,712	\$173,389,061
Western Asset U.S. Core	\$116,501,706	\$0	-\$20,049	\$116,481,657
Wheelock Street Partners	\$2,335,208	\$0	-\$4,712	\$2,330,496
Wheelock Street Partners II	\$9,480,864	-\$290,954	\$254,214	\$9,444,124
Wheelock Street Partners VI	\$8,452,723	\$0	-\$64,155	\$8,388,568
Wheelock Street V	\$15,553,898	\$0	\$1,555,809	\$17,109,707
Total	\$3,471,582,453	-\$17,355,028	\$108,241,595	\$3,562,469,020

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