



# Quarterly Investment Performance Analysis

Montana Board of Investments

Period Ended: March 31, 2019



Montana Board of Investments  
Comparative Performance  
Retirement Plans

As of March 31, 2019

	QTD/ CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	20 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>Public Employees' Retirement - Net</b>	<b>7.31</b>	<b>2.73</b>	<b>4.37</b>	<b>8.33</b>	<b>6.78</b>	<b>8.28</b>	<b>10.43</b>	<b>5.89</b>	<b>-2.63</b>	<b>14.80</b>	<b>7.32</b>	<b>1.86</b>	<b>8.07</b>	<b>7.62</b>	<b>07/01/1994</b>
Public Employees' Benchmark	10.30	2.82	5.49	8.59	7.12	8.86	N/A	N/A	-5.57	15.35	9.09	1.40	9.08	N/A	
Difference	-2.99	-0.09	-1.12	-0.26	-0.34	-0.58	N/A	N/A	2.94	-0.55	-1.77	0.46	-1.01	N/A	
<b>Public Employees' Retirement - Gross</b>	<b>7.44</b>	<b>3.16</b>	<b>4.98</b>	<b>8.89</b>	<b>7.31</b>	<b>8.82</b>	<b>11.00</b>	<b>6.25</b>	<b>-2.03</b>	<b>15.34</b>	<b>7.78</b>	<b>2.31</b>	<b>8.61</b>	<b>7.92</b>	<b>07/01/1994</b>
All Public Plans > \$3B Total Fund Median	7.25	3.17	4.30	8.80	6.33	7.64	10.20	6.29	-2.72	15.90	7.96	0.85	6.88	7.88	
Rank	42	52	24	37	6	4	7	52	44	59	61	6	3	41	
<b>Teachers' Retirement - Net</b>	<b>7.30</b>	<b>2.72</b>	<b>4.37</b>	<b>8.32</b>	<b>6.78</b>	<b>8.28</b>	<b>10.43</b>	<b>5.89</b>	<b>-2.64</b>	<b>14.76</b>	<b>7.33</b>	<b>1.86</b>	<b>8.09</b>	<b>7.63</b>	<b>07/01/1994</b>
Teachers' Benchmark	10.30	2.82	5.48	8.58	7.11	8.86	N/A	N/A	-5.57	15.32	9.08	1.40	9.11	N/A	
Difference	-3.00	-0.10	-1.11	-0.26	-0.33	-0.58	N/A	N/A	2.93	-0.56	-1.75	0.46	-1.02	N/A	
<b>Teachers' Retirement - Gross</b>	<b>7.43</b>	<b>3.15</b>	<b>4.98</b>	<b>8.88</b>	<b>7.31</b>	<b>8.82</b>	<b>11.01</b>	<b>6.25</b>	<b>-2.03</b>	<b>15.31</b>	<b>7.80</b>	<b>2.32</b>	<b>8.63</b>	<b>7.93</b>	<b>07/01/1994</b>
All Public Plans > \$3B Total Fund Median	7.25	3.17	4.30	8.80	6.33	7.64	10.20	6.29	-2.72	15.90	7.96	0.85	6.88	7.88	
Rank	42	52	24	40	6	4	7	52	44	60	61	6	2	41	
<b>Police Retirement - Net</b>	<b>7.31</b>	<b>2.75</b>	<b>4.39</b>	<b>8.33</b>	<b>6.78</b>	<b>8.28</b>	<b>10.42</b>	<b>5.81</b>	<b>-2.63</b>	<b>14.79</b>	<b>7.32</b>	<b>1.86</b>	<b>8.07</b>	<b>7.48</b>	<b>07/01/1994</b>
Police Benchmark	10.31	2.83	5.50	8.59	7.12	8.84	N/A	N/A	-5.57	15.33	9.08	1.41	9.10	N/A	
Difference	-3.00	-0.08	-1.11	-0.26	-0.34	-0.56	N/A	N/A	2.94	-0.54	-1.76	0.45	-1.03	N/A	
<b>Police Retirement - Gross</b>	<b>7.44</b>	<b>3.17</b>	<b>5.00</b>	<b>8.89</b>	<b>7.31</b>	<b>8.82</b>	<b>10.99</b>	<b>6.18</b>	<b>-2.02</b>	<b>15.33</b>	<b>7.78</b>	<b>2.31</b>	<b>8.61</b>	<b>7.78</b>	<b>07/01/1994</b>
All Public Plans > \$3B Total Fund Median	7.25	3.17	4.30	8.80	6.33	7.64	10.20	6.29	-2.72	15.90	7.96	0.85	6.88	7.88	
Rank	42	50	23	37	6	4	7	56	44	60	61	6	2	63	

Net performance shown is net of all manager fees and expenses (Net-All). All Public Plans > \$3B Total Fund Median is reported gross of fees. Benchmark returns reflect unmanaged indices which are not impacted by management fees. Fiscal year ends on 06/30. Since inception performance may vary from State Street reported performance due to calculation methodology differences. Retirement plan benchmarks' inception dates were updated to 1/1/2011.



Montana Board of Investments  
Comparative Performance  
Retirement Plans

As of March 31, 2019

	QTD/ CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	20 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>Firefighters' Retirement - Net</b>	<b>7.31</b>	<b>2.75</b>	<b>4.39</b>	<b>8.34</b>	<b>6.79</b>	<b>8.28</b>	<b>10.42</b>	<b>5.81</b>	<b>-2.62</b>	<b>14.79</b>	<b>7.32</b>	<b>1.87</b>	<b>8.07</b>	<b>7.47</b>	<b>07/01/1994</b>
Firefighters' Benchmark	10.31	2.83	5.50	8.59	7.12	8.84	N/A	N/A	-5.57	15.33	9.09	1.41	9.10	N/A	
Difference	-3.00	-0.08	-1.11	-0.25	-0.33	-0.56	N/A	N/A	2.95	-0.54	-1.77	0.46	-1.03	N/A	
<b>Firefighters' Retirement - Gross</b>	<b>7.44</b>	<b>3.18</b>	<b>5.00</b>	<b>8.89</b>	<b>7.31</b>	<b>8.83</b>	<b>10.99</b>	<b>6.18</b>	<b>-2.01</b>	<b>15.34</b>	<b>7.78</b>	<b>2.32</b>	<b>8.61</b>	<b>7.77</b>	<b>07/01/1994</b>
All Public Plans > \$3B Total Fund Median	7.25	3.17	4.30	8.80	6.33	7.64	10.20	6.29	-2.72	15.90	7.96	0.85	6.88	7.88	
Rank	42	49	23	37	6	4	7	56	44	60	61	6	3	64	
<b>Sheriffs' Retirement - Net</b>	<b>7.30</b>	<b>2.74</b>	<b>4.38</b>	<b>8.34</b>	<b>6.78</b>	<b>8.28</b>	<b>10.40</b>	<b>5.84</b>	<b>-2.62</b>	<b>14.80</b>	<b>7.33</b>	<b>1.86</b>	<b>8.05</b>	<b>7.51</b>	<b>07/01/1994</b>
Sheriffs' Benchmark	10.30	2.83	5.49	8.60	7.12	8.85	N/A	N/A	-5.56	15.34	9.10	1.40	9.07	N/A	
Difference	-3.00	-0.09	-1.11	-0.26	-0.34	-0.57	N/A	N/A	2.94	-0.54	-1.77	0.46	-1.02	N/A	
<b>Sheriffs' Retirement - Gross</b>	<b>7.44</b>	<b>3.17</b>	<b>4.99</b>	<b>8.90</b>	<b>7.31</b>	<b>8.82</b>	<b>10.97</b>	<b>6.20</b>	<b>-2.02</b>	<b>15.34</b>	<b>7.79</b>	<b>2.32</b>	<b>8.59</b>	<b>7.81</b>	<b>07/01/1994</b>
All Public Plans > \$3B Total Fund Median	7.25	3.17	4.30	8.80	6.33	7.64	10.20	6.29	-2.72	15.90	7.96	0.85	6.88	7.88	
Rank	42	51	23	37	6	4	9	55	44	59	61	6	3	57	
<b>Highway Patrol Retirement - Net</b>	<b>7.31</b>	<b>2.74</b>	<b>4.38</b>	<b>8.33</b>	<b>6.79</b>	<b>8.29</b>	<b>10.45</b>	<b>5.84</b>	<b>-2.62</b>	<b>14.79</b>	<b>7.30</b>	<b>1.87</b>	<b>8.08</b>	<b>7.50</b>	<b>07/01/1994</b>
Highway Patrol Benchmark	10.31	2.83	5.49	8.59	7.12	8.86	N/A	N/A	-5.56	15.34	9.09	1.41	9.10	N/A	
Difference	-3.00	-0.09	-1.11	-0.26	-0.33	-0.57	N/A	N/A	2.94	-0.55	-1.79	0.46	-1.02	N/A	
<b>Highway Patrol Retirement - Gross</b>	<b>7.44</b>	<b>3.17</b>	<b>5.00</b>	<b>8.89</b>	<b>7.32</b>	<b>8.83</b>	<b>11.02</b>	<b>6.20</b>	<b>-2.01</b>	<b>15.33</b>	<b>7.77</b>	<b>2.32</b>	<b>8.62</b>	<b>7.80</b>	<b>07/01/1994</b>
All Public Plans > \$3B Total Fund Median	7.25	3.17	4.30	8.80	6.33	7.64	10.20	6.29	-2.72	15.90	7.96	0.85	6.88	7.88	
Rank	42	51	23	37	6	4	7	55	44	60	61	6	2	57	

Net performance shown is net of all manager fees and expenses (Net-All). All Public Plans > \$3B Total Fund Median is reported gross of fees. Benchmark returns reflect unmanaged indices which are not impacted by management fees. Fiscal year ends on 06/30. Since inception performance may vary from State Street reported performance due to calculation methodology differences. Retirement plan benchmarks' inception dates were updated to 1/1/2011.



Montana Board of Investments  
Comparative Performance  
Retirement Plans

As of March 31, 2019

	QTD/ CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	20 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>Game Wardens' Retirement - Net</b>	<b>7.31</b>	<b>2.74</b>	<b>4.38</b>	<b>8.34</b>	<b>6.79</b>	<b>8.27</b>	<b>10.38</b>	<b>5.82</b>	<b>-2.62</b>	<b>14.81</b>	<b>7.31</b>	<b>1.88</b>	<b>8.03</b>	<b>7.52</b>	<b>07/01/1994</b>
Game Wardens' Benchmark	10.30	2.82	5.49	8.60	7.12	8.85	N/A	N/A	-5.56	15.36	9.11	1.41	9.06	N/A	
Difference	-2.99	-0.08	-1.11	-0.26	-0.33	-0.58	N/A	N/A	2.94	-0.55	-1.80	0.47	-1.03	N/A	
<b>Game Wardens' Retirement - Gross</b>	<b>7.44</b>	<b>3.16</b>	<b>4.99</b>	<b>8.90</b>	<b>7.31</b>	<b>8.81</b>	<b>10.95</b>	<b>6.18</b>	<b>-2.01</b>	<b>15.35</b>	<b>7.78</b>	<b>2.33</b>	<b>8.57</b>	<b>7.82</b>	<b>07/01/1994</b>
All Public Plans > \$3B Total Fund Median	7.25	3.17	4.30	8.80	6.33	7.64	10.20	6.29	-2.72	15.90	7.96	0.85	6.88	7.88	
Rank	42	51	24	37	6	4	9	56	44	59	61	6	3	56	
<b>Judges' Retirement - Net</b>	<b>7.32</b>	<b>2.73</b>	<b>4.37</b>	<b>8.34</b>	<b>6.79</b>	<b>8.28</b>	<b>10.42</b>	<b>5.85</b>	<b>-2.64</b>	<b>14.82</b>	<b>7.32</b>	<b>1.86</b>	<b>8.06</b>	<b>7.51</b>	<b>07/01/1994</b>
Judges' Benchmark	10.33	2.83	5.50	8.60	7.12	8.86	N/A	N/A	-5.58	15.37	9.10	1.40	9.08	N/A	
Difference	-3.01	-0.10	-1.13	-0.26	-0.33	-0.58	N/A	N/A	2.94	-0.55	-1.78	0.46	-1.02	N/A	
<b>Judges' Retirement - Gross</b>	<b>7.45</b>	<b>3.16</b>	<b>4.99</b>	<b>8.90</b>	<b>7.31</b>	<b>8.82</b>	<b>10.99</b>	<b>6.21</b>	<b>-2.03</b>	<b>15.36</b>	<b>7.79</b>	<b>2.32</b>	<b>8.60</b>	<b>7.81</b>	<b>07/01/1994</b>
All Public Plans > \$3B Total Fund Median	7.25	3.17	4.30	8.80	6.33	7.64	10.20	6.29	-2.72	15.90	7.96	0.85	6.88	7.88	
Rank	42	51	24	37	6	4	7	54	45	59	61	6	3	56	
<b>Volunteer Firefighters' Retirement - Net</b>	<b>7.32</b>	<b>2.73</b>	<b>4.37</b>	<b>8.28</b>	<b>6.76</b>	<b>8.27</b>	<b>10.41</b>	<b>6.21</b>	<b>-2.64</b>	<b>14.79</b>	<b>7.16</b>	<b>1.91</b>	<b>8.09</b>	<b>7.31</b>	<b>07/01/1994</b>
Volunteer Firefighters' Benchmark	10.33	2.82	5.49	8.58	7.12	8.85	N/A	N/A	-5.59	15.33	9.08	1.42	9.11	N/A	
Difference	-3.01	-0.09	-1.12	-0.30	-0.36	-0.58	N/A	N/A	2.95	-0.54	-1.92	0.49	-1.02	N/A	
<b>Volunteer Firefighters' Retirement - Gross</b>	<b>7.45</b>	<b>3.16</b>	<b>4.98</b>	<b>8.83</b>	<b>7.29</b>	<b>8.81</b>	<b>10.98</b>	<b>6.57</b>	<b>-2.04</b>	<b>15.34</b>	<b>7.63</b>	<b>2.36</b>	<b>8.63</b>	<b>7.60</b>	<b>07/01/1994</b>
All Public Plans > \$3B Total Fund Median	7.25	3.17	4.30	8.80	6.33	7.64	10.20	6.29	-2.72	15.90	7.96	0.85	6.88	7.88	
Rank	42	51	24	47	7	4	8	30	45	60	64	6	2	76	

Net performance shown is net of all manager fees and expenses (Net-All). All Public Plans > \$3B Total Fund Median is reported gross of fees. Benchmark returns reflect unmanaged indices which are not impacted by management fees. Fiscal year ends on 06/30. Since inception performance may vary from State Street reported performance due to calculation methodology differences. Retirement plan benchmarks' inception dates were updated to 1/1/2011.

