



**PERSPECTIVES  
THAT DRIVE  
ENTERPRISE  
SUCCESS**



**PERIOD ENDING: JUNE 30, 2018**

Executive Performance Summary Review for

**Tennessee Consolidated Retirement System**

# 2<sup>nd</sup> quarter summary

## THE ECONOMIC CLIMATE

- U.S. economic data generally surprised to the upside in Q2, leading to a strong quarterly GDP growth estimate of 3.4%. Economic growth in the second and third quarters will likely see the biggest boost from fiscal stimulus. The U.S. is currently outshining other developed economies.
- The synchronized global growth story of the past year has shifted somewhat as economies have displayed more disparate performance. The change has not been too dramatic – growth continues to be positive, but at a more moderate pace.

## PORTFOLIO IMPACTS

- Emerging market equity and local debt delivered losses of 8.0% and 10.4% in Q2 (MSCI Emerging Markets Index, JPM GBI-EM Global Diversified). Much of the losses were due to currency movement. We believe emerging market assets offer attractive value – recent movements appear to have been driven by a shift in short-term sentiment and currency depreciation.
- The U.S. implemented a first round of tariffs on Chinese imports on July 6<sup>th</sup>, which impacted \$34 billion worth of goods. So far, only a small portion of the discussed tariffs have been enacted.

## THE INVESTMENT CLIMATE

- Strong corporate earnings growth is expected again in the second quarter. According to FactSet, the bottom-up analyst forecast for the S&P 500 is 20.0% YoY.
- Short-term U.S. Treasury yields rose, resulting in a flatter yield curve. The spread between the 10- and 2-year yield was 27 bps, a new cycle low.
- Fears were raised over Italy's role in the European Union after a coalition of the anti-establishment Five Star Movement and League Party formed a new government. Italian sovereign bond yields spiked severely during the move, but have since moderated somewhat.

## ASSET ALLOCATION ISSUES

- Following the February selloff equity markets have been range bound. As corporate earnings rise further equity valuations have been pushed down to more attractive levels closer to the long-term historical average.
- While we believe trade negotiations and geopolitical uncertainty are potential causes for concern, the backdrop of positive global growth and strong corporate earnings may allow for healthy risk-asset performance.

A neutral to mild risk overweight may be warranted in today's environment

# U.S. economics summary

- GDP growth was 2.8% year-over-year in the first quarter (2.0% quarterly annualized rate). The slightly slower pace of expansion was influenced by more conservative consumer spending than in previous quarters.
- The rate of inflation picked up moderately throughout the quarter. Core CPI rose 2.3% over the past year, reaching the upper end of its range during the current cycle. The year-over-year rate was impacted by a low base effect – the 3-month annualized core inflation rate was only 1.7%.
- Job gains during the quarter were strong, despite traditional employment measures indicating a tight labor market. Additions to nonfarm payrolls averaged 211,000 per month and the U-3 unemployment rate fell slightly from 4.1% to 4.0%.
- The broadest measure of labor market health, the ratio of employed individuals to the total population, indicates there may still be room for further improvement. More narrow indicators, such as the U-3 unemployment rate, may be overstating labor market tightness.
- The back and forth on trade between the U.S. and much of the rest of the world intensified. The White House has threatened to enact tariffs on up to \$550 billion of Chinese goods over unfair trade practices and intellectual property theft. To this point, tariffs have only been implemented on around \$40 billion of Chinese goods.
- The Fed raised interest rates for a second time this year in June to a target rate of 1.8% to 2.0%. Two more rate hikes are expected by the end of the year based on the Fed dot plot.

	Most Recent	12 Months Prior
GDP (YoY)	2.8% <i>3/31/18</i>	2.0% <i>3/31/17</i>
Inflation (CPI YoY, Core)	2.3% <i>6/30/18</i>	1.7% <i>6/30/17</i>
Expected Inflation (5yr-5yr forward)	2.2% <i>6/30/18</i>	1.8% <i>6/30/17</i>
Fed Funds Target Range	1.75 – 2.00% <i>6/30/18</i>	1.00 – 1.25% <i>6/30/17</i>
10 Year Rate	2.9% <i>6/30/18</i>	2.3% <i>6/30/17</i>
U-3 Unemployment	4.0% <i>6/30/18</i>	4.3% <i>6/30/17</i>
U-6 Unemployment	7.8% <i>6/30/18</i>	8.5% <i>6/30/17</i>

# International economics summary

- The synchronized global growth story of the past year has shifted somewhat as greater performance disparity is visible across global economies. Growth continues to be positive but is more moderate in places.
- Developed market economies are expected to grow less quickly in the coming years while emerging economy growth rates are expected to rise.
- The U.S. implemented a first round of tariffs on Chinese imports on July 6th, which impacted \$34 billion of goods. So far, only a small portion of the discussed tariffs have been enacted.
- In June, Mario Draghi officially announced the end of Europe’s bond buying program. Asset purchases are scheduled to end in December, and it was promised that interest rates will remain unchanged through the summer of

2019. This message was seen by markets as more dovish than expected.

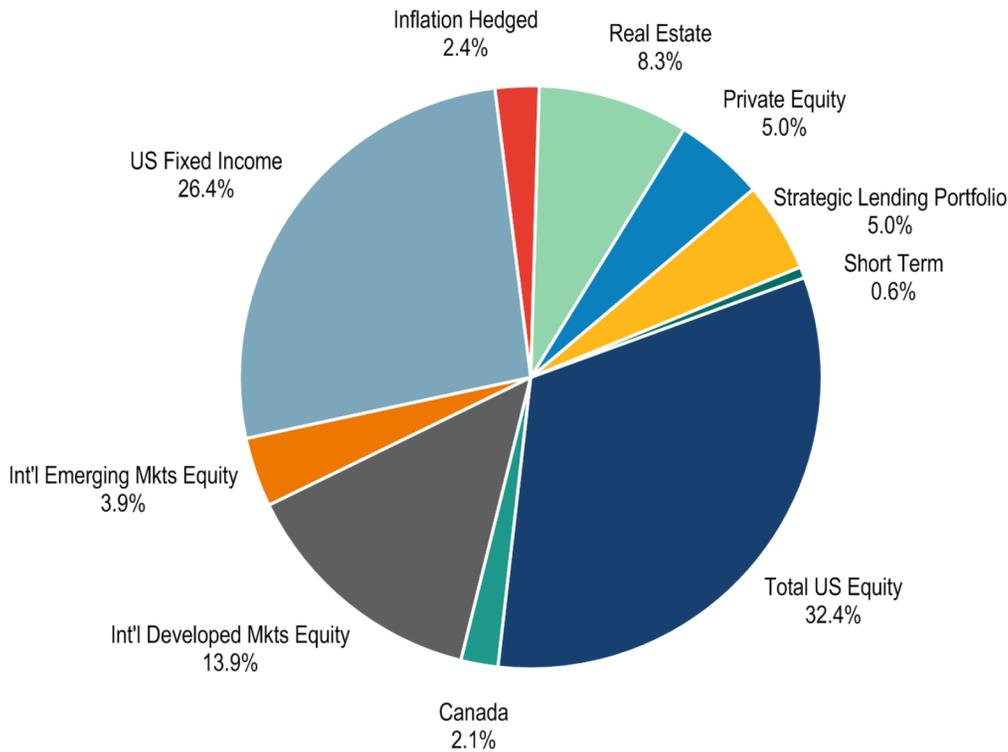
- Fears were raised over Italy’s uncertain role in the EU, following a new coalition of the anti-establishment Five Star Movement and League Party taking over the government. Italian bond yields spiked severely during the move, but have since moderated.
- The Eurozone Composite PMI rose for the first time in five months to 54.8 in June. PMIs in most developed and emerging markets remain above 50, indicating expansion.
- The U.S. dollar appreciated 5% during the quarter. Certain emerging market currencies have devalued sharply, such as the Argentine peso, which is down more than 35% against the USD on the year.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	2.8% <i>3/31/18</i>	2.8% <i>5/31/18</i>	4.0% <i>6/30/18</i>
Eurozone	2.5% <i>3/31/18</i>	2.0% <i>6/30/18</i>	8.6% <i>3/31/18</i>
Japan	1.1% <i>3/31/18</i>	0.7% <i>5/31/18</i>	2.2% <i>5/31/18</i>
BRICS Nations	5.8% <i>3/31/18</i>	2.5% <i>6/30/18</i>	5.6% <i>3/31/18</i>
Brazil	1.2% <i>3/31/18</i>	4.4% <i>6/30/18</i>	12.8% <i>6/30/18</i>
Russia	1.3% <i>3/31/18</i>	2.3% <i>6/30/18</i>	4.7% <i>5/31/18</i>
India	7.7% <i>3/31/18</i>	5.0% <i>6/30/18</i>	8.8% <i>12/31/17</i>
China	6.8% <i>3/31/18</i>	1.9% <i>6/30/18</i>	3.9% <i>3/31/18</i>

