

# Portfolio Performance Review

Quarter Ending June 30, 2016

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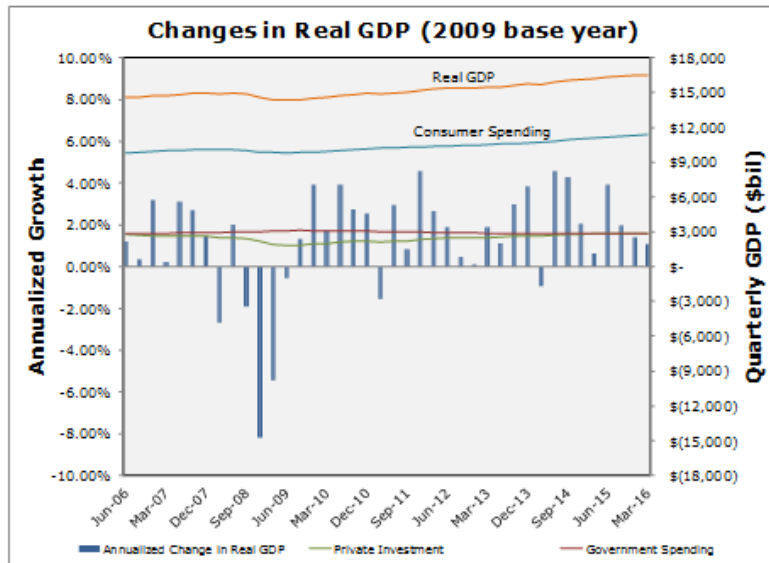
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# Executive Summary

# Economic Review

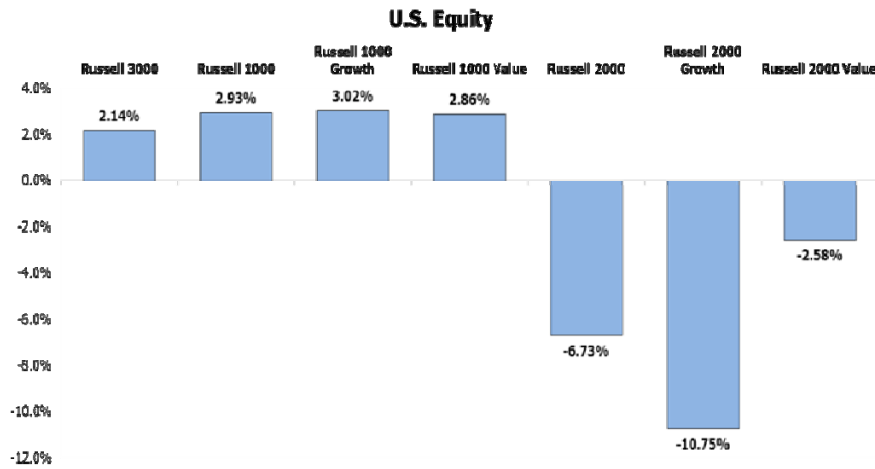
June 30, 2016		Key Economic Indicators			
<b>CPI (all items)</b> Seasonally adjusted	Monthly Change		Cumulative Change		
	Jun-16	0.2	3-Month	0.8	
	May-16	0.2	12-Month	1.1	
	Apr-16	0.4	10-Yr Annual	1.7	
Breakeven Inflation	10-Year	1.5			
<b>Consumer Sentiment</b> Unv. of Michigan Survey	Jun-16	93.5			
	May-16	94.7			
	1-Yr Ago	96.1	10-Yr Avg	77.8	
<b>Manufacturing</b> Inst. for Supply Mgmt Purchasing Mngrs' Idx	Jun-16	53.2	Change in Manufacturing Sector		
	May-16	51.3	>50	Expansion	
	1-Yr Avg	50.3	<50	Contraction	

Note: Seasonally adjusted CPI data is utilized to better reflect short-term pricing activity.

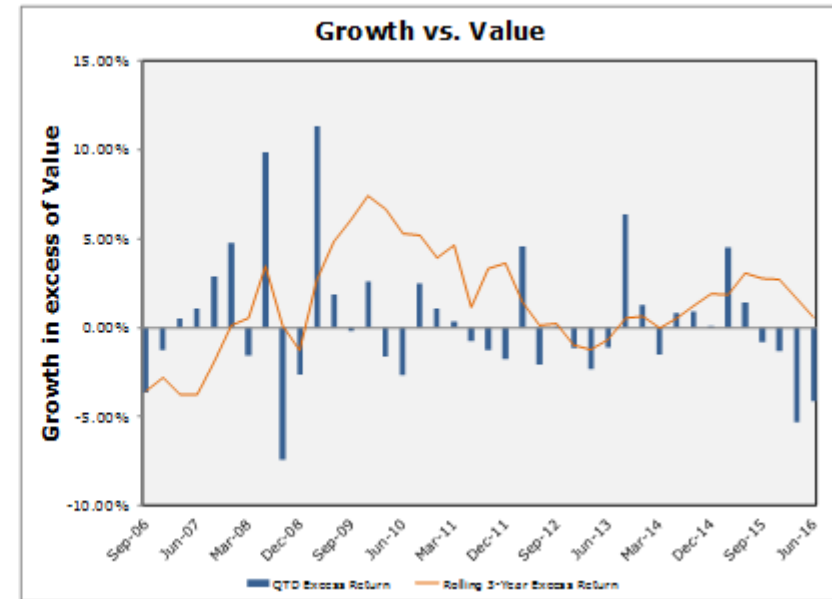
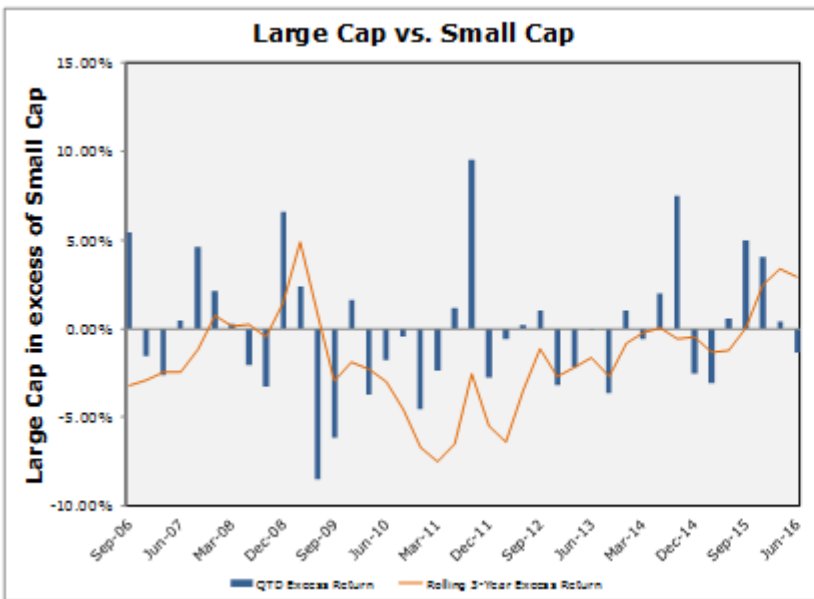


Data sources: Bureau of Economic Analysis, Bureau of Labor Statistics, Federal Reserve Bank of St. Louis, Barclays Capital

# U.S. Capital Markets: Equity



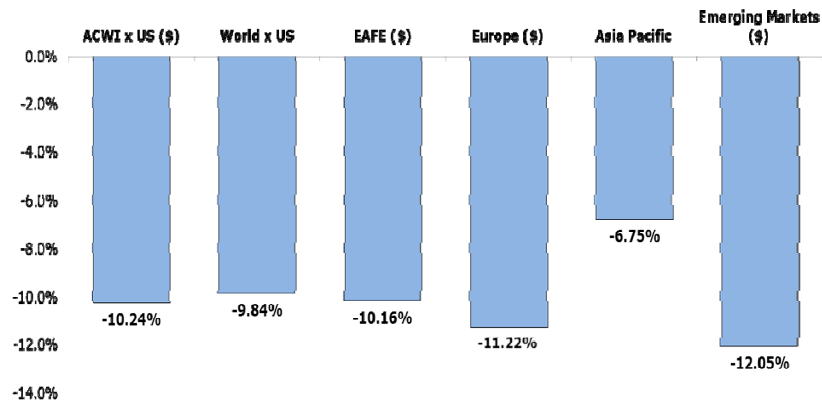
- The U.S. stock market, as represented by the Russell 3000 Index, posted a return of 2.14% for the one-year period ending June 30, 2016. The U.S. stock market was up 2.63% in 2Q16.
- Price swings during the quarter were not nearly as extreme as what investors experienced during the first quarter, except for the last week of trading. The market was up in both April and May and quickly rebounded from the Brexit-driven sell-off to post three strong days to end the quarter.
- Large-cap growth stocks, as represented by the Russell 1000 Growth Index, were the strongest performing stocks for the year, primarily driven by consumer staples, consumer discretionary, and information technology stocks.



Data sources: Wilshire Compass, Wilshire Atlas

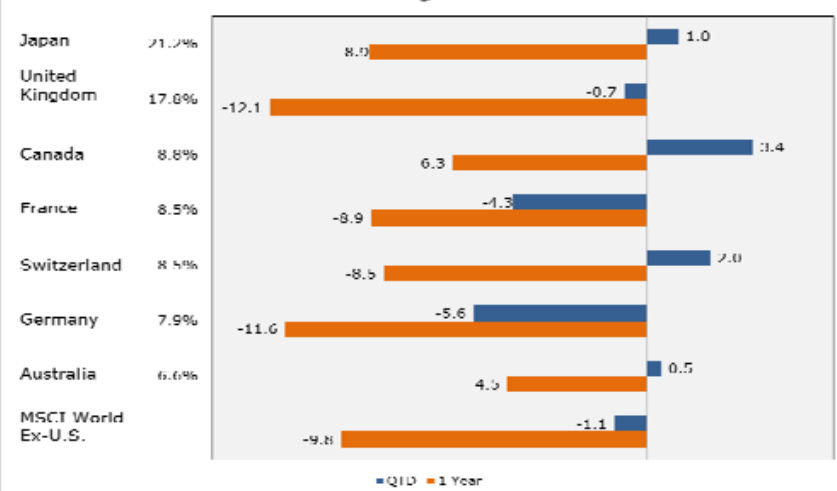
# Non-U.S. Capital Markets

## Non-U.S. Equity

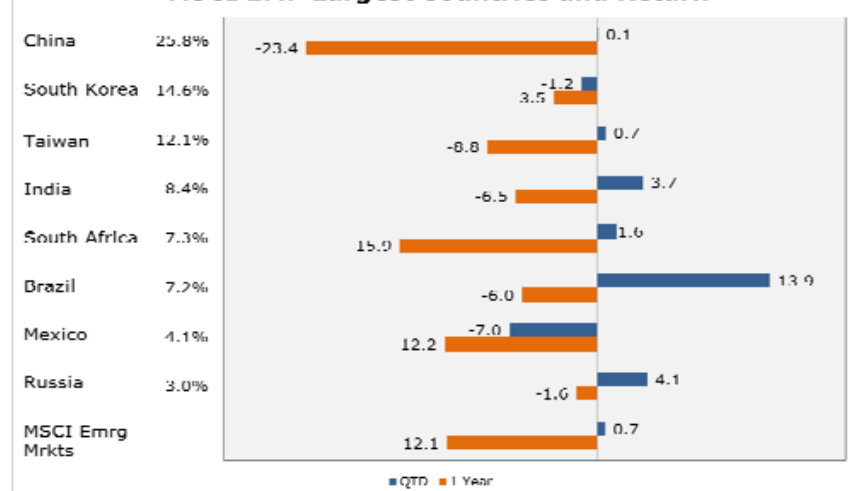


- Global equity markets, as represented by the MSCI ACWI ex-U.S. Index, returned -10.24% for the year.
- The financial news in the second quarter was dominated by the Brexit vote, overshadowing striking downturns in Asia/Pacific regional markets. The economic slowdown in China, combined with a generally weaker forecast of corporate earnings throughout the region, put investors in a selling mood overall. Despite the Brexit turmoil, however, European stocks managed modest gains.
- Emerging markets equities returned -12.05% during the year, underperforming developed markets.

## MSCI World Ex-U.S.: Largest Countries and Return

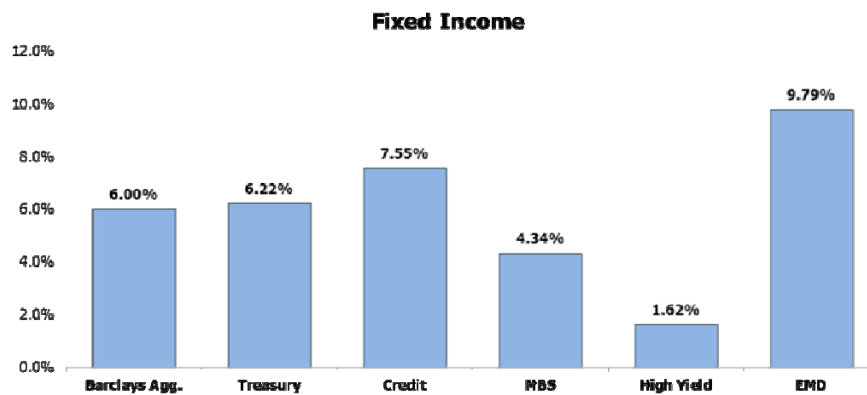


## MSCI EM: Largest Countries and Return

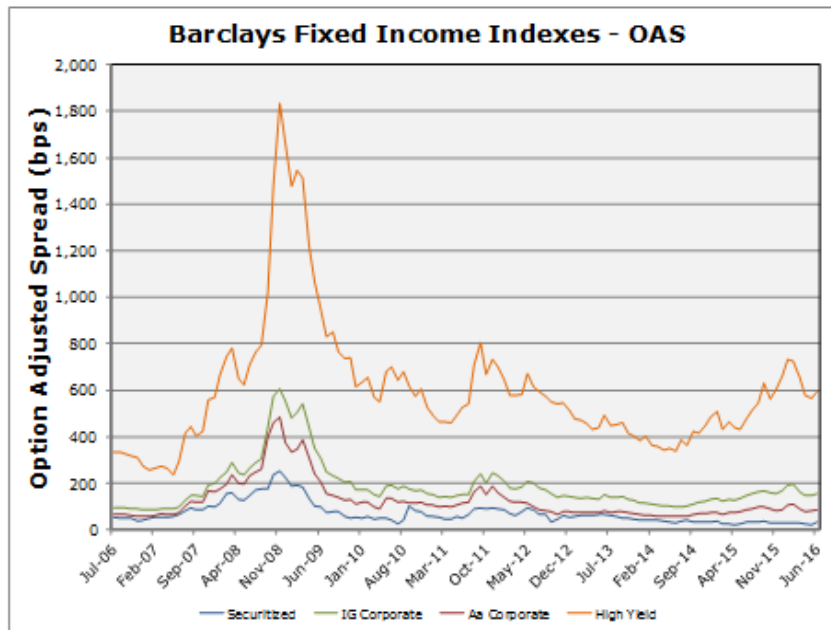


Data sources: Wilshire Compass, MSCI Barra

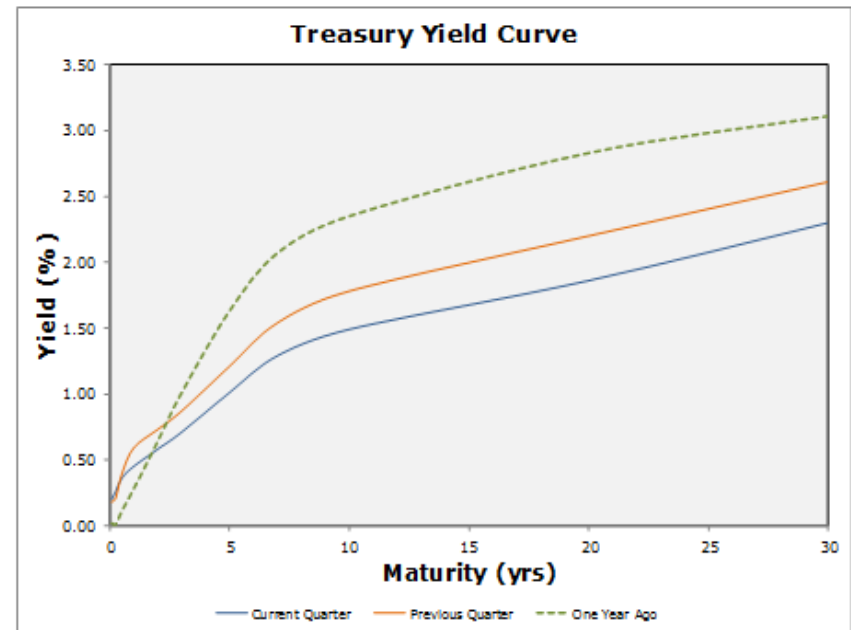
# U.S. Capital Markets: Fixed Income



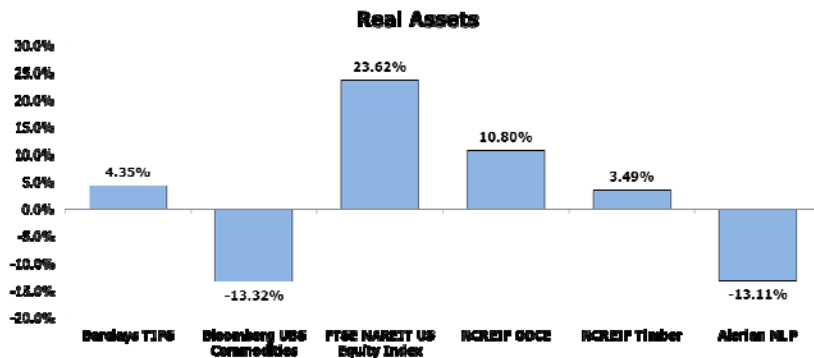
- U.S. Fixed Income markets, as represented by the Barclays U.S. Aggregate Index, returned 6.00% for the year.
- Ten-Year Treasury yields settled at 1.49% for 2Q16, 86 basis points lower than 2Q15.
- U.S. Treasury securities extended their rally in 2Q16 thanks to broad investor uncertainty, initially over the outcome of the Brexit vote, then over the details and timetable of the withdrawal of the U.K. from the European Union. Credit yields tightened somewhat over the quarter as well, as investors continued to seek incremental yield wherever they could find it.



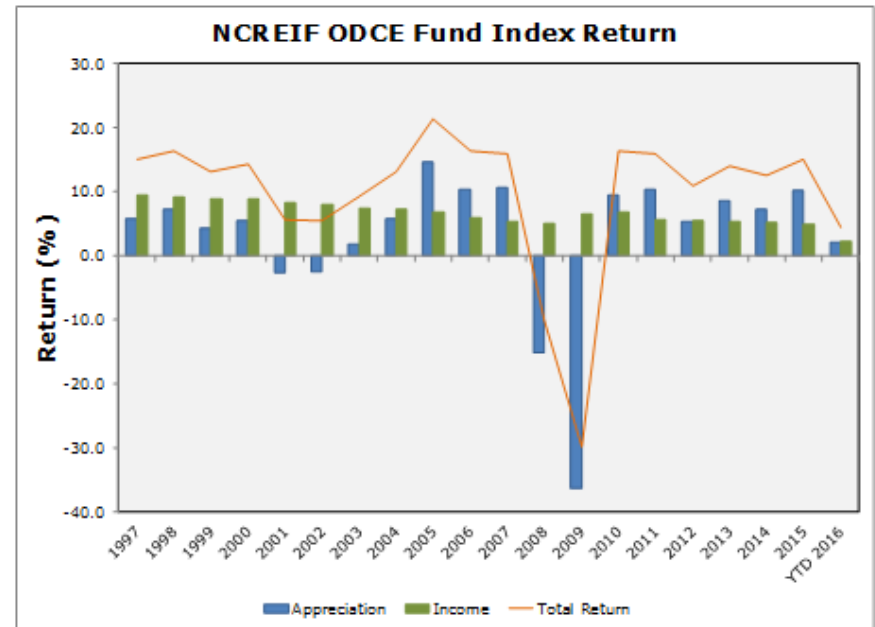
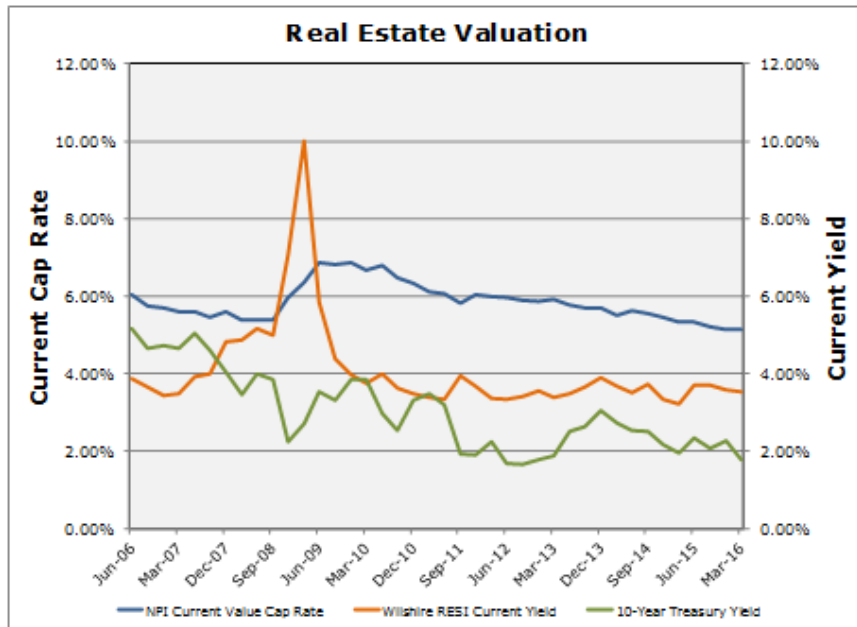
Data sources: Wilshire Compass, Barclays Capital, U.S. Treasury



# Real Assets



- TIPS, as represented by the Barclays U.S. TIPS Index, returned 4.35% for the year.
- REITS, as represented by the FTSE NAREIT U.S. Equity Index, returned 23.62% for the year.
- Commodities, as represented by the Bloomberg UBS Commodities Index, experienced the lowest return of all capital markets with -13.32% for the year.



