



Quarterly Investment Performance Analysis

Montana Board of Investments

Period Ended: September 30, 2020



Montana Board of Investments
Comparative Performance
Retirement Plans

As of September 30, 2020

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	20 Years	2019	2018	2017	2016	2015	Since Incep.	Inception Date
Public Employees' Retirement - Net	5.19	2.16	7.05	6.33	8.09	7.53	8.56	5.84	16.77	-2.63	14.80	7.32	1.86	7.60	07/01/1994
Public Employees' Benchmark	5.07	-0.64	4.96	5.50	7.86	7.55	N/A	N/A	20.45	-5.57	15.35	9.12	1.40	N/A	
Difference	0.12	2.80	2.09	0.83	0.23	-0.02	N/A	N/A	-3.68	2.94	-0.55	-1.80	0.46	N/A	
Public Employees' Retirement - Gross	5.30	2.55	7.58	6.94	8.65	8.08	9.12	6.25	17.44	-2.03	15.34	7.78	2.31	7.91	07/01/1994
All Public Plans > \$3B Total Fund Median	5.33	1.59	6.32	5.88	7.88	6.77	7.72	5.91	17.24	-2.79	16.08	7.95	0.57	7.74	
Rank	52	31	32	23	25	9	4	28	43	42	64	56	7	46	
Teachers' Retirement - Net	5.19	2.16	7.06	6.33	8.09	7.54	8.56	5.84	16.78	-2.64	14.76	7.33	1.86	7.61	07/01/1994
Teachers' Benchmark	5.07	-0.65	4.95	5.49	7.85	7.55	N/A	N/A	20.42	-5.57	15.32	9.11	1.40	N/A	
Difference	0.12	2.81	2.11	0.84	0.24	-0.01	N/A	N/A	-3.64	2.93	-0.56	-1.78	0.46	N/A	
Teachers' Retirement - Gross	5.30	2.55	7.60	6.94	8.65	8.08	9.12	6.25	17.45	-2.03	15.31	7.80	2.32	7.93	07/01/1994
All Public Plans > \$3B Total Fund Median	5.33	1.59	6.32	5.88	7.88	6.77	7.72	5.91	17.24	-2.79	16.08	7.95	0.57	7.74	
Rank	52	31	32	23	25	9	4	28	43	42	65	56	7	46	
Police Retirement - Net	5.18	2.16	7.05	6.34	8.10	7.54	8.56	5.81	16.80	-2.63	14.79	7.32	1.86	7.47	07/01/1994
Police Benchmark	5.08	-0.63	4.97	5.50	7.86	7.56	N/A	N/A	20.44	-5.57	15.33	9.11	1.40	N/A	
Difference	0.10	2.79	2.08	0.84	0.24	-0.02	N/A	N/A	-3.64	2.94	-0.54	-1.79	0.46	N/A	
Police Retirement - Gross	5.30	2.55	7.59	6.95	8.66	8.08	9.12	6.22	17.47	-2.02	15.33	7.78	2.31	7.78	07/01/1994
All Public Plans > \$3B Total Fund Median	5.33	1.59	6.32	5.88	7.88	6.77	7.72	5.91	17.24	-2.79	16.08	7.95	0.57	7.74	
Rank	52	31	32	23	24	9	4	32	42	42	65	56	7	48	

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 September 30, 2020

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	20 Years	2019	2018	2017	2016	2015	Since Incep.	Inception Date
Firefighters' Retirement - Net	5.19	2.16	7.05	6.34	8.10	7.54	8.56	5.82	16.79	-2.62	14.79	7.32	1.87	7.46	07/01/1994
Firefighters' Benchmark	5.08	-0.63	4.97	5.50	7.86	7.56	N/A	N/A	20.44	-5.57	15.33	9.12	1.41	N/A	
Difference	0.11	2.79	2.08	0.84	0.24	-0.02	N/A	N/A	-3.65	2.95	-0.54	-1.80	0.46	N/A	
Firefighters' Retirement - Gross	5.30	2.55	7.59	6.95	8.66	8.08	9.12	6.22	17.46	-2.01	15.34	7.78	2.32	7.78	07/01/1994
All Public Plans > \$3B Total Fund Median	5.33	1.59	6.32	5.88	7.88	6.77	7.72	5.91	17.24	-2.79	16.08	7.95	0.57	7.74	
Rank	52	31	32	23	24	9	4	32	42	42	65	56	7	48	
Sheriffs' Retirement - Net	5.19	2.16	7.04	6.33	8.09	7.53	8.54	5.84	16.75	-2.62	14.80	7.33	1.86	7.50	07/01/1994
Sheriffs' Benchmark	5.07	-0.64	4.96	5.49	7.86	7.55	N/A	N/A	20.43	-5.56	15.35	9.13	1.40	N/A	
Difference	0.12	2.80	2.08	0.84	0.23	-0.02	N/A	N/A	-3.68	2.94	-0.55	-1.80	0.46	N/A	
Sheriffs' Retirement - Gross	5.30	2.55	7.58	6.94	8.65	8.08	9.10	6.25	17.42	-2.02	15.34	7.79	2.32	7.81	07/01/1994
All Public Plans > \$3B Total Fund Median	5.33	1.59	6.32	5.88	7.88	6.77	7.72	5.91	17.24	-2.79	16.08	7.95	0.57	7.74	
Rank	52	31	32	23	24	9	4	28	44	42	64	56	7	47	
Highway Patrol Retirement - Net	5.18	2.16	7.05	6.34	8.09	7.54	8.56	5.85	16.78	-2.62	14.79	7.30	1.87	7.49	07/01/1994
Highway Patrol Benchmark	5.07	-0.62	4.98	5.51	7.87	7.56	N/A	N/A	20.45	-5.56	15.34	9.11	1.41	N/A	
Difference	0.11	2.78	2.07	0.83	0.22	-0.02	N/A	N/A	-3.67	2.94	-0.55	-1.81	0.46	N/A	
Highway Patrol Retirement - Gross	5.29	2.55	7.58	6.95	8.65	8.08	9.12	6.26	17.45	-2.01	15.33	7.77	2.32	7.81	07/01/1994
All Public Plans > \$3B Total Fund Median	5.33	1.59	6.32	5.88	7.88	6.77	7.72	5.91	17.24	-2.79	16.08	7.95	0.57	7.74	
Rank	52	31	32	23	24	9	4	28	43	41	65	56	7	48	

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 September 30, 2020

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	20 Years	2019	2018	2017	2016	2015	Since Incep.	Inception Date
Game Wardens' Retirement - Net	5.18	2.14	7.03	6.33	8.09	7.53	8.54	5.82	16.77	-2.62	14.81	7.31	1.88	7.51	07/01/1994
Game Wardens' Benchmark	5.07	-0.64	4.96	5.50	7.87	7.55	N/A	N/A	20.45	-5.56	15.36	9.14	1.40	N/A	
Difference	0.11	2.78	2.07	0.83	0.22	-0.02	N/A	N/A	-3.68	2.94	-0.55	-1.83	0.48	N/A	
Game Wardens' Retirement - Gross	5.30	2.53	7.57	6.94	8.65	8.07	9.10	6.22	17.44	-2.01	15.35	7.78	2.33	7.82	07/01/1994
All Public Plans > \$3B Total Fund Median	5.33	1.59	6.32	5.88	7.88	6.77	7.72	5.91	17.24	-2.79	16.08	7.95	0.57	7.74	
Rank	52	32	32	23	25	9	4	32	43	42	64	56	7	47	
Judges' Retirement - Net	5.19	2.16	7.06	6.34	8.10	7.54	8.55	5.85	16.78	-2.64	14.82	7.32	1.86	7.50	07/01/1994
Judges' Benchmark	5.07	-0.63	4.97	5.51	7.87	7.56	N/A	N/A	20.47	-5.57	15.37	9.13	1.40	N/A	
Difference	0.12	2.79	2.09	0.83	0.23	-0.02	N/A	N/A	-3.69	2.93	-0.55	-1.81	0.46	N/A	
Judges' Retirement - Gross	5.30	2.55	7.59	6.94	8.66	8.08	9.11	6.26	17.45	-2.03	15.36	7.79	2.32	7.82	07/01/1994
All Public Plans > \$3B Total Fund Median	5.33	1.59	6.32	5.88	7.88	6.77	7.72	5.91	17.24	-2.79	16.08	7.95	0.57	7.74	
Rank	52	31	32	23	24	9	4	28	43	42	64	56	7	47	
Volunteer Firefighters' Retirement - Net	5.18	2.15	7.05	6.34	8.06	7.53	8.54	6.27	16.79	-2.64	14.79	7.16	1.91	7.31	07/01/1994
Volunteer Firefighters' Benchmark	5.07	-0.66	4.95	5.49	7.85	7.56	N/A	N/A	20.47	-5.59	15.33	9.11	1.41	N/A	
Difference	0.11	2.81	2.10	0.85	0.21	-0.03	N/A	N/A	-3.68	2.95	-0.54	-1.95	0.50	N/A	
Volunteer Firefighters' Retirement - Gross	5.29	2.54	7.59	6.94	8.62	8.07	9.10	6.67	17.46	-2.04	15.34	7.63	2.36	7.62	07/01/1994
All Public Plans > \$3B Total Fund Median	5.33	1.59	6.32	5.88	7.88	6.77	7.72	5.91	17.24	-2.79	16.08	7.95	0.57	7.74	
Rank	52	31	32	23	26	9	4	12	42	42	65	65	7	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.