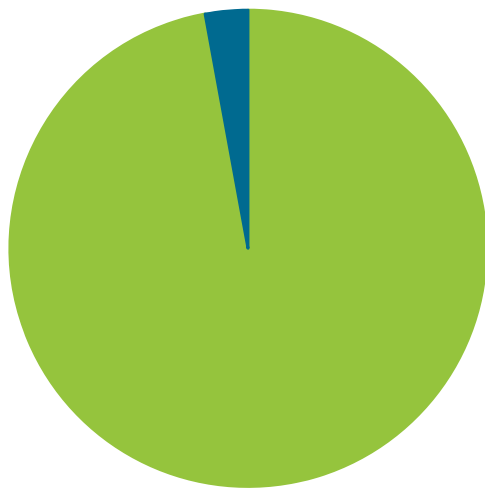


Montana Board of Investments  
 Asset Allocation by Segment  
 Retirement Plans

As of March 31, 2019

	Consolidated Asset Pension Pool (CAPP)		Short Term Investment Pool (STIP)		Total Fund	
	(\$)	%	(\$)	%	(\$)	%
Public Employees' Retirement	5,615,886,502	49.90	163,001,448	48.67	5,778,887,950	49.86
Teachers' Retirement	3,983,356,347	35.39	122,736,113	36.65	4,106,092,460	35.43
Police Retirement	403,399,980	3.58	12,324,512	3.68	415,724,492	3.59
Firefighters' Retirement	421,752,726	3.75	12,851,704	3.84	434,604,430	3.75
Sheriffs' Retirement	355,494,419	3.16	10,891,695	3.25	366,386,115	3.16
Highway Patrol Retirement	145,068,742	1.29	3,817,358	1.14	148,886,100	1.28
Game Wardens' Retirement	194,384,643	1.73	5,191,805	1.55	199,576,448	1.72
Judges' Retirement	99,445,736	0.88	2,978,353	0.89	102,424,089	0.88
Volunteer Firefighters' Retirement	35,966,955	0.32	1,101,449	0.33	37,068,403	0.32
<b>Retirement Plans Total Fund Composite</b>	<b>11,254,756,051</b>	<b>97.11</b>	<b>334,894,436</b>	<b>2.89</b>	<b>11,589,650,487</b>	<b>100.00</b>

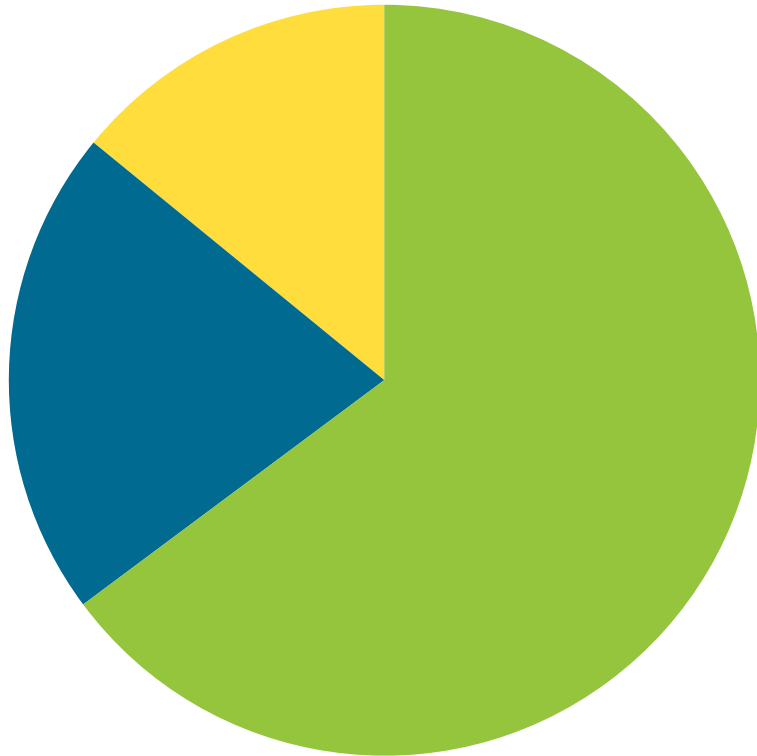
March 31, 2019 : \$11,589,650,487



Segments	Market Value (\$)	Allocation (%)
Consolidated Asset Pension Pool (CAPP)	11,254,756,051	97.11
Short Term Investment Pool (STIP)	334,894,436	2.89

Allocations shown may not sum up to 100% exactly due to rounding. Retirement Plan market values may differ from State Street due to uninvested amounts not included in segment totals.

March 31, 2019 : \$17,364,588,074



	Market Value (\$)	Allocation (%)
Consolidated Asset Pension Pool (CAPP)	11,254,756,017	64.81
Short Term Investment Pool	3,662,905,896	21.09
Trust Funds Investment Pool	2,446,926,161	14.09

Allocations shown may not sum up to 100% exactly due to rounding. Market values do not include pending transactions.

Montana Board of Investments  
Comparative Performance  
Investment Pools

As of March 31, 2019

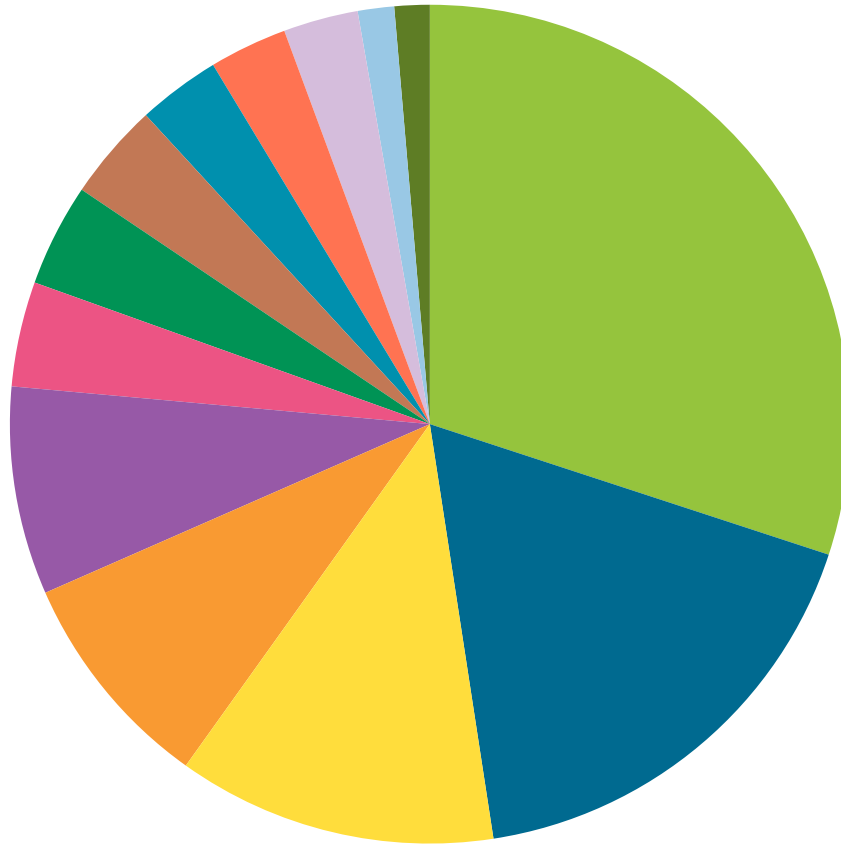
	QTD/ CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>Consolidated Asset Pension Pool (CAPP)</b>	<b>7.48</b>	<b>2.77</b>	<b>4.44</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-2.74</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>7.48</b>	<b>04/01/2017</b>
CAPP Custom Benchmark	10.55	2.86	5.58	N/A	N/A	N/A	N/A	-5.74	N/A	N/A	N/A	N/A	7.44	
Difference	-3.07	-0.09	-1.14	N/A	N/A	N/A	N/A	3.00	N/A	N/A	N/A	N/A	0.04	
<b>Trust Funds Investment Pool</b>	<b>3.17</b>	<b>4.79</b>	<b>4.82</b>	<b>2.79</b>	<b>3.64</b>	<b>3.71</b>	<b>5.32</b>	<b>0.45</b>	<b>4.01</b>	<b>4.02</b>	<b>1.83</b>	<b>6.96</b>	<b>6.11</b>	<b>04/01/1997</b>
Bloomberg US Agg Bond Index	2.94	4.65	4.48	2.03	2.74	2.48	3.77	0.01	3.54	2.65	0.55	5.97	5.13	
Difference	0.23	0.14	0.34	0.76	0.90	1.23	1.55	0.44	0.47	1.37	1.28	0.99	0.98	
<b>Short Term Investment Pool</b>	<b>0.62</b>	<b>1.73</b>	<b>2.22</b>	<b>1.39</b>	<b>0.92</b>	<b>0.72</b>	<b>0.61</b>	<b>1.98</b>	<b>1.11</b>	<b>0.61</b>	<b>0.22</b>	<b>0.10</b>	<b>2.46</b>	<b>04/01/1997</b>
Short Term Custom Index	0.60	1.67	2.13	1.37	0.91	0.70	0.57	1.95	1.15	0.52	0.21	0.16	2.39	
Difference	0.02	0.06	0.09	0.02	0.01	0.02	0.04	0.03	-0.04	0.09	0.01	-0.06	0.07	
iMoney.net Money Fund (Gross) Median	0.68	1.87	2.42	1.51	1.00	0.79	0.66	2.15	1.21	0.61	0.25	0.17	2.45	
Difference	-0.06	-0.14	-0.20	-0.12	-0.08	-0.07	-0.05	-0.17	-0.10	0.00	-0.03	-0.07	0.01	

Performance shown is net of all manager fees and expenses (Net-All). Benchmark returns reflect unmanaged indices which are not impacted by management fees. Fiscal year ends on 06/30. See the Addendum for custom index specification. Since inception performance may vary from State Street reported performance due to calculation methodology differences.

Montana Board of Investments  
 Asset Allocation  
 Consolidated Asset Pension Pool (CAPP)

As of March 31, 2019

March 31, 2019 : \$11,254,756,021



	Market Value (\$)	Allocation (%)
Domestic Equity	3,380,618,207	30.04
International Equity	1,973,807,892	17.54
Private Equity	1,383,269,760	12.29
US Treasury & Agency	962,554,521	8.55
Real Estate	902,851,704	8.02
Mortgage - Backed	455,164,642	4.04
TIPS	445,199,616	3.96
Investment Grade Credit	421,105,184	3.74
High Yield	358,661,961	3.19
Natural Resources	337,669,080	3.00
Cash Pension	324,362,789	2.88
Diversifying Strategies	157,604,690	1.40
Broad Fixed Income	151,885,974	1.35

Allocations shown may not sum up to 100% exactly due to rounding.



Montana Board of Investments  
Comparative Performance  
Consolidated Asset Pension Pool (CAPP)

As of March 31, 2019

	QTD/ CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>Domestic Equity</b>	<b>14.47</b>	<b>2.74</b>	<b>6.78</b>	<b>12.48</b>	<b>9.75</b>	<b>12.18</b>	<b>15.56</b>	<b>-7.09</b>	<b>20.80</b>	<b>11.46</b>	<b>0.86</b>	<b>12.28</b>	<b>9.01</b>	<b>05/01/2003</b>
Domestic Equity Custom Index	14.16	4.73	8.89	13.39	10.67	12.75	16.02	-5.20	21.05	13.03	1.01	13.08	9.80	
Difference	0.31	-1.99	-2.11	-0.91	-0.92	-0.57	-0.46	-1.89	-0.25	-1.57	-0.15	-0.80	-0.79	
<b>International Equity</b>	<b>10.97</b>	<b>-2.45</b>	<b>-5.15</b>	<b>8.03</b>	<b>3.02</b>	<b>5.16</b>	<b>8.95</b>	<b>-14.99</b>	<b>28.67</b>	<b>3.87</b>	<b>-3.57</b>	<b>-4.00</b>	<b>4.61</b>	<b>04/01/1997</b>
International Equity Custom Index	10.31	-2.42	-4.96	7.94	2.66	4.86	9.10	-14.76	27.81	4.41	-4.60	-4.03	4.93	
Difference	0.66	-0.03	-0.19	0.09	0.36	0.30	-0.15	-0.23	0.86	-0.54	1.03	0.03	-0.32	
<b>Broad Fixed Income</b>	<b>2.69</b>	<b>4.80</b>	<b>5.19</b>	<b>2.42</b>	<b>3.01</b>	<b>3.14</b>	<b>5.35</b>	<b>1.44</b>	<b>2.41</b>	<b>3.98</b>	<b>0.48</b>	<b>6.19</b>	<b>5.85</b>	<b>04/01/1997</b>
Bloomberg US Agg Bond Index	2.94	4.65	4.48	2.03	2.74	2.48	3.77	0.01	3.54	2.65	0.55	5.97	5.13	
Difference	-0.25	0.15	0.71	0.39	0.27	0.66	1.58	1.43	-1.13	1.33	-0.07	0.22	0.72	
<b>Investment Grade Credit</b>	<b>3.72</b>	<b>5.35</b>	<b>5.29</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-0.06</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>3.27</b>	<b>04/01/2017</b>
Bloomberg US Corp Int Bond Index	3.82	5.27	5.16	2.91	3.03	3.27	5.72	-0.23	3.92	4.04	1.08	4.35	3.16	
Difference	-0.10	0.08	0.13	N/A	N/A	N/A	N/A	0.17	N/A	N/A	N/A	N/A	0.11	
<b>US Treasury &amp; Agency</b>	<b>1.69</b>	<b>3.83</b>	<b>3.89</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>1.41</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>1.95</b>	<b>04/01/2017</b>
Bloomberg US Trsy Int Trm Index	1.59	3.74	3.80	0.95	1.66	1.40	1.98	1.41	1.14	1.06	1.18	2.57	1.80	
Difference	0.10	0.09	0.09	N/A	N/A	N/A	N/A	0.00	N/A	N/A	N/A	N/A	0.15	
<b>High Yield</b>	<b>6.71</b>	<b>4.61</b>	<b>5.38</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-2.27</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>3.98</b>	<b>04/01/2017</b>
Bloomberg US HY 2% Issuer Cap Index	7.26	4.85	5.93	8.56	4.69	6.25	11.21	-2.08	7.50	17.13	-4.43	2.46	4.85	
Difference	-0.55	-0.24	-0.55	N/A	N/A	N/A	N/A	-0.19	N/A	N/A	N/A	N/A	-0.87	
<b>Mortgage - Backed</b>	<b>2.33</b>	<b>4.55</b>	<b>4.74</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>1.45</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>2.98</b>	<b>04/01/2017</b>
Bloomberg US MBS Index	2.17	4.17	4.42	1.77	2.65	2.20	3.11	0.99	2.47	1.67	1.51	6.08	2.58	
Difference	0.16	0.38	0.32	N/A	N/A	N/A	N/A	0.46	N/A	N/A	N/A	N/A	0.40	
<b>TIPS</b>	<b>2.59</b>	<b>2.17</b>	<b>2.83</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-0.15</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>1.63</b>	<b>04/01/2017</b>
Bloomberg US Trsy Infl Notes 1-10 Yr Index	2.57	2.09	2.72	1.53	1.50	0.89	2.73	-0.25	1.90	4.01	-0.52	0.91	1.57	
Difference	0.02	0.08	0.11	N/A	N/A	N/A	N/A	0.10	N/A	N/A	N/A	N/A	0.06	
<b>Natural Resources</b>	<b>0.56</b>	<b>4.02</b>	<b>6.56</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>5.55</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>6.11</b>	<b>04/01/2017</b>
MSCI ACW Cmnty Producers Index (USD) (Net)	13.26	-4.79	2.87	11.53	-0.99	-0.70	4.21	-11.75	13.70	32.44	-25.83	-14.69	7.44	
Difference	-12.70	8.81	3.69	N/A	N/A	N/A	N/A	17.30	N/A	N/A	N/A	N/A	-1.33	