Name	Last 3 Months	Last 6 Months	1 Yr	2 Yrs	3 Yrs	5 Yrs	7 Yrs	10 Yrs
US Equity								
Russell 3000	3.9	3.2	14.8	16.6	11.6	13.3	13.0	10.2
S&P 500	3.4	2.6	14.4	16.1	11.9	13.4	13.2	10.2
Russell 1000	3.6	2.9	14.5	16.3	11.6	13.4	13.1	10.2
Russell 1000 Growth	5.8	7.3	22.5	21.5	15.0	16.4	14.9	11.8
Russell 1000 Value	1.2	-1.7	6.8	11.1	8.3	10.3	11.3	8.5
Russell MidCap	2.8	2.3	12.3	14.4	9.6	12.2	11.9	10.2
Russell 2000	7.8	7.7	17.6	21.0	11.0	12.5	11.8	10.6
Russell 2000 Growth	7.2	9.7	21.9	23.1	10.6	13.6	12.5	11.2
Russell 2000 Value	8.3	5.4	13.1	18.8	11.2	11.2	11.1	9.9
International Equity								
MSCI ACWI	0.5	-0.4	10.7	14.7	8.2	9.4	8.0	5.8
MSCI World ex USA	-0.7	-2.8	7.0	13.1	4.9	6.2	4.5	2.6
MSCI EAFE	-1.2	-2.7	6.8	13.4	4.9	6.4	4.9	2.8
MSCI Emerging Markets	-8.0	-6.7	8.2	15.7	5.6	5.0	1.4	2.3
Fixed Income								
91 Day T-Bills	0.5	0.8	1.4	1.0	0.7	0.4	0.3	0.3
BBgBarc US Aggregate TR	-0.2	-1.6	-0.4	-0.4	1.7	2.3	2.6	3.7
BBgBarc US Govt/Credit TR	-0.3	-1.9	-0.6	-0.5	1.8	2.3	2.8	3.8
BBgBarc US Municipal TR	0.9	-0.2	1.6	0.5	2.9	3.5	3.9	4.4
BBgBarc US High Yield TR	1.0	0.2	2.6	7.5	5.5	5.5	6.3	8.2
Citi WGBI	-3.4	-0.9	1.9	-1.2	2.8	1.1	0.5	2.1
Citi WGBI ex US	-5.1	-0.9	3.2	-1.0	3.7	1.0	-0.1	1.8
Real Estate								
FTSE NAREIT All REIT	8.3	1.1	4.8	3.1	9.2	9.0	9.6	8.5
NCREIF Property Index	1.8	3.5	7.2	7.1	8.3	9.8	10.2	6.2
Alternatives								
HFRI Fund of Funds Composite Index	0.4	0.7	5.1	5.8	1.9	3.5	2.8	1.4
Inflation								
Consumer Price Index	1.0	2.2	2.9	2.3	1.8	1.5	1.6	1.4

Tennessee Consolidated Retirement System  
Asset Allocation Analysis

Period Ending: June 30, 2018



	Actual \$	Actual %
Total US Equity	16,098,835,670	32.4%
Canada	1,025,611,418	2.1%
Int'l Developed Mkts Equity	6,926,456,511	13.9%
Int'l Emerging Mkts Equity	1,918,733,767	3.9%
US Fixed Income	13,133,926,183	26.4%
Inflation Hedged	1,211,095,164	2.4%
Real Estate	4,154,023,618	8.3%
Private Equity	2,499,515,416	5.0%
Strategic Lending Portfolio	2,483,718,106	5.0%
Short Term	307,030,949	0.6%
<b>TOTAL</b>	<b>49,758,946,802</b>	<b>100.0%</b>

	TARGET	ACTUAL	DIFF
Total US Equity	31.0%	32.4%	1.4%
Canada	2.0%	2.1%	0.1%
Int'l Developed Mkts Equity	13.0%	13.9%	0.9%
Int'l Emerging Mkts Equity	4.0%	3.9%	-0.1%
US Fixed Income	25.0%	26.4%	1.4%
Inflation Hedged	0.0%	2.4%	2.4%
Real Estate	10.0%	8.3%	-1.7%
Private Equity	7.0%	5.0%	-2.0%
Strategic Lending Portfolio	7.0%	5.0%	-2.0%
Short Term	1.0%	0.6%	-0.4%

	03/31/18	06/30/18	DIFF
Total US Equity	31.8%	32.4%	0.5%
Canada	2.0%	2.1%	0.1%
Int'l Developed Mkts Equity	14.1%	13.9%	-0.2%
Int'l Emerging Mkts Equity	4.4%	3.9%	-0.5%
US Fixed Income	27.3%	26.4%	-0.9%
Inflation Hedged	2.5%	2.4%	-0.1%
Real Estate	8.3%	8.3%	0.1%
Private Equity	4.7%	5.0%	0.4%
Strategic Lending Portfolio	4.8%	5.0%	0.2%
Short Term	0.2%	0.6%	0.4%

# Total Fund Performance Summary

Period Ending: June 30, 2018

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Total Fund</b>	<b>0.95</b>	<b>54</b>	<b>8.19</b>	<b>67</b>	<b>8.19</b>	<b>67</b>	<b>7.41</b>	<b>37</b>	<b>8.35</b>	<b>40</b>	<b>6.83</b>	<b>39</b>
<i>Policy Index</i> <sup>1</sup>	<u>0.81</u>	56	<u>7.76</u>	79	<u>7.76</u>	79	<u>7.50</u>	33	<u>8.37</u>	40	<u>7.09</u>	25
Excess Return	0.14		0.43		0.43		-0.09		-0.02		-0.26	
<i>Allocation Index</i> <sup>2</sup>	0.79	57	7.40	89	7.40	89	7.34	38	8.14	58	6.83	40
<i>InvestorForce Public DB &gt; \$1B Gross Median</i>	1.00		8.65		8.65		7.18		8.26		6.63	
<b>North American Equity</b>	<b>3.55</b>	<b>--</b>	<b>14.67</b>	<b>--</b>	<b>14.67</b>	<b>--</b>	<b>10.42</b>	<b>--</b>	<b>12.23</b>	<b>--</b>	<b>--</b>	<b>--</b>
<i>N.A. Equity Custom</i> <sup>3</sup>	<u>3.80</u>	--	<u>14.04</u>	--	<u>14.04</u>	--	<u>11.28</u>	--	<u>12.55</u>	--	--	--
Excess Return	-0.25		0.63		0.63		-0.86		-0.32			
<b>US Equity</b>	<b>3.47</b>	<b>68</b>	<b>14.97</b>	<b>47</b>	<b>14.97</b>	<b>47</b>	<b>10.76</b>	<b>69</b>	<b>12.90</b>	<b>63</b>	<b>9.91</b>	<b>60</b>
<i>US Equity Custom</i> <sup>4</sup>	<u>3.65</u>	59	<u>14.50</u>	60	<u>14.50</u>	60	<u>11.90</u>	24	<u>13.40</u>	30	<u>10.29</u>	39
Excess Return	-0.18		0.47		0.47		-1.14		-0.50		-0.38	
<i>InvestorForce All DB US Eq Gross Median</i>	3.88		14.85		14.85		11.32		13.09		10.08	
Index	3.43	38	14.37	44	14.37	44	12.07	32	13.50	40	10.24	50
S&P 500	<u>3.43</u>	38	<u>14.37</u>	44	<u>14.37</u>	44	<u>11.93</u>	33	<u>13.42</u>	41	<u>10.17</u>	53
Excess Return	0.00		0.00		0.00		0.14		0.08		0.07	
<i>eV US Large Cap Equity Gross Median</i>	2.78		13.44		13.44		10.76		12.80		10.21	
Quant	2.69	53	14.52	43	14.52	43	9.28	74	11.62	71	9.38	74
S&P 500	<u>3.43</u>	38	<u>14.37</u>	44	<u>14.37</u>	44	<u>11.93</u>	33	<u>13.42</u>	41	<u>10.17</u>	53
Excess Return	-0.74		0.15		0.15		-2.65		-1.80		-0.79	
<i>eV US Large Cap Equity Gross Median</i>	2.78		13.44		13.44		10.76		12.80		10.21	
Sector	3.50	37	15.47	38	15.47	38	11.08	46	13.50	40	10.15	53
S&P 500	<u>3.43</u>	38	<u>14.37</u>	44	<u>14.37</u>	44	<u>11.93</u>	33	<u>13.42</u>	41	<u>10.17</u>	53
Excess Return	0.07		1.10		1.10		-0.85		0.08		-0.02	
<i>eV US Large Cap Equity Gross Median</i>	2.78		13.44		13.44		10.76		12.80		10.21	
Mid Cap <sup>5</sup>	2.59	54	13.50	52	13.50	52	10.61	38	13.12	37	10.46	61
S&P MidCap 400 <sup>5</sup>	<u>4.29</u>	25	<u>13.50</u>	52	<u>13.50</u>	52	<u>10.89</u>	35	<u>12.69</u>	48	<u>10.78</u>	50
Excess Return	-1.70		0.00		0.00		-0.28		0.43		-0.32	
<i>eV US Mid Cap Equity Gross Median</i>	2.70		13.59		13.59		9.96		12.53		10.78	

