

**REGULAR MEETING OF THE
MONTANA BOARD OF INVESTMENTS
DEPARTMENT OF COMMERCE
via Zoom
November 19, 2020**

COMMITTEE MEETINGS

- A. Audit Committee – Maggie Peterson, Chair** **8:30 AM**
1. Public Comment – *Public Comment on issues with Committee Jurisdiction*
 2. Approval of October 13, 2020 Committee Minutes
 3. Executive Director Comments
 4. FY 2020 – Financial Audit – Status
 5. Draft FY 2020 Financial Statement – **Decisions**
 6. Draft FY 2020 Annual Report – **Decision**
 7. Annual Statutory Compliance Checklist – **Decision**
 8. Annual Audit Charter Compliance – **Decision**
 9. FY20 Wipfli Final SOC Review - **Decision**
 10. Securities Litigation Annual Review
- B. Loan Committee – Jack Prothero, Chair** **9:15 AM**
1. Public Comment – *Public Comment on issues with Committee Jurisdiction*
 2. Approval of October 13, 2020 Committee Meeting Minutes
 3. Executive Director Comments
 4. In State Loan Requests - **Decisions**
- C. Human Resource Committee – Terry Cohea, Chair** **9:45 AM**
1. Public Comment – *Public Comment on issues with Committee Jurisdiction*
 2. Executive Director Comments

BREAK **10:15 AM**

Tab 1 CALL TO ORDER – Karl Englund, Chairman **10:30 AM**

- A. Notice of Video Recording of Meeting
- B. Roll Call
- C. Public Comment – *Public Comment on issues with Board Jurisdiction*
- D. Approval of the October 13, 2020 Meeting Minutes
- E. Administrative Business
 1. Audit Committee Report – **Decision**
 2. Loan Committee Report
 3. Human Resource Committee Report
- F. Comments from TRS and PERS Board Members
- G. Comments from Board Legislative Liaisons

Tab 2 EXECUTIVE DIRECTOR REPORTS – Dan Villa **10:45 PM**

- A. Member Requests from Prior Meeting
- B. Monthly Snapshot
- C. Monthly Website Traffic
- D. 2020 Securities Litigation Review (Audit Committee)
- E. Resolution 217 – Authorization of Investment Managers
- F. Governor’s Letter – Public Participation
- G. Completed Purchase of Montana Property/TRS Building
- H. Final Board Meeting Dates
- I. Final 2021 Work Plan

Tab 3 MONTANA LOAN PROGRAM – Doug Hill **11:00 AM**

- A. Commercial and Residential Portfolios Report
- B. CARES Act Final Report

Tab 4 BOND PROGRAM – Savannah Morgan **11:15 AM**

- A. INTERCAP
 1. Activity Report
 2. Staff Approved Loans Report

BREAK	12:00 PM
Tab 5 RETIREMENT SYSTEMS' ANNUAL PRESENTATIONS	1:00 PM
A. TRS – Shawn Graham, Executive Director	
B. PER Systems – Dore Schwinden, Executive Director	
Tab 8 QUARTERLY PERFORMANCE REPORT –	1:30 PM
RVK, INC.	
Tab 6 CAPP Asset Allocation Investment Policy Statement Revisions – <i>Decision</i>	2:00 PM
Jon Putnam, CFA, FRM, CAIA	
Tab 7 INVESTMENTS – NEW COMMITMENTS	2:15 PM
Public Asset Classes - Rande Muffick, CFA and Jason Brent, CFA, CAIA	
BREAK	2:45 PM
Tab 9 INVESTMENT UPDATE	3:00 PM
A. CIO Update – Jon Putnam, CFA, FRM, CAIA	
B. Macro Attribution – Eron Krpan, CFA, CIPM	
C. Private Equity – Michael Nguyen	
D. Real Estate – Ethan Hurley, CAIA	
E. Natural Resources – Ethan Hurley, CAIA	
F. Core Fixed Income – John Romasko, CFA	
G. Non-Core Fixed Income – Rande Muffick, CFA	
H. Domestic Equity – Rande Muffick, CFA	
I. International Equity – Rande Muffick, CFA	
J. STIP – Kirsten Haswell	
K. State Fund – John Romasko, CFA	
L. Trust Funds Investment Pool – John Romasko, CFA	
RECAP OF STAFF TO DO LIST AND ADJOURNMENT – Karl Englund, Chairman	3:45 PM
Appendix	
A. Annual Board Meeting Schedule	
B. 2020/2021 Work Plan	
C. Acronym Index	
D. Terminology List	

**REGULAR MEETING OF THE
MONTANA BOARD OF INVESTMENTS
2401 Colonial Drive, 3rd Floor
Helena, Montana
October 13, 2020**

Call to Order

The Board of Investment's meeting was called to order by Chairman Karl Englund at 11:00 a.m., on Tuesday, October 13, 2020.

Attendance

Board Members Present: Chairman Karl Englund, Jack Prothero, Mark Noennig, Bruce Nelson, Terry Cohea, Maggie Peterson, Jeff Greenfield, Diane Fladmo, Jim Edwards

Legislative Liaisons Present: Representative Jim Hamilton

Board Staff Present: Dan Villa, Doug Hill, Herb Kulow, Sheli Jacoby, Lindsay Ford, April Madden, Robert Samson, Jon Putnam, Kirsten Haswell, Julie Feldman, Rande Muffick, John Romasko, Roberta Diaz, Savannah Morgan, Louise Welsh, Polly Boutin, Sam Holman, Thomas Winkler, Kelsey Gauthier, Michael Nguyen, Jason Brent, Ethan Hurley, John Carpenter, Dan Zarlino, Emily Kovarik, Eron Krpan, Steve Strong, Teri Kolnik, Sue Tinsley, Tim House

Interested Parties Present: Torpey White, Jacqueline Cooper – Wipfli; Adam Rees – Fund Map; Mark Higgins, Becky Gratsinger, Jim Voytko, Eryn Bacewich – RVK; Lindsay Saienni – Financial Investment News; Michael Barela – Voya Investment Management

October 13, 2020

Tab 1 CALL TO ORDER – Karl Englund, Chairman (08:00:00)

A. Roll Call (08:00:022)

Roll was taken: nine Board members and one legislative liaison were present, forming a quorum.

B. Notice of Video Recording (08:00:13)

Chairman Englund advised of audio and video recording of the meeting.

C. Public Comment (08:03:31)

Chairman Englund asked for public comment. There was none.

D. Approval of Minutes (08:01:35)

1. August 18-19, 2020 Regular Board Meeting

Member Prothero noted a change to the Call to Order. Member Cohea moved to approve with the change. Member Prothero seconded the motion which passed unanimously.

September 18, 2020 Special Board Meetings Minutes

Member Noennig moved to approve. Member Nelson seconded the motion which passed unanimously.

E. Administrative Business

1. **Audit Committee Report (08:04:31)**

Member Peterson briefed the Board. Member Peterson moved to approve the SOC 1 Type 2 Audit draft. Member Greenfield seconded the motion which passed unanimously.

2. **Human Resource Committee Report (08:07:59)**

Chairman Englund briefed the Board and brought two items forward for decision:

- Hire Director of Investment Operations
Chairman Englund moved to hire Eron Krpan as the Director of Investment Operations. Member Peterson seconded the motion which passed unanimously.
- Hire Exempt Staff

Chairman Englund moved to transition Thomas Winkler into an exempt position. Member Peterson seconded the motion which passed unanimously.

3. Loan Committee Report (08:10:10)

Member Prothero briefed the Board.

F. Comments from TRS and PERS Board Members (08:11:50)

Member Peterson and Member Greenfield briefed the Board and answered questions.

G. Comments from Board Legislative Liaisons (08:21:20)

Representative Hamilton briefed the Board.

Tab 2 EXECUTIVE DIRECTOR REPORTS (08:26:02)

A. Member Requests or Follow up from Prior Meeting

Executive Director Villa briefed the Board and answered questions.

B. Monthly Snapshot

Executive Director Villa briefed the Board and answered questions.

C. Monthly Web Traffic

Executive Director Villa briefed the Board and answered questions.

D. CARES Act Report

Executive Director Villa briefed the Board and answered questions.

Tab 3 NEW INVESTMENT COMMITMENTS (08:29:20)

Emily Kovarik briefed the Board and answered questions.

Tab 4 PROXY VOTING OF PUBLIC EQUITIES (08:40:14)

Dan Zarling briefed the Board and answered questions.

Tab 5 ASSET ALLOCATION, REAL ASSETS, AND INFRASTRUCTURE EDUCATION (09:12:12)

Mark Higgins, Becky Gratsinger, and Jim Voytko briefed the Board and answered questions.

Tab 6 DRAFT ASSET ALLOCATION AND INVESTMENT POLICY STATEMENT REVISIONS (10:12:07)

Jon Putnam briefed the Board and answered questions.

RECAP OF STAFF TO DO LIST AND ADJOURNMENT

Executive Director Dan Villa listed items to recap.

Chairman Englund adjourned the meeting at 3:27 pm.

MONTANA BOARD OF INVESTMENTS

Department of Commerce

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TO: Members of the Board of Directors
FROM: Dan Villa, Executive Director
DATE: 11/6/2020
RE: November Executive Directors Report

1. Member Requests or Follow Up from Prior Meeting
2. Monthly Snapshot *(attached)*
3. Monthly Website Traffic:

Profile Snapshot AGF			
4,205 Visits	8,036 Pageviews	73.00% Bounce Rate	52:55 Engagement

	Pages	Pageview: ▾	Unique Views	Landings	Exits	Time on Page
1	/	2,117	1,834	1,791	1,253	27:24
2	/2020meetings	910	799	597	757	03:07
3	/stip	444	361	195	159	08:18
4	/meetings	435	364	174	133	10:10
5	/loanprograms	409	321	173	168	10:02
6	/unifiedinvestments/quarterly	351	288	182	219	05:49
7	/investments	331	267	85	86	06:55
8	/annualreportsaudits	273	191	105	129	09:26
9	/stip/dailyfactoryield	248	203	93	173	30:28
10	/loanprograms/programs	247	162	36	93	03:53

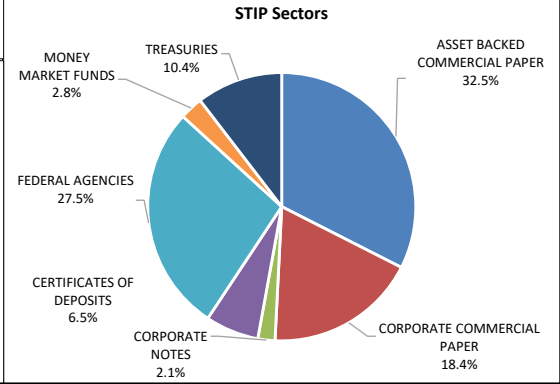
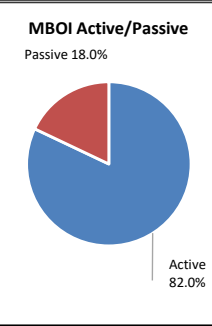
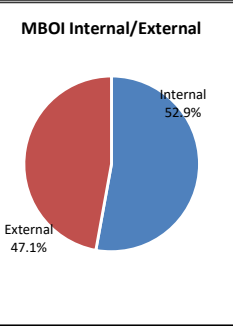
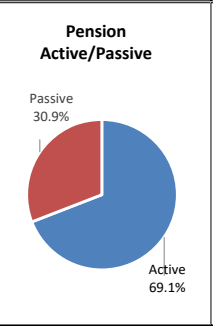
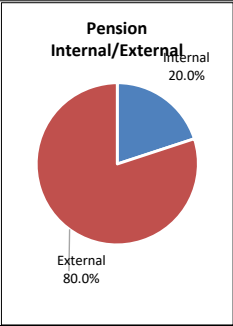
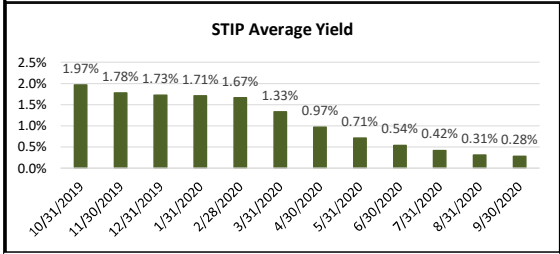
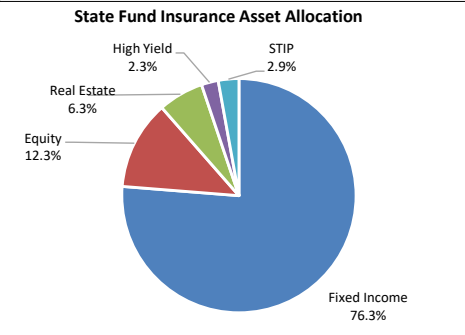
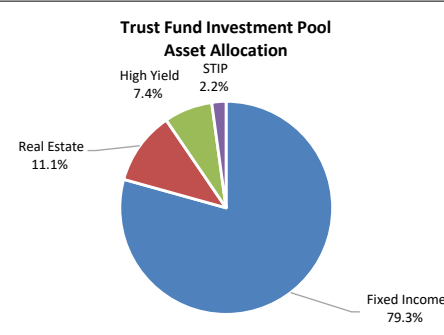
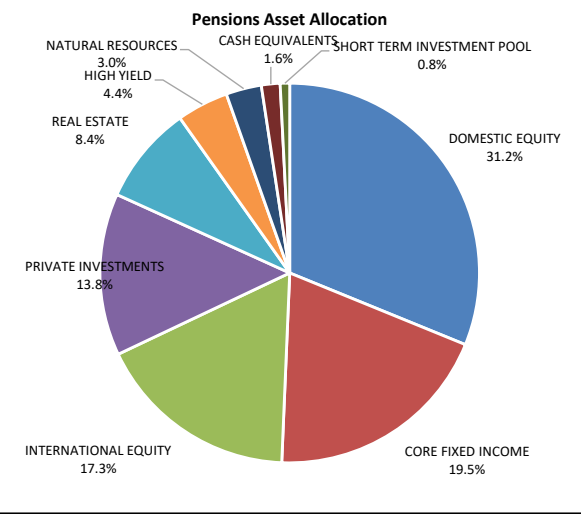
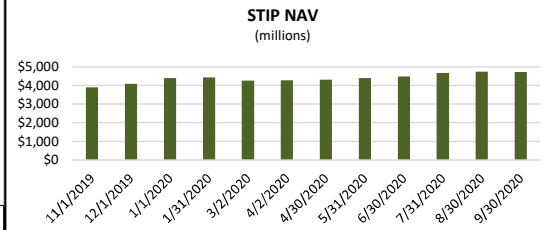
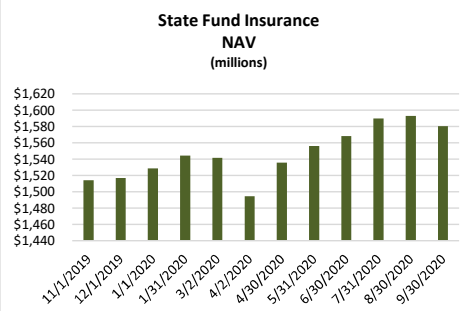
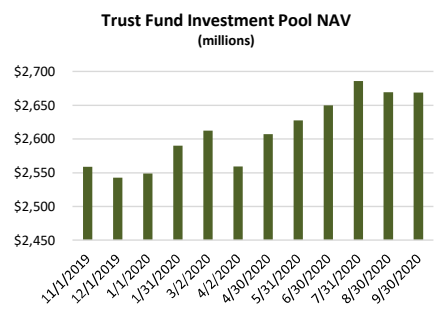
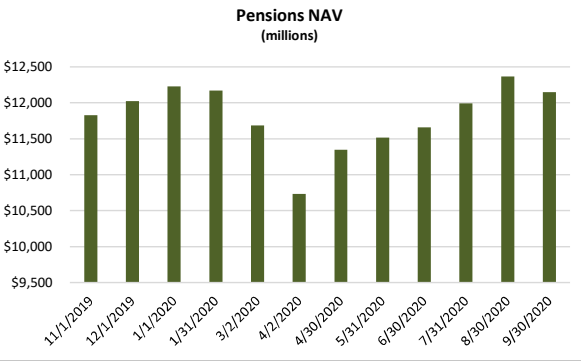
4. 2020 Securities Litigation Review *(see Audit Committee Tab)*
5. Resolution 217 – Authorization of Investment Managers *(attached)*
6. Governor’s Letter – Public Participation *(attached)*
7. Completed Purchase of Montana Property/TRS Building *(attached)*
8. Final 2021 Board Meeting Dates *(attached)*
9. Final 2021 Work Plan *(attached)*

MBOI Snapshot
Asset Management View
9/30/2020 Unaudited



Assets Under Management \$21,905,642,075

Pensions	NAV	%	TFIP	NAV	%	State Fund	NAV	%	Other Fixed Income & Pending	\$
DOMESTIC EQUITY	\$ 3,817,467,895	31.2%	Fixed Income	\$ 2,117,420,830	79.34%	Fixed Income	\$ 1,205,735,526	76.29%		\$ 684,001,914
CORE FIXED INCOME	\$ 2,388,314,517	19.5%	Real Estate	\$ 296,438,617	11.11%	Equity	\$ 193,780,962	12.26%		
INTERNATIONAL EQUITY	\$ 2,117,104,717	17.3%	High Yield	\$ 196,330,055	7.36%	Real Estate	\$ 98,865,310	6.26%	STIP*	
PRIVATE INVESTMENTS	\$ 1,691,738,677	13.8%	STIP	\$ 58,568,844	2.19%	STIP	\$ 45,094,485	2.85%	ASSET BACKED COMMERCIAL PAPER	\$1,534,190,805
REAL ESTATE	\$ 1,030,235,623	8.4%				High Yield	\$ 36,951,897	2.34%	FEDERAL AGENCIES	\$1,298,191,740
HIGH YIELD	\$ 539,470,311	4.4%						CORPORATE COMMERCIAL PAPER	\$867,291,934	
NATURAL RESOURCES	\$ 368,533,759	3.0%	Total	\$ 2,668,758,346	100.00%	State Fund Total	\$ 1,580,428,181	100.00%	TREASURIES	\$493,597,101
CASH EQUIVALENTS	\$ 196,278,304	1.6%						CERTIFICATES OF DEPOSITS	\$305,518,164	
SHORT TERM INVESTMENT POOL	\$ 96,975,405	0.8%						MONEY MARKET FUNDS	\$130,633,998	
Pensions Total	\$ 12,246,119,208	100.00%						CORPORATE NOTES	\$96,910,684	
								STIP Total	\$4,726,334,425	
									100.00%	



Definition of NAV: Net Asset Value is the total value of the account including assets held, adjusted for payables, receivables and liabilities

(1) Other Holdings column on page two represents the value of securities, receivables, payables and liabilities that comprise the Net Asset Value for the asset owner.

*Difference of \$225,392,658 is attributable the portion of STIP held within CAPP (\$166,835,378) and TFIP (\$58,557,269) as a cash investment. Such value is represented in the NAV for the CAPP and STIP columns.

MBOI Snapshot
Asset Ownership View
9/30/2020 Unaudited



	CAPP Holdings	CAPP %	STIP Holdings*	STIP %	TFIP Holdings	TFIP %	Other Holdings ¹	Other %	Total Net Asset Value
Total Fund <small>\$(000)</small>	\$ 12,149,144	55.46%	\$ 4,500,942	20.55%	\$ 2,668,758	12.18%	\$ 2,586,798	11.81%	\$ 21,905,642
Pensions	CAPP	%	STIP	%	TFIP	%	Other	%	Total
FIREFIGHTER'S RETIREMEN	\$ 474,898	95.47%	\$ 22,531	4.53%	\$ -	0.00%	\$ -	0.00%	\$ 497,429
GAME WARDEN'S RETIREM	\$ 221,611	99.04%	\$ 2,144	0.96%	\$ -	0.00%	\$ -	0.00%	\$ 223,755
HIGHWAY PATROL RETIREM	\$ 156,223	99.09%	\$ 1,442	0.91%	\$ -	0.00%	\$ -	0.00%	\$ 157,665
JUDGE'S RETIREMENT	\$ 109,720	99.05%	\$ 1,055	0.95%	\$ -	0.00%	\$ -	0.00%	\$ 110,775
PUBLIC EMPLOYEES' RETIR	\$ 6,023,893	99.04%	\$ 58,268	0.96%	\$ -	0.00%	\$ -	0.00%	\$ 6,082,161
SHERRIF'S RETIREMENT	\$ 398,434	98.98%	\$ 4,111	1.02%	\$ -	0.00%	\$ -	0.00%	\$ 402,544
POLICE RETIREMENT	\$ 447,051	95.50%	\$ 21,061	4.50%	\$ -	0.00%	\$ -	0.00%	\$ 468,112
TEACHER'S RETIREMENT	\$ 4,276,819	98.98%	\$ 44,231	1.02%	\$ -	0.00%	\$ -	0.00%	\$ 4,321,050
VOL. FIREMANS' RETIREME	\$ 40,496	99.02%	\$ 401	0.98%	\$ -	0.00%	\$ -	0.00%	\$ 40,897
Total	\$ 12,149,144	98.74%	\$ 155,243	1.26%	\$ -	0.00%	\$ -	0.00%	\$ 12,304,387
Trust Funds <small>\$(000)</small>	CAPP	%	STIP	%	TFIP	%	Other	%	Total
ABANDONED MINE TRUST	\$ -	0.00%	\$ 6,661	99.98%	\$ -	0.00%	\$ 2	0.02%	\$ 6,662
BARKER HUGHESVILLE ST F	\$ -	0.00%	\$ 652	7.09%	\$ 8,518	92.68%	\$ 21	0.23%	\$ 9,191
BELT WATER TREATMENT	\$ -	0.00%	\$ 1,904	7.03%	\$ 25,113	92.74%	\$ 62	0.23%	\$ 27,079
BPA MITIGATION TRUST FU	\$ -	0.00%	\$ 6,158	53.50%	\$ 5,337	46.37%	\$ 15	0.13%	\$ 11,509
BUTTE AREA ONE RESTORA	\$ -	0.00%	\$ 1,348	18.03%	\$ 6,113	81.77%	\$ 15	0.20%	\$ 7,476
BUTTE SILVER BOW	\$ -	0.00%	\$ 1,650	11.11%	\$ 13,167	88.67%	\$ 33	0.22%	\$ 14,849
CLARK FORK RIVER RESTOP	\$ -	0.00%	\$ 6,785	21.95%	\$ 24,063	77.85%	\$ 61	0.20%	\$ 30,909
CLARK FORK SITE RAA	\$ -	0.00%	\$ 6,000	7.94%	\$ 69,418	91.84%	\$ 172	0.23%	\$ 75,590
COAL TAX CULTURAL TRUS	\$ -	0.00%	\$ 597	3.57%	\$ 16,076	96.19%	\$ 40	0.24%	\$ 16,712
COAL TAX PARK ACQUISITI	\$ -	0.00%	\$ 1,975	6.34%	\$ 29,096	93.43%	\$ 72	0.23%	\$ 31,143
EAST HELENA COMPENSAT	\$ -	0.00%	\$ 5,075	83.30%	\$ 1,014	16.64%	\$ 4	0.06%	\$ 6,093
ENDOWMENT FOR CHILDR	\$ -	0.00%	\$ 26	1.81%	\$ 1,402	97.95%	\$ 3	0.24%	\$ 1,431
FLYING J CECRA FACILITIES	\$ -	0.00%	\$ 140	5.25%	\$ 2,520	94.52%	\$ 6	0.23%	\$ 2,666
FWP REAL PROPERTY TRUS	\$ -	0.00%	\$ 488	6.44%	\$ 7,070	93.33%	\$ 17	0.23%	\$ 7,576
HAROLD HAMM ENDOWM	\$ -	0.00%	\$ 4	7.69%	\$ 47	92.08%	\$ 0	0.23%	\$ 51
LIBBY ASBESTOS SITE STAT	\$ -	0.00%	\$ 661	12.80%	\$ 4,488	86.98%	\$ 11	0.22%	\$ 5,160
LUTTRELL PIT - OPER & MA	\$ -	0.00%	\$ 201	8.49%	\$ 2,157	91.28%	\$ 5	0.23%	\$ 2,363
MONTANA HISTORICAL SO	\$ -	0.00%	\$ 587	14.18%	\$ 3,544	85.61%	\$ 9	0.21%	\$ 4,140
MONTANA POLE	\$ -	0.00%	\$ 7,800	26.48%	\$ 21,599	73.33%	\$ 55	0.19%	\$ 29,454
OLDER MONTANANS TRUS	\$ -	0.00%	\$ 5	1.67%	\$ 319	98.08%	\$ 1	0.24%	\$ 325
POTTER TRUST FUND	\$ -	0.00%	\$ 14	5.49%	\$ 237	94.27%	\$ 1	0.23%	\$ 251
RESOURCE INDEMNITY TRU	\$ -	0.00%	\$ 23	0.02%	\$ 119,081	99.74%	\$ 292	0.24%	\$ 119,395
SMELTER HILL UP RESTORA	\$ -	0.00%	\$ 1,648	16.77%	\$ 8,160	83.02%	\$ 20	0.21%	\$ 9,829
STREAMSIDE TAILINGS OP	\$ -	0.00%	\$ 2,030	10.37%	\$ 17,497	89.41%	\$ 43	0.22%	\$ 19,571
TOBACCO TRUST FUND	\$ -	0.00%	\$ 2,754	1.02%	\$ 267,743	98.74%	\$ 656	0.24%	\$ 271,153
TRUST AND LEGACY ACCO	\$ -	0.00%	\$ 11,197	1.34%	\$ 825,160	98.42%	\$ 2,022	0.24%	\$ 838,380
UCFRB ASSESS/LITIG COST	\$ -	0.00%	\$ 1,986	8.96%	\$ 20,120	90.81%	\$ 50	0.22%	\$ 22,155
UCFRB RESTORATION FUN	\$ -	0.00%	\$ 3,021	3.58%	\$ 81,154	96.18%	\$ 200	0.24%	\$ 84,375
UPPER BLACKFOOT RESPO	\$ -	0.00%	\$ 1,622	91.76%	\$ 145	8.20%	\$ 1	0.04%	\$ 1,767
WEED CONTROL TRUST	\$ -	0.00%	\$ 0	0.00%	\$ 11,601	99.76%	\$ 28	0.24%	\$ 11,629
WILDLIFE HABITAT TRUST	\$ -	0.00%	\$ 1,383	8.43%	\$ 14,978	91.34%	\$ 37	0.23%	\$ 16,398
Z/L LT H2O TRUST FD	\$ -	0.00%	\$ 20,302	99.98%	\$ -	0.00%	\$ 5	0.02%	\$ 20,307
ZORTMAN/LANDUSKY LT H	\$ -	0.00%	\$ 15,611	99.98%	\$ -	0.00%	\$ 4	0.02%	\$ 15,614
Total	\$ -	0.00%	\$ 110,307	6.41%	\$ 1,606,937	93.36%	\$ 3,960	0.23%	\$ 1,721,205
Coal Severance <small>\$(000)</small>	CAPP	%	STIP	%	TFIP	%	Other	%	Total
BIG SKY ECON DEV FD	\$ -	0.00%	\$ 3,186	2.46%	\$ 125,747	97.30%	\$ 309	0.24%	\$ 129,242
PERMANENT COAL TRUST	\$ -	0.00%	\$ 16,408	2.76%	\$ 371,304	62.46%	\$ 206,720	34.78%	\$ 594,432
SCHOOL FACILITIES FUND	\$ -	0.00%	\$ 4,030	6.18%	\$ 61,037	93.59%	\$ 150	0.23%	\$ 65,217
TREASURE ST. REG. WATER	\$ -	0.00%	\$ 1,192	1.13%	\$ 104,218	98.63%	\$ 256	0.24%	\$ 105,665
TREASURE STATE ENDOWN	\$ -	0.00%	\$ 3,241	1.06%	\$ 300,860	98.66%	\$ 844	0.28%	\$ 304,944
Total	\$ -	0.00%	\$ 28,056	2.34%	\$ 963,166	80.30%	\$ 208,279	17.36%	\$ 1,199,501
Operating Funds <small>\$(000)</small>	CAPP	%	STIP	%	TFIP	%	Other	%	Total
FWP LICENSE ACCOUNT	\$ -	0.00%	\$ 60,990	86.52%	\$ 7,454	10.57%	\$ 2,045	2.90%	\$ 70,488
LOCAL AGENCIES	\$ -	0.00%	\$ 1,651,011	99.98%	\$ -	0.00%	\$ 401	0.02%	\$ 1,651,412
MONTANA STATE UNIVERS	\$ -	0.00%	\$ 227,062	92.57%	\$ 18,137	7.39%	\$ 96	0.04%	\$ 245,296
MT TECH-UM AGENCY FUN	\$ -	0.00%	\$ 10,746	95.47%	\$ 506	4.50%	\$ 4	0.03%	\$ 11,256
STATE AGENCIES	\$ -	0.00%	\$ 693,777	99.98%	\$ -	0.00%	\$ 159	0.02%	\$ 693,936
TREASURER'S FUND	\$ -	0.00%	\$ 1,262,620	60.60%	\$ -	0.00%	\$ 821,063	39.40%	\$ 2,083,683
UNIV OF MONTANA	\$ -	0.00%	\$ 62,416	62.25%	\$ 32,683	32.60%	\$ 5,170	5.16%	\$ 100,269
Total	\$ -	0.00%	\$ 3,968,622	81.72%	\$ 58,780	1.21%	\$ 828,937	17.07%	\$ 4,856,339
Insurance Reserves <small>\$(000)</small>	CAPP	%	STIP	%	TFIP	%	Other	%	Total
MUS WORKERS COMPENS	\$ -	0.00%	\$ 11,349	71.80%	\$ 4,443	28.11%	\$ 13	0.09%	\$ 15,805
PERS DEFINED CONT DISAB	\$ -	0.00%	\$ 577	9.35%	\$ -	0.00%	\$ 5,598	90.65%	\$ 6,175
STATE FUND INSURANCE	\$ -	0.00%	\$ 45,083	2.85%	\$ -	0.00%	\$ 1,535,345	97.15%	\$ 1,580,428
SUBSEQUENT INJURY FUN	\$ -	0.00%	\$ 411	99.97%	\$ -	0.00%	\$ 0	0.03%	\$ 411
GROUP BENEFITS	\$ -	0.00%	\$ 98,517	80.52%	\$ 21,245	17.36%	\$ 2,588	2.12%	\$ 122,349
MUS GROUP INSURANCE	\$ -	0.00%	\$ 82,777	83.58%	\$ 14,187	14.32%	\$ 2,077	2.10%	\$ 99,041
Total	\$ -	0.00%	\$ 238,713	13.09%	\$ 39,876	2.19%	\$ 1,545,621	84.73%	\$ 1,824,210

Short Term Investment Pool			
Account	# Accounts	Total Market Value	%
Total State	343	3,075,323,029	65.1%
Total Local	173	1,651,011,396	34.9%
Total STIP	516	\$ 4,726,334,425	100.0%
STIP Reserve		\$ 53,186,401	
Average September 2020 STIP Yield		0.2815%	

Intercap Statistics	
Loans Outstanding	\$ 65,875,094
Bonds Outstanding	\$ 90,670,000
Number of Borrowers	161
Loan Rate	2.50%

MEMORANDUM

Montana Board of Investments

2401 Colonial Drive, 3rd Floor
Helena, MT 59601 (406) 444-0001

To: Members of the Board
From: Eron Krpan, Director of Investment Operations
Date: November 19, 2020
Subject: Securities Litigation Review

The Board has policies specific to securities litigation (Appendix F of the Governance Manual). In general, the Executive Director is responsible for overseeing the *process* involving securities litigation matters, which generally fall into three possible subsets: class actions, antitrust litigation *or* other actions where the Board takes a lead. The Board directs how its staff, attorneys and other agents are to operate depending on class action or other action such as in a lead plaintiff status.

Board policy states, in part: “The Board will delegate to qualified service providers the responsibility to take steps to identify, analyze, pursue and collect upon securities law claims. The duties of each service provider shall be clearly articulated as a matter of contract and the Board shall adopt prudent, documented procedures to monitor the implementation of its policies.”

In meeting this requirement, the Board’s contract with State Street Bank requires: “Contractor will track all necessary Board transaction data that will permit the Board to participate in class action litigation and will file as appropriate on behalf of the Board to participate in class action litigation. Contractor will also be required to feed such data to the Board’s litigation monitoring providers.”

State Street Bank files the necessary documentation, on the Board’s behalf, to join a U.S. securities class action lawsuit. It provides litigation information updated daily through its web portal. A sample of a partial litigation status report is attached (the full report is many pages).

For larger claims, and as a cross check on securities litigation matters, the Board has two securities class action monitoring firms (as Board policy describes these law firms) to identify and evaluate potential claims that may merit commencing separate litigation, filing motions as lead or co-lead plaintiff or opting out of a class action settlement. The Board has selected two such “Monitoring Firms,” Barrack, Rodos & Bacine and Bernstein, Litowitz, Berger & Grossmann LLP.

The Board requires that “The Executive Director, the Chief Investment Officer, the Board’s General Legal Counsel, and the Board’s Investment Consultant shall receive reports from the Monitoring Legal Firm, regarding the status of all securities class action litigation matters in which the Board is or could be a member. The Executive Director shall receive such reports at least quarterly and upon each filing of proofs of claim.”

Both law firms provide reports to the Executive Director monthly and will recommend higher involvement than just joining in a blanket class action in certain cases.

Amounts Received

Settlement amounts from securities litigation are sporadic and, in some years, nominal.

	FY2020	FY2019	FY2018	FY2017	FY2016	FY2015	FY2014
Pensions Total	\$ 270,559.79	\$ 420,476.04	\$ 216,051.88	\$ 166,246.01	\$ 433,935.80	\$ 467,439.09	\$ 399,279.03
Domestic Equity	\$ 212,781.02	\$ 419,280.19	\$ 213,582.53	\$ 144,367.24	\$ 427,504.68	\$ 462,541.64	\$ 375,180.29
International Equity	\$ 4,117.35	\$ 902.92	\$ 882.93	\$ 21,878.77	\$ 6,431.12	\$ 4,719.02	\$ 15,771.71
Fixed Income	\$ 53,661.42	\$ 292.93	\$ 1,586.42	\$ -	\$ -	\$ 178.43	\$ 8,327.03
Trust Fund Investment Pool	\$ 55.47	\$ 343.77	\$ 1,136.75	\$ -	\$ -	\$ 4,465.95	\$ 12,986.46
State Fund	\$ 186.74	\$ 1,374.90	\$ -	\$ 8,217.23	\$ -	\$ 348.50	\$ 61,987.15
Total Settlements	\$ 270,802.00	\$ 422,194.71	\$ 217,188.63	\$ 174,463.24	\$ 433,935.80	\$ 472,253.54	\$ 474,252.64

Antitrust and Non-U.S. Securities Litigation

Historically, most institutional investors exclusively filed U.S. securities class actions settlements. In recent years U.S. antitrust class actions have become more prominent and non-U.S. securities class actions in select countries have evolved beyond requiring investors to be named as parties in active litigation. In 2018, staff engaged Financial Recovery Technologies (FRT), a firm specializing in the U.S., non-U.S., and antitrust class actions space. FRT was initially retained to participate in upcoming antitrust filings and was later contracted to monitor non-U.S. actions. In cases where non-U.S. actions mirror the passive U.S. system, FRT files automatically for the Board. In more active jurisdictions, participation is decided on a case by case basis depending on the size of the claim, risk of cost shifting and requirements on staff time to prepare materials or attend hearings.

Recently Completed Antitrust, Global, and Bankruptcy Filings

Antitrust Litigation								
Type	Case	Settlement Amount	Preliminary Loss Estimate	Recognized Loss	Participation Date/Deadline	\$ Recovered	Estimated Pay Date	Status
Antitrust	LIBOR	\$590m	NA	NA	12/20/2018		3/31/2021	Settled
Antitrust	Euroyen Based Derivatives	\$236m	NA	NA	9/25/2018		6/30/2021	Settled
Antitrust	FOREX*	\$2.3b	NA	NA	5/16/2018		3/31/2021	Settled
Antitrust	ISDAfix	\$96m	NA	NA	12/23/2018	\$2,845	7/27/2021	Settled
Antitrust	Euribor	\$491.5m	NA	NA	7/31/2019		3/31/2021	Settled
Antitrust	GSE Bonds	\$386.5m	NA	NA	5/12/2020		3/31/2022	Settled
*FOREX payments have begun								
Non-U.S. Litigation								
Type	Case	Settlement Amount	Preliminary Loss Estimate	Recognized Loss	Participation Date		Estimated Pay Date	Status
Global Active	Novo Nordisk - Denmark	Not Established	\$871,988		8/5/2019		Not Available	Under Investigation
Global Passive	Fortis	\$1.5b	\$9,234	\$3,927	7/28/2019		3/31/2021	Settled
ADR/Global	BONY Mellon ADR	\$72.5m	Not Available	Not Available	8/15/2019		11/30/2020	Settled
ADR/Global	Citibank ADR	\$14.75m	Not Available	Not Available	8/12/2019		12/27/2020	Settled
ADR/Global	JP Morgan ADR	\$9.5m	Not Available	Not Available	9/19/2019		12/31/2020	Settled
Bankruptcy								
Bankruptcy	PG&E Corporation	Not Established	Not Available	Not Available	4/16/2020		12/31/2021	Reorganizing

Class Action Status

Date:

Funds: All Funds Selected

View Date: October 30, 2020



STATE STREET

Docket #	Event Name	Class Period Start Date	Class Period End Date	Event Status	Expiration Date
2-14-CV-00894-JRG-RSP	2VIANET GROUP INC ADR	08/20/2013	08/16/2016	PROOF OF CLAIM	10/31/2018
0-15-CV-02393-MGL	3D SYSTEMS CORP	10/29/2013	05/05/2015	PROOF OF CLAIM	07/11/2018
07-416-GMS	3M CO	01/06/2009	01/06/2009	DERIVATIVE ACTION	05/07/2009
1-15-CV-276207	A10 NETWORKS INC	03/21/2014	01/29/2015	PROOF OF CLAIM	02/10/2017
2-15-CV-02854	ABERCROMBIE + FITCH CO	08/07/2014	08/28/2016	OBJECTION	06/14/2016
205-CV-00819-EAS-TPK	ABERCROMBIE + FITCH CO CL A	06/02/2005	08/16/2005	PROOF OF CLAIM	11/03/2010
BC440933	ABRAXIS BIOSCIENCE INC	06/01/2009	10/15/2010	OBJECTION AND EXCLUSION	04/06/2011
15-CV-00675 BTM DHB	ACADIA PHARMACEUTICALS	11/10/2014	03/11/2015	PROOF OF CLAIM	09/16/2017
409-CV-03362-CW	ACCURAY INC	02/07/2007	08/19/2008	PROOF OF CLAIM	09/12/2011
03-MD-1529(LMM)2	ADELPHIA COMMUNICATIONS CORP	08/16/1999	06/10/2002	PROOF OF CLAIM	10/08/2010
1-16-CV-05198	ADTALEM GLOBAL EDUCATION INC	08/26/2011	01/27/2016	PROOF OF CLAIM	11/29/2019
11 CIV. 2279 (GM)	ADVANCED BATTERY TECHNOLOGIE	05/15/2007	03/29/2011	PROOF OF CLAIM	03/22/2014
4-14-CV-00226-YGR	ADVANCED MICRO DEVICES INC	04/04/2011	10/18/2012	EXCLUSION	01/19/2017
4-14-CV-00226-YGR 2	ADVANCED MICRO DEVICES INC	04/04/2011	10/18/2012	PROOF OF CLAIM	02/13/2018
1-16-CV-06467 (RMB)	ADVANZ PHARMA CORP	01/06/2016	08/12/2016	PROOF OF CLAIM	05/29/2019
1-17-CV-01940-RC	ADVISORY BOARD CO/THE	05/06/2015	02/23/2016	PROOF OF CLAIM	05/26/2020
1-14-CV-10105-MLW	AEGERION PHARMACEUTICALS INC	04/30/2013	05/11/2016	PROOF OF CLAIM	11/17/2017
4287-CC	AES TIETE SA	06/04/2009	06/04/2009	OBJECTION	06/26/2009
4940-VCP	AFFILIATED COMPUTER SVCS A	09/27/2009	02/05/2010	PROOF OF CLAIM	10/23/2010
06-03403	AFFILIATED COMPUTER SVCS INC	04/07/2006	12/22/2008	DERIVATIVE ACTION	01/23/2009
AGEAS SA	AGEAS	02/28/2007	10/14/2008	PROOF OF CLAIM	07/28/2019
12847-VCMR	AGNC INVESTMENT CORP	06/24/2019	06/24/2019	OBJECTION	10/01/2019
CV-12-448410-00CP	AGNICO EAGLE MINES LTD	03/26/2010	10/19/2011	PROOF OF CLAIM	01/08/2014
11-00779C (TCW)	AIG	09/16/2008	06/30/2009	PROOF OF CLAIM	09/16/2013
04 CIV. 8141 (JES) (AJP)	AIG MATCHED FUNDING CORP	10/28/1999	04/01/2005	PROOF OF CLAIM	01/28/2009
04 CIV. 8141 (DAB) (AJP)	AIG SUNAMERICA GLOBAL FING IV	10/28/1999	04/01/2005	PROOF OF CLAIM	01/23/2012
06 CIV. 1000 (LAP)	AIG SUNAMERICA GLOBAL FING VI	02/08/2001	03/31/2005	PROOF OF CLAIM	08/12/2008
10 OC 00448 1B	AIRTRAN HOLDINGS INC	09/27/2010	05/02/2011	OBJECTION	07/14/2011
15 C 01944	AKORN INC	05/06/2014	04/24/2015	PROOF OF CLAIM	04/20/2018
1-18-CV-01713	AKORN INC	11/03/2016	01/08/2019	PROOF OF CLAIM	01/24/2020

MEMORANDUM

Montana Board of Investments
2401 Colonial Drive, 3rd Floor
Helena, MT 59601 (406) 444-0001

To: Board Members
From: Dan Villa, Executive Director
Date: November 19, 2020
Subject: Resolution 217 Update

At the November 2007 Board meeting, the Board unanimously approved Resolution No. 217.

Resolution No. 217 *“designates its Executive Director as agent of the Board to deal with investment firms in connection with Board accounts with such firms; and that the investment firms are hereby authorized to deal with the Executive Director or the Executive Director’s designated staff as agents of the Board; to accept all orders for purchases and sales and all instructions given by any of them on behalf of the Board as and for the action of the Board without further inquiry as to their authority; to receive any funds, securities or property for the account of the Board; to sell, assign, transfer or deliver either in bearer form, in street certificates or in such names as said persons or any of them shall direct, any funds, securities or other property held for the account of the Board, to said persons or any of them or as they or any of them shall in writing, or verbally with subsequent confirmation in writing, order; and to send or communicate all confirmation, notices, demands and other communications to them or any of them and to the Attention of the Board of Investments, P.O. Box 200126, Helena, MT 59620-0126.”*

When Resolution 217 was passed, Appendix “A” was created to show all vendors authorized to conduct financial transactions with the Board and all staff authorized to conduct financial transactions with the vendors.

The Board authorized its Executive Director to close any of the accounts listed in the original Appendix “A”, to open new accounts, to designate additional staff members to act on behalf of the Board for the purpose of dealing with investment firms regarding any account, and to remove the authority of any of the named staff members or other staff members designated by him/her to act on behalf of the Board for purposes of dealing with investment firms regarding any account.

The Executive Director shall annually, on or around the regularly scheduled November Board Meeting, provide a report to the Board showing the staff members and the accounts/funds added to or deleted from Appendix A.

Chief Investment Officer Jon Putnam was added in February, 2020 to Appendix A.

For the period of November 2019 to November 2020, the following changes were made to Resolution No. 217, Appendix A:

Broker/Dealer (Fixed Income/STIP) added:

- *None*

Broker/Dealer (Fixed Income/STIP) no longer used by staff and removed from Appendix A:

- *None*

External Fixed Income Managers added:

- Cohen and Steers

External Fixed Income Managers no longer used by staff and removed from Appendix A:

- *None*

Money Market Managers added:

- *None*

Money Market Managers no longer used by staff and removed from Appendix A:

- *None*

Public Equity Brokers added:

- *None*

Public Equity Brokers no longer used by staff and removed from Appendix A:

- *None*

Public Equity Managers added:

- *None*

Public Equity Managers no longer used by staff and removed from Appendix A:

- *None*

Private Equity Managers/Funds added:

- Sumeru Equity Partners

Private Equity Managers/Funds no longer used by staff and removed from Appendix A:

- *None*

Private Real Estate Managers/Funds added:

- TruAmerica Workforce Housing Fund

Private Real Estate Managers/Funds no longer used by staff and removed from Appendix A:

- *None*

Natural Resources Managers/Funds no longer used by staff and removed from Appendix A:

- *None*

Natural Resources Managers/Funds added:

- Ecosystem Investment Partners IV

OFFICE OF THE GOVERNOR
STATE OF MONTANA

BRIAN SCHWEITZER
GOVERNOR



JOHN BOHLINGER
LT. GOVERNOR

TO: Executive Branch Officers
Department Directors
Chairs and other Presiding Officers of All Executive Branch Boards,
Bureaus, Commissions, Departments, Authorities, and Agencies

FROM: Governor Brian Schweitzer 

DATE: October 16, 2012

RE: Public participation in agency decisions pursuant to § 2-3-103, MCA

Montana's public participation laws require me, as Governor, "to ensure that each board, bureau, commission, department, authority, agency, or officer of the executive branch of the state" adopts rules, setting forth policies and procedures to facilitate public participation in agency programs and decisions. Sec. 2-3-103(2), MCA. I have written you in past years to remind you of these important statutory obligations, and I take this opportunity to remind you of them again.

Montanans have a constitutional right to participate in the activities of their government. The "Right of Participation" is found at Article II, section 8 of the Montana Constitution, which provides:

The public has the right to expect governmental agencies to afford such reasonable opportunity for citizen participation in the operation of the agencies prior to the final decision as may be provided by law.

This constitutional right is implemented by Montana statutes (Title 2, chapter 3, part 1, MCA) requiring every agency to develop procedures to permit and encourage public participation in agency decisions "that are of significant interest to the public." The statutes require agencies to provide adequate notice to the public and assist public participation. Meeting agendas must include an item allowing public comment on any public matter not on the agenda but within the agency's jurisdiction. Additionally, the agency may not act on any matter that was not included on the agenda and for which public comment on the matter was not allowed. Public comments must be incorporated into the official minutes of the meeting. The district courts may set aside agency decisions not in conformity with the public participation laws where a person's rights have been prejudiced. Model rules to implement these laws are found at ARM §§ 1.3.101 and 1.3.102.

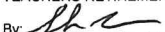
As you know, this Administration takes very seriously the public's right to participate in the decisions of government, and I applaud your efforts to ensure this public right. If you or your agency needs assistance in crafting appropriate guidelines and rules to conform to Montana's public participation laws, feel free to contact my legal counsel, Ann Brodsky, for assistance (444-3558).

