

# FUND EVALUATION REPORT

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## Worcester Retirement System

Meeting Materials  
August 22, 2019



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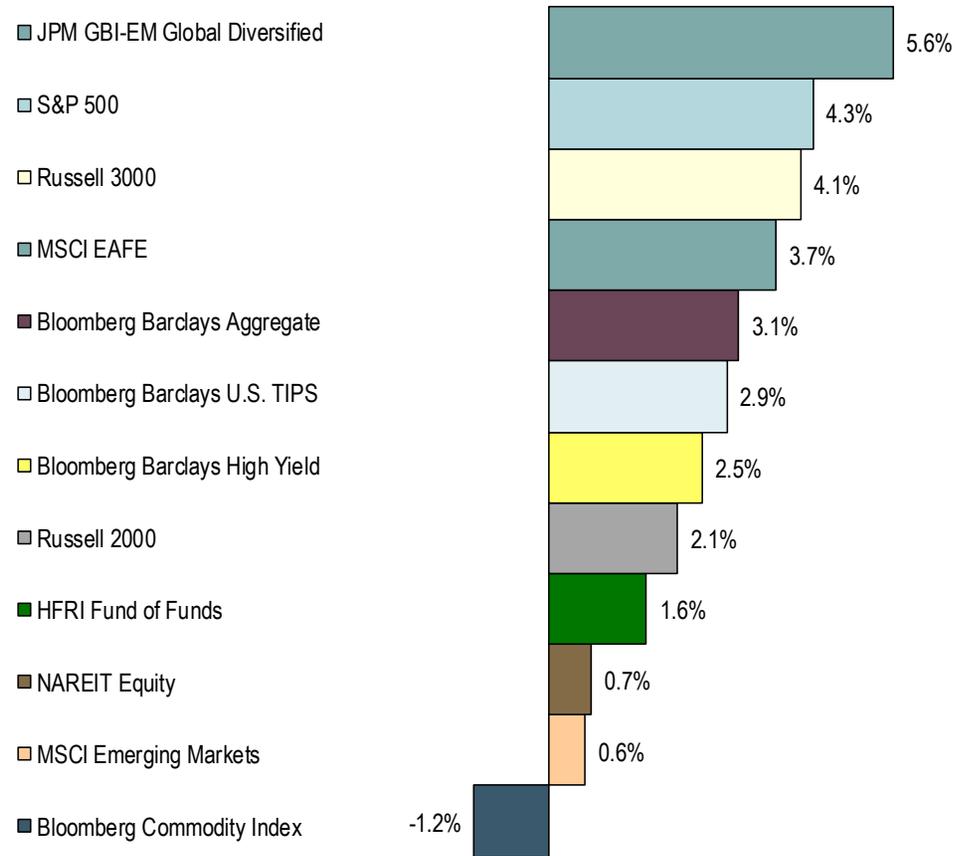
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# **The World Markets Second Quarter of 2019**

## The World Markets<sup>1</sup> Second Quarter of 2019



<sup>1</sup> Source: InvestorForce.

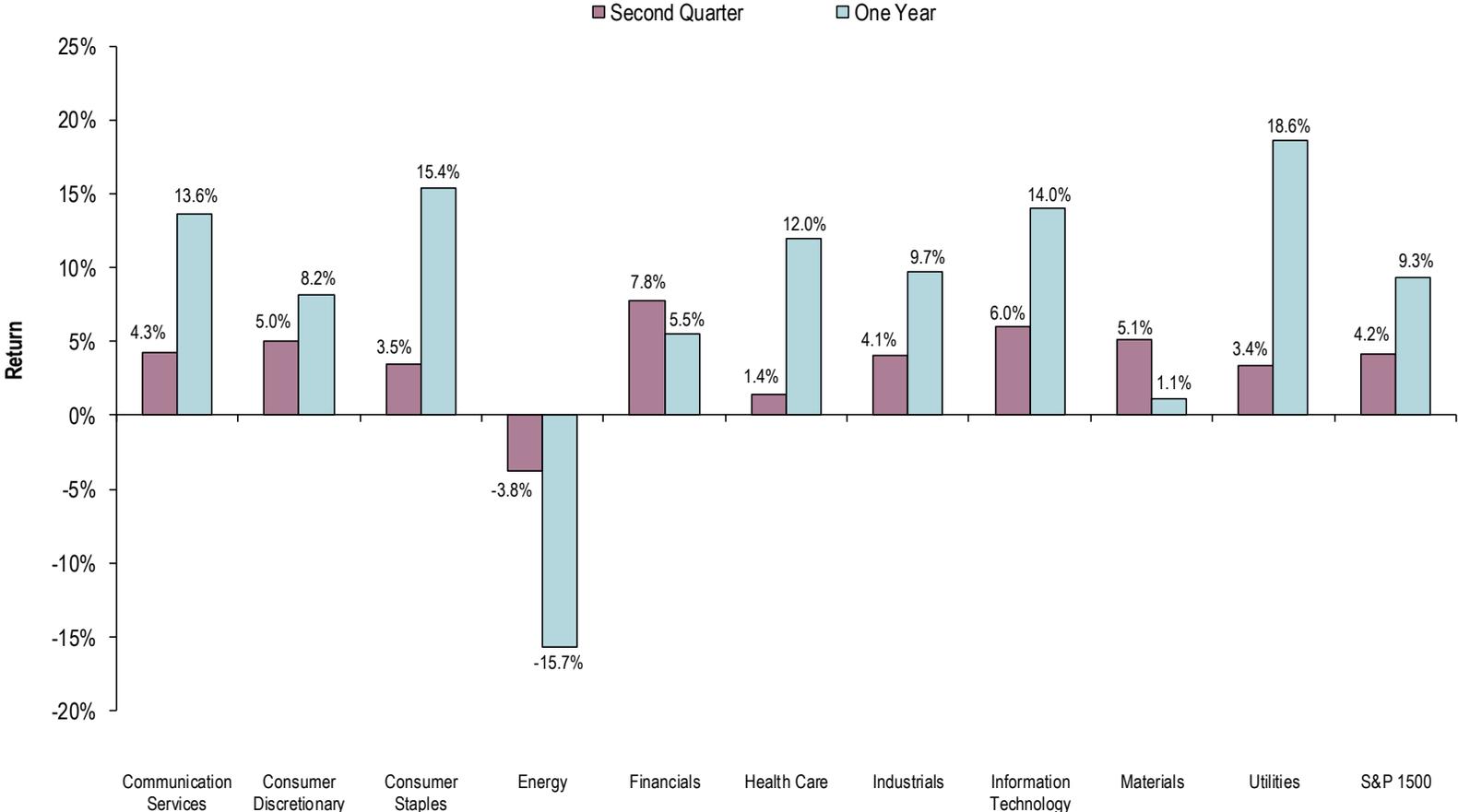


Index Returns<sup>1</sup>

	2Q19 (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
<b>Domestic Equity</b>					
S&P 500	4.3	10.4	14.2	10.7	14.7
Russell 3000	4.1	9.0	14.0	10.2	14.7
Russell 1000	4.2	10.0	14.1	10.5	14.8
Russell 1000 Growth	4.6	11.6	18.1	13.4	16.3
Russell 1000 Value	3.8	8.5	10.2	7.5	13.2
Russell MidCap	4.1	7.8	12.2	8.6	15.2
Russell MidCap Growth	5.4	13.9	16.5	11.1	16.0
Russell MidCap Value	3.2	3.7	8.9	6.7	14.6
Russell 2000	2.1	-3.3	12.3	7.1	13.4
Russell 2000 Growth	2.7	-0.5	14.7	8.6	14.4
Russell 2000 Value	1.4	-6.2	9.8	5.4	12.4
<b>Foreign Equity</b>					
MSCI ACWI (ex. U.S.)	3.0	1.3	9.4	2.2	6.5
MSCI EAFE	3.7	1.1	9.1	2.2	6.9
MSCI EAFE (Local Currency)	2.8	2.2	9.8	5.9	8.3
MSCI EAFE Small Cap	1.7	-6.3	9.1	4.4	9.7
MSCI Emerging Markets	0.6	1.2	10.7	2.5	5.8
MSCI Emerging Markets (Local Currency)	7.4	9.4	13.8	7.6	8.6
<b>Fixed Income</b>					
Bloomberg Barclays Universal	3.1	8.1	2.8	3.2	4.4
Bloomberg Barclays Aggregate	3.1	7.9	2.3	2.9	3.9
Bloomberg Barclays U.S. TIPS	2.9	4.8	2.1	1.8	3.6
Bloomberg Barclays High Yield	2.5	7.5	7.5	4.7	9.2
JPM GBI-EM Global Diversified	5.6	9.0	4.2	-0.5	3.4
<b>Other</b>					
NAREIT Equity	0.7	10.1	3.8	7.7	15.3
Bloomberg Commodity Index	-1.2	-6.8	-2.2	-9.1	-3.7
HFRI Fund of Funds	1.6	1.3	4.3	2.2	3.2

<sup>1</sup> Source: InvestorForce.

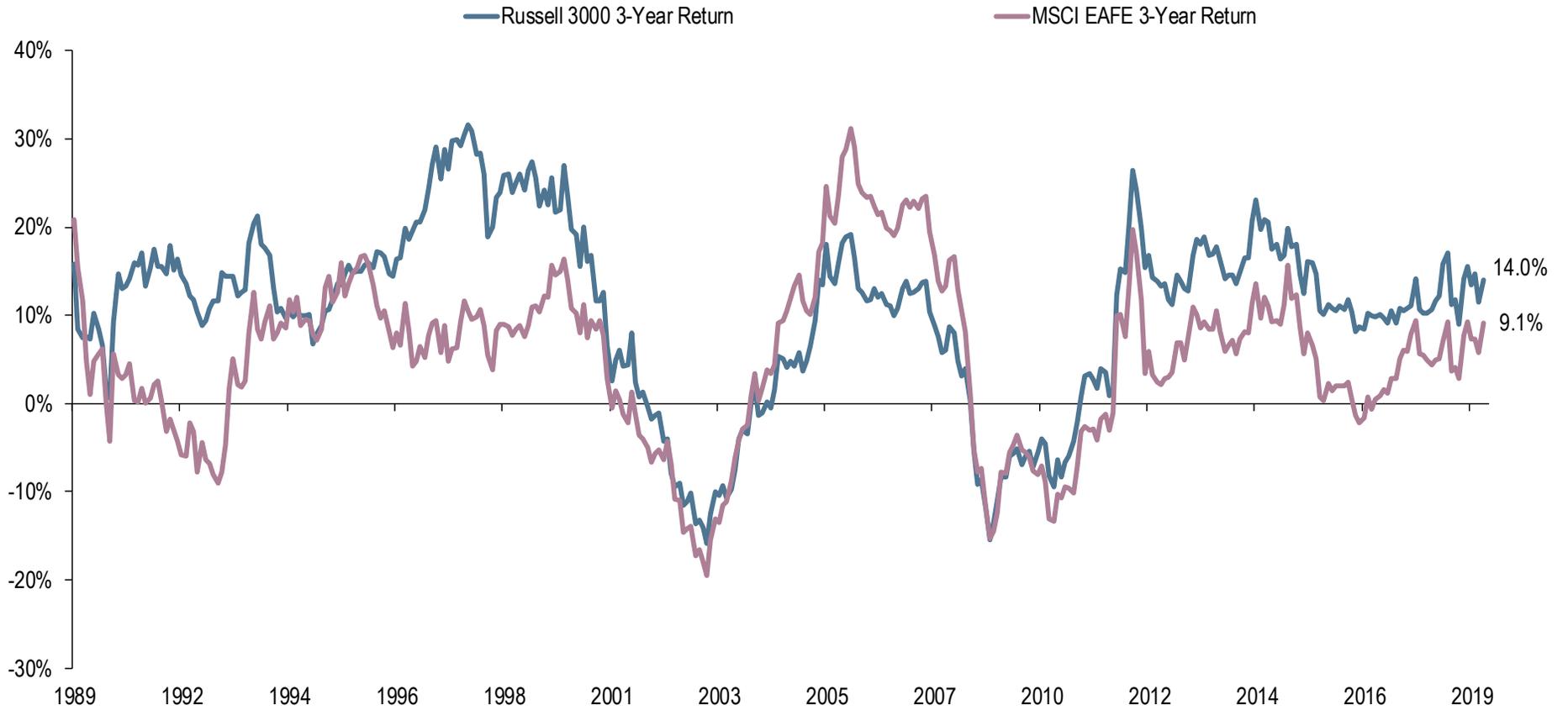
### S&P Sector Returns<sup>1</sup>



<sup>1</sup> Source: InvestorForce. Represents S&P 1500 (All Cap) data.



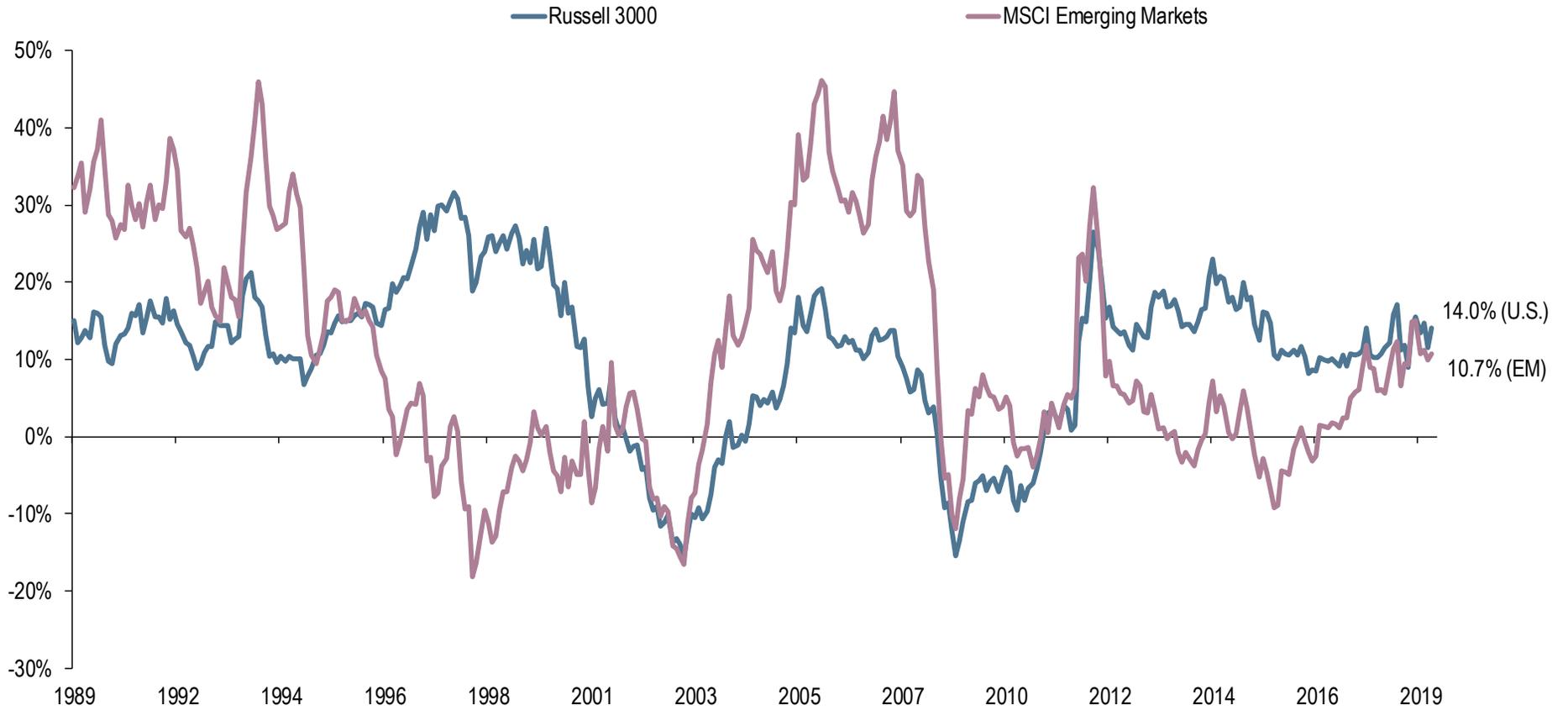
### U.S. and Developed Market Foreign Equity Rolling Three-Year Returns<sup>1</sup>



<sup>1</sup> Source: InvestorForce.



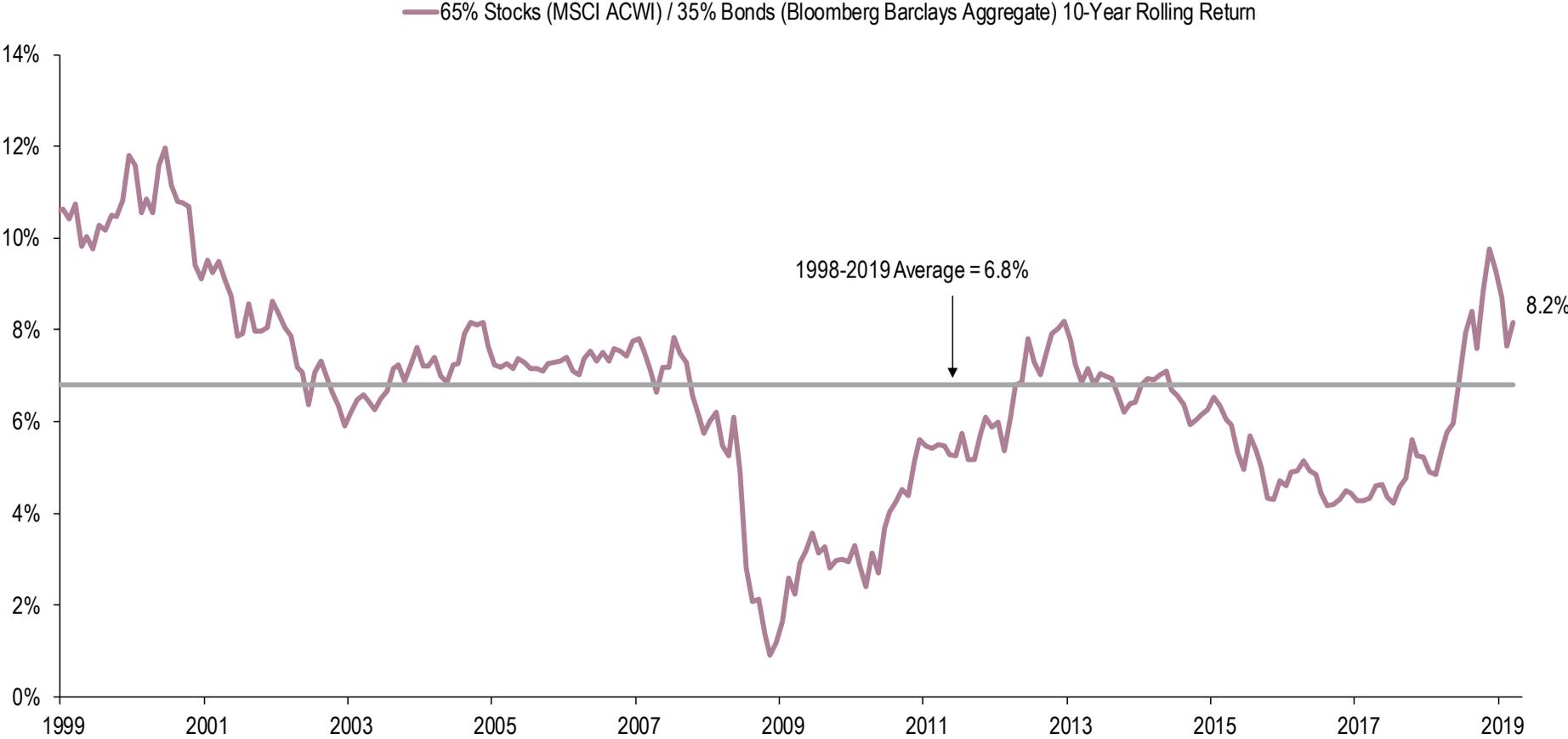
### U.S. and Emerging Market Equity Rolling Three-Year Returns<sup>1</sup>



<sup>1</sup> Source: InvestorForce.



