



PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS



PERIOD ENDING: DECEMBER 31, 2015

Executive Performance Summary Review for

Tennessee Consolidated Retirement System



Market Environment

Capital Market Review

Period Ending: December 31, 2015

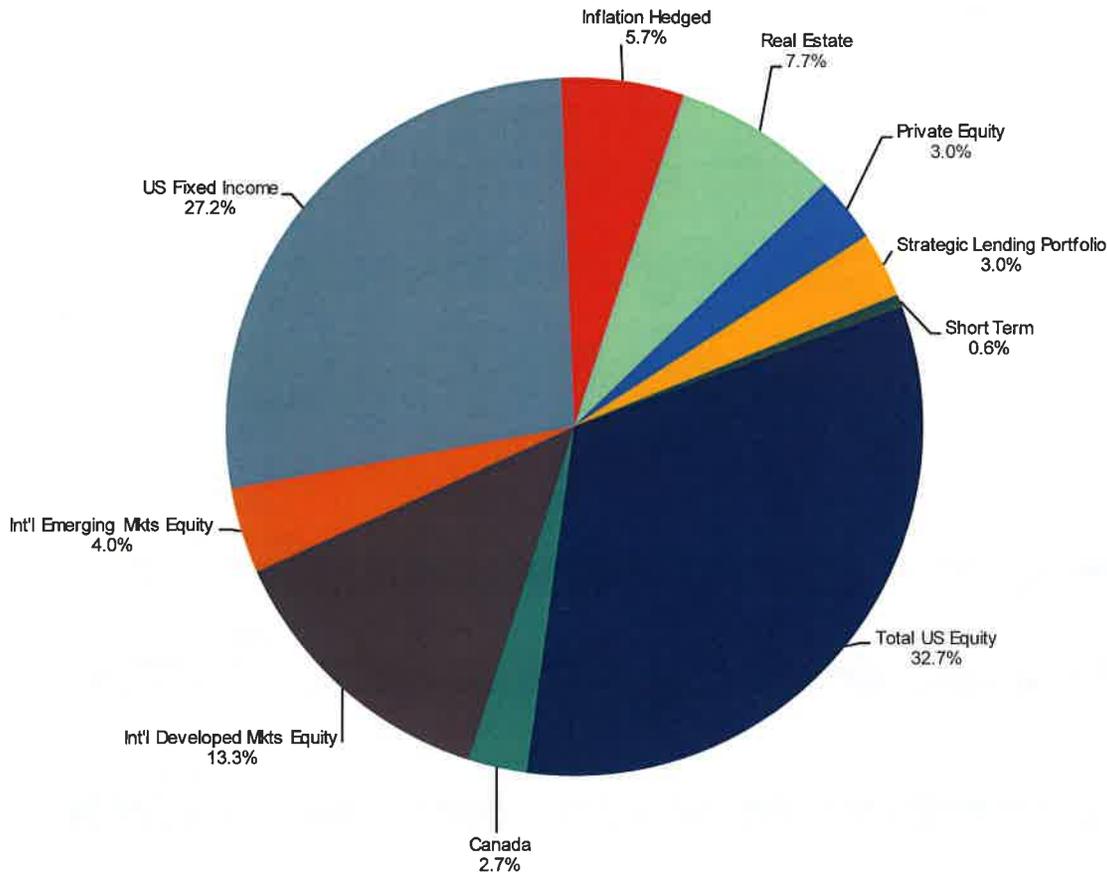
- After seven years of near-zero interest rates, the Federal Reserve raised its target rate for the federal funds 25 bps at its December meeting, bringing much-needed clarity to markets. Initially, US equities embraced the beginning of Fed tightening in stride and the S&P 500 rose 7% in the last quarter of 2015. Small capitalization stocks continued to lag and closed the year 340 bps lower than large caps.
- Highlighting the policy divergence globally, the European Central Bank (ECB) moved to bolster the Eurozone economic recovery by cutting a key interest rate and extending its stimulus program. Many analysts were underwhelmed by the news, however, and had forecast tougher measures.
- Fed rate lift-off, added weakness in commodity prices and political uncertainty generated additional stress in weak links in emerging markets. A plethora of central banks, including Peru, Mexico, Chile, and Colombia, was forced to hike rates in December – and that number is likely to expand in the months ahead. The greenback has resumed its uptrend and potential “blow up” risks for those emerging countries with a large and growing amount of external debt remain.
- Emerging markets posted their third annual decline, down 14.9% in 2015. EM LatAm led the losses, down 31%, followed by EM Europe & Middle East and EM Asia, down 15.1% and 9.8%, respectively.
- The Fed rate hike came along with a rise in the U.S. Dollar, which reversed third-quarter losses against both the Euro and the Yen in the fourth quarter.
- All U.S. A-rated corporate bond bonds declined during the fourth quarter, except for AA-rated debt which remained flat.
- The State Street Investor Confidence Index® (ICI) measures risk appetite by analyzing the buying and selling patterns of the institutional investors. The Global ICI rose to 108.3 in December, up 1 point from November’s reading of 107.3. The improvement in sentiment was driven by an increase in the European ICI from 96.2 to 103.7, along with the Asian ICI rising 4.6 points to 105.1. In contrast, the North American ICI decreased by 5.9 points to 106.6.
- For the period ending 12/31/15, the one quarter returns for, respectively, the NAREIT Equity index and the NCREIF Property index (one quarter lag), were 7.3% and 3.1%; one year, 3.2% and 13.5%; three years, 11.2% and 11.9%; and five years, 12% and 12.6%.
- Elevated volatility in world markets have resulted from concerns about global economic growth and the on-going weakness of commodity prices, emerging market currencies, the rising US dollar and the widening of credit spreads.
- REIT dividend yields increased by five bps to 3.9% while the ten-year US Treasury increased by six bps to 2.3%, both as of December 31, 2015. As a result, the REIT dividend yield spread to Treasuries held relatively steady at 165 bps, above the historical average of 111 bps.

