



# Portfolio Performance Review

Quarter Ending December 31, 2016

# Table of Contents

## Section Tabs

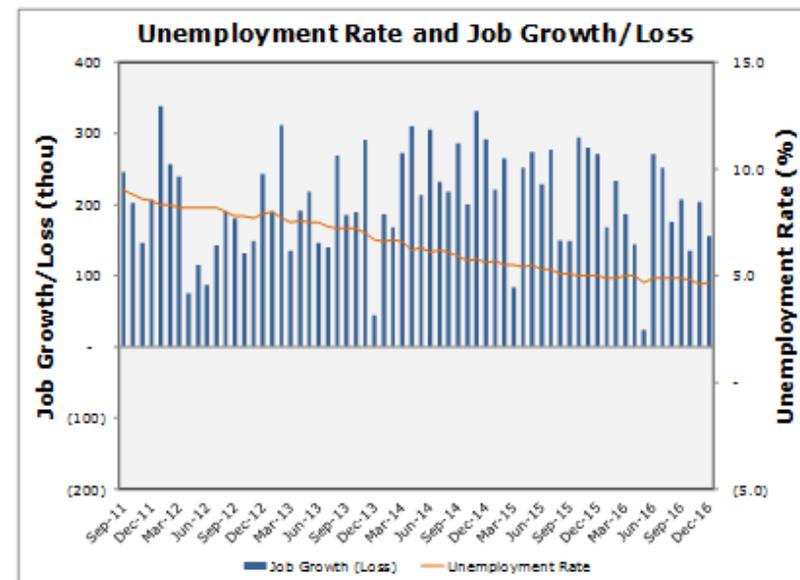
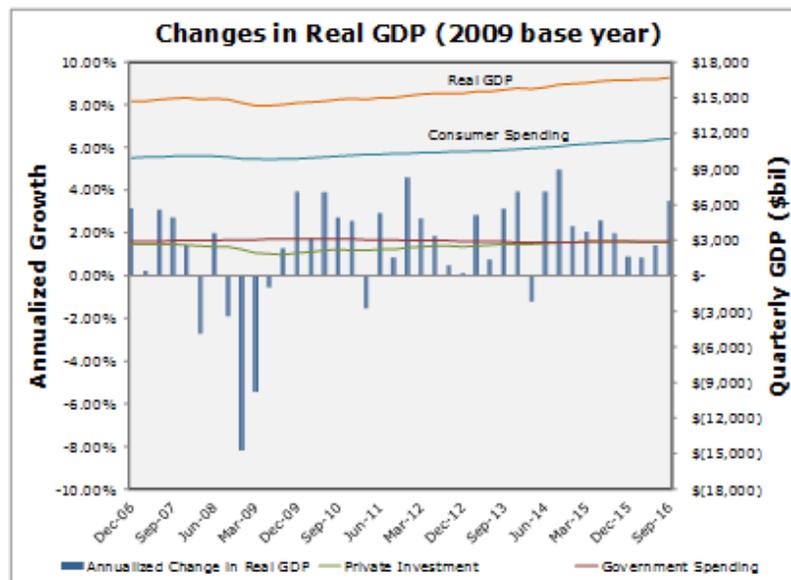
Executive Summary	Tab 1
Fund Overview	Tab 2
Fund Performance	Tab 3
U.S. Equity Managers	Tab 4
Non-U.S. Equity Managers	Tab 5
Core Fixed Income Managers	Tab 6
Credit Opportunities Managers	Tab 7
Real Assets Managers	Tab 8
Definitions	Tab 9
Appendix	Appendix

# Executive Summary

# Economic Review

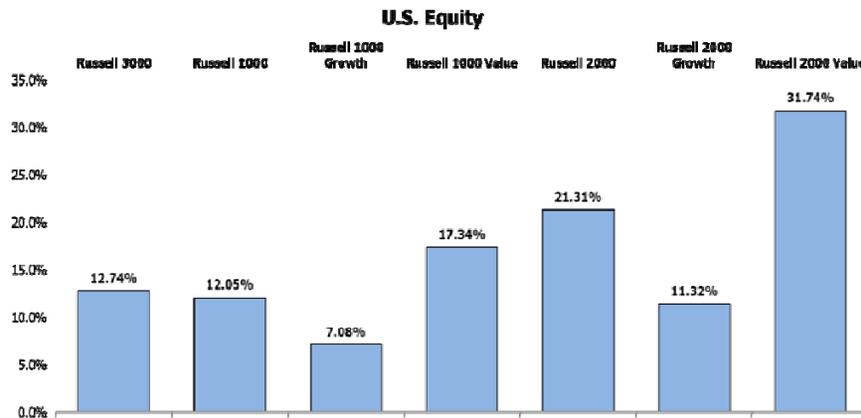
December 31, 2016		Key Economic Indicators			
<b>CPI (all items)</b> Seasonally adjusted	Monthly Change		Cumulative Change		
	Dec-16	0.3	3-Month	0.8	
	Nov-16	0.2	12-Month	2.1	
	Oct-16	0.4	10-Yr Annual	1.8	
Breakeven Inflation	10-Year	2.0			
<b>Consumer Sentiment</b> Unv. of Michigan Survey	Dec-16	98.2			
	Nov-16	93.8			
	1-Yr Ago	92.6	10-Yr Avg	77.9	
<b>Manufacturing</b> Inst. for Supply Mgmt Purchasing Mngrs' Idx	Dec-16	54.7	Change in Manufacturing Sector		
	Nov-16	53.2	>50	Expansion	
	1-Yr Avg	51.5	<50	Contraction	

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

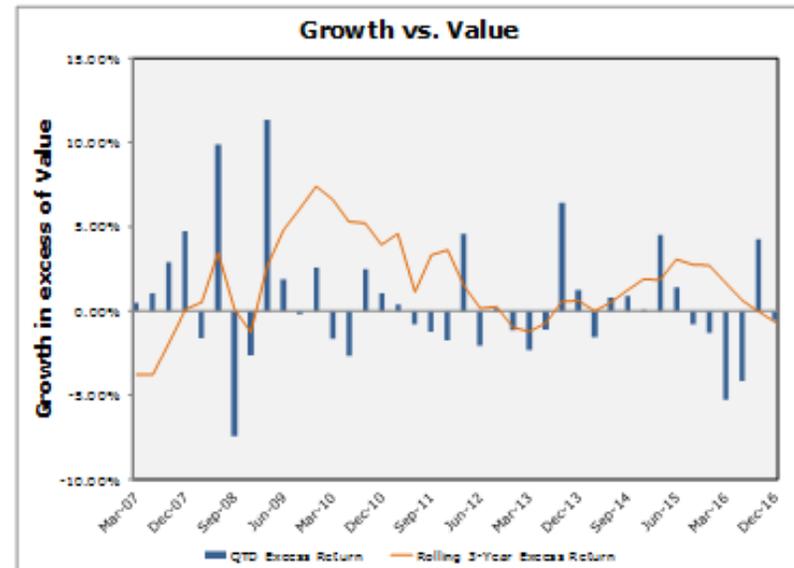
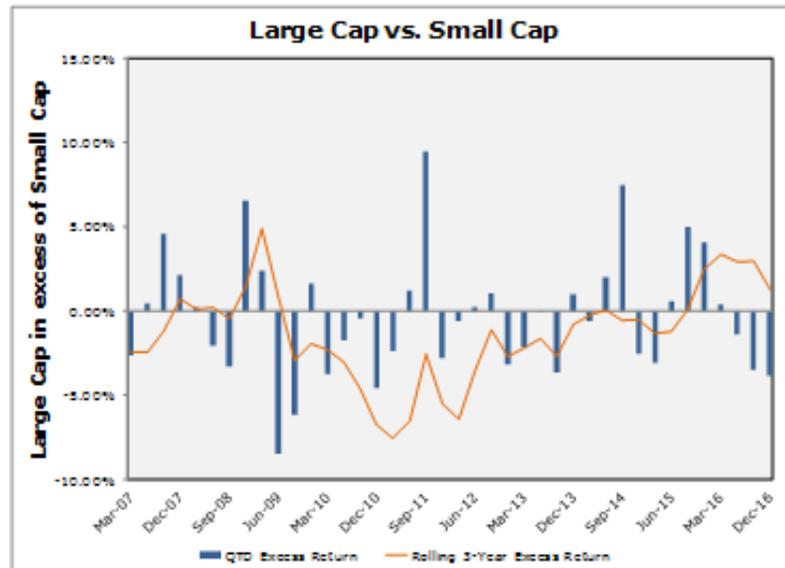


Data sources: Bureau of Economic Analysis, Bureau of Labor Statistics, Federal Reserve Bank of St. Louis, Barclays Capital

# U.S. Capital Markets: Equity

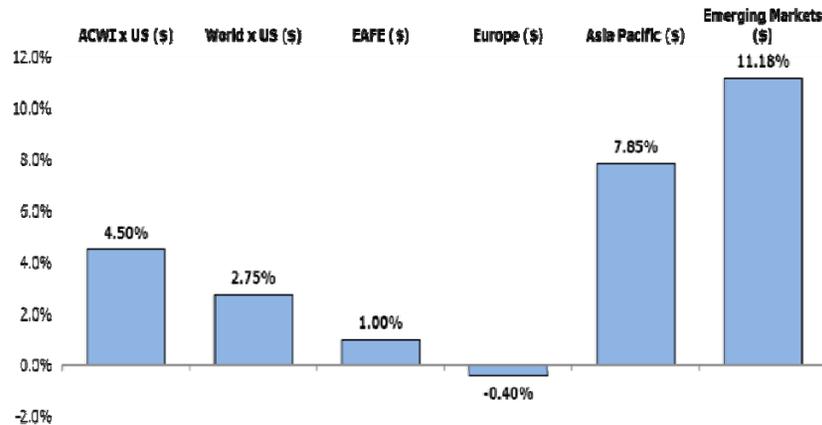


- The U.S. stock market, as represented by the Russell 3000 Index, posted a return of 12.74% for the one-year period ending December 31, 2016. The U.S. stock market was up 4.21% in 4Q16.
- This marks the fifth straight quarterly gain, and eighth straight annual gain, for the broad U.S. market.
- Small-cap value stocks, as represented by the Russell 2000 Value Index, were the strongest performing stocks for the year, primarily driven by financial, industrial, and information technology stocks.
- Wilshire's 10 year forward looking return assumption for the U.S. stock market is 6.50%, with a 17% expected variability.



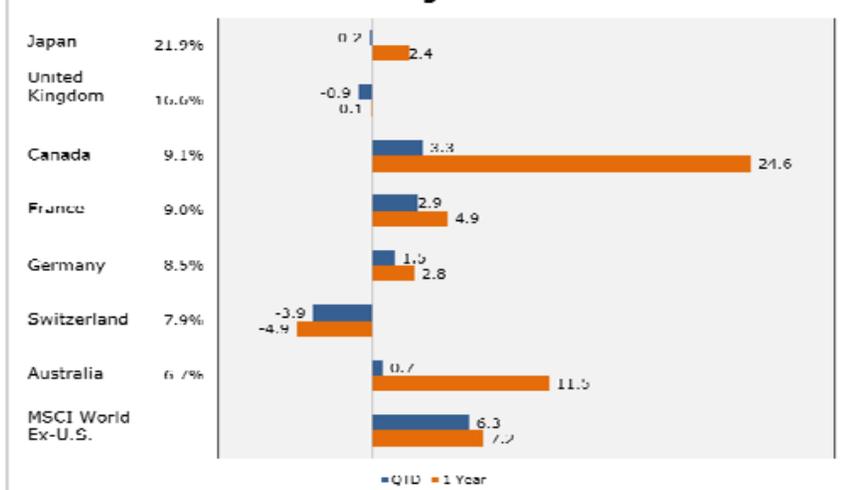
# Non-U.S. Capital Markets: Equity

## Non-U.S. Equity

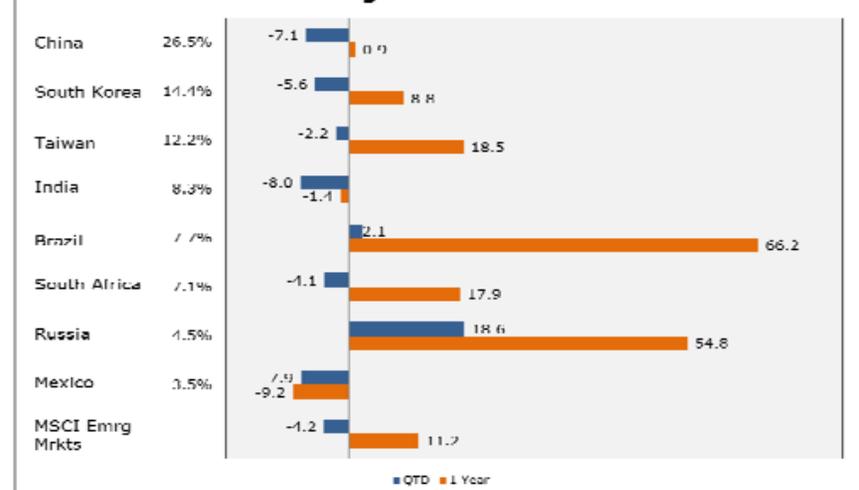


- Global equity markets, as represented by the MSCI ACWI ex-U.S. Index, returned 4.50% for the year.
- Equity markets outside of the U.S. were in mostly positive territory for both the fourth quarter and year-to-date in local currency terms. However, a strong U.S. dollar resulted in losses for U.S. investors. The European Central Bank announced that they would be buying less per month than previously scheduled as part of their current quantitative easing but extended the buying period to December 2017.
- Despite a strong 2016, emerging market equities suffered during the fourth quarter following the U.S. election as investors feared weakening prospects for global trade and exports from emerging market countries. Emerging markets equities returned 11.18% during the year, outperforming developed markets.
- Wilshire's 10 year forward looking return assumption for the Non-U.S. stock market is 6.70%, with a 18.75% expected variability.

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

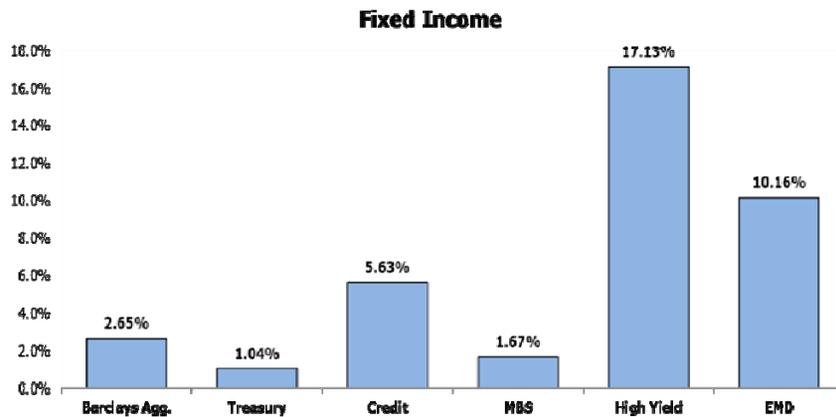


## MSCI EM: Largest Countries and Return

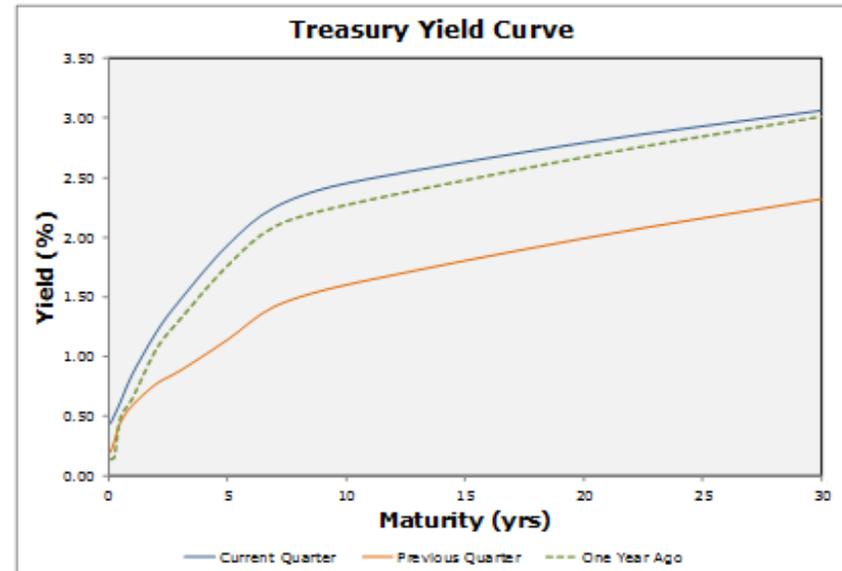
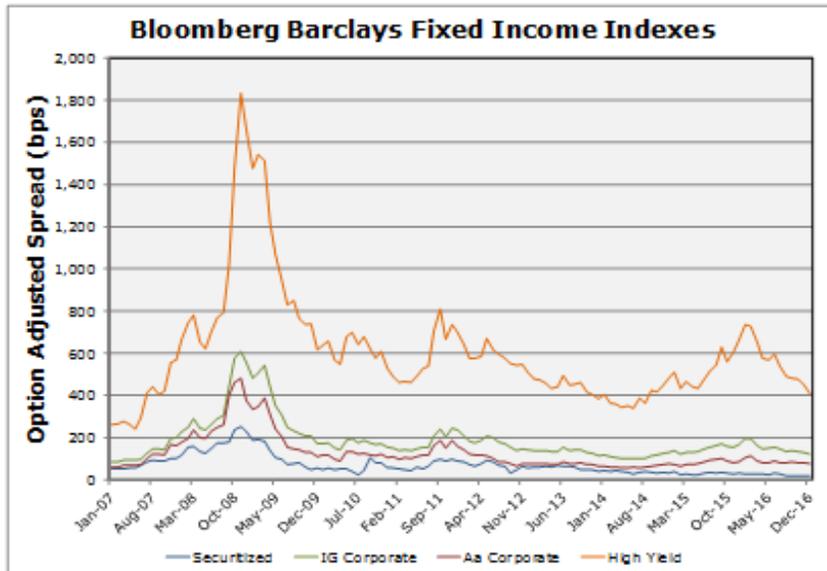


Data sources: Wilshire Compass, MSCI Barra

# Global Capital Markets: Fixed Income

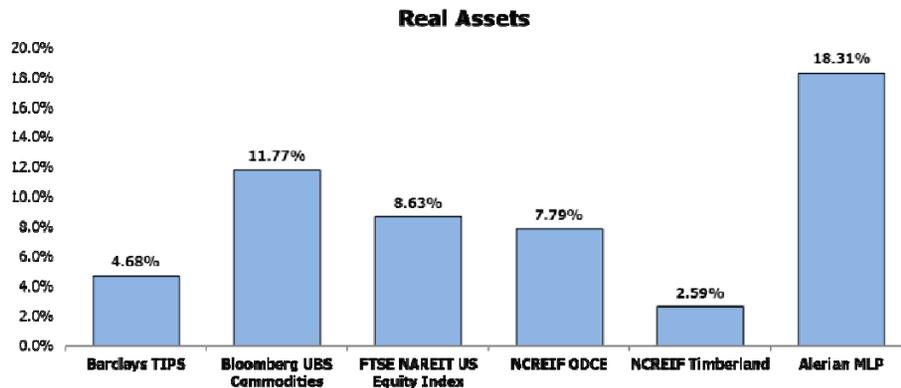


- U.S. Fixed Income markets, as represented by the Bloomberg Barclays U.S. Aggregate Index, returned 2.65% for the year.
- Ten-Year Treasury yields settled at 2.45% for 4Q16, 18 basis points higher than 4Q15.
- After falling for much of the first half of 2016, U.S. Treasury yields reversed course and moved higher for the remainder of the year. The Fed increased their overnight rate by 0.25% at their December meeting while credit spreads tightened during the quarter in both investment grade and high yield bonds. The move was dramatic enough within high yield to result in a net quarterly gain.
- Wilshire's 10 year forward looking return assumption for U.S. Core Fixed Income is 3.65%, with a 3.80% expected variability.

