

# Fresno County Employees' Retirement Association

Investment Performance Review  
Period Ending: December 31, 2014

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WURTS  ASSOCIATES

SEATTLE | 206.622.3700  
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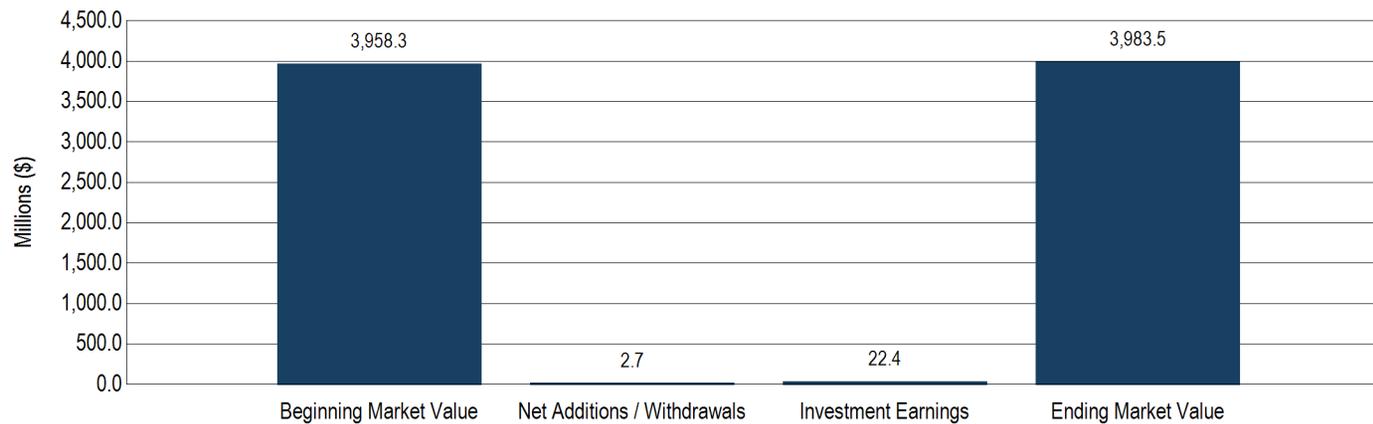
Total Fund  
Portfolio Reconciliation

Period Ending: December 31, 2014

Portfolio Reconciliation

Sources of Portfolio Growth	Last Three Months	Year-To-Date
Beginning Market Value	\$3,958,339,129	\$3,800,392,711
Net Additions/Withdrawals	\$2,733,544	\$41,283,988
Investment Earnings	\$22,405,833	\$141,801,807
Ending Market Value	\$3,983,478,506	\$3,983,478,506

Change in Market Value  
Last Three Months

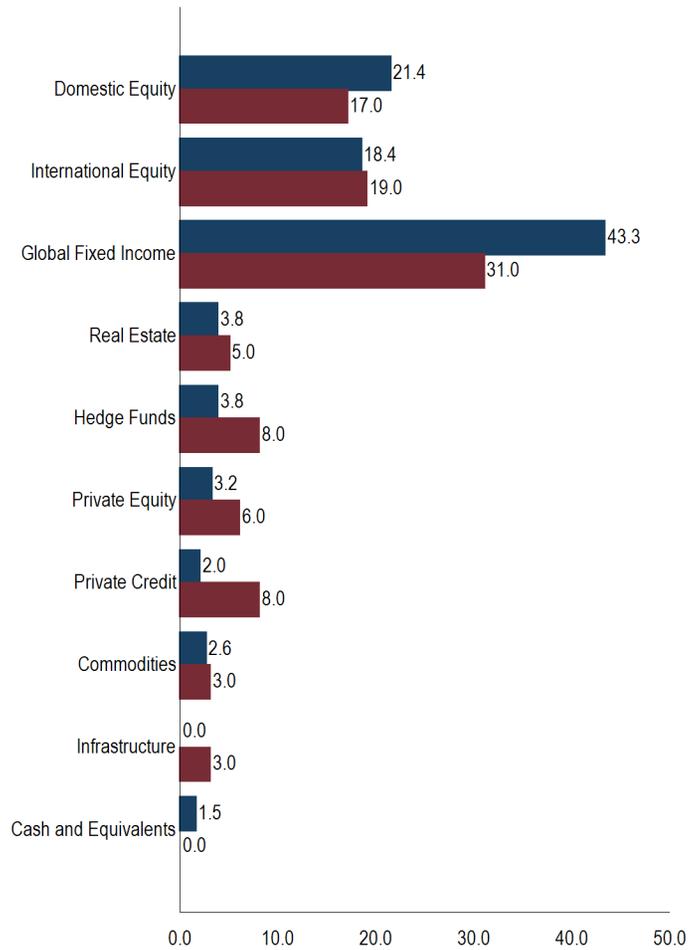


Due to prior performance system methodology, contributions and withdrawals may include intra-account transfers between managers/funds.

# Total Fund Asset Allocation

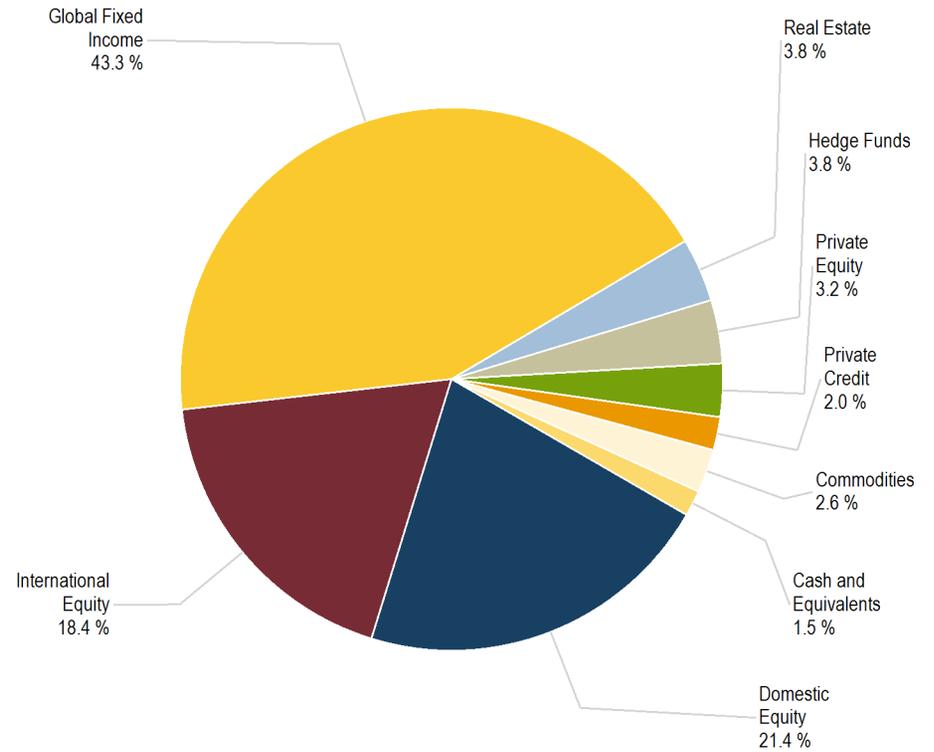
Period Ending: December 31, 2014

Actual vs Target Allocation (%)



Actual Policy

Current Allocation



# Total Fund Manager Allocation

Period Ending: December 31, 2014

	Market Value	% of Portfolio		Market Value	% of Portfolio
<b>Total Fund</b>	<b>3,983,478,506</b>	<b>100.0</b>			
<b>Domestic Equity</b>	<b>853,898,949</b>	<b>21.4</b>			
SSgA S&P 500 Flagship Fund	233,029,443	5.8			
Waddell & Reed	122,520,348	3.1			
Winslow Capital Management	122,087,658	3.1			
Aronson Johnson Ortiz	119,227,746	3.0			
Wellington Management Large Cap Value	122,298,269	3.1			
Systematic Small/Mid Cap Value	68,862,932	1.7			
Kalmar Investments Management	65,872,554	1.7			
<b>International Equity</b>	<b>734,334,609</b>	<b>18.4</b>			
Artisan International Growth	177,891,669	4.5			
Research Affiliates International Equity	163,075,152	4.1			
Mondrian International Small Cap	117,714,650	3.0			
Mondrian Emerging Markets	275,653,139	6.9			
<b>Global Fixed Income</b>	<b>1,725,120,306</b>	<b>43.3</b>			
BlackRock Fixed Income	296,525,657	7.4			
Western Asset Investment Grade Credit	202,262,206	5.1			
Loomis Sayles High Yield	204,256,153	5.1			
Eaton Vance Senior Loan Fund	199,652,437	5.0			
SSgA TIPS	155,512,703	3.9			
Barclays U.S. Aggregate Index Fund	488,390,729	12.3			
PIMCO Emerging Local Bond Ins	178,520,421	4.5			
<b>Real Estate</b>	<b>150,966,898</b>	<b>3.8</b>			
Invesco Core Real Estate	124,608,354	3.1			
TA Realty IX	26,358,544	0.7			
<b>Hedge Funds</b>	<b>150,538,719</b>	<b>3.8</b>			
Grosvenor	150,538,719	3.8			
<b>Private Equity</b>	<b>125,976,479</b>	<b>3.2</b>			
Landmark Equity XIV, L.P.	19,549,193	0.5			
New Mountain Partners III	13,574,847	0.3			
Hamilton Lane VI	48,635,831	1.2			
WP Private Equity X, L.P.	21,469,325	0.5			
			Blackstone IV	7,701,945	0.2
			WP Private Equity VIII, L.P.	11,883,848	0.3
			Landmark Equity X, L.P.	1,889,194	0.0
			New Mountain Partners, L.P.	333,041	0.0
			WP Equity Partners, L.P.	939,255	0.0
			<b>Private Credit</b>	<b>78,455,997</b>	<b>2.0</b>
			Colony Distressed Credit III, L.P.	4,510,800	0.1
			Oaktree Opportunities IX, L.P.	12,395,613	0.3
			KKR Mezzanine Partners	21,122,309	0.5
			Angelo Gordon VII	15,187,154	0.4
			Colony Distressed Credit I, L.P.	18,484,986	0.5
			Lone Star Fund IV	356,814	0.0
			TCW Shop IV	4,766,893	0.1
			TCW Shop III	1,631,428	0.0
			<b>Commodities</b>	<b>102,876,872</b>	<b>2.6</b>
			BlackRock Commodities	102,876,872	2.6
			<b>Cash and Equivalents</b>	<b>61,309,676</b>	<b>1.5</b>
			Benefits Payment Cash	224,075	0.0
			Custodied	6,486,384	0.2
			Internal	54,235,120	1.4
			Transition	364,097	0.0

