

MONTANA

BOARD OF INVESTMENTS

REGULAR BOARD MEETING
December 12, 2023

COMMITTEE MEETINGS

A. Audit Committee – Mark Barry, Chair

Committee Members – Peterson, Bennett, Trost, Iverson **9:30 AM**

1. Public Comment – *Public Comment on issues with Committee Jurisdiction*
2. Approval of October 11, 2023, Committee Minutes
3. Executive Director Comments
4. Audit Checklist
5. Annual Statutory Compliance Checklist - **Decision**
6. Audit Committee Charter Review – **Decision**
7. Draft FY 2023 Annual Report – **Decision**
8. Draft FY 2023 Financial Statements – **Decisions**

B. Loan Committee – Jeff Meredith, Chair

Committee Members – Barry, Kober, Bennett, Younkin **10:30 AM**

1. Public Comment – *Public Comment on issues with Committee Jurisdiction*
2. Approval of October 11, 2023, Committee Meeting Minutes
3. Executive Director Comments
4. INTERCAP Loan Requests – **Decision**
5. CRP Program - **Decision**

Tab 1 CALL TO ORDER – Jack Prothero, Board Chair

11:00 PM

- 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 11, 2023, Meeting Minutes
- E. Administrative Business
 1. Audit Committee Report – **Decisions**
 2. Loan Committee Report – **Decisions**
- F. Comments from Pension Board Members
- G. Comments from Board Legislative Liaisons

Tab 2 EXECUTIVE DIRECTOR REPORTS – Dan Villa

11:30 PM

- A. Member Requests from Prior Meeting
- B. Monthly Snapshot
- C. LPAC Reporting
- D. Securities Litigation Annual Review
- E. Resolution 217 – Reauthorization of Investment Vendors

WORKING LUNCH

12:00 PM

MPERA and TRS Relationship

Dore Schwinden, Executive Director, and Bill Holahan, Deputy Director, MPERA

Shawn Graham, Executive Director, TRS

Tab 3 MONTANA LOAN PROGRAM – Doug Hill	1:00 PM
A. Commercial and Residential Portfolios Report	
Tab 4 BOND PROGRAM – Louise Welsh	1:15 PM
A. INTERCAP	
1. Activity Report	
2. Staff Approved Loans Report	
Tab 5 INVESTMENT POLICY STATEMENTS – <i>Decisions</i>	1:45 PM
Tab 6 ASSET ALLOCATION RANGE APPROVAL – <i>Decision</i>	2:00 PM
Tab 7 RVK	2:30 PM
Tab 8 INVESTMENT UPDATE	3:15 PM
RECAP OF STAFF TO DO LIST AND ADJOURNMENT – Jack Prothero, Board Chair	4:30 PM

Appendix

- A. 2023 Annual Board Meeting Schedule
- B. 2024 Annual Board Meeting Schedule
- C. 2022/2023 Work Plan
- D. 2024/2025 Work Plan
- E. Acronym Index/Terminology List

MONTANA

BOARD OF INVESTMENTS

REGULAR BOARD MEETING MINUTES

October 11, 2023

Meeting recordings are posted at: <https://leg.mt.gov/lsd/>
(timestamps may differ)

Call to Order

The Board of Investment's meeting was called to order by Board Chairman Jack Prothero at 1:00 p.m. on Wednesday, October 11, 2023.

Attendance

Board Members Present: Jack Prothero, Jeff Meredith, Tim Kober, Mark Barry, Daniel Trost, Cindy Younkin, Maggie Peterson, Dwaine Iverson, Porter Bennett (online via Zoom at 1:46 p.m.)

Board Members Absent: None

Legislative Liaisons Present: None

Legislative Liaisons Absent: Senator Jeremy Trebas

Board Staff Present: Brenda Thomas, Dan Villa, Dan Whyte, Dan Zaring, Doug Hill, Jason Brent, Jessilynn Salois, John Carpenter, John Romasko, Jon Putnam, Julie Feldman, Ian Horwood, Kirsten Haswell, Louise Welsh, Matt Hoffman, Peggy MacEwen, Peggy Saarela, Roberta Diaz, Rob Samson, Savannah Morgan, Sheli Jacoby, Steve Strong, Thomas Winkler, Tim House, Willie Gross

Interested Parties Present: Becky Gratsinger – RVK, Jim Voytko – RVK, Paige Blaser – RVK, Cyril Espanol – With Intelligence, Gregg Gethard - PEI

Tab 1 CALL TO ORDER (00:07)

A. Notice of Video Recording (00:24)

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

B. Roll Call (00:32)

Roll was taken. Eight Board members were present, forming a quorum.

C. Public Comment (01:26)

Chairman Prothero asked for public comment. None was given.

D. Approval of Minutes (01:42)

August 23, 2023, Regular Board Meeting Minutes

Member Meredith motioned to approve. Member Iverson seconded the motion, which passed unanimously.

E. Administrative Business

1. Audit Committee Report (02:16)

Committee Chair Barry briefed the Board.

Chairman Prothero asked for a motion to approve and accept the SOC 1, Type 2 Audit Report. Member Barry motioned for approval. Member Peterson seconded the motion, which passed unanimously.

2. Loan Committee Report (07:02)

Committee Chair Meredith briefed the Board.

3. Human Resources Committee Report (08:25)

Committee Chair Peterson briefed the Board.

F. Comments from Pension Board Members

Member Trost briefed the Board. (10:12)

Member Peterson briefed the Board. (12:48)

G. Comments from Board Legislative Liaisons

Senator Jeremy Trebas was absent.

Tab 2 EXECUTIVE DIRECTOR REPORTS (15:26)

A. Member Requests from Prior Meeting

There were no Board member requests from the prior meeting.