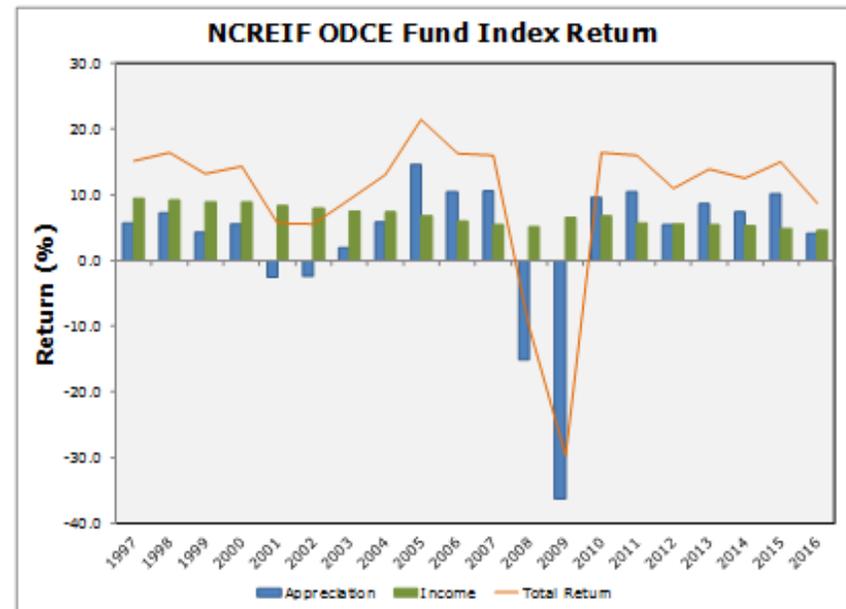
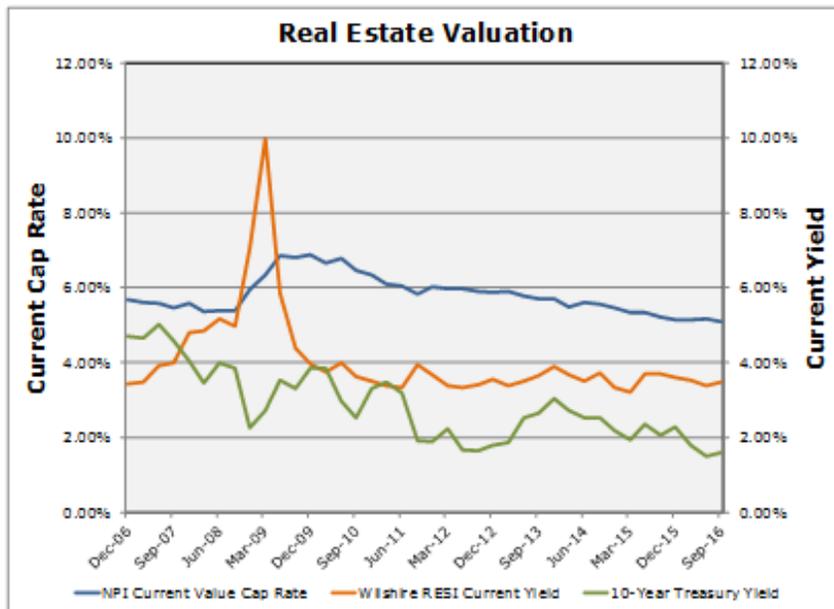


Data sources: Wilshire Compass, Barclays Capital, U.S. Treasury

# Real Assets



- TIPS, as represented by the Bloomberg Barclays U.S. TIPS Index, returned 4.68% for the year. This exceeds our 10 year forward looking return expectation of 2.95%.
- REITS, as represented by the FTSE NAREIT U.S. Equity Index, returned 8.63% for the year.
- Timber, as represented by the NCREIF Timberland Index, experienced the lowest return of all capital markets with 2.59% for the year.
- Wilshire's 10 year forward looking return assumption for a diversified real assets portfolio is 6.30%, with a 8.40% expected variability.



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 \$14.8 billion. The Fund's net of fee return was 7.19% for the year and 4.35% for the three-year period ending December 31, 2016.*
- *The Fund underperformed its policy benchmark by 116 basis points or -1.16% for the year and underperformed its policy benchmark by 11 basis points or -0.11% 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 83<sup>rd</sup> percentile for the year and in the 88<sup>th</sup> percentile for the three-year period.*
- *In the public markets, U.S. Equity and Core Fixed Income outperformed their respective benchmarks for the one-year period, while Non-U.S. Equity and Credit Opportunities underperformed their respective benchmarks.*
- *Private Equity<sup>1,2</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.*

<sup>1</sup>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.

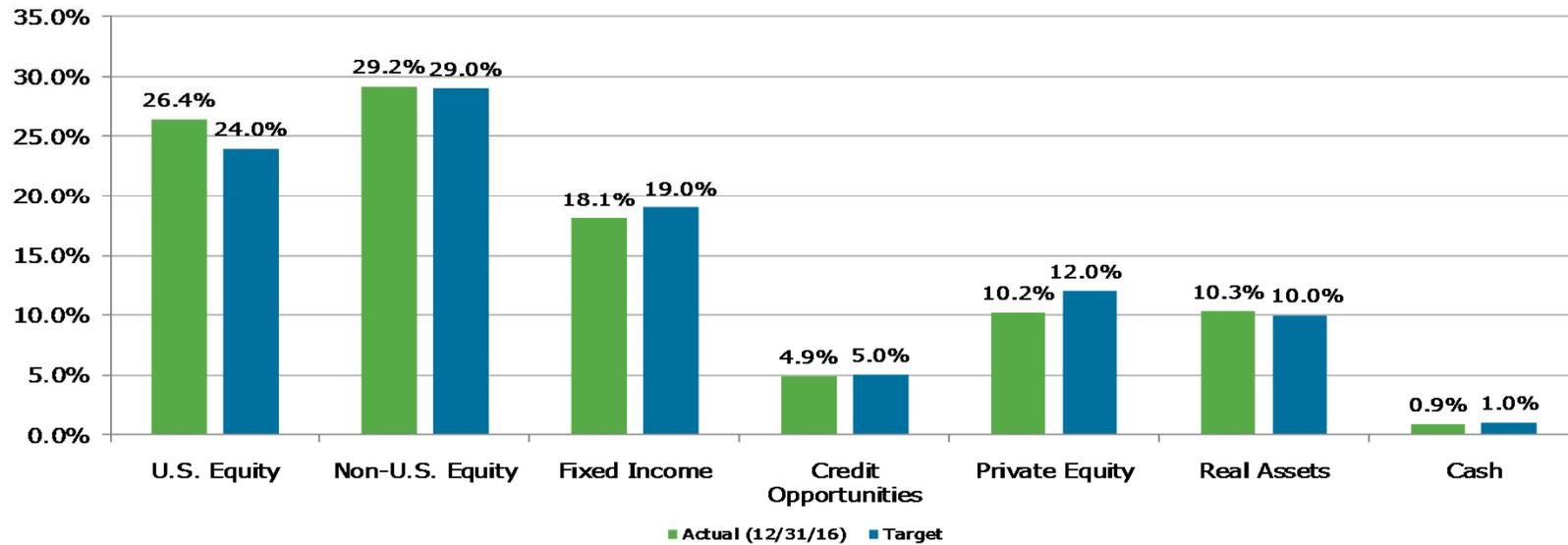
<sup>2</sup>Name change from "Alternative Investments."



# Fund Overview



### Asset Allocation<sup>1,2</sup> as of December 31, 2016



	<b>Actual</b>	<b>Target</b>	<b>Min.</b>	<b>Max.</b>
U.S. Equity <sup>3</sup>	26.4%	24.0%	19.0%	29.0%
Non-U.S. Equity	29.2%	29.0%	24.0%	34.0%
Fixed Income	18.1%	19.0%	15.0%	22.0%
Credit Opportunities	4.9%	5.0%	0.0%	10.0%
Private Equity <sup>4</sup>	10.2%	12.0%	n/a	n/a
Real Assets	10.3%	10.0%	7.0%	13.0%
Public Real Assets	4.6%	5.0%	2.0%	8.0%
Private Real Estate	5.6%	5.0%	n/a	n/a
Timber	0.1%	n/a	n/a	n/a
Cash	0.9%	1.0%	0.0%	2.0%

<sup>1</sup> Target asset allocation adopted 1st Qtr 2012 and affirmed 2nd Qtr 2015.

<sup>2</sup> Percentages may not add to 100% due to rounding.

<sup>3</sup> The underweight to Private Equity is allocated to U.S. Equity.

<sup>4</sup> 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>1</sup>	Current Quarter	One Year	Three Years	Five Years	Ten Years	Fifteen Years <sup>2</sup>	Since Inception <sup>2</sup>	5 Year Tracking Error
<b>LACERS Master Trust</b>	<b>\$ 14,814</b>	<b>100.0%</b>	<b>0.29</b>	<b>7.19</b>	<b>4.35</b>	<b>9.06</b>	<b>5.11</b>	<b>6.98</b>	<b>8.06</b>	<b>1.2</b>
<i>Policy Benchmark<sup>3</sup></i>			<i>0.80</i>	<i>8.35</i>	<i>4.46</i>	<i>8.79</i>	<i>5.20</i>	<i>6.64</i>	<i>8.00</i>	
Excess Return			-0.51	-1.16	-0.11	0.27	-0.09	0.34	0.06	
<b>U.S. Equity</b>	<b>\$ 3,917</b>	<b>26.4%</b>	<b>4.71</b>	<b>12.93</b>	<b>8.19</b>	<b>14.81</b>	<b>6.88</b>	<b>7.53</b>	<b>10.22</b>	<b>0.8</b>
<i>Russell 3000</i>			<i>4.21</i>	<i>12.74</i>	<i>8.43</i>	<i>14.67</i>	<i>7.07</i>	<i>7.11</i>	<i>9.00</i>	
Excess Return			0.50	0.19	-0.24	0.14	-0.19	0.42	1.22	
<b>Non-U.S. Equity</b>	<b>\$ 4,321</b>	<b>29.2%</b>	<b>-2.46</b>	<b>3.52</b>	<b>-1.24</b>	<b>6.42</b>	<b>1.58</b>	<b>6.64</b>	<b>4.68</b>	<b>1.3</b>
<i>MSCI ACWI ex U.S.</i>			<i>-1.25</i>	<i>4.50</i>	<i>-1.78</i>	<i>5.00</i>	<i>0.96</i>	<i>5.87</i>	<i>4.83</i>	
Excess Return			-1.21	-0.98	0.54	1.42	0.62	0.77	-0.15	
<b>Core Fixed Income</b>	<b>\$ 2,676</b>	<b>18.1%</b>	<b>-2.68</b>	<b>3.60</b>	<b>3.30</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>3.00</b>	<b>--</b>
<i>BC U.S. Aggregate</i>			<i>-2.98</i>	<i>2.65</i>	<i>3.03</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>2.16</i>	
Excess Return			0.30	0.95	0.27	--	--	--	0.84	
<b>Credit Opportunities</b>	<b>\$ 723</b>	<b>4.9%</b>	<b>-0.53</b>	<b>12.15</b>	<b>3.63</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>5.14</b>	<b>--</b>
<i>Credit Opportunities Blend<sup>4</sup></i>			<i>-0.29</i>	<i>14.68</i>	<i>4.85</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>5.88</i>	
Excess Return			-0.24	-2.53	-1.22	--	--	--	-0.74	
<b>Real Assets</b>	<b>\$ 1,529</b>	<b>10.3%</b>	<b>0.12</b>	<b>7.78</b>	<b>8.25</b>	<b>8.73</b>	<b>0.92</b>	<b>4.94</b>	<b>6.38</b>	<b>2.4</b>
<i>CPI+5%</i>			<i>1.23</i>	<i>7.08</i>	<i>6.19</i>	<i>6.36</i>	<i>6.82</i>	<i>7.11</i>	<i>7.19</i>	
Excess Return			-1.11	0.70	2.06	2.37	-5.90	-2.17	-0.81	
<b>Public Real Assets</b>	<b>\$ 686</b>	<b>4.6%</b>	<b>-1.85</b>	<b>6.70</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>0.18</b>	<b>--</b>
<i>Public Real Assets BM<sup>5</sup></i>			<i>-0.97</i>	<i>7.85</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>-2.92</i>	
Excess Return			-0.88	-1.15	--	--	--	--	3.10	
<b>Private Real Estate<sup>6</sup></b>	<b>\$ 822</b>	<b>5.6%</b>	<b>1.82</b>	<b>8.87</b>	<b>11.39</b>	<b>10.62</b>	<b>1.79</b>	<b>5.54</b>	<b>6.79</b>	<b>6.1</b>
<i>Real Estate Blended BM</i>			<i>2.13</i>	<i>10.37</i>	<i>12.72</i>	<i>12.36</i>	<i>7.79</i>	<i>9.31</i>	<i>9.97</i>	
Excess Return			-0.31	-1.50	-1.33	-1.74	-6.00	-3.77	-3.18	
<b>Private Equity<sup>6,7</sup></b>	<b>\$ 1,515</b>	<b>10.2%</b>	<b>3.38</b>	<b>7.26</b>	<b>9.60</b>	<b>11.96</b>	<b>10.59</b>	<b>10.62</b>	<b>10.09</b>	<b>11.5</b>
<i>Russell 3000 + 300 bps</i>			<i>4.98</i>	<i>16.12</i>	<i>11.69</i>	<i>18.19</i>	<i>10.80</i>	<i>11.04</i>	<i>12.63</i>	
Excess Return			-1.60	-8.86	-2.09	-6.23	-0.21	-0.42	-2.54	
<b>Cash</b>	<b>\$ 134</b>	<b>0.9%</b>								

<sup>1</sup> Percentages may not add to 100% due to rounding.

<sup>2</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>3</sup> More detailed information available under Definitions section in the back of this presentation.

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

<sup>5</sup> 60% Bloomberg BC U.S. TIPS, 20% Bloomberg Commodity Index, 10% FTSE NAREIT All Equity, 10% Alerian MLP Index.

<sup>6</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>7</sup> Name change from "Alternative Investments."

## Private Investments

Performance by IRR and Multiples<sup>1</sup> as of September 30, 2016

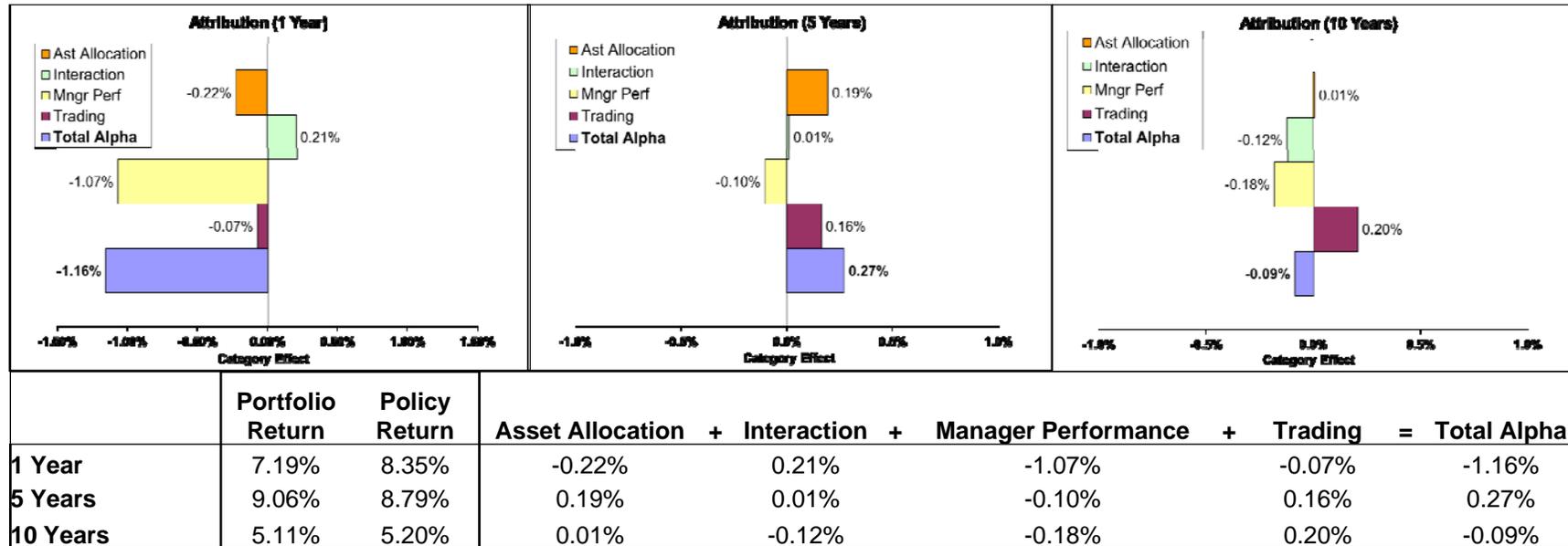
<b>Private Equity</b>	10-Year IRR	Since Inception IRR	Since Inception Equity Multiple
Aggregate Portfolio	10.31%	10.90%	1.49x
Core Portfolio	11.11%	11.48%	1.51x
Specialized Portfolio	2.01%	1.84%	1.10x
<i>Russell 3000 + 300 bps</i>	<i>10.69%</i>	<i>10.04%</i>	<i>N/A</i>

<b>Real Estate<sup>2</sup></b>	10-Year Return (Net)	Since Inception Return (Net)	Since Inception Equity Multiple
Total Portfolio (TWR)	1.30%	5.86%	N/A
<i>NFI ODCE + 80 bps (TWR)</i>	<i>5.85%</i>	<i>7.10%</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.