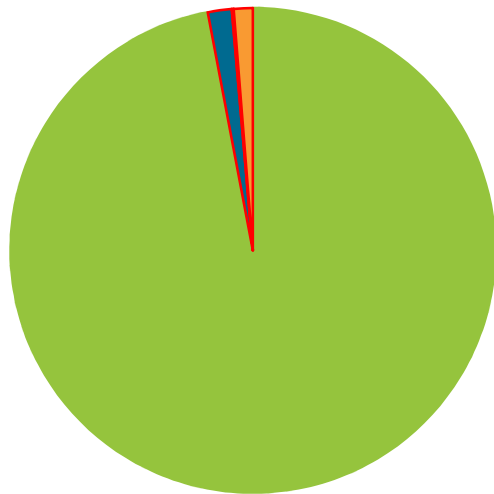


Montana Board of Investments
 Asset Allocation by Segment
 Retirement Plans

As of September 30, 2020

	Consolidated Asset Pension Pool (CAPP)		Short Term Investment Pool (STIP)		Total Fund	
	(\$)	%	(\$)	%	(\$)	%
Public Employees' Retirement	6,023,893,148	49.58	58,268,032	37.53	6,082,161,180	49.43
Teachers' Retirement	4,276,818,529	35.20	44,231,292	28.49	4,321,049,820	35.12
Firefighters' Retirement	474,897,810	3.91	22,531,262	14.51	497,429,072	4.04
Police Retirement	447,051,003	3.68	21,060,523	13.57	468,111,526	3.80
Sheriffs' Retirement	398,433,650	3.28	4,110,550	2.65	402,544,199	3.27
Game Wardens' Retirement	221,611,316	1.82	2,143,971	1.38	223,755,288	1.82
Highway Patrol Retirement	156,222,627	1.29	1,441,914	0.93	157,664,541	1.28
Judges' Retirement	109,720,014	0.90	1,054,507	0.68	110,774,521	0.90
Volunteer Firefighters' Retirement	40,495,753	0.33	401,386	0.26	40,897,138	0.33
Retirement Plans Total Fund Composite	12,149,143,849	98.74	155,243,437	1.26	12,304,387,286	100.00

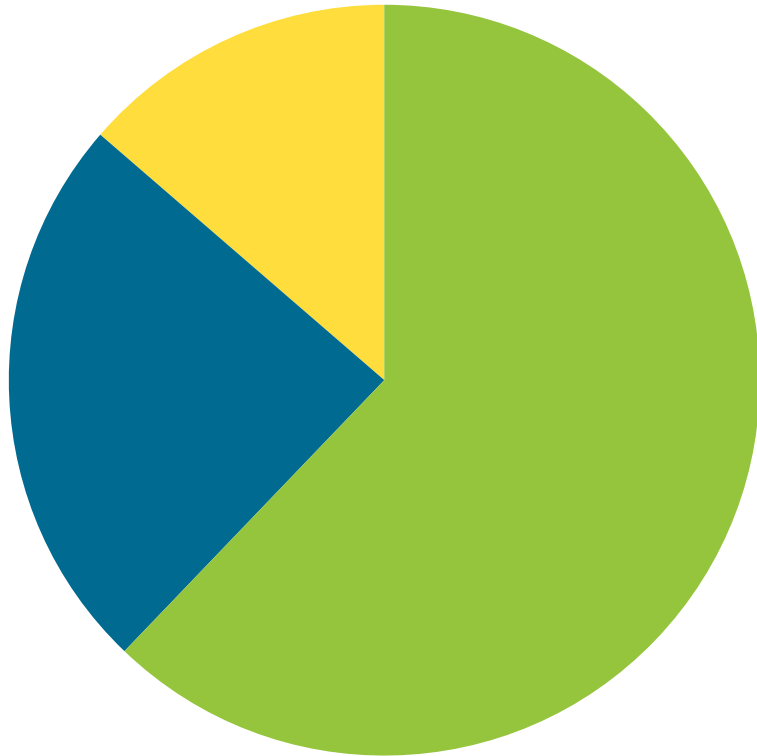
September 30, 2020 : \$12,304,387,286



Segments	Market Value (\$)	Allocation (%)
CAPP Ex Cash	11,935,973,640	97.01
CAPP Cash Pension	196,278,305	1.60
CAPP Asset Class Cash	16,891,905	0.14
Short Term Investment Pool (STIP)	155,243,437	1.26
Total Cash	368,413,646	2.99

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.

September 30, 2020 : \$19,544,220,539



	Market Value (\$)	Allocation (%)
Consolidated Asset Pension Pool (CAPP)	12,149,143,804	62.16
Short Term Investment Pool	4,726,318,389	24.18
Trust Funds Investment Pool	2,668,758,346	13.65

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 September 30, 2020

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2019	2018	2017	2016	2015	Since Incep.	Inception Date
Consolidated Asset Pension Pool (CAPP)	5.25	2.21	7.17	6.44	N/A	N/A	N/A	17.12	-2.74	N/A	N/A	N/A	7.47	04/01/2017
CAPP Custom Benchmark	5.13	-0.63	5.06	5.59	N/A	N/A	N/A	20.88	-5.73	N/A	N/A	N/A	6.69	
Difference	0.12	2.84	2.11	0.85	N/A	N/A	N/A	-3.76	2.99	N/A	N/A	N/A	0.78	
Trust Funds Investment Pool	0.93	6.34	6.82	5.35	4.61	4.70	4.68	8.98	0.45	4.01	4.02	1.83	6.17	10/01/1995
Bloomberg US Agg Bond Index	0.62	6.79	6.98	5.24	4.18	3.97	3.64	8.72	0.01	3.54	2.65	0.55	5.30	
Difference	0.31	-0.45	-0.16	0.11	0.43	0.73	1.04	0.26	0.44	0.47	1.37	1.28	0.87	
Short Term Investment Pool	0.09	0.67	1.13	1.75	1.34	1.00	0.78	2.28	1.98	1.11	0.61	0.22	2.41	04/01/1997
Short Term Custom Index	0.02	0.34	0.75	1.59	1.23	0.93	0.72	2.14	1.95	1.15	0.52	0.21	2.32	
Difference	0.07	0.33	0.38	0.16	0.11	0.07	0.06	0.14	0.03	-0.04	0.09	0.01	0.09	
iMoney.net Money Fund (Gross) Median	0.07	0.69	1.19	1.87	1.43	1.08	0.84	2.45	2.15	1.21	0.61	0.25	2.40	
Difference	0.02	-0.02	-0.06	-0.12	-0.09	-0.08	-0.06	-0.17	-0.17	-0.10	0.00	-0.03	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 September 30, 2020

September 30, 2020 : \$12,149,143,906



	Market Value (\$)	Allocation (%)
Domestic Equity	3,817,467,876	31.42
Core Fixed Income	2,388,314,521	19.66
International Equity	2,117,104,717	17.43
Private Investments	1,691,738,680	13.92
Real Estate	1,030,235,737	8.48
Non-Core Fixed Income	539,470,311	4.44
Natural Resources	368,533,760	3.03
Cash Pension	196,278,305	1.62

Allocations shown may not sum up to 100% exactly due to rounding. Core Fixed Income currently consists of Investment Grade Credit, US Treasury & Agency, and TIPS. 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 September 30, 2020