Data sources: Wilshire Compass, National Council of Real Estate Investment Fiduciaries



## Performance Overview

- *LACERS' investment portfolio ("Fund") ended the quarter with a market value of \$14.0 billion. The Fund's net of fee return was 0.35% for the year and 6.77% for the three-year period ending June 30, 2016.*
- *The Fund outperformed its policy benchmark by 18 basis points (0.18%) for the year and outperformed its policy benchmark by 23 basis points (0.23%) for the three-year period.*
- *In comparison to other public funds with market values greater than \$10 billion in the TUCS (Trust Universe Comparison Service) peer universe, the Fund ranked in the 78th percentile for the year and in the 69th percentile for the three-year period.*
- *In the public markets, Non-U.S. Equity outperformed its benchmark for the one-year period while U.S. Equity, Core Fixed Income and Credit Opportunities all underperformed their respective benchmarks.*
- *Private Equity<sup>1</sup> underperformed its benchmark for the one-year period.*
- *Real Assets, which is comprised of publicly traded and private markets assets, outperformed its benchmark for the one-year period.*

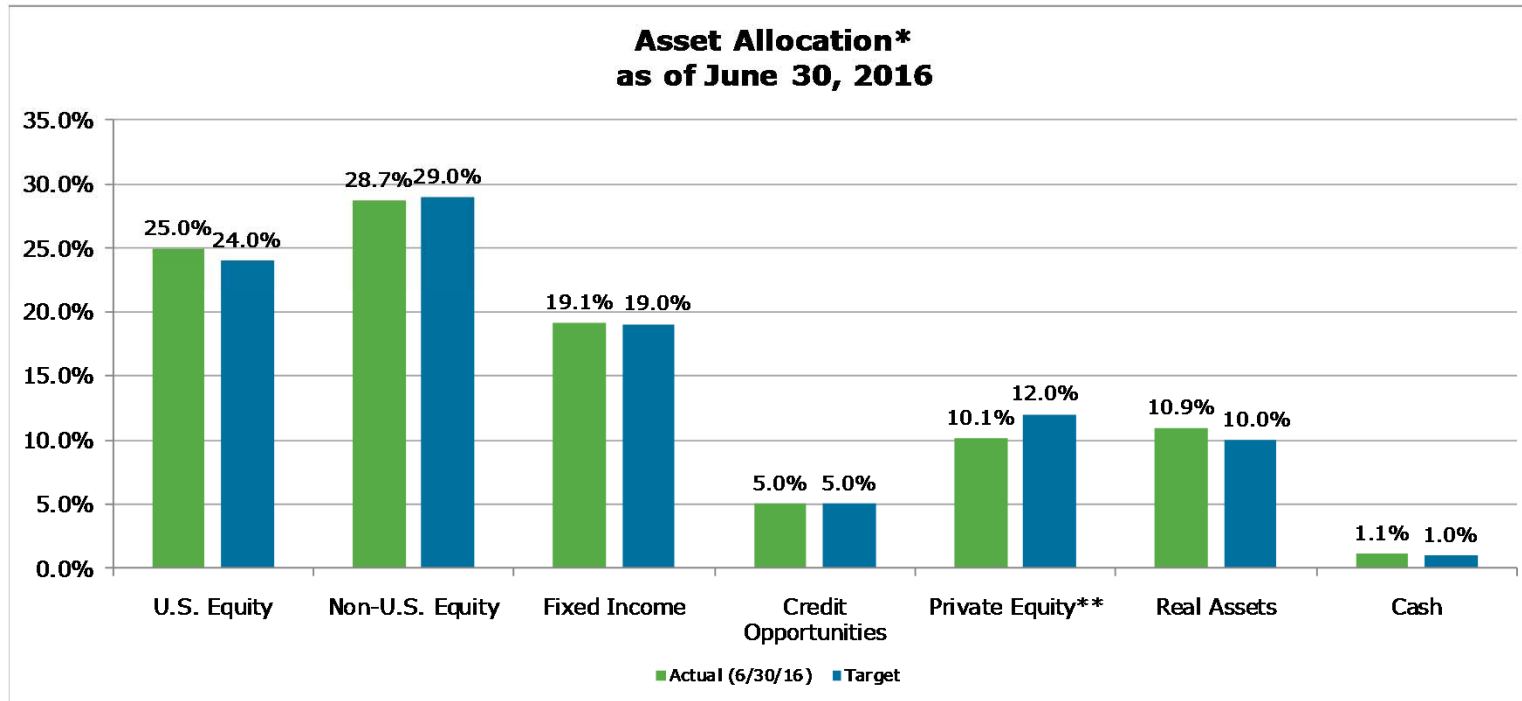
*Note: Due to the J-curve effect in early stages of a private equity fund's life, returns may lag prior to realization of proceeds in later years.*

*<sup>1</sup>Name change from "Alternative Investments."*



# Fund Overview





	<b>Actual</b>	<b>Target*</b>	<b>Min.</b>	<b>Max</b>
U.S. Equity**	25.0%	24.0%	19.0%	29.0%
Non-U.S. Equity	28.7%	29.0%	24.0%	34.0%
Fixed Income	19.1%	19.0%	15.0%	22.0%
Credit Opportunities	5.0%	5.0%	0.0%	10.0%
Private Equity***	10.1%	12.0%	n/a	n/a
Real Assets	10.9%	10.0%	7.0%	13.0%
Public Real Assets	5.0%	5.0%	3.5%	6.5%
Private Real Estate	5.8%	5.0%	n/a	n/a
Timber	0.2%	-	-	-
Cash	1.1%	1.0%	0.0%	2.0%

\* Adopted 1st Qtr 2012 and affirmed 2nd Qtr 2015

\*\*The underweight to Private Equity is allocated to U.S. Equity

\*\*\*Name change from "Alternative Investments."

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# Fund Performance



## LACERS Total Fund

(Returns are Net of Fees)

	Market Value (\$million)	% to Total Fund <sup>6</sup>	Current Quarter	One Year	Three Years	Five Years	Ten Years	Fifteen Years <sup>1</sup>	Since Inception <sup>1</sup>	5 Year Tracking Error
<b>LACERS Master Trust</b>	<b>\$ 14,015</b>	<b>100.0%</b>	<b>1.43</b>	<b>0.35</b>	<b>6.77</b>	<b>6.99</b>	<b>5.72</b>	<b>6.55</b>	<b>8.05</b>	<b>1.2</b>
<i>Policy Benchmark<sup>3</sup></i>			1.79	0.17	6.54	6.89	5.79	6.18	7.94	
Excess Return			-0.36	0.18	0.23	0.10	-0.07	0.37	0.11	
<b>U.S. Equity</b>	<b>\$ 3,502</b>	<b>25.0%</b>	<b>2.44</b>	<b>1.45</b>	<b>10.81</b>	<b>11.04</b>	<b>7.06</b>	<b>6.51</b>	<b>10.00</b>	<b>1.1</b>
<i>Russell 3000</i>			2.63	2.14	11.13	11.60	7.40	6.09	8.80	
Excess Return			-0.19	-0.69	-0.32	-0.56	-0.34	0.42	1.20	
<b>Non-U.S. Equity</b>	<b>\$ 4,024</b>	<b>28.7%</b>	<b>-0.89</b>	<b>-8.05</b>	<b>2.66</b>	<b>1.64</b>	<b>2.65</b>	<b>5.78</b>	<b>4.59</b>	<b>1.2</b>
<i>MSCI ACWI ex U.S.</i>			-0.64	-10.24	1.16	0.10	1.87	4.96	4.69	
Excess Return			-0.25	2.19	1.50	1.54	0.78	0.82	-0.10	
<b>Core Fixed Income</b>	<b>\$ 2,676</b>	<b>19.1%</b>	<b>2.38</b>	<b>5.87</b>	<b>4.43</b>	--	--	--	<b>3.86</b>	--
<i>BC U.S. Aggregate</i>			2.21	6.00	4.06	--	--	--	3.09	
Excess Return			0.17	-0.13	0.37	--	--	--	0.77	
<b>Credit Opportunities</b>	<b>\$ 703</b>	<b>5.0%</b>	<b>4.04</b>	<b>1.60</b>	<b>4.10</b>	--	--	--	<b>4.44</b>	--
<i>Credit Opportunities Blend<sup>4</sup></i>			5.36	4.46	5.26	--	--	--	5.26	
Excess Return			-1.32	-2.86	-1.16	--	--	--	-0.82	
<b>Real Assets<sup>5</sup></b>	<b>\$ 1,530</b>	<b>10.9%</b>	<b>3.68</b>	<b>9.15</b>	<b>9.71</b>	<b>9.56</b>	<b>1.34</b>	<b>5.30</b>	<b>6.51</b>	<b>2.5</b>
<i>CPI+5%</i>			2.40	6.01	6.07	6.33	6.75	7.05	7.23	
Excess Return			1.28	3.14	3.64	3.23	-5.41	-1.75	-0.72	
<b>Private Equity<sup>2,5</sup></b>	<b>\$ 1,420</b>	<b>10.1%</b>	<b>-0.04</b>	<b>3.45</b>	<b>10.28</b>	<b>10.50</b>	<b>10.62</b>	<b>9.77</b>	<b>10.04</b>	<b>13.4</b>
<i>Russell 3000 + 300 bps</i>			3.39	5.22	14.47	15.10	11.19	10.02	12.41	
Excess Return			-3.43	-1.77	-4.19	-4.60	-0.57	-0.25	-2.37	
<b>Cash</b>	<b>\$ 159</b>	<b>1.1%</b>								

<sup>1</sup> Indicates gross returns. LACERS Master Trust, U.S. Equity & Real Assets Since Inception date: 10/31/94. Private Equity Since Inception date: 11/30/95. Non-U.S. & Core Fixed Income Since Inception date: 6/30/12. Credit Opportunities Since Inception date: 6/30/13.

<sup>2</sup> Name change from "Alternative Investments" for performance book only.

<sup>3</sup> More detailed information available under Definitions section at the back of this presentation.

<sup>4</sup> 65% BC U.S. Corp HY 2% Cap / 35% JPM EMBI - Global Diversified

<sup>5</sup> Due to the J-Curve effect in early stages of a fund's life, returns may lag prior to realization of proceeds in later years.

<sup>6</sup> Percentages may not add to 100% due to rounding

## Private Investments

Performance by IRR and Multiples<sup>1</sup> as of March 31, 2016

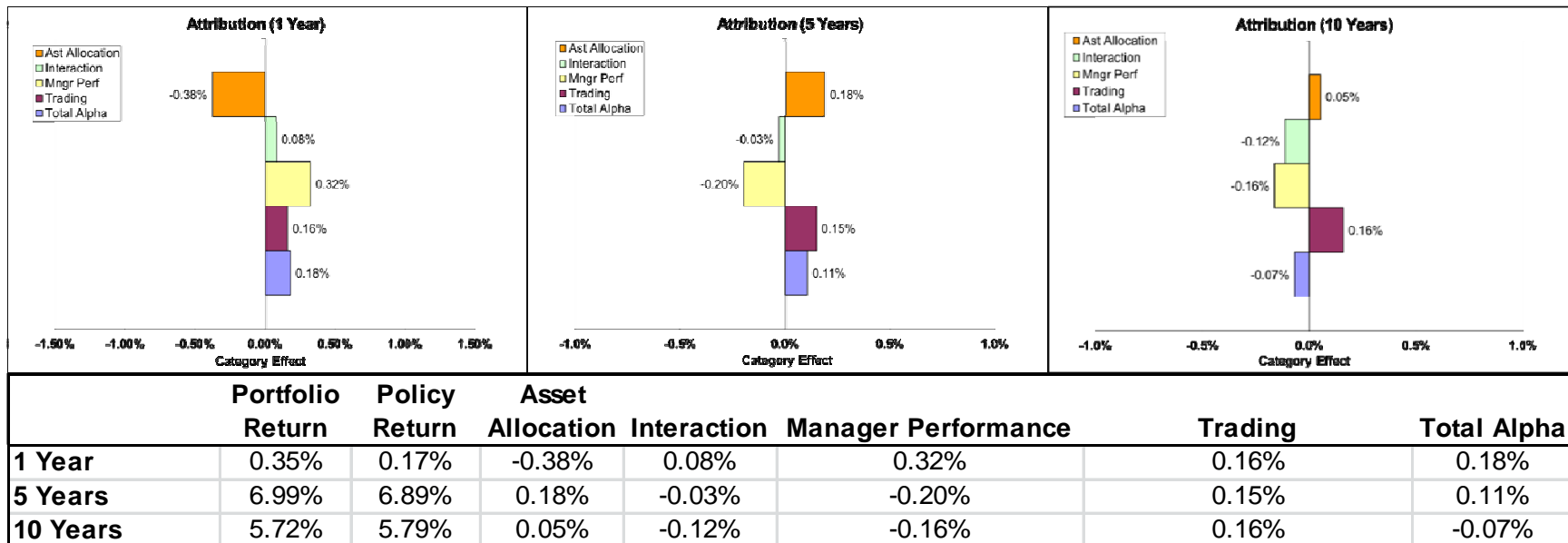
<b>Private Equity</b>	10-Year IRR	Since Inception IRR	Since Inception Equity Multiple
Aggregate Portfolio	10.43%	10.77%	1.47x
Core Portfolio	11.25%	11.33%	1.50x
Specialized Portfolio	2.24%	2.17%	1.11x
<i>Russell 3000 + 300 bps</i>	<i>10.32%</i>	<i>9.85%</i>	<i>N/A</i>

<b>Real Estate<sup>2</sup></b>	10-Year Return	Since Inception Return	Since Inception Equity Multiple
Total Portfolio (TWR)	1.52%	5.83%	N/A
<i>NFI ODCE + 80 bps (TWR)</i>	<i>6.18%</i>	<i>7.07%</i>	<i>N/A</i>

<sup>1</sup>Since inception IRRs and multiples represent performance of active private equity and real estate funds in LACERS portfolio as of the date listed in the table heading. These numbers do not include performance of liquidated funds.

<sup>2</sup>Cash flow weighted benchmark return (IRR) is not available for the Real Estate Portfolio, so only time weighted return (TWR) is reported.

## Total Fund Attribution\*

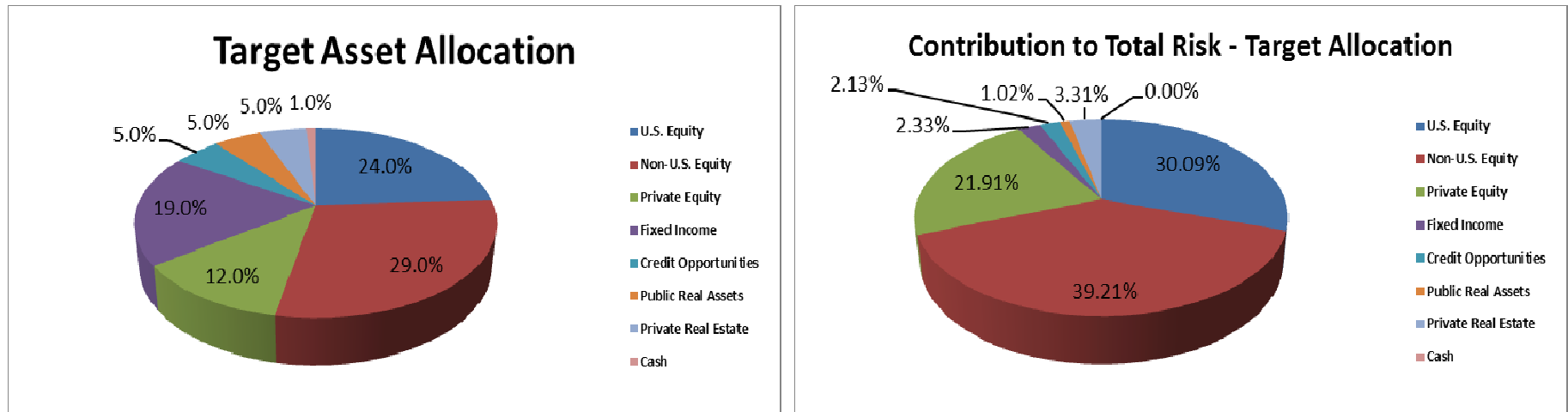


\*Slight discrepancies may result due to rounding. For details on Interaction and Trading effects above, see the Definitions Section VI: Performance Attribution.

- Overweight to U.S. Equities and underweight to both Private Equity and Real Assets, relative to their respective policy target weights, detracted from the portfolio's performance over the 1-year period. The 1-year asset allocation effect was -0.38%, as illustrated in the "Attribution (1 Year)" chart above. Overweight to U.S. Equities relative to the policy target weight has been a source of value added over the 5- and 10-year periods.
- Manager performance was the most significant contributor of value added over the 1-year period, due in large part to outperformance of Non-U.S. Equity and Real Assets managers.
- Positive returns from interaction in the 1-year period are primarily due to underweighting in Private Equity, which considerably underperformed its benchmark.
- Negative returns from manager performance in the 5-year period are primarily due to underperformance of Private Equity investments. Negative returns from manager performance in the 10-year period are primarily due to underperformance of Real Assets managers and Private Equity investments.



## Total Fund – Risk Allocation



- Public equities (U.S. Equity and Non-U.S. Equity) comprises 69% of total risk despite target weighting of 53%.
- Private markets (Private Real Estate and Private Equity) comprises 25% of total risk despite target weighting of 17%.
- Public Real Assets comprises 1% of total risk despite target weighting of 5%.
- Total fixed income (Core Fixed Income and Credit Opportunities) comprises only 4% of total risk despite target weighting of 24%.

\*Contribution to Total Risk reflects the target allocation ex-ante contribution to total risk.

## LACERS Risk Budget Comparison

Risk Statistics as of June 30, 2016

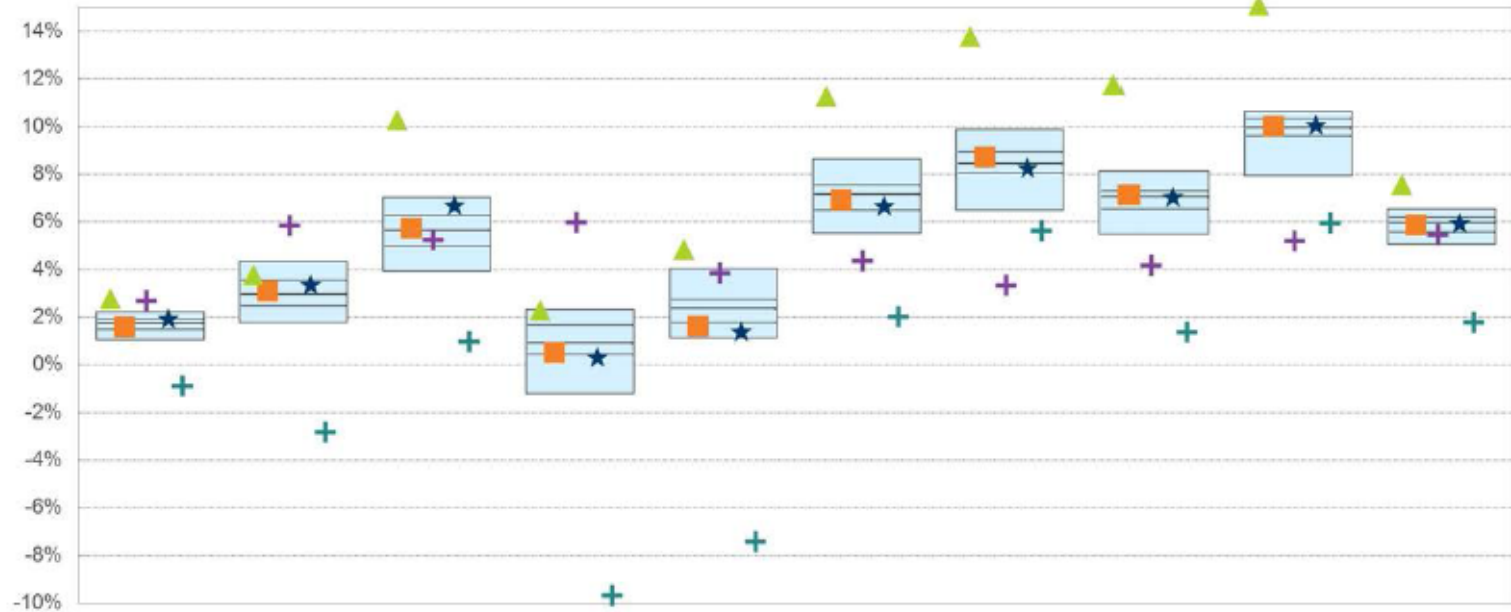
Public Markets Asset Class	Current Target Risk Budget	Actual 1-Year Tracking Error	Actual 3-Year Tracking Error
Domestic Equities	0.50%	0.62%	0.62%
Non-U.S. Equities	1.20%	1.17%	1.41%
Core Fixed Income	1.00%	0.78%	0.67%
Credit Opportunities	1.50%	1.12%	0.97%
Public Real Assets*	3.00%	3.30%	N/A

- Current LACERS public market asset class composite tracking errors are compared to asset class target risk budgets to ensure active risks are within expectations.
- All public markets asset classes are within an appropriately narrow range of their respective risk budgets.
- The LACERS Public Real Assets composite is not yet at its target strategy allocation.

\*The benchmark for the Public Real Assets composite is a custom policy benchmark that is comprised of the target weights of the public real asset components. The public real asset benchmark weights are 60% TIPS, 20% Commodities, 10% REITs, and 10% MLPs.

# Trust Universe Comparison Service Performance Comparison

Total Returns of Public Defined Benefit Plans >\$10 billion  
Cumulative Periods Ending : June 30, 2016

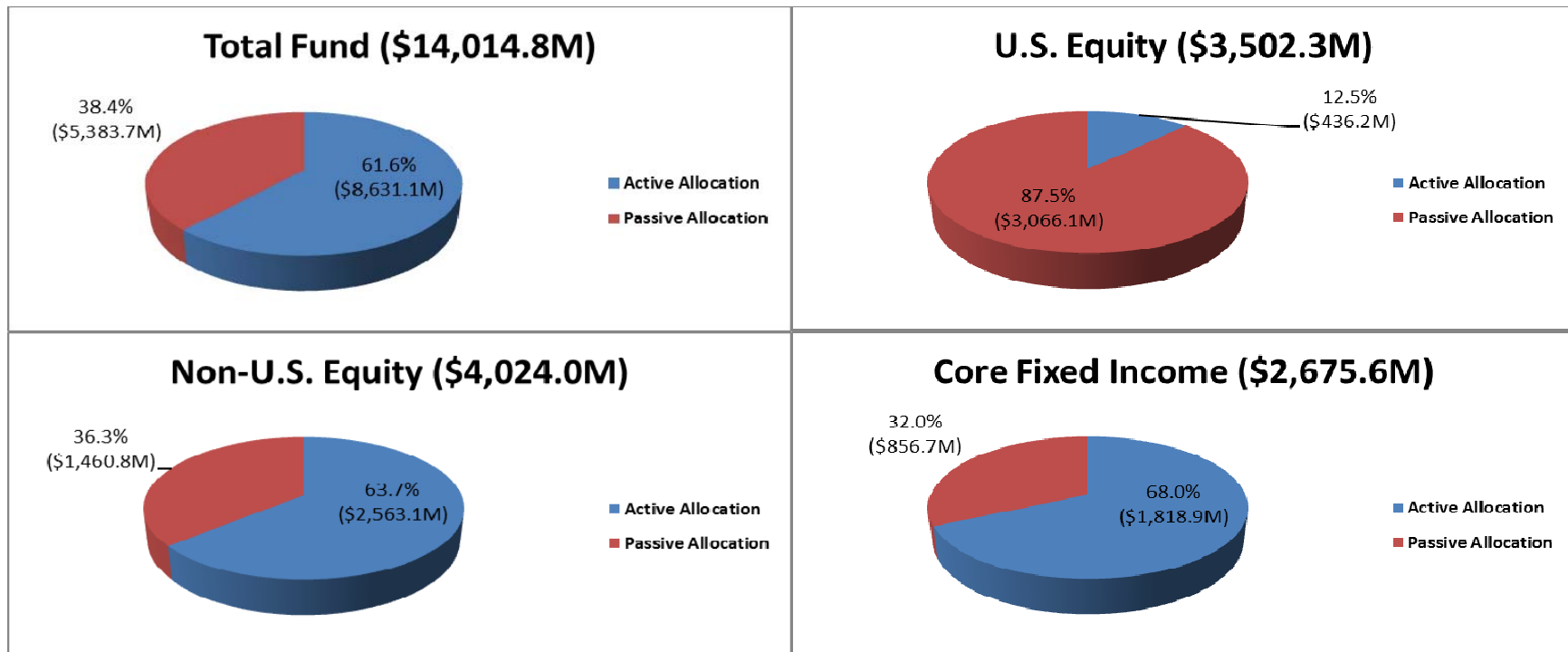


Percentile Rankings	1 Qtr	2 Qtrs	3 Qtrs	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years
5th	2.22	4.34	7.03	2.33	4.04	8.66	9.90	8.14	10.63	6.58
25th	1.92	3.55	6.29	1.67	2.75	7.54	8.94	7.31	10.35	6.19
50th	1.77	2.98	5.85	0.93	2.38	7.18	8.47	7.07	9.97	5.98
75th	1.48	2.49	4.99	0.45	1.79	6.49	8.07	6.54	9.62	5.57
95th	1.07	1.79	3.95	-1.21	1.15	5.54	6.49	5.49	7.96	5.06

No. Of Obs	36	36	36	36	36	36	36	36	32	32
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■ Total Fund NOF	1.43 (81)	2.94 (52)	5.59 (55)	0.35 (78)	1.47 (84)	6.77 (89)	8.56 (44)	6.99 (55)	9.87 (53)	5.72 (65)
★ Total Fund Policy	1.79 (41)	3.20 (38)	6.54 (16)	0.17 (81)	1.25 (90)	6.53 (72)	8.11 (89)	6.91 (88)	9.91 (53)	5.80 (62)
▲ Russell 3000	2.83 (1)	3.62 (22)	10.12 (1)	2.14 (11)	4.68 (1)	11.13 (1)	13.63 (1)	11.60 (1)	14.95 (1)	7.40 (1)
⊕ MSCI Wld Ex US (Net)	-1.05 (100)	-2.98 (100)	0.82 (100)	-9.84 (100)	-7.59 (100)	1.88 (100)	5.48 (100)	1.23 (100)	5.79 (100)	1.63 (100)
⊕ Barclays US Univ Indx	2.53 (1)	5.68 (1)	5.11 (89)	5.82 (1)	3.69 (11)	4.20 (100)	3.19 (100)	4.01 (100)	5.04 (100)	5.30 (88)

## Active vs. Passive Allocation Breakdown



- Of the Total Fund, LACERS allocated 61.6% to active managers and 38.4% to passive managers.
- No exposure in passive management for Credit Opportunities, Private Equity, and Real Assets. As a result, allocation charts for these asset classes were omitted.