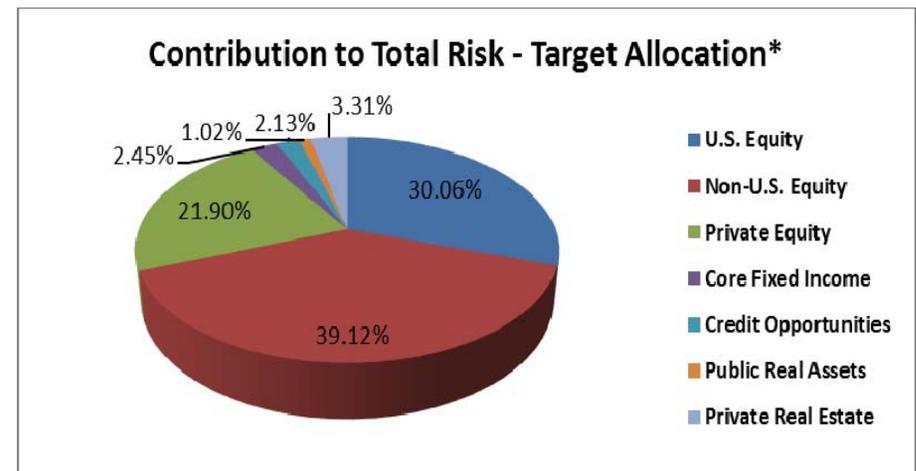
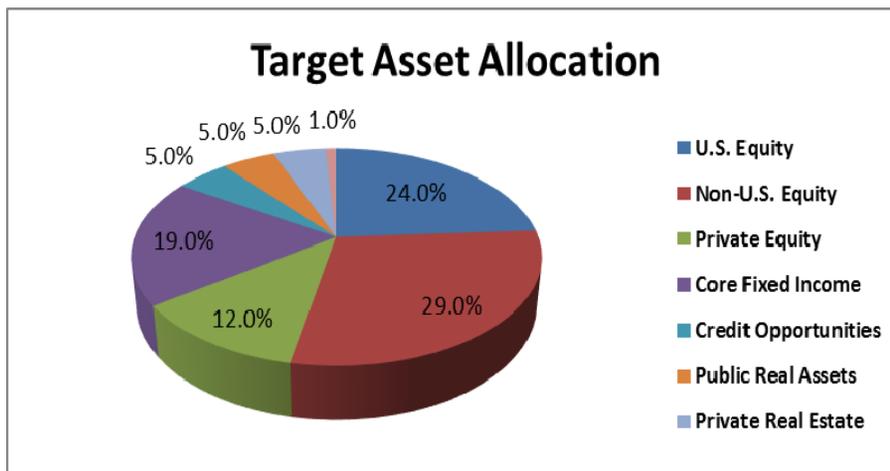
## Total Fund Attribution\*



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

- Manager performance was the most significant detractor of value added over the 1-year period, as illustrated in the “Attribution (1 Year)” chart above, due in large part to underperformance of Private Equity investments.
- Underweight to Private Equity and Non-U.S. Equity, relative to their respective policy target weights, detracted from the portfolio’s performance over the 1-year period. Overweight to U.S. Equity relative to the policy target weight has been a source of value added over the 5- and 10-year periods.
- 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



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

- 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 5% of total risk despite target weighting of 24%.

## Public Markets

### LACERS Risk Budget Comparison

Risk Statistics as of December 31, 2016

Public Markets Asset Class	Current Target Risk Budget	Actual 3-Year Tracking Error
U.S. Equity	0.50%	0.67%
Non-U.S. Equity	1.20%	1.41%
Core Fixed Income	1.00%	0.61%
Credit Opportunities	1.50%	0.98%
Public Real Assets*	3.00%	N/A

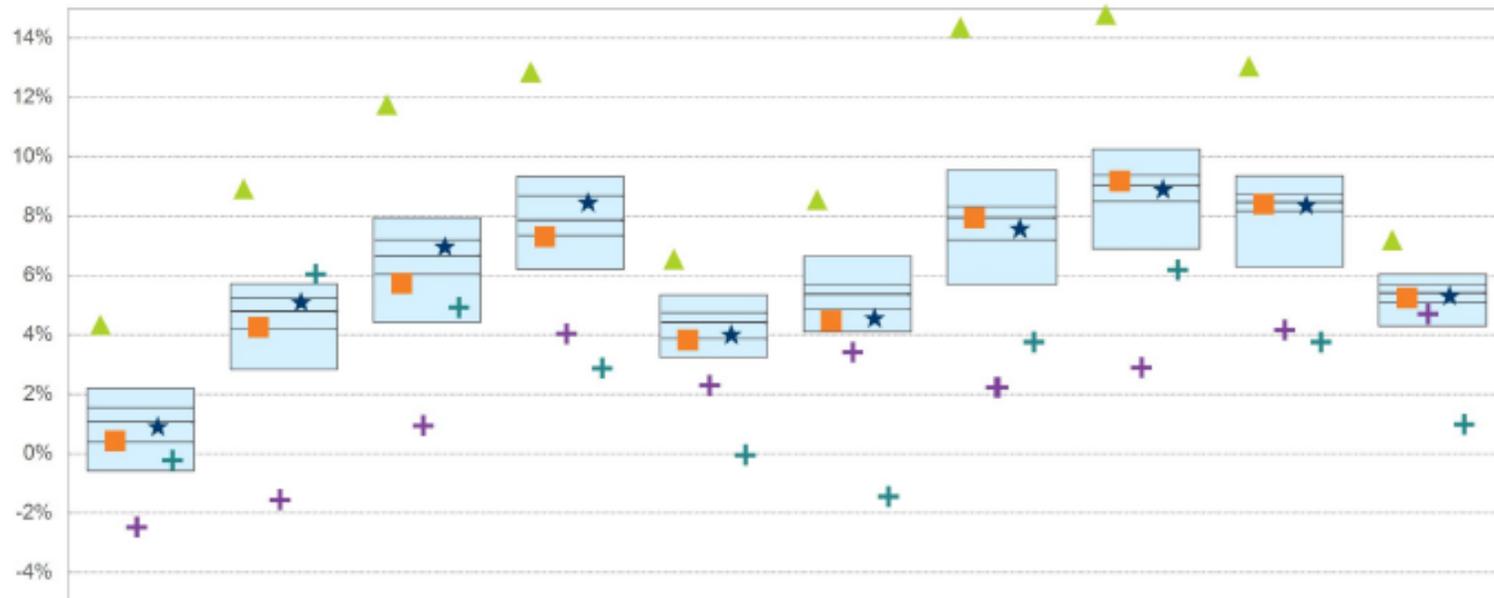
- Current LACERS public market asset class composite tracking errors are compared to asset class target risk budgets to ensure active risks are within expectations.
- Risk budgets are to be evaluated over three-year periods, at minimum, to reflect a full market cycle.
- All public markets asset classes 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 : December 31, 2016

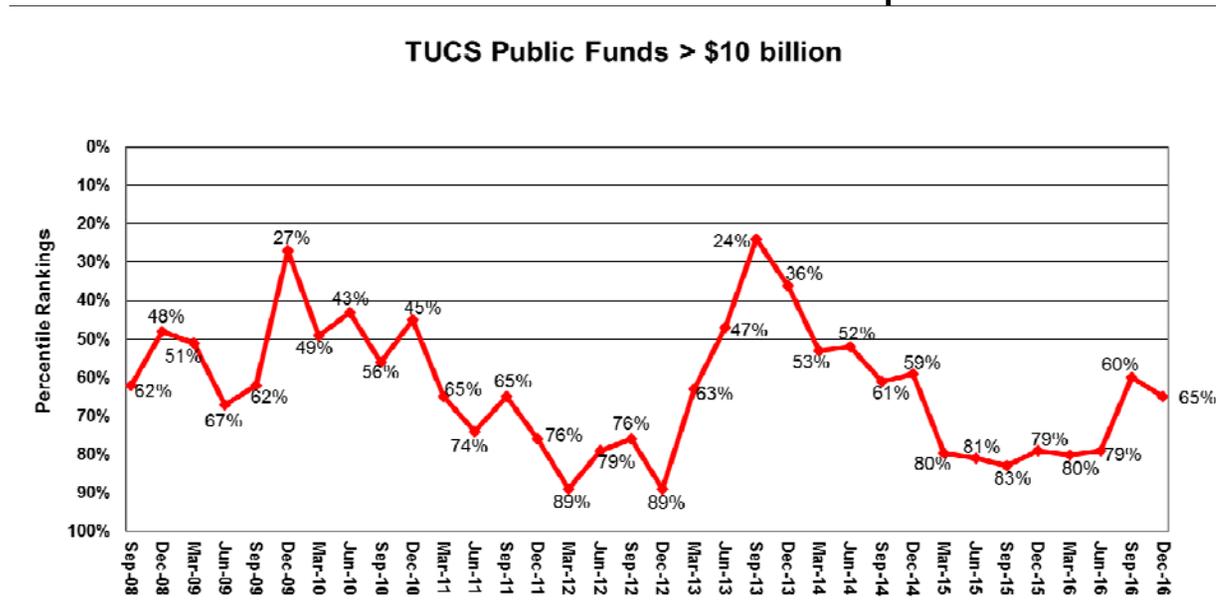


Percentile Rank/Inos	1 Qtr	2 Qtrs	3 Qtrs	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years
5th	2.19	5.72	7.95	9.34	5.36	6.64	9.56	10.27	9.37	6.05
25th	1.55	5.24	7.21	8.70	4.75	5.68	8.32	9.39	8.73	5.71
50th	1.08	4.80	6.67	7.88	4.43	5.38	7.97	9.04	8.48	5.43
75th	0.39	4.19	6.05	7.35	3.86	4.86	7.21	8.49	8.17	5.09
95th	-0.58	2.84	4.42	6.21	3.24	4.10	5.70	6.91	6.30	4.30

No. Of Obs	41	41	41	40	40	40	40	40	37	36
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■ Total Fund NOF	0.29 (83)	4.13 (75)	5.62 (91)	7.19 (83)	3.70 (80)	4.35 (88)	7.80 (55)	9.06 (47)	8.29 (61)	5.11 (72)
★ Total Fund Policy	0.80 (67)	4.98 (37)	6.86 (42)	8.35 (30)	3.89 (72)	4.46 (85)	7.47 (70)	8.79 (67)	8.27 (61)	5.20 (69)
▲ Russell 3000	4.21 (1)	8.79 (1)	11.65 (1)	12.74 (1)	6.43 (1)	8.43 (1)	14.24 (1)	14.67 (1)	12.93 (1)	7.07 (1)
+ MSCI Wid Ex US (Net)	-0.36 (93)	5.91 (1)	4.79 (93)	2.75 (100)	-0.18 (100)	-1.58 (100)	3.64 (100)	6.07 (99)	3.64 (100)	0.86 (100)
+ Barclays US Univ Indx	-2.61 (100)	-1.68 (100)	0.82 (100)	3.91 (100)	2.16 (99)	3.28 (99)	2.10 (100)	2.78 (100)	4.04 (100)	4.57 (93)

## Return to Risk Ratio Comparison\*



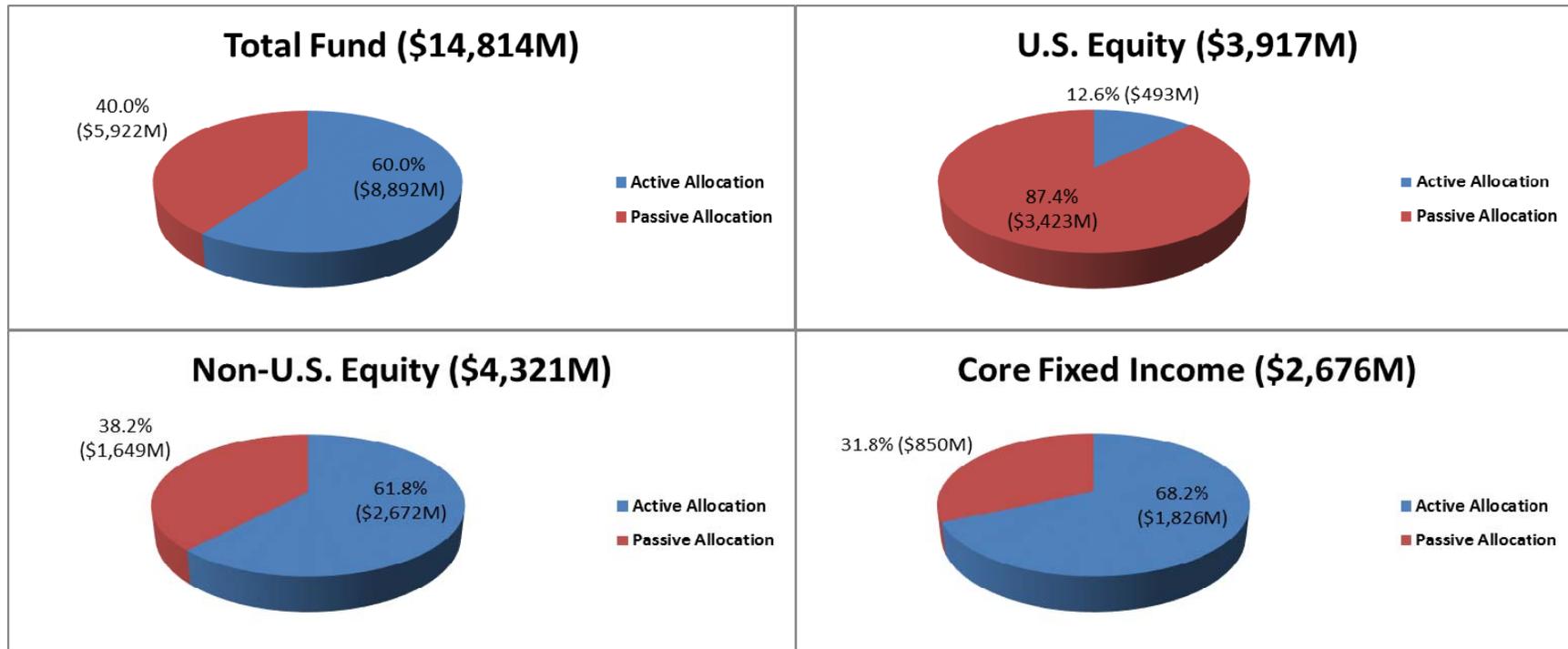
\*Rolling 5-year Return/Risk

- Return to risk ratio comparison puts funds with different asset allocation objectives on even footing.
- LACERS 5-year return ranks in the 47<sup>th</sup> percentile, while its 5-year risk value ranks in the 75<sup>th</sup> percentile. Risk is higher relative to peers due to (1) much higher allocation to Non-U.S. Equity, which has higher risk versus U.S. Equity and (2) higher U.S. Equity risk relative to peer U.S. Equity composite risk median.

5-Year as of 12/31/16	Return	Risk	Return to Risk Ratio
LACERS Total Fund	9.06	5.83	1.55
Median PF > \$10B	9.04	5.42	1.67

- As of December 31, 2016, LACERS 5-year return to risk ratio (5-year return/5-year risk) ranks in the 65<sup>th</sup> percentile.

## Active vs. Passive Allocation Breakdown



- Of the Total Fund, LACERS allocated 60.0% to active managers and 40.0% 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>\$ 3,917</b>	<b>100.0%</b>	<b>4.71</b>	<b>12.93</b>	<b>8.19</b>	<b>14.81</b>	<b>6.88</b>	<b>7.53</b>	<b>10.22</b>	<b>0.8</b>
<i>Russell 3000</i> <sup>2</sup>				<i>4.21</i>	<i>12.74</i>	<i>8.43</i>	<i>14.67</i>	<i>7.07</i>	<i>7.11</i>	<i>9.00</i>	
Excess Return				0.50	0.19	-0.24	0.14	-0.19	0.42	1.22	
<b>Rhumblin Advisors S&amp;P 500 (Passive)</b>	Feb-93	\$ 2,780	71.0%	<b>3.87</b>	<b>11.82</b>	<b>8.81</b>	<b>14.61</b>	<b>7.06</b>	<b>6.82</b>	<b>9.36</b>	<b>0.1</b>
<i>S&amp;P 500</i>				<i>3.82</i>	<i>11.96</i>	<i>8.87</i>	<i>14.66</i>	<i>6.95</i>	<i>6.69</i>	<i>9.18</i>	
Excess Return				0.05	-0.14	-0.06	-0.05	0.11	0.12	0.18	
<b>Rhumblin Advisors 1000 Growth (Passive)</b>	Jun-13	\$ 144	3.7%	<b>1.14</b>	<b>7.03</b>	<b>8.47</b>	--	--	--	<b>12.74</b>	--
<i>Russell 1000 Growth</i>				<i>1.01</i>	<i>7.08</i>	<i>8.55</i>	--	--	--	<i>12.68</i>	
Excess Return				0.13	-0.05	-0.08	--	--	--	0.06	
AJO	Oct-01	\$ 165	4.2%	<b>9.12</b>	<b>9.68</b>	<b>6.15</b>	<b>14.23</b>	<b>5.75</b>	<b>8.26</b>	<b>8.63</b>	<b>3.4</b>
<i>Russell 1000 Value</i>				<i>6.68</i>	<i>17.34</i>	<i>8.59</i>	<i>14.80</i>	<i>5.72</i>	<i>7.41</i>	<i>7.89</i>	
Excess Return				2.44	-7.66	-2.44	-0.57	0.03	0.85	0.74	
Principal Global Investors	Jul-14	\$ 117	3.0%	<b>1.13</b>	<b>10.96</b>	--	--	--	--	<b>8.54</b>	--
<i>Russell Midcap</i>				<i>3.21</i>	<i>13.80</i>	--	--	--	--	<i>6.23</i>	
Excess Return				-2.08	-2.84	--	--	--	--	2.31	
Rhumblin Russell 2000 (Passive)	Mar-15	\$ 272	6.9%	<b>8.75</b>	<b>21.14</b>	--	--	--	--	<b>7.91</b>	--
<i>Russell 2000</i>				<i>8.83</i>	<i>21.31</i>	--	--	--	--	<i>8.21</i>	
Excess Return				-0.08	-0.17	--	--	--	--	-0.30	
Rhumblin Russell 2000 Growth (Passive)	Jan-15	\$ 108	2.7%	<b>3.51</b>	<b>11.21</b>	--	--	--	--	<b>4.80</b>	--
<i>Russell 2000 Growth</i>				<i>3.57</i>	<i>11.32</i>	--	--	--	--	<i>4.93</i>	
Excess Return				-0.06	-0.11	--	--	--	--	-0.13	

<sup>1</sup> Indicates gross returns

<sup>2</sup> Changed from the S&P 500 Index on July 1, 2011.