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2019	2018	2017	2016	2015	Since Incep.	Inception Date
Domestic Equity	8.47	3.90	12.97	10.19	12.56	11.38	12.89	30.75	-7.09	20.79	11.46	0.86	9.27	05/01/2003
Domestic Equity Custom Index	9.23	5.58	15.16	11.75	13.87	12.37	13.60	31.14	-5.20	21.05	13.03	1.01	10.14	
Difference	-0.76	-1.68	-2.19	-1.56	-1.31	-0.99	-0.71	-0.39	-1.89	-0.26	-1.57	-0.15	-0.87	
International Equity	7.73	-3.18	5.45	2.09	7.00	3.96	4.59	22.86	-14.99	28.67	3.87	-3.57	4.62	04/01/1997
International Equity Custom Index	6.80	-5.21	3.51	1.13	6.31	3.33	4.14	21.63	-14.76	27.81	4.41	-4.60	4.81	
Difference	0.93	2.03	1.94	0.96	0.69	0.63	0.45	1.23	-0.23	0.86	-0.54	1.03	-0.19	
Core Fixed Income	0.98	7.79	8.11	5.18	3.99	4.03	4.03	6.90	0.95	2.29	3.19	0.79	6.10	04/01/1995
Core Fixed Income Custom Index	0.78	6.71	7.05	4.70	3.75	3.66	3.45	6.81	0.67	2.46	2.85	0.55	5.45	
Difference	0.20	1.08	1.06	0.48	0.24	0.37	0.58	0.09	0.28	-0.17	0.34	0.24	0.65	
Non-Core Fixed Income	4.40	0.60	2.95	3.88	5.75	4.80	6.13	13.98	-2.27	5.99	12.47	-2.52	7.83	06/01/2009
Bloomberg US HY 2% Issuer Cap Index	4.58	0.57	3.20	4.19	6.78	5.32	6.46	14.32	-2.08	7.50	17.13	-4.43	8.80	
Difference	-0.18	0.03	-0.25	-0.31	-1.03	-0.52	-0.33	-0.34	-0.19	-1.51	-4.66	1.91	-0.97	
Natural Resources	-2.63	-18.65	-18.81	-5.24	N/A	N/A	N/A	-2.18	5.55	N/A	N/A	N/A	-3.24	04/01/2017
MSCI ACW Cmdty Producers Index (USD) (Net)	-4.44	-29.73	-24.40	-8.75	0.95	-5.02	-3.31	13.06	-11.75	13.70	32.44	-25.83	-5.85	
Difference	1.81	11.08	5.59	3.51	N/A	N/A	N/A	-15.24	17.30	N/A	N/A	N/A	2.61	
Real Estate	-0.03	-2.39	-1.32	4.92	6.89	8.61	9.46	6.97	9.19	9.17	8.82	14.27	3.74	06/01/2006
Real Estate Custom Index	1.63	-17.12	-17.76	0.31	3.55	6.04	8.33	25.84	-4.57	5.99	9.08	13.86	4.64	
Difference	-1.66	14.73	16.44	4.61	3.34	2.57	1.13	-18.87	13.76	3.18	-0.26	0.41	-0.90	
Cash Pension	0.05	0.78	1.26	1.79	N/A	N/A	N/A	2.28	2.00	N/A	N/A	N/A	1.68	05/01/2017
Short Term Custom Index	0.02	0.34	0.75	1.59	1.23	0.93	0.72	2.14	1.95	1.15	0.52	0.21	1.54	
Difference	0.03	0.44	0.51	0.20	N/A	N/A	N/A	0.14	0.05	N/A	N/A	N/A	0.14	
Private Investments*	7.21	2.87	6.74	10.38	9.95	10.93	12.38	12.95	11.55	15.20	7.37	7.20	11.91	05/01/2002
Private Equity Custom Index	5.60	-7.77	0.23	3.50	7.62	11.10	14.64	27.38	-9.99	20.59	20.11	3.68	10.34	
Difference	1.61	10.64	6.51	6.88	2.33	-0.17	-2.26	-14.43	21.54	-5.39	-12.74	3.52	1.57	

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.

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Montana Board of Investments
Comparative Performance
Investment Pools

As of September 30, 2020

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2019	2018	2017	2016	2015	Since Incep.	Inception Date
Domestic Equity	8.53	4.08	13.25	10.52	12.89	11.70	13.24	31.13	-6.78	21.16	11.77	1.14	9.56	05/01/2003
All Public Plans-US Equity Segment Median	8.25	3.03	12.12	9.95	12.34	11.00	12.77	29.97	-5.79	20.31	12.71	0.13	9.59	
Rank	38	34	36	41	34	27	31	28	74	31	74	24	58	
Population	71	64	63	58	56	52	39	64	65	87	89	80	12	
International Equity	7.82	-2.95	5.80	2.43	7.35	4.30	4.95	23.28	-14.72	29.06	4.24	-3.25	5.04	04/01/1997
All Public Plans-Intl. Equity Segment Median	7.51	-3.41	5.94	2.41	7.38	4.57	5.66	23.71	-13.63	28.81	4.00	-2.54	N/A	
Rank	41	46	53	50	51	62	74	62	78	46	44	64	N/A	
Population	70	65	65	62	60	54	39	65	68	83	88	77	N/A	
Core Fixed Income	0.99	7.83	8.17	5.23	4.04	4.07	4.07	6.94	1.00	2.34	3.21	0.82	7.87	12/01/2019
All Public Plans-US Fixed Income Segment Median	1.70	6.77	7.17	5.41	5.04	4.50	4.43	9.25	-0.25	4.54	4.61	0.21	6.78	
Rank	76	29	28	60	85	77	64	86	12	90	73	28	28	
Population	75	69	68	65	63	60	45	68	72	84	90	77	68	
Trust Funds Investment Pool	0.94	6.39	6.89	5.44	4.70	4.78	4.77	9.06	0.53	4.10	4.12	1.89	6.23	10/01/1995
All Public Plans-US Fixed Income Segment Median	1.70	6.77	7.17	5.41	5.04	4.50	4.43	9.25	-0.25	4.54	4.61	0.21	N/A	
Rank	76	57	59	48	69	44	32	53	22	62	61	5	N/A	
Population	75	69	68	65	63	60	45	68	72	84	90	77	N/A	
Real Estate	0.17	-1.19	0.07	6.67	8.53	10.19	11.08	8.65	11.12	10.91	10.26	15.68	5.20	06/01/2006
All Public Plans-Real Estate Segment Median	0.05	-0.49	1.31	6.31	8.16	9.62	11.20	7.65	8.91	8.84	9.98	13.42	N/A	
Rank	42	65	72	41	37	43	58	38	11	24	47	10	N/A	
Population	45	39	36	27	22	17	13	33	26	30	28	26	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. Core Fixed Income currently consists of Investment Grade Credit, US Treasury & Agency, and TIPS. Non-Core Fixed Income currently consists of High Yield.

Montana Board of Investments
Comparative Performance
Equity Composites

As of September 30, 2020

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2019	2018	2017	2016	2015	Since Incep.	Inception Date
Domestic Large Cap Equity - Net	8.95	6.48	16.27	12.34	14.05	12.70	13.68	31.06	-4.71	21.66	11.30	1.76	8.64	12/01/2006
S&P 500 Index (Cap Wtd)	8.93	5.57	15.15	12.28	14.15	12.68	13.74	31.49	-4.38	21.83	11.96	1.38	8.79	
Difference	0.02	0.91	1.12	0.06	-0.10	0.02	-0.06	-0.43	-0.33	-0.17	-0.66	0.38	-0.15	
Domestic Large Cap Equity - Gross	9.00	6.62	16.47	12.54	14.24	12.88	13.89	31.29	-4.52	21.82	11.45	1.91	8.87	12/01/2006
IM U.S. Large Cap Equity (SA+CF) Median	8.45	4.02	13.32	10.98	13.11	12.07	13.47	30.25	-5.09	21.73	11.03	0.95	8.83	
Rank	42	37	35	37	35	36	40	41	45	49	47	39	49	
Domestic Large Cap Active - Net	7.28	4.68	14.50	11.28	13.14	12.20	13.36	31.03	-5.88	21.85	9.63	2.40	8.03	07/01/2007
S&P 500 Index (Cap Wtd)	8.93	5.57	15.15	12.28	14.15	12.68	13.74	31.49	-4.38	21.83	11.96	1.38	8.53	
Difference	-1.65	-0.89	-0.65	-1.00	-1.01	-0.48	-0.38	-0.46	-1.50	0.02	-2.33	1.02	-0.50	
Domestic Large Cap Active - Gross	7.44	5.18	15.21	11.94	13.74	12.78	13.92	31.82	-5.34	22.40	10.12	2.88	8.54	07/01/2007
IM U.S. Large Cap Equity (SA+CF) Median	8.45	4.02	13.31	10.98	13.11	12.07	13.49	30.25	-5.09	21.73	11.03	0.95	8.57	
Rank	60	48	41	44	45	38	40	34	55	43	57	32	52	
Domestic Mid Cap Equity - Net	4.68	-8.72	-2.35	3.14	7.47	6.75	9.96	28.03	-10.75	19.45	12.30	-3.29	7.58	01/01/2005
Russell Mid Cap Index	7.46	-2.35	4.55	7.13	10.13	9.37	11.76	30.54	-9.06	18.52	13.80	-2.44	8.85	
Difference	-2.78	-6.37	-6.90	-3.99	-2.66	-2.62	-1.80	-2.51	-1.69	0.93	-1.50	-0.85	-1.27	
Domestic Mid Cap Equity - Gross	4.68	-8.72	-2.35	3.39	7.88	7.23	10.47	28.11	-10.28	20.18	12.97	-2.71	8.05	01/01/2005
IM U.S. Mid Cap Equity (SA+CF) Median	6.74	-2.45	4.10	6.61	9.63	8.88	11.70	30.07	-9.08	19.38	12.81	-1.15	9.26	
Rank	81	66	65	60	69	71	72	64	59	48	50	69	82	
Domestic Small Cap Equity - Net	4.62	-12.12	-5.90	1.08	7.07	6.41	10.03	25.76	-10.51	15.65	19.31	-1.61	10.40	03/01/2003
Russell 2000 Index	4.93	-8.69	0.39	1.77	8.00	6.42	9.85	25.53	-11.01	14.65	21.31	-4.41	9.94	
Difference	-0.31	-3.43	-6.29	-0.69	-0.93	-0.01	0.18	0.23	0.50	1.00	-2.00	2.80	0.46	
Domestic Small Cap Equity - Gross	4.73	-11.87	-5.55	1.52	7.58	6.98	10.67	26.25	-10.09	16.27	19.97	-0.93	10.93	03/01/2003
IM U.S. Small Cap Equity (SA+CF) Median	5.10	-9.39	-1.93	1.79	8.02	6.86	10.59	25.86	-10.62	15.14	20.87	-2.32	11.08	
Rank	56	57	60	52	54	49	50	48	48	44	57	36	56	

