

# PORTFOLIO PERFORMANCE REVIEW

## LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM

Quarter Ending September 30, 2020



**LACERS**  
LOS ANGELES CITY EMPLOYEES'  
RETIREMENT SYSTEM



BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

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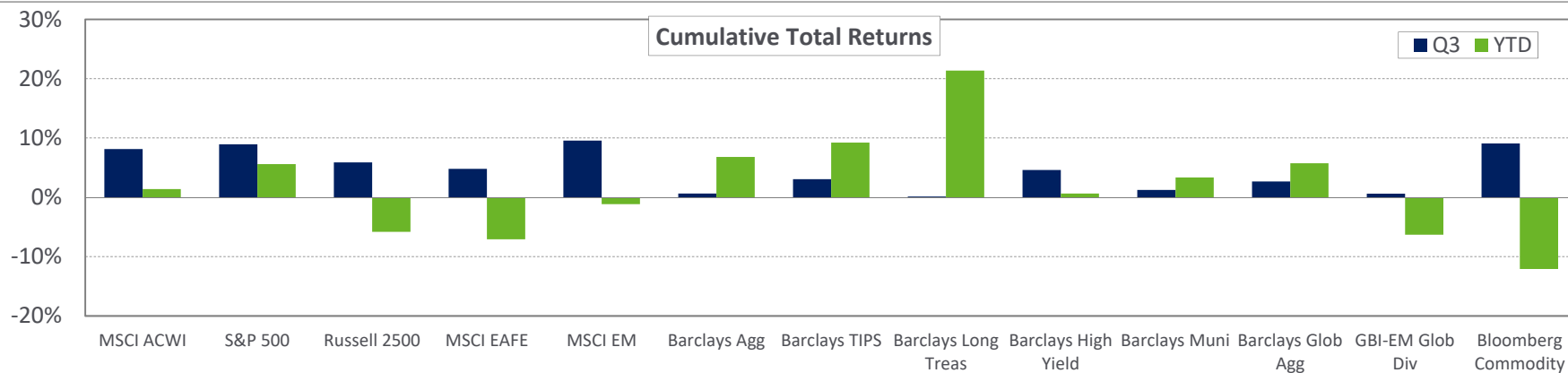
# EXECUTIVE SUMMARY

NEPC, LLC

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# PERFORMANCE OVERVIEW

## Q3 Market Summary – Risk Assets Rallied Significantly



	Market Value	3 Mo	Rank	YTD	Rank	1 Yr	Rank	3 Yrs	Rank	5 Yrs	Rank	10 Yrs	Rank	15 Yrs	Rank	Inception	Inception Date
<b>LACERS Master Trust</b>	<b>\$19,228,204,388</b>	<b>6.23%</b>	<b>7</b>	<b>1.57%</b>	<b>46</b>	<b>7.01%</b>	<b>40</b>	<b>6.24%</b>	<b>28</b>	<b>8.36%</b>	<b>25</b>	<b>8.48%</b>	<b>15</b>	<b>6.82%</b>	<b>19</b>	<b>8.12%</b>	<b>Oct-94</b>
Policy Index		5.77%	22	2.91%	24	9.29%	9	7.11%	13	9.18%	11	8.61%	13	6.88%	15	8.16%	Oct-94
InvMetrics Public DB \$1-50B Gross Median		5.04%		0.99%		6.23%		5.47%		7.64%		7.51%		6.16%		7.72%	Oct-94

Note: Performance is gross of fees

### Risk assets rallied significantly as global fiscal and monetary stimulus buoys markets and investors shrugged-off the virus' trajectory

- The U.S. Equity composite underperformed due to manager selection and the Non-U.S. Equity composite outperformed due to manager selection.

### Credit spreads declined in Q3 reflecting the Fed's involvement in credit markets

- The Core Fixed Income composite outperformed due to manager performance.

### Real assets turned in mixed performance in the third quarter with most sectors in the red so far this year as the pandemic roils economies around the world.











# MARKET OUTLOOK

NEPC, LLC

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# ECONOMIC DATA HAS SLOWLY IMPROVED

Metric	12/31/19	06/30/20	09/30/20	Trend
S&P 500 NTM Earnings Estimate	\$177.8	\$145.0	\$157.6	
US Real GDP (QoQ%)	2.4%	-31.4%	25.4% <sup>1</sup>	
US 10 Year Breakeven Inflation	1.8%	1.3%	1.6%	
US Unemployment Rate	3.5%	11.1%	7.9%	
Continued Claims for Unemployment	1.7M	19.0M	11.8M <sup>2</sup>	
Federal Reserve Balance Sheet as % of Nominal GDP	19.2%	36.3%	32.9%	

Source: US Bureau of Labor Statistics, Federal Reserve, FactSet, NEPC

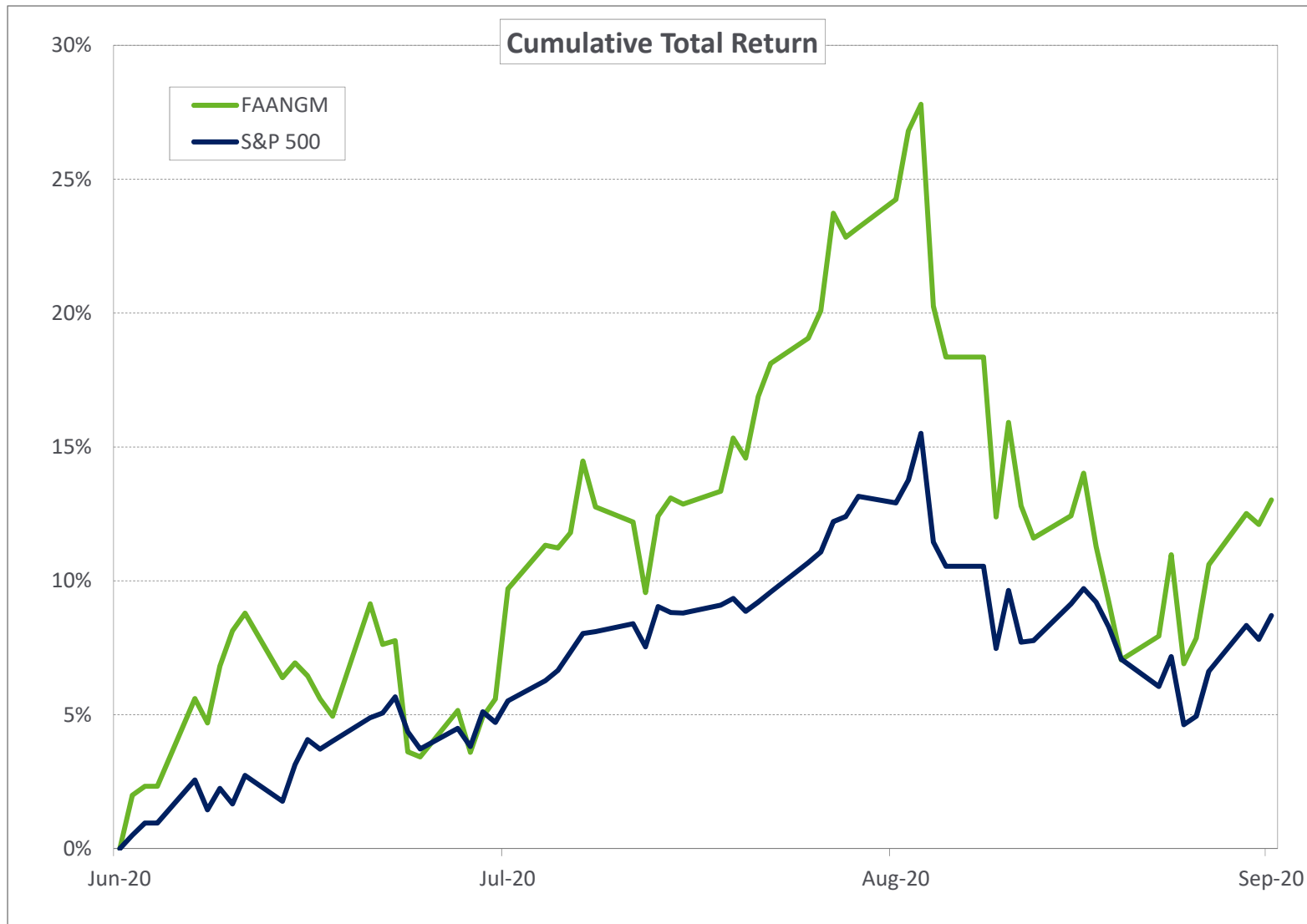
NTM represents next 12 months

<sup>1</sup>The 09/30/20 real GDP figure represents the consensus estimate from FactSet

<sup>2</sup>The 09/30/20 Continued Claims represents data as of 9/18/2020



# FAANGM CONTINUED TO OUTPERFORM

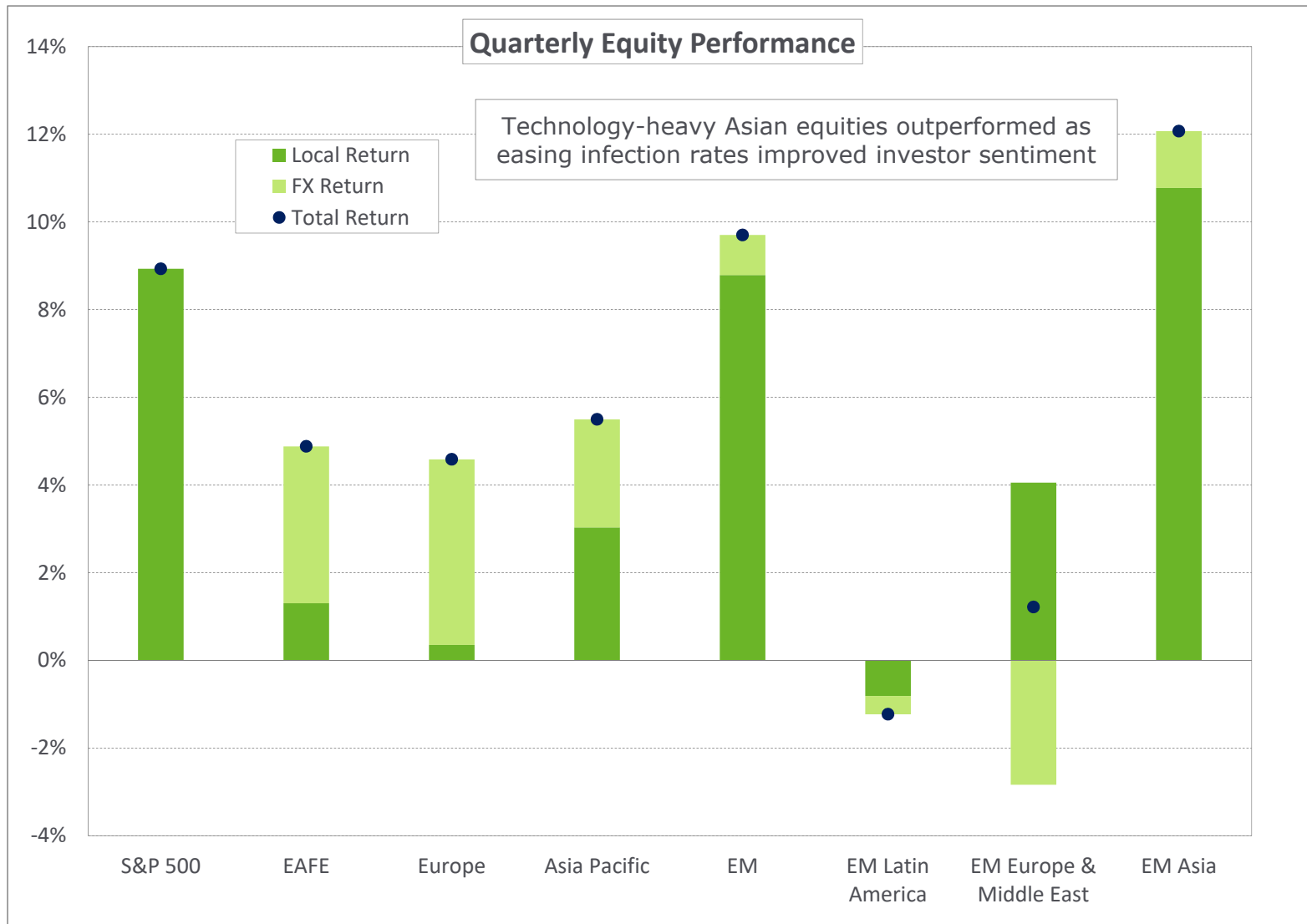


Source: S&P, FactSet

\*FAANGM: Facebook, Apple, Amazon, Netflix, Google, Microsoft



# DOLLAR WEAKNESS BOLSTERED NON-US ASSETS

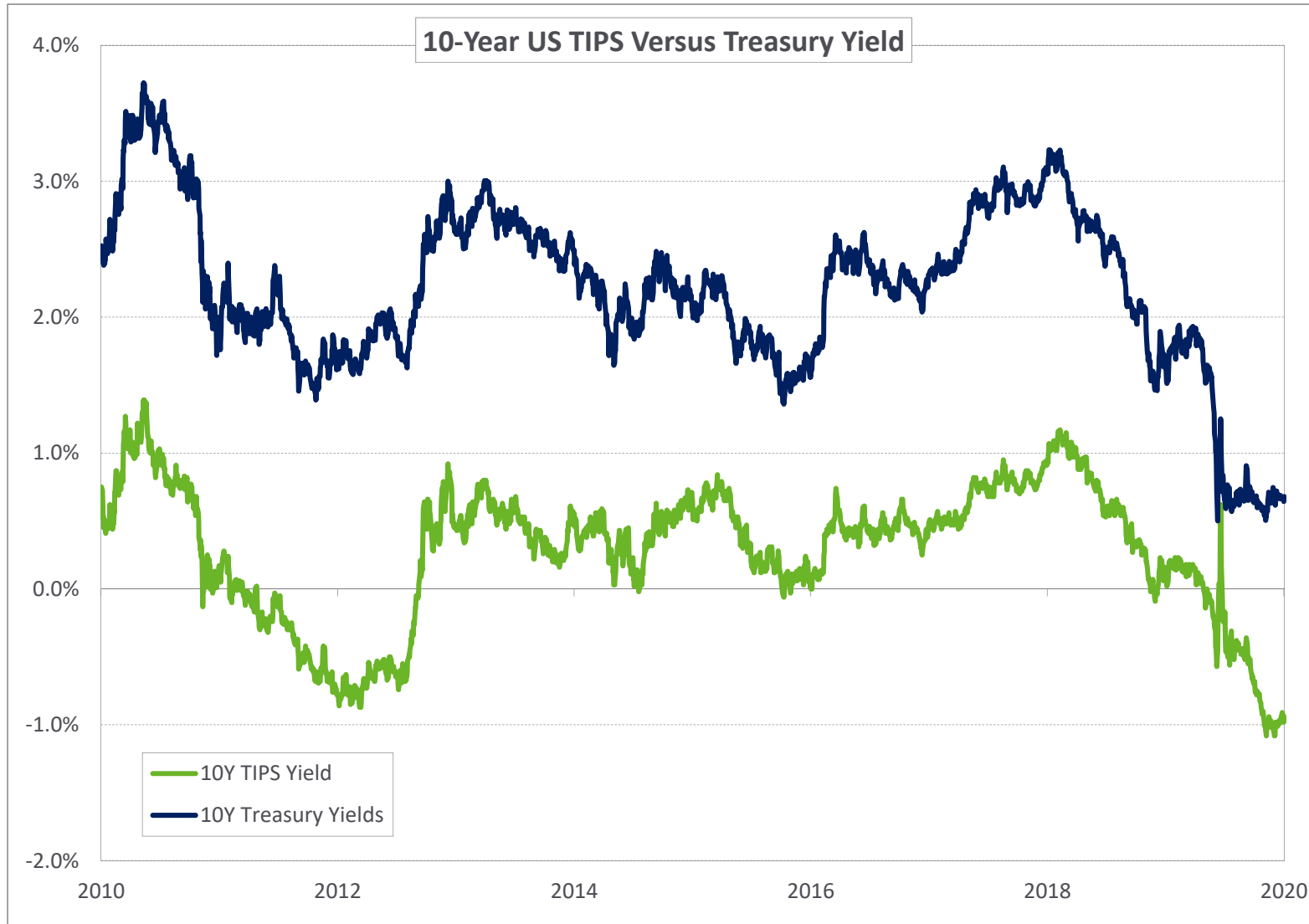


Source: S&P, MSCI, FactSet

Asia Pacific represents (from highest to lowest) Japan, China, Australia, Taiwan, South Korea, and Other  
 EM Europe & Middle East represents (from highest to lowest) Russia, Saudi Arabia, Qatar, Poland, United Arab Emirates, and Other



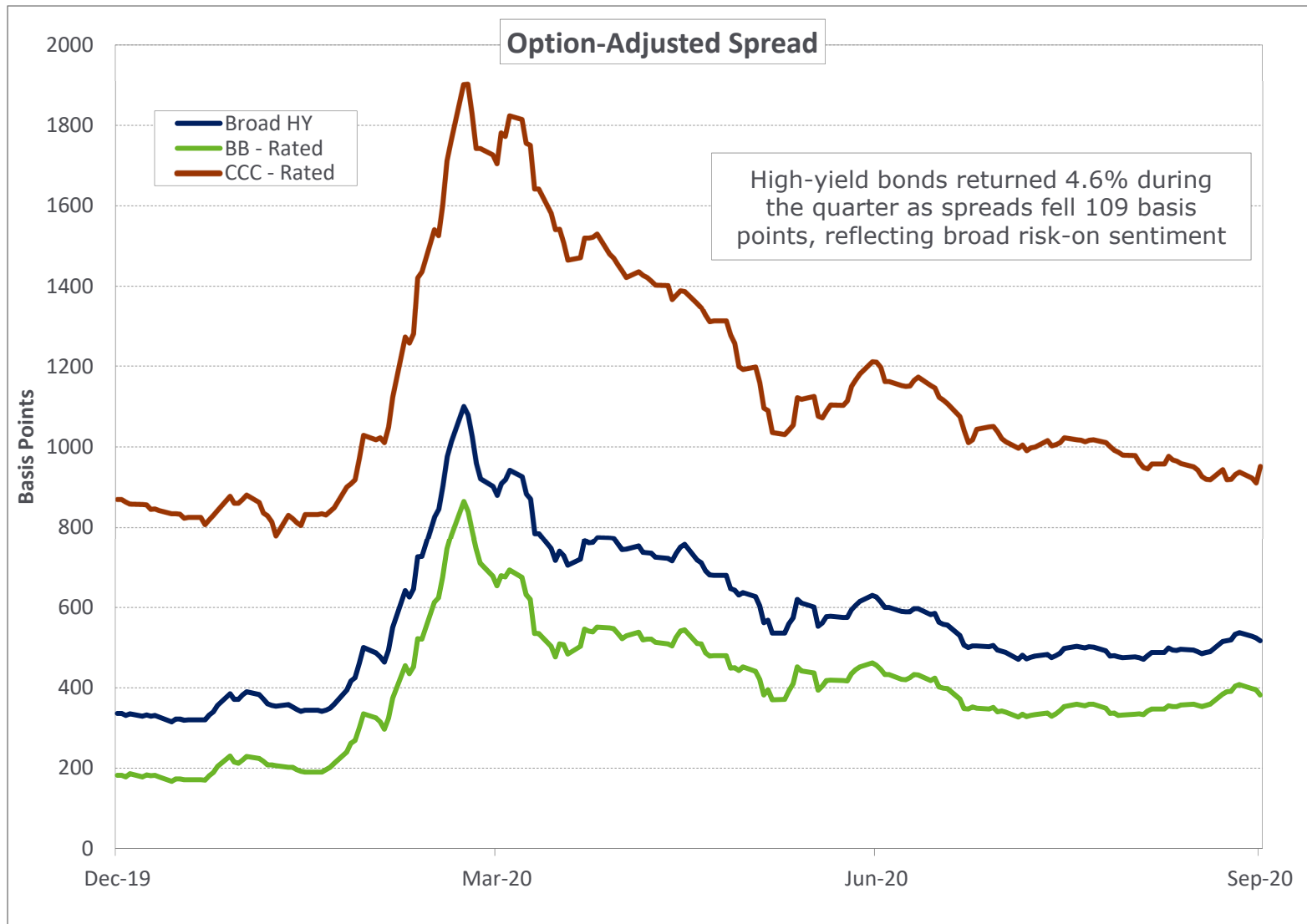
# TREASURY YIELDS FELL TO HISTORICAL LOWS



Source: FactSet



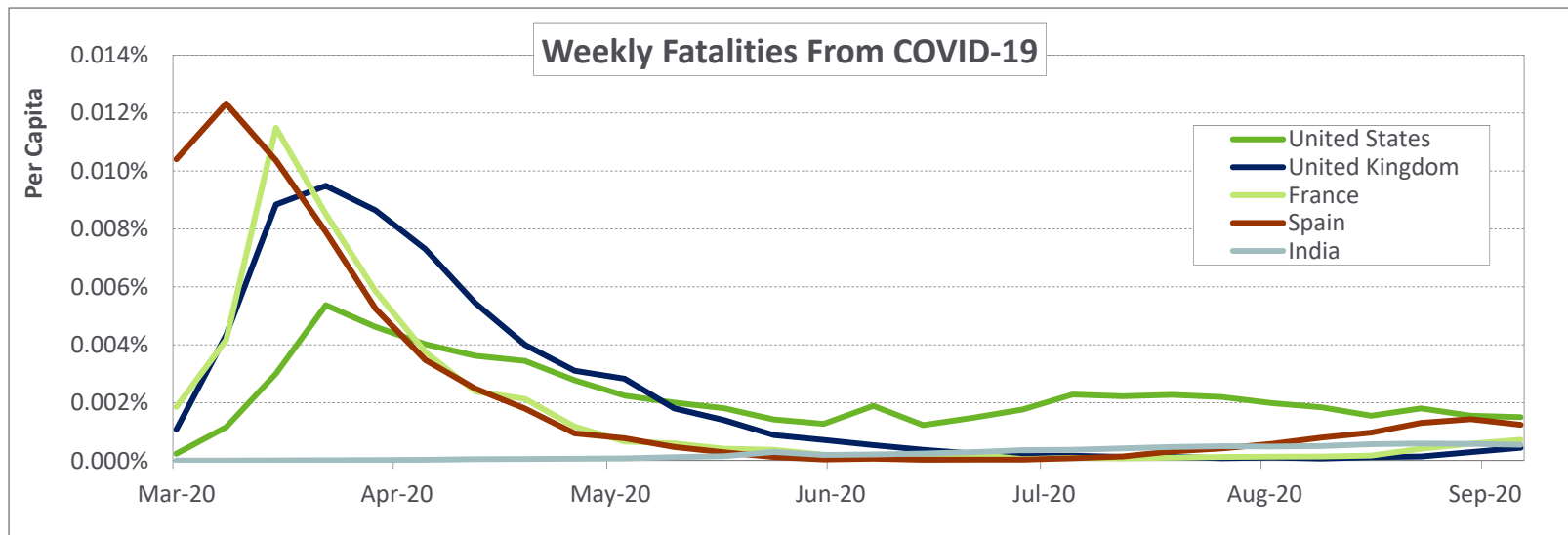
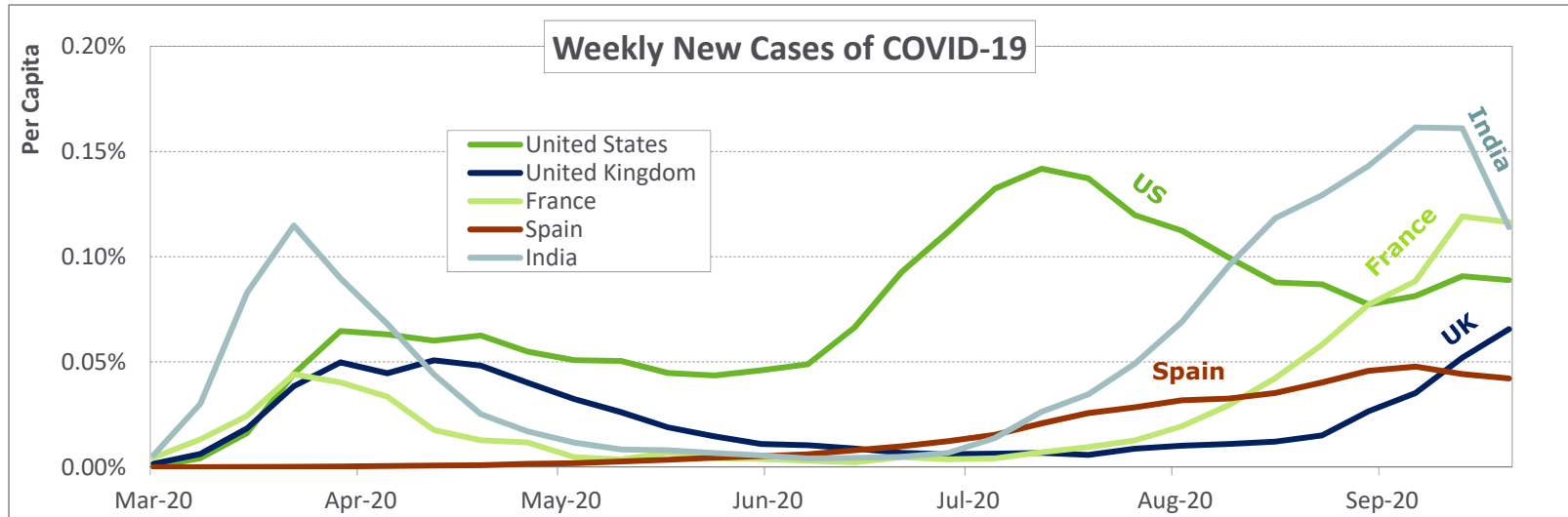
# US SPREADS CONTINUED TO TIGHTEN



Source: Bloomberg, FactSet



# COVID CASES ARE RISING IN EUROPE



Source: WHO, FactSet



# **ASSET CLASS POLICY OVERVIEW**

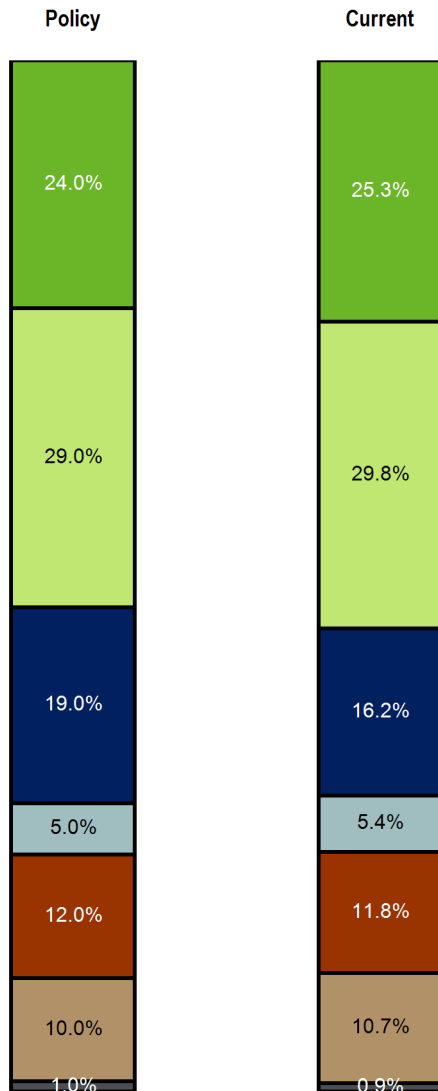
NEPC, LLC

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## Los Angeles City Employees' Retirement System

# TOTAL FUND ASSET ALLOCATION VS. POLICY



Asset Allocation vs. Target						
	Current	Policy	Current Difference*	Policy Range	Within Range	
U.S. Equity	\$4,863,758,759	24.00%	25.29%	1.29%	19.00% - 29.00%	Yes
Non-US Equity Core	\$5,720,452,301	29.00%	29.75%	0.75%	24.00% - 34.00%	Yes
Fixed Income	\$3,122,595,425	19.00%	16.24%	-2.76%	15.00% - 22.00%	Yes
Credit Opportunities	\$1,045,224,818	5.00%	5.44%	0.44%	0.00% - 10.00%	Yes
Private Equity	\$2,260,142,632	12.00%	11.75%	-0.25%		Yes
Real Assets	\$2,049,450,850	10.00%	10.66%	0.66%	7.00% - 13.00%	Yes
Cash	\$166,579,603	1.00%	0.87%	-0.13%	0.00% - 2.00%	Yes
<b>Total</b>	<b>\$19,228,204,388</b>	<b>100.00%</b>	<b>100.00%</b>			

\*Difference between Policy and Current Allocation

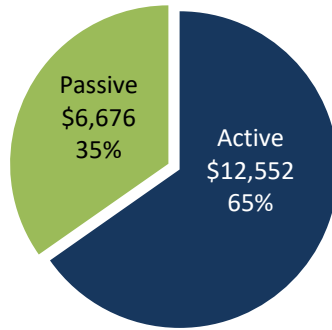
Note: Policy Target Asset Allocation does not reflect the new target asset allocation adopted on April 10, 2018. Implementation of the new asset allocation is currently in progress.



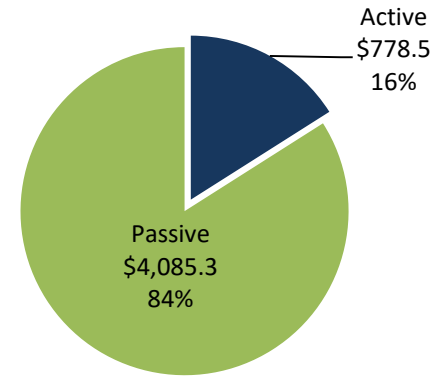
# ACTIVE VS. PASSIVE MANAGER BREAKDOWN

Note: Market values shown in millions \$(000).

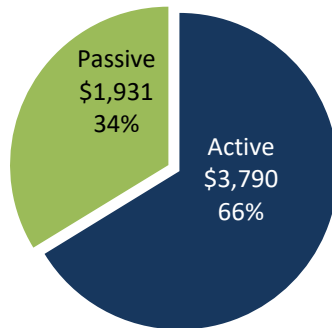
## Total Fund



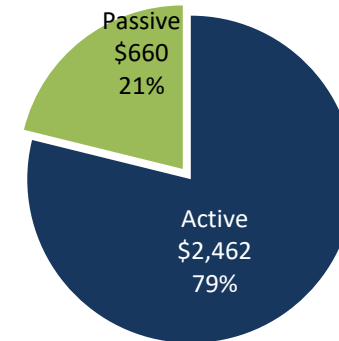
## U.S. Equity



## Non-U.S. Equity



## Core Fixed Income



- LACERS allocated 65% to active managers and 35% to passive managers.
- Credit Opportunities, Private Equity, and Real Assets programs are active and therefore are not shown.



# PERFORMANCE OVERVIEW

NEPC, LLC

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# TOTAL FUND PERFORMANCE SUMMARY (GROSS OF FEES)

	Market Value	3 Mo	Rank	YTD	Rank	1 Yr	Rank	3 Yrs	Rank	5 Yrs	Rank	10 Yrs	Rank	15 Yrs	Rank	Inception	Inception Date
<b>LACERS Master Trust</b>	<b>\$19,228,204,388</b>	<b>6.23%</b>	<b>7</b>	<b>1.57%</b>	<b>46</b>	<b>7.01%</b>	<b>40</b>	<b>6.24%</b>	<b>28</b>	<b>8.36%</b>	<b>25</b>	<b>8.48%</b>	<b>15</b>	<b>6.82%</b>	<b>19</b>	<b>8.12%</b>	<b>Oct-94</b>
Policy Index		5.77%	22	2.91%	24	9.29%	9	7.11%	13	9.18%	11	8.61%	13	6.88%	15	8.16%	Oct-94
InvMetrics Public DB \$1-50B Gross Median		5.04%		0.99%		6.23%		5.47%		7.64%		7.51%		6.16%		7.72%	Oct-94

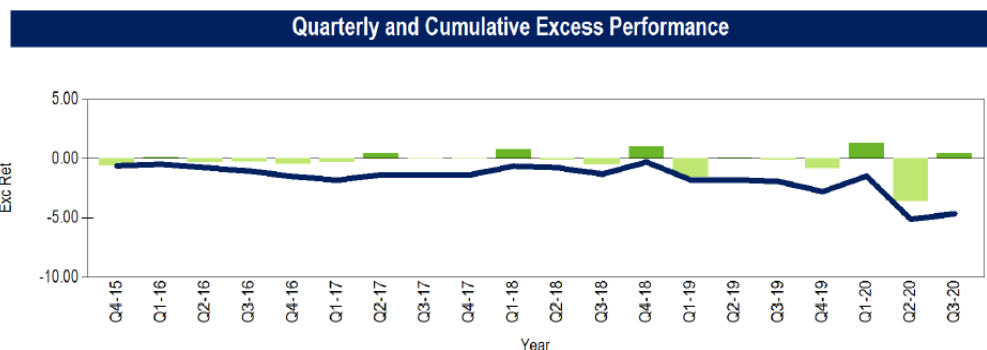
Over the past five years, the Fund returned 8.36% and outperformed the actuarial rate of return but underperformed the policy index by 0.82%. This return ranks in the top quartile (25<sup>th</sup> percentile) within the Public Funds \$1 Billion- \$50 Billion universe. The Fund's volatility of 8.52% ranked in the 60<sup>th</sup> percentile over this period. The Fund's risk-adjusted performance, as measured by the Sharpe Ratio, ranks in the 41<sup>st</sup> percentile and the Sortino Ratio ranks in the 32<sup>nd</sup> percentile.

Over the past three years, the Fund returned 6.24% underperforming the policy index by 0.87% and ranked in the 28<sup>th</sup> percentile in its peer group. The Fund's volatility ranks in the 60<sup>th</sup> percentile and the three-year Sharpe Ratio of 0.47 ranks in the 38<sup>th</sup> percentile while the Sortino Ratio of 0.53 ranks in the 34<sup>th</sup> percentile.

In the one-year ended September 30, 2020, assets increased from \$18.129 billion twelve months ago to \$19.228 billion. The Fund returned 7.01%, underperforming the policy index by 2.28% and ranked in the 40<sup>th</sup> percentile in its peer group.

All asset classes were within policy range as of September 30, 2020.

*The InvMetrics Public Funds \$1 Billion- \$50 Billion Universe contains 88 observations for the period ending September 30, 2020.*



5 Years Ending September 30, 2020								
	Annualized Return (%)	Rank	Annualized Standard Deviation	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank
LACERS Master Trust	8.36%	25	8.52%	60	0.85	41	0.91	32
Policy Index	9.18%	11	9.82%	90	0.82	43	0.90	33
InvMetrics Public DB \$1-50B Gross Median	7.64%	--	8.28%	--	0.77	--	0.79	--

3 Years Ending September 30, 2020								
	Annualized Return (%)	Rank	Annualized Standard Deviation	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank
LACERS Master Trust	6.24%	28	9.97%	60	0.47	38	0.53	34
Policy Index	7.11%	13	11.52%	89	0.48	34	0.56	28
InvMetrics Public DB \$1-50B Gross Median	5.47%	--	9.65%	--	0.42	--	0.45	--



## Los Angeles City Employees' Retirement System

# TOTAL FUND PERFORMANCE DETAIL (GROSS)

	Market Value (\$)	% of Portfolio	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>LACERS Master Trust</b>	<b>19,228,204,388</b>	<b>100.00</b>	<b>6.23</b>	<b>1.57</b>	<b>7.01</b>	<b>6.24</b>	<b>8.36</b>	<b>8.48</b>	<b>8.12</b>	<b>Oct-94</b>
<i>Policy Index</i>			<u>5.77</u>	<u>2.91</u>	<u>9.29</u>	<u>7.11</u>	<u>9.18</u>	<u>8.61</u>	<u>8.16</u>	<i>Oct-94</i>
Over/Under			0.46	-1.34	-2.28	-0.87	-0.82	-0.13	-0.04	
<b>U.S. Equity</b>	<b>4,863,758,759</b>	<b>25.29</b>	<b>8.51</b>	<b>3.28</b>	<b>12.59</b>	<b>10.62</b>	<b>13.03</b>	<b>13.18</b>	<b>10.50</b>	<b>Oct-94</b>
<i>U.S. Equity Blend</i>			<u>9.21</u>	<u>5.41</u>	<u>15.00</u>	<u>11.65</u>	<u>13.69</u>	<u>13.48</u>	<u>9.58</u>	<i>Oct-94</i>
Over/Under			-0.70	-2.13	-2.41	-1.03	-0.66	-0.30	0.92	
<b>Non-U.S. Equity</b>	<b>5,720,452,301</b>	<b>29.75</b>	<b>8.06</b>	<b>-2.96</b>	<b>6.30</b>	<b>2.55</b>	<b>7.52</b>	<b>5.35</b>	<b>5.14</b>	<b>Nov-94</b>
<i>MSCI ACWI ex USA</i>			<u>6.25</u>	<u>-5.44</u>	<u>3.00</u>	<u>1.16</u>	<u>6.23</u>	<u>4.00</u>	<u>4.85</u>	<i>Nov-94</i>
Over/Under			1.81	2.48	3.30	1.39	1.29	1.35	0.29	
<b>Core Fixed Income</b>	<b>3,122,595,425</b>	<b>16.24</b>	<b>1.01</b>	<b>7.82</b>	<b>8.15</b>	<b>5.68</b>	<b>4.72</b>		<b>4.11</b>	<b>Jul-12</b>
<i>Core Fixed Income Blend</i>			<u>0.62</u>	<u>6.79</u>	<u>6.98</u>	<u>5.24</u>	<u>4.18</u>		<u>3.46</u>	<i>Jul-12</i>
Over/Under			0.39	1.03	1.17	0.44	0.54		0.65	
<b>Credit Opportunities</b>	<b>1,045,224,818</b>	<b>5.44</b>	<b>4.20</b>	<b>-0.96</b>	<b>1.52</b>	<b>3.81</b>	<b>6.22</b>		<b>5.24</b>	<b>Jun-13</b>
<i>Credit Opportunities Blend</i>			<u>3.78</u>	<u>0.22</u>	<u>2.56</u>	<u>3.97</u>	<u>6.59</u>		<u>5.54</u>	<i>Jun-13</i>
Over/Under			0.42	-1.18	-1.04	-0.16	-0.37		-0.30	
<b>Real Assets</b>	<b>2,049,450,850</b>	<b>10.66</b>	<b>1.66</b>	<b>-0.18</b>	<b>1.31</b>	<b>4.25</b>	<b>5.28</b>	<b>7.78</b>	<b>6.12</b>	<b>Nov-94</b>
<i>CPI + 5% (Unadjusted)</i>			<u>2.20</u>	<u>5.06</u>	<u>6.43</u>	<u>6.87</u>	<u>6.89</u>	<u>6.85</u>	<u>7.26</u>	<i>Nov-94</i>
Over/Under			-0.54	-5.24	-5.12	-2.62	-1.61	0.93	-1.14	
<b>Public Real Assets</b>	<b>1,243,465,383</b>	<b>6.47</b>	<b>3.95</b>	<b>2.63</b>	<b>4.07</b>	<b>4.15</b>	<b>3.98</b>		<b>2.33</b>	<b>Jun-14</b>
<i>Public Real Assets Blend</i>			<u>2.03</u>	<u>-2.07</u>	<u>-1.07</u>	<u>1.65</u>	<u>2.27</u>		<u>-0.42</u>	<i>Jun-14</i>
Over/Under			1.92	4.70	5.14	2.50	1.71		2.75	
<b>Private Real Estate</b>	<b>787,209,372</b>	<b>4.09</b>	<b>-1.75</b>	<b>-4.44</b>	<b>-2.87</b>	<b>3.82</b>	<b>6.14</b>	<b>8.80</b>	<b>6.50</b>	<b>Oct-94</b>
<i>Real Estate Blend</i>			<u>0.68</u>	<u>0.48</u>	<u>2.20</u>	<u>6.02</u>	<u>7.49</u>	<u>10.49</u>	<u>9.53</u>	<i>Oct-94</i>
Over/Under			-2.43	-4.92	-5.07	-2.20	-1.35	-1.69	-3.03	
<b>Private Equity</b>	<b>2,260,142,632</b>	<b>11.75</b>	<b>11.09</b>	<b>3.95</b>	<b>3.95</b>	<b>10.28</b>	<b>9.54</b>	<b>11.95</b>	<b>10.25</b>	<b>Nov-95</b>
<i>Private Equity Blend</i>			<u>9.99</u>	<u>7.77</u>	<u>18.42</u>	<u>14.97</u>	<u>17.06</u>	<u>17.05</u>	<u>13.18</u>	<i>Nov-95</i>
Over/Under			1.10	-3.82	-14.47	-4.69	-7.52	-5.10	-2.93	
<b>Cash</b>	<b>166,579,603</b>	<b>0.87</b>								



## Los Angeles City Employees' Retirement System

# TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>LACERS Master Trust</b>	<b>19,228,204,388</b>	<b>100.00</b>	<b>6.19</b>	<b>1.45</b>	<b>6.84</b>	<b>6.06</b>	<b>8.17</b>	<b>8.29</b>		<b>Oct-94</b>
Policy Index			<u>5.77</u>	<u>2.91</u>	<u>9.29</u>	<u>7.11</u>	<u>9.18</u>	<u>8.61</u>		Oct-94
Over/Under			0.42	-1.46	-2.45	-1.05	-1.01	-0.32		
<b>U.S. Equity</b>	<b>4,863,758,759</b>	<b>25.29</b>	<b>8.50</b>	<b>3.25</b>	<b>12.54</b>	<b>10.56</b>	<b>12.96</b>	<b>13.04</b>		<b>Oct-94</b>
U.S. Equity Blend			<u>9.21</u>	<u>5.41</u>	<u>15.00</u>	<u>11.65</u>	<u>13.69</u>	<u>13.48</u>		Oct-94
Over/Under			-0.71	-2.16	-2.46	-1.09	-0.73	-0.44		
<b>Non-U.S. Equity</b>	<b>5,720,452,301</b>	<b>29.75</b>	<b>7.97</b>	<b>-3.21</b>	<b>5.94</b>	<b>2.18</b>	<b>7.13</b>	<b>5.00</b>		<b>Nov-94</b>
MSCI ACWI ex USA			<u>6.25</u>	<u>-5.44</u>	<u>3.00</u>	<u>1.16</u>	<u>6.23</u>	<u>4.00</u>		Nov-94
Over/Under			1.72	2.23	2.94	1.02	0.90	1.00		
<b>Core Fixed Income</b>	<b>3,122,595,425</b>	<b>16.24</b>	<b>0.99</b>	<b>7.74</b>	<b>8.04</b>	<b>5.57</b>	<b>4.61</b>		<b>4.00</b>	<b>Jul-12</b>
Core Fixed Income Blend			<u>0.62</u>	<u>6.79</u>	<u>6.98</u>	<u>5.24</u>	<u>4.18</u>		<u>3.46</u>	Jul-12
Over/Under			0.37	0.95	1.06	0.33	0.43		0.54	
<b>Credit Opportunities</b>	<b>1,045,224,818</b>	<b>5.44</b>	<b>4.13</b>	<b>-1.17</b>	<b>1.22</b>	<b>3.49</b>	<b>5.87</b>		<b>4.90</b>	<b>Jun-13</b>
Credit Opportunities Blend			<u>3.78</u>	<u>0.22</u>	<u>2.56</u>	<u>3.97</u>	<u>6.59</u>		<u>5.54</u>	Jun-13
Over/Under			0.35	-1.39	-1.34	-0.48	-0.72		-0.64	
<b>Real Assets</b>	<b>2,049,450,850</b>	<b>10.66</b>	<b>1.62</b>	<b>-0.29</b>	<b>1.15</b>	<b>4.09</b>	<b>5.12</b>	<b>7.64</b>		<b>Nov-94</b>
CPI + 5% (Unadjusted)			<u>2.20</u>	<u>5.06</u>	<u>6.43</u>	<u>6.87</u>	<u>6.89</u>	<u>6.85</u>		Nov-94
Over/Under			-0.58	-5.35	-5.28	-2.78	-1.77	0.79		
<b>Public Real Assets</b>	<b>1,243,465,383</b>	<b>6.47</b>	<b>3.90</b>	<b>2.47</b>	<b>3.86</b>	<b>3.93</b>	<b>3.73</b>		<b>2.12</b>	<b>Jun-14</b>
Public Real Assets Blend			<u>2.03</u>	<u>-2.07</u>	<u>-1.07</u>	<u>1.65</u>	<u>2.27</u>		<u>-0.42</u>	Jun-14
Over/Under			1.87	4.54	4.93	2.28	1.46		2.54	
<b>Private Real Estate</b>	<b>787,209,372</b>	<b>4.09</b>	<b>-1.78</b>	<b>-4.50</b>	<b>-2.96</b>	<b>3.74</b>	<b>6.05</b>	<b>8.69</b>		<b>Oct-94</b>
Real Estate Blend			<u>0.68</u>	<u>0.48</u>	<u>2.20</u>	<u>6.02</u>	<u>7.49</u>	<u>10.49</u>		Oct-94
Over/Under			-2.46	-4.98	-5.16	-2.28	-1.44	-1.80		
<b>Private Equity</b>	<b>2,260,142,632</b>	<b>11.75</b>	<b>11.09</b>	<b>3.95</b>	<b>3.95</b>	<b>10.29</b>	<b>9.56</b>	<b>11.96</b>		<b>Nov-95</b>
Private Equity Blend			<u>9.99</u>	<u>7.77</u>	<u>18.42</u>	<u>14.97</u>	<u>17.06</u>	<u>17.05</u>		Nov-95
Over/Under			1.10	-3.82	-14.47	-4.68	-7.50	-5.09		
<b>Cash</b>	<b>166,579,603</b>	<b>0.87</b>								



## Los Angeles City Employees' Retirement System

# TOTAL FUND RISK STATISTICS (NET)

### 3 Years Ending September 30, 2020

	% of Total MV (%)	Annualized Return (%)	Rank	Annualized Standard Deviation	Rank	Annualized Alpha Jensen (%)	Rank	Information Ratio	Rank	Sortino Ratio RF	Rank	Tracking Error	Rank
LACERS Master Trust	100.00%	6.06%	33	9.98%	60	-0.28%	57	-0.54	--	0.51	39	1.96%	68
Total Equity	55.05%	5.95%	58	17.33%	62	-0.52%	53	-0.66	--	0.30	62	0.79%	16
U.S. Equity	25.29%	10.56%	36	18.53%	47	-1.13%	43	-1.54	--	0.58	36	0.71%	8
Non-U.S. Equity	29.75%	2.18%	41	16.92%	59	1.03%	32	0.73	24	0.04	41	1.39%	19
Developed ex-U.S.	22.62%	2.37%	43	16.68%	75	1.83%	39	0.77	28	0.06	43	2.27%	34
Emerging Markets	7.13%	1.31%	43	19.02%	63	-1.11%	45	-0.88	--	-0.02	43	1.26%	6
Core Fixed Income	16.24%	5.57%	18	3.37%	15	0.39%	19	0.55	10	2.72	18	0.60%	16
Credit Opportunities	5.44%	3.49%	--	10.49%	--	-0.73%	--	-0.28	--	0.15	--	1.69%	--
Real Assets	10.66%	4.09%	--	3.57%	--	0.58%	--	-0.77	--	0.75	--	3.60%	--
Public Real Assets	6.47%	3.93%	--	6.09%	--	2.30%	--	0.58	--	0.43	--	3.94%	--
Private Real Estate	4.09%	3.74%	71	2.82%	66	2.38%	8	-0.55	--	0.90	89	4.16%	92
Private Equity	11.75%	10.29%	55	8.44%	53	9.93%	30	-0.22	--	1.34	64	21.76%	92

### 5 Years Ending September 30, 2020

	% of Total MV (%)	Annualized Return (%)	Rank	Annualized Standard Deviation	Rank	Annualized Alpha Jensen (%)	Rank	Information Ratio	Rank	Sortino Ratio RF	Rank	Tracking Error	Rank
LACERS Master Trust	100.00%	8.17%	36	8.53%	61	0.09%	57	-0.61	--	0.89	35	1.65%	68
Total Equity	55.05%	9.79%	45	14.76%	58	-0.18%	42	-0.25	--	0.65	53	0.71%	13
U.S. Equity	25.29%	12.96%	41	15.58%	41	-0.81%	31	-1.03	--	0.82	32	0.71%	8
Non-U.S. Equity	29.75%	7.13%	41	14.89%	55	0.78%	36	0.70	20	0.51	49	1.29%	14
Developed ex-U.S.	22.62%	6.67%	45	14.65%	60	1.26%	39	0.71	28	0.46	45	1.98%	23
Emerging Markets	7.13%	8.38%	23	17.57%	82	-0.66%	30	-0.51	--	0.61	23	1.14%	1
Core Fixed Income	16.24%	4.61%	49	3.13%	16	0.51%	50	0.75	11	1.93	5	0.58%	16
Credit Opportunities	5.44%	5.87%	--	8.73%	--	-1.13%	--	-0.48	--	0.44	--	1.49%	--
Real Assets	10.66%	5.12%	--	3.15%	--	0.37%	--	-0.57	--	1.42	--	3.11%	--
Public Real Assets	6.47%	3.73%	--	5.44%	--	1.86%	--	0.45	--	0.61	--	3.27%	--
Private Real Estate	4.09%	6.05%	72	2.58%	39	5.44%	7	-0.33	--	2.06	71	4.37%	89
Private Equity	11.75%	9.56%	59	6.84%	44	9.68%	32	-0.42	--	1.58	76	17.99%	92

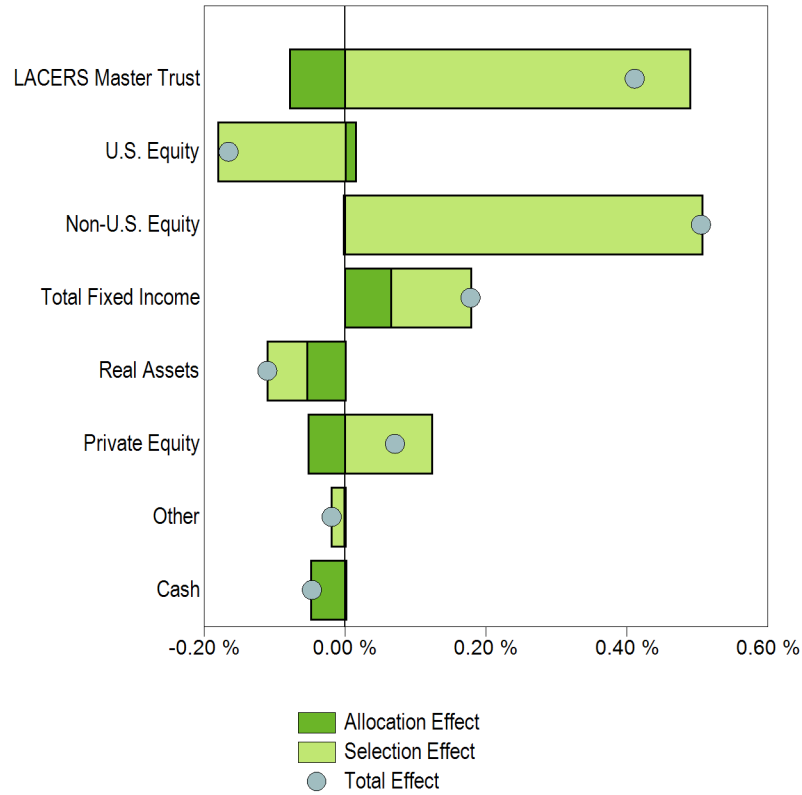
Sortino Ratio RF = Sortino Ratio Risk Free. The risk free rate is the Citi 91 Day T-Bill Index.



# Los Angeles City Employees' Retirement System

## TOTAL FUND ATTRIBUTION ANALYSIS (NET)

### Attribution Effects 3 Months Ending September 30, 2020



Attribution Summary 3 Months Ending September 30, 2020							
	Policy Weight	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Total Effects
U.S. Equity	24.00%	8.50%	9.21%	-0.71%	-0.18%	0.01%	-0.17%
Non-U.S. Equity	29.00%	7.97%	6.25%	1.72%	0.51%	0.00%	0.50%
Total Fixed Income	24.00%	1.77%	1.28%	0.49%	0.11%	0.07%	0.18%
Real Assets	10.00%	1.62%	2.20%	-0.58%	-0.06%	-0.05%	-0.11%
Private Equity	12.00%	11.09%	9.99%	1.10%	0.12%	-0.05%	0.07%
Other					-0.02%	0.00%	-0.02%
Cash	1.00%	0.06%	0.02%	0.04%	0.00%	-0.05%	-0.05%
<b>Total</b>	<b>100.00%</b>	<b>6.18%</b>	<b>5.77%</b>	<b>0.41%</b>	<b>0.49%</b>	<b>-0.08%</b>	<b>0.41%</b>

Wtd. = Weighted

Note: Policy Target Asset Allocation does not reflect the new target asset allocation adopted on April 10, 2018. Implementation of the new asset allocation is currently in progress.

Other composite is comprised of securities lending income, tax reclaims and other miscellaneous transactions.

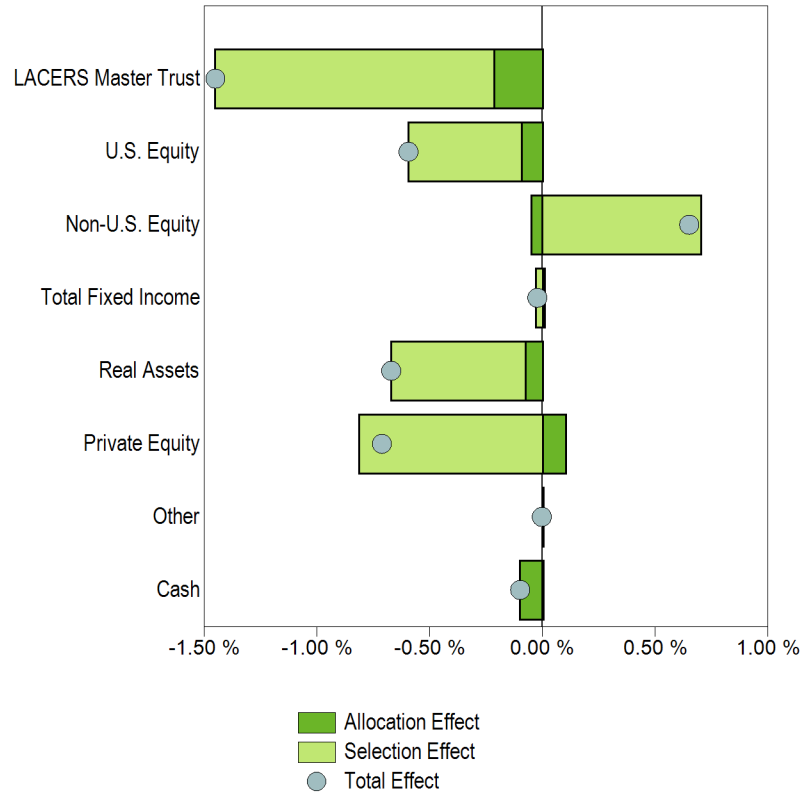




# Los Angeles City Employees' Retirement System

## TOTAL FUND ATTRIBUTION ANALYSIS (NET)

### Attribution Effects YTD Ending September 30, 2020



Attribution Summary YTD Ending September 30, 2020							
	Policy Weight	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Total Effects
U.S. Equity	24.00%	3.25%	5.41%	-2.16%	-0.50%	-0.09%	-0.59%
Non-U.S. Equity	29.00%	-3.21%	-5.44%	2.22%	0.70%	-0.05%	0.65%
Total Fixed Income	24.00%	5.57%	5.56%	0.01%	-0.03%	0.01%	-0.02%
Real Assets	10.00%	-0.29%	5.06%	-5.35%	-0.59%	-0.08%	-0.67%
Private Equity	12.00%	3.95%	7.77%	-3.82%	-0.81%	0.10%	-0.71%
Other					0.00%	0.00%	0.00%
Cash	1.00%	0.57%	0.43%	0.14%	0.00%	-0.10%	-0.10%
<b>Total</b>	<b>100.00%</b>	<b>1.46%</b>	<b>2.91%</b>	<b>-1.45%</b>	<b>-1.24%</b>	<b>-0.22%</b>	<b>-1.45%</b>

Wtd. = Weighted

Note: Policy Target Asset Allocation does not reflect the new target asset allocation adopted on April 10, 2018. Implementation of the new asset allocation is currently in progress.

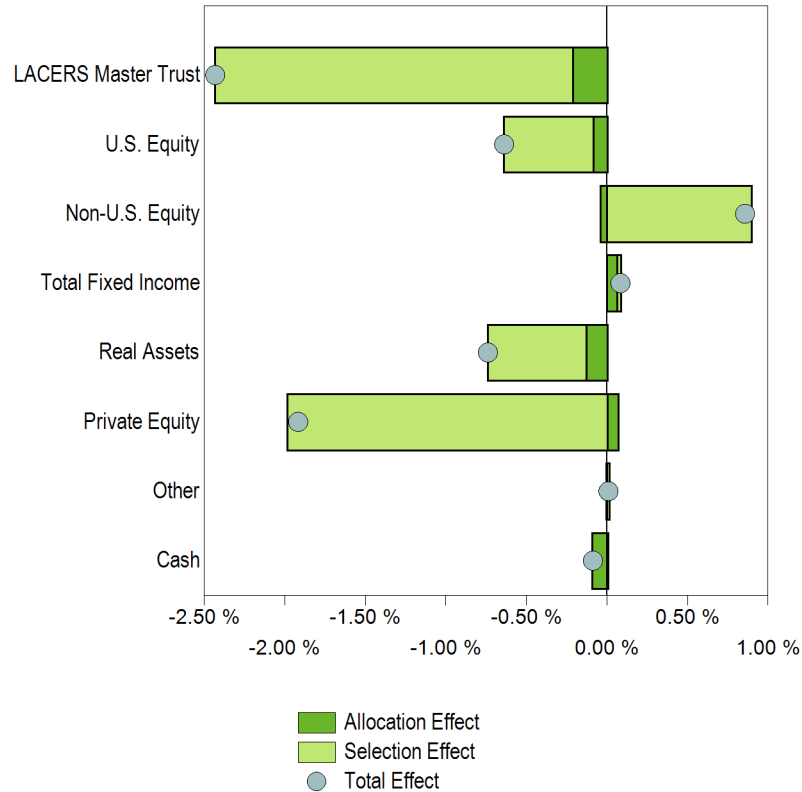
Other composite is comprised of securities lending income, tax reclaims and other miscellaneous transactions.



# Los Angeles City Employees' Retirement System

## TOTAL FUND ATTRIBUTION ANALYSIS (NET)

### Attribution Effects 1 Year Ending September 30, 2020



Attribution Summary 1 Year Ending September 30, 2020							
	Policy Weight	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Total Effects
U.S. Equity	24.00%	12.54%	15.00%	-2.46%	-0.55%	-0.09%	-0.64%
Non-U.S. Equity	29.00%	5.94%	3.00%	2.94%	0.90%	-0.04%	0.86%
Total Fixed Income	24.00%	6.45%	6.23%	0.22%	0.02%	0.07%	0.08%
Real Assets	10.00%	1.15%	6.43%	-5.28%	-0.61%	-0.13%	-0.74%
Private Equity	12.00%	3.95%	18.42%	-14.47%	-1.98%	0.07%	-1.92%
Other					0.01%	0.00%	0.01%
Cash	1.00%	1.04%	0.82%	0.22%	0.00%	-0.09%	-0.09%
<b>Total</b>	<b>100.00%</b>	<b>6.86%</b>	<b>9.29%</b>	<b>-2.43%</b>	<b>-2.22%</b>	<b>-0.21%</b>	<b>-2.43%</b>

Wtd. = Weighted

Note: Policy Target Asset Allocation does not reflect the new target asset allocation adopted on April 10, 2018. Implementation of the new asset allocation is currently in progress.

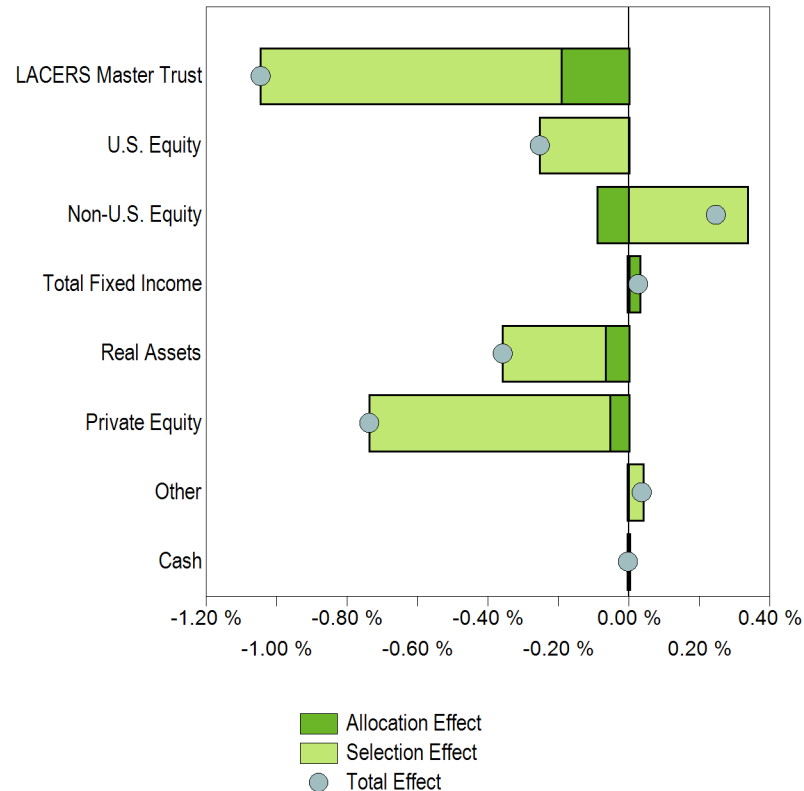
Other composite is comprised of securities lending income, tax reclaims and other miscellaneous transactions.