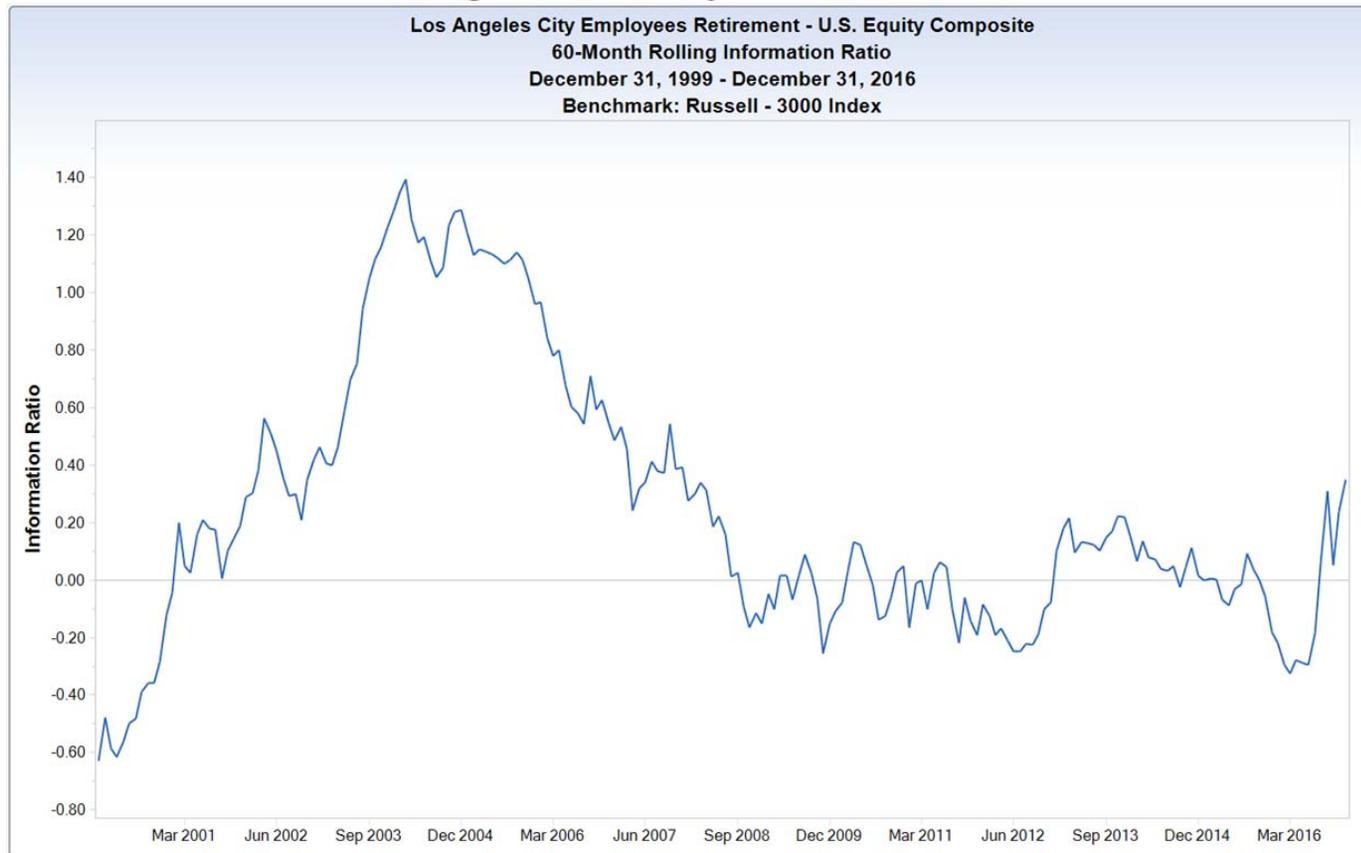
## U.S. Equity Managers

(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 <i>Russell 2000 Value</i>	Feb-16	\$ 120	3.1%	<b>14.05</b> 14.07	--	--	--	--	--	<b>48.04</b> 48.28	--
Excess Return				-0.02	--	--	--	--	--	-0.24	
EAM Investors LLC <i>Russell 2000 Growth</i>	Sep-94	\$ 90	2.3%	<b>1.67</b> 3.57	<b>4.65</b> 11.32	--	--	--	--	<b>5.77</b> 12.71	--
Excess Return				-1.90	-6.67	--	--	--	--	-6.94	
PanAgora Asset Management <i>Russell 2000 Value</i>	Feb-06	\$ 121	3.1%	<b>13.81</b> 14.07	<b>28.97</b> 31.74	<b>10.03</b> 8.31	<b>17.70</b> 15.07	<b>6.88</b> 6.26	--	<b>8.06</b> 7.06	<b>2.3</b>
Excess Return				-0.26	-2.77	1.72	2.63	0.62	--	1.00	

<sup>1</sup> Indicates gross returns

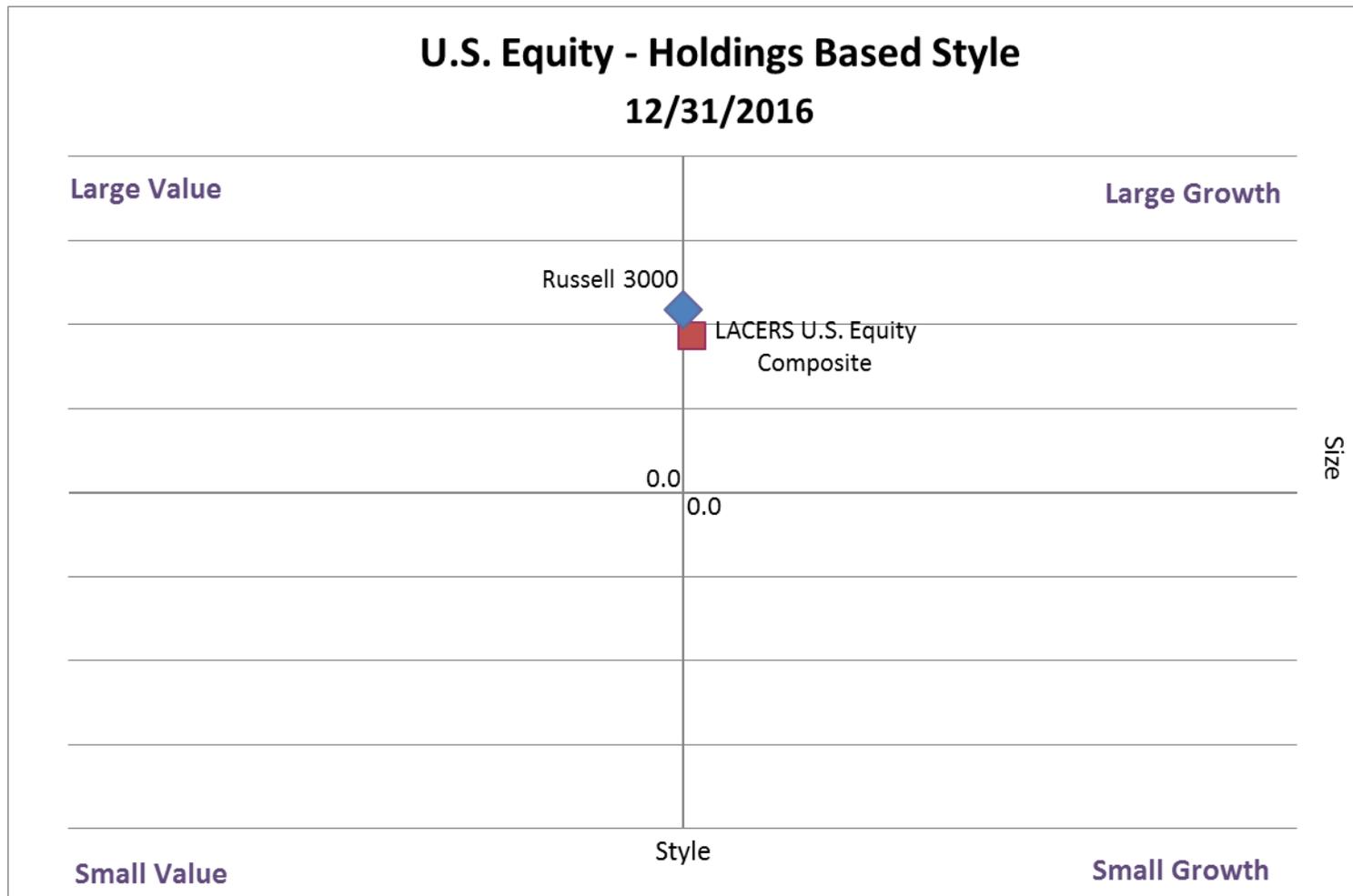
## 5-Year Rolling Risk-Adjusted Active Returns<sup>1,2</sup>



- 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. However, 60-month information ratio as of December 31, 2016 was positive.

<sup>1</sup>Risk-adjusted active returns are referred to as "Information Ratio." Information Ratio = Excess return (alpha) / Excess risk (tracking error).

<sup>2</sup>Composite returns are gross of fees.



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

## 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 thousands)	Comments <sup>2</sup>
			I	U	I	U	I	U	I	U	I		
➤ <b>AJO</b>	Oct-01	Large Cap Value	✓	✓	✗	✗	✗	✗	✗	✓	✓	\$449.74	"On Watch" since July 2016 - performance.
➤ <b>Principal Global Investors</b>	Jul-14	Mid Cap	✗	✗	✗	✗	n/a	n/a	n/a	n/a	✓	\$562.97	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	✗	\$501.22	LACERS' Manager Monitoring Policy requires at least 3 years of track record to evaluate performance
➤ <b>PanAgora</b>	Feb-06	Small Cap Value	✗	✓	✗	✓	✓	✓	✓	✓	✓	\$647.77	Performance compliant with LACERS' Manager Monitoring Policy
➤ <b>Rhumble (Passive)</b>	Feb-93	S&P 500	✓	✗	✗	✓	✗	✓	✗	✓	✓	\$100.89	Performance compliant with LACERS' Manager Monitoring Policy
➤ <b>Rhumble (Passive)</b>	Jun-13	R1000 Growth	✓	✓	✗	✓	✗	✓	n/a	n/a	✓	\$8.80	Performance compliant with LACERS' Manager Monitoring Policy
➤ <b>Rhumble (Passive)</b>	Jan-15	R2000 Growth	✗	✓	✗	✗	n/a	n/a	n/a	n/a	✗	\$5.88	Performance compliant with LACERS' Manager Monitoring Policy
➤ <b>Rhumble (Passive)</b>	Mar-15	R2000	✗	✗	✗	✗	n/a	n/a	n/a	n/a	✗	\$11.89	Performance compliant with LACERS' Manager Monitoring Policy
➤ <b>Rhumble (Passive)</b>	Feb-16	R2000 Value	✗	✓	n/a	n/a	n/a	n/a	n/a	n/a	✗	\$2.19	LACERS' Manager Monitoring Policy requires at least 1 years of track record to evaluate performance for passive strategies

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

<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 6/30/16.

LEGEND			
✓	outperformed index	I	index
✗	underperformed index	U	universe median
✓	outperformed universe		
✗	underperformed 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>\$ 4,321</b>	<b>100.0%</b>	<b>-2.46</b>	<b>3.52</b>	<b>-1.24</b>	<b>6.42</b>	<b>1.58</b>	<b>4.68</b>	<b>1.3</b>
<i>MSCI ACWI ex U.S.</i>				-1.25	4.50	-1.78	5.00	0.96	4.83	
Excess Return				-1.21	-0.98	0.54	1.42	0.62	-0.15	
<b>Developed ex-U.S.</b>	<b>Jun-12</b>	<b>\$ 3,354</b>	<b>77.6%</b>	<b>-2.03</b>	<b>1.36</b>	<b>-1.04</b>	<b>--</b>	<b>--</b>	<b>7.41</b>	<b>--</b>
<i>MSCI EAFE ND</i>				-0.71	1.00	-1.60	--	--	6.59	
Excess Return				-1.32	0.36	0.56	--	--	0.82	
SSgA (Passive)	Aug-93	\$ 1,649	38.2%	<b>-0.66</b>	<b>3.37</b>	<b>-0.82</b>	<b>6.86</b>	<b>1.49</b>	<b>5.38</b>	<b>0.1</b>
<i>MSCI World ex U.S.</i>				-0.70	2.95	-1.20	6.44	1.13	4.74	
Excess Return				0.04	0.42	0.38	0.42	0.36	0.64	
Lazard Asset Management	Dec-13	\$ 422	9.8%	<b>-4.77</b>	<b>-4.95</b>	<b>-1.60</b>	<b>--</b>	<b>--</b>	<b>0.25</b>	<b>--</b>
<i>MSCI EAFE ND</i>				-0.71	1.00	-1.60	--	--	-0.53	
Excess Return				-4.06	-5.95	0.00	--	--	0.78	
MFS Institutional Advisors	Dec-13	\$ 440	10.2%	<b>-4.95</b>	<b>1.93</b>	<b>-0.28</b>	<b>--</b>	<b>--</b>	<b>0.84</b>	<b>--</b>
<i>MSCI World ex U.S. Growth</i>				-5.29	-1.87	-1.18	--	--	-0.38	
Excess Return				0.34	3.80	0.90	--	--	1.22	
Barrow Hanley Mewhinney & Strauss	Dec-13	\$ 420	9.7%	<b>2.26</b>	<b>3.23</b>	<b>-1.88</b>	<b>--</b>	<b>--</b>	<b>0.13</b>	<b>--</b>
<i>MSCI EAFE Value</i>				4.22	5.68	-1.62	--	--	-0.85	
Excess Return				-1.96	-2.45	-0.26	--	--	0.98	
Oberweiss Asset Mgmt	Jan-14	\$ 121	2.8%	<b>-7.74</b>	<b>-4.97</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>1.63</b>	<b>--</b>
<i>MSCI EAFE Sm Cp</i>				-2.82	2.55	--	--	--	1.98	
Excess Return				-4.92	-7.52	--	--	--	-0.35	
AQR	Feb-14	\$ 302	7.0%	<b>-4.35</b>	<b>-1.21</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>1.94</b>	<b>--</b>
<i>MSCI EAFE Sm Cp</i>				-2.82	2.55	--	--	--	1.55	
Excess Return				-1.53	-3.76	--	--	--	0.39	

<sup>1</sup> Indicates gross returns

## Non-U.S. Equity Managers

(Returns are Net of Fees)

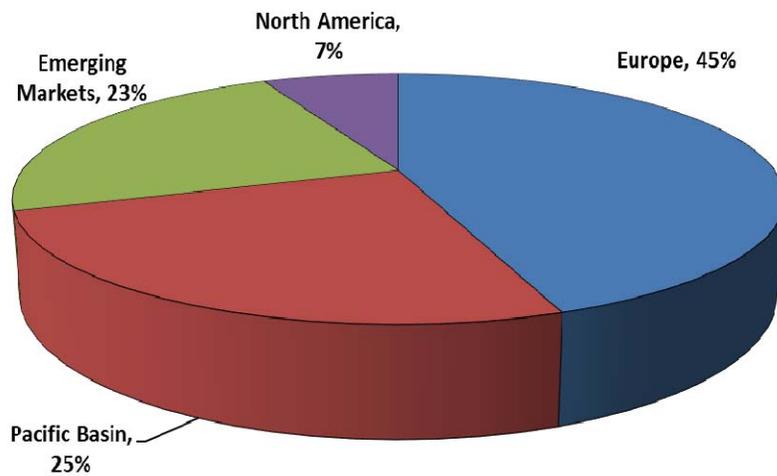
	Inception Date	Market Value (\$million)	% to Total Non-U.S. Equity	Current Quarter	One Year	Three Years	Five Years	Ten Years	Since Inception <sup>1</sup>	5 Year Tracking Error
<b>Emerging Markets<sup>2</sup></b>	<b>Jun-12</b>	<b>\$ 968</b>	<b>22.4%</b>	<b>-3.93</b>	<b>11.90</b>	<b>-3.42</b>	--	--	<b>0.43</b>	--
<i>MSCI Emerging Markets ND</i>				<b>-4.16</b>	<b>11.19</b>	<b>-2.55</b>	--	--	<b>0.55</b>	
Excess Return				0.23	0.71	-0.87	--	--	-0.12	
Axiom International	Mar-14	\$ 304	7.0%	<b>-6.43</b>	<b>8.40</b>	--	--	--	<b>-2.00</b>	--
<i>MSCI Emerging Market Growth</i>				<b>-7.12</b>	<b>7.59</b>	--	--	--	<b>-1.81</b>	
Excess Return				0.69	0.81	--	--	--	-0.19	
Quantitative Management Associates	Apr-14	\$ 347	8.0%	<b>-4.22</b>	<b>10.62</b>	--	--	--	<b>-2.49</b>	--
<i>MSCI Emerging Markets ND</i>				<b>-4.16</b>	<b>11.19</b>	--	--	--	<b>-3.12</b>	
Excess Return				-0.06	-0.57	--	--	--	0.63	
Dimensional Fund Advisors	Jul-14	\$ 317	7.3%	<b>-1.06</b>	<b>17.86</b>	--	--	--	<b>-7.29</b>	--
<i>MSCI Emerging Markets Value ND</i>				<b>-1.10</b>	<b>14.90</b>	--	--	--	<b>-8.07</b>	
Excess Return				0.04	2.96	--	--	--	0.78	

<sup>1</sup> Indicates gross returns

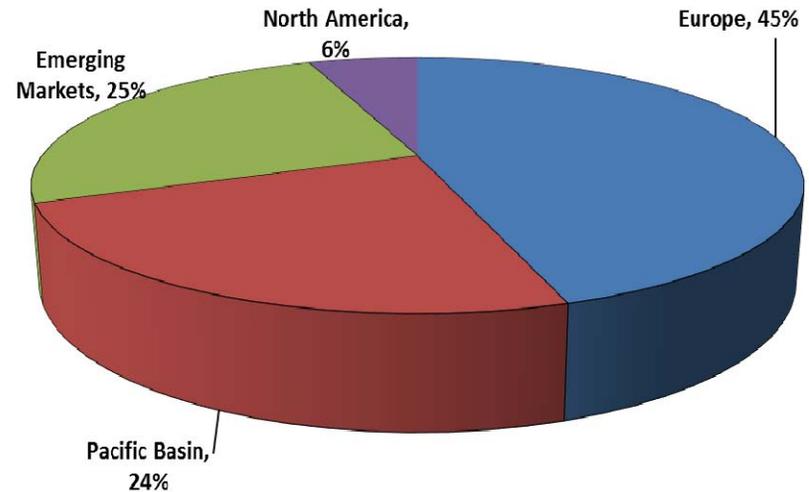
<sup>2</sup> Includes terminated managers.

