



# Quarterly Investment Performance Analysis

Montana Board of Investments

Period Ended: December 31, 2019



Montana Board of Investments  
Comparative Performance  
Retirement Plans

As of December 31, 2019

	QTD	FYTD	CYTD/ 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>4.79</b>	<b>5.76</b>	<b>16.77</b>	<b>9.28</b>	<b>7.37</b>	<b>8.84</b>	<b>8.97</b>	<b>5.90</b>	<b>-2.63</b>	<b>14.80</b>	<b>7.32</b>	<b>1.86</b>	<b>8.07</b>	<b>7.74</b>	<b>07/01/1994</b>
Public Employees' Benchmark	6.33	7.00	21.23	9.71	7.88	9.46	N/A	N/A	-5.57	15.35	9.12	1.40	9.13	N/A	
Difference	-1.54	-1.24	-4.46	-0.43	-0.51	-0.62	N/A	N/A	2.94	-0.55	-1.80	0.46	-1.06	N/A	
<b>Public Employees' Retirement - Gross</b>	<b>4.91</b>	<b>6.01</b>	<b>17.44</b>	<b>9.89</b>	<b>7.92</b>	<b>9.40</b>	<b>9.53</b>	<b>6.29</b>	<b>-2.03</b>	<b>15.34</b>	<b>7.78</b>	<b>2.31</b>	<b>8.61</b>	<b>8.05</b>	<b>07/01/1994</b>
All Public Plans > \$3B Total Fund Median	4.95	5.87	17.22	9.85	7.54	8.31	8.60	6.10	-2.72	16.05	7.95	0.58	6.81	8.11	
Rank	51	45	45	46	27	10	2	36	44	63	56	7	5	55	
<b>Teachers' Retirement - Net</b>	<b>4.80</b>	<b>5.78</b>	<b>16.78</b>	<b>9.27</b>	<b>7.36</b>	<b>8.85</b>	<b>8.97</b>	<b>5.90</b>	<b>-2.64</b>	<b>14.76</b>	<b>7.33</b>	<b>1.86</b>	<b>8.09</b>	<b>7.76</b>	<b>07/01/1994</b>
Teachers' Benchmark	6.32	7.00	21.21	9.69	7.87	9.46	N/A	N/A	-5.57	15.32	9.11	1.40	9.16	N/A	
Difference	-1.52	-1.22	-4.43	-0.42	-0.51	-0.61	N/A	N/A	2.93	-0.56	-1.78	0.46	-1.07	N/A	
<b>Teachers' Retirement - Gross</b>	<b>4.92</b>	<b>6.03</b>	<b>17.45</b>	<b>9.88</b>	<b>7.91</b>	<b>9.40</b>	<b>9.54</b>	<b>6.29</b>	<b>-2.03</b>	<b>15.31</b>	<b>7.80</b>	<b>2.32</b>	<b>8.63</b>	<b>8.06</b>	<b>07/01/1994</b>
All Public Plans > \$3B Total Fund Median	4.95	5.87	17.22	9.85	7.54	8.31	8.60	6.10	-2.72	16.05	7.95	0.58	6.81	8.11	
Rank	51	45	45	47	27	10	2	36	44	64	56	7	5	54	
<b>Police Retirement - Net</b>	<b>4.79</b>	<b>5.78</b>	<b>16.80</b>	<b>9.29</b>	<b>7.37</b>	<b>8.85</b>	<b>8.96</b>	<b>5.87</b>	<b>-2.63</b>	<b>14.79</b>	<b>7.32</b>	<b>1.86</b>	<b>8.07</b>	<b>7.61</b>	<b>07/01/1994</b>
Police Benchmark	6.33	6.99	21.23	9.70	7.87	9.46	N/A	N/A	-5.57	15.33	9.11	1.40	9.15	N/A	
Difference	-1.54	-1.21	-4.43	-0.41	-0.50	-0.61	N/A	N/A	2.94	-0.54	-1.79	0.46	-1.08	N/A	
<b>Police Retirement - Gross</b>	<b>4.92</b>	<b>6.03</b>	<b>17.47</b>	<b>9.90</b>	<b>7.92</b>	<b>9.40</b>	<b>9.52</b>	<b>6.25</b>	<b>-2.02</b>	<b>15.33</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	4.95	5.87	17.22	9.85	7.54	8.31	8.60	6.10	-2.72	16.05	7.95	0.58	6.81	8.11	
Rank	51	45	44	44	27	10	3	42	44	63	56	7	5	65	

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 December 31, 2019

	QTD	FYTD	CYTD/ 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>4.79</b>	<b>5.77</b>	<b>16.79</b>	<b>9.29</b>	<b>7.37</b>	<b>8.85</b>	<b>8.95</b>	<b>5.87</b>	<b>-2.62</b>	<b>14.79</b>	<b>7.32</b>	<b>1.87</b>	<b>8.07</b>	<b>7.60</b>	<b>07/01/1994</b>
Firefighters' Benchmark	6.33	6.99	21.23	9.71	7.88	9.46	N/A	N/A	-5.57	15.33	9.12	1.41	9.15	N/A	
Difference	-1.54	-1.22	-4.44	-0.42	-0.51	-0.61	N/A	N/A	2.95	-0.54	-1.80	0.46	-1.08	N/A	
<b>Firefighters' Retirement - Gross</b>	<b>4.92</b>	<b>6.02</b>	<b>17.46</b>	<b>9.90</b>	<b>7.92</b>	<b>9.40</b>	<b>9.52</b>	<b>6.26</b>	<b>-2.01</b>	<b>15.34</b>	<b>7.78</b>	<b>2.32</b>	<b>8.61</b>	<b>7.91</b>	<b>07/01/1994</b>
All Public Plans > \$3B Total Fund Median	4.95	5.87	17.22	9.85	7.54	8.31	8.60	6.10	-2.72	16.05	7.95	0.58	6.81	8.11	
Rank	51	45	45	44	27	10	3	42	44	63	56	7	5	69	
<b>Sheriffs' Retirement - Net</b>	<b>4.78</b>	<b>5.75</b>	<b>16.75</b>	<b>9.28</b>	<b>7.37</b>	<b>8.84</b>	<b>8.95</b>	<b>5.89</b>	<b>-2.62</b>	<b>14.80</b>	<b>7.33</b>	<b>1.86</b>	<b>8.05</b>	<b>7.64</b>	<b>07/01/1994</b>
Sheriffs' Benchmark	6.32	7.00	21.22	9.71	7.88	9.46	N/A	N/A	-5.56	15.35	9.13	1.40	9.12	N/A	
Difference	-1.54	-1.25	-4.47	-0.43	-0.51	-0.62	N/A	N/A	2.94	-0.55	-1.80	0.46	-1.07	N/A	
<b>Sheriffs' Retirement - Gross</b>	<b>4.91</b>	<b>6.00</b>	<b>17.42</b>	<b>9.89</b>	<b>7.92</b>	<b>9.39</b>	<b>9.51</b>	<b>6.27</b>	<b>-2.02</b>	<b>15.34</b>	<b>7.79</b>	<b>2.32</b>	<b>8.59</b>	<b>7.94</b>	<b>07/01/1994</b>
All Public Plans > \$3B Total Fund Median	4.95	5.87	17.22	9.85	7.54	8.31	8.60	6.10	-2.72	16.05	7.95	0.58	6.81	8.11	
Rank	51	46	45	46	27	10	3	38	44	63	56	7	5	63	
<b>Highway Patrol Retirement - Net</b>	<b>4.78</b>	<b>5.75</b>	<b>16.78</b>	<b>9.29</b>	<b>7.37</b>	<b>8.85</b>	<b>8.97</b>	<b>5.89</b>	<b>-2.62</b>	<b>14.79</b>	<b>7.30</b>	<b>1.87</b>	<b>8.08</b>	<b>7.63</b>	<b>07/01/1994</b>
Highway Patrol Benchmark	6.32	7.00	21.24	9.71	7.87	9.44	N/A	N/A	-5.56	15.34	9.09	1.41	9.10	N/A	
Difference	-1.54	-1.25	-4.46	-0.42	-0.50	-0.59	N/A	N/A	2.94	-0.55	-1.79	0.46	-1.02	N/A	
<b>Highway Patrol Retirement - Gross</b>	<b>4.91</b>	<b>6.00</b>	<b>17.45</b>	<b>9.90</b>	<b>7.92</b>	<b>9.40</b>	<b>9.54</b>	<b>6.28</b>	<b>-2.01</b>	<b>15.33</b>	<b>7.77</b>	<b>2.32</b>	<b>8.62</b>	<b>7.94</b>	<b>07/01/1994</b>
All Public Plans > \$3B Total Fund Median	4.95	5.87	17.22	9.85	7.54	8.31	8.60	6.10	-2.72	16.05	7.95	0.58	6.81	8.11	
Rank	51	45	45	45	27	10	2	37	44	63	57	7	5	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 December 31, 2019

	QTD	FYTD	CYTD/ 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>4.79</b>	<b>5.75</b>	<b>16.77</b>	<b>9.29</b>	<b>7.37</b>	<b>8.84</b>	<b>8.95</b>	<b>5.87</b>	<b>-2.62</b>	<b>14.81</b>	<b>7.31</b>	<b>1.88</b>	<b>8.03</b>	<b>7.65</b>	<b>07/01/1994</b>
Game Wardens' Benchmark	6.32	7.00	21.23	9.72	7.89	9.46	N/A	N/A	-5.56	15.36	9.14	1.40	9.11	N/A	
Difference	-1.53	-1.25	-4.46	-0.43	-0.52	-0.62	N/A	N/A	2.94	-0.55	-1.83	0.48	-1.08	N/A	
<b>Game Wardens' Retirement - Gross</b>	<b>4.91</b>	<b>6.00</b>	<b>17.44</b>	<b>9.90</b>	<b>7.92</b>	<b>9.39</b>	<b>9.52</b>	<b>6.25</b>	<b>-2.01</b>	<b>15.35</b>	<b>7.78</b>	<b>2.33</b>	<b>8.57</b>	<b>7.96</b>	<b>07/01/1994</b>
All Public Plans > \$3B Total Fund Median	4.95	5.87	17.22	9.85	7.54	8.31	8.60	6.10	-2.72	16.05	7.95	0.58	6.81	8.11	
Rank	51	45	45	44	27	10	3	42	44	62	56	7	5	62	
<b>Judges' Retirement - Net</b>	<b>4.79</b>	<b>5.76</b>	<b>16.78</b>	<b>9.29</b>	<b>7.37</b>	<b>8.84</b>	<b>8.96</b>	<b>5.89</b>	<b>-2.64</b>	<b>14.82</b>	<b>7.32</b>	<b>1.86</b>	<b>8.06</b>	<b>7.64</b>	<b>07/01/1994</b>
Judges' Benchmark	6.33	7.01	21.26	9.72	7.88	9.43	N/A	N/A	-5.58	15.37	9.10	1.40	9.08	N/A	
Difference	-1.54	-1.25	-4.48	-0.43	-0.51	-0.59	N/A	N/A	2.94	-0.55	-1.78	0.46	-1.02	N/A	
<b>Judges' Retirement - Gross</b>	<b>4.92</b>	<b>6.01</b>	<b>17.45</b>	<b>9.90</b>	<b>7.92</b>	<b>9.40</b>	<b>9.53</b>	<b>6.27</b>	<b>-2.03</b>	<b>15.36</b>	<b>7.79</b>	<b>2.32</b>	<b>8.60</b>	<b>7.95</b>	<b>07/01/1994</b>
All Public Plans > \$3B Total Fund Median	4.95	5.87	17.22	9.85	7.54	8.31	8.60	6.10	-2.72	16.05	7.95	0.58	6.81	8.11	
Rank	51	45	45	44	27	10	2	38	45	62	56	7	5	63	
<b>Volunteer Firefighters' Retirement - Net</b>	<b>4.79</b>	<b>5.77</b>	<b>16.79</b>	<b>9.29</b>	<b>7.35</b>	<b>8.84</b>	<b>8.98</b>	<b>6.33</b>	<b>-2.64</b>	<b>14.79</b>	<b>7.16</b>	<b>1.91</b>	<b>8.09</b>	<b>7.44</b>	<b>07/01/1994</b>
Volunteer Firefighters' Benchmark	6.34	7.02	21.26	9.71	7.88	9.47	N/A	N/A	-5.59	15.33	9.11	1.41	9.16	N/A	
Difference	-1.55	-1.25	-4.47	-0.42	-0.53	-0.63	N/A	N/A	2.95	-0.54	-1.95	0.50	-1.07	N/A	
<b>Volunteer Firefighters' Retirement - Gross</b>	<b>4.92</b>	<b>6.02</b>	<b>17.46</b>	<b>9.89</b>	<b>7.89</b>	<b>9.39</b>	<b>9.54</b>	<b>6.71</b>	<b>-2.04</b>	<b>15.34</b>	<b>7.63</b>	<b>2.36</b>	<b>8.63</b>	<b>7.74</b>	<b>07/01/1994</b>
All Public Plans > \$3B Total Fund Median	4.95	5.87	17.22	9.85	7.54	8.31	8.60	6.10	-2.72	16.05	7.95	0.58	6.81	8.11	
Rank	51	45	45	46	27	11	2	10	45	63	64	7	5	80	