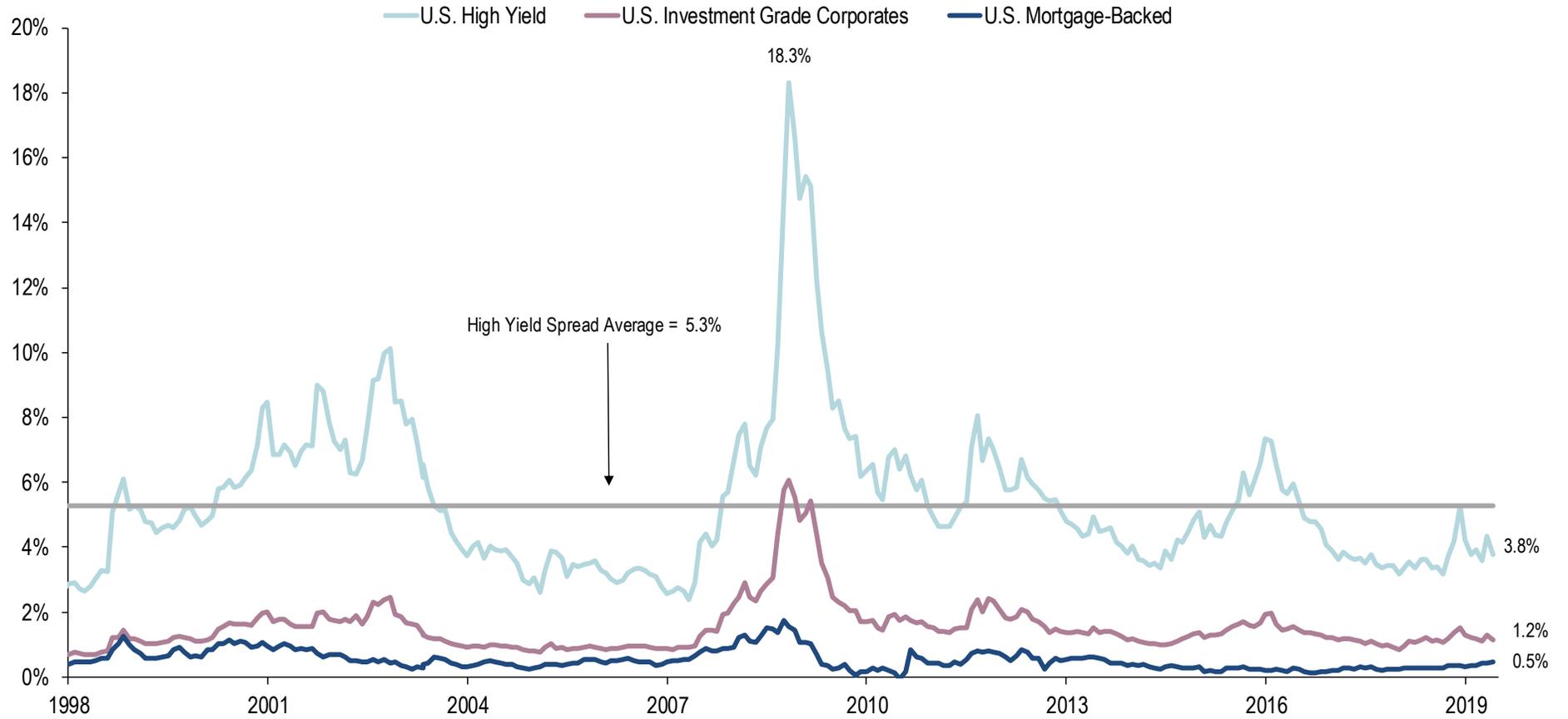
### Rolling Ten-Year Returns: 65% Stocks and 35% Bonds<sup>1</sup>



<sup>1</sup> Source: InvestorForce.



### Credit Spreads vs. U.S. Treasury Bonds<sup>1,2</sup>

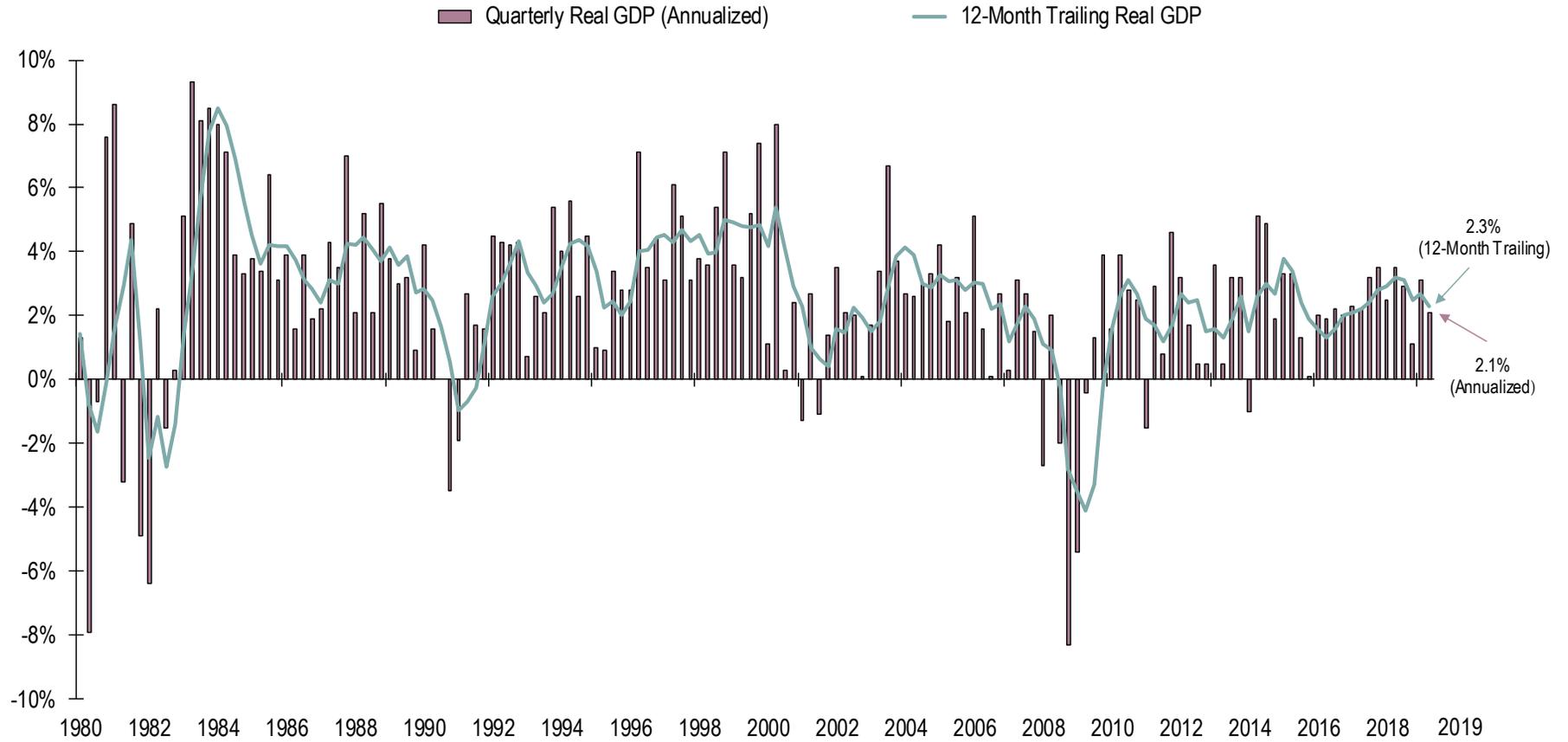


<sup>1</sup> Source: Barclays Live.

<sup>2</sup> The median high yield spread was 4.8% from 1997-2019.



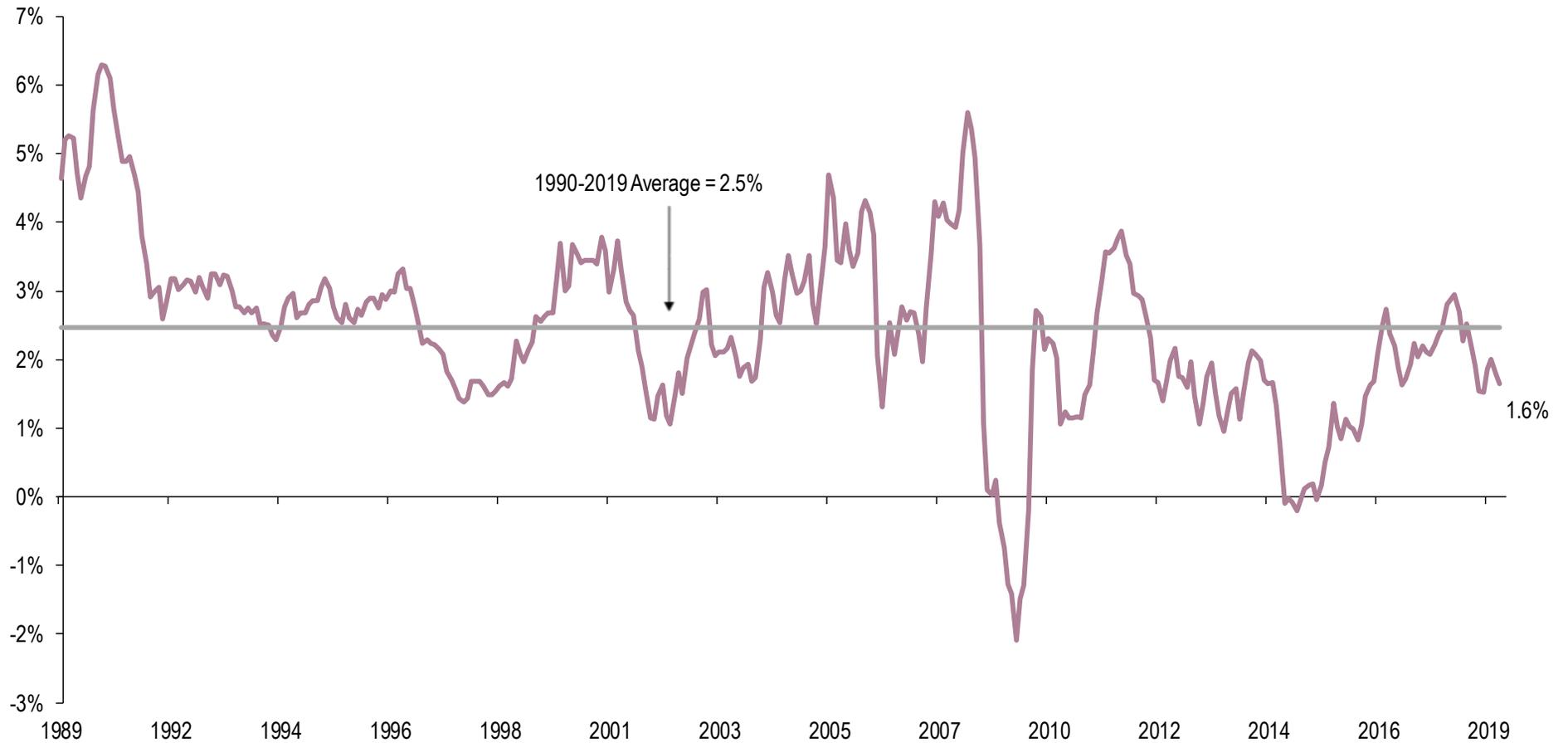
### U.S. Real Gross Domestic Product (GDP) Growth<sup>1</sup>



<sup>1</sup> Source: Bureau of Economic Analysis. Data is as of Q2 2019 and represents the first estimate.



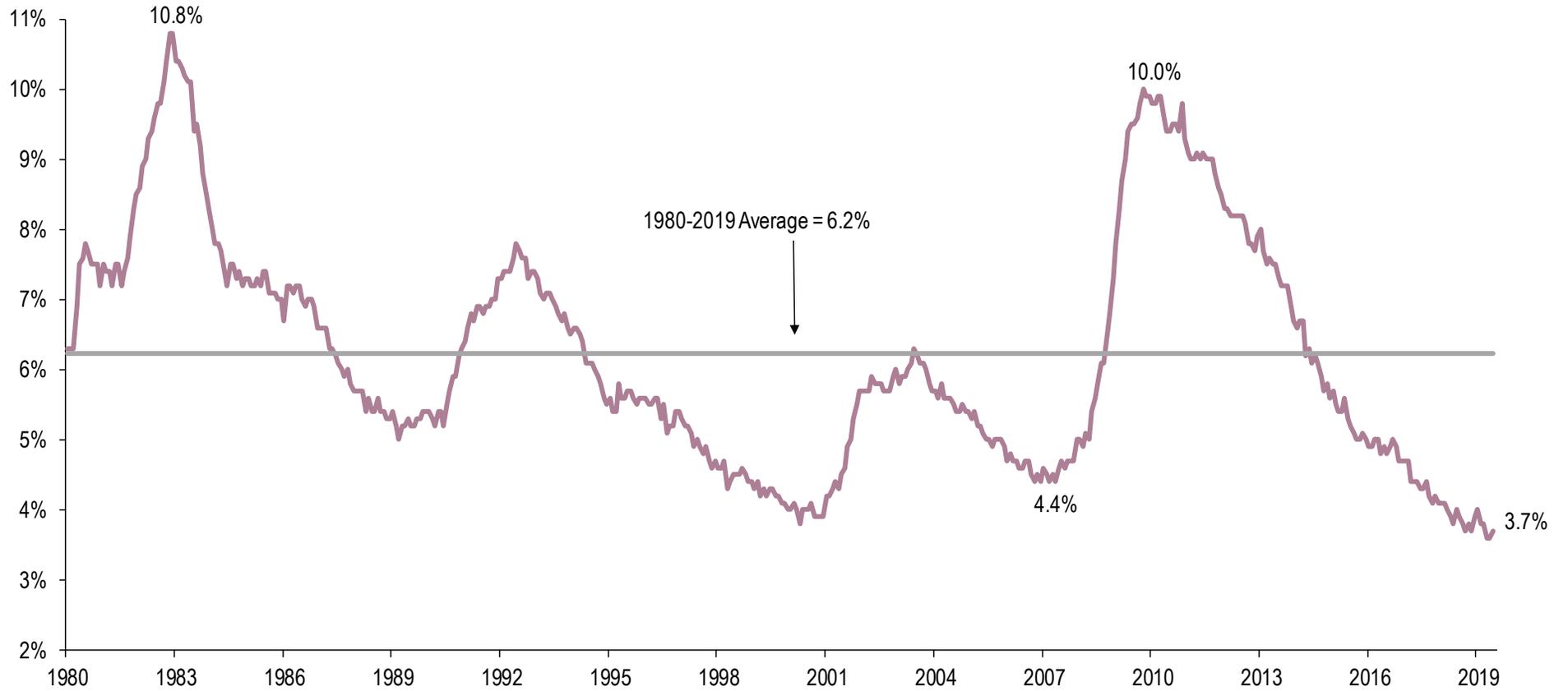
### U.S. Inflation (CPI) Trailing Twelve Months<sup>1</sup>



<sup>1</sup> Source: Bureau of Labor Statistics. Data is non-seasonally adjusted CPI, which may be volatile in the short-term. Data is as of June 30, 2019.



### U.S. Unemployment<sup>1</sup>



<sup>1</sup> Source: Bureau of Labor Statistics. Data is as of June 30, 2019.



## **Estimated Retirement System Performance**

### Estimated Aggregate Performance<sup>1</sup>

	July Estimate (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
<b>Total Retirement System</b>	<b>0.0</b>	<b>9.7</b>	<b>4.0</b>	<b>7.8</b>	<b>5.5</b>	<b>8.1</b>
<i>60% MSCI ACWI/40% Barclays Global Aggregate</i>	<i>0.1</i>	<i>12.1</i>	<i>4.1</i>	<i>6.6</i>	<i>4.4</i>	<i>6.6</i>

### Benchmark Returns

	July (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
<i>Russell 3000</i>	<i>1.5</i>	<i>20.5</i>	<i>7.1</i>	<i>13.1</i>	<i>11.0</i>	<i>14.0</i>
<i>MSCI EAFE</i>	<i>-1.3</i>	<i>12.6</i>	<i>-2.6</i>	<i>6.9</i>	<i>2.4</i>	<i>5.8</i>
<i>MSCI Emerging Markets</i>	<i>-1.2</i>	<i>9.2</i>	<i>-2.2</i>	<i>8.4</i>	<i>1.8</i>	<i>4.6</i>
<i>Barclays Aggregate</i>	<i>0.2</i>	<i>6.4</i>	<i>8.1</i>	<i>2.2</i>	<i>3.1</i>	<i>3.8</i>
<i>Barclays TIPS</i>	<i>0.4</i>	<i>6.5</i>	<i>5.7</i>	<i>1.9</i>	<i>1.8</i>	<i>3.7</i>
<i>Barclays High Yield</i>	<i>0.6</i>	<i>10.6</i>	<i>6.9</i>	<i>6.8</i>	<i>5.1</i>	<i>8.7</i>
<i>JPM GBI-EM Global Diversified</i>	<i>0.9</i>	<i>9.7</i>	<i>8.0</i>	<i>4.4</i>	<i>-0.1</i>	<i>3.0</i>
<i>S&amp;P Global Natural Resources</i>	<i>-2.5</i>	<i>11.1</i>	<i>-7.4</i>	<i>8.8</i>	<i>0.5</i>	<i>2.6</i>

<sup>1</sup> The July performance estimates are calculated using index returns as of July 31, 2019 for each asset class. No performance estimate was included for private equity, real estate, infrastructure, and private natural resources asset classes.

## **Second Quarter 2019 Performance Review**

# Retirement System Summary

PRIT Look Through Analysis  
 Aggregate Assets  
 As of June 30, 2019

	Actual Asset Allocation <sup>1,2</sup> (%)	PRIT Actual Asset Allocation <sup>1</sup> (%)
<b>Total Retirement System</b>		
<b>Global Equity Assets</b>	<b>43</b>	<b>43</b>
<i>Domestic Equity Assets</i>	19	22
<i>International Developed Market Equity Assets</i>	13	15
<i>International Emerging Market Equity Assets</i>	11	6
<b>Fixed Income Assets</b>	<b>24</b>	<b>22</b>
<i>Core Fixed Income Assets<sup>3</sup></i>	15	14
<i>Value-Added Fixed Income Assets<sup>4</sup></i>	9	8
<b>Real Estate Assets</b>	<b>10</b>	<b>9</b>
<b>Private Equity Assets</b>	<b>11</b>	<b>11</b>
<b>Portfolio Completion Strategies / Hedge Funds / GTAA</b>	<b>2</b>	<b>9</b>
<b>Real Assets (Natural Resources, Timber, Infrastructure)</b>	<b>10</b>	<b>4</b>
<b>Cash</b>	<b>&lt;1</b>	<b>&lt;1</b>

<sup>1</sup> Numbers may not sum to 100% due to rounding.

<sup>2</sup> Asset classes include a pro-rata allocation of the System's 26% holding of the PRIT Core Fund.

<sup>3</sup> Retirement System figures include investment grade bonds and TIPS.

<sup>4</sup> Retirement System figures include high yield fixed income and emerging market debt.