# Los Angeles City Employees' Retirement System

## TOTAL FUND ATTRIBUTION ANALYSIS (NET)

### Attribution Effects 3 Years Ending September 30, 2020



Attribution Summary 3 Years Ending September 30, 2020							
	Policy Weight	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Total Effects
U.S. Equity	24.00%	10.56%	11.65%	-1.09%	-0.25%	0.00%	-0.25%
Non-U.S. Equity	29.00%	2.18%	1.16%	1.02%	0.34%	-0.09%	0.25%
Total Fixed Income	24.00%	5.10%	5.05%	0.05%	0.00%	0.03%	0.03%
Real Assets	10.00%	4.09%	6.87%	-2.78%	-0.29%	-0.07%	-0.36%
Private Equity	12.00%	10.29%	14.97%	-4.68%	-0.68%	-0.05%	-0.74%
Other					0.04%	0.00%	0.04%
Cash	1.00%	1.76%	1.58%	0.18%	0.00%	0.00%	0.00%
<b>Total</b>	<b>100.00%</b>	<b>6.07%</b>	<b>7.11%</b>	<b>-1.05%</b>	<b>-0.85%</b>	<b>-0.19%</b>	<b>-1.05%</b>

Wtd. = Weighted

Note: Policy Target Asset Allocation does not reflect the new target asset allocation adopted on April 10, 2018. Implementation of the new asset allocation is currently in progress.

Other composite is comprised of securities lending income, tax reclaims and other miscellaneous transactions.



# PRIVATE MARKETS PERFORMANCE AS OF JUNE 30, 2020

Private Equity	10 Year IRR	Since Inception IRR	Since Inception Multiple
Aggregate Portfolio	12.3%	10.9%	1.53x
Core Portfolio	13.0%	11.5%	1.55x
Specialized Portfolio	3.9%	1.8%	1.11x
Russell 3000 + 300 bps	16.7%	11.9%	N/A

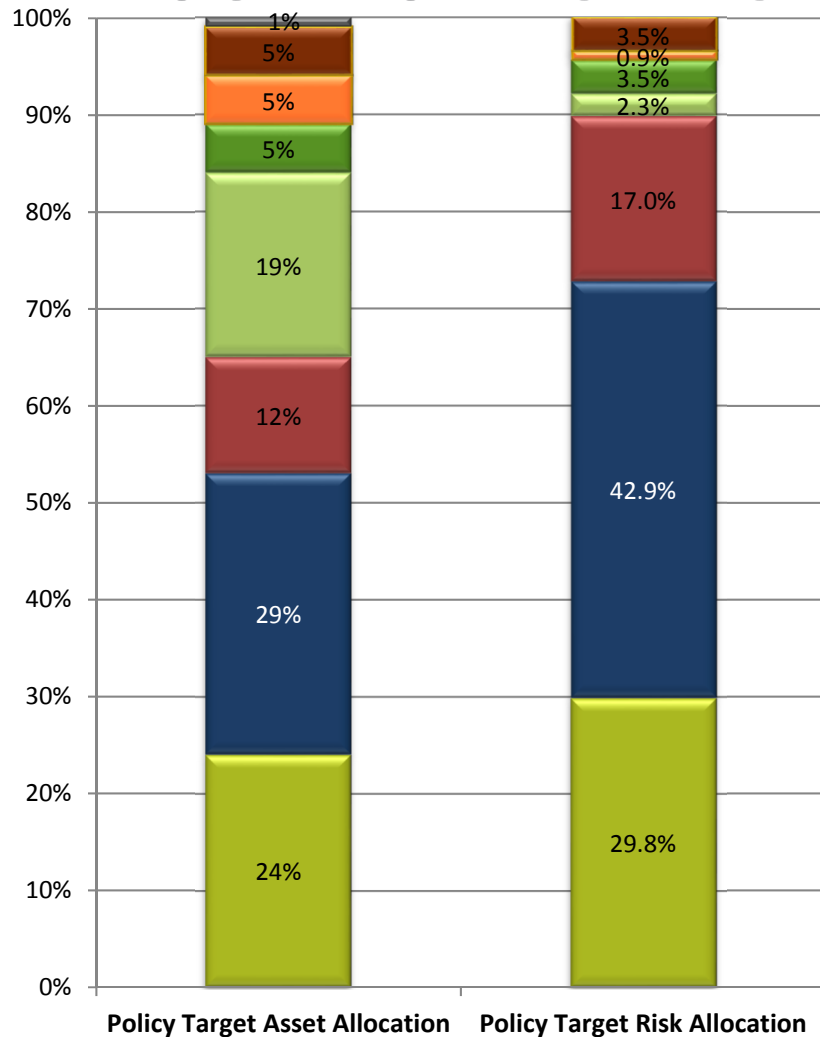
Real Estate	10 Year Return (Net)	Since Inception Return (Net)
Total Portfolio (TWR) <sup>1</sup>	8.81%	5.77%
NFI-ODCE + 80 basis points (TWR)	10.58%	6.95%

Note: The Total Value to Paid-In Ratio (TVPI) is a multiple that relates the current value of the private equity portfolio plus all distributions received to date with the total amount of capital contributed.

1 - IRR is not available for the Real Estate portfolio and therefore only time weighted returns (TWR) are reported.



# TOTAL FUND RISK ALLOCATION – ASSET ALLOCATION VS. RISK ALLOCATION



- Cash
- Private Real Estate
- Public Real Assets
- Credit Opportunities
- Core Fixed Income
- Private Equity
- Non-U.S. Equity
- U.S. Equity

- Public and Private Equity policy target asset allocation is 65%; accounts for 89.7% of the policy target portfolio risk.
- Core Fixed Income and Credit Opportunities policy allocation is 24%, accounting for 5.8% of the policy target portfolio risk.
- Real Assets (Private Real Estate and Public Real Assets) policy allocation is 10%, accounting for 4.4% of policy target portfolio risk.

Note: Policy Target Asset Allocation does not reflect the new target asset allocation adopted on April 10, 2018. Implementation of the new asset allocation is currently in progress.



# PUBLIC MARKETS RISK BUDGET COMPARISON AS OF SEPTEMBER 30, 2020

Public Markets Asset Class	Target Risk Budget	Actual 3 Yr Tracking Error
U.S. Equity	0.50%	0.71%
Non-U.S. Equity	1.20%	1.39%
Core Fixed Income	1.00%	0.60%
Credit Opportunities	1.50%	1.69%
Public Real Assets*	3.00%	3.94%

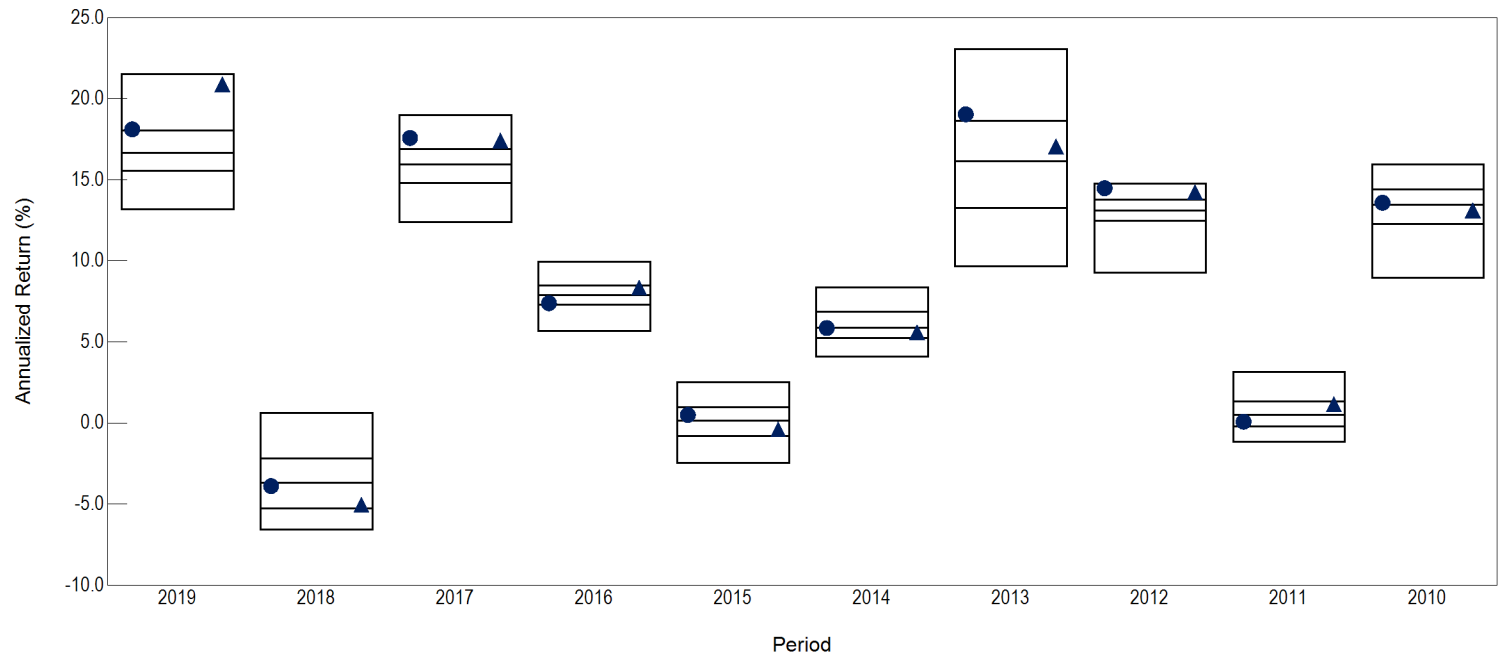
- Current public market asset class composite tracking error statistics are compared to asset class target risk budgets to ensure active risks are within expectations.
- Risk budgets are to be evaluated over three-year periods, at minimum, to reflect a full market cycle.
- All equity public markets asset classes are within an appropriately narrow range of their respective risk budgets.
- Both Core Fixed Income and Credit Opportunities have exhibited lower than expected active risk.
- The Public Real Assets composite is not at its target strategy allocation.
- Note: A new Target Risk Budget was approved by the Board on August 14, 2018, and is not reflected in the table above. Implementation of the new asset allocation is in progress.

\* 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.



# TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE

LACERS Master Trust vs. InvMetrics Public DB \$1-50B Gross



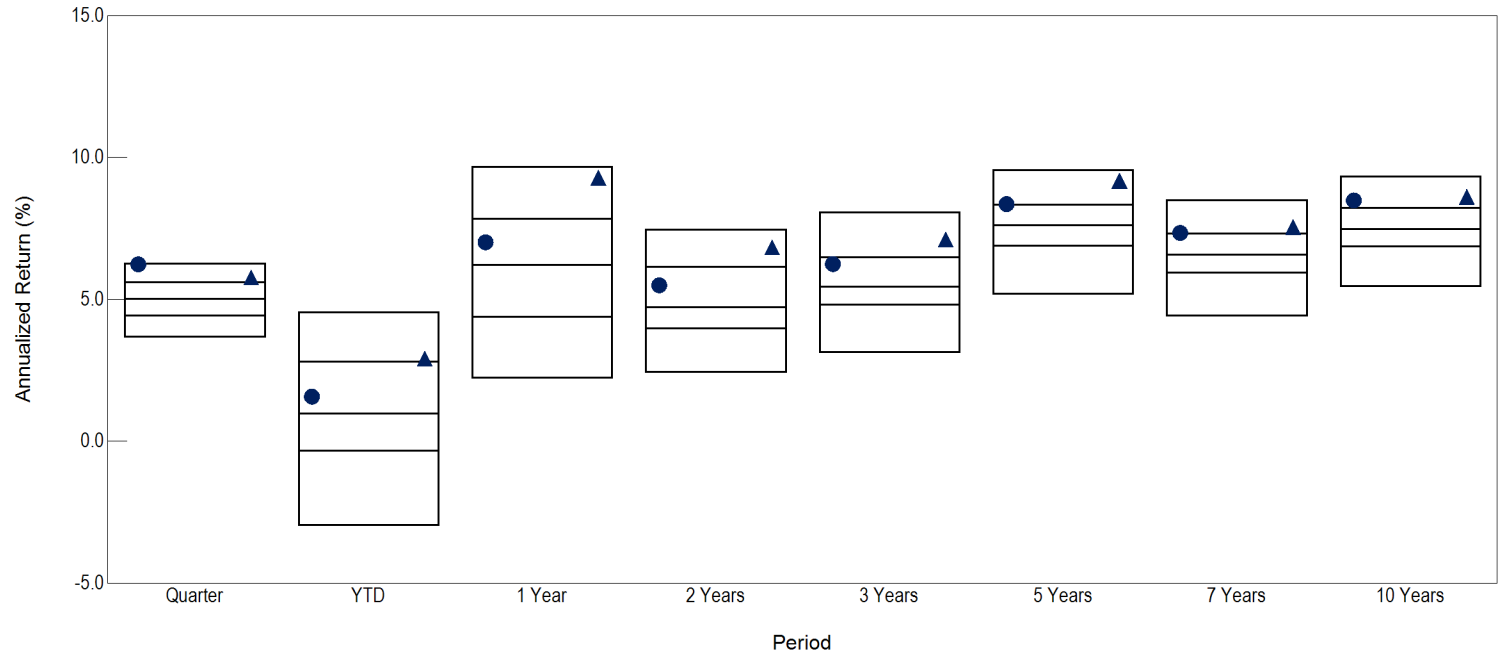
	Return (Rank)																			
5th Percentile	21.49	0.60	19.00	9.95	2.50	8.38	23.05	14.75	3.13	15.93										
25th Percentile	18.08	-2.13	16.94	8.51	1.00	6.90	18.67	13.81	1.37	14.45										
Median	16.68	-3.64	15.99	7.91	0.20	5.93	16.17	13.15	0.53	13.49										
75th Percentile	15.61	-5.22	14.83	7.34	-0.77	5.28	13.30	12.50	-0.16	12.30										
95th Percentile	13.20	-6.53	12.43	5.71	-2.43	4.12	9.70	9.31	-1.14	8.98										
# of Portfolios	77	78	78	78	77	77	76	75	74	71										
● LACERS Master Trust	18.10	(25)	-3.89	(60)	17.57	(15)	7.38	(72)	0.49	(35)	5.85	(53)	19.03	(23)	14.47	(10)	0.08	(68)	13.58	(49)
▲ Policy Index	20.88	(9)	-5.04	(71)	17.41	(16)	8.35	(35)	-0.39	(68)	5.58	(61)	17.06	(35)	14.23	(18)	1.17	(32)	13.11	(55)



# Los Angeles City Employees' Retirement System

## TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE

LACERS Master Trust vs. InvMetrics Public DB \$1-50B Gross



	Return (Rank)																							
5th Percentile	6.25	4.55	9.67	7.46	8.07	9.56	8.50	9.33	6.23	(7)	1.57	(46)	7.01	(40)	5.49	(38)	6.24	(28)	8.36	(25)	7.34	(25)	8.48	(15)
25th Percentile	5.63	2.82	7.86	6.18	6.50	8.35	7.33	8.24	5.77	(22)	2.91	(24)	9.29	(9)	6.83	(9)	7.11	(13)	9.18	(11)	7.55	(15)	8.61	(13)
Median	5.04	0.99	6.23	4.74	5.47	7.64	6.60	7.51																
75th Percentile	4.45	-0.32	4.40	3.99	4.83	6.92	5.98	6.89																
95th Percentile	3.71	-2.93	2.27	2.46	3.17	5.22	4.45	5.49																
# of Portfolios	88	88	88	87	87	86	86	82																
● LACERS Master Trust	6.23	(7)	1.57	(46)	7.01	(40)	5.49	(38)	6.24	(28)	8.36	(25)	7.34	(25)	8.48	(15)								
▲ Policy Index	5.77	(22)	2.91	(24)	9.29	(9)	6.83	(9)	7.11	(13)	9.18	(11)	7.55	(15)	8.61	(13)								

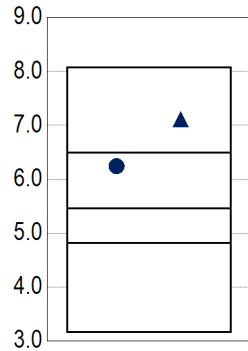




# TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

## LACERS Master Trust vs. InvMetrics Public DB \$5-50B Gross 3 Years

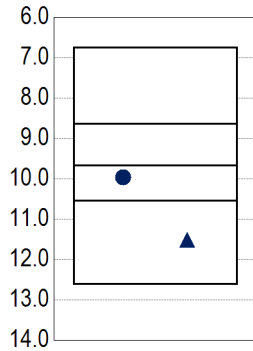
Annualized Return (%)	Annualized Standard Deviation	Annualized Alpha (%)	Sharpe Ratio	Sortino Ratio Risk Free	Tracking Error
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● LACERS Master Trust  
Value 6.24  
Rank 28

▲ Policy Index  
Value 7.11  
Rank 13

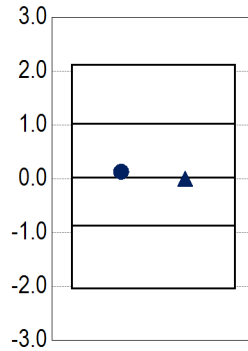
Universe  
5th %tile 8.07  
25th %tile 6.50  
Median 5.47  
75th %tile 4.83  
95th %tile 3.17



● LACERS Master Trust  
Value 9.97  
Rank 60

▲ Policy Index  
Value 11.52  
Rank 89

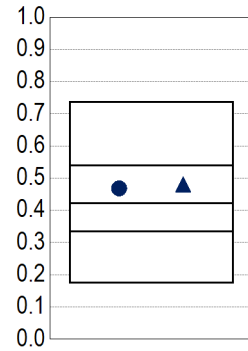
Universe  
5th %tile 6.75  
25th %tile 8.62  
Median 9.65  
75th %tile 10.53  
95th %tile 12.59



● LACERS Master Trust  
Value 0.13  
Rank 46

▲ Policy Index  
Value 0.00  
Rank 52

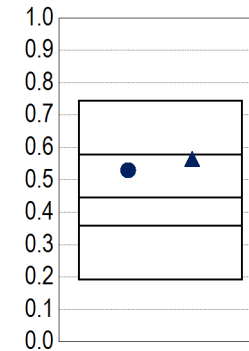
Universe  
5th %tile 2.12  
25th %tile 1.04  
Median 0.03  
75th %tile -0.86  
95th %tile -2.03



● LACERS Master Trust  
Value 0.47  
Rank 38

▲ Policy Index  
Value 0.48  
Rank 34

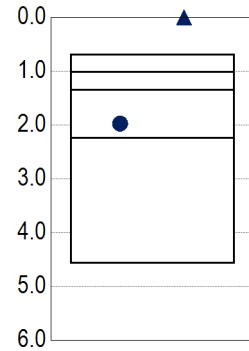
Universe  
5th %tile 0.74  
25th %tile 0.54  
Median 0.42  
75th %tile 0.34  
95th %tile 0.18



● LACERS Master Trust  
Value 0.53  
Rank 34

▲ Policy Index  
Value 0.56  
Rank 28

Universe  
5th %tile 0.74  
25th %tile 0.58  
Median 0.45  
75th %tile 0.36  
95th %tile 0.20



● LACERS Master Trust  
Value 1.98  
Rank 68

▲ Policy Index  
Value 0.00  
Rank 1

Universe  
5th %tile 0.69  
25th %tile 1.00  
Median 1.34  
75th %tile 2.23  
95th %tile 4.55

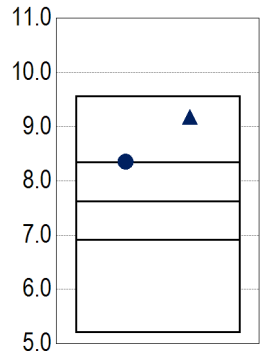
Sortino Ratio RF = Sortino Ratio Risk Free. The risk free rate is the Citi 91 Day T-Bill Index.



# TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

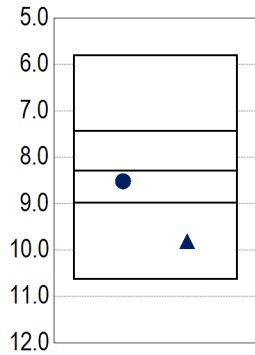
## LACERS Master Trust vs. InvMetrics Public DB \$5-50B Gross 5 Years

Annualized Return (%)	Annualized Standard Deviation	Annualized Alpha (%)	Sharpe Ratio	Sortino Ratio Risk Free	Tracking Error
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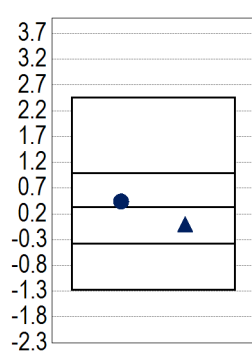
● LACERS Master Trust	Value	8.36
	Rank	25
▲ Policy Index	Value	9.18
	Rank	11

Universe	
5th %tile	9.56
25th %tile	8.35
Median	7.64
75th %tile	6.92
95th %tile	5.22



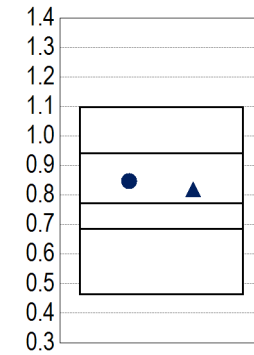
● LACERS Master Trust	Value	8.52
	Rank	60
▲ Policy Index	Value	9.82
	Rank	90

Universe	
5th %tile	5.80
25th %tile	7.41
Median	8.28
75th %tile	8.96
95th %tile	10.61



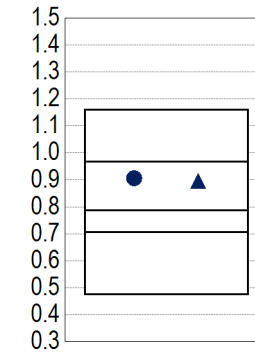
● LACERS Master Trust	Value	0.44
	Rank	50
▲ Policy Index	Value	0.00
	Rank	63

Universe	
5th %tile	2.46
25th %tile	1.00
Median	0.35
75th %tile	-0.36
95th %tile	-1.27



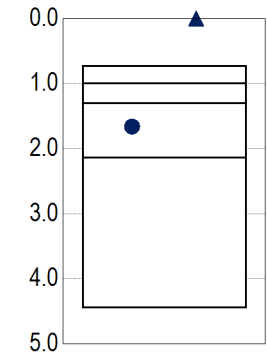
● LACERS Master Trust	Value	0.85
	Rank	41
▲ Policy Index	Value	0.82
	Rank	43

Universe	
5th %tile	1.10
25th %tile	0.94
Median	0.77
75th %tile	0.69
95th %tile	0.47



● LACERS Master Trust	Value	0.91
	Rank	32
▲ Policy Index	Value	0.90
	Rank	33

Universe	
5th %tile	1.16
25th %tile	0.97
Median	0.79
75th %tile	0.71
95th %tile	0.48



● LACERS Master Trust	Value	1.66
	Rank	68
▲ Policy Index	Value	0.00
	Rank	1

Universe	
5th %tile	0.73
25th %tile	0.99
Median	1.29
75th %tile	2.13
95th %tile	4.43

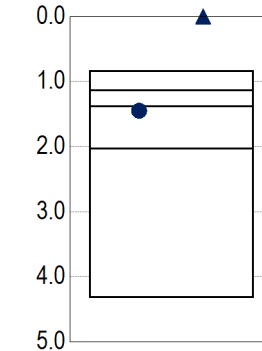
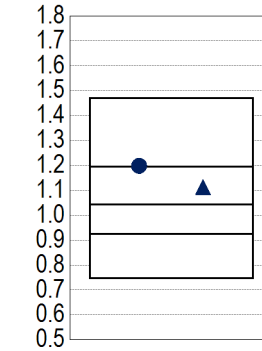
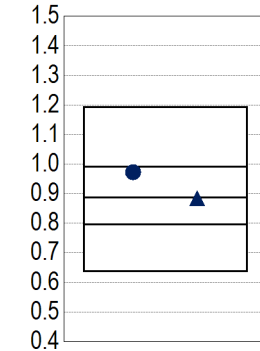
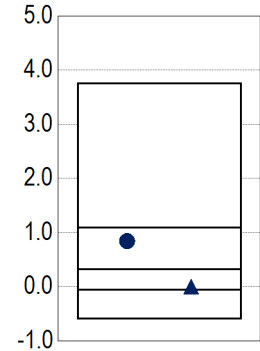
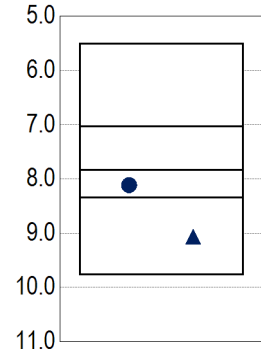
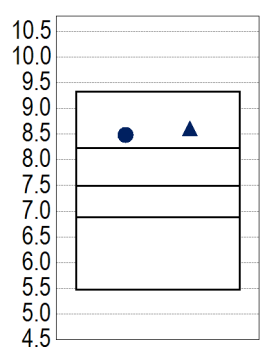
Sortino Ratio RF = Sortino Ratio Risk Free. The risk free rate is the Citi 91 Day T-Bill Index.



# TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

## LACERS Master Trust vs. InvMetrics Public DB \$5-50B Gross 10 Years

Annualized Return (%)	Annualized Standard Deviation	Annualized Alpha (%)	Sharpe Ratio	Sortino Ratio Risk Free	Tracking Error
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● LACERS Master Trust	Value	8.48
	Rank	15
▲ Policy Index	Value	8.61
	Rank	13

● LACERS Master Trust	Value	8.11
	Rank	68
▲ Policy Index	Value	9.07
	Rank	88

● LACERS Master Trust	Value	0.84
	Rank	37
▲ Policy Index	Value	0.00
	Rank	71

● LACERS Master Trust	Value	0.97
	Rank	30
▲ Policy Index	Value	0.88
	Rank	51

● LACERS Master Trust	Value	1.20
	Rank	25
▲ Policy Index	Value	1.11
	Rank	42

● LACERS Master Trust	Value	1.45
	Rank	56
▲ Policy Index	Value	0.00
	Rank	1

Universe	5th %tile	9.33
	25th %tile	8.24
	Median	7.51
	75th %tile	6.89
	95th %tile	5.49

Universe	5th %tile	5.51
	25th %tile	7.01
	Median	7.82
	75th %tile	8.33
	95th %tile	9.75

Universe	5th %tile	3.75
	25th %tile	1.10
	Median	0.34
	75th %tile	-0.05
	95th %tile	-0.58

Universe	5th %tile	1.19
	25th %tile	0.99
	Median	0.89
	75th %tile	0.80
	95th %tile	0.64

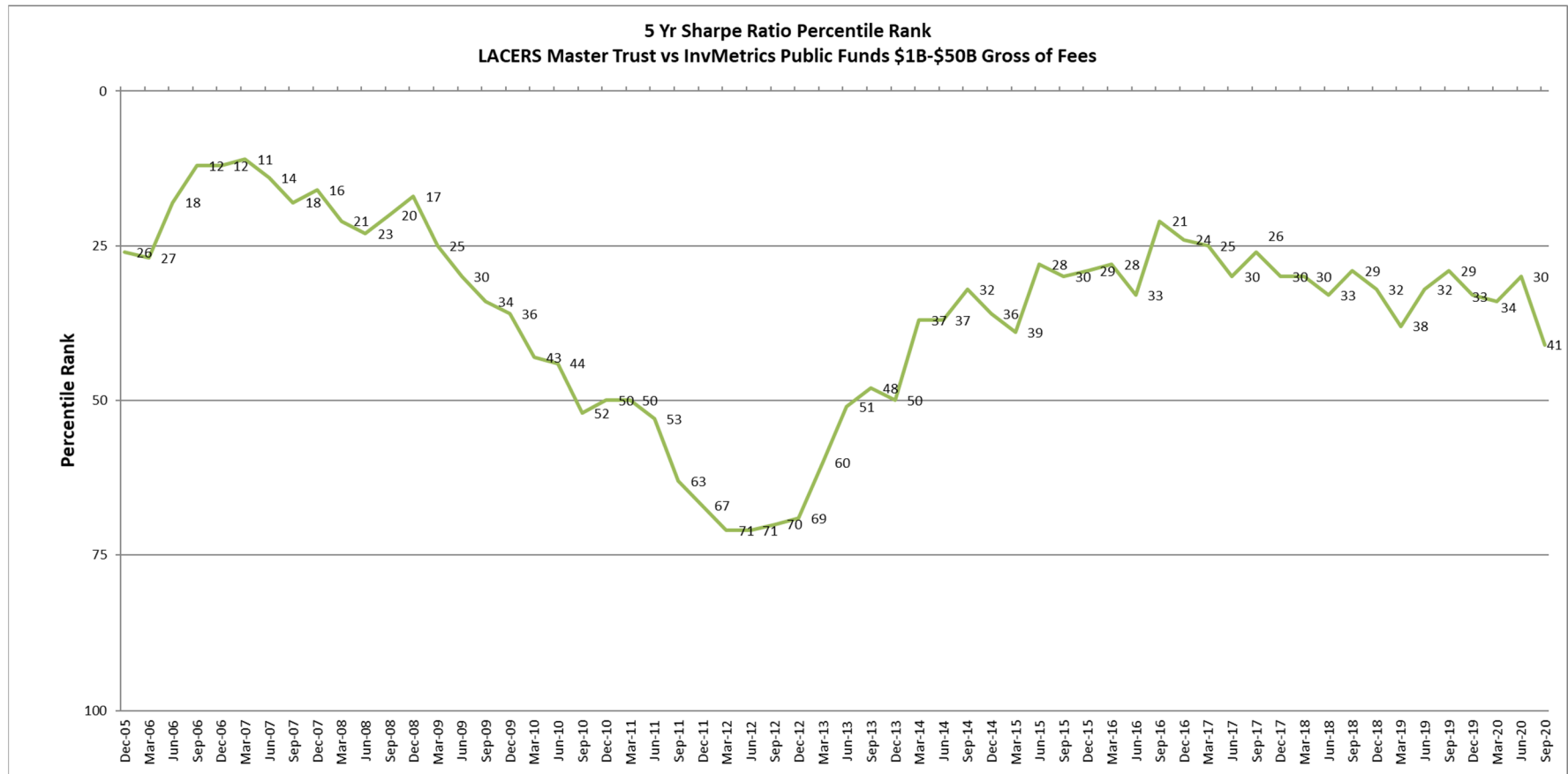
Universe	5th %tile	1.47
	25th %tile	1.20
	Median	1.05
	75th %tile	0.93
	95th %tile	0.75

Universe	5th %tile	0.84
	25th %tile	1.12
	Median	1.37
	75th %tile	2.02
	95th %tile	4.30

Sortino Ratio RF = Sortino Ratio Risk Free. The risk free rate is the Citi 91 Day T-Bill Index.



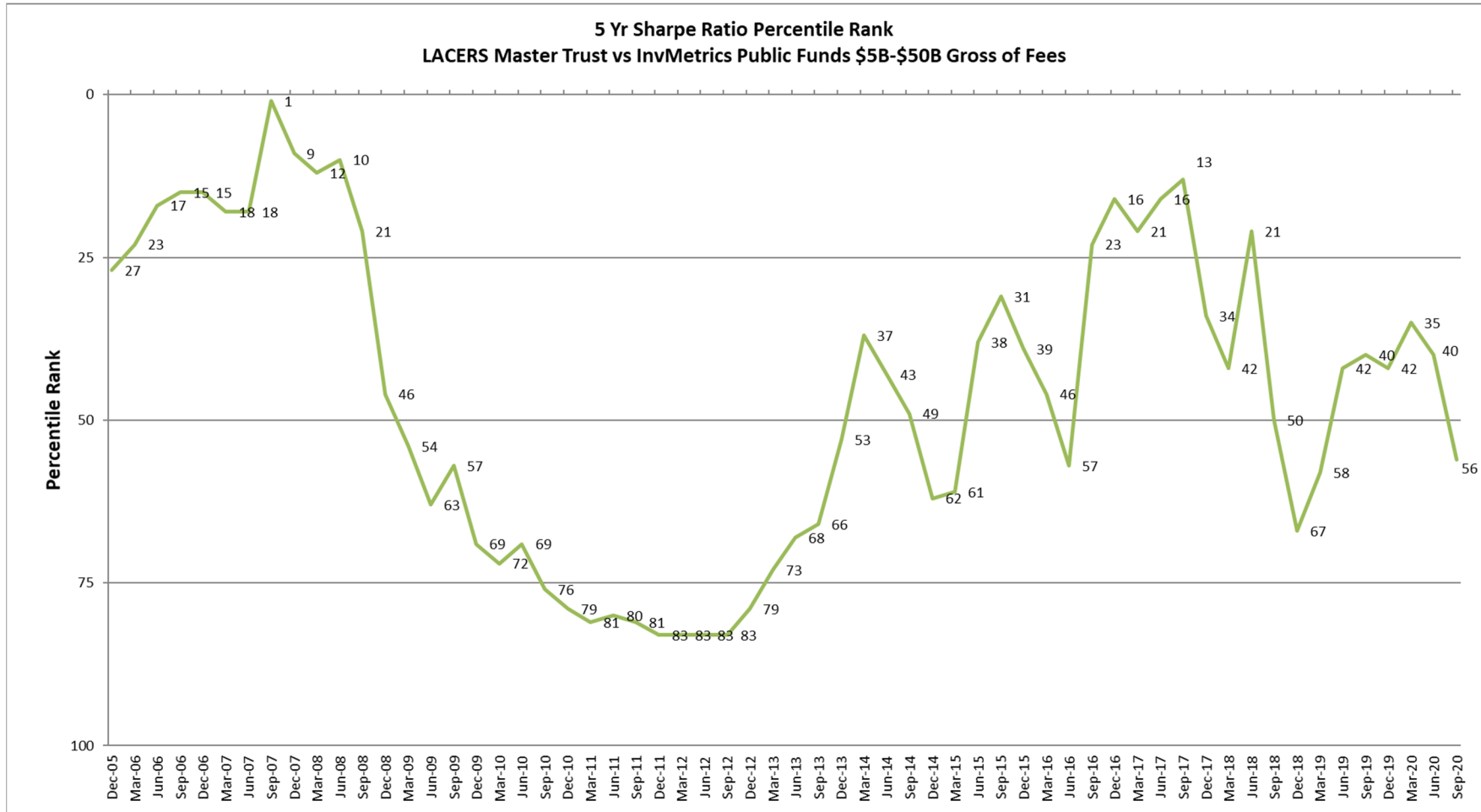
# HISTORICAL RISK ADJUSTED RETURN UNIVERSE COMPARISON



- Total Plan ranks in the 41<sup>st</sup> percentile versus other large public plans on a Sharpe Ratio basis.
  - Use of passive investment strategies within U.S. Equity has contributed to the overall Sharpe Ratio rank (higher than median).
  - Overweight to non-U.S. Equity on a relative basis contributed to Sharpe Ratio Rank
  - Core Fixed Income detracted from Sharpe Ratio rank.



# HISTORICAL RISK ADJUSTED RETURN UNIVERSE COMPARISON



# U.S. EQUITY

NEPC, LLC

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## Los Angeles City Employees' Retirement System

# U.S. EQUITY (GROSS)

	Market Value (\$)	% of Portfolio	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>U.S. Equity</b>	<b>4,863,758,759</b>	<b>100.00</b>	<b>8.51</b>	<b>3.28</b>	<b>12.59</b>	<b>10.62</b>	<b>13.03</b>	<b>13.18</b>	<b>10.50</b>	<b>Oct-94</b>
U.S. Equity Blend			<u>9.21</u>	<u>5.41</u>	<u>15.00</u>	<u>11.65</u>	<u>13.69</u>	<u>13.48</u>	<u>9.58</u>	Oct-94
Over/Under			-0.70	-2.13	-2.41	-1.03	-0.66	-0.30	0.92	
RhumbLine Advisers Russell 2000 <sup>1</sup>	183,520,570	3.77	5.07	-8.58	0.48	1.84	8.01		4.83	Apr-15
Russell 2000			<u>4.93</u>	<u>-8.69</u>	<u>0.39</u>	<u>1.77</u>	<u>8.00</u>		<u>4.88</u>	Apr-15
Over/Under			0.14	0.11	0.09	0.07	0.01		-0.05	
RhumbLine Advisers Russell 2000 Growth	77,756	0.00								
RhumbLine Advisers Russell 2000 Value	250,623	0.01								
EAM Investors	88,346,485	1.82	13.89	13.18	25.08	15.89	14.71		14.71	Sep-15
Russell 2000 Growth			<u>7.16</u>	<u>3.88</u>	<u>15.71</u>	<u>8.18</u>	<u>11.42</u>		<u>11.42</u>	Sep-15
Over/Under			6.73	9.30	9.37	7.71	3.29		3.29	
Principal Global Investors <sup>1</sup>	217,212,949	4.47	8.43	3.08	9.71	14.21	15.75		13.76	Aug-14
Russell MidCap			<u>7.46</u>	<u>-2.35</u>	<u>4.55</u>	<u>7.13</u>	<u>10.13</u>		<u>8.33</u>	Aug-14
Over/Under			0.97	5.43	5.16	7.08	5.62		5.43	
RhumbLine Advisers S&P 500	3,901,428,125	80.21	8.87	5.34	14.80	12.12	14.01	13.68	9.92	Feb-93
S&P 500			<u>8.93</u>	<u>5.57</u>	<u>15.15</u>	<u>12.28</u>	<u>14.15</u>	<u>13.74</u>	<u>9.78</u>	Feb-93
Over/Under			-0.06	-0.23	-0.35	-0.16	-0.14	-0.06	0.14	
Bernzott Cap Advisors	141,105,825	2.90								
Copeland Cap MGMT	178,266,548	3.67								
Granahan	81,019,953	1.67								
Segall	72,529,926	1.49								

1- Portfolio has a mid-month inception date. Since inception return is calculated from the first full month of performance.

- U.S. Equity Blend = Russell 3000 from 1/1/2000 to present; 33.75% S&P 500/ 35% Russell 1000 Value/ 12.50% Russell 1000 Growth/ 12.50% Russell 2000 Value/ 6.25% Russell 2000 Growth prior to

eA = eVestment Alliance

Bernzott Cap Advisors, Copeland Cap MGMT, Granahan, and Segall were funded 9/30/2020. Performance will be shown on first full month of performance.

RhumbLine Advisers Russell 2000 Growth & Value are liquidating as of 9/30/2020.



## Los Angeles City Employees' Retirement System

# U.S. EQUITY (NET)

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
<b>U.S. Equity</b>	<b>4,863,758,759</b>	<b>100.00</b>	<b>8.50</b>	<b>36</b>	<b>3.25</b>	<b>41</b>	<b>12.54</b>	<b>36</b>	<b>10.56</b>	<b>36</b>	<b>12.96</b>	<b>41</b>	<b>13.04</b>	<b>39</b>		<b>Oct-94</b>
U.S. Equity Blend			<u>9.21</u>	7	<u>5.41</u>	12	<u>15.00</u>	11	<u>11.65</u>	14	<u>13.69</u>	16	<u>13.48</u>	12	<u>9.58</u>	Oct-94
Over/Under			-0.71		-2.16		-2.46		-1.09		-0.73		-0.44			
InvMetrics Public DB > \$1 Billion US Equity Net Median			8.25		2.72		11.53		9.96		12.54		12.87		9.38	Oct-94
RhumbLine Advisers Russell 2000 <sup>1</sup>	183,520,570	3.77	5.07	49	-8.58	45	0.47	42	1.83	44	8.01	45			4.83	Apr-15
Russell 2000			<u>4.93</u>	50	<u>-8.69</u>	45	<u>0.39</u>	42	<u>1.77</u>	44	<u>8.00</u>	45			<u>4.88</u>	Apr-15
Over/Under			0.14		0.11		0.08		0.06		0.01				-0.05	
eV US Small Cap Equity Net Median			4.91		-11.35		-3.97		0.35		6.96				4.42	Apr-15
RhumbLine Advisers Russell 2000 Growth	77,756	0.00														
RhumbLine Advisers Russell 2000 Value	250,623	0.01														
EAM Investors	88,346,485	1.82	13.72	5	12.63	15	24.27	15	15.10	14	13.91	19			13.91	Sep-15
Russell 2000 Growth			<u>7.16</u>	30	<u>3.88</u>	25	<u>15.71</u>	22	<u>8.18</u>	27	<u>11.42</u>	27			<u>11.42</u>	Sep-15
Over/Under			6.56		8.75		8.56		6.92		2.49				2.49	
eV US Small Cap Equity Net Median			4.91		-11.35		-3.97		0.35		6.96				6.96	Sep-15
Principal Global Investors <sup>1</sup>	217,212,949	4.47	8.35	37	2.83	45	9.34	44	13.80	31	15.31	20			13.35	Aug-14
Russell MidCap			<u>7.46</u>	46	<u>-2.35</u>	51	<u>4.55</u>	50	<u>7.13</u>	50	<u>10.13</u>	49			<u>8.33</u>	Aug-14
Over/Under			0.89		5.18		4.79		6.67		5.18				5.02	
eV US Mid Cap Equity Net Median			6.87		-2.31		4.27		6.99		9.72		11.49		7.92	Aug-14
RhumbLine Advisers S&P 500	3,901,428,125	80.21	8.87	40	5.34	39	14.79	37	12.12	36	14.00	31	13.68	31		Feb-93
S&P 500			<u>8.93</u>	40	<u>5.57</u>	39	<u>15.15</u>	37	<u>12.28</u>	36	<u>14.15</u>	30	<u>13.74</u>	31		Feb-93
Over/Under			-0.06		-0.23		-0.36		-0.16		-0.15		-0.06			
eV US Large Cap Equity Net Median			7.82		1.46		9.60		9.44		11.54		12.21			Feb-93
Bernzott Cap Advisors	141,105,825	2.90														
Copeland Cap MGMT	178,266,548	3.67														
Granahan	81,019,953	1.67														
Segall	72,529,926	1.49														

1- Portfolio has a mid-month inception date. Since inception return is calculated from the first full month of performance.

- U.S. Equity Blend = Russell 3000 from 1/1/2000 to present; 33.75% S&P 500/ 35% Russell 1000 Value/ 12.50% Russell 1000 Growth/ 12.50% Russell 2000 Value/ 6.25% Russell 2000 Growth prior to

eA = eVestment Alliance

Bernzott Cap Advisors, Copeland Cap MGMT, Granahan, and Segall were funded 9/30/2020. Performance will be shown on first full month of performance.

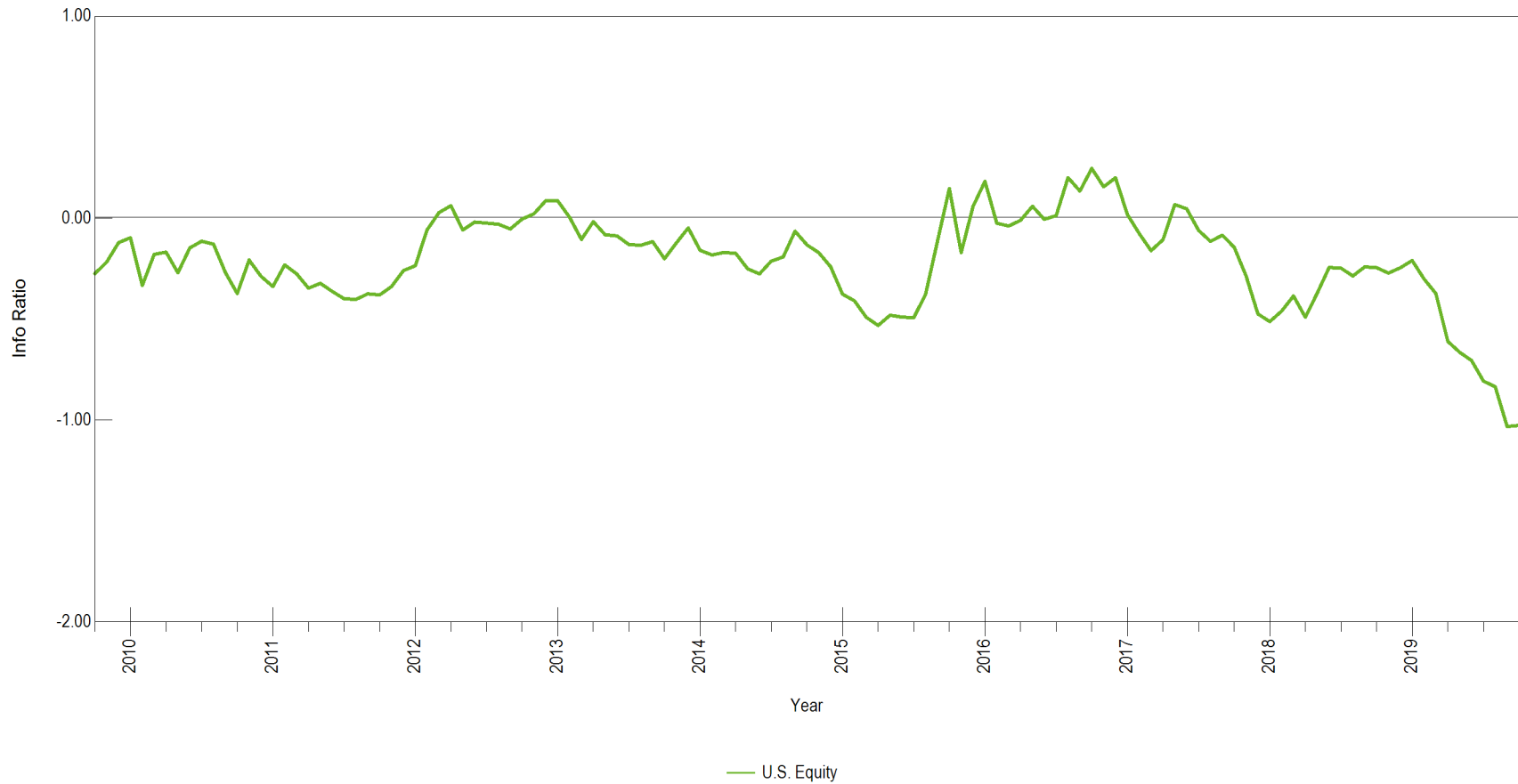
RhumbLine Advisers Russell 2000 Growth & Value are liquidating as of 9/30/2020.





# U.S. EQUITY ROLLING 5 YEAR INFORMATION RATIO

Rolling 5 Year Information Ratio



\*Returns are net of fees.



# MANAGER REPORT CARD

U.S. Equity Managers	Inception Date	Mandate	Current Quarter (Net)		One Year (Net)		Three Years (Net)		Five Years (Net)		Since Inception (Net)	Annual Mgt Fee Paid \$ (000)	Comments
			Index	Universe	Index	Universe	Index	Universe	Index	Universe	Index		
Principal Global Investors	Jul-14	Mid Cap	✓	✓	✓	✓	✓	✓	✓	✓	✓	703.0	Performance compliant with LACERS' Manager Monitoring Policy
EAM Investors	Sep-15	Small Cap Growth	✓	✓	✓	✓	✓	✓	✓	✓	✓	908.5	Performance compliant with LACERS' Manager Monitoring Policy
Copeland	Oct-20	Small Cap Core	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Granahan	Oct-20	Small Cap Growth	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Bernzott	Oct-20	Small Cap Value	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Terminate due to organizational issues
Segall Byrant Hamill	Oct-20	Small Cap Value	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Rhumblin (Passive)	Feb-93	S&P 500	*	✓	*	✓	*	✓	*	✓	✓✓	186.9	Performance compliant with LACERS' Manager Monitoring Policy
Rhumblin (Passive)	Jun-15	R2000	✓	✓	✓	✓	✓	✓	✓	✓	*	13.5	Performance compliant with LACERS' Manager Monitoring Policy

Note: Managers are placed on Watch List for concerns with organization, process and performance. Managers are normally on the Watch List for 12 months though may be longer if manager issues remain but not severe enough to warrant termination recommendation.

- Annual Management Fee Paid as of fiscal year ending June 30, 2020.
- \* Where net of fees performance is not available gross of fee returns are evaluated.

Legend	
✓	Outperformed
*	Underperformed
=	Equal to
✓✓	Gross Return



# NON-U.S. EQUITY

NEPC, LLC

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## Los Angeles City Employees' Retirement System

# NON-U.S. EQUITY (GROSS)

	Market Value (\$)	% of Portfolio	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Non-U.S. Equity</b>	<b>5,720,452,301</b>	<b>100.00</b>	<b>8.06</b>	<b>-2.96</b>	<b>6.30</b>	<b>2.55</b>	<b>7.52</b>	<b>5.35</b>	<b>5.14</b>	<b>Nov-94</b>
MSCI ACWI ex USA			6.25	-5.44	3.00	1.16	6.23	4.00	4.85	Nov-94
Over/Under			1.81	2.48	3.30	1.39	1.29	1.35	0.29	
<b>Developed ex-U.S.</b>	<b>4,348,954,003</b>	<b>76.02</b>	<b>7.54</b>	<b>-3.24</b>	<b>5.38</b>	<b>2.70</b>	<b>7.01</b>		<b>7.54</b>	<b>Jun-12</b>
MSCI EAFE			4.80	-7.09	0.49	0.62	5.26		6.09	Jun-12
Over/Under			2.74	3.85	4.89	2.08	1.75		1.45	
AQR Capital	276,045,682	4.83	9.43	-6.95	5.03	-0.76	5.80		4.08	Feb-14
MSCI EAFE Small Cap			10.25	-4.20	6.84	1.40	7.37		4.54	Feb-14
Over/Under			-0.82	-2.75	-1.81	-2.16	-1.57		-0.46	
Barrow Hanley	497,025,724	8.69	6.85	-13.68	-4.78	-2.56	3.57		1.30	Nov-13
MSCI EAFE Value			1.19	-18.31	-11.93	-5.86	1.14		-1.02	Nov-13
Over/Under			5.66	4.63	7.15	3.30	2.43		2.32	
Lazard Asset Management <sup>1</sup>	610,980,496	10.68	6.85	-3.62	3.37	3.86	6.09		4.24	Nov-13
MSCI EAFE			4.80	-7.09	0.49	0.62	5.26		2.47	Nov-13
Over/Under			2.05	3.47	2.88	3.24	0.83		1.77	
MFS Institutional Advisors	694,364,546	12.14	8.23	3.16	12.78	8.85	11.50		7.50	Oct-13
MSCI World ex USA Growth NR USD			8.51	5.13	13.64	7.06	9.09		5.76	Oct-13
Over/Under			-0.28	-1.97	-0.86	1.79	2.41		1.74	
Oberweis Asset Mgmt <sup>1</sup>	340,027,435	5.94	20.67	35.14	46.77	12.44	14.19		11.51	Jan-14
MSCI EAFE Small Cap			10.25	-4.20	6.84	1.40	7.37		5.33	Jan-14
Over/Under			10.42	39.34	39.93	11.04	6.82		6.18	
SSgA World ex US IMI	1,930,510,119	33.75	5.62	-6.41	1.41	1.17	6.03	5.07	5.47	Aug-93
MSCI World ex USA IMI NR USD <sup>2</sup>			5.64	-6.70	1.10	0.73	5.60	4.65	5.19	Aug-93
Over/Under			-0.02	0.29	0.31	0.44	0.43	0.42	0.28	

1 Portfolio has a mid-month inception date. Since inception return is calculated from the first full month of performance.

2 Since inception index return sourced from SSgA.

eA = eVestment



# Los Angeles City Employees' Retirement System

## NON-U.S. EQUITY (GROSS)

	Market Value (\$)	% of Portfolio	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Emerging Markets</b>	<b>1,371,498,298</b>	<b>23.98</b>	<b>9.60</b>	<b>-2.18</b>	<b>9.16</b>	<b>1.84</b>	<b>8.94</b>		<b>4.00</b>	<b>Jun-12</b>
<i>MSCI Emerging Markets</i>			<u>9.56</u>	<u>-1.16</u>	<u>10.54</u>	<u>2.42</u>	<u>8.97</u>		<u>4.23</u>	<i>Jun-12</i>
Over/Under			0.04	-1.02	-1.38	-0.58	-0.03		-0.23	
Axiom Emerging Markets	524,195,363	9.16	13.06	9.78	23.42	6.92	12.67		7.09	May-14
<i>MSCI Emerging Markets</i>			<u>9.56</u>	<u>-1.16</u>	<u>10.54</u>	<u>2.42</u>	<u>8.97</u>		<u>3.81</u>	<i>May-14</i>
Over/Under			3.50	10.94	12.88	4.50	3.70		3.28	
<i>MSCI Emerging Markets Growth NR USD</i>			<u>14.15</u>	<u>12.41</u>	<u>27.79</u>	<u>7.45</u>	<u>13.26</u>		<u>7.65</u>	<i>May-14</i>
DFA Emerging Markets <sup>1</sup>	388,980,541	6.80	4.93	-14.51	-5.42	-3.48	5.68		-1.16	Aug-14
<i>MSCI Emerging Markets Value NR USD</i>			<u>4.66</u>	<u>-14.23</u>	<u>-5.70</u>	<u>-2.89</u>	<u>4.45</u>		<u>-1.64</u>	<i>Aug-14</i>
Over/Under			0.27	-0.28	0.28	-0.59	1.23		0.48	
QMA Emerging Markets <sup>1</sup>	458,322,394	8.01	9.90	-2.40	9.03	1.47	8.19		3.88	May-14
<i>MSCI Emerging Markets</i>			<u>9.56</u>	<u>-1.16</u>	<u>10.54</u>	<u>2.42</u>	<u>8.97</u>		<u>3.81</u>	<i>May-14</i>
Over/Under			0.34	-1.24	-1.51	-0.95	-0.78		0.07	

<sup>1</sup> Portfolio has a mid-month inception date. Since inception return is calculated from the first full month of performance.  
eA = eVestment



# Los Angeles City Employees' Retirement System

## NON-U.S. EQUITY (NET)

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
<b>Non-U.S. Equity</b>	<b>5,720,452,301</b>	<b>100.00</b>	<b>7.97</b>	<b>40</b>	<b>-3.21</b>	<b>44</b>	<b>5.94</b>	<b>46</b>	<b>2.18</b>	<b>41</b>	<b>7.13</b>	<b>41</b>	<b>5.00</b>	<b>40</b>		<b>Nov-94</b>
MSCI ACWI ex USA			<u>6.25</u>	82	<u>-5.44</u>	69	<u>3.00</u>	78	<u>1.16</u>	66	<u>6.23</u>	72	<u>4.00</u>	92		Nov-94
Over/Under			1.72		2.23		2.94		1.02		0.90		1.00			
<b>Developed ex-U.S.</b>	<b>4,348,954,003</b>	<b>76.02</b>	<b>7.47</b>	<b>37</b>	<b>-3.46</b>	<b>43</b>	<b>5.07</b>	<b>43</b>	<b>2.37</b>	<b>43</b>	<b>6.67</b>	<b>45</b>			<b>7.24</b>	<b>Jun-12</b>
MSCI EAFE			<u>4.80</u>	99	<u>-7.09</u>	78	<u>0.49</u>	85	<u>0.62</u>	78	<u>5.26</u>	84			<u>6.09</u>	Jun-12
Over/Under			2.67		3.63		4.58		1.75		1.41				1.15	
InvMetrics Public DB > \$1 Billion Dev Mkt ex-US Eq Net Median			7.02		-4.36		4.28		1.41		6.60				6.96	Jun-12
AQR Capital <sup>1</sup>	276,045,682	4.83	9.28	60	-7.38	65	4.35	58	-1.49	68	5.01	78			3.37	Feb-14
MSCI EAFE Small Cap			<u>10.25</u>	37	<u>-4.20</u>	42	<u>6.84</u>	47	<u>1.40</u>	40	<u>7.37</u>	41			<u>4.54</u>	Feb-14
Over/Under			-0.97		-3.18		-2.49		-2.89		-2.36				-1.17	
eV EAFE Small Cap Equity Net Median			9.59		-5.97		5.44		-0.11		6.80				4.42	Feb-14
Barrow Hanley <sup>1</sup>	497,025,724	8.69	6.74	17	-13.97	50	-5.21	46	-3.04	33	3.06	43			0.81	Nov-13
MSCI EAFE Value			<u>1.19</u>	97	<u>-18.31</u>	88	<u>-11.93</u>	94	<u>-5.86</u>	82	<u>1.14</u>	88			<u>-1.02</u>	Nov-13
Over/Under			5.55		4.34		6.72		2.82		1.92				1.83	
eV EAFE Value Equity Net Median			3.80		-14.10		-5.96		-3.89		2.69				0.62	Nov-13
Lazard Asset Management <sup>1</sup>	610,980,496	10.68	6.73	49	-3.97	40	2.86	51	3.33	27	5.54	51			3.71	Nov-13
MSCI EAFE			<u>4.80</u>	74	<u>-7.09</u>	60	<u>0.49</u>	62	<u>0.62</u>	53	<u>5.26</u>	56			<u>2.47</u>	Nov-13
Over/Under			1.93		3.12		2.37		2.71		0.28				1.24	
eV All EAFE Equity Net Median			6.60		-5.98		2.87		0.83		5.56				3.38	Nov-13
MFS Institutional Advisors	694,364,546	12.14	8.14	86	2.86	87	12.33	82	8.37	48	10.98	36			7.00	Oct-13
MSCI World ex USA Growth NR USD			<u>8.51</u>	73	<u>5.13</u>	73	<u>13.64</u>	75	<u>7.06</u>	65	<u>9.09</u>	60			<u>5.76</u>	Oct-13
Over/Under			-0.37		-2.27		-1.31		1.31		1.89				1.24	
eV EAFE All Cap Growth Net Median			9.31		7.56		17.19		8.33		10.41				6.70	Oct-13

<sup>1</sup> Portfolio has a mid-month inception date. Since inception return is calculated from the first full month of performance.  
eA = eVestment



# Los Angeles City Employees' Retirement System

## NON-U.S. EQUITY (NET)

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Oberweis Asset Mgmt <sup>1</sup>	340,027,435	5.94	20.45	1	34.36	1	45.66	1	11.52	1	13.26	6			10.59	Jan-14
MSCI EAFE Small Cap			<u>10.25</u>	37	<u>-4.20</u>	42	<u>6.84</u>	47	<u>1.40</u>	40	<u>7.37</u>	41			<u>5.33</u>	Jan-14
Over/Under			10.20		38.56		38.82		10.12		5.89				5.26	
eV EAFE Small Cap Equity Net Median			9.59		-5.97		5.44		-0.11		6.80				5.23	Jan-14
SSgA World ex US IMI	1,930,510,119	33.75	5.60	74	-6.43	60	1.38	65	1.14	50	6.01	47	5.05	73	5.47	Aug-93
MSCI World ex USA IMI NR USD <sup>2</sup>			<u>5.64</u>	73	<u>-6.70</u>	63	<u>1.10</u>	66	<u>0.73</u>	55	<u>5.60</u>	53	<u>4.65</u>	81	<u>5.19</u>	Aug-93
Over/Under			-0.04		0.27		0.28		0.41		0.41		0.40		0.28	
eV EAFE Core Equity Net Median			7.05		-5.43		3.87		1.10		5.77		5.87		6.51	Aug-93
<b>Emerging Markets</b>	<b>1,371,498,298</b>	<b>23.98</b>	<b>9.49</b>	<b>43</b>	<b>-2.53</b>	<b>48</b>	<b>8.64</b>	<b>53</b>	<b>1.31</b>	<b>43</b>	<b>8.38</b>	<b>23</b>			<b>3.39</b>	<b>Jun-12</b>
MSCI Emerging Markets			<u>9.56</u>	35	<u>-1.16</u>	26	<u>10.54</u>	18	<u>2.42</u>	16	<u>8.97</u>	17			<u>4.23</u>	Jun-12
Over/Under			-0.07		-1.37		-1.90		-1.11		-0.59				-0.84	
InvMetrics Public DB > \$1 Billion Emg Mkt Eq Net Median			9.21		-2.55		8.92		1.15		7.03				3.35	Jun-12
Axiom Emerging Markets	524,195,363	9.16	12.92	14	9.31	15	22.70	14	6.22	16	11.90	17			6.39	May-14
MSCI Emerging Markets			<u>9.56</u>	53	<u>-1.16</u>	49	<u>10.54</u>	48	<u>2.42</u>	43	<u>8.97</u>	44			<u>3.81</u>	May-14
Over/Under			3.36		10.47		12.16		3.80		2.93				2.58	
MSCI Emerging Markets Growth NR USD			14.15	10	12.41	10	27.79	7	7.45	11	13.26	11			7.65	May-14
eV Emg Mkts Equity Net Median			9.70		-1.36		10.25		1.93		8.43				3.94	May-14
DFA Emerging Markets <sup>1</sup>	388,980,541	6.80	4.82	89	-14.83	92	-5.89	91	-3.96	93	5.18	86			-1.64	Aug-14
MSCI Emerging Markets Value NR USD			<u>4.66</u>	90	<u>-14.23</u>	92	<u>-5.70</u>	90	<u>-2.89</u>	89	<u>4.45</u>	89			<u>-1.64</u>	Aug-14
Over/Under			0.16		-0.60		-0.19		-1.07		0.73				0.00	
eV Emg Mkts Equity Net Median			9.70		-1.36		10.25		1.93		8.43				2.82	Aug-14
QMA Emerging Markets <sup>1</sup>	458,322,394	8.01	9.82	48	-2.65	60	8.66	58	1.08	59	7.76	59			3.45	May-14
MSCI Emerging Markets			<u>9.56</u>	53	<u>-1.16</u>	49	<u>10.54</u>	48	<u>2.42</u>	43	<u>8.97</u>	44			<u>3.81</u>	May-14
Over/Under			0.26		-1.49		-1.88		-1.34		-1.21				-0.36	
eV Emg Mkts Equity Net Median			9.70		-1.36		10.25		1.93		8.43				3.94	May-14

1 Portfolio has a mid-month inception date. Since inception return is calculated from the first full month of performance.

