



**PERSPECTIVES  
THAT DRIVE  
ENTERPRISE  
SUCCESS**



**PERIOD ENDING: MARCH 31, 2019**

Executive Performance Summary Review for

**Tennessee Consolidated Retirement System**

# 1<sup>st</sup> quarter summary

## THE ECONOMIC CLIMATE

- Real GDP growth continued at 3.0% YoY - on pace with the third quarter (2.2% quarterly annualized rate). Forecasts for 2019 U.S. growth have weakened. The U.S. economy is expected to grow at a 2.4% pace in 2019, according to the Survey of Professional Forecasters, while the Federal Reserve expects 2.1% growth this year.
- In March, negotiations resumed between U.S. and Chinese trade delegations. The dialogue was viewed as constructive, and optimism picked up for a trade resolution being reached in the near-to-intermediate future. The two sides have yet to agree on a formal timeline.

## PORTFOLIO IMPACTS

- The Federal Open Market Committee reiterated its “patient” approach to policy, leaving rates unchanged, helping to push asset prices upward. Chairman Powell announced that starting in May the balance sheet runoff would slow from \$50 to \$30 billion a month, and would end in September.
- Risk assets exhibited strong performance over the quarter. U.S. equities delivered the greatest gains (S&P 500 +13.6%, MSCI ACWI +12.2%), reversing U.S. underperformance in Q4 2018 (S&P 500 -13.5%, MSCI ACWI -12.8%). This was followed by riskier credit with high single-digit returns, and safer credit and government bonds with low single-digit returns.

## THE INVESTMENT CLIMATE

- The first quarter was nearly a mirror image of 2018 Q4, as many assets retraced losses of the prior quarter.
- Declining long-term Treasury yields following the Fed meeting in March briefly caused the yield curve to invert, meaning that short-term yields (3-month) were higher than long-term yields (10-year). Investors have expressed concerns that this may signal a near term recession. We believe these concerns are overblown.
- The House of Commons in the British Parliament briefly took control of their government’s legislative agenda, but failed to reach a majority vote on a path forward. On April 10th, British Prime Minister Theresa May and the European Council agreed to extend the Brexit deadline from April 12th to October 31st.

## ASSET ALLOCATION ISSUES

- All major asset classes delivered positive performance in Q1, a refreshing change of pace from broad-based losses experienced in 2018.
- Economic conditions around the world have exhibited a weakening trend, leading to the question of whether a turn in the economic cycle is near. The first quarter was more mixed with strength in places, easing some concern. We remain watchful of this weakening trend, but believe the economy and market may have more room to run.

A neutral risk stance may be appropriate in today’s environment

# U.S. economics summary

- Real GDP growth continued at 3.0% YoY, on pace with the third quarter (2.2% on a quarterly annualized rate).
- Forecasts for 2019 U.S. growth have weakened. The U.S. economy is expected to grow at a 2.4% pace in 2019, according to the Survey of Professional Forecasters, while the Federal Reserve expects 2.1% growth this year.
- In March, negotiations resumed between U.S. and Chinese trade delegations. The dialogue was viewed as constructive, and optimism picked up for a formal trade resolution being reached in the near future.
- U.S. inflation remained near the 2.0% Fed target. After dipping to 1.5% YoY in February, headline inflation recovered to 1.9% in March, resulting in no change over the quarter.
- Average hourly earnings grew 3.2% YoY in March, missing expectations of 3.3%. A slight tick up in the average non-farm private workweek from 34.4 to 34.5 hours likely contributed to the cooler wage data.
- The labor market remained strong in Q1. U-3 unemployment fell to 3.8% from 3.9% in December, though the labor force participation rate weakened from 63.1% to 63.0% during the period.
- The Federal Open Market Committee reiterated its “patient” approach to policy, leaving rates unchanged. Expectations for 2019 GDP growth and rate hikes were cut, and markets rallied. Chairman Powell announced that starting in May the balance sheet runoff would slow from \$50 billion per month to \$30 billion, and would end in September.

	Most Recent	12 Months Prior
GDP (YoY)	3.0% <i>12/31/18</i>	2.5% <i>12/31/17</i>
Inflation (CPI YoY, Core)	2.0% <i>3/31/19</i>	2.1% <i>3/31/18</i>
Expected Inflation (5yr-5yr forward)	2.0% <i>3/31/19</i>	2.2% <i>3/31/18</i>
Fed Funds Target Range	2.25 – 2.50% <i>3/31/19</i>	1.50 – 1.75% <i>3/31/18</i>
10 Year Rate	2.4% <i>3/31/19</i>	2.7% <i>3/31/18</i>
U-3 Unemployment	3.8% <i>3/31/19</i>	4.0% <i>3/31/18</i>
U-6 Unemployment	7.3% <i>3/31/19</i>	7.9% <i>3/31/18</i>

# International economics summary

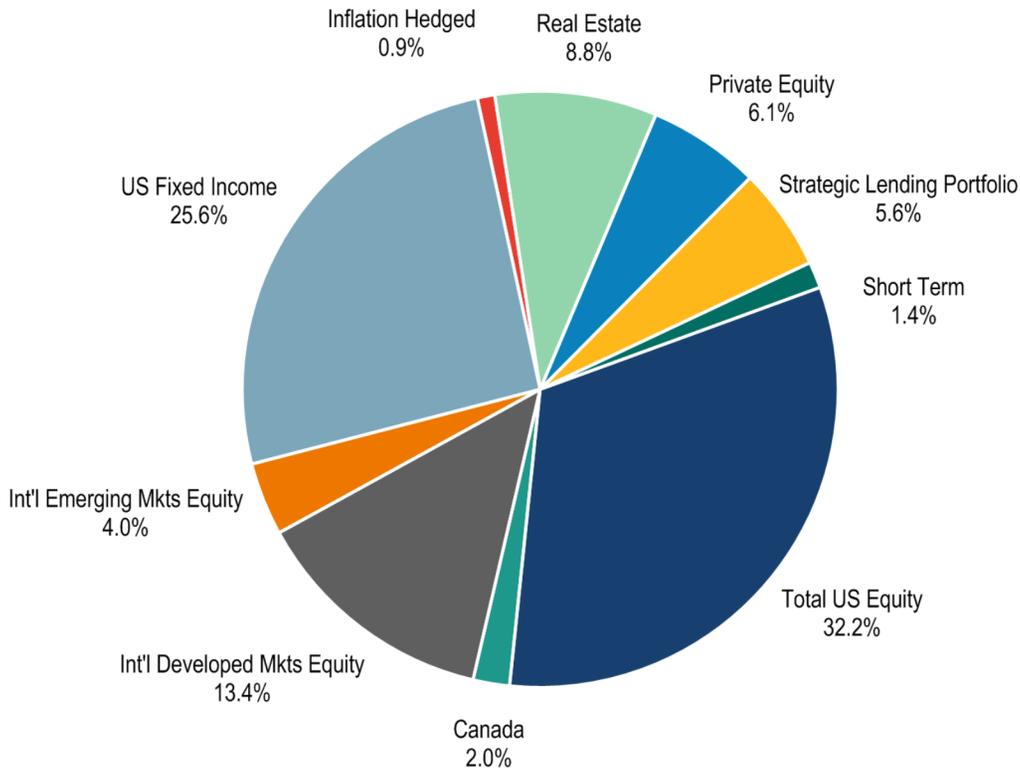
- Global growth expectations for the next two years were revised materially lower in Q1. The OECD's global GDP growth forecast for 2019 and 2020 fell from 3.5% to 3.3%, and from 3.5% to 3.4%, respectively.
- In March, negotiations resumed between high-level U.S. and Chinese trade delegations. The dialogue was viewed as constructive, and optimism picked up for some sort of formal trade resolution being reached in the near-to-intermediate future, although the two sides have yet to agree on a formal timeline.
- The German Manufacturing PMI fell from 47.6 to 44.1 in March, falling further into the contractionary territory below 50. New orders and export sales data came in weaker than expected which contributed to a more pessimistic outlook for German manufacturing activity.
- The House of Commons in the British Parliament briefly took control of their government's legislative agenda, but failed to reach a majority vote on a path forward. On April 10th, British Prime Minister Theresa May and the European Council agreed to extend the Brexit deadline from April 12th to October 31st.
- The spread between the JP Morgan Global Services and Manufacturing PMIs rose to 3.1 in March. Last March, the spread was at 0.0, indicating that over the past year the outlook for global manufacturing activity has weakened relative to the outlook for global services activity. Typically, services activity is more resilient to a worsening economic backdrop.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	3.0% <i>12/31/18</i>	1.5% <i>2/28/19</i>	3.8% <i>3/31/19</i>
Eurozone	1.1% <i>12/31/18</i>	1.4% <i>3/31/19</i>	7.8% <i>2/28/19</i>
Japan	0.3% <i>12/31/18</i>	0.2% <i>2/28/19</i>	2.3% <i>2/28/19</i>
BRICS Nations	5.8% <i>12/31/18</i>	2.4% <i>3/31/19</i>	5.3% <i>12/31/18</i>
Brazil	1.1% <i>12/31/18</i>	3.9% <i>2/28/19</i>	12.2% <i>3/31/19</i>
Russia	2.7% <i>12/31/18</i>	5.3% <i>3/31/19</i>	4.9% <i>2/28/19</i>
India	7.2% <i>12/31/18</i>	2.6% <i>2/28/19</i>	8.5% <i>12/31/17</i>
China	6.4% <i>12/31/18</i>	1.5% <i>2/28/19</i>	3.8% <i>12/31/18</i>