B. Monthly Snapshot

Executive Director Villa briefed the Board.

C. 2024 Draft Board Meeting Calendar – *Decision*

Executive Director Villa briefed the Board.

Chairman Prothero asked for a motion to approve the 2024 Board meeting calendar as drafted. Member Peterson motioned for approval. Member Trost seconded the motion, which passed unanimously.

D. 2024/2025 Draft Work Plan – *Decision*

Executive Director Villa briefed the Board.

Chairman Prothero asked for a motion to approve the 2024-2025 Work Plan as drafted. Member Younkin motioned for approval. Member Iverson seconded the motion, which passed unanimously.

E. Securities Lending

Executive Director Villa briefed the Board.

F. Montana Property Acquisition – *Decision*

Executive Director Villa briefed the Board.

Chairman Prothero asked for a motion to approve staff to pursue the Montana Property Acquisition as presented. Member Iverson motioned for approval. Member Trost seconded the motion, which passed unanimously.

G. 2025 Legislative Executive Planning Process – *Decision*

Executive Director Villa briefed the Board.

Chairman Prothero asked for a motion to approve staff to submit a request through the Executive Planning Process managed by the Governor's Budget Office legislation the Board would like to pursue. Member Iverson motioned for approval. Member Peterson seconded the motion, which passed unanimously.

Tab 3 INVESTMENT POLICY STATEMENTS (38:54)

John Romasko briefed the Board and answered questions.

Chairman Prothero asked for a motion to approve new policy 40.952 Debit and Liability Free Account Investment Policy Statement and the update to policy 40.950 Montana Housing Infrastructure Revolving Loan Fund. Member Meredith motioned for approval. Member Younkin seconded the motion, which passed unanimously.

Chairman Prothero asked for a motion to approve supporting change made to policy 40.900 Separately Managed Accounts. Member Meredith motioned for approval. Member Peterson seconded the motion, which passed unanimously.

Tab 4 ASSET ALLOCATION RANGE RECOMMENDATION (44:08)

Jon Putnam and Becky Gratsinger briefed the Board and answered questions.

Tab 5 PRIVATE INVESTMENTS ASSET CLASS REVIEW (01:18:20)

Thomas Winkler and Ian Horwood briefed the Board and answered questions.

RECAP OF STAFF TO DO LIST AND ADJOURNMENT (02:24:19)

Chairman Prothero adjourned the meeting at 3:38 p.m.

MONTANA BOARD OF INVESTMENTS

APPROVE: _____
Jack Prothero, Chair

ATTEST: _____
Dan Villa, Executive Director

DATE: _____

MONTANA

BOARD OF INVESTMENTS

To: Members of the Board
From: Dan Villa, Executive Director
Date: December 12, 2023
Re: Executive Director Report