2 Since inception index return sourced from SSgA and since inception portfolio return is gross of fees.

eA = eVestment



## Los Angeles City Employees' Retirement System

# NON-U.S. EQUITY COUNTRY ALLOCATION

Versus MSCI ACWI ex USA - Quarter Ending September 30, 2020		
	Manager Ending Allocation (USD)	Index Ending Allocation (USD)
<b>Europe</b>		
Austria	0.1%	0.1%
Belgium	0.2%	0.6%
Croatia**	0.0%	0.0%
Czech Republic*	0.0%	0.0%
Denmark	1.6%	1.6%
Estonia**	0.0%	0.0%
Finland	1.6%	0.7%
France	10.1%	6.8%
Germany	7.6%	6.1%
Greece*	0.0%	0.0%
Hungary*	0.1%	0.1%
Ireland	0.7%	0.5%
Italy	1.6%	1.4%
Lithuania**	0.0%	0.0%
Luxembourg	0.0%	0.0%
Netherlands	2.0%	2.8%
Norway	0.6%	0.4%
Poland*	0.0%	0.2%
Portugal	0.2%	0.1%
Romania**	0.0%	0.0%
Russia*	0.4%	0.7%
Serbia**	0.0%	0.0%
Slovenia**	0.0%	0.0%
Spain	1.4%	1.4%
Sweden	2.2%	2.1%
Switzerland	6.1%	6.7%
United Kingdom	11.1%	8.5%
<b>Total-Europe</b>	<b>47.6%</b>	<b>40.9%</b>

Versus MSCI ACWI ex USA - Quarter Ending September 30, 2020		
	Manager Ending Allocation (USD)	Index Ending Allocation (USD)
<b>Americas</b>		
Brazil*	0.8%	1.4%
Canada	4.4%	6.5%
Mexico*	0.7%	0.5%
Peru*	0.1%	0.1%
United States	4.5%	0.0%
<b>Total-Americas</b>	<b>10.4%</b>	<b>8.6%</b>
<b>AsiaPacific</b>		
Australia	1.6%	4.2%
China*	5.8%	12.5%
Hong Kong	6.1%	2.1%
India*	1.8%	2.5%
Indonesia*	0.2%	0.4%
Japan	15.1%	16.5%
Korea*	2.9%	3.6%
Philippines*	0.1%	0.2%
Singapore	0.9%	0.7%
Taiwan*	3.2%	3.8%
Vietnam**	0.0%	0.0%
<b>Total-AsiaPacific</b>	<b>37.8%</b>	<b>47.7%</b>
<b>Other</b>		
Israel	0.6%	0.4%
Other Countries	0.6%	0.0%
South Africa*	0.5%	1.1%
<b>Total-Other</b>	<b>1.7%</b>	<b>2.8%</b>
<b>Totals</b>		
Developed	80.4%	70.4%
Emerging*	16.5%	29.6%
Frontier**	0.0%	0.0%
Other	0.6%	
Cash	2.5%	

\* = Emerging Market

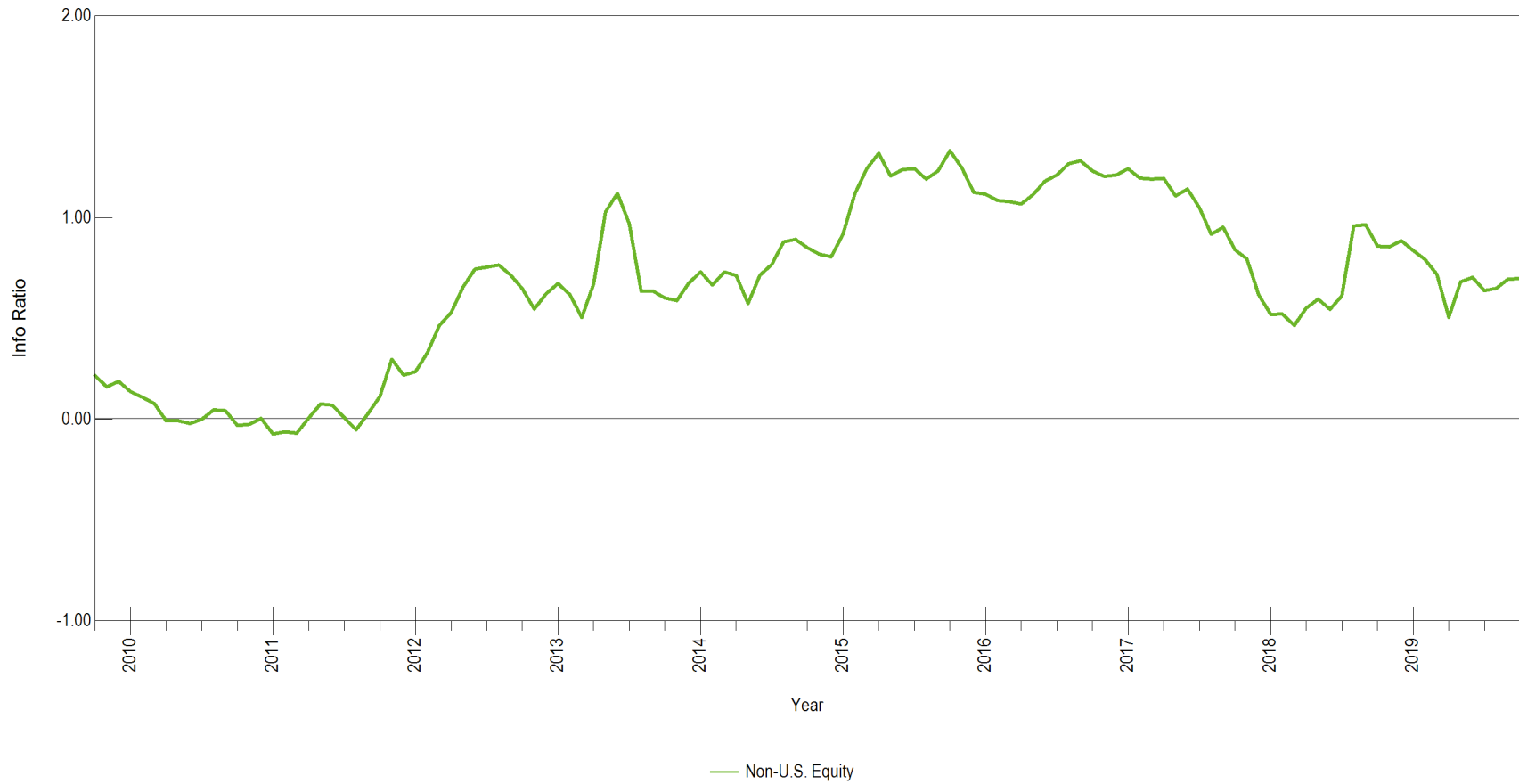
\*\* = Frontier Market





# NON-U.S. EQUITY ROLLING 5 YEAR INFORMATION

Rolling 5 Year Information Ratio



\*Returns are net of fees



# MANAGER REPORT CARD

Non-U.S. Equity Managers	Inception Date	Mandate	Current Quarter (Net)		One Year (Net)		Three Years (Net)		Five Years (Net)		Since Inception (Net)	Annual Mgt Fee Paid \$ (000)	Comments
			Index	Universe	Index	Universe	Index	Universe	Index	Universe			
Axiom International	Mar-14	Emerging Markets	✓	✓	✓	✓	✓	✓	✓	✓	✓	2,645.8	On watch on August 2020 due to benchmark change
Q.M.A.	Apr-14	Emerging Markets	✓	✓	✗	✗	✗	✗	✗	✗	✗	1,478.5	On Watch since July 2019 due to performance; Watch extended in July 2020
DFA Emerging Markets	Jul-14	Emerging Markets	✓	✗	✗	✗	✗	✗	✓	✗	=	1,931.9	Performance compliant with LACERS' Manager Monitoring Policy
AQR	Feb-14	Non-U.S. Developed	✗	✗	✗	✗	✗	✗	✗	✗	✗	1,765.7	On Watch since May 2019 due to performance; Watch extended in May 2020
Oberweis Asset Mgt.	Jan-14	Non-U.S. Developed	✓	✓	✓	✓	✓	✓	✓	✓	✓	2,015.3	On Watch since February 2020 due to performance
Barrow, Hanley, Mewhinney & Strauss	Nov-13	Non-U.S. Developed	✓	✓	✓	=	✓	✓	✓	✓	✓	2,308.5	On Watch since August 2020 due to organizational change
Lazard Asset Mgt.	Nov-13	Non-U.S. Developed	✓	✓	✓	✗	✓	✗	✓	✗	✓	2,929.5	On Watch since February 2020 due to performance
MFS Institutional Advisors	Oct-13	Non-U.S. Developed	✗	✗	✗	✗	✓	✓	✓	✓	✓	2,535.9	Performance compliant with LACERS' Manager Monitoring Policy
SsgA (Passive)	Aug-93	Non-U.S. Developed	✗	✗	✓	✗	✓	=	✓	✓	✓✓	380.5	Performance compliant with LACERS' Manager Monitoring Policy

Note: Managers are placed on Watch List for concerns with organization, process and performance. Managers are normally on the Watch List for 12 months though may be longer if manager issues remain but not severe enough to warrant termination recommendation.

- Annual Management Fee Paid as of fiscal year ending June 30, 2020.
- \* Where net of fees performance is not available gross of fee returns are evaluated.

Legend	
✓	Outperformed
✗	Underperformed
=	Equal to
✓✓	Gross Return



# CORE FIXED INCOME

NEPC, LLC

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## Los Angeles City Employees' Retirement System

# CORE FIXED INCOME (GROSS)

	Market Value (\$)	% of Portfolio	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Core Fixed Income</b>	<b>3,122,595,425</b>	<b>100.00</b>	<b>1.01</b>	<b>7.82</b>	<b>8.15</b>	<b>5.68</b>	<b>4.72</b>		<b>4.11</b>	<b>Jul-12</b>
<i>Core Fixed Income Blend</i>			<u>0.62</u>	<u>6.79</u>	<u>6.98</u>	<u>5.24</u>	<u>4.18</u>		<u>3.46</u>	<i>Jul-12</i>
Over/Under			0.39	1.03	1.17	0.44	0.54		0.65	
Baird Advisors	360,435,355	11.54	0.97	6.49	7.03	4.92	4.04	3.77	4.57	Mar-05
<i>BBgBarc US Govt/Credit Int TR</i>			<u>0.61</u>	<u>5.92</u>	<u>6.32</u>	<u>4.43</u>	<u>3.39</u>	<u>2.91</u>	<u>3.91</u>	<i>Mar-05</i>
Over/Under			0.36	0.57	0.71	0.49	0.65	0.86	0.66	
LM Capital <sup>1</sup>	353,726,064	11.33	1.92	7.85	8.39	5.42	4.63	4.06	4.93	Mar-05
<i>LM Custom Benchmark</i>			<u>0.62</u>	<u>6.79</u>	<u>6.98</u>	<u>5.24</u>	<u>4.18</u>	<u>3.63</u>	<u>4.38</u>	<i>Mar-05</i>
Over/Under			1.30	1.06	1.41	0.18	0.45	0.43	0.55	
Loomis Sayles	883,898,023	28.31	1.07	9.00	9.22	6.38	5.61	4.86	9.09	Jul-80
<i>Loomis Custom Benchmark</i>			<u>0.62</u>	<u>6.79</u>	<u>6.98</u>	<u>5.24</u>	<u>4.18</u>	<u>3.77</u>	<u>7.61</u>	<i>Jul-80</i>
Over/Under			0.45	2.21	2.24	1.14	1.43	1.09	1.48	
Neuberger Berman	864,219,133	27.68	0.86	7.90	8.28	5.67	4.64	4.44	5.91	Sep-01
<i>Core Fixed Income Blend</i>			<u>0.62</u>	<u>6.79</u>	<u>6.98</u>	<u>5.24</u>	<u>4.18</u>	<u>3.77</u>	<u>4.82</u>	<i>Sep-01</i>
Over/Under			0.24	1.11	1.30	0.43	0.46	0.67	1.09	
SSgA U.S. Aggregate Bond <sup>1</sup>	660,316,850	21.15	0.66	6.84	7.02	5.27	4.20		3.96	Jul-14
<i>BBgBarc US Aggregate TR</i>			<u>0.62</u>	<u>6.79</u>	<u>6.98</u>	<u>5.24</u>	<u>4.18</u>		<u>3.93</u>	<i>Jul-14</i>
Over/Under			0.04	0.05	0.04	0.03	0.02		0.03	

1 Portfolio has a mid-month inception date. Since inception return is calculated from the first full month of performance.  
BBgBarc = Bloomberg Barclays



## Los Angeles City Employees' Retirement System

# CORE FIXED INCOME (NET)

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
<b>Core Fixed Income</b>	<b>3,122,595,425</b>	<b>100.00</b>	<b>0.99</b>	<b>79</b>	<b>7.74</b>	<b>12</b>	<b>8.04</b>	<b>14</b>	<b>5.57</b>	<b>18</b>	<b>4.61</b>	<b>49</b>			<b>4.00</b>	<b>Jul-12</b>
<i>Core Fixed Income Blend</i>			<u>0.62</u>	93	<u>6.79</u>	42	<u>6.98</u>	50	<u>5.24</u>	47	<u>4.18</u>	87			<u>3.46</u>	<i>Jul-12</i>
<i>Over/Under</i>			0.37		0.95		1.06		0.33		0.43				0.54	
<i>InvMetrics Public DB &gt; \$1 Billion US Fixed Income Net Median</i>			1.54		6.31		6.96		5.11		4.58				3.77	<i>Jul-12</i>
<b>Baird Advisors</b>	<b>360,435,355</b>	<b>11.54</b>	<b>0.95</b>	<b>40</b>	<b>6.40</b>	<b>18</b>	<b>6.92</b>	<b>16</b>	<b>4.80</b>	<b>13</b>	<b>3.92</b>	<b>17</b>	<b>3.64</b>	<b>15</b>	<b>4.44</b>	<b>Mar-05</b>
<i>BBgBarc US Govt/Credit Int TR</i>			<u>0.61</u>	74	<u>5.92</u>	40	<u>6.32</u>	44	<u>4.43</u>	45	<u>3.39</u>	51	<u>2.91</u>	65	<u>3.91</u>	<i>Mar-05</i>
<i>Over/Under</i>			0.34		0.48		0.60		0.37		0.53		0.73		0.53	
<i>eV US Interm Duration Fixed Inc Net Median</i>			0.83		5.76		6.20		4.39		3.40		2.98		4.07	<i>Mar-05</i>
<b>LM Capital <sup>1</sup></b>	<b>353,726,064</b>	<b>11.33</b>	<b>1.90</b>	<b>6</b>	<b>7.78</b>	<b>20</b>	<b>8.29</b>	<b>15</b>	<b>5.31</b>	<b>55</b>	<b>4.53</b>	<b>39</b>	<b>3.93</b>	<b>46</b>	<b>4.79</b>	<b>Mar-05</b>
<i>LM Custom Benchmark</i>			<u>0.62</u>	88	<u>6.79</u>	63	<u>6.98</u>	62	<u>5.24</u>	61	<u>4.18</u>	71	<u>3.63</u>	72	<u>4.38</u>	<i>Mar-05</i>
<i>Over/Under</i>			1.28		0.99		1.31		0.07		0.35		0.30		0.41	
<i>eV US Core Fixed Inc Net Median</i>			1.06		7.18		7.24		5.35		4.38		3.88		4.68	<i>Mar-05</i>
<b>Loomis Sayles<sup>2</sup></b>	<b>883,898,023</b>	<b>28.31</b>	<b>1.04</b>	<b>51</b>	<b>8.90</b>	<b>5</b>	<b>9.09</b>	<b>4</b>	<b>6.25</b>	<b>6</b>	<b>5.48</b>	<b>4</b>	<b>4.73</b>	<b>4</b>	<b>9.09</b>	<b>Jul-80</b>
<i>Loomis Custom Benchmark</i>			<u>0.62</u>	88	<u>6.79</u>	63	<u>6.98</u>	62	<u>5.24</u>	61	<u>4.18</u>	71	<u>3.77</u>	60	<u>7.61</u>	<i>Jul-80</i>
<i>Over/Under</i>			0.42		2.11		2.11		1.01		1.30		0.96		1.48	
<i>eV US Core Fixed Inc Net Median</i>			1.06		7.18		7.24		5.35		4.38		3.88			<i>Jul-80</i>
<b>Neuberger Berman</b>	<b>864,219,133</b>	<b>27.68</b>	<b>0.83</b>	<b>68</b>	<b>7.79</b>	<b>20</b>	<b>8.14</b>	<b>18</b>	<b>5.53</b>	<b>33</b>	<b>4.49</b>	<b>42</b>	<b>4.27</b>	<b>22</b>	<b>5.76</b>	<b>Sep-01</b>
<i>Core Fixed Income Blend</i>			<u>0.62</u>	88	<u>6.79</u>	63	<u>6.98</u>	62	<u>5.24</u>	61	<u>4.18</u>	71	<u>3.77</u>	60	<u>4.82</u>	<i>Sep-01</i>
<i>Over/Under</i>			0.21		1.00		1.16		0.29		0.31		0.50		0.94	
<i>eV US Core Fixed Inc Net Median</i>			1.06		7.18		7.24		5.35		4.38		3.88		4.79	<i>Sep-01</i>
<b>SSgA U.S. Aggregate Bond<sup>1</sup></b>	<b>660,316,850</b>	<b>21.15</b>	<b>0.65</b>	<b>87</b>	<b>6.80</b>	<b>63</b>	<b>6.98</b>	<b>62</b>	<b>5.23</b>	<b>62</b>	<b>4.16</b>	<b>74</b>			<b>3.92</b>	<b>Jul-14</b>
<i>BBgBarc US Aggregate TR</i>			<u>0.62</u>	88	<u>6.79</u>	63	<u>6.98</u>	62	<u>5.24</u>	61	<u>4.18</u>	71			<u>3.93</u>	<i>Jul-14</i>
<i>Over/Under</i>			0.03		0.01		0.00		-0.01		-0.02				-0.01	
<i>eV US Core Fixed Inc Net Median</i>			1.06		7.18		7.24		5.35		4.38				4.01	<i>Jul-14</i>

1 Portfolio has a mid-month inception date. Since inception return is calculated from the first full month of performance.

BBgBarc = Bloomberg Barclays

2 Loomis since inception is gross of fees.

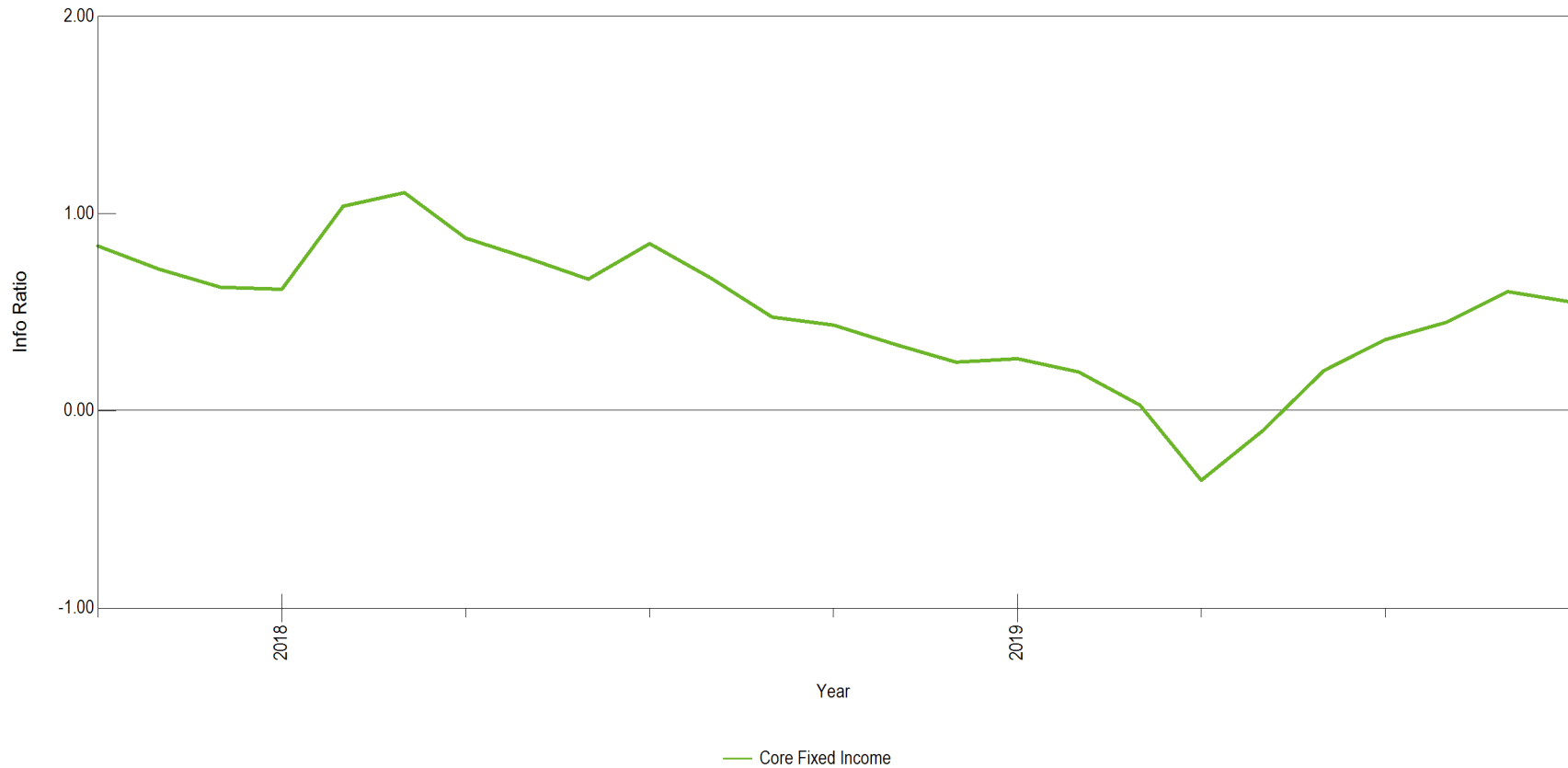
eV = eVestment



# Los Angeles City Employees' Retirement System

## CORE FIXED INCOME 3 YEAR INFORMATION RATIO

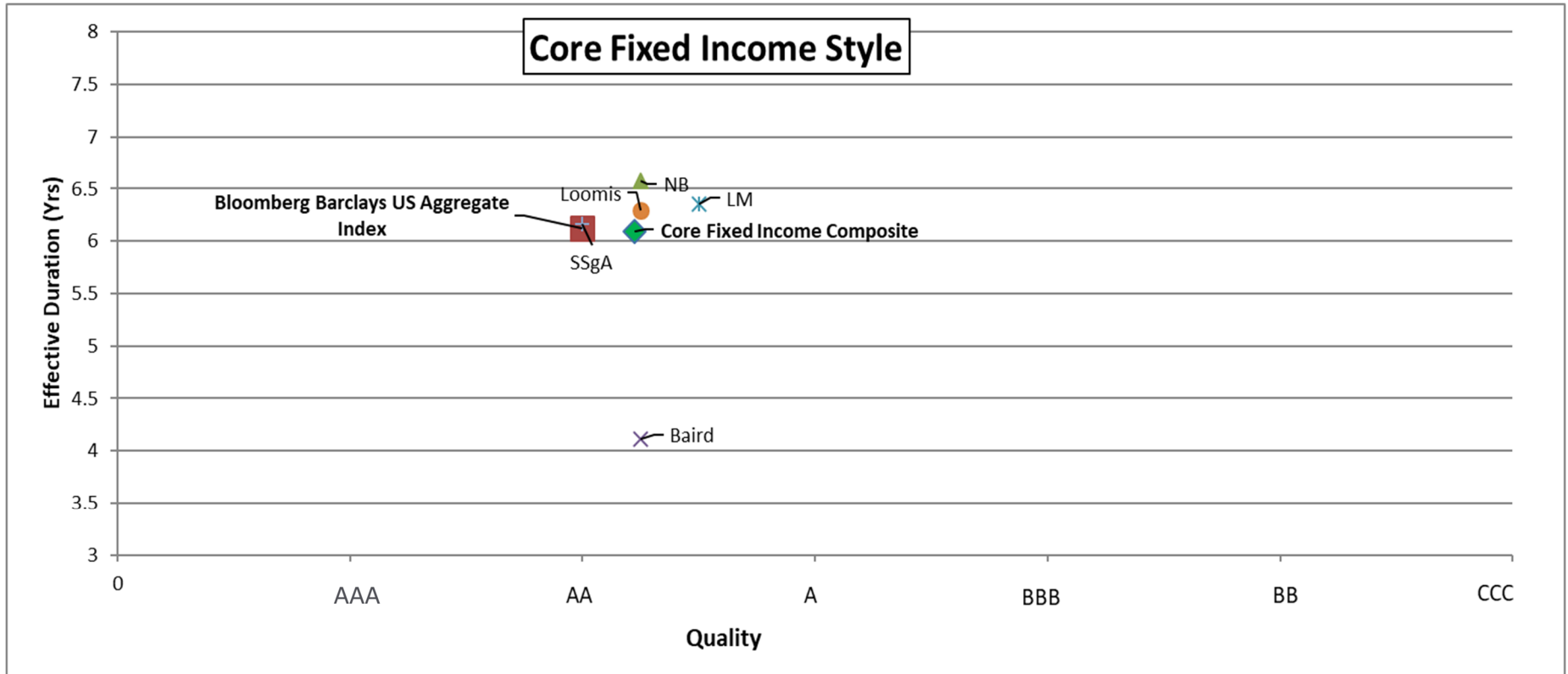
Rolling 3 Year Information Ratio



\*Returns are net of fees



# CORE FIXED INCOME STYLE ANALYSIS



- LACERS Core Fixed Income Composite has a slightly lower duration (interest rate risk) than its benchmark.
- The Core Fixed Income Composite has slightly lower average quality rating than its benchmark.



# MANAGER REPORT CARD

Core Fixed Income Managers	Inception Date	Mandate	Current Quarter (Net)		One Year (Net)		Three Years (Net)		Five Years (Net)		Since Inception (Net)	Annual Mgt Fee Paid \$ (000)	Comments
			Index	Universe	Index	Universe	Index	Universe	Index	Universe	Index		
			Neuberger Berman	Sep-01	Core	✓	✗	✓	✓	✓	✓		
Loomis Sayles	Jul-80	Core	✓	✗	✓	✓	✓	✓	✓	✓	✓✓	1029.2	Performance compliant with LACERS' Manager Monitoring Policy
Baird Advisors	Mar-05	Intermediate	✓	✓	✓	✓	✓	✓	✓	✓	✓	372.7	Performance compliant with LACERS' Manager Monitoring Policy
LM Capital Group	Mar-05	Core	✓	✓	✓	✓	✓	✗	✓	✓	✓	317.4	On Watch since May 2019 due to performance; Watch extended in April 2020
SSgA (Passive)	Jul-14	Core	✓	✗	=	✗	✗	✗	✗	✗	✗	347.4	Performance compliant with LACERS' Manager Monitoring Policy

Note: Managers are placed on Watch List for concerns with organization, process and performance. Managers are normally on the Watch List for 12 months though may be longer if manager issues remain but not severe enough to warrant termination recommendation.

- Annual Management Fee Paid as of fiscal year ending June 30, 2020.
- \* Where net of fees performance is not available gross of fee returns are evaluated.

Legend	
✓	Outperformed
✗	Underperformed
=	Equal to
✓✓	Gross Return





# CREDIT OPPORTUNITIES

NEPC, LLC

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## Los Angeles City Employees' Retirement System

# CREDIT OPPORTUNITIES (GROSS)

	Market Value (\$)	% of Portfolio	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Credit Opportunities</b>	<b>1,045,224,818</b>	<b>100.00</b>	<b>4.20</b>	<b>-0.96</b>	<b>1.52</b>	<b>3.81</b>	<b>6.22</b>		<b>5.24</b>	<b>Jun-13</b>
<i>Credit Opportunities Blend</i>			<u>3.78</u>	<u>0.22</u>	<u>2.56</u>	<u>3.97</u>	<u>6.59</u>		<u>5.54</u>	<i>Jun-13</i>
Over/Under			0.42	-1.18	-1.04	-0.16	-0.37		-0.30	
AEGON USA	372,289,102	35.62	6.25	-1.04	2.01	4.02	6.59		5.62	Jun-13
<i>BBgBarc US High Yield 2% Issuer Cap TR</i>			<u>4.58</u>	<u>0.57</u>	<u>3.20</u>	<u>4.19</u>	<u>6.78</u>		<u>5.46</u>	<i>Jun-13</i>
Over/Under			1.67	-1.61	-1.19	-0.17	-0.19		0.16	
Prudential Emerging Markets	429,487,372	41.09	2.67	-1.12	1.46	4.12	6.89		5.35	May-14
<i>JP Morgan EMBI Global Diversified</i>			<u>2.32</u>	<u>-0.51</u>	<u>1.29</u>	<u>3.49</u>	<u>6.15</u>		<u>4.68</u>	<i>May-14</i>
Over/Under			0.35	-0.61	0.17	0.63	0.74		0.67	
Bain Capital Senior Loan Fund, LP*	218,450,951	20.90	4.27	0.31	1.55	3.29	3.95		3.53	Jun-15
<i>Credit Suisse Leveraged Loans</i>			<u>4.13</u>	<u>-0.83</u>	<u>0.84</u>	<u>3.16</u>	<u>4.03</u>		<u>3.59</u>	<i>Jun-15</i>
Over/Under			0.14	1.14	0.71	0.13	-0.08		-0.06	
SLC Mgmt Talf	24,984,098	2.39	-0.06						-0.06	Jun-20

- Credit Opportunities Blend = 65% BBgBarc US High Yield 2% Issuer Cap TR / 35% JP Morgan EMBI Global Diversified 7/01/2014 to present; BBgBarc US High Yield 2% Issuer Cap TR prior to

eA = eVestment Alliance

BBgBarc = Bloomberg Barclays

\*Net of fee return since vehicle is commingled.



## Los Angeles City Employees' Retirement System

# CREDIT OPPORTUNITIES (NET)

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
<b>Credit Opportunities</b>	<b>1,045,224,818</b>	<b>100.00</b>	<b>4.13</b>		<b>-1.17</b>		<b>1.22</b>		<b>3.49</b>		<b>5.87</b>				<b>4.90</b>	<b>Jun-13</b>
<i>Credit Opportunities Blend</i>			<u>3.78</u>		<u>0.22</u>		<u>2.56</u>		<u>3.97</u>		<u>6.59</u>				<u>5.54</u>	<i>Jun-13</i>
Over/Under			0.35		-1.39		-1.34		-0.48		-0.72				-0.64	
AEGON USA	372,289,102	35.62	6.16	5	-1.31	79	1.63	70	3.64	49	6.20	31			5.25	Jun-13
<i>BBgBarc US High Yield 2% Issuer Cap TR</i>			<u>4.58</u>	49	<u>0.57</u>	43	<u>3.20</u>	31	<u>4.19</u>	25	<u>6.78</u>	14			<u>5.46</u>	<i>Jun-13</i>
Over/Under			1.58		-1.88		-1.57		-0.55		-0.58				-0.21	
<i>eV US High Yield Fixed Inc Net Median</i>			4.54		0.28		2.61		3.62		5.92				4.92	<i>Jun-13</i>
Prudential Emerging Markets	429,487,372	41.09	2.59	70	-1.40	60	1.08	63	3.72	27	6.46	37			4.96	May-14
<i>JP Morgan EMBI Global Diversified</i>			<u>2.32</u>	81	<u>-0.51</u>	46	<u>1.29</u>	62	<u>3.49</u>	30	<u>6.15</u>	54			<u>4.68</u>	<i>May-14</i>
Over/Under			0.27		-0.89		-0.21		0.23		0.31				0.28	
<i>eV Emg Mkts Fixed Inc - Hard Currency Net Median</i>			2.86		-0.76		1.91		2.52		6.28				4.04	<i>May-14</i>
Bain Capital Senior Loan Fund, LP	218,450,951	20.90	4.27	16	0.31	10	1.55	15	3.29	17	3.95	17			3.53	Jun-15
<i>Credit Suisse Leveraged Loans</i>			<u>4.13</u>	19	<u>-0.83</u>	34	<u>0.84</u>	36	<u>3.16</u>	20	<u>4.03</u>	15			<u>3.59</u>	<i>Jun-15</i>
Over/Under			0.14		1.14		0.71		0.13		-0.08				-0.06	
<i>eV US Float-Rate Bank Loan Fixed Inc Net Median</i>			3.64		-1.51		0.09		2.52		3.44				3.12	<i>Jun-15</i>
SLC Mgmt Talf	24,984,098	2.39	-0.06												-0.06	Jun-20

- Credit Opportunities Blend = 65% BBgBarc US High Yield 2% Issuer Cap TR / 35% JP Morgan EMBI Global Diversified 7/01/2014 to present; BBgBarc US High Yield 2% Issuer Cap TR prior to

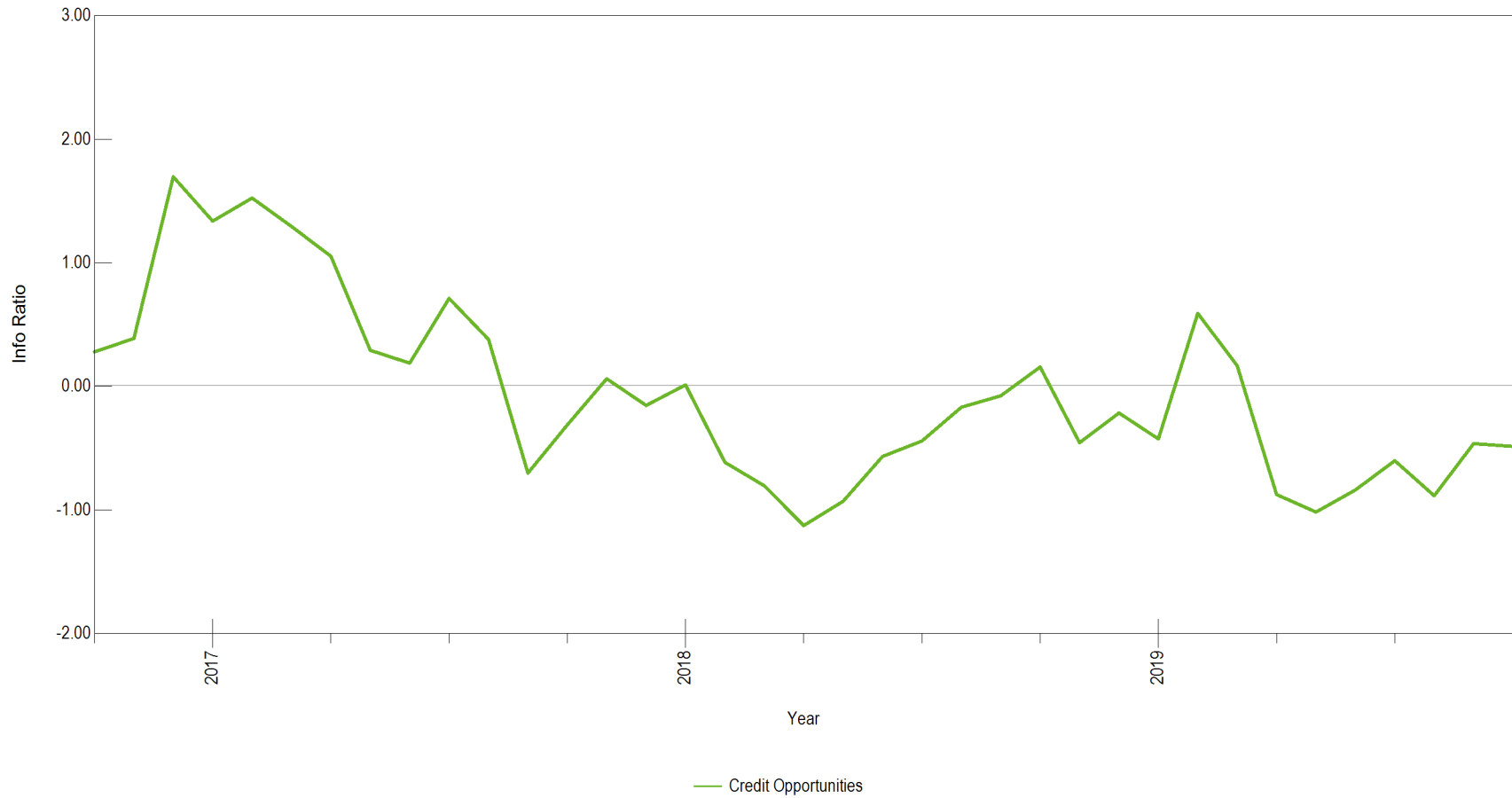
eA = eVestment Alliance

BBgBarc = Bloomberg Barclays



# CREDIT OPPORTUNITIES ROLLING 1 YEAR

Rolling 1 Year Information Ratio



\*Returns are net of fees



# MANAGER REPORT CARD

Credit Opportunities Managers	Inception Date	Mandate	Current Quarter (Net)		One Year (Net)		Three Years (Net)		Five Years (Net)		Since Inception (Net)	Annual Mgt Fee Paid \$ (000)	Comments
			Index Universe	Index Universe	Index Universe	Index Universe	Index Universe	Index Universe	Index				
AEGON USA	Jun-13	High Yield Bonds										1,372.8	Terminated as of 10/13/2020
Prudential	May-14	Emerging Market Debt	✓	✘	✘	✘	✓	✓	✓	✓	✓	1,538.5	On Watch since May 2020 due to performance
Bain	Jun-15	Bank Loans	✓	✓	✓	✓	✓	✓	✘	✓	✘	885.4	On Watch since July 2020 due to performance
SLC	Jun-20	TALF	✘	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Performance compliant with LACERS' Manager Monitoring Policy

Note: Managers are placed on Watch List for concerns with organization, process and performance. Managers are normally on the Watch List for 12 months though may be longer if manager issues remain but not severe enough to warrant termination recommendation.

- Annual Management Fee Paid as of fiscal year ending June 30, 2020.
- \* Where net of fees performance is not available gross of fee returns are evaluated.

Legend	
✓	Outperformed
✘	Underperformed
=	Equal to
✓✓	Gross Return



# REAL ASSETS

NEPC, LLC

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## Los Angeles City Employees' Retirement System

# REAL ASSETS (GROSS)

	Market Value (\$)	% of Portfolio	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Real Assets</b>	<b>2,049,450,850</b>	<b>100.00</b>	<b>1.66</b>	<b>-0.18</b>	<b>1.31</b>	<b>4.25</b>	<b>5.28</b>	<b>7.78</b>	<b>6.12</b>	<b>Nov-94</b>
<i>CPI + 5% (Unadjusted)</i>			<u>2.20</u>	<u>5.06</u>	<u>6.43</u>	<u>6.87</u>	<u>6.89</u>	<u>6.85</u>	<u>7.26</u>	<i>Nov-94</i>
Over/Under			-0.54	-5.24	-5.12	-2.62	-1.61	0.93	-1.14	
<b>Public Real Assets</b>	<b>1,243,465,383</b>	<b>60.67</b>	<b>3.95</b>	<b>2.63</b>	<b>4.07</b>	<b>4.15</b>	<b>3.98</b>		<b>2.33</b>	<b>Jun-14</b>
<i>Public Real Assets Blend</i>			<u>2.03</u>	<u>-2.07</u>	<u>-1.07</u>	<u>1.65</u>	<u>2.27</u>		<u>-0.42</u>	<i>Jun-14</i>
Over/Under			1.92	4.70	5.14	2.50	1.71		2.75	
<b>TIPS</b>	<b>833,979,331</b>	<b>40.69</b>	<b>3.52</b>	<b>10.17</b>	<b>11.05</b>	<b>6.15</b>	<b>4.86</b>		<b>3.38</b>	<b>Jul-14</b>
<i>BBgBarc US TIPS TR</i>			<u>3.03</u>	<u>9.22</u>	<u>10.08</u>	<u>5.79</u>	<u>4.61</u>		<u>3.23</u>	<i>Jul-14</i>
Over/Under			0.49	0.95	0.97	0.36	0.25		0.15	
<i>DFA US TIPS<sup>1</sup></i>	<i>833,979,331</i>	<i>40.69</i>	<i>3.52</i>	<i>10.17</i>	<i>11.05</i>	<i>6.15</i>	<i>4.95</i>		<i>3.50</i>	<i>Aug-14</i>
<i>BBgBarc US TIPS TR</i>			<u>3.03</u>	<u>9.22</u>	<u>10.08</u>	<u>5.79</u>	<u>4.61</u>		<u>3.23</u>	<i>Aug-14</i>
Over/Under			0.49	0.95	0.97	0.36	0.34		0.27	
<b>REITS</b>	<b>213,461,344</b>	<b>10.42</b>	<b>1.10</b>	<b>-8.32</b>	<b>-8.13</b>	<b>5.77</b>	<b>8.05</b>		<b>6.36</b>	<b>Mar-15</b>
<i>FTSE NAREIT All Equity REIT</i>			<u>1.19</u>	<u>-12.27</u>	<u>-12.15</u>	<u>3.42</u>	<u>6.53</u>		<u>4.29</u>	<i>Mar-15</i>
Over/Under			-0.09	3.95	4.02	2.35	1.52		2.07	
<i>CenterSquare US Real Estate<sup>1</sup></i>	<i>213,461,344</i>	<i>10.42</i>	<i>1.10</i>	<i>-8.32</i>	<i>-8.13</i>	<i>5.77</i>	<i>8.05</i>		<i>7.07</i>	<i>May-15</i>
<i>FTSE NAREIT All Equity REIT</i>			<u>1.19</u>	<u>-12.27</u>	<u>-12.15</u>	<u>3.42</u>	<u>6.53</u>		<u>5.34</u>	<i>May-15</i>
Over/Under			-0.09	3.95	4.02	2.35	1.52		1.73	
<b>Commodities</b>	<b>196,024,707</b>	<b>9.56</b>	<b>9.21</b>	<b>-11.54</b>	<b>-7.37</b>	<b>-3.67</b>	<b>-2.47</b>		<b>-5.26</b>	<b>Jun-15</b>
<i>Bloomberg Commodity Index TR USD</i>			<u>9.07</u>	<u>-12.08</u>	<u>-8.20</u>	<u>-4.18</u>	<u>-3.09</u>		<u>-5.79</u>	<i>Jun-15</i>
Over/Under			0.14	0.54	0.83	0.51	0.62		0.53	
<i>CoreCommodity Mgmt<sup>1</sup></i>	<i>196,024,707</i>	<i>9.56</i>	<i>9.21</i>	<i>-11.54</i>	<i>-7.37</i>	<i>-3.67</i>	<i>-2.47</i>		<i>-5.26</i>	<i>Jul-15</i>
<i>Bloomberg Commodity Index TR USD</i>			<u>9.07</u>	<u>-12.08</u>	<u>-8.20</u>	<u>-4.18</u>	<u>-3.09</u>		<u>-5.79</u>	<i>Jul-15</i>
Over/Under			0.14	0.54	0.83	0.51	0.62		0.53	
<b>Private Real Estate</b>	<b>787,209,372</b>	<b>38.41</b>	<b>-1.75</b>	<b>-4.44</b>	<b>-2.87</b>	<b>3.82</b>	<b>6.14</b>	<b>8.80</b>	<b>6.50</b>	<b>Oct-94</b>
<i>Real Estate Blend</i>			<u>0.68</u>	<u>0.48</u>	<u>2.20</u>	<u>6.02</u>	<u>7.49</u>	<u>10.49</u>	<u>9.53</u>	<i>Oct-94</i>
Over/Under			-2.43	-4.92	-5.07	-2.20	-1.35	-1.69	-3.03	
<b>Timber</b>	<b>18,776,096</b>	<b>0.92</b>	<b>-0.49</b>	<b>4.44</b>	<b>4.39</b>	<b>2.80</b>	<b>3.03</b>	<b>5.46</b>	<b>9.02</b>	<b>Sep-99</b>

<sup>1</sup> Portfolio has a mid-month inception date. Since inception return is calculated from the first full month of performance.

- Public Real Assets Custom Benchmark = 60% BBgBarc US TIPS TR / 20% Bloomberg Commodity Index TR USD / 10% Alerian MLP TR USD / 10% FTSE NAREIT All REIT

- Real Estate Blend = NCREIF-ODCE + 80bps 7/1/2014 to present; NCREIF Property Index 1 Qtr Lag plus 100bps 7/1/2012 - 6/30/2014; NCREIF Property Index prior to

eA = eVestment Alliance



## Los Angeles City Employees' Retirement System

# REAL ASSETS (NET)

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
<b>Real Assets</b>	<b>2,049,450,850</b>	<b>100.00</b>	<b>1.62</b>		<b>-0.29</b>		<b>1.15</b>		<b>4.09</b>		<b>5.12</b>		<b>7.64</b>			<b>Nov-94</b>
<i>CPI + 5% (Unadjusted)</i>			<u>2.20</u>		<u>5.06</u>		<u>6.43</u>		<u>6.87</u>		<u>6.89</u>		<u>6.85</u>			<i>Nov-94</i>
Over/Under			-0.58		-5.35		-5.28		-2.78		-1.77		0.79			
<b>Public Real Assets</b>	<b>1,243,465,383</b>	<b>60.67</b>	<b>3.90</b>		<b>2.47</b>		<b>3.86</b>		<b>3.93</b>		<b>3.73</b>				<b>2.12</b>	<b>Jun-14</b>
<i>Public Real Assets Blend</i>			<u>2.03</u>		<u>-2.07</u>		<u>-1.07</u>		<u>1.65</u>		<u>2.27</u>				<u>-0.42</u>	<i>Jun-14</i>
Over/Under			1.87		4.54		4.93		2.28		1.46				2.54	
<b>TIPS</b>	<b>833,979,331</b>	<b>40.69</b>	<b>3.51</b>		<b>10.13</b>		<b>11.00</b>		<b>6.10</b>		<b>4.80</b>				<b>3.32</b>	<b>Jul-14</b>
<i>BBgBarc US TIPS TR</i>			<u>3.03</u>		<u>9.22</u>		<u>10.08</u>		<u>5.79</u>		<u>4.61</u>				<u>3.23</u>	<i>Jul-14</i>
Over/Under			0.48		0.91		0.92		0.31		0.19				0.09	
<b>DFA US TIPS<sup>1</sup></b>	<b>833,979,331</b>	<b>40.69</b>	<b>3.51</b>	<b>30</b>	<b>10.13</b>	<b>12</b>	<b>11.00</b>	<b>14</b>	<b>6.10</b>	<b>20</b>	<b>4.90</b>	<b>19</b>			<b>3.45</b>	<b>Aug-14</b>
<i>BBgBarc US TIPS TR</i>			<u>3.03</u>	<b>63</b>	<u>9.22</u>	<b>39</b>	<u>10.08</u>	<b>34</b>	<u>5.79</u>	<b>38</b>	<u>4.61</u>	<b>46</b>			<u>3.23</u>	<i>Aug-14</i>
Over/Under			0.48		0.91		0.92		0.31		0.29				0.22	
<i>eV US TIPS / Inflation Fixed Inc Net Median</i>			3.27		8.86		9.90		5.77		4.57				3.07	<i>Aug-14</i>
<b>REITS</b>	<b>213,461,344</b>	<b>10.42</b>	<b>0.99</b>		<b>-8.61</b>		<b>-8.52</b>		<b>5.32</b>		<b>7.57</b>				<b>5.91</b>	<b>Mar-15</b>
<i>FTSE NAREIT All Equity REIT</i>			<u>1.19</u>		<u>-12.27</u>		<u>-12.15</u>		<u>3.42</u>		<u>6.53</u>				<u>4.29</u>	<i>Mar-15</i>
Over/Under			-0.20		3.66		3.63		1.90		1.04				1.62	
<b>CenterSquare US Real Estate<sup>1</sup></b>	<b>213,461,344</b>	<b>10.42</b>	<b>0.99</b>	<b>77</b>	<b>-8.61</b>	<b>28</b>	<b>-8.52</b>	<b>28</b>	<b>5.32</b>	<b>23</b>	<b>7.57</b>	<b>19</b>			<b>6.61</b>	<b>May-15</b>
<i>FTSE NAREIT All Equity REIT</i>			<u>1.19</u>	<b>72</b>	<u>-12.27</u>	<b>51</b>	<u>-12.15</u>	<b>44</b>	<u>3.42</u>	<b>37</b>	<u>6.53</u>	<b>36</b>			<u>5.34</u>	<i>May-15</i>
Over/Under			-0.20		3.66		3.63		1.90		1.04				1.27	
<i>eV US REIT Net Median</i>			1.87		-12.25		-12.53		2.53		5.00				4.30	<i>May-15</i>
<b>Commodities</b>	<b>196,024,707</b>	<b>9.56</b>	<b>9.08</b>		<b>-11.94</b>		<b>-7.91</b>		<b>-4.30</b>		<b>-3.16</b>				<b>-5.91</b>	<b>Jun-15</b>
<i>Bloomberg Commodity Index TR USD</i>			<u>9.07</u>		<u>-12.08</u>		<u>-8.20</u>		<u>-4.18</u>		<u>-3.09</u>				<u>-5.79</u>	<i>Jun-15</i>
Over/Under			0.01		0.14		0.29		-0.12		-0.07				-0.12	
<b>CoreCommodity Mgmt<sup>1</sup></b>	<b>196,024,707</b>	<b>9.56</b>	<b>9.08</b>		<b>-11.94</b>		<b>-7.91</b>		<b>-4.30</b>		<b>-3.16</b>				<b>-5.91</b>	<b>Jul-15</b>
<i>Bloomberg Commodity Index TR USD</i>			<u>9.07</u>		<u>-12.08</u>		<u>-8.20</u>		<u>-4.18</u>		<u>-3.09</u>				<u>-5.79</u>	<i>Jul-15</i>
Over/Under			0.01		0.14		0.29		-0.12		-0.07				-0.12	

<sup>1</sup> Portfolio has a mid-month inception date. Since inception return is calculated from the first full month of performance. No universe is available.

- Public Real Assets Custom Benchmark = 60% BBgBarc US TIPS TR / 20% Bloomberg Commodity Index TR USD / 10% Alerian MLP TR USD / 10% FTSE NAREIT All REIT

eA = eVestment Alliance





## Los Angeles City Employees' Retirement System

# REAL ASSETS (NET)

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
<b>Private Real Estate</b>	<b>787,209,372</b>	<b>38.41</b>	<b>-1.78</b>	<b>96</b>	<b>-4.50</b>	<b>96</b>	<b>-2.96</b>	<b>94</b>	<b>3.74</b>	<b>71</b>	<b>6.05</b>	<b>72</b>	<b>8.69</b>	<b>58</b>		<b>Oct-94</b>
<i>Real Estate Blend</i>			<u>0.68</u>	14	<u>0.48</u>	2	<u>2.20</u>	6	<u>6.02</u>	7	<u>7.49</u>	9	<u>10.49</u>	11		Oct-94
Over/Under			-2.46		-4.98		-5.16		-2.28		-1.44		-1.80			
<i>InvMetrics Public DB Real Estate Priv Net Median</i>			0.01		-1.09		0.53		4.73		6.39		9.04			Oct-94
<b>Timber</b>	<b>18,776,096</b>	<b>0.92</b>	<b>-0.49</b>		<b>4.44</b>		<b>4.39</b>		<b>2.80</b>		<b>3.03</b>		<b>5.45</b>			<b>Sep-99</b>

- Real Estate Blend = NCREIF-ODCE + 80bps 7/1/2014 to present; NCREIF Property Index 1 Qtr Lag plus 100bps 7/1/2012 - 6/30/2014; NCREIF Property Index prior to eA = eVestment Alliance



# MANAGER REPORT CARD

Real Assets Managers	Inception Date	Mandate	Current Quarter (Net)		One Year (Net)		Three Years (Net)		Five Years (Net)		Since Inception (Net)	Annual Mgt Fee Paid \$ (000)	Comments
			Index	Universe	Index	Universe	Index	Universe	Index	Universe	Index		
DFA	Jul-14	U.S. TIPS	✓	✓	✓	✓	✓	✓	✓	✓	✓	383.6	Performance compliant with LACERS' Manager Monitoring Policy
CenterSquare	Apr-15	REITS	✗	✗	✓	✓	✓	✓	✓	✓	✓	923.6	Performance compliant with LACERS' Manager Monitoring Policy
CoreCommodity Mgt.	Jul -15	Commodities	✓	N/A	✓	N/A	✗	N/A	✗	N/A	✗	1,141.2	On Watch since September 2020 due to performance

Note: Managers are placed on Watch List for concerns with organization, process and performance. Managers are normally on the Watch List for 12 months though may be longer if manager issues remain but not severe enough to warrant termination recommendation.

- Annual Management Fee Paid as of fiscal year ending June 30, 2020.
- \* Where net of fees performance is not available gross of fee returns are evaluated.