Name	Last 3 Months	Last 6 Months	1 Yr	2 Yrs	3 Yrs	5 Yrs	7 Yrs	10 Yrs
US Equity								
Russell 3000	14.0	-2.3	8.8	11.3	13.5	10.4	12.6	16.0
S&P 500	13.6	-1.7	9.5	11.7	13.5	10.9	12.8	15.9
Russell 1000	14.0	-1.8	9.3	11.6	13.5	10.6	12.8	16.0
Russell 1000 Growth	16.1	-2.3	12.7	16.9	16.5	13.5	14.3	17.5
Russell 1000 Value	11.9	-1.2	5.7	6.3	10.5	7.7	11.1	14.5
Russell MidCap	16.5	-1.4	6.5	9.3	11.8	8.8	12.0	16.9
Russell 2000	14.6	-8.6	2.0	6.8	12.9	7.1	10.7	15.4
Russell 2000 Growth	17.1	-8.2	3.9	11.0	14.9	8.4	11.8	16.5
Russell 2000 Value	11.9	-9.0	0.2	2.6	10.9	5.6	9.6	14.1
International Equity								
MSCI ACWI	12.2	-2.1	2.6	8.6	10.7	6.5	8.4	12.0
MSCI World ex USA	10.4	-3.7	-3.1	5.0	7.3	2.2	5.3	8.8
MSCI EAFE	10.0	-3.8	-3.7	5.1	7.3	2.3	5.6	9.0
MSCI Emerging Markets	9.9	1.7	-7.4	7.6	10.7	3.7	2.7	8.9
Fixed Income								
91 Day T-Bills	0.6	1.2	2.1	1.7	1.2	0.8	0.6	0.4
BBgBarc US Aggregate TR	2.9	4.6	4.5	2.8	2.0	2.7	2.5	3.8
BBgBarc US Govt/Credit TR	3.3	4.8	4.5	2.9	2.1	2.8	2.6	3.9
BBgBarc US Municipal TR	2.9	4.6	5.4	4.0	2.7	3.7	3.5	4.7
BBgBarc US High Yield TR	7.3	2.4	5.9	4.9	8.6	4.7	6.3	11.3
FTSE WGBI TR	1.7	3.5	-1.6	3.3	1.0	0.6	0.5	2.2
FTSE WGBI ex US TR	1.5	2.8	-4.5	3.8	0.9	-0.1	0.0	2.0
Real Estate								
FTSE NAREIT All REIT	16.7	9.6	19.5	8.8	8.0	9.8	10.0	18.2
NCREIF Property Index	1.8	3.2	6.8	7.0	7.1	9.1	9.6	8.5
Alternatives								
HFRI Fund of Funds Composite Index	4.6	-0.5	0.1	2.8	3.9	2.2	3.1	3.5
Inflation								
Consumer Price Index	1.2	0.7	1.9	2.1	2.2	1.5	1.5	1.8

Tennessee Consolidated Retirement System  
Asset Allocation Analysis

Period Ending: March 31, 2019



	Actual \$	Actual %
Total US Equity	16,307,745,384	32.2%
Canada	1,003,122,889	2.0%
Int'l Developed Mkts Equity	6,783,343,199	13.4%
Int'l Emerging Mkts Equity	2,004,872,874	4.0%
US Fixed Income	12,990,229,753	25.6%
Inflation Hedged	480,653,258	0.9%
Real Estate	4,452,420,042	8.8%
Private Equity	3,086,336,993	6.1%
Strategic Lending Portfolio	2,823,125,520	5.6%
Short Term	723,265,921	1.4%
<b>TOTAL</b>	<b>50,655,115,833</b>	<b>100.0%</b>

	TARGET	ACTUAL	DIFF
Total US Equity	31.0%	32.2%	1.2%
Canada	2.0%	2.0%	0.0%
Int'l Developed Mkts Equity	13.0%	13.4%	0.4%
Int'l Emerging Mkts Equity	4.0%	4.0%	0.0%
US Fixed Income	25.0%	25.6%	0.6%
Inflation Hedged	0.0%	0.9%	0.9%
Real Estate	10.0%	8.8%	-1.2%
Private Equity	7.0%	6.1%	-0.9%
Strategic Lending Portfolio	7.0%	5.6%	-1.4%
Short Term	1.0%	1.4%	0.4%

	12/31/18	03/31/19	DIFF
Total US Equity	31.2%	32.2%	1.0%
Canada	1.9%	2.0%	0.1%
Int'l Developed Mkts Equity	12.6%	13.4%	0.8%
Int'l Emerging Mkts Equity	4.0%	4.0%	0.0%
US Fixed Income	27.2%	25.6%	-1.6%
Inflation Hedged	1.0%	0.9%	-0.1%
Real Estate	9.1%	8.8%	-0.3%
Private Equity	6.4%	6.1%	-0.3%
Strategic Lending Portfolio	5.7%	5.6%	-0.1%
Short Term	0.9%	1.4%	0.5%

# Total Fund Performance Summary

Period Ending: March 31, 2019

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Total Fund</b>	<b>7.50</b>	<b>50</b>	<b>3.62</b>	<b>12</b>	<b>4.58</b>	<b>19</b>	<b>8.50</b>	<b>58</b>	<b>6.75</b>	<b>21</b>	<b>9.88</b>	<b>65</b>
<i>Policy Index</i> <sup>1</sup>	<u>6.75</u>	74	<u>3.64</u>	12	<u>4.48</u>	20	<u>8.40</u>	60	<u>6.70</u>	22	<u>10.08</u>	60
Excess Return	0.75		-0.02		0.10		0.10		0.05		-0.20	
<i>Allocation Index</i> <sup>2</sup>	6.91	67	3.40	24	4.22	29	8.11	79	6.52	30	9.78	66
<i>InvestorForce Public DB &gt; \$1B Gross Median</i>	7.49		2.69		3.75		8.57		6.16		10.22	
<b>North American Equity</b>	<b>13.49</b>	<b>--</b>	<b>3.01</b>	<b>--</b>	<b>6.67</b>	<b>--</b>	<b>12.52</b>	<b>--</b>	<b>9.15</b>	<b>--</b>	<b>--</b>	<b>--</b>
<i>N.A. Equity Custom</i> <sup>3</sup>	<u>13.81</u>	--	<u>4.46</u>	--	<u>8.42</u>	--	<u>12.88</u>	--	<u>9.77</u>	--	--	--
Excess Return	-0.32		-1.45		-1.75		-0.36		-0.62			
<b>US Equity</b>	<b>13.40</b>	<b>83</b>	<b>3.19</b>	<b>62</b>	<b>6.76</b>	<b>69</b>	<b>12.72</b>	<b>71</b>	<b>9.78</b>	<b>52</b>	<b>15.40</b>	<b>66</b>
<i>US Equity Custom</i> <sup>4</sup>	<u>13.64</u>	73	<u>4.95</u>	19	<u>8.79</u>	25	<u>13.34</u>	48	<u>10.64</u>	14	<u>16.01</u>	35
Excess Return	-0.24		-1.76		-2.03		-0.62		-0.86		-0.61	
<i>InvestorForce All DB US Eq Gross Median</i>	14.05		3.74		7.66		13.26		9.80		15.71	
Index	13.65	41	5.82	38	9.45	39	13.44	40	10.99	34	15.94	41
S&P 500	<u>13.65</u>	41	<u>5.86</u>	38	<u>9.50</u>	39	<u>13.51</u>	39	<u>10.91</u>	35	<u>15.92</u>	41
Excess Return	0.00		-0.04		-0.05		-0.07		0.08		0.02	
<i>eV US Large Cap Equity Gross Median</i>	13.15		4.73		7.87		12.63		9.99		15.54	
Large Quant	12.82	54	4.19	56	6.99	57	12.21	56	9.03	66	14.56	74
S&P 500	<u>13.65</u>	41	<u>5.86</u>	38	<u>9.50</u>	39	<u>13.51</u>	39	<u>10.91</u>	35	<u>15.92</u>	41
Excess Return	-0.83		-1.67		-2.51		-1.30		-1.88		-1.36	
<i>eV US Large Cap Equity Gross Median</i>	13.15		4.73		7.87		12.63		9.99		15.54	
Sector	13.19	49	2.32	74	5.90	63	12.81	48	10.09	48	15.33	56
S&P 500	<u>13.65</u>	41	<u>5.86</u>	38	<u>9.50</u>	39	<u>13.51</u>	39	<u>10.91</u>	35	<u>15.92</u>	41
Excess Return	-0.46		-3.54		-3.60		-0.70		-0.82		-0.59	
<i>eV US Large Cap Equity Gross Median</i>	13.15		4.73		7.87		12.63		9.99		15.54	
Mid Cap <sup>5</sup>	14.54	67	-1.94	75	0.60	77	11.13	58	8.39	57	16.01	68
S&P MidCap 400 <sup>5</sup>	<u>14.49</u>	68	<u>-1.63</u>	73	<u>2.59</u>	64	<u>11.24</u>	58	<u>8.29</u>	58	<u>16.28</u>	61
Excess Return	0.05		-0.31		-1.99		-0.11		0.10		-0.27	
<i>eV US Mid Cap Equity Gross Median</i>	15.72		2.72		5.05		12.09		8.83		16.64	