Name	Last 3 Months	Last 6 Months	1 Yr	2 Yrs	3 Yrs	5 Yrs	7 Yrs	10 Yrs
US Equity								
Russell 3000	6.3	-1.4	0.5	6.3	14.7	12.2	15.0	7.4
S&P 500	7.0	0.2	1.4	7.4	15.1	12.6	14.8	7.3
Russell 1000	6.5	-0.8	0.9	6.9	15.0	12.4	15.1	7.4
Russell 1000 Growth	7.3	1.6	5.7	9.3	16.8	13.5	17.1	8.5
Russell 1000 Value	5.6	-3.2	-3.8	4.5	13.1	11.3	13.0	6.2
Russell MidCap	3.6	-4.7	-2.4	5.1	14.2	11.4	17.2	8.0
Russell MidCap Growth	4.1	-4.2	-0.2	5.7	14.9	11.5	18.0	8.2
Russell MidCap Value	3.1	-5.2	-4.8	4.5	13.4	11.3	16.2	7.6
Russell 2000	3.6	-8.8	-4.4	0.1	11.7	9.2	14.0	6.8
Russell 2000 Growth	4.3	-9.3	-1.4	2.1	14.3	10.7	16.3	8.0
Russell 2000 Value	2.9	-8.2	-7.5	-1.8	9.1	7.7	11.7	5.6
NASDAQ Composite TR	8.7	1.0	7.0	10.8	19.8	14.9	19.3	9.6
International Equity								
MSCI ACWI Gross	5.1	-4.7	-1.8	1.4	8.3	6.7	11.3	5.3
MSCI EAFE Gross	4.7	-5.9	-0.4	-2.5	5.5	4.1	8.3	3.5
MSCI ACWI ex USA Gross	3.3	-9.2	-5.3	-4.3	1.9	1.5	8.0	3.4
MSCI Emerging Markets Gross	0.7	-17.2	-14.6	-8.4	-6.4	-4.5	7.9	3.9
Citi WGBI	-1.2	0.5	-3.6	-2.0	-2.7	-0.1	1.0	3.4
Citi WGBI ex US	-1.4	0.3	-5.5	-4.1	-4.3	-1.3	0.4	3.0
Cash								
91 Day T-Bills	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.1
Fixed Income								
Barclays Aggregate	-0.6	0.7	0.5	3.2	1.4	3.2	4.1	4.5
Barclays Govt/Credit	-0.7	0.4	0.1	3.0	1.2	3.4	4.0	4.5
Barclays Mortgage	-0.1	1.2	1.5	3.8	2.0	3.0	3.7	4.6
Real Estate								
NAREIT Equity	7.3	9.4	3.2	15.9	11.2	12.0	16.3	7.4
NCREIF Property Index	2.9	6.1	13.3	12.6	12.0	12.2	7.6	7.8

Total Fund

Asset Allocation Analysis

Period Ending: December 31, 2015



	Actual \$	Actual %
Total US Equity	13,740,301,441	32.7%
Canada	1,138,866,306	2.7%
Int'l Developed Mkts Equity	5,566,444,374	13.3%
Int'l Emerging Mkts Equity	1,668,735,418	4.0%
US Fixed Income	11,427,521,833	27.2%
Inflation Hedged	2,385,915,228	5.7%
Real Estate	3,228,586,690	7.7%
Private Equity	1,278,644,300	3.0%
Strategic Lending Portfolio	1,273,813,278	3.0%
Short Term	253,000,649	0.6%
TOTAL	41,961,829,517	100.0%

	TARGET	ACTUAL	DIFF
Total US Equity	33.0%	32.7%	-0.3%
Canada	4.0%	2.7%	-1.3%
Int'l Developed Mkts Equity	13.0%	13.3%	0.3%
Int'l Emerging Mkts Equity	5.0%	4.0%	-1.0%
US Fixed Income	25.0%	27.2%	2.2%
Inflation Hedged	4.0%	5.7%	1.7%
Real Estate	7.0%	7.7%	0.7%
Private Equity	3.0%	3.0%	0.0%
Strategic Lending Portfolio	5.0%	3.0%	-2.0%
Short Term	1.0%	0.6%	-0.4%

	09/30/15	12/31/15	DIFF
Total US Equity	32.5%	32.7%	0.2%
Canada	2.9%	2.7%	-0.2%
Int'l Developed Mkts Equity	12.8%	13.3%	0.5%
Int'l Emerging Mkts Equity	4.2%	4.0%	-0.2%
US Fixed Income	28.3%	27.2%	-1.1%
Inflation Hedged	5.9%	5.7%	-0.2%
Real Estate	7.6%	7.7%	0.1%
Private Equity	2.9%	3.0%	0.1%
Strategic Lending Portfolio	2.7%	3.0%	0.3%
Short Term	0.2%	0.6%	0.4%