Legend	
✓	Outperformed
✗	Underperformed
=	Equal to
✓✓	Gross Return



# APPENDIX

NEPC, LLC

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# U.S. EQUITY MANAGER PERFORMANCE

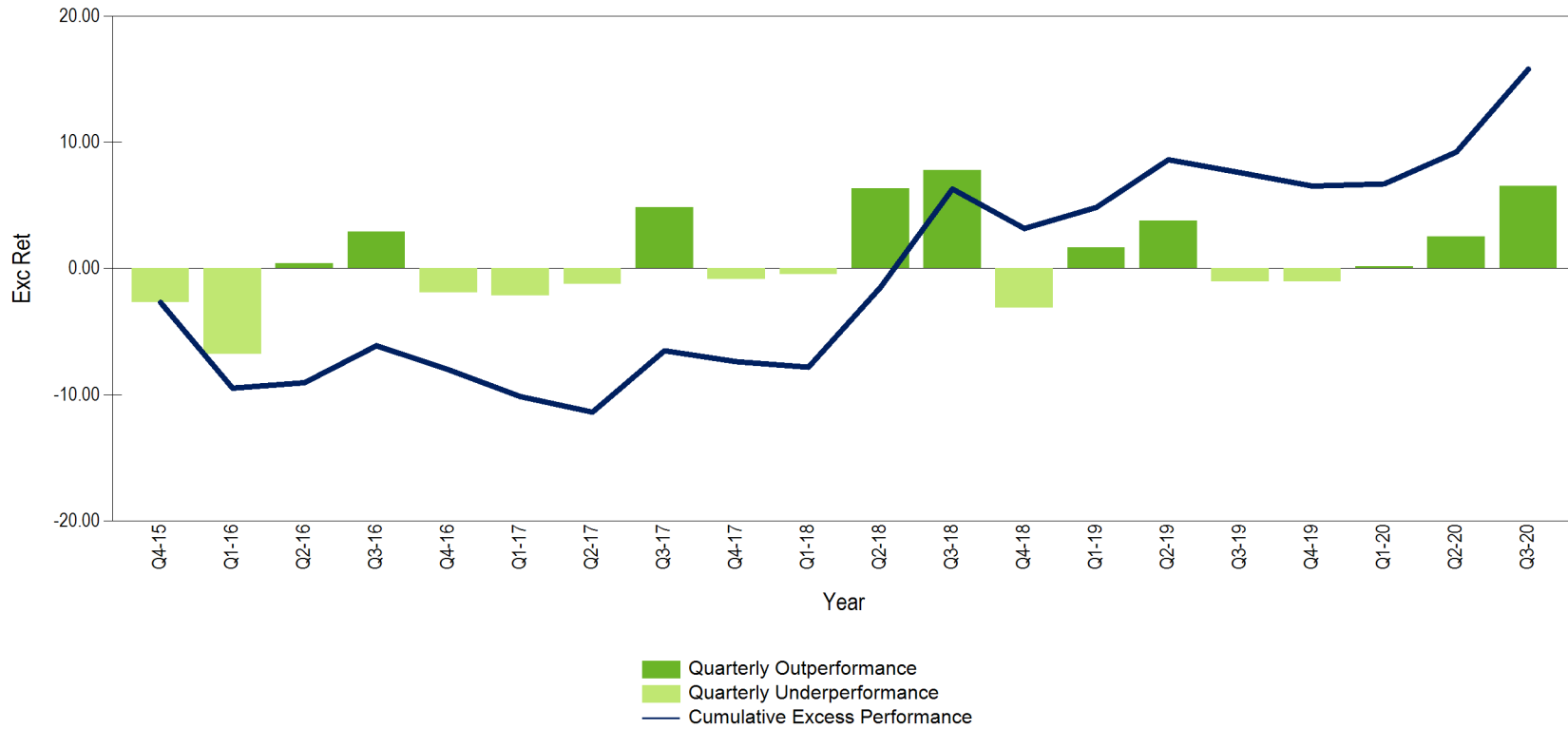
NEPC, LLC

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# Los Angeles City Employees' Retirement System

## EAM INVESTORS

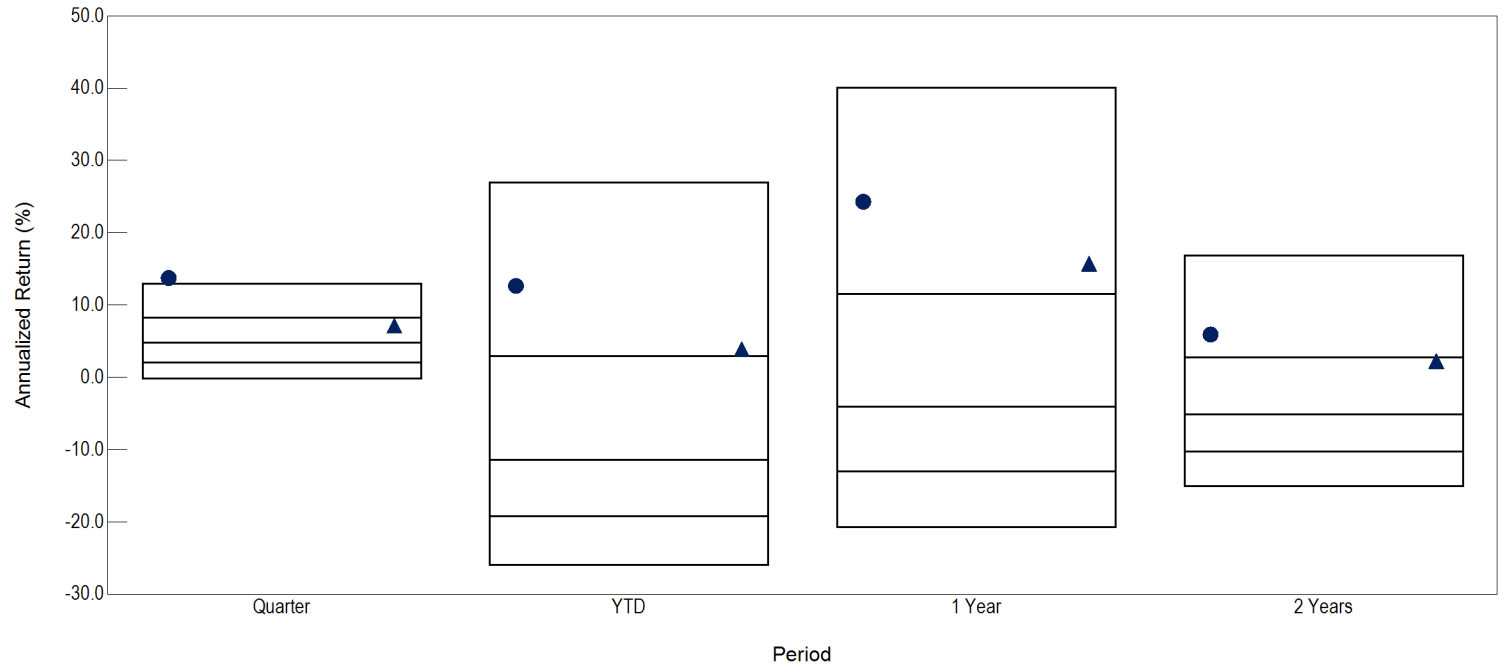
Quarterly and Cumulative Excess Performance



# Los Angeles City Employees' Retirement System

## EAM INVESTORS

EAM Investors vs. eV US Small Cap Equity Net



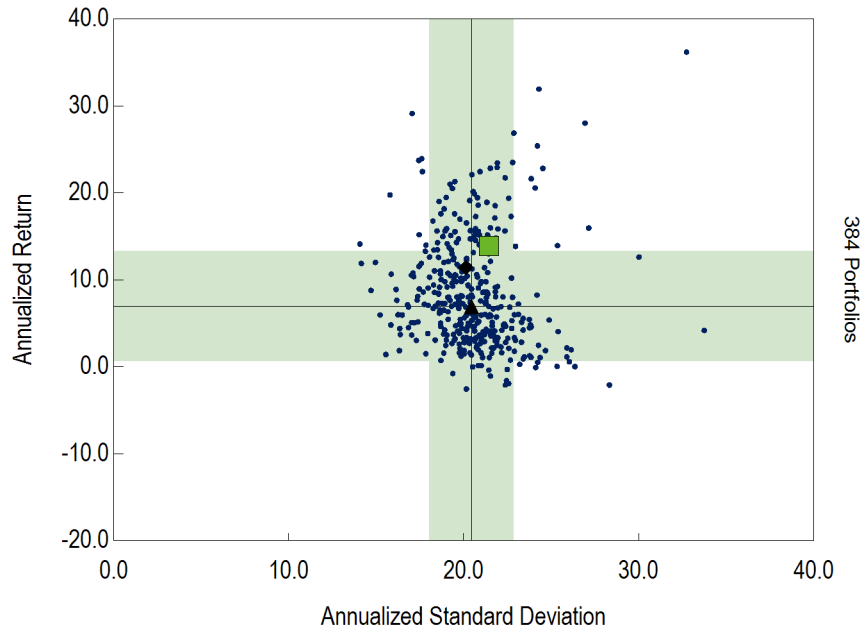
	Return (Rank)							
5th Percentile	12.95	26.93	40.01	16.86				
25th Percentile	8.32	3.02	11.64	2.82				
Median	4.91	-11.35	-3.97	-5.03				
75th Percentile	2.10	-19.12	-12.91	-10.16				
95th Percentile	-0.13	-25.85	-20.64	-14.93				
# of Portfolios	416	416	416	411				
● EAM Investors	13.72	(5)	12.63	(15)	24.27	(15)	5.90	(18)
▲ Russell 2000 Growth	7.16	(30)	3.88	(25)	15.71	(22)	2.26	(27)



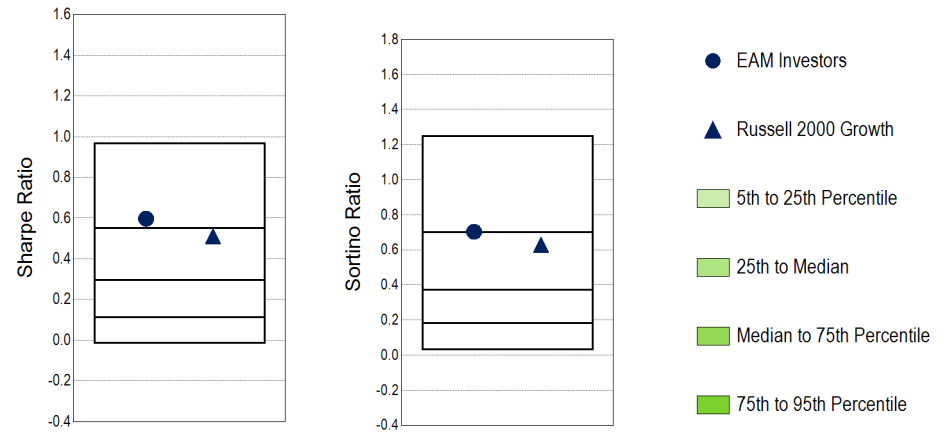
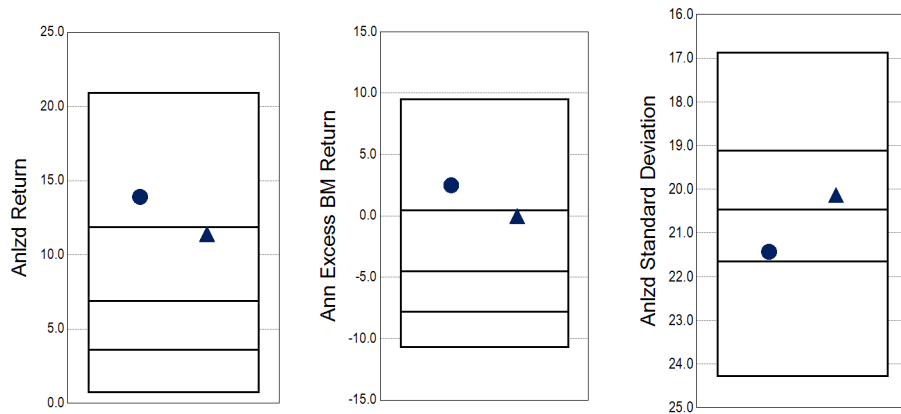
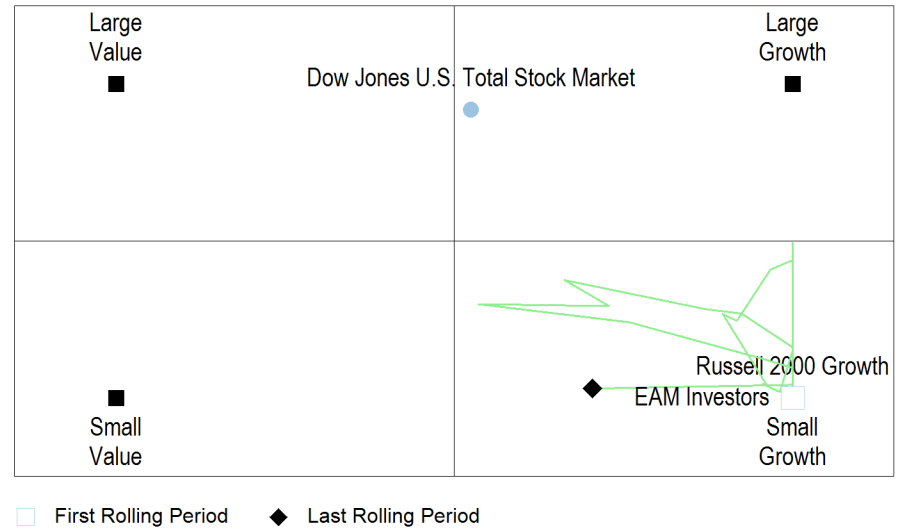
# Los Angeles City Employees' Retirement System

## EAM INVESTORS

Since Inception Risk Return

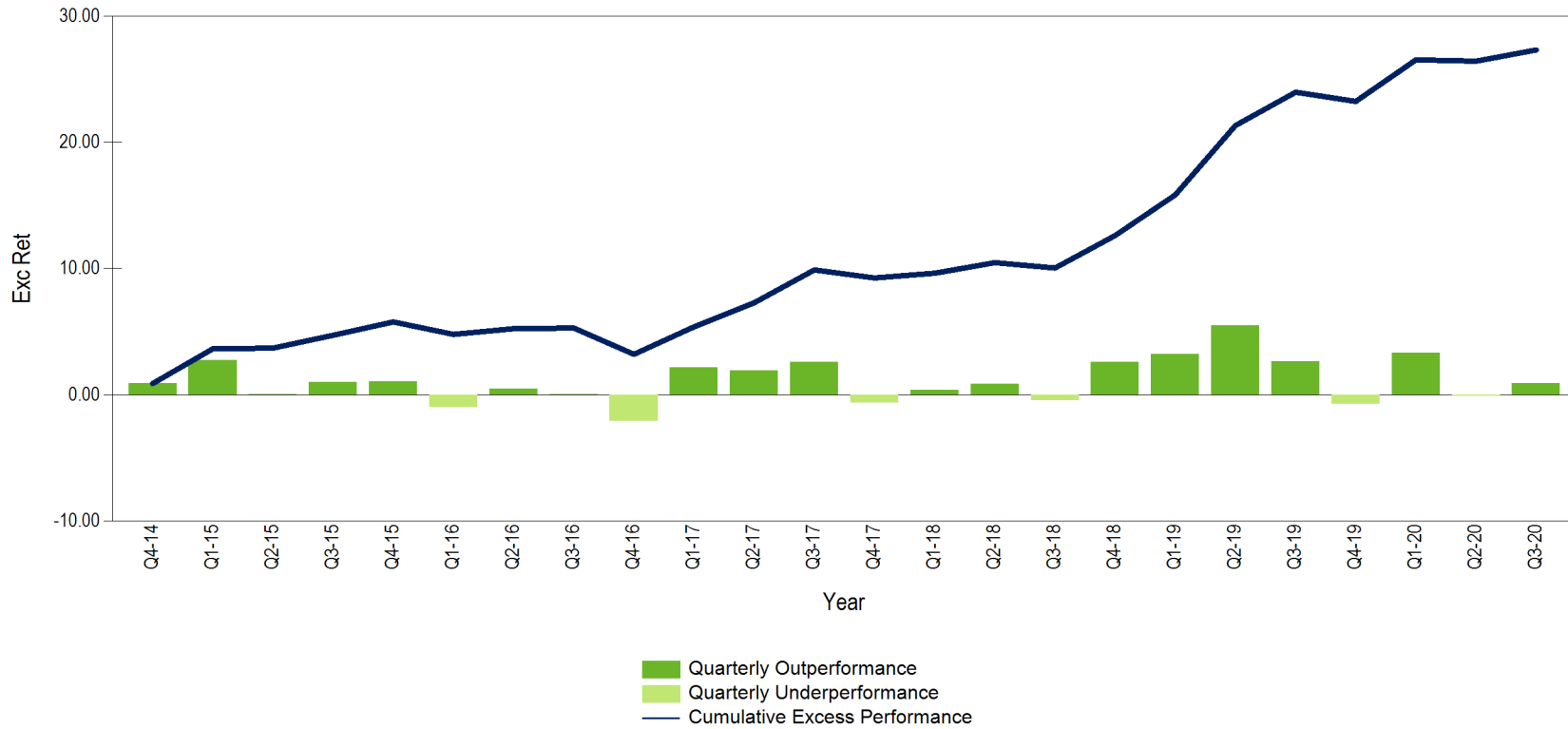


Since Inception Style Map



# PRINCIPAL GLOBAL INVESTORS

Quarterly and Cumulative Excess Performance

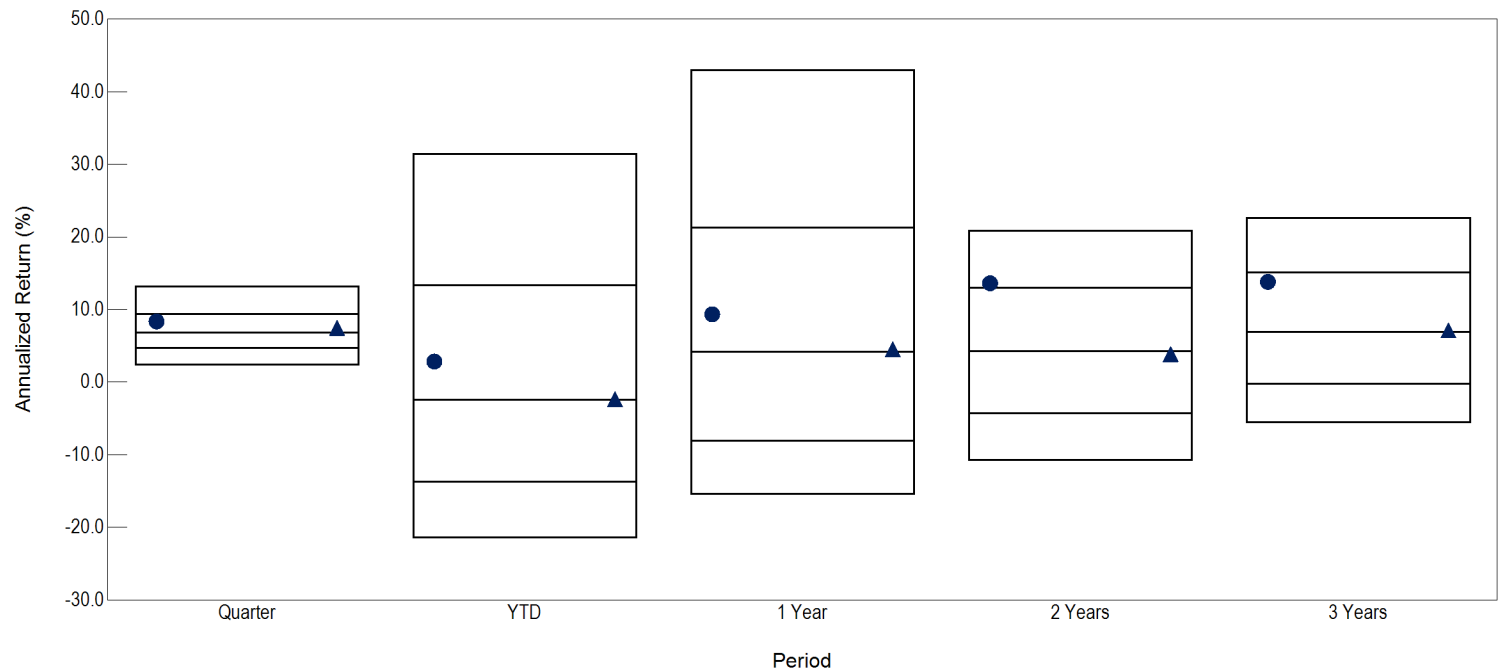




# Los Angeles City Employees' Retirement System

## PRINCIPAL GLOBAL INVESTORS

Principal Global Investors vs. eV US Mid Cap Equity Net

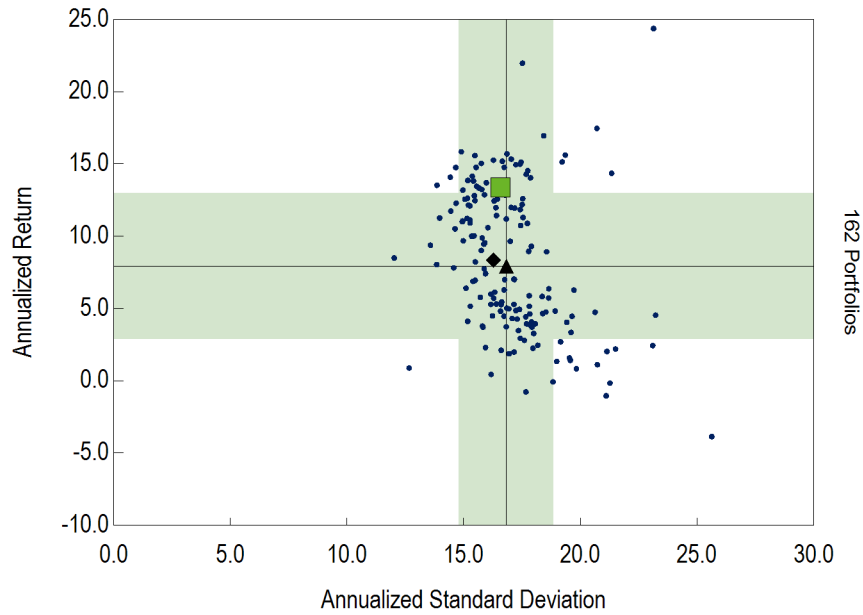


	Return (Rank)									
5th Percentile	13.21		31.42		42.99		20.83		22.62	
25th Percentile	9.49		13.45		21.33		13.12		15.21	
Median	6.87		-2.31		4.27		4.37		6.99	
75th Percentile	4.83		-13.60		-7.97		-4.22		-0.15	
95th Percentile	2.51		-21.27		-15.32		-10.60		-5.46	
# of Portfolios	179		178		178		177		174	
● Principal Global Investors	8.35	(37)	2.83	(45)	9.34	(44)	13.61	(23)	13.80	(31)
▲ Russell MidCap	7.46	(46)	-2.35	(51)	4.55	(50)	3.87	(52)	7.13	(50)

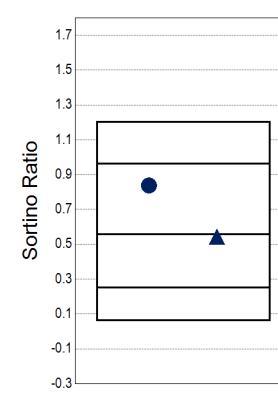
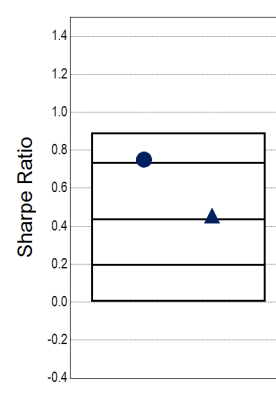
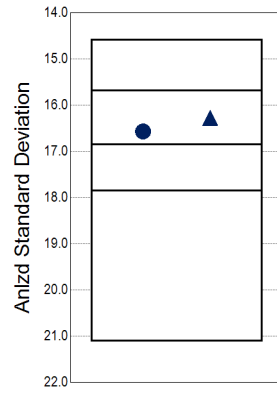
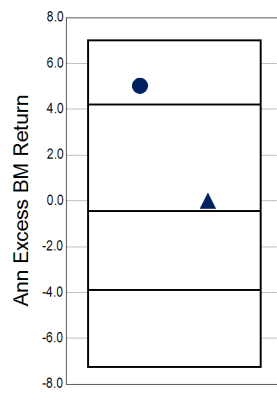
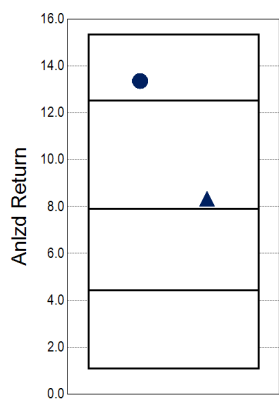
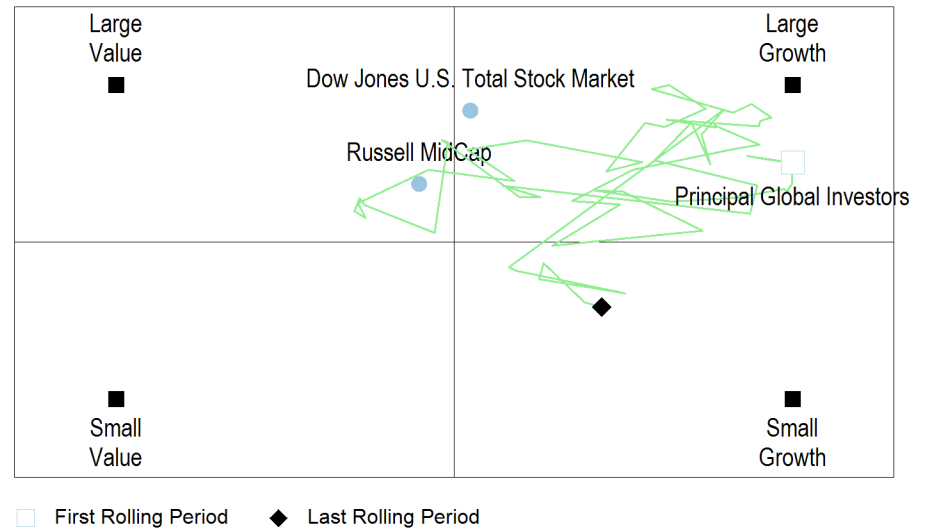


# PRINCIPAL GLOBAL INVESTORS

Since Inception Risk Return



Since Inception Style Map

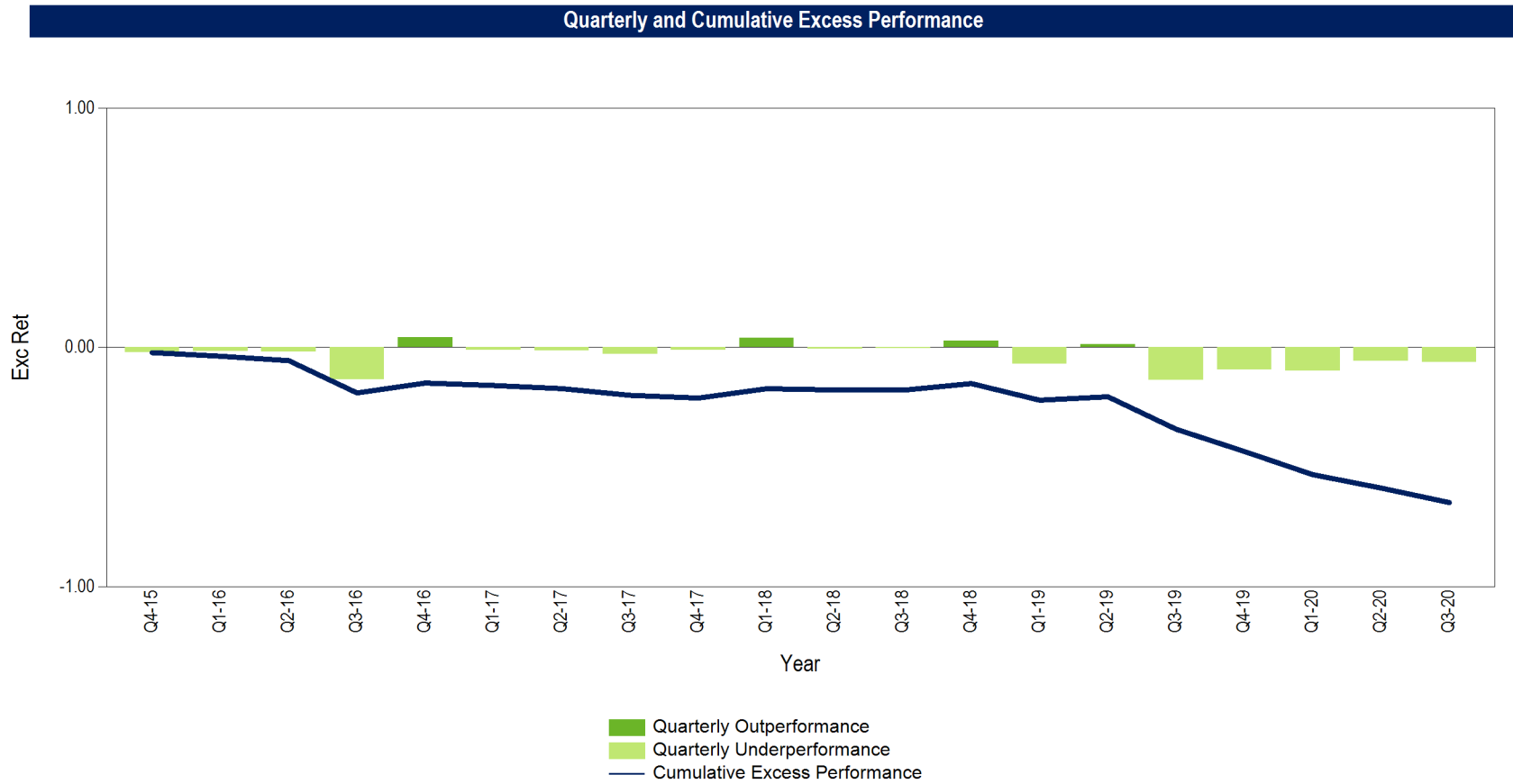


- Principal Global Investors
- ▲ Russell MidCap
- 5th to 25th Percentile
- 25th to Median
- Median to 75th Percentile
- 75th to 95th Percentile



# Los Angeles City Employees' Retirement System

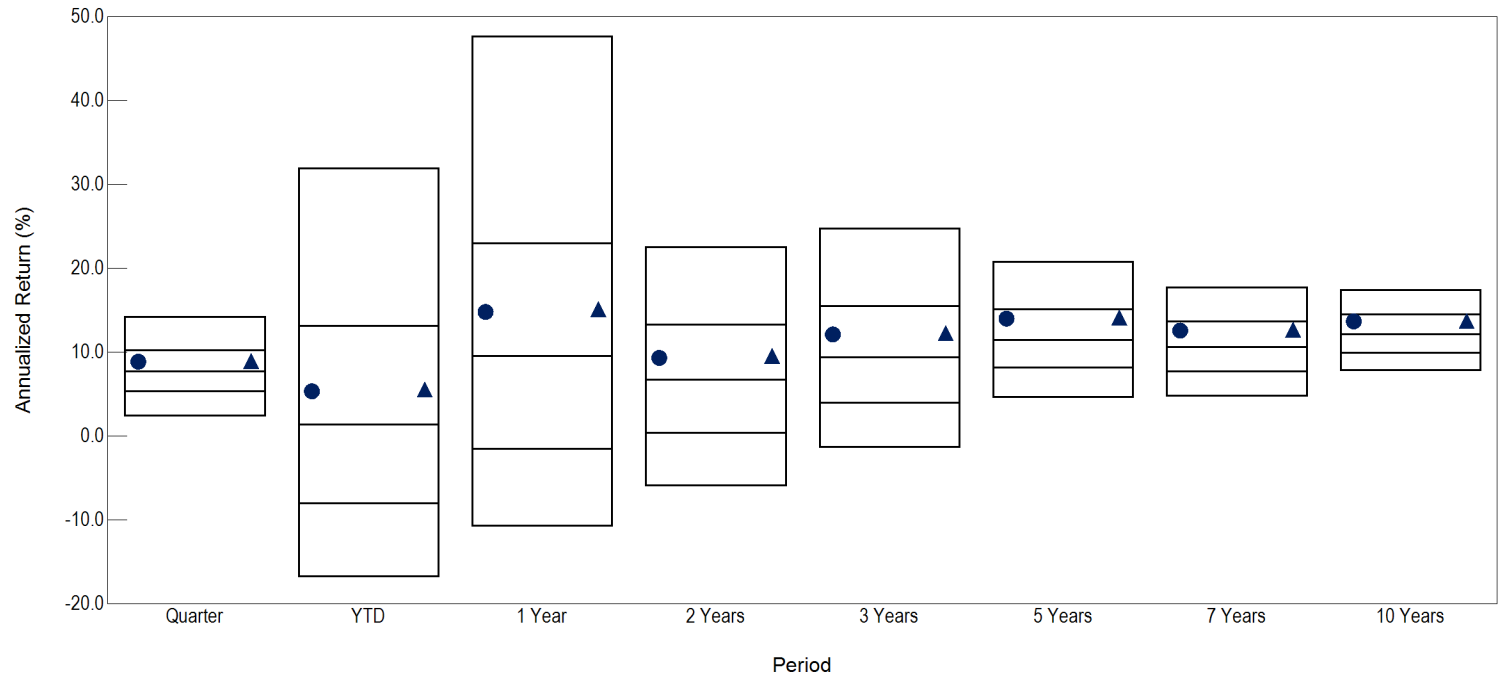
## RHUMBLINE ADVISORS S&P 500



# Los Angeles City Employees' Retirement System

## RHUMBLINE ADVISORS S&P 500

RhumbLine Advisers S&P 500 vs. eV US Large Cap Equity Net

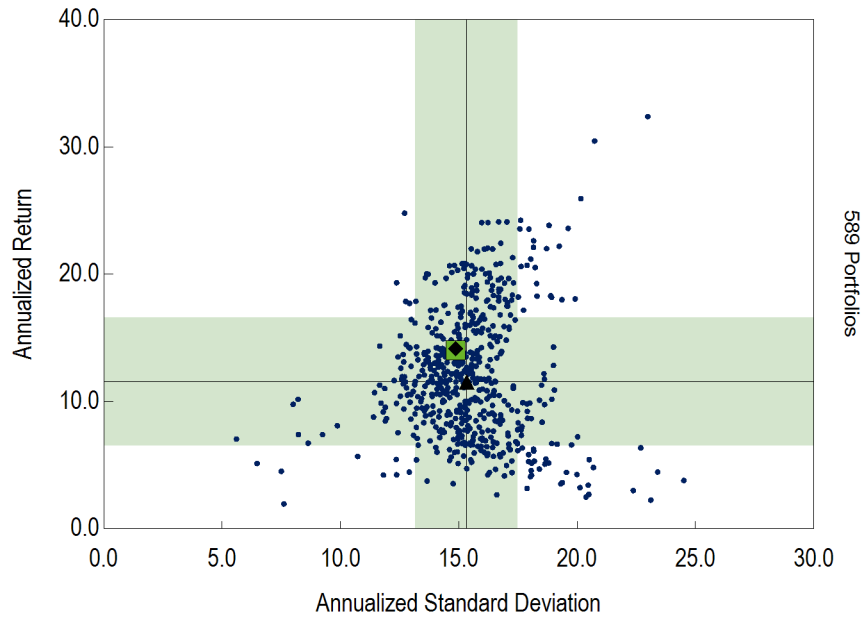


	Return (Rank)															
5th Percentile	14.19	31.95	47.63	22.52	24.76	20.74	17.75	17.41								
25th Percentile	10.31	13.25	23.06	13.37	15.55	15.17	13.73	14.61								
Median	7.82	1.46	9.60	6.82	9.44	11.54	10.72	12.21								
75th Percentile	5.42	-7.92	-1.41	0.43	4.03	8.22	7.82	10.02								
95th Percentile	2.52	-16.65	-10.60	-5.76	-1.21	4.70	4.86	7.93								
# of Portfolios	659	658	654	645	634	589	556	465								
● RhumbLine Advisers S&P 500	8.87	(40)	5.34	(39)	14.79	(37)	9.32	(38)	12.12	(36)	14.00	(31)	12.57	(30)	13.68	(31)
▲ S&P 500	8.93	(40)	5.57	(39)	15.15	(37)	9.57	(37)	12.28	(36)	14.15	(30)	12.68	(29)	13.74	(31)

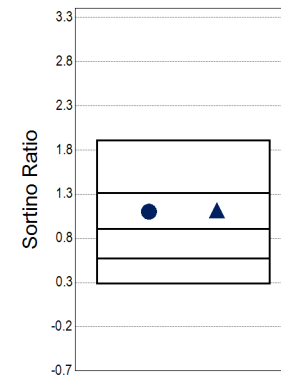
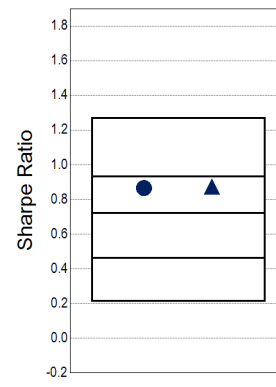
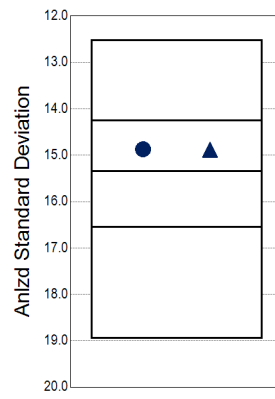
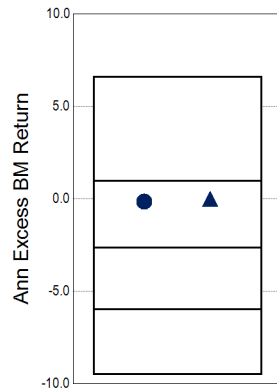
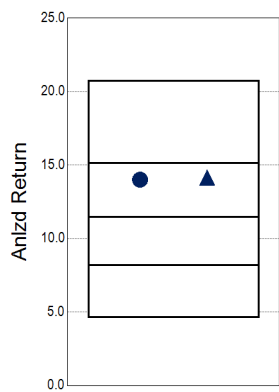
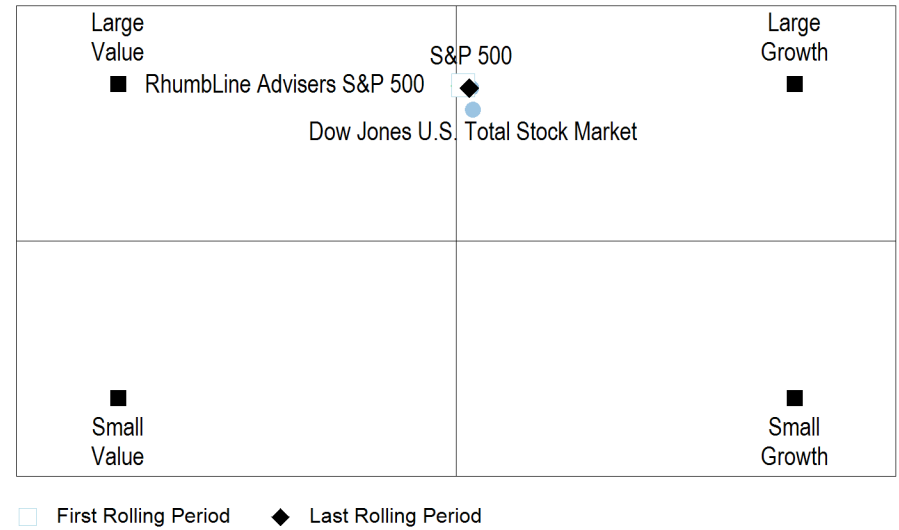


# RHUMBLINE ADVISORS S&P 500

5 Year Risk Return



5 Year Style Map

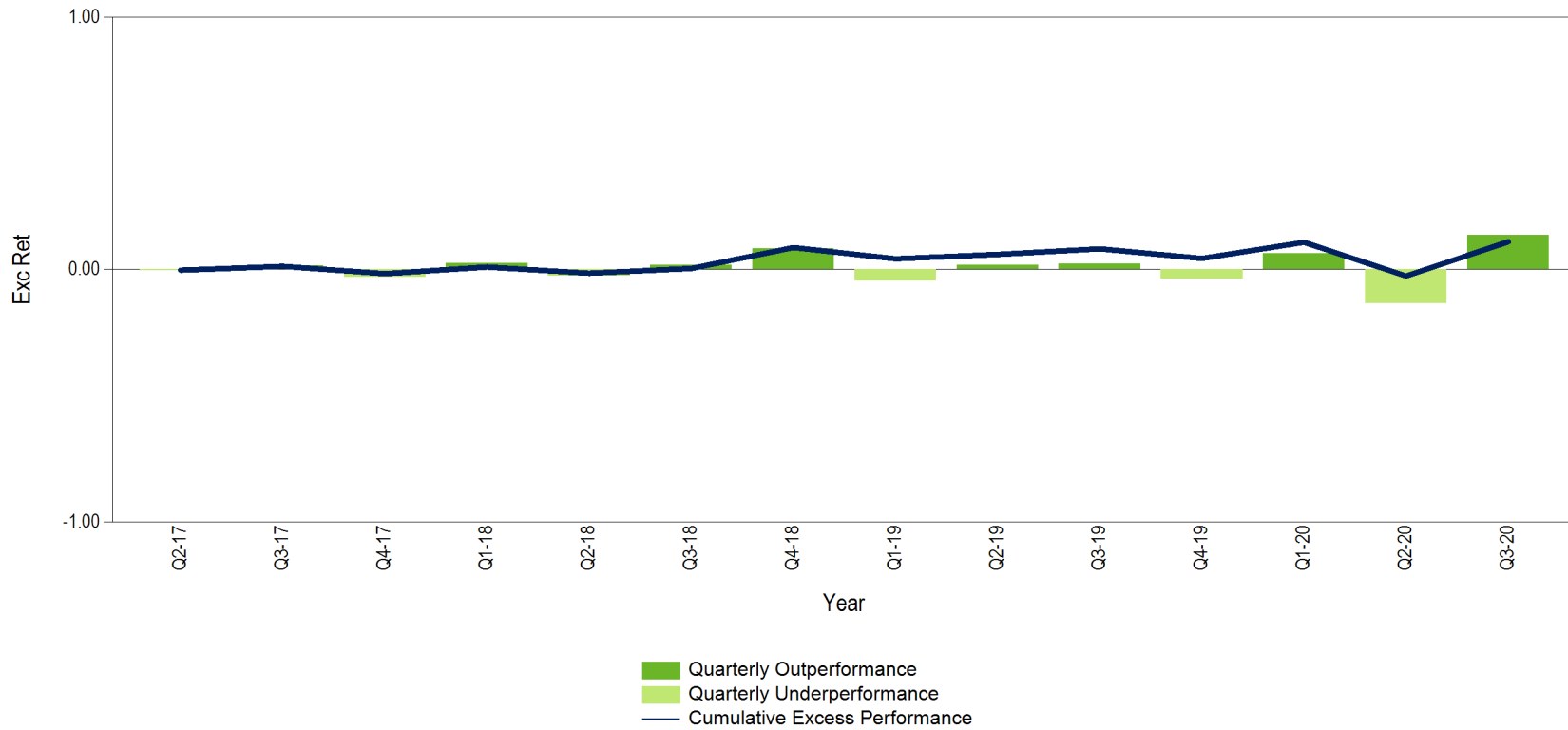


- RhumbLine Advisers S&P 500
- ▲ S&P 500
- 5th to 25th Percentile
- 25th to Median
- Median to 75th Percentile
- 75th to 95th Percentile



# RHUMBLINE ADVISORS RUSSELL 2000

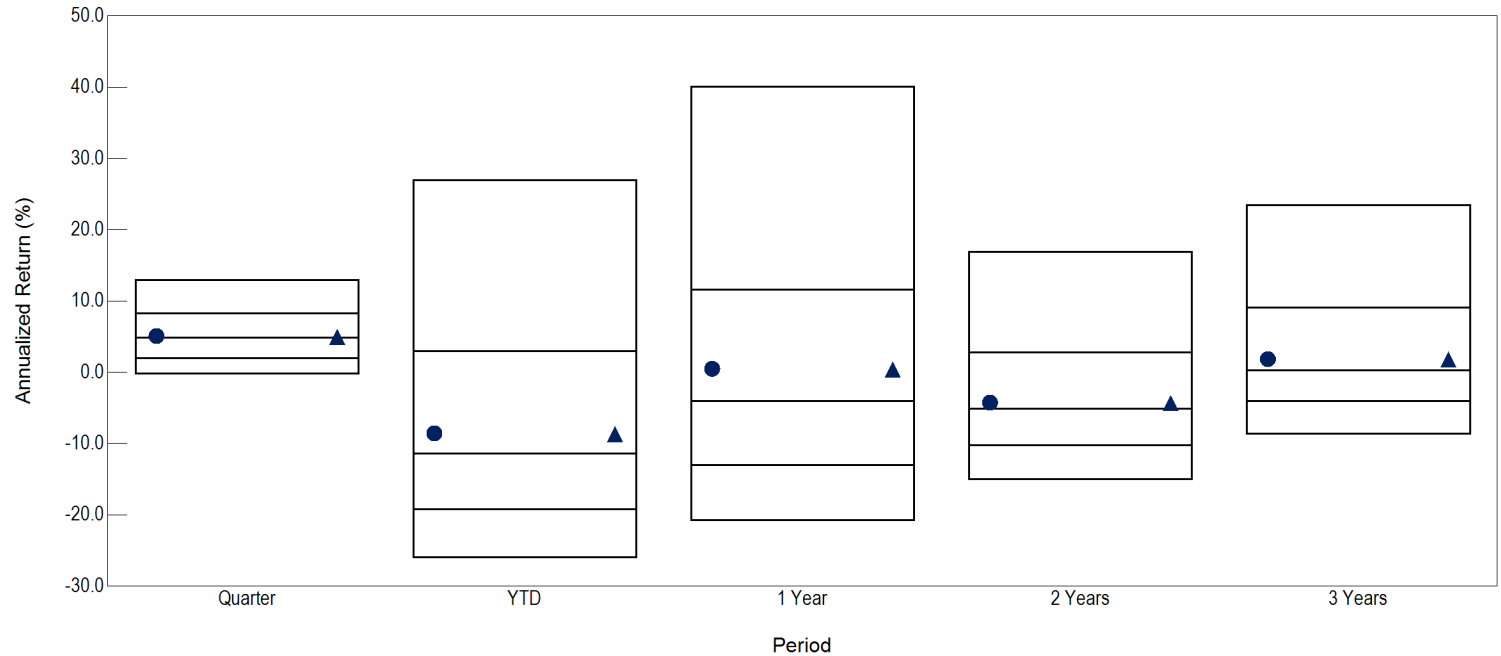
Quarterly and Cumulative Excess Performance



# Los Angeles City Employees' Retirement System

## RHUMBLINE ADVISORS RUSSELL 2000

RhumbLine Advisers Russell 2000 vs. eV US Small Cap Equity Net

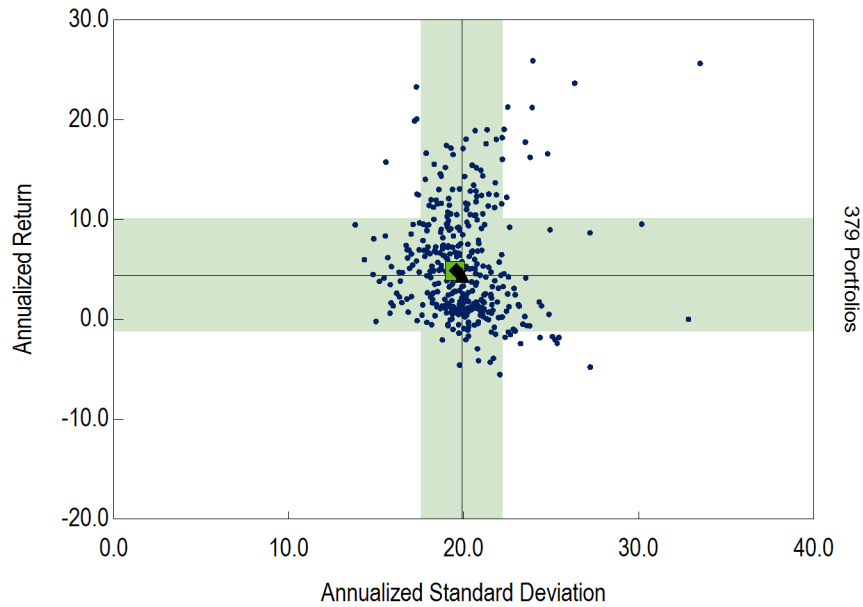


	Return (Rank)									
5th Percentile	12.95		26.93		40.01		16.86		23.41	
25th Percentile	8.32		3.02		11.64		2.82		9.13	
Median	4.91		-11.35		-3.97		-5.03		0.35	
75th Percentile	2.10		-19.12		-12.91		-10.16		-3.97	
95th Percentile	-0.13		-25.85		-20.64		-14.93		-8.58	
# of Portfolios	416		416		416		411		407	
● RhumbLine Advisers Russell 2000	5.07	(49)	-8.58	(45)	0.47	(42)	-4.27	(48)	1.83	(44)
▲ Russell 2000	4.93	(50)	-8.69	(45)	0.39	(42)	-4.36	(48)	1.77	(44)

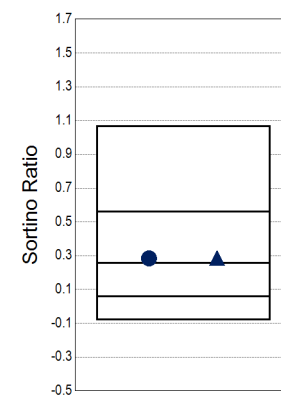
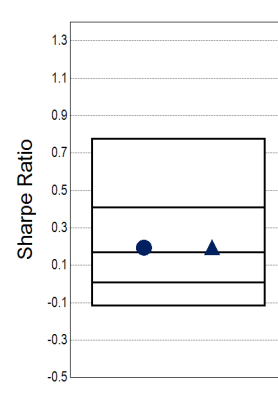
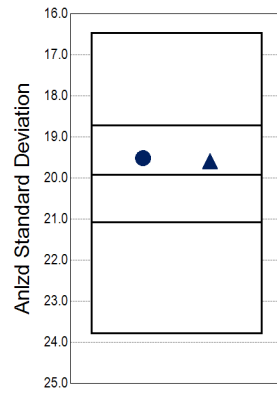
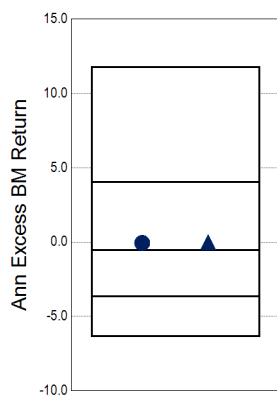
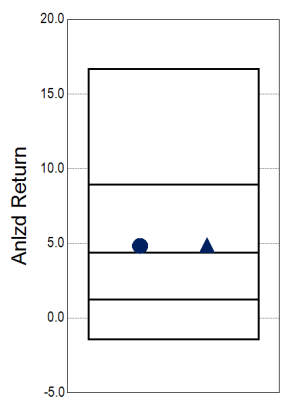
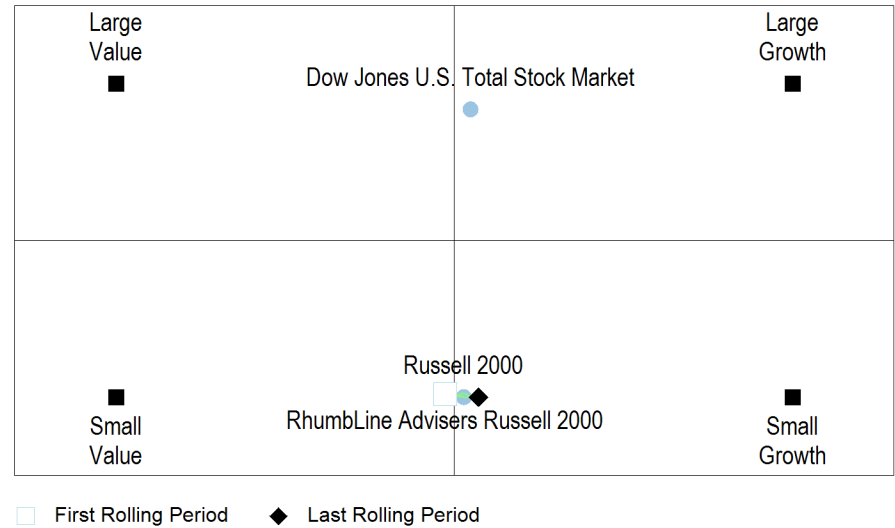


# RHUMBLINE ADVISORS RUSSELL 2000

Since Inception Risk Return



Since Inception Style Map



- RhumbLine Advisers Russell 2000
- ▲ Russell 2000
- 5th to 25th Percentile
- 25th to Median
- Median to 75th Percentile
- 75th to 95th Percentile





# **NON-U.S. EQUITY MANAGER PERFORMANCE**

NEPC, LLC

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# AQR CAPITAL

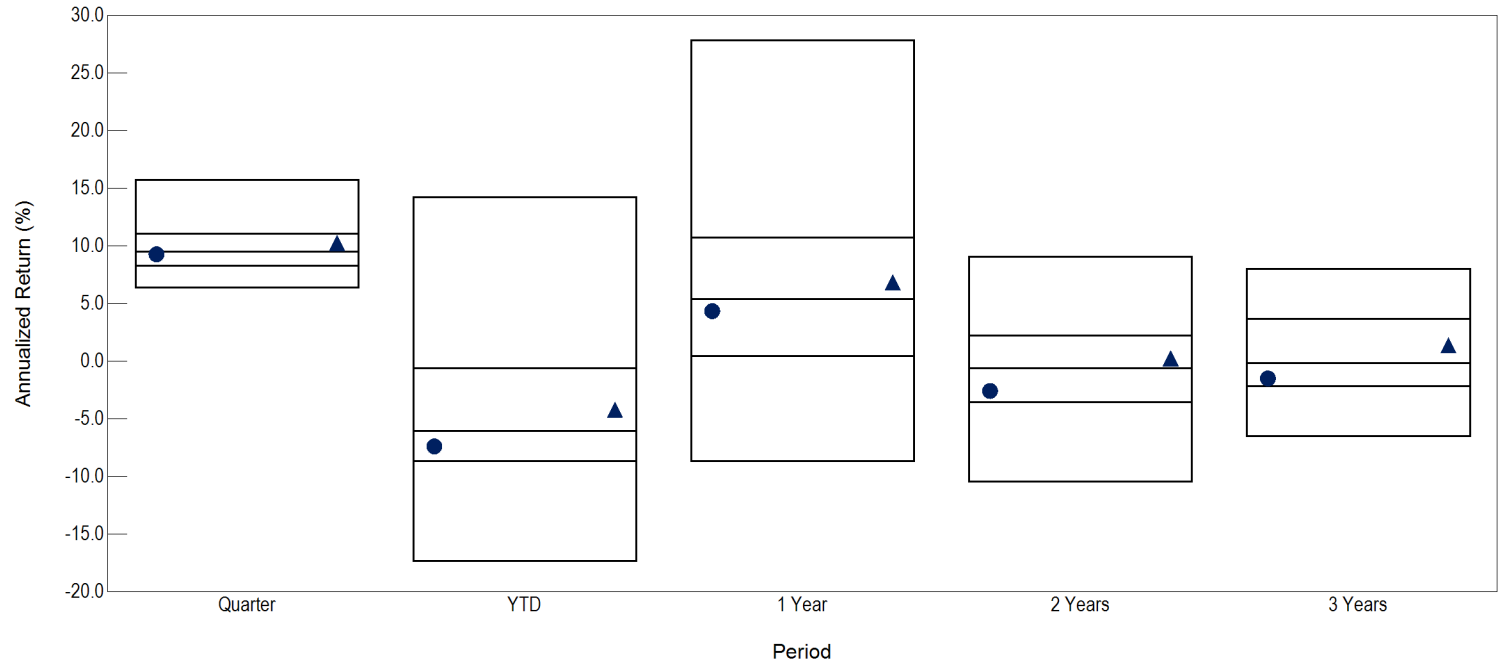
Quarterly and Cumulative Excess Performance



# Los Angeles City Employees' Retirement System

## AQR CAPITAL

AQR Capital vs. eV EAFE Small Cap Equity Net



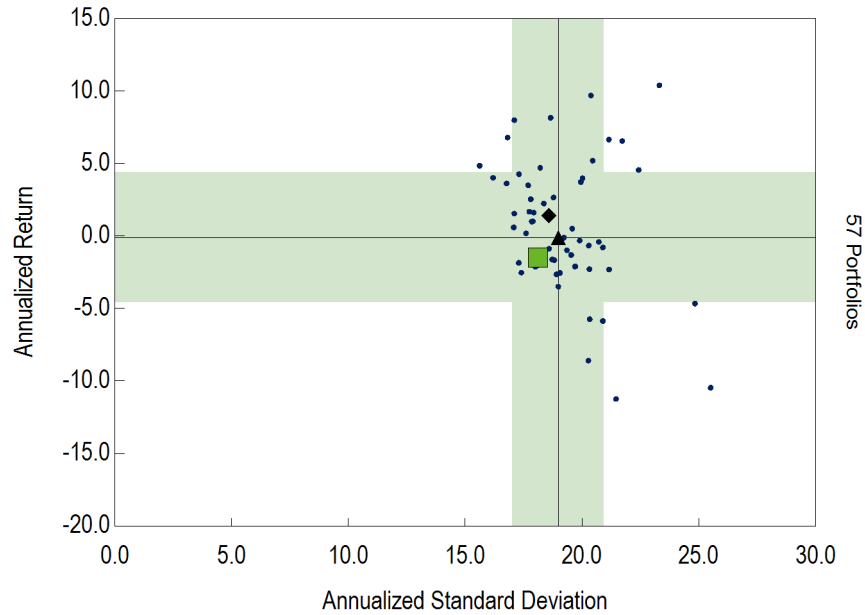
	Return (Rank)									
5th Percentile	15.75		14.24		27.85		9.08		8.03	
25th Percentile	11.14		-0.55		10.80		2.29		3.72	
Median	9.59		-5.97		5.44		-0.53		-0.11	
75th Percentile	8.34		-8.61		0.52		-3.50		-2.09	
95th Percentile	6.44		-17.27		-8.59		-10.38		-6.41	
# of Portfolios	64		63		63		61		57	
● AQR Capital	9.28	(60)	-7.38	(65)	4.35	(58)	-2.57	(69)	-1.49	(68)
▲ MSCI EAFE Small Cap	10.25	(37)	-4.20	(42)	6.84	(47)	0.25	(45)	1.40	(40)



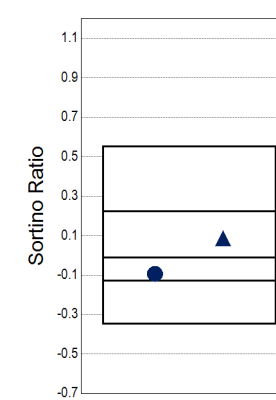
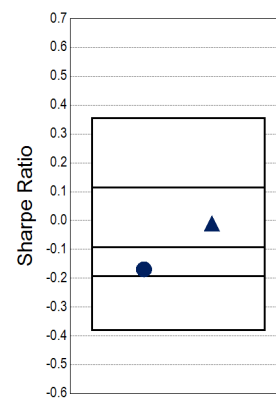
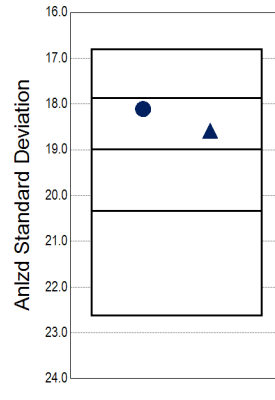
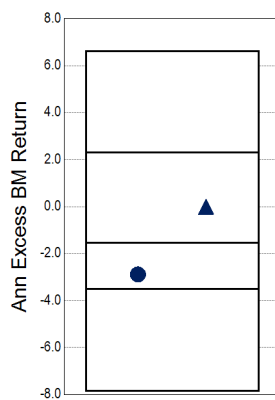
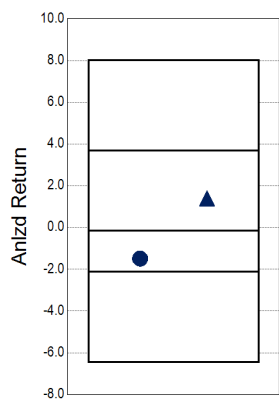
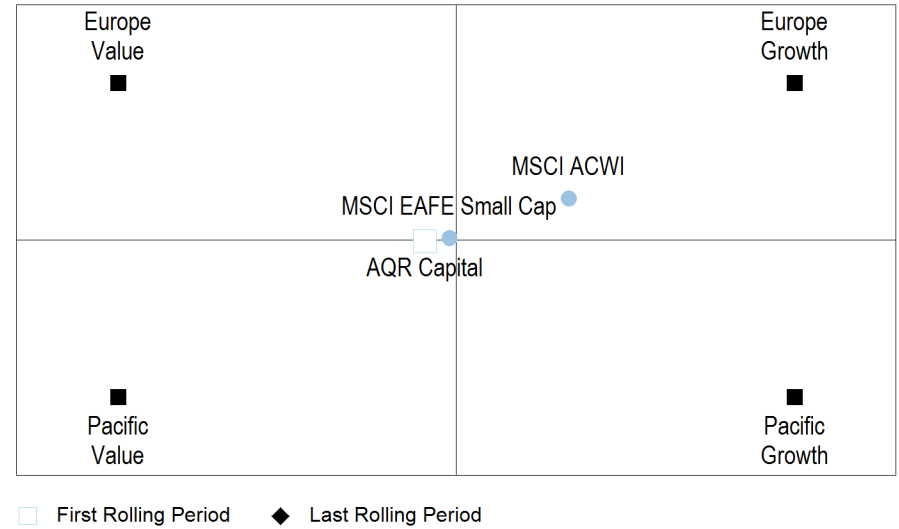
# Los Angeles City Employees' Retirement System

## AQR CAPITAL

3 Year Risk Return



3 Year Style Map



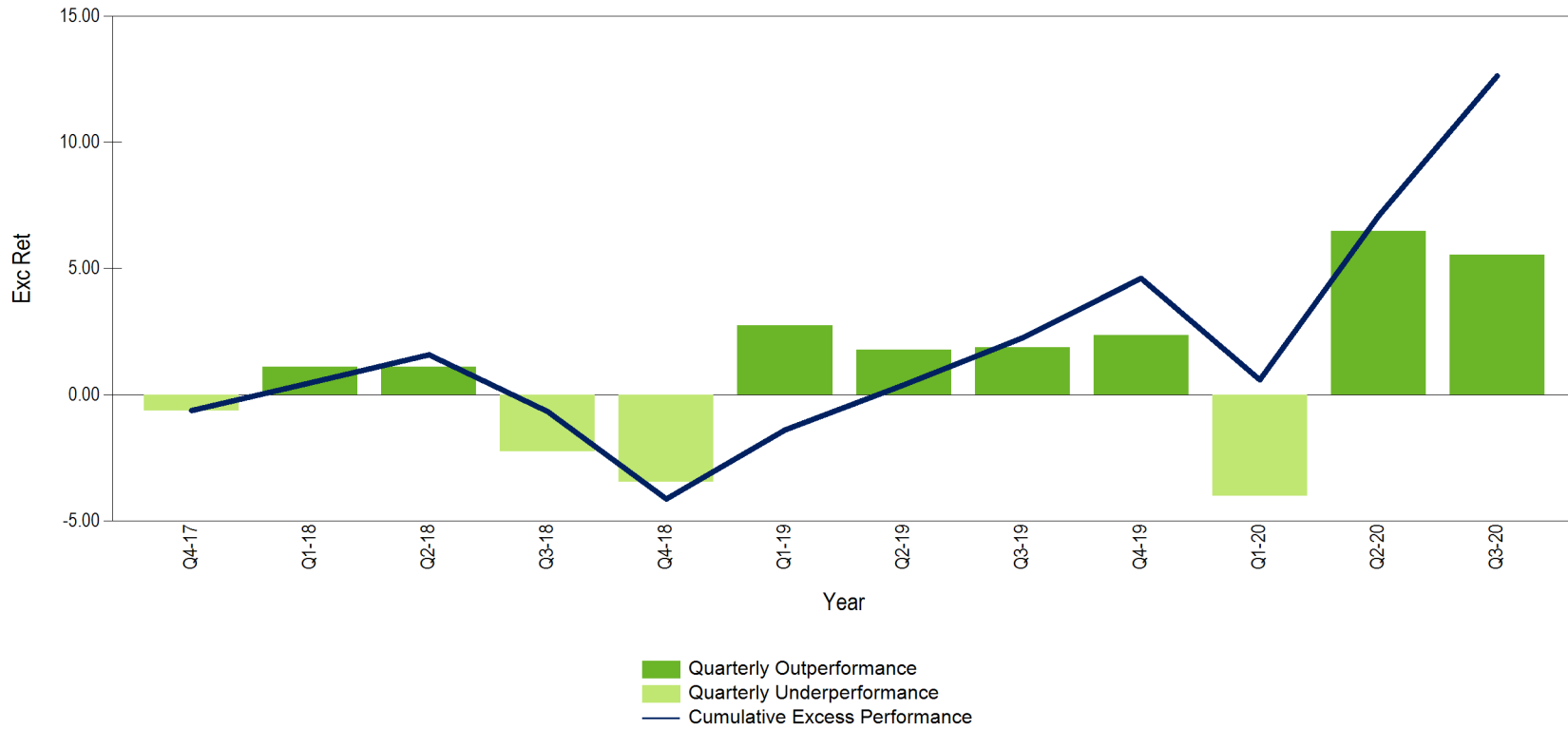
- AQR Capital
- ▲ MSCI EAFE Small Cap
- 5th to 25th Percentile
- 25th to Median
- Median to 75th Percentile
- 75th to 95th Percentile



# Los Angeles City Employees' Retirement System

## BARROW HANLEY

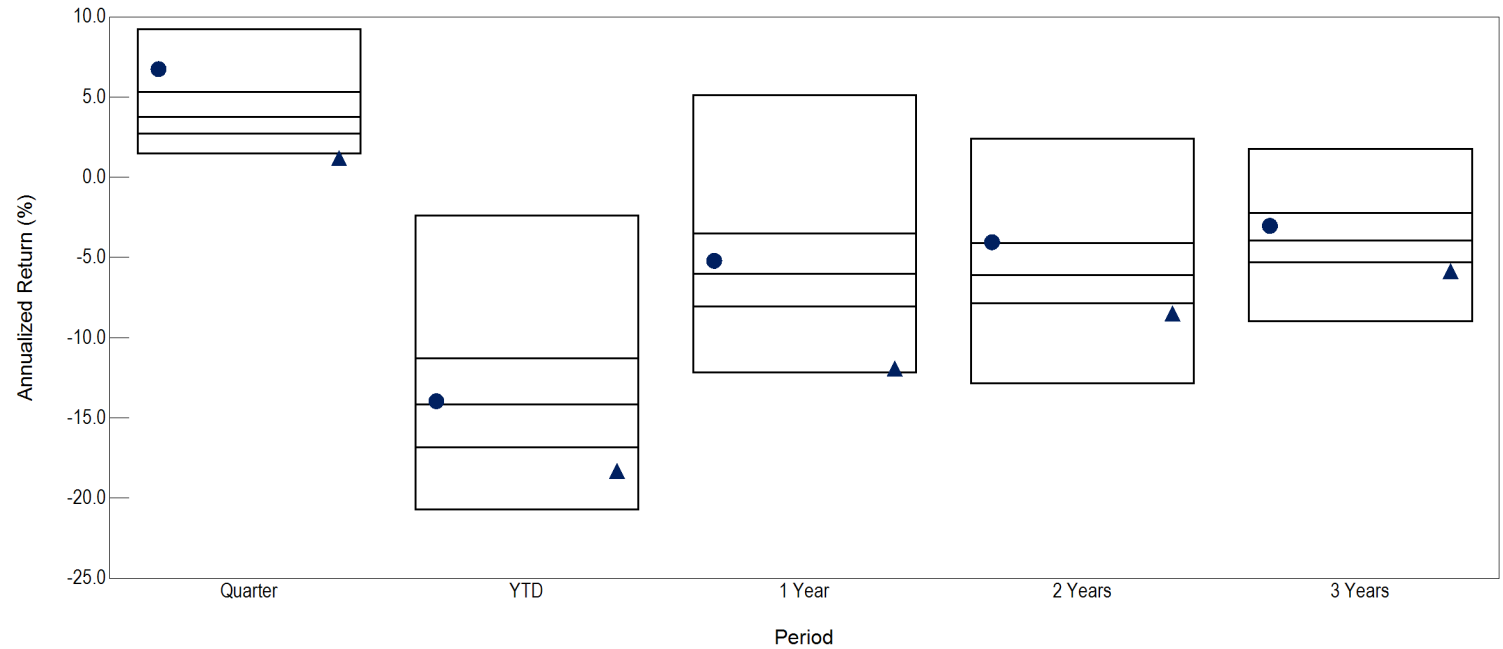
Quarterly and Cumulative Excess Performance