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.

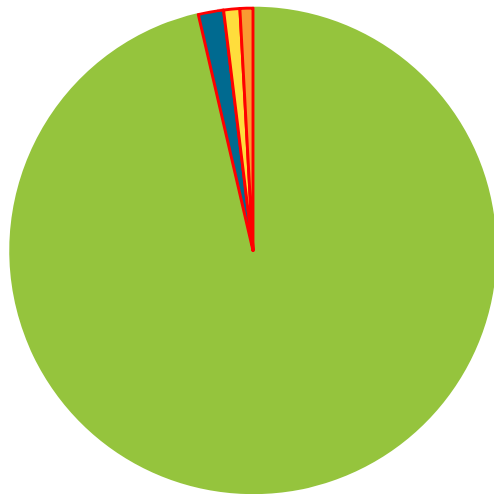


Montana Board of Investments  
 Asset Allocation by Segment  
 Retirement Plans

As of December 31, 2019

	Consolidated Asset Pension Pool (CAPP)		Short Term Investment Pool (STIP)		Total Fund	
	(\$)	%	(\$)	%	(\$)	%
Public Employees' Retirement	6,069,669,275	49.63	58,596,010	54.45	6,128,265,285	49.68
Teachers' Retirement	4,321,786,070	35.34	27,496,737	25.55	4,349,282,807	35.26
Firefighters' Retirement	475,083,398	3.89	5,265,539	4.89	480,348,937	3.89
Police Retirement	451,059,142	3.69	4,254,804	3.95	455,313,946	3.69
Sheriffs' Retirement	391,772,137	3.20	4,841,408	4.50	396,613,545	3.22
Game Wardens' Retirement	214,516,630	1.75	3,831,811	3.56	218,348,441	1.77
Highway Patrol Retirement	156,501,325	1.28	1,700,969	1.58	158,202,294	1.28
Judges' Retirement	108,193,452	0.88	1,466,796	1.36	109,660,248	0.89
Volunteer Firefighters' Retirement	40,027,689	0.33	167,354	0.16	40,195,042	0.33
<b>Retirement Plans Total Fund Composite</b>	<b>12,228,609,119</b>	<b>99.13</b>	<b>107,621,427</b>	<b>0.87</b>	<b>12,336,230,546</b>	<b>100.00</b>

December 31, 2019 : \$12,336,230,546

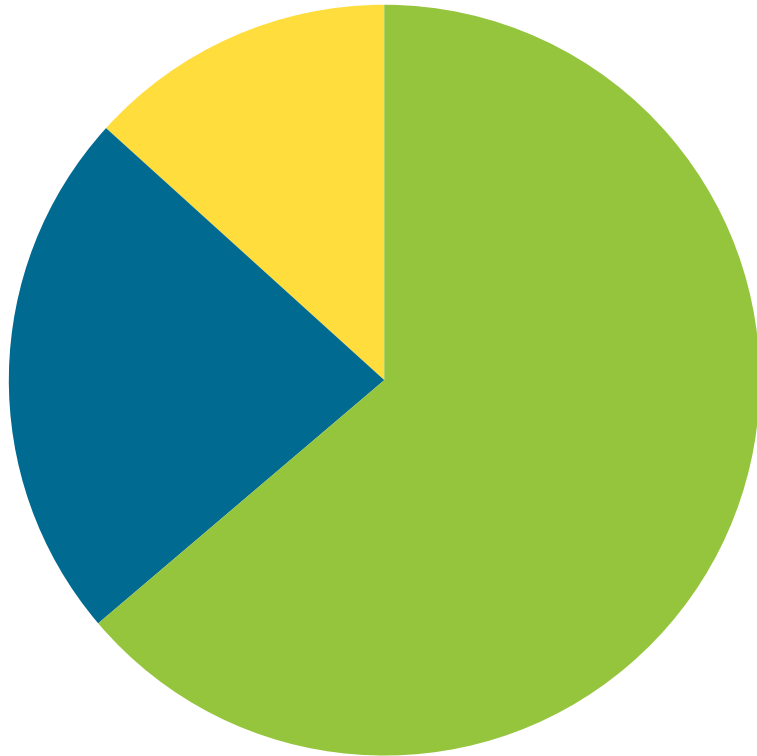


Segments	Market Value (\$)	Allocation (%)
CAPP Ex Cash	11,888,377,584	96.37
CAPP Cash Pension	207,398,632	1.68
CAPP Asset Class Cash	132,832,903	1.08
Short Term Investment Pool (STIP)	107,621,427	0.87
Total Cash	447,852,961	3.63

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.



December 31, 2019 : \$19,181,363,456



	Market Value (\$)	Allocation (%)
Consolidated Asset Pension Pool (CAPP)	12,235,750,307	63.79
Short Term Investment Pool	4,396,502,354	22.92
Trust Funds Investment Pool	2,549,110,795	13.29

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 December 31, 2019

	QTD	FYTD	CYTD/ 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>4.92</b>	<b>5.90</b>	<b>17.19</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>8.76</b>	<b>04/01/2017</b>
CAPP Custom Benchmark	6.42	7.09	21.68	N/A	N/A	N/A	N/A	-5.74	N/A	N/A	N/A	N/A	9.10	
Difference	-1.50	-1.19	-4.49	N/A	N/A	N/A	N/A	3.00	N/A	N/A	N/A	N/A	-0.34	
<b>Trust Funds Investment Pool</b>	<b>0.45</b>	<b>2.45</b>	<b>8.98</b>	<b>4.42</b>	<b>3.82</b>	<b>3.67</b>	<b>4.92</b>	<b>0.45</b>	<b>4.01</b>	<b>4.02</b>	<b>1.83</b>	<b>6.96</b>	<b>6.10</b>	<b>10/01/1995</b>
Bloomberg US Agg Bond Index	0.18	2.45	8.72	4.03	3.05	2.72	3.75	0.01	3.54	2.65	0.55	5.97	5.19	
Difference	0.27	0.00	0.26	0.39	0.77	0.95	1.17	0.44	0.47	1.37	1.28	0.99	0.91	
<b>Short Term Investment Pool</b>	<b>0.46</b>	<b>1.03</b>	<b>2.28</b>	<b>1.79</b>	<b>1.23</b>	<b>0.92</b>	<b>0.73</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	0.41	0.94	2.14	1.75	1.19	0.90	0.70	1.95	1.15	0.52	0.21	0.16	2.38	
Difference	0.05	0.09	0.14	0.04	0.04	0.02	0.03	0.03	-0.04	0.09	0.01	-0.06	0.08	
iMoney.net Money Fund (Gross) Median	0.50	1.10	2.45	1.93	1.33	1.01	0.79	2.15	1.21	0.61	0.25	0.17	2.44	
Difference	-0.04	-0.07	-0.17	-0.14	-0.10	-0.09	-0.06	-0.17	-0.10	0.00	-0.03	-0.07	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. 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 December 31, 2019

December 31, 2019 : \$12,228,609,237



	Market Value (\$)	Allocation (%)
Domestic Equity	3,765,997,546	30.80
Core Fixed Income	2,782,621,479	22.76
International Equity	2,196,606,625	17.96
Private Investments	1,534,353,809	12.55
Real Estate	973,788,583	7.96
Natural Resources	384,777,020	3.15
Non-Core Fixed Income	383,065,543	3.13
Cash Pension	207,398,632	1.70

Allocations shown may not sum up to 100% exactly due to rounding. During Q4 2019, Diversifying Strategies investments were liquidated and Investment Grade Credit, US Treasury & Agency, and TIPS were consolidated into the Core Fixed Income composite. Non-Core Fixed Income currently consists of High Yield. Private Investments currently consist of Private Equity, Private Credit, Venture Capital, and Passive ETFs.