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% FTSE LPF/ 10% NCREIF 1Q Lag/ 7% S&P 500 + 3% 1Q Lag/ 7% Strategic Lending/ 1% 91 Day T-Bill.

2 Effective 10/1/18, Total Fund Allocation Index is 32.04% S&P 1500/ 2.07% S&P TSX 60/ 13.44% MSCI EAFE IMI net/ 4.13% MSCI Emerging Markets net/ 26.60% FTSE LPF/ 1.94% FTSE TIPS/ 8.40% NCREIF 1Q Lag/ 5.32% S&P 500 + 3% 1Q Lag/ 5.06% 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: March 31, 2019

	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>11.44</b>	--	<b>-6.39</b>	--	<b>1.84</b>	--	<b>12.88</b>	--	<b>8.71</b>	--	--	--
S&P 600 SmallCap	11.61	--	-6.63	--	1.57	--	12.55	--	8.45	--	--	--
Excess Return	-0.17		0.24		0.27		0.33		0.26			
Small Cap Index	11.61	83	-6.39	64	1.85	50	12.88	43	8.71	35	--	--
S&P 600 SmallCap	11.61	83	-6.63	66	1.57	52	12.55	47	8.45	38	--	--
Excess Return	0.00		0.24		0.28		0.33		0.26			
eV US Small Cap Equity Gross Median	14.01		-4.47		1.77		12.17		7.58		16.82	
Small Quant	11.11	89	--	--	--	--	--	--	--	--	--	--
S&P 600 SmallCap	11.61	83	--	--	--	--	--	--	--	--	--	--
Excess Return	-0.50											
<b>Large Cap Overlay</b>	<b>15.26</b>	--	<b>6.42</b>	--	<b>9.74</b>	--	--	--	--	--	--	--
S&P 500	13.65	--	5.86	--	9.50	--	--	--	--	--	--	--
Excess Return	1.61		0.56		0.24							
<b>Canada</b>	<b>15.00</b>	--	<b>0.27</b>	--	<b>5.20</b>	--	<b>8.90</b>	--	<b>2.39</b>	--	--	--
S&P/TSX 60	15.05	--	0.26	--	5.22	--	8.78	--	2.36	--	--	--
Excess Return	-0.05		0.01		-0.02		0.12		0.03			
<b>International Equity</b>	<b>9.32</b>	<b>92</b>	<b>-2.39</b>	<b>53</b>	<b>-5.49</b>	<b>52</b>	<b>8.07</b>	<b>56</b>	<b>3.45</b>	<b>38</b>	<b>10.10</b>	<b>26</b>
Int'l Equity Custom <sup>7</sup>	9.18	92	-2.23	49	-5.54	53	7.61	72	2.51	75	8.62	81
Excess Return	0.14		-0.16		0.05		0.46		0.94		1.48	
InvestorForce All DB ex-US Eq Gross Median	10.67		-2.28		-5.29		8.19		3.15		9.56	
<b>Int'l Developed Mkts Equity</b>	<b>10.39</b>	<b>56</b>	<b>-3.48</b>	<b>70</b>	<b>-4.19</b>	<b>54</b>	<b>8.05</b>	<b>49</b>	<b>4.07</b>	<b>33</b>	<b>10.99</b>	<b>17</b>
MSCI EAFE IMI	10.08	69	-3.32	68	-4.57	59	7.30	70	2.61	71	9.41	57
Excess Return	0.31		-0.16		0.38		0.75		1.46		1.58	
InvestorForce All DB Dev Mkt ex-US Eq Gross Median	10.65		-2.17		-4.10		8.04		3.50		9.76	
Acadian	10.60	45	-7.49	28	-9.81	41	--	--	--	--	--	--
MSCI EAFE Small Cap	10.65	45	-7.92	34	-9.36	33	--	--	--	--	--	--
Excess Return	-0.05		0.43		-0.45							
eV EAFE Small Cap Equity Gross Median	10.26		-9.01		-11.02		7.94		4.94		14.23	

<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: March 31, 2019

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
American Century	14.02	8	-13.74	91	-13.21	75	8.06	43	4.91	51	13.86	56
<i>MSCI EAFE Small Cap</i>	<u>10.65</u>	45	<u>-7.92</u>	34	<u>-9.36</u>	33	<u>7.50</u>	55	<u>4.47</u>	63	<u>12.76</u>	81
Excess Return	3.37		-5.82		-3.85		0.56		0.44		1.10	
<i>eV EAFE Small Cap Equity Gross Median</i>	10.26		-9.01		-11.02		7.94		4.94		14.23	
Fiera Capital	12.44	16	3.81	3	5.51	2	--	--	--	--	--	--
<i>MSCI EAFE</i>	<u>9.98</u>	65	<u>-2.51</u>	37	<u>-3.71</u>	38	--	--	--	--	--	--
Excess Return	2.46		6.32		9.22							
<i>eV All EAFE Equity Gross Median</i>	10.33		-3.79		-4.98		7.57		3.54		10.67	
JP Morgan	7.28	--	-6.03	--	-8.53	--	--	--	--	--	--	--
<i>MSCI Pacific</i>	<u>8.53</u>	--	<u>-2.54</u>	--	<u>-3.86</u>	--	--	--	--	--	--	--
Excess Return	-1.25		-3.49		-4.67							
Marathon	9.72	70	-4.10	55	-3.54	37	6.33	76	3.43	53	11.03	42
<i>MSCI EAFE</i>	<u>9.98</u>	65	<u>-2.51</u>	37	<u>-3.71</u>	38	<u>7.27</u>	59	<u>2.33</u>	83	<u>8.96</u>	88
Excess Return	-0.26		-1.59		0.17		-0.94		1.10		2.07	
<i>eV All EAFE Equity Gross Median</i>	10.33		-3.79		-4.98		7.57		3.54		10.67	
Mondrian	10.38	49	2.29	6	-0.31	14	--	--	--	--	--	--
<i>MSCI EAFE</i>	<u>9.98</u>	65	<u>-2.51</u>	37	<u>-3.71</u>	38	--	--	--	--	--	--
Excess Return	0.40		4.80		3.40							
<i>eV All EAFE Equity Gross Median</i>	10.33		-3.79		-4.98		7.57		3.54		10.67	
PanAgora Asset Mgmt	9.74	70	-3.56	47	-5.53	57	7.02	64	3.40	54	10.72	48
<i>MSCI EAFE</i>	<u>9.98</u>	65	<u>-2.51</u>	37	<u>-3.71</u>	38	<u>7.27</u>	59	<u>2.33</u>	83	<u>8.96</u>	88
Excess Return	-0.24		-1.05		-1.82		-0.25		1.07		1.76	
<i>eV All EAFE Equity Gross Median</i>	10.33		-3.79		-4.98		7.57		3.54		10.67	
Pzena	7.76	94	--	--	--	--	--	--	--	--	--	--
<i>MSCI Europe</i>	<u>10.84</u>	39	--	--	--	--	--	--	--	--	--	--
Excess Return	-3.08											
TimesSquare	15.01	4	-11.41	76	-13.14	74	--	--	--	--	--	--
<i>MSCI EAFE Small Cap</i>	<u>10.65</u>	45	<u>-7.92</u>	34	<u>-9.36</u>	33	--	--	--	--	--	--
Excess Return	4.36		-3.49		-3.78							
<i>eV EAFE Small Cap Equity Gross Median</i>	10.26		-9.01		-11.02		7.94		4.94		14.23	