## Country Allocation

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

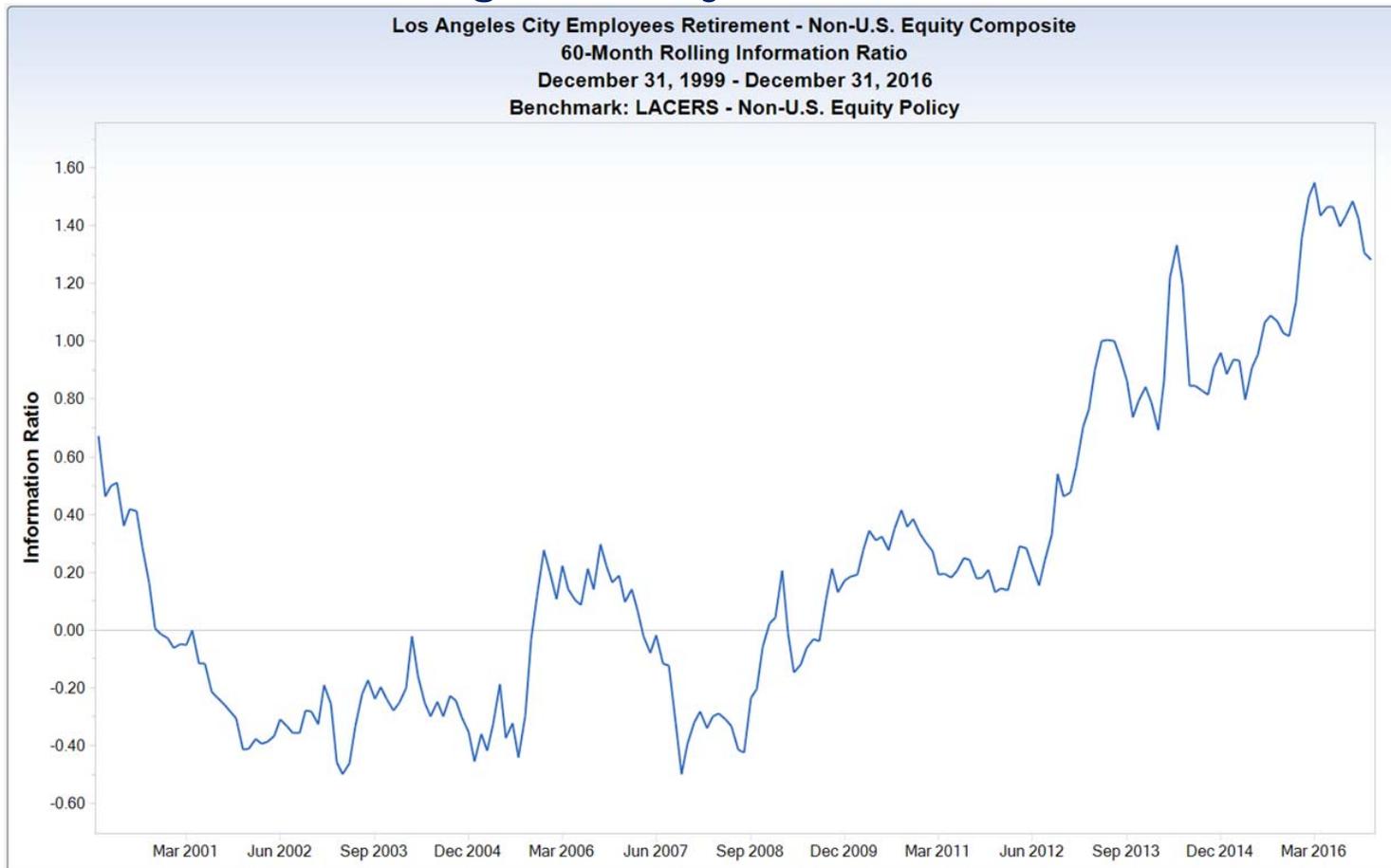


### LACERS Non-U.S. Equity Composite



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

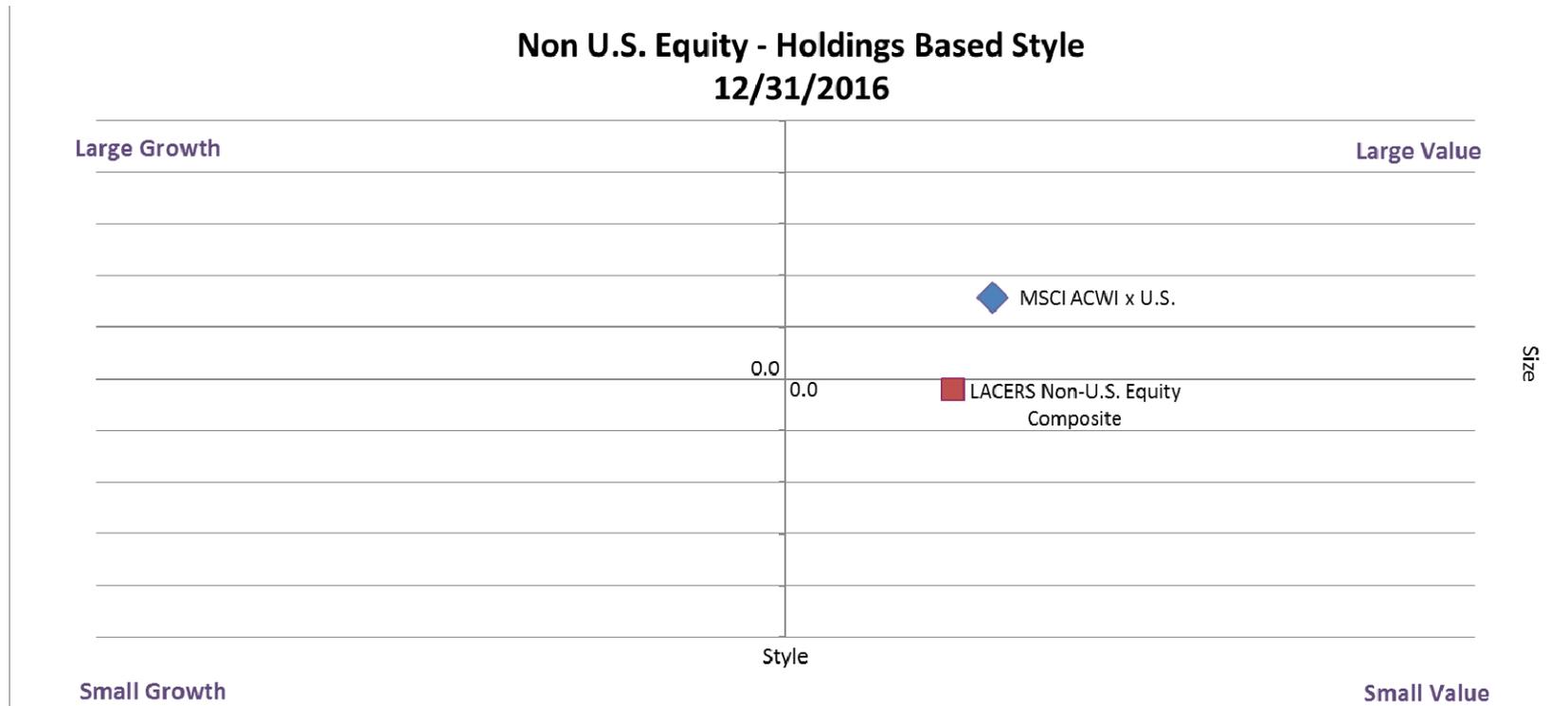
## 5-Year Rolling Risk-Adjusted Active Returns<sup>1,2</sup>



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

<sup>1</sup>Risk-adjusted active returns are referred to as "Information Ratio." Information Ratio = Excess return (alpha) / Excess risk (tracking error).

<sup>2</sup>Composite returns are gross of fees.



- LACERS Non-U.S. Equity Portfolio has a modest growth bias compared to MSCI ACWI ex U.S. index, which reflects the value detracted over the past year, as well as a small cap 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	✘	\$1.87	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	✓	\$1.22	LACERS' Manager Monitoring Policy requires at least 3 years of track record to evaluate performance
➤ <b>DFA</b>	Jul-14	Emerging Markets	✓	☑	✓	☑	n/a	n/a	n/a	n/a	✓	\$1.19	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	✓	\$2.31	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	✘	\$0.57	LACERS' Manager Monitoring Policy requires at least 3 years of track record to evaluate performance
➤ <b>Barrow Hanley Mewhinney &amp; Strauss</b>	Nov-13	Non US Developed	✘	☑	✘	☑	✘	☒	n/a	n/a	✓	\$2.10	Performance compliant with LACERS' Manager Monitoring Policy
➤ <b>Lazard Asset Management</b>	Nov-13	Non US Developed	✘	☒	✘	☒	✓	☒	n/a	n/a	✓	\$2.47	Performance compliant with LACERS' Manager Monitoring Policy
➤ <b>MFS Institutional Advisors</b>	Oct-13	Non US Developed	✓	☒	✓	☒	✓	☑	n/a	n/a	✓	\$2.31	Performance compliant with LACERS' Manager Monitoring Policy
➤ <b>SSgA (Passive)</b>	Aug-93	Non US Developed	✓	☑	✓	☑	✓	☒	✓	☒	✓	\$0.37	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 fees.

<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 6/30/16.

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



# Core Fixed Income Managers



## Core Fixed Income Managers

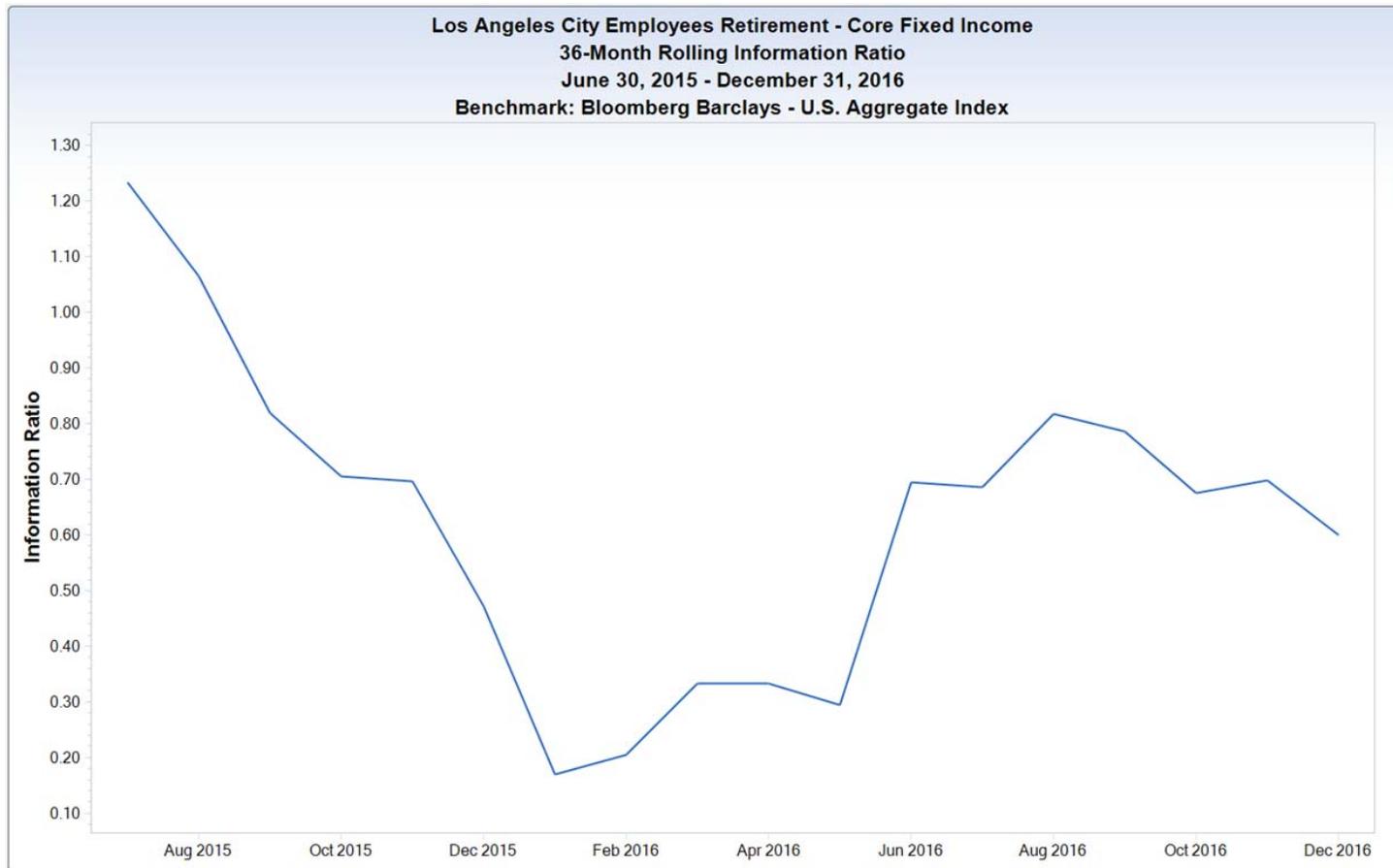
(Returns are Net of Fees)

	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>-2.68</b>	<b>3.60</b>	<b>3.30</b>	<b>--</b>	<b>--</b>	<b>3.00</b>	<b>--</b>
<i>Bloomberg BC U.S. Aggregate</i> <sup>2</sup>				-2.98	2.65	3.03	--	--	2.16	
Excess Return				0.30	0.95	0.27	--	--	0.84	
Loomis Sayles	Jun-80	\$ 675	25.2%	<b>-2.48</b>	<b>5.58</b>	<b>3.93</b>	<b>3.76</b>	<b>5.38</b>	<b>9.39</b>	<b>1.4</b>
<i>Bloomberg BC U.S. Aggregate</i> <sup>2</sup>				-2.98	2.65	3.03	2.52	4.44	7.88	
Excess Return				0.50	2.93	0.90	1.24	0.94	1.51	
Neuberger Berman	Nov-90	\$ 669	25.0%	<b>-2.75</b>	<b>3.14</b>	<b>3.10</b>	<b>3.29</b>	<b>5.61</b>	<b>6.04</b>	<b>0.9</b>
<i>Bloomberg BC U.S. Aggregate</i> <sup>2</sup>				-2.98	2.65	3.03	2.52	4.44	4.77	
Excess Return				0.23	0.49	0.07	0.77	1.17	1.27	
Baird Advisors	Mar-05	\$ 216	8.1%	<b>-1.96</b>	<b>3.40</b>	<b>2.67</b>	<b>2.80</b>	<b>4.47</b>	<b>4.54</b>	<b>0.4</b>
<i>Bloomberg BC U.S. Aggregate</i> <sup>2</sup>				-2.07	2.08	2.09	1.85	3.84	3.83	
Excess Return				0.11	1.32	0.58	0.95	0.63	0.71	
LM Capital Group	Mar-05	\$ 266	9.9%	<b>-2.66</b>	<b>3.16</b>	<b>3.27</b>	<b>2.97</b>	<b>4.60</b>	<b>4.80</b>	<b>0.8</b>
<i>Bloomberg BC U.S. Aggregate</i> <sup>2</sup>				-2.98	2.65	3.03	2.52	4.25	4.17	
Excess Return				0.32	0.51	0.24	0.45	0.35	0.63	
SSgA (Passive)	Jul-14	\$ 850	31.8%	<b>-2.98</b>	<b>2.62</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>2.08</b>	<b>--</b>
<i>Bloomberg BC U.S. Aggregate</i> <sup>2</sup>				-2.98	2.65	--	--	--	2.06	
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<sup>1,2</sup>

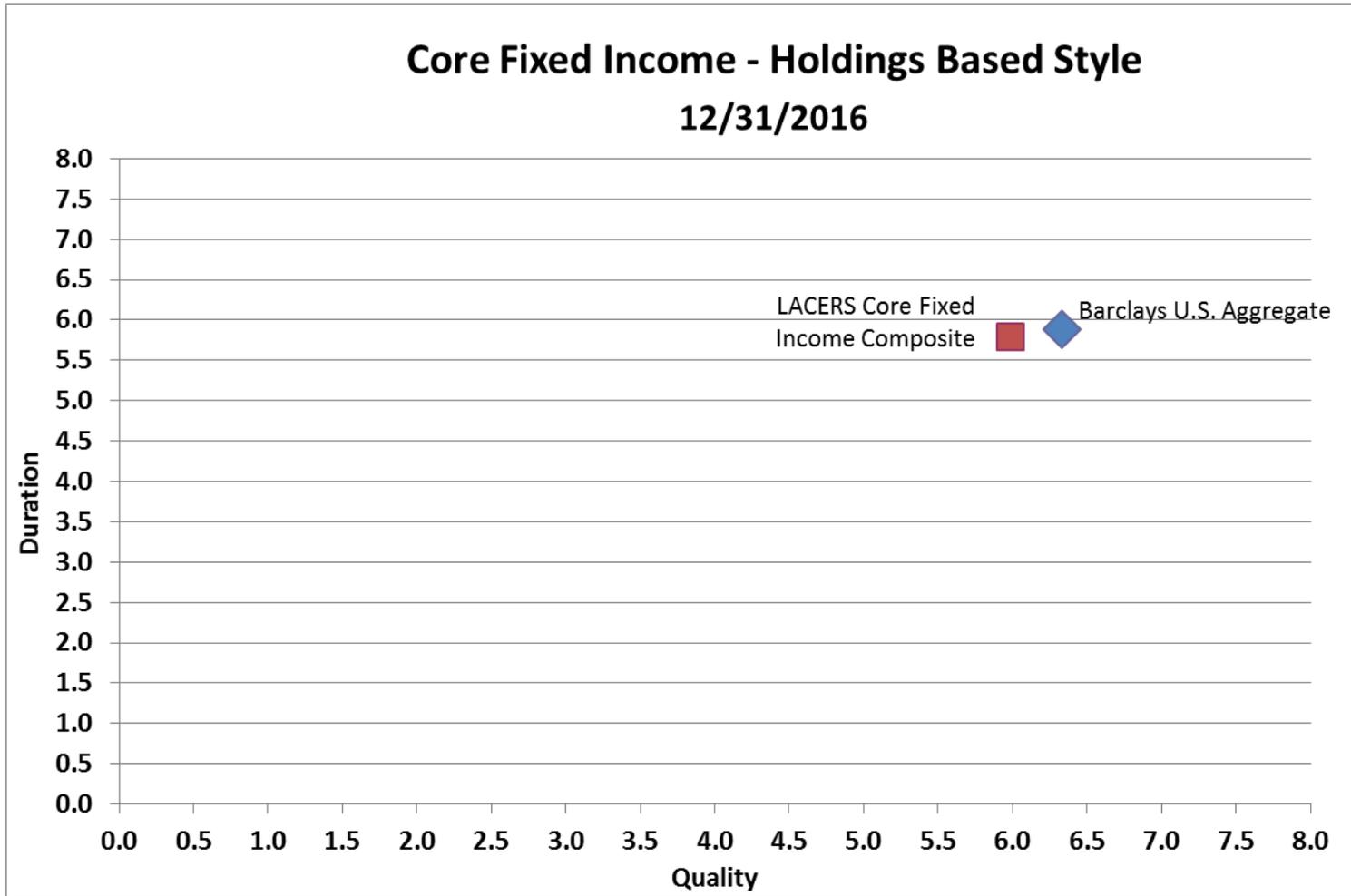


- Core Fixed Income Composite reflects positive risk-adjusted active returns since inception.

\*Fixed Income mandate changed from core-plus to core on July 1, 2012. Returns reflect core mandate only.

<sup>1</sup>Risk-adjusted active returns are referred to as "Information Ratio." Information Ratio = Excess return (alpha) / Excess risk (tracking error).

<sup>2</sup>Composite returns are gross of fees.



- LACERS Core Fixed Income portfolio has slightly lower 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>

Fixed Income	Inception Date	Mandate	Current Quarter		One Year		Three Years		Five Years		Since Inception	Annual Management Fee paid* (\$ in thousands)	Comments <sup>2</sup>
			I	U	I	U	I	U	I	U			
➤ <b>Neuberger Berman</b>	Sep-01	Core	✓	☒	✓	☒	✓	☒	✓	☑	✓	\$1,010.26	Performance compliant with LACERS' Manager Monitoring Policy
➤ <b>Loomis Sayles</b>	Jul-80	Core	✓	☒	✓	☑	✓	☑	✓	☑	✓	\$862.96	Performance compliant with LACERS' Manager Monitoring Policy
➤ <b>Baird Advisors</b>	Mar-05	Intermediate	✓	☑	✓	☑	✓	☑	✓	☑	✓	\$291.70	Performance compliant with LACERS' Manager Monitoring Policy
➤ <b>LM Capital Group</b>	Mar-05	Core	✓	☒	✓	☑	✓	☑	✓	☑	✓	\$240.12	Performance compliant with LACERS' Manager Monitoring Policy
➤ <b>SSgA (Passive)</b>	Jul-14	Core	✗	☒	✗	☒	n/a	n/a	n/a	n/a	✓	\$369.33	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 fees.

<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 6/30/16.