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

As of December 31, 2019

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>Domestic Equity</b>	<b>8.74</b>	<b>9.87</b>	<b>30.75</b>	<b>13.63</b>	<b>10.53</b>	<b>13.89</b>	<b>12.96</b>	<b>-7.09</b>	<b>20.80</b>	<b>11.46</b>	<b>0.86</b>	<b>12.28</b>	<b>9.45</b>	<b>05/01/2003</b>
Domestic Equity Custom Index	9.07	10.42	31.14	14.60	11.43	14.50	13.51	-5.20	21.05	13.03	1.01	13.08	10.26	
Difference	-0.33	-0.55	-0.39	-0.97	-0.90	-0.61	-0.55	-1.89	-0.25	-1.57	-0.15	-0.80	-0.81	
<b>International Equity</b>	<b>8.91</b>	<b>7.17</b>	<b>22.86</b>	<b>10.36</b>	<b>6.12</b>	<b>6.00</b>	<b>5.31</b>	<b>-14.99</b>	<b>28.67</b>	<b>3.87</b>	<b>-3.57</b>	<b>-4.00</b>	<b>4.92</b>	<b>04/01/1997</b>
International Equity Custom Index	9.20	7.33	21.63	9.84	5.71	5.60	5.14	-14.76	27.81	4.41	-4.60	-4.03	5.22	
Difference	-0.29	-0.16	1.23	0.52	0.41	0.40	0.17	-0.23	0.86	-0.54	1.03	0.03	-0.30	
<b>Core &amp; Non-Core Fixed Income</b>	<b>0.58</b>	<b>1.92</b>	<b>7.52</b>	<b>3.70</b>	<b>3.10</b>	<b>2.94</b>	<b>4.56</b>	<b>0.51</b>	<b>3.20</b>	<b>3.98</b>	<b>0.48</b>	<b>6.18</b>	<b>N/A</b>	<b>04/01/1997</b>
<b>Core Fixed Income</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>0.03</b>	<b>12/01/2019</b>
Bloomberg US Agg Bond Index	0.18	2.45	8.72	4.03	3.05	2.72	3.75	0.01	3.54	2.65	0.55	5.97	-0.07	
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	0.10	
<b>Non-Core Fixed Income</b>	<b>2.34</b>	<b>4.23</b>	<b>13.98</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>5.37</b>	<b>04/01/2017</b>
Bloomberg US HY 2% Issuer Cap Index	2.61	3.98	14.32	6.36	6.14	5.79	7.55	-2.08	7.50	17.13	-4.43	2.46	5.93	
Difference	-0.27	0.25	-0.34	N/A	N/A	N/A	N/A	-0.19	N/A	N/A	N/A	N/A	-0.56	
<b>Natural Resources</b>	<b>-0.20</b>	<b>-2.52</b>	<b>-2.18</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>3.37</b>	<b>04/01/2017</b>
MSCI ACW Cmdty Producers Index (USD) (Net)	7.59	-0.37	13.06	4.29	2.19	-0.26	-0.01	-11.75	13.70	32.44	-25.83	-14.69	5.29	
Difference	-7.79	-2.15	-15.24	N/A	N/A	N/A	N/A	17.30	N/A	N/A	N/A	N/A	-1.92	
<b>Real Estate</b>	<b>1.10</b>	<b>3.18</b>	<b>6.97</b>	<b>8.44</b>	<b>9.66</b>	<b>10.08</b>	<b>9.44</b>	<b>9.19</b>	<b>9.17</b>	<b>8.82</b>	<b>14.27</b>	<b>12.13</b>	<b>4.14</b>	<b>06/01/2006</b>
Real Estate Custom Index	-0.78	6.85	25.84	8.37	9.59	10.18	10.46	-4.57	5.99	9.08	13.86	11.36	6.36	
Difference	1.88	-3.67	-18.87	0.07	0.07	-0.10	-1.02	13.76	3.18	-0.26	0.41	0.77	-2.22	
<b>Cash Pension</b>	<b>0.48</b>	<b>0.92</b>	<b>2.28</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>1.86</b>	<b>05/01/2017</b>
Short Term Custom Index	0.41	0.94	2.14	1.75	1.19	0.90	0.70	1.95	1.15	0.52	0.21	0.16	1.85	
Difference	0.07	-0.02	0.14	N/A	N/A	N/A	N/A	0.05	N/A	N/A	N/A	N/A	0.01	
<b>Private Investments*</b>	<b>3.77</b>	<b>7.59</b>	<b>12.95</b>	<b>13.22</b>	<b>10.81</b>	<b>11.99</b>	<b>12.84</b>	<b>11.55</b>	<b>15.20</b>	<b>7.37</b>	<b>7.20</b>	<b>15.47</b>	<b>12.26</b>	<b>05/01/2002</b>
Private Equity Custom Index	8.67	7.40	27.38	11.41	11.48	15.00	15.86	-9.99	20.59	20.11	3.68	23.31	11.31	
Difference	-4.90	0.19	-14.43	1.81	-0.67	-3.01	-3.02	21.54	-5.39	-12.74	3.52	-7.84	0.95	

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.

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. During Q4 2019, Diversifying Strategies investments were liquidated and Investment Grade Credit, US Treasury & Agency, and TIPS were consolidated into the Core Fixed Income composite. Non-Core Fixed Income currently consists of High Yield. Private Investments currently consist of Private Equity, Private Credit, Venture Capital, and Passive ETFs.



Montana Board of Investments  
Comparative Performance  
Investment Pools

As of December 31, 2019

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>Domestic Equity</b>	<b>8.78</b>	<b>9.99</b>	<b>31.09</b>	<b>13.97</b>	<b>10.85</b>	<b>14.22</b>	<b>13.32</b>	<b>-6.78</b>	<b>21.16</b>	<b>11.76</b>	<b>1.14</b>	<b>12.59</b>	<b>9.74</b>	<b>05/01/2003</b>
All Public Plans-US Equity Segment Median	8.68	9.38	30.07	13.83	10.56	13.79	13.24	-5.83	20.32	12.87	0.28	11.41	9.88	
Rank	46	30	26	45	42	35	44	74	31	75	25	22	59	
Population	60	60	59	55	54	44	36	70	89	92	85	47	10	
<b>International Equity</b>	<b>9.02</b>	<b>7.37</b>	<b>23.28</b>	<b>10.70</b>	<b>6.43</b>	<b>6.31</b>	<b>5.64</b>	<b>-14.72</b>	<b>29.05</b>	<b>4.15</b>	<b>-3.35</b>	<b>-3.77</b>	<b>5.32</b>	<b>04/01/1997</b>
All Public Plans-Intl. Equity Segment Median	9.63	8.01	23.70	10.94	6.66	6.90	6.45	-13.67	28.75	4.00	-2.60	-2.97	N/A	
Rank	65	69	62	56	63	83	95	77	46	47	65	78	N/A	
Population	59	58	58	56	54	43	35	70	84	88	79	45	N/A	
<b>Core &amp; Non-Core Fixed Income</b>	<b>0.59</b>	<b>1.94</b>	<b>7.56</b>	<b>3.74</b>	<b>3.14</b>	<b>2.99</b>	<b>4.60</b>	<b>0.54</b>	<b>3.24</b>	<b>4.02</b>	<b>0.52</b>	<b>6.23</b>	<b>N/A</b>	<b>04/01/1997</b>
All Public Plans-US Fixed Income Segment Median	0.50	2.45	9.06	4.44	3.57	3.03	4.55	-0.24	4.49	4.54	0.21	6.01	N/A	
Rank	40	80	77	78	69	59	50	21	77	61	37	39	N/A	
Population	63	63	63	61	60	52	39	75	85	92	79	48	N/A	
<b>Core Fixed Income</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>0.03</b>	<b>12/01/2019</b>
All Public Plans-US Fixed Income Segment Median	0.50	2.45	9.06	4.44	3.57	3.03	4.55	-0.24	4.49	4.54	0.21	6.01	0.15	
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	70	
Population	63	63	63	61	60	52	39	75	85	92	79	48	63	
<b>Trust Funds Investment Pool</b>	<b>0.47</b>	<b>2.49</b>	<b>9.06</b>	<b>4.51</b>	<b>3.90</b>	<b>3.76</b>	<b>5.01</b>	<b>0.53</b>	<b>4.10</b>	<b>4.12</b>	<b>1.89</b>	<b>7.08</b>	<b>6.16</b>	<b>10/01/1995</b>
All Public Plans-US Fixed Income Segment Median	0.50	2.45	9.06	4.44	3.57	3.03	4.55	-0.24	4.49	4.54	0.21	6.01	N/A	
Rank	56	46	50	43	37	24	35	22	61	59	5	25	N/A	
Population	63	63	63	61	60	52	39	75	85	92	79	48	N/A	
<b>Real Estate</b>	<b>1.27</b>	<b>3.58</b>	<b>8.65</b>	<b>10.22</b>	<b>11.30</b>	<b>11.67</b>	<b>11.14</b>	<b>11.12</b>	<b>10.91</b>	<b>10.26</b>	<b>15.68</b>	<b>13.51</b>	<b>5.59</b>	<b>06/01/2006</b>
All Public Plans-Real Estate Segment Median	2.05	3.78	7.60	8.83	10.03	11.41	10.74	8.78	8.84	9.91	13.42	14.67	N/A	
Rank	80	58	37	28	19	33	39	14	26	45	13	68	N/A	
Population	41	36	34	25	20	17	13	29	32	29	27	16	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. During Q4 2019, Investment Grade Credit, US Treasury & Agency, and TIPS were consolidated into the Core Fixed Income pool. Non-Core Fixed Income currently consists of High Yield.