# Los Angeles City Employees' Retirement System

## BARROW HANLEY

Barrow Hanley vs. eV EAFE Value Equity Net



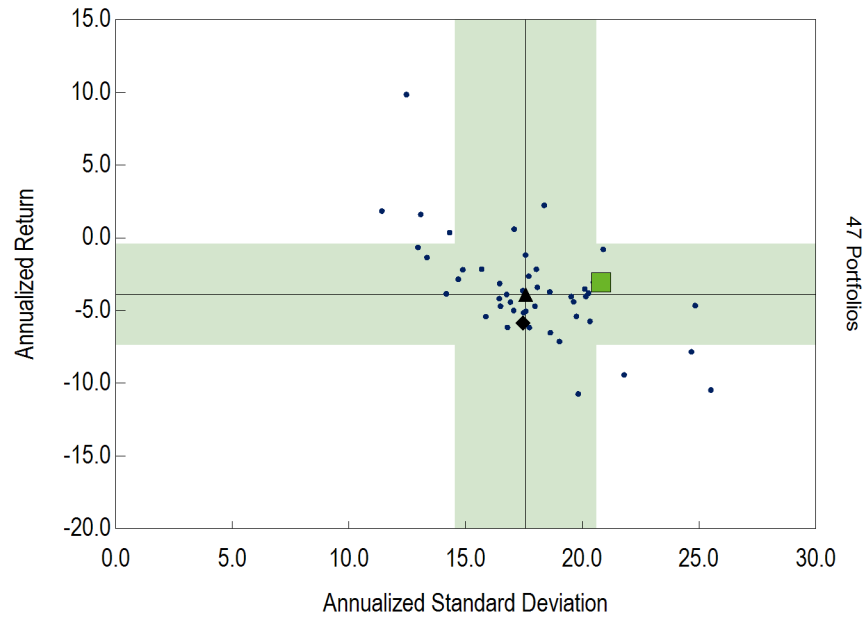
	Return (Rank)									
5th Percentile	9.22		-2.39		5.10		2.41		1.77	
25th Percentile	5.36		-11.26		-3.46		-4.08		-2.18	
Median	3.80		-14.10		-5.96		-6.06		-3.89	
75th Percentile	2.77		-16.78		-8.02		-7.81		-5.28	
95th Percentile	1.52		-20.66		-12.11		-12.81		-8.95	
# of Portfolios	54		54		54		51		47	
● Barrow Hanley	6.74	(17)	-13.97	(50)	-5.21	(46)	-4.05	(25)	-3.04	(33)
▲ MSCI EAFE Value	1.19	(97)	-18.31	(88)	-11.93	(94)	-8.49	(84)	-5.86	(82)



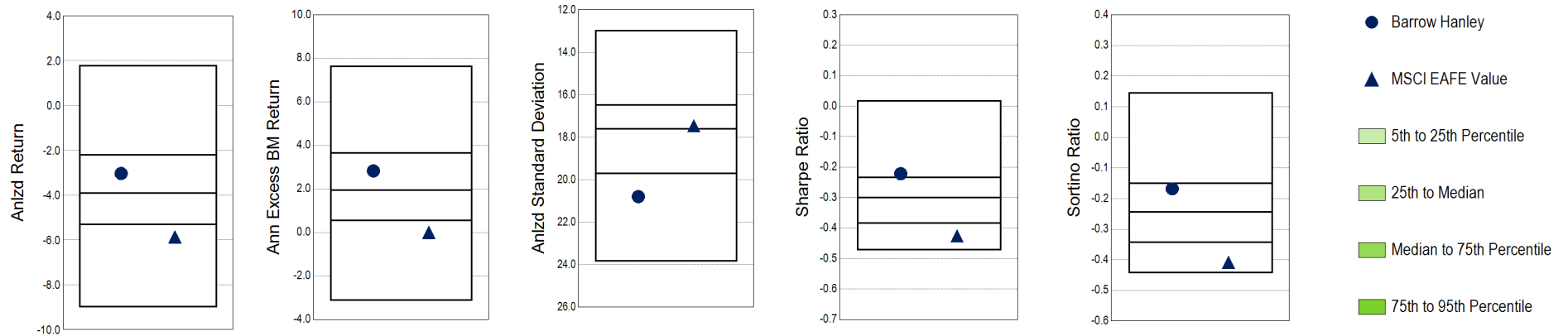
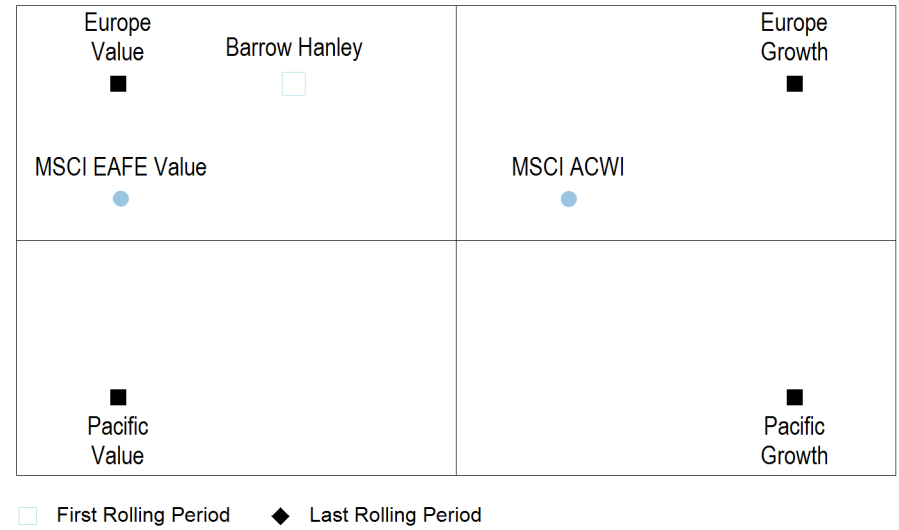
# Los Angeles City Employees' Retirement System

## BARROW HANLEY

3 Year Risk Return

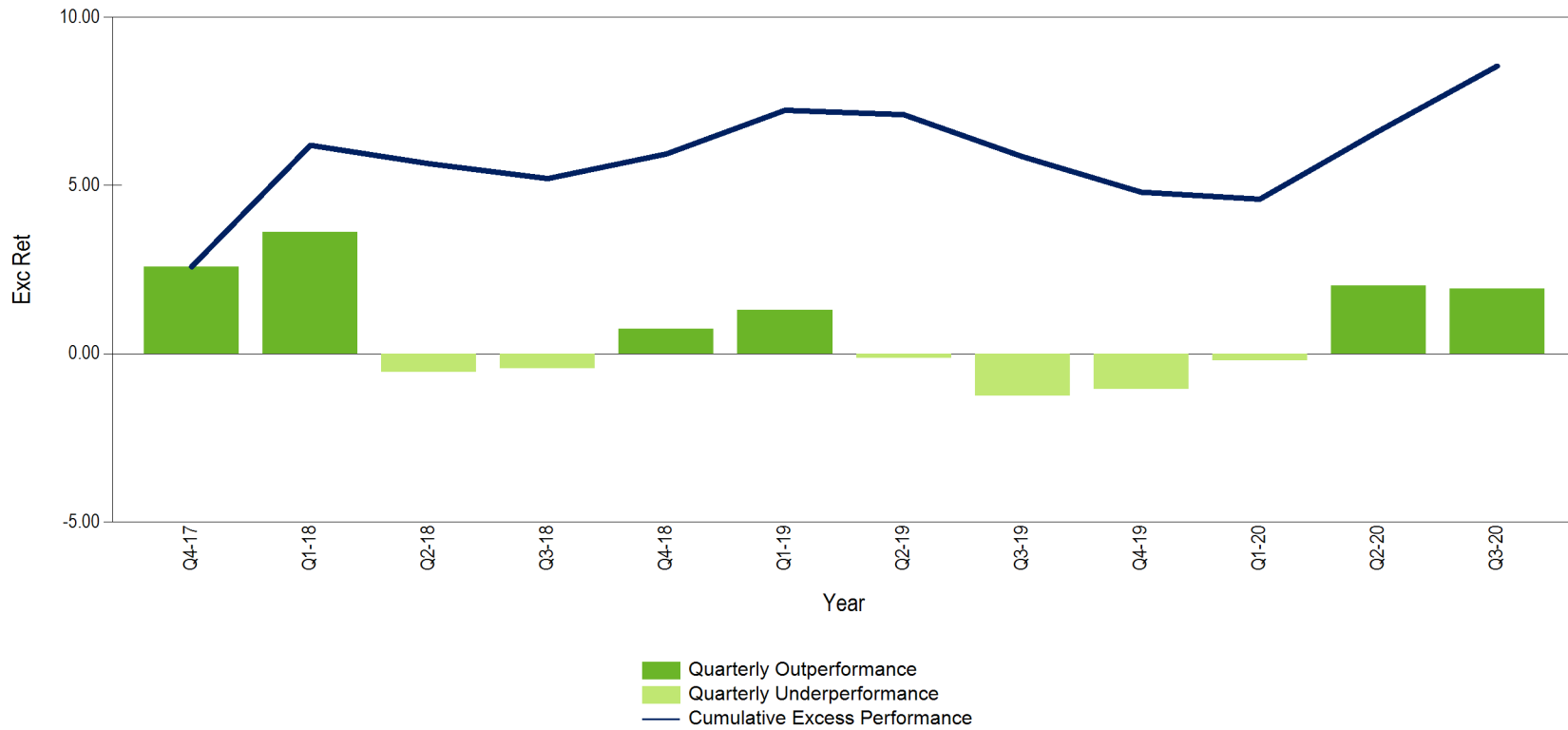


3 Year Style Map



# LAZARD ASSET MANAGEMENT

Quarterly and Cumulative Excess Performance

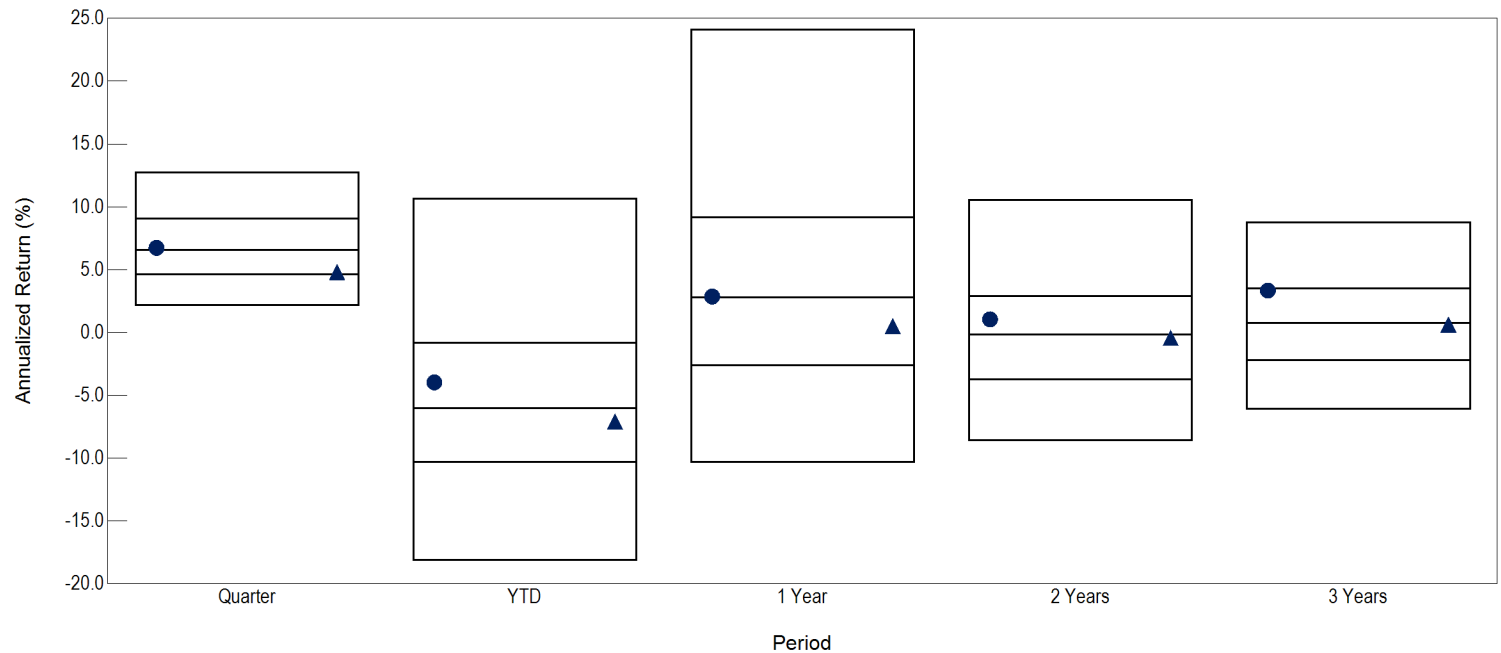




# Los Angeles City Employees' Retirement System

## LAZARD ASSET MANAGEMENT

Lazard Asset Management vs. eV All EAFE Equity Net

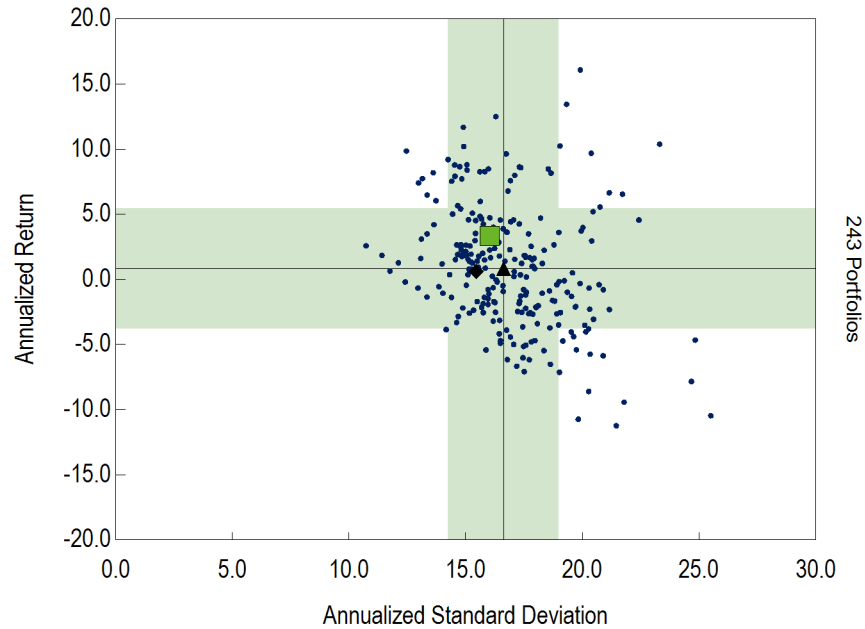


	Return (Rank)									
5th Percentile	12.71		10.67		24.09		10.56		8.77	
25th Percentile	9.13		-0.76		9.23		2.97		3.57	
Median	6.60		-5.98		2.87		-0.11		0.83	
75th Percentile	4.68		-10.26		-2.56		-3.65		-2.15	
95th Percentile	2.25		-18.04		-10.23		-8.53		-6.00	
# of Portfolios	257		256		256		251		243	
● Lazard Asset Management	6.73	(49)	-3.97	(40)	2.86	(51)	1.05	(36)	3.33	(27)
▲ MSCI EAFE	4.80	(74)	-7.09	(60)	0.49	(62)	-0.43	(54)	0.62	(53)

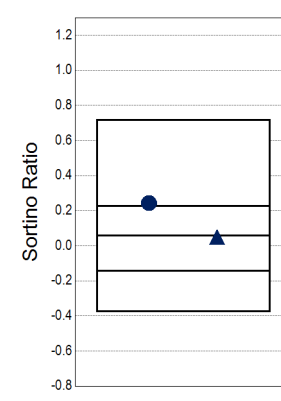
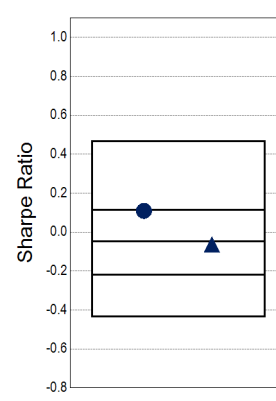
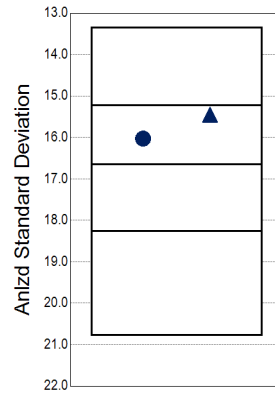
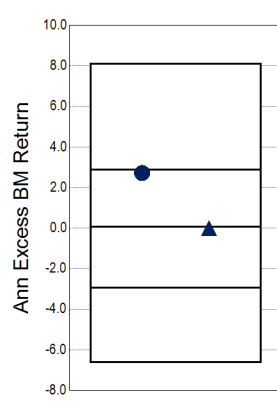
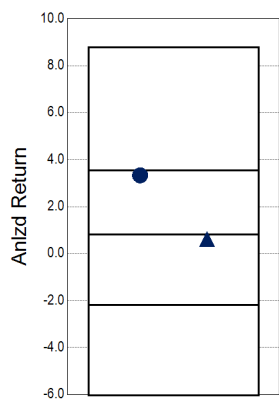
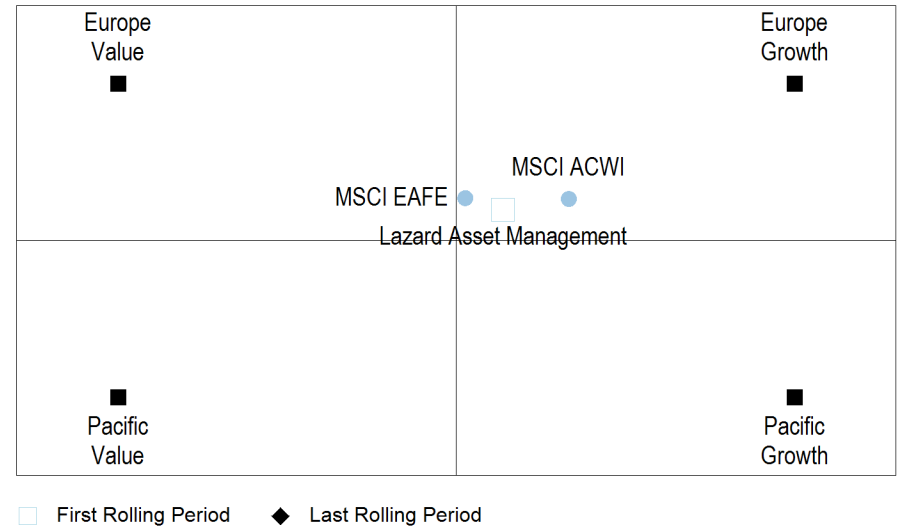


# LAZARD ASSET MANAGEMENT

3 Year Risk Return



3 Year Style Map

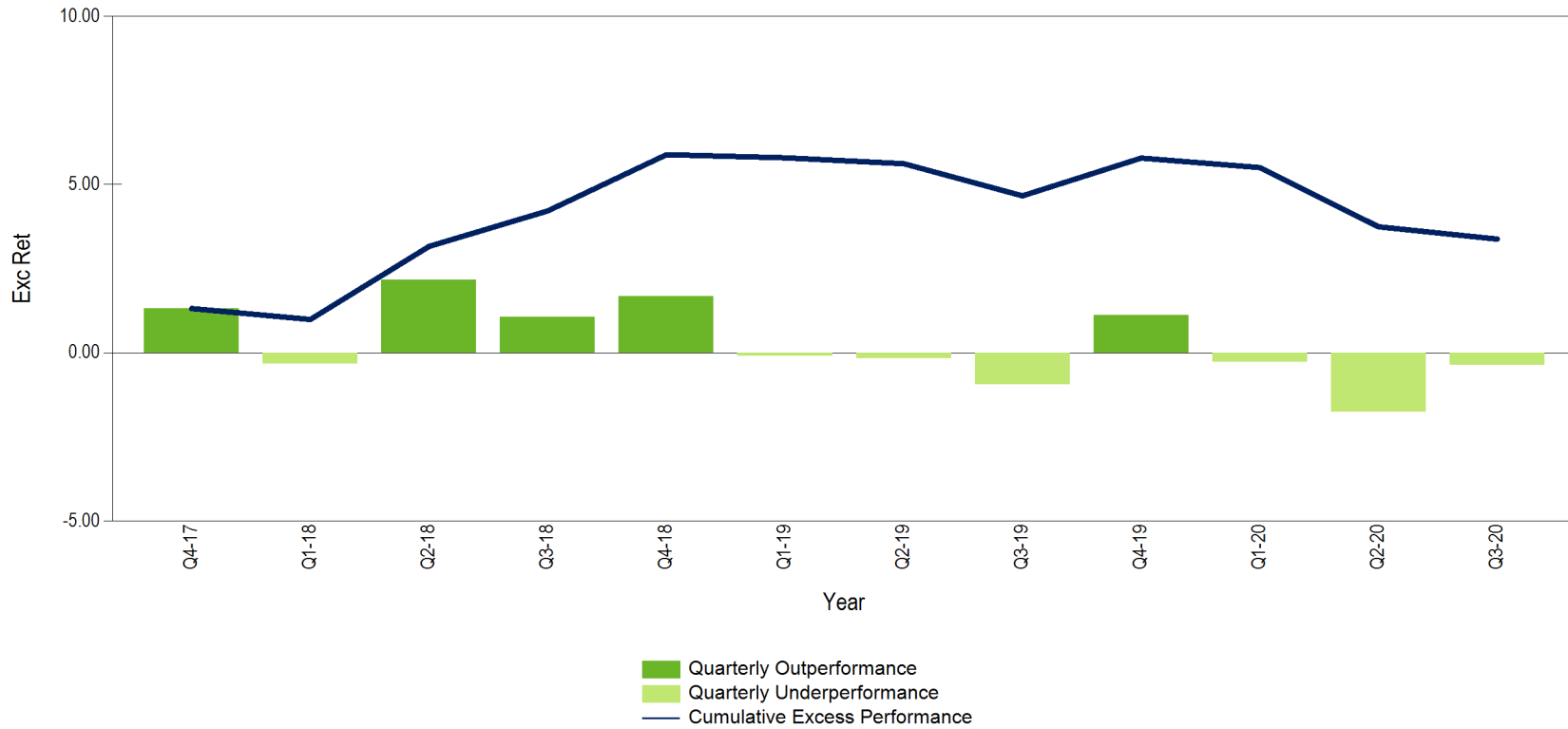


- Lazard Asset Management
- ▲ MSCI EAFE
- 5th to 25th Percentile
- 25th to Median
- Median to 75th Percentile
- 75th to 95th Percentile



# MFS INSTITUTIONAL ADVISORS

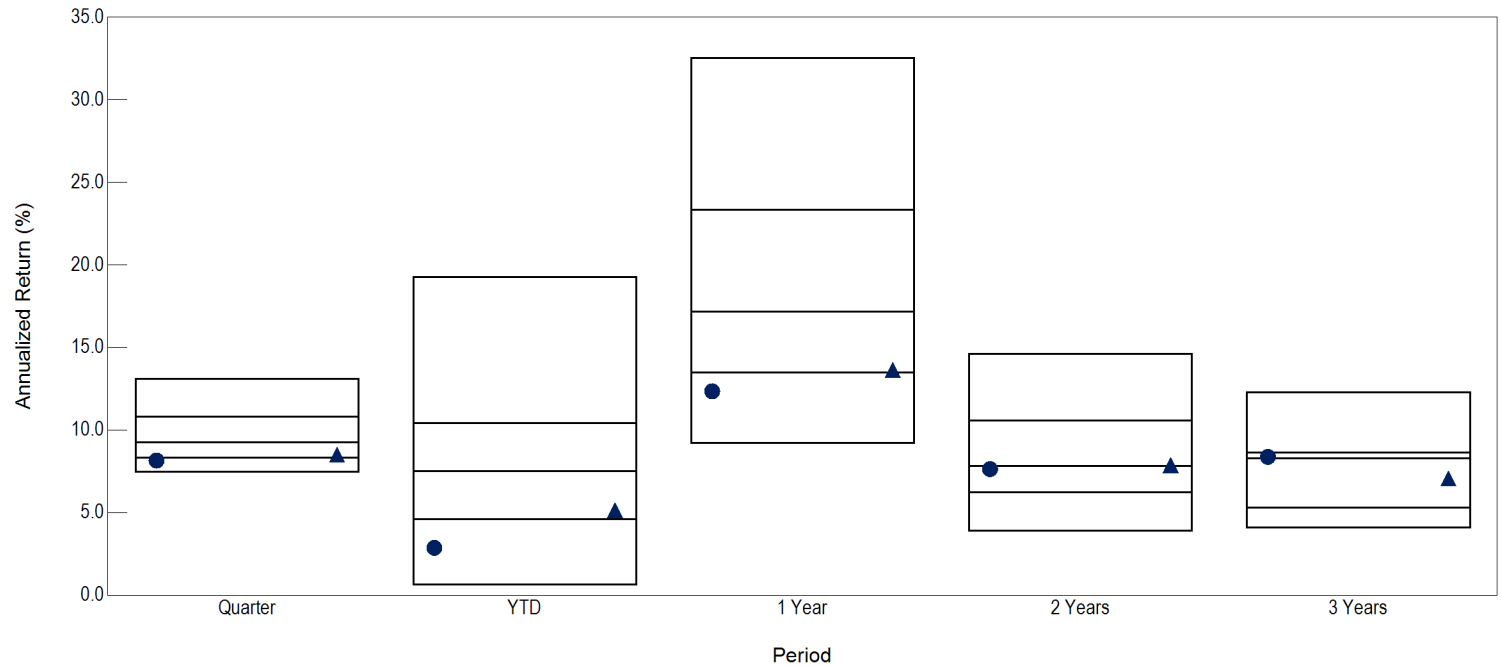
Quarterly and Cumulative Excess Performance



# Los Angeles City Employees' Retirement System

## MFS INSTITUTIONAL ADVISORS

MFS Institutional Advisors vs. eV EAFE All Cap Growth Net

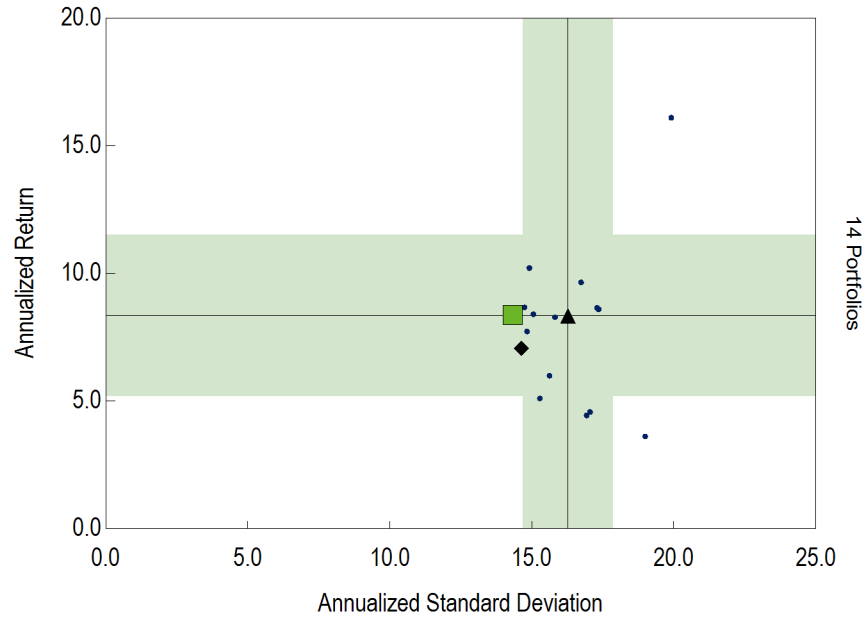


	Return (Rank)									
5th Percentile	13.08		19.26		32.52		14.61		12.26	
25th Percentile	10.85		10.46		23.37		10.59		8.65	
Median	9.31		7.56		17.19		7.86		8.33	
75th Percentile	8.34		4.64		13.51		6.25		5.31	
95th Percentile	7.49		0.68		9.26		3.95		4.14	
# of Portfolios	14		14		14		14		14	
● MFS Institutional Advisors	8.14	(86)	2.86	(87)	12.33	(82)	7.62	(52)	8.37	(48)
▲ MSCI World ex USA Growth NR USD	8.51	(73)	5.13	(73)	13.64	(75)	7.87	(50)	7.06	(65)

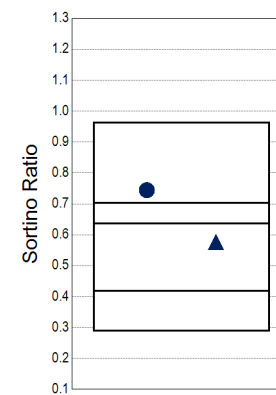
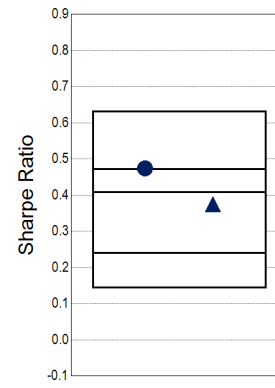
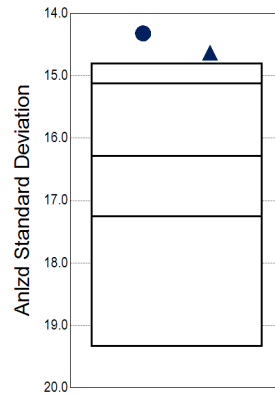
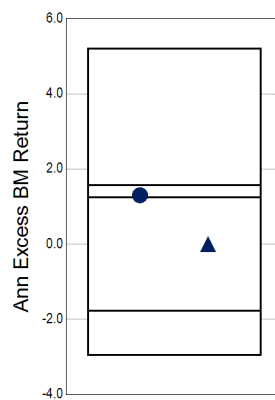
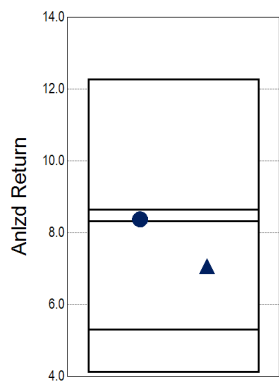
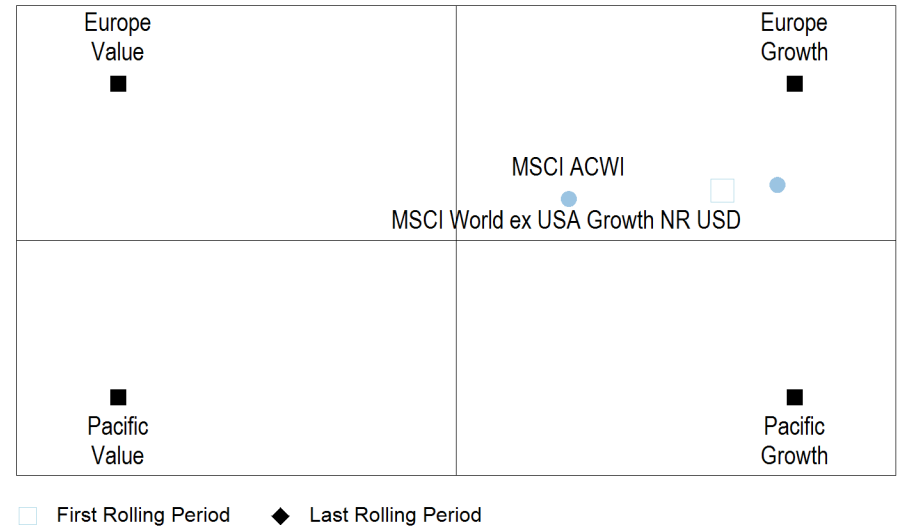


# MFS INSTITUTIONAL ADVISORS

3 Year Risk Return



3 Year Style Map



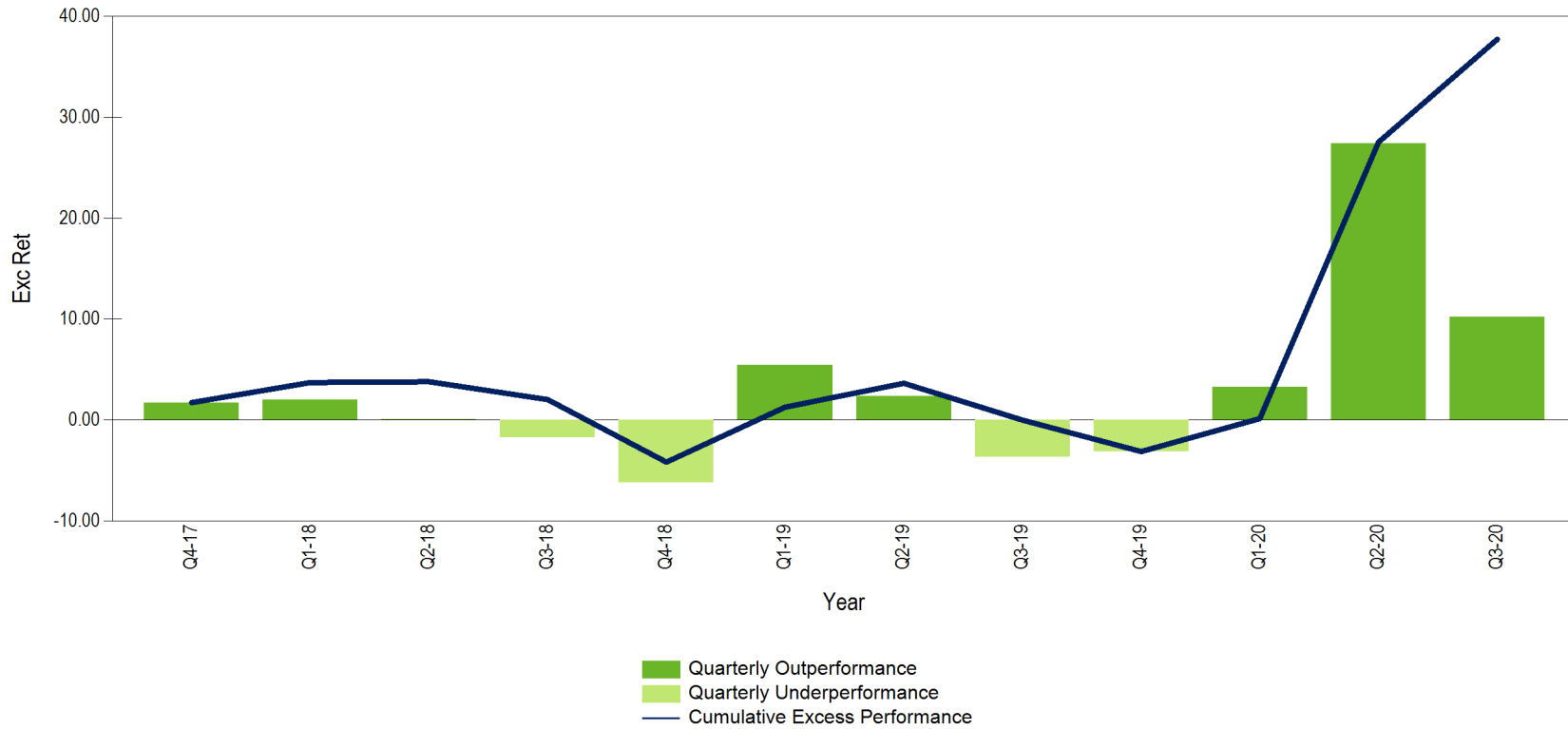
- MFS Institutional Advisors
- ▲ MSCI World ex USA Growth NR USD
- 5th to 25th Percentile
- 25th to Median
- Median to 75th Percentile
- 75th to 95th Percentile



# Los Angeles City Employees' Retirement System

## OBERWEIS ASSET MGMT

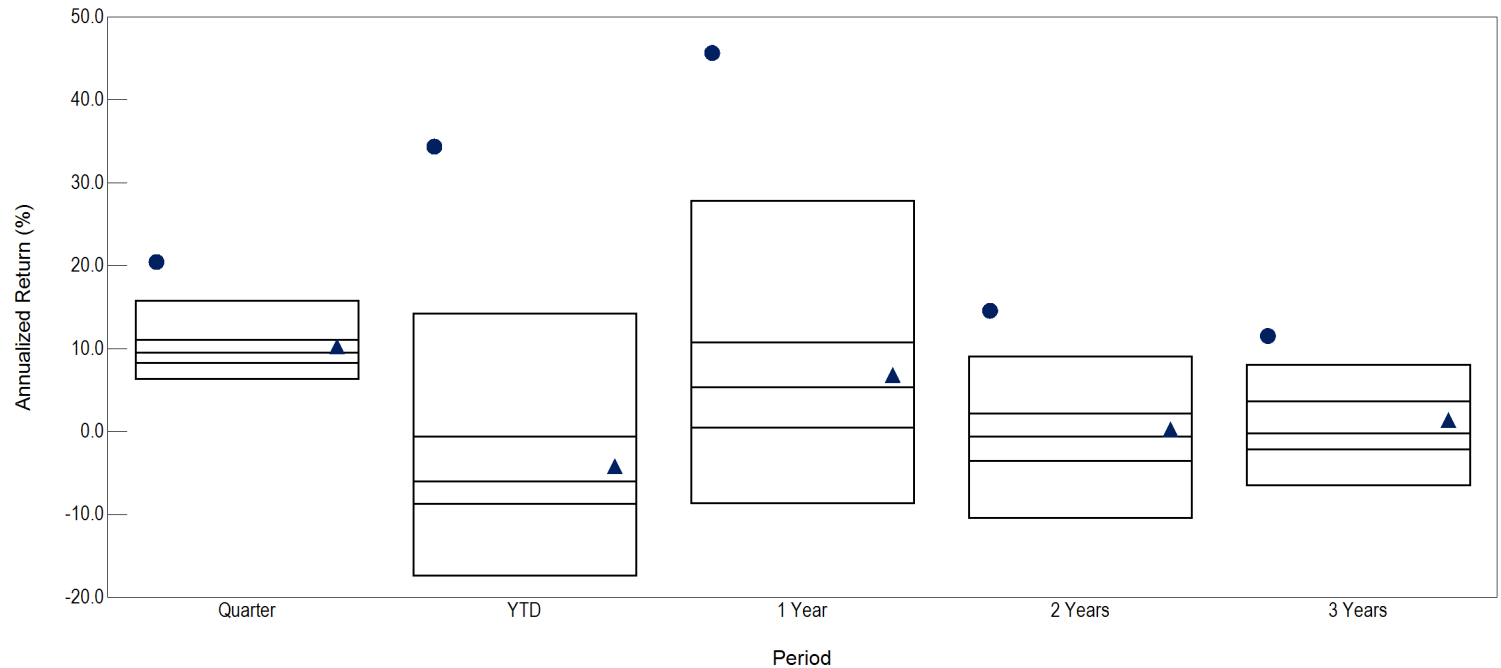
Quarterly and Cumulative Excess Performance



# Los Angeles City Employees' Retirement System

## OBERWEIS ASSET MGMT

Oberweis Asset Mgmt vs. eV EAFE Small Cap Equity Net



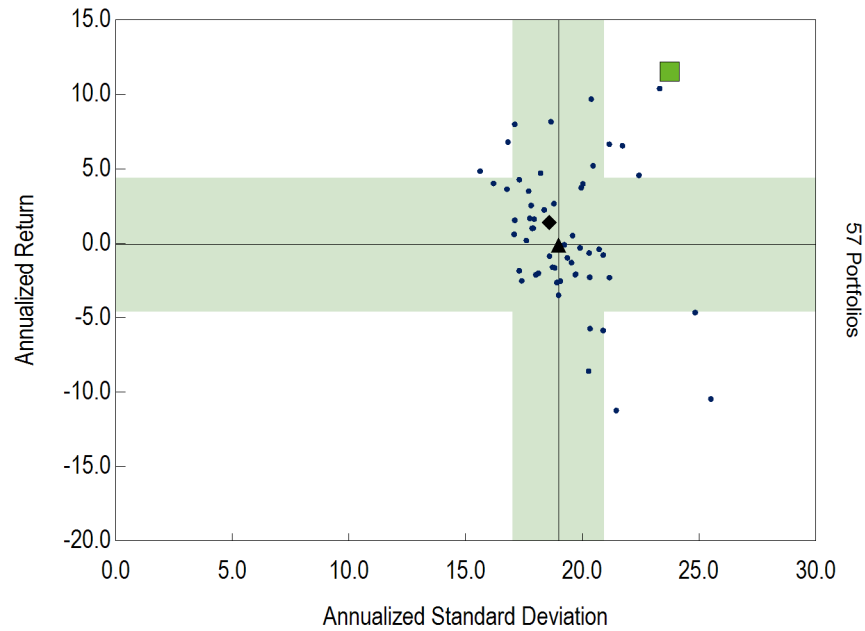
	Return (Rank)									
5th Percentile	15.75		14.24		27.85		9.08		8.03	
25th Percentile	11.14		-0.55		10.80		2.29		3.72	
Median	9.59		-5.97		5.44		-0.53		-0.11	
75th Percentile	8.34		-8.61		0.52		-3.50		-2.09	
95th Percentile	6.44		-17.27		-8.59		-10.38		-6.41	
# of Portfolios	64		63		63		61		57	
● Oberweis Asset Mgmt	20.45	(1)	34.36	(1)	45.66	(1)	14.57	(1)	11.52	(1)
▲ MSCI EAFE Small Cap	10.25	(37)	-4.20	(42)	6.84	(47)	0.25	(45)	1.40	(40)



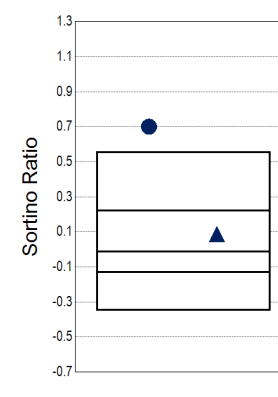
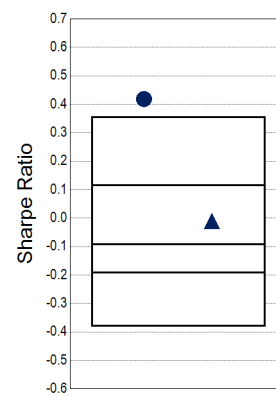
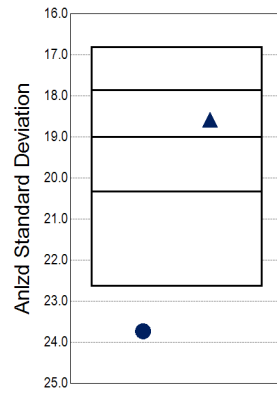
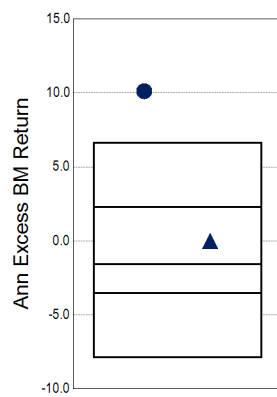
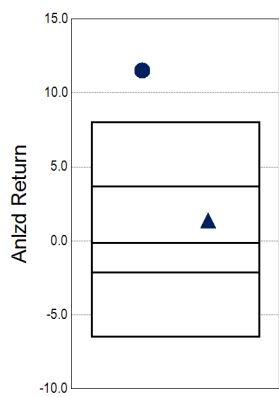
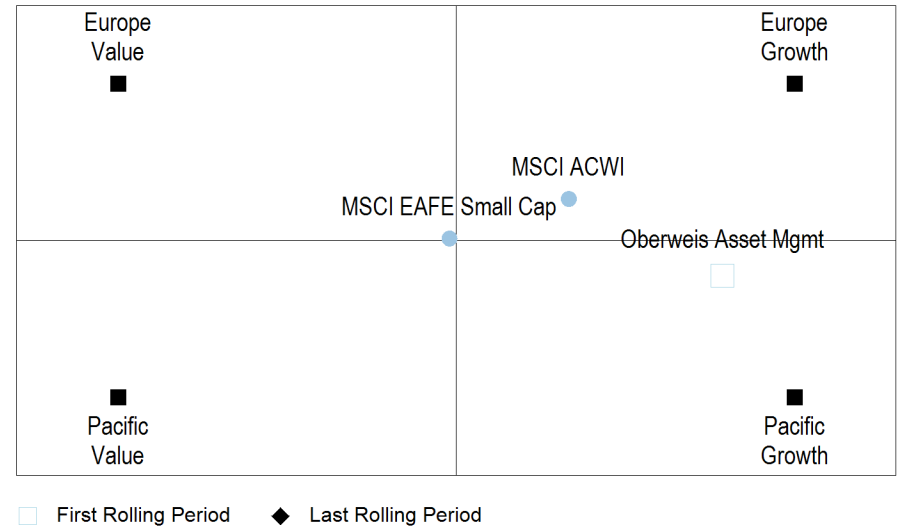
# Los Angeles City Employees' Retirement System

## OBERWEIS ASSET MGMT

3 Year Risk Return



3 Year Style Map



- Oberweis Asset Mgmt
- ▲ MSCI EAFE Small Cap
- 5th to 25th Percentile
- 25th to Median
- Median to 75th Percentile
- 75th to 95th Percentile

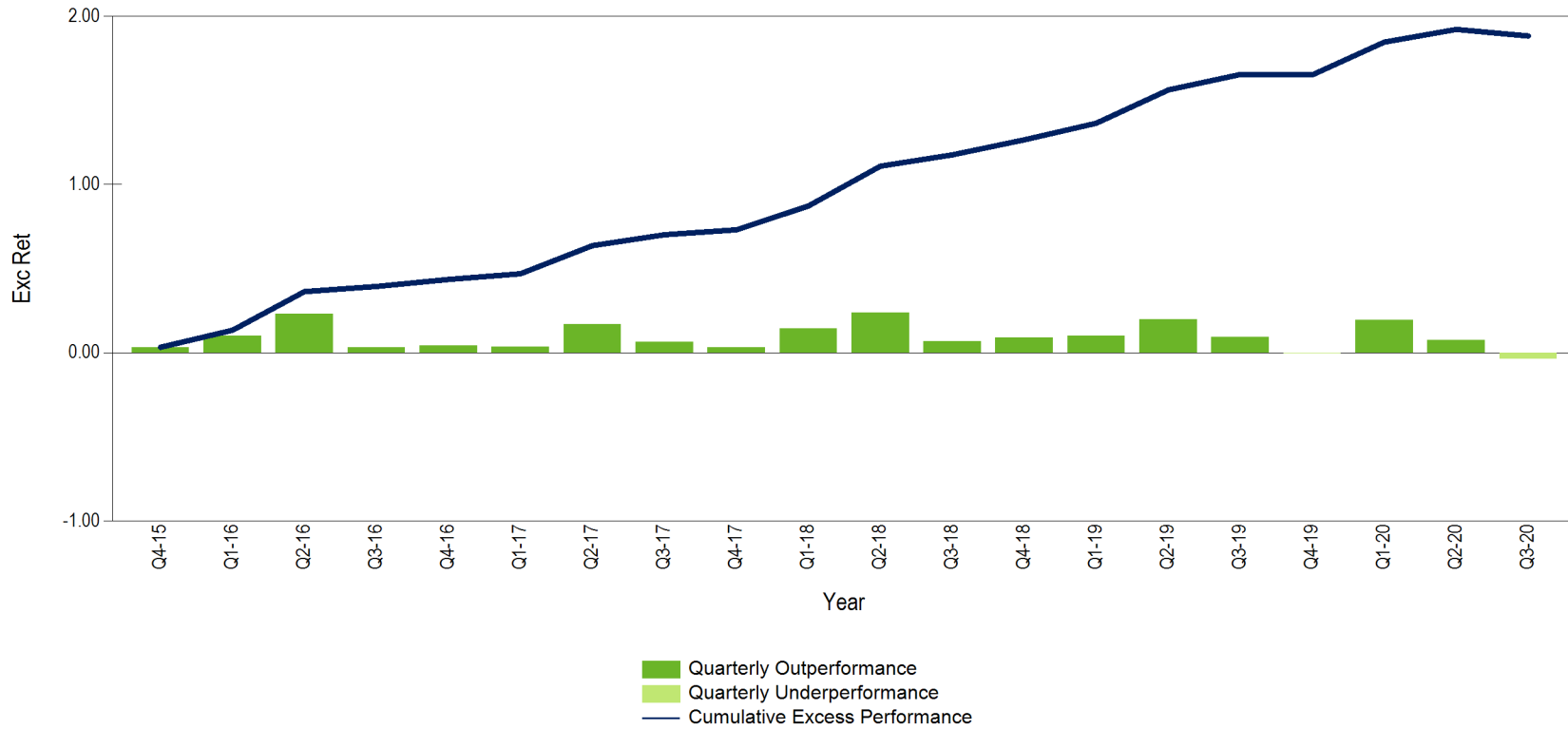




# Los Angeles City Employees' Retirement System

## SSGA WORLD EX US IMI

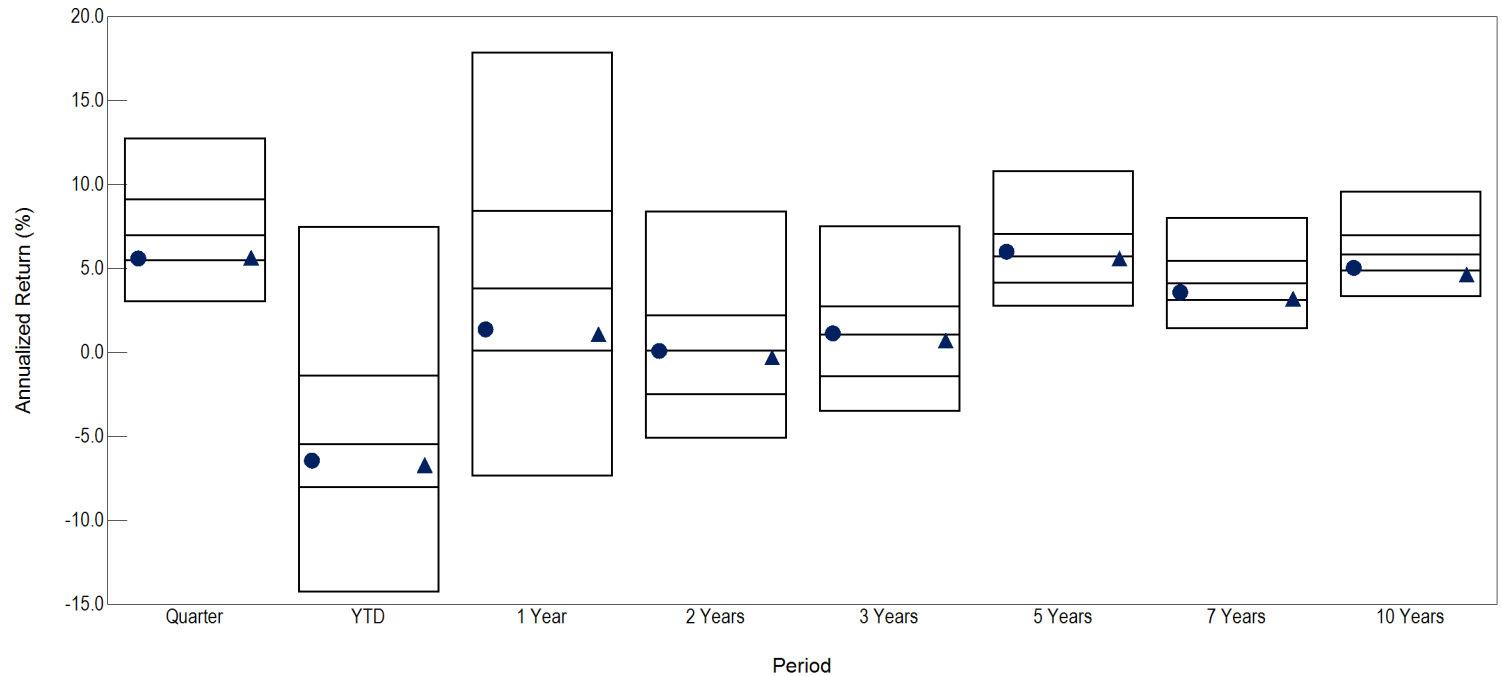
Quarterly and Cumulative Excess Performance



# Los Angeles City Employees' Retirement System

## SSGA WORLD EX US IMI

SSgA World ex US IMI vs. eV EAFE Core Equity Net



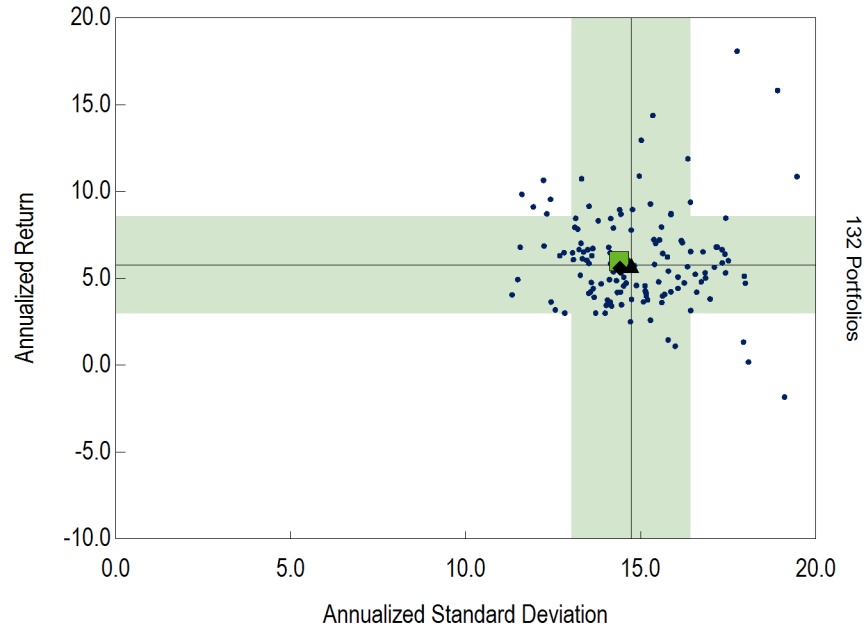
	Return (Rank)															
5th Percentile	12.74	7.48	17.88	8.40	7.51	10.80	8.02	9.60								
25th Percentile	9.15	-1.34	8.49	2.24	2.80	7.09	5.50	7.03								
Median	7.05	-5.43	3.87	0.17	1.10	5.77	4.18	5.87								
75th Percentile	5.54	-7.98	0.15	-2.45	-1.39	4.22	3.15	4.95								
95th Percentile	3.09	-14.18	-7.28	-5.03	-3.45	2.81	1.50	3.40								
# of Portfolios	152	151	151	150	146	132	114	86								
● SSGA World ex US IMI	5.60	(74)	-6.43	(60)	1.38	(65)	0.10	(51)	1.14	(50)	6.01	(47)	3.60	(63)	5.05	(73)
▲ MSCI World ex USA IMI NR USD	5.64	(73)	-6.70	(63)	1.10	(66)	-0.28	(55)	0.73	(55)	5.60	(53)	3.20	(72)	4.65	(81)



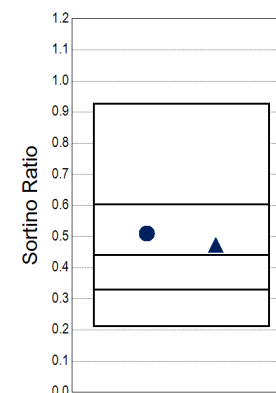
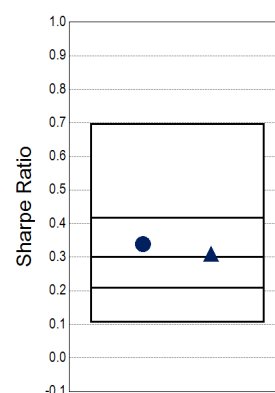
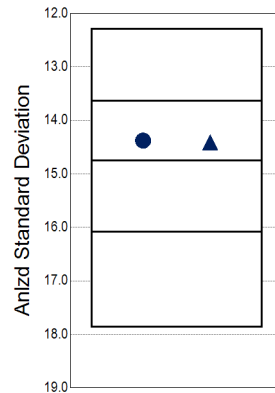
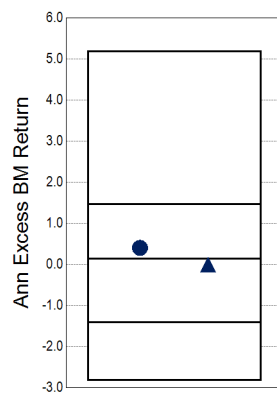
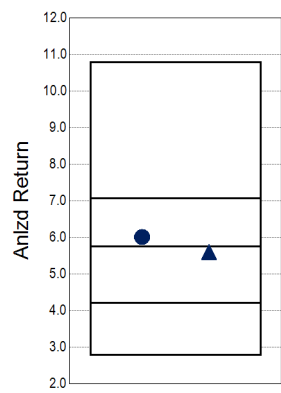
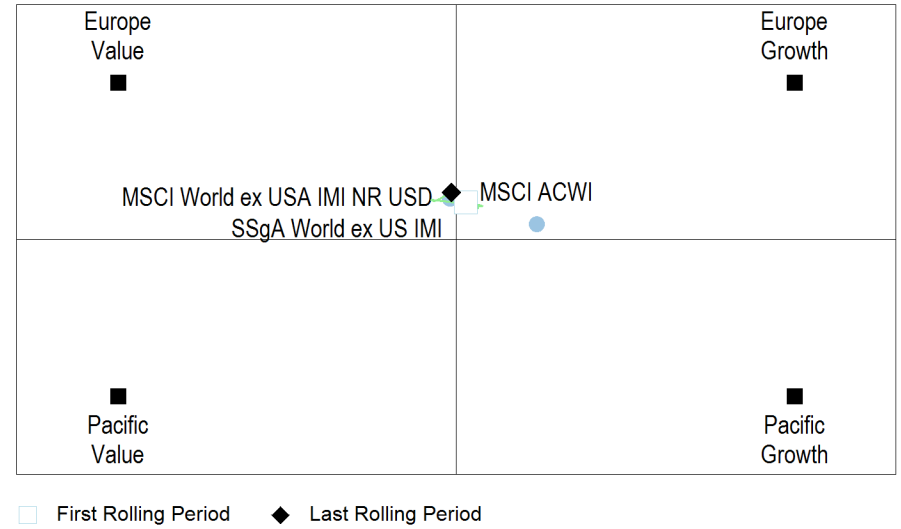
# Los Angeles City Employees' Retirement System

## SSGA WORLD EX US IMI

### 5 Year Risk Return



### 5 Year Style Map

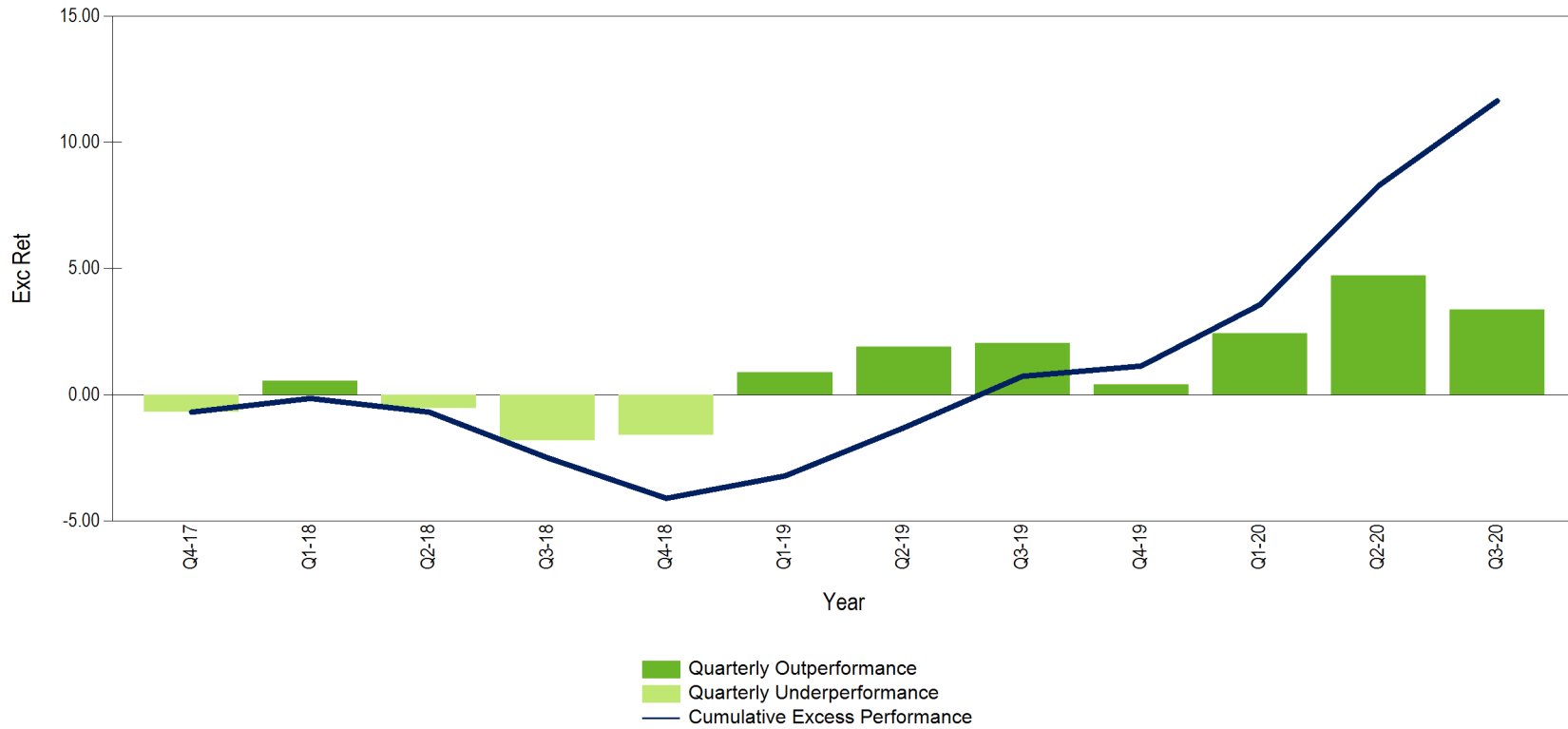


- SSGA World ex US IMI
- ▲ MSCI World ex USA IMI NR USD
- 5th to 25th Percentile
- 25th to Median
- Median to 75th Percentile
- 75th to 95th Percentile