Performance shown is net of all manager fees and expenses (Net-All). Benchmark returns reflect unmanaged indices which are not impacted by management fees. Fiscal year ends on 06/30. Please see Addendum for custom index specification. Since inception performance may vary from State Street reported performance due to calculation methodology differences.

Montana Board of Investments  
 Comparative Performance  
 Consolidated Asset Pension Pool (CAPP)

As of March 31, 2019

	QTD/ CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>Real Estate</b>	<b>2.39</b>	<b>7.07</b>	<b>9.57</b>	<b>8.90</b>	<b>10.58</b>	<b>10.41</b>	<b>5.27</b>	<b>9.19</b>	<b>9.17</b>	<b>8.82</b>	<b>14.27</b>	<b>12.13</b>	<b>4.03</b>	<b>06/01/2006</b>
Real Estate Custom Index	16.27	9.65	20.72	7.56	9.59	10.08	6.09	-4.57	5.99	9.08	13.86	11.36	6.09	
Difference	-13.88	-2.58	-11.15	1.34	0.99	0.33	-0.82	13.76	3.18	-0.26	0.41	0.77	-2.06	
<b>Diversifying Strategies</b>	<b>5.11</b>	<b>0.47</b>	<b>0.87</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>3.77</b>	<b>03/01/2018</b>
Bloomberg US Trsy Int Trm Index	1.59	3.74	3.80	0.95	1.66	1.40	1.98	1.41	1.14	1.06	1.18	2.57	4.01	
Difference	3.52	-3.27	-2.93	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.24	
<b>Cash Pension</b>	<b>0.70</b>	<b>1.67</b>	<b>2.22</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>2.00</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>1.76</b>	<b>05/01/2017</b>
Short Term Custom Index	0.60	1.67	2.13	1.37	0.91	0.70	0.57	1.95	1.15	0.52	0.21	0.16	1.78	
Difference	0.10	0.00	0.09	N/A	N/A	N/A	N/A	0.05	N/A	N/A	N/A	N/A	-0.02	

Performance shown is net of all manager fees and expenses (Net-All). Benchmark returns reflect unmanaged indices which are not impacted by management fees. Fiscal year ends on 06/30. Please see Addendum for custom index specification. Since inception performance may vary from State Street reported performance due to calculation methodology differences.

Montana Board of Investments  
 Comparative Performance  
 Consolidated Asset Pension Pool (CAPP)

As of March 31, 2019

	QTD/ CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>Private Equity Pool*</b>	<b>1.61</b>	<b>5.79</b>	<b>9.61</b>	<b>11.63</b>	<b>10.67</b>	<b>11.72</b>	<b>11.85</b>	<b>11.55</b>	<b>15.20</b>	<b>7.37</b>	<b>7.20</b>	<b>15.47</b>	<b>12.14</b>	<b>05/01/2002</b>
Private Equity Custom Index	15.98	-1.83	4.90	11.55	11.39	16.20	17.10	-9.99	19.15	20.11	3.68	23.31	11.15	
Difference	-14.37	7.62	4.71	0.08	-0.72	-4.48	-5.25	21.54	-3.95	-12.74	3.52	-7.84	0.99	

Performance shown is net of all manager fees and expenses (Net-All). Benchmark returns reflect unmanaged indices which are not impacted by management fees. Fiscal year ends on 06/30. Please see Addendum for custom index specification. Since inception performance may vary from State Street reported performance due to calculation methodology differences.

For additional information on the Private Equity Custom Index, please see the Addendum. \*Performance is based on the prior quarter's fair market value adjusted for cash flows during the most recent quarterly period.



Montana Board of Investments  
Comparative Performance  
Investment Pools

As of March 31, 2019

	QTD/ CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>Domestic Equity</b>	<b>14.59</b>	<b>3.13</b>	<b>7.35</b>	<b>12.97</b>	<b>10.15</b>	<b>12.57</b>	<b>15.98</b>	<b>-6.55</b>	<b>21.31</b>	<b>11.76</b>	<b>1.14</b>	<b>12.59</b>	<b>9.32</b>	<b>05/01/2003</b>
All Public Plans-US Equity Segment Median	13.91	3.37	7.52	13.19	9.62	12.04	15.66	-5.86	20.31	12.98	0.31	11.41	9.52	
Rank	20	57	55	58	35	31	42	70	29	75	23	17	60	
Population	70	69	69	63	60	50	42	71	84	77	60	35	13	
<b>International Equity</b>	<b>11.05</b>	<b>-2.22</b>	<b>-4.86</b>	<b>8.33</b>	<b>3.29</b>	<b>5.46</b>	<b>9.29</b>	<b>-14.73</b>	<b>29.01</b>	<b>4.15</b>	<b>-3.35</b>	<b>-3.77</b>	<b>5.00</b>	<b>04/01/1997</b>
All Public Plans-Intl. Equity Segment Median	10.93	-1.89	-4.18	8.66	3.72	6.14	10.07	-13.66	28.83	4.04	-2.48	-2.68	N/A	
Rank	42	64	65	63	71	76	93	78	47	48	66	86	N/A	
Population	72	71	70	65	59	47	38	71	80	78	55	33	N/A	
<b>Broad Fixed Income</b>	<b>2.81</b>	<b>5.18</b>	<b>5.69</b>	<b>2.81</b>	<b>3.29</b>	<b>3.38</b>	<b>5.55</b>	<b>1.91</b>	<b>2.91</b>	<b>4.09</b>	<b>0.59</b>	<b>6.30</b>	<b>6.07</b>	<b>04/01/1997</b>
All Public Plans-US Fixed Income Segment Median	3.42	4.29	4.25	3.15	3.18	3.23	5.27	-0.24	4.60	4.71	0.16	5.73	N/A	
Rank	78	10	3	59	46	44	45	4	82	62	37	31	N/A	
Population	75	74	74	71	68	59	45	75	82	83	59	37	N/A	
<b>Trust Funds Investment Pool</b>	<b>3.19</b>	<b>4.86</b>	<b>4.91</b>	<b>2.88</b>	<b>3.72</b>	<b>3.80</b>	<b>5.41</b>	<b>0.53</b>	<b>4.10</b>	<b>4.12</b>	<b>1.89</b>	<b>7.08</b>	<b>6.11</b>	<b>10/01/1995</b>
All Public Plans-US Fixed Income Segment Median	3.42	4.29	4.25	3.15	3.18	3.23	5.27	-0.24	4.60	4.71	0.16	5.73	N/A	
Rank	69	17	16	58	29	32	49	22	62	61	6	23	N/A	
Population	75	74	74	71	68	59	45	75	82	83	59	37	N/A	
<b>Real Estate</b>	<b>2.58</b>	<b>7.95</b>	<b>11.06</b>	<b>10.61</b>	<b>12.13</b>	<b>11.98</b>	<b>6.83</b>	<b>11.12</b>	<b>10.91</b>	<b>10.26</b>	<b>15.68</b>	<b>13.51</b>	<b>5.45</b>	<b>06/01/2006</b>
All Public Plans-Real Estate Segment Median	1.80	5.67	8.72	8.73	10.91	11.63	8.44	8.64	8.77	9.91	13.59	14.00	N/A	
Rank	37	17	24	18	12	41	92	15	23	44	13	57	N/A	
Population	49	41	40	26	20	17	13	34	31	23	18	10	N/A	

Performance shown is gross of fees. Fiscal year ends on 06/30. Since inception performance may vary from State Street reported performance due to calculation methodology differences.

Montana Board of Investments  
Comparative Performance  
Equity Composites

As of March 31, 2019

	QTD/ CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>Domestic Large Cap Equity - Net</b>	<b>13.53</b>	<b>5.13</b>	<b>8.93</b>	<b>13.27</b>	<b>10.76</b>	<b>12.71</b>	<b>15.85</b>	<b>-4.71</b>	<b>21.66</b>	<b>11.30</b>	<b>1.76</b>	<b>13.82</b>	<b>7.62</b>	<b>07/01/2007</b>
S&P 500 Index (Cap Wtd)	13.65	5.86	9.50	13.51	10.91	12.85	15.92	-4.38	21.83	11.96	1.38	13.69	7.82	
Difference	-0.12	-0.73	-0.57	-0.24	-0.15	-0.14	-0.07	-0.33	-0.17	-0.66	0.38	0.13	-0.20	
<b>Domestic Large Cap Equity - Gross</b>	<b>13.58</b>	<b>5.30</b>	<b>9.17</b>	<b>13.45</b>	<b>10.94</b>	<b>12.89</b>	<b>16.09</b>	<b>-4.52</b>	<b>21.82</b>	<b>11.45</b>	<b>1.91</b>	<b>13.99</b>	<b>7.85</b>	<b>07/01/2007</b>
IM U.S. Large Cap Equity (SA+CF) Median	13.29	4.69	7.99	12.91	10.32	12.62	15.84	-5.16	21.67	10.99	0.95	12.91	7.94	
Rank	46	43	39	42	37	39	41	43	49	47	40	32	57	
<b>Domestic Large Cap Active - Net</b>	<b>13.89</b>	<b>4.14</b>	<b>8.05</b>	<b>12.92</b>	<b>10.46</b>	<b>12.62</b>	<b>15.75</b>	<b>-5.88</b>	<b>21.85</b>	<b>9.63</b>	<b>2.40</b>	<b>14.01</b>	<b>7.38</b>	<b>07/01/2007</b>
S&P 500 Index (Cap Wtd)	13.65	5.86	9.50	13.51	10.91	12.85	15.92	-4.38	21.83	11.96	1.38	13.69	7.82	
Difference	0.24	-1.72	-1.45	-0.59	-0.45	-0.23	-0.17	-1.50	0.02	-2.33	1.02	0.32	-0.44	
<b>Domestic Large Cap Active - Gross</b>	<b>14.06</b>	<b>4.60</b>	<b>8.70</b>	<b>13.49</b>	<b>11.00</b>	<b>13.17</b>	<b>16.30</b>	<b>-5.34</b>	<b>22.40</b>	<b>10.12</b>	<b>2.88</b>	<b>14.56</b>	<b>7.88</b>	<b>07/01/2007</b>
IM U.S. Large Cap Equity (SA+CF) Median	13.29	4.69	7.99	12.91	10.32	12.62	15.84	-5.16	21.67	10.99	0.95	12.91	7.94	
Rank	36	52	44	41	35	31	35	54	43	57	32	25	55	
<b>Domestic Mid Cap Equity - Net</b>	<b>15.82</b>	<b>0.78</b>	<b>3.51</b>	<b>11.30</b>	<b>6.98</b>	<b>10.82</b>	<b>15.18</b>	<b>-9.80</b>	<b>19.29</b>	<b>12.29</b>	<b>-3.31</b>	<b>6.45</b>	<b>8.44</b>	<b>01/01/2005</b>
Russell Mid Cap Index	16.54	3.55	6.47	11.82	8.81	11.99	16.88	-9.06	18.52	13.80	-2.44	13.22	9.14	
Difference	-0.72	-2.77	-2.96	-0.52	-1.83	-1.17	-1.70	-0.74	0.77	-1.51	-0.87	-6.77	-0.70	
<b>Domestic Mid Cap Equity - Gross</b>	<b>15.97</b>	<b>1.17</b>	<b>4.04</b>	<b>11.93</b>	<b>7.60</b>	<b>11.45</b>	<b>15.83</b>	<b>-9.33</b>	<b>20.01</b>	<b>12.96</b>	<b>-2.74</b>	<b>7.07</b>	<b>8.96</b>	<b>01/01/2005</b>
IM U.S. Mid Cap Equity (SA+CF) Median	15.72	2.72	5.47	12.14	8.99	12.01	16.63	-9.12	19.89	12.71	-1.12	9.78	9.67	
Rank	49	57	55	53	69	66	73	51	49	49	69	74	80	
<b>Domestic Small Cap Equity - Net</b>	<b>15.33</b>	<b>-3.15</b>	<b>3.39</b>	<b>12.75</b>	<b>7.86</b>	<b>11.53</b>	<b>15.80</b>	<b>-10.51</b>	<b>15.65</b>	<b>19.31</b>	<b>-1.61</b>	<b>5.44</b>	<b>11.72</b>	<b>03/01/2003</b>
Russell 2000 Index	14.58	-5.29	2.05	12.92	7.05	10.74	15.36	-11.01	14.65	21.31	-4.41	4.89	10.91	
Difference	0.75	2.14	1.34	-0.17	0.81	0.79	0.44	0.50	1.00	-2.00	2.80	0.55	0.81	
<b>Domestic Small Cap Equity - Gross</b>	<b>15.45</b>	<b>-2.84</b>	<b>3.85</b>	<b>13.36</b>	<b>8.47</b>	<b>12.19</b>	<b>16.52</b>	<b>-10.09</b>	<b>16.27</b>	<b>19.97</b>	<b>-0.93</b>	<b>6.16</b>	<b>12.27</b>	<b>03/01/2003</b>
IM U.S. Small Cap Equity (SA+CF) Median	14.20	-4.76	2.06	12.62	7.76	11.54	16.86	-10.64	15.12	20.89	-2.31	5.36	12.21	
Rank	34	39	42	42	39	38	57	48	44	57	36	43	49	

Net performance shown is net of all manager fees and expenses (Net-All). Gross returns are compared to median performance of similar managers. A peer group of similar managers may not exist for all composites. Fiscal year ends on 06/30. Since inception performance may vary from State Street reported performance due to calculation methodology differences.