1 Effective 1/1/17, Policy Index is 31% S&P 1500/ 2% S&P TSX 60/ 13% MSCI EAFE IMI net/ 4% MSCI Emerging Markets net/ 25% Citigroup LPF/ 10% NCREIF 1Q Lag/ 7% S&P 500 + 3% 1Q Lag/ / 7% Strategic Lending/ 1% 91 Day T-Bill.

2 Effective 4/1/18, Total Fund Allocation Index is 32.46% S&P 1500/ 2.09% S&P TSX 60/ 13.61% MSCI EAFE IMI net/ 4.19% MSCI Emerging Markets net/ 26.72% Citigroup LPF/ 2.24% Citigroup TIPS/ 8.28% NCREIF 1Q Lag/ 4.65% S&P 500 + 3% 1Q Lag/ 4.76% Strategic Lending/ 1% 91 Day T-Bill.

3 Effective 1/1/13, benchmark is 89.19% S&P 1500/ 10.81% S&P TSX 60; linked to 87.5% S&P 1500/ 12.5% S&P TSX 60 Index.

4 Effective 7/1/04, benchmark is S&P 1500.

5 Effective 7/1/08, strategy was changed from SMID Cap. Benchmark is linked to 100% S&P 100 Index.

# Total Fund Performance Summary

Period Ending: June 30, 2018

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Small Cap <sup>6</sup></b>	<b>8.80</b>	<b>27</b>	<b>20.98</b>	<b>31</b>	<b>20.98</b>	<b>31</b>	<b>14.13</b>	<b>15</b>	<b>14.78</b>	<b>24</b>	<b>--</b>	<b>--</b>
S&P 600 SmallCap	8.77	28	20.50	32	20.50	32	13.84	18	14.60	27	--	39
Excess Return	0.03		0.48		0.48		0.29		0.18			
eV US Small Cap Equity Gross Median	6.98		16.60		16.60		11.33		13.11		11.73	
<b>Large Cap Overlay</b>	<b>3.13</b>	<b>--</b>	<b>15.00</b>	<b>--</b>	<b>15.00</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
S&P 500	3.43	--	14.37	--	14.37	--	--	--	--	--	--	--
Excess Return	-0.30		0.63		0.63							
<b>Canada</b>	<b>4.91</b>	<b>--</b>	<b>10.12</b>	<b>--</b>	<b>10.12</b>	<b>--</b>	<b>5.93</b>	<b>--</b>	<b>5.34</b>	<b>--</b>	<b>--</b>	<b>--</b>
S&P/TSX 60	4.95	--	10.03	--	10.03	--	5.79	--	5.27	--	--	--
Excess Return	-0.04		0.09		0.09		0.14		0.07			
<b>International Equity</b>	<b>-3.18</b>	<b>58</b>	<b>7.66</b>	<b>44</b>	<b>7.66</b>	<b>44</b>	<b>6.48</b>	<b>34</b>	<b>7.04</b>	<b>46</b>	<b>4.36</b>	<b>25</b>
Int'l Equity Custom <sup>7</sup>	-3.39	64	6.34	72	6.34	72	5.45	58	6.11	75	2.52	78
Excess Return	0.21		1.32		1.32		1.03		0.93		1.84	
InvestorForce All DB ex-US Eq Gross Median	-2.96		7.35		7.35		5.76		6.92		3.54	
<b>Int'l Developed Mkts Equity</b>	<b>-0.73</b>	<b>31</b>	<b>9.70</b>	<b>32</b>	<b>9.70</b>	<b>32</b>	<b>7.06</b>	<b>31</b>	<b>8.36</b>	<b>35</b>	<b>5.33</b>	<b>19</b>
MSCI EAFE IMI	-1.29	42	7.65	51	7.65	51	5.61	58	7.08	62	3.38	68
Excess Return	0.56		2.05		2.05		1.45		1.28		1.95	
InvestorForce All DB Dev Mkt ex-US Eq Gross Median	-1.62		7.75		7.75		5.92		7.51		3.84	
<b>Acadian</b>	<b>-2.50</b>	<b>62</b>	<b>13.07</b>	<b>50</b>	<b>13.07</b>	<b>50</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
MSCI EAFE Small Cap	-1.57	43	12.45	55	12.45	55	--	59	--	66	--	75
Excess Return	-0.93		0.62		0.62							
eV EAFE Small Cap Equity Gross Median	-1.88		13.04		13.04		10.43		12.02		7.92	
<b>American Century</b>	<b>0.61</b>	<b>10</b>	<b>20.87</b>	<b>3</b>	<b>20.87</b>	<b>3</b>	<b>13.69</b>	<b>13</b>	<b>13.72</b>	<b>18</b>	<b>--</b>	<b>--</b>
MSCI EAFE Small Cap	-1.57	43	12.45	55	12.45	55	10.09	59	11.32	66	--	75
Excess Return	2.18		8.42		8.42		3.60		2.40			
eV EAFE Small Cap Equity Gross Median	-1.88		13.04		13.04		10.43		12.02		7.92	

<sup>6</sup> Use 100% Russell 2000 Futures returns January 2011-June 2012. Use weighted blend of Russell 2000 Futures and Small Cap Fund returns July 2012- October 2012. Use 100% Small Cap Fund returns November 2012-present.  
<sup>7</sup> Effective 1/1/17, benchmark is 76.47% MSCI EAFE IMI net/ 23.53% MSCI Emerging Mkts net; linked to 72.22% MSCI EAFE IMI net/ 27.78% MSCI Emerging Mkts net (01/13-12/16); 100% MSCI EAFE IMI net (10/08-12/12) and 100% MSCI EAFE net Index (7/04-9/08).