A. Settlement Statement		U.S. Department of Housing and Urban Development		OMB Approval No. 2502-0265
B. Type of Loan				
1. <input type="checkbox"/> FHA	2. <input type="checkbox"/> FmHA	3. <input type="checkbox"/> Conv. Unins.	6. File Number: 2078359	7. Loan Number:
4. <input type="checkbox"/> VA	5. <input type="checkbox"/> Conv. Ins.	<input type="checkbox"/> Other		8. Mortgage Insurance Case Number:
C. Note: This form is furnished to give you a statement of actual settlement costs. Amounts paid to and by the settlement agent are shown. Items marked "(POC)" were paid outside the closing; they are shown here for informational purposes and are not included in the totals.				
D. Name & Address of Borrower: MONTANA BOARD OF INVESTMENTS, PO Box 20126, Helena, MT 59620-0126				
E. Name & Address of Seller: TEACHERS RETIREMENT SYSTEM OF THE STATE OF MONTANA, Po Box 200139, Helena, MT 59620-0139				
F. Name & Address of Lender:				
G. Property Location: 1500 E 6th Ave. Helena, Montana 59601 Lot 1,2,3,4,5 & 6, Block 3, Corbin Addition, Lewis and Clark County, Montana 05-1888-32-2-41-01-0000, Tax ID No. 23634				
H. Settlement Agent: Helena Abstract and Title Company, PO Box 853, 314 Fuller, Helena, MT 59601, (406) 442-4445 Place of Settlement: PO Box 853, 314 Fuller, Helena, MT 59601				
I. Settlement Date: 10/30/2020		Proration Date: 10/30/2020		Disbursement Date: 10/30/2020
J. Summary of Borrower's Transaction			K. Summary of Seller's Transaction	
100. Gross Amount Due from Borrower			400. Gross Amount Due to Seller	
101. Contract sales price		\$1,410,000.00	401. Contract sales price	\$1,410,000.00
102. Personal property			402. Personal property	
103. Settlement charges to borrower (line 1400)		\$503.50	403.	
104.			404.	
105.			405. TITLE PREMIUM PAYMENT INTO ESCROW f	\$3,138.00
Adjustments for items paid by seller in advance			Adjustments for items paid by seller in advance	
106. City/town taxes			406. City/town taxes	
107. County taxes 10/30/2020 to 1/1/2021		\$250.71	407. County taxes	
108. Assessments			408. Assessments	
109.			409.	
110.			410.	
111.			411.	
112.			412.	
120. Gross Amount Due from Borrower		\$1,410,754.21	420. Gross Amount Due to Seller	\$1,413,138.00
200. Amounts Paid by or in Behalf of Borrower			500. Reductions in Amount Due to Seller	
201. Deposit or earnest money			501. Excess deposit (see instructions)	
202. Principal amount of new loan(s)			502. Settlement charges to seller (line 1400)	\$3,641.50
203. Existing loan(s) taken subject to			503. Existing loan(s) taken subject to	
204.			504. Payoff of first mortgage loan	
205.			505. Payoff of second mortgage loan	
206.			506.	
207. Internal Stae transfer of funds		\$1,410,000.00	507. Internal Stae transfer of funds	\$1,410,000.00
208.			508.	
209.			509.	
Adjustments for items unpaid by seller			Adjustments for items unpaid by seller	
210. City/town taxes			510. City/town taxes	
211. County taxes			511. County taxes 1/1/2020 to 10/30/2020	\$1,205.78
212. Assessments			512. Assessments	
213.			513.	
214.			514.	
215.			515.	
216.			516.	
217.			517.	
218.			518.	
219.			519.	
220. Total Paid by/for Borrower		\$1,410,000.00	520. Total Reduction Amount Due Seller	\$1,414,847.28
300. Cash at Settlement from/to Borrower			600. Cash at Settlement to/from Seller	
301. Gross amount due from borrower (line 120)		\$1,410,754.21	601. Gross amount due to seller (line 420)	\$1,413,138.00
302. Less amounts paid by/for borrower (line 220)		(\$1,410,000.00)	602. Less reductions in amount due seller (line 520)	(\$1,414,847.28)
303. Cash <input checked="" type="checkbox"/> From <input type="checkbox"/> To Borrower		\$754.21	603. Cash <input type="checkbox"/> To <input checked="" type="checkbox"/> From Seller	\$1,709.28

SUBSTITUTE FORM 1099 SELLER STATEMENT - The information contained in Blocks E, G, H and I and on line 401 (or, if line 401 is asterisked, lines 403 and 404), 406, 407 and 408-412 (applicable part of buyer's real estate tax reportable to the IRS) is important tax information and is being furnished to the Internal Revenue Service. If you are required to file a return, a negligence penalty or other sanction will be imposed on you if this item is required to be reported and the IRS determines that it has not been reported.

SELLER INSTRUCTION - If this real estate was your principal residence, file form 2119, Sale or Exchange of Principal Residence, for any gain, with your income tax return; for other transactions, complete the applicable parts of form 4797, Form 6252 and/or Schedule D (Form 1040).

You are required to provide the Settlement Agent with your correct taxpayer identification number. If you do not provide the Settlement Agent with your correct taxpayer identification number, you may be subject to civil or criminal penalties.

TEACHERS RETIREMENT SYSTEM OF THE STATE OF MONTANA
 By: 
 Shawn Graham, Executive Director

2021 Board of Investments Meetings

JANUARY

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

FEBRUARY

S	M	T	W	T	F	S
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14	15	16	17	18	19	20
21	22	23	24	25	26	27
28						

MARCH

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28	29	30	31			

APRIL

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MAY

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23	24	25	26	27	28	29
30	31					

JUNE

S	M	T	W	T	F	S
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13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

JULY

S	M	T	W	T	F	S
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11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

AUGUST

S	M	T	W	T	F	S
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15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

SEPTEMBER

S	M	T	W	T	F	S
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19	20	21	22	23	24	25
26	27	28	29	30		

OCTOBER

S	M	T	W	T	F	S
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10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

NOVEMBER

S	M	T	W	T	F	S
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7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

DECEMBER

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

Board Materials Due
 Board Packet Mailing
 Board Meeting Dates

BOI WORK & EDUCATION PLAN

2020

FEBRUARY 11-12

Ethics Policy
Disaster Recovery and Emergency Preparedness
Outreach Efforts for Board - Loan and Municipal Programs
STIP Review
Quarterly Reports
Committee Meetings:
Audit: Financial Audit

APRIL 14

Benchmarks used by Board
Domestic Equities Asset Class Review
Capital Market/Asset Allocation - Consultant
Consultant Board Member Education

MAY 27-28

Budget Status FYTD
MT Buildings (Board as Landlord/Tenant Holdings)
Policy Statements Review
Quarterly Reports
Committee Meetings:
 Audit: Accounting Review
 HR: Staffing Level Review
 HR: Exempt Staff Compensation Review

AUGUST 18-19

Cost Reporting including CEM, Inc. Analysis
Budget Proposed FY '22-'23
Budget Status Prior FY
High Yield Asset Class Review (Non Core Fixed Income)
Quarterly Reports
Committee Meetings:
Audit: SOC Report

OCTOBER 13

Proxy Voting Public Equities Review
Consultant Board Member Education
First Reading - Asset Allocation Range Recommendation
 HR: Exempt Staff Performance Review

NOVEMBER 18-19

2021 Legislative Session
Resolution 217 Authorization of Investment
Vendors PERS and TRS Relationship
Adoption - Asset Allocation Range Approval
Quarterly Reports
Committee Meetings:
 Audit: SOC Report
 Audit: Securities Litigation Status
 Audit: Annual Report and Financial Statements

2021

FEBRUARY 23-24

Ethics Policy
Disaster Recovery and Emergency Preparedness
Cash Management of State Monies
Treasurers Fund Review
Quarterly Reports
In-State Loan Program
INTERCAP / Board Rated Credit, Bond Issuer, Credit Enhancer
Committee Meetings:
Audit: Financial Audit

APRIL 20

Custodial Bank Relationship, Performance, Continuity
International Equities Asset Class Review
Separate Accounts Review
Capital Market/Asset Allocation - Consultant
Consultant Board Member Education

JUNE 1-2

Core Fixed Income Asset Classes Review
State Government Customer Relationships
Separate Accounts Review
Real Estate Asset Class Review
Policy Statements Review
Quarterly Reports
Committee Meetings:
 Audit: Accounting Review
 HR: Staffing Level Review
 HR: Exempt Staff Performance & Compensation Review

AUGUST 10-11

Budget Status Prior FY
Coal Severance Tax Trust Review
Natural Resources Asset Class Review
Quarterly Reports
Benchmarks used by the Board
Committee Meetings:
Audit: SOC Report

OCTOBER 19-20

Private Equity Asset Class Review
State Government Customer Relationships
Securities Lending
Consultant Board Member Education
First Reading - Asset Allocation Range Recommendation

NOVEMBER 30-DECEMBER 1

Resolution 217 Authorization of Investment Vendors
PERS and TRS Relationship
Adoption - Asset Allocation Range Approval
Quarterly Reports
Committee Meetings:
 Audit: Annual Report and Financial Statements

				WORK & EDUCATION PLAN
Completed	Completed	Completed	In Progress	
2017	2018	2019	2020	
X		X	X	Accounting Review
X	X	X	X	Annual Report and Financial Statements
X	X	X	X	Asset Allocation Range Approval (Board Must Review/Approve Annually as per Policy)
X	X	X	X	Audit (Financial)
X		X		Benchmarks used by Board
X		X		Board as a Rated Investment Credit, a Bond Issuer and a Credit Enhancer
X	X	X	X	Board Member Education
X	X	X	X	Board's Budget
X	X	X	X	Capital Market/Asset Allocation - Consultant
	X		X	Cash Management of State Monies
X	X		X	Cost Reporting including CEM, Inc. Analysis
	X		X	Custodial Bank Relationship, Performance, Continuity
X	X	X	X	Disaster Recovery and Emergency Preparedness
X	X	X	X	Domestic Equities Asset Class Review
X	X	X	X	Exempt Staff Performance and Compensation Review (HR Policy Requires Annual Consideration)
X	X	X	X	Ethics Policy – (Board Policy Requires Annual Affirmations)
X	X	X	X	Fixed Income Asset Classes Review
X		X	X	In-State Loan Program
X		X	X	INTERCAP Program
X	X	X	X	Internal Controls
	X	X		International Equities Asset Class Review
X	X	X	X	Investment Consultant Independent Presentations (Board Requires at Least Two Annually)
X	X	X	X	Legislative Session and Interim Matters
X		X	X	MT Buildings (Board as Landlord/Tenant Holdings)
X	X	X	X	Outreach Efforts for Board - Loan and Municipal Programs
X	X	X	X	PERS and TRS Relationship
X	X	X	X	Policy Statements Review (Governance Policy Requires Annual Investment Policy Review)
	X	X	X	Private Equity Asset Class Review
	X		X	Proxy Voting Public Equities
	X	X	X	Real Estate Asset Class Review
X	X	X	X	Resolution 217 Authorization of Investment Vendors (Board Policy Requires Annual Update)
X		X		Securities Lending
X	X	X	X	Securities Litigation
X	X	X	X	Staffing Level Review (Required Biannually in Board Policy)
X		X		State Fund as Principal Investment Client
X		X		State Government Customer Relationships
X		X	X	Website
	X	X	X	STIP Review
	X	X		Trust Fund Investment Pool Review
		X		Coal Severance Tax Trust Review
		X		Treasurers Fund Review
	X			Separate Accounts Review
	X			Natural Resources Asset Class Review
	X	X		High Yield Asset Class Review

MONTANA BOARD OF INVESTMENTS

Street Address:
2401 Colonial Drive, 3RD Floor
Helena, MT 59601

Mailing Address:
PO Box 200126
Helena, MT 59620-0126



Phone: (406) 444-0001
Facsimile: (406)449-6579
Website: www.investmentmt.com

To: Board of Directors
From: Doug Hill-Director In-State Loan Programs
Date: October 30, 2020
Subject: Commercial and Residential Loan Portfolios

As of September 30, 2020, the Commercial loan portfolio balance was \$204,708,228 and represents 110 loans. There are currently seven loan reservations that total \$19,435,000 and eight loans committed that total \$21,870,000. The commercial loan portfolio, excluding the Veterans Home Loan Program, Multifamily Coal Trust Homes Program, and Intermediary Relending Program has a yield of 2.72%. There are no loans past due over 30 days.

The Residential loan portfolio reflected an outstanding balance, as of October 20, 2020, of \$2,839,655 and represents 76 loans with a yield of 6.60%. There are no outstanding reservations. There are two loans, with an FHA guaranty, over 90 days past due totaling \$124,566 or 4.39% of the portfolio.

The Veterans Home Loan Mortgage portfolio reflected an outstanding balance, as of October 20, 2020, of \$48,152,630 and represents 274 loans with a yield of 1.81%. There are five reservations totaling \$1,051,473 with a projected yield of 0.77%. There are two loans over 90 days past due totaling \$418,955, or 0.87% of the portfolio.

The Multifamily Coal Trust Homes Program reflected an outstanding balance, as of October 20, 2020, of \$5,225,834 and represents four loans with a yield of 2.65%. There are three reservations totaling \$9,293,995. There are no past due loans.

The Intermediary Relending Program reflected an outstanding balance, as of September 30, 2020, of \$4,338,135 and represents 33 loans with a yield of 2.00%. There is \$420,114 available to advance. There are three loans committed that total \$780,975. There are no past due loans.

**Montana Loan Deferment Programs
Wednesday, November 4, 2020**

Application Statistics		
	Number of Applications	Rate
Approved	1,363	90.32%
Withdrawn	96	6.36%
Declined	50	3.31%
Total Applications Received	1,509	100.00%

Funding Data			
Funding Date:	Loan Deferment Program	Montana Hospitality and Capital Assistance Program	Totals
7/7/2020	\$ 1,449,320.69	\$ -	\$ 1,449,320.69
7/21/2020	\$ 3,746,123.43	\$ -	\$ 3,746,123.43
7/24/2020	\$ -	\$ 572,777.20	\$ 572,777.20
8/4/2020	\$ 5,199,203.50	\$ 5,473,474.32	\$ 10,672,677.82
8/18/2020	\$ 8,057,602.11	\$ 3,800,884.03	\$ 11,858,486.14
9/1/2020	\$ 3,731,443.59	\$ 4,113,739.78	\$ 7,845,183.37
9/15/2020	\$ 1,750,216.49	\$ 2,137,122.30	\$ 3,887,338.79
9/29/2020	\$ 3,738,369.11	\$ 568,343.19	\$ 4,306,712.30
11/4/2020	\$ 2,424,177.26		\$ 2,424,177.26
Returned Funds	\$ (88,818.72)		\$ (88,818.72)
Grand Total	\$ 30,007,637.46	\$ 16,666,340.82	\$ 46,673,978.28

Leverage		
Total Financial Benefit to the Borrower	\$140,928,052.12	301.94%
Avg. Benefit Per Request	\$103,395.49	

Montana Working Capital Program
Wednesday, November 4, 2020

Application Statistics		
	Number of Applications	Rate
Approved Applications	154	96.25%
Withdrawn Applications	3	1.88%
Declined Applications	3	1.88%
Applications under review	54	
Number of applications received	214	

Funding Data	
Total Funds Awarded to Applicants, Oct. 27, 2020	\$ 9,607,476.18
Requests Pending Dec. 3, 2020 Funding	\$ 8,793,687.44
Requests Approved for Funding	\$ 18,401,163.62
Declined and Withdrawn Applications	\$ (647,167.32)
Applications Under Review	\$ 5,207,697.80
Total Funding (forecast)	\$ 23,608,861.42

Expense Allocation		
Category	Amount	Percent of Total
Advertising	1,749,710.88	2.10%
Employee Benefits	2,525,372.18	3.03%
Insurance	2,983,706.28	3.58%
Interest	989,350.52	1.19%
Inventory	15,675,441.13	18.80%
Leases/Rents	5,750,430.59	6.90%
Office Expense	1,402,911.98	1.68%
Payroll and Contract Labor	44,855,818.24	53.80%
Repairs and Maintenance	3,078,536.17	3.69%
Utilities	4,362,953.59	5.23%
Total	83,374,231.56	

Leverage		
Total Financial Benefit to the Borrower	\$48,633,144.79	353.15%
Avg. Benefit per Request	\$315,799.64	

MBOI CARES Act Lender Detail

Status (Multiple Items)

Sum of Total Grant Lender	Program Loan Deferment	Working Capital	Grand Total
Altana Federal Credit Union	89,778.00		89,778.00
American Bank	266,329.15	72,000.00	338,329.15
American Bank Center	242,771.61	180,000.00	422,771.61
Ascent Bank	180,769.14		180,769.14
Bank of Baker	351,429.86		351,429.86
Bank of Bozeman	26,896.18		26,896.18
Bank of Bridger	195,216.40	163,536.45	358,752.85
Bank of Montana	268,017.28		268,017.28
Bank of the Rockies	784,891.34		784,891.34
Bear Paw Development Corporation	19,325.39	18,720.00	38,045.39
Belt Valley Bank	36,628.73		36,628.73
Capital Community Bank	34,959.49		34,959.49
Citizens Alliance Bank	1,265,800.65	180,000.00	1,445,800.65
Clearwater Federal Credit Union		33,246.00	33,246.00
Eagle Bank	89,717.26	180,000.00	269,717.26
Farmers State Bank	1,128,878.12	180,000.00	1,308,878.12
First Bank of Montana, Division of Glacier Bank	239,821.22	120,936.60	360,757.82
First Community Bank of Glasgow	150,000.00		150,000.00
First Interstate Bank	5,916,579.14	2,231,416.64	8,147,995.78
First Montana Bank - Missoula	579,482.32	180,000.00	759,482.32
First New Mexico Bank	332,532.35		332,532.35
First Security Bank of Bozeman, a Division of Glacier Bank	2,538,877.43	3,020,963.42	5,559,840.85
First Security Bank of Missoula, a Division of Glacier Bank	3,988,103.54	3,773,999.80	7,762,103.34
First State Bank of Forsyth	15,432.70	150,666.22	166,098.92
Freedom Bank	525,944.04	180,000.00	705,944.04
Glacier Bank	2,893,200.56	488,405.88	3,381,606.44
Granite Mountain Bank	105,373.90		105,373.90
Grasslands Federal Credit Union	9,807.42		9,807.42
Great Falls Development Authority	7,720.96	540,000.00	547,720.96
Headwaters RC&D Area, Inc.	14,700.00		14,700.00
Independence Bank	1,207,269.76	418,738.46	1,626,008.22
Little Horn State Bank		180,000.00	180,000.00
Madison Valley Bank	486,926.79	54,000.00	540,926.79
Manhattan Bank	157,056.77	200,370.60	357,427.37
mBank	67,841.11		67,841.11
Montana Business Assistance Connection, Inc.	28,159.63		28,159.63
Montana Community Development Corp	185,679.46	438,271.20	623,950.66
Montana Educators' Credit Union	1,825.99		1,825.99
Opportunity Bank of Montana	1,578,823.26	634,435.98	2,213,259.24
Peoples Bank of Deer Lodge	1,228.26		1,228.26
Ravalli County Economic Development Authority	8,746.39		8,746.39
Security State Bank	194,901.02	101,664.00	296,565.02
Sky Federal Credit Union	50,874.71		50,874.71
Snowy Mountain Development Corp	3,555.42	4,320.00	7,875.42
Stockman Bank	14,479,596.29	6,503,051.37	20,982,647.66
Three Rivers Bank of Montana	153,898.33	127,805.65	281,703.98
Trail West Bank	1,669,073.17	576,236.88	2,245,310.05
Valley Bank Division of Glacier Bank	977,003.62	1,576,659.88	2,553,663.50
Valley Bank of Kalispell	112,024.87		112,024.87
Valley Bank of Ronan		183,600.00	183,600.00
Western Security Bank, Division of Glacier Bank	1,421,680.41	264,928.36	1,686,608.77
Whitefish Credit Union	477,165.33		477,165.33
Yellowstone Bank	1,268,517.43	650,888.03	1,919,405.46
Grand Total	46,830,832.20	23,608,861.42	70,439,693.62

INTERCAP Loan Program

Activity Summary

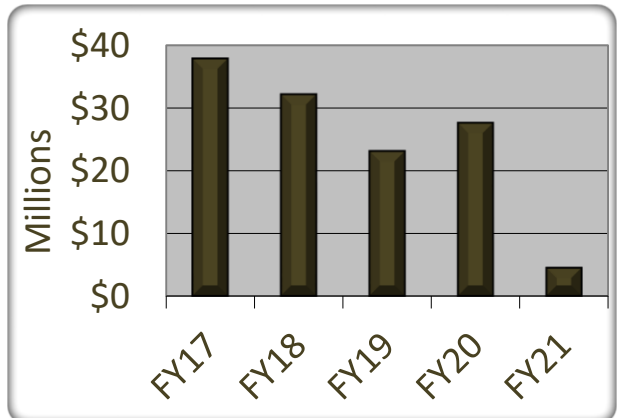
As of September 30, 2020

Since Inception 1987 - September 2020

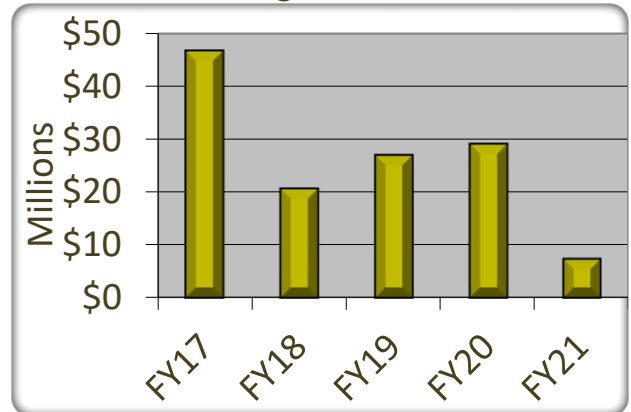
Total Bonds Issued	168,000,000
Total Loan Commitments	643,118,337
Total Loans Funded	617,329,372
Total Bonds Outstanding	90,670,000
Total Loans Outstanding	65,875,094
Loan Commitments Pending	25,788,966

FY2020		
Month	Commitments	Fundings
July-20	\$ 2,354,235	\$ 2,892,577
August	2,600,000	2,225,349
September	100,000	2,251,815
October		
November		
December		
January		
February		
March		
April		
May		
June-21		
To Date	\$ 5,054,235	\$ 7,369,741

Commitments FY17-FY21



Fundings FY17-FY21



Note: Commitments include withdrawn and expired loans.

Variable Loan Rate History February 16, 2013 - February 15, 2021

February 16, 2013 - February 15, 2014	1.00%	February 16, 2017 - February 15, 2018	2.50%
February 16, 2014 - February 15, 2015	1.00%	February 16, 2018 - February 15, 2019	3.15%
February 16, 2015 - February 15, 2016	1.25%	February 16, 2019 - February 15, 2020	3.37%
February 16, 2016 - February 15, 2017	1.55%	February 16, 2020 - February 15, 2021	2.50%*

*BOI decreased interest rates for INTERCAP loans to 1.00% until August 15, 2020 in response to the COVID-19 pandemic

MONTANA BOARD OF INVESTMENTS

Street Address:
2401 Colonial Drive, 3RD Floor
Helena, MT 59601

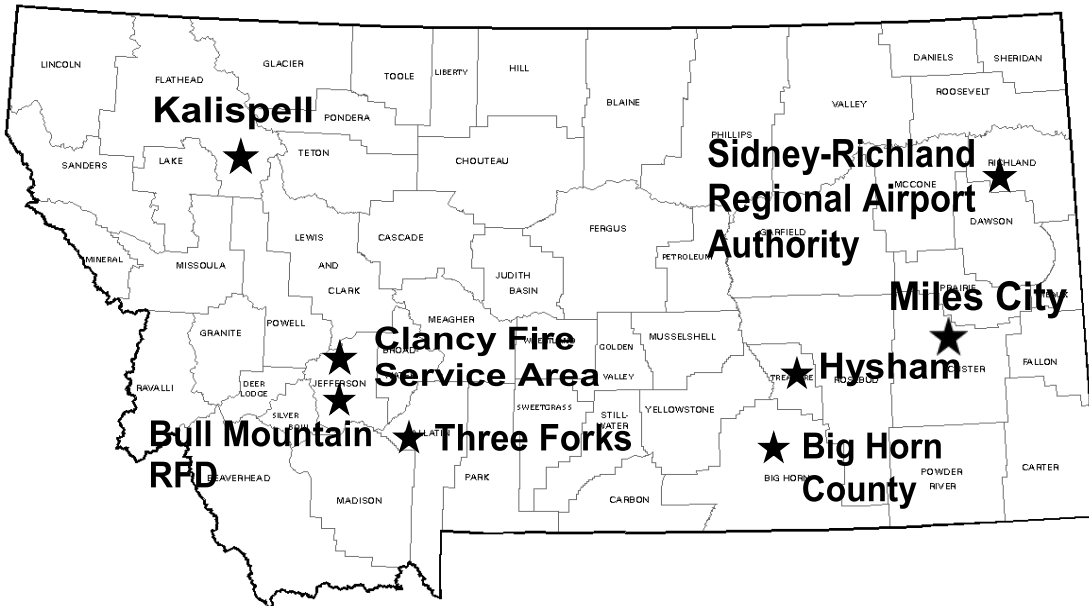
Phone: (406) 444-0001
Facsimile: (406)449-6579
Website: www.investmentmt.com

Mailing Address:
PO Box 200126
Helena, MT 59620-0126



To: Members of the Board
From: Savannah Morgan, Bond Program Officer
Date: November 19, 2020
Subject: INTERCAP Staff Approved Loans Committed

Staff approved the following loans from July 1, 2020 to September 30, 2020.



Borrower:	Big Horn County
Purpose:	Ambulance Barn
Staff Approval Date:	July 1, 2020
Board Loan Amount:	\$750,000
Other Funding Sources:	\$ 0
Total Project Cost:	\$750,000
Term:	10 years

Borrower:	Town of Hysham
Purpose:	Road grader/snow plow and sander
Staff Approval Date:	July 7, 2020
Board Loan Amount:	\$225,000
Other Funding Sources:	\$ 0
Total Project Cost:	\$225,000
Term:	10 years

Borrower:	City of Three Forks
Purpose:	Rodeo arena bleacher upgrade
Staff Approval Date:	July 7, 2020
Board Loan Amount:	\$310,000
Other Funding Sources:	\$290,000
Total Project Cost:	\$600,000
Term:	10 years

Borrower:	Sidney-Richland Regional Airport Authority
Purpose:	Airport Improvements
Staff Approval Date:	July 13, 2020
Board Loan Amount:	\$680,000
Other Funding Sources:	\$2,683,427
Total Project Cost:	\$3,363,427
Term:	15 years

Borrower:	City of Kalispell
Purpose:	Purchase Ambulance
Staff Approval Date:	July 13, 2020
Board Loan Amount:	\$190,000
Other Funding Sources:	\$ 0
Total Project Cost:	\$190,000
Term:	5 years

Borrower:	Clancy Fire Service Area
Purpose:	Purchase self-contained breathing apparatus equipment
Staff Approval Date:	July 22, 2020
Board Loan Amount:	\$165,000
Other Funding Sources:	\$ 17,000
Total Project Cost:	\$182,000
Term:	15 years

Borrower:	Bull Mountain Rural Fire District
Purpose:	Refinance fire truck
Staff Approval Date:	July 21, 2020
Board Loan Amount:	\$34,235.28
Other Funding Sources:	\$ 0
Total Project Cost:	\$34,235.28
Term:	7 years

Borrower:	City of Miles City
Purpose:	Street maintenance/improvements
Staff Approval Date:	August 5, 2020
Board Loan Amount:	\$600,000
Other Funding Sources:	\$ 0
Total Project Cost:	\$600,000
Term:	2 years

Borrower:	Town of Hysham
Purpose:	Wastewater system improvements
Staff Approval Date:	September 17, 2020
Board Loan Amount:	\$100,000
Other Funding Sources:	\$685,077
Total Project Cost:	\$785,077
Term:	15 years



Montana Teachers' Retirement System

Montana Teachers' Retirement System Valuation Results July 1, 2020

Shawn Graham, Executive Director

trs.mt.gov



Benefit Financing



$$C + I = B + E$$

B depends on

- Plan Provisions
- Experience

C depends on

- Short Term: Actuarial Assumptions
Actuarial Cost Method
- Long Term: I, B, E



Participation in TRS



- Teachers, administrators, specialists and others employed in a teaching or educational services capacity by a public school district, state agency, county, community college, Montana University System or educational cooperative are covered by TRS.

– Active members	19,751
– Inactive members	16,605
– Retirees and Beneficiaries	16,769
– Employers	367



Comments on Valuation



- Asset returns
 - Market asset return 2.72% vs. 7.50% expected (4.78% less than expected).
 - Actuarial asset return 7.00% vs. 7.50% expected (0.50% less than expected).
- Market value of assets are \$176,205,150 less than the actuarial value of assets. This unrecognized investment loss will be recognized over the next three years
 - 2021 Investment Loss of \$58.0 million
 - 2022 Investment Loss of \$68.8 million
 - 2023 Investment Loss of \$49.5 million



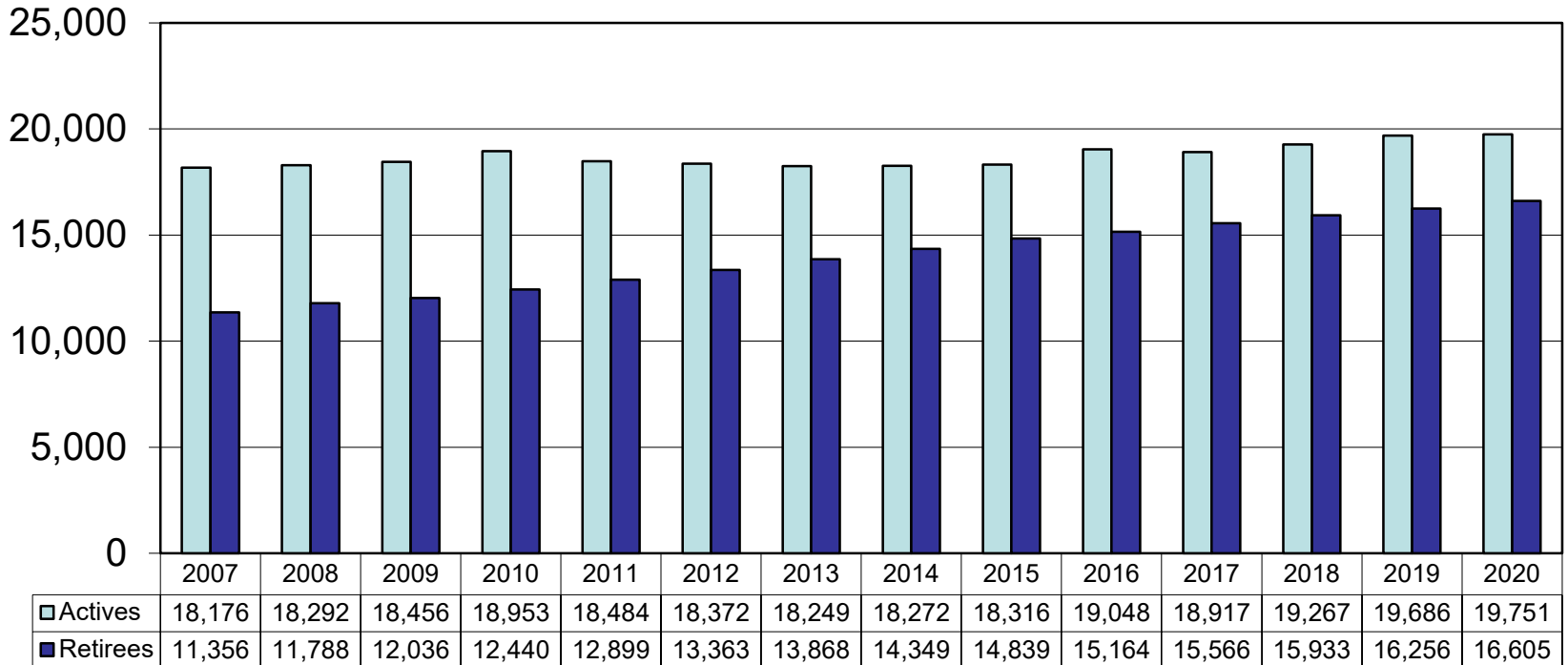
Comments on Valuation



- Funded Ratio
 - Funding increased from 68.63% to 68.84%
- Amortization Period
 - Amortization period did not change from 29 years



Active and Retired Membership



0.6% annual increase for active members since 2007; 0.3% increase for 2020.

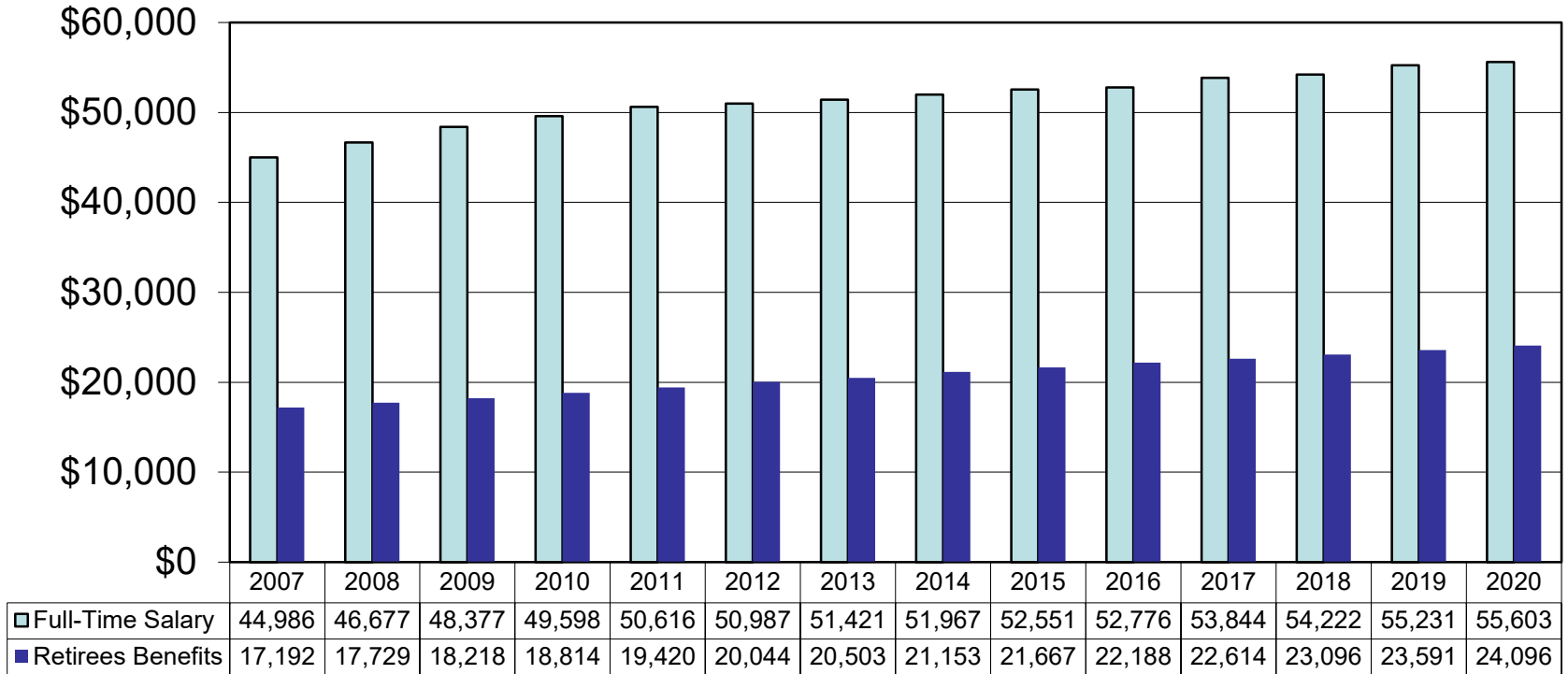
3.0% annual increase for retired members since 2007; 2.1% increase for 2020.

0.6 retirees per active 13 years ago; 0.8 retirees per active now.

031



Average Salary and Benefits

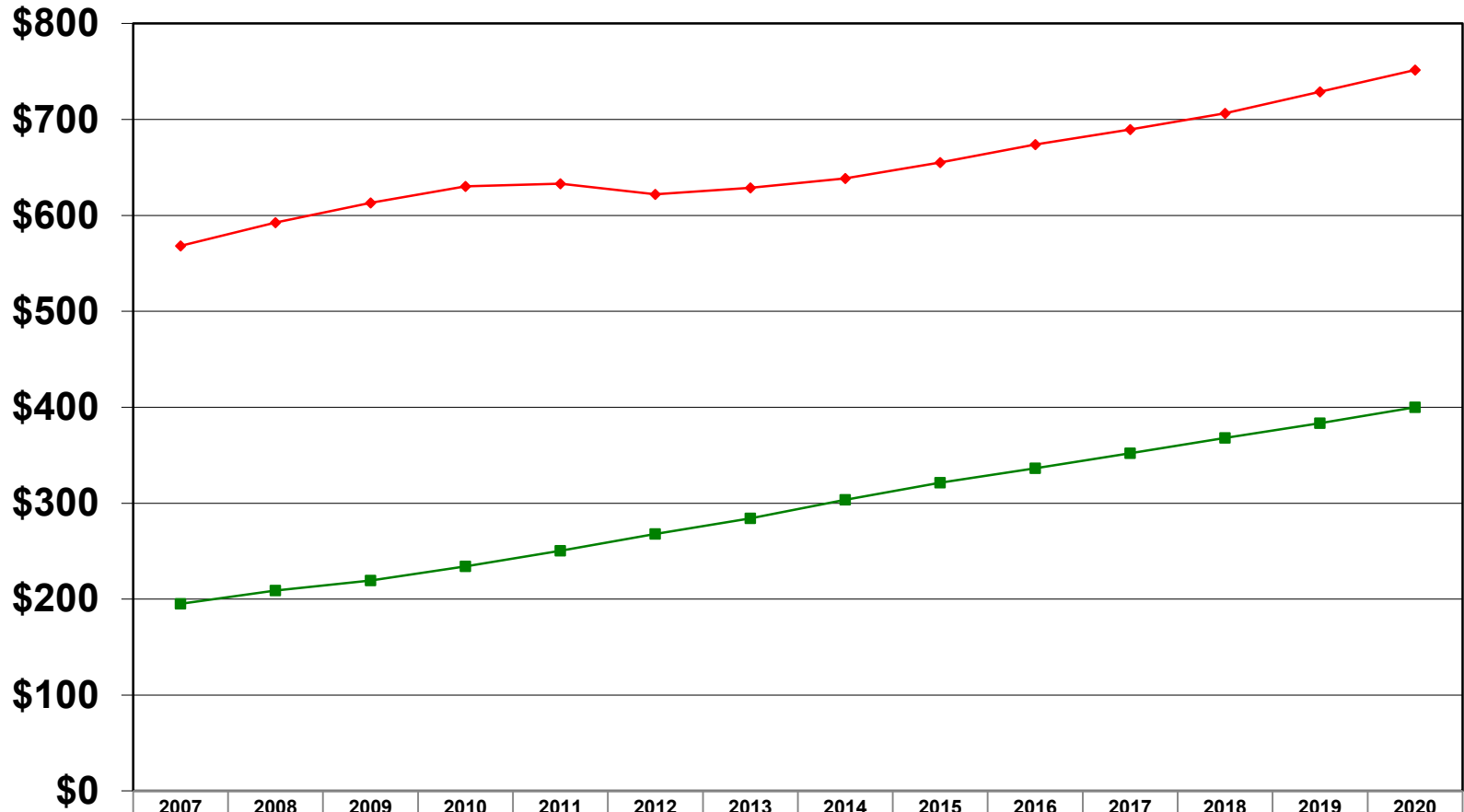


1.6% annual increase for average salary since 2007; 0.7% increase for 2020.

2.6% annual increase for average benefits since 2007; 2.1% increase for 2020.



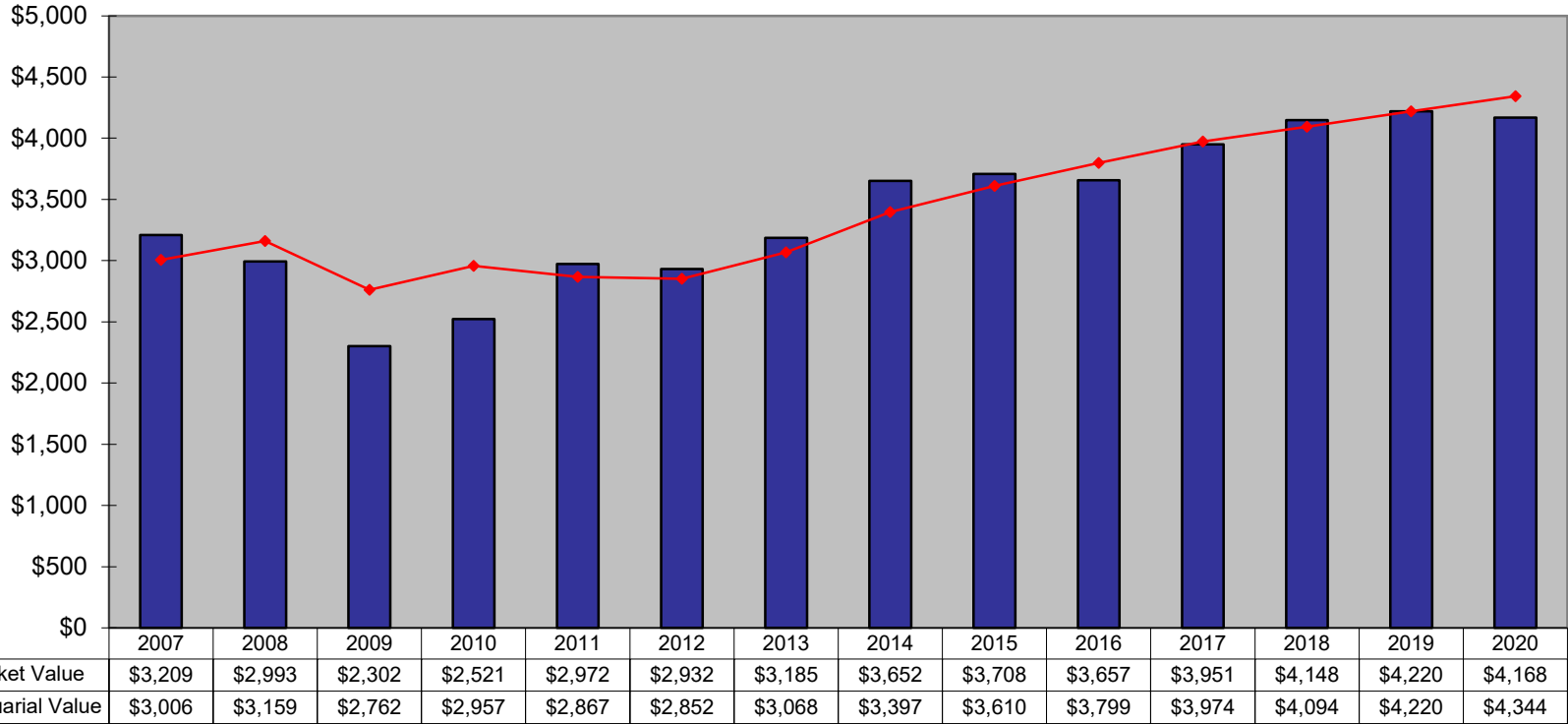
Payroll & Benefits (Millions)



◆ Full-time Payroll	\$568.4	\$592.5	\$613.1	\$630.4	\$633.0	\$622.1	\$628.8	\$638.5	\$655.2	\$673.9	\$689.6	\$706.4	\$728.8	\$751.5
■ Benefits	\$195.2	\$209.0	\$219.3	\$234.0	\$250.5	\$267.9	\$284.3	\$303.5	\$321.5	\$336.5	\$352.0	\$368.0	\$383.5	\$400.1



Assets (\$ Millions)

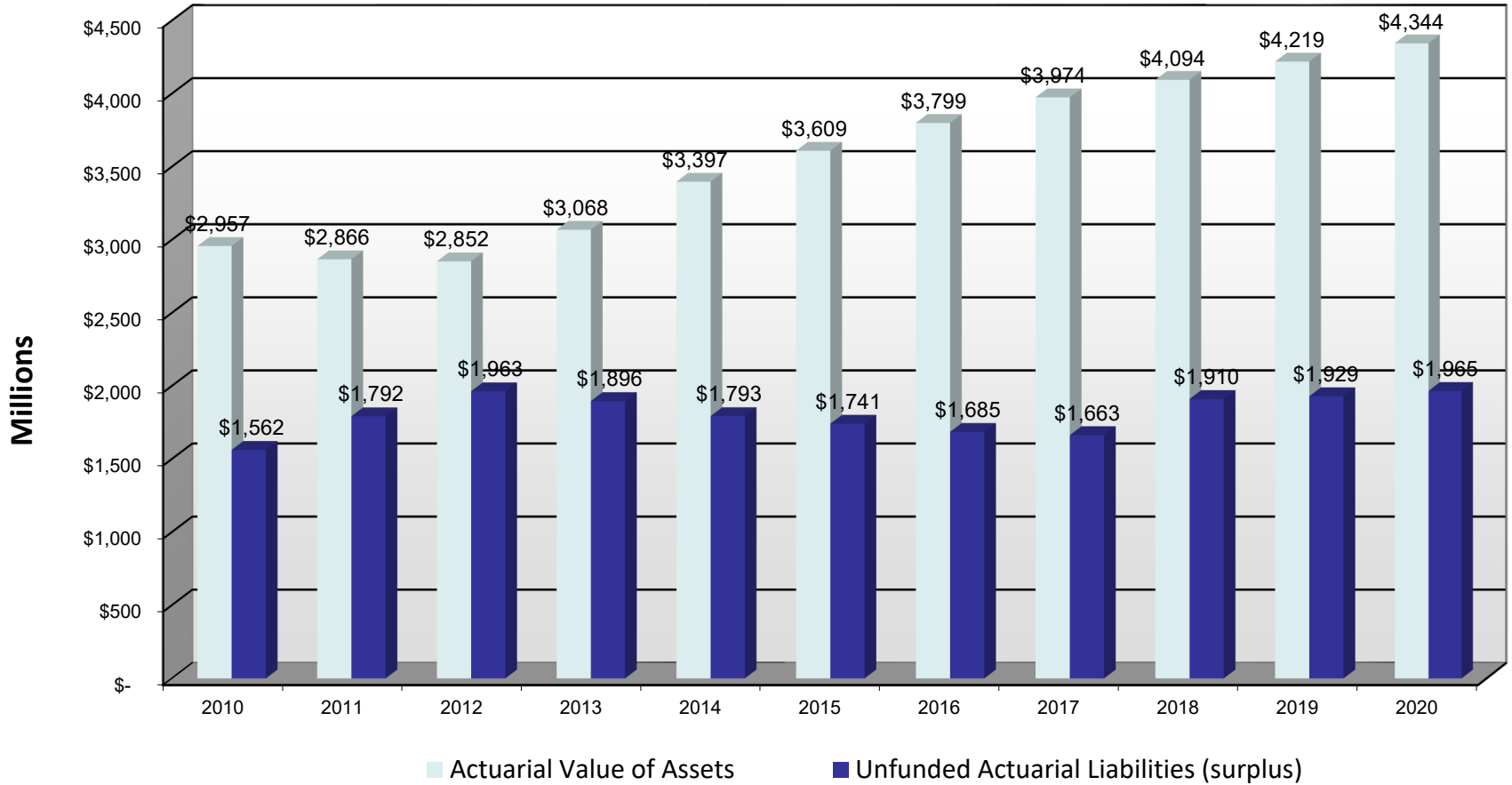


	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Market Return	17.6%	(4.9)%	(20.8)%	12.9%	21.7%	2.2%	12.9%	17.1%	4.6%	2.1%	11.9%	8.8%	5.7%	2.7%
Actuarial Return	10.2%	7.2%	(10.3)%	9.8%	(0.1)%	3.2%	12.0%	13.2%	9.6%	8.8%	8.2%	6.9%	7.0%	7.0%

034

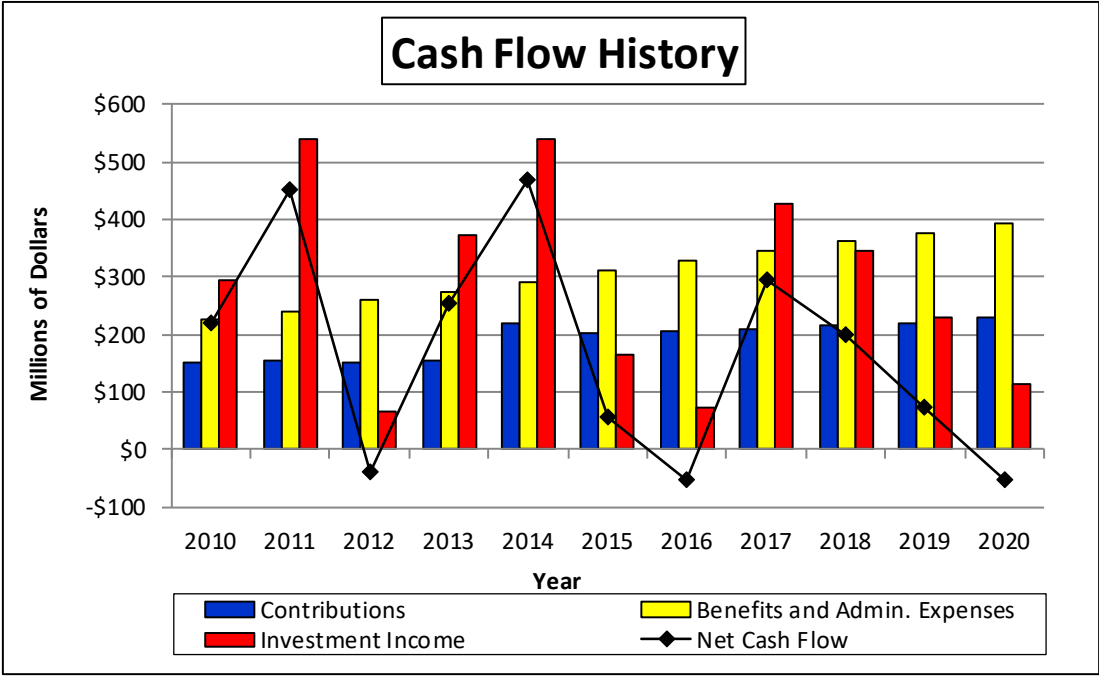


Actuarial Assets vs. UAAL





Historical Cash Flow (in Millions)





Funding Results

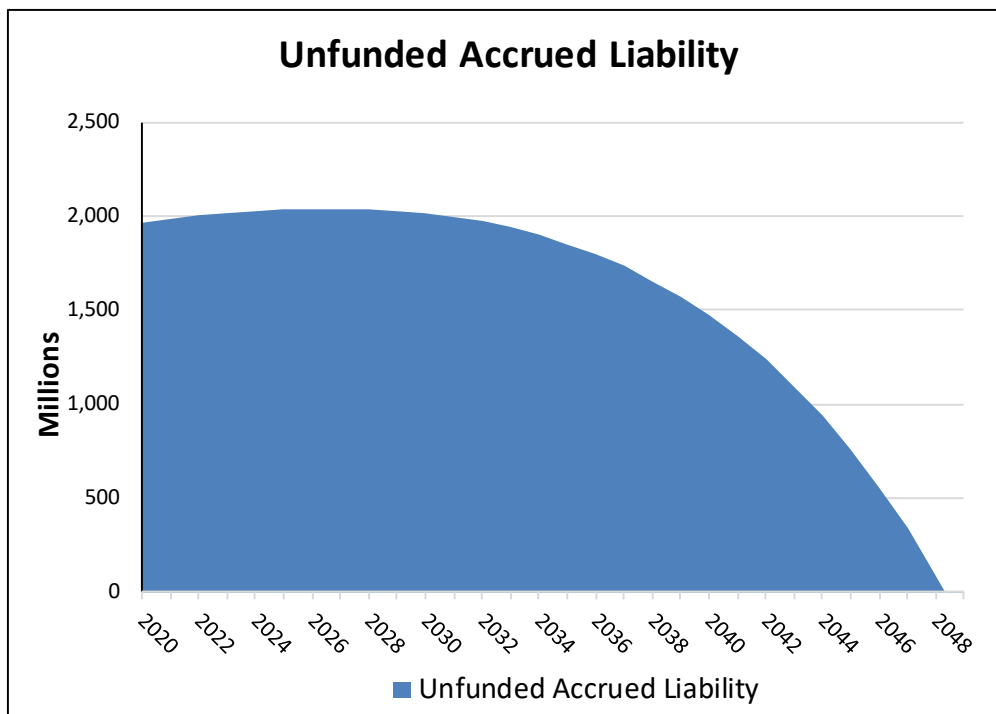


	July 1, 2019 Valuation	July 1, 2020 Valuation
Total Normal Cost Rate	9.78%	9.75%
Less Member Rate	<u>8.15%</u>	<u>8.15%</u>
Employer Normal Cost Rate	1.63%	1.60%
Administrative Expense Load	0.36%	0.45%
Rate to Amortize UAL	<u>9.57%</u>	<u>9.61%</u>
Total Employer Statutory Rate	11.56%	11.66%
Actuarial Accrued Liability	\$6,148.6 million	\$6,310.0 million
Actuarial Value of Assets	\$4,219.6 million	\$4,344.0 million
Unfunded Accrued Liability	\$1,929.0 million	\$1,966.0 million
Funded Ratio	68.63%	68.84%
Amortization Period*	29 Years	29 Years

* Reflects anticipated increase in employer supplemental contribution rate



Progress toward 100% Funding





Montana Public Employee Retirement Administration

Montana Public Employees' Retirement Board Valuation Results June 30, 2020

Dore Schwinden, Executive Director, MPERA



Benefit Financing

➤ Basic Retirement Funding Equation

$$C + I = B + E$$

C= Contributions

I= Investments

B= Benefits Paid

E= Expenses (administration)

B depends on

Plan Provisions

Experience

C depends on

Short Term: Actuarial Assumptions
Actuarial Cost Method

Long Term: I, B, E



Participation in MPERA

- State, local governments, and certain employees of the Montana University system, & school districts are covered by MPERA.