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



# Credit Opportunities Managers



## Credit Opportunities Managers

(Returns are Net of Fees)

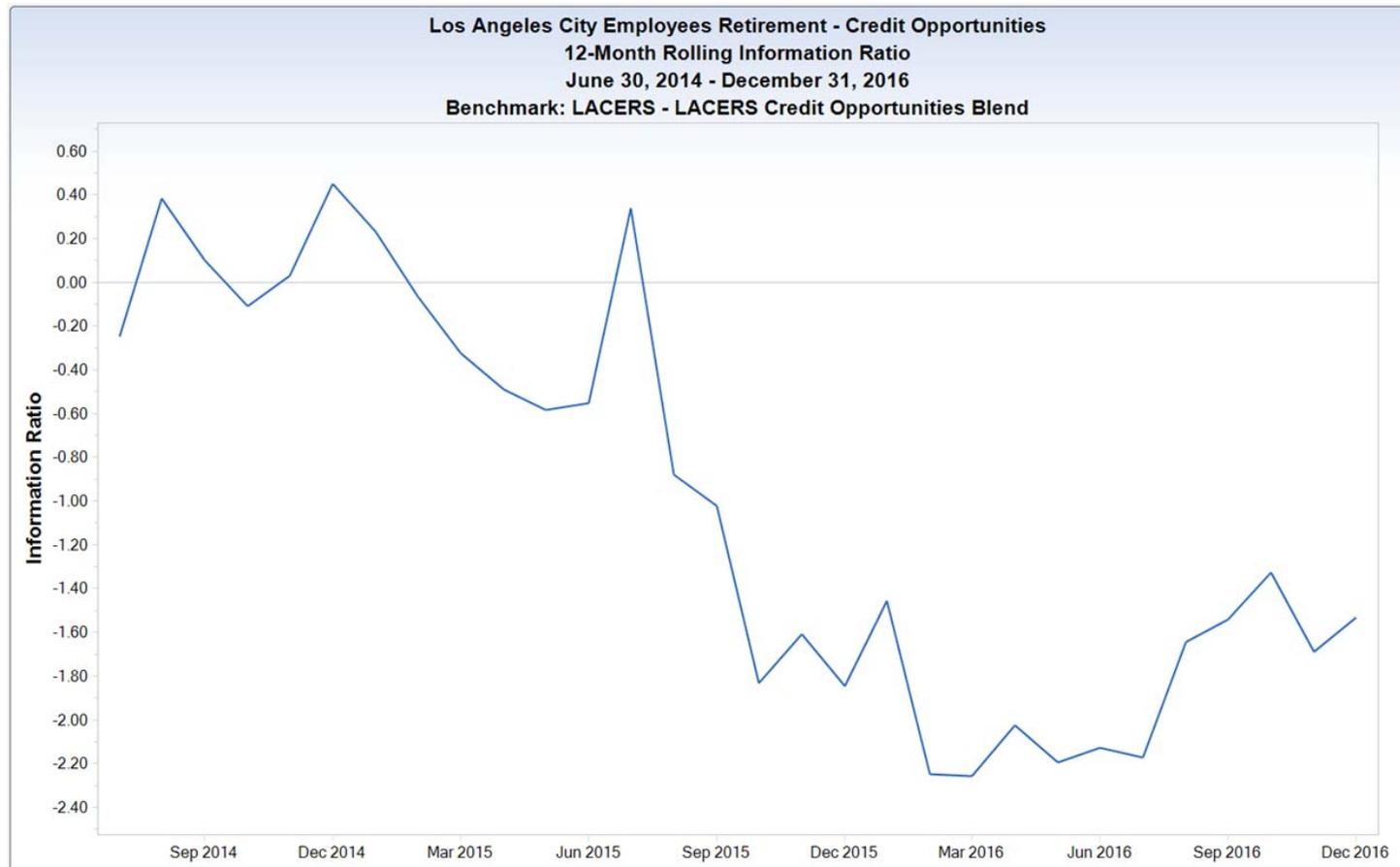
	Inception Date	Market Value (\$million)	% to Total Credit Opp	Current Quarter	One Year	Three Years	Five Years	Ten Years	Since Inception <sup>1</sup>	5-Year Tracking Error
<b>Credit Opportunities<sup>2</sup></b>	<b>Jun-13</b>	<b>\$ 733</b>	<b>100.0%</b>	<b>-0.53</b>	<b>12.15</b>	<b>3.63</b>	--	--	<b>5.14</b>	--
<i>Credit Opportunities Blend<sup>3</sup></i>				-0.29	14.68	4.85	--	--	5.88	
Excess Return				-0.24	-2.53	-1.22	--	--	-0.74	
Aegon USA	Jun-13	\$ 371	50.6%	<b>1.58</b>	<b>15.41</b>	<b>4.89</b>	--	--	<b>6.04</b>	--
<i>BC U.S. Corp High Yield 2% Cap</i>				1.75	17.13	4.67	--	--	5.72	
Excess Return				-0.17	-1.72	0.22	--	--	0.32	
Prudential	May-14	\$ 289	39.4%	<b>-3.90</b>	<b>9.97</b>	--	--	--	<b>4.08</b>	--
<i>JPM EMBI Global Diversified</i>				-4.02	10.15	--	--	--	3.96	
Excess Return				0.12	-0.18	--	--	--	0.12	
Sankaty Senior Loan Fund	Jun-15	\$ 73	10.0%	<b>2.24</b>	<b>9.46</b>	--	--	--	<b>3.57</b>	--
<i>Credit Suisse Leveraged Loan</i>				2.25	9.88	--	--	--	4.22	
Excess Return				-0.01	-0.42	--	--	--	-0.65	

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

<sup>2</sup> Includes terminated manager.

<sup>3</sup> 65% BC U.S. Corp HY 2% Cap/ 35% JPM EMBI - Global Diversified.

## 1-Year Rolling Risk-Adjusted Active Returns<sup>1,2</sup>



- Credit Opportunities Composite reflects mostly negative risk-adjusted active returns since inception.
- Two of three managers in the composite have not managed for a full market cycle (full market cycle varies but can generally be 3 to 5 years).

<sup>1</sup>Risk-adjusted active returns are referred to as "Information Ratio." Information Ratio = Excess return (alpha) / Excess risk (tracking error).

<sup>2</sup>Composite returns are gross of fees.

## 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 thousands)	Comments <sup>2</sup>
			I	U	I	U	I	U	I	U	I		
➤ <b>Aegon USA</b>	Jun-13	High Yield Bonds	✘	☑	✘	☑	☑	☑	n/a	n/a	☑	\$781.58	Performance compliant with LACERS' Manager Monitoring Policy
➤ <b>Prudential</b>	May-14	Emerging Market Debt	☑	✘	✘	✘	n/a	n/a	n/a	n/a	☑	\$1,230.19	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	✘	\$330.00	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 fees.

<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 6/30/16.

LEGEND		
☑	outperformed index	I index
✘	underperformed index	U universe median
☑	outperformed universe	
✘	underperformed 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>\$ 1,529</b>	<b>100.0%</b>	<b>0.12</b>	<b>7.78</b>	<b>8.25</b>	<b>8.73</b>	<b>0.92</b>	<b>6.38</b>	<b>2.4</b>
<i>CPI+5%</i>				<i>1.23</i>	<i>7.08</i>	<i>6.19</i>	<i>6.36</i>	<i>6.82</i>	<i>7.19</i>	
Excess Return				-1.11	0.70	2.06	2.37	-5.90	-0.81	
<b>Public Real Assets</b>	<b>Jul-14</b>	<b>\$ 686</b>	<b>44.9%</b>	<b>-1.85</b>	<b>6.70</b>	--	--	--	<b>0.03</b>	--
<i>Public Real Assets Blended BM<sup>2</sup></i>				-0.97	7.85	--	--	--	-2.92	
Excess Return				-0.88	-1.15	--	--	--	2.95	
<b>TIPS<sup>3</sup></b>	<b>Jul-14</b>	<b>\$ 446</b>	<b>29.2%</b>	<b>-2.82</b>	<b>4.52</b>	--	--	--	<b>0.21</b>	--
<i>Bloomberg BC U.S. TIPS</i>				-2.41	4.68	--	--	--	0.32	
Excess Return				-0.41	-0.16	--	--	--	-0.11	
Dimensional Fund Advisors <i>Bloomberg BC U.S. TIPS</i>	Jul-14	\$ 446	29.2%	-2.82	5.13	--	--	--	0.52	--
Excess Return				-2.41	4.68	--	--	--	0.32	
				-0.41	0.45	--	--	--	0.20	
<b>REITS</b>	<b>Apr-15</b>	<b>\$ 88</b>	<b>5.8%</b>	<b>-3.66</b>	<b>8.35</b>	--	--	--	<b>6.91</b>	--
CenterSquare <i>FTSE NAREIT All Equity</i>	Apr-15	\$ 88	5.8%	-3.66	8.35	--	--	--	6.91	--
Excess Return				-3.28	8.63	--	--	--	5.29	
				-0.38	-0.28	--	--	--	1.62	
<b>Commodities</b>	<b>Jun-15</b>	<b>\$ 152</b>	<b>9.9%</b>	<b>2.29</b>	<b>11.78</b>	--	--	--	<b>-8.91</b>	--
Core Commodity Management <i>Bloomberg Commodity Index</i>	Jun-15	\$ 152	9.9%	2.29	11.78	--	--	--	-8.91	--
Excess Return				2.66	11.77	--	--	--	-9.04	
				-0.37	0.01	--	--	--	0.13	
<b>Timber</b>	<b>Aug-99</b>	<b>\$ 20</b>	<b>1.3%</b>	<b>-0.52</b>	<b>3.05</b>	<b>5.35</b>	<b>7.81</b>	<b>6.01</b>	<b>10.27</b>	--
<b>Private Real Estate</b>	<b>Oct-94</b>	<b>\$ 822</b>	<b>53.8%</b>	<b>1.82</b>	<b>8.87</b>	<b>11.39</b>	<b>10.62</b>	<b>1.79</b>	<b>6.79</b>	<b>6.1</b>
<i>Real Estate Blended BM</i>				2.13	10.37	12.72	12.36	7.79	9.97	
Excess Return				-0.31	-1.50	-1.33	-1.74	-6.00	-3.18	

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

<sup>2</sup> 60% Bloomberg 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 thousands)	Comments <sup>2</sup>
			I	U	I	U	I	U	I	U	I		
➤ <b>Dimensional Fund Advisors</b>	Jul-14	TIPS	✘	n/a	✓	n/a	n/a	n/a	n/a	n/a	✓	\$194.55	LACERS' Manager Monitoring Policy requires at least 3 years of track record to evaluate performance
➤ <b>CenterSquare</b>	Apr-15	REITS	✘	n/a	✘	n/a	n/a	n/a	n/a	n/a	✓	\$399.84	LACERS' Manager Monitoring Policy requires at least 3 years of track record to evaluate performance
➤ <b>CoreCommodity Management</b>	Jun-15	Commodities	✘	n/a	✓	n/a	n/a	n/a	n/a	n/a	✓	\$860.39	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 fees.

<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 6/30/16.

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

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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.
- ◆ 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**

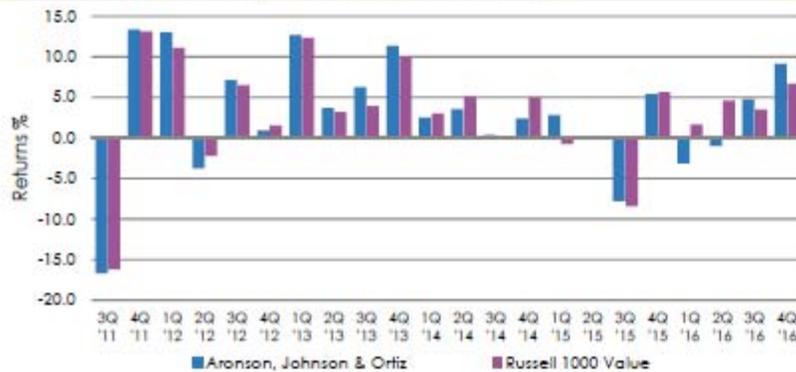
**Objective**

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**

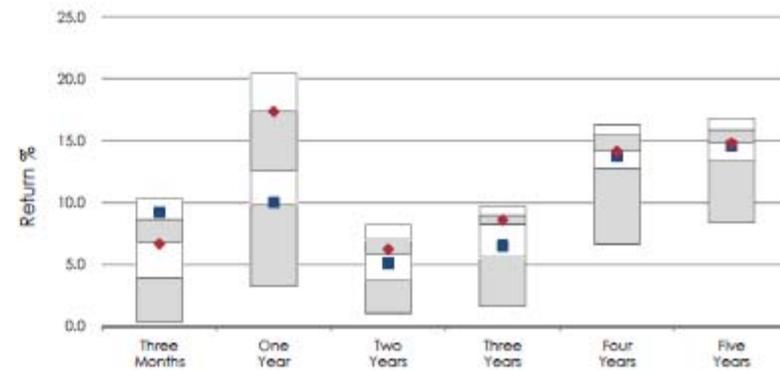


**Performance - Net Returns%**

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Aronson, Johnson & Ortiz	9.1	9.7	4.7	6.2	14.2	8.6	Oct-2001
Russell 1000 Value	6.7	17.3	6.2	8.6	14.8	7.9	
<b>Excess Returns</b>	<b>2.4</b>	<b>-7.7</b>	<b>-1.5</b>	<b>-2.4</b>	<b>-0.6</b>	<b>0.7</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>	9.2	10.0	5.1	6.5	13.7	14.6
Rank	18	74	61	69	66	60
◆ Russell 1000 Value	6.7	17.3	6.2	8.6	14.1	14.8
Rank	53	26	43	41	51	53
10 <sup>th</sup> Percentile	10.3	20.4	8.2	9.7	16.3	16.8
25 <sup>th</sup> Percentile	8.7	17.4	7.0	9.0	15.4	15.9
Median	6.8	12.6	5.9	8.3	14.1	14.9
75 <sup>th</sup> Percentile	3.9	9.9	3.8	5.6	12.7	13.4
90 <sup>th</sup> Percentile	0.4	3.2	1.1	1.6	6.7	8.4
Observation	180	171	177	164	132	117

<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

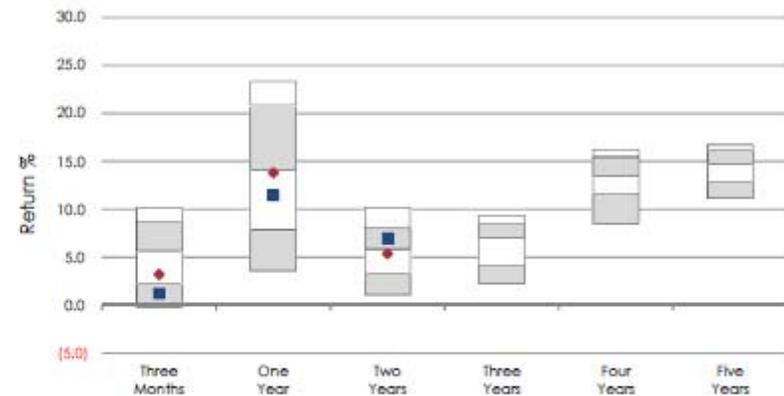


### Performance - Net Returns%

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Principal Global Inv	1.1	11.0	6.6	--	--	8.5	Jul-2014
Russell Midcap	3.2	13.8	5.4	--	--	6.2	
Excess Returns	-2.1	-2.8	1.2	--	--	2.3	

### 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>	1.2	11.4	7.0	--	--	--
Rank	80	64	38	--	--	--
◆ Russell Midcap	3.2	13.8	5.4	--	--	--
Rank	72	54	56	--	--	--
10 <sup>th</sup> Percentile	10.2	23.3	10.2	9.4	16.2	16.7
25 <sup>th</sup> Percentile	8.6	20.8	8.0	8.4	15.5	16.2
Median	5.7	14.2	5.9	7.0	13.5	14.8
75 <sup>th</sup> Percentile	2.3	7.9	3.3	4.1	11.5	12.8
90 <sup>th</sup> Percentile	-0.1	3.6	1.1	2.3	8.5	11.1
Observation	92	90	90	84	65	62

<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

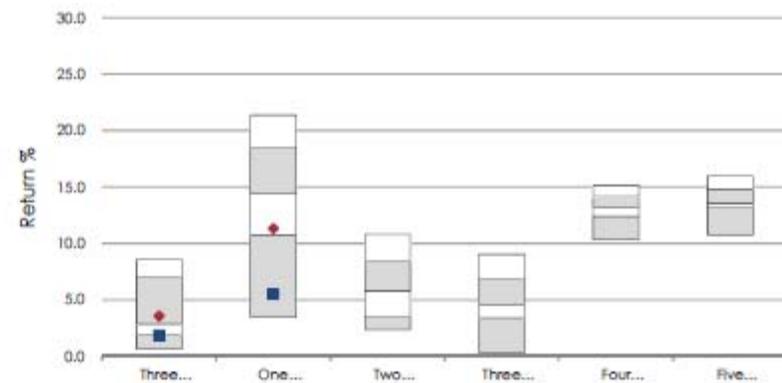


### Performance - Net Returns%

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
EAM Investors LLC-SL	1.7	4.6	--	--	--	5.8	Sep-2015
Russell 2000 Growth	3.6	11.3	--	--	--	12.7	
<b>Excess Returns</b>	<b>-1.9</b>	<b>-6.7</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>-6.9</b>	

### 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>	1.9	5.5	--	--	--	--
Rank	77	89	--	--	--	--
◆ Russell 2000 Growth	3.6	11.3	--	--	--	--
Rank	45	73	--	--	--	--
10 <sup>th</sup> Percentile	8.6	21.4	10.8	9.0	15.2	16.0
25 <sup>th</sup> Percentile	7.0	18.4	8.5	6.8	14.2	14.8
Median	2.9	14.4	5.8	4.6	13.2	13.5
75 <sup>th</sup> Percentile	1.9	10.8	3.5	3.4	12.4	13.1
90 <sup>th</sup> Percentile	0.7	3.5	2.4	0.4	10.3	10.8
Observation	43	43	42	40	27	24

<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

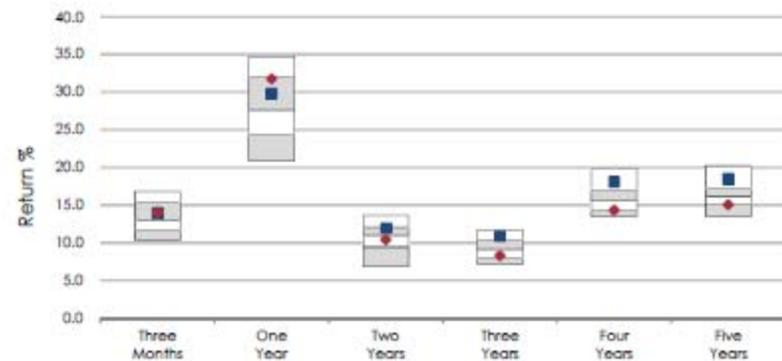


### Performance - Net Returns%

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
PanAgora Asset Management	13.8	29.0	11.2	10.0	17.7	8.1	Feb-2006
Russell 2000 Value	14.1	31.7	10.4	8.3	15.1	7.1	
Excess Returns	-0.3	-2.8	0.8	1.7	2.6	1.0	

### Quartile Rankings

Mandate: Small Cap Value  
Benchmark: Russell 2000 Value



	LCQ	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.
■ PanAgora Asset Management	14.0	29.8	11.9	10.9	18.1	18.5
Rank	40	35	28	14	17	17
◆ Russell 2000 Value	14.1	31.7	10.4	8.3	14.3	15.1
Rank	38	27	58	67	77	75
10 <sup>th</sup> Percentile	16.8	34.7	13.7	11.7	19.9	20.2
25 <sup>th</sup> Percentile	15.4	32.0	12.0	10.4	17.0	17.3
Median	13.1	27.7	11.0	9.2	15.7	16.2
75 <sup>th</sup> Percentile	11.7	24.4	9.5	8.0	14.4	15.0
90 <sup>th</sup> Percentile	10.4	20.9	6.9	7.2	13.5	13.5
Observation	52	62	59	45	38	38

1 Performance shown above is based on gross of fees.

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# Non-U.S. Equity Manager Performance