# Total Fund Performance Summary

Period Ending: June 30, 2018

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Baring Asset Mgmt	-0.67	32	7.32	60	7.32	60	6.23	54	6.62	83	--	--
<i>MSCI EAFE</i>	<u>-1.24</u>	48	<u>6.84</u>	67	<u>6.84</u>	67	<u>4.90</u>	80	<u>6.44</u>	86	--	91
Excess Return	0.57		0.48		0.48		1.33		0.18			
<i>eV All EAFE Equity Gross Median</i>	-1.33		8.30		8.30		6.41		7.96		4.65	
FIAM	-1.49	42	12.34	55	12.34	55	9.95	60	11.37	65	--	--
<i>MSCI EAFE Small Cap</i>	<u>-1.57</u>	43	<u>12.45</u>	55	<u>12.45</u>	55	<u>10.09</u>	59	<u>11.32</u>	66	--	75
Excess Return	0.08		-0.11		-0.11		-0.14		0.05			
<i>eV EAFE Small Cap Equity Gross Median</i>	-1.88		13.04		13.04		10.43		12.02		7.92	
Fiera Capital	1.64	7	10.81	30	10.81	30	--	--	--	--	--	--
<i>MSCI EAFE</i>	<u>-1.24</u>	48	<u>6.84</u>	67	<u>6.84</u>	67	--	80	--	86	--	91
Excess Return	2.88		3.97		3.97							
<i>eV All EAFE Equity Gross Median</i>	-1.33		8.30		8.30		6.41		7.96		4.65	
JP Morgan	-2.66	--	11.76	--	11.76	--	--	--	--	--	--	--
<i>MSCI Pacific</i>	<u>-1.35</u>	--	<u>9.91</u>	--	<u>9.91</u>	--	--	--	--	--	--	--
Excess Return	-1.31		1.85		1.85							
Marathon	0.59	15	7.34	60	7.34	60	5.82	60	8.15	47	5.82	32
<i>MSCI EAFE</i>	<u>-1.24</u>	48	<u>6.84</u>	67	<u>6.84</u>	67	<u>4.90</u>	80	<u>6.44</u>	86	<u>2.84</u>	91
Excess Return	1.83		0.50		0.50		0.92		1.71		2.98	
<i>eV All EAFE Equity Gross Median</i>	-1.33		8.30		8.30		6.41		7.96		4.65	
Mondrian	-2.54	76	5.14	85	5.14	85	--	--	--	--	--	--
<i>MSCI EAFE</i>	<u>-1.24</u>	48	<u>6.84</u>	67	<u>6.84</u>	67	--	80	--	86	--	91
Excess Return	-1.30		-1.70		-1.70							
<i>eV All EAFE Equity Gross Median</i>	-1.33		8.30		8.30		6.41		7.96		4.65	
PanAgora Asset Mgmt	-2.04	69	5.25	83	5.25	83	5.58	64	8.12	47	4.61	51
<i>MSCI EAFE</i>	<u>-1.24</u>	48	<u>6.84</u>	67	<u>6.84</u>	67	<u>4.90</u>	80	<u>6.44</u>	86	<u>2.84</u>	91
Excess Return	-0.80		-1.59		-1.59		0.68		1.68		1.77	
<i>eV All EAFE Equity Gross Median</i>	-1.33		8.30		8.30		6.41		7.96		4.65	

# Total Fund Performance Summary

Period Ending: June 30, 2018

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
SSgA *	-1.49	--	7.32	--	7.32	--	5.12	--	6.31	--	--	--
<i>MSCI Europe</i>	<u>-1.27</u>	--	<u>5.28</u>	--	<u>5.28</u>	--	<u>4.22</u>	--	<u>6.21</u>	--	--	--
Excess Return	-0.22		2.04		2.04		0.90		0.10			
TimesSquare	-1.95	53	16.66	18	16.66	18	--	--	--	--	--	--
<i>MSCI EAFE Small Cap</i>	<u>-1.57</u>	43	<u>12.45</u>	55	<u>12.45</u>	55	--	59	--	66	--	75
Excess Return	-0.38		4.21		4.21							
<i>eV EAFE Small Cap Equity Gross Median</i>	-1.88		13.04		13.04		10.43		12.02		7.92	
TT International	-0.12	23	14.85	11	14.85	11	6.04	57	8.58	39	--	--
<i>MSCI EAFE</i>	<u>-1.24</u>	48	<u>6.84</u>	67	<u>6.84</u>	67	<u>4.90</u>	80	<u>6.44</u>	86	--	91
Excess Return	1.12		8.01		8.01		1.14		2.14			
<i>eV All EAFE Equity Gross Median</i>	-1.33		8.30		8.30		6.41		7.96		4.65	
Walter Scott	1.26	9	10.09	35	10.09	35	9.28	22	8.23	45	6.62	23
<i>MSCI EAFE</i> <sup>8</sup>	<u>-1.24</u>	48	<u>6.84</u>	67	<u>6.84</u>	67	<u>4.90</u>	80	<u>6.44</u>	86	<u>2.33</u>	94
Excess Return	2.50		3.25		3.25		4.38		1.79		4.29	
<i>eV All EAFE Equity Gross Median</i>	-1.33		8.30		8.30		6.41		7.96		4.65	
<b>Int'l Emerging Mkts Equity</b>	<b>-11.05</b>	<b>95</b>	<b>1.00</b>	<b>93</b>	<b>1.00</b>	<b>93</b>	<b>4.52</b>	<b>80</b>	<b>2.94</b>	<b>95</b>	<b>--</b>	<b>--</b>
<i>MSCI Emerging Markets ND Custom</i>	<u>-10.02</u>	86	<u>1.93</u>	90	<u>1.93</u>	90	<u>4.53</u>	80	<u>3.18</u>	94	--	--
Excess Return	-1.03		-0.93		-0.93		-0.01		-0.24			
<i>eV Emg Mkts Equity Gross Median</i>	-8.25		7.94		7.94		6.66		6.11		3.72	
<b>US Fixed Income</b>	<b>-0.39</b>	<b>71</b>	<b>-0.47</b>	<b>84</b>	<b>-0.47</b>	<b>84</b>	<b>2.98</b>	<b>41</b>	<b>3.87</b>	<b>31</b>	<b>5.50</b>	<b>30</b>
<i>Citigroup LPF</i> <sup>9</sup>	<u>-0.47</u>	74	<u>-0.70</u>	90	<u>-0.70</u>	90	<u>2.69</u>	47	<u>3.55</u>	37	<u>4.97</u>	46
Excess Return	0.08		0.23		0.23		0.29		0.32		0.53	
<i>InvestorForce All DB US Fix Inc Gross Median</i>	-0.05		0.20		0.20		2.61		3.08		4.77	
<b>Corporate</b>	<b>-1.93</b>	<b>99</b>	<b>-1.38</b>	<b>99</b>	<b>-1.38</b>	<b>99</b>	<b>4.36</b>	<b>6</b>	<b>5.17</b>	<b>4</b>	<b>7.36</b>	<b>5</b>
<i>Citigroup LPF Credit</i> <sup>10</sup>	<u>-2.09</u>	99	<u>-1.51</u>	99	<u>-1.51</u>	99	<u>4.12</u>	13	<u>4.76</u>	11	<u>6.30</u>	40
Excess Return	0.16		0.13		0.13		0.24		0.41		1.06	
<i>eV US Corporate Fixed Inc Gross Median</i>	-0.87		-0.41		-0.41		3.33		3.96		6.06	

\* Formerly GE Asset Mgmt

<sup>8</sup> Effective 3/1/09. Benchmark is linked to MSCI Europe Index.

<sup>9</sup> Effective 9/1/11. Benchmark is linked to 50% Citigroup BIG/ 50% Citigroup LPF (4/1/11-8/31/11) and 100% Citigroup BIG (8/1/05-3/31/11).

<sup>10</sup> Effective 7/1/11. Benchmark is linked to 50% Citigroup BIG Credit/ 50% Citigroup LPF (4/1/11-6/30/11) and 100% Citigroup BIG Credit Index (1/1/01-3/31/11).