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 September 30, 2020

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2019	2018	2017	2016	2015	Since Incep.	Inception Date
International Large Cap Passive - Net	6.24	-5.25	3.27	1.33	6.71	3.53	4.26	21.59	-14.04	27.79	4.87	-4.71	5.98	06/01/2009
MSCI ACW Ex US Index (USD) (Net)	6.25	-5.44	3.00	1.16	6.23	3.18	4.00	21.51	-14.20	27.19	4.50	-5.66	5.75	
Difference	-0.01	0.19	0.27	0.17	0.48	0.35	0.26	0.08	0.16	0.60	0.37	0.95	0.23	
International Large Cap Passive - Gross	6.25	-5.21	3.33	1.39	6.78	3.61	4.34	21.66	-13.98	27.88	4.96	-4.63	6.06	06/01/2009
International Equity Active - Net	9.44	-1.11	8.12	3.18	8.02	5.09	5.60	25.83	-16.18	30.82	2.63	0.41	3.68	04/01/1997
MSCI ACW Ex US Index (USD) (Net)	6.25	-5.44	3.00	1.16	6.23	3.18	4.00	21.51	-14.20	27.19	4.50	-5.66	N/A	
Difference	3.19	4.33	5.12	2.02	1.79	1.91	1.60	4.32	-1.98	3.63	-1.87	6.07	N/A	
International Equity Active - Gross	9.57	-0.73	8.67	3.72	8.59	5.62	6.12	26.48	-15.73	31.50	3.17	0.90	4.20	04/01/1997
IM International Large Cap Core Equity (SA+CF) Median	6.84	-3.79	4.39	2.32	6.64	4.51	6.17	23.87	-14.34	26.34	1.61	0.25	6.50	
Rank	14	33	31	28	23	27	53	28	68	12	31	43	100	
International Value - Net	5.81	-8.69	-1.88	0.19	6.29	3.62	4.10	20.76	-13.97	30.72	5.59	-5.94	1.76	11/01/2006
MSCI ACW Ex US Val Index (USD) (Net)	2.28	-17.60	-10.84	-5.09	2.14	-0.27	1.50	15.72	-13.97	22.66	8.92	-10.06	0.78	
Difference	3.53	8.91	8.96	5.28	4.15	3.89	2.60	5.04	0.00	8.06	-3.33	4.12	0.98	
International Value - Gross	5.94	-8.34	-1.38	0.70	6.84	4.16	4.66	21.37	-13.52	31.39	6.17	-5.46	2.33	11/01/2006
IM International Large Cap Value Equity (SA+CF) Median	4.40	-12.35	-3.89	-1.87	4.41	2.42	4.83	21.18	-14.52	26.13	4.29	-1.97	3.45	
Rank	34	35	40	36	24	30	60	47	40	13	30	81	70	
International Growth - Net	11.37	6.59	17.03	7.03	10.10	6.03	6.40	31.39	-16.09	28.01	0.51	1.69	4.02	11/01/2006
MSCI ACW Ex US Grth Index (USD) (Net)	10.16	7.27	17.54	7.33	10.16	6.50	6.38	27.34	-14.43	32.01	0.12	-1.25	4.77	
Difference	1.21	-0.68	-0.51	-0.30	-0.06	-0.47	0.02	4.05	-1.66	-4.00	0.39	2.94	-0.75	
International Growth - Gross	11.51	7.02	17.67	7.62	10.73	6.60	6.96	32.10	-15.61	28.74	1.12	2.21	4.56	11/01/2006
IM International Large Cap Growth Equity (SA+CF) Median	9.18	6.25	16.95	7.15	9.72	7.01	8.02	28.31	-13.90	31.38	-0.07	2.28	5.46	
Rank	24	46	45	47	41	55	66	19	66	68	34	51	72	
International Small Cap - Net	11.16	-1.85	9.21	1.55	7.05	5.18	6.59	23.91	-18.90	33.61	1.84	5.16	4.43	09/01/2006
MSCI ACWI Ex US Sm Cap Index IMI (USD) (Net)	10.50	-3.64	6.97	0.93	6.80	4.49	5.31	22.42	-18.20	31.65	3.91	2.60	4.79	
Difference	0.66	1.79	2.24	0.62	0.25	0.69	1.28	1.49	-0.70	1.96	-2.07	2.56	-0.36	

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 September 30, 2020

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2019	2018	2017	2016	2015	Since Incep.	Inception Date
Domestic Large Cap Passive - Net	9.61	7.28	17.06	12.89	14.31	12.81	13.86	30.99	-3.94	21.34	12.01	0.83	6.32	05/01/2000
S&P 500 Index (Cap Wtd)	8.93	5.57	15.15	12.28	14.15	12.68	13.74	31.49	-4.38	21.83	11.96	1.38	6.25	
Difference	0.68	1.71	1.91	0.61	0.16	0.13	0.12	-0.50	0.44	-0.49	0.05	-0.55	0.07	
Domestic Large Cap Passive - Gross	9.61	7.28	17.07	12.90	14.32	12.82	13.87	31.00	-3.93	21.35	12.03	0.84	6.35	05/01/2000
IM U.S. Large Cap Index Equity (SA+CF) Median	9.03	5.55	15.11	12.26	14.07	12.57	13.72	31.42	-4.77	21.76	12.02	0.97	6.35	
Rank	19	16	15	19	21	23	22	67	18	60	49	60	50	
Domestic Large Cap Enhanced - Net	9.55	4.55	14.29	12.33	14.24	12.96	14.05	32.81	-4.20	24.21	9.73	3.18	8.99	06/01/2006
S&P 500 Index (Cap Wtd)	8.93	5.57	15.15	12.28	14.15	12.68	13.74	31.49	-4.38	21.83	11.96	1.38	9.29	
Difference	0.62	-1.02	-0.86	0.05	0.09	0.28	0.31	1.32	0.18	2.38	-2.23	1.80	-0.30	
Domestic Large Cap Enhanced - Gross	9.63	4.78	14.63	12.63	14.55	13.28	14.38	33.17	-3.96	24.53	10.05	3.50	9.30	06/01/2006
IM U.S. Large Cap Core Equity (SA+CF) Median	8.06	3.33	12.87	10.68	13.14	12.16	13.55	29.99	-5.16	21.84	10.54	1.42	9.34	
Rank	21	45	40	26	18	17	24	14	29	20	58	25	56	
Domestic Large Cap 130/30 - Net	6.86	4.65	14.48	10.76	12.51	11.76	13.26	30.67	-7.10	20.28	9.54	1.61	9.66	03/01/2008
S&P 500 Index (Cap Wtd)	8.93	5.57	15.15	12.28	14.15	12.68	13.74	31.49	-4.38	21.83	11.96	1.38	9.95	
Difference	-2.07	-0.92	-0.67	-1.52	-1.64	-0.92	-0.48	-0.82	-2.72	-1.55	-2.42	0.23	-0.29	
Domestic Large Cap 130/30 - Gross	7.04	5.19	15.26	11.60	13.30	12.52	14.03	31.57	-6.32	21.10	10.22	2.26	10.40	03/01/2008
IM U.S. Large Cap Core Equity (SA+CF) Median	8.06	3.33	12.87	10.68	13.14	12.16	13.55	29.99	-5.16	21.84	10.54	1.42	9.96	
Rank	68	42	36	42	47	41	33	33	70	62	55	38	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 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 September 30, 2020