# Total Fund

## Executive Summary (Gross of Fees)

Period Ending: December 31, 2014

	Market Value	% of Portfolio	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2014	2013	2012	2011	2010
<b>Total Fund</b>	<b>3,983,478,506</b>	<b>100.0</b>	<b>0.6</b>	<b>3.8</b>	<b>11.2</b>	<b>9.9</b>	<b>7.3</b>	<b>3.8</b>	<b>16.6</b>	<b>13.5</b>	<b>0.1</b>	<b>16.3</b>
<i>Policy Index</i>			-0.1	2.6	10.0	8.6	5.7	2.6	15.6	12.3	0.1	13.2
<i>InvestorForce Public DB &gt; \$1B Gross + Rank</i>			78	93	58	44	9	93	29	42	76	2
<b>Total Domestic Equity</b>	<b>853,898,949</b>	<b>21.4</b>	<b>5.0</b>	<b>10.1</b>	<b>20.6</b>	<b>16.4</b>	<b>8.0</b>	<b>10.1</b>	<b>37.2</b>	<b>16.1</b>	<b>0.9</b>	<b>20.9</b>
<i>Russell 3000</i>			5.2	12.6	20.5	15.6	7.9	12.6	33.6	16.4	1.0	16.9
<i>eA US All Cap Equity Gross Rank</i>			41	50	41	32	73	50	34	40	37	32
<b>Total International Equity</b>	<b>734,334,609</b>	<b>18.4</b>	<b>-2.1</b>	<b>-1.9</b>	<b>11.8</b>	<b>7.4</b>	<b>7.1</b>	<b>-1.9</b>	<b>19.3</b>	<b>19.5</b>	<b>-11.3</b>	<b>14.9</b>
<i>MSCI ACWI ex USA Gross</i>			-3.8	-3.4	9.5	4.9	5.6	-3.4	15.8	17.4	-13.3	11.6
<i>eA ACWI ex-US All Cap Equity Gross Rank</i>			55	47	49	57	40	47	51	53	48	52
<b>Total Fixed Income</b>	<b>1,725,120,306</b>	<b>43.3</b>	<b>0.3</b>	<b>5.1</b>	<b>4.6</b>	<b>6.4</b>	<b>6.0</b>	<b>5.1</b>	<b>-0.9</b>	<b>9.9</b>	<b>6.9</b>	<b>11.4</b>
<i>Barclays Aggregate*</i>			-1.0	0.0	0.7	3.3	4.1	0.0	-2.0	4.2	7.8	6.5
<i>eA Global Fixed Inc Unhedged Gross Rank</i>			16	15	48	34	32	15	55	47	25	22
<b>Total Real Estate</b>	<b>150,966,898</b>	<b>3.8</b>	<b>2.9</b>	<b>12.3</b>	<b>11.1</b>	<b>11.7</b>	<b>8.6</b>	<b>12.3</b>	<b>12.4</b>	<b>8.5</b>	<b>11.1</b>	<b>14.0</b>
<i>NCREIF-ODCE</i>			3.3	12.5	12.4	13.9	7.1	12.5	13.9	10.9	16.0	16.4
<b>Total Hedge Funds</b>	<b>150,538,719</b>	<b>3.8</b>	<b>0.7</b>	<b>4.1</b>	<b>5.5</b>	<b>4.2</b>	<b>--</b>	<b>4.1</b>	<b>9.0</b>	<b>3.5</b>	<b>1.8</b>	<b>2.8</b>
<i>HFRI Fund of Funds Composite Index</i>			0.9	3.3	5.7	3.3	--	3.3	9.0	4.8	-5.7	5.7
<b>Total Commodities</b>	<b>102,876,872</b>	<b>2.6</b>	<b>-12.0</b>	<b>-16.7</b>	<b>-9.0</b>	<b>--</b>	<b>--</b>	<b>-16.7</b>	<b>-9.0</b>	<b>-0.6</b>	<b>-13.2</b>	<b>--</b>
<i>Bloomberg Commodity Index TR USD</i>			-12.1	-17.0	-9.4	--	--	-17.0	-9.5	-1.1	-13.3	--
<b>Total Alternative Illiquids</b>	<b>204,432,476</b>	<b>5.1</b>	<b>0.5</b>	<b>6.5</b>	<b>13.0</b>	<b>11.3</b>	<b>11.8</b>	<b>6.5</b>	<b>19.8</b>	<b>13.2</b>	<b>5.7</b>	<b>11.7</b>
<i>Russell 3000 + 2.5%</i>			5.9	15.3	23.5	18.5	10.6	15.3	36.8	19.3	3.6	19.8
<b>Total Cash</b>	<b>61,309,676</b>	<b>1.5</b>	<b>0.0</b>	<b>0.1</b>	<b>0.2</b>	<b>0.6</b>	<b>2.0</b>	<b>0.1</b>	<b>0.4</b>	<b>0.1</b>	<b>0.4</b>	<b>2.1</b>
<i>91 Day T-Bills</i>			0.0	0.0	0.0	0.1	1.4	0.0	0.0	0.1	0.0	0.1

*Policy Index (effective 3/19/2014 Q2 floating policy until rebalance is complete): 20.4% Russell 3000 Index, 43.4% BC Global Aggregate Index, 19% MSCI ACWI ex US, 3.4% Russell 3000 Index + 250 BP, 2% BC Global Agg + 250 BP, 3.8% HFRI FoF Composite, 5% NFI ODCE, & 3% Bloomberg Commodity Index. Composite total market values reflect manager exposures and any underlying cash balances. De-risking of the Plan commenced on April 30, 2014.*

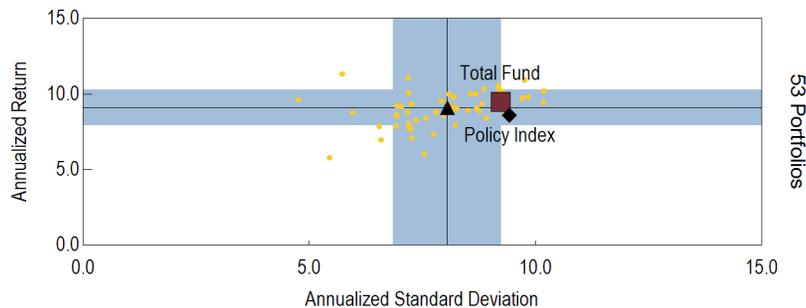
*\*Prior to 3/31/2014 Barclays U.S. Aggregate Index and as of 4/1/2014 Barclays Global Aggregate Index.*

# Total Fund Executive Summary (Net of Fees)

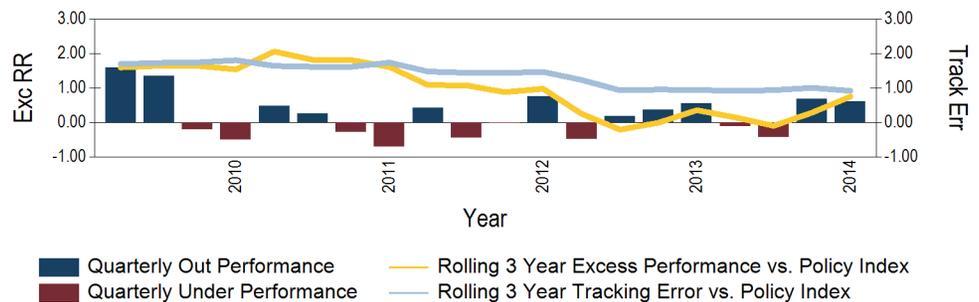
Period Ending: December 31, 2014

	Market Value	% of Portfolio	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2014	2013	2012	2011	2010
<b>Total Fund</b>	<b>3,983,478,506</b>	<b>100.0</b>	<b>0.5</b>	<b>3.5</b>	<b>10.8</b>	<b>9.5</b>	<b>6.9</b>	<b>3.5</b>	<b>16.3</b>	<b>13.1</b>	<b>-0.2</b>	<b>15.9</b>
<i>Policy Index</i>			-0.1	2.6	10.0	8.6	5.7	2.6	15.6	12.3	0.1	13.2
<b>Total Domestic Equity</b>	<b>853,898,949</b>	<b>21.4</b>	<b>4.9</b>	<b>9.8</b>	<b>20.3</b>	<b>16.1</b>	<b>--</b>	<b>9.8</b>	<b>36.8</b>	<b>15.8</b>	<b>0.6</b>	<b>20.5</b>
<i>Russell 3000</i>			5.2	12.6	20.5	15.6	--	12.6	33.6	16.4	1.0	16.9
<b>Total International Equity</b>	<b>734,334,609</b>	<b>18.4</b>	<b>-2.2</b>	<b>-2.4</b>	<b>11.3</b>	<b>6.8</b>	<b>--</b>	<b>-2.4</b>	<b>18.7</b>	<b>19.0</b>	<b>-11.7</b>	<b>14.2</b>
<i>MSCI ACWI ex USA Gross</i>			-3.8	-3.4	9.5	4.9	--	-3.4	15.8	17.4	-13.3	11.6
<b>Total Fixed Income</b>	<b>1,725,120,306</b>	<b>43.3</b>	<b>0.2</b>	<b>5.0</b>	<b>4.4</b>	<b>6.1</b>	<b>--</b>	<b>5.0</b>	<b>-1.1</b>	<b>9.6</b>	<b>6.6</b>	<b>11.1</b>
<i>Barclays Aggregate*</i>			-1.0	0.0	0.7	3.3	--	0.0	-2.0	4.2	7.8	6.5
<b>Total Real Estate</b>	<b>150,966,898</b>	<b>3.8</b>	<b>2.7</b>	<b>11.5</b>	<b>10.4</b>	<b>11.1</b>	<b>--</b>	<b>11.5</b>	<b>11.8</b>	<b>8.0</b>	<b>10.7</b>	<b>13.5</b>
<i>NCREIF-ODCE</i>			3.3	12.5	12.4	13.9	--	12.5	13.9	10.9	16.0	16.4
<b>Total Hedge Funds</b>	<b>150,538,719</b>	<b>3.8</b>	<b>0.5</b>	<b>3.1</b>	<b>4.3</b>	<b>3.0</b>	<b>3.7</b>	<b>3.1</b>	<b>7.8</b>	<b>2.2</b>	<b>0.4</b>	<b>1.5</b>
<i>HFRI Fund of Funds Composite Index</i>			0.9	3.3	5.7	3.3	3.0	3.3	9.0	4.8	-5.7	5.7
<b>Total Commodities</b>	<b>102,876,872</b>	<b>2.6</b>	<b>-12.1</b>	<b>-16.9</b>	<b>-9.3</b>	<b>--</b>	<b>--</b>	<b>-16.9</b>	<b>-9.4</b>	<b>-0.9</b>	<b>-13.2</b>	<b>--</b>
<i>Bloomberg Commodity Index TR USD</i>			-12.1	-17.0	-9.4	--	--	-17.0	-9.5	-1.1	-13.3	--
<b>Total Alternative Illiquids</b>	<b>204,432,476</b>	<b>5.1</b>	<b>0.5</b>	<b>6.4</b>	<b>12.9</b>	<b>11.0</b>	<b>11.5</b>	<b>6.4</b>	<b>19.6</b>	<b>13.0</b>	<b>5.4</b>	<b>11.4</b>
<i>Russell 3000 + 2.5%</i>			5.9	15.3	23.5	18.5	10.6	15.3	36.8	19.3	3.6	19.8
<b>Total Cash</b>	<b>61,309,676</b>	<b>1.5</b>	<b>0.0</b>	<b>0.1</b>	<b>0.2</b>	<b>0.6</b>	<b>--</b>	<b>0.1</b>	<b>0.4</b>	<b>0.1</b>	<b>0.4</b>	<b>2.1</b>
<i>91 Day T-Bills</i>			0.0	0.0	0.0	0.1	--	0.0	0.0	0.1	0.0	0.1