# Total Fund Performance Summary

Period Ending: June 30, 2018

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Gov't 5 Plus</b>	0.21	--	-0.72	--	-0.72	--	2.62	--	3.66	--	5.13	--
<i>Citigroup LPF Treas/Govt Spons<sup>11</sup></i>	0.17	--	-0.75	--	-0.75	--	2.48	--	3.53	--	5.26	--
Excess Return	0.04		0.03		0.03		0.14		0.13		-0.13	
<b>MBS</b>	0.24	77	0.06	92	0.06	92	1.49	85	2.32	89	3.27	94
<i>Citi BIG Mortgage</i>	0.26	73	0.11	87	0.11	87	1.42	88	2.23	92	3.56	85
Excess Return	-0.02		-0.05		-0.05		0.07		0.09		-0.29	
<i>eV US Securitized Fixed Inc Gross Median</i>	0.43		1.03		1.03		2.40		3.09		4.32	
<b>Total Return Fund *</b>	0.30	--	-0.21	--	-0.21	--	3.28	--	4.48	--	6.11	--
<i>Citigroup LPF Treas/Govt Spons<sup>12</sup></i>	0.17	--	-0.75	--	-0.75	--	2.48	--	3.53	--	4.87	--
Excess Return	0.13		0.54		0.54		0.80		0.95		1.24	
<b>Inflation Hedged</b>	0.87	18	2.29	39	2.29	39	2.11	32	1.87	27	3.07	68
<i>Citi TIPS</i>	0.82	23	2.23	45	2.23	45	2.03	48	1.79	39	3.12	62
Excess Return	0.05		0.06		0.06		0.08		0.08		-0.05	
<i>eV US TIPS / Inflation Fixed Inc Gross Median</i>	0.72		2.23		2.23		2.00		1.75		3.15	
<b>Real Estate</b>	2.46	23	10.28	3	10.28	3	10.59	10	11.07	32	5.85	18
<i>NCREIF 1Q Lag</i>	1.70	92	7.13	61	7.13	61	8.73	53	10.00	81	6.09	12
Excess Return	0.76		3.15		3.15		1.86		1.07		-0.24	
<i>InvestorForce All DB Real Estate Pub Gross Median</i>	2.14		7.63		7.63		8.78		10.71		5.04	
<b>Traditional Private Equity +</b>	3.62	--	19.63	--	19.63	--	15.80	--	17.24	--	--	--
<i>S&amp;P 500 +3% 1Q Lag</i>	0.30	--	16.99	--	16.99	--	13.78	--	16.31	--	--	--
Excess Return	3.32		2.64		2.64		2.02		0.93			
<b>Strategic Lending Portfolio<sup>13</sup></b>	1.54	--	7.34	--	7.34	--	6.68	--	--	--	--	--
<i>Strategic Lending<sup>14</sup></i>	0.91	--	3.64	--	3.64	--	4.95	--	--	--	--	--
Excess Return	0.63		3.70		3.70		1.73					
<b>Short Term<sup>15</sup></b>	0.49	--	1.16	--	1.16	--	0.60	--	0.89	--	1.31	--
<i>91 Day T-Bills</i>	0.46	--	1.40	--	1.40	--	0.70	--	0.43	--	0.30	--
Excess Return	0.03		-0.24		-0.24		-0.10		0.46		1.01	

<sup>11</sup> Effective 7/1/11. Benchmark is linked to 50% Citigroup Core 5+ Govt/ 50% Citigroup 7+ Govt (4/1/11-6/30/11), 100% Citigroup Core 5+ Govt (9/1/09-3/31/11), and 100% Citigroup Govt (7/1/04-8/31/09).

<sup>12</sup> Effective 9/1/11. Benchmark is linked to Citi 1-7 Govt (7/1/11-8/31/11), 50% Citigroup 1-5 Govt/ 50% Citigroup 1-7 Govt (4/1/11-6/30/11), and 100% Citigroup 1-5 Govt (9/1/09-3/31/11).

\* Formerly Govt 1-5.

+ Effective 4/1/12. One quarter lagged IRR returns are provided by TorreyCove Capital Partners. TorreyCove replaced Cambridge Associates effective 8/1/15.

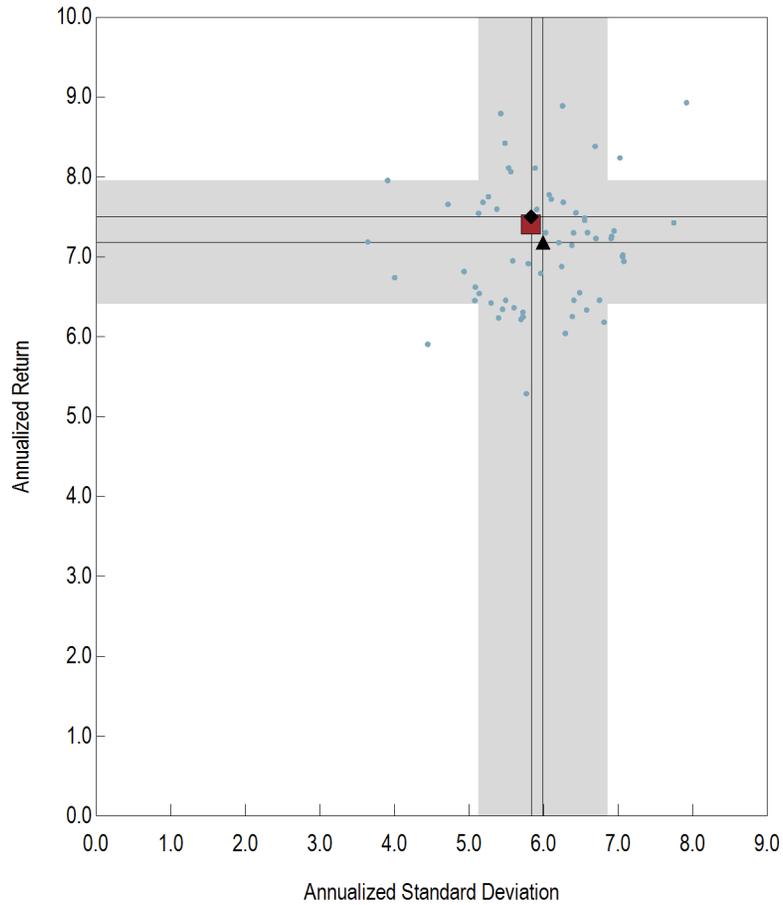
<sup>13</sup> Funded 8/1/13. Reported net of fees.

<sup>14</sup> Effective 1/1/13, benchmark is 50% BBgBarc HY 2% Issuer Capped/ 50% Credit Suisse Leveraged Loans.

<sup>15</sup> Effective 4/1/17, Composite does not include Short Duration and Short Duration Adjustment accounts.

Total Fund  
Risk vs. Return (3 Years)

Period Ending: June 30, 2018

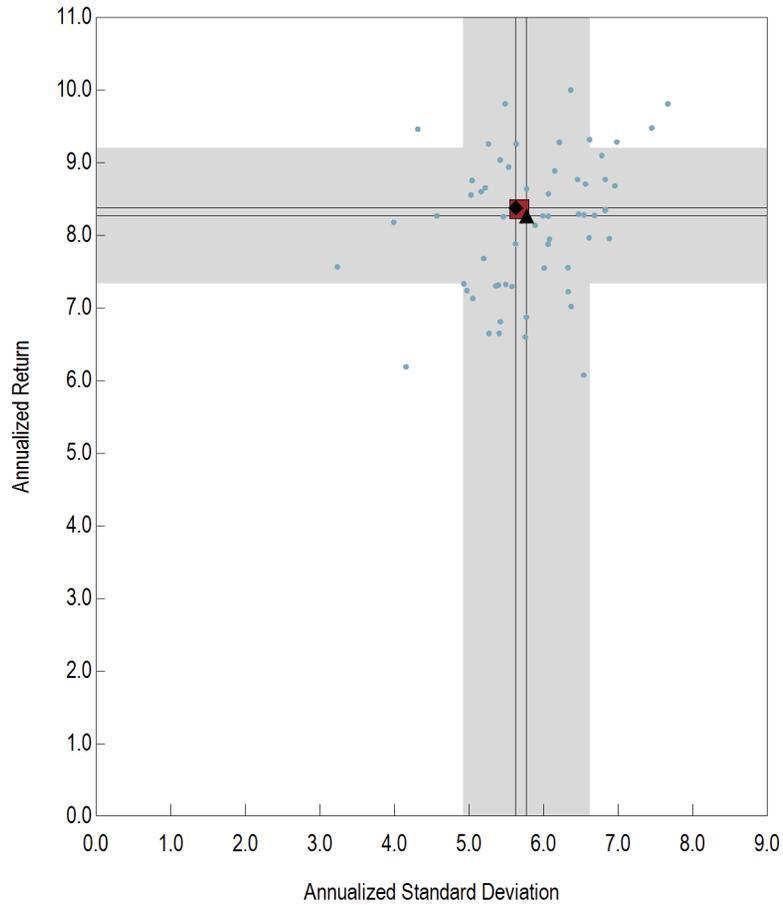


- Total Fund
- ◆ Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB > \$1B Gross

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank
Total Fund	7.41%	37	5.83%	45	1.15	32
Policy Index	7.50%	33	5.83%	45	1.17	28
InvestorForce Public DB > \$1B Gross Median	7.18%	--	5.99%	--	1.05	--