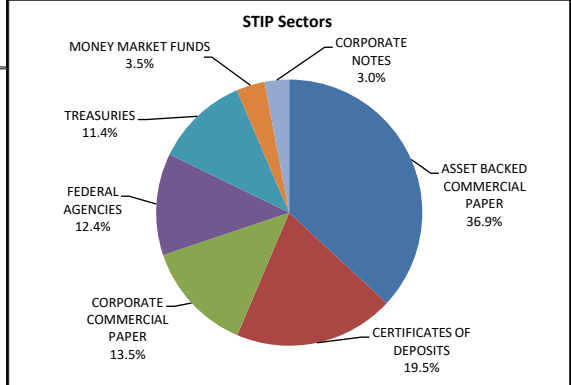
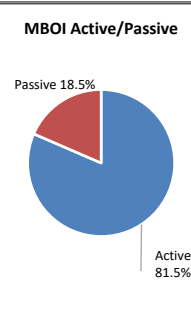
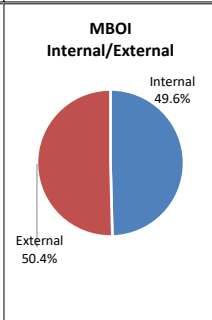
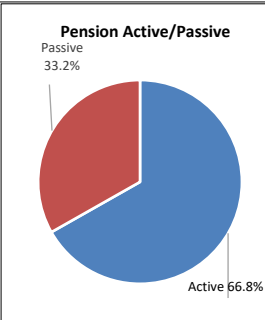
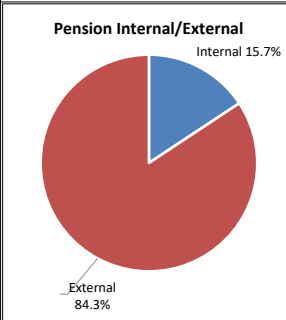
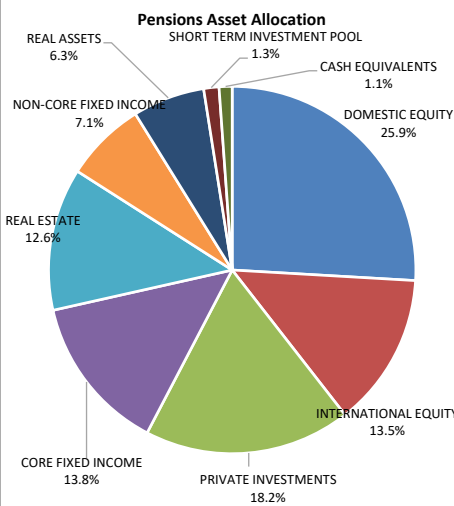
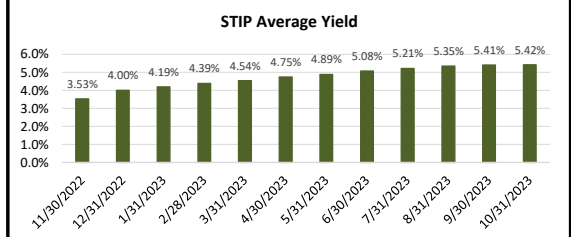
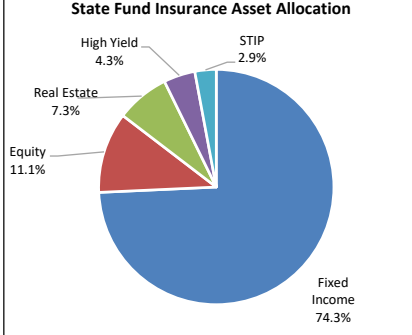
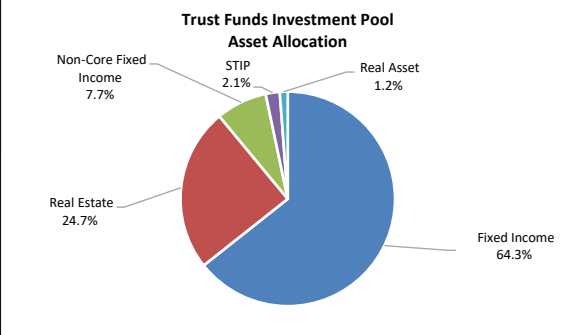
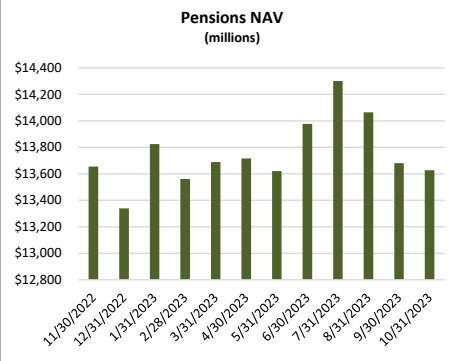
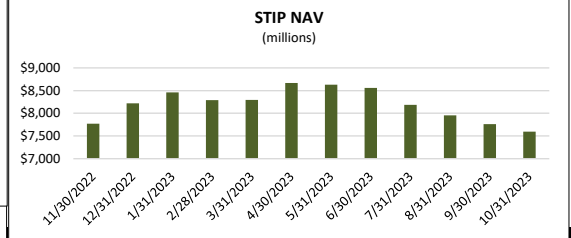
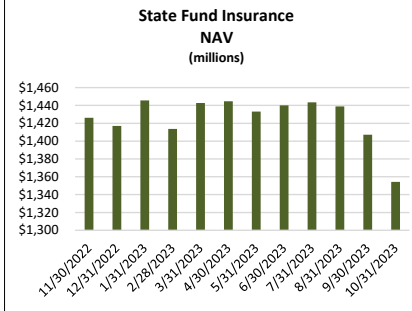
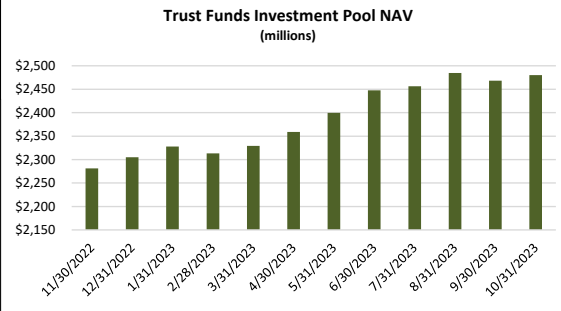
- A. Member Requests from Prior Meeting
- B. Monthly Snapshot – *attached*
- C. LPAC Reporting – *attached*
- D. Securities Litigation Annual Review - *attached*
- E. Resolution 217 Authorization of Investment Vendors - *attached*

MBOI Snapshot
Asset Management View
10/31/2023 Unaudited
Assets Under Management \$25,381,553,706



Pensions	NAV	%	TFIP	NAV	%	State Fund	NAV	%	Other Fixed Income & Pending	\$	(107,157,470)
DOMESTIC EQUITY	\$3,531,592,380	25.92%	Fixed Income	\$ 1,882,551,168	64.34%	Fixed Income	\$ 1,005,843,266	74.28%			
INTERNATIONAL EQUITY	\$1,845,899,457	13.55%	Real Estate	\$ 721,299,146	24.65%	Equity	\$ 150,534,859	11.12%			
PRIVATE INVESTMENTS	\$2,480,188,714	18.20%	Non-Core Fixed Income	\$ 225,173,604	7.70%	Real Estate	\$ 99,483,755	7.35%			
CORE FIXED INCOME	\$1,883,098,865	13.82%	STIP	\$ 61,965,226	2.12%	High Yield	\$ 58,649,809	4.33%			
REAL ESTATE	\$1,711,203,408	12.56%	Real Asset	\$ 34,833,928	1.19%	STIP	\$ 39,681,132	2.93%			
NON-CORE FIXED INCOME	\$970,515,439	7.12%	Total	\$ 2,925,823,072	100.00%	State Fund Total	\$ 1,354,192,821	100.00%			
REAL ASSETS	\$864,994,005	6.35%									
SHORT TERM INVESTMENT POOL	\$183,212,241	1.34%									
CASH EQUIVALENTS	\$155,839,836	1.14%									
Pensions Total	\$13,626,544,344	100.00%									

STIP*	NAV	%
ASSET BACKED COMMERCIAL PAPER	\$2,799,381,184	36.92%
CERTIFICATES OF DEPOSITS	\$1,475,890,506	19.47%
CORPORATE COMMERCIAL PAPER	\$1,020,240,055	13.46%
FEDERAL AGENCIES	\$938,077,350	12.37%
TREASURIES	\$860,591,295	11.35%
MONEY MARKET FUNDS	\$262,405,123	3.46%
CORPORATE NOTES	\$225,565,426	2.97%
STIP Total	\$7,582,150,939	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 \$202,340,249 is attributable the portion of STIP held within CAPP (\$154,302,083) and TFIP (\$61,714,757) as a cash investment and distributions held over month end (\$13,676,591). Such value is represented in the NAV for the CAPP and STIP columns.