# U.S. Equity Managers



## U.S. Equity Managers

(Returns are Net of Fees)

	Inception Date	Market Value (\$million)	% to Total U.S. Equity	Current Quarter	One Year	Three Years	Five Years	Ten Years	Fifteen Years <sup>1</sup>	Since Inception <sup>1</sup>	5 Year Tracking Error
<b>U.S. Equity</b>	<b>Oct-94</b>	<b>\$ 3,502</b>	<b>100.0%</b>	<b>2.44</b>	<b>1.45</b>	<b>10.81</b>	<b>11.04</b>	<b>7.06</b>	<b>6.51</b>	<b>10.00</b>	<b>1.1</b>
<i>Russell 3000</i>				<i>2.63</i>	<i>2.14</i>	<i>11.13</i>	<i>11.60</i>	<i>7.40</i>	<i>6.09</i>	<i>8.80</i>	
Excess Return				-0.19	-0.69	-0.32	-0.56	-0.34	0.42	1.20	
<b>Rhumblin Advisors S&amp;P 500 (Passive)</b>	<b>Feb-93</b>	<b>\$ 2,504</b>	<b>71.5%</b>	<b>2.44</b>	<b>3.91</b>	<b>11.62</b>	<b>12.07</b>	<b>7.57</b>	<b>5.90</b>	<b>9.22</b>	<b>0.1</b>
<i>S&amp;P 500</i>				<i>2.46</i>	<i>3.99</i>	<i>11.66</i>	<i>12.10</i>	<i>7.42</i>	<i>5.76</i>	<i>9.03</i>	
Excess Return				-0.02	-0.08	-0.04	-0.03	0.15	0.14	0.19	
<b>Rhumblin Advisors 1000 Growth (Passive)</b>	<b>Jun-13</b>	<b>\$ 137</b>	<b>3.9%</b>	<b>0.58</b>	<b>2.84</b>	<b>12.99</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>12.96</b>	<b>--</b>
<i>Russell 1000 Growth</i>				<i>0.61</i>	<i>3.02</i>	<i>13.07</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>12.87</i>	
Excess Return				-0.03	-0.18	-0.08	--	--	--	0.09	
<b>AJO</b>	<b>Oct-01</b>	<b>\$ 146</b>	<b>4.2%</b>	<b>-0.99</b>	<b>-6.79</b>	<b>7.38</b>	<b>9.94</b>	<b>5.66</b>	<b>--</b>	<b>7.94</b>	<b>3.3</b>
<i>Russell 1000 Value</i>				<i>4.58</i>	<i>2.86</i>	<i>9.87</i>	<i>11.35</i>	<i>6.13</i>	<i>--</i>	<i>7.44</i>	
Excess Return				-5.57	-9.65	-2.49	-1.41	-0.47	--	0.50	
<b>Principal Global Investors</b>	<b>Jul-14</b>	<b>\$ 111</b>	<b>3.2%</b>	<b>3.63</b>	<b>2.16</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>7.62</b>	<b>--</b>
<i>Russell Midcap</i>				<i>3.18</i>	<i>0.56</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>3.78</i>	
Excess Return				0.45	1.60	--	--	--	--	3.84	
<b>Rhumblin Russell 2000 (Passive)</b>	<b>Mar-15</b>	<b>\$ 231</b>	<b>6.6%</b>	<b>3.75</b>	<b>-6.72</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>-2.40</b>	<b>--</b>
<i>Russell 2000</i>				<i>3.79</i>	<i>-6.73</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>-2.13</i>	
Excess Return				-0.04	0.01	--	--	--	--	-0.27	
<b>Rhumblin Russell 2000 Growth (Passive)</b>	<b>Jan-15</b>	<b>\$ 96</b>	<b>2.7%</b>	<b>3.22</b>	<b>-10.75</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>-2.21</b>	<b>--</b>
<i>Russell 2000 Growth</i>				<i>3.24</i>	<i>-10.75</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>-2.12</i>	
Excess Return				-0.02	0.00	--	--	--	--	-0.09	

<sup>1</sup> Indicates gross returns

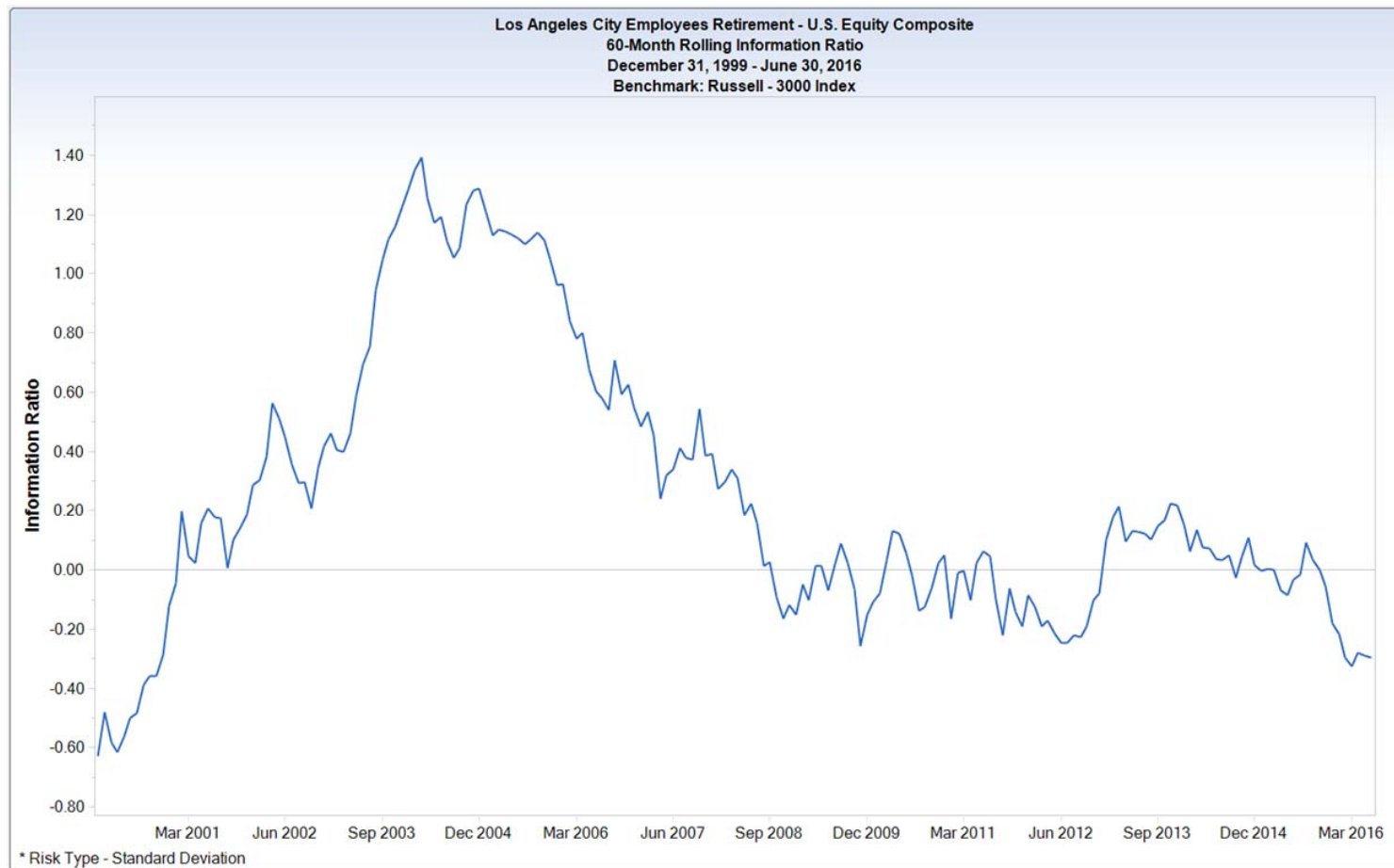
## U.S. Equity Managers

(Returns are Net of Fees)

	Inception Date	Market Value (\$million)	% to Total U.S. Equity	Current Quarter	One Year	Three Years	Five Years	Ten Years	Fifteen Years <sup>1</sup>	Since Inception <sup>1</sup>	5 Year Tracking Error
Rhumblin Russell 2000 Value (Passive) <i>Russell 2000 Value</i>	Feb-16	\$ 98	2.8%	<b>4.23</b>	--	--	--	--	--	<b>19.33</b>	--
Excess Return				4.31	--	--	--	--	--	19.40	
				-0.08	--	--	--	--	--	-0.07	
EAM Investors LLC <i>Russell 2000 Growth</i>	Sep-15	\$ 79	2.3%	<b>3.67</b>	--	--	--	--	--	<b>-6.30</b>	--
Excess Return				3.24	--	--	--	--	--	2.66	
				0.43	--	--	--	--	--	-8.96	
PanAgora Asset Management <i>Russell 2000 Value</i>	Feb-06	\$ 100	2.9%	<b>3.13</b>	<b>-0.79</b>	<b>10.07</b>	<b>11.84</b>	<b>5.93</b>	--	<b>6.39</b>	<b>2.3</b>
Excess Return				4.31	-2.58	6.36	8.15	5.15	--	5.18	
				-1.18	1.79	3.71	3.69	0.78	--	1.21	

<sup>1</sup> Indicates gross returns

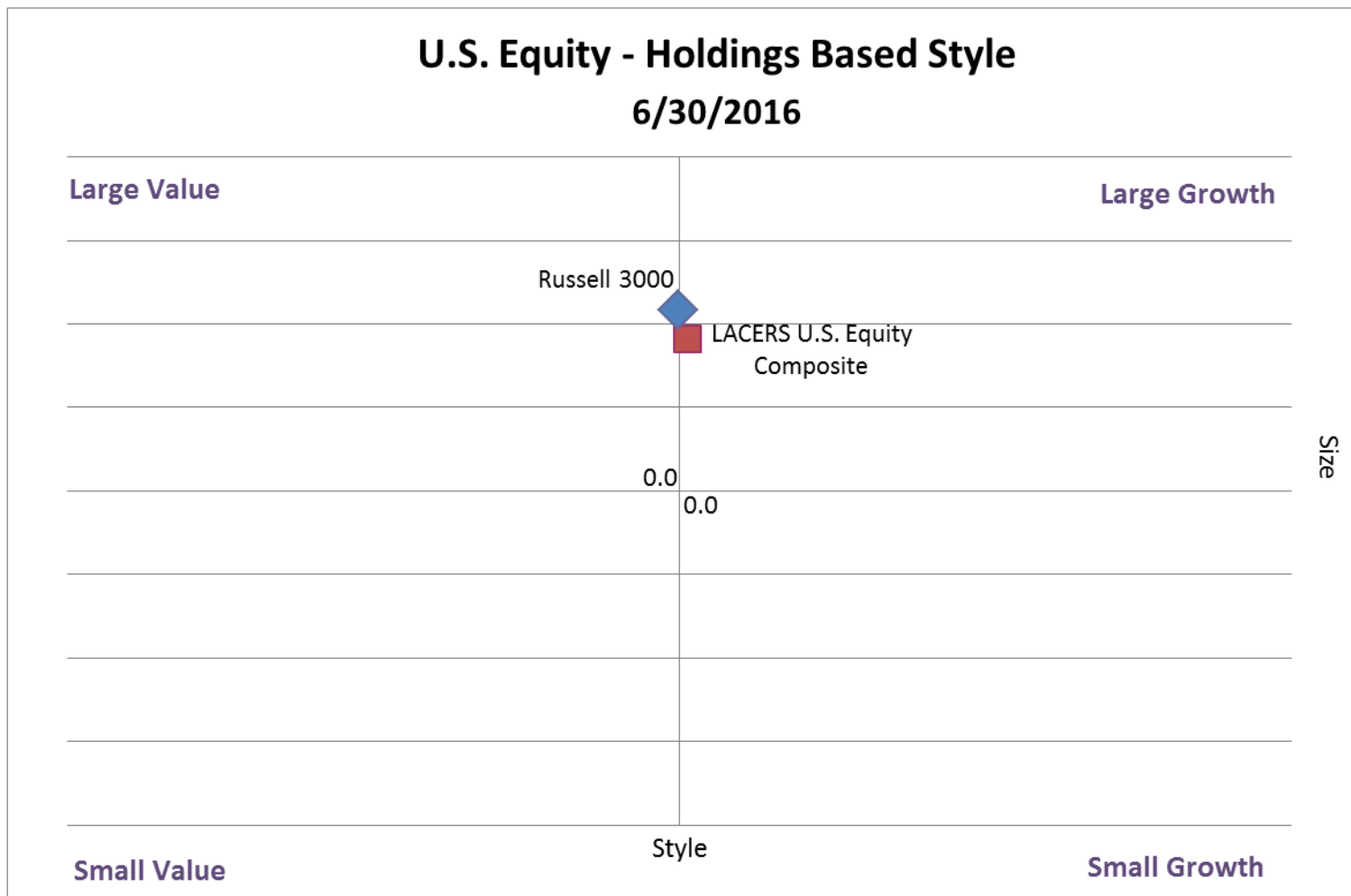
## 5-Year Rolling Risk-Adjusted Active Returns



- Active returns are returns earned over/under benchmark return.
- Lower information ratio the past few years due to (1) relative underperformance of watch list and terminated managers and (2) much higher utilization of passive strategies.

Risk-adjusted active returns are referred to as "Information Ratio". Information Ratio = Excess return (alpha) / Excess risk (tracking error).  
Composite returns are gross of fee.





- LACERS U.S. Equity Portfolio is essentially style and size neutral versus its benchmark, which is desirable.

### MANAGER REPORT CARD<sup>1</sup>

U.S. Managers	Inception Date	Mandate	Current Quarter		One Year		Three Years		Five Years		Since Inception	Annual Management Fee paid* (\$ in millions)	Comments <sup>2</sup>
			I	U	I	U	I	U	I	U	I		
> <b>AJO</b>	Oct-01	Large Cap Value	✖	☒	✖	☒	✖	☒	✖	☒	✔	\$0.59	"On Watch" since July 2016 - performance.
> <b>Principal Global Investors</b>	Jul-14	Mid Cap	✔	✔	✔	✔	n/a	n/a	n/a	n/a	✔	\$0.60	LACERS' Manager Monitoring Policy requires at least 3 years of track record to evaluate performance
> <b>EAM Investors</b>	Sep-15	Small Cap Growth	✔	☒	✖	☒	n/a	n/a	n/a	n/a	✖	n/a	LACERS' Manager Monitoring Policy requires at least 3 years of track record to evaluate performance
> <b>PanAgora</b>	Feb-06	Small Cap Value	✖	✔	✔	✔	✔	✔	✔	✔	✔	\$0.74	Performance compliant with LACERS' Manager Monitoring Policy
> <b>Rhumblin Advisors (Passive)</b>	Feb-93	S&P 500	✖	✔	✖	✔	✖	✔	✖	✔	✔	\$0.10	Performance compliant with LACERS' Manager Monitoring Policy
> <b>Rhumblin Advisors (Passive)</b>	Jun-13	R1000 Growth	✖	☒	✖	✔	n/a	n/a	n/a	n/a	✔	\$0.31	Performance compliant with LACERS' Manager Monitoring Policy
> <b>Rhumblin Russell 2000 Growth (Passive)</b>	Jan-15	R2000 Growth	✖	☒	✖	☒	n/a	n/a	n/a	n/a	✖	\$0.01	Performance compliant with LACERS' Manager Monitoring Policy
> <b>Rhumblin Russell 2000 (Passive)</b>	Mar-15	R2000	✖	✔	✖	☒	n/a	n/a	n/a	n/a	✖	\$0.002	Performance compliant with LACERS' Manager Monitoring Policy
> <b>Rhumblin Russell 2000 Value (Passive)</b>	Feb-16	R2000 Value	✖	☒	✖	☒	n/a	n/a	n/a	n/a	✖	\$0.002	Performance compliant with LACERS' Manager Monitoring Policy

<sup>1</sup>Current Quarter, 1-Yr, 3-Yrs, and 5-Yrs returns are net of fees. Since Inception returns are gross of fee.

<sup>2</sup>Managers are placed on the Watch List for concerns with organization, process, and performance. Managers are normally on the Watch List for 12 months though can be longer if manager issues still remain but not severe enough to warrant contract termination recommendation.

\*As of Fiscal Year ending 6/30/15. FY2016 will be available in 3Q16 Report.

LEGEND	
✔	outperformed index I index
✖	underperformed index U median universe
✔	outperformed median universe
☒	underperformed median universe
=	equal to index

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# Non-U.S. Equity Managers

## Non-U.S. Equity Managers

(Returns are Net of Fees)

	Inception Date	Market Value (\$million)	% to Total Non-U.S. Equity	Current Quarter	One Year	Three Years	Five Years	Ten Years	Since Inception <sup>1</sup>	5 Year Tracking Error
<b>Non-U.S. Equity</b>	<b>Oct-94</b>	<b>\$ 4,024</b>	<b>100.0%</b>	<b>-0.89</b>	<b>-8.05</b>	<b>2.66</b>	<b>1.64</b>	<b>2.65</b>	<b>4.59</b>	<b>1.2</b>
<i>MSCI ACWI ex U.S.</i>				-0.64	-10.24	1.16	0.10	1.87	4.69	
Excess Return				-0.25	2.19	1.50	1.54	0.78	-0.10	
<b>Developed ex-U.S.</b>	<b>Jun-12</b>	<b>\$ 3,106</b>	<b>77.2%</b>	<b>-1.43</b>	<b>-7.73</b>	<b>3.26</b>	--	--	<b>7.35</b>	--
<i>MSCI EAFE ND</i>				-1.46	-10.16	2.06	--	--	5.97	
Excess Return				0.03	2.43	1.20	--	--	1.38	
SSgA (Passive)	Aug-93	\$ 1,461	36.3%	<b>-0.86</b>	<b>-8.61</b>	<b>2.85</b>	<b>1.96</b>	<b>2.32</b>	<b>5.24</b>	<b>0.1</b>
<i>MSCI World ex U.S.</i>				-1.09	-8.99	2.45	1.54	1.95	4.59	
Excess Return				0.23	0.38	0.40	0.42	0.37	0.65	
Lazard Asset Management	Dec-13	\$ 433	10.8%	<b>-1.61</b>	<b>-8.20</b>	--	--	--	<b>1.23</b>	--
<i>MSCI EAFE ND</i>				-1.46	-10.16	--	--	--	-2.67	
Excess Return				-0.15	1.96	--	--	--	3.90	
MFS Institutional Advisors	Dec-13	\$ 436	10.8%	<b>0.02</b>	<b>-3.12</b>	--	--	--	<b>0.55</b>	--
<i>MSCI World ex U.S. Growth</i>				0.07	-5.25	--	--	--	-0.23	
Excess Return				-0.05	2.13	--	--	--	0.78	
Barrow Hanley Mewhinney & Strauss	Dec-13	\$ 388	9.7%	<b>-4.00</b>	<b>-13.10</b>	--	--	--	<b>-2.85</b>	--
<i>MSCI EAFE Value</i>				-2.44	-14.91	--	--	--	-5.36	
Excess Return				-1.56	1.81	--	--	--	2.51	
Oberweiss Asset Mgmt	Jan-14	\$ 96	2.4%	<b>0.48</b>	<b>1.87</b>	--	--	--	<b>3.41</b>	--
<i>MSCI EAFE Sm Cp</i>				-2.42	-3.32	--	--	--	0.13	
Excess Return				2.90	5.19	--	--	--	3.28	
AQR	Feb-14	\$ 292	7.3%	<b>-3.17</b>	<b>-2.46</b>	--	--	--	<b>0.79</b>	--
<i>MSCI EAFE Sm Cp</i>				-2.42	-3.32	--	--	--	-0.46	
Excess Return				-0.75	0.86	--	--	--	1.25	

<sup>1</sup> Indicates gross returns

## Non-U.S. Equity Managers

(Returns are Net of Fees)

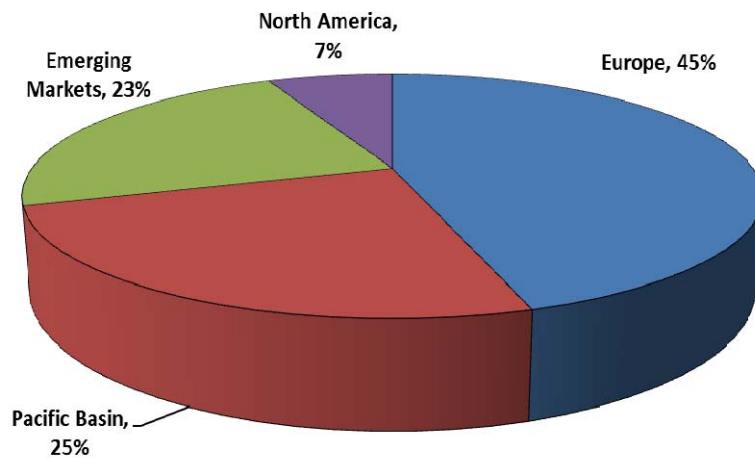
	Inception Date	Market Value (\$million)	% to Total Non-U.S. Equity	Current Quarter	One Year	Three Years	Five Years	Ten Years	Since Inception <sup>1</sup>	5 Year Tracking Error
<b>Emerging Markets<sup>2</sup></b>	<b>Jun-12</b>	<b>\$ 918</b>	<b>22.8%</b>	<b>0.56</b>	<b>-12.67</b>	<b>-2.35</b>	--	--	<b>-0.89</b>	--
<i>MSCI Emerging Markets ND</i>				<i>0.66</i>	<i>-12.05</i>	<i>-1.56</i>	--	--	<i>-0.47</i>	
Excess Return				-0.10	-0.62	-0.79	--	--	-0.42	
Axiom International	Mar-14	\$ 297	7.4%	<b>2.55</b>	<b>-10.41</b>	--	--	--	<b>-3.58</b>	--
<i>MSCI Emerging Market Growth</i>				<i>1.71</i>	<i>-9.83</i>	--	--	--	<i>-3.09</i>	
Excess Return				0.84	-0.58	--	--	--	-0.49	
Quantitative Management Associates	Apr-14	\$ 329	8.2%	<b>-0.51</b>	<b>-15.12</b>	--	--	--	<b>-5.49</b>	--
<i>MSCI Emerging Markets ND</i>				<i>0.66</i>	<i>-12.05</i>	--	--	--	<i>-5.73</i>	
Excess Return				-1.17	-3.07	--	--	--	0.24	
Dimensional Fund Advisors	Jul-14	\$ 292	7.3%	<b>0.66</b>	<b>-11.86</b>	--	--	--	<b>-12.91</b>	--
<i>MSCI Emerging Markets Value ND</i>				<i>-0.35</i>	<i>-14.41</i>	--	--	--	<i>-13.17</i>	
Excess Return				1.01	2.55	--	--	--	0.26	

<sup>1</sup> Indicates gross returns

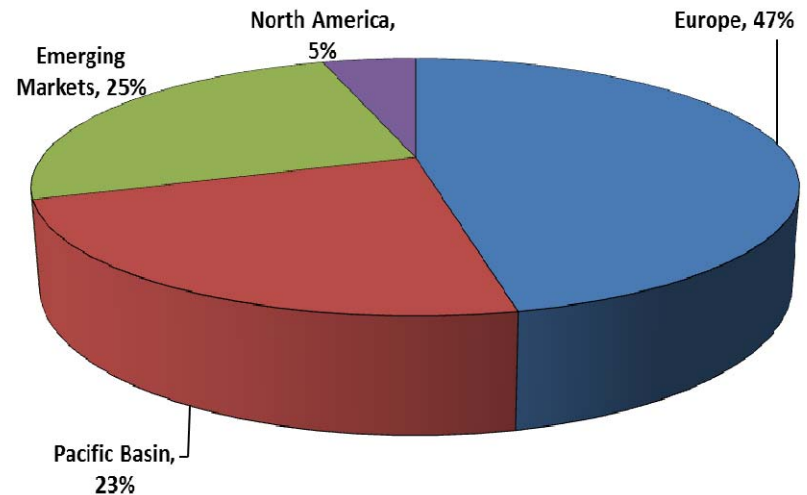
<sup>2</sup> Includes terminated managers

## Country Allocation

**Benchmark – MSCI ACWI x U.S. Index**

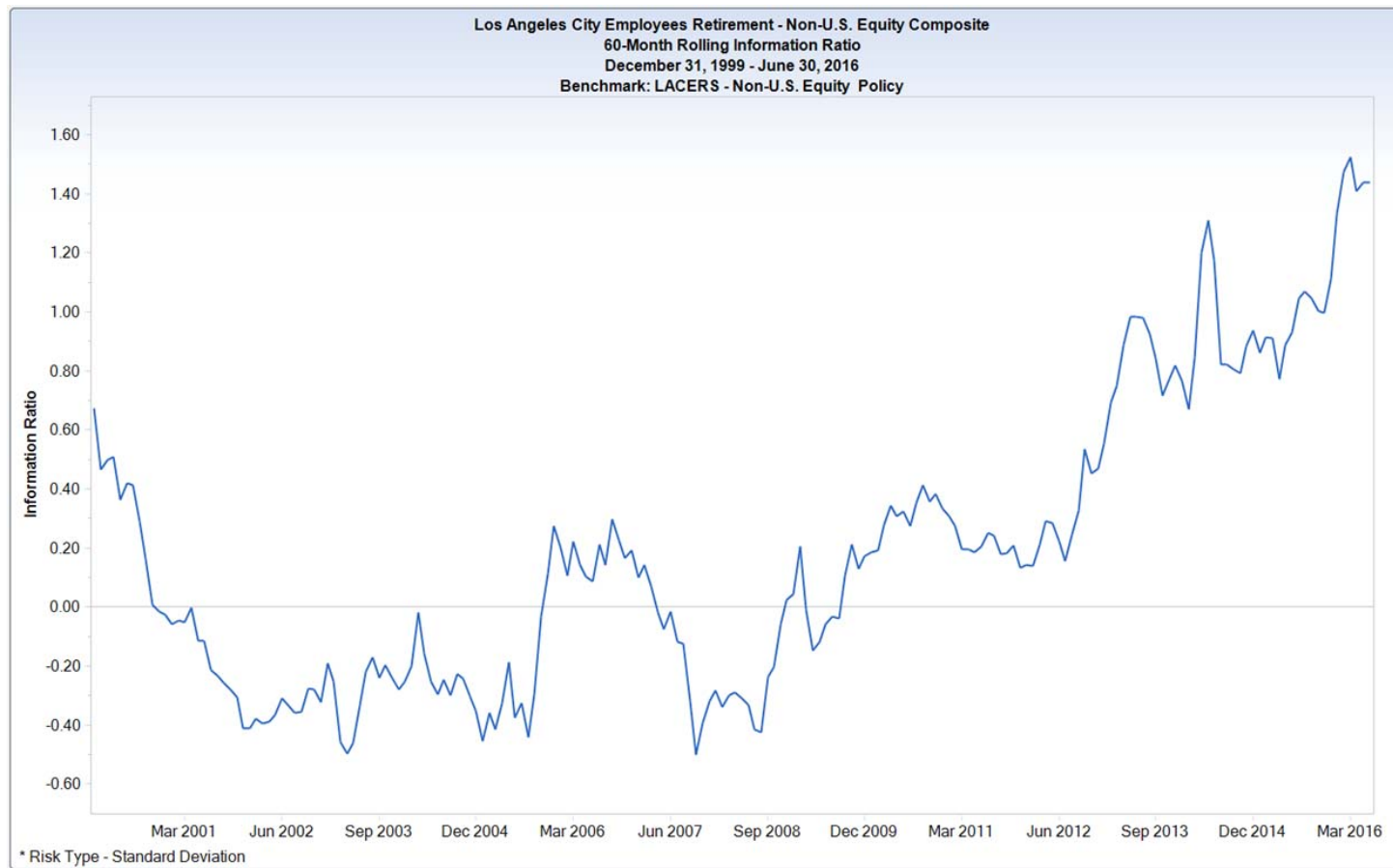


**LACERS Non-U.S. Equity Composite**



- LACERS Non-U.S. Equity Composite is modestly overweight Europe and the Emerging Markets, and modestly underweight the Pacific Basin and North America.