- 45,197 Active Employees Including DC and 457 Members
- 28,497 Retirees & Beneficiaries (all systems)
- 26,528 Inactive (DB)

- 556 Employers (DB)
- 235 Volunteer Fire Departments



Comments on Valuation for PERS

➤ Asset returns

- Market asset returns averaged 2.73% vs. 7.65% expected (4.92% less than expected).
- Actuarial asset returns averaged 7.11% vs. 7.65% expected (0.54% less than expected).

➤ Market value of assets are \$253,924,138 less than the actuarial value of assets.

➤ The asset valuation method being used is a four-year smoothing method and this unrecognized loss will be recognized over the next three years.

- 2021 Investment Loss of \$82.0 million
- 2022 Investment Loss of \$99.0 million
- 2023 Investment Loss of \$71.0 million

➤ Funded Ratio

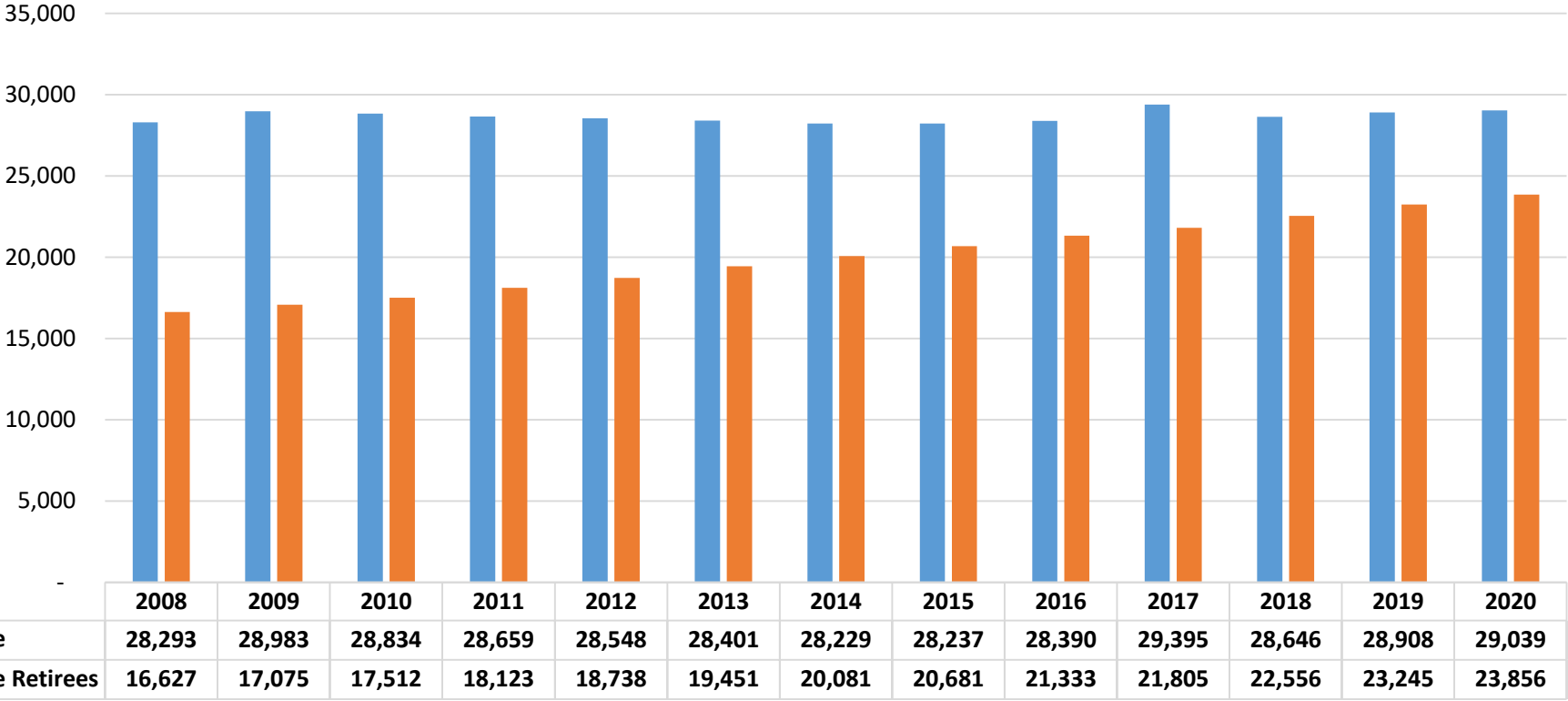
-Funding decreased from 74.19% to 74.08%

➤ Amortization Period

-Amortization period decreased from 36 to 35 years



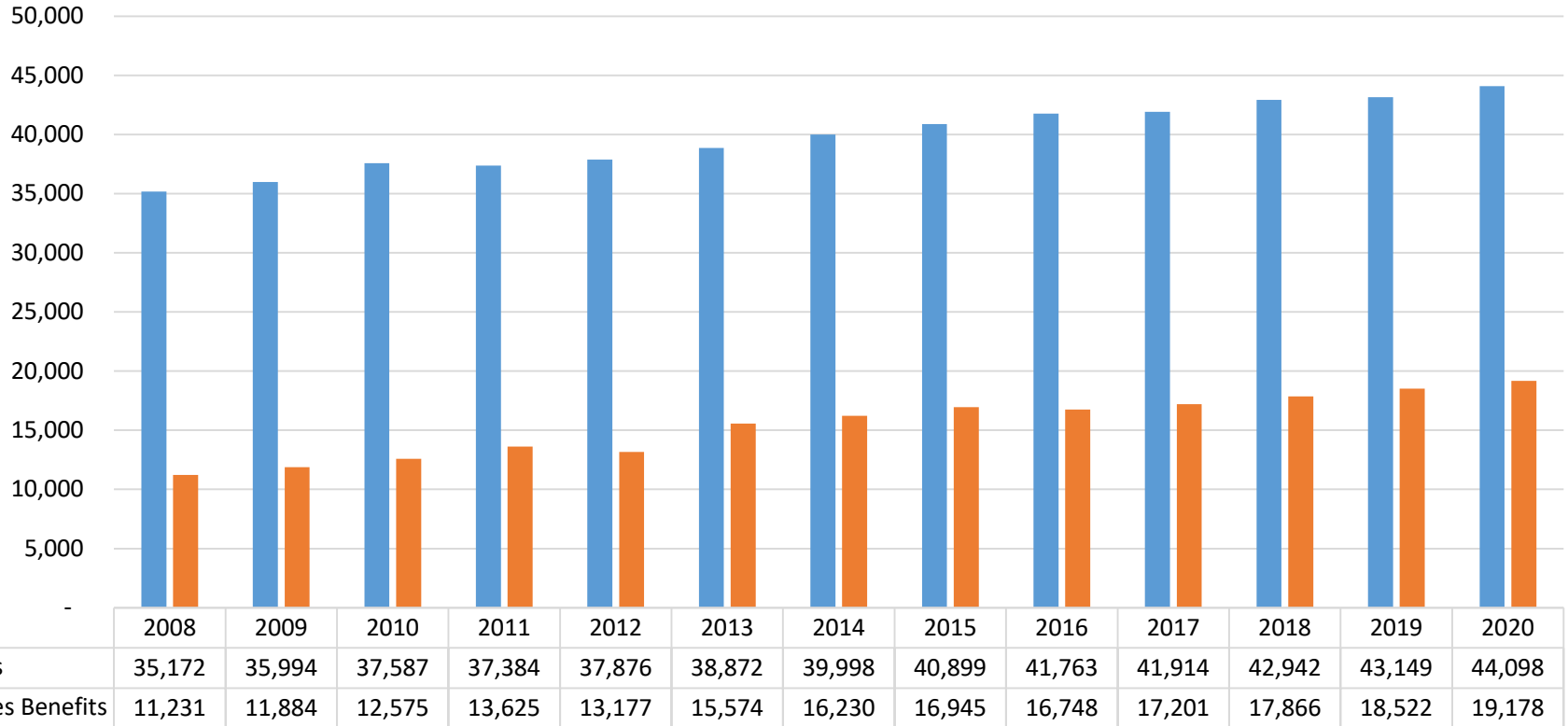
PERS Active and Retired Membership



0.2% annual increase for active members since 2008; 0.5% increase for 2020.
 3.1% annual increase for retired members since 2008; 2.6% increase for 2020.
 0.6 retirees per active 13 years ago; 0.82 retirees per active now.



PERS Average Salary and Benefits

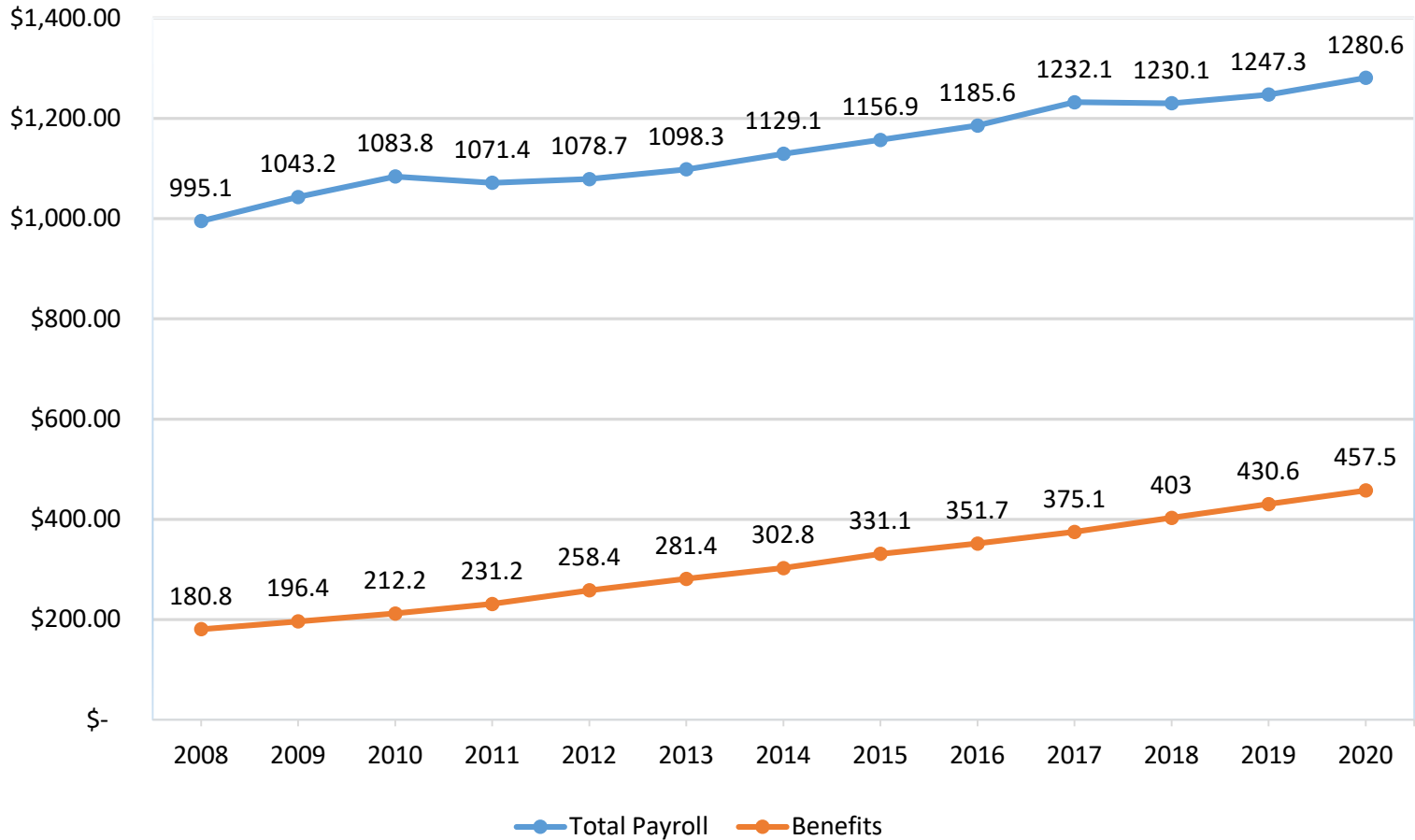


1.9% annual increase for average salary since 2008; 2.2% increase for 2020

4.7% annual increase for average benefits since 2008; 3.5% increase for 2020



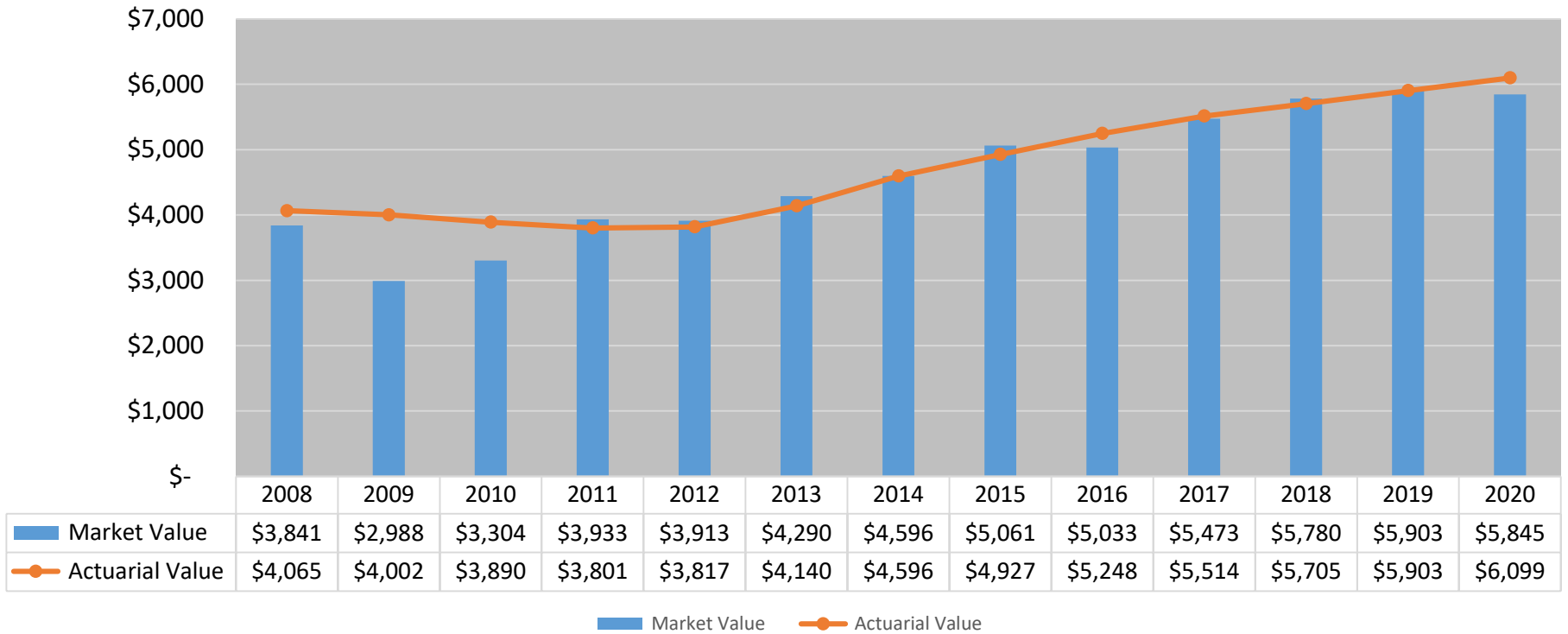
PERS Payroll & Benefits (\$ Millions)





PERS Assets

(in Millions)

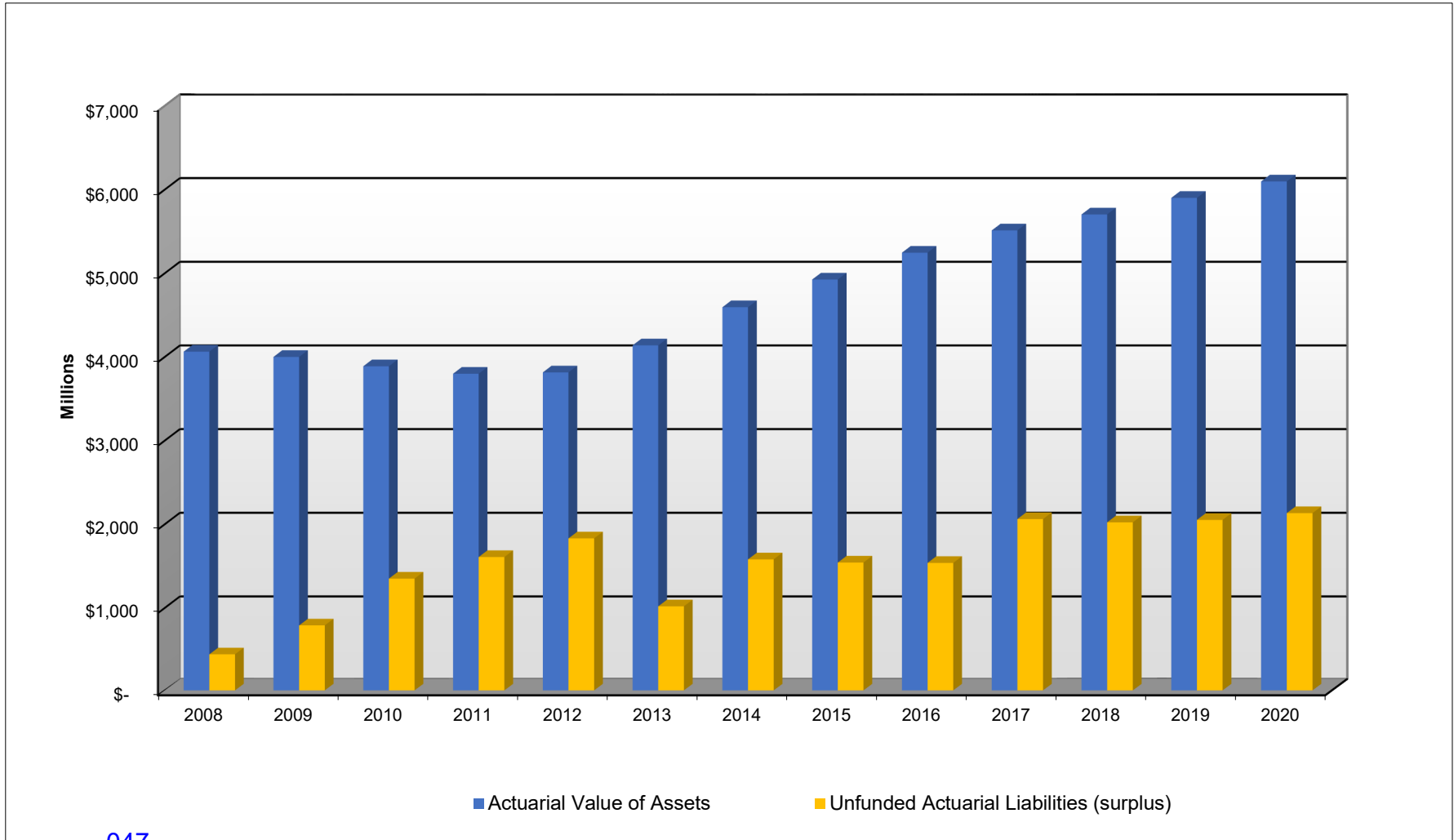


	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Market Return	(4.90%)	(20.90%)	12.90%	21.70%	2.30%	13.00%	17.10%	4.60%	2.00%	11.90%	8.90%	5.70%	2.70%
Actuarial Return	7.60%	(0.20%)	(1.20%)	(0.10%)	3.30%	11.90%	13.20%	9.60%	9.30%	8.10%	6.70%	7.10%	7.10%

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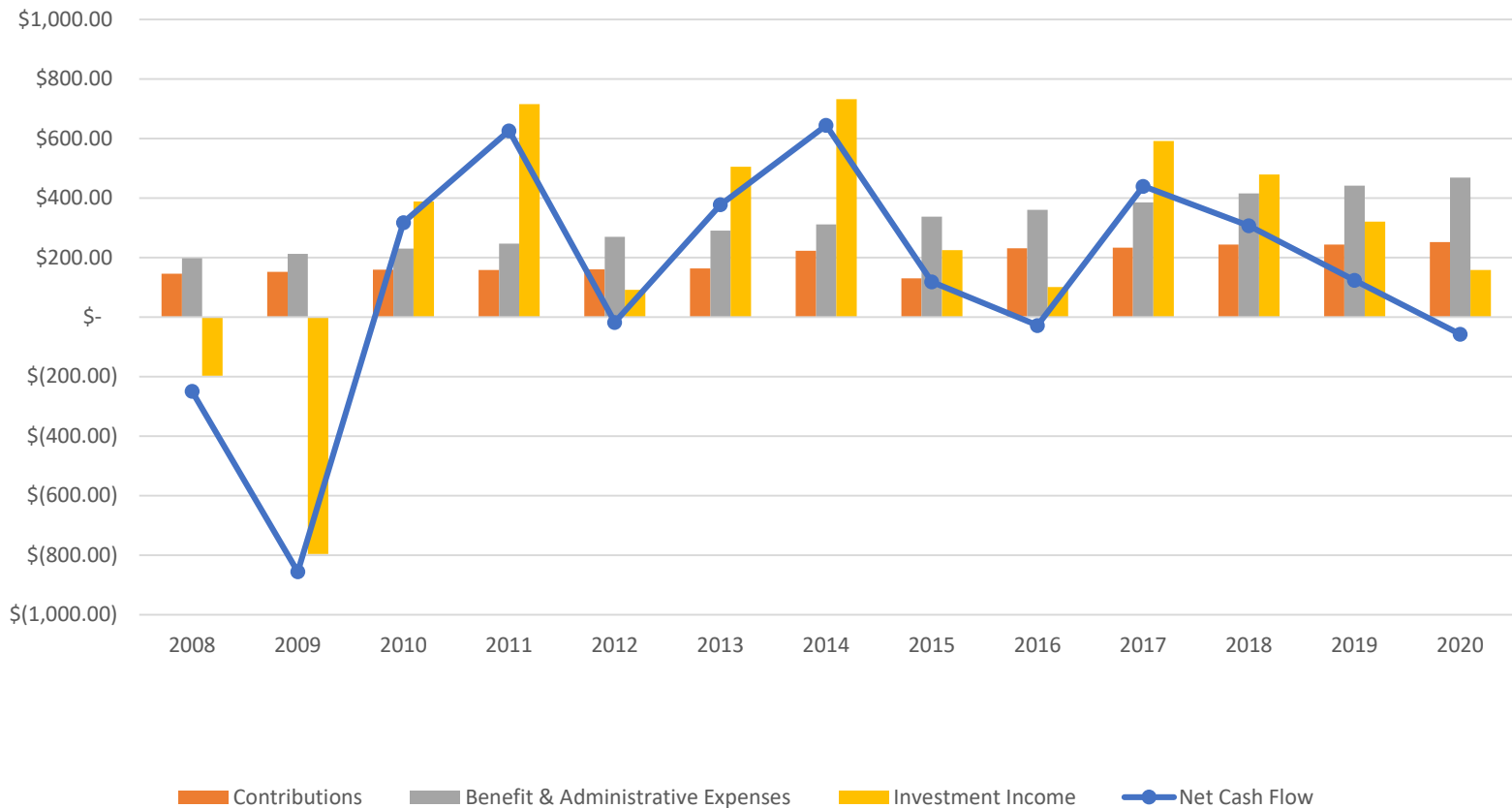


Actuarial Assets vs UAAL





Historical Cash Flow (in Millions)





PERS Funding Results

	July 1, 2020 Valuation	July 1, 2019 Valuation
Total Normal Cost Rate	9.81%	10.09%
Administrative Expense Load	0.28%	0.30%
Rate to Amortize UAL	6.64%	6.24%
Transfer to DB Education Fund	<u>0.04%</u>	<u>0.04%</u>
Statutory Funding Rate*	16.77%	16.67%
Actuarial Accrued Liability	\$8,234.0 million	\$7,957.0 million
Actuarial Value of Assets	\$6,099.4 million	\$5,903.2 million
Unfunded Accrued Liability	\$2,134.6 million	\$2,053.8 million
Funded Ratio	74.08%	74.19%
Amortization Period*	35 Years	36 Years

*Reflects anticipated increases in employer supplemental contribution rates and projected State revenue. Payable in fiscal year immediately following the valuation date.



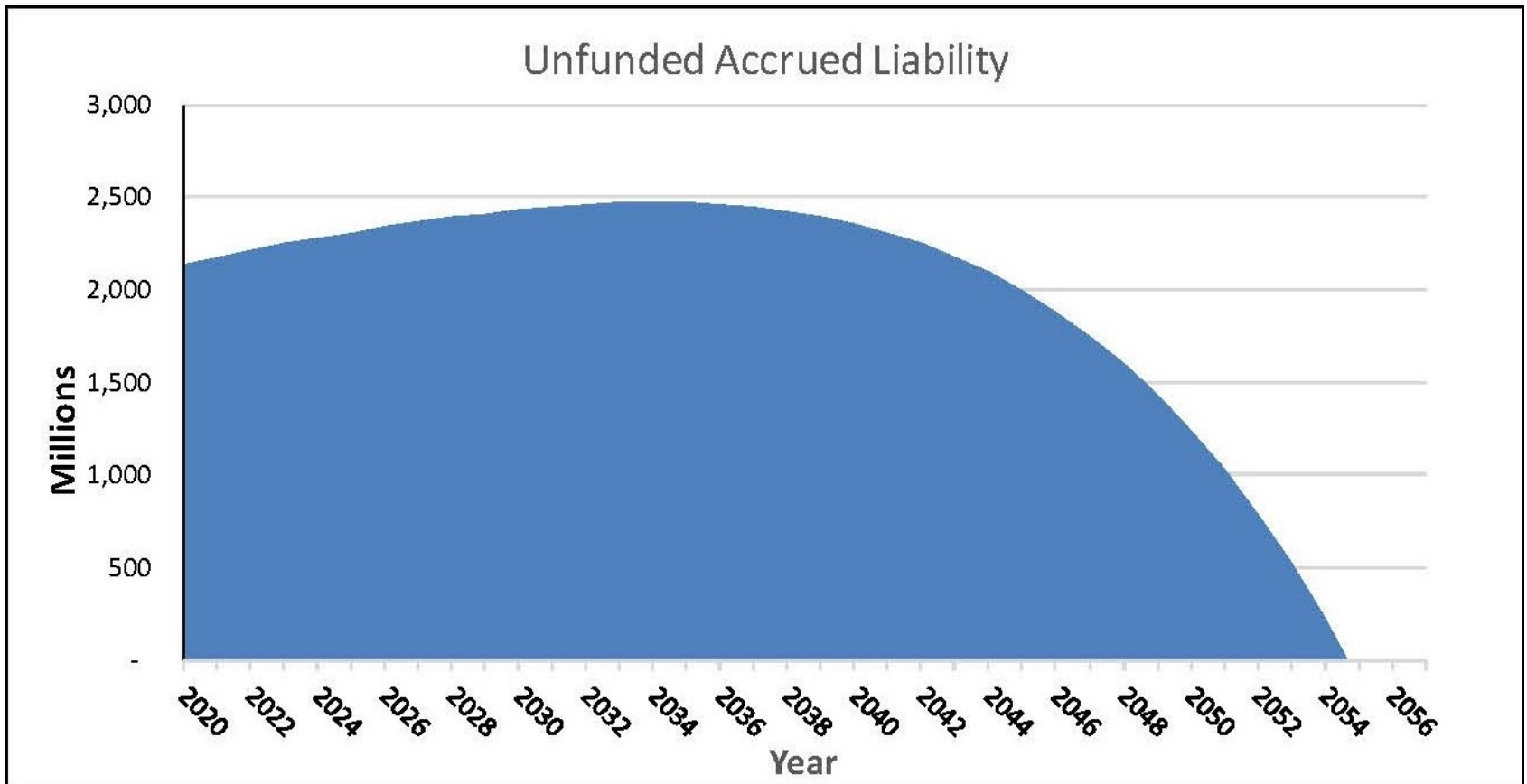
Valuation Results-Other Plans

System	Funded Ratio		Amortization Period		Statutory Rate	30-Year Funding Rate	
	2020	2019	2020	2019	2020	2020	2019
JRS	163%	161%	0	0	32.81%	(5.93%)	(5.46%)
HPORS	65%	65%	39	42	51.38%	54.99%	55.72%
SRS	81%	82%	21	21	23.61%	22.14%	22.01%
GWPORS	84%	84%	40	53	19.56%	20.13%	20.45%
MPORS	71%	69%	16	18	52.78%	44.29%	45.65%
FURS	82%	80%	8	9	57.67%	36.88%	37.79%
VFCA*	87%	85%	4	5	5% of premium taxes	\$913,824	\$899,555

* The actual contributions for the fiscal year ending 2019 and 2020 were \$2,370,454 and \$2,486,772, respectively.



Level Dollar vs. Level Percent of Pay



MONTANA BOARD OF INVESTMENTS

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TO: Members of the Board
FROM: Jon Putnam, Chief Investment Officer
DATE: October 13, 2020
RE: Proposed Asset Allocation for November vote

After discussion with staff and RVK, I am proposing changes to MBOI's asset allocation as shown in the table below. The redline of the proposed Montana Public Retirement Plans Investment Policy follows this memo.

Asset Class	Current Range	Proposed Range	Current Midpoint	Proposed Midpoint	Midpoint Difference	Portfolio as of 10/31/20
Domestic Equity	24 - 36%	24 - 36%	30%	30%	0	30.9%
International Equity	11 - 21%	12 - 22%	16%	17%	+1	17.1%
Private Investments *	11 - 17%	11 - 19%	14%	15%	+1	13.9%
Natural Resources Real Assets **	1 - 7%	2 - 8%	4%	5%	+1	4.3%
Real Estate	5 - 13%	5 - 13%	9%	9%	0	8.5%
Core Fixed Income	15 - 25%	10 - 20%	20%	15%	-5	17.7%
Non-Core Fixed Income	3 - 7%	4 - 8%	5%	6%	+1	5.1%
Cash Equivalents	0 - 4%	0 - 6%	2%	3%	+1	2.5%

Benchmark Changes

* MSCI USA Small Cap and S&P Leveraged Loan Index weighted to MBOI's Private Equity and Private Debt allocation

** 1/3 TIPS Index, 1/3 MSCI ACWI Commodity Producers Index, 1/3 MSCI ACWI Infrastructure Index

Asset Allocation Changes

The rationale for each of the asset allocation changes are discussed below.

1. Reduce the midpoint of Core Fixed Income from 20% to 15%

We have enjoyed a multi-decade decline in interest rates which has been a tail wind to bond returns. However, an investment in the Bloomberg Barclays Aggregate Bond Index currently indicates an annual return of approximately 1%, assuming no change in interest rates or credit spreads.

In addition, the diversification benefit of bonds may be more limited going forward. The prospect for price appreciation to offset equity declines appears limited with interest rates approaching 0%. Rising interest rates could cause both equities and bonds to suffer.

2. Change the Natural Resources Asset Class to the Real Assets Asset Class

The Real Assets Asset Class is commonly used by peers to categorize a group of investments that offer inflation protection or a “real return”.

There are three main categories of Real Assets:

- *Commodities – Basic goods such as energy, timber, minerals and agricultural products*
- *Inflation Linked Bonds – Government bonds that pay a coupon and the principal fluctuates with inflation*
- *Infrastructure – Assets used to transport, store, and distribute goods, energy, people and information*

MBOI already owns the first two types of Real Assets (Natural Resources and TIPS).

Infrastructure would be an addition to staff’s allowable investments under current policy. Infrastructure investments typically generate steady cash flows (similar to bonds) in addition to potential capital appreciation. Staff believes that there are attractive opportunities in this sub-asset class which would be additive to the return of the pension portfolio.

3. Increase the midpoint of Real Assets from 4% to 5%

The TIPS portfolio is currently held in Core Fixed Income and would be moved to Real Assets. This would add approximately 1.3% to the Real Assets allocation. The move would provide the added benefit of increased clarity for Core Fixed Income performance because TIPS are not in the Bloomberg Barclays Aggregate Bond Index.

In addition, we would expect to add infrastructure investments to the portfolio over time. As mentioned, these investments typically offer steady cash flows and would be expected to generate a higher rate of return than Core Fixed Income.

4. Increase the midpoint of International Equity from 16% to 17%

International Equity is expected to have a higher return than Core Fixed Income over the long term. In addition, International Equity is expected to have a slightly higher return than Domestic Equity over the long term. Finally, we have been overweight the current midpoint for International Equity over the last year given valuations.

5. Increase the midpoint of Private Investments from 14% to 15%

Private Investments is expected to have a higher return than Core Fixed Income over the long term. MBOI staff continues to find attractive opportunities in both Private Equity and Private Debt that are additive to the performance of the portfolio.

Given our increasing weight in Private Investments, I am also proposing to expand the size of the range. The illiquid nature of the asset class makes it difficult to adjust our position within the range driven by movement in public markets. This will give us a bit more room and is consistent with our strategy of continuing to add to the asset class.

6. Increase the midpoint of Non-Core Fixed Income from 5% to 6%

Non-Core Fixed Income is expected to have a higher return than Core Fixed Income over the long term. The planned addition of Preferred and Emerging Market Debt strategies will move our allocation to approximately 6%.

7. Increase the midpoint of Cash from 2% to 3%

Currently, there is minimal sacrifice of return for holding Cash versus Core Fixed Income. Increasing the range of Cash from 0 -4% to 0-6% will provide increased flexibility during volatile periods.

Remember that significant cash is no longer held within the individual Asset Classes.

Additional Investment Policy Changes

1. Change the Private Investments benchmark from the MSCI USA Small Cap Index to a blend of the MSCI USA Small Cap Index and the S&P Leveraged Loan Index

The blended benchmark would be the weighted average of our allocation to Private Equity (MSCI USA Small Cap) and Private Debt (S&P Leveraged Loan). This would align the benchmark with the appropriate risk/return profile of the underlying investments.

The current benchmark may misrepresent the performance or risk/return characteristics of the Private Investments portfolio. An equity only benchmark may encourage an underweight to Private Debt strategies despite attractive returns that are additive to our actuarial hurdle.

2. Benchmark for Real Assets would be a blend of 1/3 TIPS Index, 1/3 MSCI ACWI Commodity Producers Index, 1/3 MSCI ACWI Infrastructure Index

There is no perfect benchmark for the Real Assets Asset Class given the variety of potential investments.

However, the proposed blended benchmark encompasses each of the three main categories of Real Assets. In addition, the three index components of the proposed benchmark are public and readily observable.

MBOI would also track a secondary benchmark of the Consumer Price Index (CPI) +2.0% which would offer a view of inflation plus an illiquidity/risk premium.

Additional Questions

1. Why not reduce Core Fixed Income more?

We don't know the future and we could be wrong about the direction of interest rates. In addition, Core Fixed Income provides significant liquidity to the portfolio. Finally, the diversification benefit could be greater than anticipated in some environments.

2. Why isn't Real Estate included in Real Assets?

Real Estate is a Real Asset and could be included. However, there are several good reasons for keeping it separate:

- The size of the Real Estate Asset Class is much greater than other investment opportunities in Real Assets*
- Real Estate investments are more homogenous than other types of Real Asset investments*
- There are well defined benchmarks for Real Estate investing that allow the board, staff and external parties to evaluate the performance of the Real Estate portfolio*

3. What are the return expectations for Infrastructure?

Returns can vary significantly between different types of infrastructure assets. However, broad expectations are 5-12% for core infrastructure assets. Most assets would generate steady cash flows in addition to price appreciation of the asset commensurate with GDP growth.

4. Does the proposed asset allocation have sufficient liquidity?

We believe that we have more than enough liquidity built into the portfolio. The portfolio is designed to have plenty of cash and liquid securities in addition to steady cash flow from owned assets. These sources of liquidity will allow us to meet all our obligations.

5. Are we increasing the risk of the portfolio?

Yes. We are adding to asset classes that have a higher risk profile than Core Fixed Income. We believe that is offset by greater opportunity for return which will help us achieve our actuarial goals over the long term. We believe the total increase in risk to the portfolio is modest and a reasonable response to the current environment.

In addition, we are also increasing our potential allocation to cash which would act as a stabilizer and source of liquidity during a market decline.

6. What is the impact on fees?

Fees will be slightly higher as we shift away from our lowest cost asset class, Core Fixed Income. However, we believe the proposed changes will result in higher returns net of fees.

7. When would these changes take effect?

The board will vote on the proposal at the November board meeting.

If the board approves the proposal at the November meeting, the asset allocation changes would take effect at that time. Changes to the benchmarks would be implemented as of January 1, 2021.

MONTANA PUBLIC RETIREMENT PLANS INVESTMENT POLICY

Approved April 5, 2017

~~Last Revised June 9~~Proposed November 19, 2020

Table of Contents

Page

1. Introduction.....	3
2. Purpose.....	3
3. Legal and Constitutional Authority.....	3
4. Strategic Investment Objectives.....	4
5. Time Horizon	4
6. Performance Measurement	4
7. Roles and Responsibilities	5
8. Strategic Asset Allocation.....	6
9. Rebalancing	6
10. Risk Management.....	6
a. Monitoring Public Market Investment Managers	6
b. Private Investments Evaluation Policy.....	7
c. Liquidity	7
d. Monitoring/Reporting – Transparency.....	7
e. Leverage	8
11. Securities Lending.....	8
12. Exercise of Shareholder Rights	8
a. Proxy Voting.....	8
b. Class Action Litigation.....	9
13. Investment Policy Review.....	9
Appendixes	
a. Appendix I: Montana Public Retirement Plans Asset Allocation Ranges.....	10
b. Appendix II: Investment Objectives and Guidelines	11
i. Schedule II-A – Domestic Equities Asset Class.....	11
ii. Schedule II-B – International Equities Asset Class.....	13
iii. Schedule II-C – Private Investments Asset Class	15
iv. Schedule II-D – Natural Resources Asset Class.....	18
v. Schedule II-E – Real Estate Asset Class.....	21
vi. Schedule II-F – Core Fixed Income Asset Class	24
vii. Schedule II-G – Non-Core Fixed Income	27
viii. Schedule II-H – Cash Asset Class.....	29

1. Introduction:

Montana Public Retirement Plan assets are commingled for investment purposes into a Consolidated Asset Pension Pool (CAPP) created by the Board. The use of a commingled pool allows for simplified investing and accounting, broader diversification and thus less risk than would otherwise be available for the smaller Plans and provides additional opportunities for fee savings. The Consolidated Asset Pension Pool invests directly in the underlying Asset Classes. Each Asset Class has an underlying set of investment objectives and investment guidelines. Each of the nine Plans, CAPP, and each of the Asset Classes are separately identified for accounting and record keeping purposes.

This policy is effective upon adoption and supersedes all previous Investment Policy Statement (IPS) related to the investment management of the Montana Public Retirement Plans.

2. Purpose:

The purpose of this policy statement is to provide a broad strategic framework for the Montana Public Retirement Plans' investments under the guidance of the Montana Board of Investments.

3. Legal and Constitutional Authority:

Article VIII, Section 13, of the Montana Constitution requires that the Legislature provide for a Unified Investment Program for public funds. Section 17-6-201, Montana Code Annotated (MCA), established the Unified Investment Program, created the Montana Board of Investments (the "Board") and gave the Board sole authority to invest state funds, including the public retirement plans (Plans) in accordance with state law and the state constitution.

Section 17-6-201(1), MCA, requires the Board to operate under the "prudent expert principle," define as:

- 1) "discharging its duties with the care, skill, prudence, and diligence, under the circumstances then prevailing, that a prudent person acting in a like capacity with the same resources and familiar with like matters exercises in the conduct of an enterprise of like character with like aims;
- 2) diversifying the holdings of each fund to minimize the risk of loss and maximize the rate of return, unless under the circumstances it is clearly prudent not to do so; and
- 3) discharging its duties solely in the interest of and for the beneficiaries of the funds managed."

Section 17-6-201 (2) (a), MCA states... "Retirement funds may be invested in common stocks of any corporation."

Section 17-6-201 (3) (b), MCA states... "The Board is urged under the prudent expert principle to invest up to three percent (3%) of retirement funds in Venture Capital companies. Whenever possible, preferences should be given to investments in those Venture Capital companies which demonstrate an interest in making investments in Montana."

Section 17-6-201 (3) (c), MCA states... “In discharging its duties, the board shall consider the preservation of purchasing power of capital during periods of high monetary inflation.”

The Board, as the investment fiduciary of the Plans, is responsible for establishing the investment parameters for the Plans. The Board has the authority to allocate portfolios to any previously board-approved asset class in the proportions it considers prudent, under the prudent expert rule. There are currently no statutory or constitutional restrictions on the investment of the Plans. Asset allocation decisions made by the Board must be made in a public meeting.

4. Strategic Investment Objectives

The Board’s overall objective is to achieve the highest level of investment performance that is compatible with its risk tolerance and prudent investment practices. Because of the long-term nature of the state’s various pension liabilities, the Board maintains a long-term perspective in formulating and implementing its investment policies, and in evaluating its investment performance.

5. Time Horizon

The Board expects to meet or exceed these objectives over a long-term investment horizon. Over shorter periods, the anticipated market volatility and specific actions, including risk mitigation efforts of the Board, may lead to unfavorable, but expected, deviation from these objectives.

6. Performance Measurement

Investment performance is measured by three integrated long-term return objectives:

- a) The **actuarial target rate of return** is the key actuarial assumption affecting future funding rates and liabilities. Investment performance that exceeds or underperforms the target rate may materially impact future funding rates and liabilities. The Board seeks to generate long-term investment performance that will exceed the maximum actuarial annual target rate of return of 7.65%, as determined by the governing boards of the public retirement systems, net of all investment and administrative expenses. There may be years, or a period of years, when the Plans do not achieve this goal followed by years when the goal is exceeded. But over a long period, the Board seeks to achieve an average net rate of return of 7.65%, as determined by the governing boards of the public retirement systems, at risk levels (measured by expected volatility) broadly consistent with other public fund peers.
- b) The **investment policy benchmark** for the Retirement Plans is calculated by applying the investment performance of the benchmarks to any of the underlying asset classes to the Plans’ actual allocation to these investments during the measurement period. The investment policy benchmark represents the return that would be achieved if the Plan implemented a passively managed portfolio. Deviations from the policy benchmark measure the contribution of active management, rebalancing policy and its execution, and investment implementation generally.

- c) The Board also compares each Plan's total performance, before all fees, to appropriate **public plan sponsor universes**. This process permits the Board to compare its total performance to other public pension plans. While the Board seeks to rank consistently in the top half of comparable public pension plans, the Board recognizes that other plans may have investment objectives and risk tolerances that differ substantially from the Board's.

7. Roles and Responsibilities

- a) **Board of Investments** – The Board is responsible for approving the Investment Policy Statement (IPS) for the Montana Public Retirement Plans and has the authority to allocate portfolios to any asset class in the proportions it considers prudent, subject to such limitations as contained in law and the Constitution. The Board reviews this document periodically and, as needed, approves any changes to the policy.

As described in the Board of Investments Governance Manual, the Board delegates authority to the Executive Director, Chief Investment Officer (CIO), and other Staff to execute the day to day duties required to carry out the Board's mission.

- b) **Executive Director** – The Executive Director is empowered by the Board to sign all documents required to conduct Board business, unless there are specific written policies or instructions from the Board to the contrary. The Executive Director and the CIO are authorized jointly to contract for investment manager services and if deemed appropriate, terminate them.
- c) **Chief Investment Officer** – The CIO is empowered by the Board to serve as the principal staff person responsible for overseeing the investment activities under the Board's jurisdiction in compliance with the Board's policies. The CIO, with the support of other staff, is responsible for recommending IPS changes for Board approval.
- d) **Staff** – The staff is responsible for:
 - I. Managing day-to-day operations and delegating work to external resources as appropriate;
 - II. Monitoring allocations and overseeing all investment manager due diligence activities and recommending changes to the CIO;
 - III. Monitoring and reporting to the Board the performance of each asset class and the individual managers' performance;
 - IV. Informing the Board of any new managers or terminations; and
 - V. Reporting any deviations from the IPS Policy to the Board.
- e) **Investment Consultant** – The investment consultant assists the CIO and staff with policy recommendations and provides advice to the Board. The investment consultant also assists staff in monitoring all external managers and reports to the Board independently.
- f) **External Managers** – Managers are responsible for all aspects of portfolio management as set forth in the contract specific to each manager. Managers must communicate with staff as needed, regarding investment strategies and results. Managers must also cooperate fully with staff regarding administrative, accounting, and reconciliation issues as well as any requests from the investment consultant and the master custodian.

8. Strategic Asset Allocation

The Board finds that it is in the best interest of the state's nine retirement Plans to set out investment policies for the Plans in one comprehensive document.

Nine Public Retirement Plans:

Public Employees Retirement System

Teachers Retirement System

Police Officers Retirement

Firefighters Retirement

Sheriffs Retirement

Highway Patrol Retirement

Game Wardens Retirement

Judges Retirement

Volunteer Firefighters Retirement

The current asset allocation ranges for the Plans are in **Appendix I**. The asset allocation ranges are subject to change as modifications are adopted by the Board, at which time **Appendix I** will be revised to reflect these changes. The Board will formally affirm or revise the asset allocation ranges for the Plans at least annually.