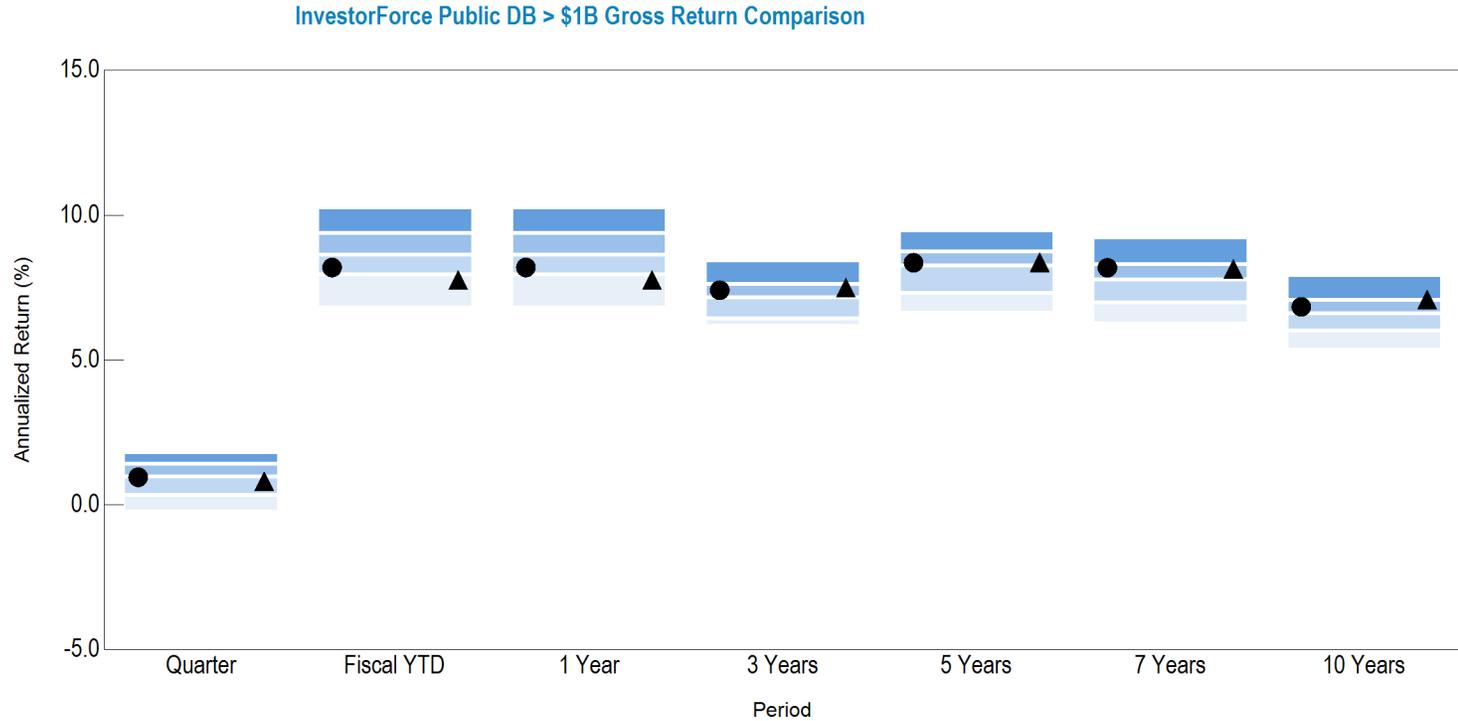
Total Fund  
Risk vs. Return (5 Years)

Period Ending: June 30, 2018

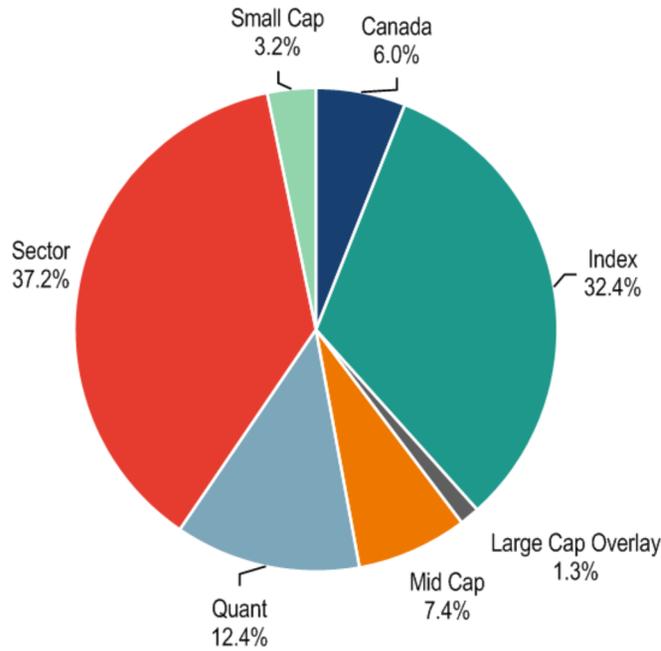


- Total Fund
- ◆ Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB > \$1B Gross

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank
Total Fund	8.35%	40	5.67%	44	1.40	30
Policy Index	8.37%	40	5.62%	42	1.41	28
InvestorForce Public DB > \$1B Gross Median	8.26%	--	5.77%	--	1.29	--



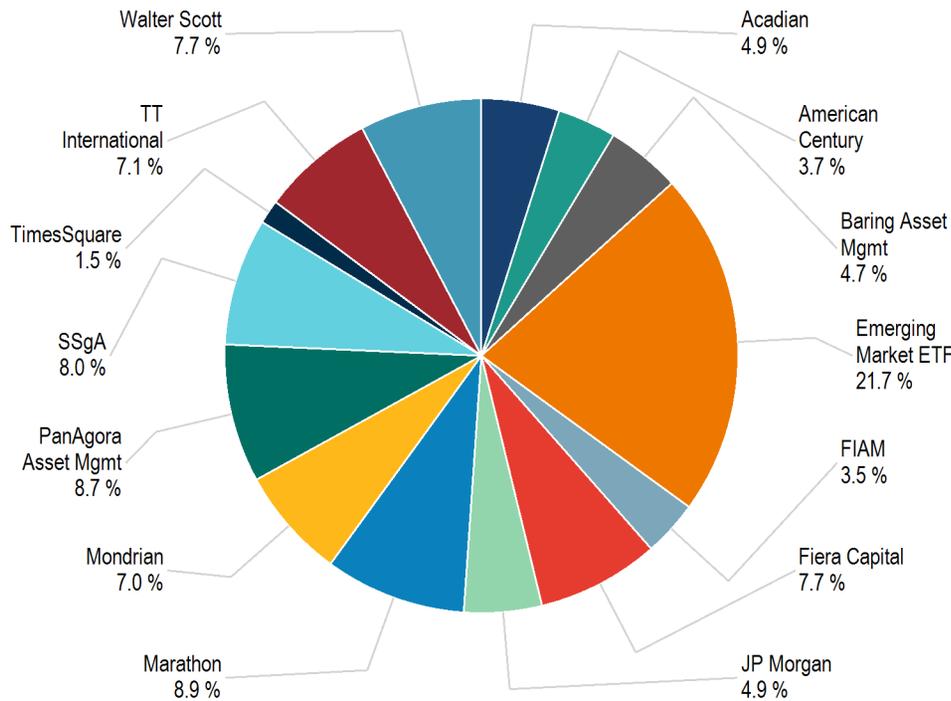
	Return (Rank)													
5th Percentile	1.82	10.27	10.27	8.42	9.47	9.22	7.93							
25th Percentile	1.43	9.40	9.40	7.64	8.76	8.31	7.08							
Median	1.00	8.65	8.65	7.18	8.26	7.79	6.63							
75th Percentile	0.36	7.96	7.96	6.46	7.33	7.00	6.02							
95th Percentile	-0.22	6.82	6.82	6.18	6.65	6.28	5.37							
# of Portfolios	63	62	62	62	61	61	58							
● Total Fund	0.95	(54)	8.19	(67)	8.19	(67)	7.41	(37)	8.35	(40)	8.18	(31)	6.83	(39)
▲ Policy Index	0.81	(56)	7.76	(79)	7.76	(79)	7.50	(33)	8.37	(40)	8.14	(33)	7.09	(25)



	Actual \$	Actual %
Canada	1,025,611,418	6.0%
Index	5,544,616,642	32.4%
Large Cap Overlay	227,178,942	1.3%
Mid Cap	1,269,606,977	7.4%
Quant	2,126,344,592	12.4%
Sector	6,376,447,338	37.2%
Small Cap	554,641,179	3.2%
<b>TOTAL</b>	<b>17,124,447,088</b>	<b>100.0%</b>