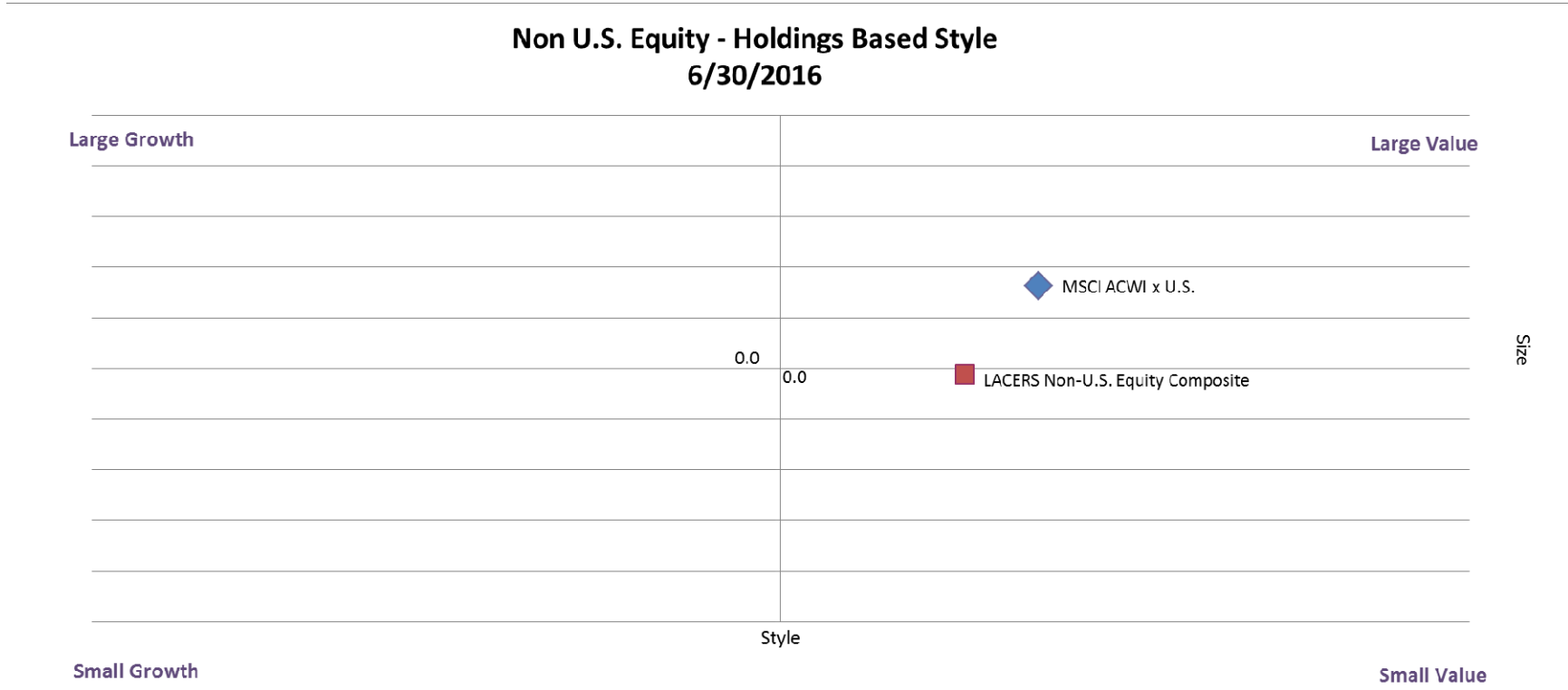
## 5-Year Rolling Risk-Adjusted Active Returns



- Active returns are returns earned over/under benchmark return.
- Non-U.S. Equity's rolling information ratio has been trending increasingly positive for past 5-years.

Risk-adjusted active returns are referred to as "Information Ratio".  $\text{Information Ratio} = \text{Excess return (alpha)} / \text{Excess risk (tracking error)}$ .  
Composite returns are gross of fee.





- LACERS Non-U.S. Equity Portfolio has a small cap bias compared to MSCI ACWI ex U.S. index, which provided significant value-added over the past year, as well as a modest growth bias.

MANAGER REPORT CARD<sup>1</sup>

Non-U.S. Managers	Inception Date	Mandate	Current Quarter		One Year		Three Years		Five Years		Since Inception	Annual Management Fee paid* (\$ in millions)	Comments <sup>2</sup>
			I	U	I	U	I	U	I	U	I		
➤ <b>Axiom International</b>	Mar-14	Emerging Markets	✓	☑	✗	☑	n/a	n/a	n/a	n/a	✗	\$1.37	LACERS' Manager Monitoring Policy requires at least 3 years of track record to evaluate performance
➤ <b>Quantitative Mgmt Associates</b>	Apr-14	Emerging Markets	✗	☑	✗	☑	n/a	n/a	n/a	n/a	✓	\$1.16	LACERS' Manager Monitoring Policy requires at least 3 years of track record to evaluate performance
➤ <b>DFA Emerging Markets</b>	Jul-14	Emerging Markets	✓	☑	✓	☑	n/a	n/a	n/a	n/a	✓	\$1.01	LACERS' Manager Monitoring Policy requires at least 3 years of track record to evaluate performance
➤ <b>AQR</b>	Feb-14	Non US Developed	✗	☑	✓	☑	n/a	n/a	n/a	n/a	✓	\$1.57	LACERS' Manager Monitoring Policy requires at least 3 years of track record to evaluate performance
➤ <b>Oberweis Asset Management</b>	Jan-14	Non US Developed	✓	☑	✓	☑	n/a	n/a	n/a	n/a	✓	\$0.32	LACERS' Manager Monitoring Policy requires at least 3 years of track record to evaluate performance
➤ <b>Barrow Hanley Mewhinney &amp; Strauss</b>	Dec-13	Non US Developed	✗	☑	✓	☑	n/a	n/a	n/a	n/a	✓	\$2.30	LACERS' Manager Monitoring Policy requires at least 3 years of track record to evaluate performance
➤ <b>Lazard Asset Management</b>	Dec-13	Non US Developed	✗	☑	✓	☑	n/a	n/a	n/a	n/a	✓	\$2.57	LACERS' Manager Monitoring Policy requires at least 3 years of track record to evaluate performance
➤ <b>MFS Institutional Advisors</b>	Dec-13	Non US Developed	✗	☑	✓	☑	n/a	n/a	n/a	n/a	✓	\$2.35	LACERS' Manager Monitoring Policy requires at least 3 years of track record to evaluate performance
➤ <b>SSgA (Passive)</b>	Aug-93	Non US Developed	✓	☑	✓	☑	✓	☑	✓	☑	✓	\$0.42	Performance compliant with LACERS' Manager Monitoring Policy

<sup>1</sup>Current Quarter, 1-Yr, 3-Yrs, and 5-Yrs returns are net of fees. Since Inception returns are gross of fee.

<sup>2</sup>Managers are placed on the Watch List for concerns with organization, process, and performance. Managers are normally on the Watch List for 12 months though can be longer if manager issues still remain but not severe enough to warrant contract termination recommendation.

\* As of Fiscal Year ending 6/30/15. FY2016 will be available in 3Q16 Report.

LEGEND		
✓	outperformed index	I index
✗	underperformed index	U median universe
☑	outperformed median universe	
☑	underperformed median universe	
=	equal to index	



# Core Fixed Income Managers



## Core Fixed Income Managers

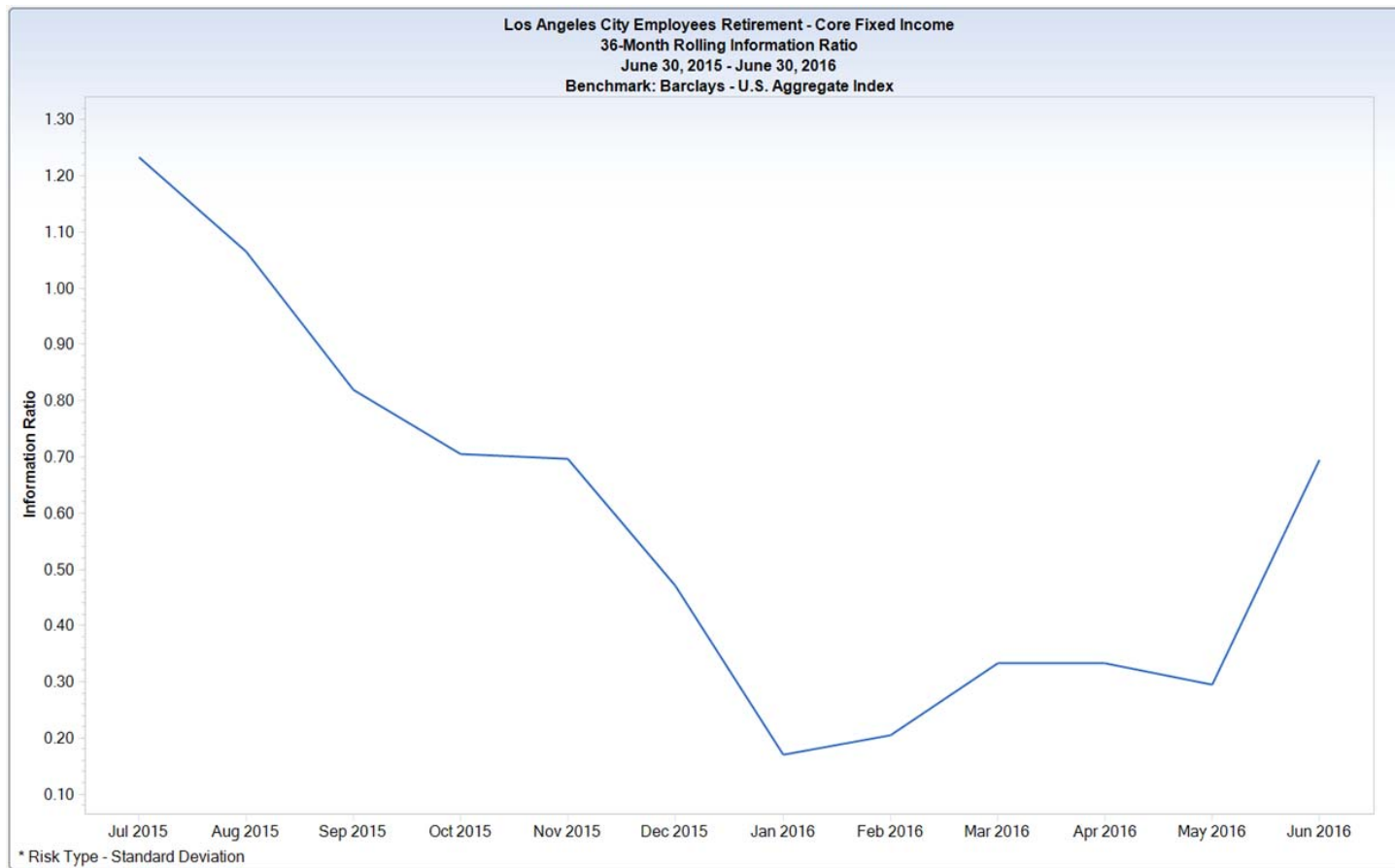
(Returns are Net of Fees)

	Inception Date	Market Value (\$million)	% to Total Fixed Income	Current Quarter	One Year	Three Years	Five Years	Ten Years	Since Inception <sup>1</sup>	5 Year Tracking Error
<b>Core Fixed Income</b>	<b>Jun-12</b>	<b>\$ 2,676</b>	<b>100.0%</b>	<b>2.38</b>	<b>5.87</b>	<b>4.43</b>	<b>--</b>	<b>--</b>	<b>3.86</b>	<b>--</b>
<i>BC U.S. Aggregate</i> <sup>2</sup>				2.21	6.00	4.06	--	--	3.09	
Excess Return				0.17	-0.13	0.37	--	--	0.77	
Loomis Sayles	Jun-80	\$ 673	25.2%	<b>3.22</b>	<b>6.24</b>	<b>4.93</b>	<b>4.75</b>	<b>6.14</b>	<b>9.57</b>	<b>1.6</b>
<i>BC U.S. Aggregate</i> <sup>2</sup>				2.21	6.00	4.06	3.93	5.26	8.07	
Excess Return				1.01	0.24	0.87	0.82	0.88	1.50	
Neuberger Berman	Nov-90	\$ 662	24.8%	<b>2.13</b>	<b>5.65</b>	<b>4.14</b>	<b>4.21</b>	<b>6.41</b>	<b>6.38</b>	<b>1.6</b>
<i>BC U.S. Aggregate</i> <sup>2</sup>				2.21	6.00	4.06	3.93	5.26	5.12	
Excess Return				-0.08	-0.35	0.08	0.28	1.15	1.26	
Baird Advisors	Mar-05	\$ 213	7.9%	<b>2.04</b>	<b>4.87</b>	<b>3.51</b>	<b>3.79</b>	<b>5.09</b>	<b>4.87</b>	<b>0.4</b>
<i>BC U.S. Govt/Credit Intermed</i>				1.59	4.33	2.95	2.90	4.48	4.18	
Excess Return				0.45	0.54	0.56	0.89	0.61	0.69	
LM Capital Group	Mar-05	\$ 271	10.1%	<b>1.71</b>	<b>5.69</b>	<b>4.41</b>	<b>3.90</b>	<b>5.36</b>	<b>5.18</b>	<b>1.0</b>
<i>BC U.S. Aggregate</i> <sup>2</sup>				2.21	6.00	4.06	3.83	4.95	4.60	
Excess Return				-0.50	-0.31	0.35	0.07	0.41	0.58	
SSgA (Passive)	Jul-14	\$ 857	32.0%	<b>2.21</b>	<b>5.97</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>4.00</b>	<b>--</b>
<i>BC U.S. Aggregate</i>				2.21	6.00	--	--	--	3.98	
Excess Return				0.00	-0.03	--	--	--	0.02	

<sup>1</sup> Indicates gross returns

<sup>2</sup> Changed from the BC Universal Index on July 1, 2013.

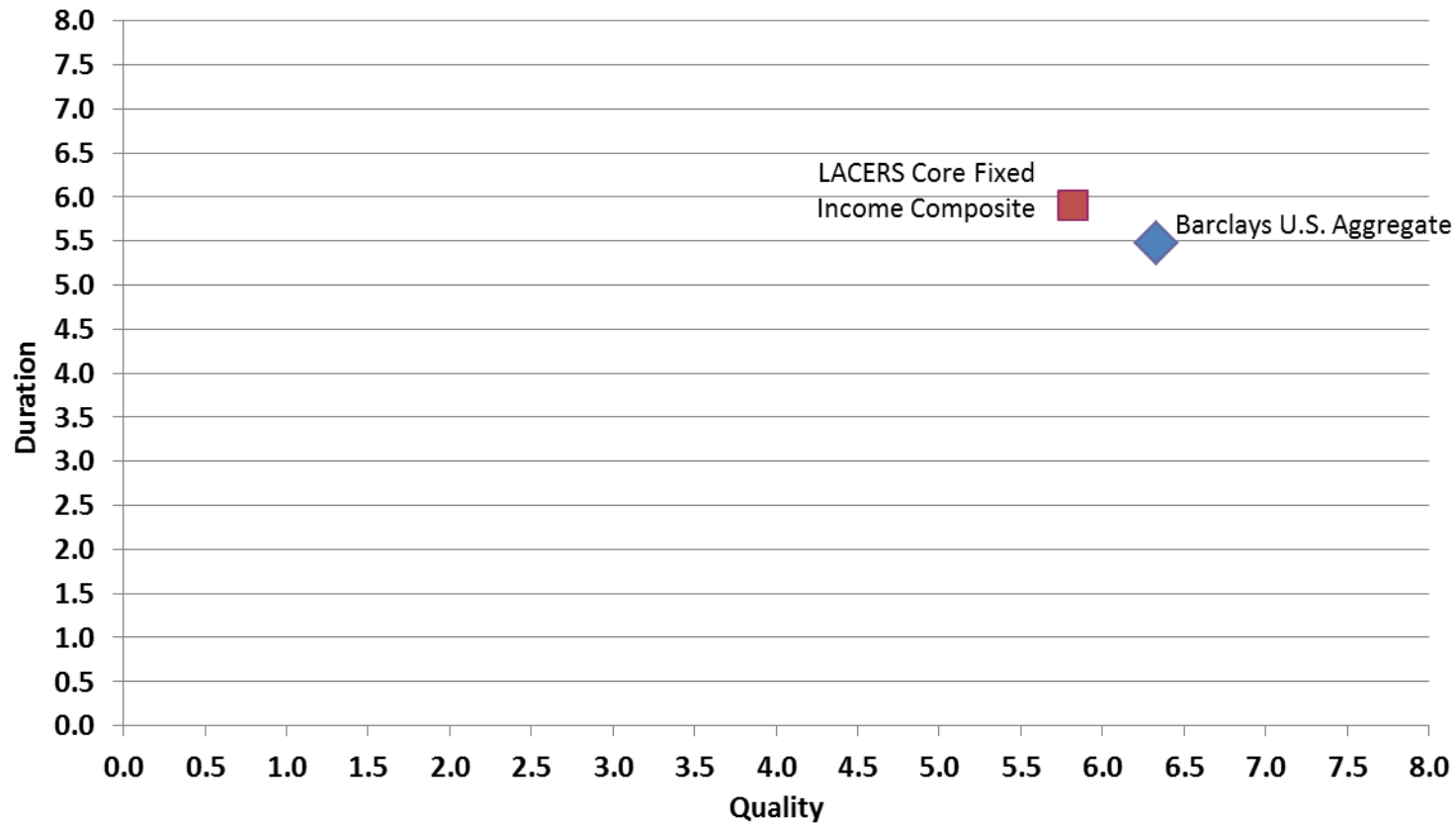
## 3-Year\* Rolling Risk-Adjusted Active Returns



- Core Fixed Income Composite has provided positive risk-adjusted active returns since inception.
- The declining trend in risk adjusted returns is largely a function of the introduction of a significant passive allocation.

\*Fixed Income mandate changed from core-plus to core on July 1, 2012. Returns reflect core mandate only.  
Risk-adjusted active returns are referred to as "Information Ratio". Information Ratio = Excess return (alpha) / Excess risk (tracking error).  
Composite returns are gross of fee.

### Core Fixed Income - Holdings Based Style 6/30/2016



- LACERS Core Fixed Income portfolio has slightly higher duration than the benchmark.
- The portfolio is also modestly lower quality versus the benchmark.
- Unlike in public equities, biases in fixed income are expected to be rewarded over time.

## MANAGER REPORT CARD<sup>1</sup>

Core Fixed Income	Inception Date	Mandate	Current Quarter		One Year		Three Years		Five Years		Since Inception	Annual Management Fee paid* (\$ in millions)	Comments <sup>2</sup>
			I	U	I	U	I	U	I	U			
➤ <b>Neuberger Berman</b>	Nov-90	Core	✘	☒	✘	☑	☑	☒	☑	☒	☑	\$1.04	Performance compliant with LACERS' Manager Monitoring Policy
➤ <b>Loomis Sayles</b>	Jun-80	Core	☑	☑	☑	☑	☑	☑	☑	☑	☑	\$0.89	Performance compliant with LACERS' Manager Monitoring Policy
➤ <b>Baird Advisors</b>	Mar-05	Intermediate	☑	☑	☑	☑	☑	☒	☑	☑	☑	\$0.29	Performance compliant with LACERS' Manager Monitoring Policy
➤ <b>LM Capital Group</b>	Feb-05	Core	✘	☑	✘	☑	☑	☑	☑	☑	☑	\$0.41	Performance compliant with LACERS' Manager Monitoring Policy
➤ <b>SSgA (Passive)</b>	Jul-14	Core	✘	☒	✘	☒	n/a	n/a	n/a	n/a	☑	\$0.35	Performance compliant with LACERS' Manager Monitoring Policy

<sup>1</sup>Current Quarter, 1-Yr, 3-Yrs, and 5-Yrs returns are net of fees. Since Inception returns are gross of fee.

<sup>2</sup>Managers are placed on the Watch List for concerns with organization, process, and performance. Managers are normally on the Watch List for 12 months though can be longer if manager issues still remain but not severe enough to warrant contract termination recommendation.

\*As of Fiscal Year ending 6/30/15. FY2016 will be available in 3Q16 Report.