9. Rebalancing

The actual asset allocation mix may deviate from time to time from the approved asset allocation ranges due to financial market performance, cash flows, and manager performance. Material deviations from the asset allocation ranges can alter the expected return and risk of the Plans. Rebalancing the Plans' assets to remain within the Board-approved allocation ranges is delegated to the CIO, in consultation with the Executive Director. Any necessary rebalancing will be made in a timely manner and will take into consideration associated costs and current market conditions. In addition to maintaining actual allocations within the ranges, the CIO will also consider contractual investment commitments to private investments, the liquidity necessary to meet benefit payments and administrative costs for the Plans, and current market conditions. This may prompt asset rebalancing when asset allocations fall within the established ranges. The CIO shall inform the Board of rebalancing activity at the Board's next regularly scheduled quarterly meeting.

10. Risk Management

a) **Evaluation of Investment Managers**

The Investment Manager Evaluation Policy is a distinct policy that is regularly reviewed and updated separate from the Retirement Plans Investment Policy because staff utilizes the Investment Manager Evaluation Policy to oversee and manage other assets in addition to the retirement plan assets.

b) Liquidity

Based on the percentage of total plan assets necessary for ongoing benefit payments and other plan expenses, the liquidity needs for the Retirement Plans are generally low and participant capital is not expected to change dramatically on short notice. However, illiquidity risk still needs to be monitored and managed by staff on a regular basis to ensure that assets are not required to be sold too quickly, or at an unfavorable time, and potentially at a discount to fair value to meet the cash needs of the Retirement Plans.

A significant percentage of the investments in the Real Estate, Natural Resources and Private Investments Asset Classes are considered illiquid. Due to the limited liquidity of these assets, it will typically be impractical to fund plan cash needs or correct deviations from policy ranges through the purchase or sale of these assets.

The investments held in the Domestic Equity, International Equity, Core Fixed Income, and Non-Core Fixed Income Asset Classes are categorized as publicly traded securities. In “normal market” conditions many of the underlying assets from these Asset Classes can be liquidated in a relatively short period to accommodate both expected and unexpected withdrawals as well as any repositioning of the asset allocation to stay within approved ranges.

To improve liquidity and manage both the expected and unexpected Retirement Plans need for cash, this Investment Policy specifies a strategic allocation to the Cash Asset Class, which invests in approved investments including the Short-Term Investment Pool (STIP).

c) Monitoring/Reporting – Transparency

Managers shall submit periodic reports to facilitate Staff’s monitoring of the Managers’ conformance to investment restrictions and performance objectives.

Staff shall provide regular reporting to the Board regarding the asset allocation and performance of the pension plans as well as the characteristics and performance of the Asset Classes to confirm these items are known and adhere to all IPS requirements and expectations.

Staff will discuss and communicate any key information discovered due to the ongoing Manager monitoring process that might assist the Board in understanding the underlying investment manager structure or risks embedded in the investment characteristics of the Retirement Plan asset allocations.

d) Leverage

Leverage is a significant risk factor. Investment managers may utilize leverage only when permitted in the manager’s investment guidelines approved by Staff. Staff shall monitor the use of leverage and its impact on risk and return.

The use of derivative securities can generate additional leverage even if the derivative is being used to reduce the risk in other investments. Investment managers may only use derivatives when permitted in the manager’s investment guidelines approved by Staff.

e) **Cash Investments**

Cash investments held at the Retirement Plan, CAPP level, or any managed account within it, entail an element of credit risk. Thus, only approved cash investment vehicles are permitted. These include: any cash vehicle at the Custodial Bank; STIP; or any SEC-registered money market fund approved by the CIO for internally managed funds or employed by an external asset manager which specifically address credit risk in their respective investment guidelines.

11. Securities Lending

Section 17-1-113, MCA, authorizes the Board to lend securities held by the state. The Board may lend its publicly traded securities through an agent, to other market participants in return for compensation. Currently, through an explicit contract, the state's Custodial Bank, manages the state's securities lending program. The Board seeks to assess counterparty and reinvestment risk, associated with each aspect of its securities lending program. The Board requires borrowers to maintain collateral at 102 percent for domestic securities and 105 percent for international securities. To ensure that the collateral ratio is maintained, securities on loan are marked to market daily and the borrower must provide additional collateral if the value of the collateral falls below the agreed-upon ratio of over-collateralization. In addition to the strict collateral requirements imposed by the Board, the credit quality of approved borrowers is monitored continuously by the contractor. From time to time, Staff or the investment manager may restrict a security from the loan program upon notification to the Custodial Bank. Staff will monitor the securities lending program, and will periodically report to the Board on the status of the program. The Board's participation in securities lending may change over time given Plan activity, market conditions and the agent agreement.

12. Exercise of Shareholder Rights

The Board recognizes that publicly traded securities and other assets of the Plans include certain ancillary rights, such as the right to vote on shareholder resolutions at companies' annual shareholders' meetings, and the right to assert claims in securities class action lawsuits or other litigation. The Board will prudently manage these assets of the Plans for the exclusive purpose of enhancing the value of the Plans for its participating systems' members and beneficiaries through such means as adopting and implementing a proxy voting policy and undertaking productive, cost-effective action to exercise its rights as shareholders or claimants in litigation.

a) **Proxy Voting**

Active voting of proxies is an important part of the Board's investment program. Under the contractual arrangements between the Board and its investment managers, the responsibility for voting proxies on the investments is delegated to the managers. Managers are contractually required to establish a proxy voting program in coordination with Board Staff and are required to vote proxies, excluding shares on loan under the Board's securities lending program, in the interest of the Plans' beneficiaries. Records of proxy votes shall be maintained by the Managers, and/or its third-party designee, and submitted to Staff and/or an external service provider annually.

Staff will monitor the proxy voting practices of the Board’s external investment managers. External service providers may be retained by either the Board or the Managers to assist in monitoring efforts. This monitoring will be coordinated with each manager to reasonably assure the Staff that Managers are fulfilling their fiduciary responsibilities with respect to proxy voting.

b) **Class Action Litigation**

Claims under state and federal securities laws arising out of losses on securities under the Board’s management are assets subject to the Board’s fiduciary duty of prudent management. The Board shall take reasonable, cost effective steps to identify, pursue and collect upon claims under securities laws for losses suffered by the Board on its investment. Accordingly, the Board maintains a detailed litigation policy, including process steps, outlined in the Board’s Governance Manual, Appendix F.

13. Investment Policy Statement Review

Per Board’s Governance Policy, “the Board shall create, maintain, and revise as necessary Investment Policy Statements (IPS) for each separate account it manages. The IPS shall cite the law establishing the account if such law exists, the permissible investments authorized by law, and establish an investment range for each of the permissible investments. The Board shall review such policies at least annually or more frequently at the request of Board staff. IPS may only be revised in a public meeting. All IPS shall be posted on the Board’s web site for review by the public.”

Appendix I: Montana Public Retirement Plans Asset Allocation Ranges

Permitted Ranges:

Approved November 19, 2019

Asset Class Allocations		
Asset Class	Range Low	Range High
Domestic Equities	24	36
International Equities	12 11	22 21
Private Investments	11	19 17
Natural Resources Real Assets	2 1	8 7
Real Estate	5	13
Core Fixed Income	10 15	20 25
Non-Core Fixed Income	4 3	8 7
Cash ¹	0	6 4
Total		
<p>¹ The combined cash at the plan level and the CAPP level is subject to the range.</p> <p>² Montana Public Retirement Plans shall have no greater than 5% of the Net Asset Value managed by any one external manager using an active investment strategy.</p>		

Appendix II: Investment Objectives and Guidelines

Schedule II-A: Investment Objectives and Guidelines Domestic Equities Asset Class

Effective Date of Schedule: June 9, 2020

This Schedule is effective upon adoption by the Board and supersedes all previous Investment Objectives and Guidelines for Domestic Equities.

Statement of Purpose:

The purpose of these objectives and guidelines is to:

1. Establish the investment objectives and performance standards of the Asset Class; and
2. Provide diversified exposure to the domestic equity market in a prudent and cost-effective manner.

Investment Objective:

Strategic:

The objective of the Domestic Equities Asset Class is to attain the highest possible total return within the parameters of the Investment Guidelines set forth below.

Performance:

Success in achieving this objective will be measured by comparing the risk and after-fee return of the Domestic Equity Asset Class to the **MSCI USA Investable Market Index** (the “Benchmark”). Performance results will be monitored and evaluated quarterly. However, the success in achieving the objective will be measured on a three-year, five-year, and ten-year annualized basis.

Investment Guidelines:

Staff will have full discretion to manage this Asset Class consistent with the investment guidelines stated below. Compliance with the following guidelines for permitted investments and other restrictions is the sole responsibility of the Staff. Any exceptions or compliance violations are to be reported to the Board at the next scheduled quarterly Board meeting.

Most of the Domestic Equity investments will be managed by external investment managers.

The Domestic Equities Asset Class may utilize public long-only and long/short strategies.

It is expected that Domestic Equities Asset Class shall invest in public market investments that provide liquidity and meaningful transparency to portfolio characteristics and risk exposures.

Permitted Investments:

The Domestic Equities Asset Class may invest only in the following:

1. Domestic equity securities and derivatives held in separate accounts, commingled funds, limited partnerships, or limited liability companies managed by external investment managers and governed by their respective investment management contracts and investment guidelines;
2. Exchange-Traded Funds (ETFs) based on a domestic equity index that is approved by the CIO and purchased and monitored by Staff; and
3. Cash – either an investment in the Short-Term Investment Pool (STIP), a vehicle available through the Custodian, or an SEC registered money market fund that is considered a “US Treasury” or “US Government” money market fund per the SEC regulations.

Other Restrictions:

1. The Domestic Equities Asset Class percentage of Net Asset Value invested in “small-cap” equities shall not exceed +10% above the Benchmark weight in “small cap”;
2. The Domestic Equities Asset Class percentage of Net Asset Value invested in passive/index strategies shall be greater than 45%.

If at any time, due to market fluctuations or any other circumstances, any of the guidelines are not maintained, Staff will use its best efforts to conform to these limits in a timely manner, while considering current market conditions and the associated costs of rebalancing. At the Board’s next regularly scheduled quarterly meeting, the CIO shall inform the Board of any cases that the Domestic Equity Asset Class allocations were outside of the limits and either inform the Board of the actions that were taken to return the Domestic Equities Asset Class back within guidelines or a plan to do so.

**Schedule II-B:
Investment Objectives and Guidelines
International Equities Asset Class**

Effective Date of Schedule: June 9, 2020

This Schedule is effective upon adoption by the Board and supersedes all previous Investment Objectives and Guidelines for International Equities.

Statement of Purpose:

The purpose of these objectives and guidelines is to:

1. Establish the investment objectives and performance standards of the Asset Class; and
2. Provide diversified exposure to the international and global equity markets in a prudent and cost-effective manner.

Investment Objective:

Strategic:

The objective of the International Equities Asset Class is to attain the highest possible total return within the parameters of the Investment Guidelines set forth below.

Performance:

Success in achieving this objective will be measured by comparing the risk and after-fee return of the International Equities Asset Class to the **MSCI All Country World ex-US Investable Market Index** (the “Benchmark”). Performance results will be monitored and evaluated quarterly. However, the success in achieving the objective will be measured on a three-year, five-year, and ten-year annualized basis.

Investment Guidelines:

Staff will have full discretion to manage the International Equities Asset Class consistent with the investment guidelines stated below. Compliance with the following guidelines for permitted investments and other restrictions is the sole responsibility of the Staff. Any exceptions or compliance violations are to be reported to the Board at the next scheduled quarterly Board meeting.

Most of the International Equities Asset Class investments will be managed by external investment managers.

The International Equities Asset Class may utilize public long-only and long/short strategies.

It is expected that the International Equities Asset Class shall invest in public market investments that provide liquidity and meaningful transparency to portfolio characteristics and risk exposures.

Permitted Investments:

The International Equities Asset Class may invest only in the following:

1. International equity securities and derivatives held in separate accounts, commingled funds, limited partnerships, or limited liability companies managed by external investment managers and governed by their respective investment management contracts and investment guidelines;
2. Exchange-Traded Funds (ETFs) based on an international equity index that is approved by the CIO and purchased and monitored by Staff; and
3. Cash – either an investment in the Short-Term Investment Pool (STIP), a vehicle available through the Custodian, or an SEC registered money market fund that is considered a “US Treasury” or “US Government” money market fund per the SEC regulations.

Other Restrictions:

1. The International Equities Asset Class percentage of Net Asset Value invested in “small-cap” equities shall not exceed +10% above the Benchmark weight in “small cap”;
2. The International Equities Asset Class percentage of Net Asset Value invested in passive/index strategies shall be greater than 42%;
3. The International Equities Asset Class percentage of Net Asset Value invested in Emerging Market securities shall not exceed + or - 10% above the Benchmark weight in Emerging Market securities.

If at any time, due to market fluctuations or any other circumstances, any of the guidelines are not maintained, Staff will use its best efforts to conform to these limits in a timely manner, considering current market conditions and the associated costs of rebalancing. At the Board’s next regularly scheduled quarterly meeting, the CIO shall inform the Board of any cases that the International Equities Asset Class allocations were outside of the limits and either inform the Board of the actions that were taken to return the International Equities Asset Class back within guidelines or a plan to do so.

**Schedule II-C:
Investment Objectives and Guidelines
Private Investments Asset Class**

Approved Date of Schedule: June 9, 2020

This Schedule is effective upon adoption by the Board and supersedes all previous Investment Objectives and Guidelines for Private Investments.

Statement of Purpose:

The purpose of these objectives and guidelines is to:

1. Establish the investment objectives and performance standards of the Asset Class; and
2. Provide diversified exposure to the Private Investment markets in a prudent and cost-effective manner.

Investment Objective:

Strategic:

The objective of the Private Investments Asset Class is to attain the highest possible return within the parameters of the Investment Guidelines set forth below.

Performance:

There is no generally accepted benchmark index for private investment performance comparisons. Characteristically, private partnership investments are impacted by the “J-curve” effect, in which fees and transaction costs create negative returns during the initial investment years before distributions are realized. Private investments require a long-time horizon to realize the value provided by the creation or restructuring of private companies.

The performance objective for the Private Investments Asset Class is the achievement of long-term net returns (after management fees and general partner’s carried interest) above a benchmark reflecting public equity market returns.

Success in achieving this objective will be measured by comparing the net return of the Private Investments Asset Class to the weighted average of the MSCI USA Small Cap Index (Private Equity) and the S&P Leveraged Loan Index (Private Credit) (the “Benchmark”) on an annualized basis. Performance results will be monitored quarterly. However, the success in achieving the objective will be measured on a five-year and ten-year annualized basis.

Investment Guidelines:

Staff will have full discretion to manage the Private Investments Asset Class consistent with the investment guidelines stated below. Compliance with the following guidelines for permitted investments and other restrictions is the sole responsibility of the Staff. Any exceptions or compliance violations are to be reported to the Board at the next scheduled quarterly Board meeting.

Most of the Private Investments Asset Class investments will be managed by external investment managers via a partnership structure in which the MBOI will have a limited partnership interest.

Permitted Investments:

The Private Investments Asset Class may invest only in the following:

1. Private Investment partnership interests. These private partnerships may be direct limited partnerships, limited liability companies, or vehicles that primarily invest in partnerships, including Fund-of-Funds and Secondary Funds;
2. Investments held in separate accounts or commingled funds managed by external investment managers and governed by their respective investment management contracts and investment guidelines;
3. The Private Investments Asset Class may co-invest with private investment managers in transactions that are suitable for inclusion into a private investment partnership;
4. Individual public or private securities received as distributions from funds;
5. Exchange-Traded Funds (ETFs) based on a public equity index that is approved by the CIO and purchased and monitored by Staff; and
6. Cash – either an investment in the Short-Term Investment Pool (STIP), a vehicle available through the Custodian, or an SEC registered money market fund that is considered a “US Treasury” or “US Government” money market fund per the SEC regulations.

Other Restrictions

1. The Montana Public Retirement Plan assets as a percentage of Net Asset Value invested in a single Direct Limited Partnership shall be no greater than 2.0%;
2. No more than 30% of the aggregate of the Private Investments Asset Class net asset value plus uncalled committed capital should be considered “Non-U.S.” exposure based on the primary objective of the Fund, Partnership, Separate Account, or Index;
3. No more than 10% of the aggregate of the Private Investments Asset Class net asset value shall be invested in direct co-investments;
4. Individual public securities received as distributions will be liquidated over a reasonable time-period dependent on market conditions.

The following table provides a guideline range with respect to Private Investments strategy diversification. It is important to note that these ranges reference the sum of the Private Investments Asset Class net asset value and uncalled commitments.

<u>Strategy</u>	<u>Policy Range</u>
Buyout and all other private equity related strategies not related to Venture Capital or Private Credit	50% - 100%
Venture Capital	0% - 25%
Private Credit	0% - 50%

For the purpose of the ranges provided above, funds will be classified in the category that is most reflective of the underlying investments in the funds.

If at any time, due to market fluctuations or any other circumstances, any of the guidelines are not maintained, Staff will use its best efforts to conform to these limits in a timely manner, while considering current market conditions and the associated costs of rebalancing. At the Board's next regularly scheduled quarterly meeting, the CIO shall inform the Board of any cases that the Private Investments Asset Class allocations were outside of the limits and either inform the Board of the actions that were taken to return the Private Investments Asset Class back within guidelines or a plan to do so.

**Schedule II-D:
Investment Objectives and Guidelines
~~Natural Resources~~Real Assets Asset
Class**

Effective Date of Schedule: June 9, 2020

This Schedule is effective upon adoption by the Board and supersedes all previous Investment Objectives and Guidelines for Natural Resources.

Statement of Purpose:

The purpose of these objectives and guidelines is to:

1. Establish the investment objectives and performance standards of the ~~Natural Resources~~Real Assets Asset Class; and
2. Provide diversified exposure to the ~~Natural Resources~~Real Assets markets in a prudent and cost-effective manner.

Investment Objective:

Strategic:

The objective of the ~~Natural Resources~~Real Assets Asset Class is to attain the highest possible return within the parameters of the Investment Guidelines set forth below.

Performance:

There is no generally accepted performance comparisons benchmark index for private partnership investments in ~~Natural Resources~~Real Assets. Characteristically, private partnership investments are impacted by the “j-curve” effect, in which fees and transaction costs create negative returns during the initial investment years before distributions are realized. Private partnership investments usually require a long-time horizon to realize the value provided by the creation or enhancement of private companies.

The long-term performance objective for the ~~Natural Resources~~Real Assets Asset Class is the achievement of net returns (after management fees and general partner’s carried interest) above a benchmark reflecting public equity Natural Resources market returns.

Success in achieving this objective will be measured by comparing the long-term net return of the ~~Natural Resources~~Real Assets Asset Class to ~~the 1/3 MSCI ACWI Commodity Producers Index, 1/3 US TIPS Index, 1/3 MSCI ACWI Infrastructure Index~~ (the “Benchmark”) on an annualized basis. Performance results will be monitored quarterly. However, the success in achieving the objective will be measured on a five-year and ten-year annualized basis.

Investment Guidelines:

Staff will have full discretion to manage the ~~Natural Resources~~Real Assets Asset Class consistent with the investment guidelines stated below. Compliance with the following guidelines for permitted investments and other restrictions is the sole responsibility of the Staff. Any exceptions or

compliance violations are to be reported to the Board at the next scheduled quarterly Board meeting.

Most of the ~~Natural Resources~~Real Assets Asset Class investments will be managed by external investment managers via private investment partnerships in which the MBOI will have a limited partnership interest; however, the ~~Natural Resources~~Real Assets Asset Class may also utilize public long-only and long/short strategies.

Permitted Investments:

The ~~Natural Resources~~Real Assets Asset Class (for the purpose of these guidelines, “~~Natural Resources~~Real Assets” includes investments in inflation linked bonds, infrastructure, timber, energy, agriculture, ~~water,~~ and other commodities) may invest only in the following:

1. Private investment partnership interests in ~~Natural Resources~~Real Assets. These private investment partnerships may be direct limited partnerships, limited liability companies, or vehicles that primarily invest in partnerships, including fund-of-funds and secondary funds;
2. The ~~Natural Resources~~Real Assets Asset Class may co-invest with private investment managers in transactions that are suitable for inclusion into a Natural Resources private investment partnership;
3. Individual public or private securities received as distributions from funds;
4. Separately managed accounts, open-ended funds, closed-ended funds, or exchange-traded funds (ETFs), managing publicly traded ~~Natural Resources~~Real Assets related investments, where the investments are approved by the CIO and purchased and monitored by Staff;
- 4.5. Inflation Linked Bonds; and
- 5.6. Cash – either an investment in the Short-Term Investment Pool (STIP), a vehicle available through the custodian, or an SEC registered money market fund that is considered a “US Treasury” or “US Government” money market fund per the SEC regulations.

Other Restrictions

1. The Montana Public Retirement Plan assets as a percentage of Net Asset Value invested in a single investment within Natural Resources Asset Class shall be no greater than 2.0%;
2. No more than 30% of the aggregate of the Natural Resources Asset Class Net Asset Value plus uncalled committed capital should be considered “Non-U.S.” exposure based on the primary objective of the fund, partnership, separately managed account, or index;
3. No more than 10% of the aggregate of the Natural Resources Asset Class Net Asset Value shall be invested in direct co-investments; and
4. Individual public securities received as distributions will be liquidated over a reasonable time- period dependent on market conditions.

The following table provides a guideline range with respect to the ~~Natural Resources~~Real Assets Asset Class strategy diversification. It is important to note that these ranges reference the sum of the ~~Natural Resources~~Real Assets Asset Class Net Asset Value and uncalled commitments.

<u>Strategy</u>	<u>Policy Range</u>
Energy <u>Commodities Related</u>	25 30% - 75%
Timber <u>Infrastructure Related</u>	0% - 50 45%
Broad Natural Resources <u>Inflation Linked Bonds</u>	0% - 50%
Public Natural Resource <u>Securities</u>	0% - 40%

For funds with exposure across categories, the fund will be classified in the category that is most reflective of the underlying investments in the funds.

Timber Fund Leverage

Leverage is a significant risk factor. On an individual fund basis, the leverage level can range up to 30.0%. It is important to note; however, that in aggregate, leverage consists of the combined borrowing at the property level and the fund level. On a select basis, the leverage may exceed 30.0% at the combined property and fund investment level, if it is determined to be reasonable to do so, particularly in the early stages of the fund investment cycle when a fund level credit facility is utilized to finance early fund investments on a short-term basis prior to committed capital being drawn. While Staff will monitor leverage on this combined basis, the leverage statistic Staff will focus on most for purposes of compliance with this policy is the stabilized long-term leverage at the overall fund investment level once it has completed its acquisition phase, paid down outstanding short-term credit facility balances used to fund capital calls and the investment period has ended. New investments shall be made with the intention that the total timber fund investment leverage shall not exceed 30%.

<u>Strategy</u>	<u>Leverage Policy Range</u>
<i>Timber</i>	<i>0% - 30%</i>

If at any time, due to market fluctuations or any other circumstances, any of the guidelines are not maintained, Staff will use its best efforts to conform to these limits in a timely manner, while considering current market conditions and the associated costs of rebalancing. At the Board’s next regularly scheduled quarterly meeting, the CIO shall inform the Board of any cases when the Natural Resources allocations were outside of the limits and either inform the Board of the actions that were taken to return the Natural Resources Asset Class back within guidelines or a plan to do so.

**Schedule II-E:
Investment Objectives and Guidelines
Real Estate Asset Class**

Effective Date of Schedule: June 9, 2020

This Schedule is effective upon adoption by the Board and supersedes all previous Investment Objectives and Guidelines for Real Estate.

Statement of Purpose:

The purpose of these objectives and guidelines is to:

1. Establish the investment objectives and performance standards of the Real Estate Asset Class;
and
2. Provide diversified exposure to Real Estate in a prudent and cost-effective manner.

Investment Objective:

Strategic:

The objective of the Real Estate Asset Class is to attain the highest possible return within the parameters of the Investment Guidelines set forth below.

Performance:

Success in achieving this objective will be measured by comparing the risk and after-fee return of the Real Estate Asset Class to the **NCREIF Fund Index – Open End Diversified Core Equity (NFI-ODCE)** (the “Benchmark”). Performance results will be monitored and evaluated quarterly. However, the success in achieving the objective will be measured on a five-year, and ten-year annualized basis.

Investment Guidelines:

Staff will have full discretion to manage the Real Estate Asset Class consistent with the investment guidelines stated below. Compliance with the following guidelines for permitted investments and other restrictions is the sole responsibility of the Staff. Any exceptions or compliance violations are to be reported to the Board at the next scheduled quarterly Board meeting.

Most of the Real Estate Asset Class investments will be managed by external investment managers via private investment partnerships in which the MBOI will have a limited partnership interest; however, the Real Estate Asset Class may also utilize public long-only and long/short strategies.

Permitted Investments:

The Real Estate Asset Class may invest only in the following:

1. Separate accounts, open-ended funds, closed-ended funds, exchange-traded funds (ETFs), or real Estate investment trusts (REITs) managing publicly traded real estate, where the investments are approved by the CIO and purchased and monitored by Staff;

2. Private investment partnership interests. These private partnerships may be direct limited partnerships, limited liability companies, or vehicles that primarily invest in partnerships, including fund-of-funds and secondary funds;
3. The Real Estate Asset Class may co-invest with private investment managers in transactions that are suitable for inclusion into a private real estate investment partnership;
4. Separate accounts investing in private real estate direct investments;
5. Individual public or private securities received as distributions from funds are also permitted to be held in the Real Estate Asset Class; and
6. Cash – either an investment in the Short-Term Investment Pool (STIP), a vehicle available through the custodian, or an SEC registered money market fund that is considered a “US Treasury” or “US Government” money market fund per the SEC regulations.

Other Restrictions

1. The Montana Public Retirement Plan assets as a percentage of Net Asset Value invested in a single investment within the Real Estate Asset Class shall be no greater than 2.0%;
2. No more than 30% of the aggregate of the Real Estate Asset Class Net Asset Value plus uncalled committed capital should be considered “Non-U.S.” exposure based on the dominant geographic exposure of the Fund, Partnership, Separate Account, or Index;
3. No more than 10% of the aggregate of the Real Estate Asset Class Net Asset Value shall be invested in direct co-investments; and
4. Individual public securities received as distributions will be liquidated over a reasonable time-period dependent on market conditions.

The following table provides a guideline range with respect to the Real Estate Asset Class strategy diversification. It is important to note that these ranges reference the sum of the Real Estate Asset Class Net Asset Value and uncalled commitments.

<u>Strategy</u>	<u>Policy Range</u>
Core Real Estate	20% - 50%
Core-plus/Non-Core Real Estate	25% - 65%
Real Estate Debt	10% - 40%
Public Real Estate Securities	0% - 40%

For funds with exposure across these categories, the fund will be classified in the category that is most reflective of the underlying investments in the funds.

Leverage

Leverage is a significant risk factor. On an individual fund basis, the leverage level can range up to 75.0%. It is important to note; however, that in aggregate, leverage consists of the combined borrowing at the property level and the fund level. On a select basis, the leverage may exceed 75.0% at the combined property and fund investment level, if it is determined to be reasonable to do so, particularly in the early stages of the fund investment cycle when a fund level credit facility is utilized to finance early fund investments on a short-term basis prior to committed capital being drawn. While Staff will monitor leverage on this combined basis at the fund investment level, the leverage statistic Staff will focus on most for purposes of compliance with this policy is the stabilized long-term leverage at the overall fund investment level once it has completed its acquisition phase, paid down

outstanding short-term credit facility balances used to fund capital calls and the investment period has ended. New investments shall be made with the intention that the total Real Estate Asset Class leverage shall not exceed 60%.

<u>Strategy</u>	<u>Leverage Policy</u>
Core Real Estate Investments	0% - 50%
Core-plus/Non-Core Real Estate	0% - 75%
Real Estate Debt	0% – 75%

If at any time, due to market fluctuations or any other circumstances, any of the guidelines are not maintained, Staff will use its best efforts to conform to these limits in a timely manner, while considering current market conditions and the associated costs of rebalancing. At the Board’s next regularly scheduled quarterly meeting, the CIO shall inform the Board of any cases that the Real Estate Asset Class allocations were outside of the limits and either inform the Board of the actions that were taken to return the Real Estate Asset Class back within guidelines or a plan to do so.

While no formal diversification ranges are set forth for property type diversification or regional diversification within the United States, it is expected that the Real Estate Asset Class shall remain diversified across these factors. These and other factors shall be monitored and reported to the Board at least annually.

**Schedule II-F:
Investment Objectives and Guidelines
Core Fixed Income**

Approved Date of Schedule: June 9, 2020

This Schedule is effective upon adoption by the Board and supersedes all previous Investment Objectives and Guidelines for Core Fixed Income.

Statement of Purpose:

The purpose of these objectives and guidelines is to:

1. Establish the investment objectives and performance standards of the Core Fixed Income Asset Class; and
2. Provide diversified exposure to Core Fixed Income in a prudent and cost-effective manner.

Investment Objective:

Strategic:

The objective of the Core Fixed Income Asset Class is to attain the highest possible total return within the parameters of the Investment Guidelines set forth below.

Performance:

Success in achieving this objective will be measured by comparing the risk and after-fee return of the Core Fixed Income Asset Class to the **Bloomberg Barclays US Aggregate Bond Index** (the "Benchmark"). Performance results will be monitored and evaluated quarterly. However, the success in achieving the objective will be measured on a three-year, five-year, and ten-year annualized basis.

Investment Guidelines:

Staff will have full discretion to manage the Core Fixed Income Asset Class consistent with the investment guidelines stated below. Core Fixed Income is defined as strategies primarily invested in marketable, publicly traded, investment grade fixed income securities denominated in U.S. dollars. Compliance with the following guidelines for permitted investments and other restrictions is the sole responsibility of the Staff. Any exceptions or compliance violations are to be reported to the Board at the next scheduled quarterly Board meeting.

The Core Fixed Income Asset Class may invest only in the following:

Internally Managed Permitted Investments:

1. Dollar denominated debt obligations of the U.S. Government, including its agencies and instrumentalities;
2. Dollar denominated debt obligations of Quasi and Foreign Government entities;
3. Dollar denominated debt obligations of domestic and foreign corporations;

4. Dollar denominated securitized assets, including U.S. Agency mortgage backed and commercial mortgage backed securities (MBS/CMBS), U.S. Agency collateralized mortgage obligations (CMO's) and asset backed securities (ABS);
5. Dollar denominated Non-agency mortgage backed securities (RMBS) and Non-agency commercial mortgage backed securities (CMBS);
6. Cash – either an investment in the Short-Term Investment Pool (STIP), a vehicle available through the Custodian, or an SEC registered money market fund that is considered a “US Treasury” or “US Government” money market fund per the SEC regulations.

Other Internally Managed Restrictions

1. The average duration of any internally managed portfolio will be maintained in a range of + or – 20% of the Benchmark duration;
2. A minimum of 20% of the Net Asset Value of any internally managed portfolio will be held in U.S. Government securities, including U.S. Treasuries, TIPS and Agency securities;
3. Securities must be rated investment grade by at least two nationally recognized statistical rating organizations (NRSRO), with the exception of securities issued or guaranteed by agencies or instrumentalities of the U.S. Government. In the case of split-rated securities, the lower rating is used;
4. Securities that drop below investment grade as defined above may be held to maturity, however any internally managed portfolio may not hold more than 10% of its Net Asset Value in securities rated below investment grade;
5. Securitized assets must be rated a minimum of the 4th highest rating by any nationally recognized statistical rating organization (NRSRO) at the time of purchase;
 - a. Securitized assets that drop below the 4th highest rating of any NRSRO may be held to maturity, however any internally managed portfolio may not hold more than 5% of its Net Asset Value in these securities;
6. A maximum of 10% of the Net Asset Value of any internally managed portfolio may be held in dollar denominated quasi and foreign government securities;
7. A maximum of two times the Benchmark weight may be held in Corporate securities in any internally managed portfolio;
8. A maximum of two times the Benchmark weight in U.S. Agency MBS may be held in U.S. Agency MBS and CMO securities in any internally managed portfolio;
 - a. A maximum of 20% of the Net Asset Value of any internally managed portfolio may be held in U.S. Agency CMO's;
9. A maximum of 5% of the Net Asset Value of any internally managed portfolio may be held in asset backed securities (ABS);
10. A maximum of 10% of the Net Asset Value of any internally managed portfolio may be held in U.S. Agency and Non-Agency commercial mortgage backed securities (CMBS);
11. A maximum of 10% of the Net Asset Value of any internally managed portfolio may be held in non-agency mortgage backed securities (RMBS);
12. A maximum of 3% of the Net Asset Value of any internally managed portfolio may be held in a single corporate parent issuer, foreign/quasi government issuer or securitized specific pool at the time of purchase;
 - a. A maximum of 4% of the Net Asset Value of any internally managed portfolio may be held in a single corporate parent issuer, foreign/quasi government issuer or securitized specific pool at any time;

13. A maximum of 5% of the Net Asset Value of any internally managed portfolio may be invested in Cash;
14. The use of leverage is prohibited.

Externally Managed Permitted Investments:

1. Securities and derivatives held in separate accounts, commingled funds, limited partnerships, or limited liability companies managed by external investment managers and governed by their respective investment management contracts and investment guidelines;
2. Cash – either an investment in the Short-Term Investment Pool (STIP), a vehicle available through the Custodian, or an SEC registered money market fund that is considered a “US Treasury” or “US Government” money market fund per the SEC regulations.

Other Externally Managed Restrictions

1. The average duration of any externally managed portfolio will be maintained in a range of + or – 25% of the index duration;
2. A maximum of 20% of the Net Asset Value of any externally managed portfolio will be invested in securities rated below investment grade as defined by any nationally recognized statistical rating organizations (NRSRO). In the case of split-rated securities, the lower rating is used;
3. A maximum of 10% of the Net Asset Value of any externally managed portfolio will be invested in Non-dollar debt; either hedged or unhedged;
4. A maximum of 5% of any externally managed portfolio will be invested in Cash.

If at any time, due to market fluctuations or any other circumstances, any of the guidelines are not maintained, Staff will use its best efforts to conform to these limits in a timely manner, while considering current market conditions and the associated costs of rebalancing. At the Board’s next regularly scheduled quarterly meeting, the CIO shall inform the Board of any cases that the Core Fixed Income Asset Class allocations were outside of the limits and either inform the Board of the actions that were taken to return the Core Fixed Income Asset Class back within guidelines or a plan to do so.

**Schedule II-G:
Investment Objectives and Guidelines
Non-Core Fixed Income Asset Class**

Approved Date of Schedule: June 9, 2020

This Schedule is effective upon adoption by the Board and supersedes all previous Investment Objectives and Guidelines for Non-Core Fixed Income.

Statement of Purpose:

The purpose of these objectives and guidelines is to:

1. Establish the investment objectives and performance standards of the Non-Core Fixed Income Asset Class; and
2. Provide diversified exposure to the Non-Core Fixed Income markets in a prudent and cost-effective manner.

Investment Objective:

Strategic:

The objective of the Non-Core Fixed Income Asset Class is to attain the highest possible total return within the parameters of the Investment Guidelines set forth below.

Performance:

Success in achieving this objective will be measured by comparing the risk and after-fee return of the Non-Core Fixed Income Asset Class to the **Bloomberg Barclays US High Yield - 2% Issuer Cap Index** (the "Benchmark"). Performance results will be monitored and evaluated quarterly. However, the success in achieving the objective will be measured on a three-year, five-year, and ten-year annualized basis.

Investment Guidelines:

Staff will have full discretion to manage the Non-Core Fixed Income Asset Class consistent with the investment guidelines stated below. Non-Core Fixed Income is defined as strategies primarily invested in High Yield Corporate Debt, Emerging Market Debt, Convertible Debt and Preferred Securities. Compliance with the following guidelines for permitted investments and other restrictions is the sole responsibility of the Staff. Any exceptions or compliance violations are to be reported to the Board at the next scheduled quarterly Board meeting.

Permitted Investments:

The Non-Core Fixed Income Asset Class may invest only in the following:

1. Securities and derivatives held in separate accounts, commingled funds, limited partnerships, or limited liability companies managed by external investment managers and governed by their respective investment management contracts and investment guidelines;
2. Cash – either an investment in the Short-Term Investment Pool (STIP), a vehicle available through the Custodian, or an SEC registered money market fund that is considered a “US Treasury” or “US Government” money market fund per the SEC regulations.

Other Restrictions

1. A maximum of 10% of the Net Asset Value of the Non-Core Fixed Income Asset Class shall be held in Non-U.S. securities if they are denominated in a foreign currency;
2. The average duration of the Non-Core Fixed Income Asset Class will be maintained in a range of + or – 25% of the index duration.

If at any time, due to market fluctuations or any other circumstances, any of the guidelines are not maintained, Staff will use its best efforts to conform to these limits in a timely manner, while considering current market conditions and the associated costs of rebalancing. At the Board’s next regularly scheduled quarterly meeting, the CIO shall inform the Board of any cases that the Non-Core Fixed Income Asset Class allocations were outside of the limits and either inform the Board of the actions that were taken to return the Non-Core Fixed Income Asset Class back within guidelines or a plan to do so.

**Schedule II-H:
Investment Objectives and Guidelines
Cash Asset Class**

Approved Date of Schedule: June 9, 2020

This Schedule is effective upon adoption by the Board and supersedes all previous Investment Objectives and Guidelines for the Cash Asset Class that is part of the Consolidated Asset Pension Pool.

Statement of Purpose:

The purpose of these objectives and guidelines is to:

1. Establish the investment objectives and performance standards of the Cash Asset Class; and
2. Provide exposure to the cash-equivalent markets in a prudent and cost-effective manner.

Investment Objective:

Strategic:

The objective of the Cash Asset Class is to attain the highest possible total return within the parameters of the Investment Guidelines set forth below.

Performance:

Success in achieving this objective will be measured by comparing the risk and after-fee return of the Cash Asset Class to the **Federal Reserve US Treasury Constant Maturity 1-Month Index** (the “Benchmark”). Performance results will be monitored and evaluated quarterly. However, the success in achieving the objective will be measured on a three-year, five-year, and ten-year annualized basis.

Investment Guidelines:

Staff will have full discretion to manage the Cash Asset Class consistent with the investment guidelines stated below. Compliance with the following guidelines for permitted investments and other restrictions is the sole responsibility of the Staff. Any exceptions or compliance violations are to be reported to the Board at the next scheduled quarterly Board meeting.

Permitted Investments:

The Cash Asset Class may invest only in the following:

1. Cash and Cash Equivalents – either an investment in the Short-Term Investment Pool (STIP), a vehicle available through the Custodian, or an SEC registered money market fund that is considered a “US Treasury” or “US Government” money market fund per the SEC regulations.

If at any time, due to market fluctuations or any other circumstances, any of the guidelines are not maintained, Staff will use its best efforts to conform to these limits in a timely manner, while considering current market conditions and the associated costs of rebalancing. At the Board’s next regularly scheduled quarterly meeting, the CIO shall inform the Board of any cases that the Cash Asset Class allocations were outside of the limits and either inform the Board of the actions that were taken to return the Cash Asset Class back within guidelines or a plan to do so.



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.

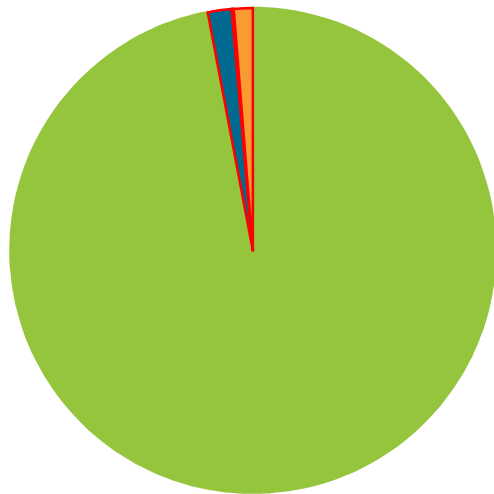


Montana Board of Investments
 Asset Allocation by Segment
 Retirement Plans

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

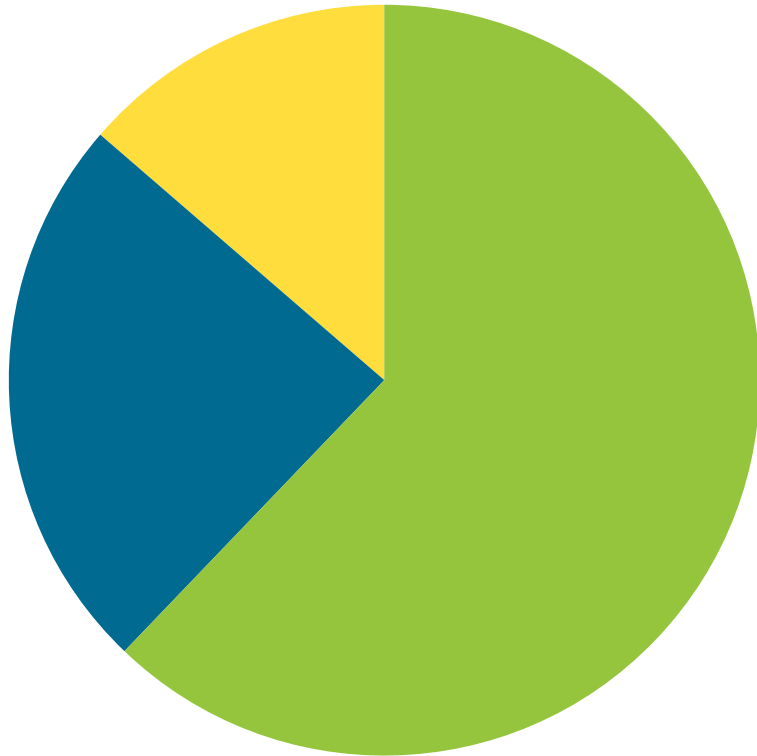
September 30, 2020 : \$12,304,387,286



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

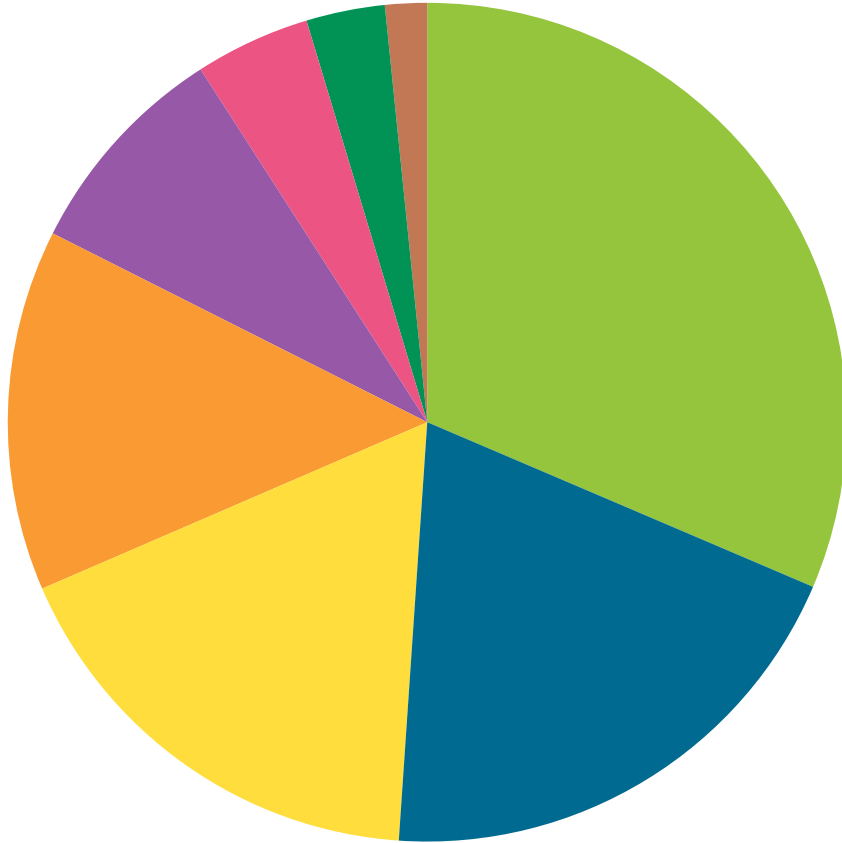
	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2019	2018	2017	2016	2015	Since Incep.	Inception Date
Consolidated Asset Pension Pool (CAPP)	5.25	2.21	7.17	6.44	N/A	N/A	N/A	17.12	-2.74	N/A	N/A	N/A	7.47	04/01/2017
CAPP Custom Benchmark	5.13	-0.63	5.06	5.59	N/A	N/A	N/A	20.88	-5.73	N/A	N/A	N/A	6.69	
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 Equity.



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.

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. 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. **094**

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.

PORTLAND

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Investment Update

Board Meeting: November 19, 2020

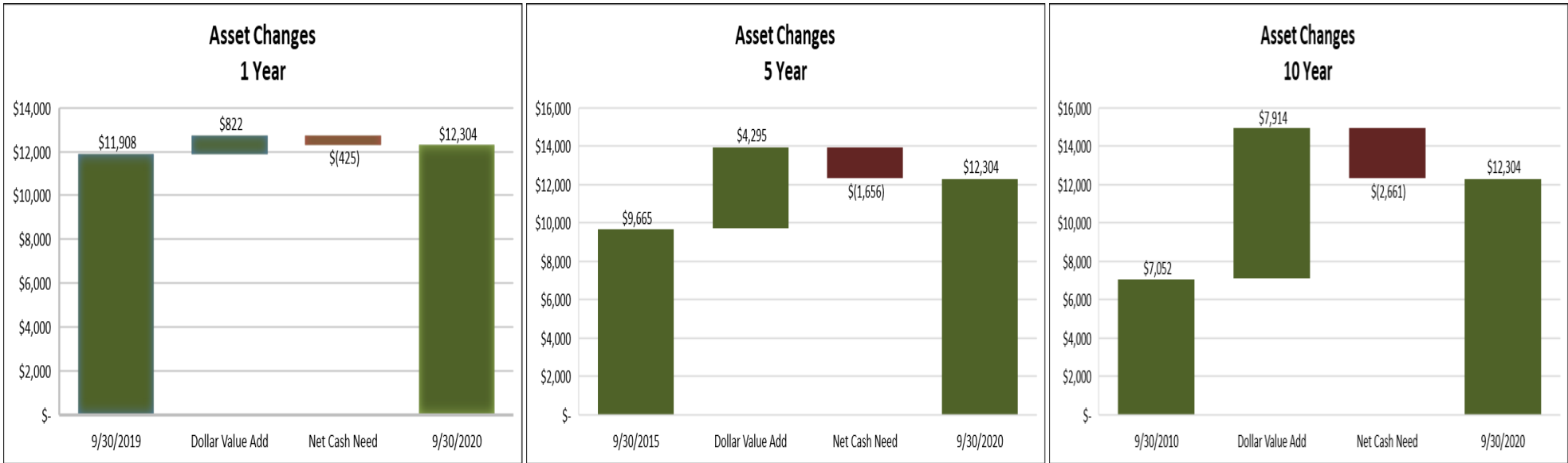
Information as of September 30, 2020



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Table of Contents

CIO Update	4
Macro Attribution	14
Private Investments	17
Real Estate	20
Natural Resources	23
Core Fixed Income	26
Non-Core Fixed Income	30
Domestic Equity	33
International Equity	39
STIP, State Fund & Trust Fund	
STIP	45
State Fund	47
Trust Funds Investment Pool	49
Appendix	51



* Dollar values are in \$1,000,000

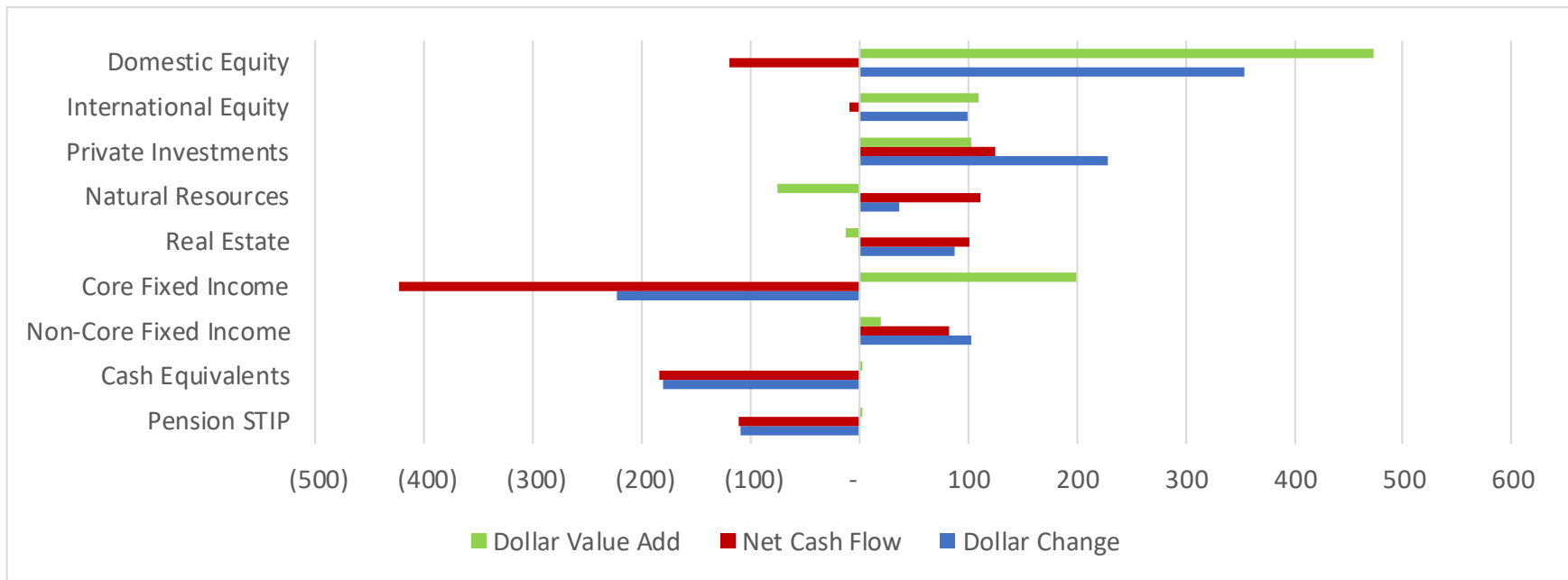
- Dollar Value Added – The total dollar return of the portfolio including income and capital gains.
- Net Cash Need - The total dollar amount distributed from portfolio assets to meet the deficit of contributions minus distributions.
 - A red bar indicates an aggregate net outflow by all plans even though some plans may have experienced net inflows.
 - Though aggregates are shown, each plan is independent and not able to rely on other plans to meet their respective liabilities.