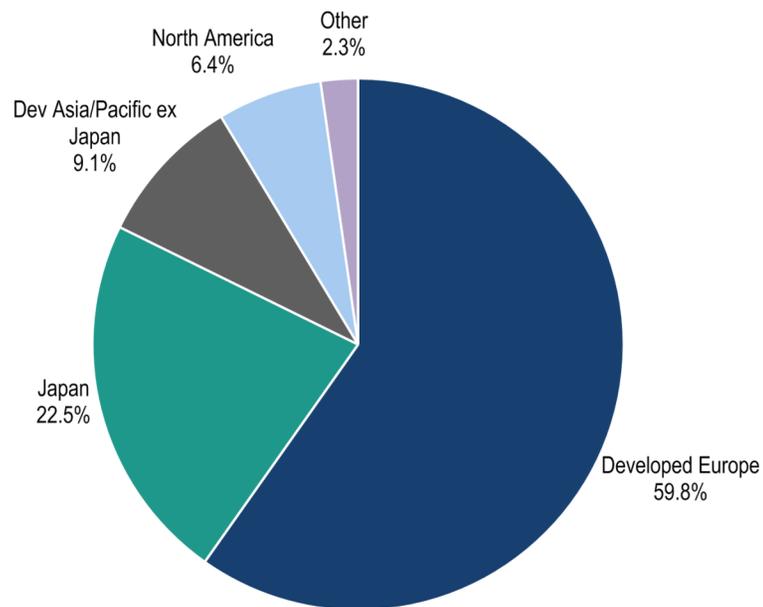
# International Equity Manager Allocation Analysis

Period Ending: June 30, 2018

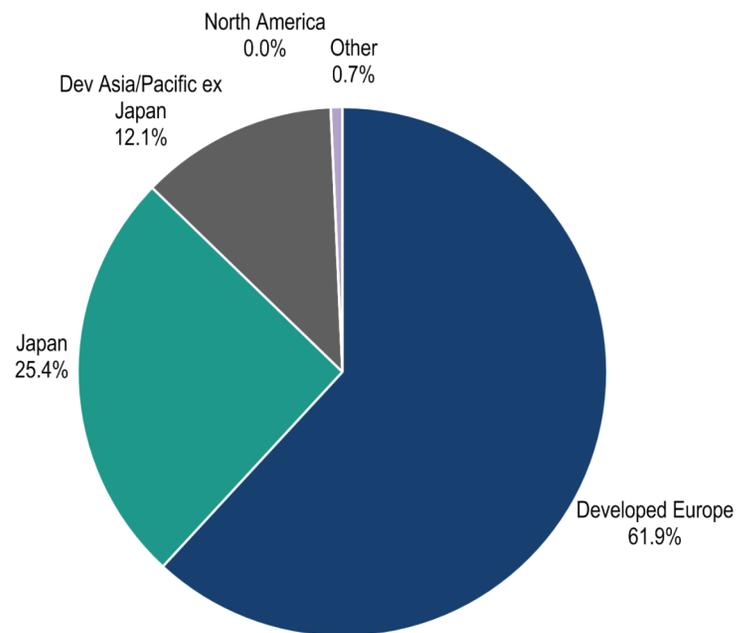


	Actual	Actual
Acadian	\$432,975,389	4.9%
American Century	\$324,427,093	3.7%
Baring Asset Mgmt	\$417,018,096	4.7%
Emerging Market ETF	\$1,918,733,767	21.7%
FIAM	\$309,399,157	3.5%
Fiera Capital	\$682,440,397	7.7%
Int'l Transition	-\$296	0.0%
JP Morgan	\$435,007,441	4.9%
Marathon	\$785,123,654	8.9%
Mondrian	\$620,076,974	7.0%
PanAgora Asset Mgmt	\$766,161,982	8.7%
SSgA	\$709,222,978	8.0%
TimesSquare	\$133,885,114	1.5%
TT International	\$627,033,392	7.1%
Walter Scott	\$683,685,140	7.7%
<b>Total</b>	<b>\$8,845,190,278</b>	<b>100.0%</b>