MBOI Snapshot
Asset Ownership View
10/31/2023 Unaudited



	CAPP Holdings	CAPP %	STIP Holdings*	STIP %	TFIP Holdings	TFIP%	Other Holdings ¹	Other %	Total Net Asset Value
Total Funds \$(000)	\$13,443,332	52.96%	\$7,379,811	29.08%	\$2,925,822	11.53%	\$1,632,589	6.43%	\$25,381,554
Pensions	CAPP	%	STIP	%	TFIP	%	Other	%	Total
FIREFIGHTERS RETIREMENT	\$ 609,125	98.98%	\$ 6,277	1.02%	\$ -	0.00%	\$ -	0.00%	\$ 615,401
GAME WARDENS RETIREMENT	\$ 306,763	98.84%	\$ 3,613	1.16%	\$ -	0.00%	\$ -	0.00%	\$ 310,376
HIGHWAY PATROL RETIREMENT	\$ 201,132	98.86%	\$ 2,329	1.14%	\$ -	0.00%	\$ -	0.00%	\$ 203,461
JUDGES RETIREMENT	\$ 123,484	98.98%	\$ 1,270	1.02%	\$ -	0.00%	\$ -	0.00%	\$ 124,755
POLICE OFFICERS RETIREMENT	\$ 552,089	98.99%	\$ 5,627	1.01%	\$ -	0.00%	\$ -	0.00%	\$ 557,716
PUBLIC EMPLOYEES RETIREMENT	\$ 6,503,109	98.91%	\$ 71,810	1.09%	\$ -	0.00%	\$ -	0.00%	\$ 6,574,919
SHERIFFS RETIREMENT	\$ 494,776	98.89%	\$ 5,533	1.11%	\$ -	0.00%	\$ -	0.00%	\$ 500,309
TEACHERS RETIREMENT	\$ 4,605,705	98.16%	\$ 86,277	1.84%	\$ -	0.00%	\$ -	0.00%	\$ 4,691,983
VOL FIREFIGHTERS RETIREMENT	\$ 47,149	99.00%	\$ 476	1.00%	\$ -	0.00%	\$ -	0.00%	\$ 47,625
Total	\$ 13,443,332	98.66%	\$ 183,212	1.34%	\$ -	0.00%	\$ -	0.00%	\$ 13,626,544
Trust Funds	CAPP	%	STIP	%	TFIP	%	Other	%	Total
ABANDONED MINE RECLAMATION	\$ -	0.00%	\$ 7,646	99.54%	\$ -	0.00%	\$ 35	0.46%	\$ 7,681
BARKER HUGHESVILLE ST RESPONSE	\$ -	0.00%	\$ 1,347	15.33%	\$ 7,411	84.31%	\$ 31	0.36%	\$ 8,790
BELT WATER TREATMENT PLANT	\$ -	0.00%	\$ 4,628	17.75%	\$ 21,347	81.89%	\$ 94	0.36%	\$ 26,069
BUTTE AREA ONE REST	\$ -	0.00%	\$ 1,061	18.02%	\$ 4,809	81.62%	\$ 21	0.36%	\$ 5,892
BUTTE AREA REDEVELOP AUTHORITY	\$ -	0.00%	\$ 1,253	10.03%	\$ 11,192	89.62%	\$ 44	0.35%	\$ 12,489
CLARK FORK REST	\$ -	0.00%	\$ 3,737	15.29%	\$ 20,625	84.36%	\$ 88	0.36%	\$ 24,450
CLARK FORK SITE RESP ACTION	\$ -	0.00%	\$ 3,241	6.73%	\$ 44,731	92.91%	\$ 170	0.35%	\$ 48,141
COAL TAX PARK TRUST FUND	\$ -	0.00%	\$ 1,608	5.54%	\$ 27,340	94.12%	\$ 101	0.35%	\$ 29,048
CULTURAL TRUST FUND	\$ -	0.00%	\$ 555	3.52%	\$ 15,157	96.13%	\$ 54	0.34%	\$ 15,767
DEBT AND LIABILITY FREE ACCOUNT	\$ -	0.00%	\$ 145,480	99.90%	\$ -	0.00%	\$ 151	0.10%	\$ 145,631
E HELENA GREENWAY TRAIL MAINT	\$ -	0.00%	\$ 277	29.53%	\$ 656	70.10%	\$ 4	0.37%	\$ 936
EAST HELENA COMPENSATION FUND	\$ -	0.00%	\$ 1,438	64.66%	\$ 777	34.92%	\$ 9	0.42%	\$ 2,223
ENDOWMENT FOR CHILDREN	\$ -	0.00%	\$ 82	6.05%	\$ 1,270	93.60%	\$ 5	0.35%	\$ 1,357
FLYING J CE CRA FACILITIES FUND	\$ -	0.00%	\$ 400	15.68%	\$ 2,142	83.97%	\$ 9	0.36%	\$ 2,551
FWP MITIGATION TRUST	\$ -	0.00%	\$ 3,176	30.95%	\$ 6,580	64.13%	\$ 505	4.92%	\$ 10,261
HAROLD HAMM ENDOWMENT	\$ -	0.00%	\$ 7	14.14%	\$ 42	85.50%	\$ 0	0.36%	\$ 49
INVASIVE SPECIES TRUST FUND	\$ -	0.00%	\$ 63	2.22%	\$ 2,748	97.44%	\$ 10	0.34%	\$ 2,820
LIBBY ASBESTOS SITE STATE COST	\$ -	0.00%	\$ 893	18.57%	\$ 3,901	81.07%	\$ 17	0.36%	\$ 4,811
LUTTRELL PIT - OPER & MAINT	\$ -	0.00%	\$ 259	13.68%	\$ 1,630	85.97%	\$ 7	0.36%	\$ 1,896
MONTANA HISTORICAL SOCIETY	\$ -	0.00%	\$ 919	23.17%	\$ 3,031	76.46%	\$ 15	0.37%	\$ 3,965
MONTANA STATE LIBRARY TRUST	\$ -	0.00%	\$ 926	65.11%	\$ 490	34.46%	\$ 6	0.42%	\$ 1,422
MT HOUSING INFRASTRUCTURE	\$ -	0.00%	\$ 105,590	99.16%	\$ -	0.00%	\$ 898	0.84%	\$ 106,488
MT POLE SUPERFUND SETTLEMENT	\$ -	0.00%	\$ 4,052	21.64%	\$ 14,601	77.99%	\$ 68	0.37%	\$ 18,721
NOXIOUS WEED MGMT TRUST FUND	\$ -	0.00%	\$ -	0.00%	\$ 9,861	99.66%	\$ 34	0.34%	\$ 9,894
OLDER MONTANANS TRUST FUND	\$ -	0.00%	\$ 16	5.06%	\$ 291	94.59%	\$ 1	0.35%	\$ 308
POTTER TRUST FUND	\$ -	0.00%	\$ 33	13.92%	\$ 206	85.72%	\$ 1	0.36%	\$ 240