Total Fund Performance Summary

Period Ending: December 31, 2015

	3 Mo (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)
Total Fund	2.54	-0.07	7.05	7.74	9.18	5.85
<i>Policy Index</i> ¹	<u>2.40</u>	<u>-0.61</u>	<u>6.83</u>	<u>7.55</u>	<u>9.25</u>	<u>6.08</u>
Excess Return	0.14	0.54	0.22	0.19	-0.07	-0.23
<i>Allocation Index</i> ²	<u>2.46</u>	<u>-0.73</u>	<u>6.35</u>	<u>7.07</u>	<u>8.96</u>	<u>5.76</u>
North American Equity	5.01	-1.96	12.38	10.73	--	--
<i>N.A. Equity Custom</i> ³	<u>5.28</u>	<u>-1.83</u>	<u>12.55</u>	<u>10.50</u>	<u>--</u>	<u>--</u>
Excess Return	-0.27	-0.13	-0.17	0.23		
US Equity	5.94	0.31	14.48	12.46	14.56	7.34
<i>US Equity Custom</i> ⁴	<u>6.59</u>	<u>1.01</u>	<u>14.90</u>	<u>12.39</u>	<u>14.97</u>	<u>7.41</u>
Excess Return	-0.65	-0.70	-0.42	0.07	-0.41	-0.07
Index	7.30	1.77	15.21	12.62	14.88	--
<i>S&P 500</i>	<u>7.04</u>	<u>1.38</u>	<u>15.13</u>	<u>12.57</u>	<u>14.81</u>	<u>7.31</u>
Excess Return	0.26	0.39	0.08	0.05	0.07	
Quant	6.31	-0.82	13.70	12.09	13.88	7.28
<i>S&P 500</i>	<u>7.04</u>	<u>1.38</u>	<u>15.13</u>	<u>12.57</u>	<u>14.81</u>	<u>7.31</u>
Excess Return	-0.73	-2.20	-1.43	-0.48	-0.93	-0.03
Sector	5.78	1.28	14.95	12.64	14.68	7.36
<i>S&P 500</i>	<u>7.04</u>	<u>1.38</u>	<u>15.13</u>	<u>12.57</u>	<u>14.81</u>	<u>7.31</u>
Excess Return	-1.26	-0.10	-0.18	0.07	-0.13	0.05
Mid Cap ⁵	2.62	-1.57	13.97	11.59	16.18	7.86
<i>S&P MidCap 400</i> ⁵	<u>2.60</u>	<u>-2.18</u>	<u>12.75</u>	<u>10.68</u>	<u>16.36</u>	<u>7.82</u>
Excess Return	0.02	0.61	1.22	0.91	-0.18	0.04

1 Effective 1/1/13, Policy Index is 33% S&P 1500/ 4% S&P TSX 60/ 13% MSCI EAFE IMI net/ 5% MSCI Emerging Markets net/ 25% Citigroup LPF/ 4% Citigroup TIPS/ 7% NCREIF 1Q Lag/ 3% S&P 500 + 3% 1Q Lag/ 1% 91 Day T-Bill / 5% Strategic Lending.

2 Effective 10/1/15, Total Fund Allocation Index is 33.1% S&P 1500/ 4% S&P TSX 60/ 13% MSCI EAFE IMI net/ 5% MSCI Emerging Markets net/ 24.9% Citigroup LPF/ 5.8% Citigroup TIPS/ 7.6% NCREIF 1Q Lag/ 2.9% S&P 500 + 3% 1Q Lag/ 2.7% 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 1000 Index.

Total Fund
Performance Summary

Period Ending: December 31, 2015

	3 Mo (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)
Small Cap⁶	3.64	-1.94	13.56	10.81	--	--
<i>S&P 600 SmallCap</i>	<u>3.72</u>	<u>-1.97</u>	<u>13.57</u>	<u>11.48</u>	<u>15.43</u>	<u>8.01</u>
Excess Return	-0.08	0.03	-0.01	-0.67		
Canada	-5.05	-22.81	-5.60	-3.57	--	--
<i>S&P/TSX 60</i>	<u>-5.13</u>	<u>-23.09</u>	<u>-5.62</u>	<u>-3.79</u>	<u>6.35</u>	<u>2.87</u>
Excess Return	0.08	0.28	0.02	0.22		
International Equity	4.38	-1.60	3.99	3.84	8.87	4.69
<i>Int'l Equity Custom⁷</i>	<u>3.61</u>	<u>-4.89</u>	<u>1.76</u>	<u>1.61</u>	<u>6.73</u>	<u>2.27</u>
Excess Return	0.77	3.29	2.23	2.23	2.14	2.42
Int'l Developed Mkts Equity	6.04	4.79	8.07	6.19	10.62	5.87
<i>MSCI EAFE IMI net</i>	<u>4.99</u>	<u>0.49</u>	<u>5.69</u>	<u>3.95</u>	<u>8.48</u>	<u>3.44</u>
Excess Return	1.05	4.30	2.38	2.24	2.14	2.43
American Century	6.84	14.96	14.78	9.63	--	--
<i>MSCI EAFE Small Cap</i>	<u>6.79</u>	<u>9.59</u>	<u>10.44</u>	<u>6.32</u>	<u>13.55</u>	<u>4.55</u>
Excess Return	0.05	5.37	4.34	3.31		
Baring Asset Mgmt	6.83	2.24	5.64	4.79	9.09	--
<i>MSCI EAFE</i>	<u>4.71</u>	<u>-0.81</u>	<u>5.01</u>	<u>3.60</u>	<u>7.83</u>	<u>3.03</u>
Excess Return	2.12	3.05	0.63	1.19	1.26	
FIAM	7.24	11.87	11.84	8.20	--	--
<i>MSCI EAFE Small Cap</i>	<u>6.79</u>	<u>9.59</u>	<u>10.44</u>	<u>6.32</u>	<u>13.55</u>	<u>4.55</u>
Excess Return	0.45	2.28	1.40	1.88		

6 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.