LEGEND	
☑	outperformed index I index
✘	underperformed index U median universe
☑	outperformed median universe
☒	underperformed median universe
=	equal to index



# Credit Opportunities Managers





## Credit Opportunities Managers

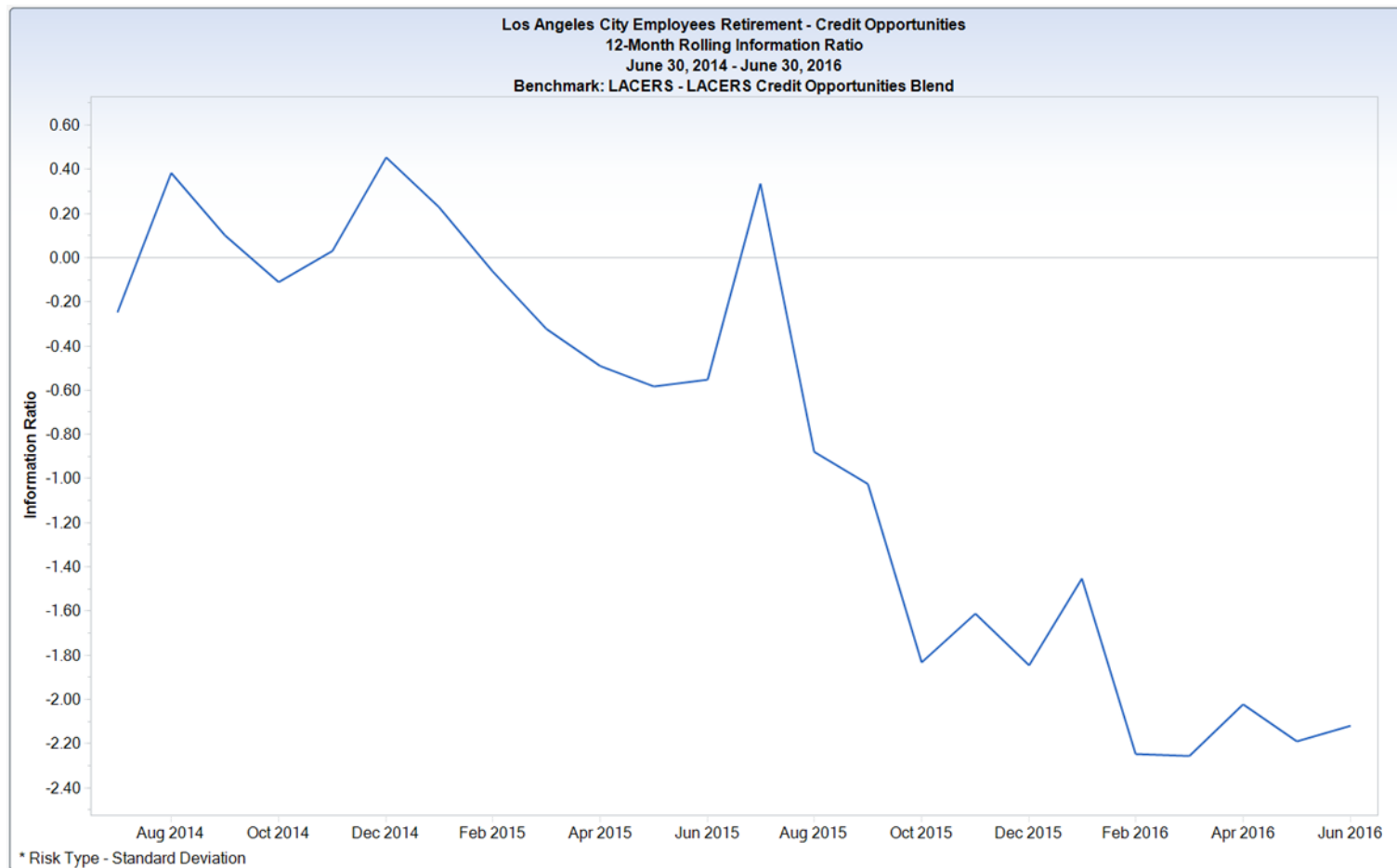
(Returns are Net of Fees)

	Inception Date	Market Value (\$million)	% to Total Credit Opp	Current Quarter	One Year	Three Years	Five Years	Ten Years	Since Inception <sup>1</sup>	5 Year Tracking Error
<b>Credit Opportunities</b>	<b>Jun-13</b>	<b>\$ 703</b>	<b>100.0%</b>	<b>4.04</b>	<b>1.60</b>	<b>4.10</b>	--	--	<b>4.44</b>	--
<i>Credit Opportunities Blend<sup>2</sup></i>				5.36	4.46	5.26	--	--	5.26	
Excess Return				-1.32	-2.86	-1.16	--	--	-0.82	
Aegon USA	Jun-13	\$ 354	50.4%	<b>3.92</b>	<b>0.36</b>	<b>4.04</b>	--	--	<b>4.38</b>	--
<i>BC U.S. Corp High Yield 2% Cap</i>				5.52	1.65	4.20	--	--	4.20	
Excess Return				-1.60	-1.29	-0.16	--	--	0.18	
Prudential	May-14	\$ 278	39.5%	<b>5.00</b>	<b>8.11</b>	--	--	--	<b>5.07</b>	--
<i>JPM EMBI Global Diversified</i>				5.02	9.79	--	--	--	5.45	
Excess Return				-0.02	-1.68	--	--	--	-0.38	
Sankaty Senior Loan Fund	Jun-15	\$ 71	10.1%	<b>2.67</b>	<b>0.06</b>	--	--	--	<b>0.06</b>	--
<i>Credit Suisse Leveraged Loan</i>				2.86	0.93	--	--	--	0.93	
Excess Return				-0.19	-0.87	--	--	--	-0.87	

<sup>1</sup> Indicates **gross returns**

<sup>2</sup> 65% BC U.S. Corp HY 2% Cap/ 35% JPM EMBI - Global Diversified

## 1-Year Rolling Risk-Adjusted Active Returns



- Credit Opportunities Composite has provided mostly negative risk-adjusted active returns since inception. However, it has not yet been a full market cycle (3-years) for this asset class, which is the minimum appropriate time frame in which to measure rolling active returns.

Risk-adjusted active returns are referred to as "Information Ratio". Information Ratio = Excess return (alpha) / Excess risk (tracking error).  
Composite returns are gross of fee.

## MANAGER REPORT CARD<sup>1</sup>

Credit Opportunities	Inception Date	Mandate	Current Quarter		One Year		Three Years		Five Years		Since Inception	Annual Management Fee paid* (\$ in millions)	Comments <sup>2</sup>
			I	U	I	U	I	U	I	U			
➤ <b>Aegon USA</b>	Jun-13	High Yield Bonds	✘	☒	✘	☑	✘	☑	n/a	n/a	☑	\$0.71	Performance compliant with LACERS' Manager Monitoring Policy
➤ <b>Prudential Emerging</b>	May-14	Emerging Market Debt	✘	☑	✘	☑	n/a	n/a	n/a	n/a	✘	\$0.84	LACERS' Manager Monitoring Policy requires at least 3 years of track record to evaluate performance
➤ <b>Sankaty Senior Loan Fund</b>	Jun-15	Bank Loans	✘	☑	n/a	n/a	n/a	n/a	n/a	n/a	✘	n/a	LACERS' Manager Monitoring Policy requires at least 3 years of track record to evaluate performance

<sup>1</sup>Current Quarter, 1-Yr, 3-Yrs, and 5-Yrs returns are net of fees. Since Inception returns are gross of fee.

<sup>2</sup>Managers are placed on the Watch List for concerns with organization, process, and performance. Managers are normally on the Watch List for 12 months though can be longer if manager issues still remain but not severe enough to warrant contract termination recommendation.

\*As of Fiscal Year ending 6/30/15. FY2016 will be available in 3Q16 Report.

LEGEND	
☑	outperformed index I index
✘	underperformed index U median universe
☒	outperformed median universe
☒	underperformed median universe
=	equal to index



# Real Assets Managers



## Real Assets

(Returns are Net of Fees)

	Inception Date	Market Value (\$million)	% to Total Non-U.S. Equity	Current Quarter	One Year	Three Years	Five Years	Ten Years	Since Inception <sup>1</sup>	5 Year Tracking Error
<b>Real Assets</b>	<b>Oct-94</b>	<b>\$ 1,530</b>	<b>100.0%</b>	<b>3.68</b>	<b>9.15</b>	<b>9.71</b>	<b>9.56</b>	<b>1.34</b>	<b>6.51</b>	<b>2.5</b>
<i>CPI+5%</i>				2.40	6.01	6.07	6.33	6.75	7.23	
Excess Return				1.28	3.14	3.64	3.23	-5.41	-0.72	
<b>Public Real Assets</b>	<b>Jul-14</b>	<b>\$ 702</b>	<b>45.9%</b>	<b>4.77</b>	<b>5.43</b>	--	--	--	<b>1.16</b>	--
<i>Public Real Assets Blended BM<sup>2</sup></i>				6.08	1.47	--	--	--	-3.04	
				-1.31	3.96	--	--	--	4.20	
<b>TIPS<sup>3</sup></b>	<b>Jul-14</b>	<b>\$ 455</b>	<b>29.7%</b>	<b>1.73</b>	<b>4.55</b>	--	--	--	<b>1.25</b>	--
<i>BC U.S. TIPS</i>				1.71	4.35	--	--	--	1.17	
Excess Return				0.02	0.20	--	--	--	0.08	
Dimensional Fund Advisors <i>BC U.S. TIPS</i>	Jul-14	\$ 455	29.7%	1.73	5.05	--	--	--	1.64	--
Excess Return				1.71	4.35	--	--	--	1.17	
				0.02	0.70	--	--	--	0.47	
<b>REITS</b>	<b>Apr-15</b>	<b>\$ 93</b>	<b>6.1%</b>	<b>7.63</b>	--	--	--	--	<b>14.34</b>	--
CenterSquare <i>FTSE NAREIT All Equity</i>	Apr-15	\$ 93	6.1%	7.63	25.90	--	--	--	14.34	--
Excess Return				7.41	23.62	--	--	--	11.67	
				0.22	2.28	--	--	--	2.67	
<b>Commodities</b>	<b>Jun-15</b>	<b>\$ 154</b>	<b>10.1%</b>	<b>13.02</b>	<b>-13.81</b>	--	--	--	<b>-11.95</b>	--
Core Commodity Management <i>Bloomberg Commodity Index</i>	Jun-15	\$ 154	10.1%	13.02	-13.81	--	--	--	-11.95	--
Excess Return				12.78	-13.32	--	--	--	-11.91	
				0.24	-0.49	--	--	--	-0.04	
<b>Timber</b>	<b>Aug-99</b>	<b>\$ 21</b>	<b>1.3%</b>	<b>3.87</b>	<b>3.26</b>	<b>10.16</b>	<b>8.18</b>	<b>7.98</b>	<b>10.64</b>	--
<b>Private Real Estate</b>	<b>Oct-94</b>	<b>\$ 808</b>	<b>52.8%</b>	<b>2.78</b>	<b>12.45</b>	<b>12.02</b>	<b>10.94</b>	<b>1.98</b>	<b>6.81</b>	<b>6.5</b>
<i>Real Estate Blended BM</i>				2.25	13.97	13.33	13.00	8.12	10.00	
Excess Return				0.53	-1.52	-1.31	-2.06	-6.14	-3.19	

<sup>1</sup> Indicates gross returns

<sup>2</sup> 60% BC U.S. TIPS, 20% Bloomberg Commodity Index, 10% FTSE NAREIT All Equity, 10% Alerian MLP Index

<sup>3</sup> Includes terminated manager

MANAGER REPORT CARD<sup>1</sup>

Real Assets	Inception Date	Mandate	Current Quarter		One Year		Three Years		Five Years		Since Inception	Annual Management Fee paid* (\$ in millions)	Comments <sup>2</sup>
			I	U	I	U	I	U	I	U	I		
<b>TIPS</b>													
➤ <b>Dimensional Fund Advisors</b>	Jul-14	TIPS	✓	☑	✓	☑	n/a	n/a	n/a	n/a	✓	\$0.09	LACERS' Manager Monitoring Policy requires at least 3 years of track record to evaluate performance
<b>REITS</b>													
➤ <b>CenterSquare</b>	Apr-15	REITS	✓	☑	✗	☒	n/a	n/a	n/a	n/a	✓	\$0.07	LACERS' Manager Monitoring Policy requires at least 3 years of track record to evaluate performance
<b>Commodities</b>													
➤ <b>CoreCommodity Management</b>	Jun-15	Commodities	✗	n/a	✗	n/a	n/a	n/a	n/a	n/a	✗	\$0.03	LACERS' Manager Monitoring Policy requires at least 3 years of track record to evaluate performance

<sup>1</sup>Current Quarter, 1-Yr, 3-Yrs, and 5-Yrs returns are net of fees. Since Inception returns are gross of fee.

<sup>2</sup>Managers are placed on the Watch List for concerns with organization, process, and performance. Managers are normally on the Watch List for 12 months though can be longer if manager issues still remain but not severe enough to warrant contract termination recommendation.

\* As of Fiscal Year ending 6/30/15. FY2016 will be available in 3Q16 Report.

LEGEND	
✓	outperformed index
✗	underperformed index
☑	outperformed median universe
☒	underperformed median universe
=	equal to index
I	index
U	median universe

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# Definitions



**I. Asset Allocation**

- Market %: market value as a percent of the total fund's market value.
- Target %: investment policy on target allocation for each asset classes.
- Minimum and Maximum %: range of allocation for each asset classes.

**II. Policy Benchmarks**

• **Current (initially adopted January 10, 2012 and affirmed on April 28, 2015)**

- ◆ U.S Equity: 24% Russell 3000
- ◆ Non-U.S Equity: 29% MS ACWI ex U.S. Net Div
- ◆ Fixed Income: 19% Barclays Capital (BC) Aggregate
- ◆ Credit Opportunities: 5% 65% Barclays U.S. Corp. High Yield 2% Cap / 35% JPM EMBI - Global Diversified
- ◆ Real Assets: 5% CPI + 500 bps
- ◆ Private Equity: 12% Russell 3000 plus 300 bps annually. Calculated on a dollar-weighted basis, and holding cash flows at 0% return for the first 36 months
- ◆ Cash: 1% 90-day Treasury Bill
- ◆ **Total:** 24% U.S. Equity; 29% Non-U.S. Equity; 19% Fixed Income; 5% Credit Opportunities; 10% Real Assets; 12% Private Equity; 1% Cash

• **Prior (adopted October 13, 2009)**

- ◆ U.S Equity: 27% Russell 3000
- ◆ Non-U.S Equity: 20% MS ACWI ex U.S. Net Div
- ◆ Core Fixed Income: 26% Barclays Capital (BC) Universal
- ◆ Private Real Estate: 7% NCREIF
- ◆ Private Equity: 9% Russell 3000 plus 400 bps annually. Calculated on a dollar-weighted basis, and holding cash flows at 0% return for the first 36 months.
- ◆ Cash: 1% 90-day Treasury Bill
- ◆ **Total:** 37% U.S. Equity; 20% Non-U.S. Equity; 26% Core Fixed Income; 7% Private Real Estate; 9% Private Equity; 1% Cash

### III. Indices

- **Cash**

**Citi 3-Month Treasury Bills:** an average of the last three 3-month treasury bill issues' monthly return equivalents of yield averages, which are not marked to market. Month-end discount yields are converted to bond-equivalent yields, then a simple average is taken, and that number is decomposed to a monthly return using the actual number of days in the month and a 365-day year.

- **Equity**

- ◆ **Dow Jones Industrial Average:** This index is the price-weighted average of 30 actively traded blue chip stocks.
- ◆ **NASDAQ:** A market value weighted index that measures all domestic and non-US based securities, more than 4700 companies listed on the NASDAQ stock market.
- ◆ **Russell Midcap Value:** contains Russell Midcap stocks having less-than-average growth orientation and are included in the Russell 1000 Value Index.
- ◆ **Russell 1000:** consists of the 1000 largest securities in the Russell 3000 Index. The Russell 1000 is capitalization-weighted.
- ◆ **Russell 1000 Growth:** contains Russell 1000 stocks having greater-than-average growth orientation. Stocks tend to exhibit lower dividend yields and higher price-to-book ratios, price-earnings ratios and forecast growth values than the Value universe. The index is capitalization-weighted (as opposed to equal-weighted).
- ◆ **Russell 1000 Value:** contains those Russell 1000 securities with a less-than-average growth orientation. Securities in this index tend to exhibit lower price-to-book and price-earnings ratios, higher dividend yields and lower forecasted growth values than the Growth universe. Russell 1000 Value is capitalization-weighted.
- ◆ **Russell 2000:** contains the smallest 2,000 stocks in the Russell 3000 Index, representing approximately 11% of the Russell 3000 total market capitalization. The index is capitalization-weighted (as opposed to equal-weighted).
- ◆ **Russell 2000 Growth:** contains those Russell 2000 securities with a greater-than-average growth orientation. Securities in this index tend to exhibit higher price-to-book and price-earnings ratios, lower dividend yields and higher forecasted growth values than the Value universe.
- ◆ **Russell 2000 Value:** contains those Russell 2000 securities with a less-than-average growth orientation. Securities in this index tend to exhibit lower price-to-book and price-earnings ratios, higher dividend yields and lower forecasted growth values than the Growth universe.
- ◆ **Russell 3000:** measures performance of the 3000 largest US companies based on total market capitalization. This index represents approximately 98% of the investable US equity market. The Russell 3000 is capitalization-weighted.
- ◆ **Standard and Poor 500:** the S&P, which represents approximately 75% of NYSE market capitalization and 30% of NYSE issues, contains 500 industrial, utility, transportation and financial companies in the U.S. markets (mostly



NYSE issues). The S&P is capitalization-weighted (as opposed to equal-weighted), calculated on a total return basis with dividends reinvested.

- ◆ **Morgan Stanley All Country World ex USA:** an arithmetic, market value-weighted average of approx. 1800 securities from outside the United States. The index is calculated on a total return basis, including reinvestment of gross dividends before deduction of withholding taxes.
- ◆ **Morgan Stanley World ex USA:** contains securities of all of the following developed counties, excluding U.S.: Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, Israel, Australia, New Zealand, Singapore, Hong Kong, and Japan.
- ◆ **Morgan Stanley Capital International Emerging Markets Free:** contains securities of the following counties which are available to all investors regardless of local status: Argentina, Brazil, Chile, Colombia, Greece, India, Indonesia, Israel, Jordan, Malaysia, Mexico, Pakistan, Peru, Philippines, Poland, Portugal, South Africa, Sri Lanka, Thailand, Turkey and Venezuela.
- ◆ **Morgan Stanley Capital International Emerging Markets ND:** contains securities of the following counties which are available to all investors regardless of local status: Argentina, Brazil, Chile, Colombia, Greece, India, Indonesia, Israel, Jordan, Malaysia, Mexico, Pakistan, Peru, Philippines, Poland, Portugal, South Africa, Sri Lanka, Thailand, Turkey and Venezuela. The index is computed using the net return, which withholds applicable taxes for non-resident investors.
- ◆ **Morgan Stanley Capital International EAFE Value Gross:** contains securities of large and mid-cap in the following developed counties, excluding U.S. and Canada: Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, Israel, Australia, New Zealand, Singapore, Hong Kong, and Japan.
- ◆ **Morgan Stanley Capital International EAFE Small Cap:** contains securities of small-capitalization in the following developed counties, excluding U.S. and Canada: Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, Israel, Australia, New Zealand, Singapore, Hong Kong, and Japan.
- **Fixed Income**
  - ◆ **Barclays Capital Aggregate:** an aggregate of the Government/Corporate Bond Index, the Mortgage-Backed Securities Index, and the Asset-Backed Securities Index. The index contains fixed rate debt issues with at least one-year maturity, \$100 million par value outstanding, and investment grade ratings by Moody's, S&P or Fitch (in that order). Returns are market-value weighted inclusive of accrued interest.



- ◆ **Barclays Capital Universal:** This index contains the Barclays Capital Aggregate index bonds plus approximately 10% of the remaining index includes US High Yield, Eurodollar, Emerging Markets, 144A Private Placements, and CMBS bonds.
- ◆ **Barclays Capital US Govt/Credit Intermediate:** This index is a sub-component of the Barclays Capital Aggregate index. Bonds consist of the US Treasury, US Agency (non-MBS), and US Investment-grade credit holdings with a maturity range of 1 to 10 years.
- ◆ **Bond Rating Methodology:** Bond ratings are intended to characterize the risk associated with holding a particular bond or categories of bonds. These ratings are the risk assessed by the market and that the bond issuer must pay to attract purchasers to the bond. These ratings are expressed as a series of letters and sequences.

**Rating Categories in descending order:**

- ◇ **AAA:** The best quality rating, stable cash flows, very protective bond covenants, very low probability of default.
- ◇ **Aa:** The second best rating. Stable cash flows, less protective bond covenants, very low probability of default.
- ◇ **A:** Stable cash flows, less protective bond covenants, long-term probability of default is higher than AAA or Aa.
- ◇ **Baa:** Medium quality rating, reliable cash flows short term, less-reliable cash flows long term, bond covenants offer limited protection. Moderate probability of default. Downgrade to a lower rating is also possible. Baa bonds are the lowest rating still considered 'investment grade.
- ◇ **Ba thru B:** Highly speculative. Long-term assurance of cash flows and protective elements are low. Purchasers of these bonds generally specialize in assessing credit risk of specific bond issues. Much higher spreads versus investment grade bonds provide the incentive for purchasers. High default or downgrade risk.
- ◇ **Caa thru C:** Poor standing. Either close to default or in default. Highly probable loss of principal.
- ◇ **D:** Coupon payments were not paid on the due date which puts the bond in default. Unless both Protective covenants and issuer assets are adequate (not likely), holder loses all likelihood of recovering principal.



- **Credit Opportunities**

- ◆ **Barclays U.S. High Yield 2% Capped:** This index is an unmanaged index that covers U.S. corporate, fixed-rate, non-investment grade debt with at least one year to maturity and at least \$150 million in par outstanding. Index weights for each issuer are capped at 2%.
- ◆ **JPM EMBI Global Diversified:** This index includes U.S. dollar denominated Brady bonds, Eurobonds, traded loans and local market debt instruments issued by sovereign and quasi-sovereign entities. The index limits the weights of countries with larger debt stocks by only including a specified portion of these countries' eligible current face amounts of debt outstanding.
- ◆ **Credit Suisse Leveraged Loan:** This index tracks the investable market of the U.S. dollar denominated leveraged loan market. It consists of issues rated "5B" or lower, meaning that the highest rated issues included in this index are Moody's/S&P ratings of Baa1/BB+ or Ba1/BBB+. All loans are funded term loans with a tenor of at least one year and are made by issuers domiciled in developed countries.

- **Private Real Estate**

**NCREIF Property Index:** the NPI contains investment-grade, non-agricultural, income-producing properties which may be financed in excess of 5% gross market value; were acquired on behalf of tax exempt institutions; and are held in a fiduciary environment. Data is collected quarterly from a membership of investment managers and plan sponsors. Returns are gross of fees; include income, realized gains/losses, and appreciation/depreciation; and are market-value weighted. Property values are determined by consistent appraisal methodology and sold properties are removed in the quarter of the sale (the historical data remains). Current quarter performance is preliminary.

**NFI-ODCE Index:** It is an index of open-end diversified Core strategy funds with at least 95% of their investments in the U.S. markets. The ODCE is the first of the NCREIF Fund Database products, created in May 2005, and is an index of investment returns reporting on both as historical and current basis. The ODCE Index is capitalization-weighted and is reported on an gross and net of fee basis. Measurement is time-weighted and includes leverage.

- **Public Real Assets**

**Barclays U.S. TIPS:** The index includes all publicly issued, investment grade U.S. Treasury inflation-protected securities that have at least one year remaining to maturity.

**FTSE NAREIT All Equity REITS Index:** the index series provides investors with exposure to all investment and property sectors. In addition, the more narrowly focused property sector and sub-sector indexes provide the facility to concentrate commercial real estate exposure in more selected markets. The index is a free-floating adjusted, market capitalization-weighted index of U.S. Equity REITs. Constituents of the Index include all tax-qualified REITs with more than 50 percent of total assets in qualifying real estate assets other than mortgages secured by real property.



**Bloomberg Commodity Index:** the index is made up of 22 exchange-traded futures on physical commodities. Commodities are weighted to account for economic significance and market liquidity, with restriction on individual commodities and commodity groups to promote diversification. The restrictions are applied annually that no related group of commodities constitutes more than 33% of the index and no single commodity constitutes more than 15%. To avoid the physical delivery of commodities from underlying futures, the indexes' roll from current to subsequent contracts during the roll period which typically falls within the 6<sup>th</sup>-10<sup>th</sup> business day of each month.

#### **IV. Universe Comparison**

All Northern Trust Universes are gross of fees. Universe breaks are at 10, 25, 50, 75 and 90 percentiles.

- **TUCS Plan Universes**

Published on a quarterly basis using monthly observations. Over time, the plan population members will change due to new plans being introduced and other plans closing or leaving the universe.

**Public Funds**

Includes the range of performance of all Public Funds greater than 10 billion dollars. Monitored by the Wilshire's Trust Universe Comparison Services Group. Plans include state and municipal plans and systems.

- **Manager Universes**

Created using the performance of managers used by sponsor subscribers to the Risk & Performance Services Group (RPS). Each occurrence of a manager is considered as an observation. The manager universes are used to describe the actual experience of plan sponsors use of the managers; no manager supplied representative portfolios or composites are used in the creation of the universes. All occurrences of a manager are included in the magnitudes they are used by the sponsors; no stratification or judgments are introduced by RPS to alter a manager's representation. Manager portfolios are used from all market segments (ERISA, Public, Foundation & Endowments, and Wealth) since managers are hired to fulfill a specific policy objective that is not unique by plan type. Inclusion in a universe is based upon quantitative screening using the criteria described; an RPS analyst determines the comparison of a manager to this style background for reporting purposes. The portfolio criteria are applied as the average of the values over the time period being observed and not simply the current point in time value.