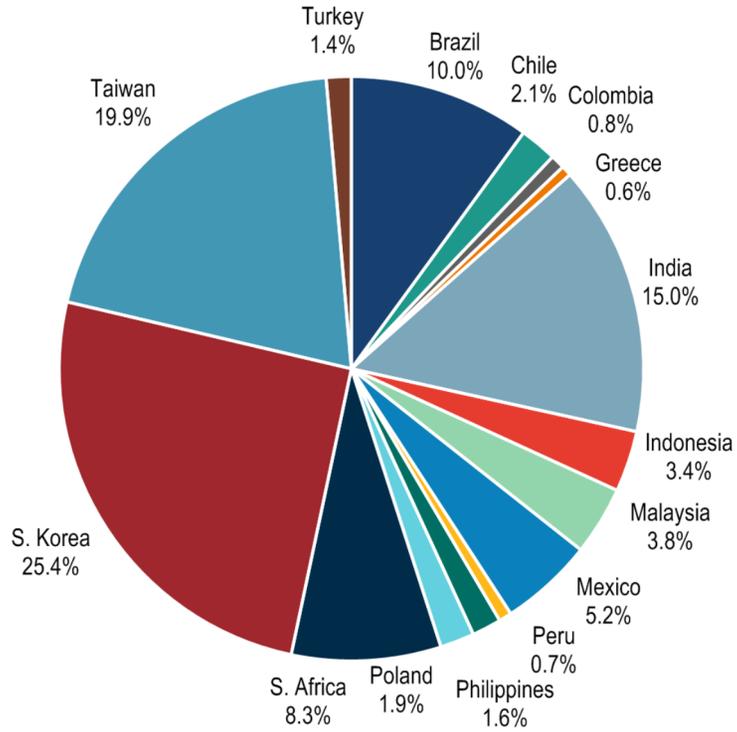
Int'l Developed Mkts Equity



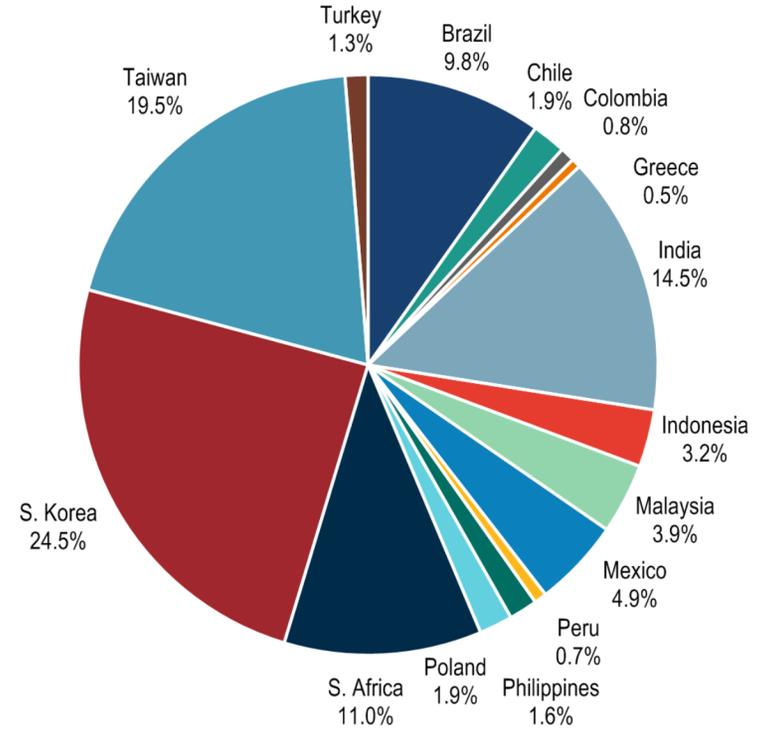
MSCI EAFE IMI Index



Int'l Emerging Mkts Equity

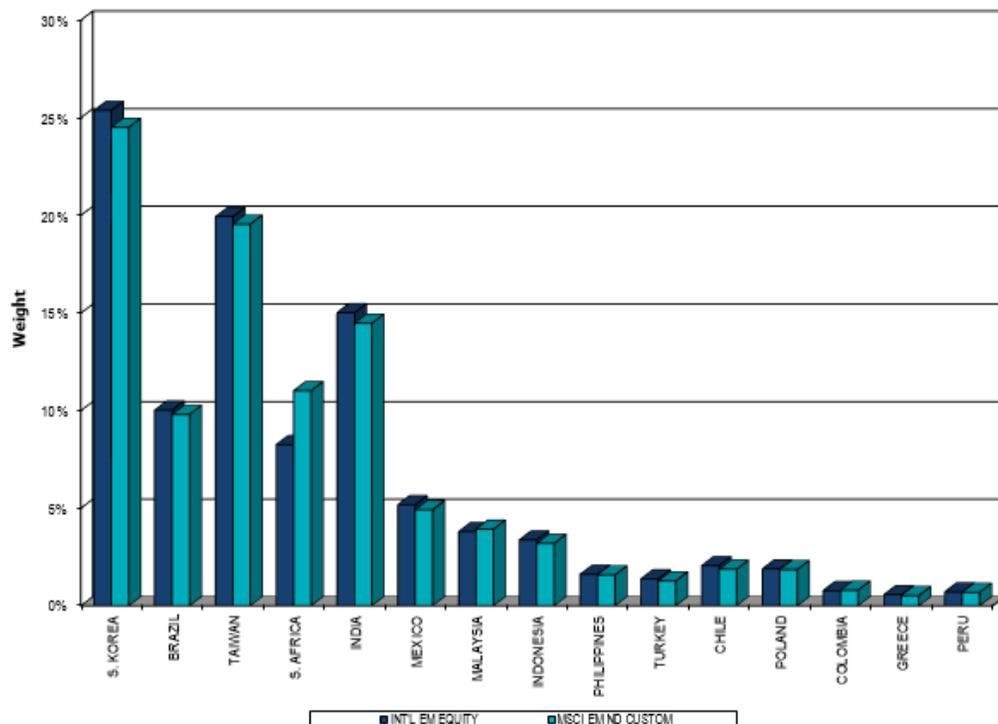


MSCI Emerging Markets ND Custom Index

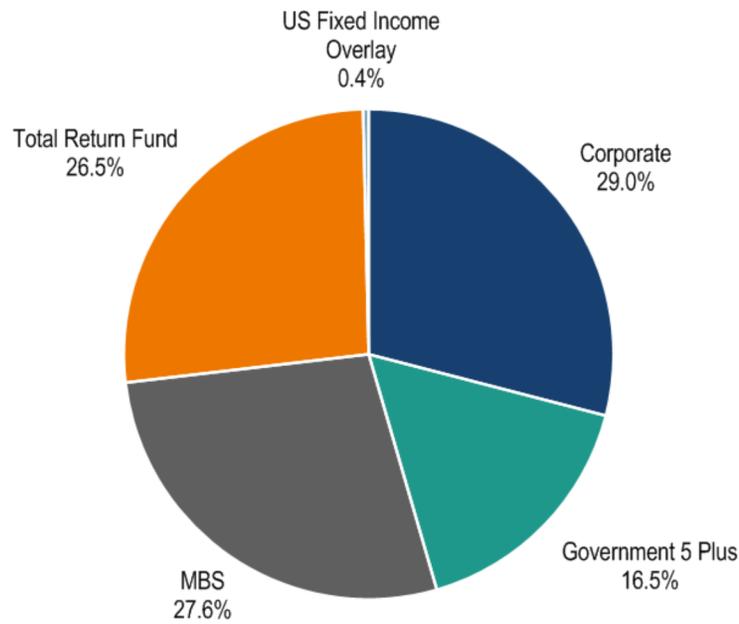


# Int'l Emerging Markets Equity Portfolio Country Weights

Period Ending: June 30, 2018



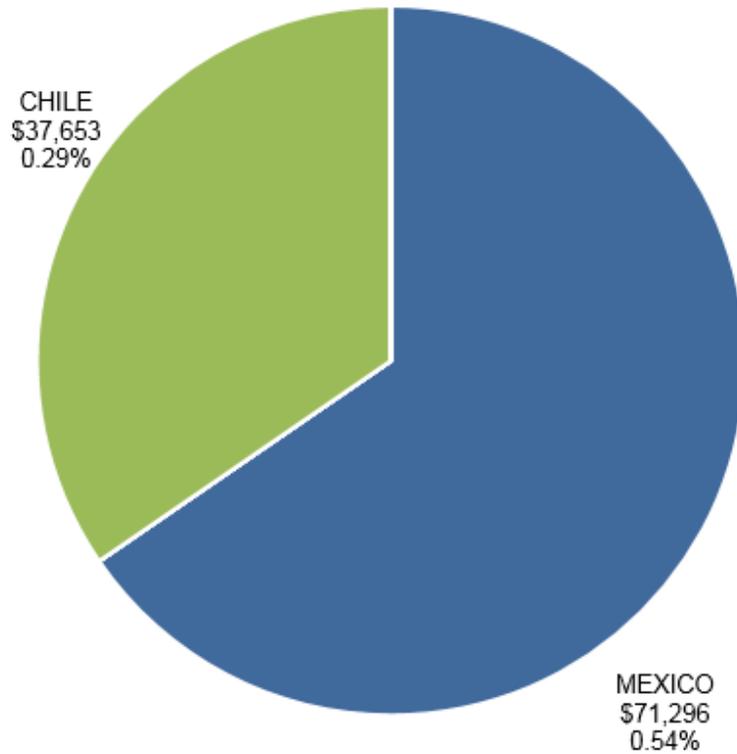
COUNTRY	TCRS MARKET VALUE (\$ 000)	INT'L EM EQUITY	MSCI EM ND CUSTOM	DIFF
S. KOREA	\$ 486,821	25.4%	24.5%	+0.9%
BRAZIL	\$ 192,398	10.0%	9.8%	+0.2%
TAIWAN	\$ 382,519	19.9%	19.5%	+0.4%
S. AFRICA	\$ 158,527	8.3%	11.0%	-2.8%
INDIA	\$ 288,079	15.0%	14.5%	+0.5%
MEXICO	\$ 99,454	5.2%	4.9%	+0.3%
MALAYSIA	\$ 72,967	3.8%	3.9%	-0.1%
INDONESIA	\$ 64,796	3.4%	3.2%	+0.2%
PHILIPPINES	\$ 31,041	1.6%	1.6%	+0.0%
TURKEY	\$ 26,607	1.4%	1.3%	+0.1%
CHILE	\$ 39,500	2.1%	1.9%	+0.2%
POLAND	\$ 36,340	1.9%	1.9%	+0.0%
COLOMBIA	\$ 15,025	0.8%	0.8%	-0.0%
GREECE	\$ 11,015	0.6%	0.5%	+0.0%
PERU	\$ 13,645	0.7%	0.7%	+0.0%
	\$ 1,918,734	100.0%	100.0%	0.0%



	Actual \$	Actual %
■ Corporate	3,813,134,876	29.0%
■ Government 5 Plus	2,164,849,186	16.5%
■ MBS	3,629,551,629	27.6%
■ Total Return Fund	3,477,372,860	26.5%
■ US Fixed Income Overlay	49,017,632	0.4%
<b>TOTAL</b>	<b>13,133,926,183</b>	<b>100.0%</b>

Emerging Markets Investment Grade Bond  
Portfolio Country Weights

Period Ending: June 30, 2018



COUNTRY	TCRS MARKET VALUE (\$ 000)	TCRS FI	LPF	DIFF
MEXICO	\$ 71,296	0.54%	0.82%	-0.28%
INDONESIA	\$ -		0.34%	-0.34%
PHILIPPINES	\$ -		0.21%	-0.21%
COLOMBIA	\$ -		0.21%	-0.21%
PERU	\$ -		0.17%	-0.17%
S. AFRICA	\$ -		0.12%	-0.12%
BRAZIL	\$ -		0.12%	-0.12%
S. KOREA	\$ -		0.08%	-0.08%
CHILE	\$ 37,653	0.29%	0.07%	+0.22%
MALAYSIA	\$ -		0.03%	-0.03%
INDIA	\$ -		0.02%	-0.02%
HUNGARY	\$ -		0.02%	-0.02%
POLAND	\$ -		0.02%	-0.02%
OTHER*	\$ -			0.00%
TURKEY	\$ -			0.00%
TAIWAN	\$ -			0.00%
THAILAND	\$ -			0.00%
	\$ 108,949	0.83%	2.23%	-1.40%

\* Includes Bahrain, British Virgin, Curacao, Iceland, Isle of Man, Panama, Qatar, Slovakia, Slovenia and Uruguay.

\*\* Countries excluded: United States, Japan, Germany, France, The United Kingdom, Italy, Canada, Australia, Spain, Israel, Belgium, Ireland, Luxembourg, Netherlands, Norway, Sweden and Switzerland.

# Glossary

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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