Montana Board of Investments  
Comparative Performance  
Equity Composites

As of March 31, 2019

	QTD/ CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>International Large Cap Passive - Net</b>	<b>10.35</b>	<b>-1.47</b>	<b>-4.18</b>	<b>8.39</b>	<b>3.03</b>	<b>5.03</b>	<b>N/A</b>	<b>-14.04</b>	<b>27.79</b>	<b>4.87</b>	<b>-4.71</b>	<b>-3.70</b>	<b>6.46</b>	<b>06/01/2009</b>
MSCI ACW Ex US Index (USD) (Net)	10.31	-1.64	-4.22	8.09	2.57	4.72	8.85	-14.20	27.19	4.50	-5.66	-3.87	6.22	
Difference	0.04	0.17	0.04	0.30	0.46	0.31	N/A	0.16	0.60	0.37	0.95	0.17	0.24	
<b>International Large Cap Passive - Gross</b>	<b>10.36</b>	<b>-1.42</b>	<b>-4.12</b>	<b>8.47</b>	<b>3.11</b>	<b>5.11</b>	<b>N/A</b>	<b>-13.98</b>	<b>27.88</b>	<b>4.96</b>	<b>-4.63</b>	<b>-3.62</b>	<b>6.54</b>	<b>06/01/2009</b>
<b>International Equity Active - Net</b>	<b>12.09</b>	<b>-3.34</b>	<b>-5.91</b>	<b>7.89</b>	<b>3.75</b>	<b>6.11</b>	<b>9.59</b>	<b>-16.18</b>	<b>30.82</b>	<b>2.63</b>	<b>0.41</b>	<b>-4.39</b>	<b>3.44</b>	<b>04/01/1997</b>
MSCI ACW Ex US Index (USD) (Net)	10.31	-1.64	-4.22	8.09	2.57	4.72	8.85	-14.20	27.19	4.50	-5.66	-3.87	N/A	
Difference	1.78	-1.70	-1.69	-0.20	1.18	1.39	0.74	-1.98	3.63	-1.87	6.07	-0.52	N/A	
<b>International Equity Active - Gross</b>	<b>12.23</b>	<b>-2.96</b>	<b>-5.42</b>	<b>8.46</b>	<b>4.28</b>	<b>6.64</b>	<b>10.13</b>	<b>-15.73</b>	<b>31.50</b>	<b>3.17</b>	<b>0.90</b>	<b>-3.94</b>	<b>3.96</b>	<b>04/01/1997</b>
IM International Large Cap Core Equity (SA+CF) Median	10.87	-2.56	-4.62	7.35	3.31	6.58	10.29	-14.66	26.48	1.38	0.25	-3.72	6.41	
Rank	25	57	64	27	18	48	60	65	12	29	43	52	100	
<b>International Value - Net</b>	<b>10.20</b>	<b>-2.12</b>	<b>-5.19</b>	<b>9.13</b>	<b>3.50</b>	<b>5.61</b>	<b>9.43</b>	<b>-13.97</b>	<b>30.72</b>	<b>5.59</b>	<b>-5.94</b>	<b>-1.49</b>	<b>1.97</b>	<b>11/01/2006</b>
MSCI ACW Ex US Val Index (USD) (Net)	8.33	-1.61	-5.39	7.73	1.08	3.72	8.19	-13.97	22.66	8.92	-10.06	-5.10	1.92	
Difference	1.87	-0.51	0.20	1.40	2.42	1.89	1.24	0.00	8.06	-3.33	4.12	3.61	0.05	
<b>International Value - Gross</b>	<b>10.34</b>	<b>-1.75</b>	<b>-4.70</b>	<b>9.70</b>	<b>4.04</b>	<b>6.18</b>	<b>10.05</b>	<b>-13.52</b>	<b>31.39</b>	<b>6.17</b>	<b>-5.46</b>	<b>-0.94</b>	<b>2.55</b>	<b>11/01/2006</b>
IM International Large Cap Value Equity (SA+CF) Median	9.41	-3.06	-4.68	7.35	2.60	6.07	9.80	-14.71	26.02	4.19	-1.97	-4.26	3.71	
Rank	31	38	51	18	23	44	46	40	12	28	82	15	87	
<b>International Growth - Net</b>	<b>14.09</b>	<b>-0.52</b>	<b>-3.07</b>	<b>6.70</b>	<b>3.68</b>	<b>5.49</b>	<b>9.23</b>	<b>-16.09</b>	<b>28.01</b>	<b>0.51</b>	<b>1.69</b>	<b>-6.15</b>	<b>2.80</b>	<b>11/01/2006</b>
MSCI ACW Ex US Grth Index (USD) (Net)	12.31	-1.65	-3.05	8.42	4.01	5.68	9.47	-14.43	32.01	0.12	-1.25	-2.65	3.71	
Difference	1.78	1.13	-0.02	-1.72	-0.33	-0.19	-0.24	-1.66	-4.00	0.39	2.94	-3.50	-0.91	
<b>International Growth - Gross</b>	<b>14.24</b>	<b>-0.10</b>	<b>-2.53</b>	<b>7.32</b>	<b>4.25</b>	<b>6.04</b>	<b>9.82</b>	<b>-15.61</b>	<b>28.74</b>	<b>1.12</b>	<b>2.21</b>	<b>-5.72</b>	<b>3.34</b>	<b>11/01/2006</b>
IM International Large Cap Growth Equity (SA+CF) Median	12.23	-2.92	-3.39	8.51	4.29	7.01	11.06	-13.91	31.38	0.00	2.28	-3.31	4.86	
Rank	22	23	44	74	51	82	80	65	69	34	51	79	84	
<b>International Small Cap - Net</b>	<b>11.35</b>	<b>-7.84</b>	<b>-10.46</b>	<b>7.35</b>	<b>3.47</b>	<b>6.93</b>	<b>11.60</b>	<b>-18.90</b>	<b>33.61</b>	<b>1.84</b>	<b>5.16</b>	<b>-4.87</b>	<b>4.24</b>	<b>09/01/2006</b>
MSCI ACWI Ex US Sm Cap Index IMI (USD) (Net)	10.26	-7.07	-9.49	7.01	3.26	6.05	11.86	-18.20	31.65	3.91	2.60	-4.03	4.82	
Difference	1.09	-0.77	-0.97	0.34	0.21	0.88	-0.26	-0.70	1.96	-2.07	2.56	-0.84	-0.58	
<b>International Small Cap - Gross</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>09/01/2006</b>
IM International Small Cap Equity (SA+CF) Median	10.33	-8.90	-10.65	7.94	4.57	8.63	14.06	-18.72	34.81	1.13	10.04	-3.38	6.37	
Rank	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Gross of fees performance is not available (N/A) for the International Small Cap composite which currently consists of DFA Intl Sm Co;I (DFISX), DFA Emg Mkts Sm Cap;I (DEMSX), BlackRock ACWI Ex-US Small Cap (CF), Templeton Investment Counsel (SA), and American Century Investment Mgmt (SA).

Net performance shown is net of all manager fees and expenses (Net-All). Gross returns are compared to median performance of similar managers. A peer group of similar managers may not exist for all composites. Fiscal year ends on 06/30. Since inception performance may vary from State Street reported performance due to calculation methodology differences.



Montana Board of Investments  
Comparative Performance  
Equity Sub Composites

As of March 31, 2019

	QTD/ CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>Domestic Large Cap Passive - Net</b>	<b>13.34</b>	<b>5.82</b>	<b>9.58</b>	<b>13.45</b>	<b>10.76</b>	<b>12.75</b>	<b>15.91</b>	<b>-3.94</b>	<b>21.34</b>	<b>12.01</b>	<b>0.83</b>	<b>13.73</b>	<b>5.63</b>	<b>05/01/2000</b>
S&P 500 Index (Cap Wtd)	13.65	5.86	9.50	13.51	10.91	12.85	15.92	-4.38	21.83	11.96	1.38	13.69	5.64	
Difference	-0.31	-0.04	0.08	-0.06	-0.15	-0.10	-0.01	0.44	-0.49	0.05	-0.55	0.04	-0.01	
<b>Domestic Large Cap Passive - Gross</b>	<b>13.35</b>	<b>5.83</b>	<b>9.59</b>	<b>13.46</b>	<b>10.77</b>	<b>12.76</b>	<b>15.90</b>	<b>-3.93</b>	<b>21.35</b>	<b>12.03</b>	<b>0.84</b>	<b>13.74</b>	<b>5.66</b>	<b>05/01/2000</b>
IM U.S. Large Cap Index Equity (SA+CF) Median	13.80	5.52	9.28	13.51	10.67	12.76	15.98	-4.78	21.71	12.03	0.95	13.27	5.87	
Rank	78	41	24	63	46	51	69	18	57	51	57	17	77	
<b>Domestic Large Cap Enhanced - Net</b>	<b>14.48</b>	<b>5.93</b>	<b>9.83</b>	<b>14.20</b>	<b>11.48</b>	<b>13.26</b>	<b>16.87</b>	<b>-4.20</b>	<b>24.21</b>	<b>9.73</b>	<b>3.18</b>	<b>13.19</b>	<b>8.45</b>	<b>06/01/2006</b>
S&P 500 Index (Cap Wtd)	13.65	5.86	9.50	13.51	10.91	12.85	15.92	-4.38	21.83	11.96	1.38	13.69	8.72	
Difference	0.83	0.07	0.33	0.69	0.57	0.41	0.95	0.18	2.38	-2.23	1.80	-0.50	-0.27	
<b>Domestic Large Cap Enhanced - Gross</b>	<b>14.57</b>	<b>6.15</b>	<b>10.12</b>	<b>14.50</b>	<b>11.79</b>	<b>13.59</b>	<b>17.22</b>	<b>-3.96</b>	<b>24.53</b>	<b>10.05</b>	<b>3.50</b>	<b>13.54</b>	<b>8.76</b>	<b>06/01/2006</b>
IM U.S. Large Cap Core Equity (SA+CF) Median	13.23	4.42	7.74	12.88	10.38	12.76	15.65	-5.24	21.83	10.52	1.43	13.42	8.84	
Rank	17	27	18	19	16	19	10	28	20	57	25	48	57	
<b>Domestic Large Cap 130/30 - Net</b>	<b>13.73</b>	<b>3.01</b>	<b>6.94</b>	<b>12.23</b>	<b>9.77</b>	<b>12.64</b>	<b>15.49</b>	<b>-7.10</b>	<b>20.28</b>	<b>9.54</b>	<b>1.61</b>	<b>14.84</b>	<b>9.21</b>	<b>03/01/2008</b>
S&P 500 Index (Cap Wtd)	13.65	5.86	9.50	13.51	10.91	12.85	15.92	-4.38	21.83	11.96	1.38	13.69	9.38	
Difference	0.08	-2.85	-2.56	-1.28	-1.14	-0.21	-0.43	-2.72	-1.55	-2.42	0.23	1.15	-0.17	
<b>Domestic Large Cap 130/30 - Gross</b>	<b>13.95</b>	<b>3.65</b>	<b>7.84</b>	<b>13.03</b>	<b>10.53</b>	<b>13.40</b>	<b>16.27</b>	<b>-6.32</b>	<b>21.10</b>	<b>10.22</b>	<b>2.26</b>	<b>15.59</b>	<b>9.95</b>	<b>03/01/2008</b>
IM U.S. Large Cap Core Equity (SA+CF) Median	13.23	4.42	7.74	12.88	10.38	12.76	15.65	-5.24	21.83	10.52	1.43	13.42	9.47	
Rank	31	61	50	46	43	21	28	70	62	55	38	21	30	

Net performance shown is net of all manager fees and expenses (Net-All). Gross returns are compared to median performance of similar managers. A peer group of similar managers may not exist for all composites. Fiscal year ends on 06/30. Since inception performance may vary from State Street reported performance due to calculation methodology differences.