# Total Fund Performance Summary

Period Ending: March 31, 2019

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>TT International</b>	6.84	99	-10.03	91	-10.14	83	6.37	76	2.56	76	9.46	77
MSCI EAFE	<u>9.98</u>	65	<u>-2.51</u>	37	<u>-3.71</u>	38	<u>7.27</u>	59	<u>2.33</u>	83	<u>8.96</u>	88
Excess Return	-3.14		-7.52		-6.43		-0.90		0.23		0.50	
eV All EAFE Equity Gross Median	10.33		-3.79		-4.98		7.57		3.54		10.67	
<b>WCM</b>	13.50	21	--	--	--	--	--	--	--	--	--	--
MSCI ACWI ex USA	<u>10.31</u>	66	--	--	--	--	--	--	--	--	--	--
Excess Return	3.19											
eV All ACWI ex-US Equity Gross Median	11.10		-2.70		-5.18		8.37		3.86		11.10	
<b>Walter Scott</b>	11.22	31	3.67	3	4.97	3	11.34	7	6.84	8	11.78	30
MSCI EAFE <sup>8</sup>	<u>9.98</u>	65	<u>-2.51</u>	37	<u>-3.71</u>	38	<u>7.27</u>	59	<u>2.33</u>	83	<u>8.96</u>	88
Excess Return	1.24		6.18		8.68		4.07		4.51		2.82	
eV All EAFE Equity Gross Median	10.33		-3.79		-4.98		7.57		3.54		10.67	
<b>Int'l Emerging Mkts Equity</b>	5.87	97	1.28	39	-9.92	76	7.92	87	1.72	97	--	--
MSCI Emerging Markets ND Custom	<u>6.26</u>	96	<u>1.23</u>	41	<u>-8.91</u>	66	<u>8.24</u>	84	<u>1.97</u>	95	--	--
Excess Return	-0.39		0.05		-1.01		-0.32		-0.25			
eV Emg Mkts Equity Gross Median	10.28		0.54		-7.75		10.88		4.69		10.57	
<b>US Fixed Income</b>	4.44	25	6.05	17	5.64	10	2.93	60	4.30	22	6.40	29
FTSE LPF <sup>9</sup>	<u>4.36</u>	26	<u>5.89</u>	17	<u>5.39</u>	16	<u>2.48</u>	69	<u>4.11</u>	24	<u>4.98</u>	62
Excess Return	0.08		0.16		0.25		0.45		0.19		1.42	
InvestorForce All DB US Fix Inc Gross Median	3.28		4.53		4.54		3.22		3.26		5.34	
<b>Corporate</b>	7.35	1	7.86	1	5.78	8	5.14	8	5.29	1	9.22	2
FTSE LPF Credit <sup>10</sup>	<u>6.99</u>	1	<u>7.46</u>	1	<u>5.22</u>	37	<u>4.67</u>	18	<u>4.93</u>	5	<u>7.47</u>	46
Excess Return	0.36		0.40		0.56		0.47		0.36		1.75	
eV US Corporate Fixed Inc Gross Median	5.34		5.99		5.10		4.05		4.10		7.35	
<b>Gov't 5 Plus</b>	3.84	--	6.22	--	6.44	--	1.59	--	4.64	--	5.91	--
FTSE LPF Treas/Govt Spons <sup>11</sup>	<u>4.04</u>	--	<u>5.90</u>	--	<u>6.08</u>	--	<u>1.32</u>	--	<u>4.47</u>	--	<u>4.93</u>	--
Excess Return	-0.20		0.32		0.36		0.27		0.17		0.98	

<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% FTSE BIG/ 50% FTSE LPF (4/1/11-8/31/11) and 100% FTSE BIG (8/1/05-3/31/11).

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

<sup>11</sup> Effective 7/1/11. Benchmark is linked to 50% FTSE Core 5+ Gov't/ 50% FTSE 7+ Gov't (4/1/11-6/30/11), 100% FTSE Core 5+ Gov't (9/1/09-3/31/11), and 100% FTSE Gov't (7/1/04-8/31/09).

# Total Fund Performance Summary

Period Ending: March 31, 2019

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>MBS</b>	2.30	50	4.41	39	4.67	52	1.90	85	2.76	83	3.59	80
FTSE BIG Mortgage TR	2.16	67	4.21	53	4.48	64	1.75	94	2.64	92	3.11	96
Excess Return	0.14		0.20		0.19		0.15		0.12		0.48	
eV US Securitized Fixed Inc Gross Median	2.29		4.27		4.71		2.89		3.22		4.64	
<b>Total Return Fund *</b>	4.31	--	5.92	--	6.23	--	2.37	--	4.89	--	6.95	--
FTSE LPF Treas/Govt Spons <sup>12</sup>	4.04	--	5.90	--	6.08	--	1.32	--	4.47	--	4.88	--
Excess Return	0.27		0.02		0.15		1.05		0.42		2.07	
<b>Inflation Hedged</b>	3.30	54	2.15	37	3.04	19	1.86	48	2.18	17	3.42	74
FTSE TIPS TR	3.34	49	1.93	60	2.77	52	1.75	72	2.08	44	3.50	63
Excess Return	-0.04		0.22		0.27		0.11		0.10		-0.08	
eV US TIPS / Inflation Fixed Inc Gross Median	3.32		2.01		2.78		1.85		2.05		3.58	
<b>Real Estate</b>	0.90	94	4.76	89	7.34	84	8.79	25	10.20	33	7.50	91
NCREIF 1Q Lag	1.37	79	4.93	86	6.71	94	7.22	65	9.33	73	7.49	91
Excess Return	-0.47		-0.17		0.63		1.57		0.87		0.01	
InvestorForce All DB Real Estate Pub Gross Median	1.84		5.90		8.22		7.67		9.86		8.58	
<b>Traditional Private Equity +</b>	1.37	--	13.77	--	16.67	--	16.68	--	16.93	--	--	--
S&P 500 +3% 1Q Lag	-12.47	--	-1.68	--	-1.38	--	12.27	--	11.51	--	--	--
Excess Return	13.84		15.45		18.05		4.41		5.42			
<b>Strategic Lending Portfolio<sup>13</sup></b>	3.54	--	3.92	--	5.52	--	8.70	--	5.47	--	--	--
Strategic Lending <sup>14</sup>	5.51	--	3.69	--	4.63	--	7.22	--	4.27	--	--	--
Excess Return	-1.97		0.23		0.89		1.48		1.20			
<b>Short Term<sup>15</sup></b>	0.35	--	1.07	--	1.56	--	1.00	--	0.99	--	1.28	--
91 Day T-Bills	0.59	--	1.68	--	2.15	--	1.23	--	0.76	--	0.42	--
Excess Return	-0.24		-0.61		-0.59		-0.23		0.23		0.86	

<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 Gov't 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.