7 Effective 1/1/13, benchmark is 72.22% MSCI EAFE IMI net/ 27.78% MSCI Emerging Mkts net; linked to 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: December 31, 2015

	3 Mo (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)
GE Asset	3.12	2.16	4.30	4.35	8.27	--
MSCI Europe	<u>2.49</u>	<u>-2.84</u>	<u>4.51</u>	<u>3.88</u>	<u>7.93</u>	<u>3.36</u>
Excess Return	0.63	5.00	-0.21	0.47	0.34	
Marathon	5.91	7.18	10.02	7.36	11.35	7.33
MSCI EAFE net	<u>4.71</u>	<u>-0.81</u>	<u>5.01</u>	<u>3.60</u>	<u>7.83</u>	<u>3.19</u>
Excess Return	1.20	7.99	5.01	3.76	3.52	4.14
Pacific Indexed⁸	8.24	3.54	5.68	2.88	7.26	2.03
MSCI Pacific net⁹	<u>9.00</u>	<u>2.96</u>	<u>5.82</u>	<u>3.18</u>	<u>7.72</u>	<u>2.37</u>
Excess Return	-0.76	0.58	-0.14	-0.30	-0.46	-0.34
PanAgora Asset Mgmt	6.69	3.63	8.40	6.60	10.79	5.26
MSCI EAFE	<u>4.71</u>	<u>-0.81</u>	<u>5.01</u>	<u>3.60</u>	<u>7.83</u>	<u>3.03</u>
Excess Return	1.98	4.44	3.39	3.00	2.96	2.23
TT International	5.06	3.19	10.23	5.57	9.75	--
MSCI EAFE	<u>4.71</u>	<u>-0.81</u>	<u>5.01</u>	<u>3.60</u>	<u>7.83</u>	<u>3.03</u>
Excess Return	0.35	4.00	5.22	1.97	1.92	
Walter Scott	7.19	1.13	4.52	5.26	10.86	7.27
MSCI EAFE net¹⁰	<u>4.71</u>	<u>-0.81</u>	<u>5.01</u>	<u>3.60</u>	<u>7.64</u>	<u>3.33</u>
Excess Return	2.48	1.94	-0.49	1.66	3.22	3.94

8 Effective 9/4/10, internally managed by TCRS staff. Amundi Pacific terminated.

9 Effective 7/1/04.

10 Effective 3/1/09. Benchmark is linked to MSCI Europe Index.

Total Fund
Performance Summary

Period Ending: December 31, 2015

	3 Mo (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)
Int'l Emerging Mkts Equity	-0.71	-18.60	-9.24	--	--	--
<i>MSCI Emerging Markets ND Custom</i>	<u>0.08</u>	<u>-17.91</u>	<u>-8.14</u>	--	--	--
Excess Return	-0.79	-0.69	-1.10			
US Fixed Income	-0.72	-0.19	2.39	5.92	7.46	5.90
<i>Citigroup LPF¹¹</i>	<u>-0.68</u>	<u>-0.38</u>	<u>1.89</u>	<u>5.22</u>	<u>5.35</u>	<u>5.60</u>
Excess Return	-0.04	0.19	0.50	0.70	2.11	0.30
Corporate	-0.69	-2.08	2.57	7.13	10.28	6.88
<i>Citigroup LPF Credit¹²</i>	<u>-0.45</u>	<u>-2.91</u>	<u>1.29</u>	<u>5.79</u>	<u>7.61</u>	<u>5.96</u>
Excess Return	-0.24	0.83	1.28	1.34	2.67	0.92
Gov't 1-5	-1.10	-0.32	2.99	8.12	8.44	--
<i>Citigroup LPF Treas/Govt Spons¹³</i>	<u>-1.31</u>	<u>-0.06</u>	<u>2.15</u>	<u>6.15</u>	<u>5.51</u>	<u>5.71</u>
Excess Return	0.21	-0.26	0.84	1.97	2.93	
Gov't 5 Plus	-1.17	0.21	2.28	6.70	7.15	5.96
<i>Citigroup LPF Treas/Govt Spons¹⁴</i>	<u>-1.31</u>	<u>-0.06</u>	<u>2.15</u>	<u>6.43</u>	<u>5.37</u>	<u>6.24</u>
Excess Return	0.14	0.27	0.13	0.27	1.78	-0.28
MBS	-0.16	1.49	2.05	3.17	4.34	4.25
<i>Citi BIG Mortgage</i>	<u>-0.07</u>	<u>1.56</u>	<u>2.01</u>	<u>2.98</u>	<u>3.73</u>	<u>4.67</u>
Excess Return	-0.09	-0.07	0.04	0.19	0.61	-0.42
Inflation Hedged	-0.66	-1.54	-2.36	2.54	3.97	4.11
<i>Citi TIPS</i>	<u>-0.61</u>	<u>-1.73</u>	<u>-2.35</u>	<u>2.62</u>	<u>4.20</u>	<u>3.98</u>
Excess Return	-0.05	0.19	-0.01	-0.08	-0.23	0.13

11 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).

12 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).

13 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).

14 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).

Total Fund
Performance Summary

Period Ending: December 31, 2015

	3 Mo (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)
Real Estate	4.02	12.88	12.66	12.47	4.67	7.32
<i>NCREIF 1Q Lag</i>	<u>3.09</u>	<u>13.47</u>	<u>11.90</u>	<u>12.55</u>	<u>5.85</u>	<u>8.01</u>
Excess Return	0.93	-0.59	0.76	-0.08	-1.18	-0.69
Traditional Private Equity*	0.83	15.81	18.59	17.03		
<i>S&P 500 +3% 1Q Lag**</i>	<u>-5.69</u>	<u>0.57</u>	<u>10.96</u>	<u>12.21</u>		
Excess Return	6.52	15.24	7.63	4.82		
Strategic Lending Portfolio¹⁵	-1.43	-0.32	--	--	--	--
<i>Strategic Lending¹⁶</i>	<u>-1.99</u>	<u>-2.40</u>	<u>2.16</u>	--	--	--
Excess Return	0.56	2.08				
Short Term	-0.29	2.07	1.18	1.36	1.66	--
<i>91 Day T-Bills</i>	<u>0.03</u>	<u>0.04</u>	<u>0.04</u>	<u>0.05</u>	<u>0.07</u>	<u>1.11</u>
Excess Return	-0.32	2.03	1.14	1.31	1.59	
Short Duration	0.20	0.87	0.97	1.32	2.39	--
<i>91 Day T-Bills</i>	<u>0.03</u>	<u>0.04</u>	<u>0.04</u>	<u>0.05</u>	<u>0.07</u>	<u>1.11</u>
Excess Return	0.17	0.83	0.93	1.27	2.32	