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2019	2018	2017	2016	2015	Since Incep.	Inception Date
Domestic Large Cap Equity														
BlackRock MSCI US Equity Index (SA) - Net	9.63	7.23	17.01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	15.35	04/01/2019
MSCI US Index (USD) (Gross)	9.64	7.27	17.06	12.84	14.40	12.81	13.90	31.64	-4.50	21.90	11.61	1.32	15.40	
Difference	-0.01	-0.04	-0.05	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.05	
BlackRock MSCI US Equity Index (SA) - Gross	9.63	7.24	17.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	15.36	04/01/2019
SPDR S&P 500 ETF (SPY) - Net	8.98	6.38	16.41	12.25	N/A	N/A	N/A	31.49	-5.30	N/A	N/A	N/A	12.74	07/01/2017
S&P 500 Index (Cap Wtd)	8.93	5.57	15.15	12.28	14.15	12.68	13.74	31.49	-4.38	21.83	11.96	1.38	12.79	
Difference	0.05	0.81	1.26	-0.03	N/A	N/A	N/A	0.00	-0.92	N/A	N/A	N/A	-0.05	
Northern Trust MSCI US Index (SA) - Net	9.63	7.25	17.03	N/A	N/A	N/A	N/A	31.70	N/A	N/A	N/A	N/A	15.14	11/01/2018
MSCI US Index (USD) (Gross)	9.64	7.27	17.06	12.84	14.40	12.81	13.90	31.64	-4.50	21.90	11.61	1.32	15.13	
Difference	-0.01	-0.02	-0.03	N/A	N/A	N/A	N/A	0.06	N/A	N/A	N/A	N/A	0.01	
Northern Trust MSCI US Index (SA) - Gross	9.63	7.26	17.05	N/A	N/A	N/A	N/A	31.71	N/A	N/A	N/A	N/A	15.15	11/01/2018
IM U.S. Large Cap Core Equity (SA+CF) Median	8.06	3.33	12.87	10.68	13.14	12.16	13.55	29.99	-5.16	21.84	10.54	1.42	12.46	
Rank	21	25	22	N/A	N/A	N/A	N/A	32	N/A	N/A	N/A	N/A	26	
T. Rowe U.S. Structured Research (SA) - Net	9.55	4.55	14.29	12.32	14.50	12.97	14.02	32.81	-4.20	23.94	10.68	3.30	9.73	06/01/2006
S&P 500 Index (Cap Wtd)	8.93	5.57	15.15	12.28	14.15	12.68	13.74	31.49	-4.38	21.83	11.96	1.38	9.29	
Difference	0.62	-1.02	-0.86	0.04	0.35	0.29	0.28	1.32	0.18	2.11	-1.28	1.92	0.44	
T. Rowe U.S. Structured Research (SA) - Gross	9.63	4.78	14.63	12.63	14.81	13.29	14.34	33.17	-3.96	24.24	10.98	3.61	10.05	06/01/2006
IM U.S. Large Cap Core Equity (SA+CF) Median	8.06	3.33	12.87	10.68	13.14	12.16	13.55	29.99	-5.16	21.84	10.54	1.42	9.34	
Rank	21	45	40	26	15	17	24	14	29	24	46	24	28	
Jacobs Levy 130/30 (SA) - Net	3.12	-2.70	6.04	N/A	N/A	N/A	N/A	31.63	N/A	N/A	N/A	N/A	7.14	04/01/2018
MSCI US Index (USD) (Gross)	9.64	7.27	17.06	12.84	14.40	12.81	13.90	31.64	-4.50	21.90	11.61	1.32	12.99	
Difference	-6.52	-9.97	-11.02	N/A	N/A	N/A	N/A	-0.01	N/A	N/A	N/A	N/A	-5.85	
Jacobs Levy 130/30 (SA) - Gross	3.29	-2.21	6.75	N/A	N/A	N/A	N/A	32.55	N/A	N/A	N/A	N/A	7.94	04/01/2018
IM U.S. Large Cap Core Equity (SA+CF) Median	8.06	3.33	12.87	10.68	13.14	12.16	13.55	29.99	-5.16	21.84	10.54	1.42	10.48	
Rank	97	79	75	N/A	N/A	N/A	N/A	21	N/A	N/A	N/A	N/A	73	

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 September 30, 2020

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2019	2018	2017	2016	2015	Since Incep.	Inception Date
J.P. Morgan 130/30 (SA) - Net	10.83	13.09	24.21	13.70	14.82	13.28	14.25	30.55	-6.93	22.86	10.30	0.01	11.22	03/01/2008
S&P 500 Index (Cap Wtd)	8.93	5.57	15.15	12.28	14.15	12.68	13.74	31.49	-4.38	21.83	11.96	1.38	9.95	
Difference	1.90	7.52	9.06	1.42	0.67	0.60	0.51	-0.94	-2.55	1.03	-1.66	-1.37	1.27	
J.P. Morgan 130/30 (SA) - Gross	11.02	13.68	25.07	14.55	15.66	14.11	15.08	31.42	-6.13	23.79	11.09	0.72	12.03	03/01/2008
IM U.S. Large Cap Core Equity (SA+CF) Median	8.06	3.33	12.87	10.68	13.14	12.16	13.55	29.99	-5.16	21.84	10.54	1.42	9.96	
Rank	8	7	6	12	10	10	8	36	67	27	45	59	3	
Domestic Mid Cap Equity														
iShares:Core S&P Md-Cp (IJH) - Net	4.68	-8.72	-2.35	1.78	N/A	N/A	N/A	26.24	-13.95	N/A	N/A	N/A	2.64	07/01/2017
S&P Mid Cap 400 Index (Cap Wtd)	4.77	-8.62	-2.16	2.90	8.11	7.64	10.49	26.20	-11.08	16.24	20.74	-2.18	3.68	
Difference	-0.09	-0.10	-0.19	-1.12	N/A	N/A	N/A	0.04	-2.87	N/A	N/A	N/A	-1.04	

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 September 30, 2020

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2019	2018	2017	2016	2015	Since Incep.	Inception Date
Domestic Small Cap Equity														
Vaughan Nelson Management (SA) - Net	4.65	-14.18	-10.86	-1.33	3.96	5.19	8.78	25.34	-13.78	6.83	20.50	0.16	7.37	03/01/2007
Russell 2000 Val Index	2.56	-21.54	-14.88	-5.13	4.11	3.27	7.09	22.39	-12.86	7.84	31.74	-7.47	3.76	
Difference	2.09	7.36	4.02	3.80	-0.15	1.92	1.69	2.95	-0.92	-1.01	-11.24	7.63	3.61	
Vaughan Nelson Management (SA) - Gross	4.85	-13.70	-10.19	-0.60	4.76	6.01	9.66	26.25	-13.13	7.66	21.49	0.98	8.26	03/01/2007
IM U.S. Small Cap Value Equity (SA+CF) Median	2.39	-19.54	-13.35	-3.76	4.40	4.27	8.51	25.16	-14.16	11.61	26.67	-4.28	5.94	
Rank	26	24	35	24	43	21	27	35	38	77	76	9	11	
BlackRock MSCI US Sm Cap Equity Index (CF) - Net	5.62	-7.71	0.27	3.50	N/A	N/A	N/A	27.30	-9.96	N/A	N/A	N/A	4.96	07/01/2017
MSCI US Sm Cap Index (USD) (Net)	5.48	-8.10	-0.27	3.01	8.40	7.15	10.39	26.74	-10.40	16.75	19.15	-4.11	4.46	
Difference	0.14	0.39	0.54	0.49	N/A	N/A	N/A	0.56	0.44	N/A	N/A	N/A	0.50	
BlackRock MSCI US Sm Cap Equity Index (CF) - Gross	5.63	-7.69	0.30	3.54	N/A	N/A	N/A	27.34	-9.93	N/A	N/A	N/A	5.00	07/01/2017
DFA US Sm Cap Tr (CF) - Net	3.96	-13.61	-6.63	-1.49	5.70	5.40	9.66	21.66	-12.27	11.86	24.42	-2.64	10.28	03/01/2003
Russell 2000 Index	4.93	-8.69	0.39	1.77	8.00	6.42	9.85	25.53	-11.01	14.65	21.31	-4.41	9.94	
Difference	-0.97	-4.92	-7.02	-3.26	-2.30	-1.02	-0.19	-3.87	-1.26	-2.79	3.11	1.77	0.34	
DFA US Sm Cap Tr (CF) - Gross	4.05	-13.40	-6.32	-1.15	6.07	5.76	10.04	22.07	-11.95	12.25	24.85	-2.29	10.60	03/01/2003
IM U.S. Small Cap Core Equity (SA+CF) Median	4.78	-10.05	-2.31	1.91	8.26	7.67	11.02	25.11	-10.69	15.13	20.77	-1.35	11.11	
Rank	63	69	74	78	77	81	74	73	64	72	21	62	66	
iShares:Russ 2000 ETF (IWM) - Net	5.22	-7.91	1.17	N/A	N/A	N/A	N/A	25.52	N/A	N/A	N/A	N/A	0.80	05/01/2018
Russell 2000 Index	4.93	-8.69	0.39	1.77	8.00	6.42	9.85	25.53	-11.01	14.65	21.31	-4.41	0.50	
Difference	0.29	0.78	0.78	N/A	N/A	N/A	N/A	-0.01	N/A	N/A	N/A	N/A	0.30	

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%, 0.05%, 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 September 30, 2020