Montana Board of Investments  
Comparative Performance  
Equity Composites

As of December 31, 2019

	QTD	FYTD	CYTD/ 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>9.19</b>	<b>10.69</b>	<b>31.06</b>	<b>14.96</b>	<b>11.47</b>	<b>14.67</b>	<b>13.42</b>	<b>-4.71</b>	<b>21.66</b>	<b>11.30</b>	<b>1.76</b>	<b>13.82</b>	<b>8.64</b>	<b>12/01/2006</b>
S&P 500 Index (Cap Wtd)	9.07	10.92	31.49	15.27	11.70	14.73	13.56	-4.38	21.83	11.96	1.38	13.69	8.87	
Difference	0.12	-0.23	-0.43	-0.31	-0.23	-0.06	-0.14	-0.33	-0.17	-0.66	0.38	0.13	-0.23	
<b>Domestic Large Cap Equity - Gross</b>	<b>9.24</b>	<b>10.78</b>	<b>31.29</b>	<b>15.15</b>	<b>11.64</b>	<b>14.85</b>	<b>13.64</b>	<b>-4.52</b>	<b>21.82</b>	<b>11.45</b>	<b>1.91</b>	<b>13.99</b>	<b>8.86</b>	<b>12/01/2006</b>
IM U.S. Large Cap Equity (SA+CF) Median	8.70	10.11	30.12	14.56	11.01	14.39	13.39	-5.12	21.70	11.01	0.94	12.90	8.94	
Rank	34	32	40	42	38	36	39	44	49	47	40	32	56	
<b>Domestic Large Cap Active - Net</b>	<b>9.38</b>	<b>10.32</b>	<b>31.03</b>	<b>14.54</b>	<b>11.02</b>	<b>14.59</b>	<b>13.28</b>	<b>-5.88</b>	<b>21.85</b>	<b>9.63</b>	<b>2.40</b>	<b>14.01</b>	<b>8.13</b>	<b>07/01/2007</b>
S&P 500 Index (Cap Wtd)	9.07	10.92	31.49	15.27	11.70	14.73	13.56	-4.38	21.83	11.96	1.38	13.69	8.59	
Difference	0.31	-0.60	-0.46	-0.73	-0.68	-0.14	-0.28	-1.50	0.02	-2.33	1.02	0.32	-0.46	
<b>Domestic Large Cap Active - Gross</b>	<b>9.54</b>	<b>10.66</b>	<b>31.82</b>	<b>15.16</b>	<b>11.59</b>	<b>15.17</b>	<b>13.83</b>	<b>-5.34</b>	<b>22.40</b>	<b>10.12</b>	<b>2.88</b>	<b>14.56</b>	<b>8.64</b>	<b>07/01/2007</b>
IM U.S. Large Cap Equity (SA+CF) Median	8.71	10.11	30.12	14.56	11.01	14.39	13.39	-5.12	21.70	11.01	0.94	12.90	8.67	
Rank	29	35	34	42	39	29	32	55	43	57	32	25	52	
<b>Domestic Mid Cap Equity - Net</b>	<b>6.99</b>	<b>6.89</b>	<b>28.03</b>	<b>10.93</b>	<b>8.19</b>	<b>11.71</b>	<b>11.72</b>	<b>-10.75</b>	<b>19.45</b>	<b>12.30</b>	<b>-3.29</b>	<b>6.44</b>	<b>8.63</b>	<b>01/01/2005</b>
Russell Mid Cap Index	7.06	7.58	30.54	12.06	9.33	13.21	13.19	-9.06	18.52	13.80	-2.44	13.22	9.49	
Difference	-0.07	-0.69	-2.51	-1.13	-1.14	-1.50	-1.47	-1.69	0.93	-1.50	-0.85	-6.78	-0.86	
<b>Domestic Mid Cap Equity - Gross</b>	<b>6.99</b>	<b>6.89</b>	<b>28.11</b>	<b>11.37</b>	<b>8.71</b>	<b>12.28</b>	<b>12.29</b>	<b>-10.28</b>	<b>20.18</b>	<b>12.97</b>	<b>-2.71</b>	<b>7.07</b>	<b>9.13</b>	<b>01/01/2005</b>
IM U.S. Mid Cap Equity (SA+CF) Median	7.20	7.47	29.75	11.96	9.64	13.44	13.33	-9.10	19.89	12.67	-1.15	9.78	9.99	
Rank	61	68	64	53	68	74	77	59	49	49	69	74	82	
<b>Domestic Small Cap Equity - Net</b>	<b>7.07</b>	<b>6.49</b>	<b>25.76</b>	<b>9.18</b>	<b>8.85</b>	<b>12.39</b>	<b>12.28</b>	<b>-10.51</b>	<b>15.65</b>	<b>19.31</b>	<b>-1.61</b>	<b>5.44</b>	<b>11.74</b>	<b>03/01/2003</b>
Russell 2000 Index	9.94	7.30	25.53	8.59	8.23	11.65	11.83	-11.01	14.65	21.31	-4.41	4.89	11.00	
Difference	-2.87	-0.81	0.23	0.59	0.62	0.74	0.45	0.50	1.00	-2.00	2.80	0.55	0.74	
<b>Domestic Small Cap Equity - Gross</b>	<b>7.17</b>	<b>6.68</b>	<b>26.25</b>	<b>9.69</b>	<b>9.42</b>	<b>13.03</b>	<b>12.96</b>	<b>-10.09</b>	<b>16.27</b>	<b>19.97</b>	<b>-0.93</b>	<b>6.16</b>	<b>12.29</b>	<b>03/01/2003</b>
IM U.S. Small Cap Equity (SA+CF) Median	8.49	7.01	25.87	8.76	8.82	12.60	12.94	-10.65	15.16	20.88	-2.39	5.36	12.44	
Rank	73	56	47	43	43	43	50	48	44	57	35	43	53	

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 December 31, 2019

	QTD	FYTD	CYTD/ 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>9.00</b>	<b>6.95</b>	<b>21.59</b>	<b>10.13</b>	<b>5.95</b>	<b>5.74</b>	<b>5.17</b>	<b>-14.04</b>	<b>27.79</b>	<b>4.87</b>	<b>-4.71</b>	<b>-3.70</b>	<b>6.96</b>	<b>06/01/2009</b>
MSCI ACW Ex US Index (USD) (Net)	8.92	6.96	21.51	9.87	5.51	5.44	4.97	-14.20	27.19	4.50	-5.66	-3.87	6.74	
Difference	0.08	-0.01	0.08	0.26	0.44	0.30	0.20	0.16	0.60	0.37	0.95	0.17	0.22	
<b>International Large Cap Passive - Gross</b>	<b>9.01</b>	<b>6.99</b>	<b>21.66</b>	<b>10.20</b>	<b>6.02</b>	<b>5.82</b>	<b>5.25</b>	<b>-13.98</b>	<b>27.88</b>	<b>4.96</b>	<b>-4.63</b>	<b>-3.62</b>	<b>7.04</b>	<b>06/01/2009</b>
<b>International Equity Active - Net</b>	<b>9.33</b>	<b>7.91</b>	<b>25.83</b>	<b>11.33</b>	<b>7.29</b>	<b>7.14</b>	<b>6.11</b>	<b>-16.18</b>	<b>30.82</b>	<b>2.63</b>	<b>0.41</b>	<b>-4.39</b>	<b>3.85</b>	<b>04/01/1997</b>
MSCI ACW Ex US Index (USD) (Net)	8.92	6.96	21.51	9.87	5.51	5.44	4.97	-14.20	27.19	4.50	-5.66	-3.87	N/A	
Difference	0.41	0.95	4.32	1.46	1.78	1.70	1.14	-1.98	3.63	-1.87	6.07	-0.52	N/A	
<b>International Equity Active - Gross</b>	<b>9.47</b>	<b>8.19</b>	<b>26.48</b>	<b>11.91</b>	<b>7.85</b>	<b>7.68</b>	<b>6.64</b>	<b>-15.73</b>	<b>31.50</b>	<b>3.17</b>	<b>0.90</b>	<b>-3.94</b>	<b>4.37</b>	<b>04/01/1997</b>
IM International Large Cap Core Equity (SA+CF) Median	9.06	7.47	23.92	10.08	6.23	7.14	6.81	-14.63	26.49	1.60	0.25	-3.69	6.82	
Rank	33	38	28	24	17	29	57	66	13	30	42	53	100	
<b>International Value - Net</b>	<b>7.45</b>	<b>5.64</b>	<b>20.76</b>	<b>10.74</b>	<b>6.17</b>	<b>6.53</b>	<b>5.30</b>	<b>-13.97</b>	<b>30.72</b>	<b>5.59</b>	<b>-5.94</b>	<b>-1.49</b>	<b>2.56</b>	<b>11/01/2006</b>
MSCI ACW Ex US Val Index (USD) (Net)	8.21	5.17	15.72	6.88	3.65	3.89	3.64	-13.97	22.66	8.92	-10.06	-5.10	2.32	
Difference	-0.76	0.47	5.04	3.86	2.52	2.64	1.66	0.00	8.06	-3.33	4.12	3.61	0.24	
<b>International Value - Gross</b>	<b>7.59</b>	<b>5.91</b>	<b>21.37</b>	<b>11.31</b>	<b>6.72</b>	<b>7.09</b>	<b>5.88</b>	<b>-13.52</b>	<b>31.39</b>	<b>6.17</b>	<b>-5.46</b>	<b>-0.94</b>	<b>3.15</b>	<b>11/01/2006</b>
IM International Large Cap Value Equity (SA+CF) Median	9.60	7.79	21.09	9.08	5.68	6.54	6.61	-14.64	26.13	4.19	-1.97	-4.26	4.18	
Rank	91	83	44	18	31	38	63	40	12	29	82	15	89	
<b>International Growth - Net</b>	<b>9.80</b>	<b>9.11</b>	<b>31.39</b>	<b>12.17</b>	<b>7.60</b>	<b>6.99</b>	<b>6.00</b>	<b>-16.09</b>	<b>28.01</b>	<b>0.51</b>	<b>1.69</b>	<b>-6.15</b>	<b>3.74</b>	<b>11/01/2006</b>
MSCI ACW Ex US Grth Index (USD) (Net)	9.58	8.65	27.34	12.89	7.30	6.94	6.24	-14.43	32.01	0.12	-1.25	-2.65	4.48	
Difference	0.22	0.46	4.05	-0.72	0.30	0.05	-0.24	-1.66	-4.00	0.39	2.94	-3.50	-0.74	
<b>International Growth - Gross</b>	<b>9.95</b>	<b>9.40</b>	<b>32.10</b>	<b>12.80</b>	<b>8.20</b>	<b>7.56</b>	<b>6.56</b>	<b>-15.61</b>	<b>28.74</b>	<b>1.12</b>	<b>2.21</b>	<b>-5.72</b>	<b>4.29</b>	<b>11/01/2006</b>
IM International Large Cap Growth Equity (SA+CF) Median	9.88	8.22	28.29	13.15	7.64	7.91	7.77	-13.90	31.38	-0.07	2.28	-3.26	5.59	
Rank	49	33	20	56	44	61	78	66	68	34	51	79	76	
<b>International Small Cap - Net</b>	<b>11.27</b>	<b>9.17</b>	<b>23.91</b>	<b>10.32</b>	<b>7.54</b>	<b>8.00</b>	<b>7.91</b>	<b>-18.90</b>	<b>33.61</b>	<b>1.84</b>	<b>5.16</b>	<b>-4.87</b>	<b>4.83</b>	<b>09/01/2006</b>
MSCI ACWI Ex US Sm Cap Index IMI (USD) (Net)	11.01	9.69	22.42	9.65	7.04	7.09	6.92	-18.20	31.65	3.91	2.60	-4.03	5.36	
Difference	0.26	-0.52	1.49	0.67	0.50	0.91	0.99	-0.70	1.96	-2.07	2.56	-0.84	-0.53	