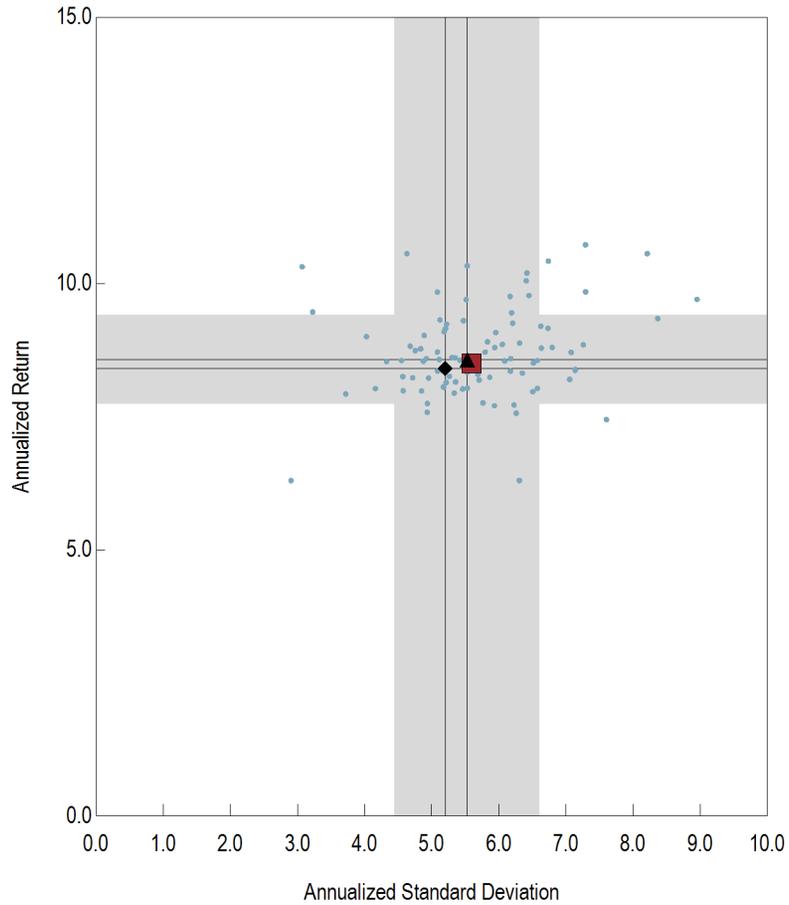
<sup>13</sup> Funded 8/1/13. Reported net of fees. Antares, Falko, ICG Funds and Triton mvs are rolled forward from Q4 2018, and adjusted for any Q1 cash flows.

<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: March 31, 2019

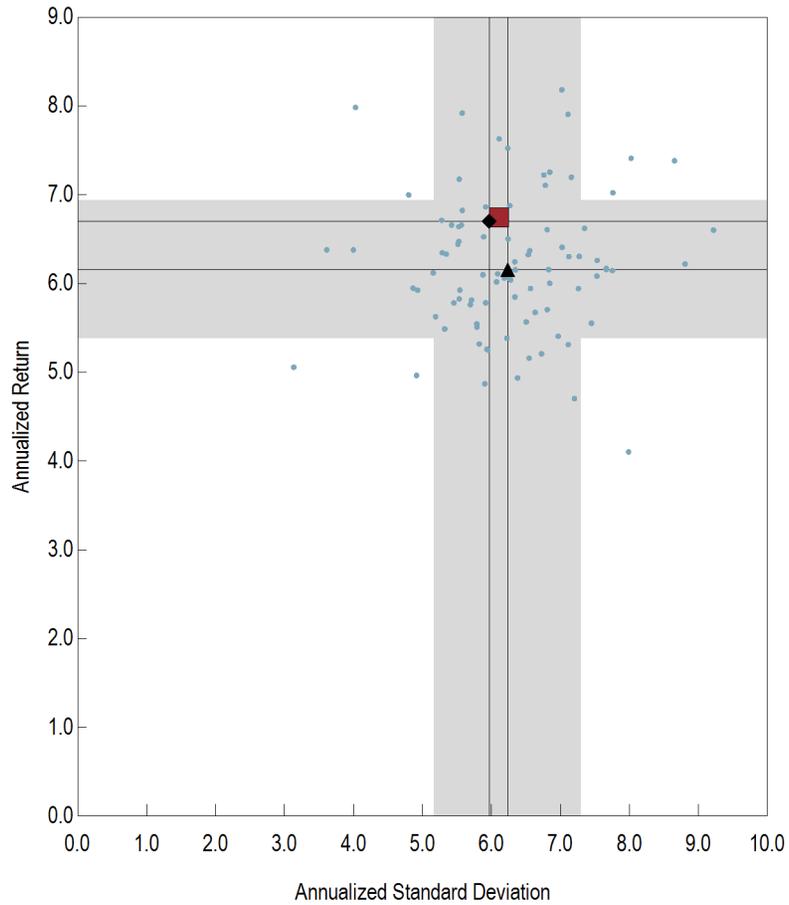


- Total Fund
- ◆ Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB > \$1B Gross

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank
Total Fund	8.50%	58	5.60%	52	1.30	55
Policy Index	8.40%	60	5.20%	35	1.38	39
InvestorForce Public DB > \$1B Gross Median	8.57%	--	5.53%	--	1.32	--

Total Fund  
Risk vs. Return (5 Years)

Period Ending: March 31, 2019

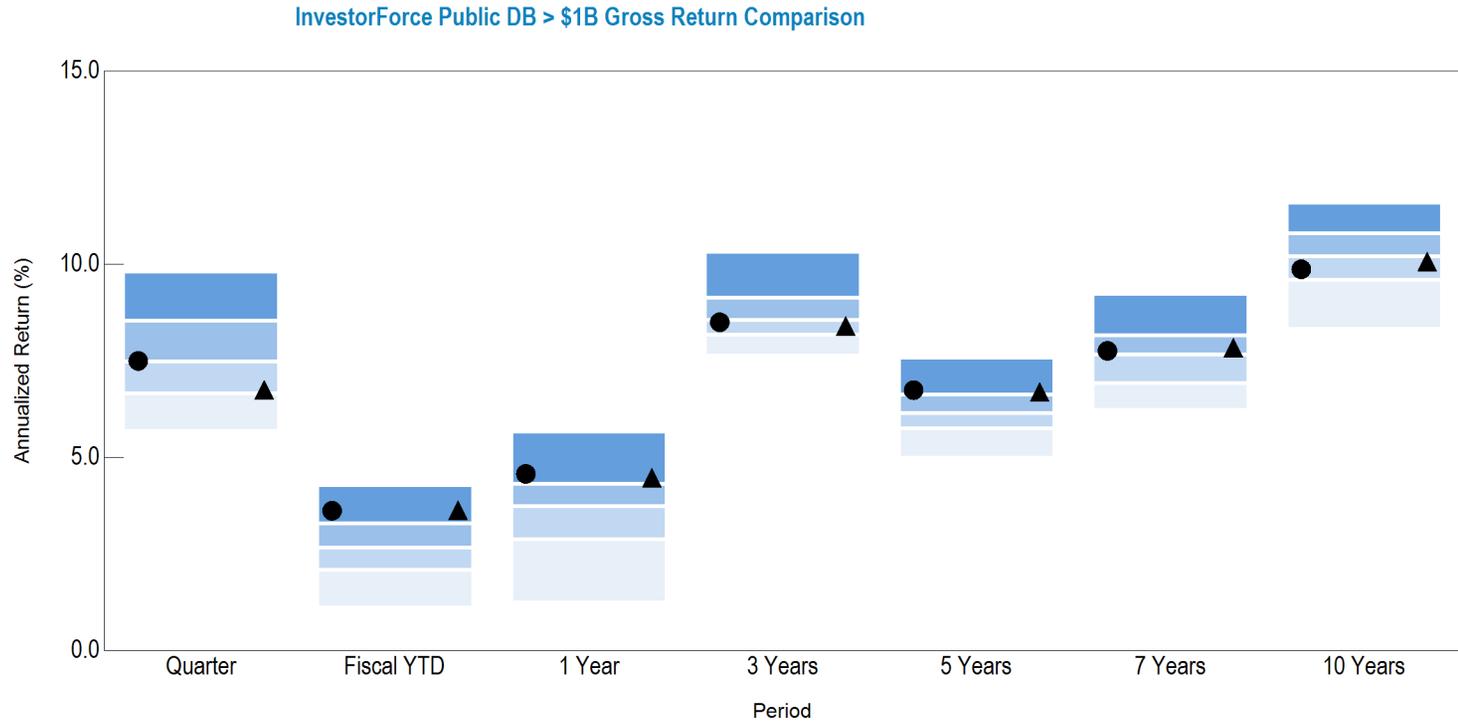


- Total Fund
- ◆ Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB > \$1B Gross