- ◆ **U.S. Equity - Large Cap**  
Includes portfolios with a portfolio average market capitalization greater than \$10 billion. LACERS' style-oriented managers are being compared against appropriate peer style universes, such as U.S. Equity - Large Cap Core, U.S. Equity - Large Cap Growth, and U.S. Equity - Large Cap Value.
- ◆ **U.S. Equity - Small Cap**  
Includes portfolios with a portfolio average market capitalization of less than \$2 billion. LACERS' style-oriented managers are being compared against appropriate peer style universes, such as U.S. Equity - Small Cap Core, U.S. Equity - Small Cap Growth, and U.S. Equity - Small Cap Value.
- ◆ **Non-U.S. Equity - Developed Markets**  
Includes all managers investing in developed markets outside of North America. The majority of the portfolios in this universe are EAFE-oriented but may contain an opportunistic allocation to emerging markets equity (extended EAFE). There are a few regional non-US equity managers (Europe & Pacific Basin) also represented.
- ◆ **Non-U.S. Equity - Emerging Markets**  
Includes all managers investing in emerging markets. The universe includes emerging markets managers that are diversified across all emerging markets as well as specialists in regional emerging markets.
- ◆ **U.S. Core Fixed Income**  
Includes all managers, active and passive, investing in US Fixed Income.
- ◆ **Credit Opportunities**  
Includes all managers, active and passive, investing in US high yield and emerging market debt managers.
- ◆ **Public Real Assets**  
Includes all managers investing in Public REITS, TIPS, Commodities, and Multi Asset Real Asset/Return managers.

## **V. Investment Performance**

- Time: the internal rate of return (accounting for daily cash flows) monthly based on trade-date, full accrual accounting, and using market values. For periods of greater than one month, a time series of linked monthly returns is maintained, introducing a time weighted effect.



- The Private Real Estate and the Private Equity returns are lagged one quarter.
- The LACERS Total Fund return is dollar-weighted to include Private Equity.

## VI. Performance Attribution

- **Holdings-Based Attribution.**  
U.S. Equity, Non-U.S. Equity, and Fixed Income tables are Holdings-based. The table details various attribution subcategories which impacted each manager's performance such as: selection, weighting, duration, yield, quality, etc.
- **Interaction**  
Captures the interaction of managers' performance and the difference in asset class weighting. The formula for interaction is  $(\text{Actual Allocation} - \text{Policy Allocation}) * (\text{Composite Return} - \text{Policy Return})$ . Positive and negative interaction effects are determined as follows:
  1. Positive interaction effect
    - a. Actual asset class composite weight > Benchmark weight AND Actual asset class composite return > Benchmark return
    - b. Actual asset class composite weight < Benchmark weight AND Actual asset class composite return < Benchmark return
  2. Negative interaction effect
    - a. Actual asset class composite weight > Benchmark weight AND Actual asset class composite return < Benchmark return
    - b. Actual asset class composite weight < Benchmark weight AND Actual asset class composite return > Benchmark return
- **Trading**  
Captures the contribution to excess return from trading activity during the period. The trading effect is the difference between the buy and hold return of each asset class composition and the calculated portfolio return.



## VII. Terminology

- **Duration:** A measure of the sensitivity of the price (the value of principal) of a fixed-income portfolio given a 1% change in the US Treasury yield curve (interest rates). A portfolio with a duration of 4 would be expected to lose 4% of its value when interest rates rise 1%. Duration is expressed as a number of years. Rising interest rates mean falling bond prices, while declining interest rates mean rising bond prices.
- **Information ratio:** A ratio of portfolio returns above the returns of a benchmark (usually an index) to the volatility of those returns. The information ratio (IR) measures a portfolio manager's ability to generate excess returns relative to a benchmark, but also attempts to identify the consistency of the investor. This ratio will identify if a manager has beaten the benchmark by a lot in a few months or a little every month. The higher the IR the more consistent a manager is and consistency is an ideal trait.
- **Standard deviation:** A statistical measure of volatility or the degree to which an individual value in a probability distribution tends to vary from the mean of the distribution. A manager with a one-year return of 5% and a standard deviation of 5, indicates the range of returns for this manager will likely fall between 0% and 10% during most annual time periods.
- **Tracking error:** A measure of the difference between returns of the portfolio and that of the benchmark it was attempting to imitate; reported as a "standard deviation percentage" difference.
- **Ex-post:** A term that refers to past events, such as actual performance returns.
- **Ex-ante:** A term that refers to future events, such as future performance returns. Using ex-ante analysis helps to give an idea of the future impact of a newly implemented policy.
- **Real Estate Investment Trust (REIT):** A REIT is a company that owns, and in most cases, operates income-producing real estate such as apartments, shopping centers, offices, hotels and warehouses. Some REITs also engage in financing real estate. The shares of many REITs are freely traded, usually on a major stock exchange. To qualify as a REIT, a company must distribute at least 90% of its taxable income to its shareholders annually. A company that qualifies as a REIT is permitted to deduct dividends paid to its shareholders from its corporate taxable income. As a result, most REITs remit at least 100% of their taxable income to their shareholders and therefore owe no corporate tax. Taxes are paid by shareholders on the dividends received and any capital gains. Most states honor this federal treatment

and also do not require REITs to pay state income tax. Like other businesses, but unlike partnerships, a REIT cannot pass any tax losses through to its investors.

- **Commodity:** a raw material or primary agricultural product that can be bought and sold, such as gold or coffee.

# Appendix



# U.S. Equity Manager Performance





**AJO**

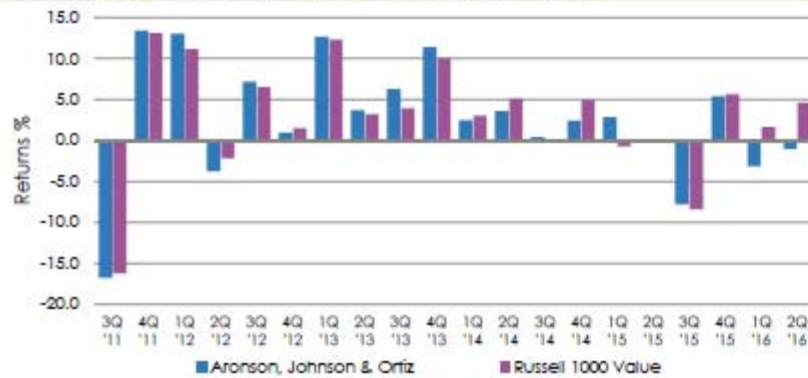
**Objective**

Outperform the benchmark by 300 bps, annualized over a full market cycle (normally 3-5 years).

**Strategy**

Aronson invests in US stocks with large market caps, low P/E ratios and lower historical earnings per share that are expected to increase.

**Performance - Quarterly Rate of Return vs Benchmark**

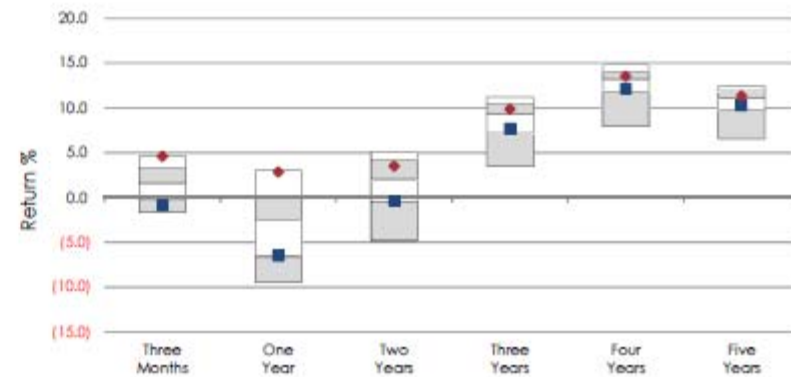


**Performance - Net Returns%**

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Aronson, Johnson & Ortiz	-1.0	-6.8	-0.7	7.4	9.9	7.9	Oct-2001
Russell 1000 Value	4.6	2.9	3.5	9.9	11.4	7.4	
<b>Excess Returns</b>	<b>-5.6</b>	<b>-9.6</b>	<b>-4.2</b>	<b>-2.5</b>	<b>-1.4</b>	<b>0.5</b>	

**Quartile Rankings**

Mandate: Large Cap Value  
Benchmark: Russell 1000 Value



	LCQ	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.
■ Aronson, Johnson & Ortiz <sup>1</sup>	-0.9	-6.5	-0.4	7.7	12.2	10.3
Rank	80	74	75	69	72	67
◆ Russell 1000 Value	4.6	2.9	3.5	9.9	13.5	11.4
Rank	6	13	33	37	40	47
10 <sup>th</sup> Percentile	3.7	3.4	5.0	11.2	14.9	12.4
25 <sup>th</sup> Percentile	2.4	0.4	4.0	10.4	14.0	11.9
Median	1.6	-2.5	2.1	9.3	13.2	11.1
75 <sup>th</sup> Percentile	-0.2	-6.6	-0.4	7.2	11.8	9.8
90 <sup>th</sup> Percentile	-1.7	-9.4	-4.8	3.5	7.9	6.6
Observation	191	189	186	169	137	122

<sup>1</sup> Performance shown above is based on gross of fees.

## Principal Global Inv

### Objective

Outperform the benchmark by 200 bps, annualized over a full market cycle (normally 3-5 years).

### Strategy

Principal Global invests in US stocks with mid-market caps, through stock selection based on in-depth original fundamental research that emphasizes quality.

### Performance - Quarterly Rate of Return vs Benchmark

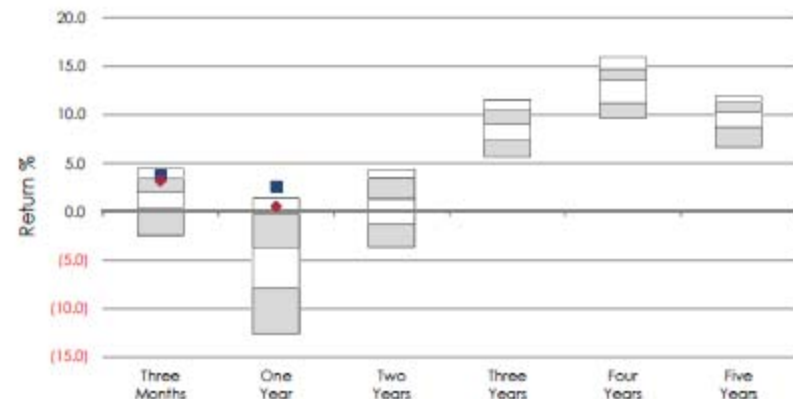


### Performance - Net Returns%

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Principal Global Inv	3.6	2.2	--	--	--	7.6	Jul-2014
Russell Midcap	3.2	0.6	--	--	--	3.8	
Excess Returns	0.5	1.6	--	--	--	3.8	

### Quartile Rankings

Mandate: Mid Cap  
 Benchmark: Russell Midcap



	LCQ	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.
■ Principal Global Inv <sup>1</sup>	3.8	2.6	--	--	--	--
Rank	21	6	--	--	--	--
◆ Russell Midcap	3.2	0.6	--	--	--	--
Rank	30	15	--	--	--	--
10 <sup>th</sup> Percentile	4.5	1.4	4.4	11.5	16.0	11.9
25 <sup>th</sup> Percentile	3.5	-0.3	3.5	10.5	14.7	11.3
Median	2.0	-3.7	1.3	9.0	13.5	10.3
75 <sup>th</sup> Percentile	0.4	-7.9	-1.2	7.4	11.2	8.7
90 <sup>th</sup> Percentile	-2.4	-12.6	-3.6	5.7	9.7	6.7
Observation	115	100	93	80	78	70

<sup>1</sup> Performance shown above is based on gross of fees.

## EAM Investors LLC

### Objective

Outperform the benchmark by 200 bps, annualized over a full market cycle (normally 3-5 years).

### Strategy

EAM Investors invests in US stocks with small market caps. EAM uses a fundamental bottom-up portfolio construction process and seeks to exploit investors behavior by understanding investor biases to changing information.

### Performance - Quarterly Rate of Return vs Benchmark

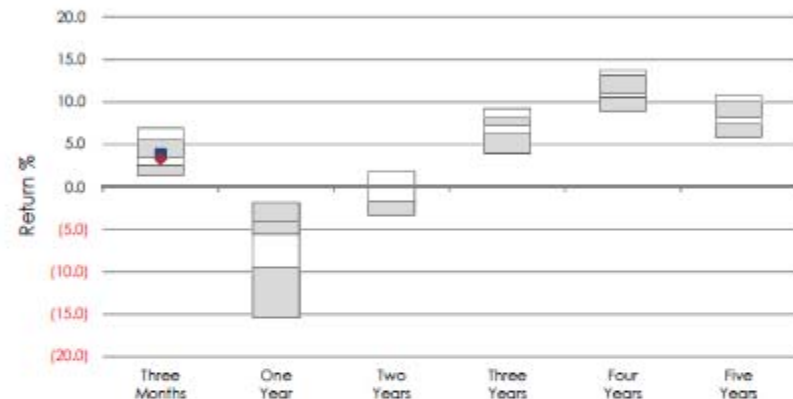


### Performance - Net Returns%

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
EAM Investors LLC-SL	3.7	--	--	--	--	-6.3	Sep-2015
Russell 2000 Growth	3.2	--	--	--	--	2.7	
Excess Returns	0.4	--	--	--	--	-9.0	

### Quartile Rankings

Mandate: Small Cap Growth  
Benchmark: Russell 2000 Growth



	LCQ	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.
■ EAM Investors LLC-SL <sup>1</sup>	3.9	--	--	--	--	--
Rank	41	--	--	--	--	--
◆ Russell 2000 Growth	3.2	--	--	--	--	--
Rank	54	--	--	--	--	--
10 <sup>th</sup> Percentile	6.9	-1.8	4.3	9.2	13.7	10.8
25 <sup>th</sup> Percentile	5.6	-4.0	2.5	8.3	13.2	10.1
Median	3.5	-5.6	0.0	7.3	11.0	8.2
75 <sup>th</sup> Percentile	2.5	-9.5	-1.7	6.2	10.6	7.6
90 <sup>th</sup> Percentile	1.4	-15.4	-3.3	4.0	8.9	5.9
Observation	48	49	45	37	29	27

<sup>1</sup> Performance shown above is based on gross of fees.

## PanAgora Asset Management

### Objective

Outperform the benchmark by 200 bps, annualized over a full market cycle (normally 3-5 years).

### Strategy

PanAgora invests in US stocks with small market caps, low P/E ratios and lower historical earnings per share that are expected to increase.

### Performance - Quarterly Rate of Return vs Benchmark

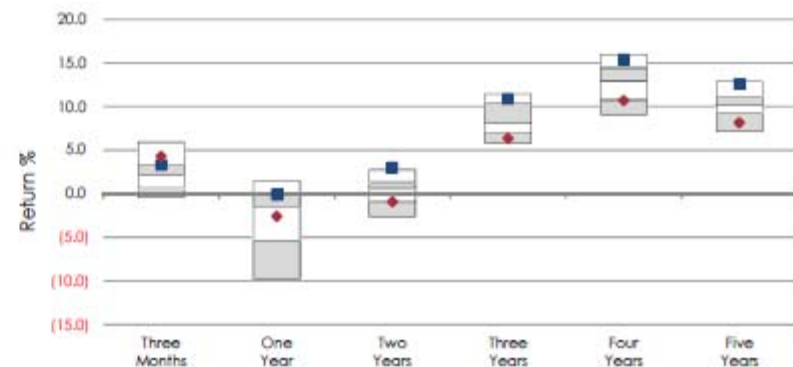


### Performance - Net Returns%

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
PanAgora Asset Management	3.1	-0.8	2.2	10.1	11.8	6.4	Feb-2006
Russell 2000 Value	4.3	-2.6	-0.9	6.4	8.1	5.2	
<b>Excess Returns</b>	<b>-1.2</b>	<b>1.8</b>	<b>3.1</b>	<b>3.7</b>	<b>3.7</b>	<b>1.2</b>	

### Quartile Rankings

Mandate: Small Cap Value  
Benchmark: Russell 2000 Value



	LCQ	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.
■ PanAgora Asset Management	3.3	-0.1	3.0	10.9	15.4	12.6
Rank	22	35	27	18	17	14
◆ Russell 2000 Value	4.3	-2.6	-0.9	6.4	10.7	8.1
Rank	17	59	75	78	78	87
10 <sup>th</sup> Percentile	5.9	2.2	4.7	11.4	16.0	12.9
25 <sup>th</sup> Percentile	3.2	0.7	3.3	10.4	14.4	11.1
Median	2.2	-1.5	0.7	8.1	12.9	10.1
75 <sup>th</sup> Percentile	0.6	-5.5	-1.0	6.9	10.8	9.3
90 <sup>th</sup> Percentile	-0.4	-9.7	-2.6	5.8	9.1	7.2
Observation	64	66	54	42	38	37

1 Performance shown above is based on gross of fees.



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# Non-U.S. Equity Manager Performance

## Barrow Hanley

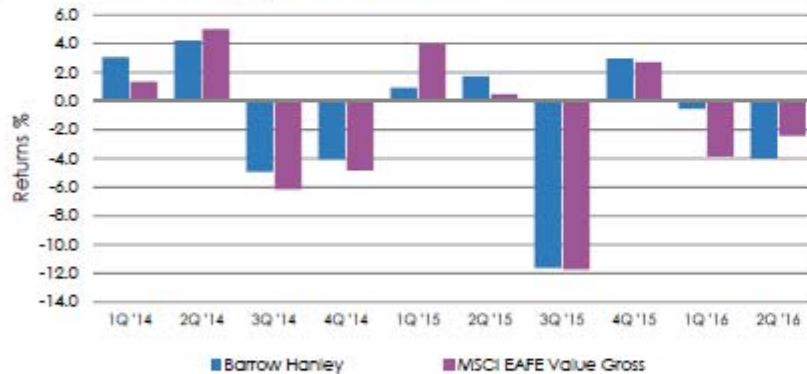
### Objective

Outperform the benchmark by 200 bps, annualized over a full market cycle (normally 3-5 years).

### Strategy

Barrow Hanley invests in Non-US stocks across all developed countries.

### Performance - Quarterly Rate of Return vs Benchmark



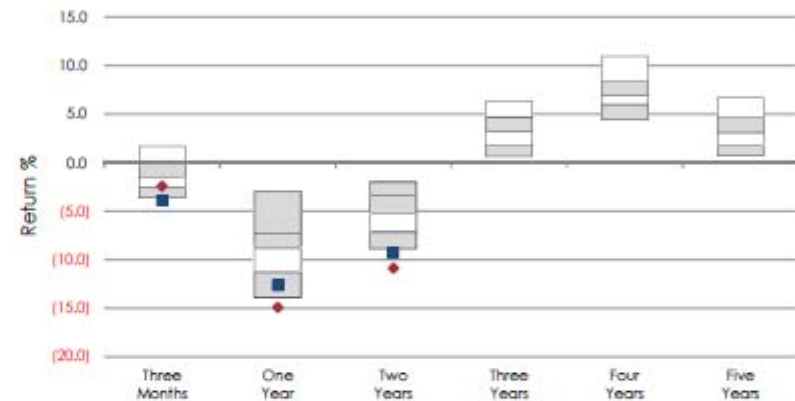
### Performance - Net Returns%

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Barrow Hanley	-4.0	-13.1	-9.8	--	--	-2.8	Nov-2013
MSCI EAFE Value Gross	-2.4	-14.9	-10.9	--	--	-5.4	
<b>Excess Returns</b>	<b>-1.6</b>	<b>1.8</b>	<b>1.1</b>	<b>--</b>	<b>--</b>	<b>2.5</b>	

### Quartile Rankings

Mandate: Non-US Developed Equity Mgrs.

Benchmark: MSCI EAFE Value Gross



	LCQ	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.
■ Barrow Hanley <sup>1</sup>	-3.9	-12.6	-9.3	--	--	--
Rank	93	83	93	--	--	--
◆ MSCI EAFE Value Gross	-2.4	-14.9	-10.9	--	--	--
Rank	74	93	98	--	--	--
10 <sup>th</sup> Percentile	1.7	-2.9	-2.0	6.3	10.9	6.7
25 <sup>th</sup> Percentile	-0.1	-7.2	-3.4	4.6	8.3	4.6
Median	-1.5	-8.8	-5.3	3.2	6.9	3.1
75 <sup>th</sup> Percentile	-2.5	-11.3	-7.2	1.7	6.0	1.8
90 <sup>th</sup> Percentile	-3.6	-13.9	-8.9	0.6	4.4	0.8
Observation	170	166	164	147	141	130

<sup>1</sup> Performance shown above is based on gross of fees.

## Lazard Asset Management

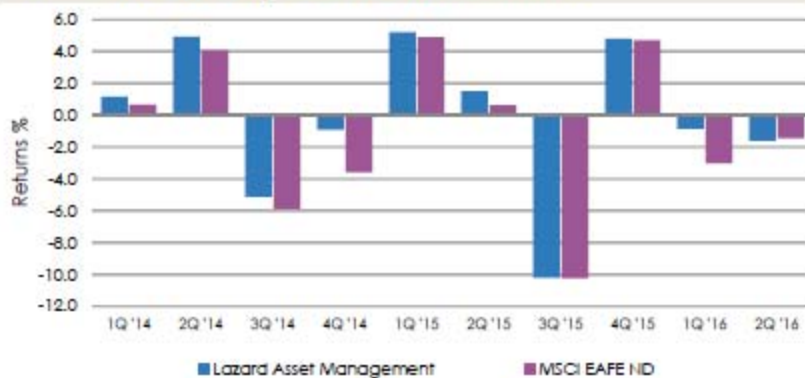
### Objective

Outperform the benchmark by 200 bps, annualized over a full market cycle (normally 3-5 years).

### Strategy

Lazard invests in Non-US stocks across all developed countries.

### Performance - Quarterly Rate of Return vs Benchmark



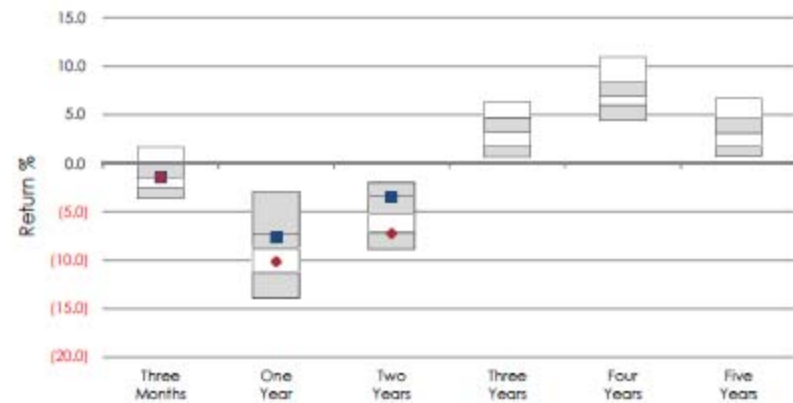
### Performance - Net Returns%

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Lazard Asset Management	-1.6	-8.2	-4.0	--	--	1.2	Nov-2013
MSCI EAFE ND	-1.5	-10.2	-7.2	--	--	-2.7	
<b>Excess Returns</b>	<b>-0.1</b>	<b>2.0</b>	<b>3.2</b>	<b>--</b>	<b>--</b>	<b>3.9</b>	

### Quartile Rankings

Mandate: Non-US Developed Equity Mgrs.

Benchmark: MSCI EAFE ND



	LCQ	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.
■ Lazard Asset Management <sup>1</sup>	-1.5	-7.7	-3.5	--	--	--
Rank	51	37	26	--	--	--
◆ MSCI EAFE ND	-1.5	-10.2	-7.2	--	--	--
Rank	49	64	77	--	--	--
10 <sup>th</sup> Percentile	1.7	-2.9	-2.0	6.3	10.9	6.7
25 <sup>th</sup> Percentile	-0.1	-7.2	-3.4	4.6	8.3	4.6
Median	-1.5	-8.8	-5.3	3.2	6.9	3.1
75 <sup>th</sup> Percentile	-2.5	-11.3	-7.2	1.7	6.0	1.8
90 <sup>th</sup> Percentile	-3.6	-13.9	-8.9	0.6	4.4	0.8
Observation	170	166	164	147	141	130

<sup>1</sup> Performance shown above is based on gross of fees.

**MFS Inst. Adv.**
**Objective**

Outperform the benchmark by 200 bps, annualized over a full market cycle (normally 3-5 years).

**Strategy**

MFS Inst. Adv. invests in Non-US stocks across all developed countries.