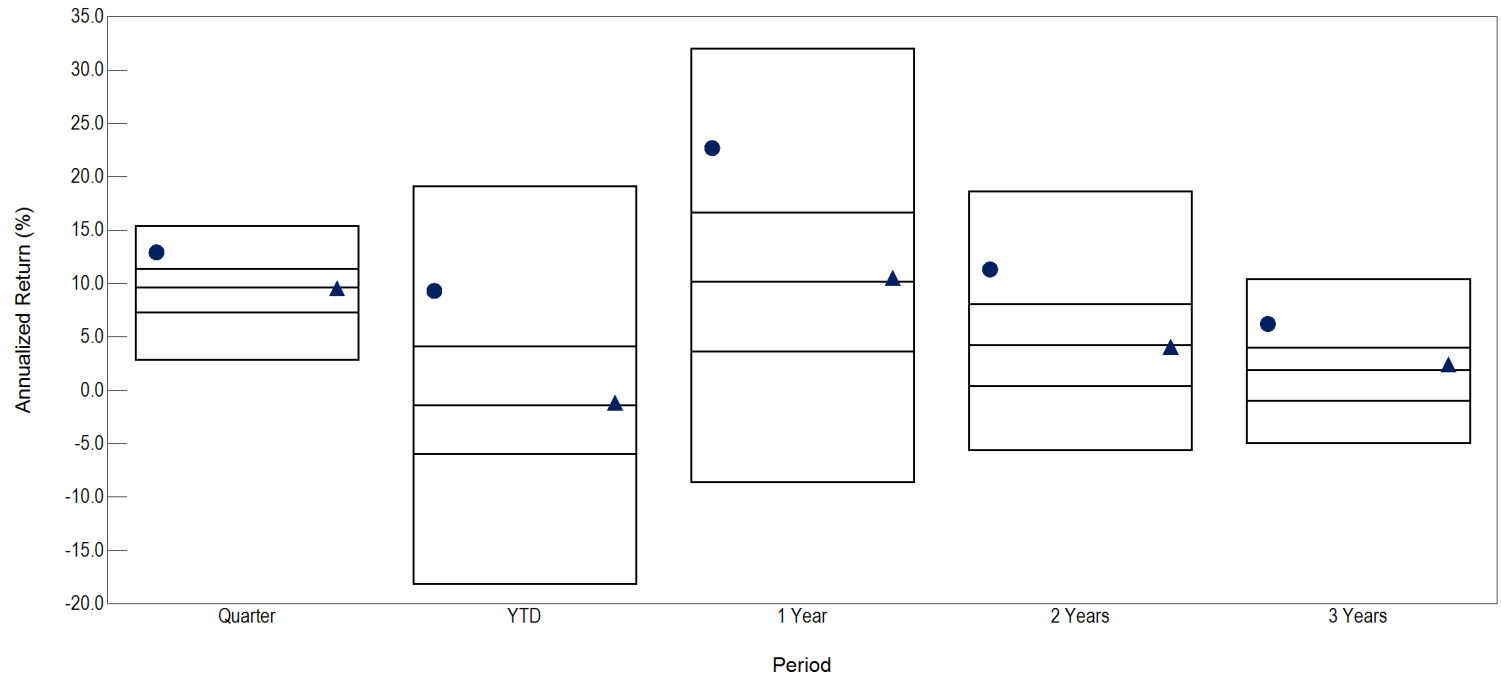
# AXIOM EMERGING MARKETS

Quarterly and Cumulative Excess Performance



# AXIOM EMERGING MARKETS

Axiom Emerging Markets vs. eV Emg Mkts Equity Net

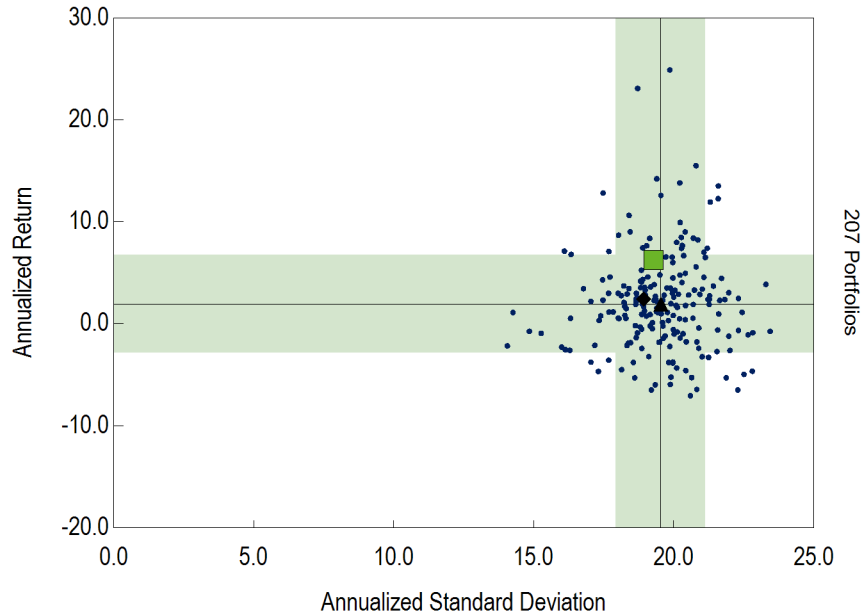


	Return (Rank)									
5th Percentile	15.37		19.13		32.02		18.64		10.41	
25th Percentile	11.42		4.18		16.74		8.16		4.07	
Median	9.70		-1.36		10.25		4.30		1.93	
75th Percentile	7.35		-5.90		3.72		0.45		-0.90	
95th Percentile	2.90		-18.06		-8.56		-5.55		-4.88	
# of Portfolios	234		232		232		220		207	
● Axiom Emerging Markets	12.92	(14)	9.31	(15)	22.70	(14)	11.33	(16)	6.22	(16)
▲ MSCI Emerging Markets	9.56	(53)	-1.16	(49)	10.54	(48)	4.07	(52)	2.42	(43)

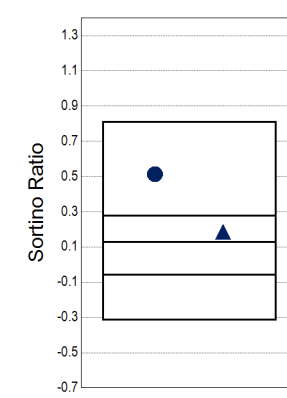
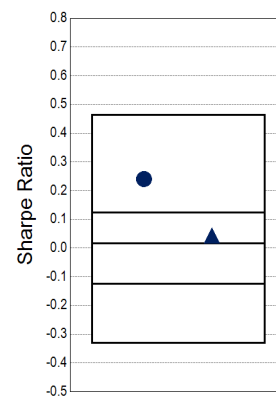
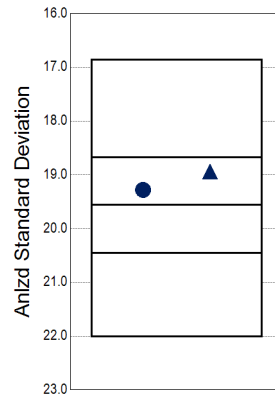
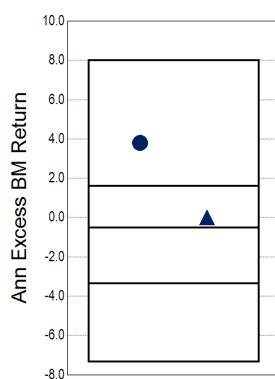
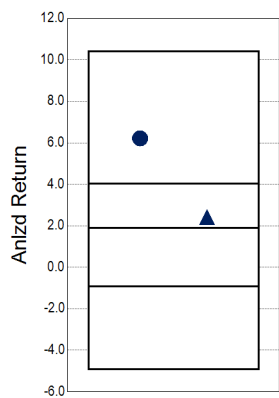
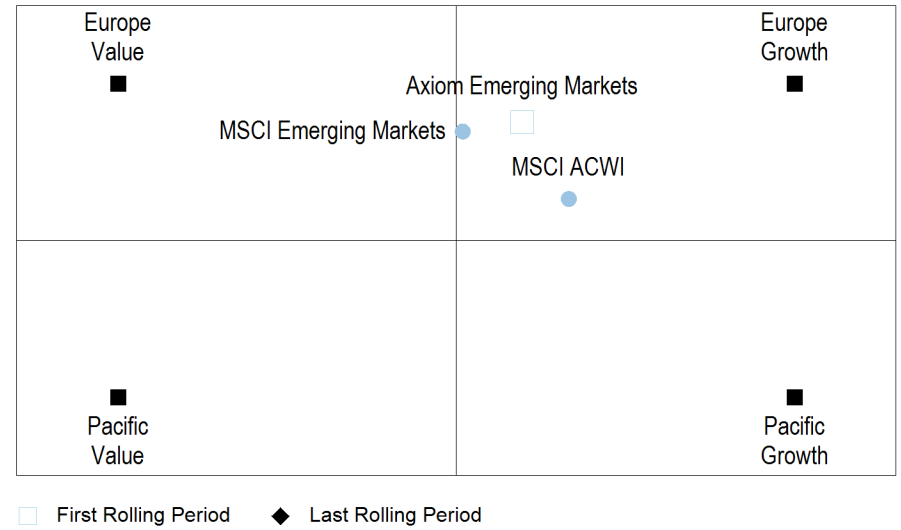


# AXIOM EMERGING MARKETS

3 Year Risk Return



3 Year Style Map



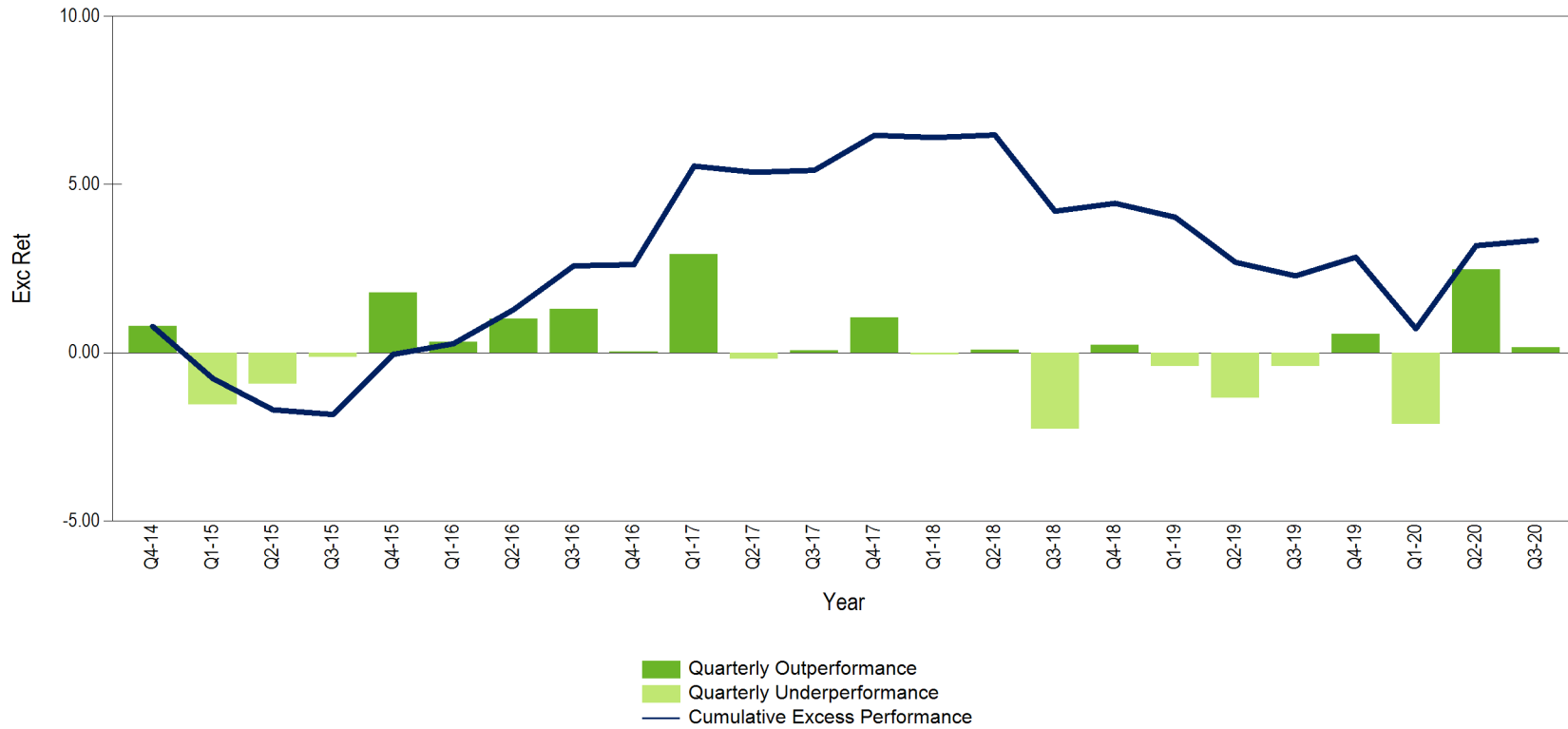
- Axiom Emerging Markets
- ▲ MSCI Emerging Markets
- 5th to 25th Percentile
- 25th to Median
- Median to 75th Percentile
- 75th to 95th Percentile



# Los Angeles City Employees' Retirement System

## DFA EMERGING MARKETS

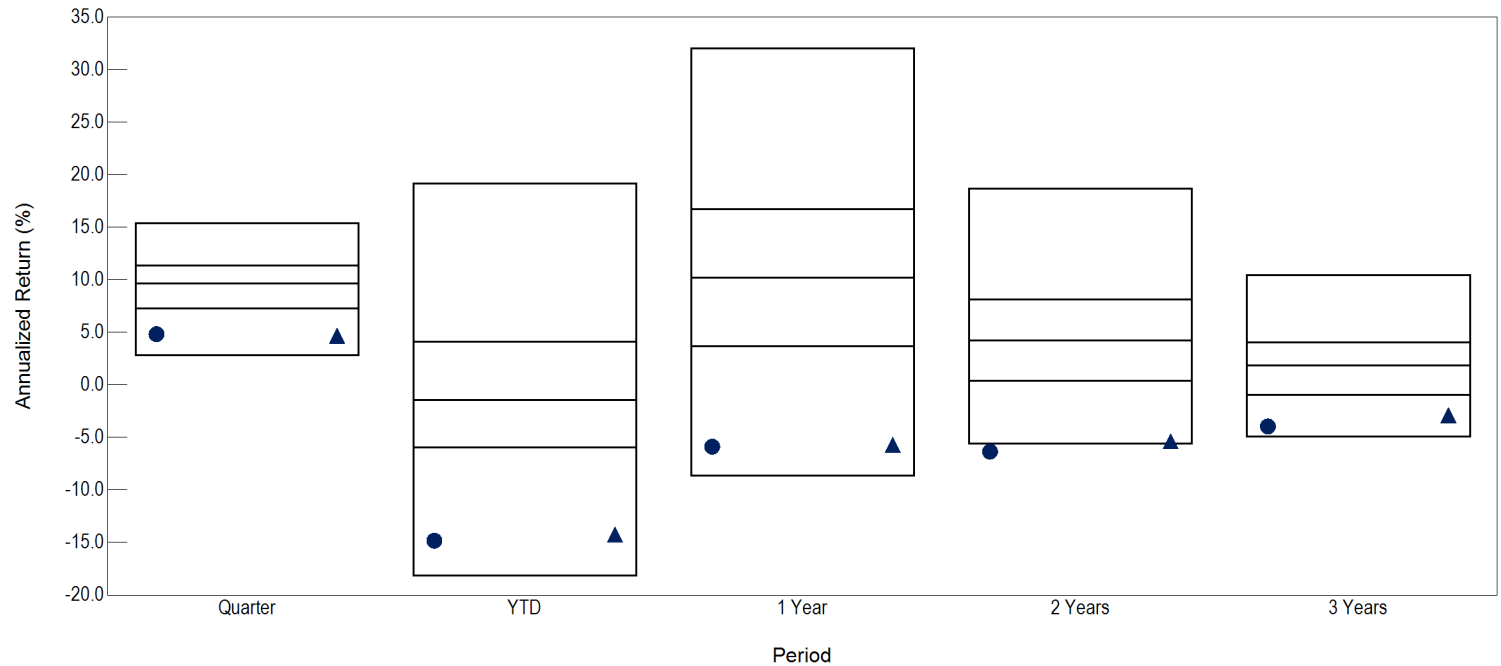
Quarterly and Cumulative Excess Performance



# Los Angeles City Employees' Retirement System

## DFA EMERGING MARKETS

DFA Emerging Markets vs. eV Emg Mkts Equity Net



	Return (Rank)									
5th Percentile	15.37		19.13		32.02		18.64		10.41	
25th Percentile	11.42		4.18		16.74		8.16		4.07	
Median	9.70		-1.36		10.25		4.30		1.93	
75th Percentile	7.35		-5.90		3.72		0.45		-0.90	
95th Percentile	2.90		-18.06		-8.56		-5.55		-4.88	
# of Portfolios	234		232		232		220		207	
● DFA Emerging Markets	4.82	(89)	-14.83	(92)	-5.89	(91)	-6.36	(97)	-3.96	(93)
▲ MSCI Emerging Markets Value NR USD	4.66	(90)	-14.23	(92)	-5.70	(90)	-5.37	(95)	-2.89	(89)

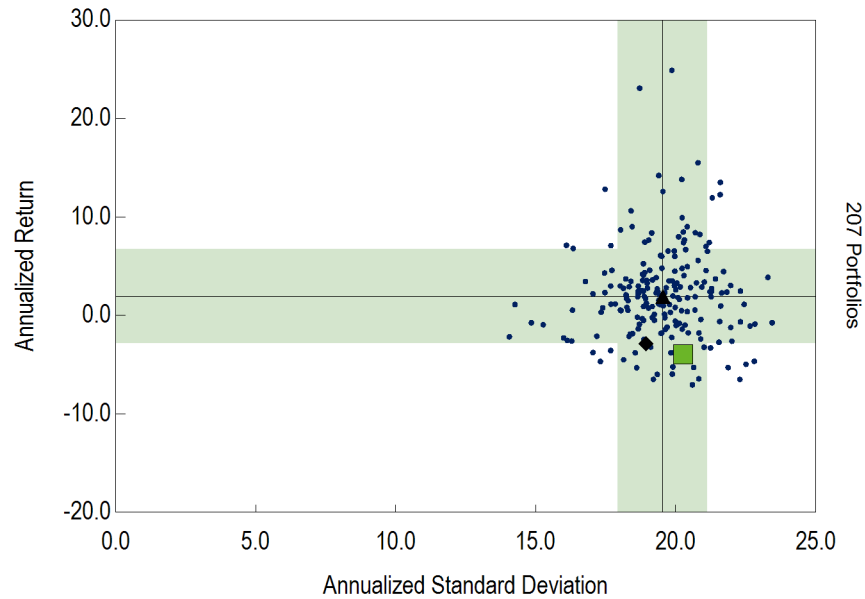




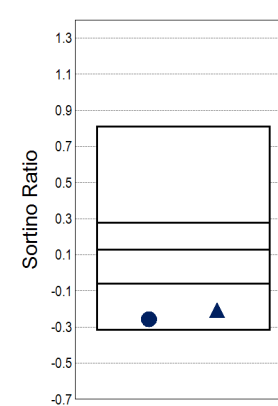
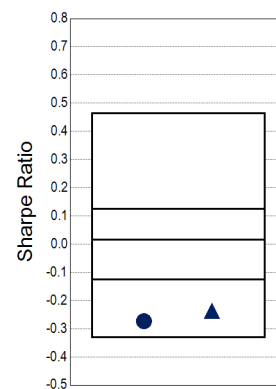
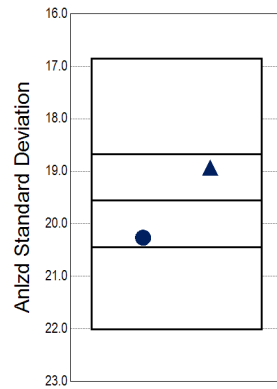
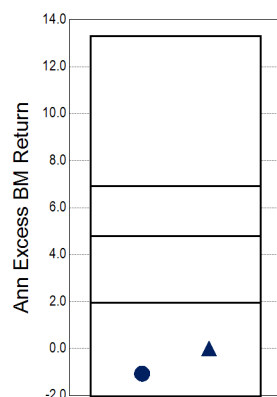
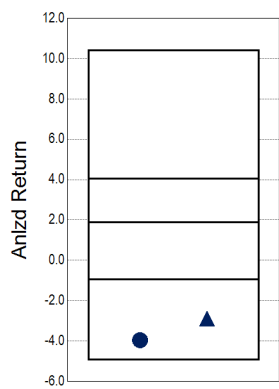
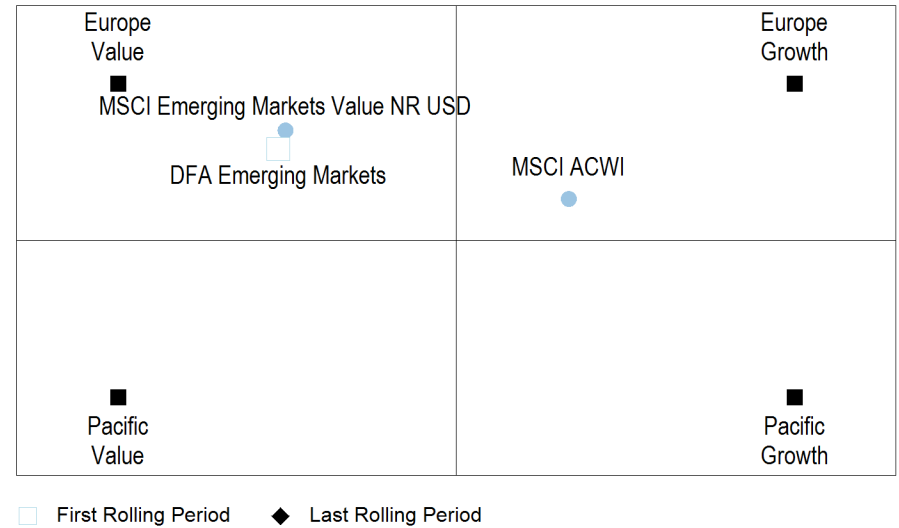
# Los Angeles City Employees' Retirement System

## DFA EMERGING MARKETS

3 Year Risk Return



3 Year Style Map



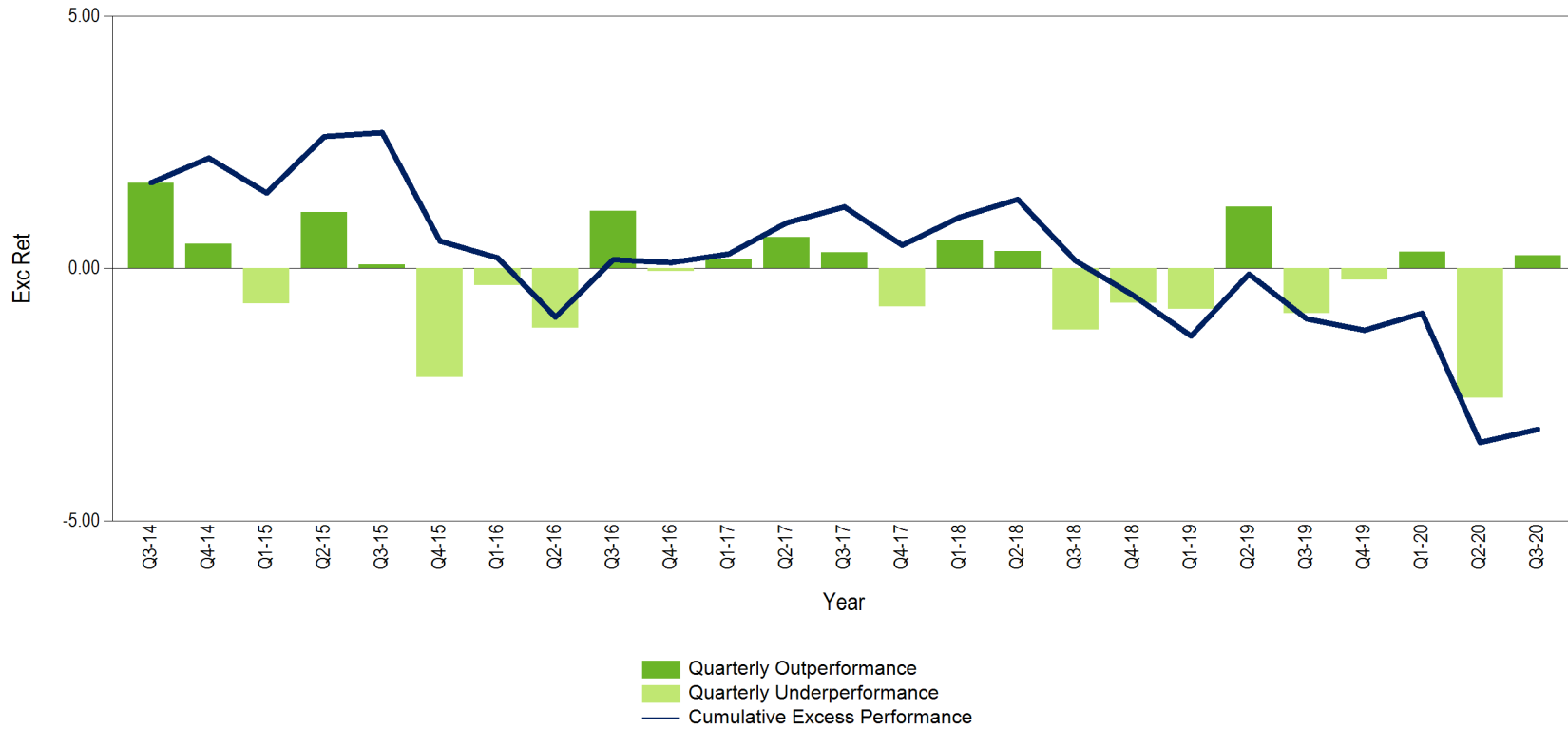
- DFA Emerging Markets
- ▲ MSCI Emerging Markets Value NR USD
- 5th to 25th Percentile
- 25th to Median
- Median to 75th Percentile
- 75th to 95th Percentile



# Los Angeles City Employees' Retirement System

## QMA EMERGING MARKETS

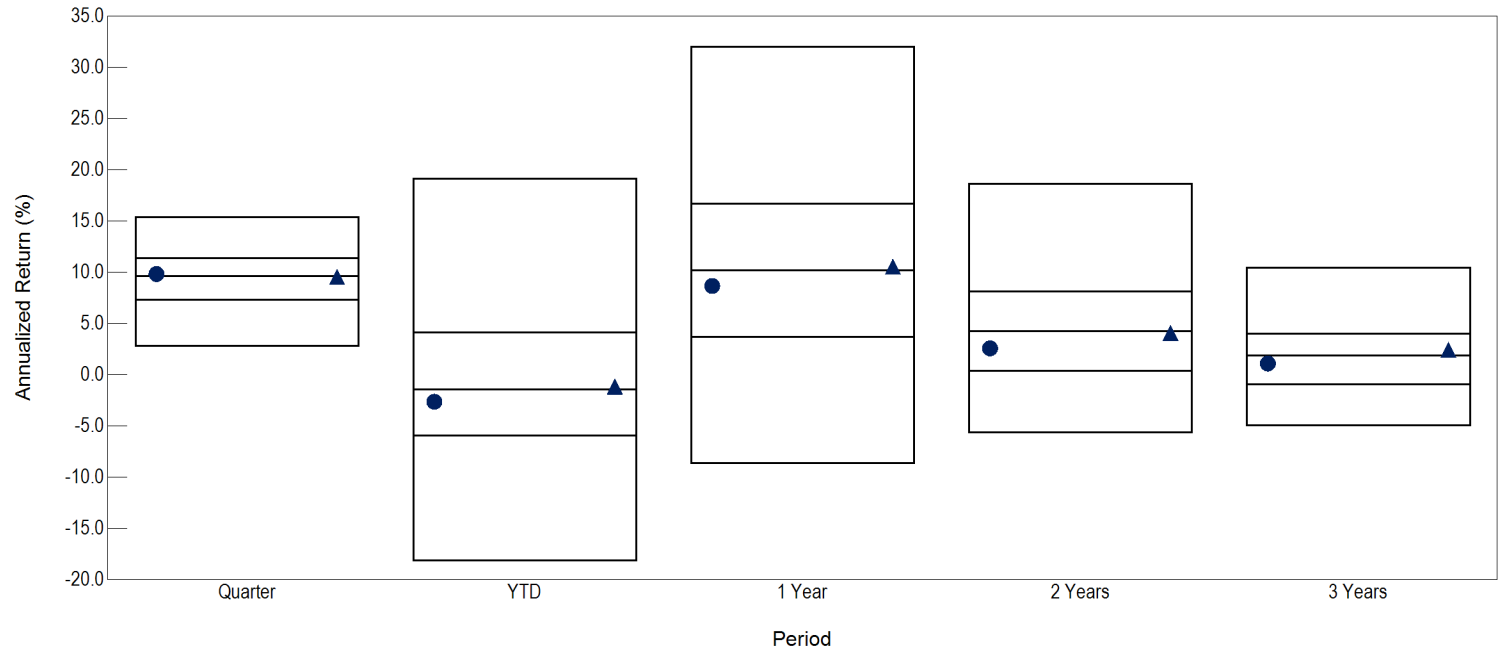
Quarterly and Cumulative Excess Performance



# Los Angeles City Employees' Retirement System

## QMA EMERGING MARKETS

QMA Emerging Markets vs. eV Emg Mkts Equity Net



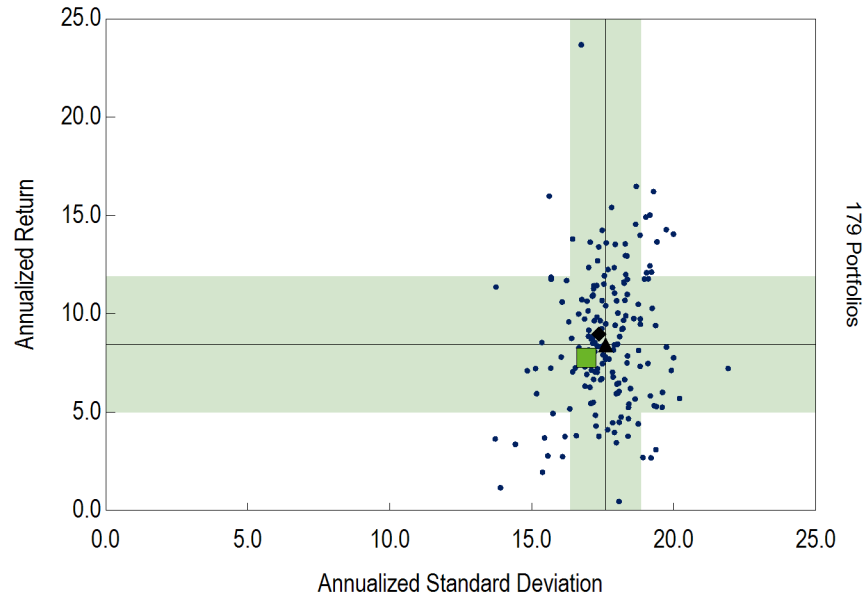
	Return (Rank)									
5th Percentile	15.37		19.13		32.02		18.64		10.41	
25th Percentile	11.42		4.18		16.74		8.16		4.07	
Median	9.70		-1.36		10.25		4.30		1.93	
75th Percentile	7.35		-5.90		3.72		0.45		-0.90	
95th Percentile	2.90		-18.06		-8.56		-5.55		-4.88	
# of Portfolios	234		232		232		220		207	
● QMA Emerging Markets	9.82	(48)	-2.65	(60)	8.66	(58)	2.57	(62)	1.08	(59)
▲ MSCI Emerging Markets	9.56	(53)	-1.16	(49)	10.54	(48)	4.07	(52)	2.42	(43)



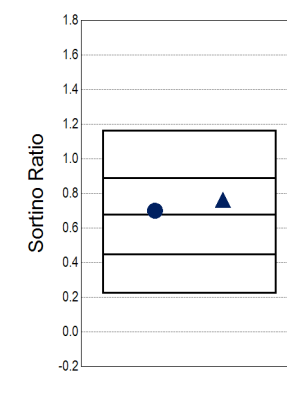
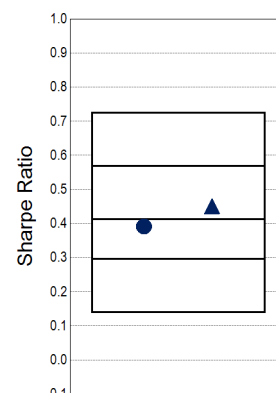
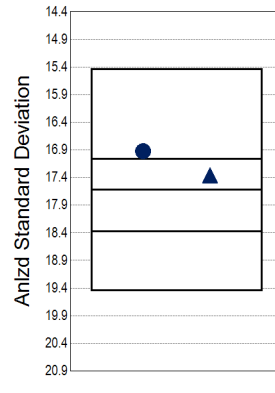
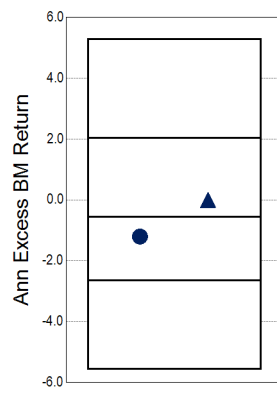
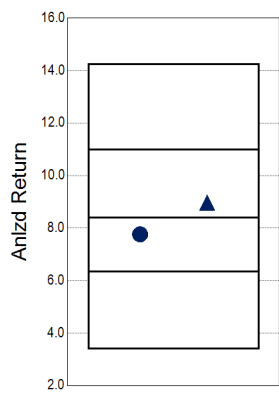
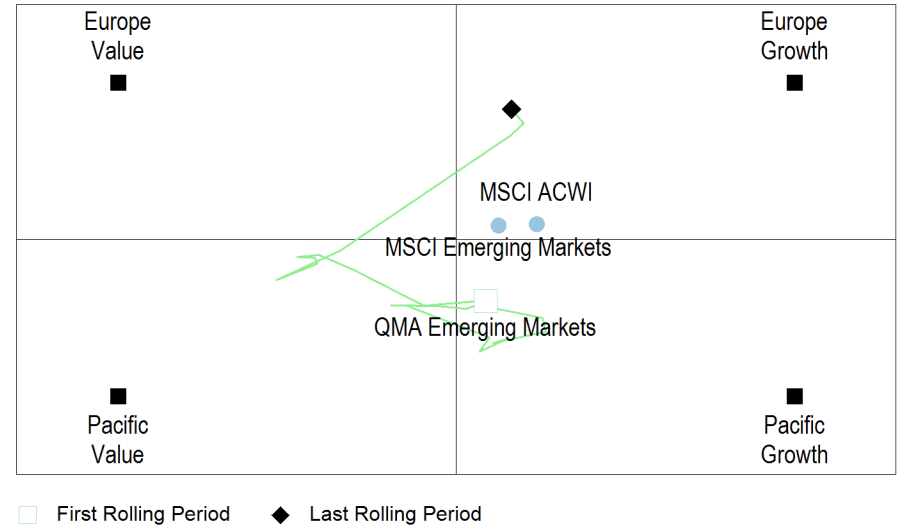
# Los Angeles City Employees' Retirement System

## QMA EMERGING MARKETS

5 Year Risk Return



5 Year Style Map



- QMA Emerging Markets
- ▲ MSCI Emerging Markets
- 5th to 25th Percentile
- 25th to Median
- Median to 75th Percentile
- 75th to 95th Percentile



# **CORE FIXED INCOME MANAGER PERFORMANCE**

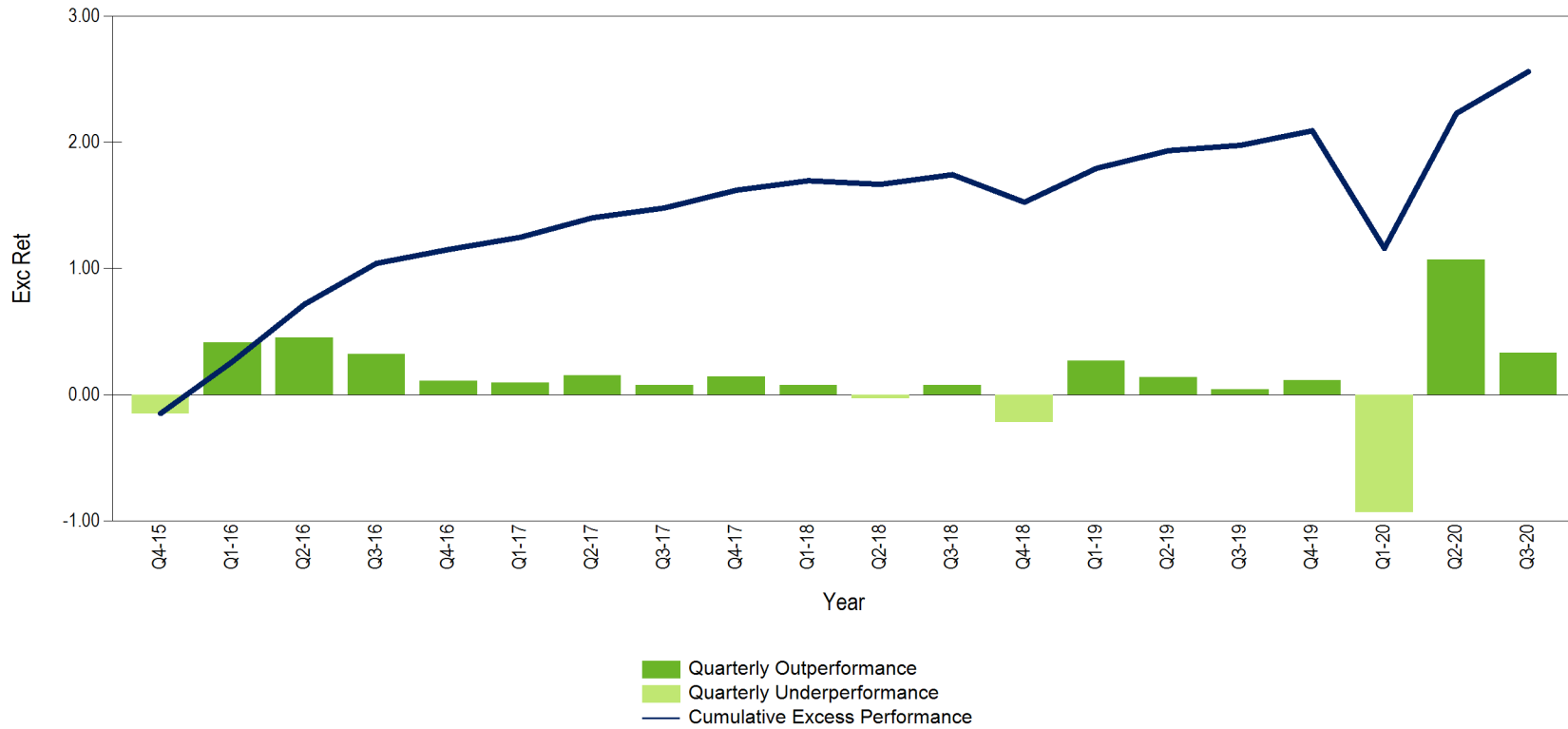
NEPC, LLC

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# Los Angeles City Employees' Retirement System

## BAIRD ADVISORS

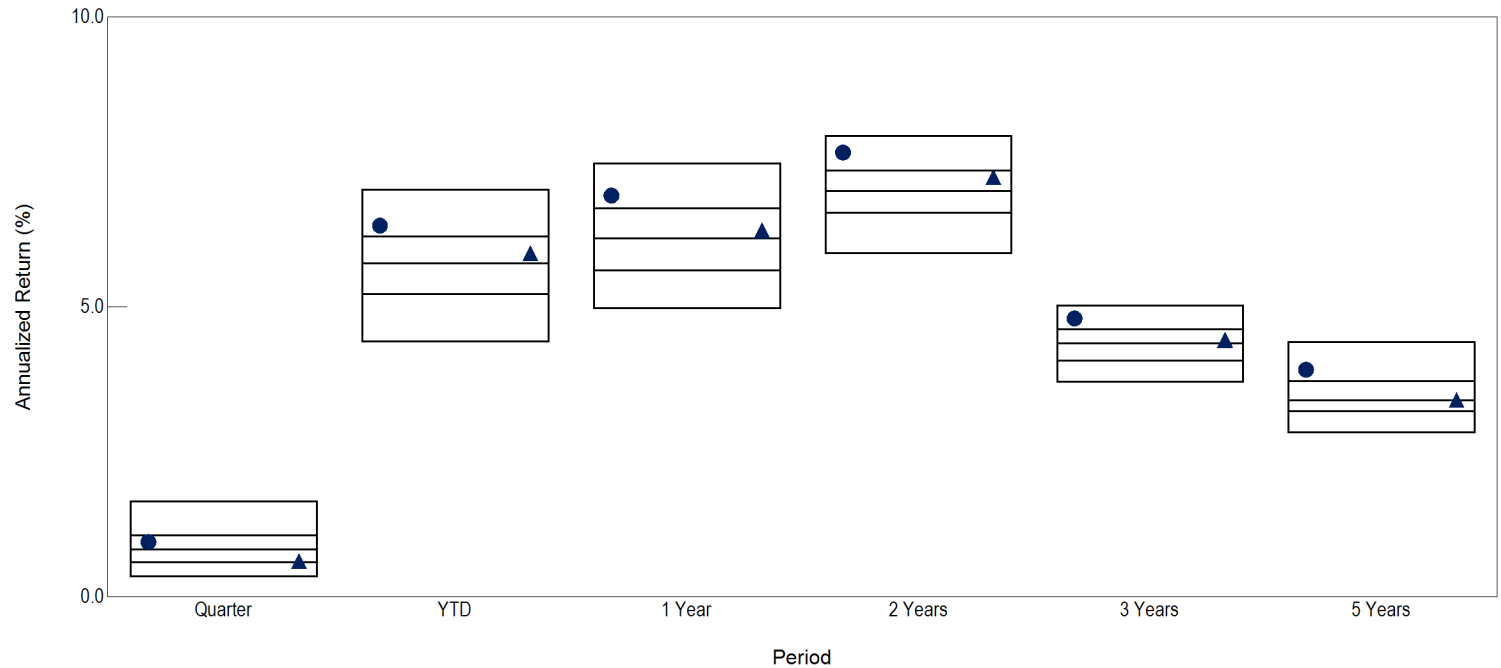
Quarterly and Cumulative Excess Performance



# Los Angeles City Employees' Retirement System

## BAIRD ADVISORS

Baird Advisors vs. eV US Interm Duration Fixed Inc Net



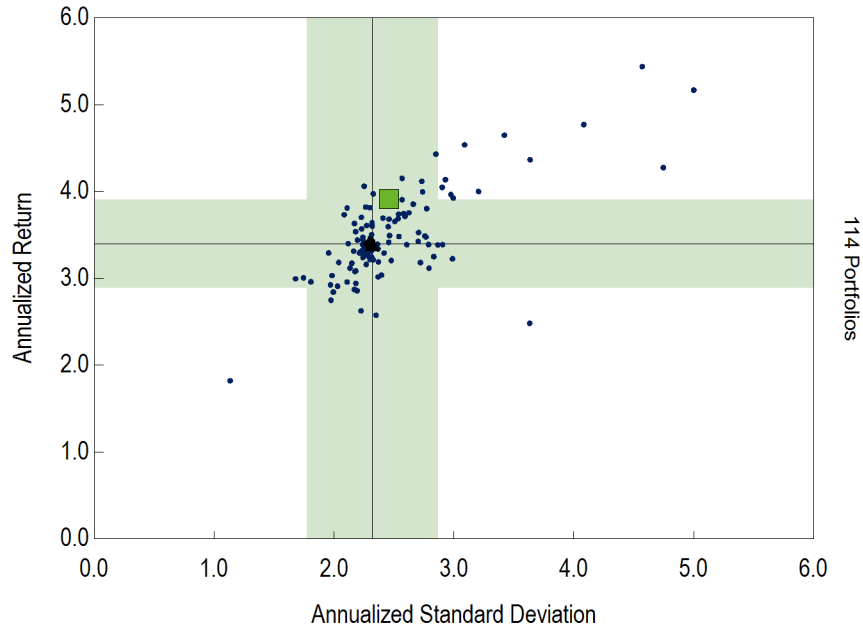
	Return (Rank)											
5th Percentile	1.64		7.02		7.48		7.95		5.02		4.39	
25th Percentile	1.08		6.23		6.71		7.36		4.62		3.73	
Median	0.83		5.76		6.20		7.01		4.39		3.40	
75th Percentile	0.60		5.23		5.65		6.63		4.09		3.22	
95th Percentile	0.36		4.42		4.99		5.94		3.72		2.85	
# of Portfolios	120		120		119		116		116		114	
● Baird Advisors	0.95	(40)	6.40	(18)	6.92	(16)	7.66	(8)	4.80	(13)	3.92	(17)
▲ BBgBarc US Govt/Credit Int TR	0.61	(74)	5.92	(40)	6.32	(44)	7.24	(35)	4.43	(45)	3.39	(51)



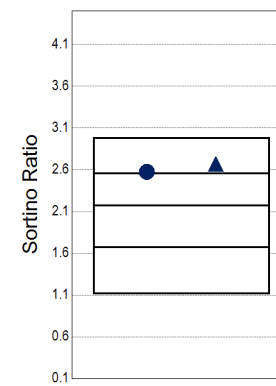
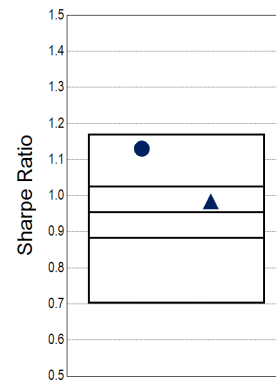
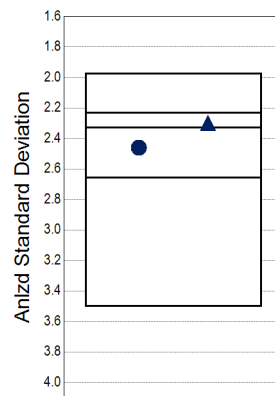
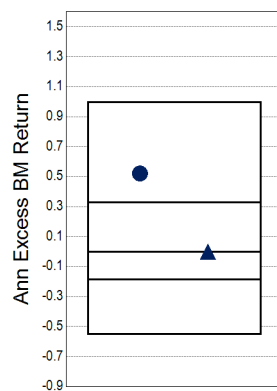
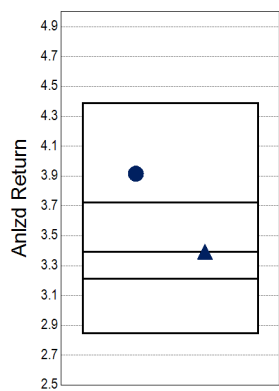
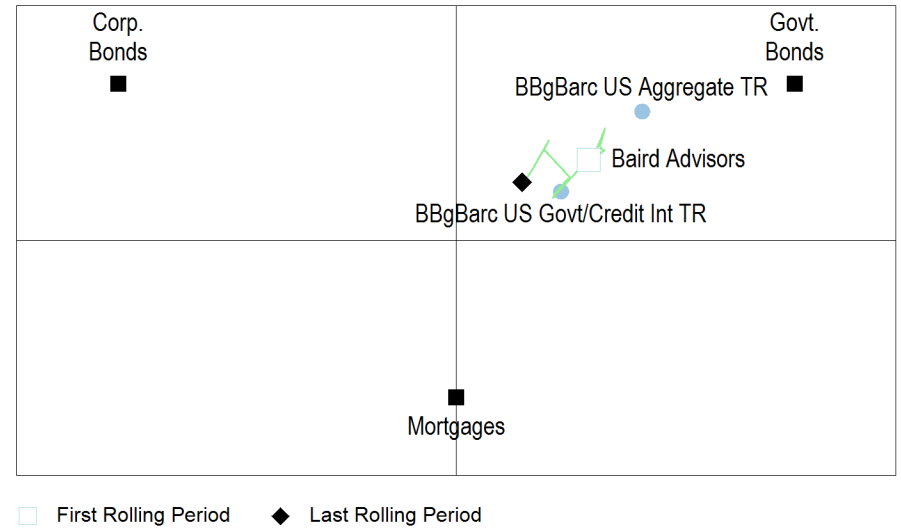
# Los Angeles City Employees' Retirement System

## BAIRD ADVISORS

5 Year Risk Return



5 Year Style Map



- Baird Advisors
- ▲ BBgBarc US Govt/Credit Int TR
- 5th to 25th Percentile
- 25th to Median
- Median to 75th Percentile
- 75th to 95th Percentile

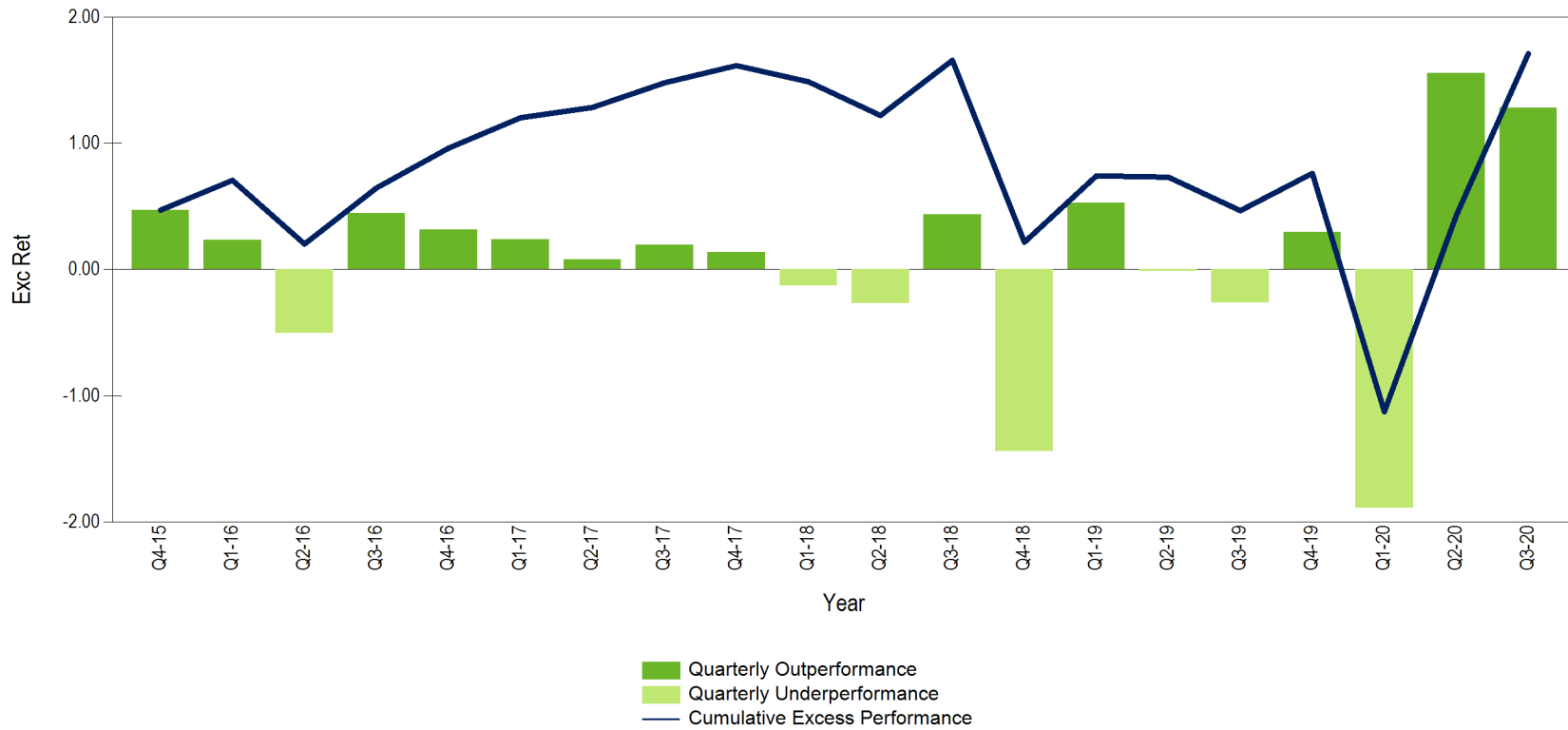




# Los Angeles City Employees' Retirement System

## LM CAPITAL

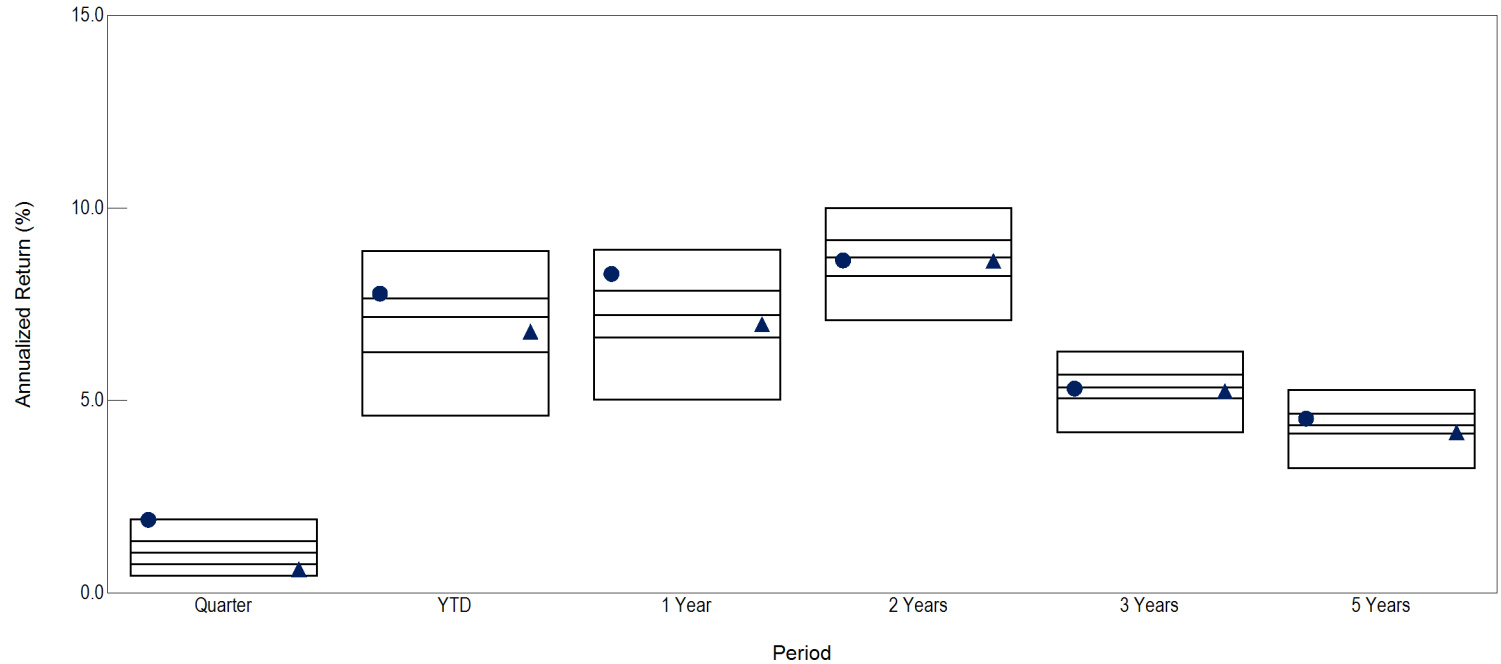
Quarterly and Cumulative Excess Performance



# Los Angeles City Employees' Retirement System

## LM CAPITAL

Core Fixed Income Managers vs. eV US Core Fixed Inc Net



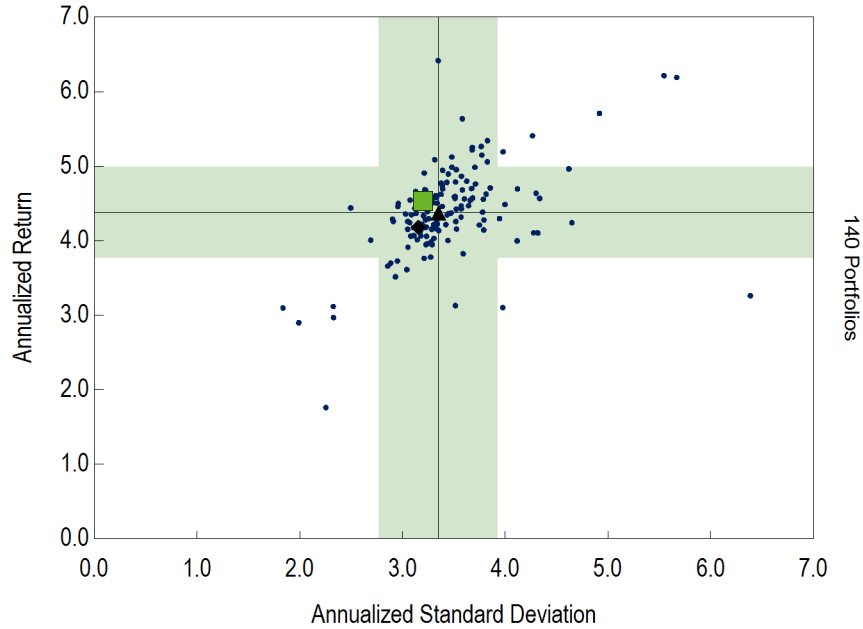
	Return (Rank)		YTD		1 Year		2 Years		3 Years		5 Years	
5th Percentile	1.91		8.89		8.91		10.01		6.27		5.27	
25th Percentile	1.36		7.67		7.87		9.18		5.69		4.68	
Median	1.06		7.18		7.24		8.73		5.35		4.38	
75th Percentile	0.76		6.27		6.66		8.25		5.07		4.15	
95th Percentile	0.47		4.62		5.04		7.11		4.20		3.25	
# of Portfolios	147		147		146		144		143		140	
● LM Capital	1.90	(6)	7.78	(20)	8.29	(15)	8.64	(53)	5.31	(55)	4.53	(39)
▲ LM Custom Benchmark	0.62	(88)	6.79	(63)	6.98	(62)	8.63	(54)	5.24	(61)	4.18	(71)



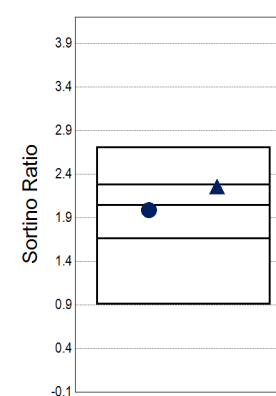
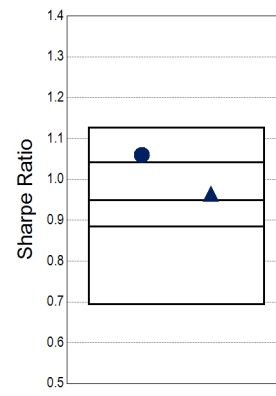
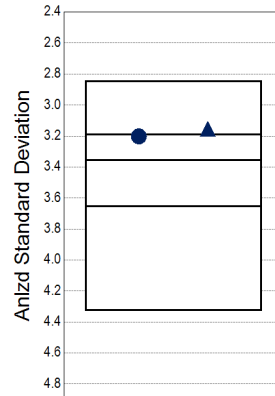
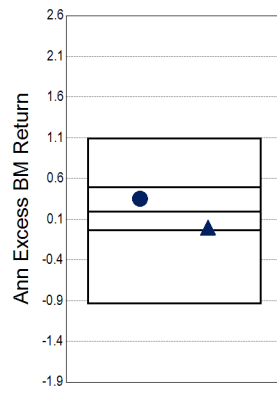
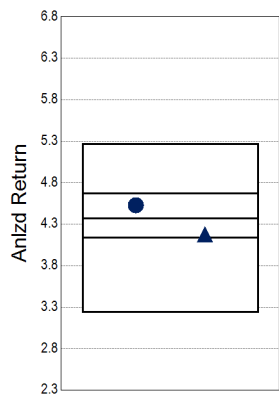
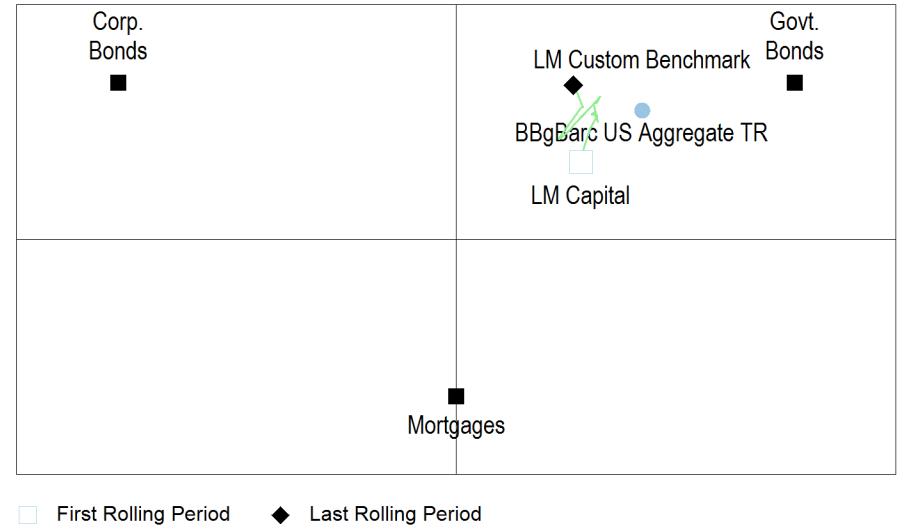
# Los Angeles City Employees' Retirement System