Annualized Return vs. Annualized Standard Deviation  
Total Fund vs. InvestorForce Public DB > \$1B Net + Universe



Annualized Excess Performance and Tracking Error



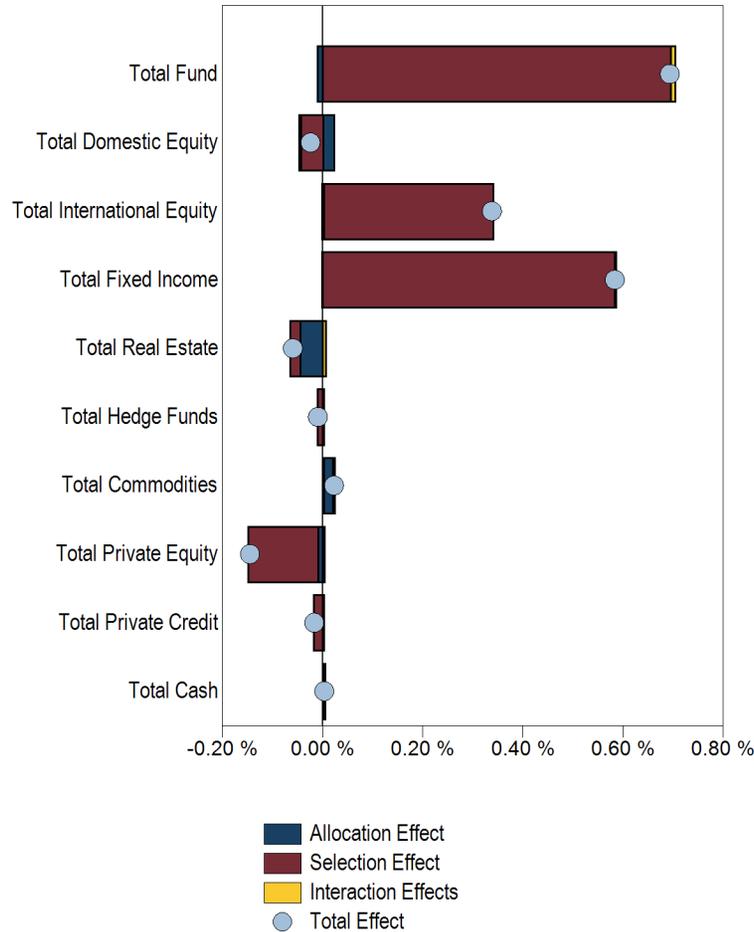
Policy Index (effective 3/19/2014 Q2 floating policy until rebalance is complete): 20.4% Russell 3000 Index, 43.4% BC Global Aggregate Index, 19% MSCI ACWI ex US, 3.4% Russell 3000 Index + 250 BP, 2% BC Global Agg + 250 BP, 3.8% HFRI FoF Composite, 5% NFI ODCE, & 3% Bloomberg Commodity Index. Composite total market values reflect manager exposures and any underlying cash balances. De-risking of the Plan commenced on April 30, 2014.  
\*Prior to 3/31/2014 Barclays U.S. Aggregate Index and as of 4/1/2014 Barclays Global Aggregate Index.

# Total Fund

## Attribution Analysis - Asset Class Level (Gross of Fees)

Period Ending: December 31, 2014

Attribution Effects  
Last Three Months



Performance Attribution

	Quarter	YTD
Wtd. Actual Return	0.58%	3.83%
Wtd. Index Return *	-0.12%	2.54%
<b>Excess Return</b>	<b>0.69%</b>	<b>1.29%</b>
Selection Effect	0.70%	1.60%
Allocation Effect	-0.01%	-0.29%
Interaction Effect	0.01%	-0.04%

\*Calculated from benchmark returns and weightings of each component.

Attribution Summary  
Last Three Months

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Total Domestic Equity	5.02%	5.24%	-0.22%	-0.04%	0.02%	0.00%	-0.02%
Total International Equity	-2.08%	-3.81%	1.73%	0.34%	0.00%	0.00%	0.34%
Total Fixed Income	0.31%	-1.04%	1.34%	0.58%	0.00%	0.00%	0.58%
Total Real Estate	2.86%	3.25%	-0.39%	-0.02%	-0.05%	0.01%	-0.06%
Total Hedge Funds	0.72%	0.93%	-0.22%	-0.01%	0.00%	0.00%	-0.01%
Total Commodities	-12.02%	-12.10%	0.08%	0.00%	0.02%	0.00%	0.02%
Total Private Equity	1.68%	5.88%	-4.20%	-0.14%	-0.01%	0.00%	-0.15%
Total Private Credit	-1.26%	-0.42%	-0.84%	-0.02%	0.00%	0.00%	-0.02%
Total Cash	0.02%	0.00%	0.01%	0.00%	0.00%	0.00%	0.00%
<b>Total</b>	<b>0.58%</b>	<b>-0.12%</b>	<b>0.69%</b>	<b>0.70%</b>	<b>-0.01%</b>	<b>0.01%</b>	<b>0.69%</b>

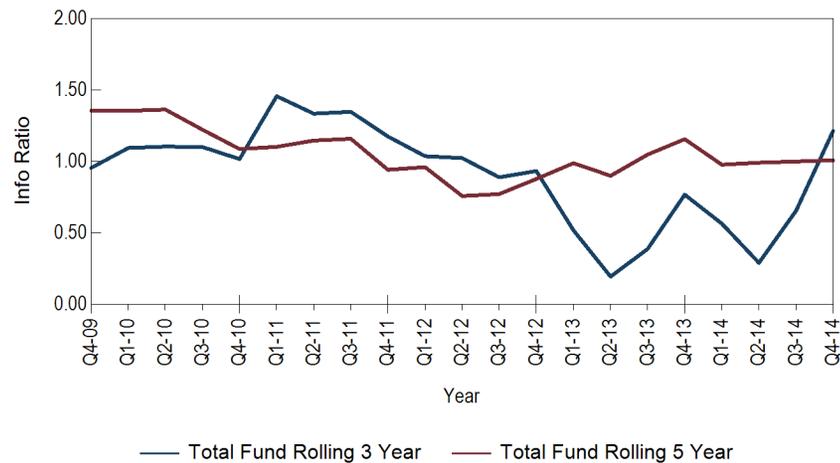
Weighted returns shown in attribution analysis may differ from actual returns.

# Total Fund Risk Analysis - 5 Years (Gross of Fees)

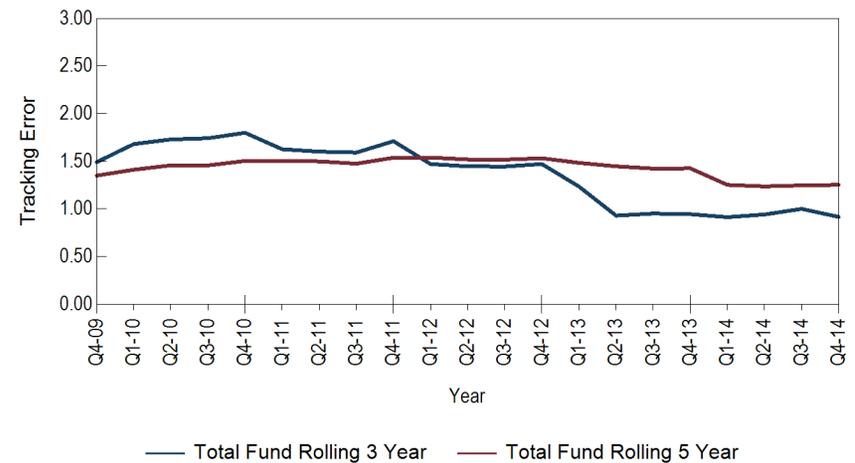
Period Ending: December 31, 2014

	Anlzd Standard Deviation	Anlzd Alpha	Beta	R-Squared	Up Mkt Capture Ratio	Down Mkt Capture Ratio	Information Ratio	Tracking Error	Sharpe Ratio	Sortino Ratio
Total Fund	9.23%	1.51%	0.97	0.98	106.78%	89.04%	1.01	1.25%	1.06	1.32
Total Domestic Equity	15.95%	-0.04%	1.05	0.99	107.92%	104.36%	0.40	1.95%	1.02	1.18
Total International Equity	15.67%	2.83%	0.93	0.99	103.84%	86.31%	1.12	2.20%	0.46	0.62
Total Domestic Fixed Income	3.29%	3.36%	0.75	0.47	139.49%	47.97%	0.90	2.50%	2.01	2.24
Total Real Estate	2.58%	6.39%	0.38	0.09	80.11%	--	-0.81	2.78%	4.49	--
Total Hedge Funds	2.36%	3.04%	0.35	0.46	73.18%	5.73%	0.26	3.46%	1.74	9.83
Total Alternative Illiquids	6.27%	6.29%	0.27	0.42	37.19%	20.41%	-0.60	12.06%	1.78	1.98