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2019	2018	2017	2016	2015	Since Incep.	Inception Date
International Developed Large Cap Equity														
Acadian Asset Non-US Equity (SA) - Net	4.47	-10.53	-3.43	-0.66	7.58	4.62	5.73	19.38	-13.44	34.76	12.40	-7.75	2.52	11/01/2006
MSCI ACW Ex US Val Index (USD) (Net)	2.28	-17.60	-10.84	-5.09	2.14	-0.27	1.50	15.72	-13.97	22.66	8.92	-10.06	0.78	
Difference	2.19	7.07	7.41	4.43	5.44	4.89	4.23	3.66	0.53	12.10	3.48	2.31	1.74	
Acadian Asset Non-US Equity (SA) - Gross	4.61	-10.18	-2.93	-0.14	8.14	5.16	6.29	19.98	-12.99	35.45	13.01	-7.26	3.08	11/01/2006
IM ACWI Ex US Value (SA+CF) Median	5.20	-11.04	-3.52	-0.68	5.23	2.60	4.77	21.34	-14.78	26.02	4.87	-3.25	3.51	
Rank	55	46	49	46	24	22	28	59	26	8	10	85	63	
Lazard Asset Management (SA) - Net	6.68	-7.46	-0.85	0.73	5.09	N/A	N/A	21.70	-14.32	27.00	0.22	N/A	2.12	06/01/2015
Lazard Custom Index	6.25	-5.44	3.00	0.38	5.63	2.15	3.22	21.51	-15.55	22.66	8.92	-10.06	1.85	
Difference	0.43	-2.02	-3.85	0.35	-0.54	N/A	N/A	0.19	1.23	4.34	-8.70	N/A	0.27	
Lazard Asset Management (SA) - Gross	6.81	-7.11	-0.36	1.24	5.64	N/A	N/A	22.31	-13.88	27.65	0.77	N/A	2.65	06/01/2015
IM ACWI Ex US Value (SA+CF) Median	5.20	-11.04	-3.52	-0.68	5.23	2.60	4.77	21.34	-14.78	26.02	4.87	-3.25	1.56	
Rank	39	37	42	32	43	N/A	N/A	43	35	38	86	N/A	40	
BlackRock ACW Ex US SuperFund A (CF) - Net	6.24	-5.31	3.15	1.36	6.46	3.39	4.21	21.77	-13.99	27.49	4.77	-5.49	5.96	06/01/2009
MSCI ACW Ex US Index (USD) (Net)	6.25	-5.44	3.00	1.16	6.23	3.18	4.00	21.51	-14.20	27.19	4.50	-5.66	5.75	
Difference	-0.01	0.13	0.15	0.20	0.23	0.21	0.21	0.26	0.21	0.30	0.27	0.17	0.21	
BlackRock ACW Ex US SuperFund A (CF) - Gross	6.26	-5.26	3.22	1.43	6.54	3.47	4.29	21.85	-13.93	27.58	4.86	-5.42	6.05	06/01/2009
IM All ACWI Ex US (SA+CF) Median	8.08	-1.01	7.96	3.26	7.38	5.00	6.26	24.92	-14.64	28.74	2.11	-0.59	7.99	
Rank	73	66	65	64	59	73	86	65	43	62	25	84	83	
iShares:MSCI EAFE ETF (EFA) - Net	4.55	-6.92	0.27	0.90	N/A	N/A	N/A	22.03	-12.88	N/A	N/A	N/A	2.36	07/01/2017
MSCI EAFE Index (USD) (Net)	4.80	-7.09	0.49	0.62	5.26	3.01	4.62	22.01	-13.79	25.03	1.00	-0.81	2.21	
Difference	-0.25	0.17	-0.22	0.28	N/A	N/A	N/A	0.02	0.91	N/A	N/A	N/A	0.15	
Baillie Gifford (SA) - Net	13.61	14.58	29.47	10.17	12.78	N/A	N/A	34.34	-17.35	31.99	0.73	N/A	8.83	06/01/2015
MSCI ACW Ex US Grth Index (USD) (Net)	10.16	7.27	17.54	7.33	10.16	6.50	6.38	27.34	-14.43	32.01	0.12	-1.25	6.65	
Difference	3.45	7.31	11.93	2.84	2.62	N/A	N/A	7.00	-2.92	-0.02	0.61	N/A	2.18	
Baillie Gifford (SA) - Gross	13.74	14.99	30.09	10.71	13.35	N/A	N/A	34.99	-16.93	32.66	1.28	N/A	9.39	06/01/2015
IM ACWI Ex US Growth (SA+CF) Median	10.37	6.72	17.67	7.62	10.53	7.54	8.25	29.56	-13.78	32.56	-0.76	1.29	7.27	
Rank	9	19	10	15	17	N/A	N/A	9	85	49	33	N/A	20	

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 September 30, 2020

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2019	2018	2017	2016	2015	Since Incep.	Inception Date
Invesco (SA) - Net	9.54	0.68	8.28	4.63	8.00	N/A	N/A	29.29	-15.17	24.92	0.32	N/A	4.54	06/01/2015
MSCI ACW Ex US Grth Index (USD) (Net)	10.16	7.27	17.54	7.33	10.16	6.50	6.38	27.34	-14.43	32.01	0.12	-1.25	6.65	
Difference	-0.62	-6.59	-9.26	-2.70	-2.16	N/A	N/A	1.95	-0.74	-7.09	0.20	N/A	-2.11	
Invesco (SA) - Gross	9.70	1.12	8.92	5.25	8.67	N/A	N/A	30.05	-14.64	25.70	1.01	N/A	5.20	06/01/2015
IM ACWI Ex US Growth (SA+CF) Median	10.37	6.72	17.67	7.62	10.53	7.54	8.25	29.56	-13.78	32.56	-0.76	1.29	7.27	
Rank	55	80	84	78	76	N/A	N/A	44	56	91	36	N/A	82	
International Developed Small Cap Equity														
American Century Investment Mgmt (SA) - Net	11.15	12.80	26.72	7.67	10.78	N/A	N/A	29.44	-20.76	43.80	-5.31	11.32	7.16	03/01/2014
MSCI ACW Ex US Sm Cap Grth Index (USD) (Net)	13.07	6.48	18.40	5.14	9.09	6.45	6.63	24.61	-18.27	33.64	-0.28	6.50	5.62	
Difference	-1.92	6.32	8.32	2.53	1.69	N/A	N/A	4.83	-2.49	10.16	-5.03	4.82	1.54	
American Century Investment Mgmt (SA) - Gross	11.38	13.50	27.77	8.57	11.71	N/A	N/A	30.50	-20.09	44.99	-4.49	12.25	8.06	03/01/2014
IM ACWI Ex US Growth (SA+CF) Median	10.37	6.72	17.67	7.62	10.53	7.54	8.25	29.56	-13.78	32.56	-0.76	1.29	6.88	
Rank	35	27	17	44	34	N/A	N/A	42	100	6	79	1	27	
BlackRock MSCI ACW Ex US Sm Cap Index (CF) - Net	10.51	-3.39	7.16	1.26	7.12	4.78	N/A	22.68	-17.85	31.96	4.26	2.87	6.54	02/01/2012
MSCI ACWI Ex US Sm Cap Index IMI (USD) (Net)	10.50	-3.64	6.97	0.93	6.80	4.49	5.31	22.42	-18.20	31.65	3.91	2.60	6.28	
Difference	0.01	0.25	0.19	0.33	0.32	0.29	N/A	0.26	0.35	0.31	0.35	0.27	0.26	
BlackRock MSCI ACW Ex US Sm Cap Index (CF) - Gross	10.55	-3.38	7.28	1.38	7.27	4.93	N/A	22.90	-17.74	32.15	4.44	3.04	6.70	02/01/2012
DFA Intl Sm Co;l (DFISX) - Net	9.68	-7.39	3.97	-1.02	6.08	4.40	6.17	24.21	-19.41	30.24	5.74	5.89	6.91	11/01/2004
MSCI Wrld Ex US Sm Cap Index (USD) (Net)	10.12	-4.05	6.88	1.42	7.35	5.13	6.55	25.41	-18.07	31.04	4.32	5.46	6.78	
Difference	-0.44	-3.34	-2.91	-2.44	-1.27	-0.73	-0.38	-1.20	-1.34	-0.80	1.42	0.43	0.13	
Templeton Investment Counsel (SA) - Net	13.23	-4.07	5.43	0.87	5.60	N/A	N/A	24.17	-18.48	33.07	-1.13	1.81	3.42	03/01/2014
Templeton Custom Index	10.50	-3.64	6.97	0.09	6.61	3.98	5.01	22.42	-19.75	29.72	8.24	-1.25	3.01	
Difference	2.73	-0.43	-1.54	0.78	-1.01	N/A	N/A	1.75	1.27	3.35	-9.37	3.06	0.41	
Templeton Investment Counsel (SA) - Gross	13.47	-3.46	6.32	1.72	6.51	N/A	N/A	25.20	-17.78	34.21	-0.23	2.73	4.32	03/01/2014
IM ACWI Ex US Value (SA+CF) Median	5.20	-11.04	-3.52	-0.68	5.23	2.60	4.77	21.34	-14.78	26.02	4.87	-3.25	1.89	
Rank	1	28	28	29	33	N/A	N/A	26	84	8	89	9	23	

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 September 30, 2020

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2019	2018	2017	2016	2015	Since Incep.	Inception Date
International Emerging Equity														
BlackRock MSCI Emg Mkts Index NL (CF) - Net	9.43	-1.31	10.27	2.21	8.74	3.52	N/A	18.12	-14.69	37.05	10.85	-15.15	2.96	02/01/2012
MSCI Emg Mkts Index (USD) (Net)	9.56	-1.16	10.54	2.42	8.97	3.74	2.51	18.44	-14.58	37.28	11.19	-14.92	3.20	
Difference	-0.13	-0.15	-0.27	-0.21	-0.23	-0.22	N/A	-0.32	-0.11	-0.23	-0.34	-0.23	-0.24	
BlackRock MSCI Emg Mkts Index NL (CF) - Gross	9.46	-1.23	10.39	2.33	8.87	3.67	N/A	18.25	-14.60	37.16	11.08	-14.99	3.12	02/01/2012
iShares:MSCI Em Mkts (EEM) - Net	10.18	-1.18	10.75	1.34	N/A	N/A	N/A	18.12	-16.45	36.86	N/A	N/A	8.00	01/01/2017
MSCI Emg Mkts Index (USD) (Net)	9.56	-1.16	10.54	2.42	8.97	3.74	2.51	18.44	-14.58	37.28	11.19	-14.92	8.82	
Difference	0.62	-0.02	0.21	-1.08	N/A	N/A	N/A	-0.32	-1.87	-0.42	N/A	N/A	-0.82	
DFA Emg Mkts Sm Cap;I (DEMSX) - Net	10.04	-4.72	4.81	-0.67	N/A	N/A	N/A	14.88	-17.56	N/A	N/A	N/A	3.97	02/01/2017
MSCI Emg Mkts Sm Cap Index (USD) (Net)	11.85	-2.40	6.89	-1.09	4.60	2.09	1.03	11.51	-18.59	33.84	2.28	-6.85	3.46	
Difference	-1.81	-2.32	-2.08	0.42	N/A	N/A	N/A	3.37	1.03	N/A	N/A	N/A	0.51	