PUBLIC SCHOOL TRUST	\$ -	0.00%	\$ 4,970	0.58%	\$ 849,398	99.08%	\$ 2,943	0.34%	\$ 857,311
REAL PROPERTY TRUST FUND	\$ -	0.00%	\$ 261	3.83%	\$ 6,519	95.82%	\$ 23	0.34%	\$ 6,804
RESOURCE INDEMNITY TRUST FUND	\$ -	0.00%	\$ 23	0.02%	\$ 101,221	99.64%	\$ 346	0.34%	\$ 101,590
SMELTER HILL UPLANDS REST FUND	\$ -	0.00%	\$ 1,351	16.24%	\$ 6,936	83.40%	\$ 30	0.36%	\$ 8,317
STREAMSIDE TAILINGS OU FUND	\$ -	0.00%	\$ 2,058	12.89%	\$ 13,853	86.75%	\$ 57	0.36%	\$ 15,968
TOBACCO TRUST FUND	\$ -	0.00%	\$ 3,568	1.26%	\$ 279,609	98.40%	\$ 971	0.34%	\$ 284,148
UPPER BLACKFT RESP ACT & REST	\$ -	0.00%	\$ 978	92.00%	\$ 80	7.55%	\$ 5	0.45%	\$ 1,063
UPPER CLRK FK RIVER BASIN RES	\$ -	0.00%	\$ 398	1.90%	\$ 20,421	97.75%	\$ 71	0.34%	\$ 20,890
UPPER CLRK FK RIVER BASIN REST	\$ -	0.00%	\$ 2,708	4.12%	\$ 62,795	95.54%	\$ 227	0.34%	\$ 65,730
WILDLIFE HABITAT TRUST FUND	\$ -	0.00%	\$ 912	5.90%	\$ 14,485	93.75%	\$ 54	0.35%	\$ 15,450
WORK FORCE HOUSING	\$ -	0.00%	\$ 12,000	99.60%	\$ -	0.00%	\$ 48	0.40%	\$ 12,048
YELLOWSTONE PIPELINE CLEANUPFD	\$ -	0.00%	\$ 1,866	32.23%	\$ 3,901	67.39%	\$ 22	0.38%	\$ 5,788
ZORTMAN/LANDUSKY LT WATER	\$ -	0.00%	\$ 16,495	99.54%	\$ -	0.00%	\$ 76	0.46%	\$ 16,571
ZORTMANLANDUSKY LT WATER TRUST	\$ -	0.00%	\$ 21,453	99.54%	\$ -	0.00%	\$ 99	0.46%	\$ 21,552
Total	\$ -	0.00%	\$ 357,727	18.58%	\$ 1,560,057	81.04%	\$ 7,348	0.38%	\$ 1,925,131
Coal Severance	CAPP	%	STIP	%	TFIP	%	Other	%	Total
BIG SKY ECONOMIC DEV FUND	\$ -	0.00%	\$ 2,344	1.77%	\$ 130,002	97.89%	\$ 455	0.34%	\$ 132,800
COAL SEVERANCE TAX PERM FUND	\$ -	0.00%	\$ 5,528	1.07%	\$ 329,001	63.57%	\$ 183,028	35.36%	\$ 517,557
MONTANA COAL ENDOWMENT FUND	\$ -	0.00%	\$ 3,069	1.18%	\$ 255,956	98.48%	\$ 888	0.34%	\$ 259,913
SCHOOL FACILITIES FUND	\$ -	0.00%	\$ 7,147	3.59%	\$ 191,136	96.06%	\$ 690	0.35%	\$ 198,973
MT COAL ENDOWMENT REGIONAL WAT	\$ -	0.00%	\$ 1,192	1.32%	\$ 88,588	98.34%	\$ 308	0.34%	\$ 90,087
Total	\$ -	0.00%	\$ 19,280	1.61%	\$ 994,682	82.94%	\$ 185,368	15.46%	\$ 1,199,331
Operating Funds	CAPP	%	STIP	%	TFIP	%	Other	%	Total
FWP GENERAL LICENSE ACCOUNT	\$ -	0.00%	\$ 53,351	62.58%	\$ 28,519	33.45%	\$ 3,388	3.97%	\$ 85,258
MONTANA LOCAL GOVERNMENTS	\$ -	0.00%	\$ 1,450,565	99.52%	\$ -	0.00%	\$ 7,057	0.48%	\$ 1,457,622
MONTANA STATE AGENCIES	\$ -	0.00%	\$ 2,714,895	99.52%	\$ -	0.00%	\$ 13,085	0.48%	\$ 2,727,980
MONTANA STATE UNIVERSITY	\$ -	0.00%	\$ 258,523	82.20%	\$ 54,573	17.35%	\$ 1,416	0.45%	\$ 314,512
MONTANA TECH	\$ -	0.00%	\$ 8,296	94.64%	\$ 430	4.91%	\$ 40	0.45%	\$ 8,765
STATE TREASURER'S FUND	\$ -	0.00%	\$ 1,974,206	87.27%	\$ 206,127	9.11%	\$ 81,744	3.61%	\$ 2,262,078
UNIVERSITY OF MONTANA	\$ -	0.00%	\$ 76,358	69.82%	\$ 27,781	25.40%	\$ 5,232	4.78%	\$ 109,372
Total	\$ -	0.00%	\$ 6,536,194	93.84%	\$ 317,430	4.56%	\$ 111,963	1.61%	\$ 6,965,587
Insurance Reserves	CAPP	%	STIP	%	TFIP	%	Other	%	Total
HAIL INSURANCE INVESTMENTS	\$ -	0.00%	\$ 3,036	51.77%	\$ 2,805	47.83%	\$ 24	0.40%	\$ 5,864
MONTANA STATE FUND	\$ -	0.00%	\$ 39,483	2.92%	\$ -	0.00%	\$ 1,314,710	97.08%	\$ 1,354,193
MUS GROUP INSURANCE	\$ -	0.00%	\$ 89,085	86.13%	\$ 12,060	11.66%	\$ 2,282	2.21%	\$ 103,427
MUS WORKERS COMPENSATION	\$ -	0.00%	\$ 9,612	71.49%	\$ 3,777	28.09%	\$ 57	0.42%	\$ 13,446
PERS-DCRP LT DISABILITY PLAN	\$ -	0.00%	\$ 540	6.49%	\$ -	0.00%	\$ 7,785	93.51%	\$ 8,325
STATE EMPLOYEE GROUP BENEFITS	\$ -	0.00%	\$ 140,342	78.67%	\$ 35,011	19.63%	\$ 3,048	1.71%	\$ 178,402
SUBSEQUENT INJURY TRUST FUND	\$ -	0.00%	\$ 1,300	99.63%	\$ -	0.00%	\$ 5	0.37%	\$ 1,304
Total	\$ -	0.00%	\$ 283,397	17.02%	\$ 53,653	3.22%	\$ 1,327,911	79.76%	\$ 1,664,961