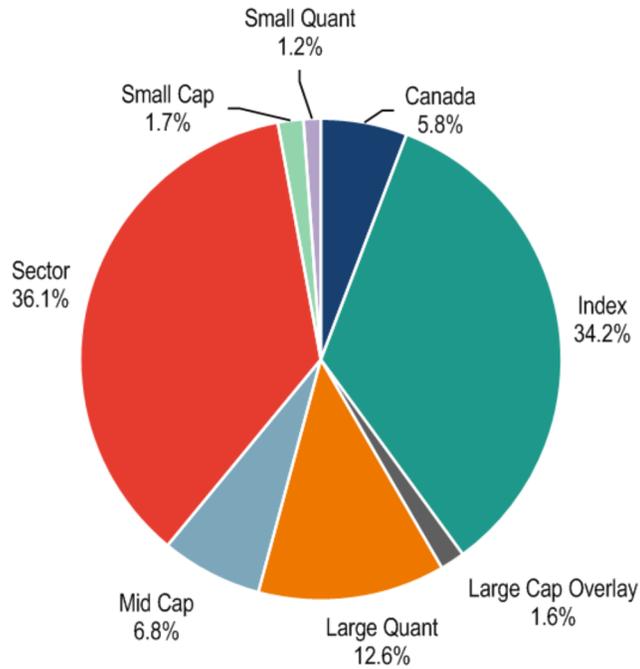
	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank
Total Fund	6.74%	21	6.11%	46	0.98	29
Policy Index	6.70%	22	5.97%	42	1.00	27
InvestorForce Public DB > \$1B Gross Median	6.16%	--	6.23%	--	0.86	--

Total Fund  
Peer Universe Comparison

Period Ending: March 31, 2019



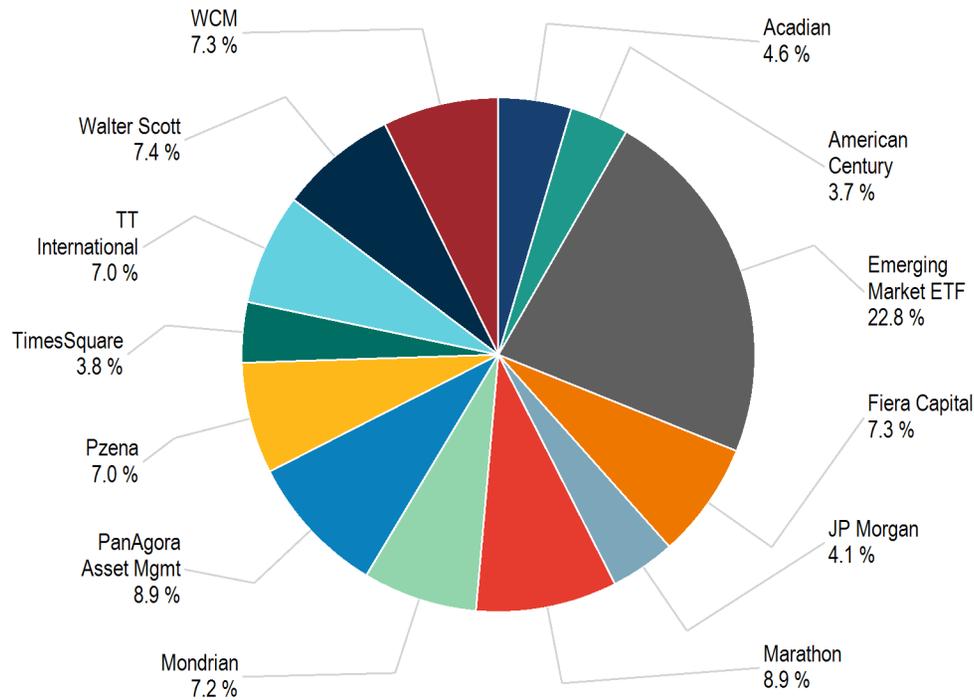
	Quarter		Fiscal YTD		1 Year		3 Years		5 Years		7 Years		10 Years	
<b>5th Percentile</b>	9.81	4.28	5.66	10.32	7.59	9.24	11.60							
<b>25th Percentile</b>	8.55	3.31	4.34	9.16	6.64	8.17	10.81							
<b>Median</b>	7.49	2.69	3.75	8.57	6.16	7.68	10.22							
<b>75th Percentile</b>	6.68	2.10	2.89	8.19	5.76	6.93	9.61							
<b>95th Percentile</b>	5.70	1.13	1.26	7.64	5.00	6.25	8.34							
<b># of Portfolios</b>	92	91	91	91	89	87	83							
<b>● Total Fund</b>	7.50 (50)	3.62 (12)	4.58 (19)	8.50 (58)	6.75 (21)	7.76 (46)	9.88 (65)							
<b>▲ Policy Index</b>	6.75 (74)	3.64 (12)	4.48 (20)	8.40 (60)	6.70 (22)	7.85 (41)	10.08 (60)							



	Actual \$	Actual %
Canada	1,003,122,889	5.8%
Index	5,915,289,871	34.2%
Large Cap Overlay	285,556,901	1.6%
Large Quant	2,175,653,645	12.6%
Mid Cap	1,176,782,554	6.8%
Sector	6,257,568,035	36.1%
Small Cap	295,653,000	1.7%
Small Quant	201,241,378	1.2%
<b>TOTAL</b>	<b>17,310,868,273</b>	<b>100.0%</b>

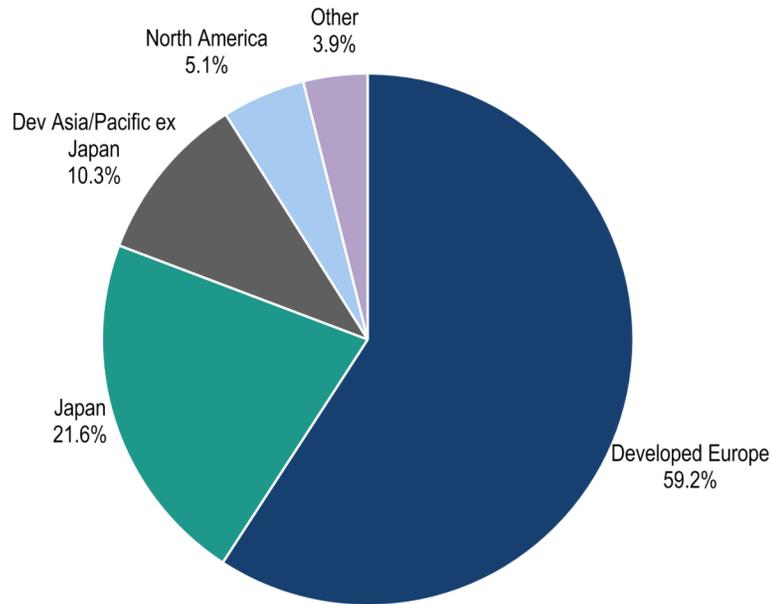
International Equity  
 Manager Allocation Analysis

Period Ending: March 31, 2019

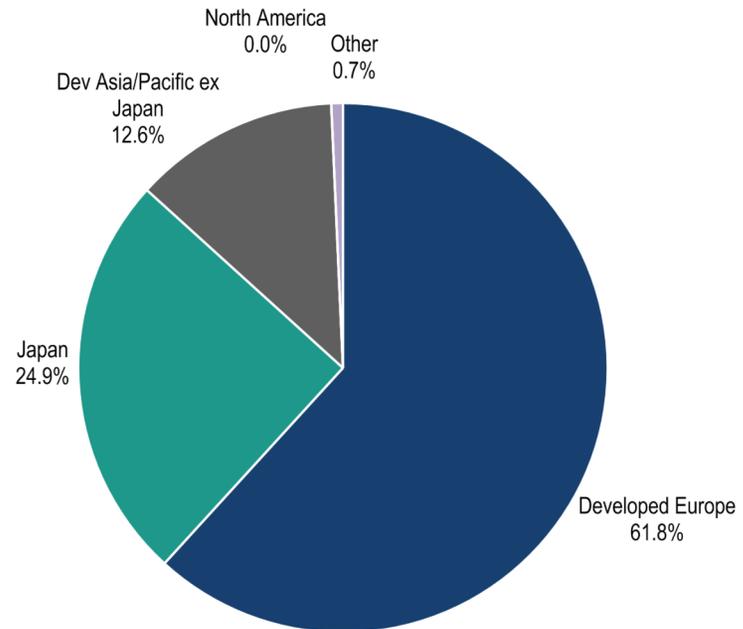


	Actual	Actual
Acadian	\$400,530,928	4.6%
American Century	\$323,753,069	3.7%
Baring Asset Mgmt	\$342,824	0.0%
Emerging Market ETF	\$2,004,872,874	22.8%
FIAM	\$418,860	0.0%
Fiera Capital	\$643,014,602	7.3%
JP Morgan	\$356,640,079	4.1%
Marathon	\$784,871,276	8.9%
Mondrian	\$634,258,578	7.2%
PanAgora Asset Mgmt	\$781,650,099	8.9%
Pzena	\$616,531,995	7.0%
SSgA	\$2,526,464	0.0%
TimesSquare	\$336,813,833	3.8%
TT International	\$610,800,920	7.0%
Walter Scott	\$647,659,881	7.4%
WCM	\$643,529,791	7.3%
<b>Total</b>	<b>\$8,788,216,073</b>	<b>100.0%</b>