Rolling Information Ratio



Rolling Tracking Error



## Total Fund (Historical)

### Risk Analysis by Manager - 5 Years (Gross of Fees)

Period Ending: December 31, 2014

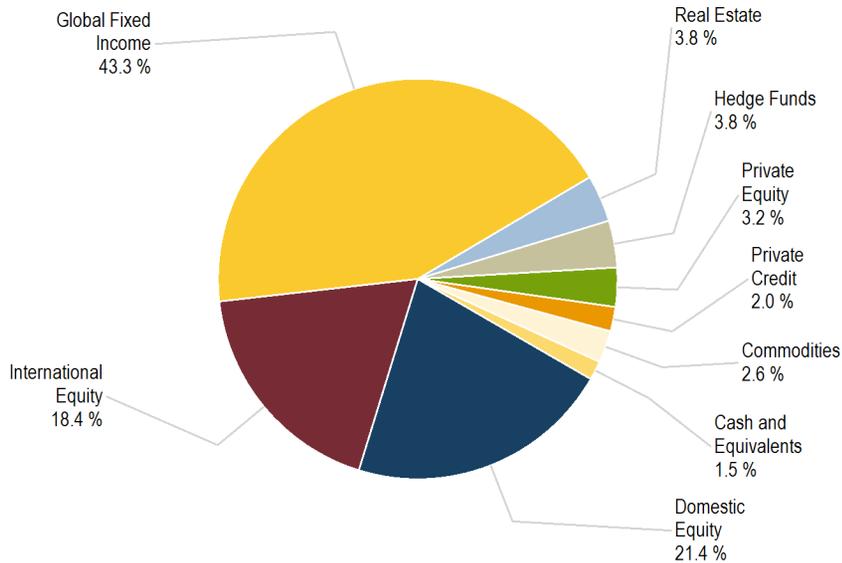
	Anlzd Standard Deviation	Anlzd Alpha	Beta	R-Squared	Up Mkt Capture Ratio	Down Mkt Capture Ratio	Information Ratio	Tracking Error	Sharpe Ratio	Sortino Ratio
SSgA S&P 500 Flagship Fund	14.41%	0.03%	1.00	1.00	100.23%	99.97%	1.54	0.02%	1.07	1.18
Waddell & Reed	15.44%	-0.92%	1.02	0.98	99.34%	105.54%	-0.25	2.31%	0.98	1.26
Winslow Capital Management	17.46%	-2.59%	1.15	0.98	110.47%	118.80%	-0.05	3.53%	0.89	1.21
Aronson Johnson Ortiz	15.44%	0.55%	1.02	0.98	105.32%	98.69%	0.42	2.16%	1.05	1.25
Wellington Management Large Cap Value	16.79%	-0.56%	1.11	0.99	119.14%	116.36%	0.45	2.67%	0.99	1.03
Systematic Small/Mid Cap Value	20.08%	-1.25%	1.11	0.98	110.63%	109.21%	0.10	3.59%	0.79	0.88
Kalmar Investments Management	18.70%	1.54%	0.94	0.95	93.85%	88.19%	0.12	4.36%	0.92	1.30
Artisan International Growth	16.94%	4.56%	0.97	0.93	113.90%	80.62%	0.95	4.60%	0.60	0.76
Research Affiliates International Equity	18.23%	0.52%	1.06	0.97	111.51%	102.83%	0.27	3.28%	0.36	0.52
Mondrian International Small Cap	16.08%	4.03%	0.84	0.92	93.24%	76.11%	0.49	5.38%	0.69	0.91
Mondrian Emerging Markets	16.58%	2.18%	0.89	0.93	90.19%	81.75%	0.41	4.83%	0.24	0.38
BlackRock Fixed Income	2.89%	1.08%	0.93	0.94	113.85%	87.49%	0.99	0.76%	1.77	2.80
Western Asset Investment Grade Credit	3.84%	1.18%	0.97	0.91	111.89%	82.52%	0.82	1.18%	1.86	2.54
Loomis Sayles High Yield	7.93%	-0.03%	1.20	0.89	126.59%	120.30%	0.61	2.95%	1.36	1.37
Eaton Vance Senior Loan Fund	3.20%	1.19%	0.78	0.97	90.14%	55.46%	0.00	1.03%	1.72	2.82
SSgA TIPS	5.37%	-0.02%	1.00	1.00	99.59%	100.05%	-0.96	0.03%	0.75	0.79
PIMCO Emerging Local Bond Ins	10.50%	0.16%	1.00	0.98	103.53%	101.44%	0.11	1.34%	0.26	0.42
Invesco Core Real Estate	3.41%	-5.70%	1.40	0.74	98.22%	--	-0.10	1.93%	4.01	--
Grosvenor	4.88%	3.55%	1.00	0.89	153.90%	63.09%	2.17	1.63%	1.39	1.45

Manager risk analysis statistics are run against historical composite returns prior to manager since inception.

# Total Domestic Equity Performance Summary (Gross of Fees)

Period Ending: December 31, 2014

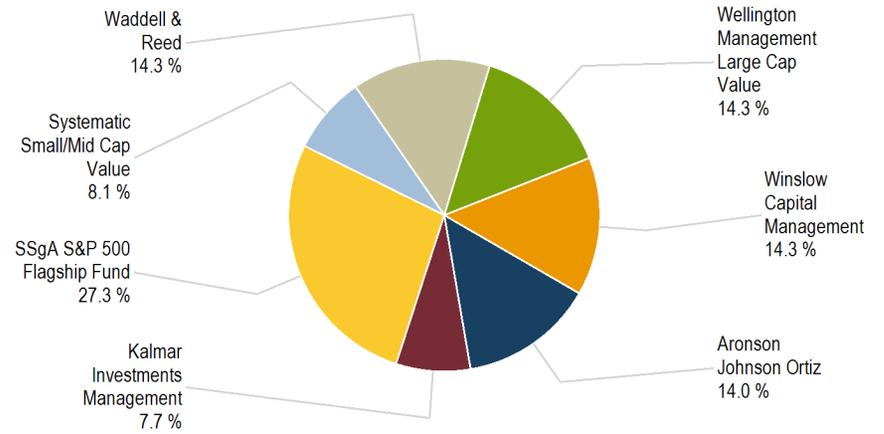
**Total Fund  
Current Allocation**



**Total Fund**

**Market Value  
3,983,478,506**

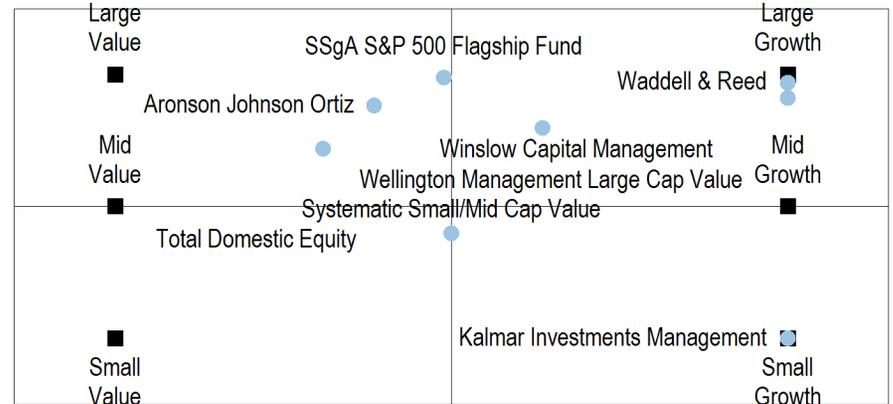
**Total Domestic Equity  
Current Allocation**



**Total Domestic Equity**

**Market Value  
853,898,949**

**U.S. Effective Style Map**



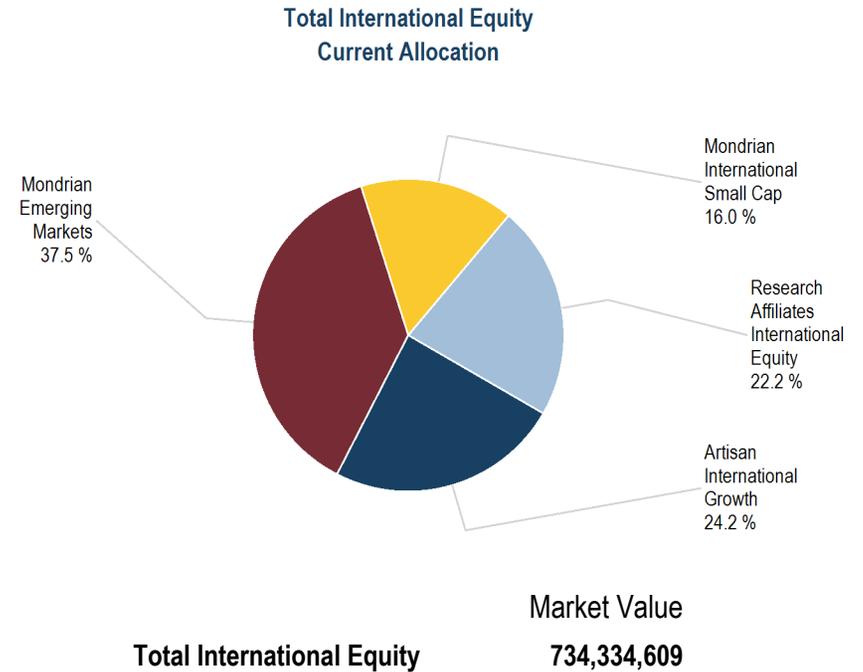
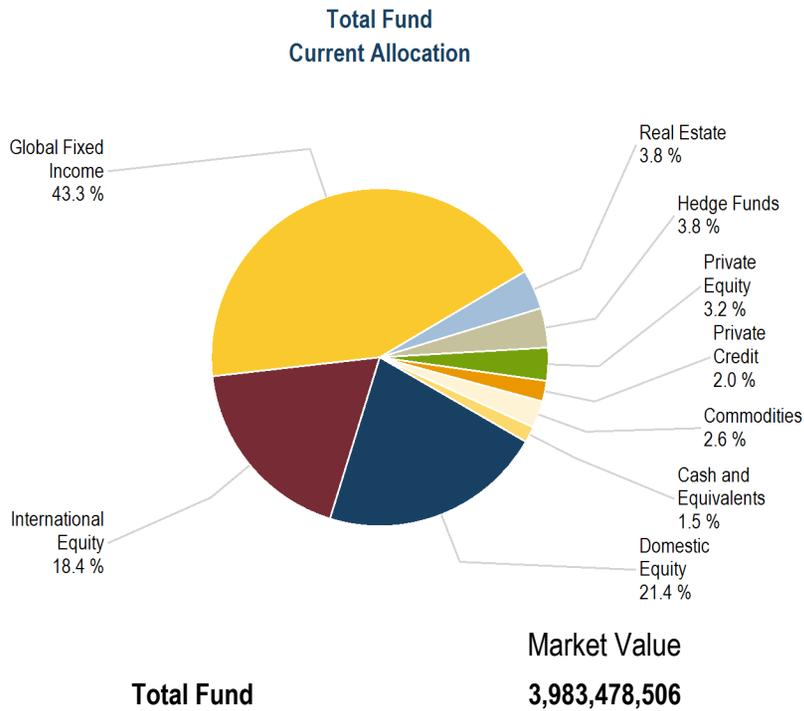
# Total Domestic Equity Performance Summary (Gross of Fees)