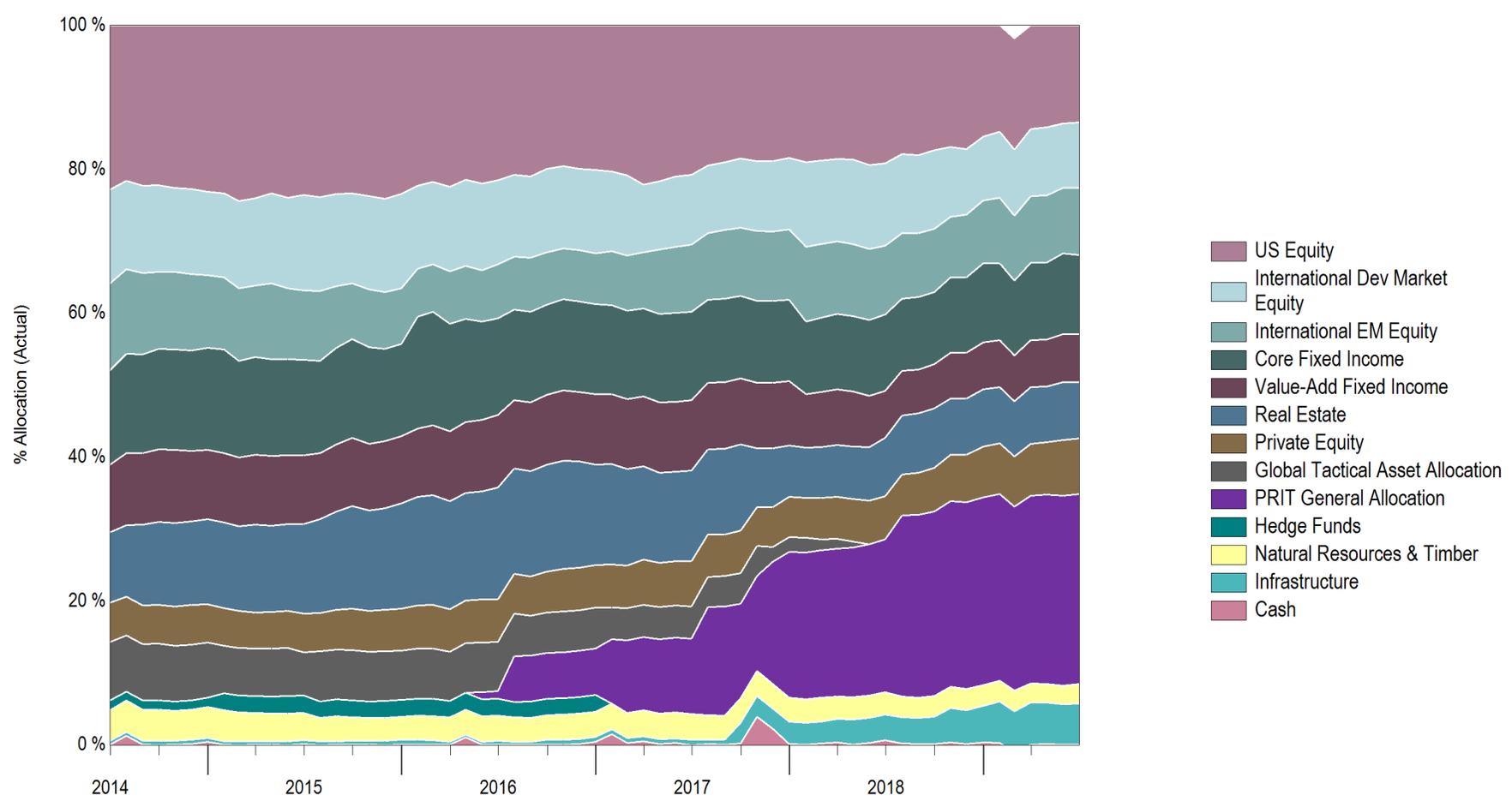


As of June 30, 2019

**Allocation vs. Policy Targets**

	Current Balance	Current Allocation	Policy	Policy Range	Within IPS Range?
US Equity	\$129,170,349	13%	14%	9% - 19%	Yes
International Dev Market Equity	\$87,434,243	9%	8%	4% - 12%	Yes
International EM Equity	\$89,205,109	9%	8%	4% - 12%	Yes
Core Fixed Income	\$105,081,480	11%	10%	5% - 15%	Yes
Value-Add Fixed Income	\$63,807,386	7%	4%	2% - 6%	No
Real Estate	\$74,681,308	8%	6%	4% - 8%	Yes
Private Equity	\$74,458,773	8%	7%	4% - 10%	Yes
PRIT General Allocation	\$252,489,817	26%	35%	0% - 50%	Yes
Natural Resources & Timber	\$25,774,385	3%	3%	1% - 5%	Yes
Infrastructure	\$54,485,224	6%	5%	2% - 8%	Yes
Cash	\$750,433	0%	0%	0% - 5%	Yes
<b>Total</b>	<b>\$957,338,506</b>	<b>100%</b>	<b>100%</b>		

Asset Allocation History  
 5 Years Ending June 30, 2019



Worcester Retirement System  
Retirement System Summary

As of June 30, 2019

**Asset Class Performance Summary**

	Market Value (\$)	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Total Retirement System</b>	<b>957,338,506</b>	<b>100.0</b>	<b>3.0</b>	<b>9.8</b>	<b>5.7</b>	<b>8.7</b>	<b>5.4</b>	<b>8.7</b>	<b>7.5</b>	<b>Oct-95</b>
<b>Total Retirement System (Net of Fees)</b>			<b>3.0</b>	<b>9.7</b>	<b>5.6</b>	<b>8.6</b>	<b>5.3</b>	<b>8.5</b>	<b>7.2</b>	
<i>Custom Benchmark - Target Allocation</i>			3.1	10.5	6.4	8.7	5.7	8.9	--	Oct-95
<i>60% MSCI ACWI / 40% Barclays Global Aggregate</i>			3.6	12.0	6.1	7.7	4.3	7.4	6.1	Oct-95
<b>Domestic Equity Assets</b>	<b>129,170,349</b>	<b>13.5</b>	<b>4.0</b>	<b>18.3</b>	<b>8.4</b>	<b>13.6</b>	<b>10.0</b>	<b>14.8</b>	<b>6.5</b>	<b>Aug-00</b>
<i>Russell 3000</i>			4.1	18.7	9.0	14.0	10.2	14.7	6.3	Aug-00
<b>International Developed Market Equity</b>	<b>87,434,243</b>	<b>9.1</b>	<b>3.5</b>	<b>13.9</b>	<b>-0.8</b>	<b>9.5</b>	<b>3.1</b>	<b>8.1</b>	<b>5.1</b>	<b>Aug-00</b>
<i>MSCI EAFE</i>			3.7	14.0	1.1	9.1	2.2	6.9	3.6	Aug-00
<b>International Emerging Market Equity</b>	<b>89,205,109</b>	<b>9.3</b>	<b>1.5</b>	<b>12.7</b>	<b>1.4</b>	<b>11.4</b>	<b>2.6</b>	<b>7.5</b>	<b>6.8</b>	<b>Aug-06</b>
<i>MSCI Emerging Markets</i>			0.6	10.6	1.2	10.7	2.5	5.8	5.1	Aug-06
<b>Core Fixed Income</b>	<b>105,081,480</b>	<b>11.0</b>	<b>3.0</b>	<b>6.0</b>	<b>6.8</b>	<b>2.4</b>	<b>2.4</b>	<b>4.0</b>	<b>4.4</b>	<b>May-05</b>
<i>Custom Benchmark - Fixed Income</i>			2.9	5.8	6.9	2.2	2.5	3.6	3.9	May-05
<b>Value Added Fixed Income</b>	<b>63,807,386</b>	<b>6.7</b>	<b>3.5</b>	<b>9.2</b>	<b>9.0</b>	<b>6.3</b>	<b>3.9</b>	<b>6.9</b>	<b>7.2</b>	<b>May-05</b>
<i>Custom High Yield Benchmark</i>			3.0	8.5	7.5	6.0	3.7	--	--	May-05
<b>Real Estate</b>	<b>74,681,308</b>	<b>7.8</b>	<b>0.5</b>	<b>5.5</b>	<b>6.6</b>	<b>7.8</b>	<b>9.5</b>	<b>9.6</b>	<b>7.8</b>	<b>Oct-00</b>
<i>NCREIF ODCE</i>			1.0	2.4	6.4	7.6	9.8	9.9	8.0	Oct-00
<b>Private Equity</b>	<b>74,458,773</b>	<b>7.8</b>	<b>2.3</b>	<b>2.9</b>	<b>9.5</b>	<b>11.9</b>	<b>8.1</b>	<b>9.2</b>	<b>9.3</b>	<b>Oct-00</b>
<i>Cambridge Associates Fund of Funds Composite 1-Quarter Lag</i>			4.0	3.5	12.5	12.2	11.0	12.1	5.1	Oct-00
<b>PRIT General Allocation</b>	<b>252,489,817</b>	<b>26.4</b>	<b>3.3</b>	<b>9.8</b>	<b>5.7</b>	<b>9.3</b>	<b>--</b>	<b>--</b>	<b>9.4</b>	<b>Jun-16</b>
<i>60% MSCI ACWI / 40% Barclays Global Aggregate</i>			3.6	12.0	6.1	7.7	4.3	7.4	7.7	Jun-16
<b>Real Assets</b>	<b>80,259,609</b>	<b>8.4</b>	<b>4.3</b>	<b>3.6</b>	<b>8.2</b>	<b>8.4</b>	<b>4.9</b>	<b>4.4</b>	<b>4.1</b>	<b>Oct-06</b>
<i>CPI + 3%</i>			1.2	2.5	4.7	5.1	4.5	4.7	4.8	Oct-06
<b>Cash</b>	<b>750,433</b>	<b>0.1</b>								

Custom Benchmark - Fixed Income is comprised of 70% Barclays US Aggregate Index and 30% Barclays 1-10 Year TIPS Index.

Custom High Yield Benchmark is comprised of one third Barclays High Yield Index, one third Credit Suisse Leveraged Loans Index, and the final third being split evenly between JPMorgan's Emerging Market Bond Index and Emerging Markets Government Bond Index.



Worcester Retirement System  
Retirement System Summary

As of June 30, 2019

**Trailing Performance**

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Total Retirement System</b>	<b>957,338,506</b>	<b>100.0</b>	<b>--</b>	<b>3.0</b>	<b>9.8</b>	<b>5.7</b>	<b>8.7</b>	<b>5.4</b>	<b>8.7</b>	<b>7.5</b>	<b>Oct-95</b>
<b>Total Retirement System (Net of Fees)</b>				<b>3.0</b>	<b>9.7</b>	<b>5.6</b>	<b>8.6</b>	<b>5.3</b>	<b>8.5</b>	<b>7.2</b>	
<i>Custom Benchmark - Target Allocation</i>				3.1	10.5	6.4	8.7	5.7	8.9	--	Oct-95
<i>60% MSCI ACWI / 40% Barclays Global Aggregate</i>				3.6	12.0	6.1	7.7	4.3	7.4	6.1	Oct-95
<b>Domestic Equity Assets</b>	<b>129,170,349</b>	<b>13.5</b>	<b>13.5</b>	<b>4.0</b>	<b>18.3</b>	<b>8.4</b>	<b>13.6</b>	<b>10.0</b>	<b>14.8</b>	<b>6.5</b>	<b>Aug-00</b>
<i>Russell 3000</i>				4.1	18.7	9.0	14.0	10.2	14.7	6.3	Aug-00
SSgA S&P 500 Index (Net of Fees)	38,669,468	4.0	29.9	4.3	18.5	10.4	14.2	10.7	14.7	6.8	Aug-98
<i>S&amp;P 500</i>				4.3	18.5	10.4	14.2	10.7	14.7	6.7	Aug-98
<i>Large Cap MStar MF Median</i>				4.2	18.2	9.0	13.4	9.2	13.8	6.9	Aug-98
<i>Large Cap MStar MF Rank</i>				43	45	33	36	28	27	54	Aug-98
SSgA Russell 1000 Growth Index (Net of Fees)	34,795,913	3.6	26.9	4.6	21.5	11.6	18.0	13.4	--	15.5	Nov-09
<i>Russell 1000 Growth</i>				4.6	21.5	11.6	18.1	13.4	16.3	15.5	Nov-09
<i>Large Growth MStar MF Median</i>				4.8	21.6	10.7	17.0	12.2	15.2	14.4	Nov-09
<i>Large Growth MStar MF Rank</i>				58	53	40	39	27	--	20	Nov-09
SSgA Russell 1000 Value Index (Net of Fees)	34,202,322	3.6	26.5	3.8	16.2	8.4	10.2	7.5	13.2	7.5	Jul-05
<i>Russell 1000 Value</i>				3.8	16.2	8.5	10.2	7.5	13.2	7.4	Jul-05
<i>Large Value MStar MF Median</i>				3.5	15.1	6.2	10.6	7.1	12.5	7.4	Jul-05
<i>Large Value MStar MF Rank</i>				41	32	36	58	40	30	50	Jul-05
SSgA S&P Midcap 400 Index (Net of Fees)	9,528,261	1.0	7.4	3.1	18.0	1.4	10.9	8.0	14.7	9.4	Sep-06
<i>S&amp;P 400 MidCap</i>				3.0	18.0	1.4	10.9	8.0	14.6	9.4	Sep-06
<i>Mid Cap MStar MF Median</i>				4.2	20.5	4.6	12.0	7.8	14.0	8.7	Sep-06
<i>Mid Cap MStar MF Rank</i>				69	66	68	57	45	34	35	Sep-06
Lee Munder Small Cap Value (Net of Fees)	11,974,385	1.3	9.3	2.5	16.6	-3.9	8.7	6.9	--	11.6	Nov-09
<i>Russell 2000 Value</i>				1.4	13.5	-6.2	9.8	5.4	12.4	11.3	Nov-09
<i>Small Value MStar MF Median</i>				1.8	14.0	-6.7	8.5	4.4	12.0	10.9	Nov-09
<i>Small Value MStar MF Rank</i>				22	18	19	43	9	--	36	Nov-09



## Retirement System Summary

As of June 30, 2019

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>International Developed Market Equity</b>	<b>87,434,243</b>	<b>9.1</b>	<b>9.1</b>	<b>3.5</b>	<b>13.9</b>	<b>-0.8</b>	<b>9.5</b>	<b>3.1</b>	<b>8.1</b>	<b>5.1</b>	<b>Aug-00</b>
MSCI EAFE				3.7	14.0	1.1	9.1	2.2	6.9	3.6	Aug-00
SSgA MSCI EAFE Index	63,857,864	6.7	73.0	3.8	14.3	1.2	9.4	2.5	7.2	5.9	Sep-04
MSCI EAFE				3.7	14.0	1.1	9.1	2.2	6.9	5.6	Sep-04
Foreign MStar MF Median				3.2	14.0	-0.8	8.6	2.5	7.4	6.1	Sep-04
Foreign MStar MF Rank				35	47	30	30	49	54	56	Sep-04
Acadian Non-U.S. Small Cap Equity (Net of Fees)	23,576,379	2.5	27.0	2.4	12.4	-7.3	9.2	5.1	11.0	7.8	Feb-05
MSCI EAFE Small Cap				1.7	12.5	-6.3	9.1	4.4	9.7	6.3	Feb-05
eV EAFE Small Cap Core Net Median				2.4	12.5	-7.1	8.8	4.2	10.5	7.8	Feb-05
eV EAFE Small Cap Core Net Rank				49	52	53	46	40	47	52	Feb-05
<b>International Emerging Market Equity</b>	<b>89,205,109</b>	<b>9.3</b>	<b>9.3</b>	<b>1.5</b>	<b>12.7</b>	<b>1.4</b>	<b>11.4</b>	<b>2.6</b>	<b>7.5</b>	<b>6.8</b>	<b>Aug-06</b>
MSCI Emerging Markets				0.6	10.6	1.2	10.7	2.5	5.8	5.1	Aug-06
PRIT Emerging Markets (Net of Fees)	89,205,109	9.3	100.0	1.5	12.7	1.4	--	--	--	9.7	Sep-16
MSCI Emerging Markets				0.6	10.6	1.2	10.7	2.5	5.8	8.5	Sep-16
eV Emg Mkts Equity Net Median				1.4	12.0	0.9	9.9	2.5	6.7	7.8	Sep-16
eV Emg Mkts Equity Net Rank				48	43	45	--	--	--	23	Sep-16
<b>Core Fixed Income</b>	<b>105,081,480</b>	<b>11.0</b>	<b>11.0</b>	<b>3.0</b>	<b>6.0</b>	<b>6.8</b>	<b>2.4</b>	<b>2.4</b>	<b>4.0</b>	<b>4.4</b>	<b>May-05</b>
Custom Benchmark - Fixed Income				2.9	5.8	6.9	2.2	2.5	3.6	3.9	May-05
IR&M Aggregate Bond	67,992,599	7.1	64.7	3.3	6.4	8.0	2.6	3.2	--	3.5	Feb-14
BBgBarc US Aggregate TR				3.1	6.1	7.9	2.3	2.9	3.9	3.2	Feb-14
Intermediate Core Bond MStar MF Median				3.0	6.1	7.7	2.3	2.8	4.2	3.1	Feb-14
Intermediate Core Bond MStar MF Rank				16	33	29	28	12	--	9	Feb-14
IR&M Intermediate TIPS	37,088,882	3.9	35.3	2.6	5.2	4.7	1.9	1.4	--	1.8	Feb-14
BBgBarc US TIPS 1-10 Yr TR				2.5	5.2	4.7	1.9	1.4	2.9	1.8	Feb-14
Inflation-Protected Bond MStar MF Median				2.6	6.0	4.3	1.9	1.3	3.3	1.8	Feb-14
Inflation-Protected Bond MStar MF Rank				53	62	24	50	35	--	54	Feb-14

## Retirement System Summary

As of June 30, 2019

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Value Added Fixed Income</b>	<b>63,807,386</b>	<b>6.7</b>	<b>6.7</b>	<b>3.5</b>	<b>9.2</b>	<b>9.0</b>	<b>6.3</b>	<b>3.9</b>	<b>6.9</b>	<b>7.2</b>	<b>May-05</b>
<i>Custom High Yield Benchmark</i>				3.0	8.5	7.5	6.0	3.7	--	--	May-05
<b>High Yield Bonds</b>	<b>24,683,280</b>	<b>2.6</b>	<b>38.7</b>	<b>2.1</b>	<b>7.9</b>	<b>5.8</b>	<b>6.0</b>	<b>3.8</b>	<b>7.2</b>	<b>6.1</b>	<b>Jun-08</b>
<i>50% BBgBarc US High Yield/ 50% Credit Suisse Leveraged Loans</i>				2.0	7.7	5.8	6.5	4.3	7.8	6.6	Jun-08
Loomis Sayles High Yield (Net of Fees)	13,341,296	1.4	54.0	2.3	9.7	6.7	6.8	--	--	--	Jan-96
<i>BBgBarc US High Yield TR</i>				2.5	9.9	7.5	7.5	4.7	9.2	7.1	Jan-96
<i>eV US High Yield Fixed Inc Gross Median</i>				2.6	9.8	7.4	7.3	4.7	9.0	7.5	Jan-96
<i>eV US High Yield Fixed Inc Gross Rank</i>				69	53	72	69	--	--	--	Jan-96
Loomis Sayles Bank Loans (Net of Fees)	11,341,984	1.2	46.0	1.5	5.4	3.7	4.1	--	--	--	Oct-05
<i>Credit Suisse Leveraged Loans</i>				1.6	5.4	4.1	5.4	3.9	6.3	4.6	Oct-05
<i>eV US Float-Rate Bank Loan Fixed Inc Gross Median</i>				1.7	5.7	4.1	5.2	4.0	6.3	5.0	Oct-05
<i>eV US Float-Rate Bank Loan Fixed Inc Gross Rank</i>				63	68	84	98	--	--	--	Oct-05
<b>Total Emerging Markets Debt</b>	<b>30,916,314</b>	<b>3.2</b>	<b>48.5</b>	<b>5.0</b>	<b>11.4</b>	<b>10.9</b>	<b>4.4</b>	<b>1.0</b>	<b>--</b>	<b>1.6</b>	<b>Aug-13</b>
<i>50% JPM EMBI GD / 50% JPM GBI-EM</i>				4.9	10.0	10.8	4.9	2.5	5.6	3.3	Aug-13
Lazard Emerging Market Debt Blend	30,916,314	3.2	100.0	5.0	11.4	10.9	4.4	1.0	--	2.2	Aug-13
<i>50% JPM EMBI GD / 50% JPM GBI-EM</i>				4.9	10.0	10.8	4.9	2.5	5.6	3.3	Aug-13
<i>Emerging Markets Bond MStar MF Median</i>				3.9	10.3	10.2	5.2	3.8	7.1	4.7	Aug-13
<i>Emerging Markets Bond MStar MF Rank</i>				4	19	39	76	88	--	81	Aug-13
<b>Mezzanine Debt</b>	<b>8,207,792</b>	<b>0.9</b>	<b>12.9</b>	<b>2.3</b>	<b>5.7</b>	<b>11.1</b>	<b>12.5</b>	<b>12.6</b>	<b>10.1</b>	<b>--</b>	<b>Oct-02</b>
Northstar Mezzanine Partners VI	5,514,145	0.6	67.2								
Newstone Capital Partners II	734,594	0.1	8.9								
Northstar Mezzanine Partners V	1,725,606	0.2	21.0								
Northstar Mezzanine Partners IV	157,939	0.0	1.9								
Newstone Capital Partners	1,557	0.0	0.0								
Northstar Mezzanine Partners III	73,951	0.0	0.9								