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

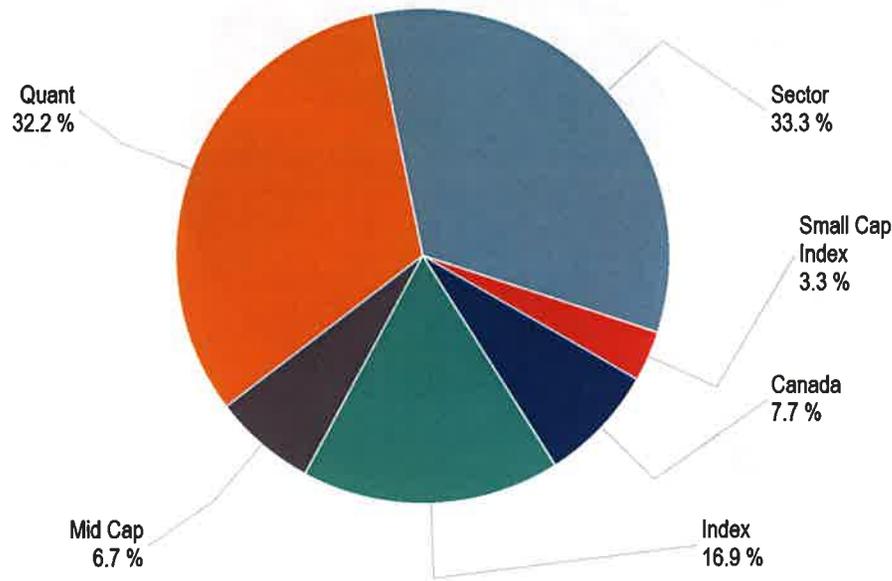
** Dollar-weighted Long-Nickels calculation of monthly changes in the S&P 500 +3% 1Q Lag.

¹⁵ Funded 8/1/13. Reported net of fees. Blackstone I & II, ICG Europe Fund VI, and Waterfall Rock Island market values are rolled forward from Q3 2015, and adjusted for any Q4 cash flows.

¹⁶ Effective 1/1/13, benchmark is 50% Barclays HY 2% Issuer Capped/ 50% Credit Suisse Leveraged Loans.

North American Equity
 Manager Allocation Analysis

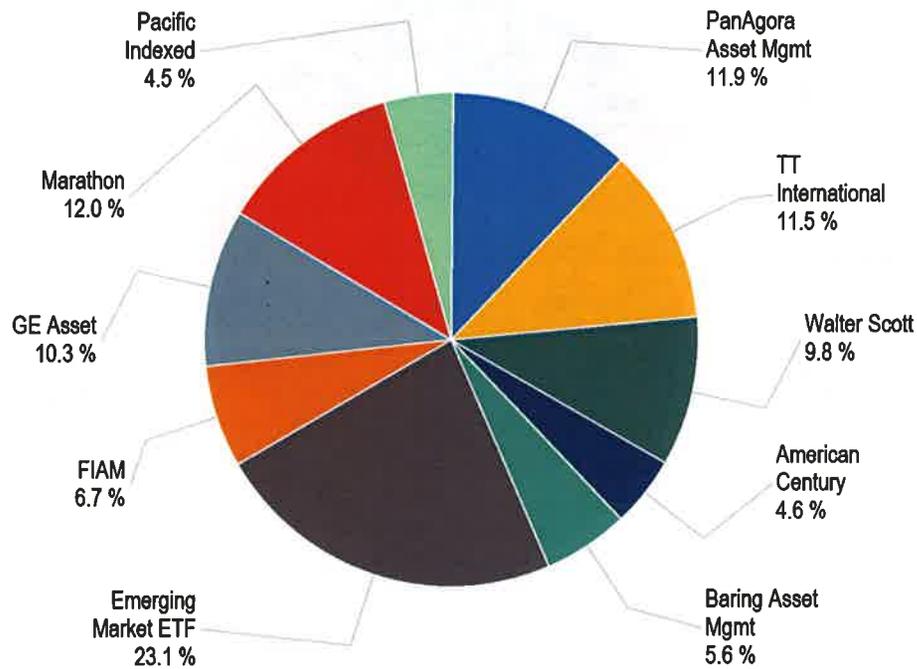
Period Ending: December 31, 2015



	Actual \$	Actual %
Canada	\$1,138,866,306	7.7%
Index	\$2,515,802,954	16.9%
Mid Cap	\$990,522,681	6.7%
Quant	\$4,794,032,576	32.2%
Sector	\$4,951,868,983	33.3%
Small Cap Index	\$488,074,247	3.3%
Total	\$14,879,167,747	100.0%