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 December 31, 2019

	QTD	FYTD	CYTD/ 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>9.12</b>	<b>10.81</b>	<b>30.99</b>	<b>15.15</b>	<b>11.52</b>	<b>14.61</b>	<b>13.50</b>	<b>-3.94</b>	<b>21.34</b>	<b>12.01</b>	<b>0.83</b>	<b>13.73</b>	<b>6.19</b>	<b>05/01/2000</b>
S&P 500 Index (Cap Wtd)	9.07	10.92	31.49	15.27	11.70	14.73	13.56	-4.38	21.83	11.96	1.38	13.69	6.21	
Difference	0.05	-0.11	-0.50	-0.12	-0.18	-0.12	-0.06	0.44	-0.49	0.05	-0.55	0.04	-0.02	
<b>Domestic Large Cap Passive - Gross</b>	<b>9.12</b>	<b>10.82</b>	<b>31.00</b>	<b>15.16</b>	<b>11.53</b>	<b>14.62</b>	<b>13.51</b>	<b>-3.93</b>	<b>21.35</b>	<b>12.03</b>	<b>0.84</b>	<b>13.74</b>	<b>6.22</b>	<b>05/01/2000</b>
IM U.S. Large Cap Index Equity (SA+CF) Median	9.04	10.59	31.39	15.04	11.48	14.59	13.51	-4.78	21.70	12.03	0.96	13.27	6.42	
Rank	16	33	65	40	44	48	48	18	57	51	58	17	84	
<b>Domestic Large Cap Enhanced - Net</b>	<b>9.31</b>	<b>11.04</b>	<b>32.81</b>	<b>16.48</b>	<b>12.34</b>	<b>15.19</b>	<b>14.15</b>	<b>-4.20</b>	<b>24.21</b>	<b>9.73</b>	<b>3.18</b>	<b>13.19</b>	<b>9.15</b>	<b>06/01/2006</b>
S&P 500 Index (Cap Wtd)	9.07	10.92	31.49	15.27	11.70	14.73	13.56	-4.38	21.83	11.96	1.38	13.69	9.39	
Difference	0.24	0.12	1.32	1.21	0.64	0.46	0.59	0.18	2.38	-2.23	1.80	-0.50	-0.24	
<b>Domestic Large Cap Enhanced - Gross</b>	<b>9.40</b>	<b>11.18</b>	<b>33.17</b>	<b>16.78</b>	<b>12.65</b>	<b>15.52</b>	<b>14.49</b>	<b>-3.96</b>	<b>24.53</b>	<b>10.05</b>	<b>3.50</b>	<b>13.54</b>	<b>9.47</b>	<b>06/01/2006</b>
IM U.S. Large Cap Core Equity (SA+CF) Median	8.16	10.04	29.73	14.15	11.07	14.52	13.40	-5.17	21.83	10.52	1.43	13.42	9.45	
Rank	23	16	14	13	11	17	12	29	20	57	25	48	49	
<b>Domestic Large Cap 130/30 - Net</b>	<b>9.39</b>	<b>10.20</b>	<b>30.67</b>	<b>13.45</b>	<b>10.20</b>	<b>14.35</b>	<b>12.95</b>	<b>-7.10</b>	<b>20.28</b>	<b>9.54</b>	<b>1.61</b>	<b>14.84</b>	<b>9.88</b>	<b>03/01/2008</b>
S&P 500 Index (Cap Wtd)	9.07	10.92	31.49	15.27	11.70	14.73	13.56	-4.38	21.83	11.96	1.38	13.69	10.11	
Difference	0.32	-0.72	-0.82	-1.82	-1.50	-0.38	-0.61	-2.72	-1.55	-2.42	0.23	1.15	-0.23	
<b>Domestic Large Cap 130/30 - Gross</b>	<b>9.57</b>	<b>10.57</b>	<b>31.57</b>	<b>14.28</b>	<b>10.96</b>	<b>15.12</b>	<b>13.72</b>	<b>-6.32</b>	<b>21.10</b>	<b>10.22</b>	<b>2.26</b>	<b>15.59</b>	<b>10.63</b>	<b>03/01/2008</b>
IM U.S. Large Cap Core Equity (SA+CF) Median	8.16	10.04	29.73	14.15	11.07	14.52	13.40	-5.17	21.83	10.52	1.43	13.42	10.15	
Rank	19	33	31	50	53	22	33	70	62	55	38	21	27	

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 December 31, 2019

	QTD	FYTD	CYTD/ 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>	9.12	10.81	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	15.53	04/01/2019
MSCI US Index (USD) (Gross)	9.13	10.82	31.64	15.29	11.62	14.66	13.55	-4.50	21.90	11.61	1.32	13.36	15.56	
Difference	-0.01	-0.01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.03	
<b>BlackRock MSCI US Equity Index (SA) - Gross</b>	9.12	10.82	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	15.54	04/01/2019
<b>SPDR S&amp;P 500 ETF (SPY) - Net</b>	9.42	11.34	31.49	N/A	N/A	N/A	N/A	-5.30	N/A	N/A	N/A	N/A	14.01	07/01/2017
S&P 500 Index (Cap Wtd)	9.07	10.92	31.49	15.27	11.70	14.73	13.56	-4.38	21.83	11.96	1.38	13.69	14.43	
Difference	0.35	0.42	0.00	N/A	N/A	N/A	N/A	-0.92	N/A	N/A	N/A	N/A	-0.42	
<b>Northern Trust MSCI US Index (SA) - Net</b>	9.12	10.81	31.70	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	18.71	11/01/2018
MSCI US Index (USD) (Gross)	9.13	10.82	31.64	15.29	11.62	14.66	13.55	-4.50	21.90	11.61	1.32	13.36	18.68	
Difference	-0.01	-0.01	0.06	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.03	
<b>Northern Trust MSCI US Index (SA) - Gross</b>	9.12	10.82	31.71	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	18.72	11/01/2018
IM U.S. Large Cap Core Equity (SA+CF) Median	8.16	10.04	29.73	14.15	11.07	14.52	13.40	-5.17	21.83	10.52	1.43	13.42	17.60	
Rank	28	29	30	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	34	
<b>Domestic Equity Pool STIF - Net</b>	0.45	1.01	2.27	1.77	N/A	N/A	N/A	2.01	1.03	0.51	N/A	N/A	1.25	04/01/2015
Short Term Custom Index	0.41	0.94	2.14	1.75	1.19	0.90	0.70	1.95	1.15	0.52	0.21	0.16	1.25	
Difference	0.04	0.07	0.13	0.02	N/A	N/A	N/A	0.06	-0.12	-0.01	N/A	N/A	0.00	
<b>T. Rowe U.S. Structured Research (SA) - Net</b>	9.31	11.04	32.81	16.39	12.51	15.27	13.81	-4.20	23.94	10.68	3.30	12.58	9.93	06/01/2006
S&P 500 Index (Cap Wtd)	9.07	10.92	31.49	15.27	11.70	14.73	13.56	-4.38	21.83	11.96	1.38	13.69	9.39	
Difference	0.24	0.12	1.32	1.12	0.81	0.54	0.25	0.18	2.11	-1.28	1.92	-1.11	0.54	
<b>T. Rowe U.S. Structured Research (SA) - Gross</b>	9.40	11.18	33.17	16.69	12.81	15.59	14.13	-3.96	24.24	10.98	3.61	12.92	10.26	06/01/2006
IM U.S. Large Cap Core Equity (SA+CF) Median	8.16	10.04	29.73	14.15	11.07	14.52	13.40	-5.17	21.83	10.52	1.43	13.42	9.45	
Rank	23	16	14	13	9	16	19	29	24	46	25	59	20	
<b>Jacobs Levy 130/30 (SA) - Net</b>	8.98	9.70	31.63	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	12.09	04/01/2018
MSCI US Index (USD) (Gross)	9.13	10.82	31.64	15.29	11.62	14.66	13.55	-4.50	21.90	11.61	1.32	13.36	14.38	
Difference	-0.15	-1.12	-0.01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-2.29	
<b>Jacobs Levy 130/30 (SA) - Gross</b>	9.16	10.09	32.55	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	12.96	04/01/2018
IM U.S. Large Cap Core Equity (SA+CF) Median	8.16	10.04	29.73	14.15	11.07	14.52	13.40	-5.17	21.83	10.52	1.43	13.42	12.89	
Rank	27	49	20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	50	

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Montana Board of Investments  
Comparative Performance  
Domestic Equity Managers

As of December 31, 2019

	QTD	FYTD	CYTD/ 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>9.83</b>	<b>10.74</b>	<b>30.55</b>	<b>14.29</b>	<b>10.49</b>	<b>14.71</b>	<b>13.14</b>	<b>-6.93</b>	<b>22.86</b>	<b>10.30</b>	<b>0.01</b>	<b>15.38</b>	<b>10.82</b>	<b>03/01/2008</b>
S&P 500 Index (Cap Wtd)	9.07	10.92	31.49	15.27	11.70	14.73	13.56	-4.38	21.83	11.96	1.38	13.69	10.11	
Difference	0.76	-0.18	-0.94	-0.98	-1.21	-0.02	-0.42	-2.55	1.03	-1.66	-1.37	1.69	0.71	
<b>J.P. Morgan 130/30 (SA) - Gross</b>	<b>10.02</b>	<b>11.10</b>	<b>31.42</b>	<b>15.16</b>	<b>11.31</b>	<b>15.55</b>	<b>13.97</b>	<b>-6.13</b>	<b>23.79</b>	<b>11.09</b>	<b>0.72</b>	<b>16.21</b>	<b>11.63</b>	<b>03/01/2008</b>
IM U.S. Large Cap Core Equity (SA+CF) Median	8.16	10.04	29.73	14.15	11.07	14.52	13.40	-5.17	21.83	10.52	1.43	13.42	10.15	
Rank	14	18	35	36	42	17	23	67	27	45	59	15	9	
<b>Domestic Mid Cap Equity</b>														
<b>iShares:Core S&amp;P Md-Cp (IJH) - Net</b>	<b>6.99</b>	<b>6.89</b>	<b>26.24</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-13.95</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>7.29</b>	<b>07/01/2017</b>
S&P Mid Cap 400 Index (Cap Wtd)	7.06	6.97	26.20	9.26	9.03	12.34	12.72	-11.08	16.24	20.74	-2.18	9.77	8.66	
Difference	-0.07	-0.08	0.04	N/A	N/A	N/A	N/A	-2.87	N/A	N/A	N/A	N/A	-1.37	

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 December 31, 2019

	QTD	FYTD	CYTD/ 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>	<b>3.87</b>	<b>5.65</b>	<b>25.34</b>	<b>4.91</b>	<b>6.86</b>	<b>11.31</b>	<b>11.33</b>	<b>-13.78</b>	<b>6.83</b>	<b>20.50</b>	<b>0.16</b>	<b>9.09</b>	<b>9.11</b>	<b>03/01/2007</b>
Russell 2000 Val Index	8.49	7.87	22.39	4.77	6.99	10.13	10.56	-12.86	7.84	31.74	-7.47	4.22	5.97	
Difference	-4.62	-2.22	2.95	0.14	-0.13	1.18	0.77	-0.92	-1.01	-11.24	7.63	4.87	3.14	
<b>Vaughan Nelson Management (SA) - Gross</b>	<b>4.06</b>	<b>6.04</b>	<b>26.25</b>	<b>5.69</b>	<b>7.69</b>	<b>12.20</b>	<b>12.23</b>	<b>-13.13</b>	<b>7.66</b>	<b>21.49</b>	<b>0.98</b>	<b>10.00</b>	<b>10.02</b>	<b>03/01/2007</b>
IM U.S. Small Cap Value Equity (SA+CF) Median	7.95	7.59	25.01	5.51	7.66	11.41	12.09	-14.30	11.58	26.11	-4.30	5.71	8.11	
Rank	98	76	36	49	49	28	47	38	76	76	9	10	12	
<b>BlackRock MSCI US Sm Cap Equity Index (CF) - Net</b>	<b>8.64</b>	<b>7.37</b>	<b>27.30</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-9.96</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>9.97</b>	<b>07/01/2017</b>
MSCI US Sm Cap Index (USD) (Net)	8.52	7.12	26.74	9.86	8.66	12.16	12.44	-10.40	16.75	19.15	-4.11	7.07	9.47	
Difference	0.12	0.25	0.56	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>	<b>8.65</b>	<b>7.39</b>	<b>27.34</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-9.93</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>10.02</b>	<b>07/01/2017</b>
<b>DFA US Small Cap Trust (CF) - Net</b>	<b>8.09</b>	<b>6.42</b>	<b>21.66</b>	<b>6.08</b>	<b>7.66</b>	<b>11.61</b>	<b>12.47</b>	<b>-12.27</b>	<b>11.86</b>	<b>24.42</b>	<b>-2.64</b>	<b>4.75</b>	<b>11.73</b>	<b>03/01/2003</b>
Russell 2000 Index	9.94	7.30	25.53	8.59	8.23	11.65	11.83	-11.01	14.65	21.31	-4.41	4.89	11.00	
Difference	-1.85	-0.88	-3.87	-2.51	-0.57	-0.04	0.64	-1.26	-2.79	3.11	1.77	-0.14	0.73	
<b>DFA US Small Cap Trust (CF) - Gross</b>	<b>8.18</b>	<b>6.60</b>	<b>22.07</b>	<b>6.46</b>	<b>8.04</b>	<b>12.00</b>	<b>12.87</b>	<b>-11.95</b>	<b>12.25</b>	<b>24.85</b>	<b>-2.29</b>	<b>5.12</b>	<b>12.05</b>	<b>03/01/2003</b>
IM U.S. Small Cap Core Equity (SA+CF) Median	8.63	7.22	25.78	8.75	9.19	12.95	13.03	-10.73	15.18	20.77	-1.35	6.72	12.24	
Rank	60	58	70	79	71	66	57	63	72	21	62	65	56	
<b>iShares:Russ 2000 ETF (IWM) - Net</b>	<b>9.86</b>	<b>7.31</b>	<b>25.52</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>6.29</b>	<b>05/01/2018</b>
Russell 2000 Index	9.94	7.30	25.53	8.59	8.23	11.65	11.83	-11.01	14.65	21.31	-4.41	4.89	6.37	
Difference	-0.08	0.01	-0.01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.08	