Montana Board of Investments  
Comparative Performance  
Domestic Equity Managers

As of March 31, 2019

	QTD/ CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>Domestic Large Cap Equity</b>														
<b>BlackRock MSCI US Equity Index (SA) - Net</b>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	04/01/2019
MSCI US Index (USD) (Gross)	13.91	5.72	9.47	13.60	10.79	12.78	15.91	-4.50	21.90	11.61	1.32	13.36	N/A	
Difference	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
<b>BlackRock MSCI US Equity Index (SA) - Gross</b>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	04/01/2019
<b>SPDR S&amp;P 500 ETF (SPY) - Net</b>	13.32	5.87	10.44	N/A	N/A	N/A	N/A	-5.30	N/A	N/A	N/A	N/A	10.78	07/01/2017
S&P 500 Index (Cap Wtd)	13.65	5.86	9.50	13.51	10.91	12.85	15.92	-4.38	21.83	11.96	1.38	13.69	11.55	
Difference	-0.33	0.01	0.94	N/A	N/A	N/A	N/A	-0.92	N/A	N/A	N/A	N/A	-0.77	
<b>Northern Trust MSCI US Index (SA) - Net</b>	13.92	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.67	11/01/2018
MSCI US Index (USD) (Gross)	13.91	5.72	9.47	13.60	10.79	12.78	15.91	-4.50	21.90	11.61	1.32	13.36	5.67	
Difference	0.01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00	
<b>Northern Trust MSCI US Index (SA) - Gross</b>	13.93	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.67	11/01/2018
IM U.S. Large Cap Core Equity (SA+CF) Median	13.23	4.42	7.74	12.88	10.38	12.76	15.65	-5.24	21.83	10.52	1.43	13.42	5.22	
Rank	32	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	37	
<b>Domestic Equity Pool STIF - Net</b>	0.64	1.83	2.30	1.35	N/A	N/A	N/A	2.01	1.00	0.50	N/A	N/A	1.06	04/01/2015
Short Term Custom Index	0.60	1.67	2.13	1.37	0.91	0.70	0.57	1.95	1.15	0.52	0.21	0.16	1.10	
Difference	0.04	0.16	0.17	-0.02	N/A	N/A	N/A	0.06	-0.15	-0.02	N/A	N/A	-0.04	
<b>T. Rowe U.S. Structured Research (SA) - Net</b>	14.48	5.93	9.83	14.47	11.56	13.24	16.20	-4.20	23.94	10.68	3.30	12.58	9.27	06/01/2006
S&P 500 Index (Cap Wtd)	13.65	5.86	9.50	13.51	10.91	12.85	15.92	-4.38	21.83	11.96	1.38	13.69	8.72	
Difference	0.83	0.07	0.33	0.96	0.65	0.39	0.28	0.18	2.11	-1.28	1.92	-1.11	0.55	
<b>T. Rowe U.S. Structured Research (SA) - Gross</b>	14.57	6.15	10.12	14.76	11.86	13.56	16.54	-3.96	24.24	10.98	3.61	12.92	9.59	06/01/2006
IM U.S. Large Cap Core Equity (SA+CF) Median	13.23	4.42	7.74	12.88	10.38	12.76	15.65	-5.24	21.83	10.52	1.43	13.42	8.84	
Rank	17	27	18	15	15	19	21	28	23	46	25	59	22	
<b>Jacobs Levy 130/30 (SA) - Net</b>	14.96	2.39	6.65	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.65	04/01/2018
MSCI US Index (USD) (Gross)	13.91	5.72	9.47	13.60	10.79	12.78	15.91	-4.50	21.90	11.61	1.32	13.36	9.47	
Difference	1.05	-3.33	-2.82	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-2.82	
<b>Jacobs Levy 130/30 (SA) - Gross</b>	15.16	2.99	7.53	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.53	04/01/2018
IM U.S. Large Cap Core Equity (SA+CF) Median	13.23	4.42	7.74	12.88	10.38	12.76	15.65	-5.24	21.83	10.52	1.43	13.42	7.74	
Rank	11	66	52	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	52	

Net performance shown is net of all manager fees and expenses (Net-All). Gross returns are compared to median performance of similar managers. A peer group of similar managers may not exist for all funds. Fiscal year ends on 06/30. Since inception performance may vary from State Street reported performance due to calculation methodology differences.

BlackRock MSCI US Equity Index was transitioned into a separately managed account during Q1 2019. Inception date shown represents first full month following transition.





Montana Board of Investments  
 Comparative Performance  
 Domestic Equity Managers

As of March 31, 2019

	QTD/ CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>J.P. Morgan 130/30 (SA) - Net</b>	<b>13.18</b>	<b>3.42</b>	<b>7.19</b>	<b>13.45</b>	<b>10.10</b>	<b>12.95</b>	<b>15.96</b>	<b>-6.93</b>	<b>22.86</b>	<b>10.30</b>	<b>0.01</b>	<b>15.38</b>	<b>10.16</b>	<b>03/01/2008</b>
S&P 500 Index (Cap Wtd)	13.65	5.86	9.50	13.51	10.91	12.85	15.92	-4.38	21.83	11.96	1.38	13.69	9.38	
Difference	-0.47	-2.44	-2.31	-0.06	-0.81	0.10	0.04	-2.55	1.03	-1.66	-1.37	1.69	0.78	
<b>J.P. Morgan 130/30 (SA) - Gross</b>	<b>13.41</b>	<b>4.08</b>	<b>8.10</b>	<b>14.33</b>	<b>10.93</b>	<b>13.79</b>	<b>16.81</b>	<b>-6.13</b>	<b>23.79</b>	<b>11.09</b>	<b>0.72</b>	<b>16.21</b>	<b>10.97</b>	<b>03/01/2008</b>
IM U.S. Large Cap Core Equity (SA+CF) Median	13.23	4.42	7.74	12.88	10.38	12.76	15.65	-5.24	21.83	10.52	1.43	13.42	9.47	
Rank	45	55	46	20	35	17	15	67	27	45	59	15	7	

Net performance shown is net of all manager fees and expenses (Net-All). Gross returns are compared to median performance of similar managers. A peer group of similar managers may not exist for all funds. Fiscal year ends on 06/30. Since inception performance may vary from State Street reported performance due to calculation methodology differences.



Montana Board of Investments  
Comparative Performance  
Domestic Equity Managers

As of March 31, 2019

	QTD/ CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>Domestic Mid Cap Equity</b>														
<b>Artisan Partners (SA) - Net</b>	12.34	-3.99	-0.28	8.88	4.38	8.50	13.77	-13.34	13.81	23.60	-9.68	2.12	7.38	03/01/2007
Russell Mid Cap Val Index	14.37	0.47	2.89	9.50	7.22	11.30	16.39	-12.29	13.34	20.00	-4.78	14.75	7.05	
Difference	-2.03	-4.46	-3.17	-0.62	-2.84	-2.80	-2.62	-1.05	0.47	3.60	-4.90	-12.63	0.33	
<b>Artisan Partners (SA) - Gross</b>	12.51	-3.54	0.33	9.56	5.04	9.20	14.53	-12.80	14.51	24.41	-9.09	2.79	8.12	03/01/2007
IM U.S. Mid Cap Value Equity (SA+CF) Median	14.08	-1.02	1.60	9.93	7.27	11.63	16.18	-12.36	15.65	18.21	-3.19	11.79	8.39	
Rank	82	78	59	60	87	94	82	55	59	15	90	97	58	
<b>Iridian Asset Management (SA) - Net</b>	20.75	-6.81	-6.84	5.31	4.47	N/A	N/A	-24.44	24.06	3.29	-1.62	12.84	8.79	05/01/2013
Russell Mid Cap Val Index	14.37	0.47	2.89	9.50	7.22	11.30	16.39	-12.29	13.34	20.00	-4.78	14.75	9.63	
Difference	6.38	-7.28	-9.73	-4.19	-2.75	N/A	N/A	-12.15	10.72	-16.71	3.16	-1.91	-0.84	
<b>Iridian Asset Management (SA) - Gross</b>	20.96	-6.29	-6.16	6.08	5.26	N/A	N/A	-23.88	24.96	4.07	-0.87	13.73	9.62	05/01/2013
IM U.S. Mid Cap Value Equity (SA+CF) Median	14.08	-1.02	1.60	9.93	7.27	11.63	16.18	-12.36	15.65	18.21	-3.19	11.79	10.37	
Rank	1	88	94	99	85	N/A	N/A	100	4	100	24	26	68	
<b>iShares:Core S&amp;P Md-Cp (IJH) - Net</b>	14.61	-1.59	2.17	N/A	N/A	N/A	N/A	-13.95	N/A	N/A	N/A	N/A	4.64	07/01/2017
S&P Mid Cap 400 Index (Cap Wtd)	14.49	-1.63	2.59	11.24	8.29	11.39	16.28	-11.08	16.24	20.74	-2.18	9.77	6.50	
Difference	0.12	0.04	-0.42	N/A	N/A	N/A	N/A	-2.87	N/A	N/A	N/A	N/A	-1.86	
<b>Congress Mid Cap Growth (SA) - Net</b>	17.27	10.87	11.37	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10.36	03/01/2018
Russell Mid Cap Grth Index	19.62	8.10	11.51	15.06	10.89	12.97	17.60	-4.75	25.27	7.33	-0.20	11.90	10.42	
Difference	-2.35	2.77	-0.14	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.06	
<b>Congress Mid Cap Growth (SA) - Gross</b>	17.39	11.25	11.89	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10.88	03/01/2018
IM U.S. Mid Cap Growth Equity (SA+CF) Median	19.06	7.20	10.58	15.16	10.49	12.44	17.18	-4.49	25.42	5.64	1.04	8.69	9.97	
Rank	73	4	43	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	46	
<b>TimesSquare Capital Management (SA) - Net</b>	16.75	5.76	8.99	14.10	9.33	12.38	15.95	-4.12	23.02	7.91	0.96	5.69	9.50	03/01/2007
Russell Mid Cap Grth Index	19.62	8.10	11.51	15.06	10.89	12.97	17.60	-4.75	25.27	7.33	-0.20	11.90	9.32	
Difference	-2.87	-2.34	-2.52	-0.96	-1.56	-0.59	-1.65	0.63	-2.25	0.58	1.16	-6.21	0.18	
<b>TimesSquare Capital Management (SA) - Gross</b>	16.94	6.28	9.71	14.86	10.07	13.15	16.76	-3.48	23.84	8.65	1.65	6.42	10.27	03/01/2007
IM U.S. Mid Cap Growth Equity (SA+CF) Median	19.06	7.20	10.58	15.16	10.49	12.44	17.18	-4.49	25.42	5.64	1.04	8.69	10.09	
Rank	76	60	59	57	59	33	64	45	59	24	42	71	45	

Net performance shown is net of all manager fees and expenses (Net-All). Gross returns are compared to median performance of similar managers. A peer group of similar managers may not exist for all funds. Fiscal year ends on 06/30. Since inception performance may vary from State Street reported performance due to calculation methodology differences.

Montana Board of Investments  
Comparative Performance  
Domestic Equity Managers

As of March 31, 2019

	QTD/ CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>Domestic Small Cap Equity</b>														
<b>Vaughan Nelson Management (SA) - Net</b>	15.17	-2.25	1.25	8.47	6.46	10.48	14.47	-13.78	6.83	20.50	0.16	9.09	8.94	03/01/2007
Russell 2000 Val Index	11.93	-7.51	0.17	10.86	5.59	9.61	14.12	-12.86	7.84	31.74	-7.47	4.22	5.57	
Difference	3.24	5.26	1.08	-2.39	0.87	0.87	0.35	-0.92	-1.01	-11.24	7.63	4.87	3.37	
<b>Vaughan Nelson Management (SA) - Gross</b>	15.38	-1.70	2.00	9.31	7.31	11.37	15.41	-13.13	7.66	21.49	0.98	10.00	9.85	03/01/2007
IM U.S. Small Cap Value Equity (SA+CF) Median	12.95	-7.18	-1.63	9.78	6.24	10.70	16.21	-14.39	11.60	26.17	-4.28	5.66	7.72	
Rank	13	14	22	61	27	31	68	38	77	77	9	10	10	
<b>BlackRock MSCI US Sm Cap Equity Index (CF) - Net</b>	15.94	-1.85	4.88	N/A	N/A	N/A	N/A	-9.96	N/A	N/A	N/A	N/A	8.59	07/01/2017
MSCI US Sm Cap Index (USD) (Net)	15.84	-2.19	4.41	12.75	7.68	11.29	16.60	-10.40	16.75	19.15	-4.11	7.07	8.09	
Difference	0.10	0.34	0.47	N/A	N/A	N/A	N/A	0.44	N/A	N/A	N/A	N/A	0.50	
<b>BlackRock MSCI US Sm Cap Equity Index (CF) - Gross</b>	15.95	-1.82	4.91	N/A	N/A	N/A	N/A	-9.93	N/A	N/A	N/A	N/A	8.64	07/01/2017
<b>DFA US Small Cap Trust (CF) - Net</b>	11.94	-6.99	-0.53	10.37	6.75	11.10	16.28	-12.27	11.86	24.42	-2.64	4.75	11.73	03/01/2003
Russell 2000 Index	14.58	-5.29	2.05	12.92	7.05	10.74	15.36	-11.01	14.65	21.31	-4.41	4.89	10.91	
Difference	-2.64	-1.70	-2.58	-2.55	-0.30	0.36	0.92	-1.26	-2.79	3.11	1.77	-0.14	0.82	
<b>DFA US Small Cap Trust (CF) - Gross</b>	12.01	-6.75	-0.19	10.75	7.12	11.48	16.69	-11.95	12.25	24.85	-2.29	5.12	12.05	03/01/2003
IM U.S. Small Cap Core Equity (SA+CF) Median	13.99	-4.85	1.77	12.65	7.92	11.75	16.49	-10.69	15.13	20.77	-1.35	6.72	12.14	
Rank	82	74	69	70	71	56	47	63	72	20	63	65	52	
<b>iShares:Russ 2000 ETF (IWM) - Net</b>	14.78	-5.22	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.24	05/01/2018
Russell 2000 Index	14.58	-5.29	2.05	12.92	7.05	10.74	15.36	-11.01	14.65	21.31	-4.41	4.89	1.18	
Difference	0.20	0.07	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.06	
<b>Alliance Bernstein (SA) - Net</b>	21.95	3.14	14.97	23.63	10.90	13.37	N/A	-0.80	34.73	6.82	-0.84	-1.61	13.37	04/01/2012
Russell 2000 Grth Index	17.14	-3.15	3.85	14.87	8.41	11.79	16.52	-9.31	22.17	11.32	-1.38	5.60	11.79	
Difference	4.81	6.29	11.12	8.76	2.49	1.58	N/A	8.51	12.56	-4.50	0.54	-7.21	1.58	
<b>Alliance Bernstein (SA) - Gross</b>	22.22	3.82	15.94	24.69	11.88	14.37	N/A	0.03	35.88	7.80	0.05	-0.71	14.37	04/01/2012
IM U.S. Small Cap Growth Equity (SA+CF) Median	17.44	-0.04	9.72	17.54	9.65	13.32	17.72	-4.27	23.71	11.40	-0.75	4.22	13.32	
Rank	15	26	18	11	22	31	N/A	28	8	70	41	82	31	

Gross of fees performance is not available (N/A) for the following funds: SPDR S&P 500 ETF (SPY), Domestic Equity Pool STIF, iShares:Core S&P Md-Cp (IJH), and iShares:Russ 2000 ETF (IWM).