CIO Update

Retirement Plans Net Performance

	9/30/2020 (NAV)	9/30/2019 (NAV)	Dollar Change	Net Cash Flow	Dollar Value Add
Domestic Equity	3,817.5	3,463.4	354.0	(119.6)	473.6
International Equity	2,117.1	2,016.8	100.3	(9.2)	109.4
Private Investments	1,691.7	1,463.4	228.3	125.3	103.0
Natural Resources	368.5	332.6	36.0	111.6	(75.6)
Real Estate	1,030.2	942.6	87.6	100.5	(12.9)
Core Fixed Income	2,388.3	2,611.3	(223.0)	(422.4)	199.5
Non-Core Fixed Income	539.5	437.0	102.4	83.0	19.4
Cash Equivalents	196.3	376.6	(180.4)	(183.3)	3.0
Pension STIP	155.2	263.8	(108.6)	(110.8)	2.3
Grand Total	12,304.4	11,907.6	396.7	(424.9)	821.7

* Dollar values are in \$1,000,000

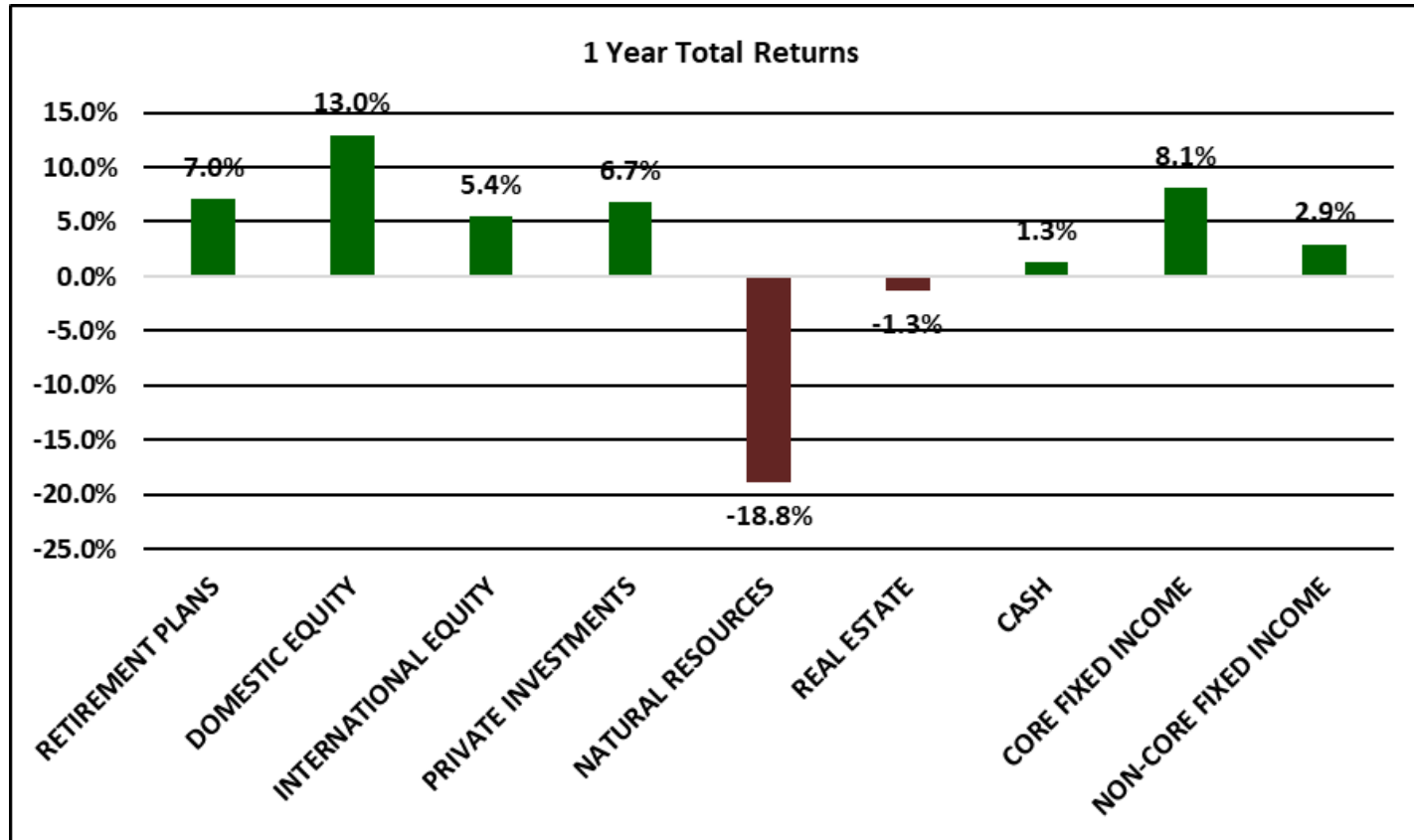


	9/30/2020 (NAV)	9/30/2019 (NAV)	Dollar Change	Net Cash Flows	Dollar Value Added
Public Employees Retirement	6,082.2	5,896.0	186.1	(220.8)	406.9
Teachers Retirement	4,321.0	4,229.4	91.7	(198.8)	290.4
Firefighters Retirement	497.4	461.2	36.2	4.2	32.0
Police Officers Retirement	468.1	438.4	29.7	(0.6)	30.3
Sheriffs Retirement	402.5	378.9	23.6	(3.0)	26.7
Game Wardens Retirement	223.8	207.9	15.9	1.1	14.7
Highway Patrol Retirement	157.7	151.7	5.9	(4.6)	10.6
Judges Retirement	110.8	105.0	5.8	(1.5)	7.4
Vol Firefighters Retirement	40.9	39.1	1.8	(1.0)	2.7
Grand Total	12,304.4	11,907.6	396.7	(424.9)	821.7

* Dollar values are in \$1,000,000

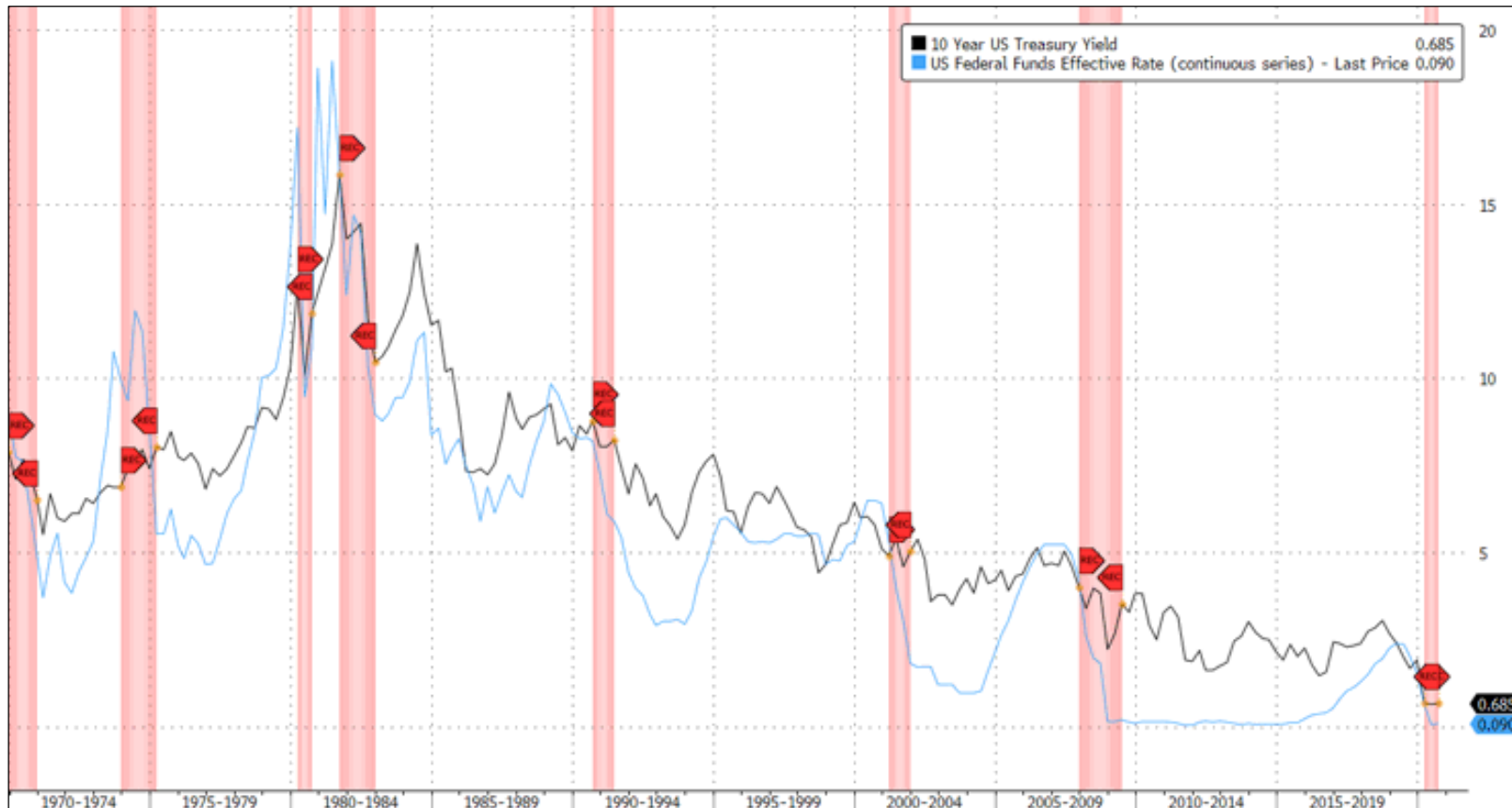
Name	1 Year	3 Year	5 Year	10 Year	20 Year	Since Inception
PUBLIC EMPLOYEES RETIREMENT	7.05%	6.33%	8.09%	8.56%	5.84%	7.60%
TEACHERS RETIREMENT	7.06%	6.33%	8.09%	8.56%	5.84%	7.61%
FIREFIGHTERS RETIREMENT	7.05%	6.34%	8.10%	8.56%	5.82%	7.46%
POLICE OFFICERS RETIREMENT	7.05%	6.34%	8.10%	8.56%	5.81%	7.47%
SHERIFFS RETIREMENT	7.04%	6.33%	8.09%	8.54%	5.84%	7.50%
GAME WARDENS RETIREMENT	7.03%	6.33%	8.09%	8.54%	5.82%	7.51%
HIGHWAY PATROL RETIREMENT	7.05%	6.34%	8.09%	8.56%	5.85%	7.49%
JUDGES RETIREMENT	7.06%	6.34%	8.10%	8.55%	5.85%	7.50%
VOL FIREFIGHTERS RETIREMENT	7.05%	6.33%	8.06%	8.54%	6.27%	7.31%

Inception 7/1/1994



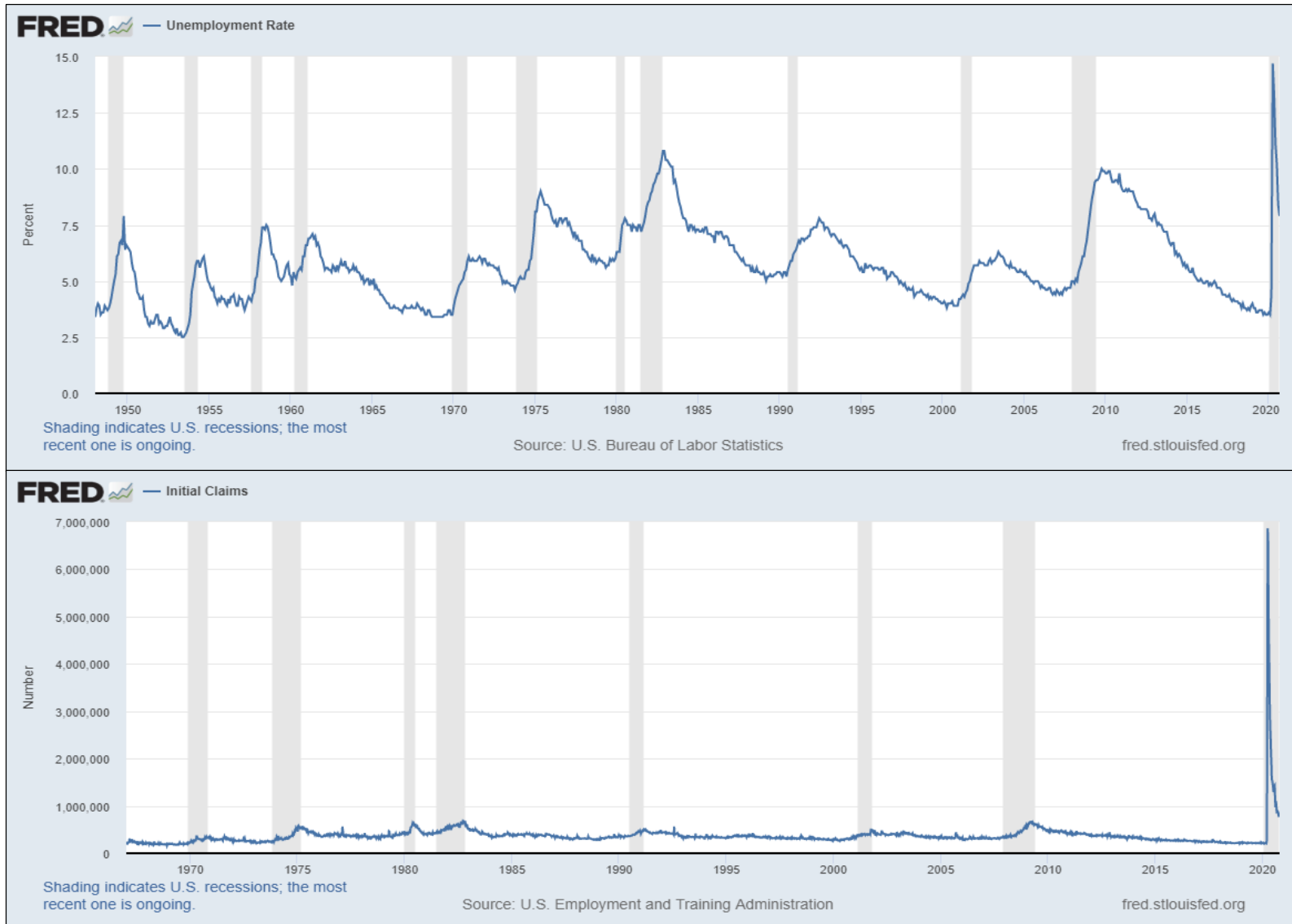
Asset Class	9/30/20 (NAV)	% of Total	Mid Point	Board	
				Deviation from Mid Point	Approved Ranges
DOMESTIC EQUITY	\$3,817,467,876	31.03%	30%	1.03%	24% - 36%
CORE FIXED INCOME	\$2,388,314,521	19.41%	20%	-0.59%	15% - 25%
INTERNATIONAL EQUITY	\$2,117,104,716	17.21%	16%	1.21%	11% - 21%
PRIVATE INVESTMENT	\$1,691,738,680	13.75%	14%	-0.25%	11% - 17%
REAL ESTATE	\$1,030,235,737	8.37%	9%	-0.63%	5% - 13%
NON-CORE FIXED INCOME	\$539,470,311	4.38%	5%	-0.62%	3% - 7%
NATURAL RESOURCES	\$368,533,760	3.00%	4%	-1.00%	1% - 7%
CASH EQUIVALENTS	\$351,521,686	2.86%	2%	0.86%	0% - 4%
Grand Total	\$12,304,387,286	100.00%			

10 Year U.S. Treasury Yield vs. Federal Funds Target Rate (1970 – current)

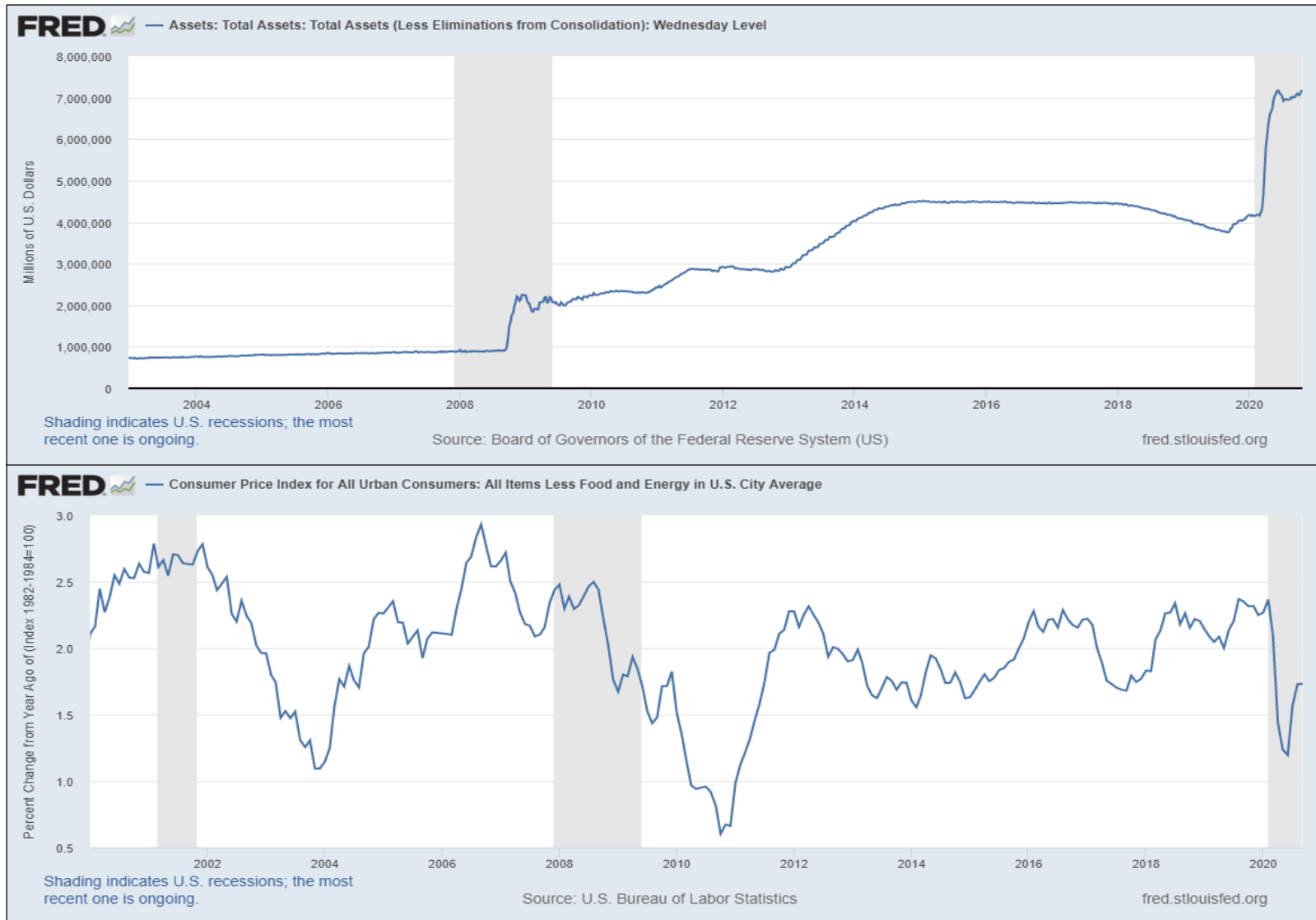


Source: Bloomberg

Red bars indicate start and end of a recession



*FRED is a data service providing Federal Reserve Economic Data



*FRED is a data service providing Federal Reserve Economic Data

- Added Preferred Securities to Non-Core Fixed Income
- Search for investments that enhance diversification and/or yield. Shift away from Core Fixed Income
- Constant effort to improve processes, cross train team members and develop a succession plan
- Due diligence process during COVID
- Ongoing rebalance of TFIP and SFIP portfolios
- Search for Real Estate/Real Assets analyst

Macro Attribution

Key Takeaways - 1 Year

Strategic Asset Allocation -> What was the performance of our midpoint weighted benchmark portfolio?

- * Every benchmark other than those for Natural Resources and Real Estate added positive contributions to the pension policy-neutral 6% return.
- * The Domestic Equities asset class benchmark, the MSCI USA IMI, was the largest positive contributor.

Tactical Asset Allocation -> Did the actual asset class weights add additional return over the midpoint weighted benchmark portfolio?

- * On average, we were slightly overweight international equities, core fixed income, and cash and slightly underweight or at the midpoint weight for the remaining asset classes.
- * About \$209M of equity asset classes were purchased and \$634M of fixed income/cash asset classes were sold during the year (The difference of \$-425M being the pension net cash need)
- * In aggregate, the overweighting/underweighting of the asset classes relative to their benchmarks increased the pension portfolio's return by 22bps

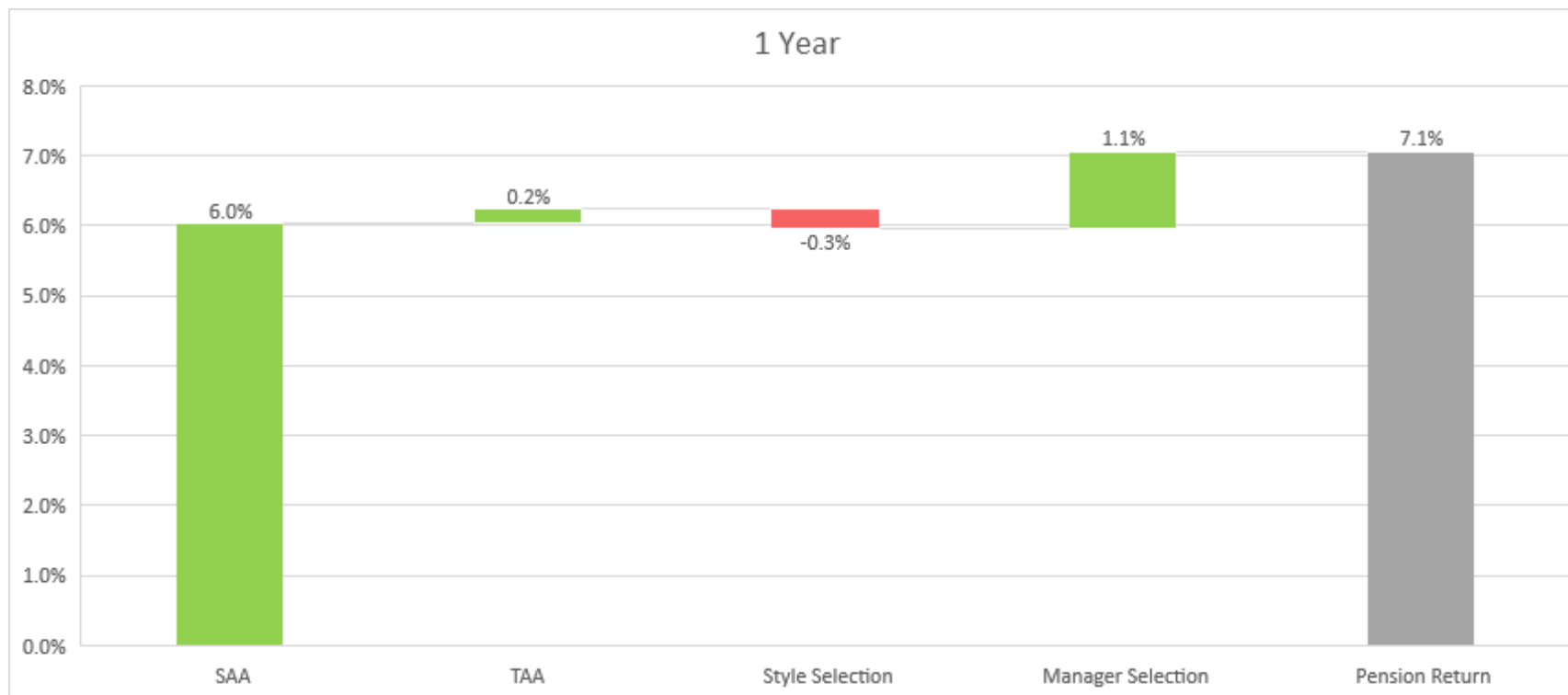
Style Selection -> Did the portfolio benchmarks add additional return over their asset class benchmarks?

- * The small cap bias in Domestic Equity was contributor to style underperformance (about -20bps)
- * The exposure to the Alerian MLP Index, which is strongly related to energy, was also a large contributor to underperformance. (about -21bps)
- * Exposure to International growth indices was a strong positive contributor to style selection effects (about 30bps)

Manager Selection -> Did the portfolio managers add additional returns over their portfolio benchmarks?

- * Two of our Domestic Equity managers were the primary contributors to the overall -23bps of manager selection underperformance.
- * Well performing International Equity managers cancelled out the poor performing International Equity managers for a net -1bps of underperformance
- * Our internal Core Fixed Income portfolio and external Core Fixed Income both contributed about equally to the 22bps of manager selection outperformance in the Core Fixed Income asset class.
- * None of our Non-Core Fixed Income external managers materially contributed to Manager Selection performance.
- * Real Estate was the primary contributor to outperformance in our non-publically traded investments. The publicly traded benchmarks for these asset classes are an imperfect proxy for actual holdings. In addition, the pricing of private assets lags the publicly traded benchmarks. Thus, short term performance differentials may not reflect the actual value of assets at quarter end.

Macro Attribution



Strategic Asset Allocation (SAA) - The return that would have been achieved if we had invested in our asset class benchmarks at the midpoint weights

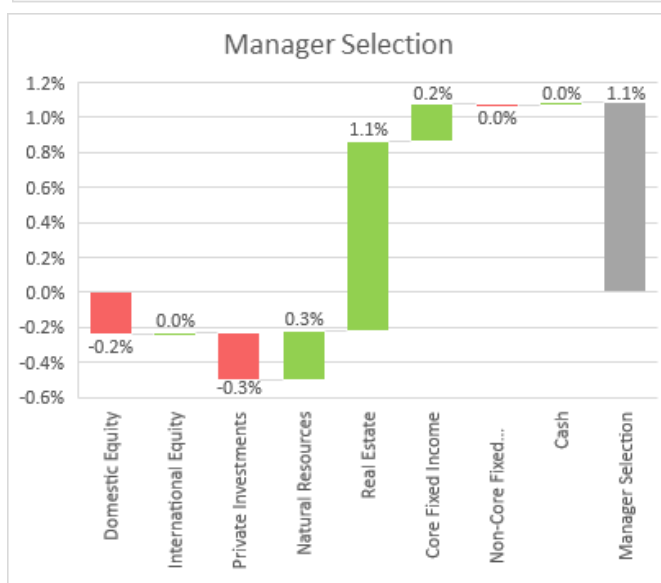
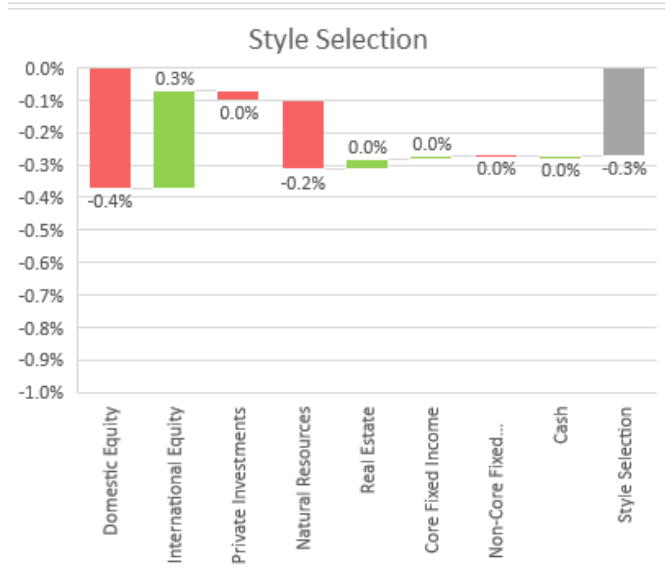
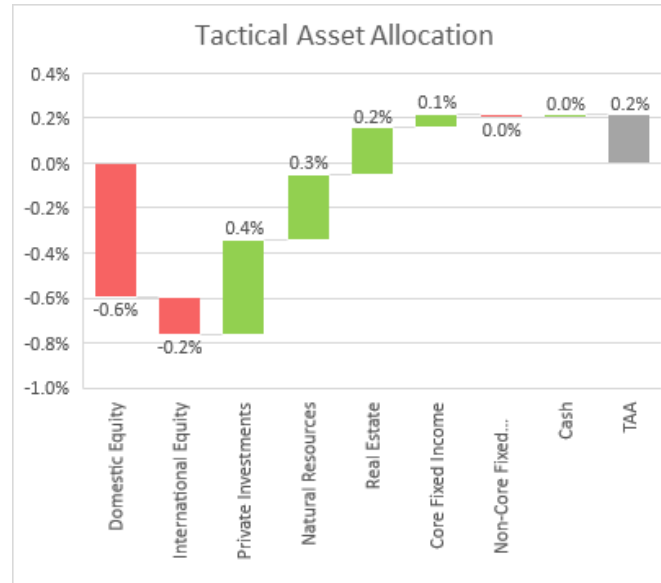
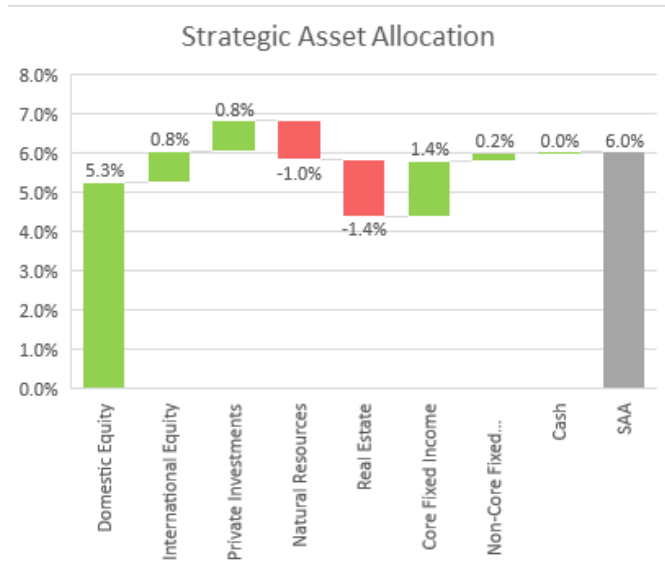
Tactical Asset Allocation (TAA) - The *additional* return earned by investing in the asset class benchmarks at our actual rather than midpoint weights.

Style Selection (SS) - The *additional* return earned by investing in the underlying manager benchmarks rather than the asset class benchmarks.

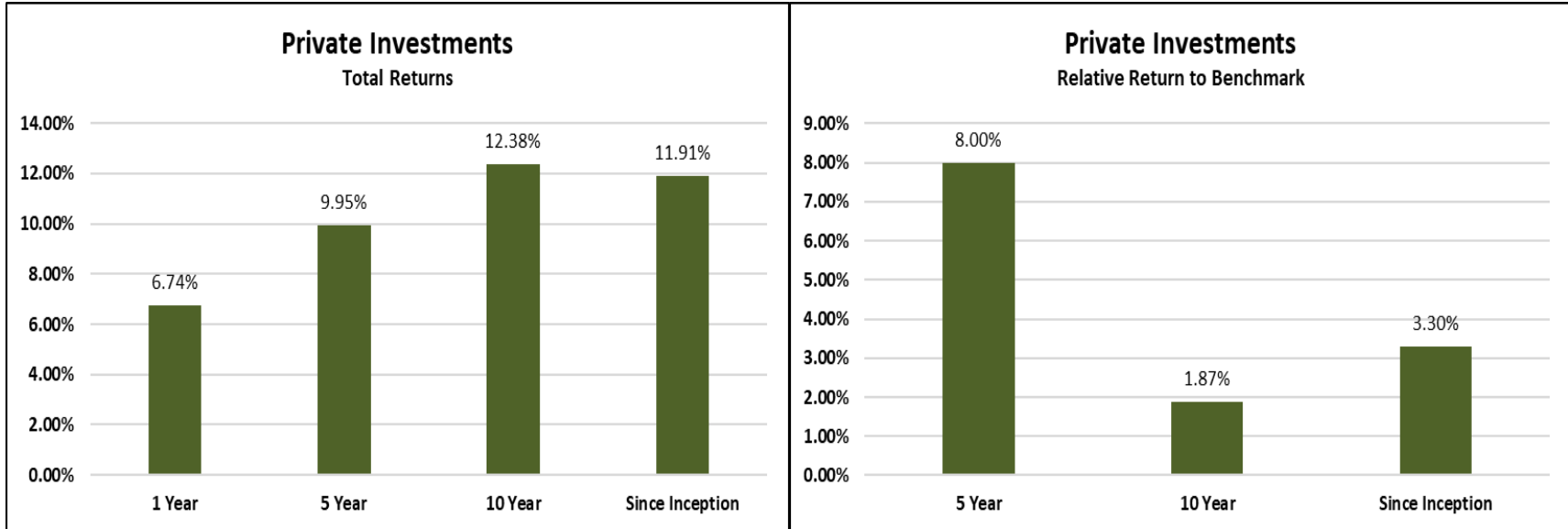
Manager Selection - The *additional* return earned by investing in the underlying managers rather than the underlying manager benchmarks.

* The valuation lag observed in Private Equity, Real Estate, and Natural Resources are likely to lead to large differences in returns between these asset classes and their benchmarks in short-mid term time periods. The manager selection component is therefore likely to be large for these asset class in the short and medium term.

Macro Attribution



- The impact caused by the COVID-19 pandemic continued. 829 private equity-backed buyout deals were completed in Q3 2020 with an aggregate deal value of \$99 billion, representing a 38% reduction in volume from a rolling 20 quarter average.
- Exit flow for 2020 has been anemic with \$184 billion of total volume, down 35% compared to the same period in 2019.
- Valuations for buyouts abated in the third quarter of 2020 at a purchase price multiple of 12.9x EBITDA compared to 15.2x EBITDA in the previous quarter. For comparison, the 10 year average is 10.9x EBITDA.
- Leverage or debt usage for buyouts came in at 5.9x EBITDA, on par with the rolling 20 quarter average of 5.9x.
- The pace of fundraising in the third quarter continues to be tepid. As expected, the fundraising environment slowed significantly with the restrictions in travel. Year to date, the average median US Buyout fund size is \$299 million. In comparison, the prior 10 years had an average median of \$159 million.
- Key takeaways – Private equity activity seems to have bifurcated into the haves and the have nots. Valuations, debt usage, access to cheap credit and dry powder all remain at elevated levels compared to longer term historical levels.



Relevant Benchmark: Private Equity – PAC Custom Blend

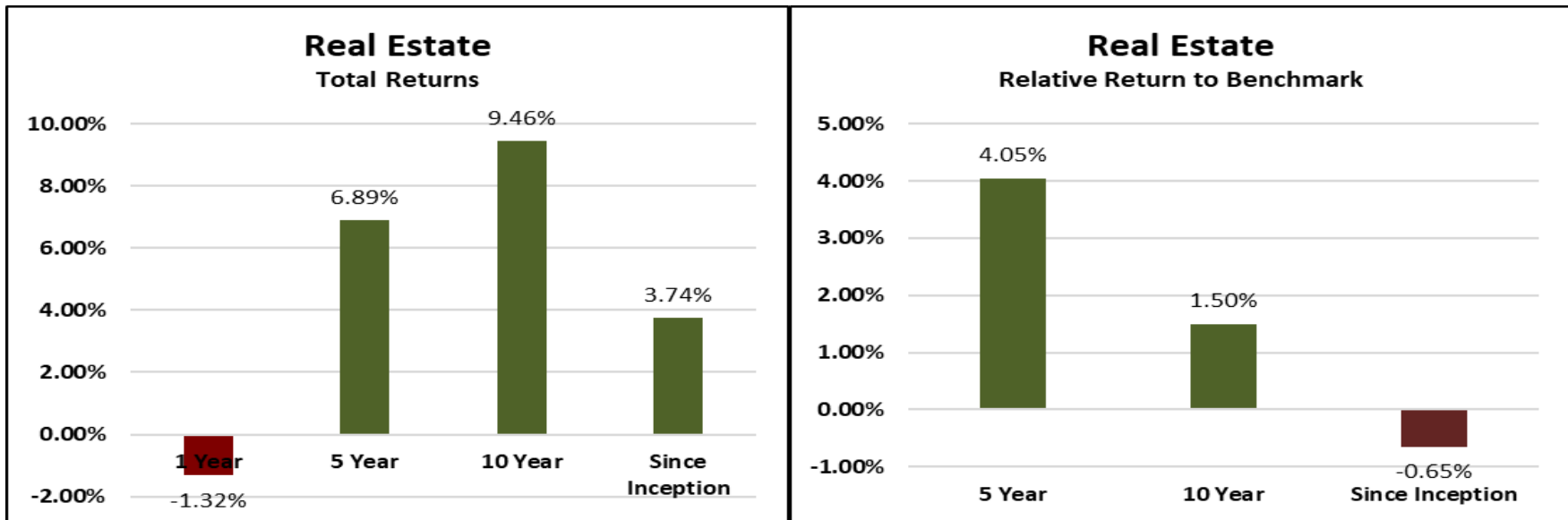
- From inception to 4/30/2017: S&P 1500 + 4% Qtr Lag
- 5/1/2017 to present: MSCI USA Small Cap Gross
- Inception – 5/1/2002

September 30, 2020

131

- Total Market Value of \$1.69 billion as of 9/30/20
- North American-centric at ~74%, ~15% non-US developed, and ~11% emerging markets
- Direct/primary fund exposure focus at ~80% vs. Fund-of-Funds at ~20%
- Selectively focused on buyout and venture capital strategies
- Increasing allocation to credit strategies and sector specialists
- Cash Flow Profile
 - Negative \$36.08 million for quarter ending 9/30/20
- No new commitments during the recent quarter

-
- Real estate fundamentals going forward remain uncertain and will vary significantly by property type and location, seeing the beginnings of softness in rents and demand
 - Sales volumes down 68% year-over-year in August, buyer/seller expectations at odds
 - Debt capital is returning, but selectively based on property types/markets
 - On average, asset values expected drop 10% - 20% by year-end 2020, resulting in an increase in cap rates
 - REITs have rebounded but still down approximately 18% YTD through 10/27/20
 - CMBS delinquency rates remain elevated at 9.04%, down from 10.32%
 - Healthy fundraising environment with 28 funds closing in 2Q20 raising \$40B
 - Real estate dry powder remains elevated at approx. \$344B through October 2020
 - Rent collections across MBOI portfolio generally strong, well-positioned
 - Summary points – Go-forward fundamentals are uncertain and will vary by property type, transaction volumes depressed, debt markets cautious, prices continuing to slide, REITs fighting back but still down YTD, CMBS delinquencies elevated, but improving, fundraising is strong, dry powder remains elevated, MBOI portfolio weathering the storm



Relevant Benchmark: Real Estate - PAC Custom Blend

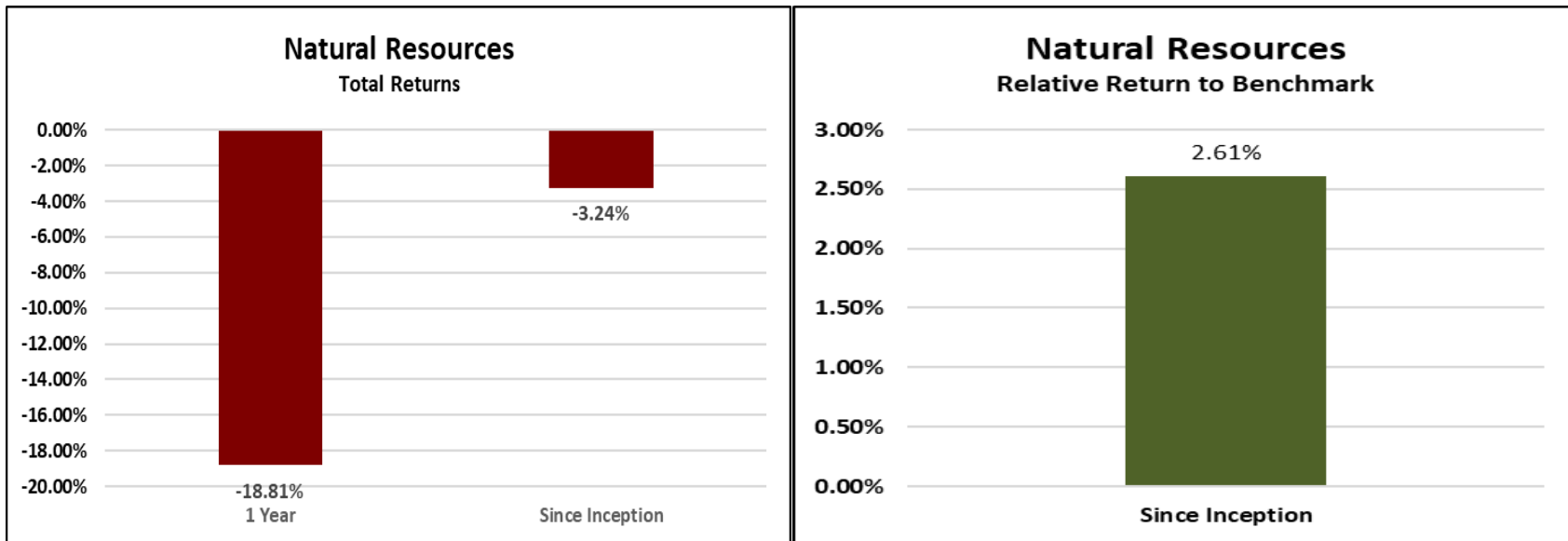
- From inception to 3/31/2017: NCREIF ODCE 1 Qtr Lag (Net)
- 4/1/2017 to 6/30/2020: MSCI US REIT Index Gross
- 7/1/2020 to present: NCREIF ODCE 1 Qtr Lag (Net)
- Inception – 6/1/2006

September 30, 2020

134

- Total Net Asset Value of approx. \$1B as of 9/30/20
- US-centric, broadly diversified, less than 2% non-US
- Broadly diversified across property types
- Increased focus on property type specific operators
- Looking to establish separate accounts for longer duration holds, cash flow
- Focus on existing, high conviction managers, reducing core equity exposure, may opportunistically add to existing public REIT exposure
- Cash Flow Profile
 - Negative cash flow of approx. \$7M for quarter ending 9/30/20
- New investment commitments/additions
 - \$10M pre-IPO investment in a life sciences REIT
- Total Leverage – 49.5% as of 6/30/20
 - Debt – 27.0%
 - Core – 25.9%
 - Core-plus/Non-Core – 61.1%

- While oil prices have recovered from their lows due to an ongoing recovery in demand and industry-wide supply curbs, prices remain low as fears of a second wave of lockdowns loom
- OPEC's scheduled production increase of 2M bpd in January likely delayed as concerns over a slower than expected recovery in oil consumption persist
- US production below 10M barrels per day through mid-October
- Global oil demand remains depressed, inventories remain elevated, consumption up slightly
- Oil rig count starting to rise slowly with the slight increase in prices
- Energy M&A activity uptick with increasing bankruptcies and defaults in the domestic oil patch expected to continue
- MLPs continue to be a strong current yield play, but remain out of favor
- Sawlog prices flat in the US PNW, with exports down, and US South, with supply overhang
- Lumber prices continued to rally in September as US homebuilding raced to a more than 13-year high in September
- Natural Resource/Infrastructure fund dry powder at approx. \$317B through October 2020
- Industry focus on energy transition to alternatives
- Summary points – Oil flat lining, OPEC expected to curb supply, oil demand and production still down but off of lows, energy stocks remain depressed, lower log prices persist, housing market robust, dry powder remains healthy, expect a long, slow recovery in oil



Relevant Benchmark: Natural Resources – MSCI AC World Commodity Producers Net Index

- Inception – 4/1/2017

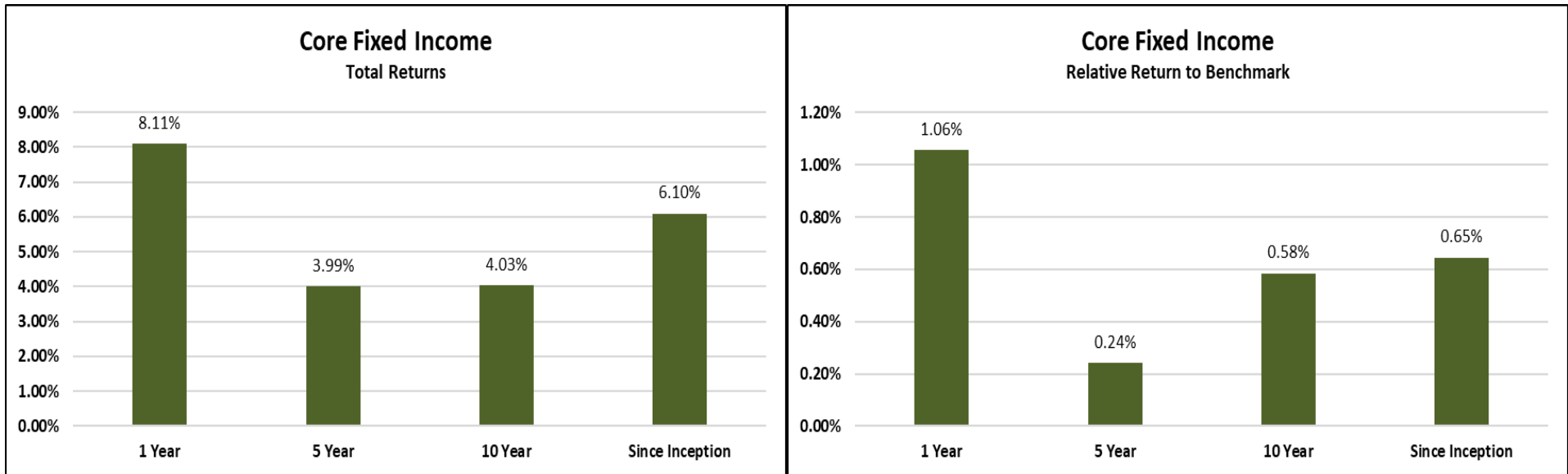
- Total Net Asset Value of approx. \$369M as of 9/30/20
 - Energy Portfolio – approx. \$248M as of 9/30/20
 - Timberland Portfolio – approx. \$99M as of 9/30/20
 - Broad Natural Resources Portfolio – approx. \$11M as of 9/30/20
- All portfolios are North American-centric, broadly diversified regionally
- Energy is broadly diversified across the energy value chain; timber broadly diversified across species and age class
- Continuing to explore other types of strategies to further diversify and gain new exposures
- Cash Flow Profile
 - Positive cash flow of approx. \$17M for quarter ending 9/30/20
- No new investment commitments/additions
- Timber Portfolio Total Leverage – 6.1% as of 6/30/20

- The U.S. Treasury curve steepened over the last year as rates fell to near zero on the front end and to 68 bps on the 10 year.
- The Federal Reserve cut interest rates five times over the past year to a range of 0 to 25 bps.
- Headline inflation was 1.4% year over year in September, similar to Core CPI.
- Money market yields continued to fall after the Federal Reserve cut interest rates, while spreads on commercial paper snapped in after the market volatility in March and April and remain near record lows.
- Spreads on corporate bonds are slightly higher year over year at the end of September but with dramatic volatility during the 1st quarter.
- Spreads on mortgage backed securities (MBS) ended September at 61 bps after a lot of volatility in the first half of the 3rd quarter.