## Retirement System Summary

As of June 30, 2019

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Real Estate</b>	<b>74,681,308</b>	<b>7.8</b>	<b>7.8</b>	<b>0.5</b>	<b>5.5</b>	<b>6.6</b>	<b>7.8</b>	<b>9.5</b>	<b>9.6</b>	<b>7.8</b>	<b>Oct-00</b>
<i>NCREIF ODCE</i>				<i>1.0</i>	<i>2.4</i>	<i>6.4</i>	<i>7.6</i>	<i>9.8</i>	<i>9.9</i>	<i>8.0</i>	<i>Oct-00</i>
<b>Open-End Real Estate</b>	<b>67,728,376</b>	<b>7.1</b>	<b>90.7</b>	<b>0.4</b>	<b>5.2</b>	<b>5.6</b>	<b>7.2</b>	<b>9.1</b>	<b>9.3</b>	<b>7.3</b>	<b>Jan-99</b>
PRIT Real Estate	67,728,376	7.1	100.0	0.4	5.2	5.6	7.0	9.0	--	11.0	Apr-10
<i>NCREIF ODCE</i>				<i>1.0</i>	<i>2.4</i>	<i>6.4</i>	<i>7.6</i>	<i>9.8</i>	<i>9.9</i>	<i>12.0</i>	<i>Apr-10</i>
<i>NCREIF ODCE Equal Weighted</i>				<i>1.3</i>	<i>3.1</i>	<i>6.9</i>	<i>7.9</i>	<i>10.1</i>	<i>9.8</i>	<i>12.0</i>	<i>Apr-10</i>
<i>Custom Benchmark</i>				<i>0.8</i>	<i>4.9</i>	<i>6.9</i>	<i>7.3</i>	<i>9.2</i>	<i>10.7</i>	<i>11.6</i>	<i>Apr-10</i>
<b>Non-Core Real Estate</b>	<b>6,952,932</b>	<b>0.7</b>	<b>9.3</b>	<b>1.7</b>	<b>8.5</b>	<b>16.9</b>	<b>13.4</b>	<b>14.5</b>	<b>14.2</b>	<b>12.8</b>	<b>Oct-05</b>
AEW Partners VII	4,750,894	0.5	68.3								
AEW Partners VI	2,202,038	0.2	31.7								

## Retirement System Summary

As of June 30, 2019

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Private Equity</b>	<b>74,458,773</b>	<b>7.8</b>	<b>7.8</b>	<b>2.3</b>	<b>2.9</b>	<b>9.5</b>	<b>11.9</b>	<b>8.1</b>	<b>9.2</b>	<b>9.3</b>	<b>Oct-00</b>
<i>Cambridge Associates Fund of Funds Composite 1-Quarter Lag</i>				4.0	3.5	12.5	12.2	11.0	12.1	5.1	Oct-00
<b>Buyouts</b>	<b>45,928,380</b>	<b>4.8</b>	<b>61.7</b>	<b>3.8</b>	<b>4.9</b>	<b>13.9</b>	<b>16.0</b>	<b>11.1</b>	<b>11.1</b>	<b>12.3</b>	<b>Oct-05</b>
American Securities Partners VI	3,390,707	0.4	7.4								
Riverside Capital Appreciation Fund VI	6,454,584	0.7	14.1								
Vitruvian Investment Partnership I	4,166,257	0.4	9.1								
Riverside Micro Cap Fund III	7,410,605	0.8	16.1								
Ridgemont II	9,112,225	1.0	19.8								
Capital International Private Equity Fund VI	6,598,397	0.7	14.4								
Harvest Partners V	976,593	0.1	2.1								
TA XII	6,672,067	0.7	14.5								
Riverside Capital Fund V	676,904	0.1	1.5								
Riverside Europe III	211,451	0.0	0.5								
Charlesbank Equity Fund VI	258,590	0.0	0.6								
<b>Fund of Funds</b>	<b>18,655,334</b>	<b>1.9</b>	<b>25.1</b>	<b>1.2</b>	<b>2.4</b>	<b>3.7</b>	<b>-1.2</b>	<b>-6.4</b>	<b>-0.7</b>	<b>6.5</b>	<b>Oct-05</b>
PRIT Vintage Year 2016	5,387,715	0.6	28.9								
PRIT Vintage Year 2017	8,339,661	0.9	44.7								
European Strategic Partners	73,604	0.0	0.4								
INVESCO Private Capital II	85,219	0.0	0.5								
PRIT Vintage Year 2018	4,095,798	0.4	22.0								
PRIT Vintage Year 2019	673,338	0.1	3.6								

## Retirement System Summary

As of June 30, 2019

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Venture Capital Funds</b>	<b>9,875,059</b>	<b>1.0</b>	<b>13.3</b>	<b>-2.2</b>	<b>-4.9</b>	<b>-2.7</b>	<b>-0.1</b>	<b>0.3</b>	<b>5.1</b>	<b>5.8</b>	<b>Oct-05</b>
Ascent Venture Partners V	4,256,278	0.4	43.1								
Ascent Venture Partners VI	4,362,901	0.5	44.2								
Boston Millennia Partners III	494,476	0.1	5.0								
Boston Millennia Partners II	450,713	0.0	4.6								
Ascent Venture Partners II	22,932	0.0	0.2								
Ascent Venture Partners IV	48,218	0.0	0.5								
Ascent Venture Partners III	239,541	0.0	2.4								
<b>PRIT General Allocation</b>	<b>252,489,817</b>	<b>26.4</b>	<b>26.4</b>	<b>3.3</b>	<b>9.8</b>	<b>5.7</b>	<b>9.3</b>	<b>--</b>	<b>--</b>	<b>9.4</b>	<b>Jun-16</b>
<i>60% MSCI ACWI / 40% Barclays Global Aggregate</i>				3.6	12.0	6.1	7.7	4.3	7.4	7.7	Jun-16
PRIT General Allocation Fund (Net of Fees)	252,489,817	26.4	100.0	3.3	9.8	5.7	9.3	--	--	9.3	Jun-16
<i>60% MSCI ACWI / 40% Barclays Global Aggregate</i>				3.6	12.0	6.1	7.7	4.3	7.4	7.7	Jun-16

## Retirement System Summary

As of June 30, 2019

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Real Assets</b>	<b>80,259,609</b>	<b>8.4</b>	<b>8.4</b>	<b>4.3</b>	<b>3.6</b>	<b>8.2</b>	<b>8.4</b>	<b>4.9</b>	<b>4.4</b>	<b>4.1</b>	<b>Oct-06</b>
<i>CPI + 3%</i>				1.2	2.5	4.7	5.1	4.5	4.7	4.8	Oct-06
<b>Natural Resources Assets</b>	<b>15,862,295</b>	<b>1.7</b>	<b>19.8</b>	<b>3.8</b>	<b>1.6</b>	<b>-3.0</b>	<b>7.6</b>	<b>-2.0</b>	<b>--</b>	<b>--</b>	
<i>S&amp;P Global Natural Resources Index TR USD</i>				1.3	13.8	-4.0	11.4	0.7	3.5	--	
<b>Natural Resources (Public)</b>	<b>8,753,715</b>	<b>0.9</b>	<b>55.2</b>	<b>1.8</b>	<b>14.3</b>	<b>1.1</b>	<b>10.7</b>	<b>-0.3</b>	<b>--</b>	<b>-1.7</b>	<b>May-11</b>
SSgA Global Natural Resources Stock Index (Net of Fees)	8,753,715	0.9	100.0	1.7	14.2	1.0	10.6	--	--	--	May-11
<i>S&amp;P Global LargeMidCap Commodity and Resources NR USD</i>				1.7	14.2	0.8	10.2	-0.7	3.7	-1.9	May-11
<i>Natural Resources MStar MF Median</i>				0.1	12.9	-10.7	4.1	-4.3	3.2	-2.5	May-11
<i>Natural Resources MStar MF Rank</i>				12	22	10	1	--	--	--	May-11
<b>Natural Resources (Private)</b>	<b>7,108,580</b>	<b>0.7</b>	<b>44.8</b>	<b>6.6</b>	<b>-10.7</b>	<b>-7.4</b>	<b>4.0</b>	<b>-7.5</b>	<b>--</b>	<b>6.0</b>	<b>Jul-10</b>
White Deer Energy II	6,702,996	0.7	94.3								
White Deer Energy	405,584	0.0	5.7								
<b>Timber</b>	<b>9,912,090</b>	<b>1.0</b>	<b>12.4</b>	<b>0.3</b>	<b>-8.8</b>	<b>-11.0</b>	<b>-5.3</b>	<b>-3.0</b>	<b>-1.1</b>	<b>0.7</b>	<b>Oct-05</b>
<i>NCREIF Timberland (1-Quarter Lag)</i>				0.1	0.9	2.4	3.3	4.6	3.8	6.7	Oct-05
RMK Select Timberland Investment Fund I	4,415,325	0.5	44.5								
Hancock Timberland VII	1,523,286	0.2	15.4								
RMK Select Timberland Investment Fund II	2,754,657	0.3	27.8								
RMK Balanced Timberland B	1,218,822	0.1	12.3								

## Retirement System Summary

As of June 30, 2019

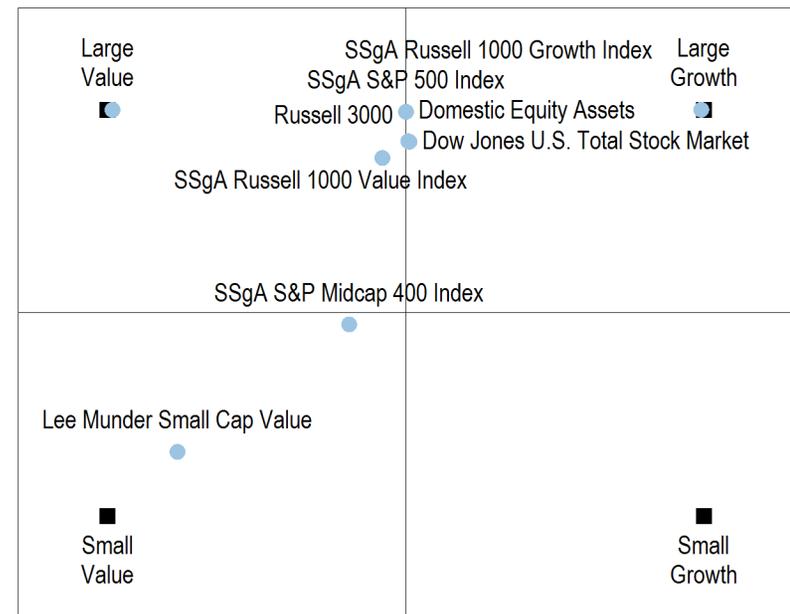
	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Infrastructure</b>	<b>54,485,224</b>	<b>5.7</b>	<b>67.9</b>	<b>5.2</b>	<b>6.7</b>	<b>17.5</b>	<b>17.3</b>	<b>28.1</b>	<b>20.5</b>	<b>16.1</b>	<b>Jun-08</b>
<i>CPI+5%</i>				1.7	3.5	6.7	7.1	6.5	6.7	6.6	Jun-08
IFM Global Infrastructure (Net of Fees)	40,489,170	4.2	74.3	3.8	6.6	16.4	--	--	--	16.7	Sep-17
Global Infrastructure Partners	1,812,506	0.2	3.3								
Global Infrastructure Partners III	12,183,548	1.3	22.4								
<b>Cash</b>	<b>750,433</b>	<b>0.1</b>	<b>0.1</b>								
Cash	750,433	0.1	100.0								

## **Retirement System Detail**

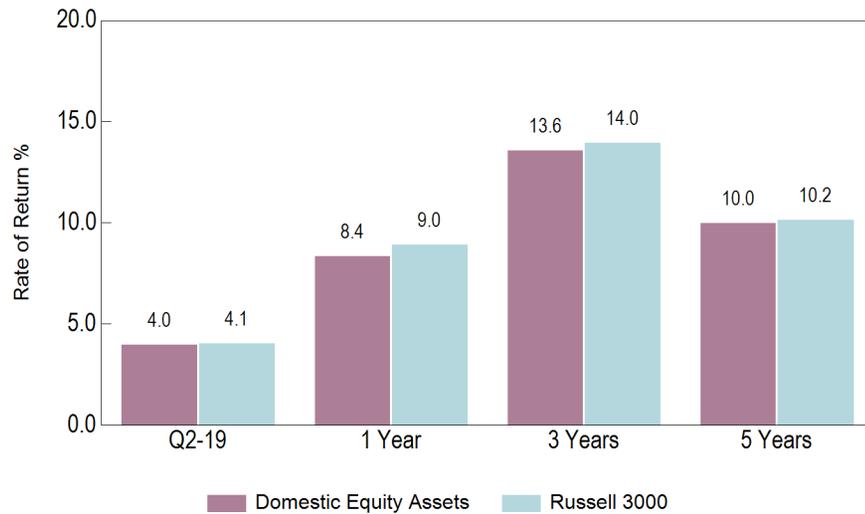
**Asset Allocation on June 30, 2019**

	Actual	Actual
SSgA S&P 500 Index	\$38,669,468	29.9%
SSgA Russell 1000 Growth Index	\$34,795,913	26.9%
SSgA Russell 1000 Value Index	\$34,202,322	26.5%
SSgA S&P Midcap 400 Index	\$9,528,261	7.4%
Lee Munder Small Cap Value	\$11,974,385	9.3%
<b>Total</b>	<b>\$129,170,349</b>	<b>100.0%</b>

**Domestic Equity Assets Style Map  
3 Years Ending June 30, 2019**



**Return Summary  
Ending June 30, 2019**



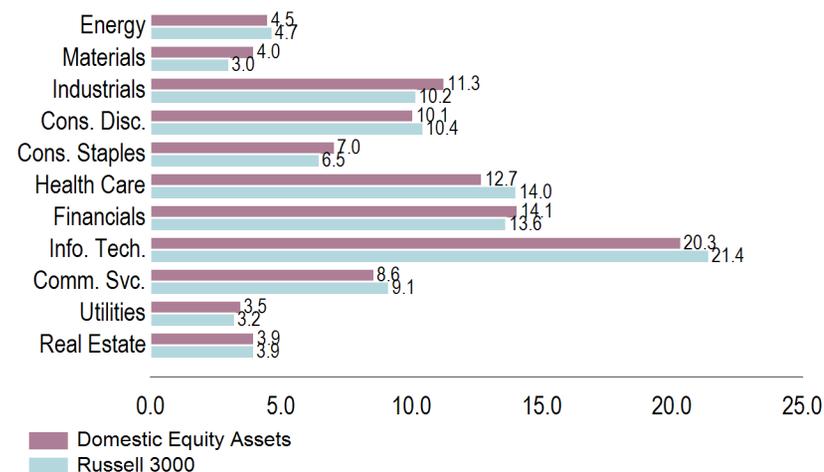
Domestic Equity Equity Characteristics

	Portfolio Q2-19	Index Q2-19	Portfolio Q1-19
<b>Market Value</b>			
Market Value (\$M)	129.17	--	136.38
Number Of Holdings	1208	2954	1205
<b>Characteristics</b>			
Weighted Avg. Market Cap. (\$B)	178.85	190.66	167.75
Median Market Cap (\$B)	9.28	1.65	9.10
P/E Ratio	20.28	20.48	19.79
Yield	1.88	1.87	1.96
EPS Growth - 5 Yrs.	12.18	12.96	11.54
Price to Book	3.24	3.43	3.10
Beta (holdings; domestic)	1.03	1.03	1.02

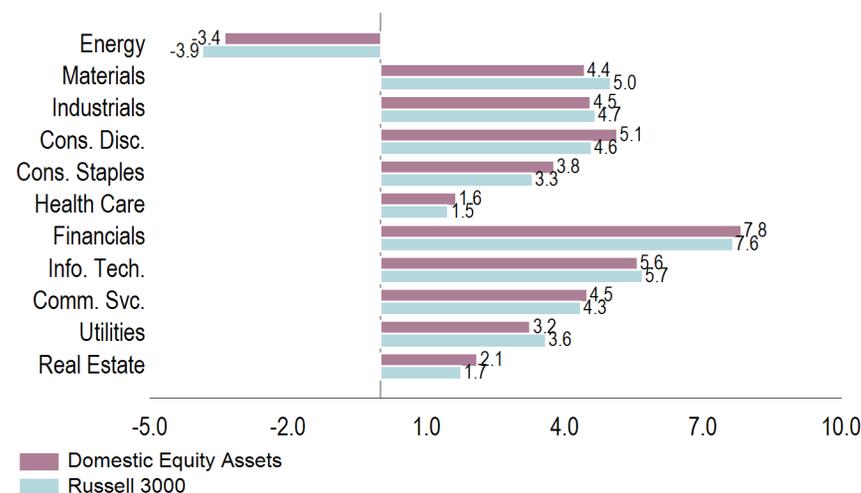
Top Holdings

MICROSOFT	3.2%
APPLE	2.9%
AMAZON.COM	2.5%
FACEBOOK CLASS A	1.5%
BERKSHIRE HATHAWAY 'B'	1.3%
JOHNSON & JOHNSON	1.2%
JP MORGAN CHASE & CO.	1.2%
ALPHABET 'C'	1.0%
EXXON MOBIL	1.0%
ALPHABET A	1.0%
<b>Total</b>	<b>16.9%</b>