Gross of fees performance is not available (N/A) for the following funds: SPDR S&P 500 ETF (SPY), 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), iShares:Core S&P Md-Cp (IJH), and iShares:Russ 2000 ETF (IWM) are 0.09%, 0.06%, 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 December 31, 2019

	QTD	FYTD	CYTD/ 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>	<b>7.94</b>	<b>6.22</b>	<b>19.38</b>	<b>11.67</b>	<b>7.62</b>	<b>7.86</b>	<b>7.45</b>	<b>-13.44</b>	<b>34.76</b>	<b>12.40</b>	<b>-7.75</b>	<b>0.00</b>	<b>3.53</b>	<b>11/01/2006</b>
MSCI ACW Ex US Val Index (USD) (Net)	8.21	5.17	15.72	6.88	3.65	3.89	3.64	-13.97	22.66	8.92	-10.06	-5.10	2.32	
Difference	-0.27	1.05	3.66	4.79	3.97	3.97	3.81	0.53	12.10	3.48	2.31	5.10	1.21	
<b>Acadian Asset Non-US Equity (SA) - Gross</b>	<b>8.07</b>	<b>6.49</b>	<b>19.98</b>	<b>12.24</b>	<b>8.18</b>	<b>8.42</b>	<b>8.03</b>	<b>-12.99</b>	<b>35.45</b>	<b>13.01</b>	<b>-7.26</b>	<b>0.52</b>	<b>4.11</b>	<b>11/01/2006</b>
IM ACWI Ex US Value (SA+CF) Median	9.93	7.52	21.34	9.68	5.74	6.23	6.48	-14.78	26.02	4.87	-3.25	-3.87	4.18	
Rank	88	71	60	15	14	22	24	26	8	10	85	15	52	
<b>Lazard Asset Management (SA) - Net</b>	<b>7.14</b>	<b>5.25</b>	<b>21.70</b>	<b>9.81</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-14.32</b>	<b>27.00</b>	<b>0.22</b>	<b>N/A</b>	<b>N/A</b>	<b>4.22</b>	<b>06/01/2015</b>
Lazard Custom Index	8.92	6.96	21.51	7.97	4.28	4.34	3.96	-15.55	22.66	8.92	-10.06	-5.10	3.41	
Difference	-1.78	-1.71	0.19	1.84	N/A	N/A	N/A	1.23	4.34	-8.70	N/A	N/A	0.81	
<b>Lazard Asset Management (SA) - Gross</b>	<b>7.27</b>	<b>5.52</b>	<b>22.31</b>	<b>10.37</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-13.88</b>	<b>27.65</b>	<b>0.77</b>	<b>N/A</b>	<b>N/A</b>	<b>4.77</b>	<b>06/01/2015</b>
IM ACWI Ex US Value (SA+CF) Median	9.93	7.52	21.34	9.68	5.74	6.23	6.48	-14.78	26.02	4.87	-3.25	-3.87	4.57	
Rank	97	88	44	36	N/A	N/A	N/A	35	38	86	N/A	N/A	45	
<b>BlackRock ACWI Ex-US SuperFund A (CF) - Net</b>	<b>8.93</b>	<b>6.98</b>	<b>21.77</b>	<b>10.12</b>	<b>5.74</b>	<b>5.66</b>	<b>5.18</b>	<b>-13.99</b>	<b>27.49</b>	<b>4.77</b>	<b>-5.49</b>	<b>-3.73</b>	<b>6.95</b>	<b>06/01/2009</b>
MSCI ACW Ex US Index (USD) (Net)	8.92	6.96	21.51	9.87	5.51	5.44	4.97	-14.20	27.19	4.50	-5.66	-3.87	6.74	
Difference	0.01	0.02	0.26	0.25	0.23	0.22	0.21	0.21	0.30	0.27	0.17	0.14	0.21	
<b>BlackRock ACWI Ex-US SuperFund A (CF) - Gross</b>	<b>8.95</b>	<b>7.02</b>	<b>21.85</b>	<b>10.19</b>	<b>5.82</b>	<b>5.74</b>	<b>5.26</b>	<b>-13.93</b>	<b>27.58</b>	<b>4.86</b>	<b>-5.42</b>	<b>-3.65</b>	<b>7.03</b>	<b>06/01/2009</b>
IM All ACWI Ex US (SA+CF) Median	9.76	7.91	24.77	11.11	6.69	7.44	7.02	-14.64	28.74	2.11	-0.59	-3.40	8.56	
Rank	67	66	66	59	66	84	88	43	62	25	84	54	86	
<b>iShares:MSCI EAFE ETF (EFA) - Net</b>	<b>7.73</b>	<b>6.87</b>	<b>22.03</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-12.88</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>6.08</b>	<b>07/01/2017</b>
MSCI EAFE Index (USD) (Net)	8.17	7.01	22.01	9.56	5.67	6.35	5.50	-13.79	25.03	1.00	-0.81	-4.90	5.96	
Difference	-0.44	-0.14	0.02	N/A	N/A	N/A	N/A	0.91	N/A	N/A	N/A	N/A	0.12	
<b>Baillie Gifford (SA) - Net</b>	<b>12.99</b>	<b>11.51</b>	<b>34.34</b>	<b>13.59</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-17.35</b>	<b>31.99</b>	<b>0.73</b>	<b>N/A</b>	<b>N/A</b>	<b>7.12</b>	<b>06/01/2015</b>
MSCI ACW Ex US Grth Index (USD) (Net)	9.58	8.65	27.34	12.89	7.30	6.94	6.24	-14.43	32.01	0.12	-1.25	-2.65	6.14	
Difference	3.41	2.86	7.00	0.70	N/A	N/A	N/A	-2.92	-0.02	0.61	N/A	N/A	0.98	
<b>Baillie Gifford (SA) - Gross</b>	<b>13.13</b>	<b>11.78</b>	<b>34.99</b>	<b>14.15</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-16.93</b>	<b>32.66</b>	<b>1.28</b>	<b>N/A</b>	<b>N/A</b>	<b>7.67</b>	<b>06/01/2015</b>
IM ACWI Ex US Growth (SA+CF) Median	10.32	8.67	29.58	13.81	8.00	8.37	8.14	-13.78	32.56	-0.76	1.29	-1.66	6.94	
Rank	2	2	10	41	N/A	N/A	N/A	85	49	33	N/A	N/A	31	

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 December 31, 2019

	QTD	FYTD	CYTD/ 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>7.55</b>	<b>7.40</b>	<b>29.29</b>	<b>11.07</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>5.15</b>	<b>06/01/2015</b>
MSCI ACW Ex US Grth Index (USD) (Net)	9.58	8.65	27.34	12.89	7.30	6.94	6.24	-14.43	32.01	0.12	-1.25	-2.65	6.14	
Difference	-2.03	-1.25	1.95	-1.82	N/A	N/A	N/A	-0.74	-7.09	0.20	N/A	N/A	-0.99	
<b>Invesco (SA) - Gross</b>	<b>7.71</b>	<b>7.71</b>	<b>30.05</b>	<b>11.74</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>5.82</b>	<b>06/01/2015</b>
IM ACWI Ex US Growth (SA+CF) Median	10.32	8.67	29.58	13.81	8.00	8.37	8.14	-13.78	32.56	-0.76	1.29	-1.66	6.94	
Rank	91	77	45	82	N/A	N/A	N/A	56	91	36	N/A	N/A	67	
<b>International Equity Pool STIF - Net</b>	<b>0.45</b>	<b>1.01</b>	<b>2.24</b>	<b>1.70</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>1.19</b>	<b>04/01/2015</b>
Short Term Custom Index	0.41	0.94	2.14	1.75	1.19	0.90	0.70	1.95	1.15	0.52	0.21	0.16	1.25	
Difference	0.04	0.07	0.10	-0.05	N/A	N/A	N/A	-0.01	-0.23	-0.05	N/A	N/A	-0.06	
<b>International Developed Small Cap Equity</b>														
<b>American Century Investment Mgmt (SA) - Net</b>	<b>12.34</b>	<b>10.17</b>	<b>29.44</b>	<b>13.83</b>	<b>9.23</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>5.91</b>	<b>03/01/2014</b>
MSCI ACW Ex US Sm Cap Grth Index (USD) (Net)	11.19	9.70	24.61	10.82	7.64	7.43	7.28	-18.27	33.64	-0.28	6.50	-3.59	5.22	
Difference	1.15	0.47	4.83	3.01	1.59	N/A	N/A	-2.49	10.16	-5.03	4.82	N/A	0.69	
<b>American Century Investment Mgmt (SA) - Gross</b>	<b>12.57</b>	<b>10.62</b>	<b>30.50</b>	<b>14.78</b>	<b>10.14</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>6.80</b>	<b>03/01/2014</b>
IM ACWI Ex US Growth (SA+CF) Median	10.32	8.67	29.58	13.81	8.00	8.37	8.14	-13.78	32.56	-0.76	1.29	-1.66	6.52	
Rank	6	15	42	36	16	N/A	N/A	100	6	79	1	N/A	39	
<b>BlackRock ACWI Ex-US Small Cap (CF) - Net</b>	<b>10.92</b>	<b>9.75</b>	<b>22.68</b>	<b>9.97</b>	<b>7.36</b>	<b>7.36</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>7.65</b>	<b>02/01/2012</b>
MSCI ACWI Ex US Sm Cap Index IMI (USD) (Net)	11.01	9.69	22.42	9.65	7.04	7.09	6.92	-18.20	31.65	3.91	2.60	-4.03	7.39	
Difference	-0.09	0.06	0.26	0.32	0.32	0.27	N/A	0.35	0.31	0.35	0.27	0.19	0.26	
<b>BlackRock ACWI Ex-US Small Cap (CF) - Gross</b>	<b>11.03</b>	<b>9.89</b>	<b>22.90</b>	<b>10.14</b>	<b>7.53</b>	<b>7.54</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>7.82</b>	<b>02/01/2012</b>
<b>DFA Intl Sm Co;l (DFISX) - Net</b>	<b>12.26</b>	<b>10.59</b>	<b>24.21</b>	<b>9.24</b>	<b>7.86</b>	<b>8.27</b>	<b>8.06</b>	<b>-19.41</b>	<b>30.24</b>	<b>5.74</b>	<b>5.89</b>	<b>-6.29</b>	<b>7.81</b>	<b>11/01/2004</b>
MSCI Wrld Ex US Sm Cap Index (USD) (Net)	11.40	11.10	25.41	10.42	8.17	8.41	8.04	-18.07	31.04	4.32	5.46	-5.35	7.42	
Difference	0.86	-0.51	-1.20	-1.18	-0.31	-0.14	0.02	-1.34	-0.80	1.42	0.43	-0.94	0.39	
<b>Templeton Investment Counsel (SA) - Net</b>	<b>9.90</b>	<b>7.85</b>	<b>24.17</b>	<b>10.44</b>	<b>6.28</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>4.61</b>	<b>03/01/2014</b>
Templeton Custom Index	11.01	9.69	22.42	8.42	6.38	6.69	6.53	-19.75	29.72	8.24	-1.25	-4.49	4.06	
Difference	-1.11	-1.84	1.75	2.02	-0.10	N/A	N/A	1.27	3.35	-9.37	3.06	N/A	0.55	
<b>Templeton Investment Counsel (SA) - Gross</b>	<b>10.13</b>	<b>8.30</b>	<b>25.20</b>	<b>11.38</b>	<b>7.21</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>5.53</b>	<b>03/01/2014</b>
IM ACWI Ex US Value (SA+CF) Median	9.93	7.52	21.34	9.68	5.74	6.23	6.48	-14.78	26.02	4.87	-3.25	-3.87	4.26	
Rank	48	35	26	20	27	N/A	N/A	84	8	89	9	N/A	25	