- The Barclays Aggregate returned 6.99% on the year ended September 30, driven by lower interest rates with little change in risk premium.
- TIPS outperformed nominal Treasuries on the year as 10 year break evens increased 10 bps.
- Bond market liquidity improved dramatically in the second half of the year with very strong Corporate new issuance. Bid/ask spreads improved significantly as confidence returned to the bond market.

Core Fixed Income

Net Performance



Benchmark:

- Inception to 3/31/2017 - Bloomberg Barclays US Aggregate Bond Index
- 4/1/1997 to 11/30/2019 - Internally Managed and Broad Fixed Income PAC Custom Blend
- 12/1/2019 to present – Bloomberg Barclays US Aggregate Bond Index
- Inception Date: 4/1/1995

September 30, 2020

141

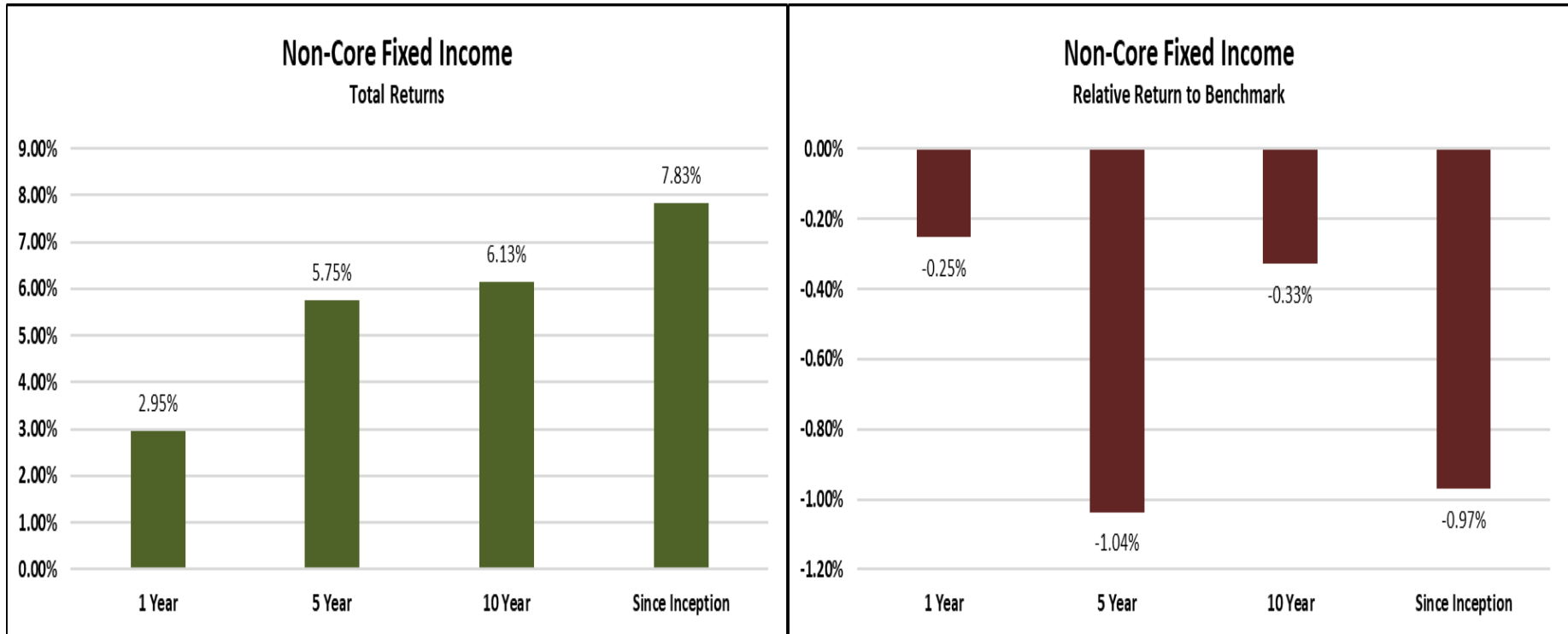
Performance

- Positive total return of 0.98% in the quarter led by TIPS at 2.82%. The internal portfolio returned 0.77%. Reams had strong performance at 1.96%.
- Reams and the internal portfolios outperformed on an overweight to credit as risk premiums contracted during the quarter.

Characteristics and Activity

- Total market value of approx. \$2.39 billion at quarter end.
- Duration was approx. 93% of the benchmark at quarter end. Significantly underweight the long end of the curve.
- Portfolio was underweight Treasuries/Agencies and overweight spread product at the end of the quarter.

- High yield spreads narrowed during the third quarter, as the US economy continued to gain momentum following the national shutdown in the spring. Spreads narrowed about 100 basis points during the quarter to hover around 500+ versus US Treasuries.
- Recall that high yield spreads had been at historical lows for several quarters only to blow out to 1000+ basis points in the first quarter.
- High Yield default rates are still expected to rise in the coming quarters which could put upward pressure on spreads going forward but the estimates for a range of 8%-12% defaults within high yield credits is lower when compared to those of last spring. Recall that default rates had hovered between 2%-3% prior to this crisis. Energy credits are expected to be hardest hit.



Benchmark: Bloomberg Barclays US High Yield – 2% Issuer Cap

- Inception Date: 6/1/2009
- High Yield Asset Class name change to Non-Core Fixed Income 11/30/19

- The defensive nature of the Non-Core asset class caused it to lag slightly during the quarter as high yield bonds returned a solid 4.6%. Manager performances were mixed as the two more defensively positioned portfolios lagged.
- Overall, the non-core fixed income asset class underperformed slightly by -18 basis points for the quarter.
- For the last twelve months ended September 30, the asset class underperformed by -25 basis points.
- There were no changes to the manager lineup.
- There were no new contributions to the Non-Core asset class within CAPP during the quarter.
- However, a new commitment to a Preferred Securities portfolio was made during the quarter and was funded in October with \$75 million.
- The due diligence on a potential Emerging Market Debt portfolio continues to move forward with the anticipation of adding this type of portfolio sometime within the next few months.

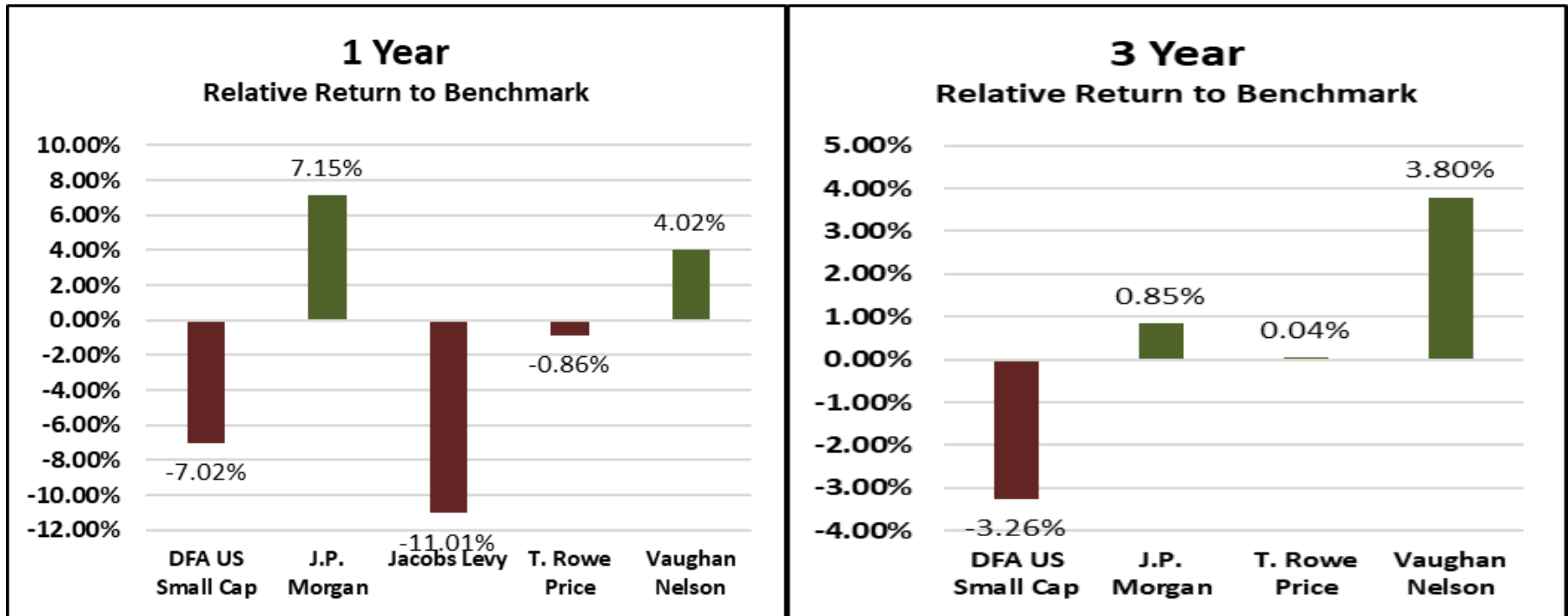
- US equities rose further in the third quarter on monetary and fiscal stimulus measures and hopes for treatments and vaccines for COVID by the end of the year. Large-cap stocks generated positive returns of 8.9% (S&P 500), while small-cap stocks returned 4.9% (Russell 2000). The stock market resurgence has now more than offset the dramatic selloff experienced in the first quarter. The S&P 500 and the Nasdaq are both positive for the calendar year to date.
- At the end of September, the S&P 500 Index was valued at 21.4x generous next 12-month earnings estimates.
- There remains limited confidence in earnings estimates at this point given these unprecedented circumstances and US companies continue to provide limited if any earnings guidance.
- The breadth of the US market is still a concern but there were signs here and there of the market seeking to broaden out, depending on the news item of the day.

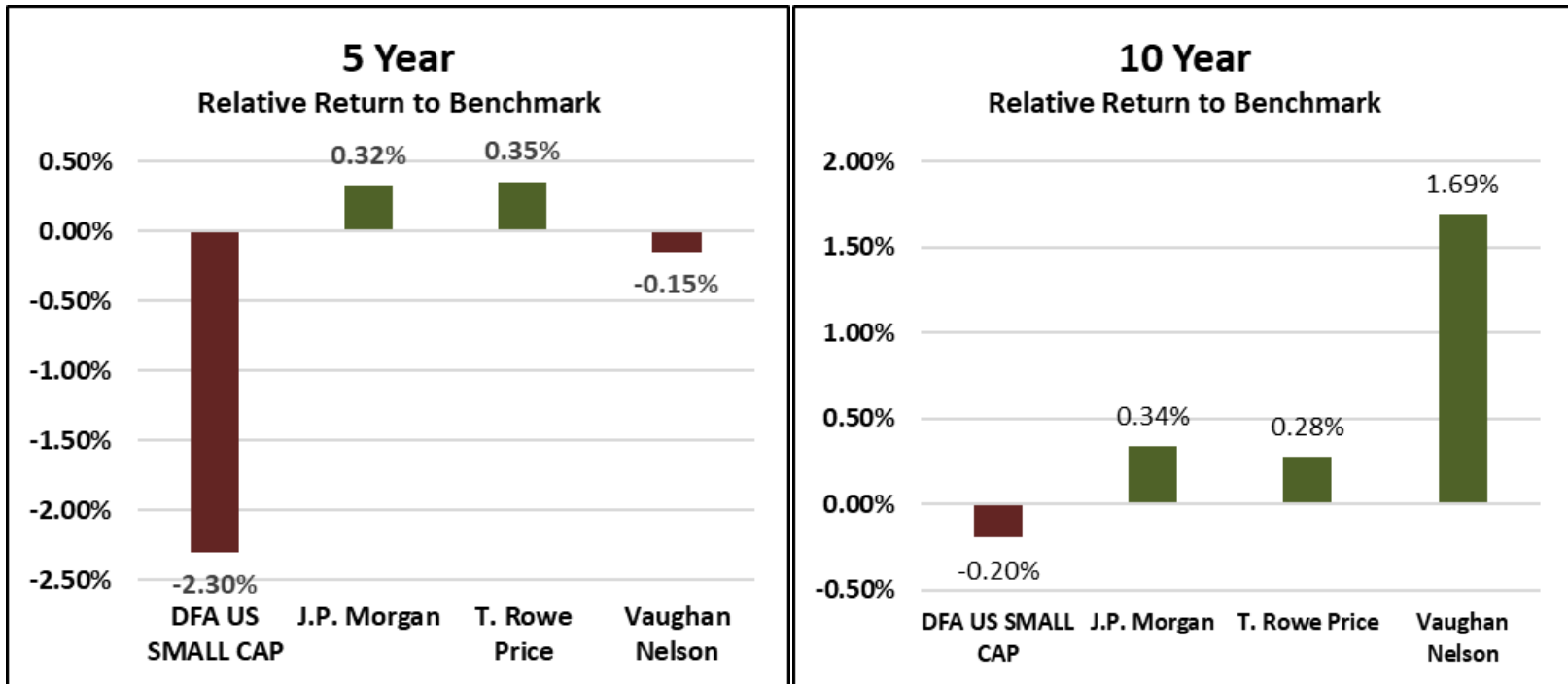


Benchmark: Domestic Equity – PAC Custom Blend

- From inception to 4/30/2017: S&P 1500 Super Composite
- 5/1/2017 to present: MSCI USA IMI, Gross
- Inception Date: 5/1/2003

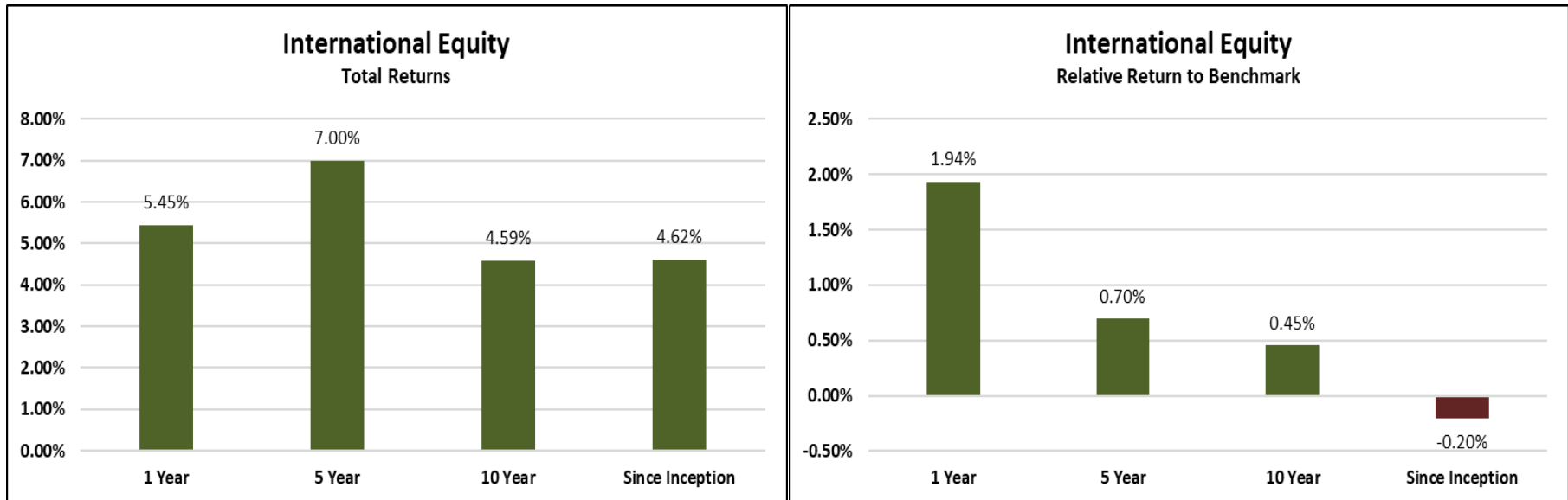
- The domestic equities asset class underperformed its benchmark during the quarter by -76 basis points and lagged for the last twelve months by -219 basis points. This relative performance was largely influenced by the narrow market characterized by the dominance of the mega cap technology stocks.
- Attribution showed that during the quarter the overweight to small-cap stocks had a neutral effect on relative performance, while manager selection detracted from relative performance.
- For the last twelve months, the small-cap overweight and manager selection detracted from performance.
- The asset class has lagged its benchmark for the 1 year, 5 year and 10 year periods ended September 30.





- Index funds account for the majority of the allocation to large-cap stocks.
- Small-cap stocks are slightly overweight to the benchmark weight at 10.5%.
- Cash at the asset class level is 0.1% per policy.
- There were no changes to the manager lineup during the quarter.

- International stocks rallied solidly during the quarter although not as much as US stocks. Developed market stocks returned 4.9% (MSCI World ex-US) and emerging market stocks returned 9.6% (MSCI EM). Small-caps outperformed large-caps within developed markets by returning 10.1% (MSCI World ex-US SC).
- Despite more attractive valuation levels for international stocks there remains a preference on the part of investors for US stocks, probably due to the quality bias that has been in place for several quarters.
- The US dollar continued to slide into the end of September and finished about 3% lower for the quarter as again the large amount of monetary and fiscal stimulus in the US made the dollar less attractive.
- At quarter end, the MSCI World ex-US Index (developed markets) was valued at 16.4x estimated next 12-month earnings, while the MSCI Emerging Markets Index was valued at 14.2x estimated next 12-month earnings. Yet as with the US valuations based upon estimates, the level of confidence in the accuracy of these levels is low.



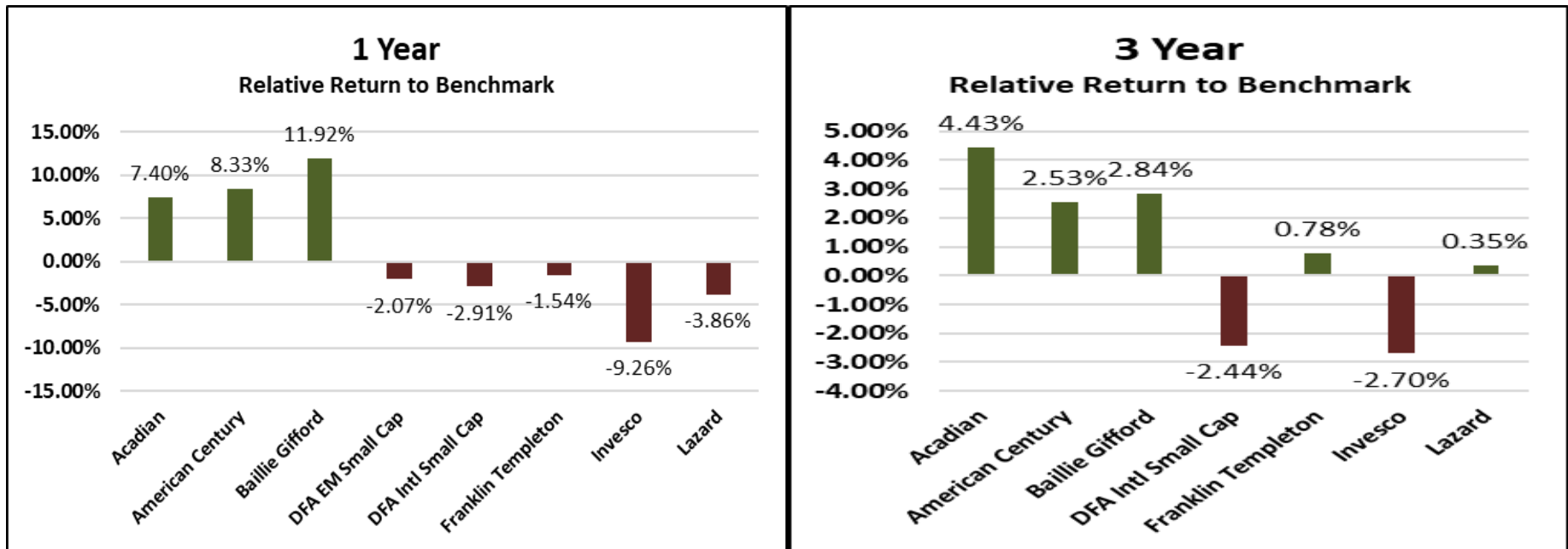
Benchmark: International Equity – PAC Custom Blend

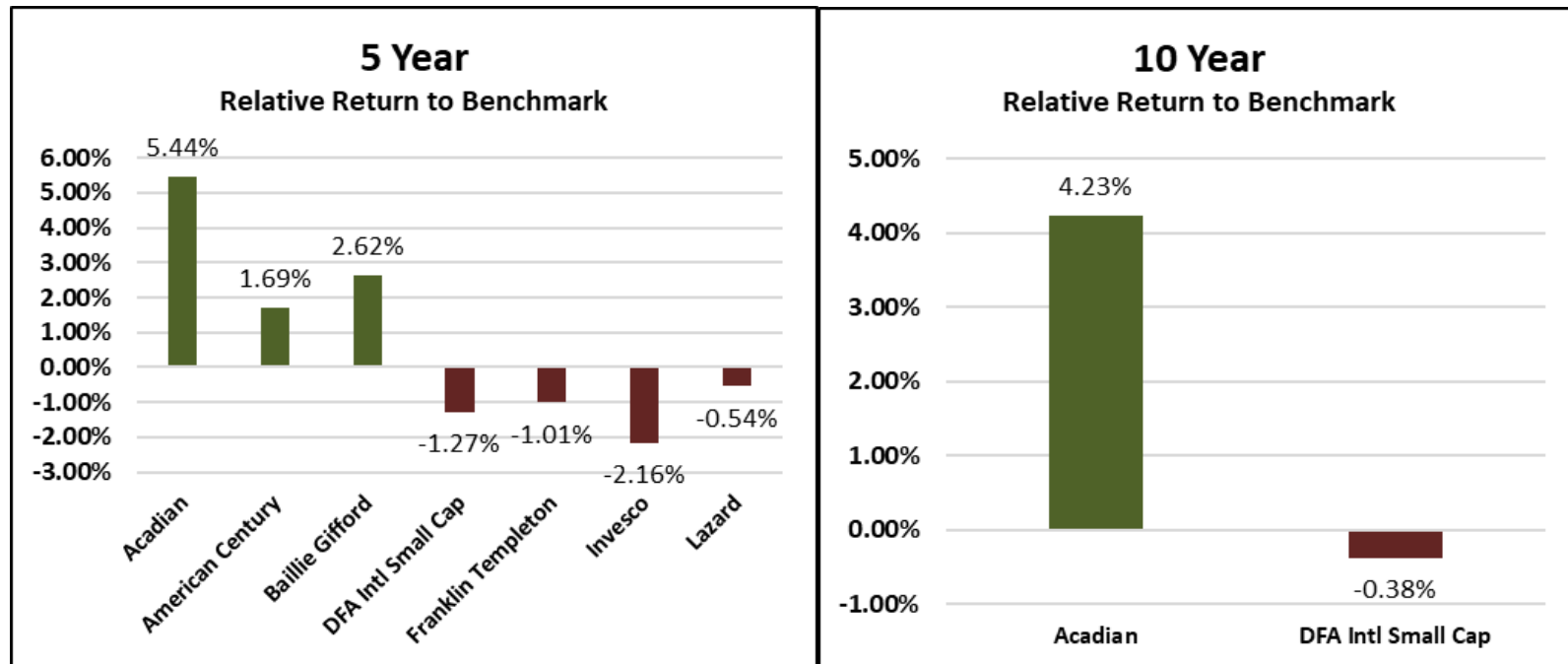
- From inception to 10/31/2006: MSCI EAFE, Net
- 11/1/2006 to 6/30/2007: MSCI ACWI ex-US, Net
- 7/1/2007 to 2/28/2014: 92.5% ACWI ex-US + 7.5% ACWI ex-US Small Cap
- 3/1/2014 to present: MSCI ACWI ex-US IMI, Net
- Inception Date: 4/1/1997

September 30, 2020

153

- The international equities asset class outperformed its benchmark during the quarter by +93 basis points and outperformed for the last twelve months by +194 basis points.
- The asset class performance benefited from manager selection during the quarter while the asset allocation effect was neutral. For the last twelve months, manager selection added value and the small cap overweight had a neutral effect.
- The asset class has outperformed its benchmark for the 1 year, 5 year and 10 year periods ended September 30.





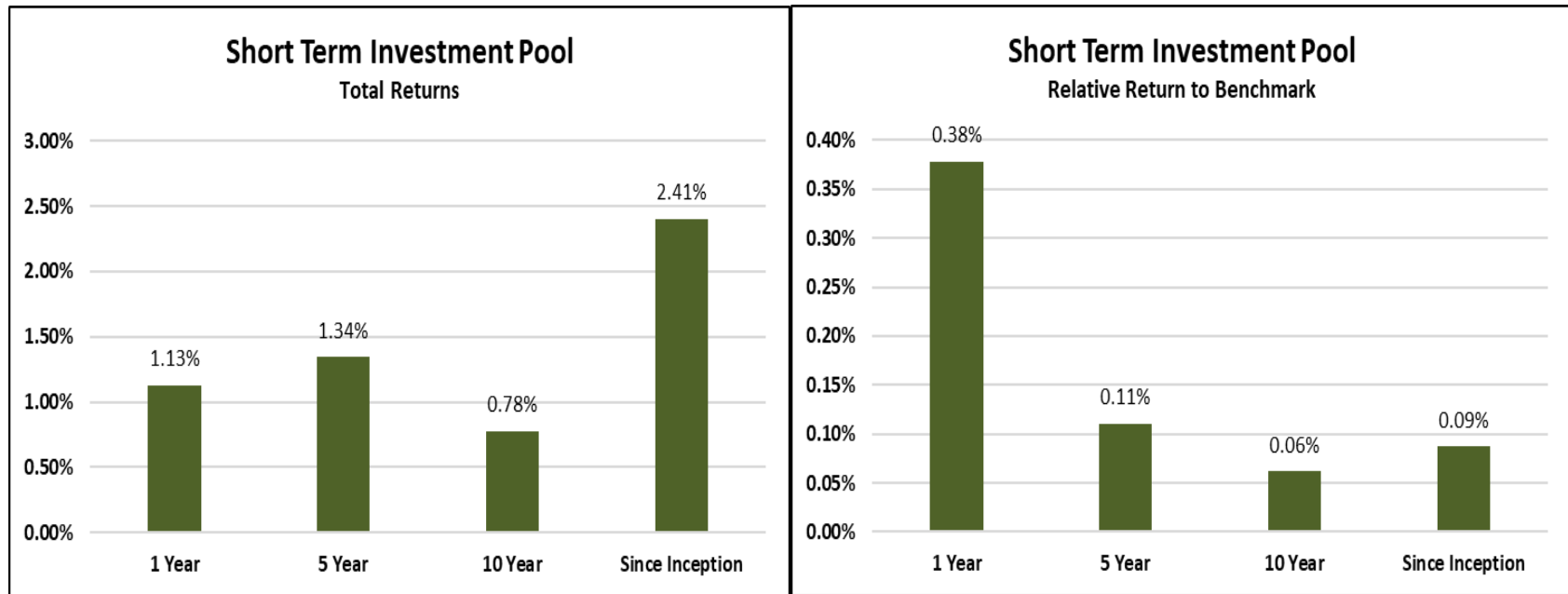
- The large-cap allocation retains a significant weight to index funds.
- Small-capitalization stocks are slightly overweight at 13.0%.
- There is a slight underweight to emerging markets of -0.7% as exposure to emerging markets was reduced at the end of the second quarter.
- Cash at the asset class level is 0.1% per policy.
- There were no changes to the manager lineup during the quarter.
- There were no contributions or withdrawals during the quarter.

Performance

- The yield on STIP was 0.28% at the end of June.
- Outperformed the index by 38 bps over the year, net of fees.
- Good performance versus the index over 3, 5 & 10 years.

Characteristics & Activity

- Treasuries, Agencies and Government money market funds made up just over 40% of the Pool on 9/30/20 approximately the same as on 9/30/19.
- Local Government participants' percentage was 34.9% on 9/30/20, up slightly compared to the prior year.
- The STIP assets were \$4.726 billion on 9/30/20 up over \$564 million from 9/30/19.
- The STIP reserve was \$53.18 million on 9/30/20.



Relevant Benchmark:

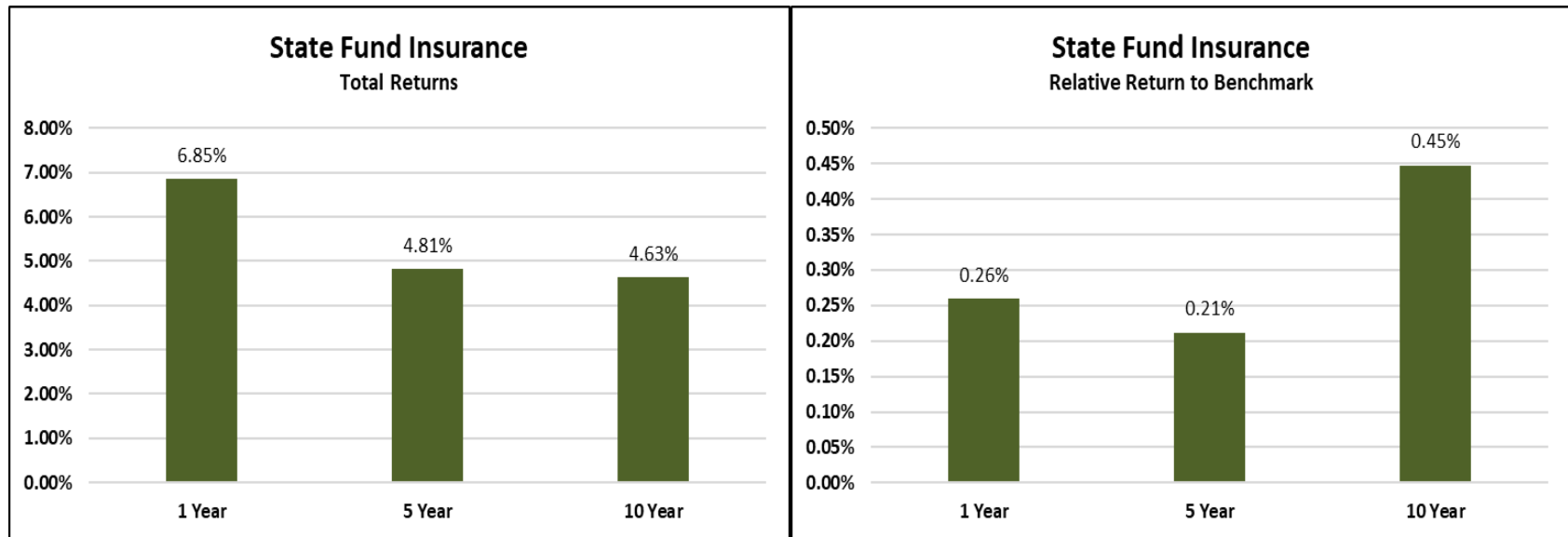
- Inception to 4/30/2018 - LIBOR 1 Month
- 5/1/2018 to present: Federal Reserve US Treasury 1M Constant Maturity Index
- Inception – 4/1/1997

Performance

- Total portfolio return was 6.85% over the last year. Led by equities at 11.85%.
- Underperformance in the fixed income portfolio in the 1st half reversed in the 2nd half.
- Portfolio outperformed the benchmark by 26 bps over the year.

Characteristics & Activity

- Total market value of approx. \$1.58B at quarter end.
- Duration was slightly above the benchmark at quarter end.
- Continued overweight to spread product and underweight to Treasuries. Adding to MBS over time.
- Sold \$16 million in Domestic Equities during the quarter.



Relevant Benchmark:

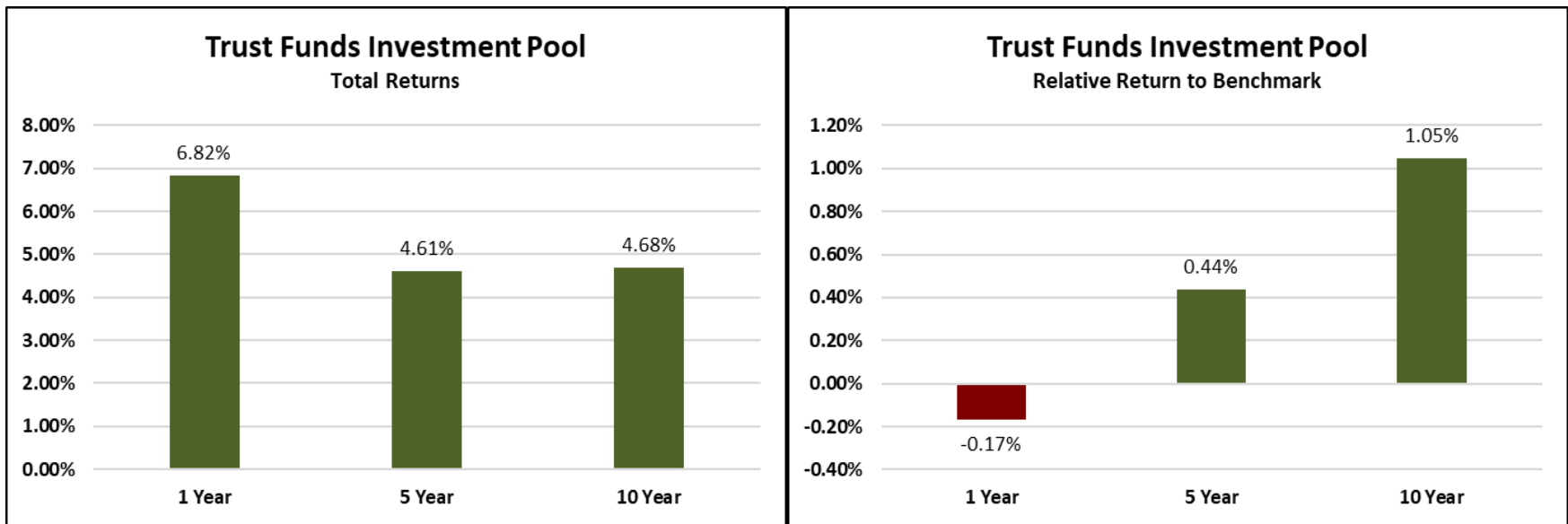
- State Fund Custom Benchmark: Proportionately weighted Bloomberg Barclays Int. Aggregate Bond Index, S&P 500 Index, MSCI ACWI ex U.S. Index, NCREIF ODCCE Index, Bloomberg Barclays US High Yield – 2% Issuer Cap

Performance

- Modest underperformance over the past year was due to relatively weak returns from Real Estate. Strong performance in the 2nd half cut into the deficit significantly.
- High Yield is now an outperformer largely due to advantageous timing of additional investments. Real Estate had positive returns but significantly below the benchmark. The internal portfolio underperformed on an overweight to corporate bonds.
- Total portfolio underperformed the benchmark by 17 bps and the internal bond portfolio outperformed the benchmark by 24 bps.

Characteristics & Activity

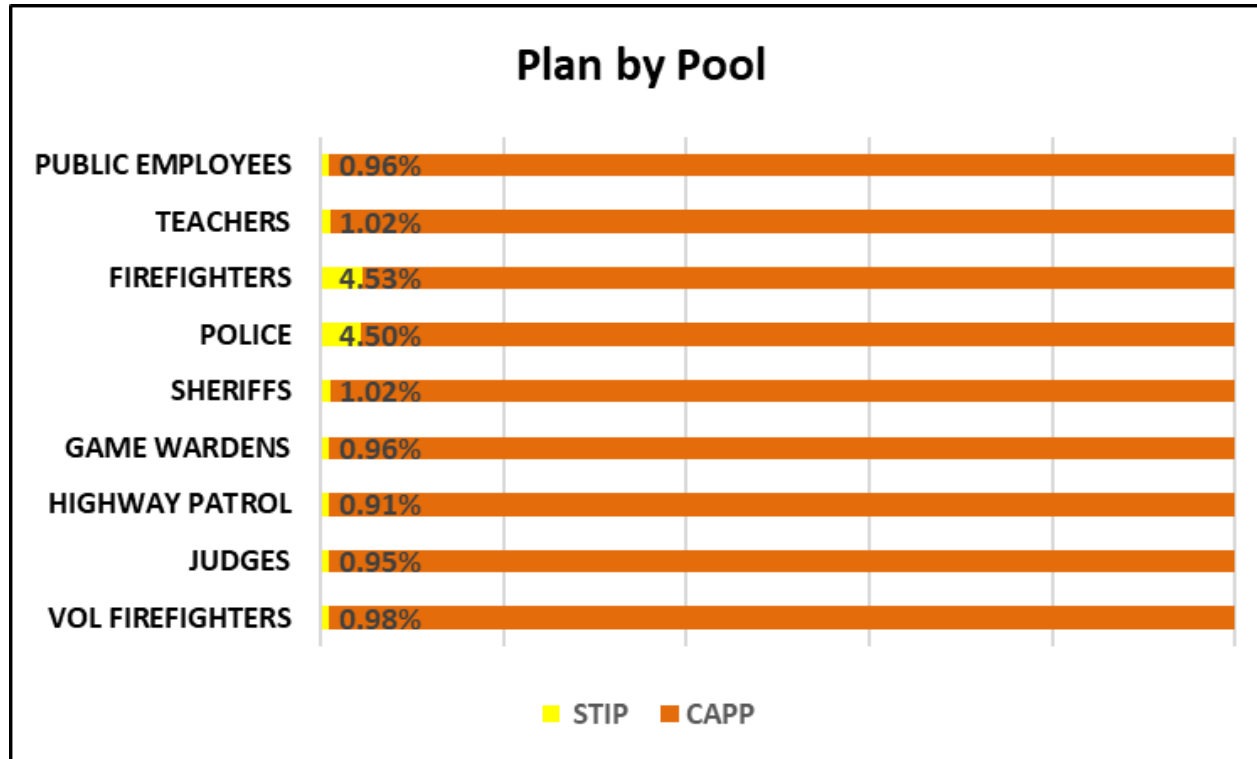
- Total market value of approx. \$2.67B at quarter end.
- TFBP duration was below below the benchmark at quarter end on an increase in cash. Significantly underweight the long end of the curve.
- TFBP maintained overweight to Corporates, CMBS and ABS and underweight to Treasuries and MBS.

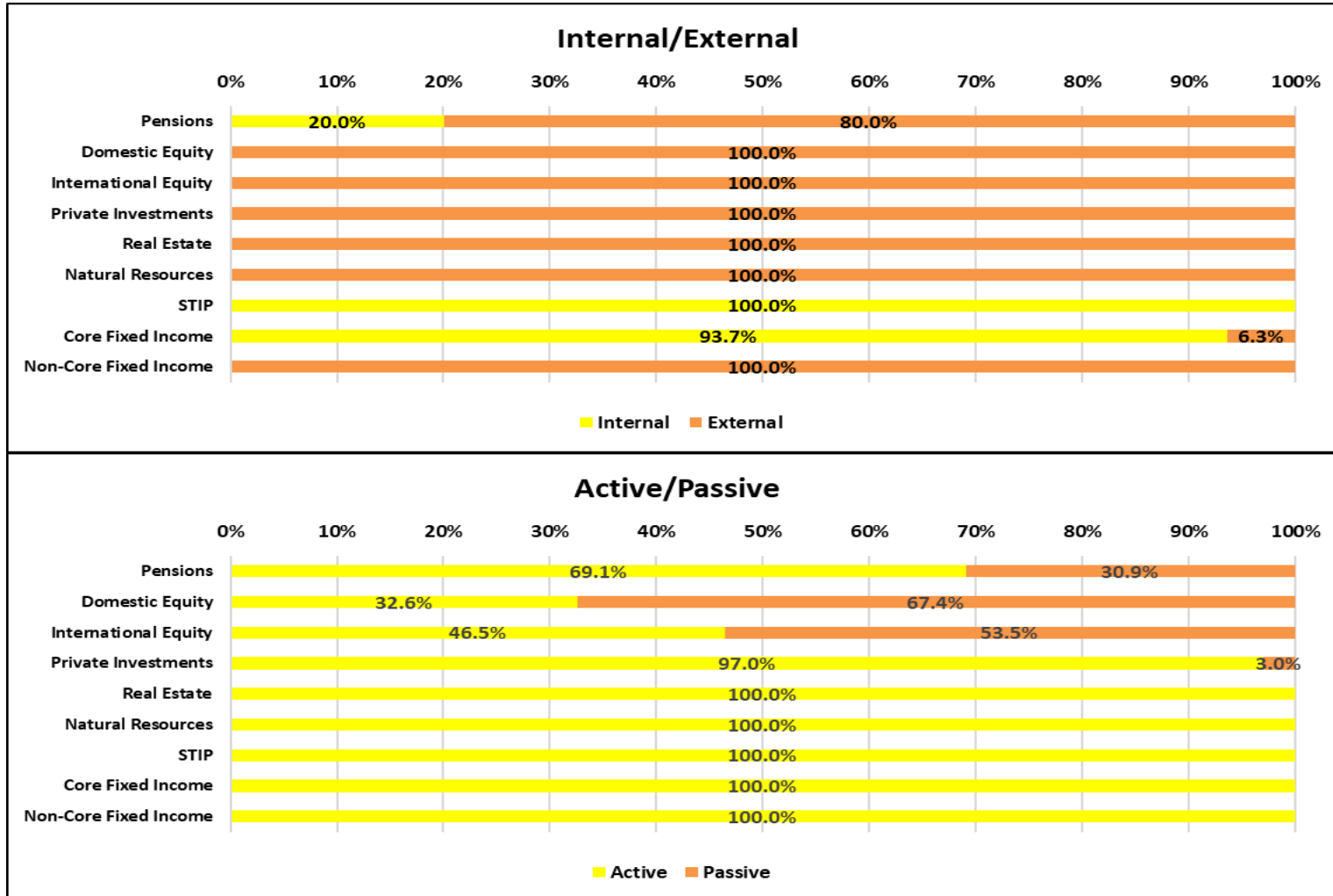


Relevant Benchmark: Bloomberg Barclays U.S. Aggregate Bond Index

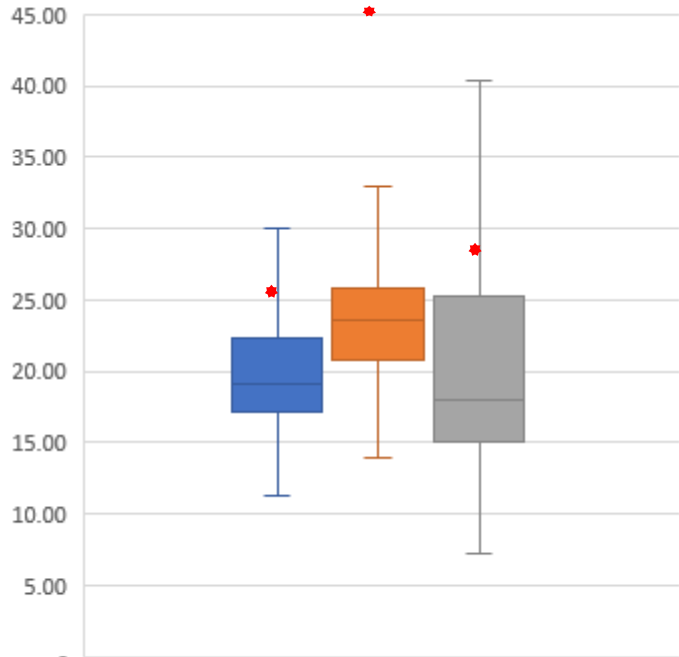
APPENDIX

Retirement Plans Allocations by Pool



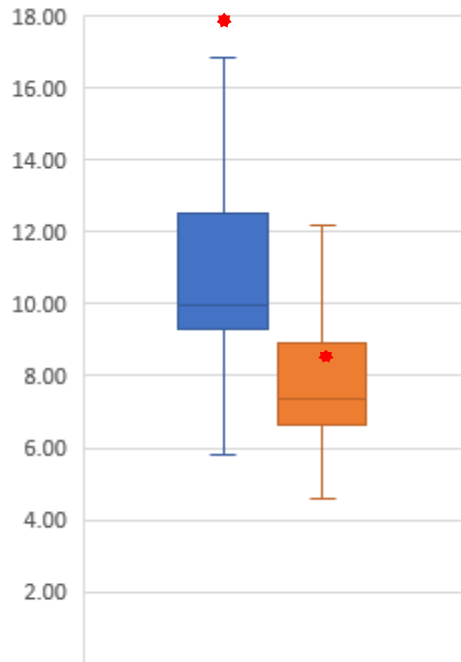


P/E



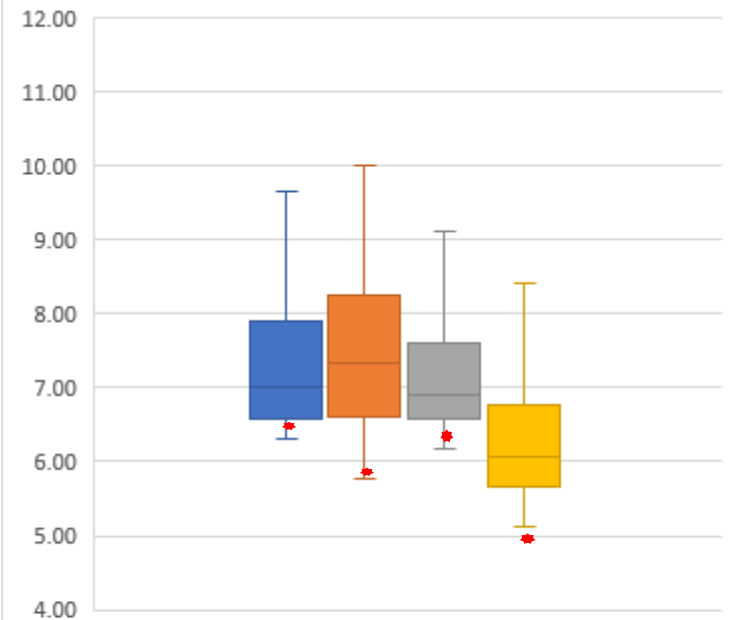
- S&P 500 (Domestic Equity)
- S&P 600 (Domestic Small Cap Equity)
- MSCI ACWI ex US (International Equity)