Sector Allocation (%) vs Russell 3000



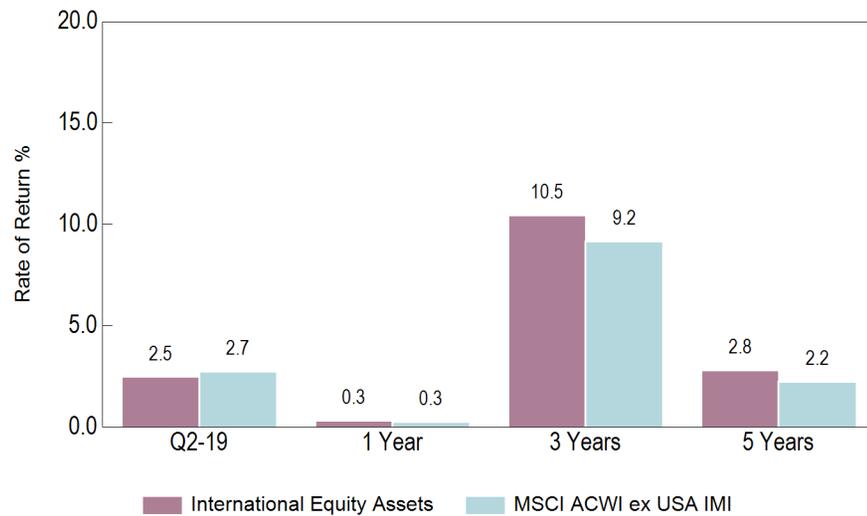
Sector Returns (%) vs Russell 3000



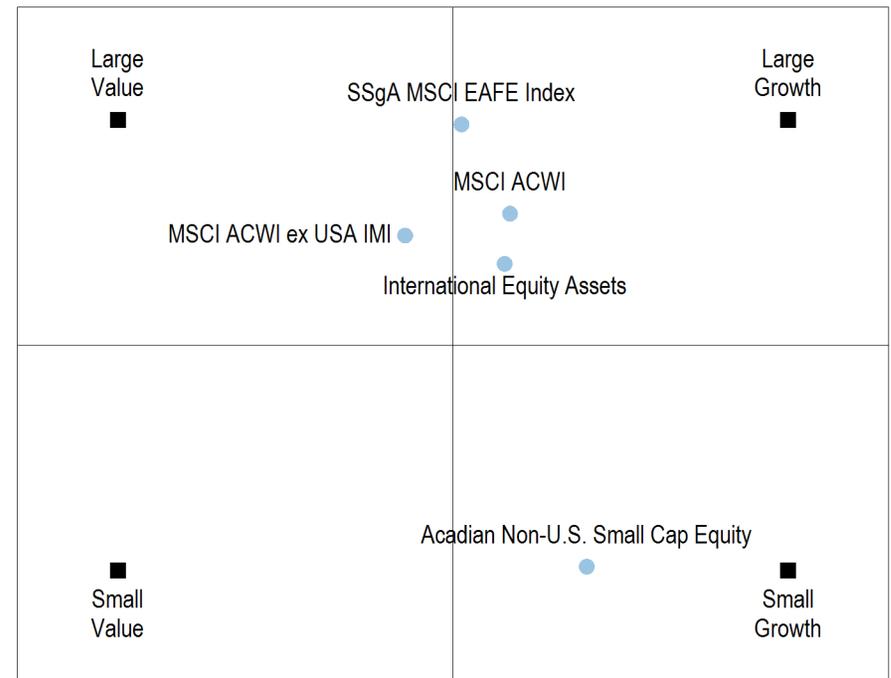
**Asset Allocation on June 30, 2019**

	Actual	Actual
SSgA MSCI EAFE Index	\$63,857,864	36.2%
Acadian Non-U.S. Small Cap Equity	\$23,576,379	13.3%
PRIT Emerging Markets	\$89,205,109	50.5%
<b>Total</b>	<b>\$176,639,352</b>	<b>100.0%</b>

**Return Summary  
Ending June 30, 2019**



**International Equity Assets Style Map  
3 Years Ending June 30, 2019**



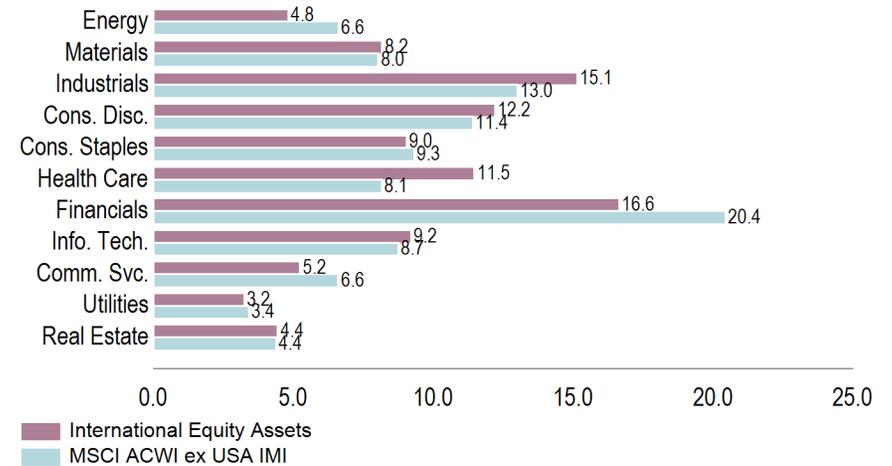
International Equity Characteristics

	Portfolio Q2-19	Index Q2-19	Portfolio Q1-19
<b>Market Value</b>			
Market Value (\$M)	176.64	--	176.45
Number Of Holdings	2360	6381	2422
<b>Characteristics</b>			
Weighted Avg. Market Cap. (\$B)	44.92	57.08	43.94
Median Market Cap (\$B)	1.62	1.57	1.55
P/E Ratio	14.53	14.92	14.21
Yield	3.18	3.13	3.23
EPS Growth - 5 Yrs.	9.85	9.88	10.63
Price to Book	2.25	2.29	2.19
Beta (holdings; domestic)	0.99	1.03	1.01

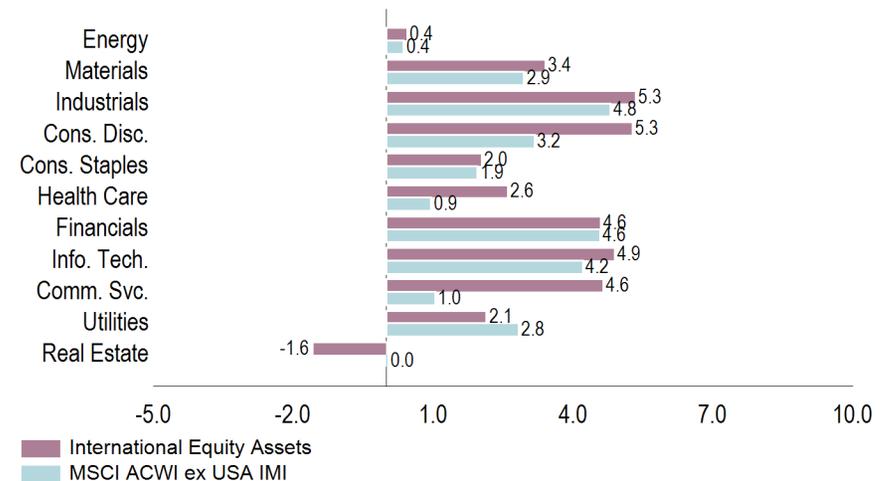
Top Holdings

NESTLE 'R'	1.6%
NOVARTIS 'R'	1.0%
ROCHE HOLDING	1.0%
HSBC HOLDINGS	0.9%
ROYAL DUTCH SHELL A(LON)	0.7%
AIA GROUP	0.7%
TOYOTA MOTOR	0.7%
BP	0.7%
SAP	0.7%
TOTAL	0.7%
<b>Total</b>	<b>8.8%</b>

Sector Allocation (%) vs MSCI ACWI ex USA IMI



Sector Returns (%) vs MSCI ACWI ex USA IMI



As of June 30, 2019

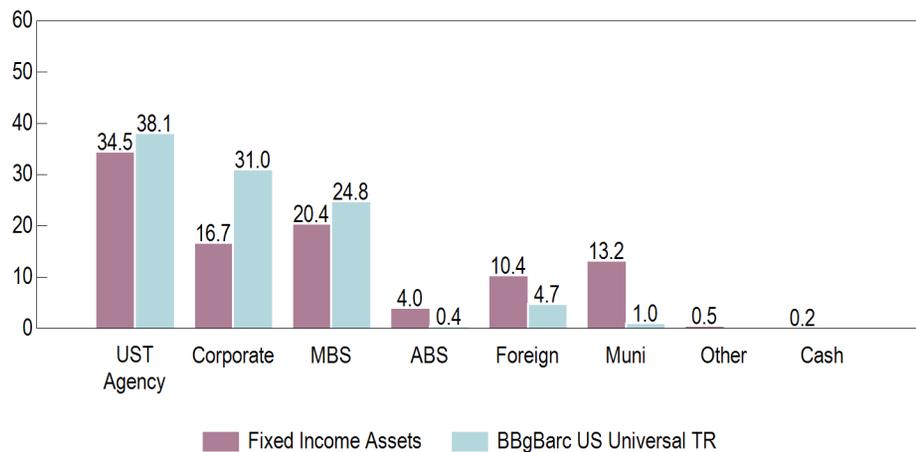
Asset Allocation on June 30, 2019

	Actual	Actual
IR&M Aggregate Bond	\$67,992,599	40.3%
IR&M Intermediate TIPS	\$37,088,882	22.0%
Lazard Emerging Market Debt Blend	\$30,916,314	18.3%
Loomis Sayles Bank Loans	\$11,341,984	6.7%
Loomis Sayles High Yield	\$13,341,296	7.9%
Newstone Capital Partners	\$1,557	0.0%
Newstone Capital Partners II	\$734,594	0.4%
Northstar Mezzanine Partners III	\$73,951	0.0%
Northstar Mezzanine Partners IV	\$157,939	0.1%
Northstar Mezzanine Partners V	\$1,725,606	1.0%
Northstar Mezzanine Partners VI	\$5,514,145	3.3%
<b>Total</b>	<b>\$168,888,866</b>	<b>100.0%</b>

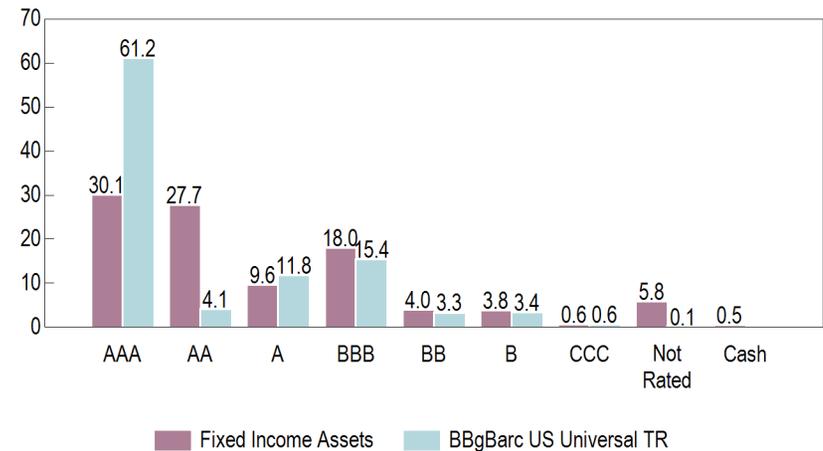
Fixed Income Characteristics  
vs. BBlBarc US Universal TR

	Portfolio Q2-19	Index Q2-19	Portfolio Q1-19
<b>Fixed Income Characteristics</b>			
Yield to Maturity	3.15	2.90	3.39
Average Duration	5.64	5.97	5.66
Average Quality	AA	AA	AA
Weighted Average Maturity	7.83	12.07	7.98

Sector Allocation



Credit Quality Allocation



As of June 30, 2019

Partnership	Vintage Year	Committed(\$)	Called	Distributed	Fair Value	Net IRR	Net Multiple
Ascent Venture Partners II	1995	\$2.0	\$1.9	\$6.4	<\$0.1	27.3%	3.3x
						BUY: 9.7%, VC:-2.2%,	
INVESCO Private Capital Fund of Funds	1998	\$5.0	\$4.6	\$6.6	\$0.1	Non-US 10.0%	1.4x
Ascent Venture Partners III	1999	\$5.0	\$4.7	\$5.7	\$0.2	3.8%	1.3x
European Strategic Partners	2000	€ 6.0	\$6.9	\$10.9	<\$0.1	11.4%	1.6x
Boston Millennia Partners II	2000	\$4.0	\$4.0	\$3.0	\$0.5	-1.5%	0.9x
Ascent Venture Partners IV	2003	\$3.0	\$3.0	\$0.5	<\$0.1	-31.4%	0.2x
Charlesbank Equity Fund VI	2005	\$3.0	\$2.9	\$3.8	\$0.3	9.9%	1.4x
Riverside Europe III	2006	€ 5.0	\$6.3	\$5.1	\$0.2	-1.1%	0.8x
Harvest Partners V	2007	\$6.0	\$5.5	\$9.3	\$1.0	18.6%	1.9x
Riverside Capital Fund V	2007	\$4.0	\$3.8	\$4.4	\$0.7	8.7%	1.3x
Vitruvian Investment Partnership I	2007	€ 4.0	\$4.4	\$6.4	\$4.3	11.2%	2.4x
Boston Millennia Partners III	2010	\$3.0	\$2.0	\$2.8	\$0.5	16.6%	1.7x
Capital International Private Equity Fund VI	2010	\$7.5	\$6.3	\$2.0	\$6.6	-4.6%	1.4x
Ascent Venture Partners V	2010	\$5.0	\$4.7	\$3.3	\$4.3	8.4%	1.6x
American Securities Partners VI	2011	\$7.5	\$6.3	\$9.7	\$3.3	21.8%	2.1x
Riverside Capital Appreciation Fund VI	2013	\$7.5	\$7.0	\$3.7	\$6.5	13.9%	1.5x
Riverside Micro Cap Fund III	2014	\$7.5	\$4.5	\$2.9	\$7.4	25.8%	2.3x
Ridgmont II	2015	\$10.0	\$6.7	\$1.2	\$9.1	21.9%	1.4x
Ascent Venture Partners VI	2015	\$5.0	\$3.7	\$0.0	\$4.4	8.7%	1.2x
TA XII	2015	\$6.7	\$4.2	\$0.7	\$6.7	27.9%	1.8x
PRIT VY 2016	2016	\$8.3	\$5.3	\$0.0	\$5.4	NM	1.0x
PRIT VY 2017	2017	\$31.2	\$8.2	\$0.1	\$8.3	NM	1.0x
PRIT VY 2018	2018	\$14.1	\$4.6	\$0.0	\$4.1	NM	0.9x
<b>Total Program (USD \$)</b>		<b>\$145.3</b>	<b>\$111.6</b>	<b>\$88.5</b>	<b>\$73.9</b>		<b>1.5x</b>
<b>Total Program (EUR €)</b>		<b>€ 15.0</b>					

Fair values for private markets assets are based on reported values of 3/31/19, adjusted for cash flows through 6/30/19.

Unless otherwise denoted, all values have been converted into US dollars using 3/31/2019 exchange rates.

Ascent Venture Partners II is winding down as of 8/31/2017, left over value is tax held back.

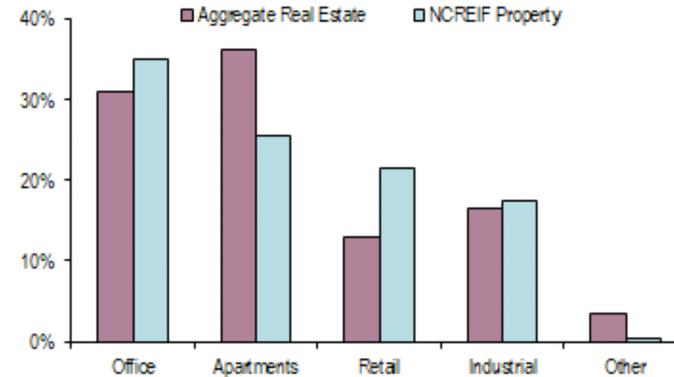
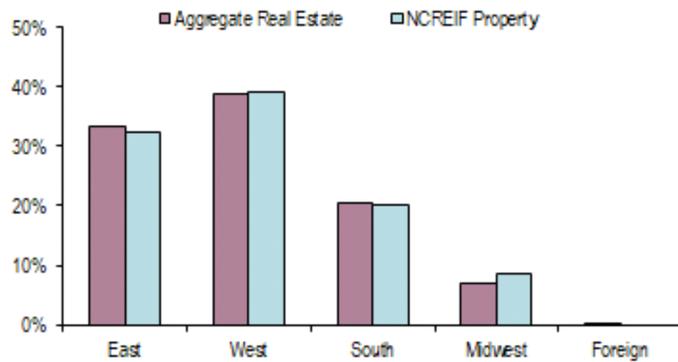
European Strategic Partners is winding down as of 3/31/2018 and only provides data annually.

## Mezzanine Debt Assets

As of June 30, 2019

Partnership	Vintage Year	Committed(\$)	Called	Distributed	Fair Value	Net IRR	Net Multiple
Newstone Capital	2006	\$5.0	\$5.9	\$7.9	\$<0.1	7.9%	1.3x
Newstone II	2010	\$5.0	\$6.6	\$7.4	\$0.7	8.5%	1.2x
Northstar Mezzanine Partners III	2002	\$5.0	\$5.0	\$7.8	\$0.7	10.7%	1.7x
Northstar Mezzanine Partners IV	2005	\$5.0	\$5.3	\$7.9	\$0.2	9.9%	1.5x
Northstar Mezzanine Partners V	2007	\$5.0	\$5.8	\$5.9	\$1.7	7.2%	1.3x
Northstar Mezzanine Partners VI	2014	\$7.5	\$7.2	\$3.7	\$5.5	9.1%	1.3x
<b>Total Program</b>		<b>\$32.5</b>	<b>\$35.8</b>	<b>\$40.5</b>	<b>\$8.9</b>		<b>1.4x</b>

Partnership	Market	Strategy	Vehicle	Fair Value	Net IRR
PRIT Real Estate	Private/Public	Diversified Core	Open-end	\$67.7	NA
AEW VII	Private	Opportunistic	Close-End	\$4.8	13.2%
AEW VI	Private	Opportunistic	Close-End	\$2.2	15.7%
<b>Total Program</b>				<b>\$74.7</b>	



Regional and property type allocation as of 3/31/2019.



## Real Estate Assets

As of June 30, 2019

Partnership	Vintage Year	Committed(\$)	Called	Distributed	Fair Value	Net IRR
RMK Fund B	1999	\$5.0	\$5.0	\$8.3	\$1.2	6.7%
RMK Fund 1	2001	\$5.0	\$5.0	\$1.4	\$4.4	2.4%
White Deer	2010	\$5.0	\$5.4	\$7.0	\$0.4	22.5%
Hancock VII	2005	\$5.0	\$5.0	\$3.6	\$1.5	1.2%
RMK Fund II	2007	\$5.0	\$5.0	\$1.8	\$2.8	0.1%
Global Infrastructure Partners B	2008	\$8.0	\$7.1	\$17.8	\$1.8	13.8%
White Deer II	2013	\$10.0	\$7.9	\$0.8	\$6.7	0.8%
Global Infrastructure Partners III	2016	\$15.0	\$11.0	\$0.7	\$12.2	7.8%
IFM	2017	\$20.0	\$35.0	\$2.0	\$40.5	12%
<b>Total Program</b>		<b>\$78.0</b>	<b>\$86.4</b>	<b>\$43.5</b>	<b>\$71.5</b>	

## Portfolio Reviews

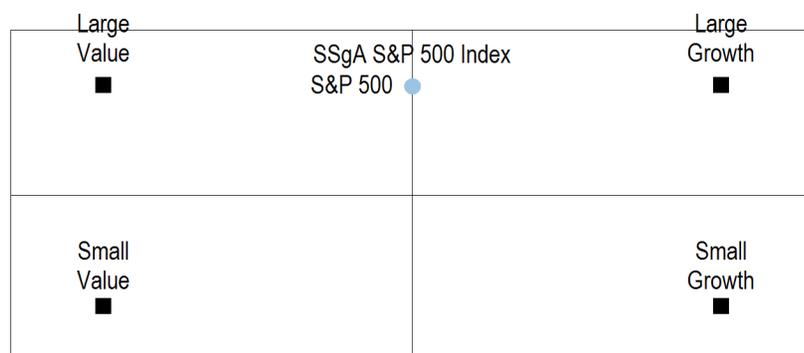
**Account Information**

Account Name	<b>SSgA S&amp;P 500 Index</b>
Account Structure	<b>Commingled Fund</b>
Investment Style	<b>Passive</b>
Inception Date	<b>8/01/98</b>
Account Type	<b>US Equity</b>
Benchmark	<b>S&amp;P 500</b>
Universe	<b>Large Cap MStar MF</b>

**Portfolio Performance Summary**

	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
SSgA S&P 500 Index	4.3	18.5	10.4	14.2	10.7	14.7	6.8	Aug-98
S&P 500	4.3	18.5	10.4	14.2	10.7	14.7	6.7	Aug-98
Large Cap MStar MF Median	4.2	18.2	9.0	13.4	9.2	13.8	6.9	Aug-98
Large Cap MStar MF Rank	43	45	33	36	28	27	54	Aug-98