## LM CAPITAL

5 Year Risk Return



5 Year Style Map



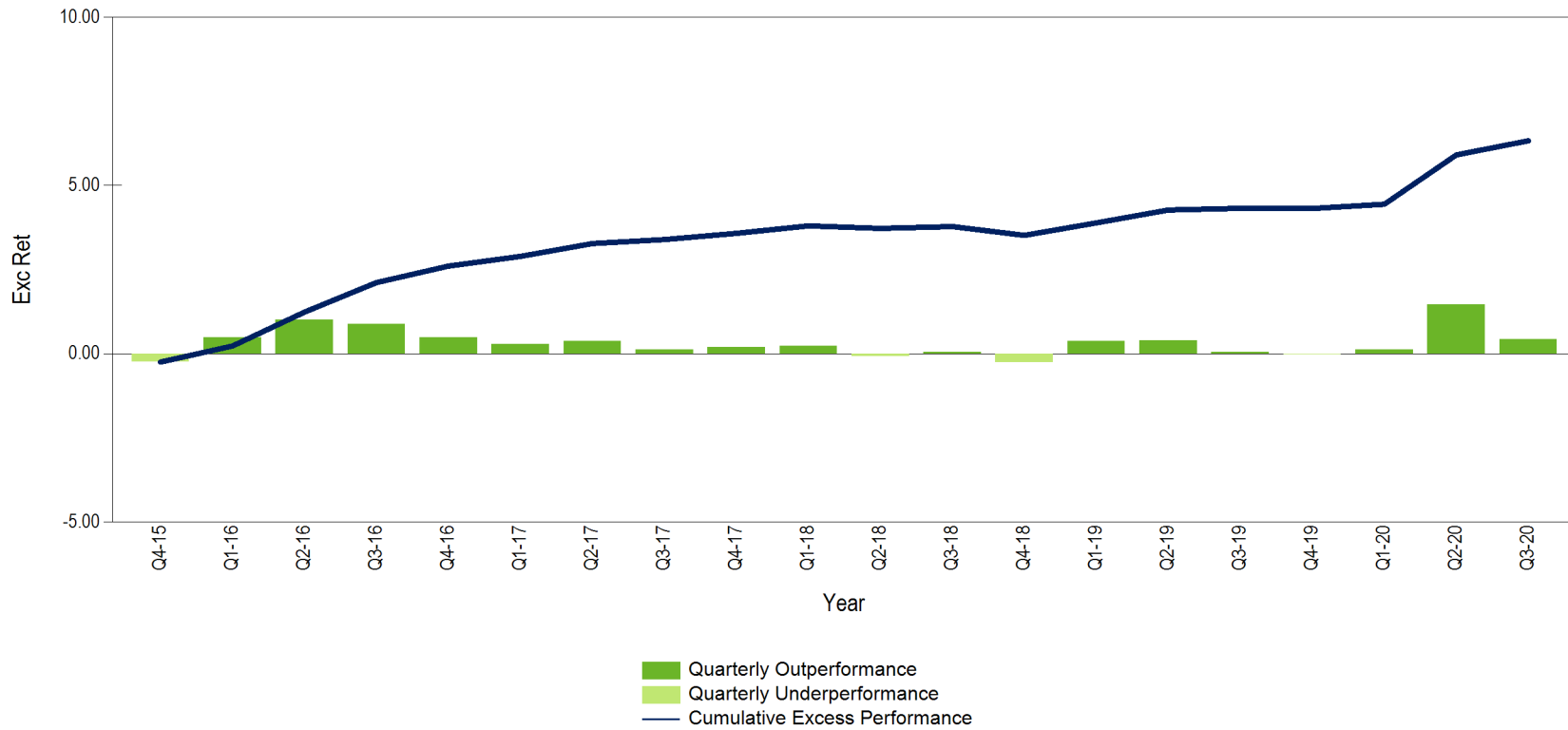
- LM Capital
- ▲ LM Custom Benchmark
- 5th to 25th Percentile
- 25th to Median
- Median to 75th Percentile
- 75th to 95th Percentile



# Los Angeles City Employees' Retirement System

## LOOMIS SAYLES

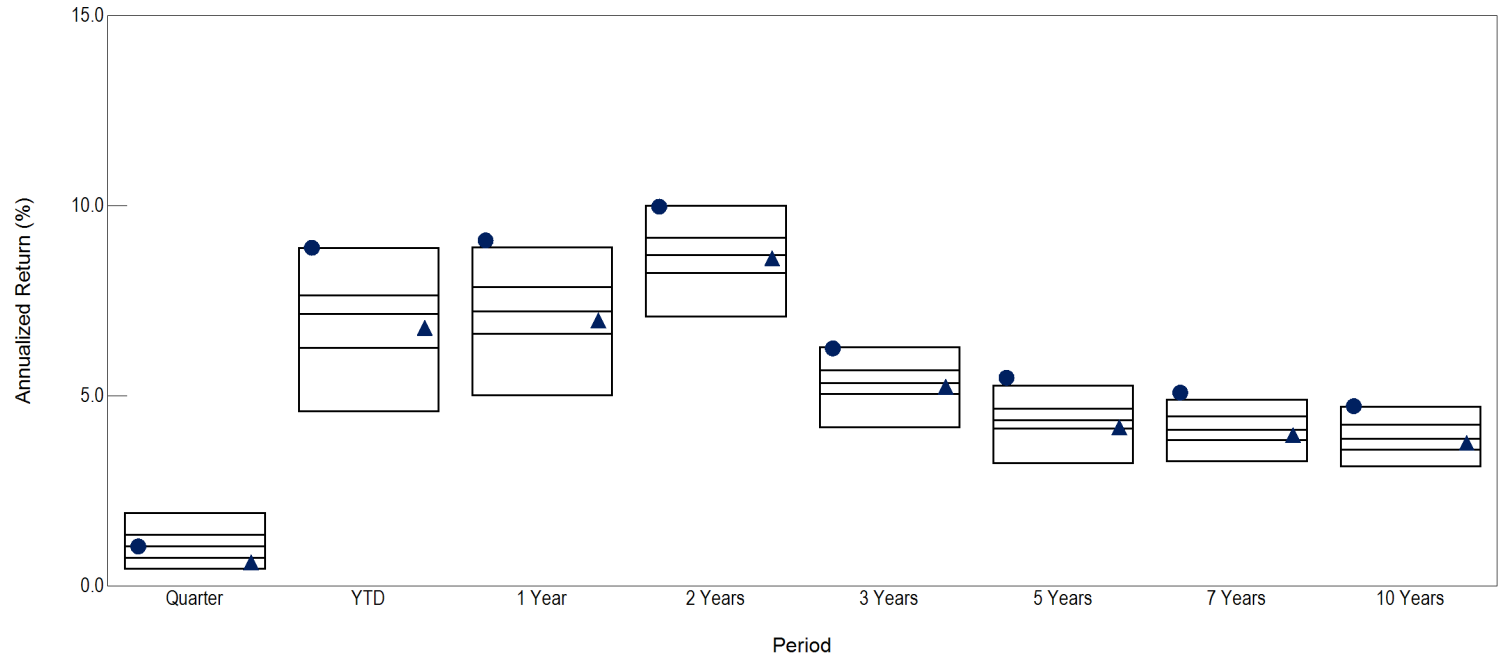
Quarterly and Cumulative Excess Performance



# Los Angeles City Employees' Retirement System

## LOOMIS SAYLES

Loomis Sayles vs. eV US Core Fixed Inc Net



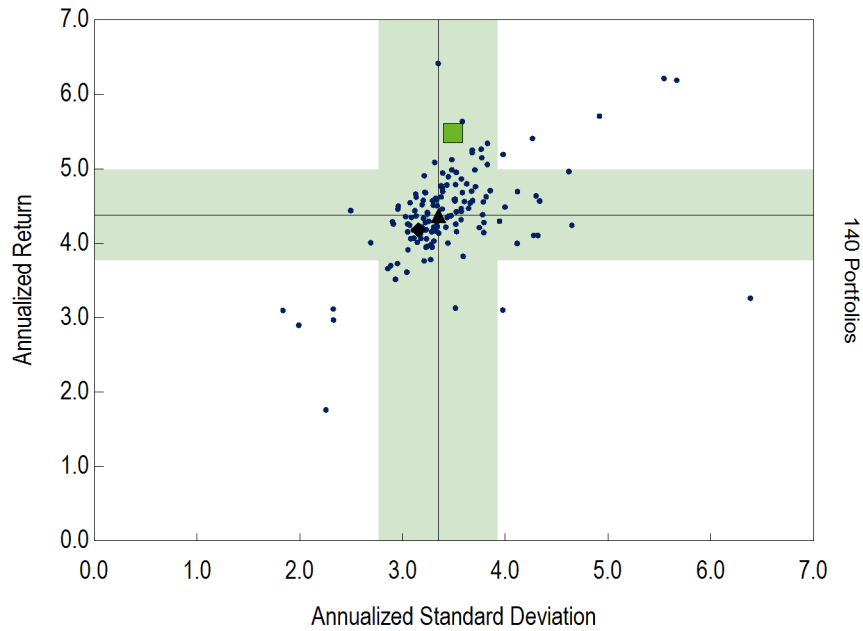
	Return (Rank)															
5th Percentile	1.91	8.89	8.91	10.01	6.27	5.27	4.91	4.72								
25th Percentile	1.36	7.67	7.87	9.18	5.69	4.68	4.48	4.26								
Median	1.06	7.18	7.24	8.73	5.35	4.38	4.13	3.88								
75th Percentile	0.76	6.27	6.66	8.25	5.07	4.15	3.86	3.61								
95th Percentile	0.47	4.62	5.04	7.11	4.20	3.25	3.30	3.16								
# of Portfolios	147	147	146	144	143	140	137	129								
● Loomis Sayles	1.04	(51)	8.90	(5)	9.09	(4)	9.98	(6)	6.25	(6)	5.48	(4)	5.09	(4)	4.73	(4)
▲ Loomis Custom Benchmark	0.62	(88)	6.79	(63)	6.98	(62)	8.63	(54)	5.24	(61)	4.18	(71)	3.97	(68)	3.77	(60)



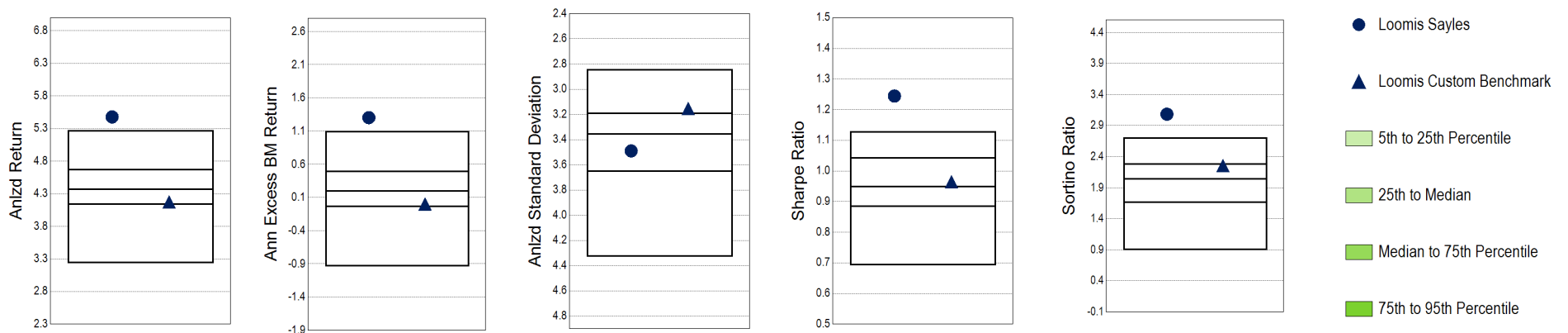
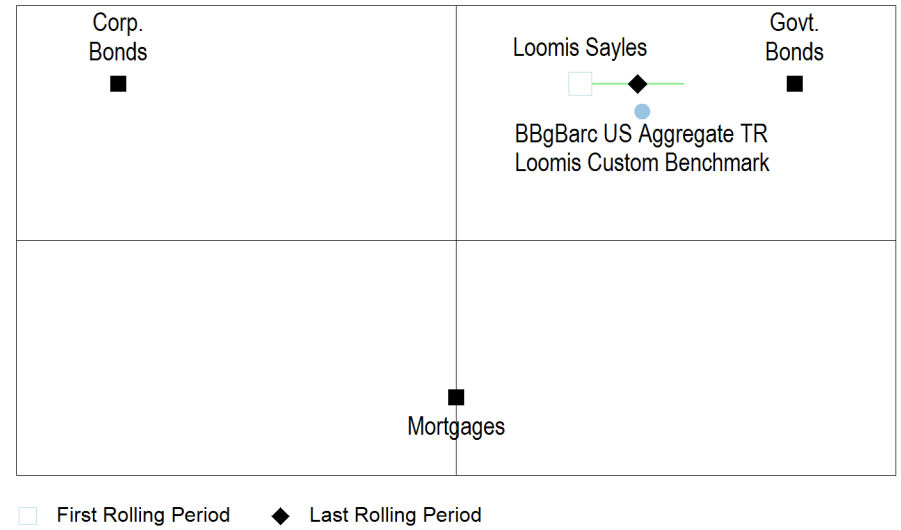
# Los Angeles City Employees' Retirement System

## LOOMIS SAYLES

5 Year Risk Return



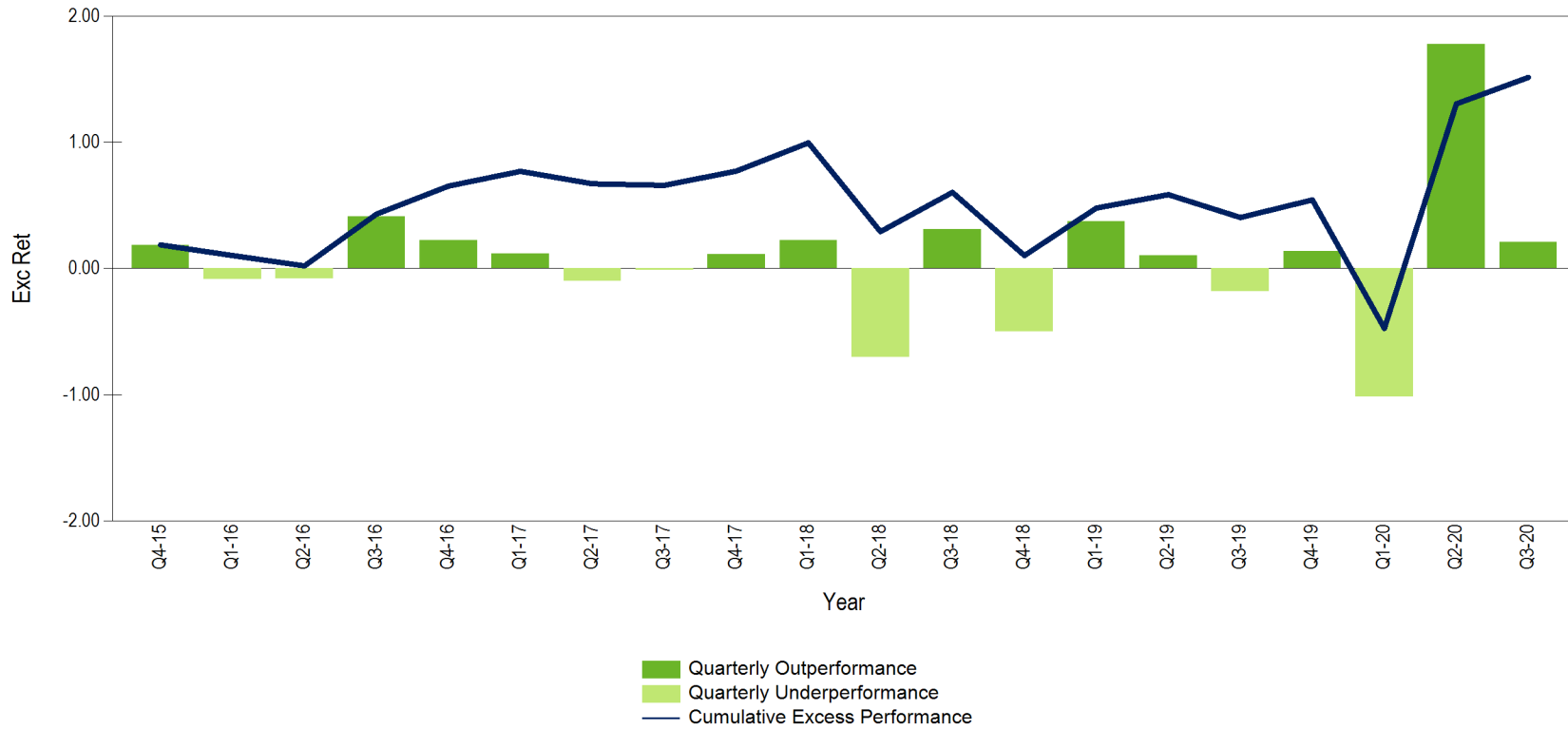
5 Year Style Map



# Los Angeles City Employees' Retirement System

## NEUBERGER BERMAN

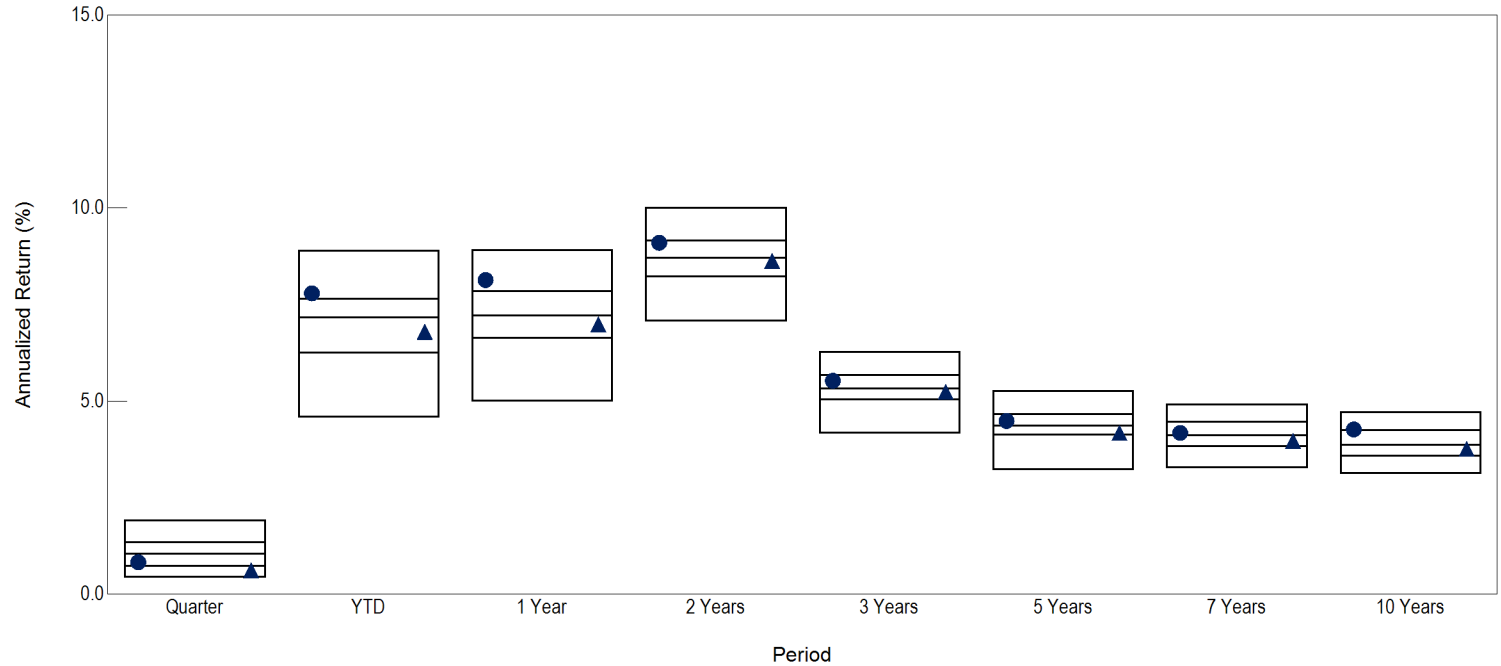
Quarterly and Cumulative Excess Performance



# Los Angeles City Employees' Retirement System

## NEUBERGER BERMAN

Neuberger Berman vs. eV US Core Fixed Inc Net



	Return (Rank)													
5th Percentile	1.91	8.89	8.91	10.01	6.27	5.27	4.91	4.72						
25th Percentile	1.36	7.67	7.87	9.18	5.69	4.68	4.48	4.26						
Median	1.06	7.18	7.24	8.73	5.35	4.38	4.13	3.88						
75th Percentile	0.76	6.27	6.66	8.25	5.07	4.15	3.86	3.61						
95th Percentile	0.47	4.62	5.04	7.11	4.20	3.25	3.30	3.16						
# of Portfolios	147	147	146	144	143	140	137	129						
● Neuberger Berman	0.83	(68)	7.79 (20)	8.14 (18)	9.10 (30)	5.53 (33)	4.49 (42)	4.18 (44)	4.27 (22)					
▲ Core Fixed Income Blend	0.62	(88)	6.79 (63)	6.98 (62)	8.63 (54)	5.24 (61)	4.18 (71)	3.97 (68)	3.77 (60)					

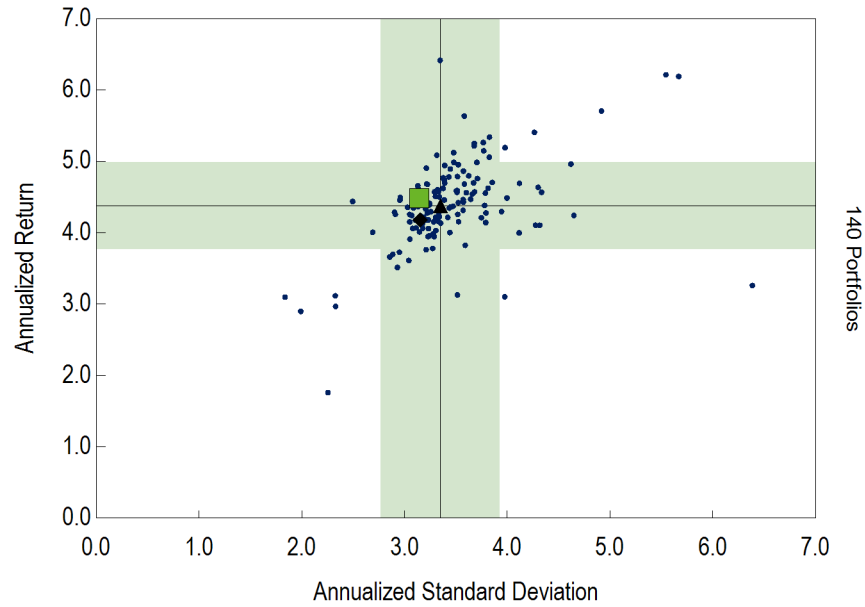




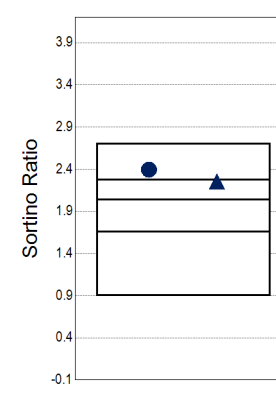
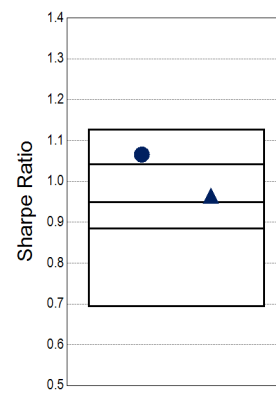
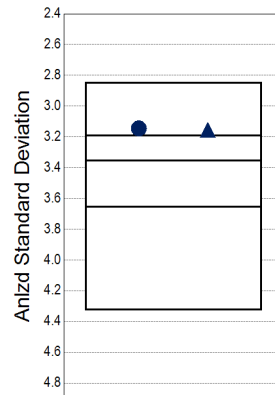
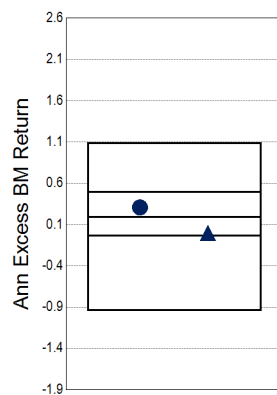
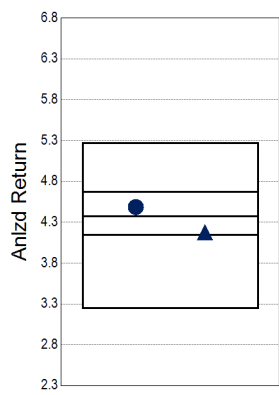
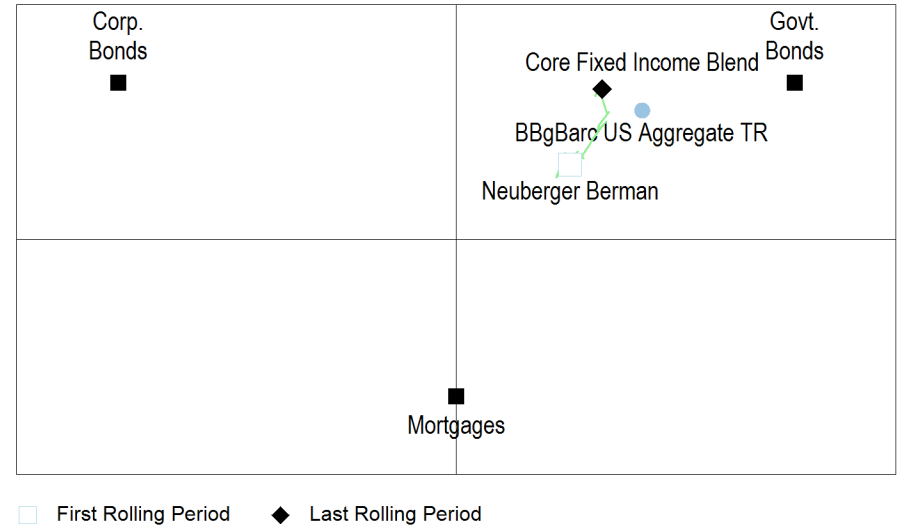
# Los Angeles City Employees' Retirement System

## NEUBERGER BERMAN

5 Year Risk Return



5 Year Style Map



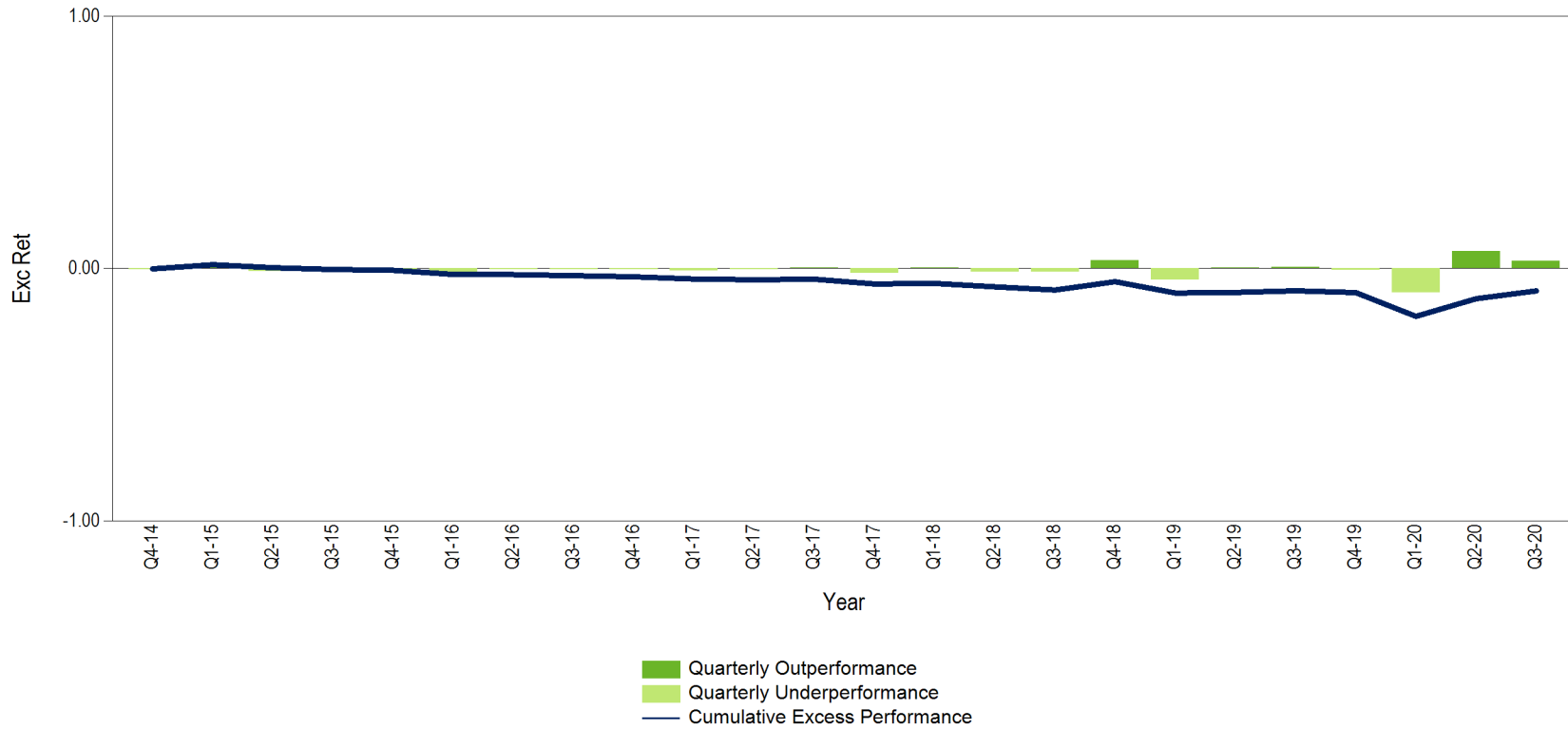
- Neuberger Berman
- ▲ Core Fixed Income Blend
- 5th to 25th Percentile
- 25th to Median
- Median to 75th Percentile
- 75th to 95th Percentile



# Los Angeles City Employees' Retirement System

## SSGA U.S. AGGREGATE BOND

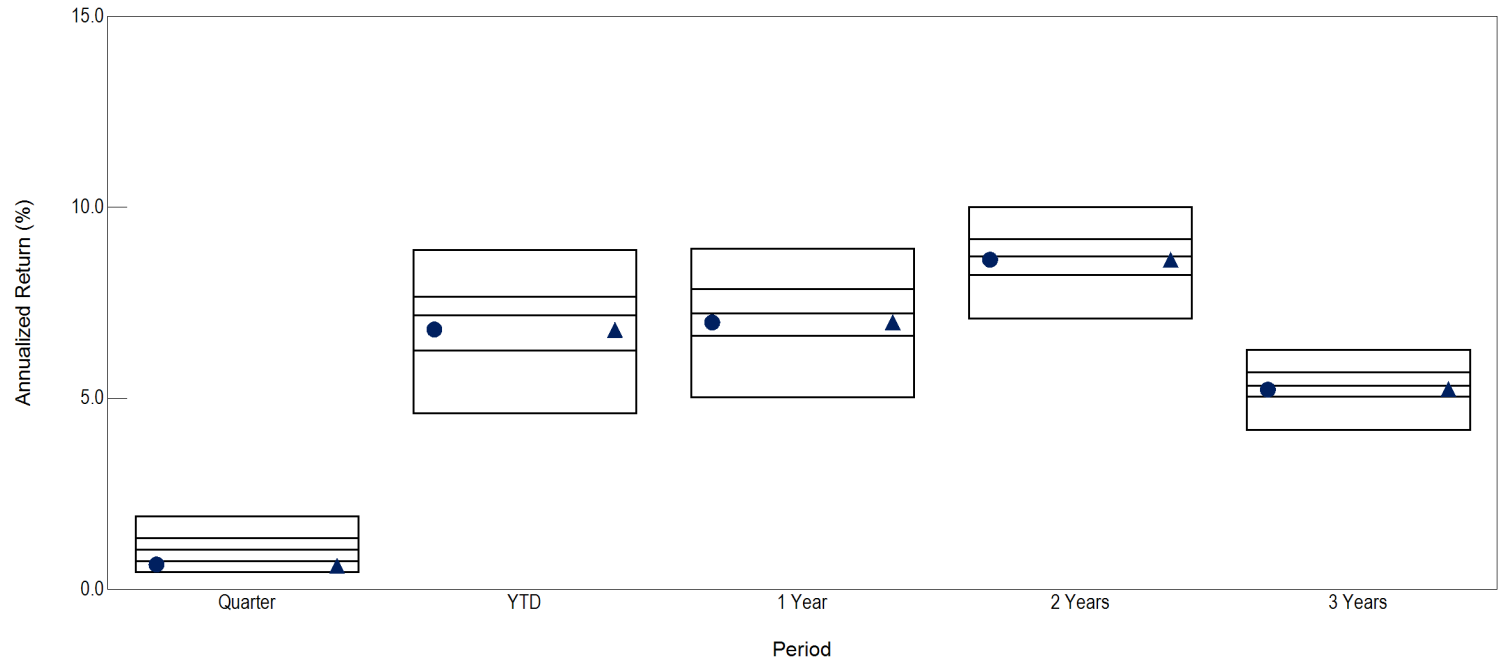
Quarterly and Cumulative Excess Performance



# Los Angeles City Employees' Retirement System

## SSGA U.S. AGGREGATE BOND

SSgA U.S. Aggregate Bond vs. eV US Core Fixed Inc Net



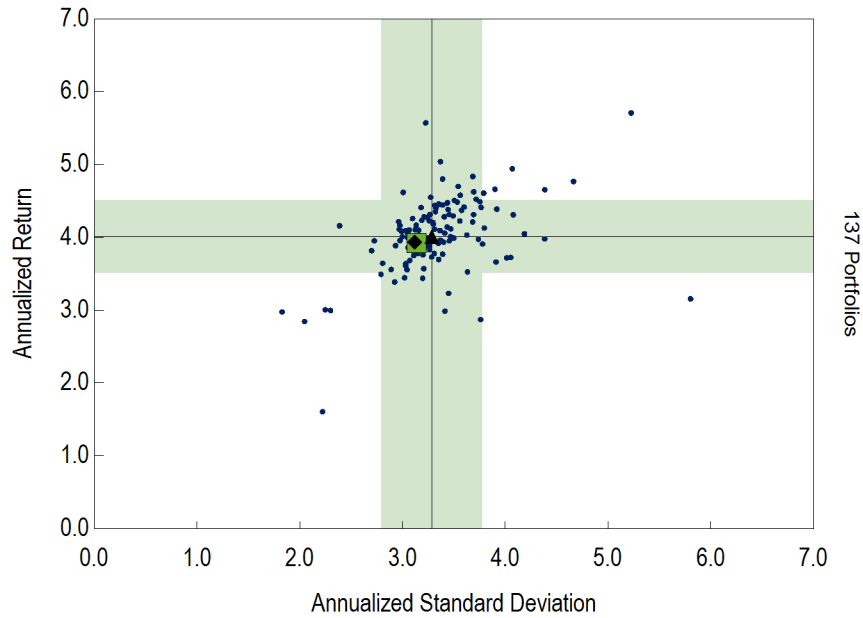
	Return (Rank)									
5th Percentile	1.91		8.89		8.91		10.01		6.27	
25th Percentile	1.36		7.67		7.87		9.18		5.69	
Median	1.06		7.18		7.24		8.73		5.35	
75th Percentile	0.76		6.27		6.66		8.25		5.07	
95th Percentile	0.47		4.62		5.04		7.11		4.20	
# of Portfolios	147		147		146		144		143	
● SSGA U.S. Aggregate Bond	0.65	(87)	6.80	(63)	6.98	(62)	8.63	(54)	5.23	(62)
▲ BBgBarc US Aggregate TR	0.62	(88)	6.79	(63)	6.98	(62)	8.63	(54)	5.24	(61)



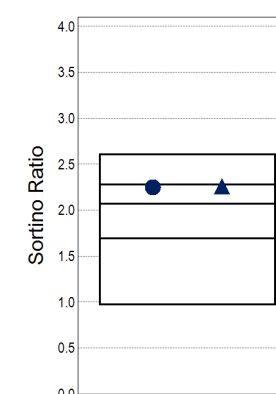
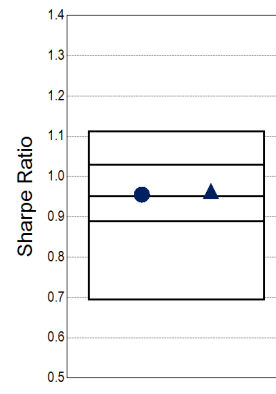
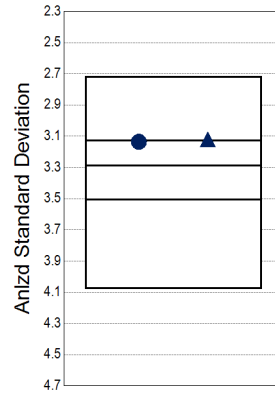
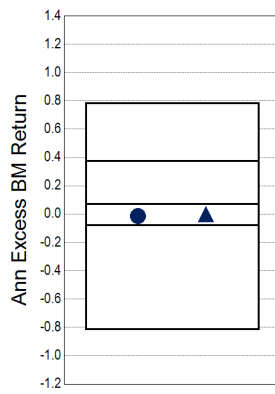
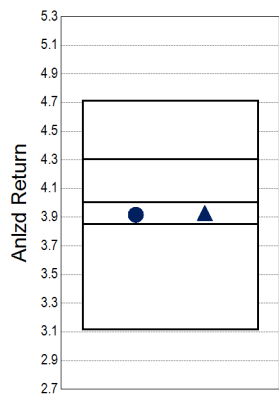
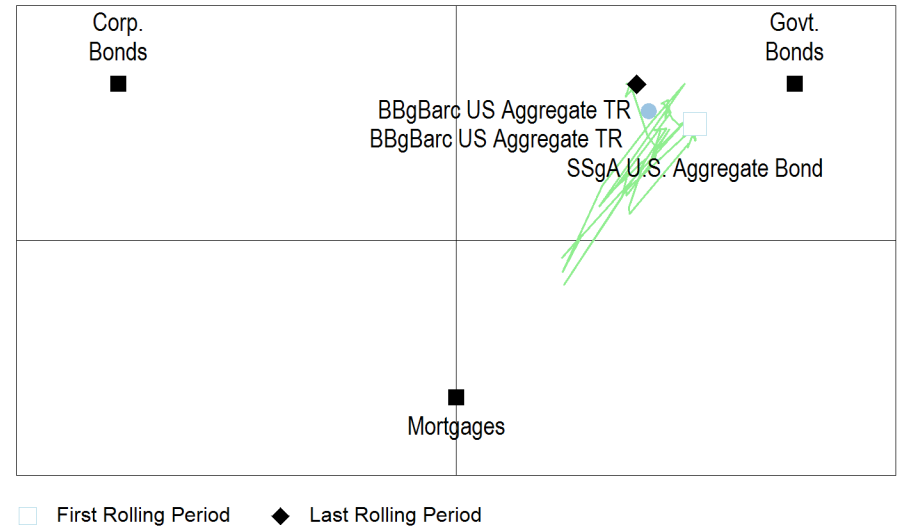
# Los Angeles City Employees' Retirement System

## SSGA U.S. AGGREGATE BOND

Since Inception Risk Return



Since Inception Style Map



- SSGA U.S. Aggregate Bond
- ▲ BBgBarc US Aggregate TR
- 5th to 25th Percentile
- 25th to Median
- Median to 75th Percentile
- 75th to 95th Percentile

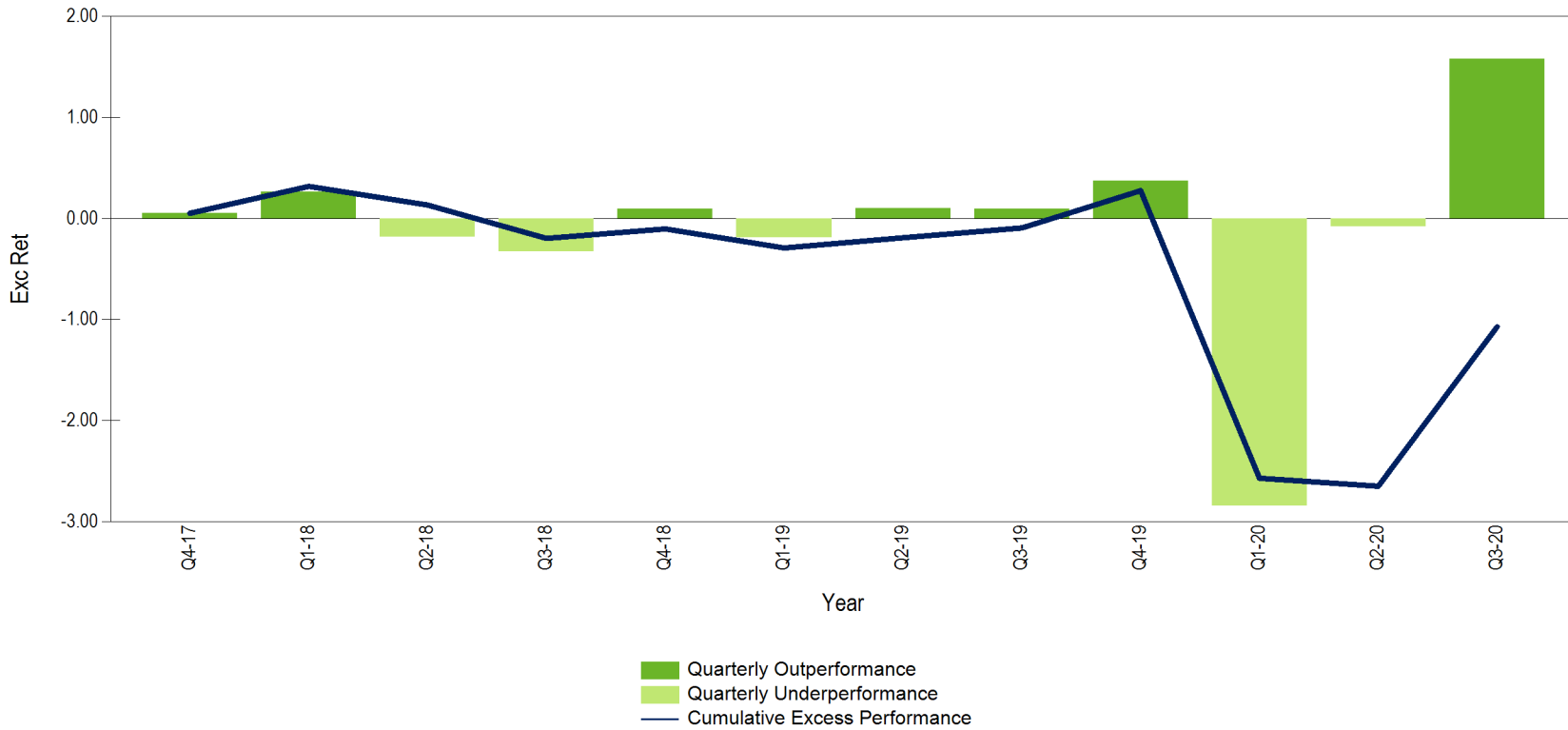


# **CREDIT OPPORTUNITIES MANAGER PERFORMANCE**

NEPC, LLC

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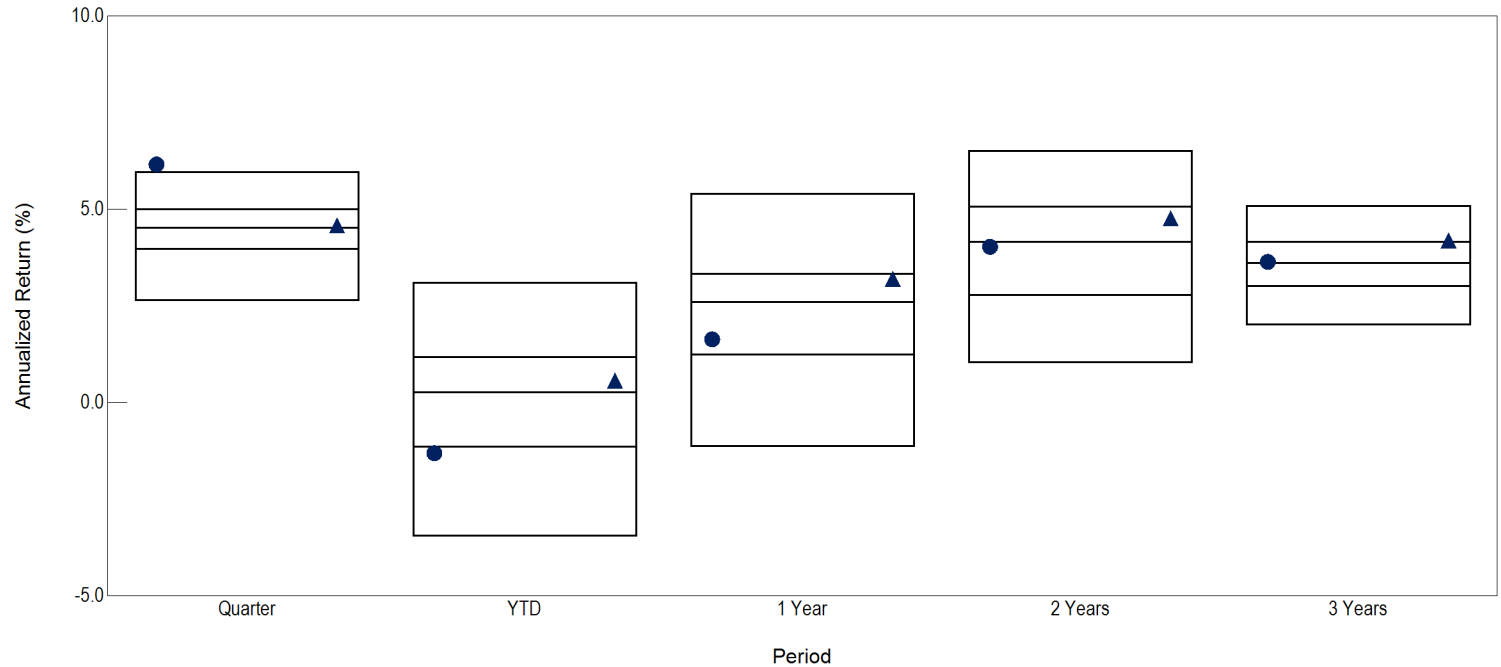
Quarterly and Cumulative Excess Performance



# Los Angeles City Employees' Retirement System

## AEGON USA

AEGON USA vs. eV US High Yield Fixed Inc Net



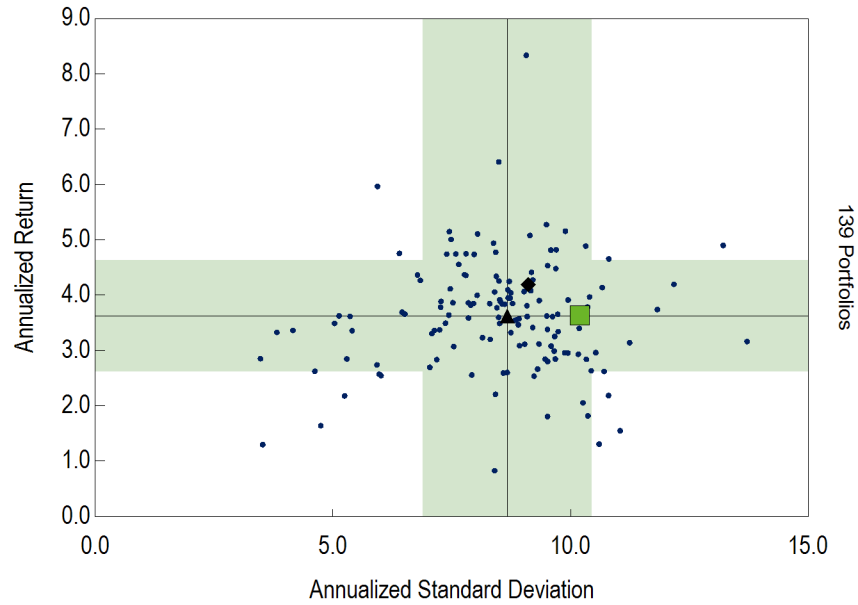
	Return (Rank)									
5th Percentile	5.96		3.09		5.39		6.51		5.08	
25th Percentile	5.01		1.19		3.34		5.08		4.16	
Median	4.54		0.28		2.61		4.17		3.62	
75th Percentile	4.00		-1.13		1.26		2.79		3.03	
95th Percentile	2.66		-3.43		-1.11		1.05		2.03	
# of Portfolios	144		144		142		140		139	
● AEGON USA	6.16	(5)	-1.31	(79)	1.63	(70)	4.03	(54)	3.64	(49)
▲ BBgBarc US High Yield 2% Issuer Cap TR	4.58	(49)	0.57	(43)	3.20	(31)	4.76	(34)	4.19	(25)



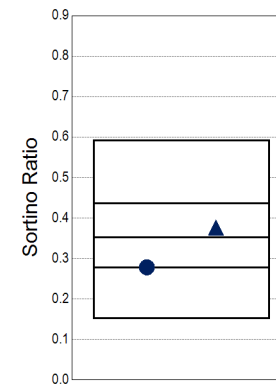
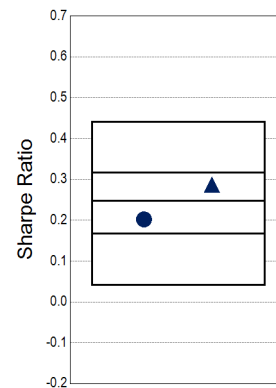
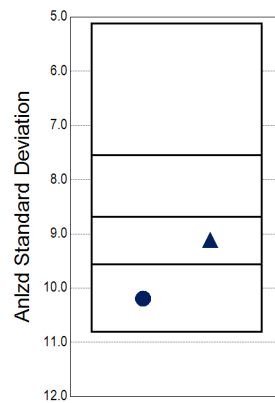
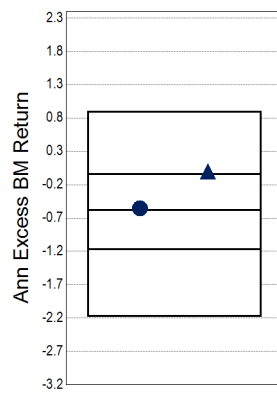
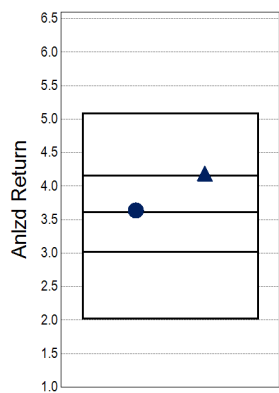
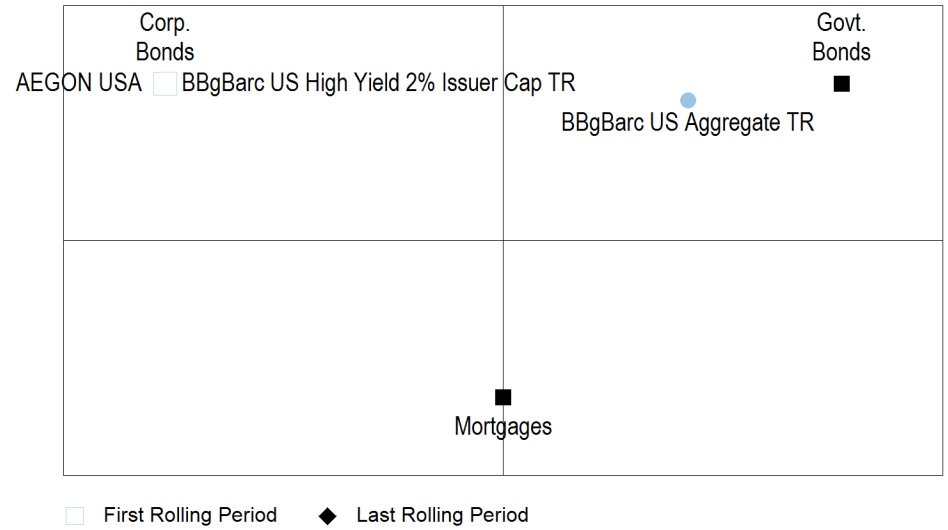
# Los Angeles City Employees' Retirement System

## AEGON USA

3 Year Risk Return



3 Year Style Map



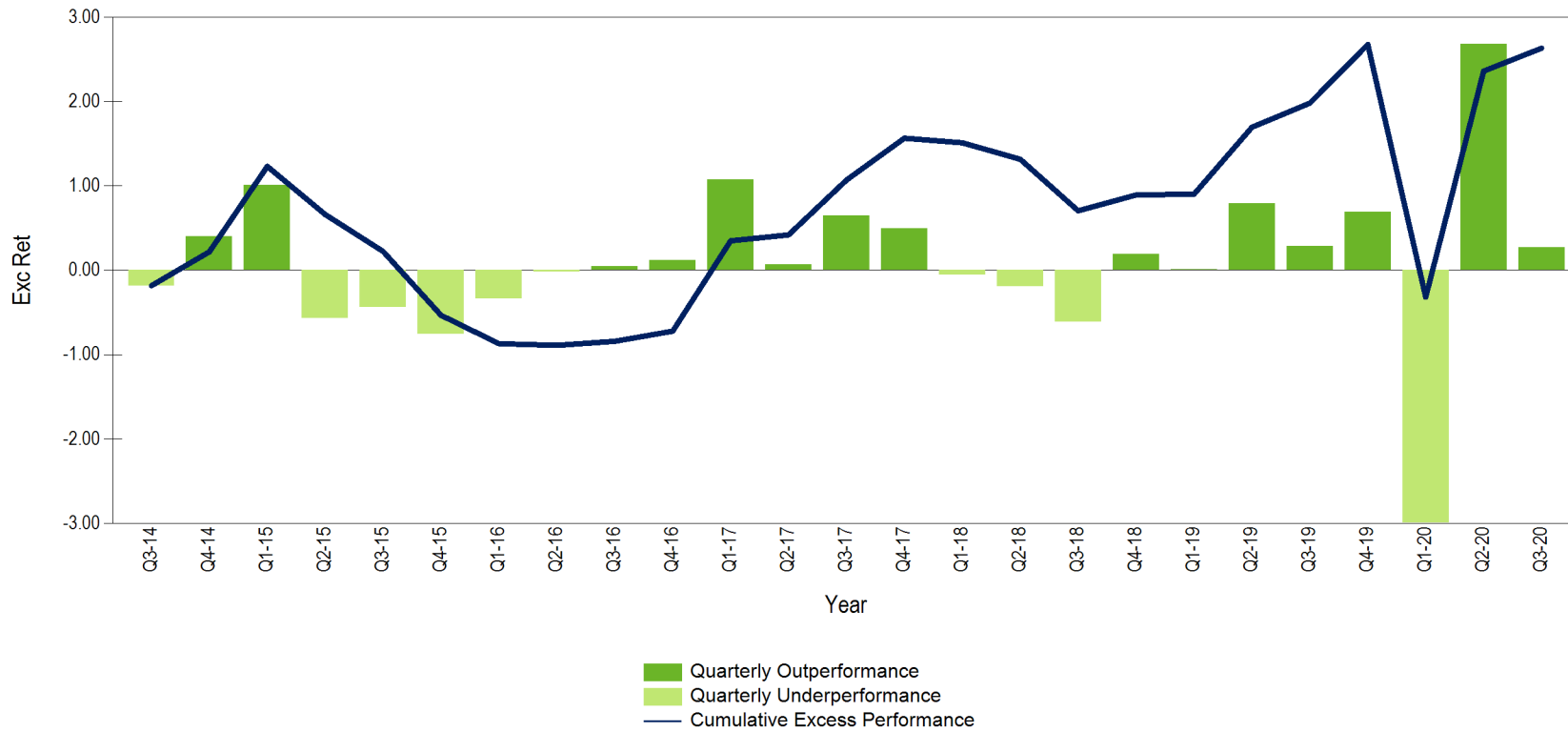
- AEGON USA
- ▲ BgBarc US High Yield 2% Issuer Cap TR
- 5th to 25th Percentile
- 25th to Median
- Median to 75th Percentile
- 75th to 95th Percentile





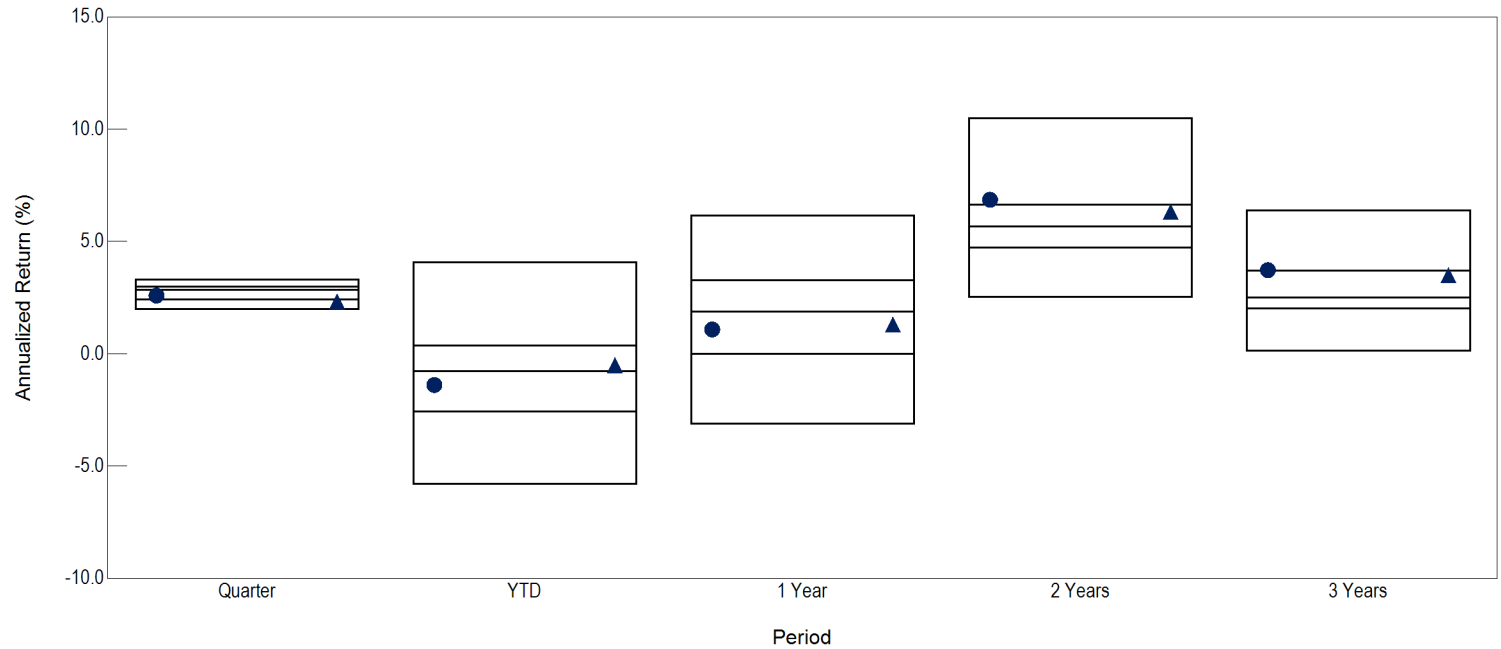
# PRUDENTIAL EMERGING MARKETS

Quarterly and Cumulative Excess Performance



# PRUDENTIAL EMERGING MARKETS

Prudential Emerging Markets vs. eV Emg Mkts Fixed Inc - Hard Currency Net

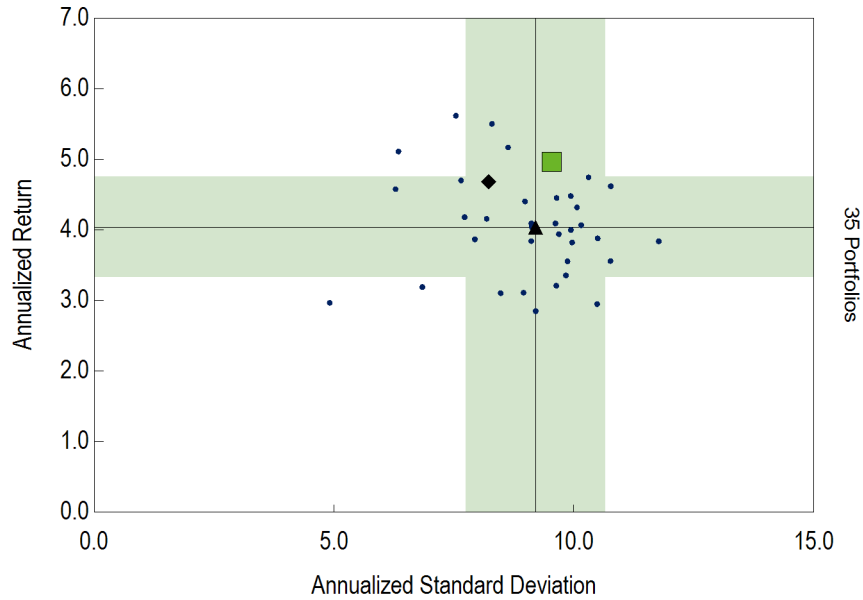


	Return (Rank)									
5th Percentile	3.29		4.06		6.14		10.49		6.37	
25th Percentile	3.03		0.40		3.30		6.67		3.73	
Median	2.86		-0.76		1.91		5.69		2.52	
75th Percentile	2.45		-2.54		0.03		4.76		2.06	
95th Percentile	2.02		-5.77		-3.08		2.56		0.18	
# of Portfolios	43		42		42		40		39	
● Prudential Emerging Markets	2.59	(70)	-1.40	(60)	1.08	(63)	6.85	(24)	3.72	(27)
▲ JP Morgan EMBI Global Diversified	2.32	(81)	-0.51	(46)	1.29	(62)	6.31	(39)	3.49	(30)