The current annual expense ratios for the SPDR S&P 500 ETF (SPY), Domestic Equity Pool STIF, iShares:Core S&P Md-Cp (IJH), and iShares:Russ 2000 ETF (IWM) are 0.09%, 0.15%, 0.07%, and 0.19%, respectively.

Net performance shown is net of all manager fees and expenses (Net-All). Gross returns are compared to median performance of similar managers. A peer group of similar managers may not exist for all funds. Fiscal year ends on 06/30. Since inception performance may vary from State Street reported performance due to calculation methodology differences.

Montana Board of Investments  
Comparative Performance  
International Equity Managers

As of March 31, 2019

	QTD/ CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>International Developed Large Cap Equity</b>														
<b>Acadian Asset Non-US Equity (SA) - Net</b>	10.43	-3.22	-5.14	12.99	5.32	7.58	11.41	-13.44	34.76	12.40	-7.75	0.00	3.10	11/01/2006
MSCI ACW Ex US Val Index (USD) (Net)	8.33	-1.61	-5.39	7.73	1.08	3.72	8.19	-13.97	22.66	8.92	-10.06	-5.10	1.92	
Difference	2.10	-1.61	0.25	5.26	4.24	3.86	3.22	0.53	12.10	3.48	2.31	5.10	1.18	
<b>Acadian Asset Non-US Equity (SA) - Gross</b>	10.56	-2.84	-4.65	13.57	5.87	8.14	12.02	-12.99	35.45	13.01	-7.26	0.52	3.68	11/01/2006
IM ACWI Ex US Value (SA+CF) Median	9.44	-3.24	-5.22	8.00	2.80	5.90	9.76	-14.96	26.02	4.87	-3.25	-3.87	3.60	
Rank	35	43	45	1	9	15	16	25	8	10	85	15	48	
<b>Lazard Asset Management (SA) - Net</b>	10.05	-1.36	-5.22	5.91	N/A	N/A	N/A	-14.32	27.00	0.22	N/A	N/A	2.34	06/01/2015
Lazard Custom Index	10.31	-1.64	-5.42	7.72	1.07	3.72	8.19	-15.55	22.66	8.92	-10.06	-5.10	1.49	
Difference	-0.26	0.28	0.20	-1.81	N/A	N/A	N/A	1.23	4.34	-8.70	N/A	N/A	0.85	
<b>Lazard Asset Management (SA) - Gross</b>	10.18	-0.99	-4.74	6.47	N/A	N/A	N/A	-13.88	27.65	0.77	N/A	N/A	2.88	06/01/2015
IM ACWI Ex US Value (SA+CF) Median	9.44	-3.24	-5.22	8.00	2.80	5.90	9.76	-14.96	26.02	4.87	-3.25	-3.87	2.52	
Rank	40	28	45	71	N/A	N/A	N/A	34	38	86	N/A	N/A	43	
<b>BlackRock ACWI Ex-US SuperFund A (CF) - Net</b>	10.36	-1.57	-3.85	8.35	2.79	4.94	N/A	-13.99	27.49	4.77	-5.49	-3.73	6.43	06/01/2009
MSCI ACW Ex US Index (USD) (Net)	10.31	-1.64	-4.22	8.09	2.57	4.72	8.85	-14.20	27.19	4.50	-5.66	-3.87	6.22	
Difference	0.05	0.07	0.37	0.26	0.22	0.22	N/A	0.21	0.30	0.27	0.17	0.14	0.21	
<b>BlackRock ACWI Ex-US SuperFund A (CF) - Gross</b>	10.38	-1.52	-3.79	8.43	2.87	5.02	N/A	-13.93	27.58	4.86	-5.42	-3.65	6.51	06/01/2009
IM All ACWI Ex US (SA+CF) Median	11.06	-3.05	-4.82	8.15	3.74	6.49	10.45	-14.75	28.74	2.09	-0.53	-3.38	8.14	
Rank	64	35	41	43	71	80	N/A	43	60	25	85	54	84	
<b>iShares:MSCI EAFE ETF (EFA) - Net</b>	10.35	-2.02	-3.92	N/A	N/A	N/A	N/A	-12.88	N/A	N/A	N/A	N/A	2.72	07/01/2017
MSCI EAFE Index (USD) (Net)	9.98	-2.51	-3.71	7.27	2.33	5.63	8.96	-13.79	25.03	1.00	-0.81	-4.90	2.36	
Difference	0.37	0.49	-0.21	N/A	N/A	N/A	N/A	0.91	N/A	N/A	N/A	N/A	0.36	
<b>Baillie Gifford (SA) - Net</b>	13.67	-5.55	-5.28	7.48	N/A	N/A	N/A	-17.35	31.99	0.73	N/A	N/A	3.95	06/01/2015
MSCI ACW Ex US Grth Index (USD) (Net)	12.31	-1.65	-3.05	8.42	4.01	5.68	9.47	-14.43	32.01	0.12	-1.25	-2.65	3.93	
Difference	1.36	-3.90	-2.23	-0.94	N/A	N/A	N/A	-2.92	-0.02	0.61	N/A	N/A	0.02	
<b>Baillie Gifford (SA) - Gross</b>	13.81	-5.19	-4.81	8.03	N/A	N/A	N/A	-16.93	32.66	1.28	N/A	N/A	4.48	06/01/2015
IM ACWI Ex US Growth (SA+CF) Median	13.06	-3.05	-3.73	8.76	4.61	7.14	11.69	-14.05	32.77	-0.32	1.31	-1.78	4.47	
Rank	35	84	62	71	N/A	N/A	N/A	85	51	34	N/A	N/A	50	

Net performance shown is net of all manager fees and expenses (Net-All). Gross returns are compared to median performance of similar managers. A peer group of similar managers may not exist for all funds. Fiscal year ends on 06/30. Since inception performance may vary from State Street reported performance due to calculation methodology differences. See the Addendum for custom index specification.

Montana Board of Investments  
Comparative Performance  
International Equity Managers

As of March 31, 2019

	QTD/ CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>Invesco (SA) - Net</b>	<b>14.38</b>	<b>3.38</b>	<b>-1.45</b>	<b>5.98</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-15.17</b>	<b>24.92</b>	<b>0.32</b>	<b>N/A</b>	<b>N/A</b>	<b>2.85</b>	<b>06/01/2015</b>
MSCI ACW Ex US Grth Index (USD) (Net)	12.31	-1.65	-3.05	8.42	4.01	5.68	9.47	-14.43	32.01	0.12	-1.25	-2.65	3.93	
Difference	2.07	5.03	1.60	-2.44	N/A	N/A	N/A	-0.74	-7.09	0.20	N/A	N/A	-1.08	
<b>Invesco (SA) - Gross</b>	<b>14.55</b>	<b>3.85</b>	<b>-0.86</b>	<b>6.64</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-14.64</b>	<b>25.70</b>	<b>1.01</b>	<b>N/A</b>	<b>N/A</b>	<b>3.51</b>	<b>06/01/2015</b>
IM ACWI Ex US Growth (SA+CF) Median	13.06	-3.05	-3.73	8.76	4.61	7.14	11.69	-14.05	32.77	-0.32	1.31	-1.78	4.47	
Rank	20	1	28	91	N/A	N/A	N/A	54	91	37	N/A	N/A	70	
<b>International Equity Pool STIF - Net</b>	<b>0.61</b>	<b>1.70</b>	<b>2.18</b>	<b>1.28</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>1.94</b>	<b>0.92</b>	<b>0.47</b>	<b>N/A</b>	<b>N/A</b>	<b>1.01</b>	<b>04/01/2015</b>
Short Term Custom Index	0.60	1.67	2.13	1.37	0.91	0.70	0.57	1.95	1.15	0.52	0.21	0.16	1.10	
Difference	0.01	0.03	0.05	-0.09	N/A	N/A	N/A	-0.01	-0.23	-0.05	N/A	N/A	-0.09	
<b>International Developed Small Cap Equity</b>														
<b>American Century Investment Mgmt (SA) - Net</b>	<b>13.14</b>	<b>-13.28</b>	<b>-13.72</b>	<b>8.14</b>	<b>4.23</b>	<b>N/A</b>	<b>N/A</b>	<b>-20.76</b>	<b>43.80</b>	<b>-5.31</b>	<b>11.32</b>	<b>N/A</b>	<b>4.02</b>	<b>03/01/2014</b>
MSCI ACW Ex US Sm Cap Grth Index (USD) (Net)	11.56	-8.05	-9.59	6.79	3.86	6.27	11.91	-18.27	33.64	-0.28	6.50	-3.59	3.73	
Difference	1.58	-5.23	-4.13	1.35	0.37	N/A	N/A	-2.49	10.16	-5.03	4.82	N/A	0.29	
<b>American Century Investment Mgmt (SA) - Gross</b>	<b>13.37</b>	<b>-12.72</b>	<b>-12.99</b>	<b>9.05</b>	<b>5.12</b>	<b>N/A</b>	<b>N/A</b>	<b>-20.09</b>	<b>44.99</b>	<b>-4.49</b>	<b>12.25</b>	<b>N/A</b>	<b>4.90</b>	<b>03/01/2014</b>
IM ACWI Ex US Growth (SA+CF) Median	13.06	-3.05	-3.73	8.76	4.61	7.14	11.69	-14.05	32.77	-0.32	1.31	-1.78	4.44	
Rank	44	100	100	44	39	N/A	N/A	100	6	80	1	N/A	42	
<b>BlackRock ACWI Ex-US Small Cap (CF) - Net</b>	<b>10.31</b>	<b>-6.86</b>	<b>-8.94</b>	<b>7.36</b>	<b>3.58</b>	<b>6.29</b>	<b>N/A</b>	<b>-17.85</b>	<b>31.96</b>	<b>4.26</b>	<b>2.87</b>	<b>-3.84</b>	<b>6.88</b>	<b>02/01/2012</b>
MSCI ACWI Ex US Sm Cap Index IMI (USD) (Net)	10.26	-7.07	-9.49	7.01	3.26	6.05	11.86	-18.20	31.65	3.91	2.60	-4.03	6.63	
Difference	0.05	0.21	0.55	0.35	0.32	0.24	N/A	0.35	0.31	0.35	0.27	0.19	0.25	
<b>BlackRock ACWI Ex-US Small Cap (CF) - Gross</b>	<b>10.33</b>	<b>-6.78</b>	<b>-8.84</b>	<b>7.52</b>	<b>3.74</b>	<b>6.46</b>	<b>N/A</b>	<b>-17.74</b>	<b>32.15</b>	<b>4.44</b>	<b>3.04</b>	<b>-3.67</b>	<b>7.05</b>	<b>02/01/2012</b>
<b>DFA Intl Sm Co;l (DFISX) - Net</b>	<b>9.92</b>	<b>-9.30</b>	<b>-11.08</b>	<b>6.71</b>	<b>3.04</b>	<b>6.96</b>	<b>11.82</b>	<b>-19.41</b>	<b>30.24</b>	<b>5.74</b>	<b>5.89</b>	<b>-6.29</b>	<b>7.32</b>	<b>11/01/2004</b>
MSCI Wrld Ex US Sm Cap Index (USD) (Net)	10.93	-7.80	-8.66	7.28	3.69	7.04	12.25	-18.07	31.04	4.32	5.46	-5.35	6.91	
Difference	-1.01	-1.50	-2.42	-0.57	-0.65	-0.08	-0.43	-1.34	-0.80	1.42	0.43	-0.94	0.41	
<b>Templeton Investment Counsel (SA) - Net</b>	<b>13.64</b>	<b>-5.34</b>	<b>-8.51</b>	<b>7.30</b>	<b>3.51</b>	<b>N/A</b>	<b>N/A</b>	<b>-18.48</b>	<b>33.07</b>	<b>-1.13</b>	<b>1.81</b>	<b>N/A</b>	<b>3.48</b>	<b>03/01/2014</b>
Templeton Custom Index	10.26	-7.07	-10.12	6.94	2.47	5.67	11.70	-19.75	29.72	8.24	-1.25	-4.49	2.54	
Difference	3.38	1.73	1.61	0.36	1.04	N/A	N/A	1.27	3.35	-9.37	3.06	N/A	0.94	
<b>Templeton Investment Counsel (SA) - Gross</b>	<b>13.88</b>	<b>-4.73</b>	<b>-7.73</b>	<b>8.23</b>	<b>4.43</b>	<b>N/A</b>	<b>N/A</b>	<b>-17.78</b>	<b>34.21</b>	<b>-0.23</b>	<b>2.73</b>	<b>N/A</b>	<b>4.40</b>	<b>03/01/2014</b>
IM ACWI Ex US Value (SA+CF) Median	9.44	-3.24	-5.22	8.00	2.80	5.90	9.76	-14.96	26.02	4.87	-3.25	-3.87	2.80	
Rank	4	75	83	44	20	N/A	N/A	83	8	89	9	N/A	17	

Net performance shown is net of all manager fees and expenses (Net-All). Gross returns are compared to median performance of similar managers. A peer group of similar managers may not exist for all funds. Fiscal year ends on 06/30. Since inception performance may vary from State Street reported performance due to calculation methodology differences. See the Addendum for custom index specification.