EV/EBITDA

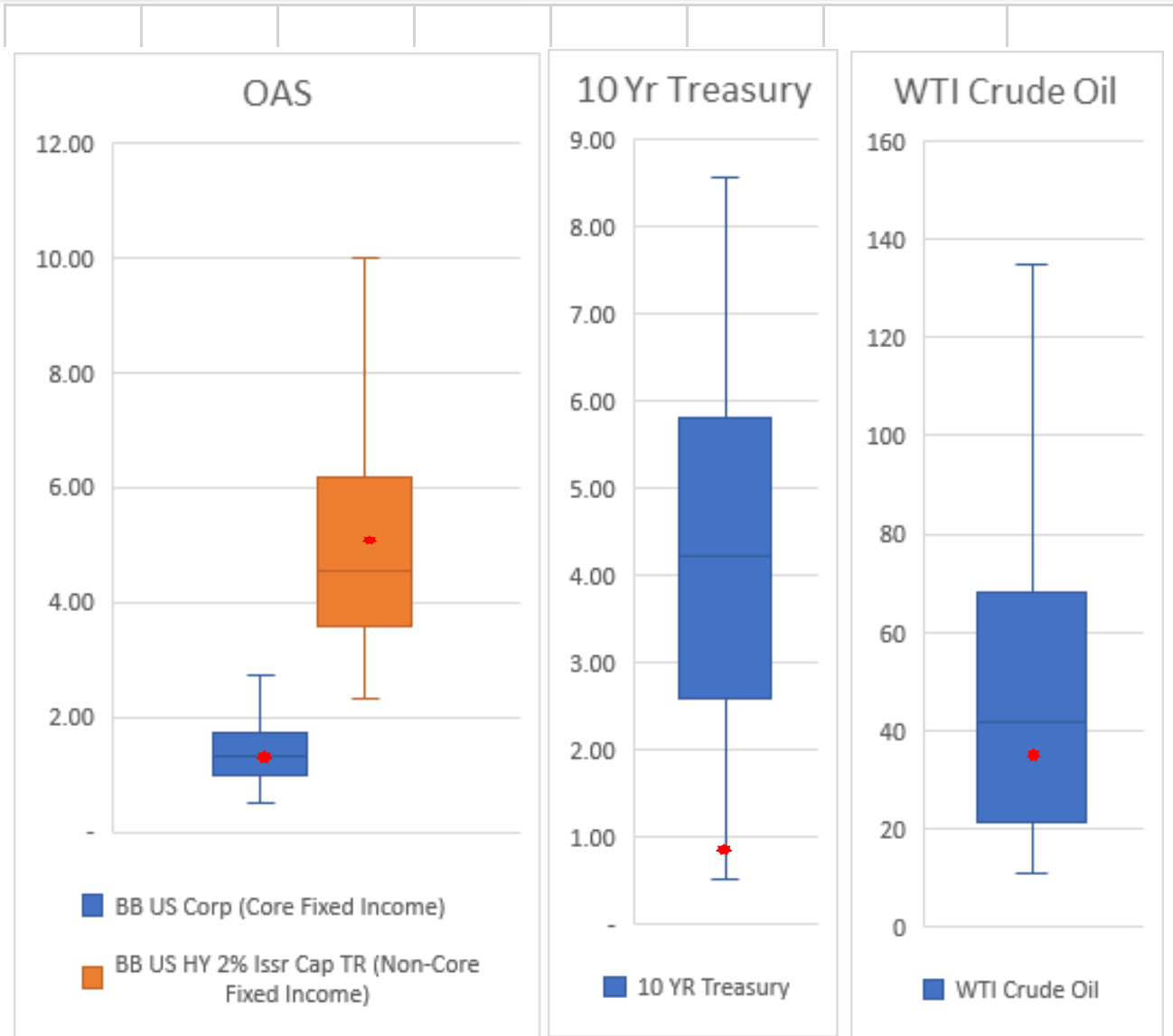


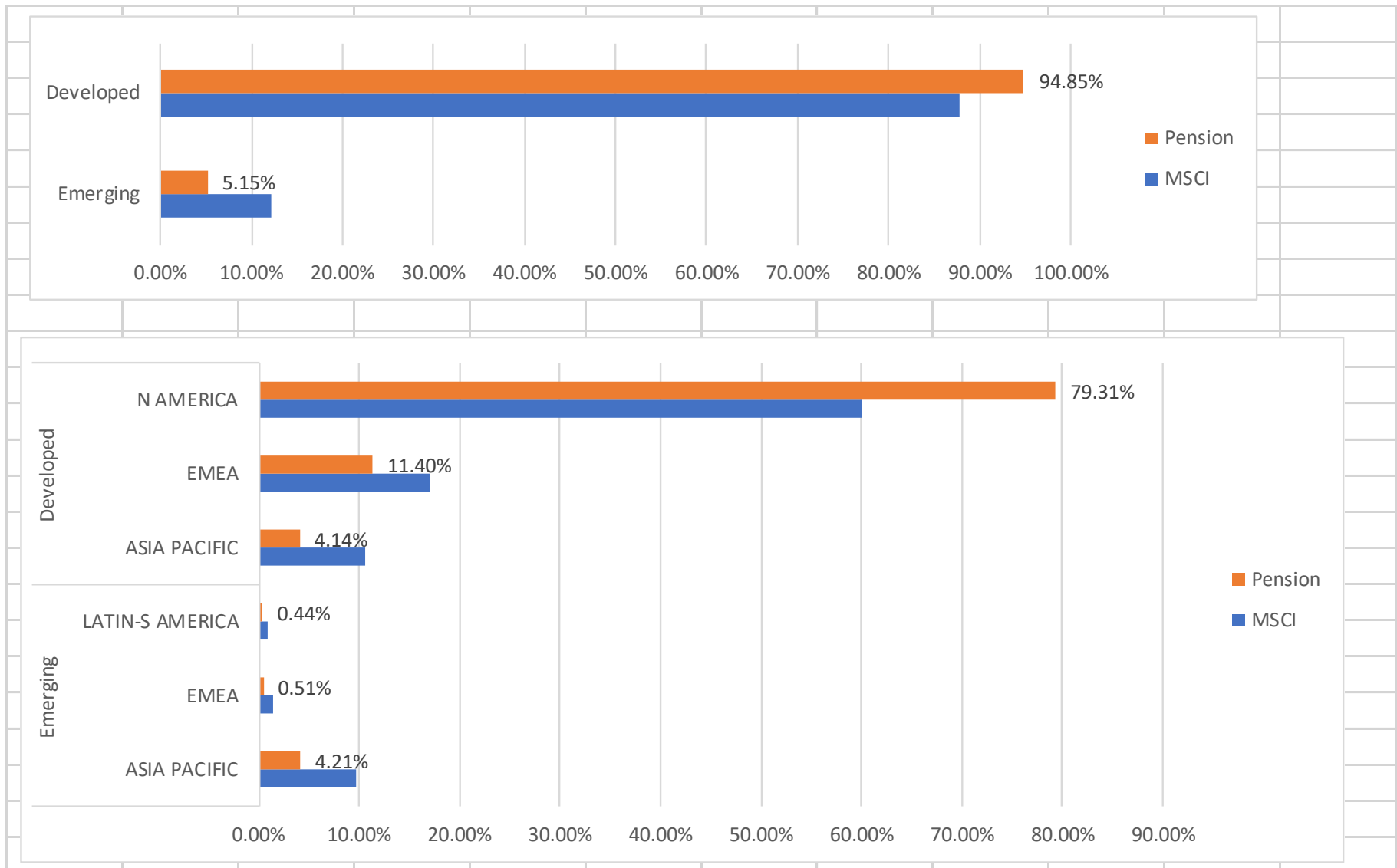
- S&P 600 (Private Equity)
- MSCI ACWI Commodity Producers (Natural Resources)

Cap Rates



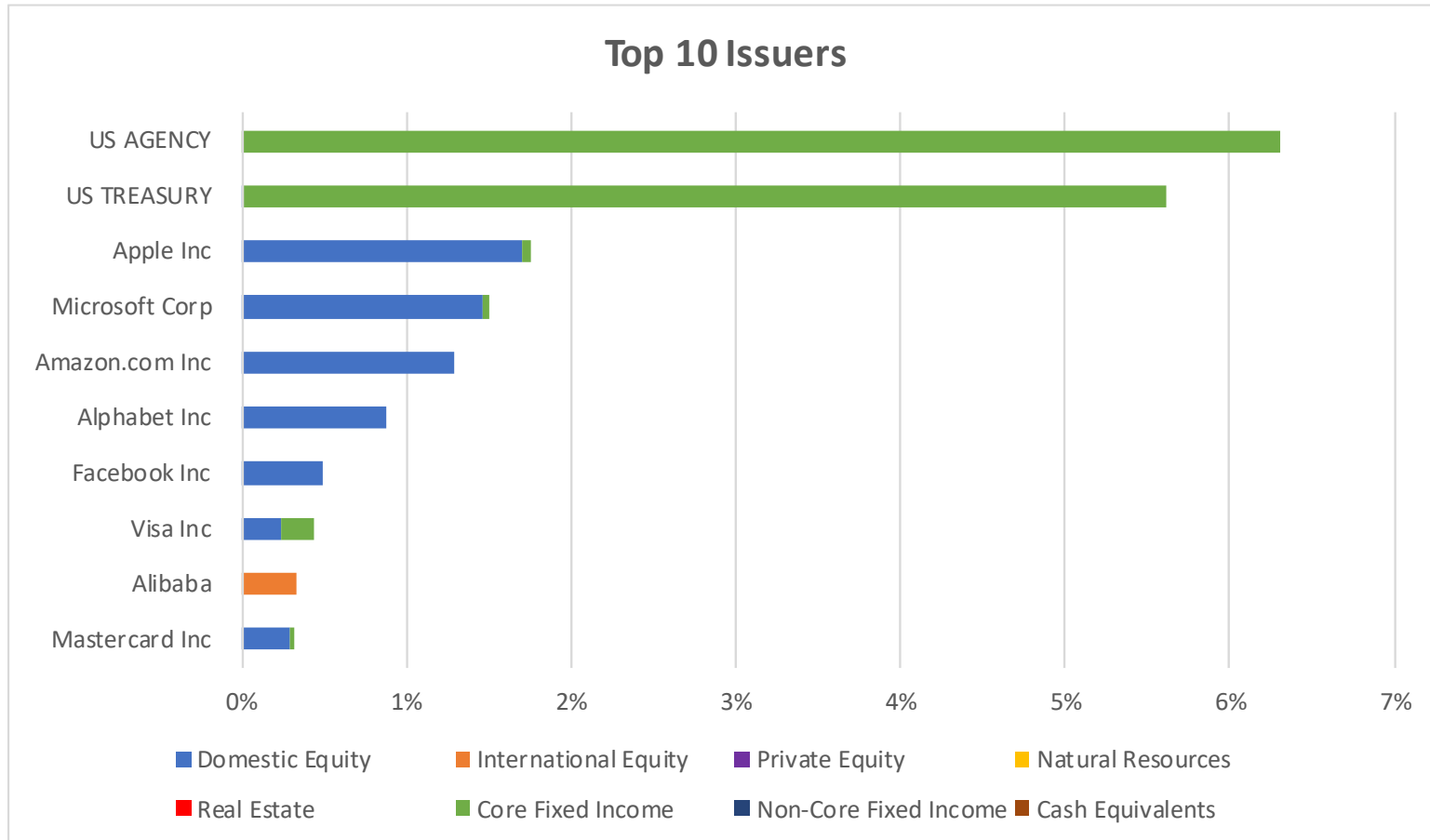
- Office Avg Cap Rate (National) (Real Estate)
- Industrial Avg Cap Rate (National) (Real Estate)
- Retail Avg Cap Rate % National (Real Estate)
- Apartment Avg Cap Rate % National (Real Estate)

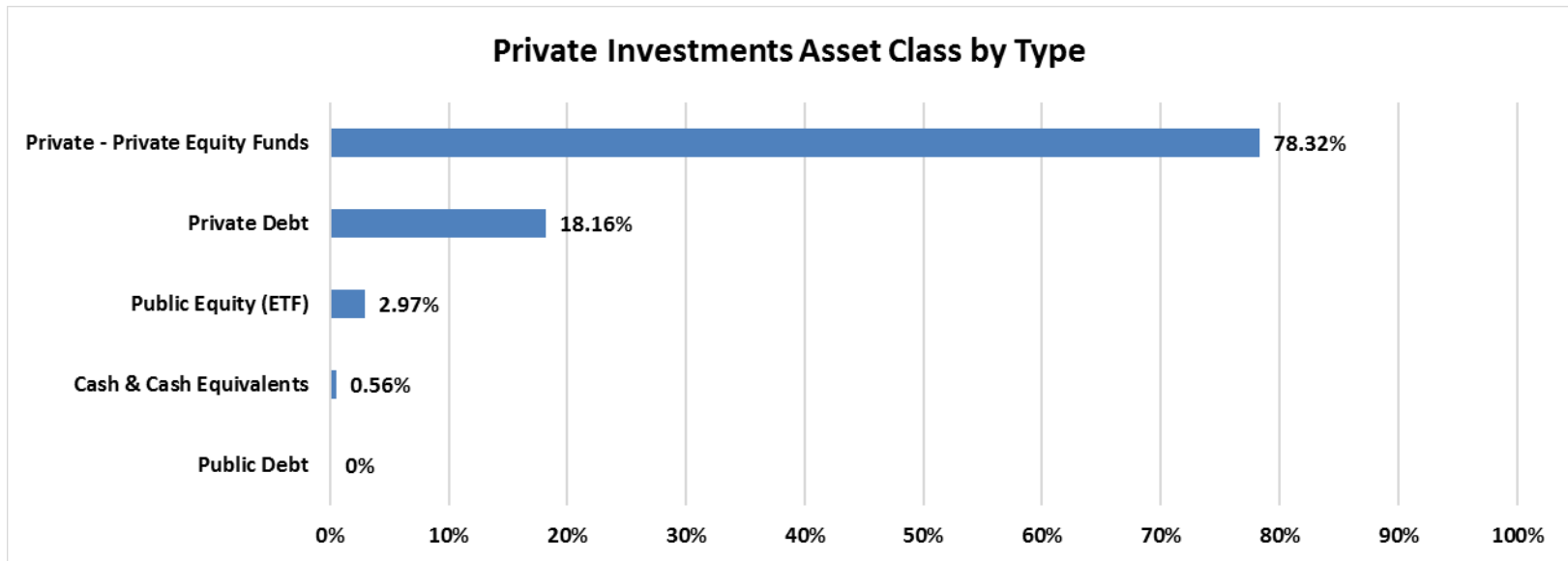


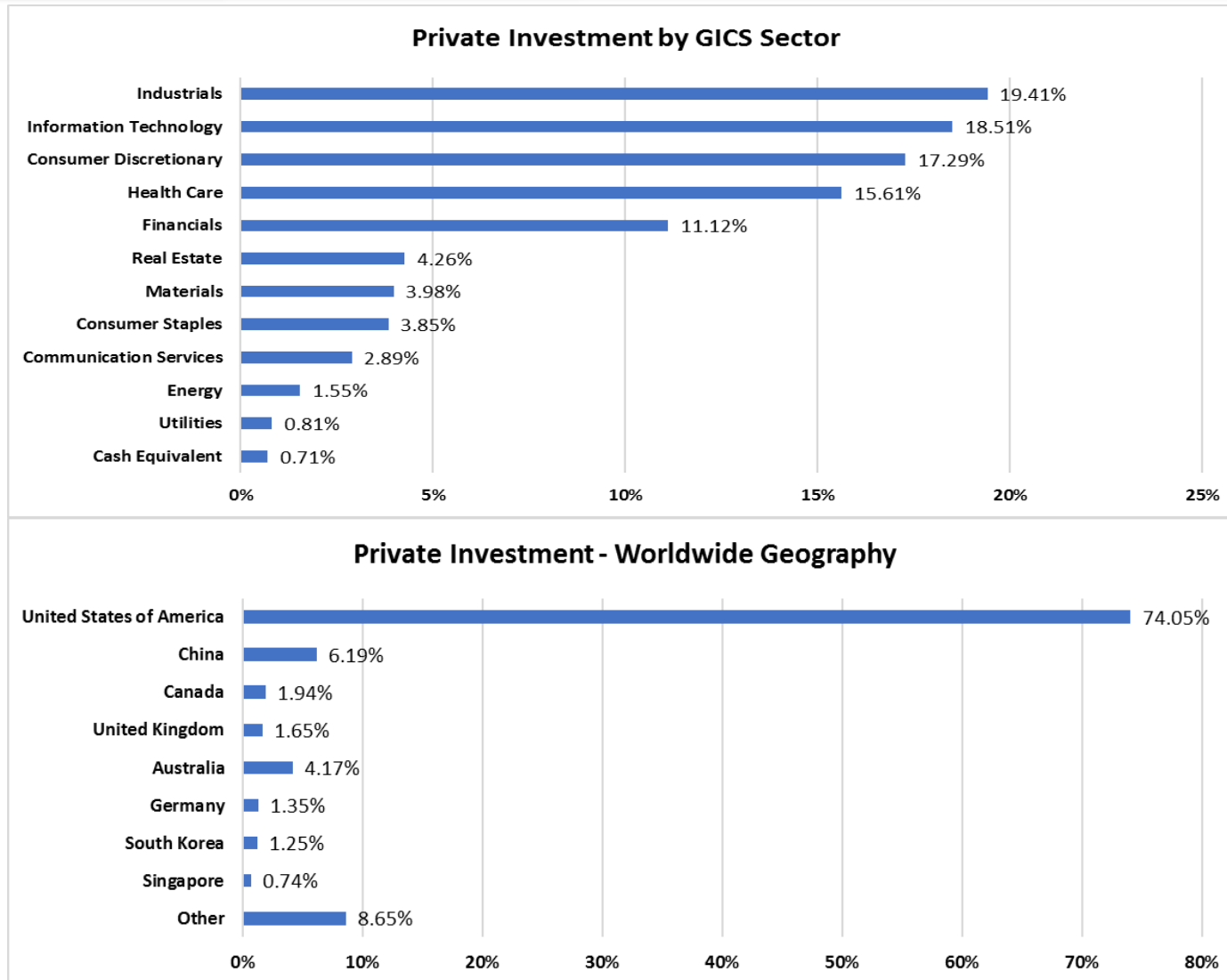




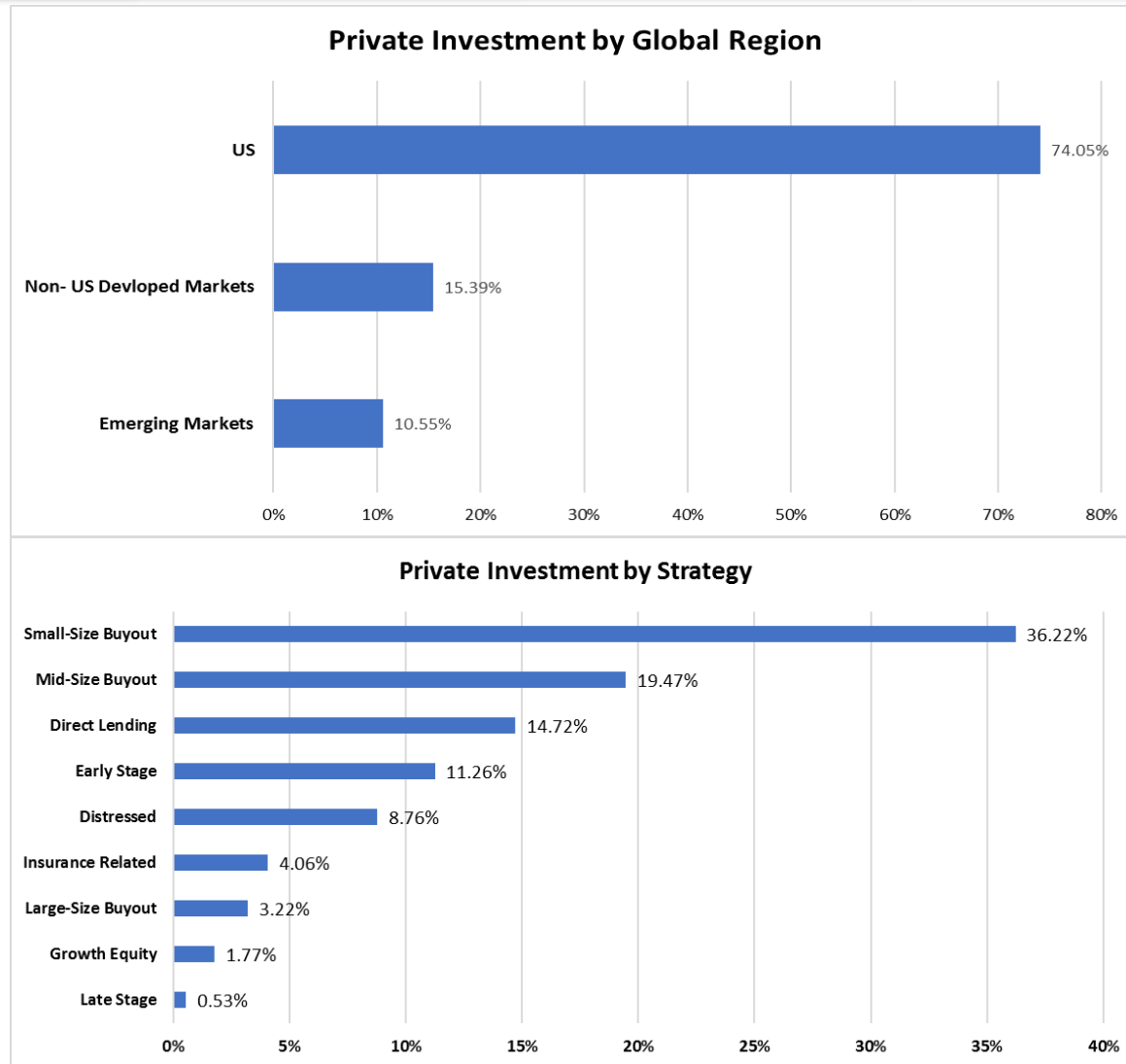
*Montana Public Retirement Plans shall have no greater than 5% of its Net Asset Value managed by any one external manager using an active investment strategy



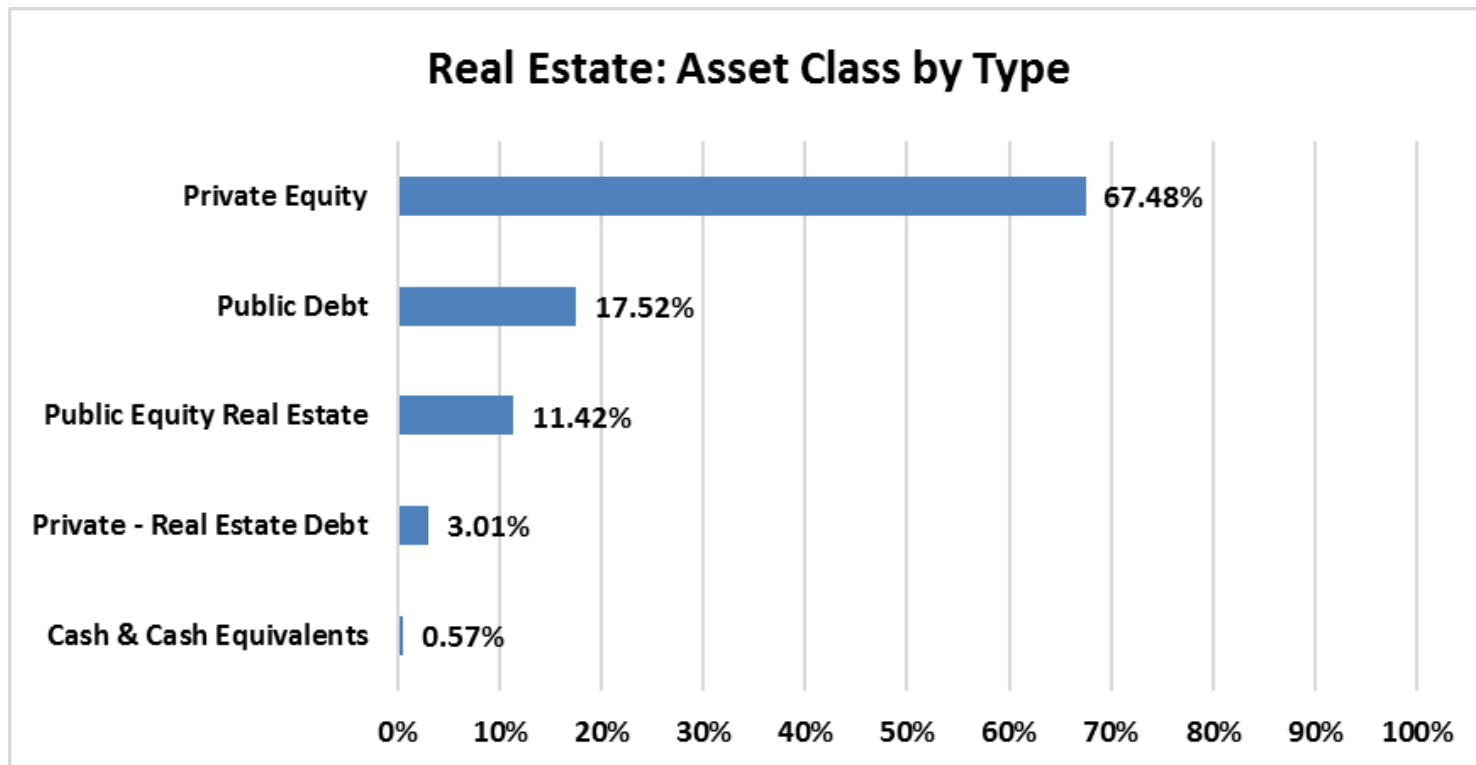


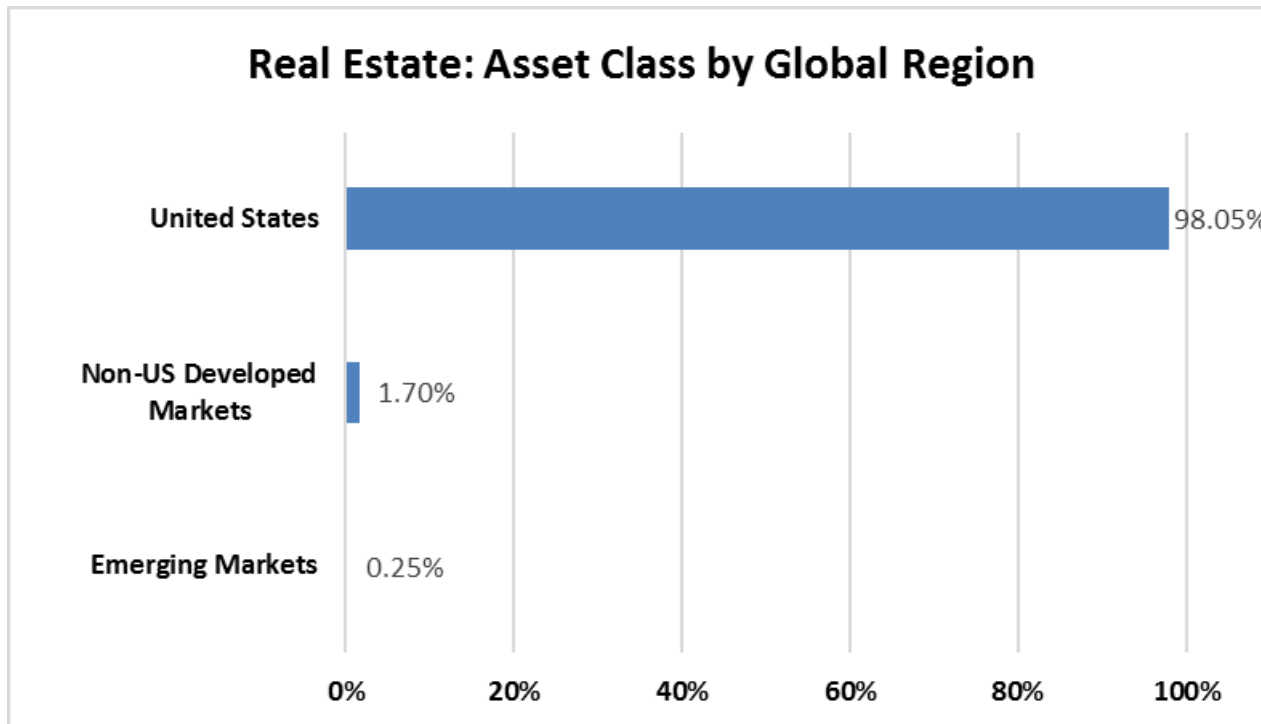


Note: Data reflects most recent GP-reported holdings as of 6/30/20
September 30, 2020

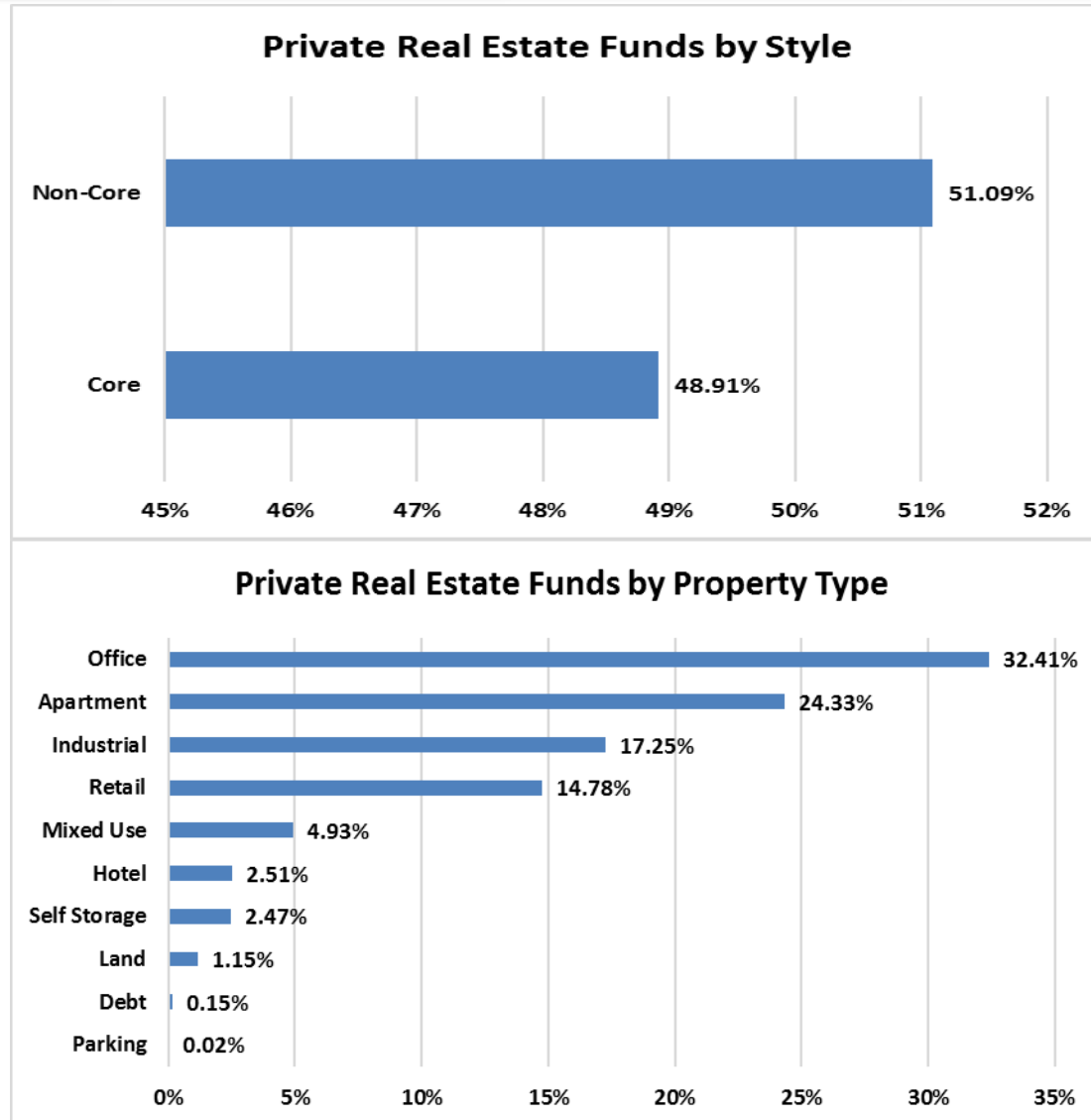


Note: Data reflects most recent GP-reported holdings as of 6/30/20
September 30, 2020



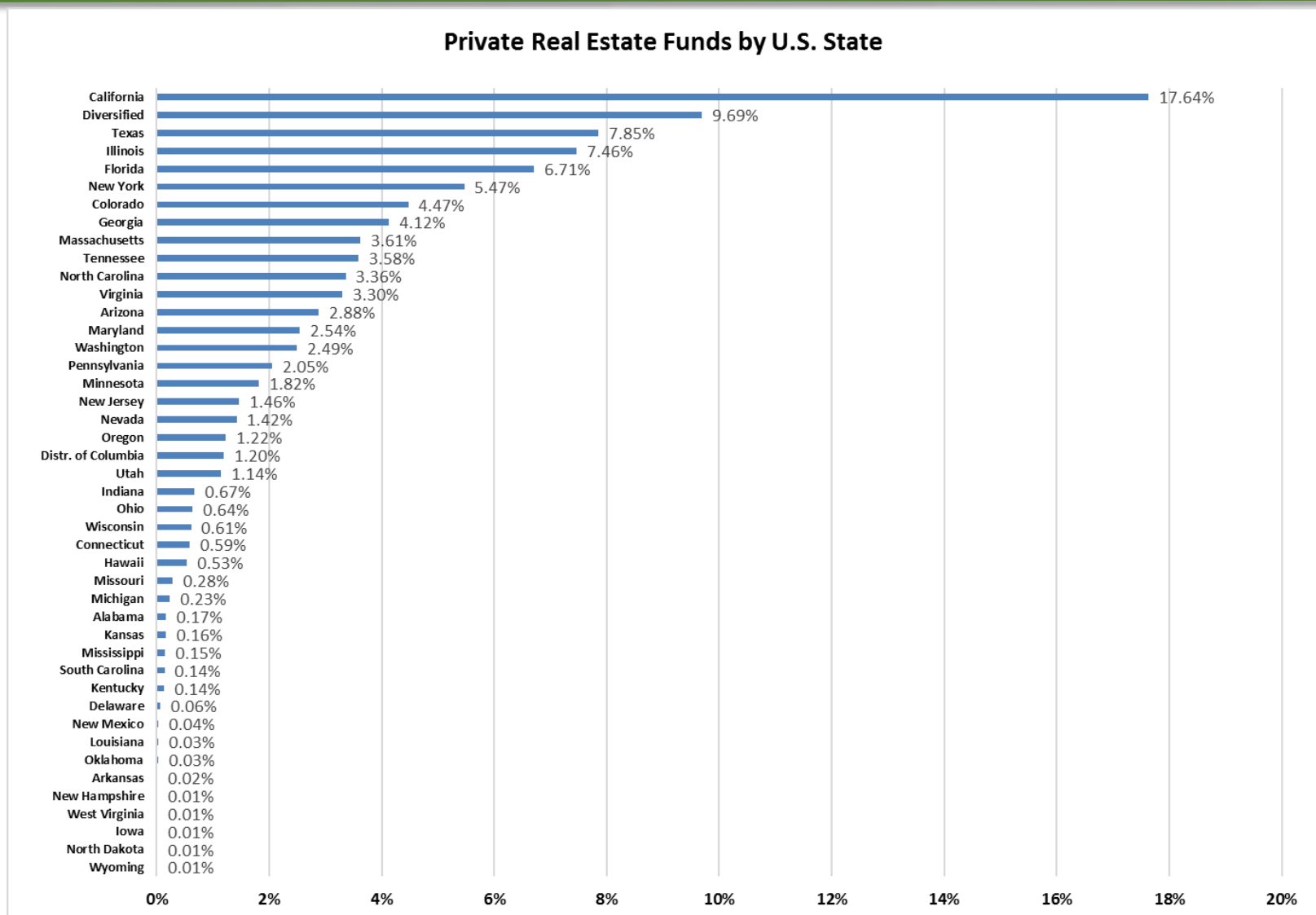


Note: Data reflects most recent GP-reported holdings as of 6/30/20
September 30, 2020



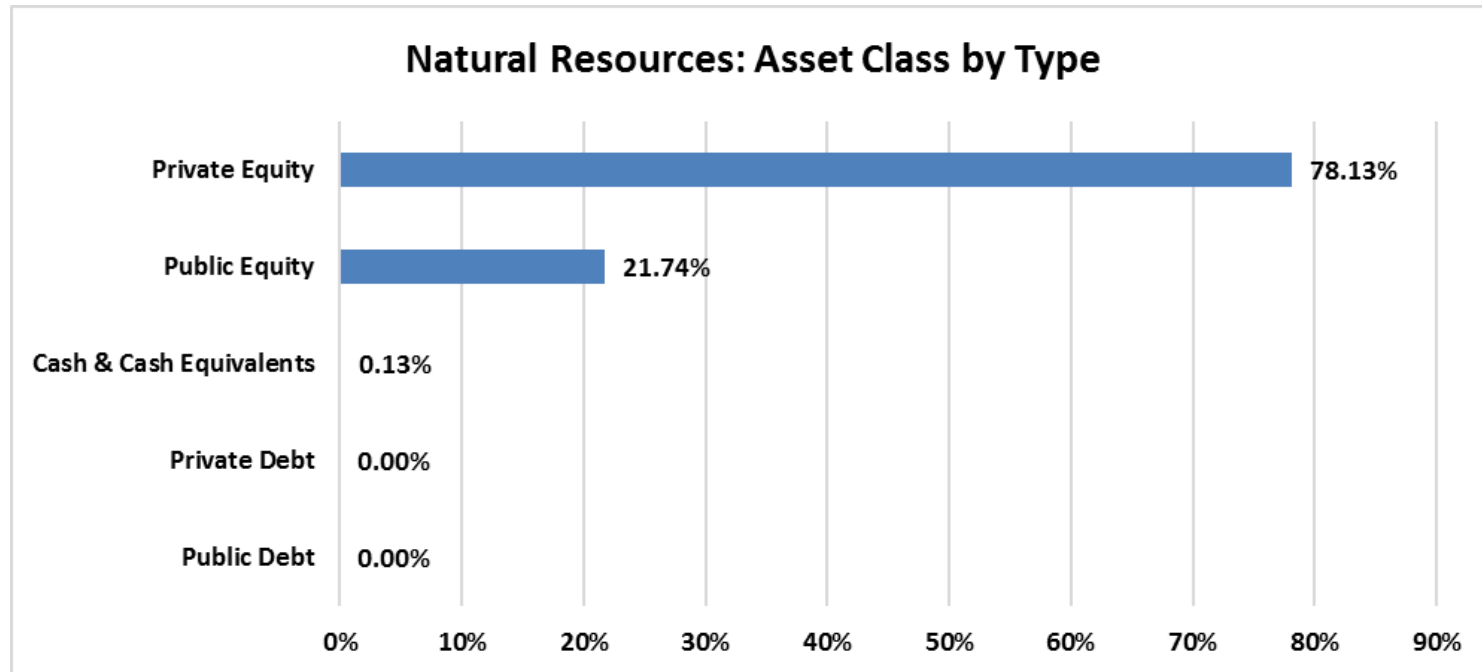
Note: Data reflects most recent GP-reported holdings as of 6/30/20

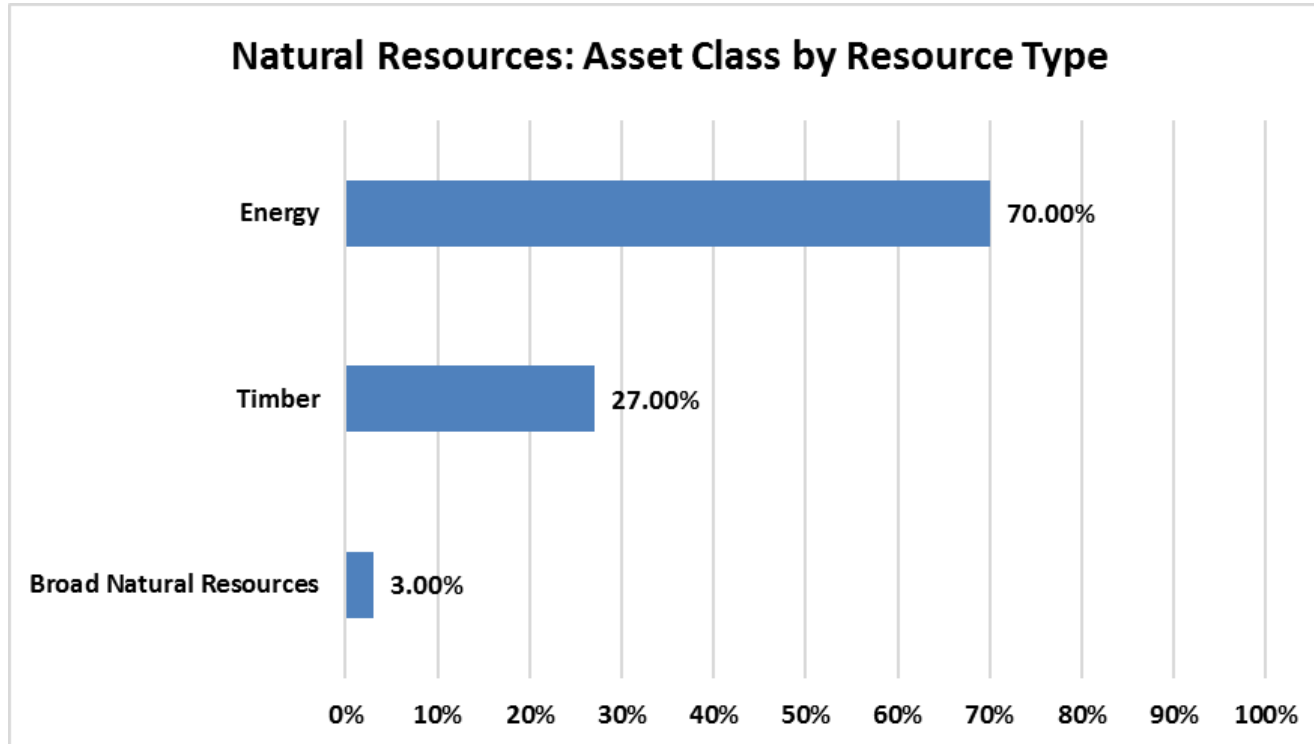
September 30, 2020

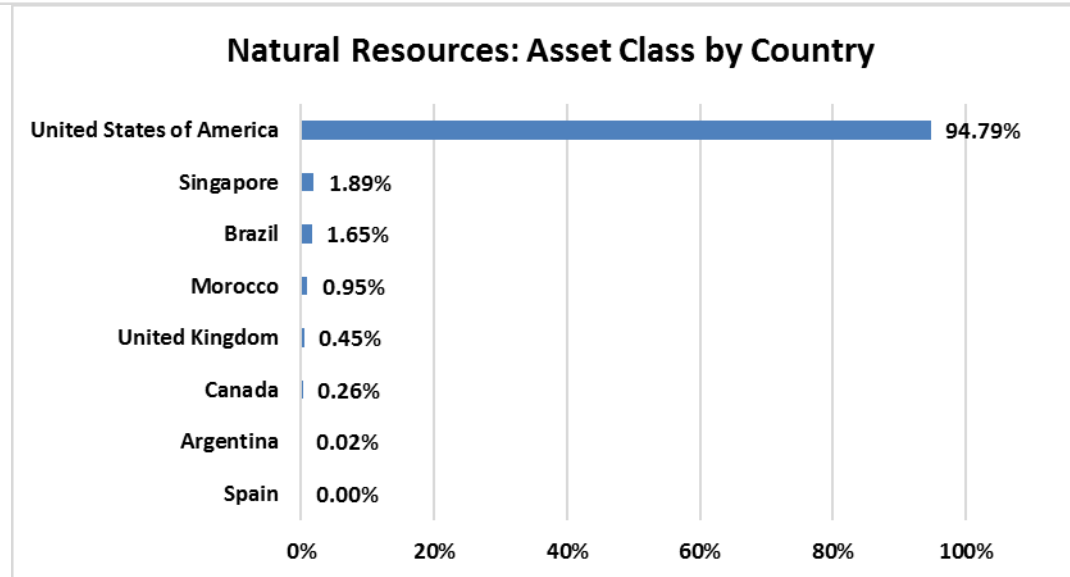
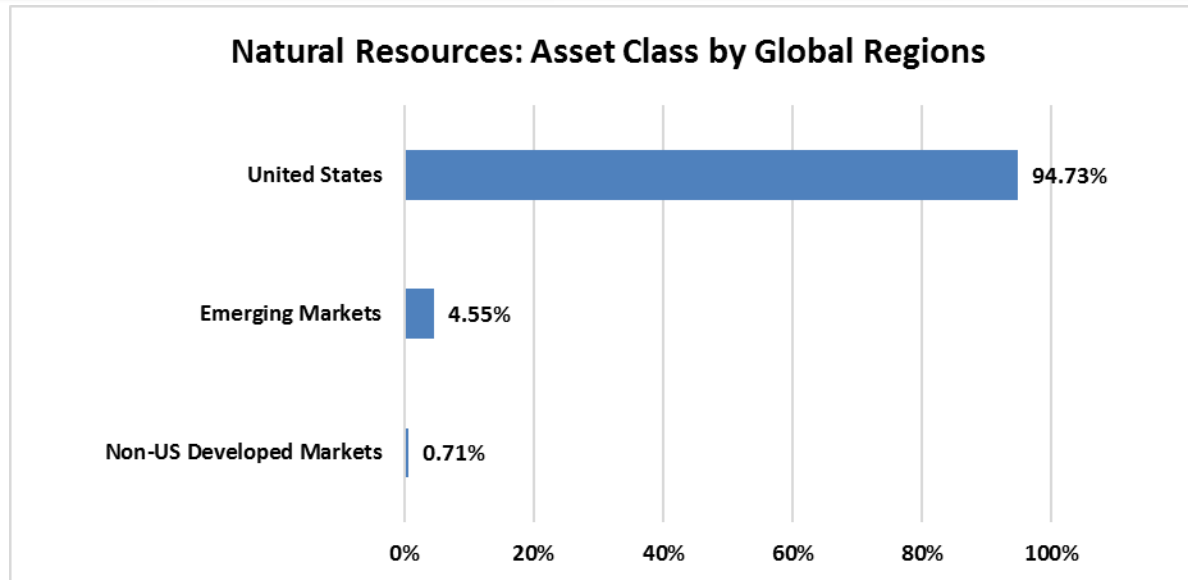