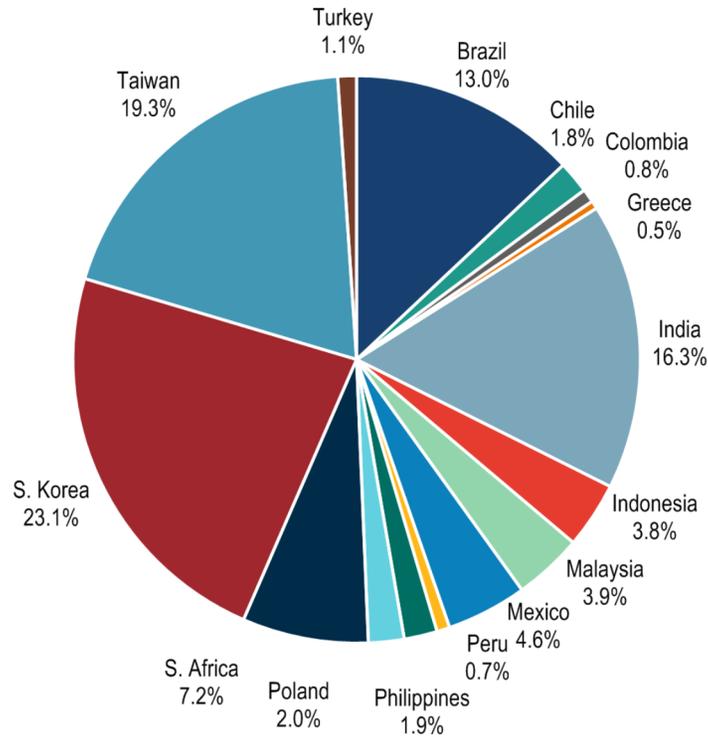
Int'l Developed Mkts Equity



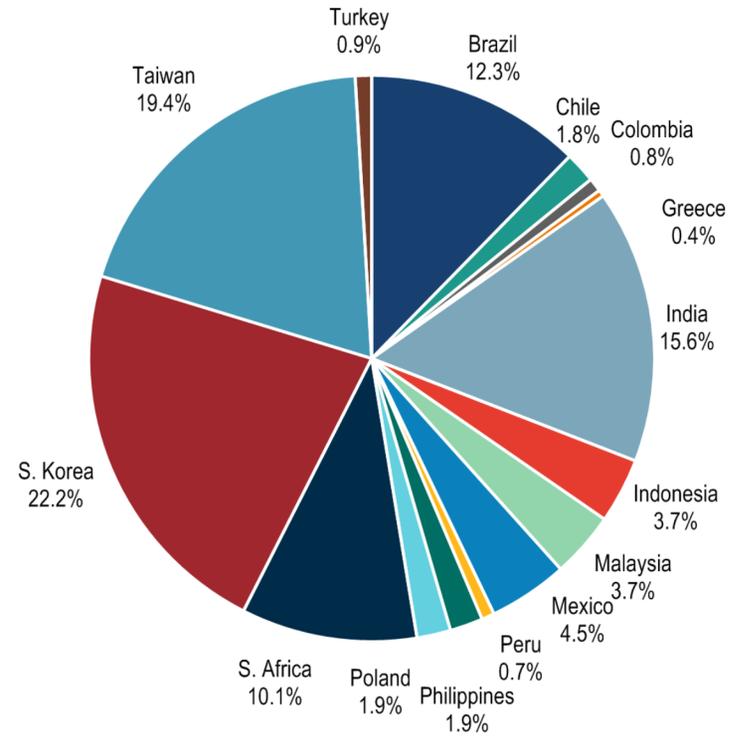
MSCI EAFE IMI Index



Int'l Emerging Mkts Equity

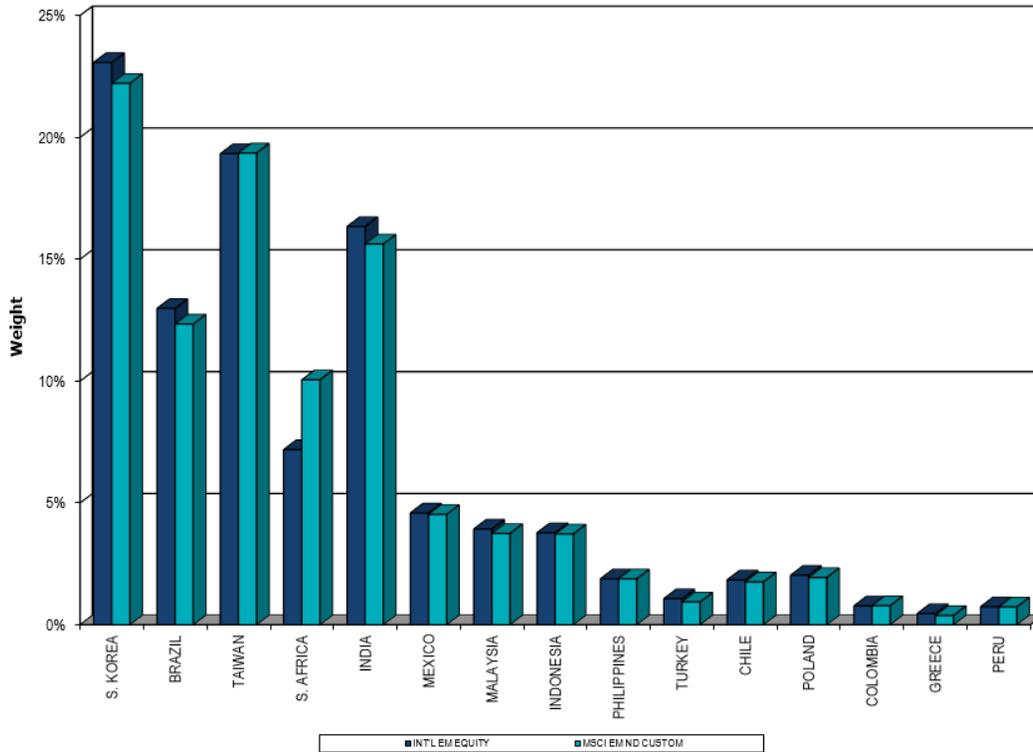


MSCI Emerging Markets ND Custom Index

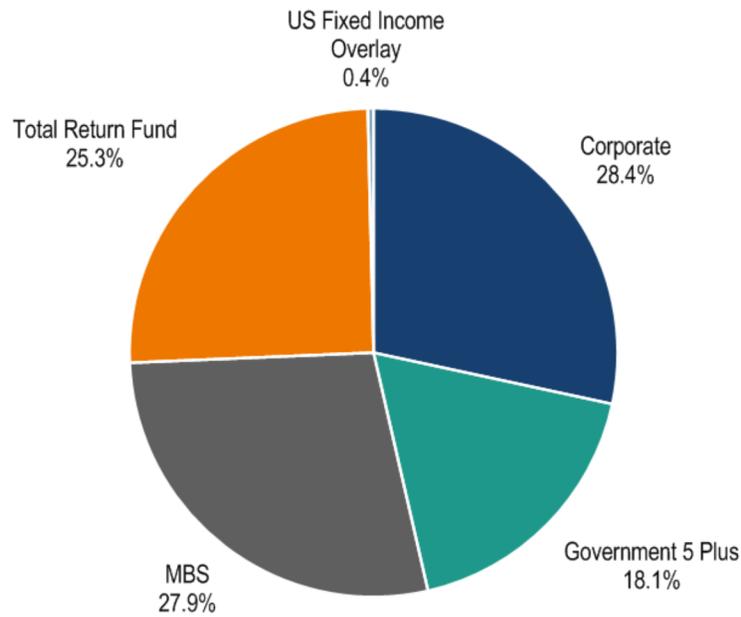


Int'l Emerging Markets Equity  
Portfolio Country Weights

Period Ending: March 31, 2019



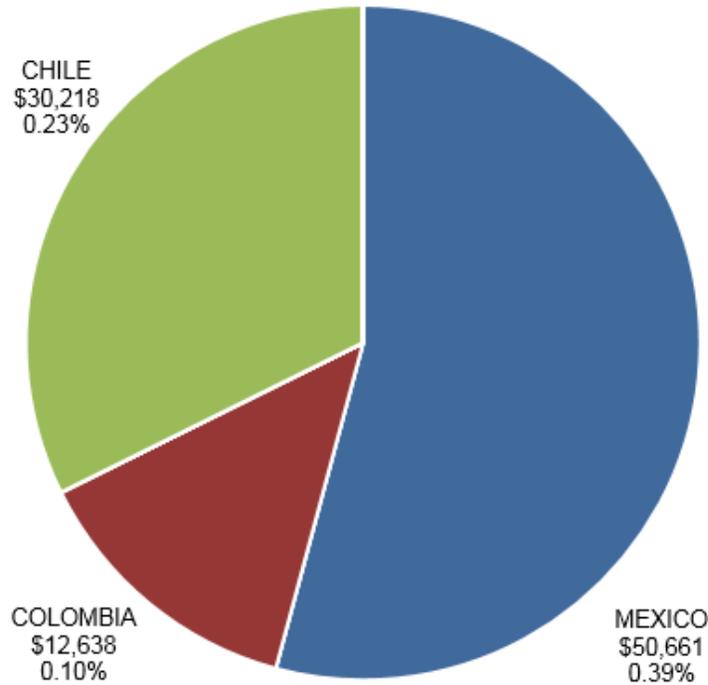
COUNTRY	TCRS MARKET VALUE ( \$ 000)	INT'L EM EQUITY	MSCI EM ND CUSTOM	DIFF
S. KOREA	\$ 462,596	23.1%	22.2%	+0.9%
BRAZIL	\$ 260,245	13.0%	12.3%	+0.6%
TAIWAN	\$ 387,566	19.3%	19.4%	-0.0%
S. AFRICA	\$ 144,123	7.2%	10.1%	-2.9%
INDIA	\$ 327,659	16.3%	15.6%	+0.7%
MEXICO	\$ 91,964	4.6%	4.5%	+0.1%
MALAYSIA	\$ 78,776	3.9%	3.7%	+0.2%
INDONESIA	\$ 75,725	3.8%	3.7%	+0.1%
PHILIPPINES	\$ 37,812	1.9%	1.9%	+0.0%
TURKEY	\$ 21,420	1.1%	0.9%	+0.1%
CHILE	\$ 36,890	1.8%	1.8%	+0.1%
POLAND	\$ 40,703	2.0%	1.9%	+0.1%
COLOMBIA	\$ 15,438	0.8%	0.8%	-0.0%
GREECE	\$ 9,135	0.5%	0.4%	+0.1%
PERU	\$ 14,821	0.7%	0.7%	+0.0%
	\$ 2,004,873	100.0%	100.0%	0.0%



	Actual \$	Actual %
■ Corporate	3,684,993,656	28.4%
■ Government 5 Plus	2,344,943,622	18.1%
■ MBS	3,627,063,354	27.9%
■ Total Return Fund	3,283,787,070	25.3%
■ US Fixed Income Overlay	49,442,051	0.4%
<b>TOTAL</b>	<b>12,990,229,753</b>	<b>100.0%</b>

Emerging Markets Investment Grade Bond  
Portfolio Country Weights

Period Ending: March 31, 2019



COUNTRY	TCRS MARKET VALUE (\$ 000)	TCRS FI	LPF	DIFF
MEXICO	\$ 50,661	0.39%	0.78%	-0.39%
INDONESIA			0.35%	-0.35%
COLOMBIA	\$ 12,638	0.10%	0.24%	-0.14%
PHILIPPINES			0.21%	-0.21%
PERU			0.14%	-0.14%
S. AFRICA			0.13%	-0.13%
BRAZIL			0.11%	-0.11%
S. KOREA			0.07%	-0.07%
CHILE	\$ 30,218	0.23%	0.07%	+0.16%
MALAYSIA			0.02%	-0.02%
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%
	\$ 93,517	0.72%	2.19%	-1.46%

\* 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

---

**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:  $\text{Portfolio Return} - [\text{Risk-free Rate} + \text{Portfolio Beta} \times (\text{Market Return} - \text{Risk-free Rate})]$ .

**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:  $\text{excess return} / \text{tracking error}$ .

**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:  $\text{Portfolio Excess Return} / \text{Portfolio Standard Deviation}$ .

**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.

## Disclaimer

---

This report contains confidential and proprietary information and is subject to the terms and conditions of the Consulting Agreement. It is being provided for use solely by the customer. The report may not be sold or otherwise provided, in whole or in part, to any other person or entity without written permission from Verus Advisory, Inc., (hereinafter Verus) or as required by law or any regulatory authority. The information presented does not constitute a recommendation by Verus and cannot be used for advertising or sales promotion purposes. This does not constitute an offer or a solicitation of an offer to buy or sell securities, commodities or any other financial instruments or products.

The information presented has been prepared using data from third party sources that Verus believes to be reliable. While Verus exercised reasonable professional care in preparing the report, it cannot guarantee the accuracy of the information provided by third party sources. Therefore, Verus makes no representations or warranties as to the accuracy of the information presented. Verus takes no responsibility or liability (including damages) for any error, omission, or inaccuracy in the data supplied by any third party. Nothing contained herein is, or should be relied on as a promise, representation, or guarantee as to future performance or a particular outcome. Even with portfolio diversification, asset allocation, and a long-term approach, investing involves risk of loss that the investor should be prepared to bear.