Period Ending: December 31, 2014

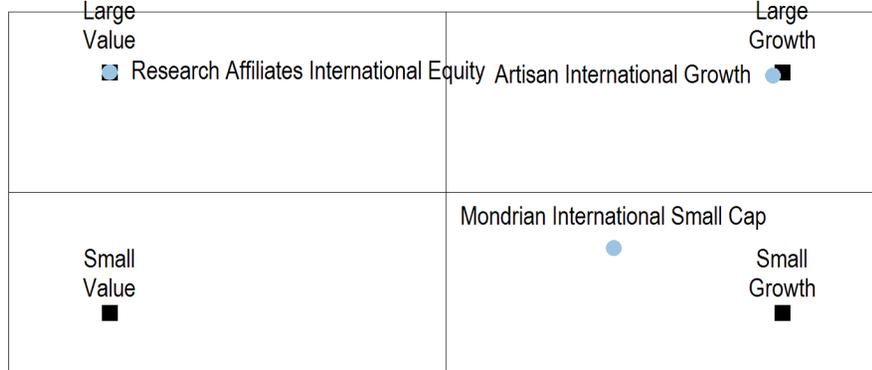
	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2014	2013	2012	2011	2010	Return	Since
<b>Domestic Equity</b>	<b>853,898,949</b>												
SSgA S&P 500 Flagship Fund	233,029,443	5.0	13.7	20.5	15.5	7.7	13.7	32.4	16.0	2.1	15.1	8.1	3/23/04
S&P 500		4.9	13.7	20.4	15.5	7.7	13.7	32.4	16.0	2.1	15.1	8.0	3/23/04
eA US Large Cap Equity Gross Rank		46	35	50	45	77	35	61	44	33	46		
Waddell & Reed	122,520,348	4.6	13.0	20.3	--	--	13.0	37.0	12.5	3.0	--	15.7	12/17/10
Russell 1000 Growth		4.8	13.0	20.3	--	--	13.0	33.5	15.3	2.6	--	15.6	12/17/10
eA US Large Cap Growth Equity Gross Rank		60	39	54	--	--	39	28	84	20	--		
Winslow Capital Management	122,087,658	5.7	11.4	20.6	--	--	11.4	38.0	14.1	0.6	--	15.4	12/17/10
Russell 1000 Growth		4.8	13.0	20.3	--	--	13.0	33.5	15.3	2.6	--	15.6	12/17/10
eA US Large Cap Growth Equity Gross Rank		30	57	50	--	--	57	19	68	40	--		
Aronson Johnson Ortiz	119,227,746	3.7	10.0	21.3	16.3	8.1	10.0	38.4	17.4	2.7	16.1	11.4	12/4/95
Russell 1000 Value		5.0	13.5	20.9	15.4	7.3	13.5	32.5	17.5	0.4	15.5	9.2	12/4/95
eA US Large Cap Value Equity Gross Rank		65	81	34	24	61	81	17	32	30	27		
Wellington Management Large Cap Value	122,298,269	5.6	14.1	23.2	16.6	8.2	14.1	35.8	20.6	-1.2	16.9	7.9	4/30/00
Russell 1000 Value		5.0	13.5	20.9	15.4	7.3	13.5	32.5	17.5	0.4	15.5	6.8	4/30/00
eA US Large Cap Value Equity Gross Rank		18	22	16	19	55	22	34	8	66	20		
Systematic Small/Mid Cap Value	68,862,932	2.8	4.4	19.2	--	--	4.4	37.5	18.1	-4.4	--	15.1	10/8/10
Russell 2500 Value		6.1	7.1	19.4	--	--	7.1	33.3	19.2	-3.4	--	15.3	10/8/10
eA US Small-Mid Cap Value Equity Gross Rank		78	69	49	--	--	69	38	35	70	--		
Kalmar Investments Management	65,872,554	8.7	-4.5	16.7	17.3	9.4	-4.5	44.9	14.8	1.7	37.3	9.9	11/30/04
Russell 2000 Growth		10.1	5.6	20.1	16.8	8.5	5.6	43.3	14.6	-2.9	29.1	8.9	11/30/04
eA US Small Cap Growth Equity Gross Rank		49	89	82	57	59	89	56	44	32	10		

# Total International Equity Performance Summary (Gross of Fees)

Period Ending: December 31, 2014



Non U.S. Effective Style Map vs. EAFE



Effective Style Map vs. EM



# Total International Equity Performance Summary (Gross of Fees)

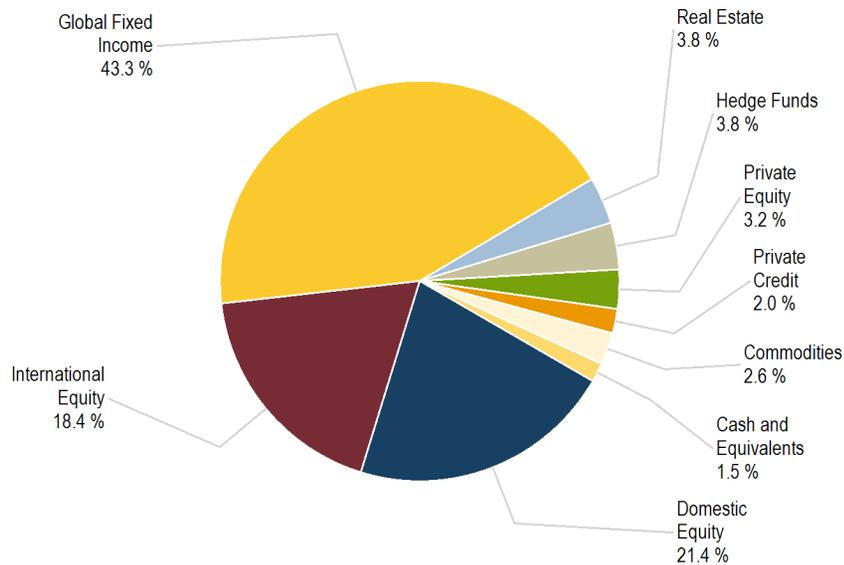
Period Ending: December 31, 2014

	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2014	2013	2012	2011	2010	Return	Since
<b>International Equity</b>	<b>734,334,609</b>												
Artisan International Growth	177,891,669	1.3	0.7	--	--	--	0.7	--	--	--	--	11.1	3/13/13
<i>MSCI EAFE Gross</i>		-3.5	-4.5	--	--	--	-4.5	--	--	--	--	6.2	3/13/13
<i>eA EAFE All Cap Equity Gross Rank</i>		1	12	--	--	--	12	--	--	--	--		
Research Affiliates International Equity	163,075,152	-4.1	-5.5	13.2	--	--	-5.5	29.2	18.7	--	--	5.6	4/29/11
<i>MSCI EAFE Gross</i>		-3.5	-4.5	11.6	--	--	-4.5	23.3	17.9	--	--	4.6	4/29/11
<i>eA EAFE All Cap Equity Gross Rank</i>		78	74	44	--	--	74	13	63	--	--		
Mondrian International Small Cap	117,714,650	-0.6	-4.2	12.4	11.2	--	-4.2	18.1	25.5	-8.1	30.3	12.0	11/2/09
<i>S&amp;P Developed Ex-U.S. SmallCap</i>		-2.6	-3.4	13.0	8.5	--	-3.4	26.1	18.6	-14.5	22.0	8.8	11/2/09
<i>eA EAFE All Cap Equity Gross Rank</i>		15	63	59	6	--	63	93	9	19	1		
Mondrian Emerging Markets	275,653,139	-3.5	0.7	5.1	4.1	--	0.7	-6.4	23.1	-11.2	18.4	7.9	11/17/05
<i>MSCI Emerging Markets</i>		-4.5	-2.2	4.0	1.8	--	-2.2	-2.6	18.2	-18.4	18.9	6.8	11/17/05
<i>eA Emg Mkts Equity Gross Rank</i>		49	41	69	46	--	41	96	24	6	70		