Note: Data reflects most recent GP-reported holdings as of 6/30/20

September 30, 2020



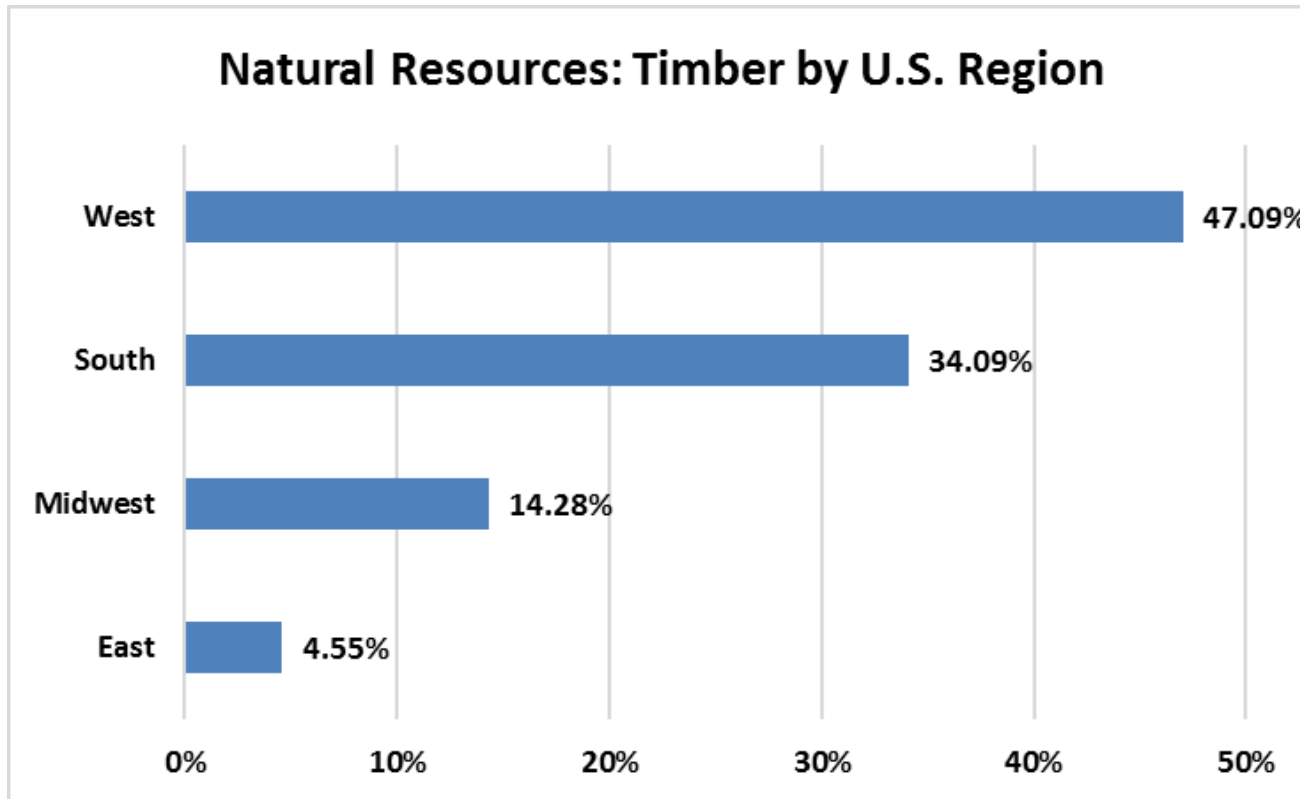




Note: Data reflects most recent GP-reported holdings as of 6/30/20

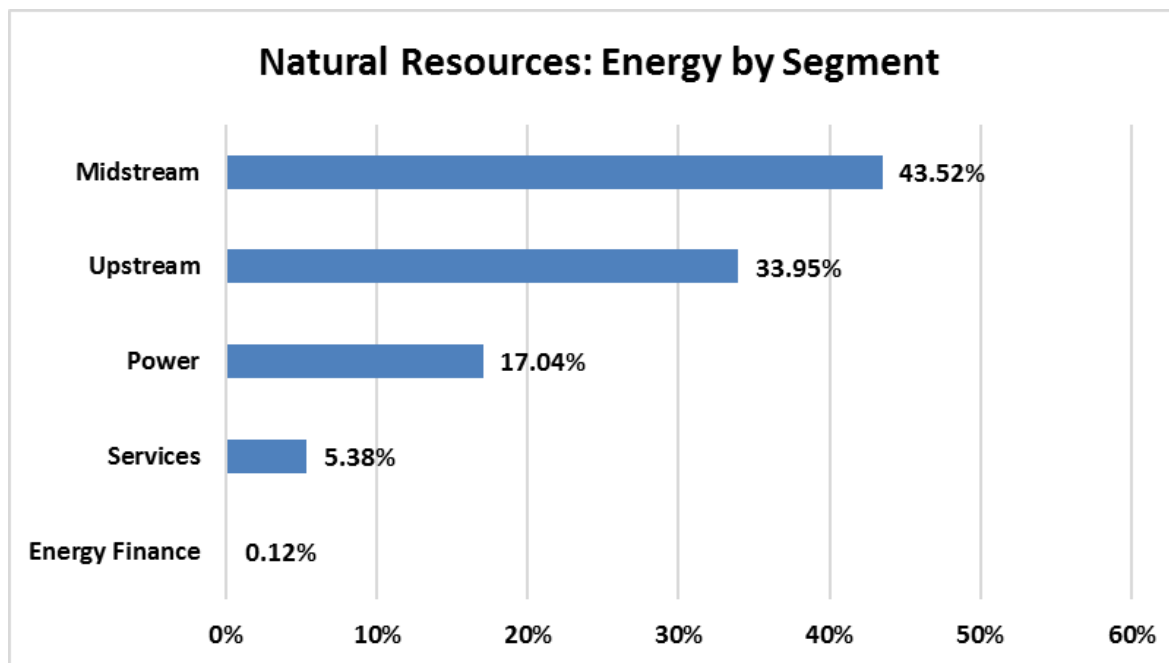
September 30, 2020

181



Note: Data reflects most recent GP-reported holdings as of 6/30/20

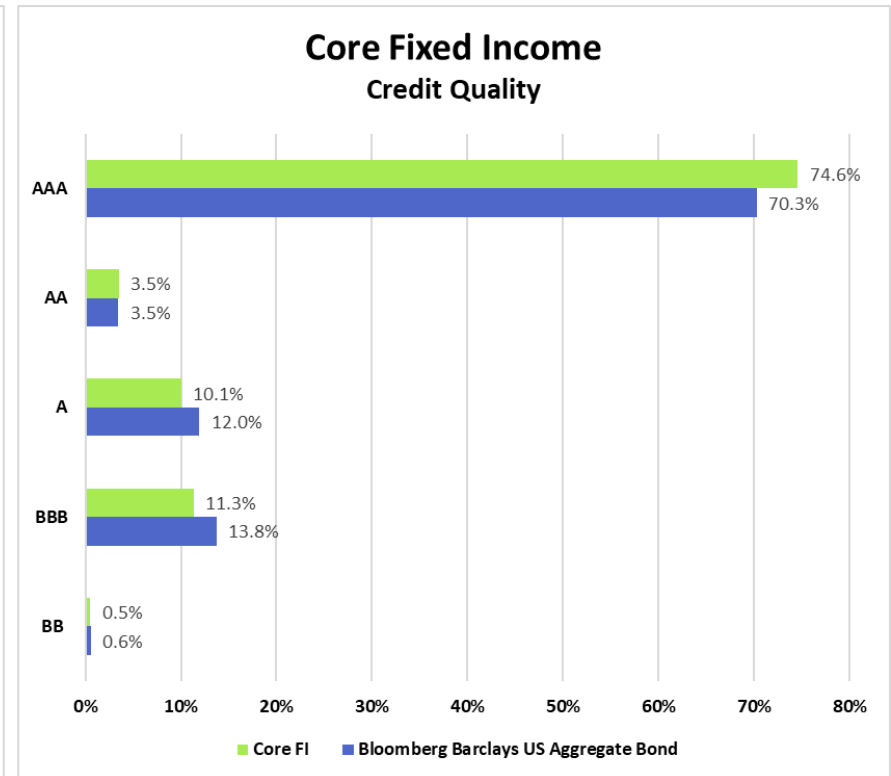
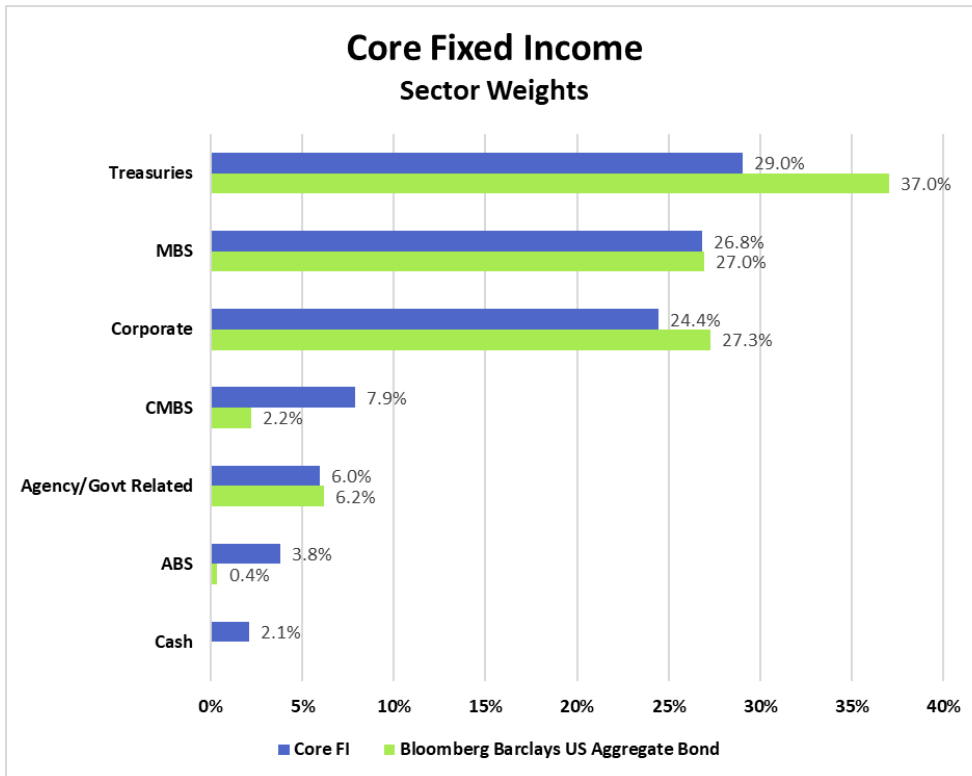
September 30, 2020



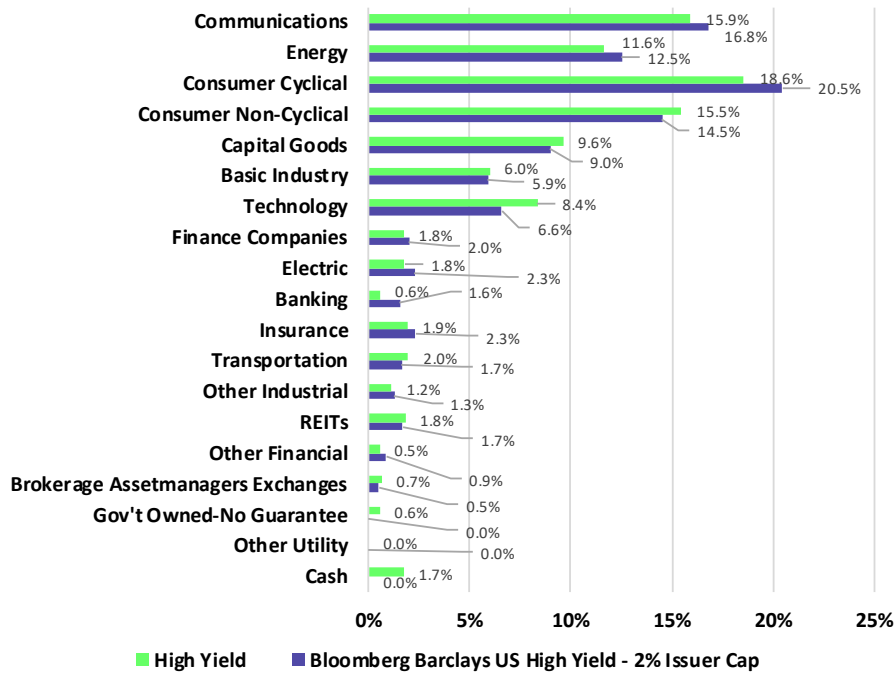
Upstream	Exploration and production
Services	Businesses that provide ancillary services and equipment required to explore for, produce and transport oil and gas
Power	Generation plants that create power
Midstream	Pipelines, terminals and storage of oil and gas and involves the transportation of oil and gas
Energy Finance	Investments in a portfolio of liquid or yield-orientated securities

Note: Data reflects most recent GP-reported holdings as of 3/31/20

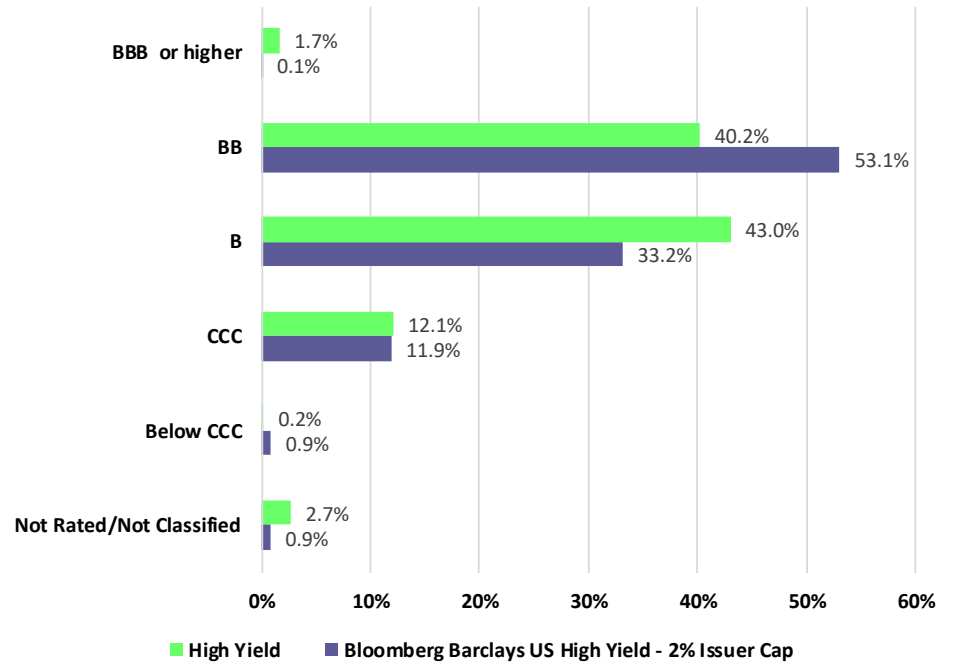
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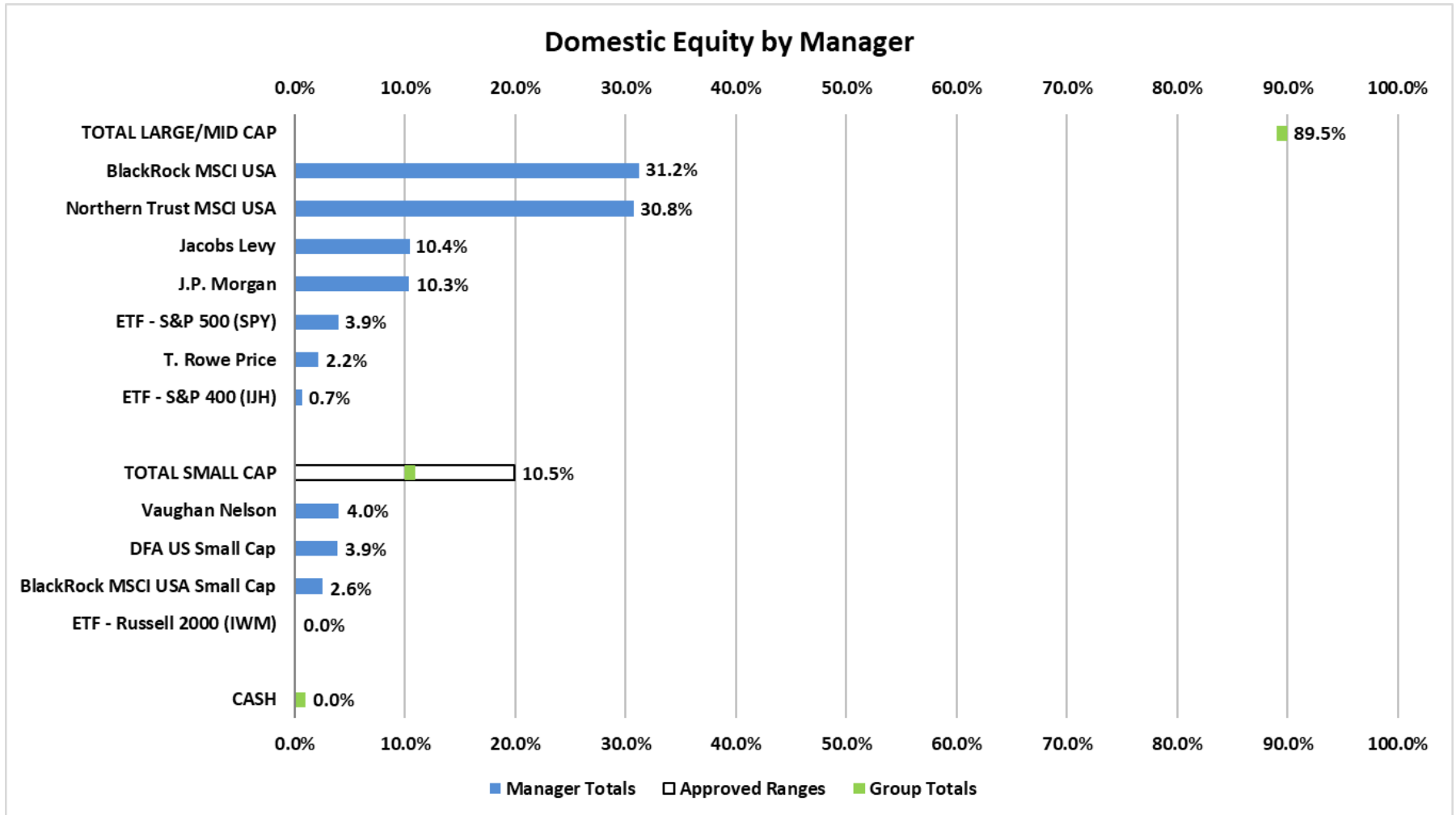


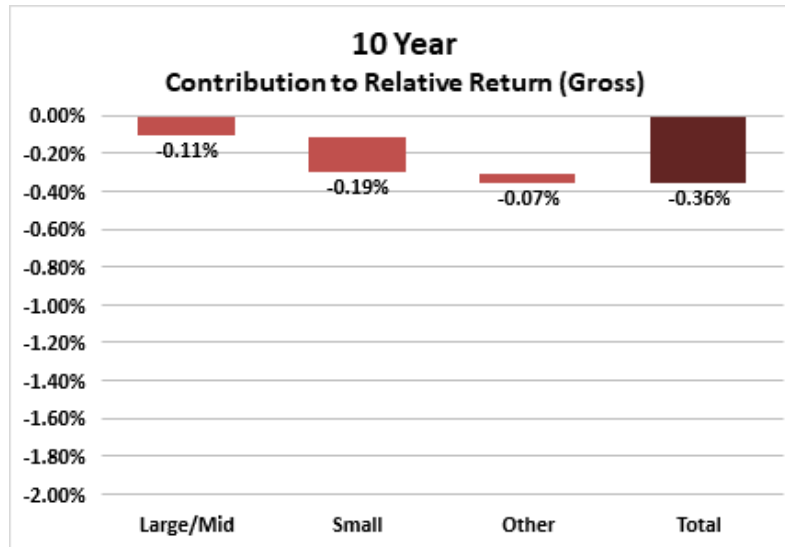
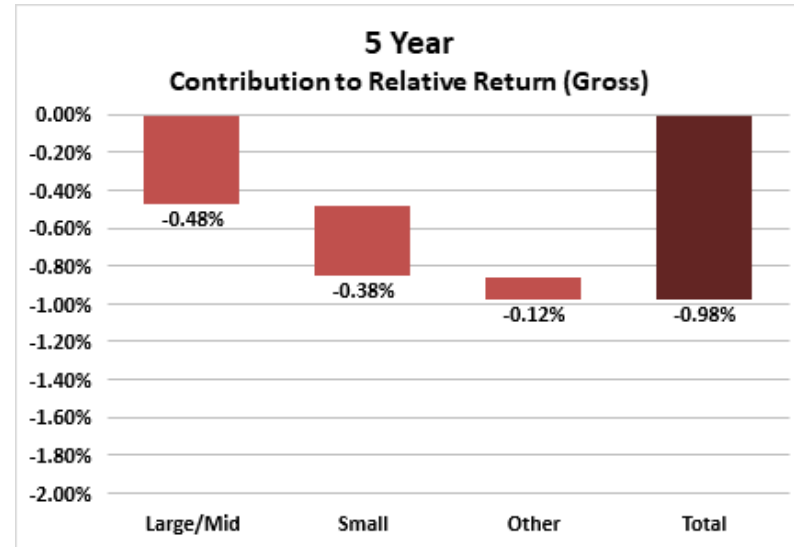
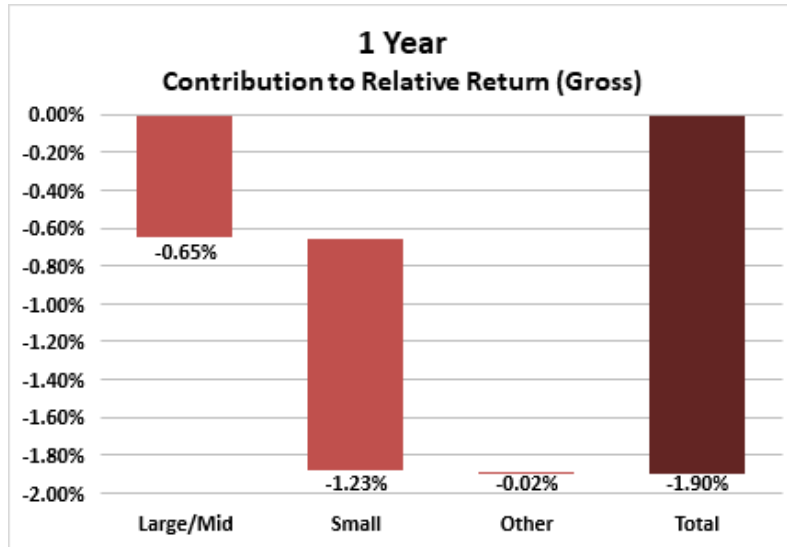
Non-Core Fixed Income Sector Weights



Non-Core Fixed Income Credit Quality



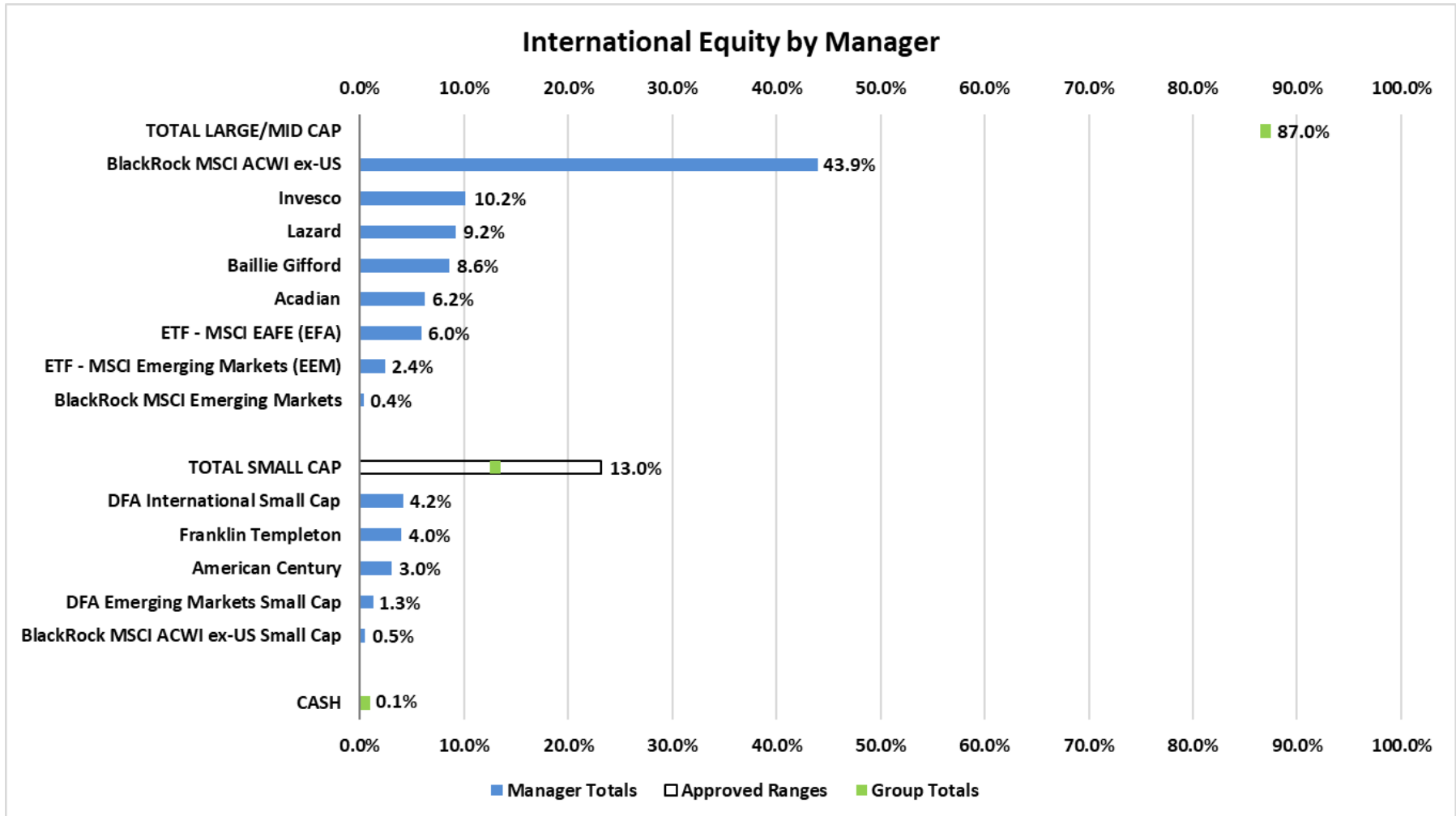


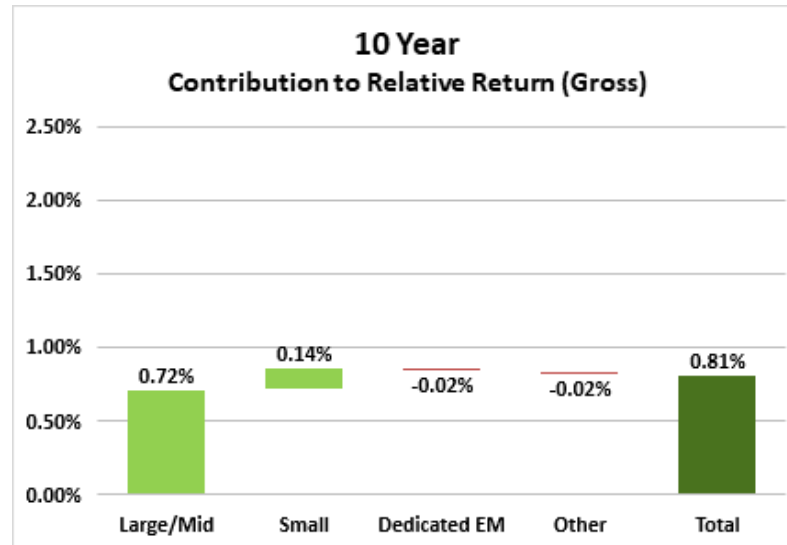
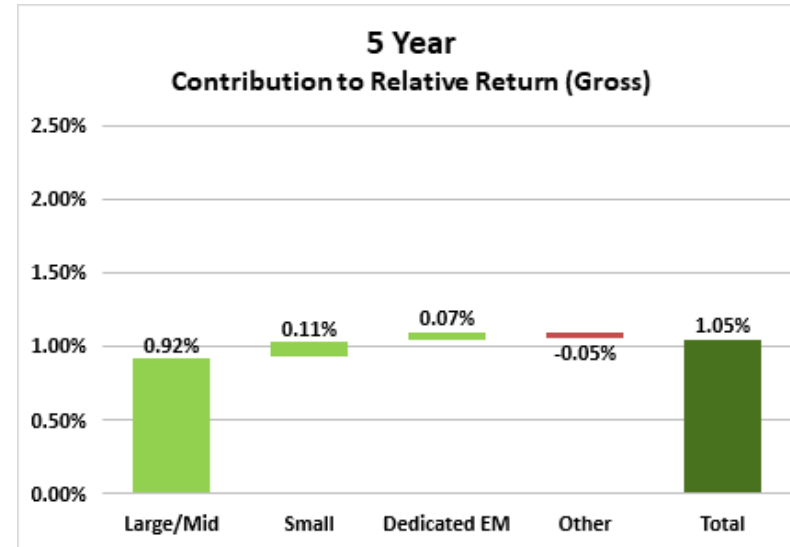
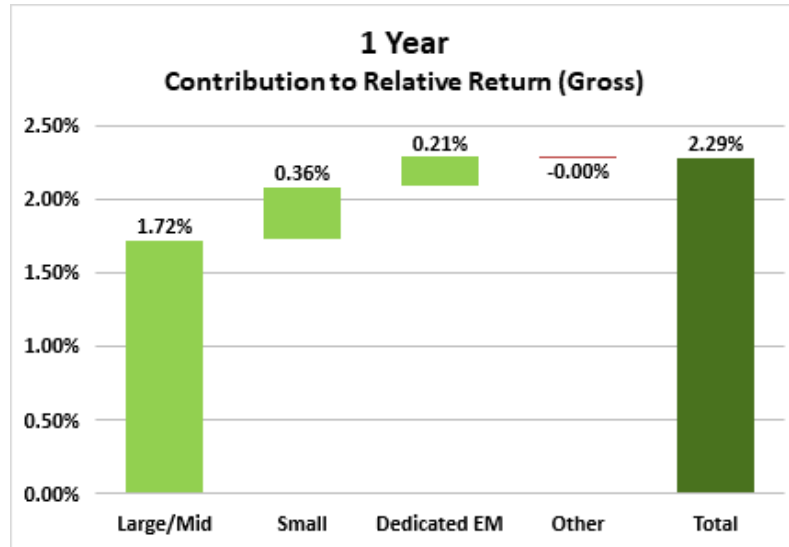


Benchmark: Domestic Equity – PAC Custom Blend

September 30, 2020

187

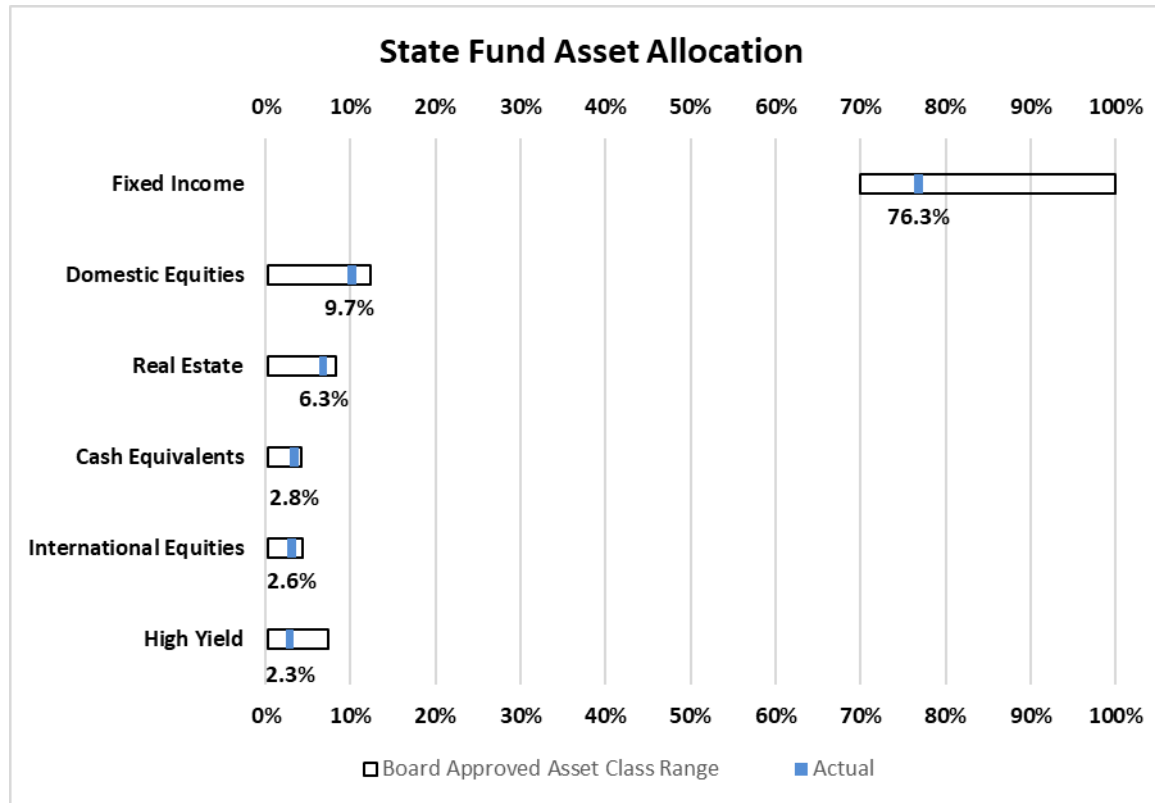


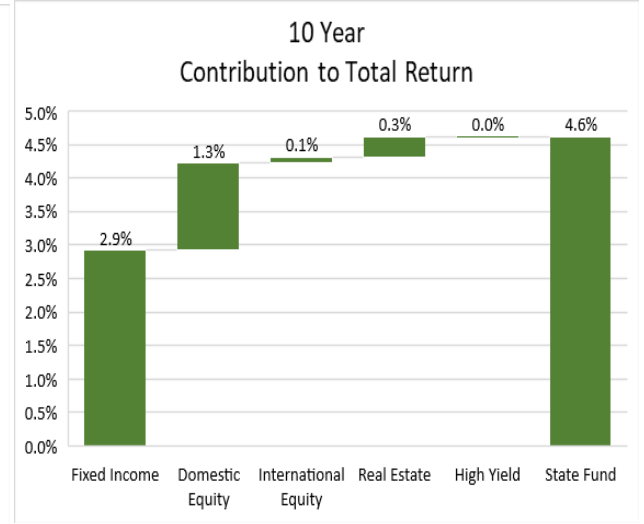
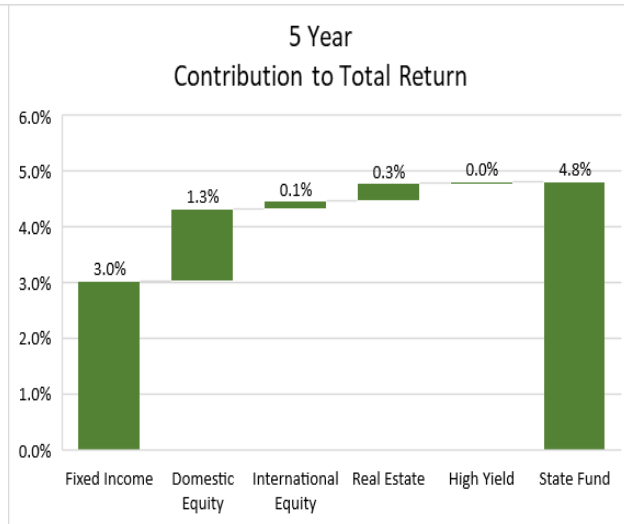
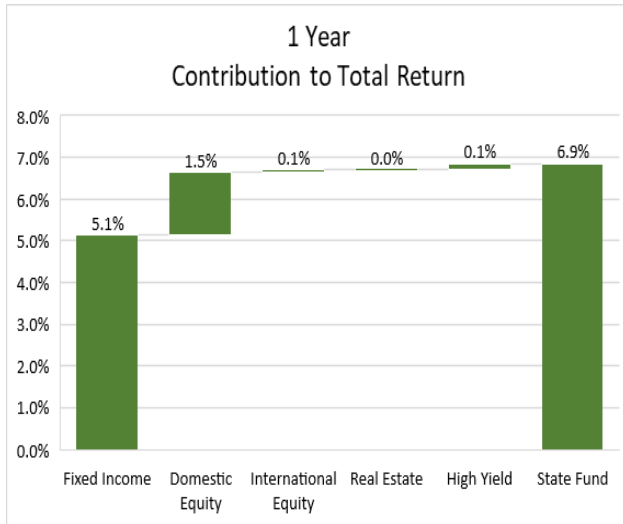


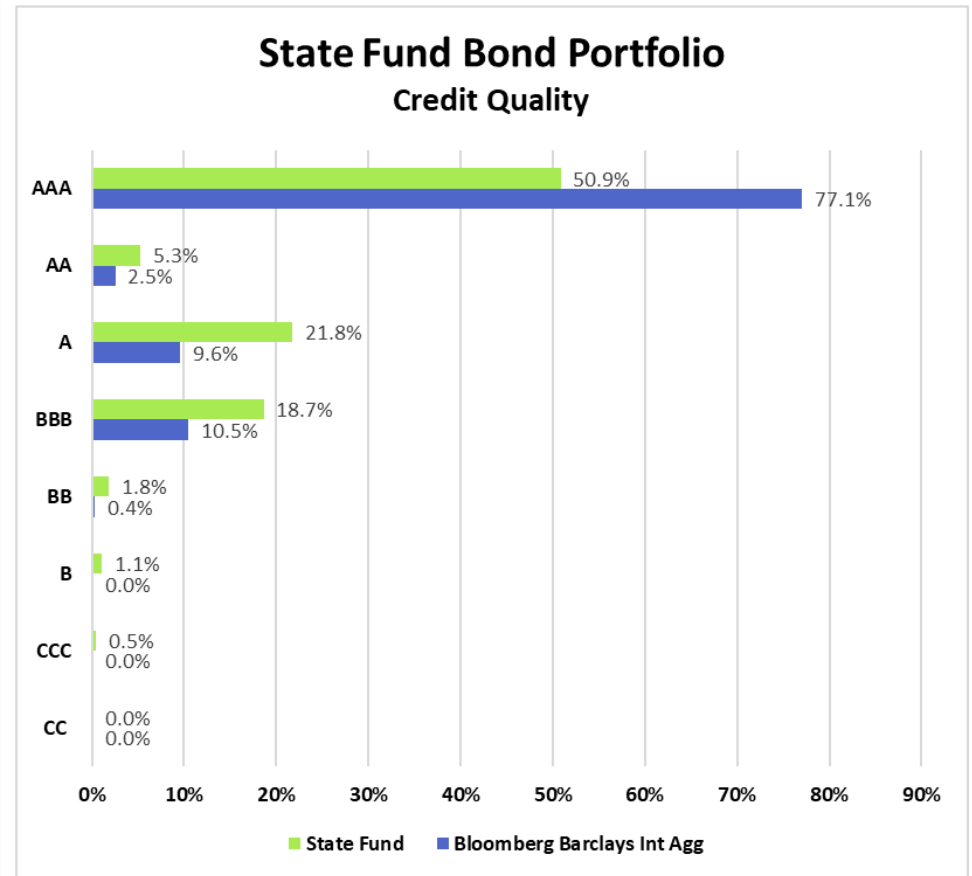
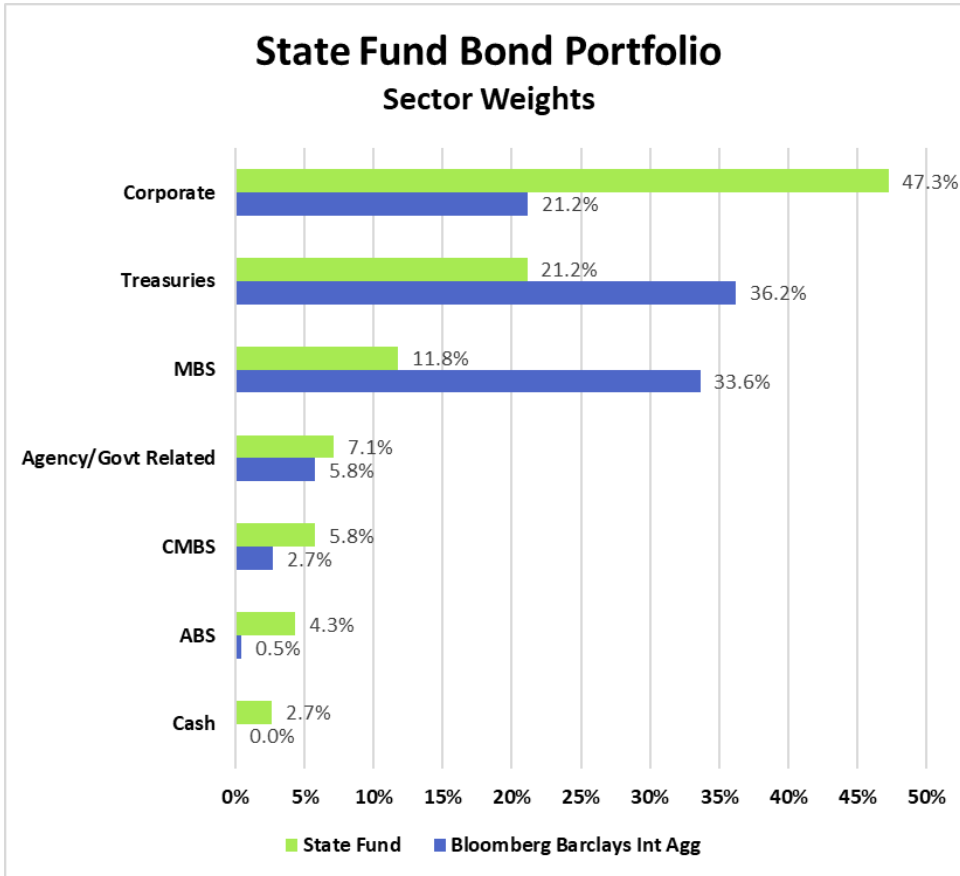
Benchmark: International Equity – PAC Custom Blend

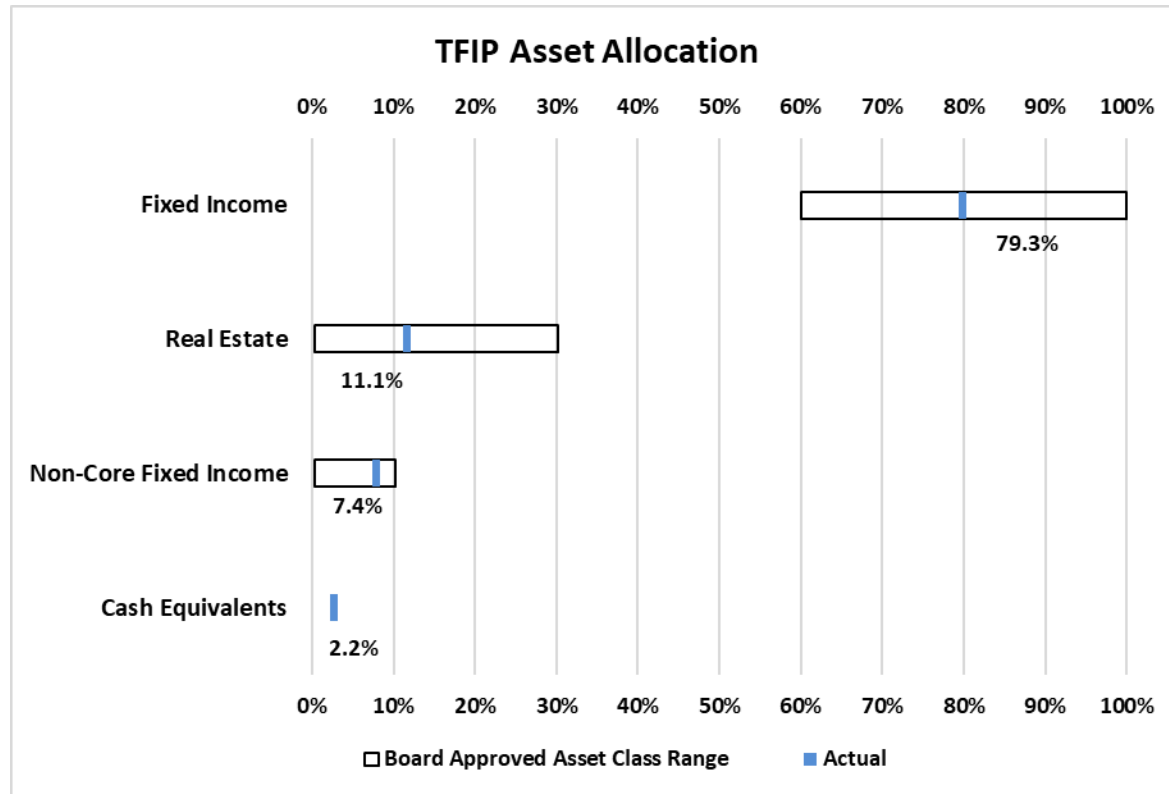
September 30, 2020

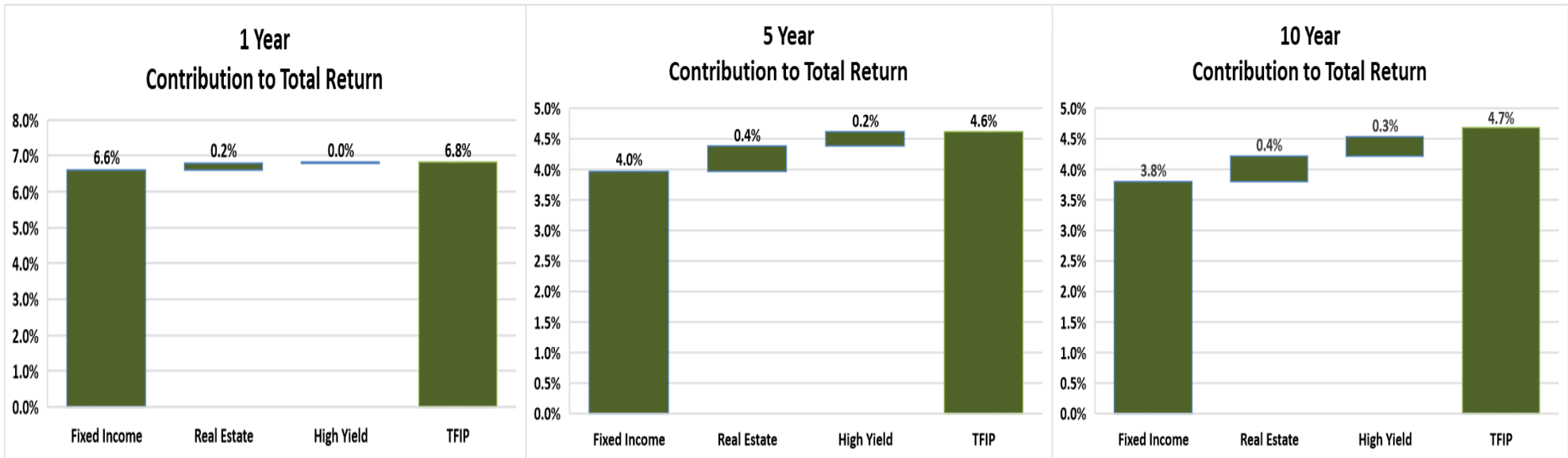
189

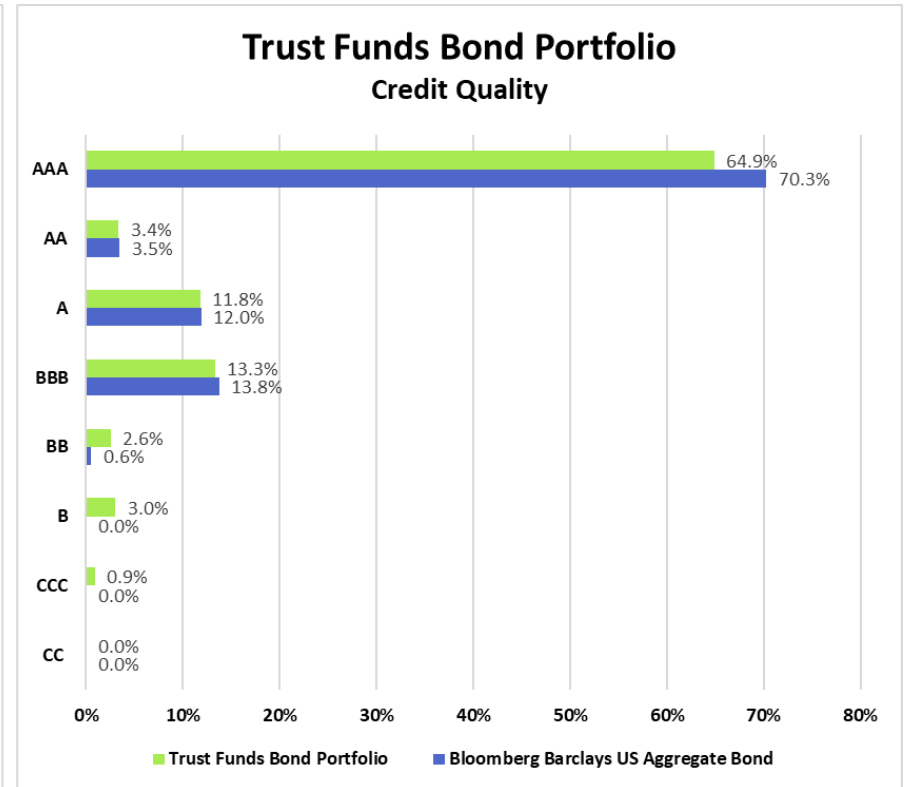
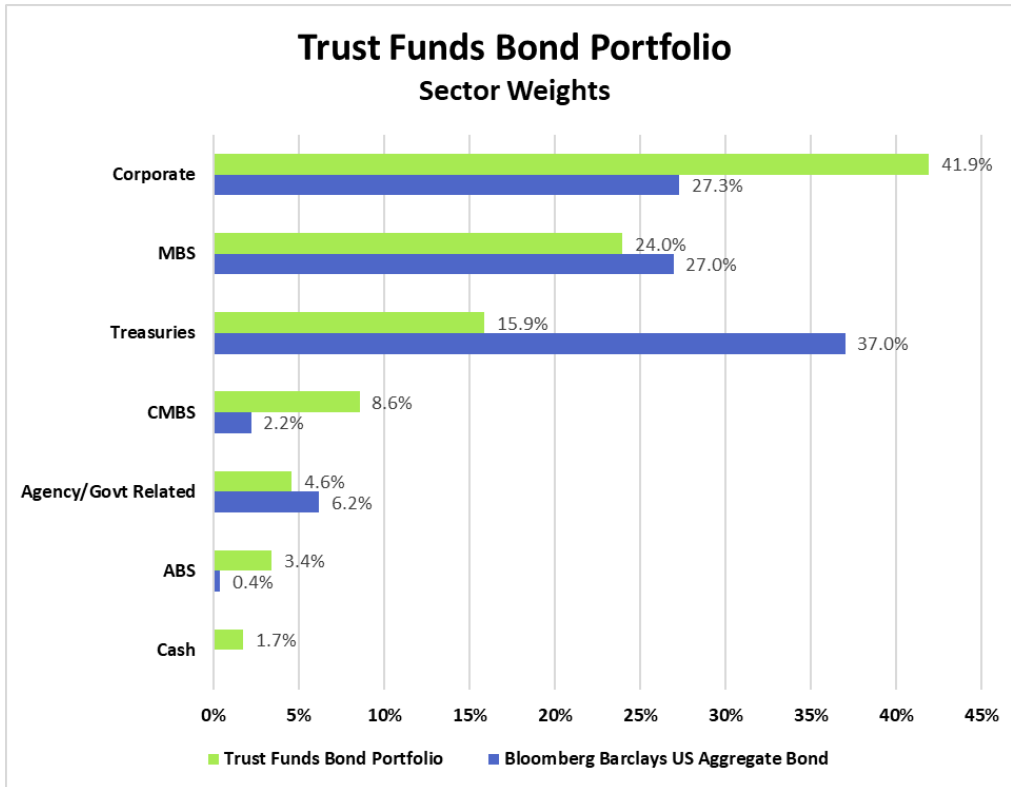




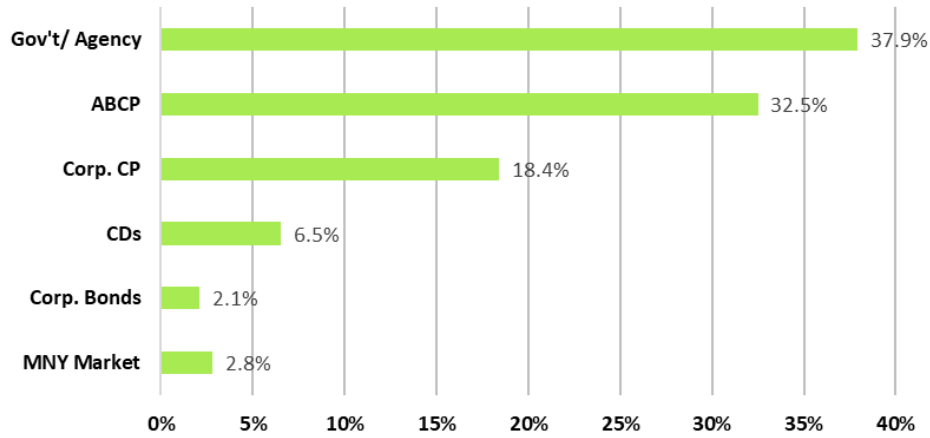








Assets by Type



Participant by Type