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%, 0.52%, 0.68%, and 0.67%, 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 September 30, 2020

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2019	2018	2017	2016	2015	Since Incep.	Inception Date
US Fixed Income Aggregate - Net	0.77	7.39	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.32	12/01/2019
Bloomberg US Agg Bond Index	0.62	6.79	6.98	5.24	4.18	3.97	3.64	8.72	0.01	3.54	2.65	0.55	6.72	
Difference	0.15	0.60	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.60	
TIPS Portfolio (Internal) - Net	2.82	7.49	8.54	4.88	N/A	N/A	N/A	6.96	-0.13	N/A	N/A	N/A	4.28	04/01/2017
Bloomberg US Trsy Infl Notes 1-10 Yr Index	2.51	6.69	7.75	4.56	3.66	2.57	2.72	6.85	-0.25	1.90	4.01	-0.52	3.99	
Difference	0.31	0.80	0.79	0.32	N/A	N/A	N/A	0.11	0.12	N/A	N/A	N/A	0.29	
Reams Asset Core Plus (SA) - Net	1.96	15.05	15.05	8.10	5.95	5.12	5.01	8.08	1.31	3.21	4.18	0.07	6.40	10/01/2008
Reams Custom Index	0.99	6.20	6.40	5.05	4.38	4.09	3.87	8.72	0.01	3.83	3.91	0.43	4.85	
Difference	0.97	8.85	8.65	3.05	1.57	1.03	1.14	-0.64	1.30	-0.62	0.27	-0.36	1.55	
Reams Asset Core Plus (SA) - Gross	2.01	15.21	15.26	8.29	6.14	5.30	5.19	8.28	1.49	3.38	4.35	0.24	6.58	10/01/2008
IM U.S. Broad Market Core+ FI (SA+CF) Median	1.71	6.96	7.42	5.71	5.11	4.70	4.67	9.94	-0.32	4.79	4.69	0.31	6.05	
Rank	25	1	1	1	9	17	22	93	4	95	58	53	28	

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 September 30, 2020

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2019	2018	2017	2016	2015	Since Incep.	Inception Date
Neuberger Berman High Yield (SA) - Net	4.85	0.48	2.89	3.87	6.06	4.70	5.93	13.75	-1.99	5.80	14.98	-4.32	6.70	01/01/2010
Bloomberg US HY 2% Issuer Cap Index	4.58	0.57	3.20	4.19	6.78	5.32	6.46	14.32	-2.08	7.50	17.13	-4.43	7.06	
Difference	0.27	-0.09	-0.31	-0.32	-0.72	-0.62	-0.53	-0.57	0.09	-1.70	-2.15	0.11	-0.36	
Neuberger Berman High Yield (SA) - Gross	4.96	0.80	3.33	4.33	6.53	5.17	6.40	14.26	-1.56	6.27	15.50	-3.89	7.18	01/01/2010
IM U.S. High Yield Bonds (SA+CF) Median	4.67	0.62	3.22	4.15	6.33	5.28	6.48	14.17	-1.64	7.50	14.07	-2.11	7.11	
Rank	30	48	48	42	42	54	53	50	49	79	33	74	44	
Oaktree US High Yield (SA) (CAPP) - Net	4.49	0.44	2.93	N/A	N/A	N/A	N/A	15.44	-3.99	N/A	N/A	N/A	3.98	01/01/2018
Bloomberg US HY 2% Issuer Cap Index	4.58	0.57	3.20	4.19	6.78	5.32	6.46	14.32	-2.08	7.50	17.13	-4.43	4.40	
Difference	-0.09	-0.13	-0.27	N/A	N/A	N/A	N/A	1.12	-1.91	N/A	N/A	N/A	-0.42	
Oaktree US High Yield (SA) (CAPP) - Gross	4.62	0.80	3.43	N/A	N/A	N/A	N/A	16.02	-3.47	N/A	N/A	N/A	4.51	01/01/2018
IM U.S. High Yield Bonds (SA+CF) Median	4.67	0.62	3.22	4.15	6.33	5.28	6.48	14.17	-1.67	7.50	14.07	-2.11	4.28	
Rank	52	48	43	N/A	N/A	N/A	N/A	15	92	N/A	N/A	N/A	42	
Shenkman High Yield Fixed Income (SA) (CAPP) - Net	3.94	0.62	2.90	N/A	N/A	N/A	N/A	13.65	-1.96	N/A	N/A	N/A	3.97	12/01/2017
Bloomberg US HY 2% Issuer Cap Index	4.58	0.57	3.20	4.19	6.78	5.32	6.46	14.32	-2.08	7.50	17.13	-4.43	4.38	
Difference	-0.64	0.05	-0.30	N/A	N/A	N/A	N/A	-0.67	0.12	N/A	N/A	N/A	-0.41	
Shenkman High Yield Fixed Income (SA) (CAPP) - Gross	4.06	0.97	3.40	N/A	N/A	N/A	N/A	14.18	-1.46	N/A	N/A	N/A	4.48	12/01/2017
IM U.S. High Yield Bonds (SA+CF) Median	4.67	0.62	3.22	4.15	6.33	5.28	6.48	14.17	-1.67	7.50	14.07	-2.11	4.28	
Rank	81	43	44	N/A	N/A	N/A	N/A	50	46	N/A	N/A	N/A	44	

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 September 30, 2020

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2019	2018	2017	2016	2015	Since Incep.	Inception Date
Trust Funds Investment Pool Fixed Income	1.29	7.77	8.08	5.80	4.65	4.61	4.41	9.12	0.25	3.83	3.44	1.03	6.11	10/01/1995
Bloomberg US Agg Bond Index	0.62	6.79	6.98	5.24	4.18	3.97	3.64	8.72	0.01	3.54	2.65	0.55	5.30	
Difference	0.67	0.98	1.10	0.56	0.47	0.64	0.77	0.40	0.24	0.29	0.79	0.48	0.81	
Trust Funds Investment Pool Fixed Income	1.29	7.77	8.08	5.80	4.65	4.61	4.41	9.12	0.25	3.83	3.44	1.03	6.11	10/01/1995
IM U.S. Broad Market Core Fixed Income (SA+CF) Median	1.11	7.33	7.55	5.67	4.73	4.44	4.17	9.18	0.06	4.03	3.10	0.82	5.72	
Rank	32	35	33	40	55	38	29	55	31	62	42	28	11	
Shenkman High Yield Fixed Income (SA) (TFIP) - Net	3.93	0.37	2.75	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.47	07/01/2019
Bloomberg US HY 2% Issuer Cap Index	4.58	0.57	3.20	4.19	6.78	5.32	6.46	14.32	-2.08	7.50	17.13	-4.43	3.64	
Difference	-0.65	-0.20	-0.45	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.17	
Shenkman High Yield Fixed Income (SA) (TFIP) - Gross	4.05	0.71	3.25	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.95	07/01/2019
IM U.S. High Yield Bonds (SA+CF) Median	4.67	0.62	3.22	4.15	6.33	5.28	6.48	14.17	-1.67	7.50	14.07	-2.11	3.75	
Rank	82	49	49	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	42	
Oaktree US High Yield (SA) (TFIP) - Net	4.41	0.56	3.01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.06	08/01/2019
Bloomberg US HY 2% Issuer Cap Index	4.58	0.57	3.20	4.19	6.78	5.32	6.46	14.32	-2.08	7.50	17.13	-4.43	3.41	
Difference	-0.17	-0.01	-0.19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.65	
Oaktree US High Yield (SA) (TFIP) - Gross	4.53	0.93	3.56	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.57	08/01/2019
IM U.S. High Yield Bonds (SA+CF) Median	4.67	0.62	3.22	4.15	6.33	5.28	6.48	14.17	-1.67	7.50	14.07	-2.11	3.52	
Rank	55	44	39	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	20	
Neuberger Berman High Yield (SA) (TFIP) - Net	4.88	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	13.23	04/01/2020
Bloomberg US HY 2% Issuer Cap Index	4.58	0.57	3.20	4.19	6.78	5.32	6.46	14.32	-2.08	7.50	17.13	-4.43	15.18	
Difference	0.30	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-1.95	
Neuberger Berman High Yield (SA) (TFIP) - Gross	5.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	13.46	04/01/2020
IM U.S. High Yield Bonds (SA+CF) Median	4.67	0.62	3.22	4.15	6.33	5.28	6.48	14.17	-1.67	7.50	14.07	-2.11	14.43	
Rank	29	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	68	