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 December 31, 2019

	QTD	FYTD	CYTD/ 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>	11.74	6.96	18.12	11.36	5.37	3.02	N/A	-14.69	37.05	10.85	-15.15	-2.49	3.42	02/01/2012
MSCI Emg Mkts Index (USD) (Net)	11.84	7.09	18.44	11.57	5.61	3.26	3.68	-14.58	37.28	11.19	-14.92	-2.19	3.66	
Difference	-0.10	-0.13	-0.32	-0.21	-0.24	-0.24	N/A	-0.11	-0.23	-0.34	-0.23	-0.30	-0.24	
<b>BlackRock Emerging Mkts (CF) - Gross</b>	11.77	7.02	18.25	11.47	5.52	3.18	N/A	-14.60	37.16	11.08	-14.99	-2.30	3.59	02/01/2012
<b>iShares:MSCI Em Mkts (EEM) - Net</b>	12.07	6.75	18.12	10.54	N/A	N/A	N/A	-16.45	36.86	N/A	N/A	N/A	10.54	01/01/2017
MSCI Emg Mkts Index (USD) (Net)	11.84	7.09	18.44	11.57	5.61	3.26	3.68	-14.58	37.28	11.19	-14.92	-2.19	11.57	
Difference	0.23	-0.34	-0.32	-1.03	N/A	N/A	N/A	-1.87	-0.42	N/A	N/A	N/A	-1.03	
<b>DFA Emg Mkts Sm Cap;I (DEMSX) - Net</b>	10.01	4.79	14.88	N/A	N/A	N/A	N/A	-17.56	N/A	N/A	N/A	N/A	6.77	02/01/2017
MSCI Emg Mkts Sm Cap Index (USD) (Net)	9.52	4.50	11.51	6.70	2.97	2.41	2.95	-18.59	33.84	2.28	-6.85	1.01	5.24	
Difference	0.49	0.29	3.37	N/A	N/A	N/A	N/A	1.03	N/A	N/A	N/A	N/A	1.53	

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), DFA Intl Sm Co;I (DFISX), iShares:MSCI Em Mkts (EEM), and DFA Emg Mkts Sm Cap;I (DEMSX) are 0.32%, 0.53%, 0.68%, 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  
Core Fixed Income Managers

As of December 31, 2019

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>US Fixed Income Aggregate - 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	-0.07	12/01/2019
Bloomberg US Agg Bond Index	0.18	2.45	8.72	4.03	3.05	2.72	3.75	0.01	3.54	2.65	0.55	5.97	-0.07	
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	0.00	
<b>TIPS Portfolio (Internal) - Net</b>	0.98	1.65	6.96	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.96	01/01/2019
Bloomberg US Trsy Infl Notes 1-10 Yr Index	1.00	1.61	6.85	2.79	2.36	0.98	2.57	-0.25	1.90	4.01	-0.52	0.91	6.85	
Difference	-0.02	0.04	0.11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.11	
<b>Reams Asset Core Plus (SA) - Net</b>	0.00	2.32	8.08	4.16	3.33	2.88	4.53	1.31	3.21	4.18	0.07	4.47	5.51	10/01/2008
Reams Custom Index	0.18	2.45	8.72	4.12	3.33	2.96	4.07	0.01	3.83	3.91	0.43	5.56	4.62	
Difference	-0.18	-0.13	-0.64	0.04	0.00	-0.08	0.46	1.30	-0.62	0.27	-0.36	-1.09	0.89	
<b>Reams Asset Core Plus (SA) - Gross</b>	0.05	2.41	8.28	4.35	3.51	3.06	4.71	1.49	3.38	4.35	0.24	4.65	5.70	10/01/2008
IM U.S. Broad Market Core+ FI (SA+CF) Median	0.52	2.76	9.99	4.77	3.84	3.52	4.97	-0.36	4.81	4.68	0.31	6.19	5.90	
Rank	95	81	93	81	72	84	68	4	95	57	53	90	60	
<b>Core Fixed Income STIF - 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	0.13	12/01/2019
Short Term Custom Index	0.41	0.94	2.14	1.75	1.19	0.90	0.70	1.95	1.15	0.52	0.21	0.16	0.13	
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	0.00	

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  
Non-Core Fixed Income Managers

As of December 31, 2019

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>Neuberger Berman High Yield (SA) - Net</b>	<b>2.40</b>	<b>4.16</b>	<b>13.75</b>	<b>5.66</b>	<b>5.35</b>	<b>5.20</b>	<b>7.17</b>	<b>-1.99</b>	<b>5.80</b>	<b>14.98</b>	<b>-4.32</b>	<b>1.93</b>	<b>7.17</b>	<b>01/01/2010</b>
Bloomberg US HY 2% Issuer Cap Index	2.61	3.98	14.32	6.36	6.14	5.79	7.55	-2.08	7.50	17.13	-4.43	2.46	7.55	
Difference	-0.21	0.18	-0.57	-0.70	-0.79	-0.59	-0.38	0.09	-1.70	-2.15	0.11	-0.53	-0.38	
<b>Neuberger Berman High Yield (SA) - Gross</b>	<b>2.51</b>	<b>4.39</b>	<b>14.26</b>	<b>6.13</b>	<b>5.82</b>	<b>5.66</b>	<b>7.66</b>	<b>-1.56</b>	<b>6.27</b>	<b>15.50</b>	<b>-3.89</b>	<b>2.38</b>	<b>7.66</b>	<b>01/01/2010</b>
IM U.S. High Yield Bonds (SA+CF) Median	2.55	3.92	14.23	6.38	5.97	5.82	7.60	-1.69	7.52	14.09	-2.11	2.61	7.60	
Rank	52	36	50	64	56	58	46	48	78	33	75	55	46	
<b>Oaktree US High Yield (SA) (CAPP) - Net</b>	<b>2.47</b>	<b>4.52</b>	<b>15.44</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>5.28</b>	<b>01/01/2018</b>
Bloomberg US HY 2% Issuer Cap Index	2.61	3.98	14.32	6.36	6.14	5.79	7.55	-2.08	7.50	17.13	-4.43	2.46	5.80	
Difference	-0.14	0.54	1.12	N/A	N/A	N/A	N/A	-1.91	N/A	N/A	N/A	N/A	-0.52	
<b>Oaktree US High Yield (SA) (CAPP) - Gross</b>	<b>2.61</b>	<b>4.79</b>	<b>16.01</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>5.82</b>	<b>01/01/2018</b>
IM U.S. High Yield Bonds (SA+CF) Median	2.55	3.92	14.23	6.38	5.97	5.82	7.60	-1.69	7.52	14.09	-2.11	2.61	5.85	
Rank	44	16	16	N/A	N/A	N/A	N/A	92	N/A	N/A	N/A	N/A	52	
<b>Shenkman High Yield Fixed Income (SA) (CAPP) - Net</b>	<b>2.27</b>	<b>4.23</b>	<b>13.65</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>5.13</b>	<b>12/01/2017</b>
Bloomberg US HY 2% Issuer Cap Index	2.61	3.98	14.32	6.36	6.14	5.79	7.55	-2.08	7.50	17.13	-4.43	2.46	5.71	
Difference	-0.34	0.25	-0.67	N/A	N/A	N/A	N/A	0.12	N/A	N/A	N/A	N/A	-0.58	
<b>Shenkman High Yield Fixed Income (SA) (CAPP) - Gross</b>	<b>2.41</b>	<b>4.49</b>	<b>14.18</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>5.64</b>	<b>12/01/2017</b>
IM U.S. High Yield Bonds (SA+CF) Median	2.55	3.92	14.23	6.38	5.97	5.82	7.60	-1.69	7.52	14.09	-2.11	2.61	5.80	
Rank	59	30	51	N/A	N/A	N/A	N/A	45	N/A	N/A	N/A	N/A	55	
<b>Non-Core Fixed Income STIF - Net</b>	<b>0.45</b>	<b>1.01</b>	<b>2.23</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>1.91</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>3.49</b>	<b>05/01/2017</b>
Short Term Custom Index	0.41	0.94	2.14	1.75	1.19	0.90	0.70	1.95	1.15	0.52	0.21	0.16	1.85	
Difference	0.04	0.07	0.09	N/A	N/A	N/A	N/A	-0.04	N/A	N/A	N/A	N/A	1.64	

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  
TFIP Fixed Income Managers