International Equity
 Manager Allocation Analysis

Period Ending: December 31, 2015

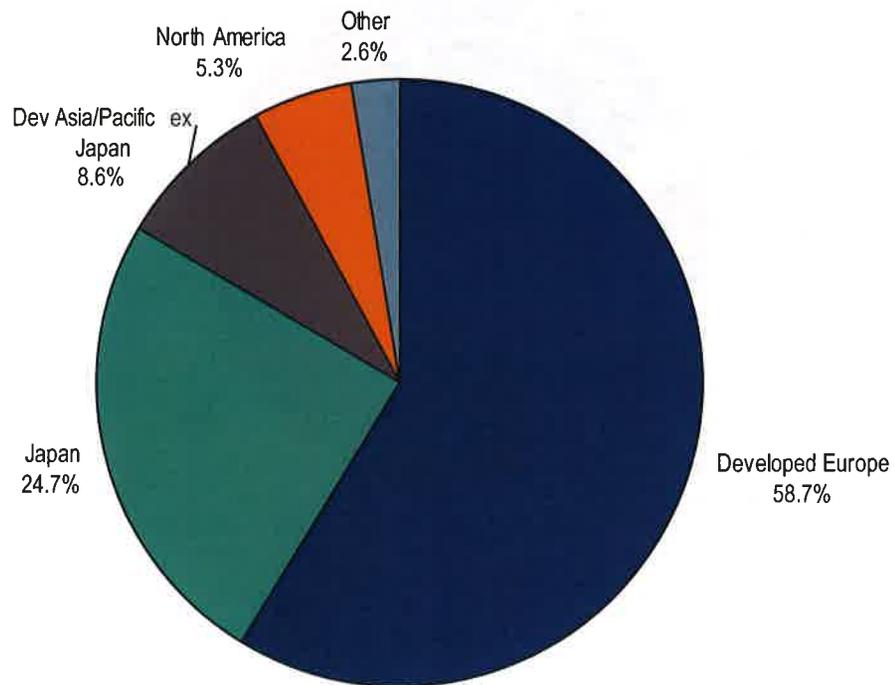


	Actual \$	Actual %
American Century	\$333,986,766	4.6%
Baring Asset Mgmt	\$407,160,172	5.6%
Emerging Market ETF	\$1,668,735,418	23.1%
FIAM	\$483,844,025	6.7%
GE Asset	\$747,842,503	10.3%
Marathon	\$867,599,160	12.0%
Pacific Indexed	\$323,797,337	4.5%
PanAgora Asset Mgmt	\$861,440,063	11.9%
TT International	\$835,180,864	11.5%
Walter Scott	\$705,593,484	9.8%
Total	\$7,235,179,792	100.0%

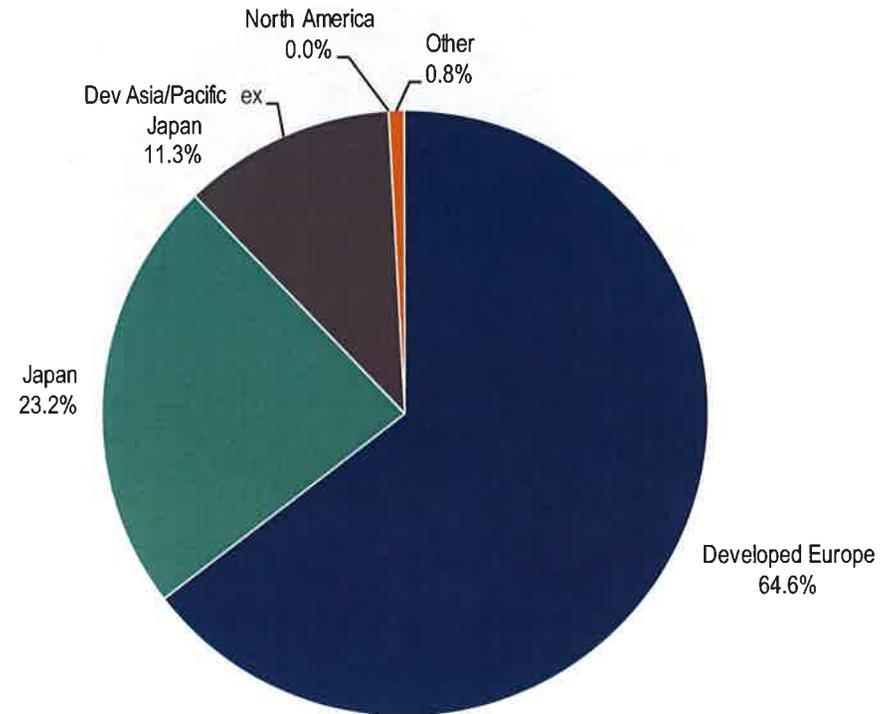
Int'l Developed Markets Equity
Portfolio Regional Weights