**U.S. Effective Style Map  
3 Years Ending June 30, 2019**



**SSgA S&P 500 Index Characteristics**

	Portfolio Q2-19	Index Q2-19	Portfolio Q1-19
<b>Market Value</b>			
Market Value (\$M)	38.7	--	43.3
Number Of Holdings	507	505	505
<b>Sector Distribution</b>			
Energy	5.0	5.0	5.4
Materials	2.8	2.8	2.6
Industrials	9.4	9.4	9.5
Consumer Discretionary	10.2	10.2	10.1
Consumer Staples	7.3	7.3	7.3
Health Care	14.2	14.2	14.6
Financials	13.1	13.1	12.7
Information Technology	21.5	21.5	21.2
Communication Services	10.1	10.2	10.1
Utilities	3.3	3.3	3.3
Real Estate	3.0	3.1	3.0
<b>Company Size Distribution</b>			
Weighted Avg. Market Cap. (\$B)	226.4	225.0	212.5
Median Market Cap. (\$B)	22.1	22.1	21.2
Large Cap. (%)	50.6	50.1	50.9
Medium/Large Cap. (%)	32.2	32.6	32.0
Medium Cap. (%)	15.6	15.5	15.6
Medium/Small Cap. (%)	1.6	1.5	1.5
Small Cap. (%)	0.0	0.2	0.0

SSgA Russell 1000 Growth Index

As of June 30, 2019

Account Information

Account Name	SSgA Russell 1000 Growth Index
Account Structure	Commingled Fund
Investment Style	Passive
Inception Date	11/01/09
Account Type	US Equity
Benchmark	Russell 1000 Growth
Universe	Large Growth MStar MF

SSgA Russell 1000 Growth Index Characteristics

	Portfolio Q2-19	Index Q2-19	Portfolio Q1-19
<b>Market Value</b>			
Market Value (\$M)	34.8	--	33.3
Number Of Holdings	546	546	544
<b>Sector Distribution</b>			
Energy	0.7	0.7	0.7
Materials	1.9	2.3	1.8
Industrials	11.6	12.1	11.8
Consumer Discretionary	15.1	9.6	15.0
Consumer Staples	5.7	5.3	5.7
Health Care	12.7	10.7	13.2
Financials	4.4	4.8	4.3
Information Technology	33.8	38.1	33.1
Communication Services	11.8	15.3	11.9
Utilities	0.0	0.0	0.0
Real Estate	2.4	1.0	2.4

Portfolio Performance Summary

	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
SSgA Russell 1000 Growth Index	4.6	21.5	11.6	18.0	13.4	--	15.5	Nov-09
Russell 1000 Growth	4.6	21.5	11.6	18.1	13.4	16.3	15.5	Nov-09
Large Growth MStar MF Median	4.8	21.6	10.7	17.0	12.2	15.2	14.4	Nov-09
Large Growth MStar MF Rank	58	53	40	39	27	--	20	Nov-09

U.S. Effective Style Map  
3 Years Ending June 30, 2019

Large Value	SSgA Russell 1000 Growth Index	Large Growth
Small Value	Russell 1000 Growth	Small Growth

Company Size Distribution

	285.6	283.4	264.6
Weighted Avg. Market Cap. (\$B)			
Median Market Cap. (\$B)	12.3	12.1	11.7
Large Cap. (%)	50.0	49.6	50.8
Medium/Large Cap. (%)	30.4	30.8	30.0
Medium Cap. (%)	14.0	14.2	13.6
Medium/Small Cap. (%)	5.3	5.2	5.4
Small Cap. (%)	0.3	0.3	0.2



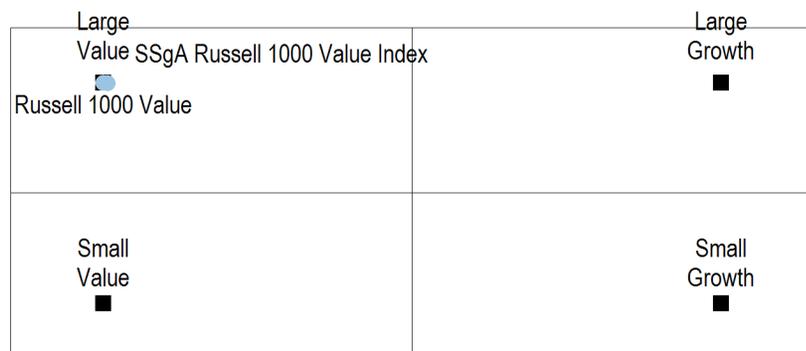
**Account Information**

Account Name	<b>SSgA Russell 1000 Value Index</b>
Account Structure	<b>Commingled Fund</b>
Investment Style	<b>Passive</b>
Inception Date	<b>7/01/05</b>
Account Type	<b>US Equity</b>
Benchmark	<b>Russell 1000 Value</b>
Universe	<b>Large Value MStar MF</b>

**Portfolio Performance Summary**

	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
SSgA Russell 1000 Value Index	3.8	16.2	8.4	10.2	7.5	13.2	7.5	Jul-05
Russell 1000 Value	3.8	16.2	8.5	10.2	7.5	13.2	7.4	Jul-05
Large Value MStar MF Median	3.5	15.1	6.2	10.6	7.1	12.5	7.4	Jul-05
Large Value MStar MF Rank	41	32	36	58	40	30	50	Jul-05

**U.S. Effective Style Map  
3 Years Ending June 30, 2019**



**SSgA Russell 1000 Value Index Characteristics**

	Portfolio Q2-19	Index Q2-19	Portfolio Q1-19
<b>Market Value</b>			
Market Value (\$M)	34.2	--	38.9
Number Of Holdings	720	722	719
<b>Sector Distribution</b>			
Energy	9.0	10.8	9.7
Materials	4.0	4.7	4.0
Industrials	8.0	9.2	7.8
Consumer Discretionary	5.3	6.3	5.3
Consumer Staples	7.8	5.6	7.9
Health Care	15.1	16.4	15.3
Financials	22.5	19.2	21.7
Information Technology	9.7	9.3	9.8
Communication Services	7.0	6.6	6.9
Utilities	6.4	6.8	6.4
Real Estate	4.9	5.3	5.1
<b>Company Size Distribution</b>			
Weighted Avg. Market Cap. (\$B)	124.4	123.1	121.1
Median Market Cap. (\$B)	9.2	9.2	8.9
Large Cap. (%)	41.3	40.7	41.2
Medium/Large Cap. (%)	28.8	29.1	28.9
Medium Cap. (%)	20.0	20.4	19.9
Medium/Small Cap. (%)	9.0	8.6	9.1
Small Cap. (%)	0.9	1.2	0.9

As of June 30, 2019

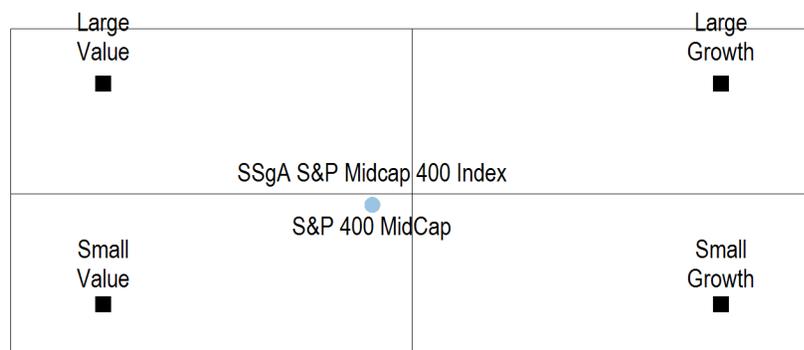
**Account Information**

Account Name	<b>SSgA S&amp;P Midcap 400 Index</b>
Account Structure	<b>Commingled Fund</b>
Investment Style	<b>Passive</b>
Inception Date	<b>9/01/06</b>
Account Type	<b>US Equity</b>
Benchmark	<b>S&amp;P 400 MidCap</b>
Universe	<b>Mid Cap MStar MF</b>

**Portfolio Performance Summary**

	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
SSgA S&P Midcap 400 Index	3.1	18.0	1.4	10.9	8.0	14.7	9.4	Sep-06
S&P 400 MidCap	3.0	18.0	1.4	10.9	8.0	14.6	9.4	Sep-06
Mid Cap MStar MF Median	4.2	20.5	4.6	12.0	7.8	14.0	8.7	Sep-06
Mid Cap MStar MF Rank	69	66	68	57	45	34	35	Sep-06

**U.S. Effective Style Map  
 3 Years Ending June 30, 2019**



**SSgA S&P Midcap 400 Index Characteristics**

	Portfolio Q2-19	Index Q2-19	Portfolio Q1-19
<b>Market Value</b>			
Market Value (\$M)	9.5	--	9.2
Number Of Holdings	400	400	400
<b>Characteristics</b>			
Weighted Avg. Market Cap. (\$B)	5.8	5.8	5.5
Median Market Cap (\$B)	4.1	4.1	4.1
P/E Ratio	19.8	19.8	19.0
Yield	1.7	1.7	1.7
EPS Growth - 5 Yrs.	10.6	10.6	10.7
Price to Book	2.6	2.6	2.5
Beta (holdings; domestic)	1.2	1.2	1.1
<b>Sector Distribution</b>			
Energy	3.1	3.1	3.8
Materials	6.4	6.4	6.9
Industrials	15.9	15.9	15.1
Consumer Discretionary	12.3	12.3	11.9
Consumer Staples	2.7	2.7	2.8
Health Care	9.7	9.7	9.7
Financials	16.9	16.9	16.0
Information Technology	15.7	15.7	16.3
Communication Services	2.5	2.5	2.6
Utilities	4.7	4.7	4.6
Real Estate	10.1	10.1	10.1

As of June 30, 2019

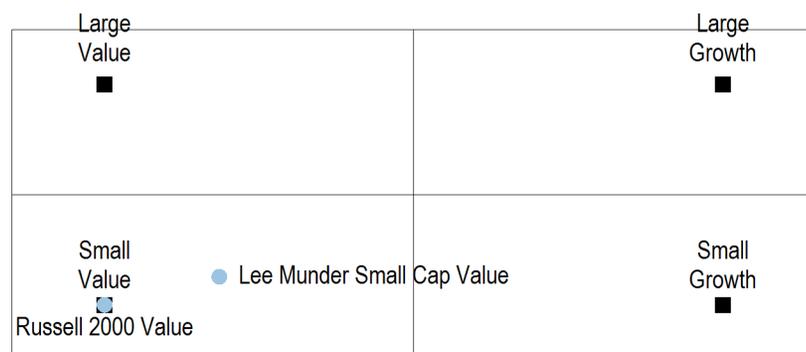
### Account Information

Account Name	Lee Munder Small Cap Value
Account Structure	Separate Account
Investment Style	Active
Inception Date	11/01/09
Account Type	US Equity
Benchmark	Russell 2000 Value
Universe	Small Value MStar MF

### Portfolio Performance Summary

	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Lee Munder Small Cap Value	2.7	17.1	-3.0	9.1	7.2	--	11.7	Nov-09
Russell 2000 Value	1.4	13.5	-6.2	9.8	5.4	12.4	11.3	Nov-09
Small Value MStar MF Median	1.8	14.0	-6.7	8.5	4.4	12.0	10.9	Nov-09
Small Value MStar MF Rank	20	16	18	31	6	--	31	Nov-09

### U.S. Effective Style Map 3 Years Ending June 30, 2019



### Lee Munder Small Cap Value Characteristics

	Portfolio Q2-19	Index Q2-19	Portfolio Q1-19
<b>Market Value</b>			
Market Value (\$M)	12.0	--	11.7
Number Of Holdings	92	1347	89
<b>Sector Distribution</b>			
Energy	2.1	4.9	2.5
Materials	11.6	4.2	12.0
Industrials	21.7	11.6	21.5
Consumer Discretionary	6.3	8.5	5.7
Consumer Staples	11.4	2.4	11.4
Health Care	3.5	4.1	3.2
Financials	18.9	29.4	17.8
Information Technology	10.9	11.9	10.0
Communication Services	3.2	2.9	4.3
Utilities	4.8	7.7	4.9
Real Estate	4.1	12.3	4.2
<b>Company Size Distribution</b>			
Weighted Avg. Market Cap. (\$B)	3.2	2.2	3.1
Median Market Cap. (\$B)	2.7	0.7	2.9
Large Cap. (%)	0.0	0.0	0.0
Medium/Large Cap. (%)	0.0	0.0	0.0
Medium Cap. (%)	0.0	0.0	2.3
Medium/Small Cap. (%)	48.1	25.6	48.3
Small Cap. (%)	51.9	74.4	49.4

**Account Information**

Account Name	<b>SSgA MSCI EAFE Index</b>
Account Structure	<b>Commingled Fund</b>
Investment Style	<b>Passive</b>
Inception Date	<b>9/01/04</b>
Account Type	<b>Non-US Stock Developed</b>
Benchmark	<b>MSCI EAFE</b>
Universe	<b>Foreign MStar MF</b>

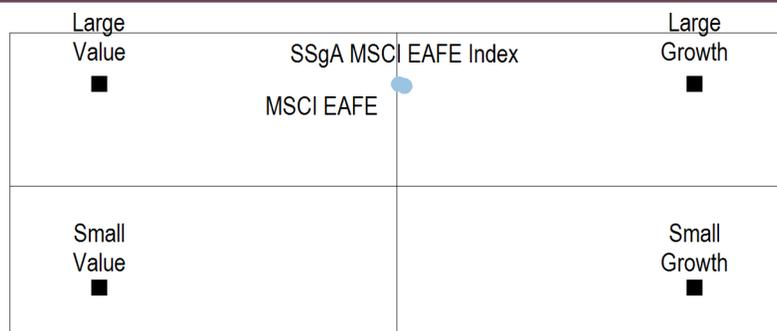
**Portfolio Performance Summary**

	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
SSgA MSCI EAFE Index	3.8	14.3	1.2	9.4	2.5	7.2	5.9	Sep-04
MSCI EAFE	3.7	14.0	1.1	9.1	2.2	6.9	5.6	Sep-04
Foreign MStar MF Median	3.2	14.0	-0.8	8.6	2.5	7.4	6.1	Sep-04
Foreign MStar MF Rank	35	47	30	30	49	54	56	Sep-04

**SSgA MSCI EAFE Index Characteristics**

	Portfolio Q2-19	Index Q2-19	Portfolio Q1-19
<b>Market Value</b>			
Market Value (\$M)	63.9	--	65.5
Number Of Holdings	942	922	940
<b>Sector Distribution</b>			
Energy	5.5	5.5	5.8
Materials	7.4	7.4	7.4
Industrials	14.8	14.9	14.4
Consumer Discretionary	11.1	11.1	11.0
Consumer Staples	11.6	11.6	11.8
Health Care	11.1	11.2	11.2
Financials	19.1	18.9	18.9
Information Technology	6.7	6.7	6.4
Communication Services	5.3	5.4	5.4
Utilities	3.7	3.7	3.7
Real Estate	3.4	3.6	3.6

**Non U.S. Effective Style Map vs. EAFE  
3 Years Ending June 30, 2019**



**Company Size Distribution**

	Portfolio	Index	Portfolio
Weighted Avg. Market Cap. (\$B)	61.2	61.2	58.8
Median Market Cap. (\$B)	10.0	10.1	10.1
Large Cap. (%)	73.1	73.6	73.7
Medium Cap. (%)	21.2	20.7	21.0
Small Cap. (%)	5.7	5.7	5.3

Acadian Non-U.S. Small Cap Equity

As of June 30, 2019

Account Information

Account Name	Acadian Non-U.S. Small Cap Equity
Account Structure	Commingled Fund
Investment Style	Active
Inception Date	2/01/05
Account Type	Non-US Stock Developed
Benchmark	MSCI EAFE Small Cap
Universe	eV EAFE Small Cap Core Net

Portfolio Performance Summary

	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Acadian Non-U.S. Small Cap Equity	2.4	12.4	-7.3	9.2	5.1	11.0	7.8	Feb-05
MSCI EAFE Small Cap	1.7	12.5	-6.3	9.1	4.4	9.7	6.3	Feb-05
eV EAFE Small Cap Core Net Median	2.4	12.5	-7.1	8.8	4.2	10.5	7.8	Feb-05
eV EAFE Small Cap Core Net Rank	49	52	53	46	40	47	52	Feb-05

Non U.S. Effective Style Map vs. EAFE  
3 Years Ending June 30, 2019



Acadian Non-U.S. Small Cap Equity Characteristics

	Portfolio Q2-19	Index Q2-19	Portfolio Q1-19
<b>Market Value</b>			
Market Value (\$M)	23.6	--	23.0
Number Of Holdings	1441	2340	1505
<b>Characteristics</b>			
Weighted Avg. Market Cap. (\$B)	2.3	2.5	2.2
Median Market Cap (\$B)	0.5	1.0	0.5
P/E Ratio	12.7	15.1	12.5
Yield	2.8	2.8	2.7
EPS Growth - 5 Yrs.	15.8	12.4	14.8
Price to Book	2.1	2.1	2.1
Beta (holdings; domestic)	0.9	0.9	1.0
<b>Sector Distribution</b>			
Energy	3.1	2.7	3.6
Materials	10.1	8.6	10.5
Industrials	16.0	21.4	16.9
Consumer Discretionary	15.1	12.3	15.6
Consumer Staples	2.3	6.3	3.1
Health Care	12.4	7.6	12.3
Financials	10.1	10.9	8.9
Information Technology	15.8	9.5	15.3
Communication Services	4.9	5.1	4.5
Utilities	2.0	2.4	1.6
Real Estate	7.0	13.0	6.3



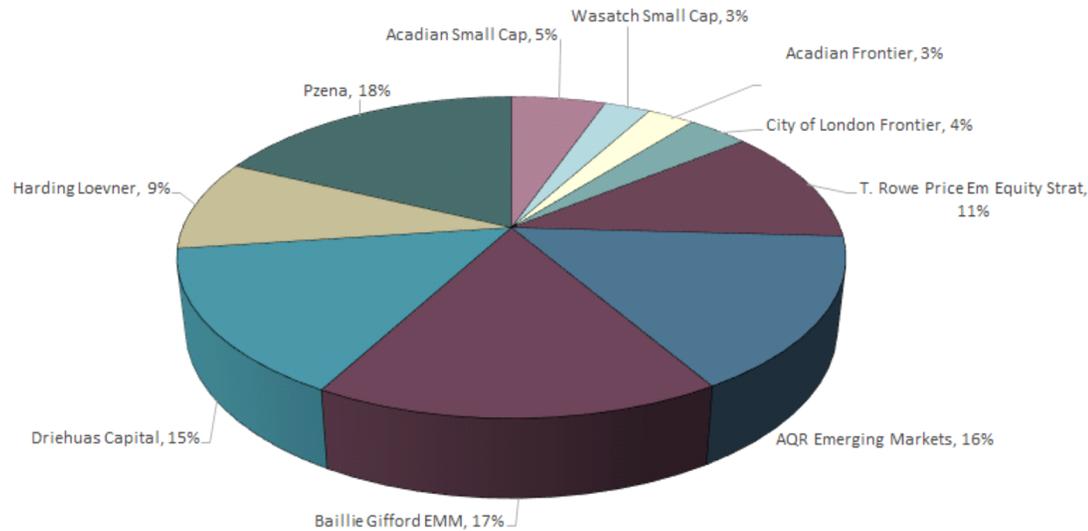
Account Information

Account Name	PRIT Emerging Markets
Account Structure	Commingled Fund
Investment Style	Active
Inception Date	9/01/16
Account Type	Non-US Stock Emerging
Benchmark	MSCI Emerging Markets
Universe	eV Emg Mkts Equity Net

Portfolio Performance Summary

	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
PRIT Emerging Markets	1.5	12.7	1.4	--	--	--	9.7	Sep-16
MSCI Emerging Markets	0.6	10.6	1.2	10.7	2.5	5.8	8.5	Sep-16
eV Emg Mkts Equity Net Median	1.4	12.0	0.9	9.9	2.5	6.7	7.8	Sep-16
eV Emg Mkts Equity Net Rank	48	43	45	--	--	--	23	Sep-16

Manager Allocation



As of June 30, 2019

## Account Information

Account Name	IR&M Aggregate Bond
Account Structure	Separate Account
Investment Style	Active
Inception Date	2/01/14
Account Type	US Fixed Income Investment Grade
Benchmark	BBgBarc US Aggregate TR
Universe	Intermediate Core Bond MStar MF