Account	# Accounts	Total Market Value	%
Total State	359	6,124,926,894	80.8%
Total Local	188	1,457,224,045	19.2%
Total STIP	547	\$ 7,582,150,939	100.0%
STIP Reserve		\$ 74,325,968	
Prior month average STIP Yield		5.4235%	

Loans Outstanding	\$ 69,789,767
Bonds Outstanding	\$ 68,706,869
Number of Borrowers	131
Loan Rate	5.75%

MONTANA

BOARD OF INVESTMENTS

TO: Members of the Board
FROM: Doug Hill, Director of In-State Loan Programs
DATE: December 12, 2023
RE: Commercial and Residential Loan Portfolios

The Participation Loan Program reflected an outstanding balance, as of October 31, 2023, of \$108,580,975 and represents 46 loans with a yield of 2.69%. There are currently two loan reservations that total \$7,127,463 and four committed for \$5,355,389. There are no past due loans.

The Infrastructure Loan Program reflected an outstanding balance, as of October 31, 2023, of \$8,653,177 and represents 7 loans with a yield of 4.05%. There is one loan reservation for \$2,733,224. There are no past due loans.

The Intermediary Relending Program reflected an outstanding balance, as of October 31, 2023, of \$5,590,948 and represents 39 loans with a yield of 2.00%. There is one loan committed that totals \$250,000. There are no past due loans.

The Science and Tech portfolio reflected an outstanding balance, as of October 31, 2023, of \$7,706,892 and represents 2 loans with a yield of 2.74%. There are no past due loans.

The Montana Facility Finance Authority portfolio reflected an outstanding balance, as of October 31, 2023, of \$9,643,541 and represents 14 loans with a yield of 2.57%. There is on one loan reservation for \$1,500,000. There are no past due loans.

The Veterans Home Loan Mortgage portfolio reflected an outstanding balance, as of October 20, 2023, of \$48,665,709 and represents 278 loans with a yield of 1.93%. There are two reservations totaling \$695,000. There are seven loans over 90 days past due totaling \$1,206,090 or 2.48% of the portfolio.

The Multifamily Coal Trust Homes Program reflected an outstanding balance, as of November 2, 2023, of \$12,104,641 and represents six loans with a yield of 2.32%. There is one reservations totaling \$1,932,000. There are no past due loans.

The Residential loan portfolio reflected an outstanding balance, as of October 20, 2023, of \$1,209,809 and represents 37 loans with a yield of 6.30%. There are no outstanding reservations. There are two loans over 90 days past due totaling \$49,801 or 4.12% of the portfolio. The loans have FHA guarantees.

The Montana Down Payment Assistance Program reflected an outstanding balance, as of November 1, 2023, of \$46,066,458 and represents 87 loans. There are 5 loans committed that total \$2,512,500.