Period Ending: December 31, 2015

Developed International Equity



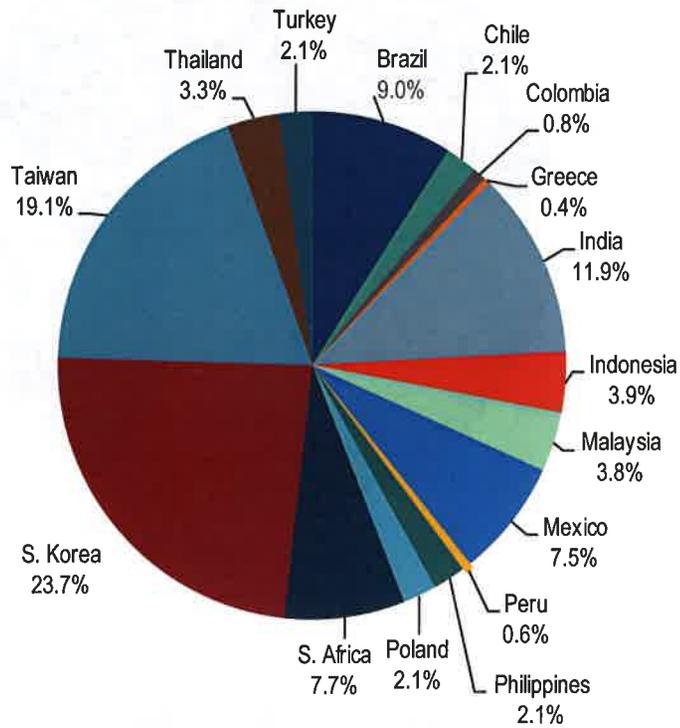
MSCI EAFE Index



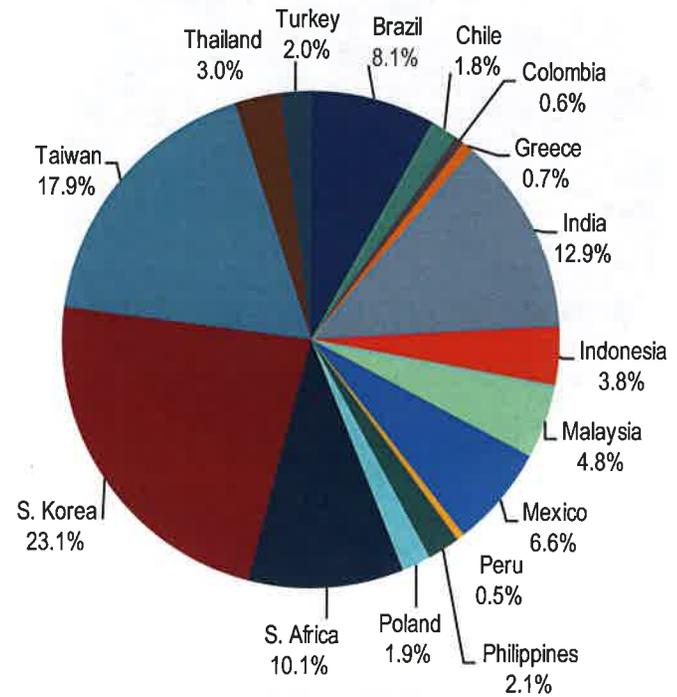
Int'l Emerging Markets Equity
Portfolio Regional Weights