# Total Fixed Income Performance Summary (Gross of Fees)

Period Ending: December 31, 2014

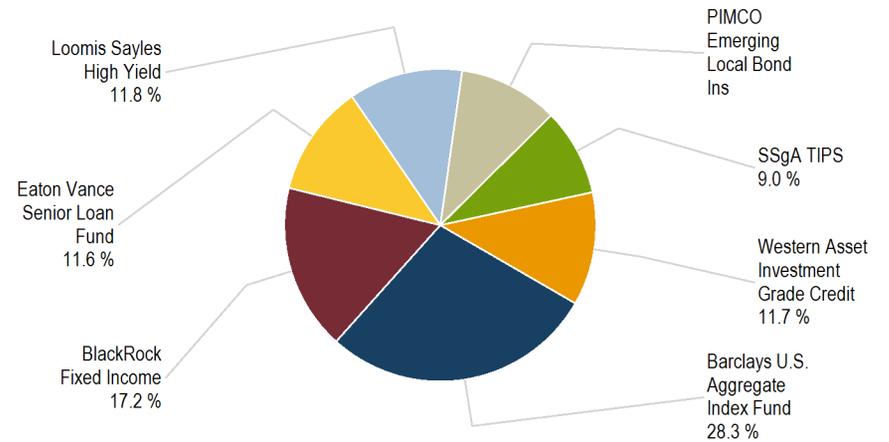
**Total Fund  
Current Allocation**



**Market Value  
3,983,478,506**

**Total Fund**

**Total Fixed Income  
Current Allocation**



**Total Fixed Income**

**Market Value  
1,725,120,306**

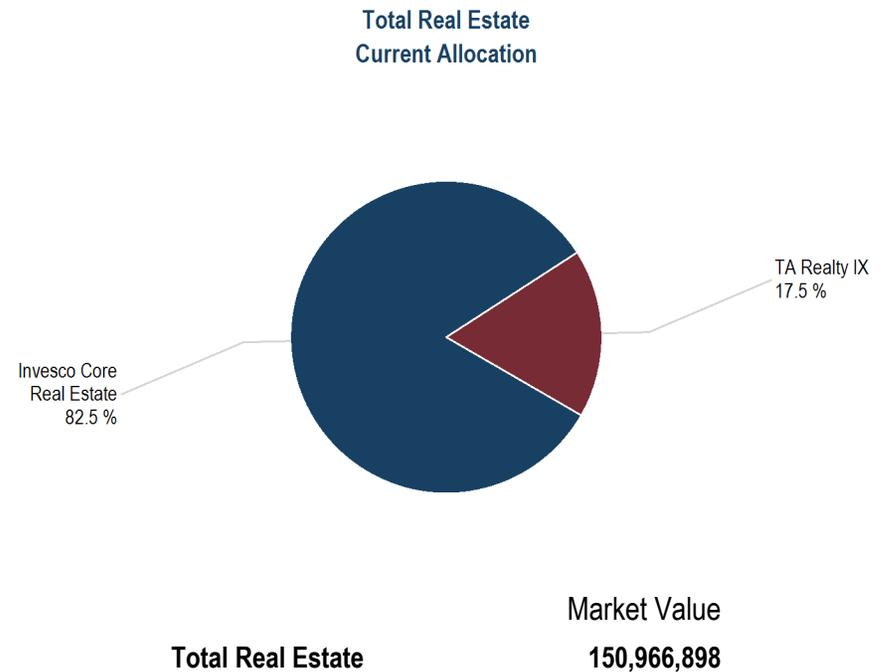
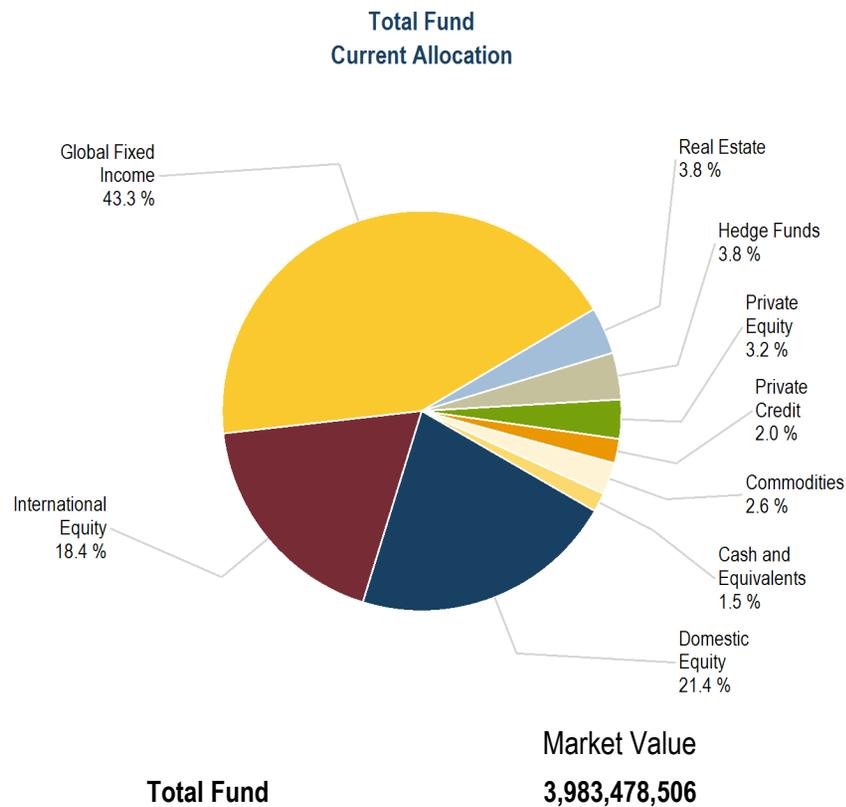
# Total Fixed Income Performance Summary (Gross of Fees)

Period Ending: December 31, 2014

	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2014	2013	2012	2011	2010	Return	Since
<b>Domestic Fixed Income</b>	<b>1,142,691,295</b>												
BlackRock Fixed Income	296,525,657	1.6	6.1	3.3	5.2	5.0	6.1	-1.3	5.3	8.0	8.2	5.1	6/25/04
<i>Barclays Aggregate</i>		1.8	6.0	2.7	4.4	4.7	6.0	-2.0	4.2	7.8	6.5	4.9	6/25/04
<i>eA All US Fixed Inc Gross Rank</i>		25	31	53	46	51	31	73	58	29	35		
Western Asset Investment Grade Credit	202,262,206	1.8	--	--	--	--	--	--	--	--	--	1.8	10/1/14
<i>Barclays Credit</i>		1.8	--	--	--	--	--	--	--	--	--	1.8	10/1/14
<i>eA All US Fixed Inc Gross Rank</i>		19	--	--	--	--	--	--	--	--	--		
SSgA TIPS	155,512,703	0.0	3.6	0.4	4.1	--	3.6	-8.6	6.9	13.5	6.3	5.5	2/27/09
<i>Barclays US TIPS</i>		0.0	3.6	0.4	4.1	--	3.6	-8.6	7.0	13.6	6.3	5.5	2/27/09
<i>eA TIPS / Infl Indexed Fixed Inc Gross Rank</i>		35	44	62	67	--	44	77	67	51	63		
Barclays U.S. Aggregate Index Fund	488,390,729	1.8	--	--	--	--	--	--	--	--	--	3.3	4/30/14
<i>Barclays Aggregate</i>		1.8	--	--	--	--	--	--	--	--	--	3.2	4/30/14
<i>eA US Passive Fixed Inc Gross Rank</i>		37	--	--	--	--	--	--	--	--	--		
<b>Domestic Fixed Income High Yield</b>	<b>403,908,590</b>												
Loomis Sayles High Yiled	204,256,153	0.1	--	--	--	--	--	--	--	--	--	0.1	10/1/14
<i>Barclays High Yield</i>		-1.0	--	--	--	--	--	--	--	--	--	-1.0	10/1/14
<i>eA US High Yield Fixed Inc Gross Rank</i>		26	--	--	--	--	--	--	--	--	--		
Eaton Vance Senior Loan Fund	199,652,437	0.0	--	--	--	--	--	--	--	--	--	0.0	10/1/14
<i>S&amp;P/LSTA Leveraged Loan Index</i>		-0.5	--	--	--	--	--	--	--	--	--	-0.5	10/1/14
<i>eA US High Yield Fixed Inc Gross Rank</i>		28	--	--	--	--	--	--	--	--	--		
<b>International Fixed Income</b>	<b>178,520,421</b>												
PIMCO Emerging Local Bond Ins	178,520,421	-6.1	-5.0	--	--	--	-5.0	--	--	--	--	-4.8	7/31/13
<i>JP Morgan GBI EM Diversified</i>		-5.7	-5.7	--	--	--	-5.7	--	--	--	--	-5.1	7/31/13
<i>eA Emg Mkt Fixed Inc Unhedged Gross Rank</i>		88	82	--	--	--	82	--	--	--	--		

# Total Real Estate Performance Summary (Gross of Fees)

Period Ending: December 31, 2014



# Total Real Estate Performance Summary

Period Ending: December 31, 2014

	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2014	2013	2012	2011	2010	Return	Since
<b>Real Estate</b>	<b>150,966,898</b>												
Invesco Core Real Estate	124,608,354	3.5	12.4	11.7	13.7	--	12.4	14.2	8.7	16.9	16.7	3.2	10/1/07
NCREIF-ODCE		3.3	12.5	12.4	13.9	--	12.5	13.9	10.9	16.0	16.4	2.7	10/1/07

Real Estate - Closed End Funds										
Inception Date	Manager Name/Fund Name	Total Commitment	Contributions	Distributions	Market Value	One Quarter Return	One Year Return	Three Years Return	Five Years Return	(IRR) Since Inception
2009	TA Realty IX*	\$30,000,000	\$30,000,000	\$14,180,734	\$27,162,533	3.9%	18.8%	13.9%	N/A	25.4%

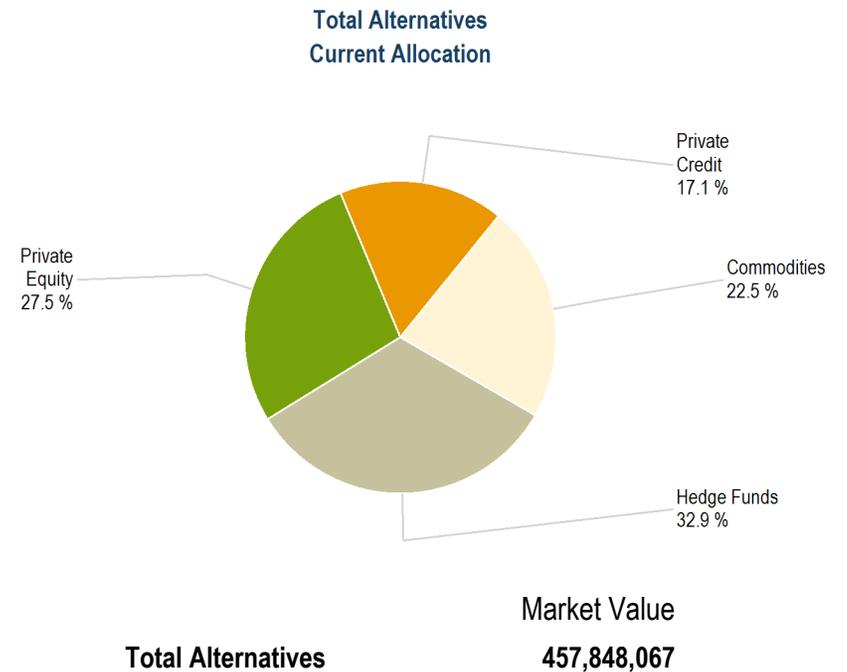
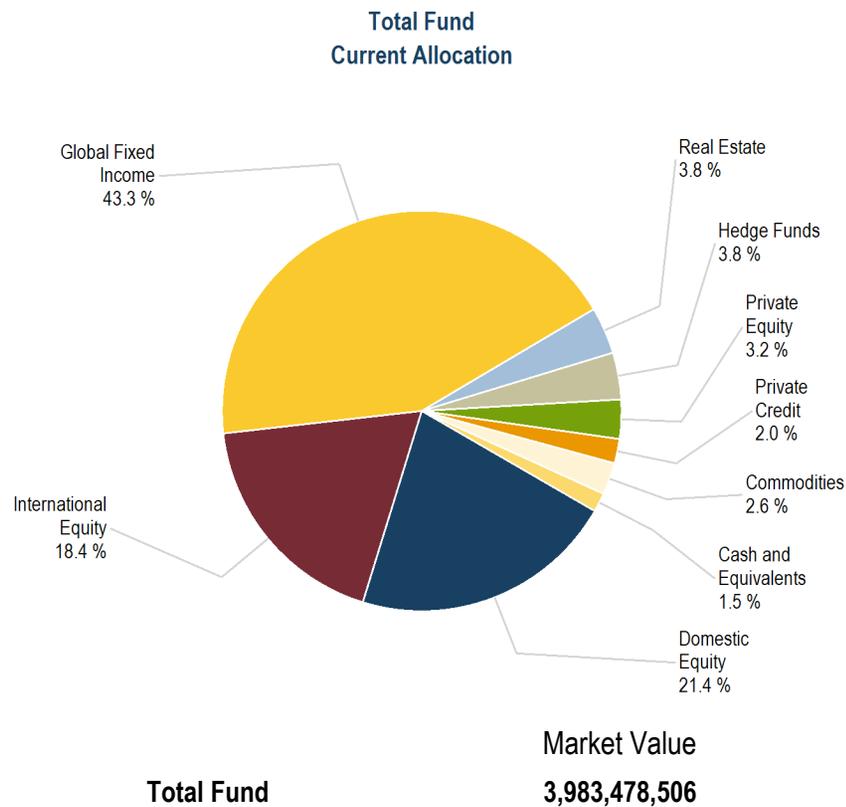
% of Total Fund (Market Value)