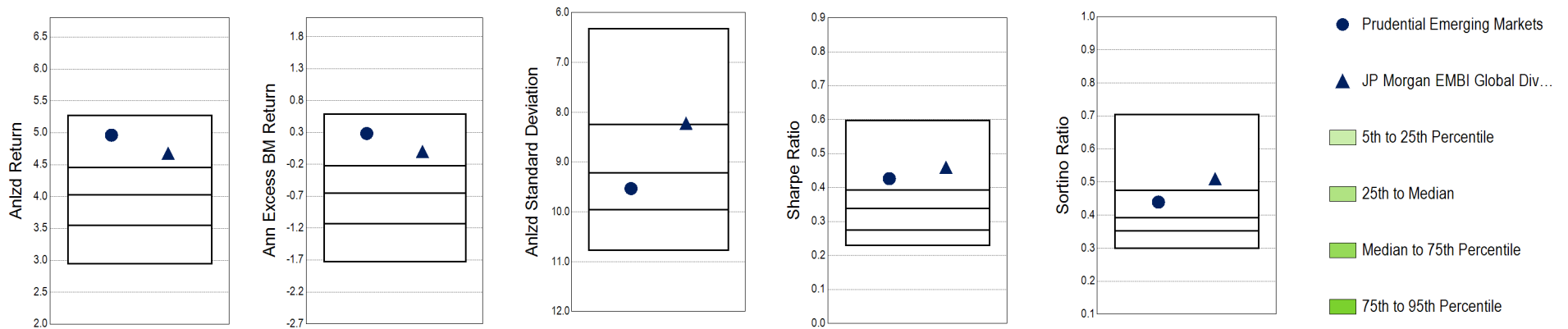
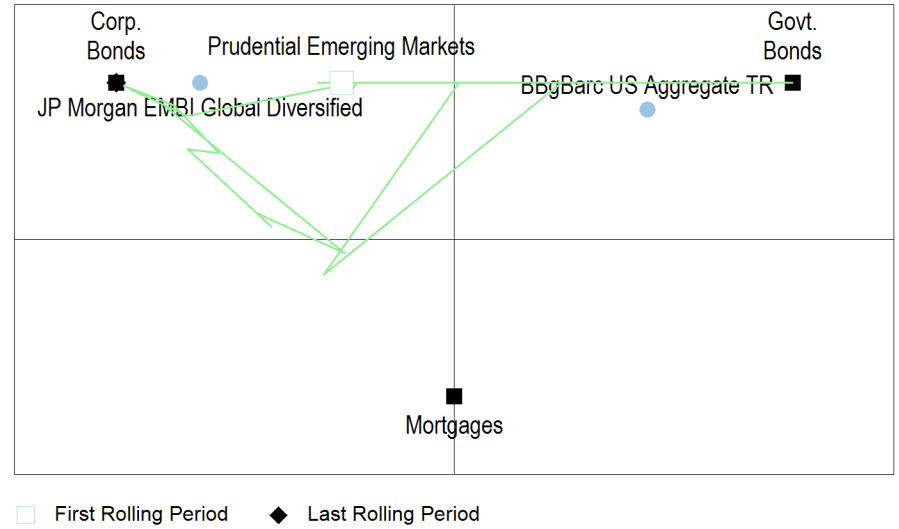


# PRUDENTIAL EMERGING MARKETS

Since Inception Risk Return

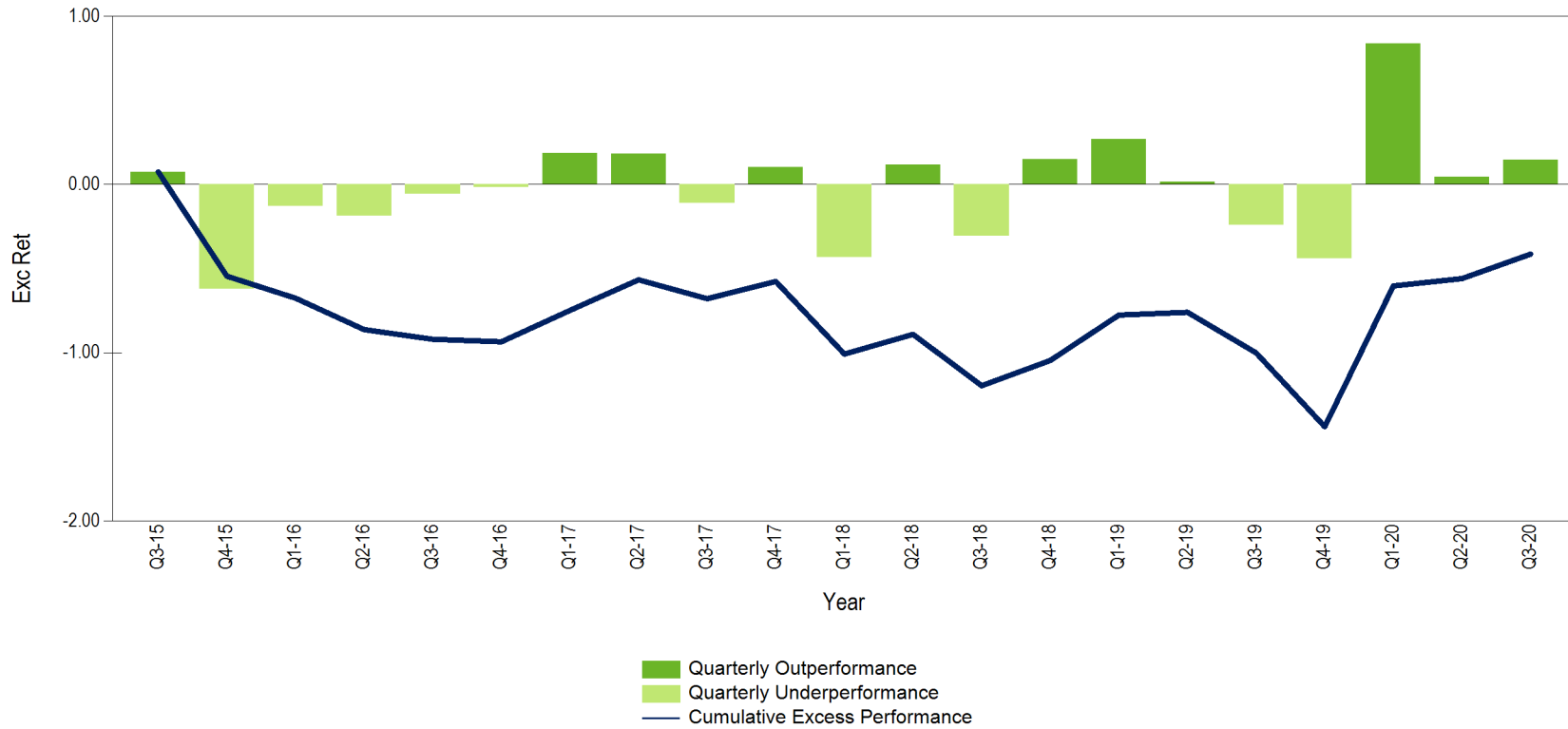


Since Inception Style Map



# BAIN CAPITAL SENIOR LOAN FUND, LP

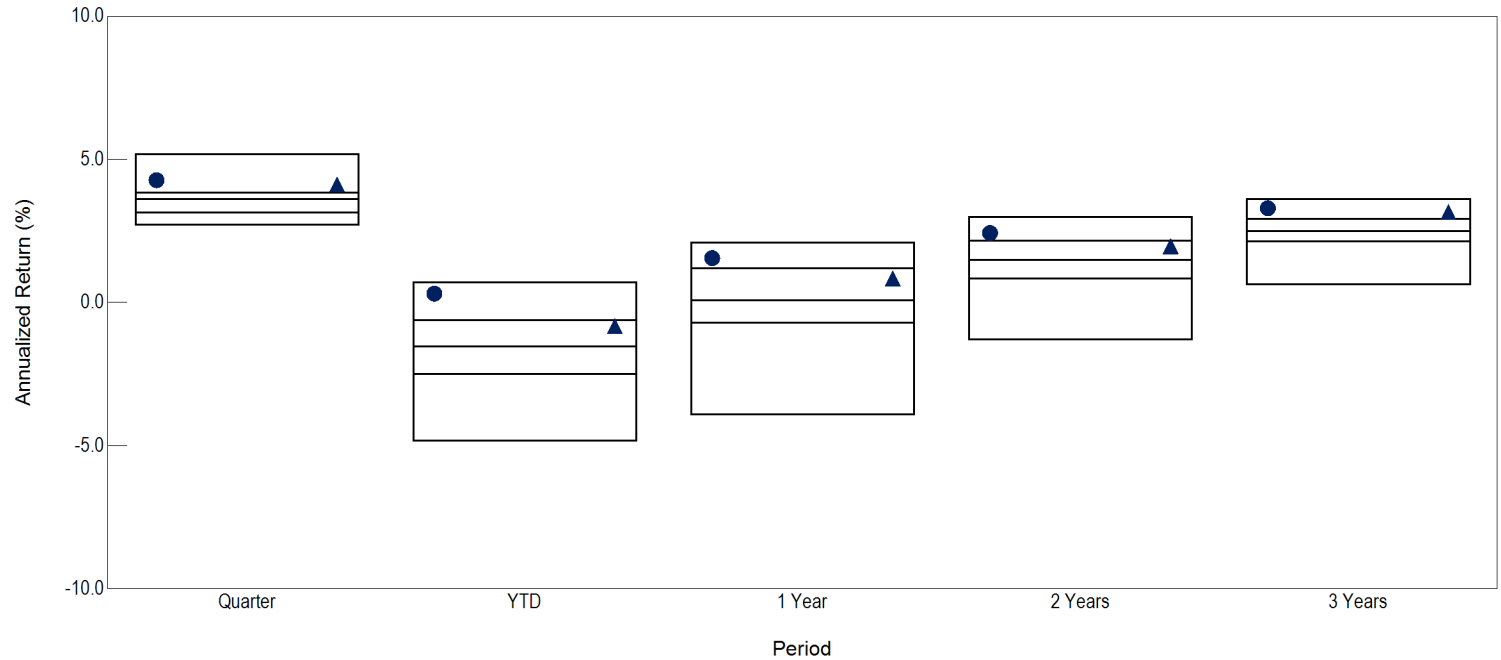
Quarterly and Cumulative Excess Performance



# Los Angeles City Employees' Retirement System

## BAIN CAPITAL SENIOR LOAN FUND, LP

Bain Capital Senior Loan Fund, LP vs. eV US Float-Rate Bank Loan Fixed Inc Net

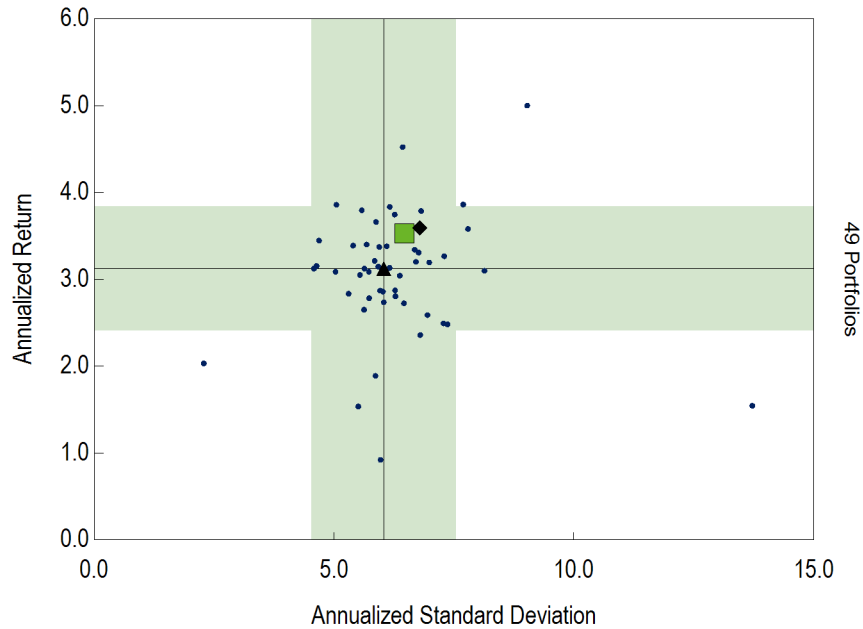


	Return (Rank)									
5th Percentile	5.17		0.70		2.09		2.99		3.61	
25th Percentile	3.86		-0.59		1.21		2.18		2.94	
Median	3.64		-1.51		0.09		1.52		2.52	
75th Percentile	3.16		-2.47		-0.68		0.86		2.16	
95th Percentile	2.75		-4.80		-3.89		-1.26		0.67	
# of Portfolios	55		55		55		55		53	
● Bain Capital Senior Loan Fund, LP	4.27	(16)	0.31	(10)	1.55	(15)	2.43	(18)	3.29	(17)
▲ Credit Suisse Leveraged Loans	4.13	(19)	-0.83	(34)	0.84	(36)	1.97	(34)	3.16	(20)

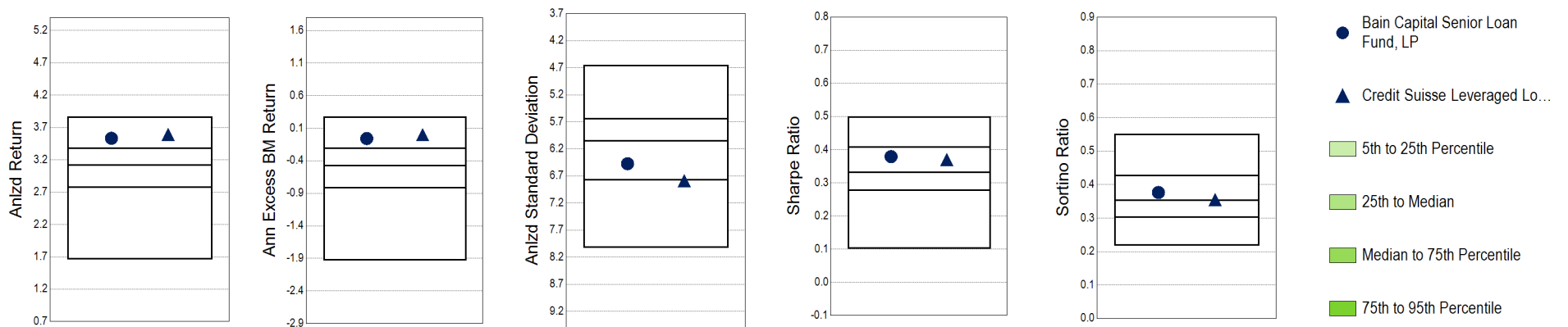
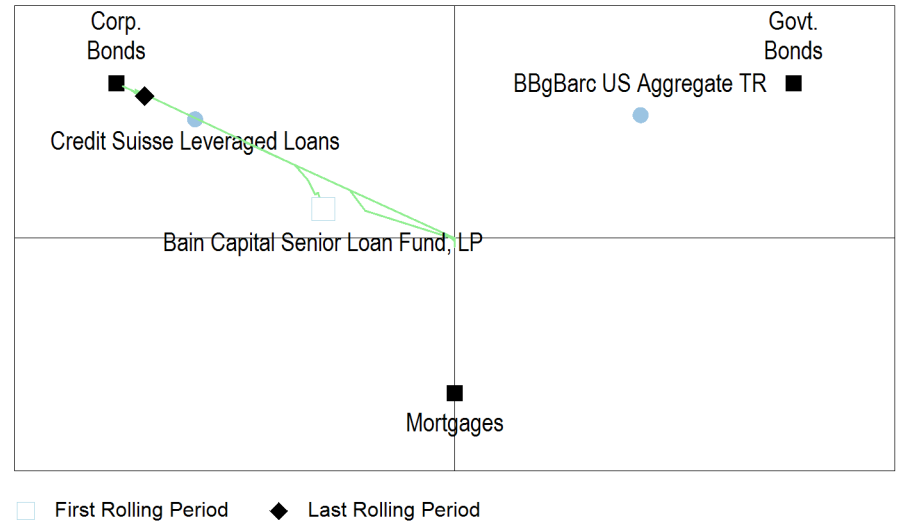


# BAIN CAPITAL SENIOR LOAN FUND, LP

Since Inception Risk Return



Since Inception Style Map



# REAL ASSETS MANAGER PERFORMANCE

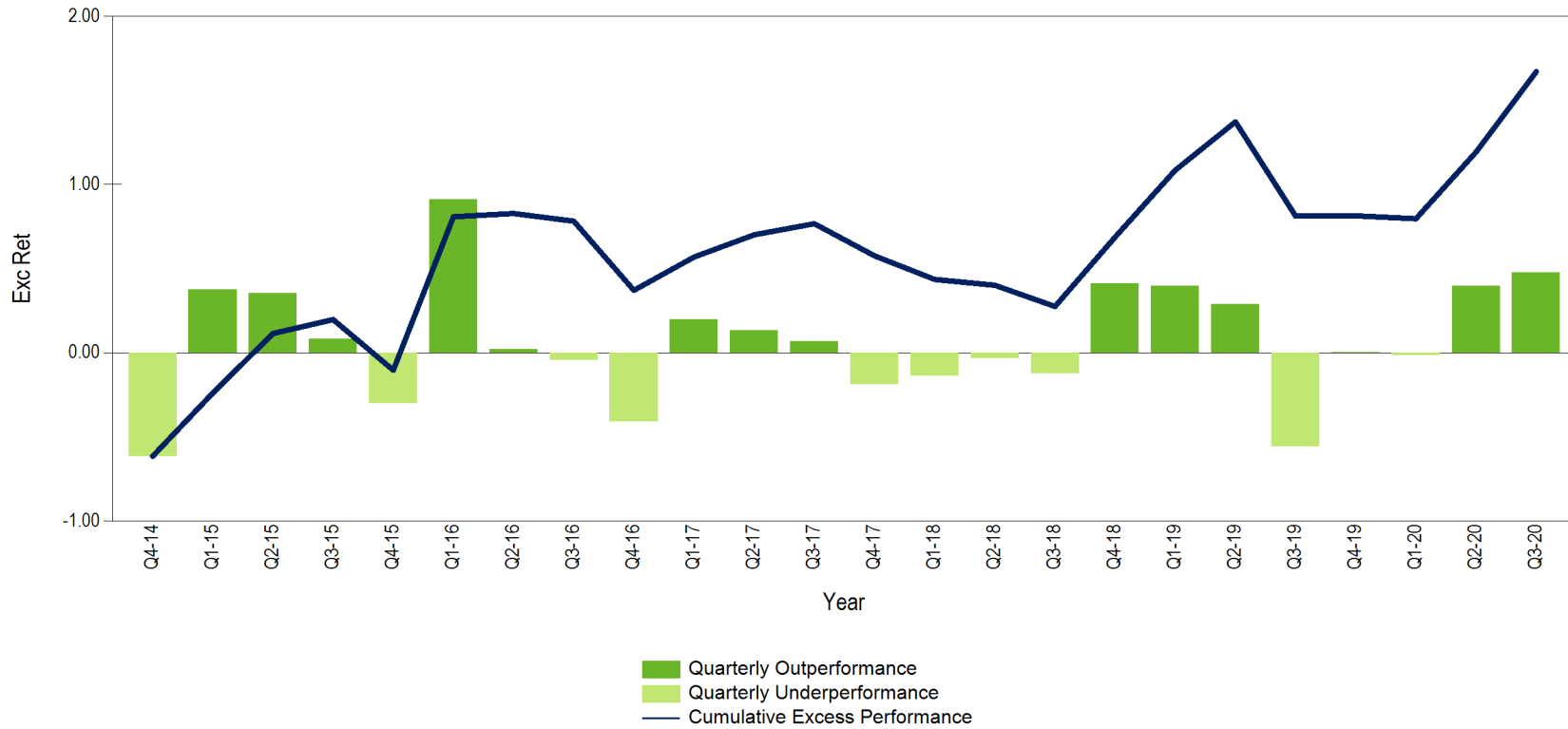
NEPC, LLC

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# Los Angeles City Employees' Retirement System

## DFA US TIPS

Quarterly and Cumulative Excess Performance

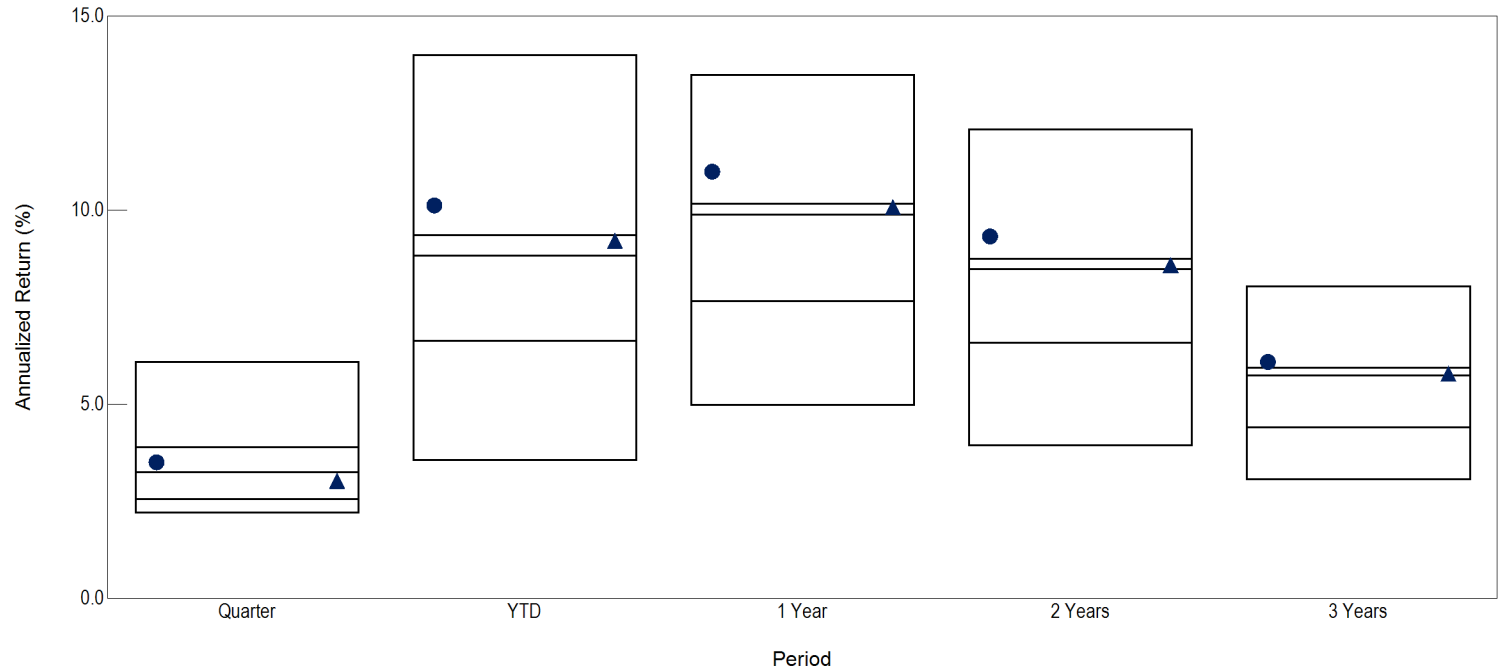




# Los Angeles City Employees' Retirement System

## DFA US TIPS

DFA US TIPS vs. eV US TIPS / Inflation Fixed Inc Net



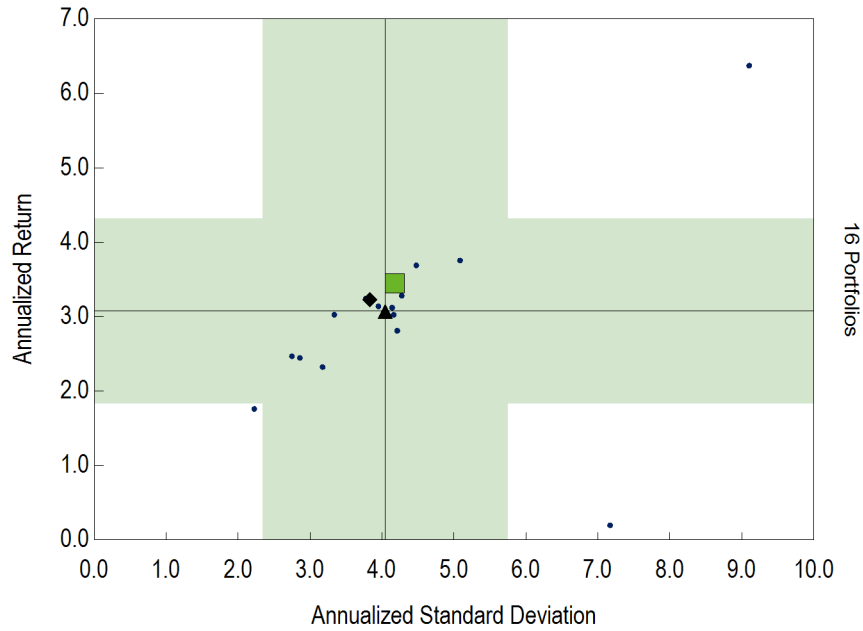
	Return (Rank)									
5th Percentile	6.09		14.00		13.48		12.08		8.04	
25th Percentile	3.92		9.37		10.20		8.77		5.97	
Median	3.27		8.86		9.90		8.51		5.77	
75th Percentile	2.57		6.65		7.69		6.61		4.43	
95th Percentile	2.23		3.59		5.01		3.96		3.09	
# of Portfolios	18		18		17		17		17	
● DFA US TIPS	3.51	(30)	10.13	(12)	11.00	(14)	9.33	(11)	6.10	(20)
▲ BbgBarc US TIPS TR	3.03	(63)	9.22	(39)	10.08	(34)	8.59	(41)	5.79	(38)



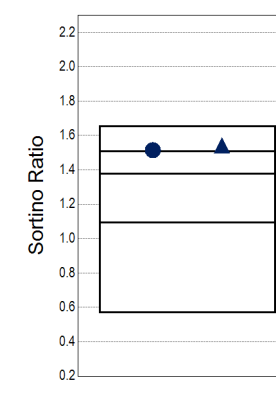
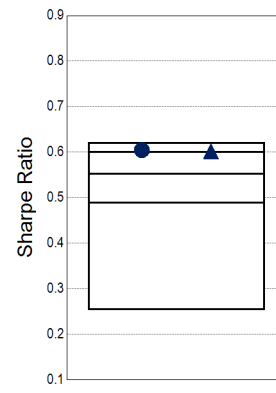
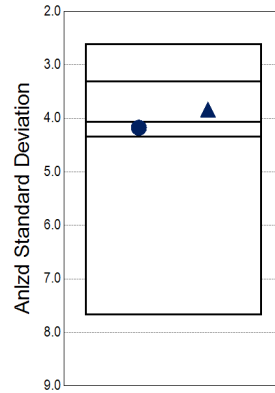
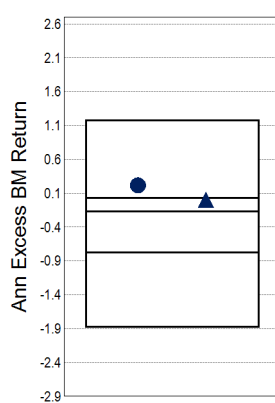
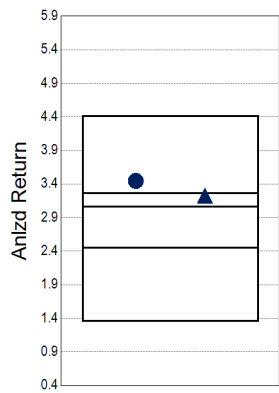
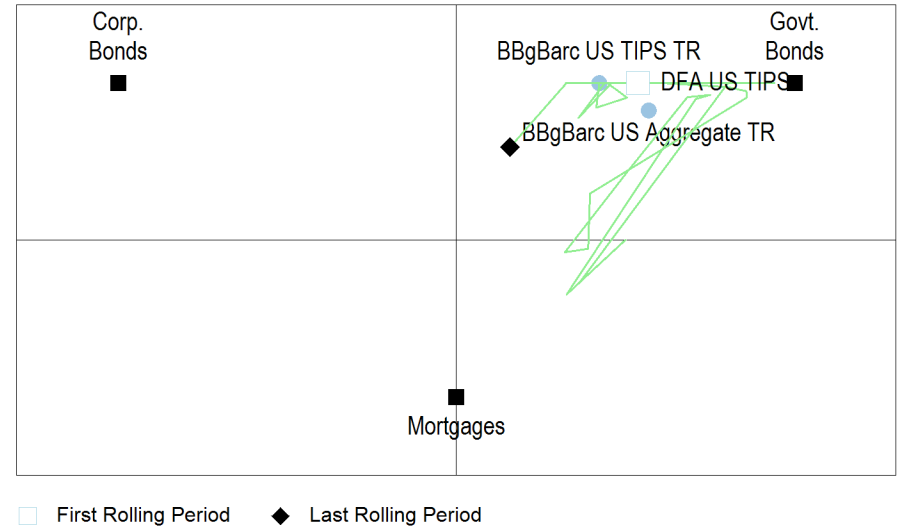
# Los Angeles City Employees' Retirement System

## DFA US TIPS

Since Inception Risk Return



Since Inception Style Map

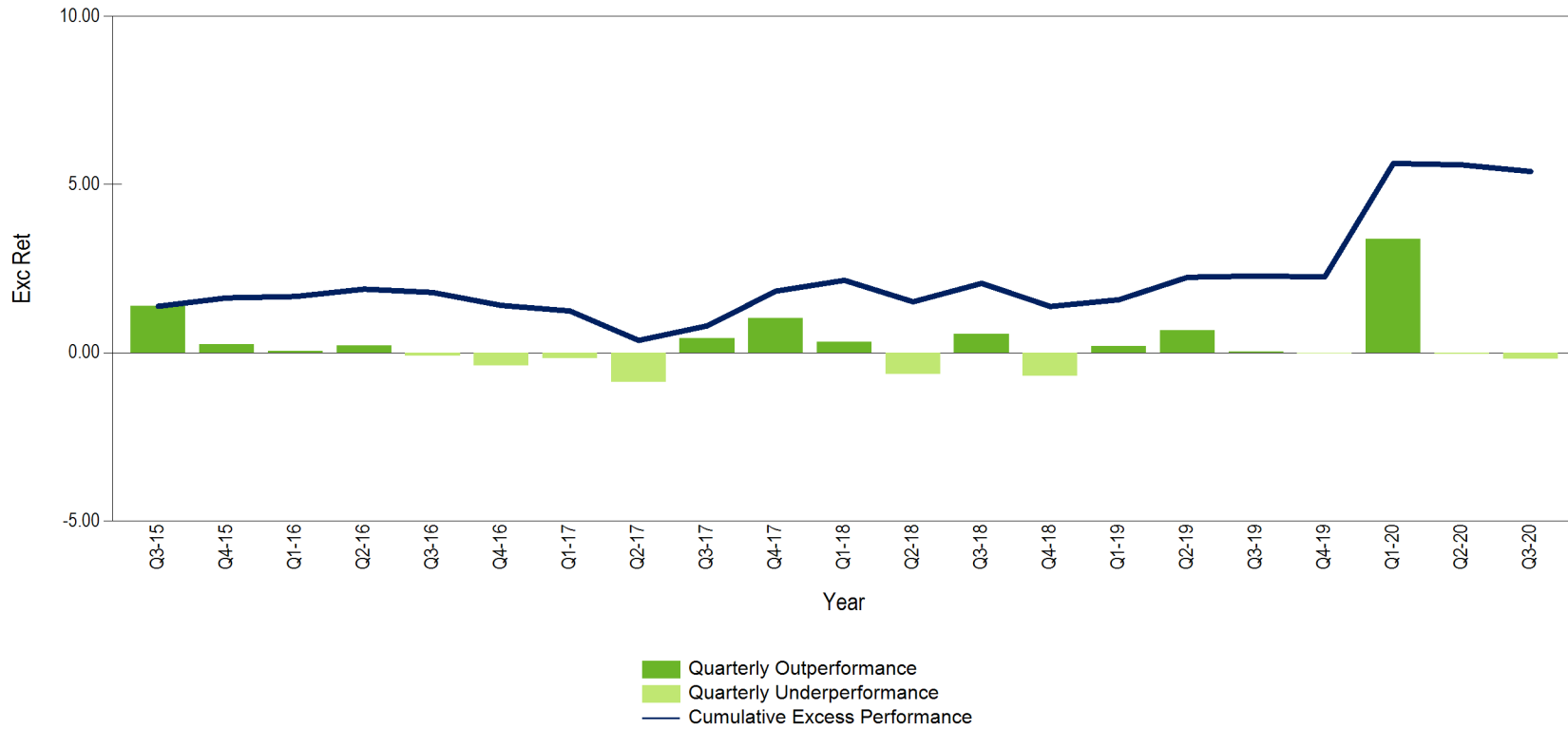


- DFA US TIPS
- ▲ BBgBarc US TIPS TR
- 5th to 25th Percentile
- 25th to Median
- Median to 75th Percentile
- 75th to 95th Percentile



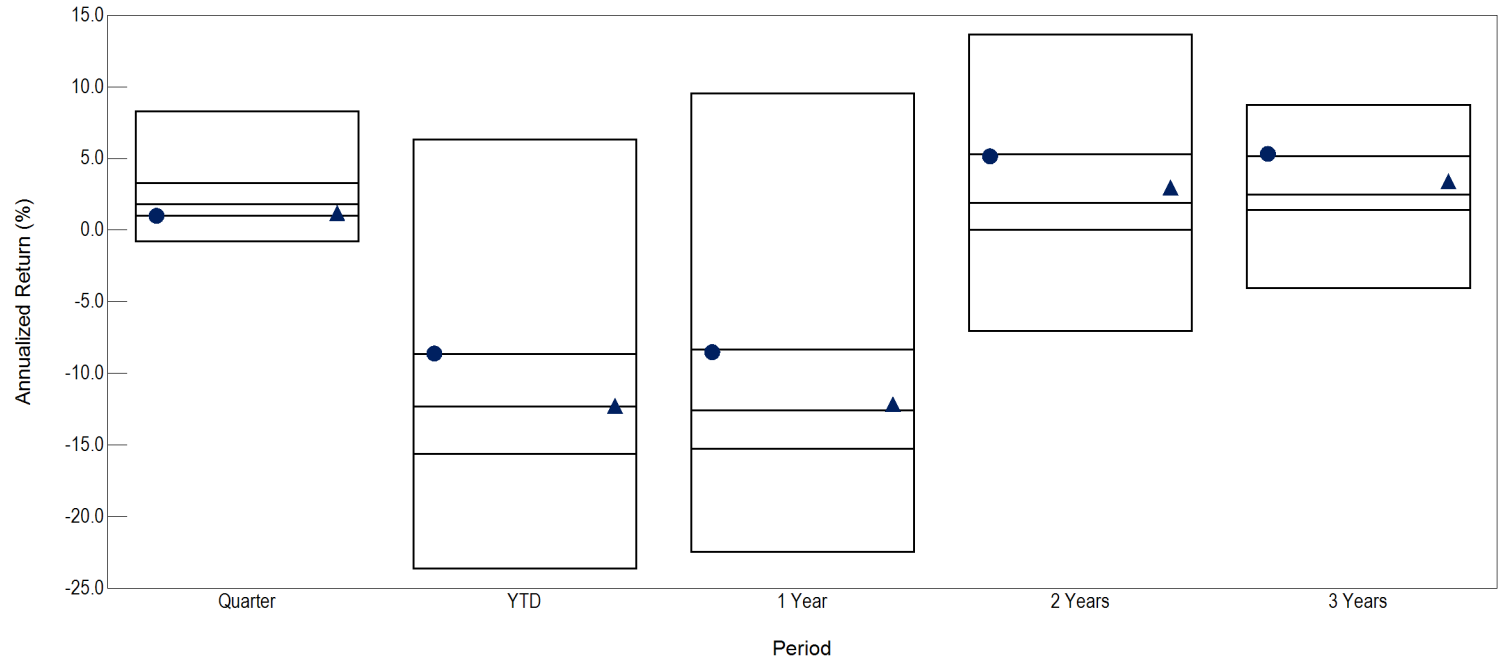
# CENTERSQUARE US REAL ESTATE

Quarterly and Cumulative Excess Performance



# CENTERSQUARE US REAL ESTATE

CenterSquare US Real Estate vs. eV US REIT Net

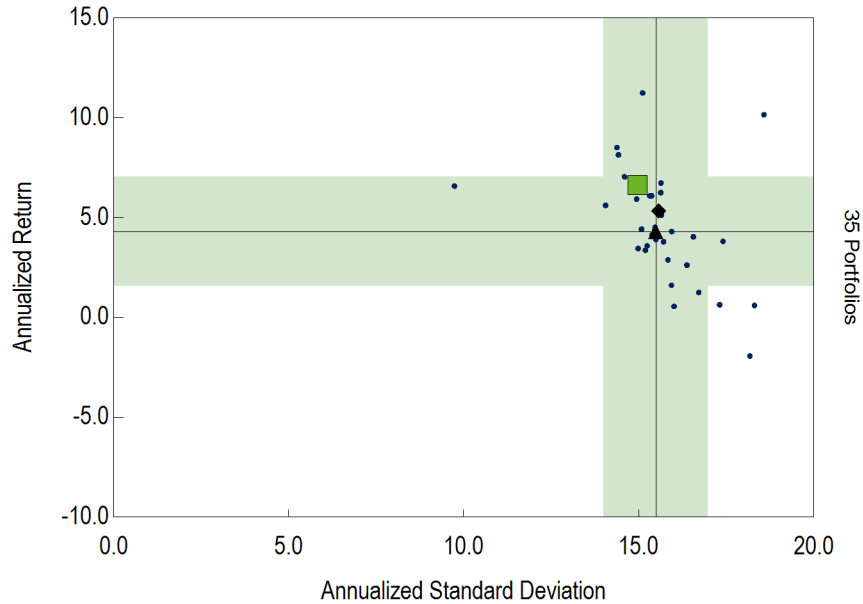


	Return (Rank)									
5th Percentile	8.27		6.31		9.53		13.64		8.74	
25th Percentile	3.34		-8.60		-8.27		5.36		5.22	
Median	1.87		-12.25		-12.53		1.95		2.53	
75th Percentile	1.03		-15.57		-15.21		0.06		1.45	
95th Percentile	-0.74		-23.57		-22.42		-7.00		-4.01	
# of Portfolios	38		38		38		37		36	
● CenterSquare US Real Estate	0.99	(77)	-8.61	(28)	-8.52	(28)	5.15	(27)	5.32	(23)
▲ FTSE NAREIT All Equity REIT	1.19	(72)	-12.27	(51)	-12.15	(44)	2.97	(42)	3.42	(37)

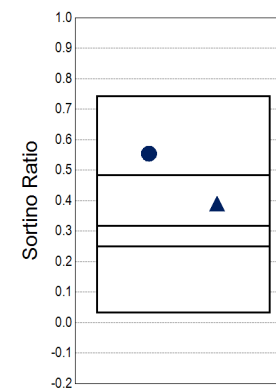
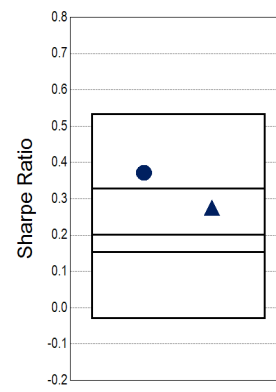
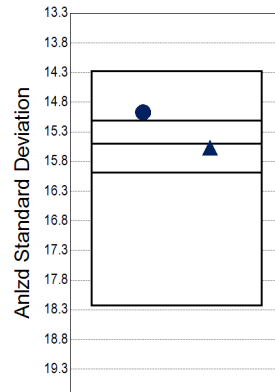
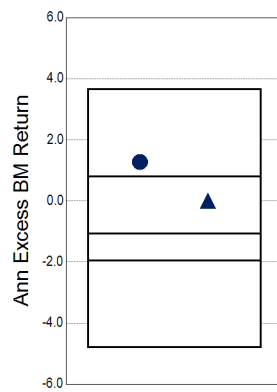
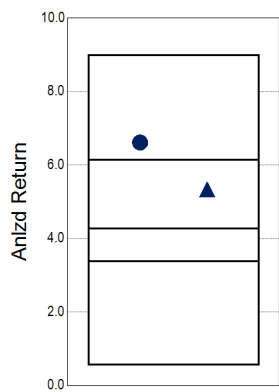
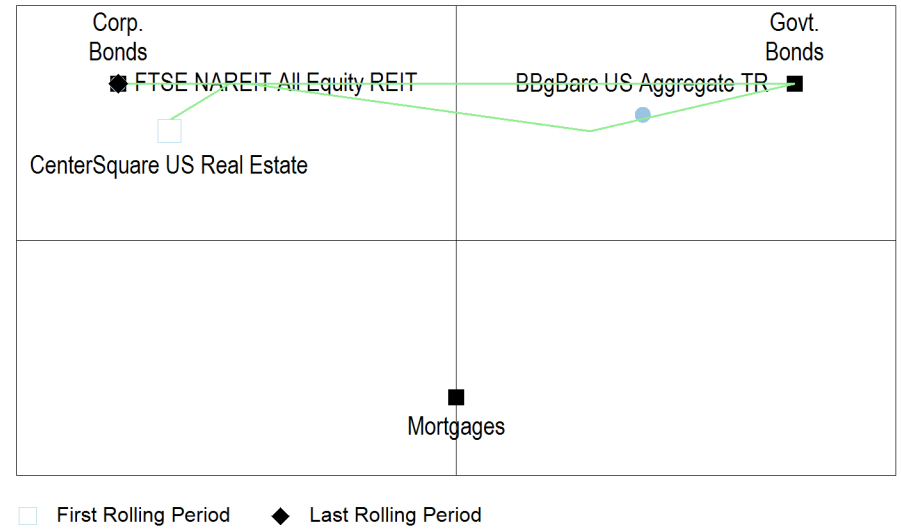


# CENTERSQUARE US REAL ESTATE

Since Inception Risk Return



Since Inception Style Map



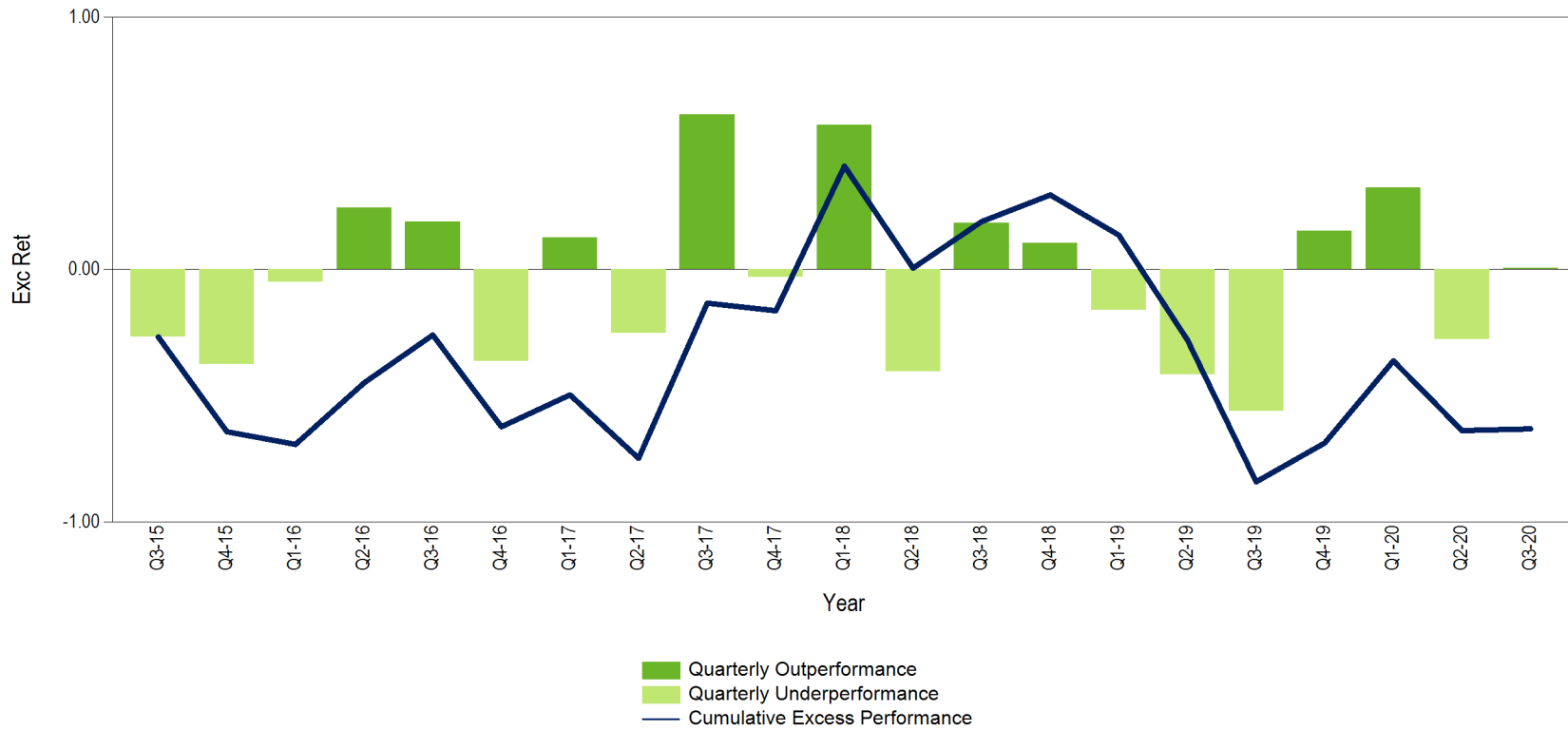
- CenterSquare US Real Estate
- ▲ FTSE NAREIT All Equity REIT
- 5th to 25th Percentile
- 25th to Median
- Median to 75th Percentile
- 75th to 95th Percentile



# Los Angeles City Employees' Retirement System

## CORE COMMODITY MGMT

Quarterly and Cumulative Excess Performance



# DEFINITIONS

NEPC, LLC

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# POLICY INDEX DEFINITIONS

**Policy Index:** Current (adopted January 10, 2012) 24% Russell 3000 Index, 29% MSCI ACWI ex USA Net Index, 19% Bbg Barclays U.S. Aggregate Bond Index, 5% Credit Opportunities Blend, 10% Real Assets Blend, 12% Private Equity Blend, 1% Citi 3 Month T-Bill Index

**U.S. Equity Blend:** July 1, 2011 - Current: Russell 3000 Index; September 30, 1994 - December 31, 1999 S&P 500 Index 33.75, Russell 1000 Value Index 35%, Russell 1000 Growth 12.5%, Russell 2000 Value 12.5%, Russell 2000 Growth 6.25%

**Core Fixed Income Blend:** July 1, 2013 – Current: Bbg Barclays U.S. Aggregate Bond Index

**Credit Opportunities Blend:** 65% Bbg Barclays U.S. HY 2% Cap Index, 35% JPM EMBIGD Index

**Public Real Assets Blend:** 60% Bbg Barclays U.S. TIPS Index, 20% Bbg Commodity Index, 10% FTSE NAREIT All Equity Index, 10% Alerian MLP Index

**Real Estate Blend:** July 1, 2014 - Current NCREIF ODCE + 0.80%; July 1, 2012 - June 30, 2014 NCREIF Property Index Lagged +1%; October 1, 1994 - June 30, 2012 NCREIF Property Index Lagged

**Private Equity Blend:** February 1, 2012 – current: Russell 3000 + 3%; Inception – January 31, 2012: Russell 3000 + 4%

Note: Policy index definitions do not reflect the updated target asset allocation adopted on April 10, 2018.

Note: See Investment Policy for a full description of the indices listed.





# GLOSSARY OF INVESTMENT TERMINOLOGY

**# Of Portfolios/Observations<sup>1</sup>** - The total number of data points that make up a specified universe

**Allocation Index<sup>3</sup>** - The allocation index measures the value added (or subtracted) to each portfolio by active management. It is calculated monthly: The portfolio asset allocation to each category from the prior month-end is multiplied by a specified market index.

**Asset Allocation Effect<sup>2</sup>** - Measures an investment manager's ability to effectively allocate their portfolio's assets to various sectors. The allocation effect determines whether the overweighting or underweighting of sectors relative to benchmark contributes positively or negatively to the overall portfolio return. Positive allocation occurs when the portfolio is over weighted in a sector that outperforms the benchmark and underweighted in a sector that underperforms the benchmark. Negative allocation occurs when the portfolio is over weighted in a sector that underperforms the benchmark and under weighted in a sector that outperforms the benchmark.

**Agency Bonds (Agencies)<sup>3</sup>** - The full faith and credit of the United States government is normally not pledged to payment of principal and interest on the majority of government agencies issuing these bonds, with maturities of up to ten years. Their yields, therefore, are normally higher than government and their marketability is good, thereby qualifying them as a low risk-high liquidity type of investment. They are eligible as security for advances to the member banks by the Federal Reserve, which attests to their standing.

**Asset Backed Securities (ABS)<sup>3</sup>** - Bonds which are similar to mortgage-backed securities but are collateralized by assets other than mortgages; commonly backed by credit card receivables, auto loans, or other types of consumer financing.

**Attribution<sup>3</sup>** - Attribution is an analytical technique that allows us to evaluate the performance of the portfolio relative to the benchmark. A proper attribution tells us where value was added or subtracted as a result of the manager's decisions.

**Average Effective Maturity<sup>4</sup>** - For a single bond, it is a measure of maturity that takes into account the possibility that a bond might be called back to the issuer.

For a portfolio of bonds, average effective maturity is the weighted average of the maturities of the underlying bonds. The measure is computed by weighing each bond's maturity by its market value with respect to the portfolio and the likelihood of any of the bonds being called. In a pool of mortgages, this would also account for the likelihood of prepayments on the mortgages.

**Batting Average<sup>1</sup>** - A measurement representing an investment manager's ability to meet or beat an index.

*Formula: Divide the number of days (or months, quarters, etc.) in which the manager beats or matches the index by the total number of days (or months, quarters, etc.) in the period of question and multiply that factor by 100.*

**Brinson Fachler (BF) Attribution<sup>1</sup>** - The BF methodology is a highly accepted industry standard for calculating the allocation, selection, and interaction effects within a portfolio that collectively explains a portfolio's underlying performance. The main advantage of the BF methodology is that rather than using the overall return of the benchmark, it goes a level deeper than BHB and measures whether the benchmark sector, country, etc. outperformed/or underperformed the overall benchmark.

**Brinson Hood Beebower (BHB) Attribution<sup>1</sup>** - The BHB methodology shows that excess return must be equal to the sum of all other factors (i.e., allocation effect, selection effect, interaction effect, etc.). The advantage to using the BHB methodology is that it is a highly accepted industry standard for calculating the allocation, selection, and interaction effects within a portfolio that collectively explains a portfolio's underlying performance.

**Corporate Bond (Corp)<sup>4</sup>** - A debt security issued by a corporation and sold to investors. The backing for the bond is usually the payment ability of the company, which is typically money to be earned from future operations. In some cases, the company's physical assets may be used as collateral for bonds.

**Correlation<sup>1</sup>** - A range of statistical relationships between two or more random variables or observed data values. A correlation is a single number that describes the degree of relationship between variables.

Data Source: <sup>1</sup>InvestorForce, <sup>2</sup>Interaction Effect Performance Attribution, <sup>3</sup>NEPC, LLC, <sup>4</sup>Investopedia, <sup>5</sup>Hedgeco.net



# GLOSSARY OF INVESTMENT TERMINOLOGY

**Coupon<sup>4</sup>** – The interest rate stated on a bond when it is issued. The coupon is typically paid semiannually. This is also referred to as the "coupon rate" or "coupon percent rate."

**Currency Effect<sup>1</sup>** – Is the effect that changes in currency exchange rates over time affect excess performance.

**Derivative Instrument<sup>2</sup>** – A financial obligation that derives its precise value from the value of one or more other instruments (or assets) at the same point of time. For example, the relationship between the value of an S&P 500 futures contract (the derivative instrument in this case) is determined by the value of the S&P 500 Index and the value of a U.S. Treasury bill that matures at the expiration of the futures contract.

**Downside Deviation<sup>1</sup>** – Equals the standard deviation of negative return or the measure of downside risk focusing on the standard deviation of negative returns.

*Formula:*

*Annualized Standard Deviation (Fund Return - Average Fund Return) where average fund return is greater than individual fund returns, monthly or quarterly.*

**Duration<sup>3</sup>** – Duration is a measure of interest rate risk. The greater the duration of a bond, or a portfolio of bonds, the greater its price volatility will be in response to a change in interest rates. A bond's duration is inversely related to interest rates and directly related to time to maturity.

**Equity/Debt/Cash Ratio<sup>1</sup>** – The percentage of an investment or portfolio that is in Equity, Debt, and/or Cash (i.e. A 7/89/4 ratio represents an investment that is made up of 7% Equity, 89% Debt, and 4% Cash).

**Foreign Bond<sup>3</sup>** – A bond that is issued in a domestic market by a foreign entity, in the domestic market's currency. A foreign bond is most often issued by a foreign firm to raise capital in a domestic market that would be most interested in purchasing the firm's debt. For foreign firms doing a large amount of business in the domestic market, issuing foreign bonds is a common practice.

**Hard Hurdle<sup>5</sup>** – is a hurdle rate that once beaten allows a fund manager to charge a performance fee on only the funds above the specified hurdle rate.

**High-Water Mark<sup>4</sup>** – The highest peak in value that an investment fund/account has reached. This term is often used in the context of fund manager compensation, which is performance based. Some performance-based fees only get paid when fund performance exceeds the high-water mark. The high-water mark ensures that the manager does not get paid large sums for poor performance.

**Hurdle Rate<sup>4</sup>** – The minimum rate of return on an investment required, in order for a manager to collect incentive fees from the investor, which is usually tied to a benchmark.

**Interaction Effects<sup>2</sup>** – The interaction effect measures the combined impact of an investment manager's selection and allocation decisions within a sector. For example, if an investment manager had superior selection and over weighted that particular sector, the interaction effect is positive. If an investment manager had superior selection, but underweighted that sector, the interaction effect is negative. In this case, the investment manager did not take advantage of the superior selection by allocating more assets to that sector. Since many investment managers consider the interaction effect to be part of the selection or the allocation, it is often combined with the either effect.

**Median<sup>3</sup>** – The value (rate of return, market sensitivity, etc.) that exceeds one-half of the values in the population and that is exceeded by one-half of the values. The median has a percentile rank of 50.

**Modified Duration<sup>3</sup>** – The percentage change in the price of a fixed income security that results from a change in yield.

**Mortgage Backed Securities (MBS)<sup>3</sup>** – Bonds which are a general obligation of the issuing institution but are also collateralized by a pool of mortgages.

**Municipal Bond (Muni)<sup>4</sup>** – A debt security issued by a state, municipality or county to finance its capital expenditures.

**Net Investment Change<sup>1</sup>** – Is the change in an investment after accounting for all Net Cash Flows.

**Performance Fee<sup>4</sup>** – A payment made to a fund manager for generating positive returns. The performance fee is generally calculated as a percentage of investment profits, often both realized and unrealized.

*Data Source: <sup>1</sup>InvestorForce, <sup>2</sup>Interaction Effect Performance Attribution, <sup>3</sup>NEPC, LLC, <sup>4</sup>Investopedia, <sup>5</sup>Hedgeco.net*



# GLOSSARY OF INVESTMENT TERMINOLOGY

**Policy Index<sup>3</sup>** - A custom benchmark designed to indicate the returns that a passive investor would earn by consistently following the asset allocation targets set forth in this investment policy statement.

**Price to Book (P/B)<sup>4</sup>** - A ratio used to compare a stock's market value to its book value. It is calculated by dividing the current closing price of the stock by the latest quarter's book value per share, also known as the "price-equity ratio".

**Price to Earnings (P/E)<sup>3</sup>** - The weighted equity P/E is based on current price and trailing 12 months earnings per share (EPS).

**Price to Sales (P/S)<sup>4</sup>** - A ratio for valuing a stock relative to its own past performance, other companies, or the market itself. Price to sales is calculated by dividing a stock's current price by its revenue per share for the trailing 12 months.

**Return on Equity (ROE)<sup>4</sup>** - The amount of net income returned as a percentage of shareholders equity. Return on equity measures a corporation's profitability by revealing how much profit a company generates with the money shareholders have invested.

**Selection (or Manager) Effect<sup>2</sup>** - Measures the investment manager's ability to select securities within a given sector relative to a benchmark. The over or underperformance of the portfolio is weighted by the benchmark weight, therefore, selection is not affected by the manager's allocation to the sector. The weight of the sector in the portfolio determines the size of the effect—the larger the sector, the larger the effect is, positive or negative.

**Soft Hurdle rate<sup>5</sup>** - is a hurdle rate that once beaten allows a fund manager to charge a performance fee based on the entire annualized return.

**Tiered Fee<sup>1</sup>** - A fee structure that is paid to fund managers based on the size of the investment (i.e. 1.00% fee on the first \$10M invested, 0.90% on the next \$10M, and 0.80% on the remaining balance).

**Total Effects<sup>2</sup>** - The active management (total) effect is the sum of the selection, allocation, and interaction effects. It is also the difference between the total portfolio return and the total benchmark return. You can use the active management effect to determine the amount the investment manager has added to a portfolio's return.

**Total Return<sup>1</sup>** - The actual rate of return of an investment over a specified time period. Total return includes interest, capital gains, dividends, and distributions realized over a defined time period.

**Universe<sup>3</sup>** - The list of all assets eligible for inclusion in a portfolio.

**Upside Deviation<sup>1</sup>** - Standard Deviation of Positive Returns

**Weighted Avg. Market Cap.<sup>4</sup>** - A stock market index weighted by the market capitalization of each stock in the index. In such a weighting scheme, larger companies account for a greater portion of the index. Most indexes are constructed in this manner, with the best example being the S&P 500.

**Yield (%)<sup>3</sup>** - The current yield of a security is the current indicated annual dividend rate divided by current price.

**Yield to Maturity<sup>3</sup>** - The discount rate that equates the present value of cash flows, both principal and interest, to market price.

Data Source: <sup>1</sup>InvestorForce, <sup>2</sup>Interaction Effect Performance Attribution, <sup>3</sup>NEPC, LLC, <sup>4</sup>Investopedia, <sup>5</sup>Hedgeco.net



# DISCLOSURES

NEPC, LLC

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### **Information Disclaimer**

- Past performance is no guarantee of future results.
- All investments carry some level of risk. Diversification and other asset allocation techniques are not guaranteed to ensure profit or protect against losses.
- NEPC's source for portfolio pricing, calculation of accruals, and transaction information is the plan's custodian bank. Information on market indices and security characteristics is received from other sources external to NEPC. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.
- Some index returns displayed in this report or used in calculation of a policy, allocation or custom benchmark may be preliminary and subject to change.
- This report is provided as a management aid for the client's internal use only. Information contained in this report does not constitute a recommendation by NEPC.
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### **Reporting Methodology**

- The client's custodian bank is NEPC's preferred data source unless otherwise directed. NEPC generally reconciles custodian data to manager data. If the custodian cannot provide accurate data, manager data may be used.
- Trailing time period returns are determined by geometrically linking the holding period returns, from the first full month after inception to the report date. Rates of return are annualized when the time period is longer than a year. Performance is presented gross and/or net of manager fees as indicated on each page.
- For managers funded in the middle of a month, the "since inception" return will start with the first full month, although actual inception dates and cash flows are taken into account in all Composite calculations.
- This report may contain forward-looking statements that are based on NEPC's estimates, opinions and beliefs, but NEPC cannot guarantee that any plan will achieve its targeted return or meet other goals.