The information presented may be deemed to contain forward-looking information. Examples of forward looking information include, but are not limited to, (a) projections of or statements regarding return on investment, future earnings, interest income, other income, growth prospects, capital structure and other financial terms, (b) statements of plans or objectives of management, (c) statements of future economic performance, and (d) statements of assumptions, such as economic conditions underlying other statements. Such forward-looking information can be identified by the use of forward looking terminology such as believes, expects, may, will, should, anticipates, or the negative of any of the foregoing or other variations thereon comparable terminology, or by discussion of strategy. No assurance can be given that the future results described by the forward-looking information will be achieved. Such statements are subject to risks, uncertainties, and other factors which could cause the actual results to differ materially from future results expressed or implied by such forward looking information. The findings, rankings, and opinions expressed herein are the intellectual property of Verus and are subject to change without notice. The information presented does not claim to be all-inclusive, nor does it contain all information that clients may desire for their purposes. The information presented should be read in conjunction with any other material provided by Verus, investment managers, and custodians.

Verus will make every reasonable effort to obtain and include accurate market values. However, if managers or custodians are unable to provide the reporting period's market values prior to the report issuance, Verus may use the last reported market value or make estimates based on the manager's stated or estimated returns and other information available at the time. These estimates may differ materially from the actual value. Hedge fund market values presented in this report are provided by the fund manager or custodian. Market values presented for private equity investments reflect the last reported NAV by the custodian or manager net of capital calls and distributions as of the end of the reporting period. These values are estimates and may differ materially from the investments actual value. Private equity managers report performance using an internal rate of return (IRR), which differs from the time-weighted rate of return (TWRR) calculation done by Verus. It is inappropriate to compare IRR and TWRR to each other. IRR figures reported in the illiquid alternative pages are provided by the respective managers, and Verus has not made any attempts to verify these returns. Until a partnership is liquidated (typically over 10-12 years), the IRR is only an interim estimated return. The actual IRR performance of any LP is not known until the final liquidation.

Verus receives universe data from InvestorForce, eVestment Alliance, and Morningstar. We believe this data to be robust and appropriate for peer comparison. Nevertheless, these universes may not be comprehensive of all peer investors/managers but rather of the investors/managers that comprise that database. The resulting universe composition is not static and will change over time. Returns are annualized when they cover more than one year. Investment managers may revise their data after report distribution. Verus will make the appropriate correction to the client account but may or may not disclose the change to the client based on the materiality of the change.