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 September 30, 2020

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2019	2018	2017	2016	2015	Since Incep.	Inception Date
Abandoned Mine Trust	0.09	0.66	1.14	1.69	1.39	1.38	1.44	2.41	1.85	1.04	1.10	0.90	3.91	12/01/1993
Barker Hughesville St Response	0.81	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.65	05/01/2020
Belt Water Treatment Plant Fund	0.87	5.98	6.41	N/A	N/A	N/A	N/A	8.56	N/A	N/A	N/A	N/A	6.42	03/01/2018
Big Sky Economic Development Fund	0.91	6.24	6.69	5.23	4.53	4.60	4.59	8.67	0.48	3.97	3.98	1.82	5.13	07/01/2005
Butte Area One Restoration	0.76	5.35	5.80	4.56	3.69	3.40	3.15	6.76	1.24	2.92	2.60	1.20	3.62	11/01/2008
Clark Fork River Restoration	0.73	4.95	5.40	4.42	3.61	3.48	3.33	7.04	0.96	2.85	2.72	1.37	3.91	11/01/2008
Coal Tax Cultural Trust Fund	0.90	6.14	6.58	5.19	4.49	4.58	4.57	8.64	0.47	3.96	3.95	1.79	6.12	12/01/1993
Coal Tax Park Acquisition	0.88	6.03	6.47	5.15	4.46	4.53	4.54	8.63	0.48	3.96	3.90	1.78	6.09	12/01/1993
East Helena Compensation Fund	0.25	2.47	2.92	3.18	2.73	2.57	N/A	5.52	1.20	2.56	2.12	0.91	2.27	01/01/2013
Endowment for Children	0.92	6.14	6.59	5.15	4.41	4.48	4.48	8.54	0.46	3.89	3.66	1.70	5.20	08/01/2007
Flying J CECRA Facilities Fund	0.89	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.70	05/01/2020
FWP License Account	0.20	1.47	1.93	2.17	1.65	1.36	1.25	3.33	1.50	1.11	0.84	0.61	2.95	11/01/1997
FWP Mitigation Trust Fund	0.48	3.24	3.72	3.27	2.31	2.01	1.87	5.46	1.14	1.15	0.67	0.87	3.94	12/01/1993
FWP Real Property Trust	0.87	5.99	6.44	5.14	4.42	4.46	4.43	8.62	0.51	3.80	3.82	1.73	5.49	12/01/1993
Group Benefits	0.23	1.85	2.32	2.46	1.89	1.72	1.58	4.01	1.37	1.30	1.16	1.06	3.88	12/01/1993
Harold Hamm Endowment	0.87	5.90	6.35	5.03	N/A	N/A	N/A	8.45	0.57	1.11	N/A	N/A	3.80	07/01/2016
Libby Asbestos Site State Cost	0.89	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.71	05/01/2020
Luttrell Pit - Operational & Maintenance	0.78	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.60	05/01/2020
Montana Pole	0.71	4.95	5.40	4.50	3.86	3.86	3.82	7.48	0.74	3.38	3.23	1.56	5.20	09/01/1996
Montana State University	0.18	1.17	1.63	2.08	1.65	1.37	1.19	2.87	1.87	1.39	0.95	0.39	2.04	08/01/2004
Montana Tech-UM Agency Funds	0.12	0.91	1.38	1.90	1.47	1.14	0.94	2.56	1.91	1.22	0.72	0.27	1.82	03/01/2003
MT BOI - Clark Fork Site	0.86	5.83	6.27	4.94	4.23	4.13	3.95	8.00	0.67	3.64	3.63	1.56	4.59	11/01/2008
MT BOI UOFM Other	0.79	3.14	3.60	3.12	2.64	2.50	2.20	4.54	1.42	2.15	2.34	1.13	3.05	08/01/2002
MUS Group Insurance	0.21	1.52	1.99	2.37	1.82	1.71	N/A	3.39	1.96	1.09	1.33	1.26	1.52	10/01/2011
MUS Workers Compensation	0.33	2.27	2.72	2.89	N/A	N/A	N/A	4.43	1.62	1.80	N/A	N/A	2.30	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 September 30, 2020

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2019	2018	2017	2016	2015	Since Incep.	Inception Date
Older Montanans Trust	0.89	6.31	6.76	5.24	4.49	4.53	4.24	8.62	0.49	3.87	3.86	1.72	5.04	08/01/2007
Permanent Coal Trust Excl Crp	0.73	4.71	5.23	4.42	3.96	4.14	4.29	6.81	1.28	3.49	3.79	2.23	5.77	12/01/1993
PERS Defined Cont Disability	5.67	2.90	9.05	7.06	6.99	N/A	N/A	20.77	-4.88	14.57	3.42	N/A	6.87	09/01/2015
Potter Trust Fund	0.88	5.95	6.39	5.08	N/A	N/A	N/A	8.47	0.51	3.87	N/A	N/A	4.32	06/01/2016
Resource Indemnity Trust	0.93	6.34	6.78	5.32	4.59	4.67	4.65	8.88	0.44	4.01	4.02	1.82	6.20	12/01/1993
School Facilities Fund	0.90	6.11	6.53	N/A	N/A	N/A	N/A	7.88	-0.13	N/A	N/A	N/A	4.99	01/01/2018
Smelter Hill Up Restorative	0.74	4.86	5.32	4.11	3.08	2.75	2.42	5.64	1.57	1.85	1.79	0.92	2.58	11/01/2008
State Fund Insurance	1.69	5.19	6.90	5.30	4.84	4.60	4.65	9.65	0.38	5.05	3.50	2.21	5.65	12/01/1993
Streamside Tailings Operable Unit	0.84	5.67	6.12	4.83	4.16	4.23	4.19	7.92	0.57	3.69	3.58	1.69	5.44	02/01/1999
Subsequent Injury Fund	0.09	0.67	1.13	1.75	1.34	1.00	0.82	2.28	1.98	1.11	0.61	0.22	3.01	12/01/1993
Tobacco Trust Fund	0.92	6.23	6.67	5.22	4.52	4.61	4.59	8.67	0.46	3.96	3.99	1.82	5.76	01/01/2001
Treasurers	0.06	0.57	1.04	1.71	1.31	1.01	0.79	2.28	1.97	1.07	0.68	0.27	2.85	12/01/1993
Treasure State Endowment	0.92	6.27	6.72	5.28	4.56	4.64	4.62	8.81	0.46	4.00	3.98	1.82	6.07	12/01/1993
Treasure State Reg. Water System	0.92	6.27	6.71	5.28	4.56	4.63	4.60	8.80	0.45	4.00	3.96	1.82	5.90	06/01/2000
Trust and Legacy Account	0.93	6.30	6.75	5.29	4.57	4.66	4.62	8.84	0.43	4.00	4.01	1.82	6.76	07/01/1991
UCFRB Assess/Litig Cost Rec	0.85	5.87	6.32	5.06	4.36	4.40	4.30	8.50	0.49	3.77	3.84	1.65	5.80	07/01/1999
UCFRB Restoration Fund	0.88	6.05	6.51	5.19	4.37	4.39	4.37	8.52	0.67	3.73	3.52	1.70	5.72	06/01/1999
Upper Blackfoot Response	0.18	1.42	1.89	2.48	2.11	1.91	1.71	4.24	1.49	1.90	1.74	0.84	1.70	09/01/2010
Weed Control Trust	0.93	6.34	6.78	5.32	4.59	4.68	4.57	8.88	0.44	4.01	4.02	1.82	5.36	12/01/1993
Wildlife Habitat Trust	0.87	5.94	6.38	5.10	4.38	4.44	4.41	8.54	0.51	3.78	3.79	1.73	5.49	12/01/1993
Zortman/Landusky LT H2O	0.09	0.67	1.13	1.75	1.36	1.43	2.26	2.28	1.98	1.01	1.36	0.84	6.36	09/01/1999
Z/L Long Term H2O Trust Fund	0.09	0.67	1.13	1.75	1.39	1.46	2.05	2.28	1.98	1.08	1.39	1.15	4.22	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, 100% Bloomberg US Agg Bond Index through 12/31/2019, and 100% Bloomberg US Unv Bond Index thereafter.

Trust Accounts Comments

- Barker Hughesville St Response, Libby Asbestos Site State Cost, Flying J CECRA Facilities Fund, and Luttrell Pit - Operations and Maintenance were added in 05/2020.
- 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

- Neuberger Berman High Yield (SA) and TFIP Private Real Estate were funded in the Trust Fund Investment Pool during Q1 2020.
- 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.

Manager Transition Comments (cont.)

- DFA Emg Mkts Sm Cap;l (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.
- 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 September 30, 2020

	Fee Schedule	Market Value As of 09/30/2020 (\$)
SPDR S&P 500 ETF (SPY)	0.09 % of Assets	82,743,658
iShares:Core S&P Md-Cp (IJH)	0.05 % of Assets	26,949,077
iShares:Russ 2000 ETF (IWM)	0.19 % of Assets	749
iShares:MSCI EAFE ETF (EFA)	0.32 % of Assets	132,010,100
DFA Intl Sm Co;I (DFISX)	0.52 % of Assets	89,000,376
iShares:MSCI Em Mkts (EEM)	0.68 % of Assets	51,598,527
DFA Emg Mkts Sm Cap;I (DEMSX)	0.67 % of Assets	27,421,066

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

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