0.7%

\*Balance, performance, and IRR as of 9/30/2014.

# Total Alternatives Performance Summary (Gross of Fees)

Period Ending: December 31, 2014



# Total Liquid Alternatives Performance Summary (Gross of Fees)

Period Ending: December 31, 2014

	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2014	2013	2012	2011	2010	Return	Since
<b>Hedge Funds</b>	<b>150,538,719</b>												
Grosvenor	150,538,719	0.8	4.3	9.9	6.8	--	4.3	16.0	9.7	-2.6	7.6	6.1	10/31/09
<i>HFRI Fund of Funds Composite Index</i>		0.9	3.3	5.7	3.3	--	3.3	9.0	4.8	-5.7	5.7	3.5	10/31/09
<b>Commodities</b>	<b>102,876,872</b>												
BlackRock Commodities	102,876,872	-12.0	-16.7	-9.0	--	--	-16.7	-9.0	-0.6	-13.2	--	-4.7	3/31/10
<i>Bloomberg Commodity Index TR USD</i>		-12.1	-17.0	-9.4	--	--	-17.0	-9.5	-1.1	-13.3	--	-4.8	3/31/10

Common Sense fully liquidated on 12/31/2014.

# Total Alternative Illiquids Non Marketable Securities Overview

Period Ending: December 31, 2014

		Wurts Internal Analysis								Manager Reported		
Vintage Year	Manager Name/Fund Name	Estimated Market Value as of 12/31/14 <sup>3</sup>	Total Commitment	Capital Called	% Called	Remaining Commitment	Capital Returned	Distrib./ Paid-In (DPI) <sup>1</sup>	Tot. Value/ Paid-In (TVPI) <sup>2</sup>	Market Value as of IRR Date	Net IRR Since Inception <sup>6</sup>	IRR Date
<b>Private Equity</b>												
2008	Landmark Equity XIV, L.P.	\$19,549,193	\$30,000,000	\$26,445,604	88%	\$3,554,396	\$16,124,957	61.0%	134.9%	\$20,696,759	18.5%	06/30/14
2007	New Mountain Partners III	\$13,574,847	\$15,000,000	\$14,601,945	97%	\$398,055 <sup>7</sup>	\$5,217,963	35.7%	128.7%	\$13,574,847	8.1%	09/30/14
2007	Hamilton Lane VI	\$48,635,831	\$70,000,000	\$60,965,305	87%	\$9,034,695	\$40,861,151	67.0%	146.8%	\$48,635,831	9.6%	12/31/14
2007	WP Private Equity X, L.P.	\$21,469,325	\$25,000,000	\$25,000,000	100%	\$0	\$14,121,766	56.5%	142.4%	\$21,469,325	9.0%	09/30/14
2002	Blackstone IV	\$7,701,945	\$20,000,000	\$22,320,267	112%	\$0 <sup>8</sup>	\$44,743,042	200.5%	235.0%	\$7,701,945	30.1%	12/31/14
2001	WP Private Equity VIII, L.P.	\$11,883,848	\$25,000,000	\$25,000,000	100%	\$0	\$49,345,864	197.4%	244.9%	\$11,883,848	15.7%	09/30/14
2000	Landmark Equity X, L.P.	\$1,889,194	\$20,000,000	\$19,009,543	95%	\$990,457	\$21,162,266	111.3%	121.3%	\$2,225,641	4.3%	06/30/14
1999	New Mountain Partners, L.P.	\$333,041	\$20,000,000	\$19,534,686	98%	\$465,314 <sup>9</sup>	\$26,957,557	138.0%	139.7%	\$1,847,117	12.2%	09/30/14
1998	WP Equity Partners, L.P. <sup>10</sup>	\$939,255	\$20,000,000	\$20,000,000	100%	\$0	\$32,056,827	160.3%	165.0%	\$997,219	10.1%	03/31/12
<b>Private Credit</b>												
2014	Colony Distressed Credit III, L.P.	\$4,510,800	\$20,000,000	\$5,469,465	27%	\$14,530,535	\$1,056,381	19.3%	101.8%		N/A	
2012	Oaktree Opportunities IX, L.P.	\$12,395,613	\$15,000,000	\$12,000,000	80%	\$3,000,000	\$0	0.0%	103.3%	\$12,395,613	3.7%	12/31/14
2010	KKR Mezzanine Partners	\$21,122,309	\$30,000,000	\$27,572,526	92%	\$2,427,474 <sup>11</sup>	\$12,815,276	46.5%	123.1%	\$20,936,469	11.1%	09/30/14
2010	Angelo Gordon VII	\$15,187,154	\$30,000,000	\$30,000,000	100%	\$0	\$23,748,070	79.2%	129.8%	\$15,187,154	7.1%	12/31/14
2009	Colony Distressed Credit I, L.P. <sup>12</sup>	\$18,484,986	\$40,000,000	\$44,487,400	111%	\$0	\$46,796,014	105.2%	146.7%	\$18,484,986	18.2%	12/31/14
2002	Lone Star Fund IV	\$356,814	\$20,000,000	\$19,045,199	95%	\$954,801	\$43,614,095	229.0%	230.9%	\$356,814	30.7%	12/31/14
2002	TCW Shop IV	\$4,766,893	\$15,000,000	\$22,661,307	151%	\$0	\$23,085,125	101.9%	122.9%	\$5,434,031	6.9%	09/30/13
1998	TCW Shop III	\$1,631,428	\$15,000,000	\$15,000,000	100%	\$0	\$16,956,794	113.0%	123.9%	\$1,488,539	3.4%	03/31/13

**Total Alternative Illiquids** \$204,432,476 \$430,000,000 \$409,113,246 95% \$35,355,727 \$418,663,147 102.3% 152.3%

**% of Portfolio (Market Value)** 5.1%

<sup>1</sup>(DPI) is equal to (capital returned / capital called)

<sup>2</sup>(TVPI) is equal to (market value + capital returned) / capital called

<sup>3</sup>Last known market value + capital calls - distributions

<sup>4</sup>IRR currently unavailable for these funds.

<sup>5</sup>Investment period ended, no further capital to be called.

<sup>6</sup>Gross IRR is calculated on the cash flows of the underlying investments of the fund and is net of the underlying fund fees and carried interest.

<sup>7</sup>Net IRR is calculated on the cash flows of all the limited partners of the fund and is net of all fees. Each IRR figure is provided by its respective manager.

<sup>8</sup>\$1,366,953 capital returned but subject to recall

<sup>9</sup>\$2,996,127 capital returned but subject to recall

<sup>10</sup>\$2,338,987 capital returned but subject to recall

<sup>11</sup>On June 11, 2012 \$1,029,076 was transferred from the Partnership to a Liquidation Trust.

<sup>12</sup>\$5,425,264 capital returned but subject to recall

<sup>13</sup>Balance, performance, and IRR as of 6/30/2014. Colony Capital reflects a FCERA-specific IRR.

BCI Growth V, L.P. was fully liquidated on 12/31/2013.

# Total Fund Investment Fund Fee Analysis

Period Ending: December 31, 2014

Account	Fee Schedule	Market Value As of 12/31/2014	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
SSgA S&P 500 Flagship Fund	0.03% of First \$150.0 Mil, 0.02% Thereafter	\$233,029,443	\$59,945	0.03%
Waddell & Reed	0.25% of Assets	\$122,520,348	\$306,301	0.25%
Winslow Capital Management	0.25% of Assets	\$122,087,658	\$305,219	0.25%
Aronson Johnson Ortiz	0.30% of Assets	\$119,227,746	\$357,683	0.30%
Wellington Management Large Cap Value	0.32% of First \$250.0 Mil, 0.30% Thereafter	\$122,298,269	\$391,354	0.32%
Systematic Small/Mid Cap Value	0.35% of Assets	\$68,862,932	\$241,020	0.35%
Kalmar Investments Management	1.00% of First \$10.0 Mil, 0.88% of Next \$10.0 Mil, 0.75% Thereafter	\$65,872,554	\$531,544	0.81%
Artisan International Growth	0.30% of Assets	\$177,891,669	\$533,675	0.30%
Research Affiliates International Equity	0.12% of Assets	\$163,075,152	\$195,690	0.12%
Mondrian International Small Cap	0.85% of First \$25.0 Mil, 0.65% of Next \$50.0 Mil, 0.63% of Next \$50.0 Mil, 0.60% Thereafter	\$117,714,650	\$804,467	0.68%
Mondrian Emerging Markets	1.00% of First \$25.0 Mil, 0.75% of Next \$50.0 Mil, 0.60% Thereafter	\$275,653,139	\$1,828,919	0.66%
BlackRock Fixed Income	0.25% of First \$100.0 Mil, 0.20% of Next \$100.0 Mil, 0.18% of Next \$100.0 Mil, 0.15% Thereafter	\$296,525,657	\$618,920	0.21%
Western Asset Investment Grade Credit	0.30% of First \$100.0 Mil, 0.15% Thereafter	\$202,262,206	\$453,393	0.22%