MONTANA

BOARD OF INVESTMENTS

INTERCAP

Q1

Activity Summary

Bond Series 2022:

Outstanding	68,706,869
Available for Drawdown	51,293,131

Loans:

Outstanding	68,055,398
Pending Commitments	23,971,820

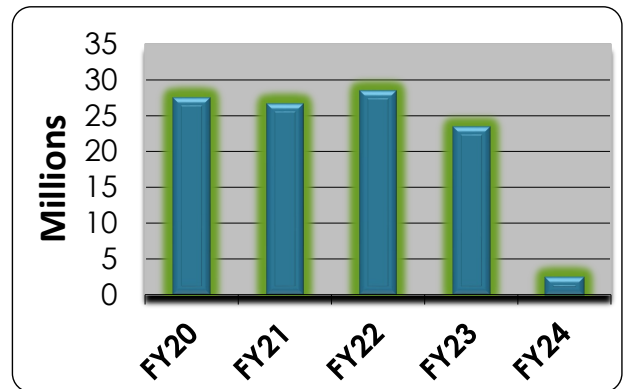
Total Committed 704,969,334

Total Funded 680,997,514

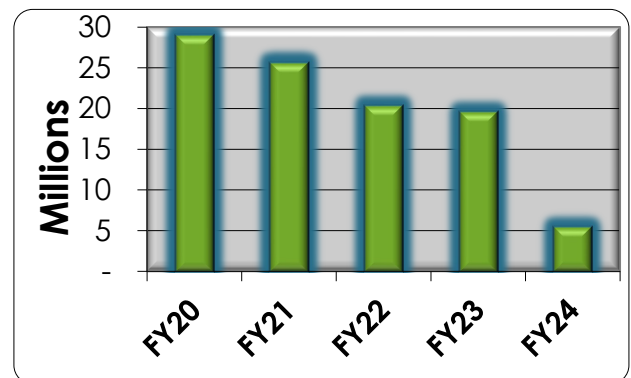
FY2024

Month	Commitments	Fundings
July-23	916,059	1,489,398
August	325,000	2,580,543
September	1,079,530	1,400,673
October		
November		
December		
January		
February		
March		
April		
May		
June-24		
To Date	2,320,589	5,470,614

Commitments FY20-FY24



Fundings FY20-FY24



Note: Commitments include withdrawn and expired loans.

Variable Loan Rate History February 16, 2015 - February 15, 2024

February 16, 2016 - February 15, 2017	1.55%	February 16, 2020 - February 15, 2021	2.50%*
February 16, 2017 - February 15, 2018	2.50%	February 16, 2021 - February 15, 2022	1.65%
February 16, 2018 - February 15, 2019	3.15%	February 16, 2022 - February 15, 2023	1.55%**
February 16, 2019 - February 15, 2020	3.37%	February 16, 2023 - February 15, 2024	6.00%***

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

**1.50% for borrowers set up with Autopay.

***5.75% for borrowers set up with Autopay.

MONTANA

BOARD OF INVESTMENTS

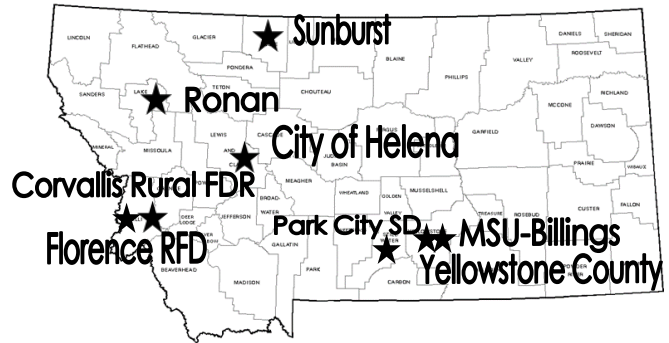
INTERCAP

TO: Members of the Board

FROM: Louise Welsh,
Sr. Bond Program Officer

DATE: December 12, 2023

RE: INTERCAP Staff Approved Loans Committed – Staff approved the following loans from July 1, 2023, to September 30, 2023.



Borrower:	Yellowstone County
Purpose:	Old Hardin Road Sidewalk Phase 2
Staff Approval Date:	July 7, 2023
Board Loan Amount:	\$466,059
Other Funding Sources:	\$ 0
Total Project Cost:	\$466,059
Term:	10

Borrower:	MSU-Billings
Purpose:	Rimrock Hall Elevator Project
Staff Approval Date:	July 27, 2023
Board Loan Amount:	\$450,000
Other Funding Sources:	\$ 0
Total Project Cost:	\$450,000
Term:	15

Borrower:	Corvallis Rural Fire District
Purpose:	Two fire apparatuses
Staff Approval Date:	August 15, 2023
Board Loan Amount:	\$325,000
Other Funding Sources:	\$ 45,000
Total Project Cost:	\$370,000
Term:	7

Borrower:	Sunburst
Purpose:	Public works vehicle
Staff Approval Date:	September 20, 2023
Board Loan Amount:	\$44,530
Other Funding Sources:	\$ 0
Total Project Cost:	\$44,530
Term:	5

Borrower:	City of Helena
Purpose:	Golf Carts- Bill Roberts
Staff Approval Date:	September 25, 2023
Board Loan Amount:	\$190,000
Other Funding Sources:	\$ 0
Total Project Cost:	\$190,000
Term:	10

Borrower:	Florence Rural Fire District
Purpose:	Fire apparatus
Staff Approval Date:	September 28, 2023
Board Loan Amount:	\$400,000
Other Funding Sources:	\$ 0
Total Project Cost:	\$400,000
Term:	8

Borrower:	Ronan
Purpose:	Police interceptors and equipment
Staff Approval Date:	September 28, 2023
Board Loan Amount:	\$95,000
Other Funding Sources:	\$ 0
Total Project Cost:	\$95,000
Term:	6

Borrower:	Park City School District
Purpose:	Vo-Ag building renovation
Staff Approval Date:	September 28, 2023
Board Loan Amount:	\$350,000
Other Funding Sources:	\$ 80,000
Total Project Cost:	\$430,000
Term:	5

MONTANA

BOARD OF INVESTMENTS

TO: Members of the Board
FROM: Jon Putnam, Chief Investment Officer
John Romasko, Director of Fixed Income
DATE: December 12, 2023
RE: Proposed Changes to Existing Investment Policy Statements

A summary of the proposed changes to the Investment Policy Statements is below. Redline changes of the current policies are included with this memo.