**Performance - Quarterly Rate of Return vs Benchmark**

**Performance - Net Returns%**

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
MFS Inst. Adv.	0.0	-3.1	-2.6	--	--	0.5	Oct-2013
MSCI World ex US Growth (net)	0.1	-5.3	-3.6	--	--	-0.2	
<b>Excess Returns</b>	<b>-0.1</b>	<b>2.1</b>	<b>1.0</b>	<b>--</b>	<b>--</b>	<b>0.8</b>	

**Quartile Rankings**

Mandate: Non-US Developed Equity Mgrs.

Benchmark: MSCI World ex US Growth (net)



	LCQ	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.
■ MFS Inst. Adv. <sup>1</sup>	0.1	-2.6	-2.0	--	--	--
Rank	23	10	11	--	--	--
◆ MSCI World ex US Growth (net)	0.1	-5.3	-3.6	--	--	--
Rank	23	15	28	--	--	--
10 <sup>th</sup> Percentile	1.7	-2.9	-2.0	6.3	10.9	6.7
25 <sup>th</sup> Percentile	-0.1	-7.2	-3.4	4.6	8.3	4.6
Median	-1.5	-8.8	-5.3	3.2	6.9	3.1
75 <sup>th</sup> Percentile	-2.5	-11.3	-7.2	1.7	6.0	1.8
90 <sup>th</sup> Percentile	-3.6	-13.9	-8.9	0.6	4.4	0.8
Observation	170	166	164	147	141	130

<sup>1</sup> Performance shown above is based on gross of fees.

## AQR CAPITAL

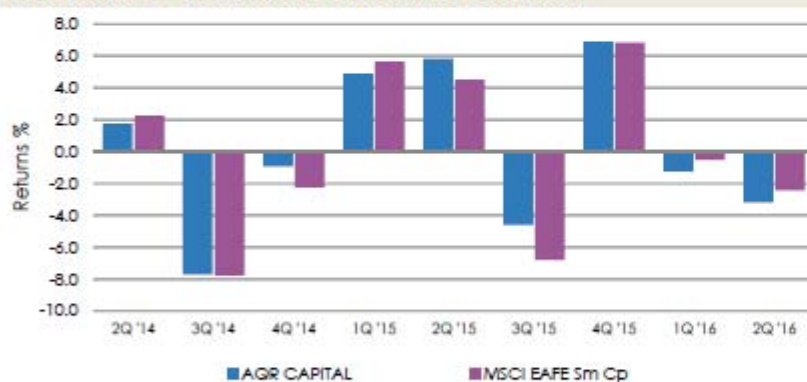
### Objective

Outperform the benchmark by 200 bps, annualized over a full market cycle (normally 3-5 years).

### Strategy

AQR Capital invests in small-cap Non-US stocks across all developed countries.

### Performance - Quarterly Rate of Return vs Benchmark



### Performance - Net Returns%

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
AQR CAPITAL	-3.2	-2.5	-0.5	--	--	0.8	Feb-2014
MSCI EAFE 5m Cp	-2.4	-3.3	-1.9	--	--	-0.5	
<b>Excess Returns</b>	<b>-0.7</b>	<b>0.9</b>	<b>1.4</b>	<b>--</b>	<b>--</b>	<b>1.3</b>	

### Quartile Rankings

Mandate: Non-US Developed Equity Mgrs.

Benchmark: MSCI EAFE 5m Cp



	LCQ	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.
■ AQR CAPITAL <sup>1</sup>	-3.0	-1.7	0.2	--	--	--
Rank	84	7	7	--	--	--
◆ MSCI EAFE 5m Cp	-2.4	-3.3	-1.9	--	--	--
Rank	74	11	10	--	--	--
10 <sup>th</sup> Percentile	1.7	-2.9	-2.0	6.3	10.9	6.7
25 <sup>th</sup> Percentile	-0.1	-7.2	-3.4	4.6	8.3	4.6
Median	-1.5	-8.8	-5.3	3.2	6.9	3.1
75 <sup>th</sup> Percentile	-2.5	-11.3	-7.2	1.7	6.0	1.8
90 <sup>th</sup> Percentile	-3.6	-13.9	-8.9	0.6	4.4	0.8
Observation	170	166	164	147	141	130

<sup>1</sup> Performance shown above is based on gross of fees.



## Oberweis Asset Mgmt

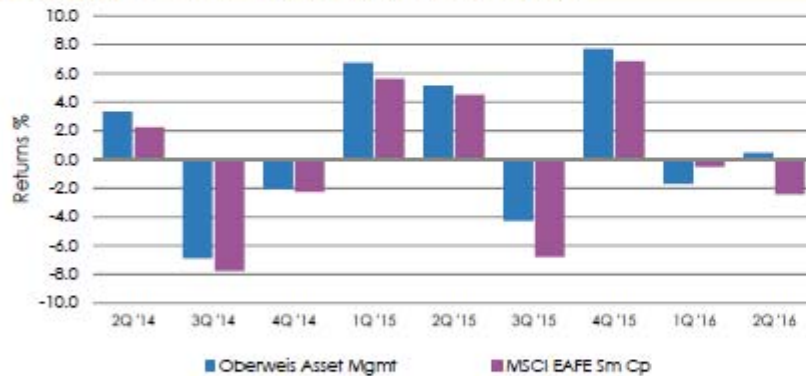
### Objective

Outperform the benchmark by 200 bps, annualized over a full market cycle (normally 3-5 years).

### Strategy

Oberweis Asset Mgmt. invests in small-cap Non-US stocks across all developed countries.

### Performance - Quarterly Rate of Return vs Benchmark



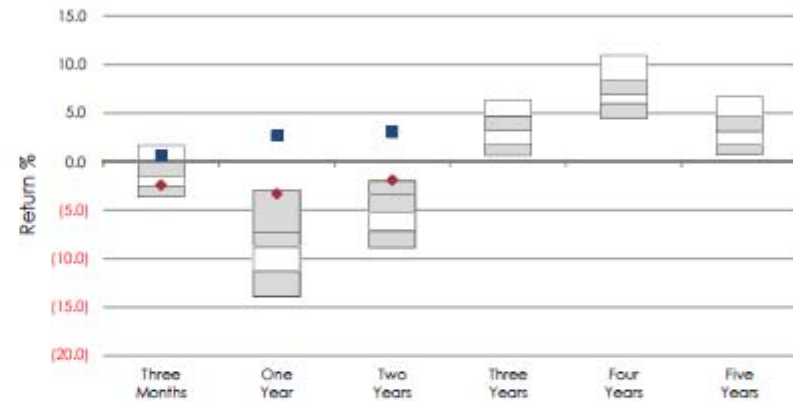
### Performance - Net Returns%

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Oberweis Asset Mgmt	0.5	1.9	2.1	--	--	3.4	Jan-2014
MSCI EAFE 5m Cp	-2.4	-3.3	-1.9	--	--	0.1	
Excess Returns	2.9	5.2	4.0	--	--	3.3	

### Quartile Rankings

Mandate: Non-US Developed Equity Mgrs.

Benchmark: MSCI EAFE 5m Cp



	LCQ	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.
■ Oberweis Asset Mgmt <sup>1</sup>	0.6	2.7	3.0	--	--	--
Rank	18	3	3	--	--	--
◆ MSCI EAFE 5m Cp	-2.4	-3.3	-1.9	--	--	--
Rank	74	11	10	--	--	--
10 <sup>th</sup> Percentile	1.7	-2.9	-2.0	6.3	10.9	6.7
25 <sup>th</sup> Percentile	-0.1	-7.2	-3.4	4.6	8.3	4.6
Median	-1.5	-8.8	-5.3	3.2	6.9	3.1
75 <sup>th</sup> Percentile	-2.5	-11.3	-7.2	1.7	6.0	1.8
90 <sup>th</sup> Percentile	-3.6	-13.9	-8.9	0.6	4.4	0.8
Observation	170	166	164	147	141	130

<sup>1</sup> Performance shown above is based on gross of fees.

## Axiom International

### Objective

Outperform the benchmark by 300 bps, annualized over a full market cycle (normally 3-5 years).

### Strategy

Axiom International invests in Non-US stocks in emerging countries and seeks to add value through a fundamental, bottom-up, research-driven process.

### Performance - Quarterly Rate of Return vs Benchmark

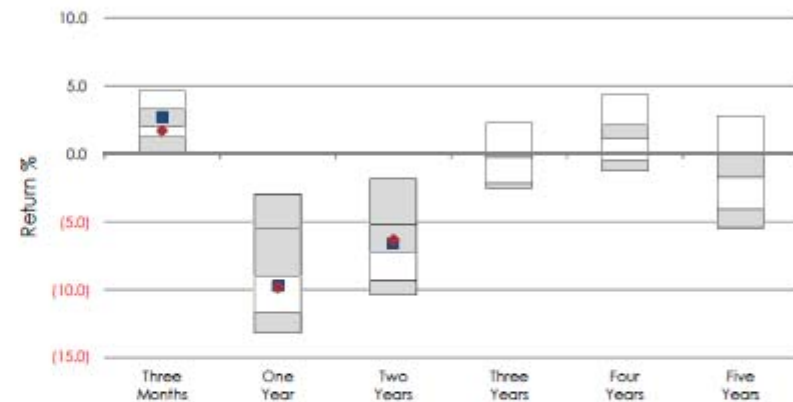


### Performance - Net Returns%

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Axiom International	2.6	-10.4	-7.2	--	--	-3.6	Mar-2014
MSCI EM Growth Net Index	1.7	-9.8	-6.3	--	--	-3.1	
<b>Excess Returns</b>	<b>0.8</b>	<b>-0.6</b>	<b>-0.9</b>	<b>--</b>	<b>--</b>	<b>-0.5</b>	

### Quartile Rankings

Mandate: Emerging Markets Equity  
 Benchmark: MSCI EM Growth Net Index



	LCQ	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.
■ Axiom International <sup>1</sup>	2.7	-9.7	-6.6	--	--	--
Rank	37	60	44	--	--	--
◆ MSCI EM Growth Net Index	1.7	-9.8	-6.3	--	--	--
Rank	71	60	43	--	--	--
10 <sup>th</sup> Percentile	4.7	-3.0	-1.8	3.4	4.5	2.8
25 <sup>th</sup> Percentile	3.4	-5.5	-5.2	1.1	2.3	-0.1
Median	2.1	-9.1	-7.2	-0.3	1.1	-1.7
75 <sup>th</sup> Percentile	1.3	-11.7	-9.3	-2.2	-0.5	-4.1
90 <sup>th</sup> Percentile	0.0	-13.2	-10.4	-2.5	-1.3	-5.4
Observation	77	75	74	64	57	51

<sup>1</sup> Performance shown above is based on gross of fees.



## QUANTITATIVE MANAGEMENT

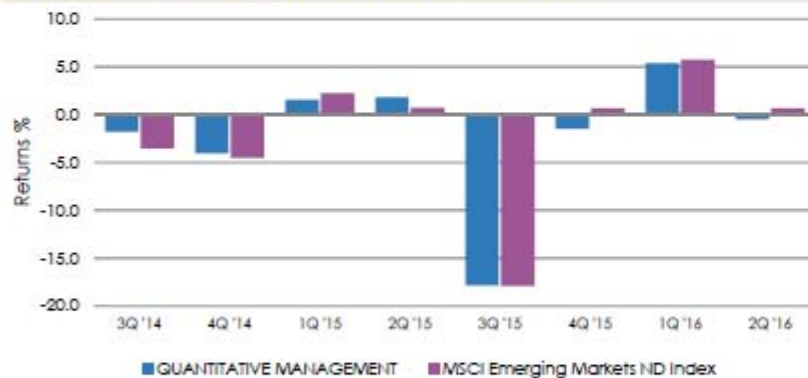
### Objective

Outperform the benchmark by 300 bps, annualized over a full market cycle (normally 3-5 years).

### Strategy

Quantitative invests in Non-US stocks in emerging countries that are part of the MSCI Emerging Markets index.

### Performance - Quarterly Rate of Return vs Benchmark

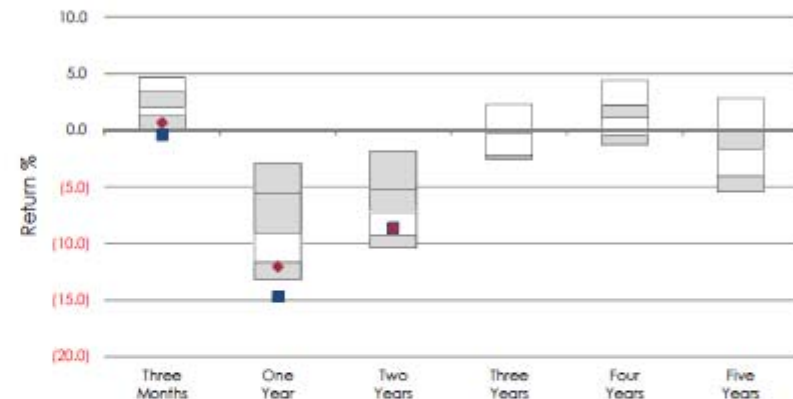


### Performance - Net Returns%

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
QUANTITATIVE MANAGEMENT	-0.5	-15.1	-9.1	--	--	-5.5	Apr-2014
MSCI Emerging Markets ND Ir	0.7	-12.1	-8.7	--	--	-5.7	
<b>Excess Returns</b>	<b>-1.2</b>	<b>-3.1</b>	<b>-0.4</b>	<b>--</b>	<b>--</b>	<b>0.2</b>	

### Quartile Rankings

Mandate: Emerging Markets Equity  
 Benchmark: MSCI Emerging Markets ND Index



	LCQ	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.
■ QUANTITATIVE MANAGEMENT	-0.4	-14.7	-8.6	--	--	--
Rank	95	98	68	--	--	--
◆ MSCI Emerging Markets ND Ir	0.7	-12.1	-8.7	--	--	--
Rank	86	84	68	--	--	--
10 <sup>th</sup> Percentile	4.7	-3.0	-1.8	3.4	4.5	2.8
25 <sup>th</sup> Percentile	3.4	-5.5	-5.2	1.1	2.3	-0.1
Median	2.1	-9.1	-7.2	-0.3	1.1	-1.7
75 <sup>th</sup> Percentile	1.3	-11.7	-9.3	-2.2	-0.5	-4.1
90 <sup>th</sup> Percentile	0.0	-13.2	-10.4	-2.5	-1.3	-5.4
Observation	77	75	74	64	57	51

1 Performance shown above is based on gross of fees.

**DFA**
**Objective**

Outperform the benchmark by 200 bps, annualized over a full market cycle (normally 3-5 years).

**Strategy**

DFA invests in Non-US value stocks in emerging countries. DFA seeks to add value through its disciplined quantitative investment approach.

**Performance - Quarterly Rate of Return vs Benchmark**

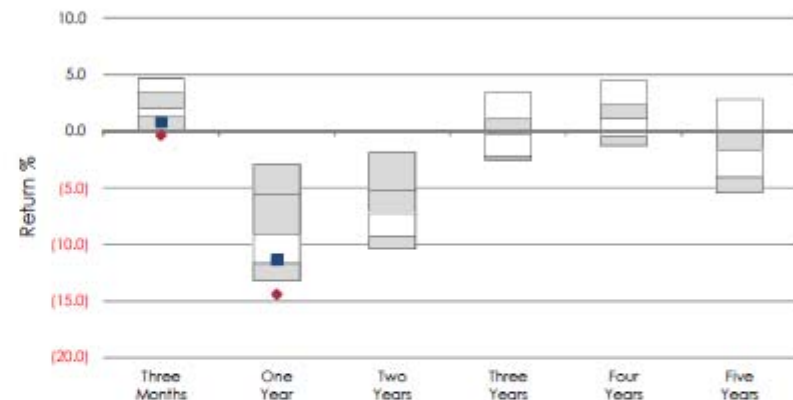
**Performance - Net Returns%**

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
DFA Emerging Markets	0.7	-11.9	--	--	--	-12.9	Jul-2014
MSCI Emerging Markets Value	-0.3	-14.4	--	--	--	-13.2	
<b>Excess Returns</b>	<b>1.0</b>	<b>2.5</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>0.3</b>	

**Quartile Rankings**

Mandate: Emerging Markets Equity

Benchmark: MSCI Emerging Markets Value (ND) USD



	LCQ	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.
■ DFA Emerging Markets <sup>1</sup>	0.8	-11.4	--	--	--	--
Rank	85	67	--	--	--	--
◆ MSCI Emerging Markets Value	-0.3	-14.4	--	--	--	--
Rank	94	96	--	--	--	--
10 <sup>th</sup> Percentile	4.7	-3.0	-1.8	3.4	4.5	2.8
25 <sup>th</sup> Percentile	3.4	-5.5	-5.2	1.1	2.3	-0.1
Median	2.1	-9.1	-7.2	-0.3	1.1	-1.7
75 <sup>th</sup> Percentile	1.3	-11.7	-9.3	-2.2	-0.5	-4.1
90 <sup>th</sup> Percentile	0.0	-13.2	-10.4	-2.5	-1.3	-5.4
Observation	77	75	74	64	57	51

<sup>1</sup> Performance shown above is based on gross of fees.



# Fixed Income Manager Performance



## Neuberger Berman

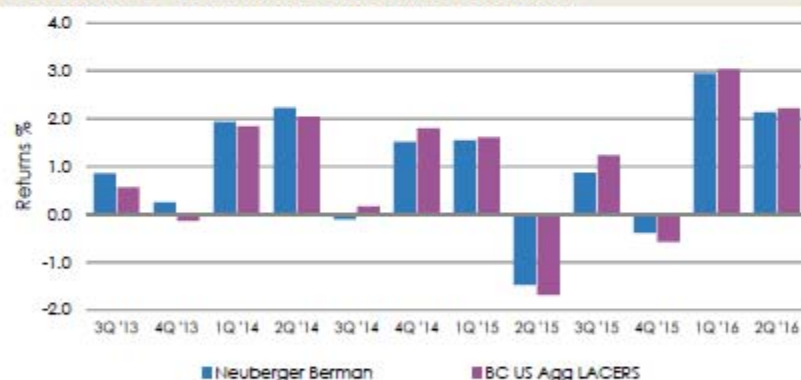
### Objective

Outperform the benchmark by 100 bps, annualized over a full market cycle (normally 3-5 years).

### Strategy

Neuberger invests in investment-grade bonds rated BBB- or higher by S&P or Baa3 or higher by Moody's.

### Performance - Quarterly Rate of Return vs Benchmark



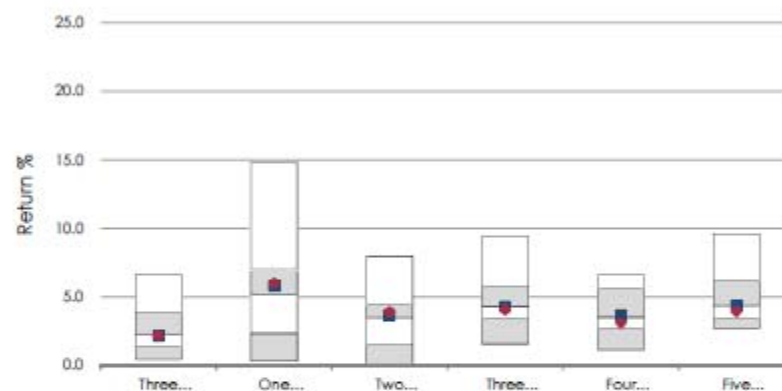
### Performance - Net Returns%

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Neuberger Berman	2.1	5.7	3.5	4.1	4.2	7.2	Nov-1990
BC US Agg LACERS	2.2	6.0	3.9	4.1	3.9	6.4	
<i>Excess Returns</i>	-0.1	-0.4	-0.4	0.1	0.3	0.8	

### Quartile Rankings

Mandate: US Fixed Income Manager

Benchmark: BC US Agg LACERS



	LCQ	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.
■ Neuberger Berman <sup>1</sup>	2.2	5.8	3.7	4.3	3.7	4.4
Rank	52	40	46	50	48	51
◆ BC US Agg LACERS	2.2	6.0	3.9	4.1	3.1	3.9
Rank	51	37	41	60	62	61
10 <sup>th</sup> Percentile	6.6	14.8	8.0	9.4	6.6	9.6
25 <sup>th</sup> Percentile	3.8	7.0	4.5	5.7	5.7	6.2
Median	2.2	5.2	3.5	4.3	3.5	4.4
75 <sup>th</sup> Percentile	1.4	2.4	1.5	3.4	2.7	3.4
90 <sup>th</sup> Percentile	0.4	0.3	0.1	1.6	1.2	2.7
Observation	343	334	331	311	268	246

<sup>1</sup> Performance shown above is based on gross of fees.

## Loomis Sayles

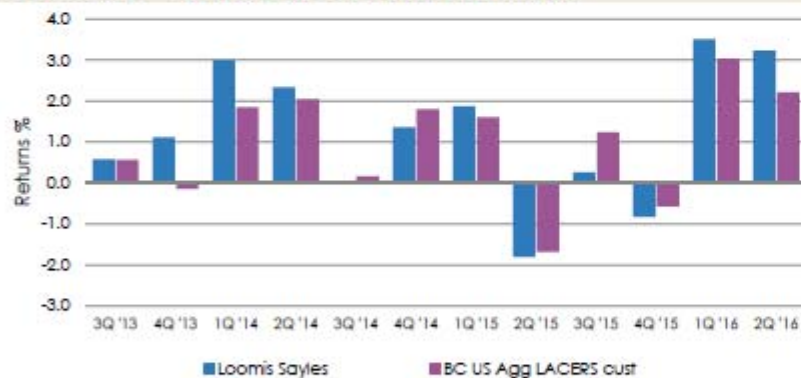
### Objective

Outperform the benchmark by 50 bps, annualized over a full market cycle (normally 3-5 years).

### Strategy

Loomis invests primarily in US investment-grade credit as rated by Standard & Poor's and Moodys.

### Performance - Quarterly Rate of Return vs Benchmark



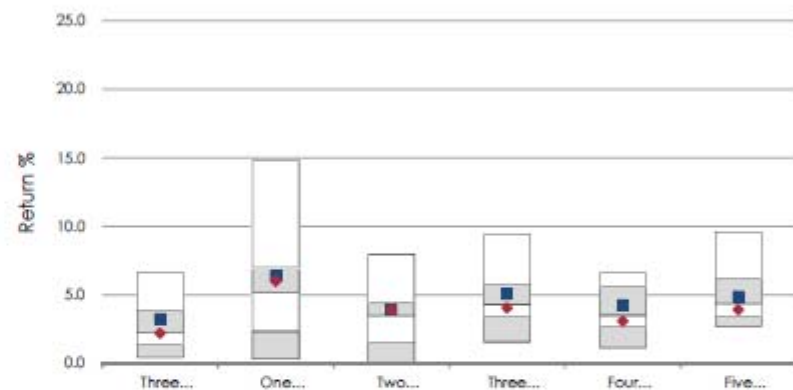
### Performance - Net Returns%

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Loomis Sayles	3.2	6.2	3.8	4.9	4.7	9.5	Jun-1980
BC US Agg LACERS cust	2.2	6.0	3.9	4.1	3.9	8.0	
Excess Returns	1.0	0.2	-0.1	0.9	0.8	1.5	

### Quartile Rankings

Mandate: US Fixed Income Manager

Benchmark: BC US Agg LACERS cust



	LCQ	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.
■ Loomis Sayles <sup>1</sup>	3.3	6.4	4.0	5.1	4.3	4.9
Rank	30	31	38	32	39	42
◆ BC US Agg LACERS cust	2.2	6.0	3.9	4.1	3.1	3.9
Rank	51	37	41	60	62	61
10 <sup>th</sup> Percentile	6.6	14.8	8.0	9.4	6.6	9.6
25 <sup>th</sup> Percentile	3.8	7.0	4.5	5.7	5.7	6.2
Median	2.2	5.2	3.5	4.3	3.5	4.4
75 <sup>th</sup> Percentile	1.4	2.4	1.5	3.4	2.7	3.4
90 <sup>th</sup> Percentile	0.4	0.3	0.1	1.6	1.2	2.7
Observation	343	334	331	311	268	246

<sup>1</sup> Performance shown above is based on gross of fees.



## Baird Advisors

### Objective

Outperform the benchmark by 15-40 bps, annualized over a full market cycle (normally 3-5 years).

### Strategy

Baird invests primarily in US investment-grade bonds in the government and credit sectors with 3-5 year maturities.