*This fee analysis only reflects base fees for investment management, does not incorporate performance-based fees, and excludes fees paid to real estate and private equity managers. Real estate and private equity fees have other components which cannot be easily captured in this simplified format.*

*\* Managers with incentive fee: Waddell, Winslow, Systematic, Research Affiliates, Western Asset, Artisan.*

*\*\* Loomis and Western Asset have performance based fees not included in the fee analysis.*

*\*\*\* Common Sense fee schedule effective as of January 1, 2013.*

*\*\*\*\* Research Affiliates and Artisan fee schedule effective as of April 1, 2013.*

# Total Fund Investment Fund Fee Analysis

Period Ending: December 31, 2014

Account	Fee Schedule	Market Value As of 12/31/2014	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
Loomis Sayles High Yield	0.50% of Assets	\$204,256,153	\$1,021,281	0.50%
Eaton Vance Senior Loan Fund	0.55% of First \$50.0 Mil, 0.50% of Next \$50.0 Mil, 0.40% Thereafter	\$199,652,437	\$923,610	0.46%
SSgA TIPS	0.04% of Assets	\$155,512,703	\$62,205	0.04%
Barclays U.S. Aggregate Index Fund	0.02% of Assets	\$488,390,729	\$97,678	0.02%
PIMCO Emerging Local Bond Ins	0.50% of First \$100.0 Mil, 0.45% Thereafter	\$178,520,421	\$853,342	0.48%
Grosvenor	1.15% of First \$25.0 Mil, 1.00% of Next \$25.0 Mil, 0.80% of Next \$50.0 Mil, 0.60% Thereafter	\$150,538,719	\$1,240,732	0.82%
BlackRock Commodities	0.30% of Assets	\$102,876,872	\$308,631	0.30%
<b>Investment Management Fee</b>		<b>\$3,566,769,456</b>	<b>\$16,460,610</b>	<b>0.46%</b>

*This fee analysis only reflects base fees for investment management, does not incorporate performance-based fees, and excludes fees paid to real estate and private equity managers. Real estate and private equity fees have other components which cannot be easily captured in this simplified format.*

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*\*\*\* Common Sense fee schedule effective as of January 1, 2013.*

*\*\*\*\* Research Affiliates and Artisan fee schedule effective as of April 1, 2013.*

# Total Fund Watch List (Gross of Fees)

Period Ending: December 31, 2014

No Issues
Watch
Terminate

Investment Manager	Asset Class	Watch Date	Funding Date	Standard #1	Standard #2	Standard #3	Standard #4	Standard #5	Standard #6
WADDELL & REED	Large Growth		12/17/2010	↓	↓	↑	↓	↓	↓
WINSLOW	Large Growth	03/31/2013	12/17/2010	↓	↓	↑	↓	↑	↓
ARONSON JOHNSON	Large Value		12/04/1995	↑	↓	↑	↓	↑	↑
WELLINGTON	Large Value		04/30/2000	↑	↑	↑	↓	↑	↓
KALMAR	Small Growth		11/30/2004	↑	↓	↑	↓	↓	↑
SYSTEMATIC	Sm/Mid Value		10/08/2010	↑	↓	↑	↓	↑	↑
MONDRIAN EMERGING	Emerging Markets		11/07/2005	↑	↑	↑	↑	↓	↑
RESEARCH AFFILIATES	International Equity		04/29/2011	↑	↑	↓	↓	↓	↑
ARTISAN INTL	International Equity		03/13/2013	↑	↑	↑	↑	↑	↑
MONDRIAN INTL SM CAP	Intl Small Cap		11/02/2009	↑	↓	↑	↑	↑	↑

### Performance Standards

**Standard #1:** The manager has outperformed the assigned benchmark a minimum of 50% of the time over the last 20 quarters.

**Standard #2:** The equity manager and fixed income manager have returned 110% and 105% respectively of the assigned benchmark returns over the most recent three-year period.

**Standard #3:** The manager's performance is in the 50th percentile or better against the appropriate style universe in at least three of the last five years of consecutive annual returns.

**Standard #4:** The manager has a Sharpe Ratio equal to or greater than the median manager in an appropriate style universe over the most recent five year period (five year gross return minus five year 90ay T-Bill return/standard deviation).

**Standard #5:** The manager has an Information Ratio equal to or greater than the median manager in an appropriate style universe over the most recent five year period (gross excess return over benchmark/tracking error).

**Standard #6:** The manager experiences non-performance related issues including personnel turnover, changes in investment philosophy, excessive asset growth, change in ownership, and any other reason causing concern.

Watch List standards are run against historical composite returns prior to manager since inception.

# Total Fund Watch List (Gross of Fees)

Period Ending: December 31, 2014

				<table border="1"> <tr><td>No Issues</td></tr> <tr><td>Watch</td></tr> <tr><td>Terminate</td></tr> </table>						No Issues	Watch	Terminate
No Issues												
Watch												
Terminate												
Investment Manager	Asset Class	Watch Date	Funding Date	Standard #1	Standard #2	Standard #3	Standard #4	Standard #5	Standard #6			
BLACKROCK	Domestic Fixed	*	06/25/2004	↑	↑	↑	↑	↑	↑			
WESTERN ASSET	Domestic Fixed		10/01/2014	↑	↑	↑	↑	↑	↑			
LOOMIS SAYLES	Domestic Fixed		10/01/2014	↑	↑	↑	↓	↑	↑			
EATON VANCE	Domestic Fixed		10/01/2014	↓	↓	↓	↑	↓	↑			
PIMCO EM LOCAL BOND	Global Fixed	12/31/2013	07/31/2013	↑	↓	↓	↓	↓	↓			
INVESCO CORE RE	Real Estate		10/01/2007	↑	↓	-	-	-	↑			
GROSVENOR	Hedge Fund		10/31/2009	↑	↑	-	-	-	↑			

### Performance Standards

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**Standard #6:** The manager experiences non-performance related issues including personnel turnover, changes in investment philosophy, excessive asset growth, change in ownership, and any other reason causing concern.

\*BlackRock Fixed Income terminate not due to performance but strategy change to Brandywine Global Sovereign. Watch List standards are run against historical composite returns prior to manager since inception.

# Glossary

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**Allocation Effect:** An attribution effect that describes the amount attributable to the managers' asset allocation decisions, relative to the benchmark.

**Alpha:** The excess return of a portfolio after adjusting for market risk. This excess return is attributable to the selection skill of the portfolio manager. Alpha is calculated as:  $\text{Portfolio Return} - [\text{Risk-free Rate} + \text{Portfolio Beta} \times (\text{Market Return} - \text{Risk-free Rate})]$ .

**Benchmark R-squared:** Measures how well the Benchmark return series fits the manager's return series. The higher the Benchmark R-squared, the more appropriate the benchmark is for the manager.

**Beta:** A measure of systematic, or market risk; the part of risk in a portfolio or security that is attributable to general market movements. Beta is calculated by dividing the covariance of a security by the variance of the market.

**Book-to-Market:** The ratio of book value per share to market price per share. Growth managers typically have low book-to-market ratios while value managers typically have high book-to-market ratios.

**Capture Ratio:** A statistical measure of an investment manager's overall performance in up or down markets. The capture ratio is used to evaluate how well an investment manager performed relative to an index during periods when that index has risen (up market) or fallen (down market). The capture ratio is calculated by dividing the manager's returns by the returns of the index during the up/down market, and multiplying that factor by 100.

**Correlation:** A measure of the relative movement of returns of one security or asset class relative to another over time. A correlation of 1 means the returns of two securities move in lock step, a correlation of -1 means the returns of two securities move in the exact opposite direction over time. Correlation is used as a measure to help maximize the benefits of diversification when constructing an investment portfolio.

**Excess Return:** A measure of the difference in appreciation or depreciation in the price of an investment compared to its benchmark, over a given time period. This is usually expressed as a percentage and may be annualized over a number of years or represent a single period.

**Information Ratio:** A measure of a manager's ability to earn excess return without incurring additional risk. Information ratio is calculated as: excess return divided by tracking error.

**Interaction Effect:** An attribution effect that describes the portion of active management that is contributable to the cross interaction between the allocation and selection effect. This can also be explained as an effect that cannot be easily traced to a source.

**Portfolio Turnover:** The percentage of a portfolio that is sold and replaced (turned over) during a given time period. Low portfolio turnover is indicative of a buy and hold strategy while high portfolio turnover implies a more active form of management.

**Price-to-Earnings Ratio (P/E):** Also called the earnings multiplier, it is calculated by dividing the price of a company's stock into earnings per share. Growth managers typically hold stocks with high price-to-earnings ratios whereas value managers hold stocks with low price-to-earnings ratios.

**R-Squared:** Also called the coefficient of determination, it measures the amount of variation in one variable explained by variations in another, i.e., the goodness of fit to a benchmark. In the case of investments, the term is used to explain the amount of variation in a security or portfolio explained by movements in the market or the portfolio's benchmark.

**Selection Effect:** An attribution effect that describes the amount attributable to the managers' stock selection decisions, relative to the benchmark.

**Sharpe Ratio:** A measure of portfolio efficiency. The Sharpe Ratio indicates excess portfolio return for each unit of risk associated with achieving the excess return. The higher the Sharpe Ratio, the more efficient the portfolio. Sharpe ratio is calculated as:  $\text{Portfolio Excess Return} / \text{Portfolio Standard Deviation}$ .

**Sortino Ratio:** Measures the risk-adjusted return of an investment, portfolio, or strategy. It is a modification of the Sharpe Ratio, but penalizes only those returns falling below a specified benchmark. The Sortino Ratio uses downside deviation in the denominator rather than standard deviation, like the Sharpe Ratio.

**Standard Deviation:** A measure of volatility, or risk, inherent in a security or portfolio. The standard deviation of a series is a measure of the extent to which observations in the series differ from the arithmetic mean of the series. For example, if a security has an average annual rate of return of 10% and a standard deviation of 5%, then two-thirds of the time, one would expect to receive an annual rate of return between 5% and 15%.

**Style Analysis:** A return based analysis designed to identify combinations of passive investments to closely replicate the performance of funds

**Style Map:** A specialized form or scatter plot chart typically used to show where a Manager lies in relation to a set of style indices on a two-dimensional plane. This is simply a way of viewing the asset loadings in a different context. The coordinates are calculated by rescaling the asset loadings to range from -1 to 1 on each axis and are dependent on the Style Indices comprising the Map.

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