## Portfolio Performance Summary

	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
IR&M Aggregate Bond	3.3	6.4	8.0	2.6	3.2	--	3.5	Feb-14
BBgBarc US Aggregate TR	3.1	6.1	7.9	2.3	2.9	3.9	3.2	Feb-14
Intermediate Core Bond MStar MF Median	3.0	6.1	7.7	2.3	2.8	4.2	3.1	Feb-14
Intermediate Core Bond MStar MF Rank	16	33	29	28	12	--	9	Feb-14

## Statistics Summary

3 Years Ending June 30, 2019

	Anlzd Return	Anlzd Standard Deviation	Beta	Information Ratio	R-Squared
IR&M Aggregate Bond	2.57%	2.89%	0.95	0.95	0.99
BBgBarc US Aggregate TR	2.31%	3.03%	1.00	--	1.00

IR&M Aggregate Bond Characteristics  
vs. BBgBarc US Aggregate TR

	Portfolio Q2-19	Index Q2-19	Portfolio Q1-19
<b>Fixed Income Characteristics</b>			
Yield to Maturity	2.7	2.4	3.1
Average Duration	5.6	6.1	5.8
Average Quality	AA	AA	AA
Weighted Average Maturity	8.1	13.0	8.5
<b>US Sector Allocation</b>			
UST/Agency	14.6	42.0	16.1
Corporate	32.5	25.0	31.6
MBS	40.9	29.2	40.1
ABS	8.1	0.5	7.9
Foreign	--	2.3	--
Muni	3.1	0.9	3.1
Cash	0.8	--	1.2
<b>Credit Quality Allocation</b>			
AAA	7.5	72.2	7.1
AA	53.6	3.4	54.3
A	10.0	10.7	8.5
BBB	18.8	13.7	18.6
Not Rated	9.3	--	10.4
Cash	0.8	--	1.1

As of June 30, 2019

## Account Information

Account Name	IR&M Intermediate TIPS
Account Structure	Separate Account
Investment Style	Active
Inception Date	2/01/14
Account Type	US Inflation Protected Fixed
Benchmark	BBgBarc US TIPS 1-10 Yr TR
Universe	Inflation-Protected Bond MStar MF

## Portfolio Performance Summary

	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
IR&M Intermediate TIPS	2.6	5.2	4.7	1.9	1.4	--	1.8	Feb-14
BBgBarc US TIPS 1-10 Yr TR	2.5	5.2	4.7	1.9	1.4	2.9	1.8	Feb-14
Inflation-Protected Bond MStar MF Median	2.6	6.0	4.3	1.9	1.3	3.3	1.8	Feb-14
Inflation-Protected Bond MStar MF Rank	53	62	24	50	35	--	54	Feb-14

## Statistics Summary

3 Years Ending June 30, 2019

	Anlzd Return	Anlzd Standard Deviation	Beta	Information Ratio	R-Squared
IR&M Intermediate TIPS	1.95%	2.21%	1.01	0.19	1.00
BBgBarc US TIPS 1-10 Yr TR	1.93%	2.19%	1.00	--	1.00

## IR&amp;M Intermediate TIPS Characteristics

vs. BBgBarc US TIPS TR

	Portfolio Q2-19	Index Q2-19	Portfolio Q1-19
<b>Fixed Income Characteristics</b>			
Yield to Maturity	0.3	0.4	0.4
Average Duration	5.1	7.5	5.0
Average Quality	AAA	AAA	AAA
Weighted Average Maturity	5.2	8.1	5.1
<b>US Sector Allocation</b>			
UST/Agency	99.8	100.0	99.8
Cash	0.2	--	0.2
<b>Credit Quality Allocation</b>			
AAA	99.8	100.0	99.8
Cash	0.2	--	0.2

As of June 30, 2019

## Account Information

Account Name	Loomis Sayles - High Yield/Bank Loans
Account Structure	Separate Account
Investment Style	Active
Inception Date	1/01/96
Account Type	US Fixed Income High Yield
Benchmark	Credit Suisse Leveraged Loans
Universe	eV US High Yield Fixed Inc Gross

## Portfolio Performance Summary

	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Loomis Sayles - High Yield/Bank Loans	2.1	7.8	5.6	5.9	3.8	7.2	6.8	Jan-96
Credit Suisse Leveraged Loans	1.6	5.4	4.1	5.4	3.9	6.3	5.0	Jan-96
BBgBarc US High Yield TR	2.5	9.9	7.5	7.5	4.7	9.2	7.1	Jan-96
eV US High Yield Fixed Inc Gross Median	2.6	9.8	7.4	7.3	4.7	9.0	7.5	Jan-96
eV US High Yield Fixed Inc Gross Rank	77	81	88	90	86	96	83	Jan-96

## Statistics Summary

3 Years Ending June 30, 2019

	Anlzd Return	Anlzd Standard Deviation	Beta	Information Ratio	R-Squared
Loomis Sayles - High Yield/Bank Loans	5.90%	3.38%	1.14	0.29	0.77
Credit Suisse Leveraged Loans	5.43%	2.61%	1.00	--	1.00

## Loomis Sayles - High Yield/Bank Loans Characteristics

vs. BBgBarc US High Yield TR

	Portfolio Q2-19	Index Q2-19	Portfolio Q1-19
<b>Fixed Income Characteristics</b>			
Yield to Maturity	5.9	6.4	5.9
Average Duration	2.1	4.5	2.2
Average Quality	BB	B	BB
Weighted Average Maturity	5.0	5.8	5.2
<b>US Sector Allocation</b>			
Corporate	42.2	100.0	42.5
MBS	0.1	--	0.1
ABS	0.2	--	0.2
Foreign	1.0	--	1.3
Yankee	0.4	--	0.4
Other	51.8	--	51.1
Cash	4.3	--	4.4
<b>Credit Quality Allocation</b>			
AAA	4.4	--	4.5
A	0.3	--	0.3
BBB	2.8	--	2.3
BB	43.7	47.0	45.9
B	42.1	39.5	41.5
CCC	5.0	12.4	3.8
CC	0.1	0.8	0.5
C	0.4	0.1	0.9
Not Rated	1.2	0.2	0.3

## Lazard Emerging Market Debt Blend

As of June 30, 2019

## Account Information

Account Name	Lazard Emerging Market Debt Blend
Account Structure	Commingled Fund
Investment Style	Active
Inception Date	8/01/13
Account Type	International Emerging Market Debt
Benchmark	50% JPM EMBI GD / 50% JPM GBI-EM
Universe	Emerging Markets Bond MStar MF

## Portfolio Performance Summary

	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Lazard Emerging Market Debt Blend	5.0	11.4	10.9	4.4	1.0	--	2.2	Aug-13
50% JPM EMBI GD / 50% JPM GBI-EM	4.9	10.0	10.8	4.9	2.5	5.6	3.3	Aug-13
Emerging Markets Bond MStar MF Median	3.9	10.3	10.2	5.2	3.8	7.1	4.7	Aug-13
Emerging Markets Bond MStar MF Rank	4	19	39	76	88	--	81	Aug-13

## Statistics Summary

3 Years Ending June 30, 2019

	Anlzd Return	Anlzd Standard Deviation	Beta	Information Ratio	R-Squared
Lazard Emerging Market Debt Blend	4.42%	8.85%	1.20	-0.27	0.98
50% JPM EMBI GD / 50% JPM GBI-EM	4.91%	7.30%	1.00	--	1.00

Lazard Emerging Market Debt Blend Characteristics  
vs. JP Morgan EMBI Global Diversified

	Portfolio Q2-19	Index Q2-19	Portfolio Q1-19
<b>Fixed Income Characteristics</b>			
Yield to Maturity	7.6	5.4	7.6
Average Duration	6.3	7.1	6.3
Average Quality	BB	BB	BB
Weighted Average Maturity	10.3	11.4	10.3
<b>Credit Quality Allocation</b>			
AAA	-3.8	--	-7.9
AA	3.9	3.8	2.4
A	20.4	11.4	17.6
BBB	37.7	33.1	28.5
BB	17.5	14.8	21.4
B	16.6	30.2	23.2
CCC	2.6	0.5	3.6
D	--	0.4	--
Not Rated	5.2	5.6	11.3

Negative allocations indicate collateral posted for derivative transactions.

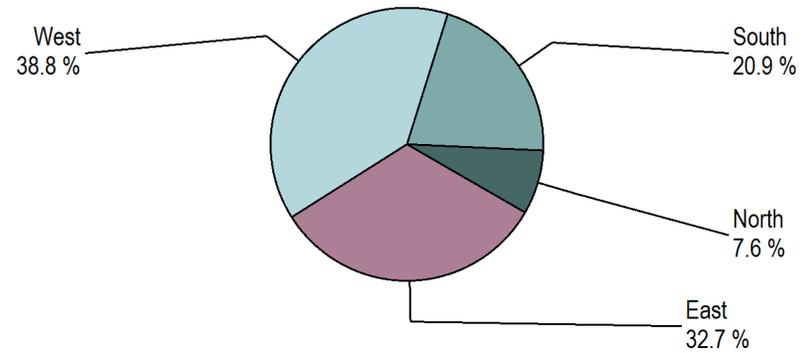
**Account Information**

Account Name	PRIT Real Estate
Account Structure	Commingled Fund
Investment Style	Active
Inception Date	4/01/10
Account Type	Real Estate
Benchmark	NCREIF ODCE
Universe	

**Portfolio Performance Summary**

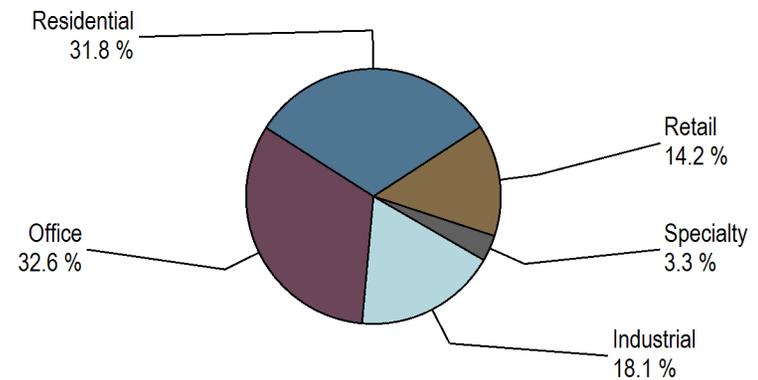
	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
PRIT Real Estate	0.4	5.2	5.6	7.0	9.0	--	11.0	Apr-10
NCREIF ODCE	1.0	2.4	6.4	7.6	9.8	9.9	12.0	Apr-10
NCREIF ODCE Equal Weighted	1.3	3.1	6.9	7.9	10.1	9.8	12.0	Apr-10
Custom Benchmark	0.8	4.9	6.9	7.3	9.2	10.7	11.6	Apr-10

**Geographic Diversification**



Geographic Diversification: North refers to Midwest

**Property Type Allocation**



Geographic and property type allocation are as of 3/31/2019



As of June 30, 2019

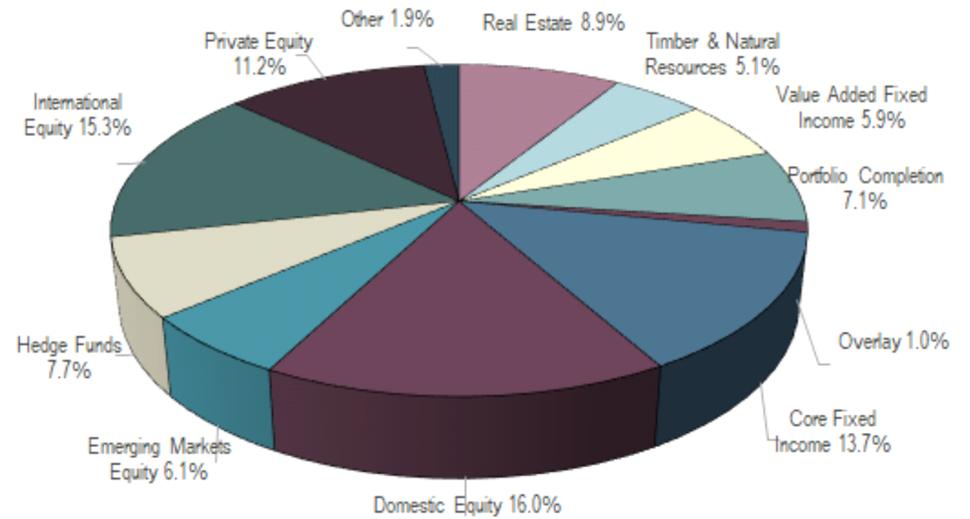
**Account Information**

Account Name	PRIT General Allocation Fund
Account Structure	Commingled Fund
Investment Style	Passive
Inception Date	6/01/16
Account Type	Global Macro
Benchmark	60% MSCI ACWI / 40% Barclays Global Aggregate
Universe	

**Portfolio Performance Summary**

	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
PRIT General Allocation Fund	3.3	9.8	5.7	9.3	--	--	9.3	Jun-16
60% MSCI ACWI / 40% Barclays Global Aggregate	3.6	12.0	6.1	7.7	4.3	7.4	7.7	Jun-16

**Manager Allocation**



## SSgA Global Natural Resources Stock Index

As of June 30, 2019

## Account Information

Account Name	SSgA Global Natural Resources Stock Index
Account Structure	Commingled Fund
Investment Style	Passive
Inception Date	5/01/11
Account Type	Real Assets
Benchmark	S&P Global LargeMidCap Commodity and Resources NR USD
Universe	Natural Resources MStar MF

## Portfolio Performance Summary

	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
SSgA Global Natural Resources Stock Index	1.7	14.2	1.0	10.6	--	--	--	May-11
S&P Global LargeMidCap Commodity and Resources NR USD	1.7	14.2	0.8	10.2	-0.7	3.7	-1.9	May-11
Natural Resources MStar MF Median	0.1	12.9	-10.7	4.1	-4.3	3.2	-2.5	May-11
Natural Resources MStar MF Rank	12	22	10	1	--	--	--	May-11

## Top 10 Holdings

NUTRIEN	5.9%
EXXON MOBIL	5.2%
BHP GROUP	4.7%
ARCHER DANIELS MIDLAND	4.3%
CORTEVA	4.1%
CHEVRON	3.8%
RIO TINTO	3.8%
BHP GROUP	3.0%
GLENCORE	2.3%
ROYAL DUTCH SHELL A(LON)	2.3%
<b>Total</b>	<b>39.5%</b>

## SSgA Global Natural Resources Stock Index Characteristics

	Portfolio Q2-19	Portfolio Q1-19
<b>Market Value</b>		
Market Value (\$M)	8.8	8.6
Number Of Holdings	184	184
<b>Characteristics</b>		
Weighted Avg. Market Cap. (\$B)	64.0	64.0
Median Market Cap (\$B)	9.4	9.9
P/E Ratio	14.5	14.3
Yield	3.5	3.4
EPS Growth - 5 Yrs.	1.5	-1.7
Price to Book	1.7	1.7
Beta (holdings; domestic)	1.2	1.2

## Sector Distribution

Energy	32.8	32.9
Materials	55.3	53.3
Industrials	0.0	0.0
Consumer Discretionary	0.0	0.0
Consumer Staples	11.2	12.9
Health Care	0.0	0.0
Financials	0.0	0.0
Information Technology	0.0	0.0
Communication Services	0.0	0.0
Utilities	0.0	0.0
Real Estate	0.0	0.0

Worcester Retirement System  
Investment Expense Analysis

As of June 30, 2019

**Investment Expense Analysis**  
As Of June 30, 2019

Name	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
<b>Total Retirement System</b>		<b>\$957,338,506</b>		
<b>Domestic Equity Assets</b>		<b>\$129,170,349</b>		
SSgA S&P 500 Index	0.0500% of First 50.0 Mil, 0.0400% of Next 50.0 Mil, 0.0200% Thereafter	\$38,669,468	\$19,335	0.05%
SSgA Russell 1000 Growth Index	0.0800% of First 50.0 Mil, 0.0600% of Next 50.0 Mil, 0.0400% Thereafter	\$34,795,913	\$27,837	0.08%
SSgA Russell 1000 Value Index	0.0800% of First 50.0 Mil, 0.0600% of Next 50.0 Mil, 0.0400% Thereafter	\$34,202,322	\$27,362	0.08%
SSgA S&P Midcap 400 Index	0.0800% of First 50.0 Mil, 0.0600% of Next 50.0 Mil, 0.0400% Thereafter	\$9,528,261	\$7,623	0.08%
Lee Munder Small Cap Value	0.9000% of Assets	\$11,974,385	\$107,769	0.90%
<b>International Developed Market Equity</b>		<b>\$87,434,243</b>		
SSgA MSCI EAFE Index	0.1000% of First 50.0 Mil, 0.0800% of Next 50.0 Mil, 0.0500% Thereafter	\$63,857,864	\$61,086	0.10%
Acadian Non-U.S. Small Cap Equity	0.7500% of Assets	\$23,576,379	\$176,823	0.75%
<b>International Emerging Market Equity</b>		<b>\$89,205,109</b>		
PRIT Emerging Markets	0.3100% of Assets	\$89,205,109	\$276,536	0.31%
<b>Fixed Income Assets</b>		<b>\$168,888,866</b>		
<b>Core Fixed Income</b>		<b>\$105,081,480</b>		
<b>Total Investment Grade Bonds</b>		<b>\$67,992,599</b>		
IR&M Aggregate Bond	0.2500% of First 75.0 Mil, 0.2000% Thereafter	\$67,992,599	\$169,981	0.25%
<b>TIPS</b>		<b>\$37,088,882</b>		
IR&M Intermediate TIPS	0.0500% of Assets	\$37,088,882	\$18,544	0.05%



Worcester Retirement System  
Investment Expense Analysis

As of June 30, 2019

Name	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
<b>Value Added Fixed Income</b>		<b>\$63,807,386</b>		
Loomis Sayles High Yield	0.5000% of Assets	\$13,341,296	\$66,706	0.50%
Loomis Sayles Bank Loans	0.4700% of Assets	\$11,341,984	\$53,307	0.47%
<b>Total Emerging Markets Debt</b>		<b>\$30,916,314</b>		
Lazard Emerging Market Debt Blend	0.8500% of Assets	\$30,916,314	\$262,789	0.85%
<b>Mezzanine Debt</b>		<b>\$8,207,792</b>		
Northstar Mezzanine Partners VI	2.0% management fee; 20.0% carried interest; 8% preferred return	\$5,514,145		
Newstone Capital Partners II	Management Fee: 1.5% of commitments during the investment period; thereafter, 1% of invested capital, less permanent write-downs and principal repayments Preferred Return: 8% Carried Interest: 20%	\$734,594		
Northstar Mezzanine Partners V	2.0% management fee; 20.0% carried interest; 8% preferred return	\$1,725,606		
Northstar Mezzanine Partners IV	2.0% management fee; 20.0% carried interest; 8% preferred return	\$157,939		
Newstone Capital Partners	1.5% management fee; 8% preferred return; 20% carried interest	\$1,557		
Northstar Mezzanine Partners III	2.0% management fee; 20.0% carried interest; 8% preferred return	\$73,951		
<b>Real Estate</b>		<b>\$74,681,308</b>		
<b>Open-End Real Estate</b>		<b>\$67,728,376</b>		
PRIT Real Estate	0.6400% of Assets	\$67,728,376	\$433,462	0.64%
<b>Non-Core Real Estate</b>		<b>\$6,952,932</b>		
AEW Partners VII	1.25% management fee, 9% preferred return, 20% carried interest	\$4,750,894		
AEW Partners VI	1.0% on committed capital during the investment period; 1.0% on net invested equity capital thereafter; 20% carried interest; 9% preferred return	\$2,202,038		