Period Ending: December 31, 2015

Emerging Market ETF

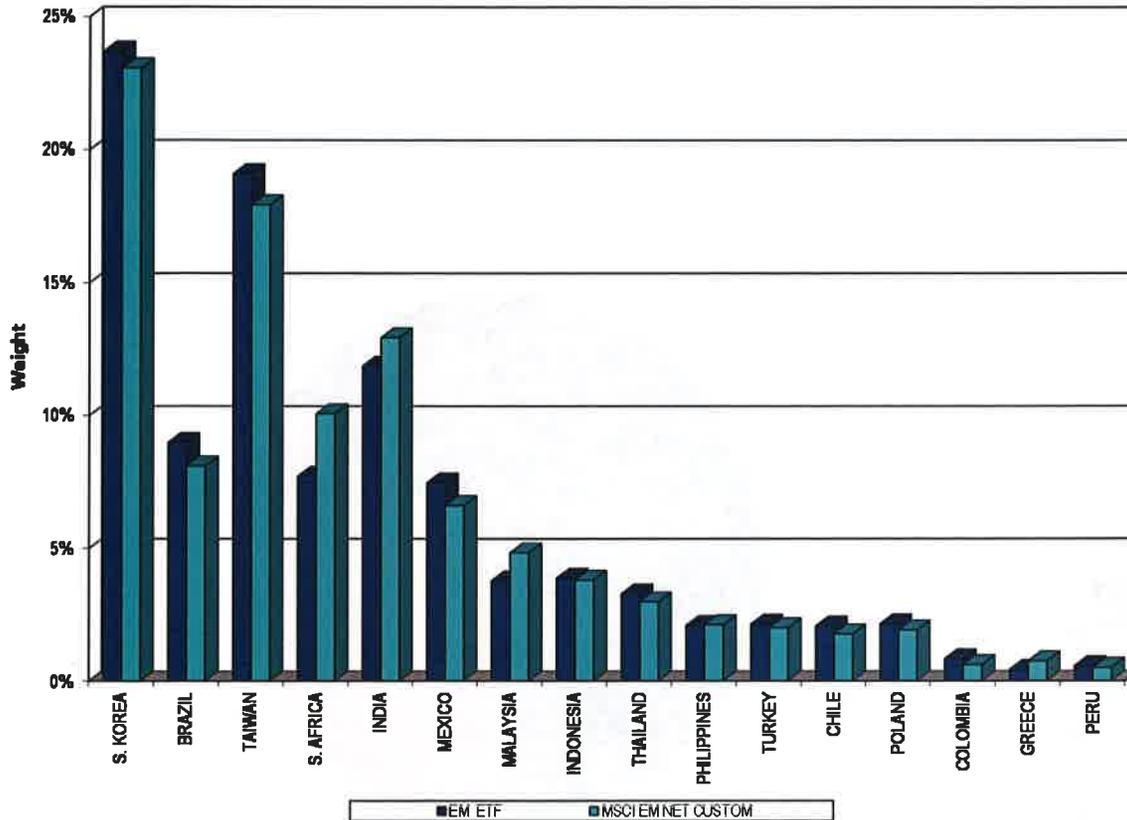


MSCI Emerging Market Net Custom Index



Int'l Emerging Markets Equity
Portfolio Country Weights

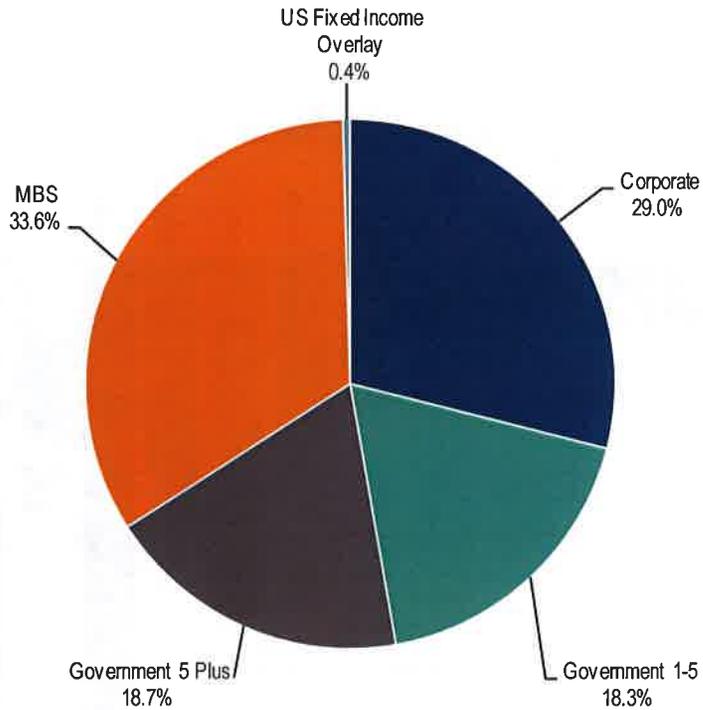
Period Ending: December 31, 2015



COUNTRY	TCRS MARKET VALUE (\$ 000)	EM ETF	MSCI EM NET CUSTOM	DIFF
S. KOREA	\$ 395,429	23.7%	23.1%	+0.6%
BRAZIL	\$ 149,865	9.0%	8.1%	+0.9%
TAIWAN	\$ 318,739	19.1%	17.9%	+1.2%
S. AFRICA	\$ 128,645	7.7%	10.1%	-2.4%
INDIA	\$ 198,134	11.9%	12.9%	-1.1%
MEXICO	\$ 124,564	7.5%	6.6%	+0.9%
MALAYSIA	\$ 62,988	3.8%	4.8%	-1.1%
INDONESIA	\$ 64,662	3.9%	3.8%	+0.1%
THAILAND	\$ 54,754	3.3%	3.0%	+0.3%
PHILIPPINES	\$ 34,836	2.1%	2.1%	-0.0%
TURKEY	\$ 35,652	2.1%	2.0%	+0.1%
CHILE	\$ 34,516	2.1%	1.8%	+0.3%
POLAND	\$ 35,811	2.1%	1.9%	+0.2%
COLOMBIA	\$ 13,775	0.8%	0.6%	+0.2%
GREECE	\$ 7,100	0.4%	0.7%	-0.3%
PERU	\$ 9,265	0.6%	0.5%	+0.1%
	\$ 1,668,735	100.0%	100.0%	0.0%

US Fixed Income
 Manager Allocation Analysis

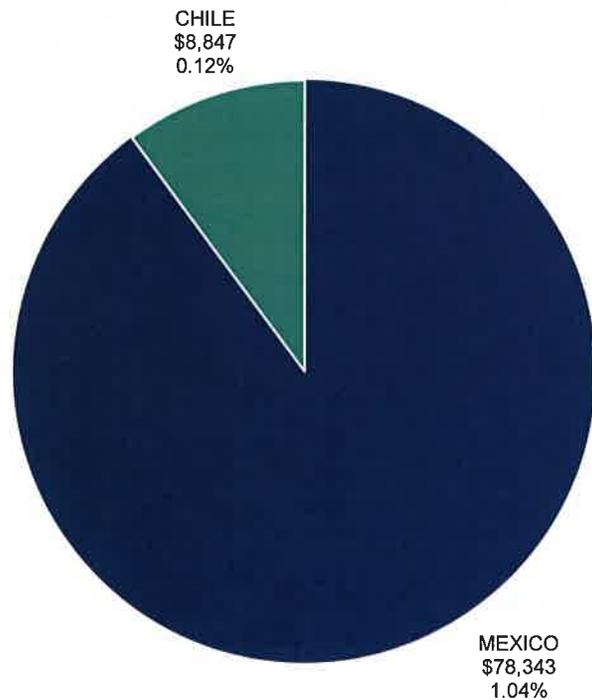
Period Ending: December 31, 2015



	Actual \$	Actual %
Corporate	3,309,118,137	29.0%
Government 1-5	2,089,220,014	18.3%
Government 5 Plus	2,137,424,203	18.7%
MBS	3,842,006,328	33.6%
US Fixed Income Overlay	49,753,151	0.4%
TOTAL	11,427,521,833	100.0%

Emerging Markets Investment Grade Bond
Portfolio Regional Weights

Period Ending: December 31, 2015



COUNTRY	TCSR MARKET VALUE (\$ 000)	TCSR FI	LPF	DIFF
OTHER*	\$ -		0.80%	-0.80%
MEXICO	\$ 78,343	1.04%	0.71%	+0.33%
BRAZIL	\$ -		0.33%	-0.33%
TURKEY	\$ -		0.36%	-0.36%
INDONESIA	\$ -		0.29%	-0.29%
PHILIPPINES	\$ -		0.26%	-0.26%
COLOMBIA	\$ -		0.24%	-0.24%
PERU	\$ -		0.14%	-0.14%
S. KOREA	\$ -		0.10%	-0.10%
S. AFRICA	\$ -		0.07%	-0.07%
POLAND	\$ -		0.05%	-0.05%
CHILE	\$ 8,847	0.12%	0.04%	+0.08%
MALAYSIA	\$ -		0.02%	-0.02%
INDIA	\$ -			0.00%
THAILAND	\$ -			0.00%
TAIWAN	\$ -			0.00%
	\$ 87,190	1.15%	3.41%	-2.26%

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.

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