## Barrow Hanley

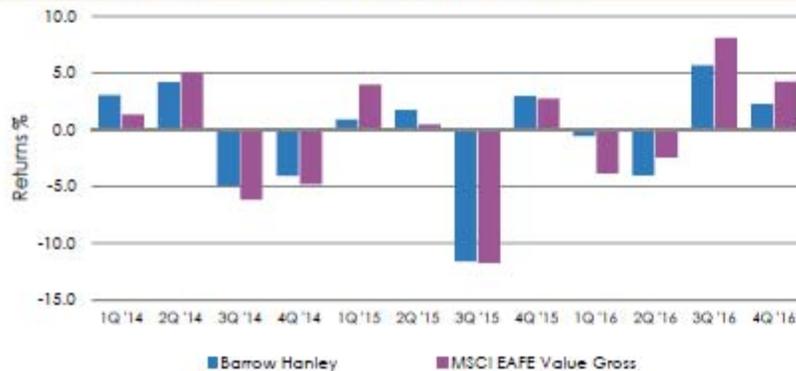
### Objective

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

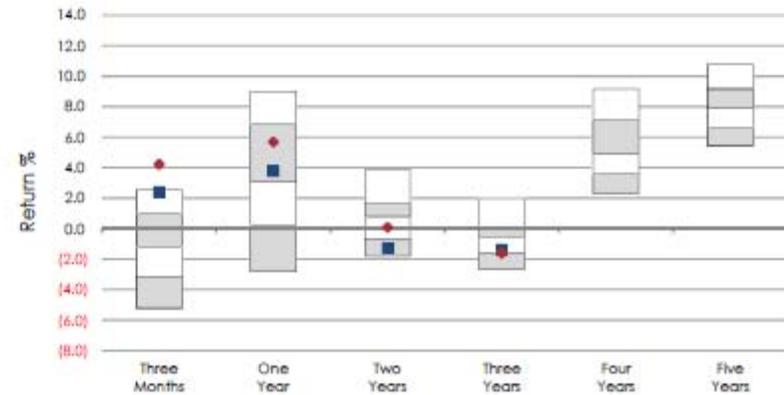


### Performance - Net Returns%

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Barrow Hanley	2.3	3.2	-1.8	-1.9	--	0.1	Nov-2013
MSCI EAFE Value Gross	4.2	5.7	0.1	-1.6	--	-0.9	
Excess Returns	-2.0	-2.5	-1.9	-0.3	--	1.0	

### 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>	2.4	3.8	-1.3	-1.4	--	--
Rank	18	42	88	74	--	--
◆ MSCI EAFE Value Gross	4.2	5.7	0.1	-1.6	--	--
Rank	5	32	65	76	--	--
10 <sup>th</sup> Percentile	2.5	9.0	5.2	3.1	9.2	10.8
25 <sup>th</sup> Percentile	1.0	6.9	3.0	1.2	7.1	9.2
Median	-1.3	3.1	0.8	-0.6	5.0	7.9
75 <sup>th</sup> Percentile	-3.1	0.3	-0.7	-1.6	3.6	6.6
90 <sup>th</sup> Percentile	-5.2	-2.8	-1.8	-2.6	2.3	5.4
Observation	171	162	158	150	136	125

<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



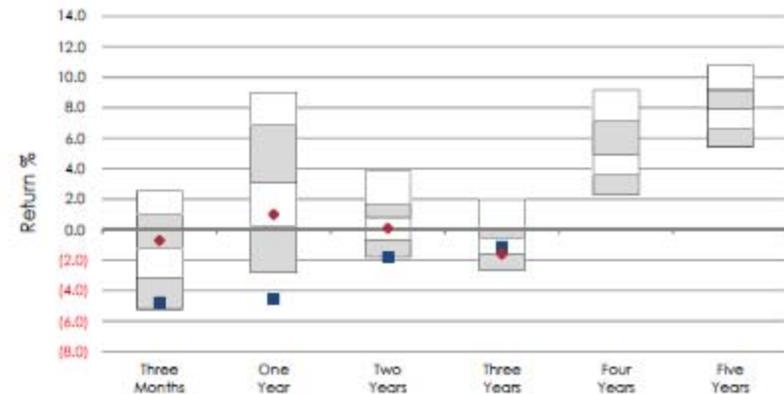
### Performance - Net Returns%

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Lazard Asset Management	-4.8	-5.0	-2.3	-1.6	-	0.3	Nov-2013
MSCI EAFE ND	-0.7	1.0	0.1	-1.6	-	-0.5	
<b>Excess Returns</b>	<b>-4.1</b>	<b>-6.0</b>	<b>-2.4</b>	<b>0.0</b>	<b>-</b>	<b>0.8</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>	-4.8	-4.5	-1.8	-1.1	--	--
Rank	87	94	90	64	--	--
◆ MSCI EAFE ND	-0.7	1.0	0.1	-1.6	--	--
Rank	46	64	65	76	--	--
10 <sup>th</sup> Percentile	2.5	9.0	5.2	3.1	9.2	10.8
25 <sup>th</sup> Percentile	1.0	6.9	3.0	1.2	7.1	9.2
Median	-1.3	3.1	0.8	-0.6	5.0	7.9
75 <sup>th</sup> Percentile	-3.1	0.3	-0.7	-1.6	3.6	6.6
90 <sup>th</sup> Percentile	-5.2	-2.8	-1.8	-2.6	2.3	5.4
Observation	171	162	158	150	136	125

<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



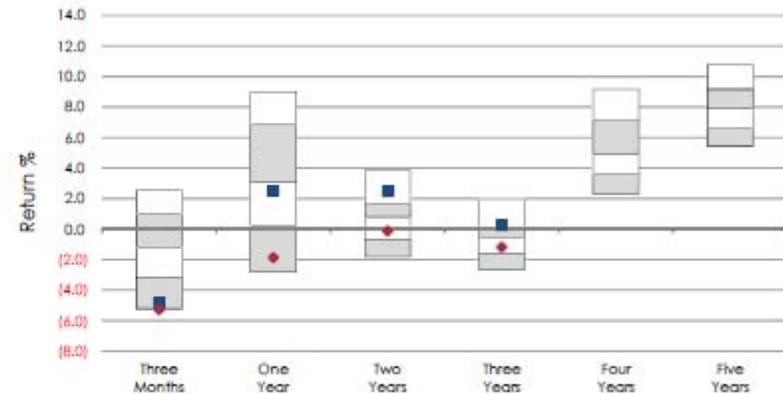
### Performance - Net Returns%

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
MFS Inst. Adv.	-4.9	1.9	1.9	-0.3	--	0.8	Oct-2013
MSCI World ex US Growth (net)	-5.3	-1.9	-0.1	-1.2	--	-0.4	
<b>Excess Returns</b>	<b>0.3</b>	<b>3.8</b>	<b>2.0</b>	<b>0.9</b>	<b>--</b>	<b>1.2</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>	-4.8	2.5	2.5	0.2	--	--
Rank	88	53	29	35	--	--
◆ MSCI World ex US Growth (net)	-5.3	-1.9	-0.1	-1.2	--	--
Rank	91	88	67	67	--	--
10 <sup>th</sup> Percentile	2.5	9.0	5.2	3.1	9.2	10.8
25 <sup>th</sup> Percentile	1.0	6.9	3.0	1.2	7.1	9.2
Median	-1.3	3.1	0.8	-0.6	5.0	7.9
75 <sup>th</sup> Percentile	-3.1	0.3	-0.7	-1.6	3.6	6.6
90 <sup>th</sup> Percentile	-5.2	-2.8	-1.8	-2.6	2.3	5.4
Observation	171	162	158	150	136	125

<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



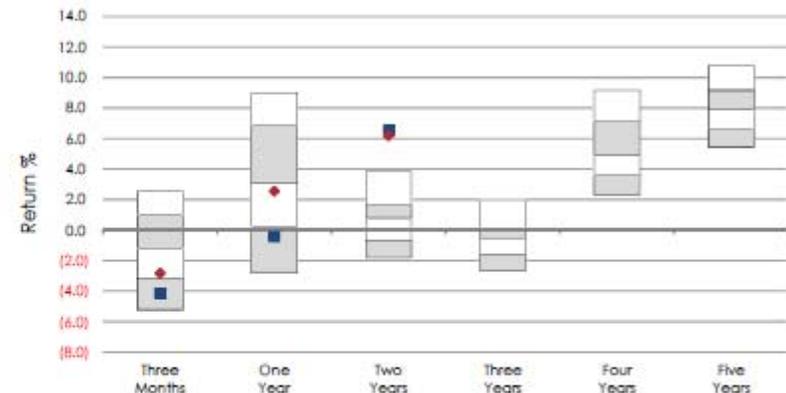
### Performance - Net Returns%

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
AQR CAPITAL	-4.3	-1.2	5.7	--	--	1.9	Feb-2014
MSCI EAFE 5m Cp	-2.8	2.6	6.2	--	--	1.6	
<b>Excess Returns</b>	<b>-1.5</b>	<b>-3.8</b>	<b>-0.4</b>	<b>--</b>	<b>--</b>	<b>0.4</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>	-4.2	-0.4	6.5	--	--	--
Rank	83	82	3	--	--	--
◆ MSCI EAFE 5m Cp	-2.8	2.6	6.2	--	--	--
Rank	72	53	3	--	--	--
10 <sup>th</sup> Percentile	2.5	9.0	5.2	3.1	9.2	10.8
25 <sup>th</sup> Percentile	1.0	6.9	3.0	1.2	7.1	9.2
Median	-1.3	3.1	0.8	-0.6	5.0	7.9
75 <sup>th</sup> Percentile	-3.1	0.3	-0.7	-1.6	3.6	6.6
90 <sup>th</sup> Percentile	-5.2	-2.8	-1.8	-2.6	2.3	5.4
Observation	171	162	158	150	136	125

<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



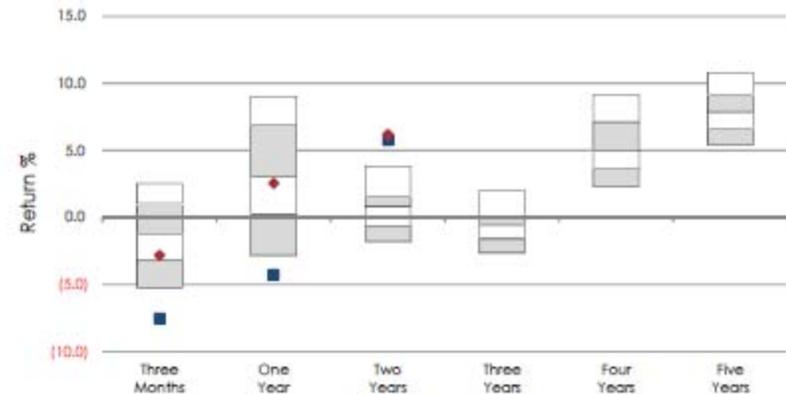
### Performance - Net Returns%

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Oberweis Asset Mgmt	-7.7	-5.0	4.9	--	--	1.6	Jan-2014
MSCI EAFE Sm Cp	-2.8	2.6	6.2	--	--	2.0	
<b>Excess Returns</b>	<b>-4.9</b>	<b>-7.5</b>	<b>-1.3</b>	<b>--</b>	<b>--</b>	<b>-0.3</b>	

### Quartile Rankings

Mandate: Non-US Developed Equity Mgrs.

Benchmark: MSCI EAFE Sm Cp



	LCQ	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.
■ Oberweis Asset Mgmt <sup>1</sup>	-7.5	-4.3	5.8	--	--	--
Rank	95	93	5	--	--	--
◆ MSCI EAFE Sm Cp	-2.8	2.6	6.2	--	--	--
Rank	72	53	3	--	--	--
10 <sup>th</sup> Percentile	2.5	9.0	5.2	3.1	9.2	10.8
25 <sup>th</sup> Percentile	1.0	6.9	3.0	1.2	7.1	9.2
Median	-1.3	3.1	0.8	-0.6	5.0	7.9
75 <sup>th</sup> Percentile	-3.1	0.3	-0.7	-1.6	3.6	6.6
90 <sup>th</sup> Percentile	-5.2	-2.8	-1.8	-2.6	2.3	5.4
Observation	171	162	158	150	136	125

<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

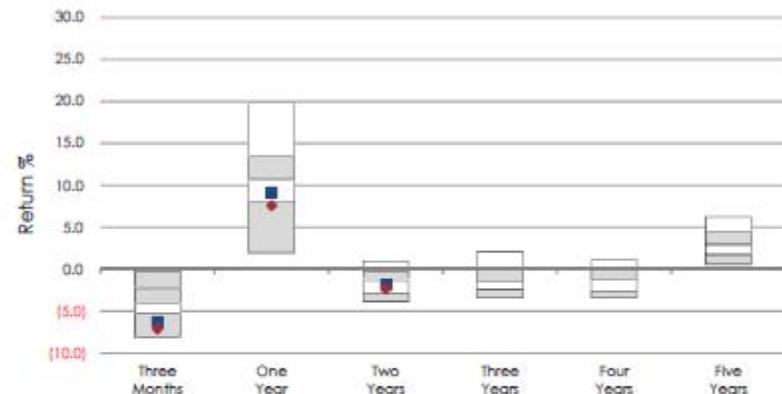


### Performance - Net Returns%

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Axiom International	-6.4	8.4	-2.6	--	--	-2.0	Mar-2014
MSCI EM Growth Net index	-7.1	7.6	-2.3	--	--	-1.8	
Excess Returns	0.7	0.8	-0.2	--	--	-0.2	

### 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>	-6.3	9.2	-1.9	--	--	--
Rank	84	68	61	--	--	--
◆ MSCI EM Growth Net index	-7.1	7.6	-2.3	--	--	--
Rank	87	78	69	--	--	--
10 <sup>th</sup> Percentile	-0.2	19.8	1.0	2.2	1.4	6.2
25 <sup>th</sup> Percentile	-2.3	13.6	-0.3	0.0	0.2	4.4
Median	-4.1	10.7	-1.3	-1.4	-1.2	2.9
75 <sup>th</sup> Percentile	-5.3	8.0	-2.9	-2.4	-2.6	1.8
90 <sup>th</sup> Percentile	-8.1	2.0	-3.8	-3.4	-3.4	0.6
Observation	84	74	74	67	60	53

<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



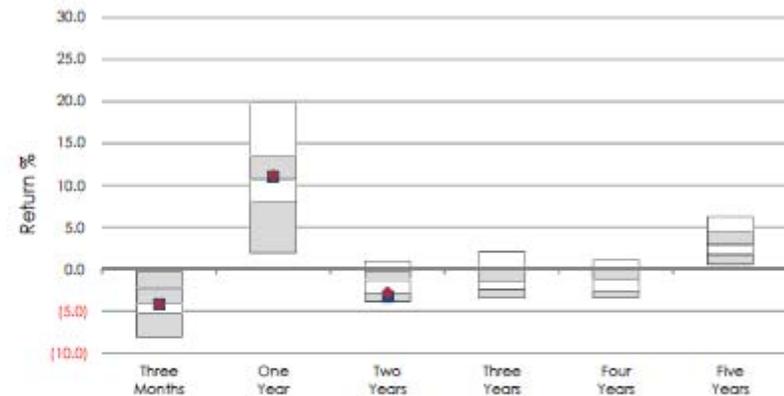
### Performance - Net Returns%

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
QUANTITATIVE MANAGEMENT <sup>1</sup>	-4.2	10.6	-3.8	--	--	-2.5	Apr-2014
MSCI Emerging Markets ND	-4.2	11.2	-2.7	--	--	-3.1	
Excess Returns	-0.1	-0.6	-1.0	--	--	0.6	

### Quartile Rankings

Mandate: Emerging Markets Equity

Benchmark: MSCI Emerging Markets ND



	LCQ	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.
■ QUANTITATIVE MANAGEMENT	-4.1	11.1	-3.3	--	--	--
Rank	50	46	63	--	--	--
◆ MSCI Emerging Markets ND	-4.2	11.2	-2.7	--	--	--
Rank	52	43	73	--	--	--
10 <sup>th</sup> Percentile	-0.2	19.8	1.0	2.2	1.4	6.2
25 <sup>th</sup> Percentile	-2.3	13.6	-0.3	0.0	0.2	4.4
Median	-4.1	10.7	-1.3	-1.4	-1.2	2.9
75 <sup>th</sup> Percentile	-5.3	8.0	-2.9	-2.4	-2.6	1.8
90 <sup>th</sup> Percentile	-8.1	2.0	-3.8	-3.4	-3.4	0.6
Observation	84	74	74	67	60	53

<sup>1</sup> 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**

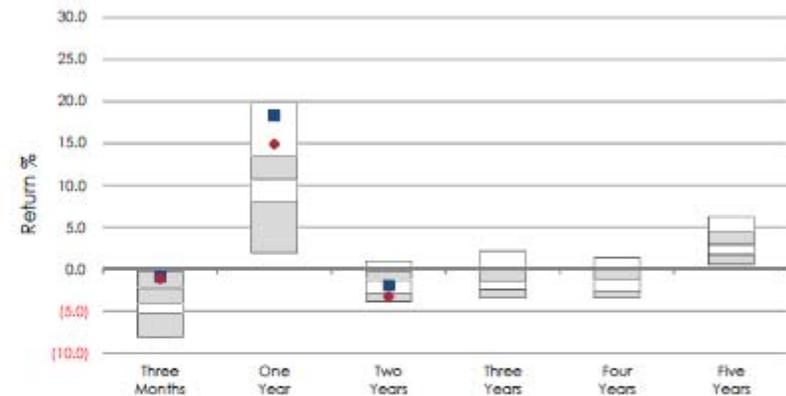
**Performance - Net Returns%**

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
DFA Emerging Markets	-1.1	17.9	-2.5	--	--	-7.3	Jul-2014
MSCI Emerging Markets Value	-1.1	14.9	-3.3	--	--	-8.1	
<b>Excess Returns</b>	<b>0.0</b>	<b>3.0</b>	<b>0.8</b>	<b>--</b>	<b>--</b>	<b>0.8</b>	

**Quartile Rankings**

Mandate: Emerging Markets Equity

Benchmark: MSCI Emerging Markets Value (IND) USD



	LCQ	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.
■ DFA Emerging Markets <sup>1</sup>	-0.9	18.3	-1.9	--	--	--
Rank	13	14	66	--	--	--
◆ MSCI Emerging Markets Value	-1.1	14.9	-3.3	--	--	--
Rank	21	22	80	--	--	--
10 <sup>th</sup> Percentile	-0.2	19.8	1.0	2.2	1.4	6.2
25 <sup>th</sup> Percentile	-2.3	13.6	-0.3	0.0	0.2	4.4
Median	-4.1	10.7	-1.3	-1.4	-1.2	2.9
75 <sup>th</sup> Percentile	-5.3	8.0	-2.9	-2.4	-2.6	1.8
90 <sup>th</sup> Percentile	-8.1	2.0	-3.8	-3.4	-3.4	0.6
Observation	84	74	74	67	60	53

<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

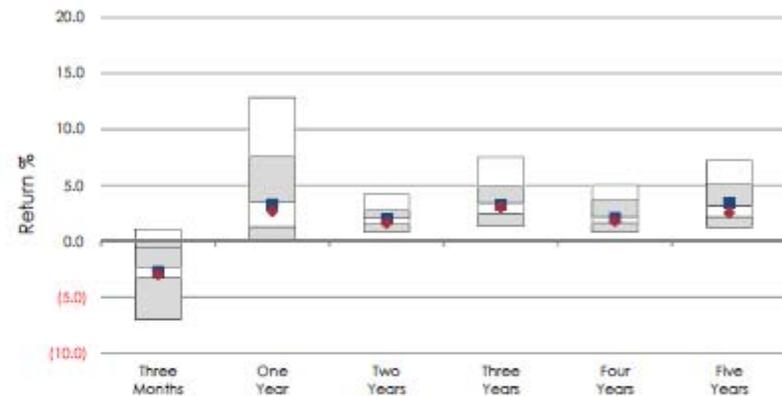


### Performance - Net Returns%

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Neuberger Berman	-2.8	3.1	1.8	3.1	3.3	6.0	Sep-2001
BC US Agg LACERS	-3.0	2.6	1.6	3.0	2.5	4.8	
<b>Excess Returns</b>	<b>0.2</b>	<b>0.5</b>	<b>0.2</b>	<b>0.1</b>	<b>0.8</b>	<b>1.3</b>	

### Quartile Rankings

Mandate: US Fixed Income Manager  
Benchmark: Bloomberg BC US Agg LACERS



	LCQ	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.
■ Neuberger Berman <sup>1</sup>	-2.7	3.3	2.0	3.3	2.1	3.4
Rank	62	52	53	55	55	47
◆ BC US Agg LACERS	-3.0	2.6	1.6	3.0	1.8	2.5
Rank	69	62	71	62	70	67
10 <sup>th</sup> Percentile	1.1	12.8	4.2	7.5	5.0	7.2
25 <sup>th</sup> Percentile	-0.5	7.7	2.8	5.0	3.6	5.1
Median	-2.3	3.5	2.0	3.4	2.2	3.2
75 <sup>th</sup> Percentile	-3.3	1.3	1.5	2.5	1.6	2.2
90 <sup>th</sup> Percentile	-7.0	0.2	0.9	1.3	0.8	1.3
Observation	329	316	311	301	283	239

<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 Moody's.