### Performance - Quarterly Rate of Return vs Benchmark



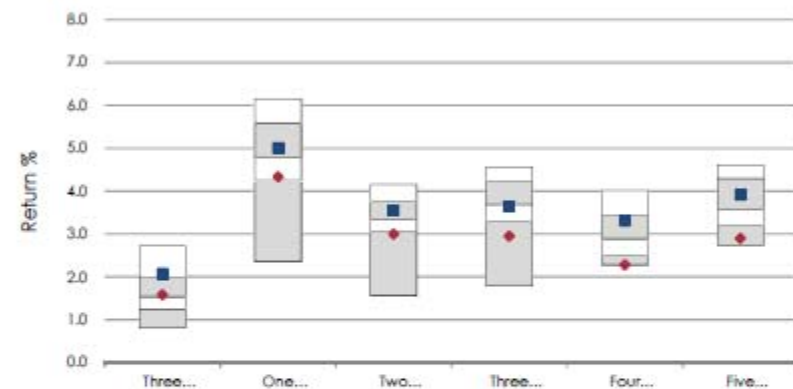
### Performance - Net Returns%

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Baird Advisors	2.0	4.9	3.4	3.5	3.8	4.9	Mar-2005
BC US Agg Govt/Credit Interm	1.6	4.3	3.0	3.0	2.9	4.2	
Excess Returns	0.5	0.5	0.4	0.6	0.9	0.7	

### Quartile Rankings

Mandate: Intermediate Fixed Income

Benchmark: BC US Agg Govt/Credit Interm



	LCQ	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.
■ Baird Advisors <sup>1</sup>	2.1	5.0	3.5	3.6	3.3	3.9
Rank	21	42	37	51	30	35
◆ BC US Agg Govt/Credit Interm	1.6	4.3	3.0	3.0	2.3	2.9
Rank	46	72	78	85	91	83
10 <sup>th</sup> Percentile	2.7	6.2	4.2	4.6	4.0	4.6
25 <sup>th</sup> Percentile	2.0	5.6	3.8	4.2	3.4	4.3
Median	1.5	4.8	3.3	3.7	2.9	3.6
75 <sup>th</sup> Percentile	1.2	4.3	3.1	3.3	2.5	3.2
90 <sup>th</sup> Percentile	0.8	2.4	1.6	1.8	2.3	2.7
Observation	109	101	103	97	86	84

<sup>1</sup> Performance shown above is based on gross of fees.

## LM Capital Group

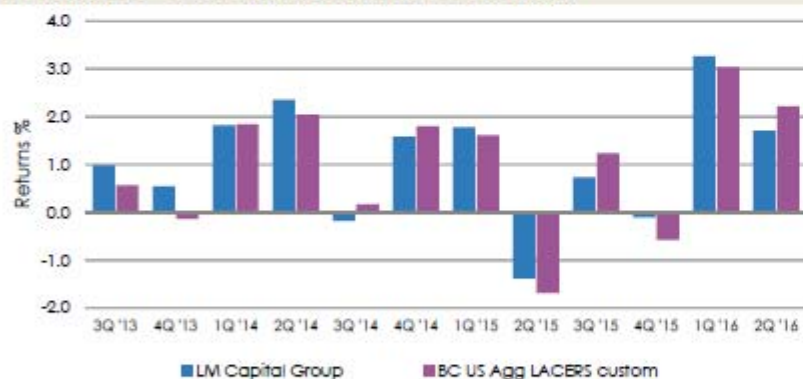
### Objective

Outperform the benchmark by 30-80 bps, annualized over a full market cycle (normally 3-5 years).

### Strategy

LM Capital invests primarily in US investment-grade bonds in the government and credit sectors.

### Performance - Quarterly Rate of Return vs Benchmark



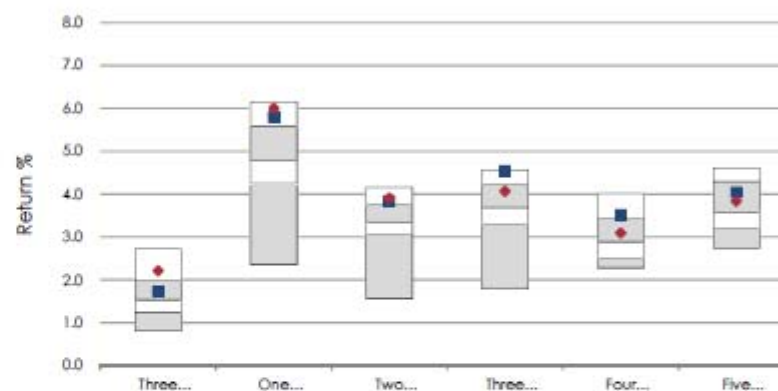
### Performance - Net Returns%

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
LM Capital Group	1.7	5.7	3.7	4.4	3.9	5.2	Mar-2005
BC US Agg LACERS custom	2.2	6.0	3.9	4.1	3.8	4.6	
Excess Returns	-0.5	-0.3	-0.2	0.3	0.1	0.6	

### Quartile Rankings

Mandate: Intermediate Fixed Income

Benchmark: BC US Agg LACERS custom



	LCQ	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.
■ LM Capital Group <sup>1</sup>	1.7	5.8	3.8	4.5	3.5	4.0
Rank	38	18	22	11	23	33
◆ BC US Agg LACERS custom	2.2	6.0	3.9	4.1	3.1	3.8
Rank	20	12	17	29	36	40
10 <sup>th</sup> Percentile	2.7	6.2	4.2	4.6	4.0	4.6
25 <sup>th</sup> Percentile	2.0	5.6	3.8	4.2	3.4	4.3
Median	1.5	4.8	3.3	3.7	2.9	3.6
75 <sup>th</sup> Percentile	1.2	4.3	3.1	3.3	2.5	3.2
90 <sup>th</sup> Percentile	0.8	2.4	1.6	1.8	2.3	2.7
Observation	109	101	103	97	86	84

<sup>1</sup> Performance shown above is based on gross of fees.

## Aegon USA

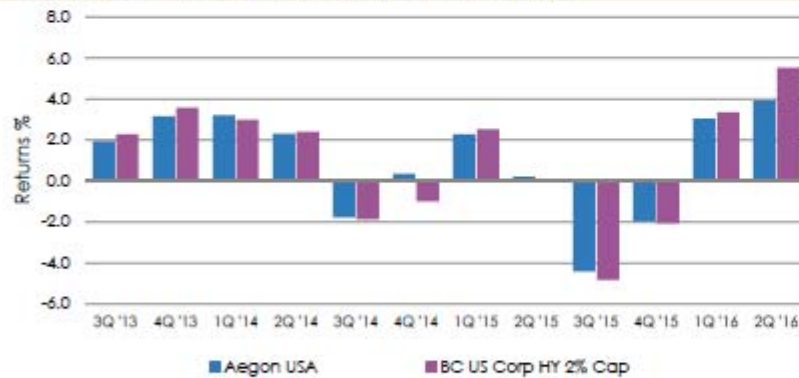
### Objective

Outperform the benchmark by 200 bps, annualized over a full market cycle (normally 3-5 years).

### Strategy

Aegon USA Investment Management, LLC. primarily invests in fixed income securities that are issued by corporations with high yield ratings (below investment grade) with a heavy focus on controlling credit risk via in-depth research of all issuers in the portfolio.

### Performance - Quarterly Rate of Return vs Benchmark



### Performance - Net Returns%

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Aegon USA	3.9	0.4	0.7	4.0	--	4.4	Jun-2013
BC US Corp HY 2% Cap	5.5	1.7	0.6	4.2	--	4.2	
Excess Returns	-1.6	-1.3	0.1	-0.2	--	0.2	

### Quartile Rankings

Mandate: High Yield Fixed Income  
 Benchmark: BC US Corp HY 2% Cap



	LCQ	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.
■ Aegon USA <sup>1</sup>	4.0	0.7	1.1	4.4	--	--
Rank	77	39	26	29	--	--
◆ BC US Corp HY 2% Cap	5.5	1.7	0.6	4.2	--	--
Rank	12	21	42	39	--	--
10 <sup>th</sup> Percentile	5.5	2.6	2.4	5.2	6.7	6.5
25 <sup>th</sup> Percentile	5.3	1.3	1.1	4.5	6.4	6.1
Median	4.9	0.2	0.2	4.2	5.7	5.6
75 <sup>th</sup> Percentile	4.1	-0.9	-0.4	3.7	4.9	5.3
90 <sup>th</sup> Percentile	3.3	-1.2	-0.5	3.1	3.8	4.5
Observation	40	40	38	35	34	28

<sup>1</sup> Performance shown above is based on gross of fees.



## Prudential Emerging

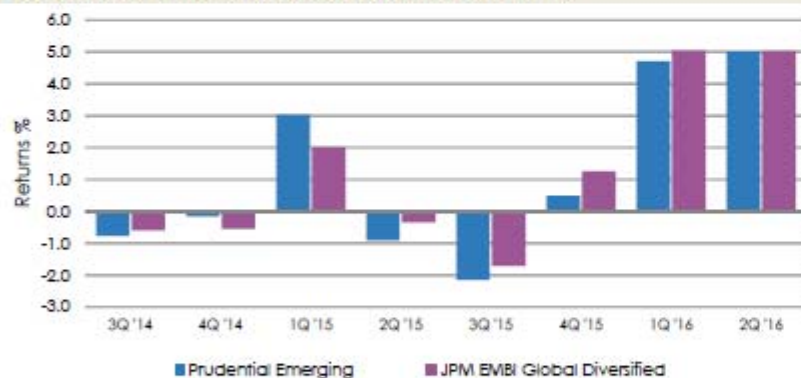
### Objective

Outperform the benchmark by 200 bps, annualized over a full market cycle (normally 3-5 years).

### Strategy

Prudential Emerging invests in emerging market debt market. It focuses on country selection as drivers of value-add and incorporates tactical or opportunistic exposures.

### Performance - Quarterly Rate of Return vs Benchmark

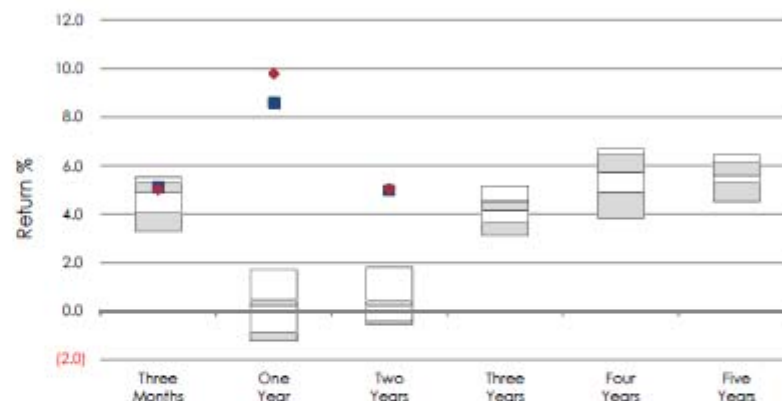


### Performance - Net Returns%

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Prudential Emerging	5.0	8.1	4.6	--	--	5.1	May-2014
JPM EMBI Global Diversified	5.0	9.8	5.0	--	--	5.5	
Excess Returns	0.0	-1.7	-0.5	--	--	-0.4	

### Quartile Rankings

Mandate: Emerging Market Debt  
Benchmark: JPM EMBI Global Diversified



	LCQ	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.
■ Prudential Emerging <sup>1</sup>	5.1	8.6	5.0	--	--	--
Rank	39	1	1	--	--	--
◆ JPM EMBI Global Diversified	5.0	9.8	5.0	--	--	--
Rank	47	1	1	--	--	--
10 <sup>th</sup> Percentile	5.5	2.6	2.4	5.2	6.7	6.5
25 <sup>th</sup> Percentile	5.3	1.3	1.1	4.5	6.4	6.1
Median	4.9	0.2	0.2	4.2	5.7	5.6
75 <sup>th</sup> Percentile	4.1	-0.9	-0.4	3.7	4.9	5.3
90 <sup>th</sup> Percentile	3.3	-1.2	-0.5	3.1	3.8	4.5
Observation	40	40	38	35	34	28

<sup>1</sup> Performance shown above is based on gross of fees.

## Sankaty Sr Loan Fd L-SL

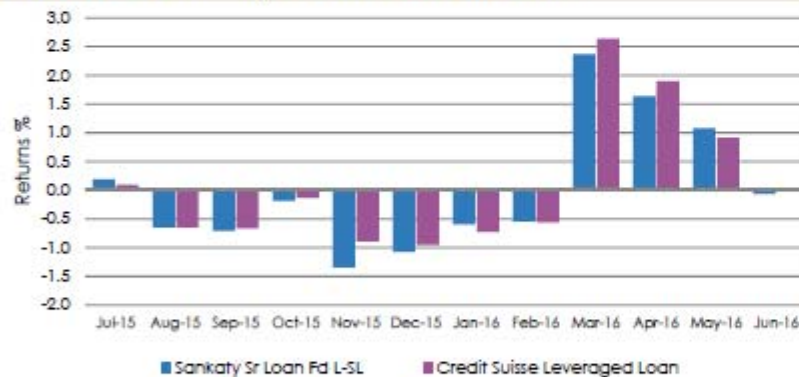
### Objective

Outperform the benchmark by 200 bps, annualized over a full market cycle (normally 3-5 years).

### Strategy

Sankaty Sr Loan Fd primarily invests in senior securities, floating rate bank loans, and takes a fundamental, active and global approach to investing. Sankaty's team looks at controlling credit risk via in-depth research of all issuers in the portfolio.

### Performance - Quarterly Rate of Return vs Benchmark



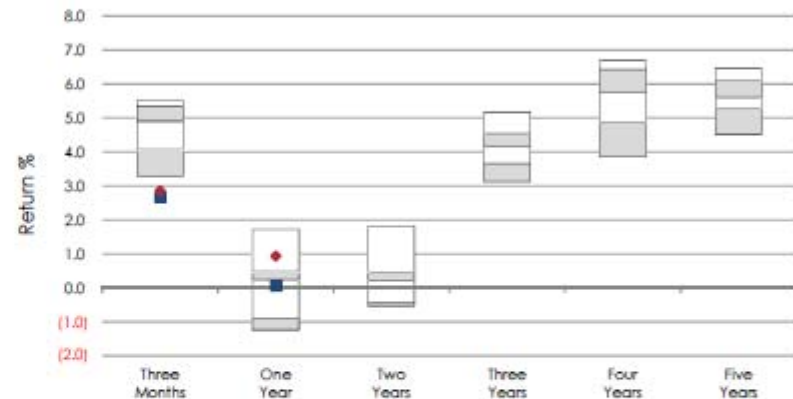
### Performance - Net Returns%

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Sankaty Sr Loan Fd L-SL	2.7	0.1	--	--	--	0.1	Jun-2015
Credit Suisse Leveraged Loan	2.9	0.9	--	--	--	0.9	
Excess Returns	-0.2	-0.9	--	--	--	-0.9	

### Quartile Rankings

Mandate: Bank Loan

Benchmark: Credit Suisse Leveraged Loan



	LCQ	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.
■ Sankaty Sr Loan Fd L-SL <sup>1</sup>	2.7	0.1	--	--	--	--
Rank	94	55	--	--	--	--
◆ Credit Suisse Leveraged Loan	2.9	0.9	--	--	--	--
Rank	93	34	--	--	--	--
10 <sup>th</sup> Percentile	5.5	2.6	2.4	5.2	6.7	6.5
25 <sup>th</sup> Percentile	5.3	1.3	1.1	4.5	6.4	6.1
Median	4.9	0.2	0.2	4.2	5.7	5.6
75 <sup>th</sup> Percentile	4.1	-0.9	-0.4	3.7	4.9	5.3
90 <sup>th</sup> Percentile	3.3	-1.2	-0.5	3.1	3.8	4.5
Observation	40	40	38	35	34	28

<sup>1</sup> Performance shown above is based on gross of fees.

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# Real Assets Manager Performance



## DFA TIPS

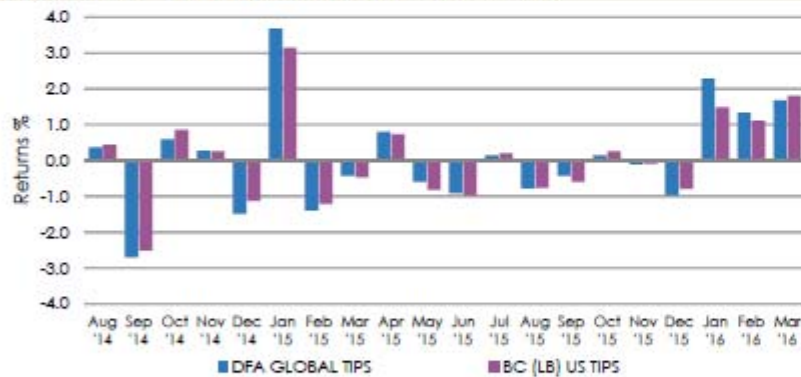
### Objective

Outperform the U.S. TIPS Index by 30 bps, net of fees, annualized over a full market cycle (normally 3-5 years).

### Strategy

The DFA approach to investing in the US TIPS market is to focus on diversifying exposure to TIPS, with more attention to the middle range of the TIPS universe's available maturities.

### Performance - Monthly Rate of Return vs Benchmark



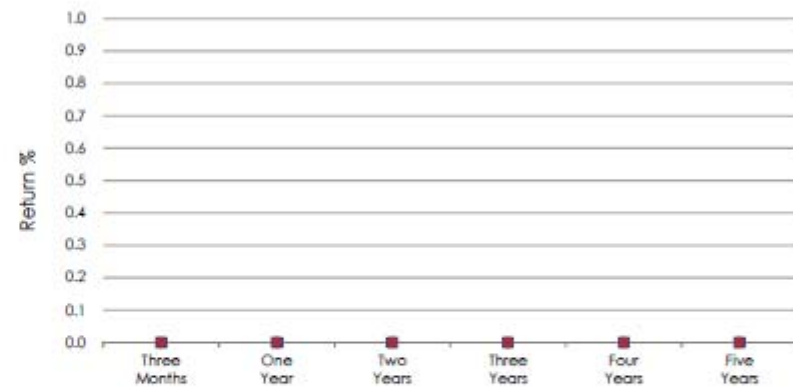
### Performance - Net Returns%

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
DFA GLOBAL TIPS	1.7	5.1	--	--	--	1.6	Jul-2014
BC (LB) US TIPS	1.7	4.4	--	--	--	1.2	
Excess Returns	0.0	0.7	--	--	--	0.5	

### Quartile Rankings

Mandate: US TIPS

Benchmark: BC US TIPS



	LCQ	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.
■ 1	0.0	0.0	0.0	0.0	0.0	0.0
Rank	0	0	0	0	0	0
◆ 0	0.0	0.0	0.0	0.0	0.0	0.0
Rank	0	0	0	0	0	0
10 <sup>th</sup> Percentile	0.0	0.0	0.0	0.0	0.0	0.0
25 <sup>th</sup> Percentile	0.0	0.0	0.0	0.0	0.0	0.0
Median	0.0	0.0	0.0	0.0	0.0	0.0
75 <sup>th</sup> Percentile	0.0	0.0	0.0	0.0	0.0	0.0
90 <sup>th</sup> Percentile	0.0	0.0	0.0	0.0	0.0	0.0

### Observation

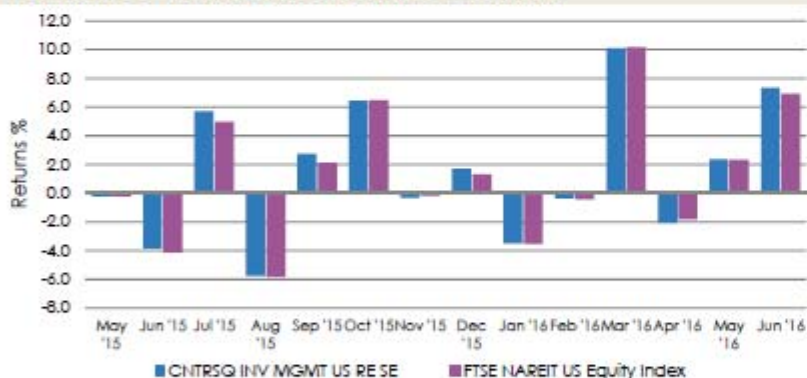
1 Performance shown above is based on gross of fees.

**CNTRSQ INV MGMT US RE SE**
**Objective**

Outperform the FTSE NAREIT All Equity REITS Index by 100 basis points, net of fees, annualized over a full market cycle (normally 3-5 years).

**Strategy**

Centersquare focuses on diversified and systematic exposure to U.S. REITS.

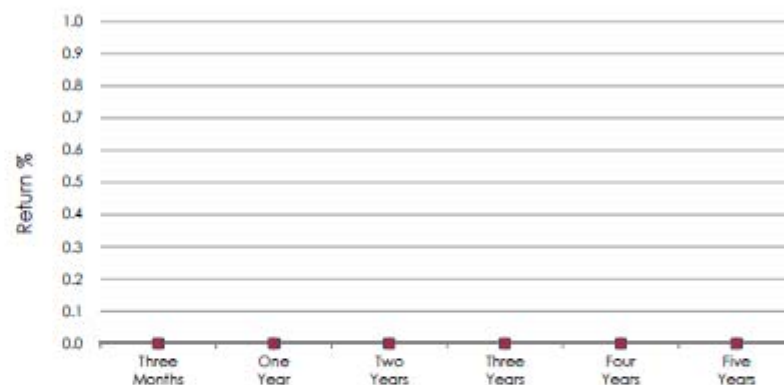
**Performance - Monthly Rate of Return vs Benchmark**

**Performance - Net Returns%**

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
CNTRSQ INV MGMT US RE SE	7.6	25.9	--	--	--	14.3	Apr-2015
FTSE NAREIT US Equity Index	7.4	23.6	--	--	--	11.7	
<b>Excess Returns</b>	<b>0.2</b>	<b>2.3</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>2.7</b>	

**Quartile Rankings**

Mandate: US REIT

Benchmark: FTSE NAREIT US EQUITY



	LCQ	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.
■ 1 Rank	0.0	0.0	0.0	0.0	0.0	0.0
◆ 0 Rank	0.0	0.0	0.0	0.0	0.0	0.0
10 <sup>th</sup> Percentile	0.0	0.0	0.0	0.0	0.0	0.0
25 <sup>th</sup> Percentile	0.0	0.0	0.0	0.0	0.0	0.0
Median	0.0	0.0	0.0	0.0	0.0	0.0
75 <sup>th</sup> Percentile	0.0	0.0	0.0	0.0	0.0	0.0
90 <sup>th</sup> Percentile	0.0	0.0	0.0	0.0	0.0	0.0
Observation	77	75	74	64	57	51

1 Performance shown above is based on gross of fees.



## Core Commodity Mgmt LLC

### Objective

Outperform the Bloomberg Commodity Index by 75 basis points, net of fees, annualized over a full market cycle (normally 3-5 years).

### Strategy

Core Commodities approach focuses on diversified exposure to commodities futures.

### Performance - Monthly Rate of Return vs Benchmark



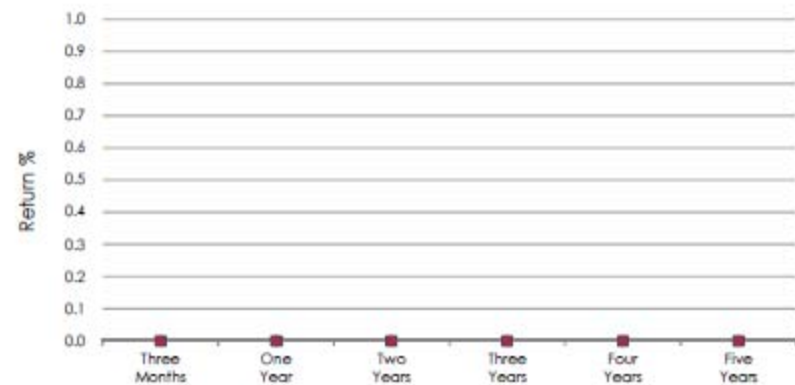
### Performance - Net Returns%

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Core Commodity Mgmt LLC	0.4	--	--	--	--	-23.0	Jun-2015
Bloomberg Commodity Index	0.4	--	--	--	--	-22.7	
Excess Returns	-0.1	--	--	--	--	-0.3	

### Quartile Rankings

Mandate: Commodities

Benchmark: Bloomberg Commodity Index



	LCQ	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.
■ 1	0.0	0.0	0.0	0.0	0.0	0.0
Rank	0	0	0	0	0	0
◆ 0	0.0	0.0	0.0	0.0	0.0	0.0
Rank	0	0	0	0	0	0
10 <sup>th</sup> Percentile	0.0	0.0	0.0	0.0	0.0	0.0
25 <sup>th</sup> Percentile	0.0	0.0	0.0	0.0	0.0	0.0
Median	0.0	0.0	0.0	0.0	0.0	0.0
75 <sup>th</sup> Percentile	0.0	0.0	0.0	0.0	0.0	0.0
90 <sup>th</sup> Percentile	0.0	0.0	0.0	0.0	0.0	0.0

### Observation

1 Performance shown above is based on gross of fees.