Montana Board of Investments  
Comparative Performance  
International Equity Managers

As of March 31, 2019

	QTD/ CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>International Emerging Equity</b>														
<b>BlackRock Emerging Mkts (CF) - Net</b>	<b>9.27</b>	<b>-0.07</b>	<b>-7.92</b>	<b>10.27</b>	<b>3.35</b>	<b>2.37</b>	<b>N/A</b>	<b>-14.69</b>	<b>37.05</b>	<b>10.85</b>	<b>-15.15</b>	<b>-2.49</b>	<b>2.66</b>	<b>02/01/2012</b>
MSCI Emg Mkts Index (USD) (Net)	9.93	0.60	-7.41	10.68	3.68	2.69	8.95	-14.58	37.28	11.19	-14.92	-2.19	2.97	
Difference	-0.66	-0.67	-0.51	-0.41	-0.33	-0.32	N/A	-0.11	-0.23	-0.34	-0.23	-0.30	-0.31	
<b>BlackRock Emerging Mkts (CF) - Gross</b>	<b>9.86</b>	<b>0.53</b>	<b>-7.34</b>	<b>10.60</b>	<b>3.61</b>	<b>2.62</b>	<b>N/A</b>	<b>-14.60</b>	<b>37.16</b>	<b>11.08</b>	<b>-14.99</b>	<b>-2.30</b>	<b>2.91</b>	<b>02/01/2012</b>
<b>iShares:MSCI Em Mkts (EEM) - Net</b>	<b>9.88</b>	<b>0.57</b>	<b>-9.14</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-16.45</b>	<b>36.86</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>10.68</b>	<b>01/01/2017</b>
MSCI Emg Mkts Index (USD) (Net)	9.93	0.60	-7.41	10.68	3.68	2.69	8.95	-14.58	37.28	11.19	-14.92	-2.19	11.95	
Difference	-0.05	-0.03	-1.73	N/A	N/A	N/A	N/A	-1.87	-0.42	N/A	N/A	N/A	-1.27	
<b>DFA Emg Mkts Sm Cap;I (DEMSX) - Net</b>	<b>8.80</b>	<b>-2.05</b>	<b>-11.56</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-17.56</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>4.19</b>	<b>03/01/2017</b>
MSCI Emg Mkts Sm Cap Index (USD) (Net)	7.76	-4.18	-12.42	5.95	1.76	2.60	10.37	-18.59	33.84	2.28	-6.85	1.01	3.12	
Difference	1.04	2.13	0.86	N/A	N/A	N/A	N/A	1.03	N/A	N/A	N/A	N/A	1.07	

Gross of fees performance is not available (N/A) for the following funds: iShares:MSCI EAFE ETF (EFA), International Equity Pool STIF, DFA Intl Sm Co;I (DFISX), iShares:MSCI Em Mkts (EEM), and DFA Emg Mkts Sm Cap;I (DEMSX).

The current annual expense ratios for the iShares:MSCI EAFE ETF (EFA), International Equity Pool STIF, DFA Intl Sm Co;I (DFISX), iShares:MSCI Em Mkts (EEM), and DFA Emg Mkts Sm Cap;I (DEMSX) are 0.31%, 0.18%, 0.53%, 0.67%, and 0.70%, respectively.

Net performance shown is net of all manager fees and expenses (Net-All). Gross returns are compared to median performance of similar managers. A peer group of similar managers may not exist for all funds. Fiscal year ends on 06/30. Since inception performance may vary from State Street reported performance due to calculation methodology differences. See the Addendum for custom index specification.

Montana Board of Investments  
Comparative Performance  
Fixed Income Managers

As of March 31, 2019

	QTD/ CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>Trust Funds Investment Pool Internally Managed</b>	<b>3.13</b>	<b>4.89</b>	<b>4.80</b>	<b>2.42</b>	<b>3.24</b>	<b>3.18</b>	<b>4.84</b>	<b>0.30</b>	<b>3.78</b>	<b>3.41</b>	<b>1.03</b>	<b>6.79</b>	<b>5.85</b>	<b>10/01/1995</b>
Bloomberg US Agg Bond Index	2.94	4.65	4.48	2.03	2.74	2.48	3.77	0.01	3.54	2.65	0.55	5.97	5.11	
Difference	0.19	0.24	0.32	0.39	0.50	0.70	1.07	0.29	0.24	0.76	0.48	0.82	0.74	
<b>Trust Funds Investment Pool Internally Managed</b>	<b>3.13</b>	<b>4.89</b>	<b>4.80</b>	<b>2.42</b>	<b>3.24</b>	<b>3.18</b>	<b>4.84</b>	<b>0.30</b>	<b>3.78</b>	<b>3.41</b>	<b>1.03</b>	<b>6.79</b>	<b>5.85</b>	<b>10/01/1995</b>
IM U.S. Broad Market Core FI (SA+CF) Median	3.23	4.79	4.70	2.54	3.10	2.94	4.65	0.07	4.06	3.11	0.82	6.16	5.51	
Rank	59	40	37	58	36	33	40	30	66	44	29	25	13	
<b>Reams Asset Core Plus (SA) - Net</b>	<b>2.75</b>	<b>4.88</b>	<b>5.17</b>	<b>2.49</b>	<b>2.86</b>	<b>2.94</b>	<b>6.51</b>	<b>1.31</b>	<b>3.21</b>	<b>4.18</b>	<b>0.07</b>	<b>4.47</b>	<b>5.41</b>	<b>10/01/2008</b>
Reams Custom Index	2.94	4.65	4.48	2.52	2.92	2.83	4.32	0.01	3.83	3.91	0.43	5.56	4.42	
Difference	-0.19	0.23	0.69	-0.03	-0.06	0.11	2.19	1.30	-0.62	0.27	-0.36	-1.09	0.99	
<b>Reams Asset Core Plus (SA) - Gross</b>	<b>2.79</b>	<b>5.02</b>	<b>5.35</b>	<b>2.67</b>	<b>3.04</b>	<b>3.12</b>	<b>6.69</b>	<b>1.49</b>	<b>3.38</b>	<b>4.35</b>	<b>0.24</b>	<b>4.65</b>	<b>5.59</b>	<b>10/01/2008</b>
IM U.S. Broad Market Core+ FI (SA+CF) Median	3.64	4.85	4.68	3.29	3.34	3.52	5.95	-0.42	4.79	4.67	0.31	6.20	5.67	
Rank	95	33	6	82	76	79	26	3	95	57	53	91	54	
<b>Post High Yield Plus (SA) - Net</b>	<b>6.58</b>	<b>4.72</b>	<b>5.32</b>	<b>5.98</b>	<b>4.58</b>	<b>6.53</b>	<b>N/A</b>	<b>-1.91</b>	<b>6.52</b>	<b>9.58</b>	<b>0.82</b>	<b>4.99</b>	<b>8.75</b>	<b>06/01/2009</b>
Bloomberg US HY 2% Issuer Cap Index	7.26	4.85	5.93	8.56	4.69	6.25	11.21	-2.08	7.50	17.13	-4.43	2.46	9.43	
Difference	-0.68	-0.13	-0.61	-2.58	-0.11	0.28	N/A	0.17	-0.98	-7.55	5.25	2.53	-0.68	
<b>Post High Yield Plus (SA) - Gross</b>	<b>6.71</b>	<b>5.13</b>	<b>5.88</b>	<b>6.58</b>	<b>5.19</b>	<b>7.15</b>	<b>N/A</b>	<b>-1.36</b>	<b>7.15</b>	<b>10.23</b>	<b>1.43</b>	<b>5.62</b>	<b>9.39</b>	<b>06/01/2009</b>
IM U.S. High Yield Bonds (SA+CF) Median	6.99	4.64	5.58	7.93	4.51	6.08	10.60	-1.69	7.49	14.07	-2.10	2.72	9.23	
Rank	59	36	41	82	18	8	N/A	44	59	85	7	2	40	
<b>Post Trad'l High Yield LP (CF) - Gross</b>	<b>6.92</b>	<b>5.13</b>	<b>5.74</b>	<b>6.56</b>	<b>5.36</b>	<b>7.15</b>	<b>N/A</b>	<b>-1.72</b>	<b>7.09</b>	<b>10.62</b>	<b>1.42</b>	<b>6.01</b>	<b>8.80</b>	<b>09/01/2009</b>
IM U.S. High Yield Bonds (SA+CF) Median	6.99	4.64	5.58	7.93	4.51	6.08	10.60	-1.69	7.49	14.07	-2.10	2.72	8.33	
Rank	53	36	45	82	11	8	N/A	51	60	82	7	2	22	
<b>Neuberger Berman High Yield (SA) - Net</b>	<b>6.74</b>	<b>4.64</b>	<b>5.71</b>	<b>7.03</b>	<b>3.85</b>	<b>5.68</b>	<b>N/A</b>	<b>-1.99</b>	<b>5.80</b>	<b>14.98</b>	<b>-4.32</b>	<b>1.93</b>	<b>7.04</b>	<b>01/01/2010</b>
Bloomberg US HY 2% Issuer Cap Index	7.26	4.85	5.93	8.56	4.69	6.25	11.21	-2.08	7.50	17.13	-4.43	2.46	7.45	
Difference	-0.52	-0.21	-0.22	-1.53	-0.84	-0.57	N/A	0.09	-1.70	-2.15	0.11	-0.53	-0.41	
<b>Neuberger Berman High Yield (SA) - Gross</b>	<b>6.86</b>	<b>4.99</b>	<b>6.18</b>	<b>7.51</b>	<b>4.31</b>	<b>6.15</b>	<b>N/A</b>	<b>-1.56</b>	<b>6.27</b>	<b>15.50</b>	<b>-3.89</b>	<b>2.38</b>	<b>7.52</b>	<b>01/01/2010</b>
IM U.S. High Yield Bonds (SA+CF) Median	6.99	4.64	5.58	7.93	4.51	6.08	10.60	-1.69	7.49	14.07	-2.10	2.72	7.36	
Rank	55	39	28	62	60	45	N/A	47	78	33	74	56	40	

Net performance shown is net of all manager fees and expenses (Net-All). Gross returns are compared to median performance of similar managers. Fiscal year ends on 06/30. Since inception performance may vary from State Street reported performance due to calculation methodology differences.

Montana Board of Investments  
Comparative Performance  
Fixed Income Managers

As of March 31, 2019

	QTD/ CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>Oaktree U.S. High Yield (SA) - Net</b>	<b>7.49</b>	<b>4.44</b>	<b>5.03</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-3.99</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>2.55</b>	<b>01/01/2018</b>
Bloomberg US HY 2% Issuer Cap Index	7.26	4.85	5.93	8.56	4.69	6.25	11.21	-2.08	7.50	17.13	-4.43	2.46	4.00	
Difference	0.23	-0.41	-0.90	N/A	N/A	N/A	N/A	-1.91	N/A	N/A	N/A	N/A	-1.45	
<b>Oaktree U.S. High Yield (SA) - Gross</b>	<b>7.62</b>	<b>4.83</b>	<b>5.55</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-3.47</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>3.09</b>	<b>01/01/2018</b>
IM U.S. High Yield Bonds (SA+CF) Median	6.99	4.64	5.58	7.93	4.51	6.08	10.60	-1.69	7.49	14.07	-2.10	2.72	4.01	
Rank	20	45	51	N/A	N/A	N/A	N/A	92	N/A	N/A	N/A	N/A	83	
<b>Shenkman High Yield Fixed Income (SA) - Net</b>	<b>6.35</b>	<b>4.66</b>	<b>5.26</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-1.96</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>3.40</b>	<b>01/01/2018</b>
Bloomberg US HY 2% Issuer Cap Index	7.26	4.85	5.93	8.56	4.69	6.25	11.21	-2.08	7.50	17.13	-4.43	2.46	4.00	
Difference	-0.91	-0.19	-0.67	N/A	N/A	N/A	N/A	0.12	N/A	N/A	N/A	N/A	-0.60	
<b>Shenkman High Yield Fixed Income (SA) - Gross</b>	<b>6.47</b>	<b>5.03</b>	<b>5.77</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-1.46</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>3.92</b>	<b>01/01/2018</b>
IM U.S. High Yield Bonds (SA+CF) Median	6.99	4.64	5.58	7.93	4.51	6.08	10.60	-1.69	7.49	14.07	-2.10	2.72	4.01	
Rank	64	38	44	N/A	N/A	N/A	N/A	45	N/A	N/A	N/A	N/A	55	

Trust Funds Investment Pool Internally Managed and Post Trad'l High Yield LP (CF) are part of the Trust Funds Investment Pool.

Net performance shown is net of all manager fees and expenses (Net-All). Gross returns are compared to median performance of similar managers. Fiscal year ends on 06/30. Since inception performance may vary from State Street reported performance due to calculation methodology differences.



Montana Board of Investments  
Comparative Performance  
Diversifying Strategies Managers

As of March 31, 2019

	QTD/ CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>Long U.S. Treasuries Portfolio</b>	<b>4.55</b>	<b>5.16</b>	<b>5.57</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>8.24</b>	<b>03/01/2018</b>
Bloomberg 20+ Yr Trsy Strips Index	6.28	5.92	6.84	1.80	8.00	6.16	6.62	-4.07	13.66	1.41	-3.74	46.38	10.61	
Difference	-1.73	-0.76	-1.27	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-2.37	
<b>Long U.S. Treasuries Portfolio</b>	<b>4.55</b>	<b>5.16</b>	<b>5.57</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>8.24</b>	<b>03/01/2018</b>
IM U.S. Long Duration (SA+CF) Median	6.75	6.93	5.37	4.38	5.60	5.50	8.47	-4.70	11.24	7.46	-3.33	18.36	6.40	
Rank	92	88	33	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3	
<b>GMO:Bchmk-Fr All;III (GBMFX) - Net</b>	<b>5.53</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>4.76</b>	<b>11/01/2018</b>
Consumer Price Index+5%	2.42	4.64	6.96	7.31	6.55	6.55	6.89	7.01	7.21	7.18	5.77	5.79	2.59	
Difference	3.11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.17	
<b>PIMCO:All Asset;Inst (PAAIX) - Net</b>	<b>5.41</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>5.41</b>	<b>01/01/2019</b>
Consumer Price Index+5%	2.42	4.64	6.96	7.31	6.55	6.55	6.89	7.01	7.21	7.18	5.77	5.79	2.42	
Difference	2.99	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.99	

Gross of fees performance is not available (N/A) for the following funds: GMO:Bchmk-Fr All;III (GBMFX) and PIMCO:All Asset;Inst (PAAIX).

The current annual expense ratios for GMO:Bchmk-Fr All;III (GBMFX) and PIMCO:All Asset;Inst (PAAIX) are 0.87% and 0.865%, respectively.

Net performance shown is net of all manager fees and expenses (Net-All). Gross returns are compared to median performance of similar managers. Fiscal year ends on 06/30. Since inception performance may vary from State Street reported performance due to calculation methodology differences.