Worcester Retirement System  
Investment Expense Analysis

As of June 30, 2019

Name	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
<b>Private Equity</b>		<b>\$74,458,773</b>		
<b>Buyouts</b>		<b>\$45,928,380</b>		
American Securities Partners VI	\$3 billion target; \$5 million minimum for individual investors and \$10 million minimum for institutional investors. 80/20 carry	\$3,390,707		
Riverside Capital Appreciation Fund VI	2 % management fee , 8% preferred return, 20% carried interest	\$6,454,584		
Vitruvian Investment Partnership I	2.0% management fee; 8% preferred return; 20% carried interest	\$4,166,257		
Riverside Micro Cap Fund III	2.0% management fee; 8% preferred; 20% carry	\$7,410,605		
Ridgemont II	Performance-based 2.0000 and 20.0000	\$9,112,225	\$354,550	3.89%
Capital International Private Equity Fund VI	80/20 carry 1.5% management fee \$2.5 billion target	\$6,598,397		
Harvest Partners V	2.0% management fee; 20% carried interest; 8% preferred return	\$976,593		
TA XII	Performance-based 1.6500 and 20.0000	\$6,672,067	\$110,089	1.65%
Riverside Capital Fund V	2.25% management fee; 8% preferred return; 20% carried interest	\$676,904		
Riverside Europe III	2.5% management fee; 8% preferred return; 20% carried interest	\$211,451		
Charlesbank Equity Fund VI	2.0% of commitments during commitment period; 2.0% of funded commitments afterwards; 20.0% carried interest; 8.0% preferred return	\$258,590		
<b>Fund of Funds</b>		<b>\$18,655,334</b>		
PRIT Vintage Year 2016	1.0000% of Assets	\$5,387,715	\$53,877	1.00%
PRIT Vintage Year 2017	1.0000% of Assets	\$8,339,661	\$83,397	1.00%



Worcester Retirement System  
Investment Expense Analysis

As of June 30, 2019

Name	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
European Strategic Partners	Management fee: 0.75% of undrawn commitment, 1.0% of drawn commitment; Carried interest: 15.0% on direct investments and 5.0% on fund investments; 8.0% preferred return	\$73,604		
<b>INVESCO Private Capital II</b>	<b>Management Fee: 0.50% for Buyout Fund (40%); 1.0% for Venture Fund (30%); 1.0% for Non-U.S. Fund (30%); discounted to an aggregate 0.75% on Diversified Portfolio</b>	<b>\$85,219</b>		
INVESCO Non-US Partnership	1.0000% of Assets	\$44,479	\$445	1.00%
INVESCO US Buyout	0.5000% of Assets	\$35,504	\$178	0.50%
INVESCO Venture	1.0000% of Assets	\$5,236	\$52	1.00%
PRIT Vintage Year 2018	1.0000% of Assets	\$4,095,798	\$40,958	1.00%
PRIT Vintage Year 2019	1.0000% of Assets	\$673,338	\$6,733	1.00%
<b>Venture Capital Funds</b>		<b>\$9,875,059</b>		
Ascent Venture Partners V	2.50% of commitments; 20 % carried Interest	\$4,256,278		
Asecent Venture Partners VI	2.50% of commitments; 20% carried interest	\$4,362,901		
Boston Millennia Partners III	1.5% of reported value; 20% carried interest	\$494,476		
Boston Millennia Partners II	1.25% management fee	\$450,713		
Ascent Venture Partners IV	2.50% of commitments; 20% carried interest	\$48,218		
Ascent Venture Partners III	2.25% of commitments; 20% carried interest	\$239,541		
<b>PRIT General Allocation</b>		<b>\$252,489,817</b>		
PRIT General Allocation Fund	0.5300% of Assets	\$252,489,817	\$1,338,196	0.53%



Worcester Retirement System  
Investment Expense Analysis

As of June 30, 2019

Name	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
<b>Real Assets</b>		<b>\$80,259,609</b>		
<b>Natural Resources Assets</b>		<b>\$15,862,295</b>		
<b>Natural Resources (Public)</b>		<b>\$8,753,715</b>		
SSgA Global Natural Resources Stock Index	0.1500% of Assets	\$8,753,715	\$13,131	0.15%
<b>Natural Resources (Private)</b>		<b>\$7,108,580</b>		
White Deer Energy II	2% Management Fee, 20% Carried Interest, 8% Preferred Return	\$6,702,996		
White Deer Energy	2% of commitments during the investment period; thereafter, 2% of contributions net of realized investments and writedowns; 8% preferred return; 20% carried interest	\$405,584		
<b>Timber</b>		<b>\$9,912,090</b>		
RMK Select Timberland Investment Fund I	1.00% management fee; 15.0% incentive fee collected at end on returns in excess of a net real IRR of 8.0%.	\$4,415,325		
Hancock Timberland VII	Management fee: 0.95% on committed capital; 20% carried interest; 8% preferred return	\$1,523,286		
RMK Select Timberland Investment Fund II	100 bp management fee; 15.0% incentive fee collected at end on returns in excess of a net real IRR of 8.0%	\$2,754,657		
RMK Balanced Timberland B	1.00% management fee; 15.0% incentive fee collected at end on returns in excess of a net real IRR of 8.0%	\$1,218,822		
<b>Infrastructure</b>		<b>\$54,485,224</b>		
IFM Global Infrastructure	Performance-based 0.7700 and 8.0000	\$40,489,170	\$438,408	1.08%
Global Infrastructure Partners	2.0% management fee; 20% carried interest; 8% preferred return	\$1,812,506		
Global Infrastructure Partners III	1.75% of a capital commitment up to \$75 million during commitment period 1.75% of invested capital deemed outstanding after commitment period	\$12,183,548		
<b>Cash</b>		<b>\$750,433</b>		
Cash		\$750,433		



## Current Topics

## Memorandums

## **Vitruvian I – Potential Liquidity Event**



# MEMORANDUM

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**To:** Retirement Board, Worcester Retirement System  
**From:** Dan Dynan, Steve MacLellan, Marina Simanovich,  
Meketa Investment Group  
**Date:** June 27, 2019  
**Re:** Vitruvian I - Potential Liquidity Event

## Background

Vitruvian Investment Partners Fund I (“VIP I”) is 2007 vintage year European buyout fund to which the System committed €4.0 mm. As March 31, 2019, the System’s position was valued at \$4.3 mm and it has received \$6.2 mm in distributions from the fund. This represents a 14.1% net IRR and 2.4x net multiple for the System.

Currently the fund is near the end of its life, with its original term expiring in February of 2018. Although Vitruvian has secured its two allowed one-year term extensions (pushing the fund’s term out to 2020), there are still a significant number of portfolio holdings that are unrealized. Of the eight remaining holdings, three are either already public or likely to be exited within the extended term of the fund without issue (Inspired, Instinctif, JustEat). However, five of the remaining investments, despite generally showing strong growth prospects, would likely require a longer time period to achieve exits that could materially exceed current valuation levels.

The state of investments in VIP I presents a dilemma. Existing investors may require liquidity in line with the original terms of the fund despite the fact that there is potentially additional value to be gained from holding the investments for a slightly longer period. To help resolve this issue, Vitruvian retained investment banking advisory firm Evercore to explore different options for selling or restructuring the fund in a way that is amenable to existing investors despite their differing investment objectives.

## Discussion

The potential solution Evercore and Vitruvian settled on is to establish a “continuation fund.” Under the proposed plan, the fund’s five longer-term investments will be moved over to a new fund. Limited Partners that wish to continue with those investments will be able to roll their investments into the new vehicle and potentially increase their stake if desired. The new vehicle is anticipated to have a five-year life. Alternatively, limited partners that wish to liquidate their stake will be able to sell to secondary private equity manager Lexington Partners at an 8.25% premium to the June 30, 2019 net asset value. The selection of Lexington and determination of the premium was made through a competitive bidding process with five other firms. Liquidating investors would retain their stakes in the remaining three VIP I portfolio companies until they are exited, anticipated to be within the next 12-18 months.

There are several different factors to consider for the System:

- **Investment Considerations:** Liquidating the System's position in VIP I leads to a relatively straightforward outcome, exchanging its stake at a premium to current net asset value. By contrast, rolling the System's investment will increase the uncertainty of investment returns. Although many of the portfolio companies have strong growth prospects, realizing value from them entails the normal execution and transaction risks inherent in any private equity portfolio in addition to region-specific risks such as Brexit, general European political risk, and global and/or European equity market weakness. Vitruvian and Evercore have projected a range of outcomes given these risks, with forward looking since-inception net IRR estimates ranging from 12.5% to 14.9% and net multiples ranging from 2.1x to 2.7x. However, these estimates are subject to significant uncertainty.
- **Vehicle Considerations:** Investors that roll their investment into the continuation fund will contribute their existing VIP I in-kind position to the continuation fund and also have their existing unfunded commitments rolled over while Lexington and syndicated LPs will buy the liquidating partners' stakes as well as their unfunded commitments. The continuation fund will then take additional unfunded commitments from rolling investors, Lexington, and syndicated investors. Rolling investors can either keep their existing commitment level or increase their commitment in line with the new outside investors. The former approach risks diluting the rolling investor's position if the additional commitments are used by the continuation fund. While Vitruvian has stated they will attempt to avoid diluting existing limited partners of VIP I, there is no guarantee that they will be able to avoid that outcome.
- **Legal/Regulatory:** It is unclear how PERAC will regard the proposed transaction and there is little time to solicit an opinion, as limited partner elections are due back to Vitruvian by July 9, 2019. While the underlying the portfolio companies are not changing, the continuation fund is a new vehicle with new terms, new limited partners, and new legal agreements. It is also unclear if existing agreements regarding VIP I (e.g., side letters) will be applicable in the new vehicle.
- **Portfolio Complexity:** Given the System's desire to reduce portfolio complexity, electing to liquidate will likely reduce the number of managers on the roster by one over the next 12-18 months and reduce the amount of outstanding capital committed but not drawn.

### **Recommendation**

Meketa Investment Group recommends the Board liquidate its interest in VIP I as part of the offering. The price proposed by Lexington Capital offers a premium to June 30, 2019 valuations and is consistent with the System's desire to reduce portfolio complexity. While it is possible that the continuation fund could appreciate in value, geopolitical risks in Europe increase the uncertainty of realizing significant gains from the investments. Furthermore, the legal issues surrounding the continuation fund are untested at best.

If you have questions, please contact Meketa Investment Group at (781) 471-3500.

DD/SJM/MS/mf

# **Global Infrastructure Partners IV Hard Cap Increase**



## MEMORANDUM

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**To:** Retirement Board, Worcester Retirement System  
**From:** Dan Dynan, Steve MacLellan, Marina Simanovich,  
Meketa Investment Group  
**Date:** July 9, 2019  
**Re:** Global Infrastructure Partners IV Hard Cap Increase

### Background

Global Infrastructure Partners Fund IV (“GIP IV”) is a non-core infrastructure fund managed by Global Infrastructure Partners (“GIP”). In early 2019, the System participated in the Fund’s closing, committing \$15 million which follows on commitments of \$8 million and \$15 million by the System for GIP Funds I and III, respectively.

When initially discussing GIP IV’s terms, the fund size was limited to a \$20 billion hard cap. GIP has requested to increase the cap by \$2 billion, or 10%.

### Discussion and Recommendation

Caps on fundraising are put in place to protect limited partners, functioning as a check on the general partner against raising commitments beyond a level justified by the strategy’s investment opportunities. When evaluating requests to increase commitment caps, Meketa reviews a number of different criteria including the stated motivation for the change, impacts to implementing the investment strategy, changing the general partner’s interest in the underlying in the fund, and expense changes.

GIP characterizes the need for a higher cap as arising from investor demand. Currently, they anticipate cutting back commitments for some existing and new investors and possibly completely turning away others, even if the cap is increased in line with their request. They claim that the increased commitments will not negatively impact their ability to execute their strategy and have increased their own commitment to the fund proportionately. The management fee schedule will remain unchanged.

Given the circumstances described and successfully handling similar hard cap increases on Funds II and III, Meketa recommends the Board approve GIP’s request.

If you have questions, please contact Meketa Investment Group at (781) 471-3500.

DD/SJM/MS/mf

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**Credit Risk:** Refers to the risk that the issuer of a fixed income security may default (i.e., the issuer will be unable to make timely principal and/or interest payments on the security.)

**Duration:** Measure of the sensitivity of the price of a bond to a change in its yield to maturity. Duration summarizes, in a single number, the characteristics that cause bond prices to change in response to a change in interest rates. For example, the price of a bond with a duration of three years will rise by approximately 3% for each 1% decrease in its yield to maturity. Conversely, the price will decrease 3% for each 1% increase in the bond's yield. Price changes for two different bonds can be compared using duration. A bond with a duration of six years will exhibit twice the percentage price change of a bond with a three-year duration. The actual calculation of a bond's duration is somewhat complicated, but the idea behind the calculation is straightforward. The first step is to measure the time interval until receipt for each cash flow (coupon and principal payments) from a bond. The second step is to compute a weighted average of these time intervals. Each time interval is measured by the present value of that cash flow. This weighted average is the duration of the bond measured in years.

**Information Ratio:** This statistic is a measure of the consistency of a portfolio's performance relative to a benchmark. It is calculated by subtracting the benchmark return from the portfolio return (excess return), and dividing the resulting excess return by the standard deviation (volatility) of this excess return. A positive information ratio indicates outperformance versus the benchmark, and the higher the information ratio, the more consistent the outperformance.

**Jensen's Alpha:** A measure of the average return of a portfolio or investment in excess of what is predicted by its beta or "market" risk.  $\text{Portfolio Return} - [\text{Risk Free Rate} + \text{Beta} * (\text{market return} - \text{Risk Free Rate})]$ .

**Market Capitalization:** For a firm, market capitalization is the total market value of outstanding common stock. For a portfolio, market capitalization is the sum of the capitalization of each company weighted by the ratio of holdings in that company to total portfolio holdings; thus it is a weighted-average capitalization. Meketa Investment Group considers the largest 65% of the broad domestic equity market as large capitalization, the next 25% of the market as medium capitalization, and the smallest 10% of stocks as small capitalization.

**Market Weighted:** Stocks in many indices are weighted based on the total market capitalization of the issue. Thus, the individual returns of higher market-capitalization issues will more heavily influence an index's return than the returns of the smaller market-capitalization issues in the index.

**Maturity:** The date on which a loan, bond, mortgage, or other debt/security becomes due and is to be paid off.

**Prepayment Risk:** The risk that prepayments will increase (homeowners will prepay all or part of their mortgage) when mortgage interest rates decline; hence, investors' monies will be returned to them in a lower interest rate environment. Also, the risk that prepayments will slow down when mortgage interest rates rise; hence, investors will not have as much money as previously anticipated in a higher interest rate environment. A prepayment is any payment in excess of the scheduled mortgage payment.

**Price-Book Value (P/B) Ratio:** The current market price of a stock divided by its book value per share. Meketa Investment Group calculates P/B as the current price divided by Compustat's quarterly common equity. Common equity includes common stock, capital surplus, retained earnings, and treasury stock adjusted for both common and nonredeemable preferred stock. Similar to high P/E stocks, stocks with high P/B's tend to be riskier investments.

**Price-Earnings (P/E) Ratio:** A stock's market price divided by its current or estimated future earnings. Lower P/E ratios often characterize stocks in low growth or mature industries, stocks in groups that have fallen out of favor, or stocks of established blue chip companies with long records of stable earnings and regular dividends. Sometimes a company that has good fundamentals may be viewed unfavorably by the market if it is an industry that is temporarily out of favor. Or a business may have experienced financial problems causing investors to be skeptical about its future. Either of these situations would result in lower relative P/E ratios. Some stocks exhibit above-average sales and earnings growth or expectations for above average growth. Consequently, investors are willing to pay more for these companies' earnings, which results in elevated P/E ratios. In other words, investors will pay more for shares of companies whose profits, in their opinion, are expected to increase faster than average. Because future events are in no way assured, high P/E stocks tend to be riskier and more volatile investments. Meketa Investment Group calculates P/E as the current price divided by the I/B/E/S consensus of twelve-month forecast earnings per share.

**Quality Rating:** The rank assigned a security by such rating services as Fitch, Moody's, and Standard & Poor's. The rating may be determined by such factors as (1) the likelihood of fulfillment of dividend, income, and principal payment of obligations; (2) the nature and provisions of the issue; and (3) the security's relative position in the event of liquidation of the company. Bonds assigned the top four grades (AAA, AA, A, BBB) are considered investment grade because they are eligible bank investments as determined by the controller of the currency.

**Sharpe Ratio:** A commonly used measure of risk-adjusted return. It is calculated by subtracting the risk free return (usually three-month Treasury bill) from the portfolio return and dividing the resulting excess return by the portfolio's total risk level (standard deviation). The result is a measure of return per unit of total risk taken. The higher the Sharpe ratio, the better the fund's historical risk adjusted performance.

**Standard Deviation:** A measure of the total risk of an asset or a portfolio. Standard deviation measures the dispersion of a set of numbers around a central point (e.g., the average return). If the standard deviation is small, the distribution is concentrated within a narrow range of values. For a normal distribution, about two thirds of the observations will fall within one standard deviation of the mean, and 95% of the observations will fall within two standard deviations of the mean.

**STIF Account:** Short-term investment fund at a custodian bank that invests in cash-equivalent instruments. It is generally used to safely invest the excess cash held by portfolio managers.

**Style:** The description of the type of approach and strategy utilized by an investment manager to manage funds. For example, the style for equities is determined by portfolio characteristics such as price-to-book value, price-to-earnings ratio, and dividend yield. Equity styles include growth, value, and core.

**Yield to Maturity:** The yield, or return, provided by a bond to its maturity date; determined by a mathematical process, usually requiring the use of a “basis book.” For example, a 5% bond pays \$5 a year interest on each \$100 par value. To figure its current yield, divide \$5 by \$95—the market price of the bond—and you get 5.26%. Assume that the same bond is due to mature in five years. On the maturity date, the issuer is pledged to pay \$100 for the bond that can be bought now for \$95. In other words, the bond is selling at a discount of 5% below par value. To figure yield to maturity, a simple and approximate method is to divide 5% by the five years to maturity, which equals 1% pro rata yearly. Add that 1% to the 5.26% current yield, and the yield to maturity is roughly 6.26%.

$$\frac{5\% \text{ (discount)}}{5 \text{ (yrs. to maturity)}} = 1\% \text{ pro rata, plus } 5.26\% \text{ (current yield)} = 6.26\% \text{ (yield to maturity)}$$

Sources: [Investment Terminology](#), International Foundation of Employee Benefit Plans, 1999.  
[The Handbook of Fixed Income Securities](#), Fabozzi, Frank J., 1991.

## Benchmark Notes

### Custom Benchmark

Custom Benchmark is composed of 23% Russell 3000, 22% MSCI ACWI ex US, 6% Cambridge Associates Fund of Funds Composites 1q lagged, 7% Barclays Aggregate, 6% Barclays High Yield, 3% blended benchmark comprised of 50% JPM EMBI GD 50% JPM GBI-EM, 6% Barclays US TIPS, 3% NCREIF Timberland, 10% NCREIF ODCE, 2% DJ Brookfield Global Infrastructure, 7% of a blended benchmark comprising 60% MSCI ACWI and 40% Barclays Global Aggregate Bond indices, 2% S&P North American Natural Resources Sector and 2% HFRI Fund of Funds Composite.

### Spliced Benchmark

60% MSCI ACWI and 40% Barclays Global Aggregate Bond indexes since June 2015, Barclay's US Tips 1-10 Year prior.

### SSgA MSCI EAFE

SSgA MSCI EAFE index fund performance is based on the aggregate of the daily liquidity fund and the semi-monthly liquidity fund.

### PRIT Real Estate

PRIT Real Estate inception date shown is based on the first full quarter invested.

### Custom Real Estate Benchmark

Custom Benchmark is composed of 80% NCREIF ODCE, 10% NAREIT Equity and 10% FTSE EPRA NAREIT Developed ex. U.S. REIT.

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Throughout this report, numbers may not sum due to rounding.

Returns for periods greater than one year are annualized throughout this report.

Values shown are in millions of dollars, unless noted otherwise.