### Performance - Quarterly Rate of Return vs Benchmark

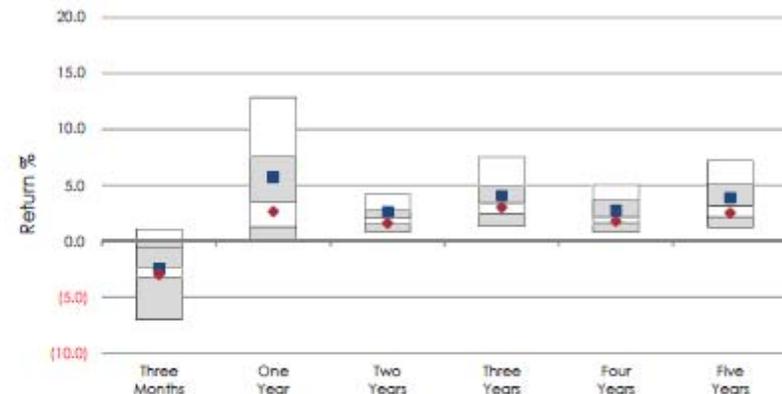


### Performance - Net Returns%

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Loomis Sayles	-2.5	5.6	2.5	3.9	3.8	9.4	Jul-1980
BC US Agg LACERS cust	-3.0	2.6	1.6	3.0	2.5	7.9	
<b>Excess Returns</b>	<b>0.5</b>	<b>2.9</b>	<b>0.9</b>	<b>0.9</b>	<b>1.2</b>	<b>1.5</b>	

### Quartile Rankings

Mandate: US Fixed Income Manager  
 Benchmark: Bloomberg BC US Agg LACERS cust



	LCQ	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.
■ Loomis Sayles <sup>1</sup>	-2.5	5.7	2.6	4.1	2.8	3.9
Rank	54	34	30	38	43	44
◆ BC US Agg LACERS cust	-3.0	2.6	1.6	3.0	1.8	2.5
Rank	69	62	71	62	70	67
10 <sup>th</sup> Percentile	1.1	12.8	4.2	7.5	5.0	7.2
25 <sup>th</sup> Percentile	-0.5	7.7	2.8	5.0	3.6	5.1
Median	-2.3	3.5	2.0	3.4	2.2	3.2
75 <sup>th</sup> Percentile	-3.3	1.3	1.5	2.5	1.6	2.2
90 <sup>th</sup> Percentile	-7.0	0.2	0.9	1.3	0.8	1.3
Observation	329	316	311	301	283	239

<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	3.4	2.2	2.7	2.8	4.5	Mar-2005
BB Barc US Ag Gvt/Cr Intrmd	-2.1	2.1	1.6	2.1	1.8	3.8	
<b>Excess Returns</b>	<b>0.1</b>	<b>1.3</b>	<b>0.6</b>	<b>0.6</b>	<b>1.0</b>	<b>0.7</b>	

### Quartile Rankings

Mandate: Intermediate Fixed Income

Benchmark: Bloomberg Barc US Ag Gvt/Cr Intrmd



	LCQ	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.
■ Baird Advisors <sup>1</sup>	-1.9	3.5	2.3	2.8	2.1	2.9
Rank	48	17	16	37	26	25
◆ BB Barc US Ag Gvt/Cr Intrmd	-2.1	2.1	1.6	2.1	1.3	1.8
Rank	54	38	51	74	88	77
10 <sup>th</sup> Percentile	-0.5	5.2	2.8	4.0	3.2	4.2
25 <sup>th</sup> Percentile	-1.3	2.9	2.1	3.1	2.1	2.9
Median	-2.0	1.5	1.6	2.5	1.8	2.4
75 <sup>th</sup> Percentile	-2.6	0.3	1.4	2.1	1.5	1.9
90 <sup>th</sup> Percentile	-3.1	-0.1	0.9	1.3	1.1	1.5
Observation	94	98	99	98	86	81

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

## LM Capital Group

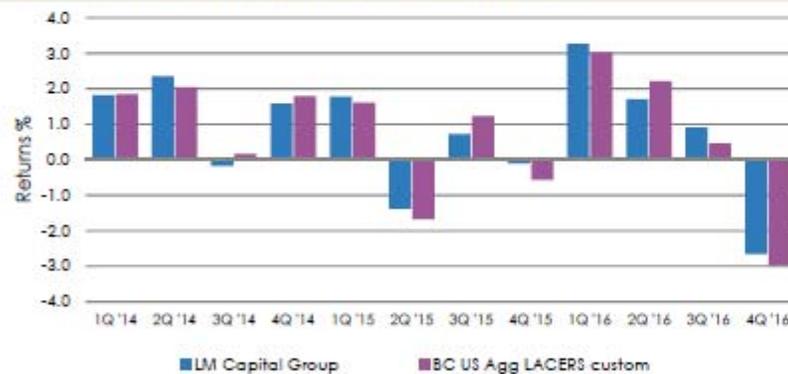
### Objective

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



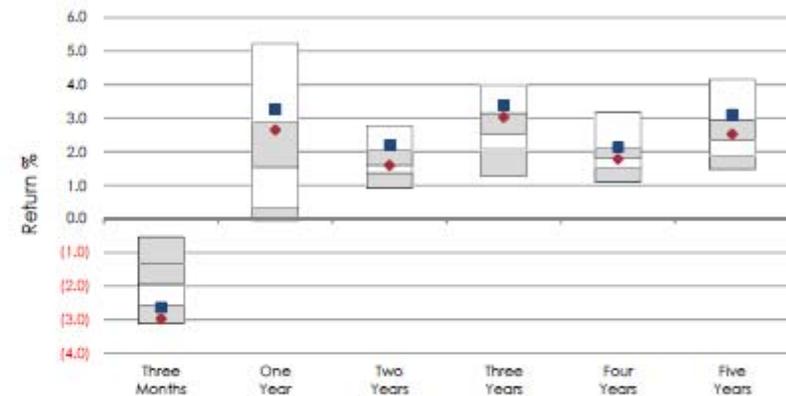
### Performance - Net Returns%

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross IID Return	Inception Date
LM Capital Group	-2.7	3.2	2.1	3.3	3.0	4.8	Mar-2005
BC US Agg LACERS custom	-3.0	2.6	1.6	3.0	2.5	4.2	
<i>Excess Returns</i>	0.3	0.5	0.5	0.2	0.4	0.6	

### Quartile Rankings

Mandate: Intermediate Fixed Income

Benchmark: Bloomberg BC US Agg LACERS custom



	LCQ	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.
■ LM Capital Group <sup>1</sup>	-2.6	3.3	2.2	3.4	2.1	3.1
Rank	78	19	19	20	25	22
◆ BC US Agg LACERS custom	-3.0	2.6	1.6	3.0	1.8	2.5
Rank	90	28	51	28	53	42
10 <sup>th</sup> Percentile	-0.5	5.2	2.8	4.0	3.2	4.2
25 <sup>th</sup> Percentile	-1.3	2.9	2.1	3.1	2.1	2.9
Median	-2.0	1.5	1.6	2.5	1.8	2.4
75 <sup>th</sup> Percentile	-2.6	0.3	1.4	2.1	1.5	1.9
90 <sup>th</sup> Percentile	-3.1	-0.1	0.9	1.3	1.1	1.5
Observation	94	98	99	98	86	81

<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 p

### Performance - Quarterly Rate of Return vs Benchmark



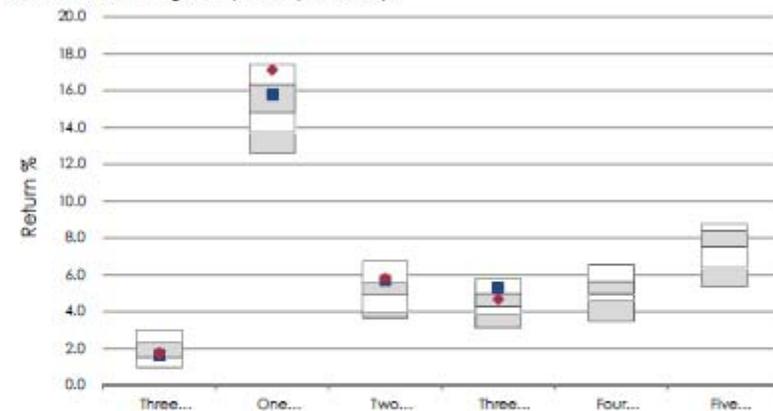
### Performance - Net Returns%

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Aegon USA	1.6	15.4	5.3	4.9	--	6.0	Jun-2013
BB Barclays US Corp HY 2% Ca	1.8	17.1	5.8	4.7	--	5.7	
Excess Returns	-0.2	-1.7	-0.5	0.2	--	0.3	

### Quartile Rankings

Mandate: High Yield Fixed Income

Benchmark: Bloomberg Barclays US Corp HY 2% Cap



	LCQ	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.
■ Aegon USA <sup>1</sup>	1.7	15.8	5.7	5.3	--	--
Rank	43	30	19	14	--	--
◆ BB Barclays US Corp HY 2% Ca	1.8	17.1	5.8	4.7	--	--
Rank	41	13	18	29	--	--
10 <sup>th</sup> Percentile	3.0	17.4	6.7	5.8	6.6	8.8
25 <sup>th</sup> Percentile	2.3	16.4	5.6	5.0	5.6	8.4
Median	1.5	14.8	4.9	4.3	5.0	7.5
75 <sup>th</sup> Percentile	1.0	13.7	4.0	3.8	4.6	6.4
90 <sup>th</sup> Percentile	0.9	12.6	3.7	3.1	3.5	5.4
Observation	39	39	38	35	34	32

<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 a driver of value-add and incorporates tactical or opportunistic exposures.

### Performance - Quarterly Rate of Return vs Benchmark



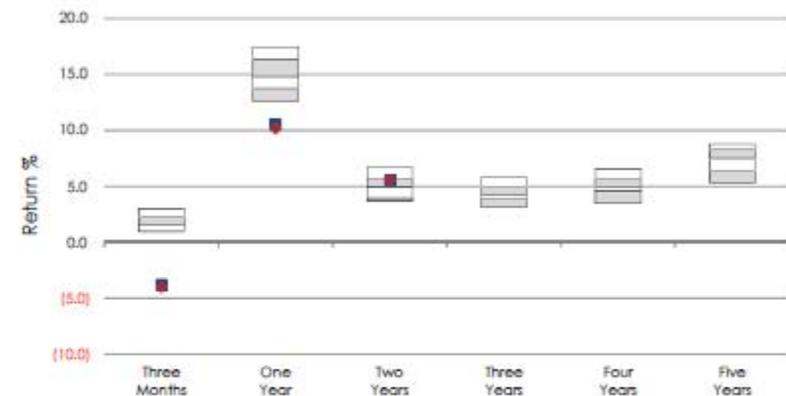
### Performance - Net Returns%

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Prudential Emerging	-3.9	10.0	5.1	--	--	4.1	Jun-2014
JPM EMBI Global Diversified	-4.0	10.2	5.6	--	--	4.0	
<b>Excess Returns</b>	<b>0.1</b>	<b>-0.2</b>	<b>-0.5</b>	<b>--</b>	<b>--</b>	<b>0.1</b>	

### 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>	-3.8	10.5	5.5	--	--	--
Rank	100	97	27	--	--	--
◆ JPM EMBI Global Diversified	-4.0	10.2	5.6	--	--	--
Rank	100	97	26	--	--	--
10 <sup>th</sup> Percentile	3.0	17.4	6.7	5.8	6.6	8.8
25 <sup>th</sup> Percentile	2.3	16.4	5.6	5.0	5.6	8.4
Median	1.5	14.8	4.9	4.3	5.0	7.5
75 <sup>th</sup> Percentile	1.0	13.7	4.0	3.8	4.6	6.4
90 <sup>th</sup> Percentile	0.9	12.6	3.7	3.1	3.5	5.4
Observation	39	39	38	35	34	32

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

## Sankaty Sr Loan Fd L-SL

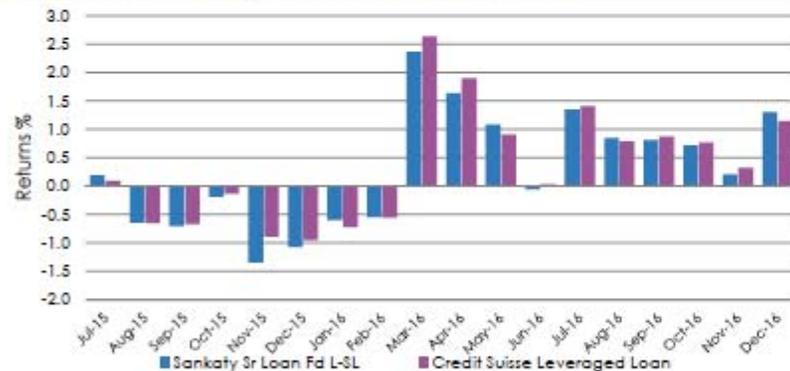
### Objective

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



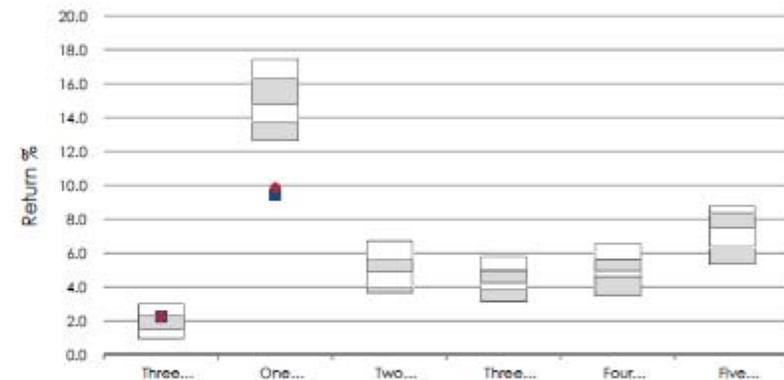
### Performance - Net Returns%

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Sankaty Sr Loan Fd L-SL	2.2	9.5	--	--	--	3.6	Jun-2015
Credit Suisse Leveraged Loan	2.3	9.9	--	--	--	4.2	
Excess Returns	0.0	-0.4	--	--	--	-0.7	

### 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>	2.2	9.5	--	--	--	--
Rank	26	98	--	--	--	--
◆ Credit Suisse Leveraged Loan	2.3	9.9	--	--	--	--
Rank	26	98	--	--	--	--
10 <sup>th</sup> Percentile	3.0	17.4	6.7	5.8	6.6	8.8
25 <sup>th</sup> Percentile	2.3	16.4	5.6	5.0	5.6	8.4
Median	1.5	14.8	4.9	4.3	5.0	7.5
75 <sup>th</sup> Percentile	1.0	13.7	4.0	3.8	4.6	6.4
90 <sup>th</sup> Percentile	0.9	12.6	3.7	3.1	3.5	5.4
Observation	39	39	38	35	34	32

<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



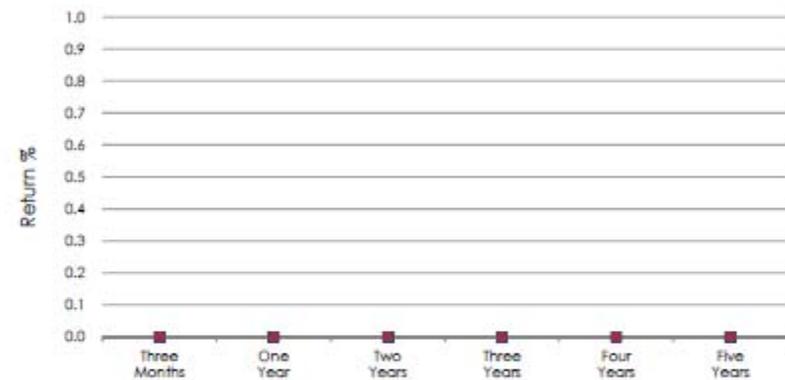
### Performance - Net Returns%

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
DFA GLOBAL TIPS	-2.8	5.1	2.0	--	--	0.5	Jul-2014
BB Barclays (LB) US TIPS	-2.4	4.7	1.6	--	--	0.3	
Excess Returns	-0.4	0.4	0.5	--	--	0.2	

### Quartile Rankings

Mandate: US TIPS

Benchmark: Bloomberg 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**



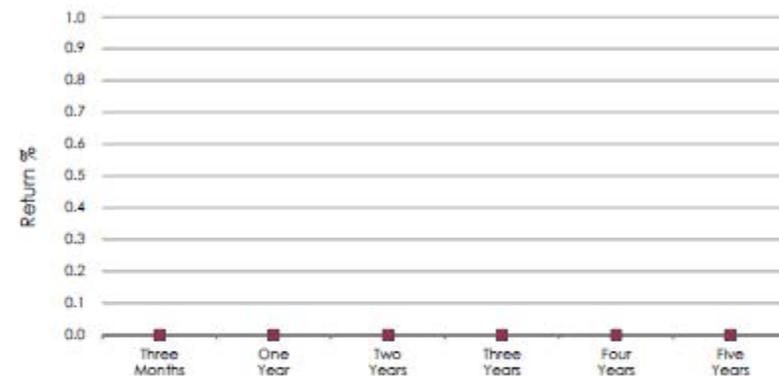
**Performance - Net Returns%**

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
CNTRSQ INV MGMT US RE SE	-3.7	8.4	--	--	--	6.9	Apr-2015
FTSE NAREIT US Equity Index	-3.3	8.6	--	--	--	5.3	
<i>Excess Returns</i>	-0.4	-0.3	--	--	--	1.6	

**Quartile Rankings**

Mandate: US REIT

Benchmark: FTSE NAREIT US EQUITY



	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.

## 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



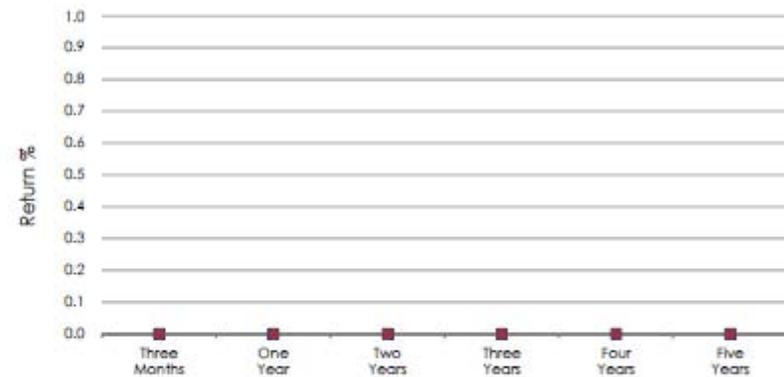
### Performance - Net Returns%

	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Core Commodity Mgmt LLC	2.3	11.8	--	--	--	-8.9	Jun-2015
Bloomberg Commodity Index	2.7	11.8	--	--	--	-9.0	
Excess Returns	-0.4	0.0	--	--	--	0.1	

### Quartile Rankings

Mandate: Commodities

Benchmark: Bloomberg Commodity Index



	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

1 Performance shown above is based on gross of fees.