Montana Board of Investments  
Comparative Performance  
Trust Accounts

As of March 31, 2019

	QTD/ CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
Abandoned Mine Trust	0.67	1.84	2.35	1.33	1.34	1.36	2.47	1.85	1.04	1.10	0.90	1.49	4.05	12/01/1993
Belt Water Treatment Plant Fund	3.07	4.63	4.97	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.79	03/01/2018
Big Sky Economic Development Fund	3.10	4.71	4.76	2.77	3.59	3.63	5.22	0.48	3.97	3.98	1.82	6.77	4.84	07/01/2005
Butte Area One Restoration	2.36	4.06	4.28	2.38	2.56	2.41	3.25	1.24	2.92	2.60	1.20	3.57	3.22	11/01/2008
Clark Fork River Restoration	2.37	3.83	4.01	2.27	2.64	2.57	3.60	0.96	2.85	2.72	1.37	4.26	3.56	11/01/2008
Coal Tax Cultural Trust Fund	3.09	4.70	4.74	2.76	3.57	3.63	5.21	0.47	3.96	3.95	1.79	6.79	6.02	12/01/1993
Coal Tax Park Acquisition	3.08	4.68	4.74	2.75	3.54	3.60	5.20	0.48	3.96	3.90	1.78	6.66	5.99	12/01/1993
East Helena Compensation Fund	1.87	3.23	3.50	2.10	2.15	N/A	N/A	1.20	2.56	2.12	0.91	3.01	1.84	01/01/2013
Endowment for Children	3.05	4.64	4.68	2.70	3.45	3.53	5.08	0.46	3.89	3.66	1.70	6.66	4.88	08/01/2007
FWP License Account	1.03	2.24	2.58	1.35	1.11	1.02	1.25	1.50	1.11	0.84	0.61	0.59	2.98	11/01/1997
FWP Mitigation Trust Fund	1.85	3.27	3.49	1.40	1.35	1.36	2.43	1.14	1.15	0.67	0.87	1.37	3.90	12/01/1993
FWP Real Property Trust	3.08	4.68	4.74	2.71	3.47	3.51	5.02	0.51	3.80	3.82	1.73	6.47	5.36	12/01/1993
Group Benefits	1.33	2.59	2.92	1.42	1.42	1.33	2.00	1.37	1.30	1.16	1.06	1.17	3.93	12/01/1993
Harold Hamm Endowment	3.02	4.62	4.69	N/A	N/A	N/A	N/A	0.57	1.11	N/A	N/A	N/A	1.83	07/01/2016
Montana Pole	2.62	4.13	4.25	2.48	3.05	3.05	4.39	0.74	3.38	3.23	1.56	5.44	5.11	09/01/1996
Montana State University	0.83	2.01	2.46	1.55	1.21	1.04	1.18	1.87	1.39	0.95	0.39	0.85	2.03	08/01/2004
Montana Tech-UM Agency Funds	0.73	1.86	2.33	1.45	1.02	0.83	0.84	1.91	1.22	0.72	0.27	0.35	1.82	03/01/2003
MT BOI - Clark Fork Site	2.82	4.38	4.48	2.62	3.20	3.13	4.27	0.67	3.64	3.63	1.56	5.37	4.20	11/01/2008
MT BOI UOFM Other	1.45	2.83	3.14	1.95	2.06	1.87	2.14	1.42	2.15	2.34	1.13	2.57	2.95	08/01/2002
MUS Group Insurance	1.07	2.28	2.71	1.52	1.54	1.34	N/A	1.96	1.09	1.33	1.26	1.30	1.32	10/01/2011
MUS Workers Compensation	1.43	2.70	3.08	1.55	N/A	N/A	N/A	1.62	1.80	N/A	N/A	N/A	1.55	04/01/2016

Performance shown is gross of fees. Fiscal year ends on 06/30. Since inception performance may vary from State Street reported performance due to calculation methodology differences.

Montana Board of Investments  
Comparative Performance  
Trust Accounts

As of March 31, 2019

	QTD/ CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
Older Montanans Trust	3.06	4.66	4.70	2.73	3.49	3.49	4.87	0.49	3.87	3.86	1.72	6.57	4.68	08/01/2007
Permanent Coal Trust Excl Crp	2.32	3.83	4.19	2.79	3.46	3.62	4.76	1.28	3.49	3.79	2.23	6.14	5.75	12/01/1993
PERS Defined Cont Disability	9.29	3.31	4.84	7.15	N/A	N/A	N/A	-4.88	14.57	3.42	N/A	N/A	6.02	09/01/2015
Potter Trust Fund	3.02	4.62	4.68	N/A	N/A	N/A	N/A	0.51	3.87	N/A	N/A	N/A	2.65	06/01/2016
Resource Indemnity Trust	3.17	4.79	4.82	2.79	3.63	3.69	5.24	0.44	4.01	4.02	1.82	6.94	6.09	12/01/1993
School Facilities Fund	2.71	4.16	3.84	N/A	N/A	N/A	N/A	-0.13	N/A	N/A	N/A	N/A	2.06	01/01/2018
Smelter Hill Up Restorative	1.92	3.33	3.67	1.97	1.95	1.80	2.14	1.57	1.85	1.79	0.92	2.49	2.14	11/01/2008
State Fund Insurance	3.68	4.48	5.01	3.45	3.67	3.93	5.63	0.38	5.05	3.50	2.21	5.00	5.55	12/01/1993
Streamside Tailings Operable Unit	2.77	4.31	4.35	2.59	3.30	3.34	4.66	0.57	3.69	3.58	1.69	6.22	5.32	02/01/1999
Subsequent Injury Fund	0.62	1.73	2.23	1.39	0.92	0.71	2.05	1.98	1.11	0.61	0.22	0.11	3.10	12/01/1993
Tobacco Trust Fund	3.11	4.72	4.76	2.75	3.60	3.65	5.24	0.46	3.96	3.99	1.82	6.89	5.59	01/01/2001
Treasurers	0.10	1.21	1.70	1.20	0.85	0.68	0.59	1.97	1.07	0.68	0.27	0.19	2.91	12/01/1993
Treasure State Endowment	3.14	4.75	4.79	2.78	3.61	3.66	5.24	0.46	4.00	3.98	1.82	6.84	5.96	12/01/1993
Treasure State Reg. Water System	3.14	4.75	4.79	2.78	3.59	3.64	5.23	0.45	4.00	3.96	1.82	6.80	5.75	06/01/2000
Trust and Legacy Account	3.16	4.78	4.81	2.78	3.62	3.67	5.23	0.43	4.00	4.01	1.82	6.92	6.70	07/01/1991
UCFRB Assess/Litig Cost Rec	3.03	4.62	4.68	2.69	3.42	3.48	4.80	0.49	3.77	3.84	1.65	6.40	5.67	07/01/1999
UCFRB Restoration Fund	3.00	4.65	4.72	2.66	3.38	3.43	4.95	0.67	3.73	3.52	1.70	6.28	5.57	06/01/1999
Upper Blackfoot Response	1.37	2.63	2.99	1.77	1.70	1.47	N/A	1.49	1.90	1.74	0.84	1.59	1.51	09/01/2010
Weed Control Trust	3.17	4.79	4.82	2.79	3.63	3.67	5.17	0.44	4.01	4.02	1.82	6.94	5.21	12/01/1993
Wildlife Habitat Trust	3.05	4.66	4.72	2.70	3.45	3.50	5.00	0.51	3.78	3.79	1.73	6.49	5.37	12/01/1993
Zortman/Landusky LT H2O	0.62	1.73	2.22	1.39	1.36	1.69	3.57	1.98	1.01	1.36	0.84	1.78	6.74	09/01/1999
Z/L Long Term H2O Trust Fund	0.62	1.73	2.22	1.42	1.49	1.57	2.89	1.98	1.08	1.39	1.15	1.76	4.52	09/01/2005

Performance shown is gross of fees. Fiscal year ends on 06/30. Since inception performance may vary from State Street reported performance due to calculation methodology differences.

### Performance Notes

- All gross and net performance data is provided by State Street Analytics (SSA). Reported gross returns for the retirement plans prior to 07/01/2002 are net of all fees.
- Gross performance for the retirement plans is calculated with fee accruals provided by Montana's Accounting department.
- Gross of fees performance is not available (N/A) for the following funds: SPDR S&P 500 ETF (SPY), Domestic Equity Pool STIF, iShares:Core S&P Md-Cp (IJH), iShares:Russ 2000 ETF (IWM), DFA Intl Sm Co;I (DFISX), iShares:MSCI EAFE ETF (EFA), International Equity Pool STIF, iShares:MSCI Em Mkts (EEM), DFA Emg Mkts Sm Cap;I (DEMSX), GMO:Bchmk-Fr All;III (GBMFX), and PIMCO:All Asset;Inst (PAAIX). The current annual expense ratios are as listed below.

### Index Notes

- Retirement plan custom benchmarks are provided by State Street Bank and are calculated daily using actual allocations.
- The CAPP Custom Benchmark consists of the portfolio weighted average of the primary benchmark for each CAPP asset class.
- The Short Term Custom Benchmark consists of 100% ICE 1 Mo LIBOR Index (USD) through 4/30/2018, and 100% Federal Reserve US Treasury 1 Mo Constant Maturity Index thereafter.
- The Domestic Equity Custom Index consists of 100% S&P 1500 Comp Index through 04/30/2017 and 100% MSCI USA IM Index (USD) (Gross) thereafter.
- The International Equity Custom Index consists of 100% MSCI EAFE Index (USD) (Net) through 10/31/2006, 100% MSCI ACW Ex US Index (USD) (Net) through 06/30/2007, 92.5% MSCI ACW Ex US Index (USD) (Net) and 7.5% MSCI ACW Ex US SC IM Index (USD) (Net) through 02/28/2014, and 100% MSCI ACW Ex-US IM Index thereafter.
- The Real Estate Custom Index consists of 100% NCREIF ODCE Index (AWA) (Net) (1 Qtr Lag) through 03/31/2017 and 100% MSCI US REIT Index (USD) (Gross) thereafter.
- The Private Equity Custom Index consists of 100% S&P 1500 Comp Index+4% (1 Qtr Lag) through 03/31/2017 and 100% MSCI US Small Cap Index (USD) (Gross) thereafter.
- The Lazard Custom Index consists of 100% MSCI ACW Ex US Value Index (USD) (Net) through 6/30/2018 and 100% MSCI ACW Ex US Index (USD) (Net) thereafter.
- The Templeton Custom Index consists of 100% MSCI ACW Ex US Small Cap Value Index (USD) (Net) through 5/31/2018, and 100% MSCI ACW Ex US Small Cap Index (USD) (Net) thereafter.
- The Reams Custom Index consists of 100% Bloomberg US Unv Bond Index through 03/31/2017 and 100% Bloomberg US Agg Bond Index thereafter.

### Trust Accounts Comments

- The Belt Water Treatment Plant Fund was added in 03/2018.
- The School Facilities Fund was added in 01/2018.
- The Potter Trust Fund and the Harold Hamm Endowment were added in 06/2016.
- MUS Workers Compensation was added in 04/2016.

### Manager Transition Comments

- BlackRock MSCI US Equity Index (CF) was transitioned into a separately managed account during Q1 2019.
- Northern Trust MSCI US Equity Index (SA), GMO:Bchmk-Fr All;III (GBMFX), and PIMCO:All Asset;Inst (PAAIX) were funded during Q4 2018.
- Voya Investment Management (SA) was liquidated in 07/2018.
- iShares:Russ 2000 ETF (IWM) was funded in 04/2018.
- Jacobs Levy 130/30 Large Cap (SA) was funded in 03/2018.
- Congress Mid Cap Growth (SA) was funded in 02/2018.
- Oaktree U.S. High Yield (SA) and Shenkman High Yield Fixed Income (SA) were funded in 12/2017.
- Analytic Investors 130/30 (SA) was liquidated in 09/2017.
- BlackRock MSCI US Equity Index (CF), BlackRock MSCI US Sm Cap Equity Index (CF), and iShares:Core S&P Md-Cp (IJH) were funded in 06/2017.
- SPDR S&P 500 ETF (SPY) and iShares:MSCI EAFE ETF (EFA) were re-funded in 06/2017.
- INTECH Enhanced Plus was liquidated in 06/2017.
- Residual assets from the liquidation of AllianceBernstein Int'l Value (SA), Martin Currie (SA), Hansberger Global Investors (SA), and Aberdeen Total Return Bond Strategy (SA) were distributed in 06/2017.
- BlackRock Equity Index Fund A (CF) and BlackRock Mid Cap Equity Index A (CF) were liquidated in 05/2017.
- DFA Emg Mkts Sm Cap;I (DEMSX) was funded in 02/2017.
- SPDR S&P 500 ETF (SPY) was liquidated in 01/2017.
- iShares:MSCI Em Mkts (EEM) was funded in 12/2016.
- SPDR S&P 500 ETF (SPY) was initially funded in 09/2015, was then liquidated in 12/2015, and was re-funded in 10/2016.
- Wells Capital Management (SA), Domestic Equity Pool SPIF, and International Equity Pool SPIF were liquidated in 10/2016. Wells Capital Management (SA) residual assets from liquidation were distributed in 03/2017.

**Addendum****Manager Transition Comments (cont.)**

- Nicholas Investment Partners was liquidated in 07/2016. Residual assets from liquidation were distributed in 03/2017.
- Effective 07/2016, the Metropolitan West Capital Management legal entity merged into the Wells Capital Management Incorporated legal entity. The Metropolitan West Capital Mgmt (SA) has been updated to Wells Capital Management (SA) to reflect the change.
- iShares S&P SmallCap 600 Index ETF (IJR) was liquidated in 01/2016.
- Effective 05/2014, ING rebranded to Voya. The ING Investment Management (SA) has been updated to Voya Investment Management (SA) to reflect the change.

**Miscellaneous Comments**

- Fiscal year ends on 06/30.

**Expense Ratios**

• SPDR S&P 500 ETF (SPY):	0.09%
• Domestic Equity Pool STIF:	0.15%
• DFA Intl Sm Co;I (DFISX):	0.53%
• iShares:MSCI EAFE ETF (EFA):	0.31%
• International Equity Pool STIF:	0.18%
• iShares:MSCI Em Mkts (EEM):	0.67%
• DFA Emg Mkts Sm Cap;I (DEMSX):	0.70%
• iShares:Core S&P Md-Cp (IJH):	0.07%
• iShares:Russ 2000 ETF (IWM):	0.19%
• GMO:Bchmk-Fr All;III (GBMFX):	0.87%
• PIMCO:All Asset;Inst (PAAIX):	0.865%

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