As of December 31, 2019

	QTD	FYTD	CYTD/ 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>0.27</b>	<b>2.41</b>	<b>8.99</b>	<b>4.29</b>	<b>3.45</b>	<b>3.21</b>	<b>4.47</b>	<b>0.30</b>	<b>3.78</b>	<b>3.41</b>	<b>1.03</b>	<b>6.79</b>	<b>5.90</b>	<b>10/01/1995</b>
Bloomberg US Agg Bond Index	0.18	2.45	8.72	4.03	3.05	2.72	3.75	0.01	3.54	2.65	0.55	5.97	5.19	
Difference	0.09	-0.04	0.27	0.26	0.40	0.49	0.72	0.29	0.24	0.76	0.48	0.82	0.71	
<b>Trust Funds Investment Pool Internally Managed</b>	<b>0.27</b>	<b>2.41</b>	<b>8.99</b>	<b>4.29</b>	<b>3.45</b>	<b>3.21</b>	<b>4.47</b>	<b>0.30</b>	<b>3.78</b>	<b>3.41</b>	<b>1.03</b>	<b>6.79</b>	<b>5.90</b>	<b>10/01/1995</b>
IM U.S. Broad Market Core Fixed Income (SA+CF) Median	0.22	2.56	9.24	4.41	3.46	3.07	4.28	0.07	4.04	3.10	0.82	6.16	5.57	
Rank	40	76	66	61	51	38	32	30	64	43	29	25	12	
<b>Shenkman High Yield Fixed Income (SA) (TFIP) - Net</b>	<b>2.37</b>	<b>3.98</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>3.98</b>	<b>07/01/2019</b>
Bloomberg US HY 2% Issuer Cap Index	2.61	3.98	14.32	6.36	6.14	5.79	7.55	-2.08	7.50	17.13	-4.43	2.46	3.98	
Difference	-0.24	0.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00	
<b>Shenkman High Yield Fixed Income (SA) (TFIP) - Gross</b>	<b>2.53</b>	<b>4.22</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>4.22</b>	<b>07/01/2019</b>
IM U.S. High Yield Bonds (SA+CF) Median	2.55	3.92	14.23	6.38	5.97	5.82	7.60	-1.69	7.52	14.09	-2.11	2.61	3.92	
Rank	51	42	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	42	
<b>Oaktree US High Yield (SA) (TFIP) - Net</b>	<b>2.44</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>4.17</b>	<b>08/01/2019</b>
Bloomberg US HY 2% Issuer Cap Index	2.61	3.98	14.32	6.36	6.14	5.79	7.55	-2.08	7.50	17.13	-4.43	2.46	3.40	
Difference	-0.17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.77	
<b>Oaktree US High Yield (SA) (TFIP) - Gross</b>	<b>2.61</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>4.38</b>	<b>08/01/2019</b>
IM U.S. High Yield Bonds (SA+CF) Median	2.55	3.92	14.23	6.38	5.97	5.82	7.60	-1.69	7.52	14.09	-2.11	2.61	3.44	
Rank	43	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8	

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 December 31, 2019

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
Abandoned Mine Trust	0.47	1.06	2.41	1.77	1.46	1.34	1.70	1.85	1.04	1.10	0.90	1.49	4.00	12/01/1993
Belt Water Treatment Plant Fund	0.41	2.30	8.56	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.76	03/01/2018
Big Sky Economic Development Fund	0.42	2.34	8.67	4.32	3.75	3.60	4.83	0.48	3.97	3.98	1.82	6.77	4.97	07/01/2005
Butte Area One Restoration	0.42	1.95	6.76	3.61	2.92	2.58	3.14	1.24	2.92	2.60	1.20	3.57	3.39	11/01/2008
Clark Fork River Restoration	0.43	2.05	7.04	3.58	2.97	2.70	3.43	0.96	2.85	2.72	1.37	4.26	3.73	11/01/2008
Coal Tax Cultural Trust Fund	0.42	2.33	8.64	4.30	3.73	3.58	4.82	0.47	3.96	3.95	1.79	6.79	6.06	12/01/1993
Coal Tax Park Acquisition	0.42	2.32	8.63	4.30	3.71	3.55	4.80	0.48	3.96	3.90	1.78	6.66	6.03	12/01/1993
East Helena Compensation Fund	0.44	1.71	5.52	3.08	2.45	2.16	N/A	1.20	2.56	2.12	0.91	3.01	2.16	01/01/2013
Endowment for Children	0.42	2.30	8.54	4.25	3.62	3.48	4.71	0.46	3.89	3.66	1.70	6.66	5.02	08/01/2007
FWP License Account	0.46	1.22	3.33	1.98	1.47	1.20	1.31	1.50	1.11	0.84	0.61	0.59	2.98	11/01/1997
FWP Mitigation Trust Fund	0.47	1.68	5.46	2.56	1.84	1.60	1.87	1.14	1.15	0.67	0.87	1.37	3.93	12/01/1993
FWP Real Property Trust	0.42	2.33	8.62	4.26	3.66	3.49	4.66	0.51	3.80	3.82	1.73	6.47	5.41	12/01/1993
Group Benefits	0.46	1.35	4.01	2.22	1.77	1.48	1.71	1.37	1.30	1.16	1.06	1.17	3.92	12/01/1993
Harold Hamm Endowment	0.42	2.29	8.45	3.31	N/A	N/A	N/A	0.57	1.11	N/A	N/A	N/A	2.93	07/01/2016
Montana Pole	0.43	2.11	7.48	3.83	3.25	3.07	4.05	0.74	3.38	3.23	1.56	5.44	5.15	09/01/1996
Montana State University	0.46	1.16	2.87	2.04	1.49	1.20	1.21	1.87	1.39	0.95	0.39	0.85	2.06	08/01/2004
Montana Tech-UM Agency Funds	0.46	1.09	2.56	1.90	1.33	1.02	0.92	1.91	1.22	0.72	0.27	0.35	1.85	03/01/2003
MT BOI - Clark Fork Site	0.42	2.22	8.00	4.06	3.47	3.22	4.06	0.67	3.64	3.63	1.56	5.37	4.37	11/01/2008
MT BOI UOFM Other	0.45	1.60	4.54	2.70	2.31	2.00	2.15	1.42	2.15	2.34	1.13	2.57	3.00	08/01/2002
MUS Group Insurance	0.46	1.25	3.39	2.14	1.80	1.50	N/A	1.96	1.09	1.33	1.26	1.30	1.48	10/01/2011
MUS Workers Compensation	0.44	1.51	4.43	2.61	N/A	N/A	N/A	1.62	1.80	N/A	N/A	N/A	2.16	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 December 31, 2019

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
Older Montanans Trust	0.42	2.34	8.62	4.27	3.68	3.52	4.48	0.49	3.87	3.86	1.72	6.57	4.84	08/01/2007
Permanent Coal Trust Excl Crp	0.50	1.96	6.81	3.83	3.50	3.51	4.50	1.28	3.49	3.79	2.23	6.14	5.75	12/01/1993
PERS Defined Cont Disability	5.97	6.86	20.77	9.59	N/A	N/A	N/A	-4.88	14.57	3.42	N/A	N/A	7.40	09/01/2015
Potter Trust Fund	0.42	2.30	8.47	4.23	N/A	N/A	N/A	0.51	3.87	N/A	N/A	N/A	3.57	06/01/2016
Resource Indemnity Trust	0.42	2.39	8.88	4.39	3.80	3.65	4.85	0.44	4.01	4.02	1.82	6.94	6.13	12/01/1993
School Facilities Fund	0.40	2.26	7.88	N/A	N/A	N/A	N/A	-0.13	N/A	N/A	N/A	N/A	3.80	01/01/2018
Smelter Hill Up Restorative	0.44	1.73	5.64	3.01	2.34	2.03	2.23	1.57	1.85	1.79	0.92	2.49	2.32	11/01/2008
State Fund Insurance	1.63	2.87	9.65	4.96	4.11	4.09	4.97	0.38	5.05	3.50	2.21	5.00	5.62	12/01/1993
Streamside Tailings Operable Unit	0.42	2.21	7.92	4.02	3.46	3.32	4.38	0.57	3.69	3.58	1.69	6.22	5.37	02/01/1999
Subsequent Injury Fund	0.46	1.03	2.28	1.79	1.23	0.91	0.91	1.98	1.11	0.61	0.22	0.11	3.08	12/01/1993
Tobacco Trust Fund	0.42	2.34	8.67	4.31	3.74	3.60	4.84	0.46	3.96	3.99	1.82	6.89	5.65	01/01/2001
Treasurers	0.46	1.03	2.28	1.77	1.25	0.95	0.76	1.97	1.07	0.68	0.27	0.19	2.91	12/01/1993
Treasure State Endowment	0.42	2.37	8.81	4.36	3.77	3.63	4.86	0.46	4.00	3.98	1.82	6.84	6.00	12/01/1993
Treasure State Reg. Water System	0.42	2.37	8.80	4.36	3.77	3.61	4.85	0.45	4.00	3.96	1.82	6.80	5.81	06/01/2000
Trust and Legacy Account	0.42	2.37	8.84	4.37	3.78	3.64	4.85	0.43	4.00	4.01	1.82	6.92	6.72	07/01/1991
UCFRB Assess/Litig Cost Rec	0.42	2.30	8.50	4.20	3.61	3.45	4.48	0.49	3.77	3.84	1.65	6.40	5.73	07/01/1999
UCFRB Restoration Fund	0.43	2.35	8.52	4.26	3.59	3.42	4.61	0.67	3.73	3.52	1.70	6.28	5.63	06/01/1999
Upper Blackfoot Response	0.46	1.42	4.24	2.54	2.03	1.70	N/A	1.49	1.90	1.74	0.84	1.59	1.69	09/01/2010
Weed Control Trust	0.42	2.39	8.88	4.39	3.80	3.65	4.72	0.44	4.01	4.02	1.82	6.94	5.27	12/01/1993
Wildlife Habitat Trust	0.42	2.30	8.54	4.23	3.63	3.47	4.64	0.51	3.78	3.79	1.73	6.49	5.42	12/01/1993
Zortman/Landusky LT H2O	0.46	1.03	2.28	1.75	1.49	1.24	3.72	1.98	1.01	1.36	0.84	1.78	6.57	09/01/1999
Z/L Long Term H2O Trust Fund	0.46	1.03	2.28	1.78	1.57	1.24	3.43	1.98	1.08	1.39	1.15	1.76	4.40	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), and DFA Emg Mkts Sm Cap;I (DEMSX). 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 04/30/2017 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

- Post High Yield Plus (SA), GMO:Bchmk-Fr All;III (GBMFX), and PIMCO:All Asset;Inst (PAAIX) were liquidated during Q3 2019.
- Oaktree US High Yield Fixed Income (SA) and Shenkman High Yield Fixed Income (SA) were funded in the Trust Fund Investment Pool during Q3 2019.
- Artisan Partners (SA), Iridian Asset Management (SA), Congress Mid Cap Growth (SA), TimeSquare Capital Management (SA), and Alliance Bernstein (SA) were liquidated in Q2 2019.
- 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 US 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.

**Manager Transition Comments (cont.)**

- 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.
- 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.
- During Q4 2019 Diversifying Strategies investments were liquidated and Investment Grade Credit, US Treasury & Agency, and TIPS were consolidated into the Core Fixed Income composite.
- Non-Core Fixed Income currently consists of High Yield.
- Private Investments currently consist of Private Equity, Private Credit, Venture Capital, and Passive ETFs.

**Montana Board of Investments  
Fee Schedule**

**As of December 31, 2019**

	<b>Fee Schedule</b>	<b>Market Value As of 12/31/2019 (\$)</b>
SPDR S&P 500 ETF (SPY)	0.09 % of Assets	19,662,280
iShares:Core S&P Md-Cp (IJH)	0.06 % of Assets	29,931,785
iShares:Russ 2000 ETF (IWM)	0.19 % of Assets	84,823,868
iShares:MSCI EAFE ETF (EFA)	0.32 % of Assets	89,577,600
DFA Intl Sm Co;I (DFISX)	0.53 % of Assets	96,561,832
iShares:MSCI Em Mkts (EEM)	0.68 % of Assets	50,927,450
DFA Emg Mkts Sm Cap;I (DEMSX)	0.70 % of Assets	29,021,788

ETF fees are sourced from Morningstar and/or the investment manager. Mutual Fund fees are provided by staff.



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