Montana History and Civics Endowment ***New Separately Managed Account***

- This account is part of the Montana Historical Society relationship. The only change to the current investment policy guideline is including this new fund. The Montana History and Civics Endowment is an account that contains both tax advantaged and non-tax advantaged funds. BOI will only manage the non-tax advantaged funds.

STIP Investment Policy Statement ***Proposed Changes***

- We recommend allowing securities lending in the STIP pool. The exclusion or inclusion of securities will be managed by staff. At this time, Treasury Bills are the only securities that will be available for securities lending. Under current lending conditions, this change is estimated to add approximately \$900K of annual revenue.

MONTANA

BOARD OF INVESTMENTS

BOARD ADOPTED POLICY

POLICY NUMBER: 40.926

TITLE: Investment Objectives and Guidelines
Montana Historical Society Trust Funds

EFFECTIVE DATE: ~~November 30, 2021~~ TBD

SUPERSEDES: ~~April 20, 2021~~
December 12, 2023

BOARD ADOPTION: November 30, 2021

REVIEWED: December 12, 2023

I. Introduction

- A. The purpose of this policy is to provide a framework for the Montana Historical Society Trust Funds investments under the guidance of the Board.
- B. The policy and guidelines apply to the accounts listed below:

MHS Education	MU9F
MHS Stewart Trust	MU9G
MHS Acquisitions Trust	MU9H
MHS Nygard Family Endowment	MU9I
MHS James Bradley Memorial Fund	MU9J
MHS Thomas Teakle Trust Fund	MU9L
MHS Merritt Wheeler Memorial Fund	MU9M
MHS Sobotka Memorial Trust	MU9N
MHS Charles Bair Trust	MU9O
MHS Churchill Trust	MU9P
MHS Harriet E Miller Trust	MU9Q
MHS Haynes Collection Trust	MU9R
MHS Ronald Schmid Trust	MU9S
MHS Senate Art	MU9U
MHS Sobotka Trust	MU9V
MHS Women's Mural	MU9W
MHS General Trust	MU9X
Montana Historical Society	MU9Y

[Montana History and Civics Endowment MUVE](#)

- C. The various accounts are long-term in nature. The long-term nature of the accounts is established by legislative intent, donor intent or MHS Management's intent.

II. Purpose

- A. The purpose of this policy is to:

1. Establish the investment objectives and performance standards of the Montana Historical Society Trust Funds.
2. Provide diversified investment exposure within the guidelines in a prudent and cost-effective manner.

III. Investment Objective

A. Strategic

1. The objective of the Montana Historical Society Trust Funds portfolio is to attain above benchmark total return within the parameters of the Investment Guidelines set forth below with an emphasis on investment income and preservation of principal.

B. Performance

1. Success in achieving this objective will be measured by comparing the risk and return of the account to the Trust Funds Investment Pool (TFIP) benchmark and the Short-Term Investment Pool (STIP) benchmark, each weighted proportionately to the portfolio's holdings, over a five-year (5) moving average.

C. Time Horizon

1. Montana Historical Society Trust Funds are permanent accounts. The Board expects to meet or exceed all 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.

D. Investment Guidelines

1. The Board will have full discretion to manage the Montana Historical Society Trust Funds portfolio consistent with the investment guidelines established in this policy. 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.

E. Permitted Investments

1. The Montana Historical Society Trust Funds may only invest in the following:
 - a) TFIP; and
 - b) STIP or any cash vehicle at the Custodial Bank.

- F. 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 situations where the allocations were outside the limits and either inform the Board of the actions that were taken to return the portfolio back within guidelines or a plan to do so.

Authority: Montana Constitution, Article VIII, Section 13
 Section 2-15-1808, MCA
 Section 15-35-108, MCA
 Section 22-3-114, MCA
 Section 22-3-1003, MCA

Section 17-1-113, MCA
Sections 17-6-201 through 17-6-205, MCA

MONTANA

BOARD OF INVESTMENTS

BOARD ADOPTED POLICY

POLICY NUMBER: 40.600
 TITLE: Short-Term Investment Pool
 Investment Policy Statement

EFFECTIVE DATE: ~~May 24, 2023~~ TBD
 SUPERSEDES: ~~November 30, 2021~~
May 24, 2023

BOARD ADOPTION: November 30, 2021

REVIEWED: ~~May 24, 2023~~
December 12, 2023

I. Introduction

- A. This policy is effective upon adoption and supersedes all previous Investment Policies related to the investment management of the Short-Term Investment Pool (STIP).
- B. STIP is an investment program managed and administered under the direction of the Board as authorized by the Unified Investment Program.
- C. STIP invests the operating funds of the State of Montana, participating local government entity funds, and the liquidity requirements of the various pension and trust funds managed by the Board.
- D. STIP is a commingled pool for investment purposes.
 1. The use of a commingled pool allows for simplified investing and accounting, as well as broader investment diversification, and it provides opportunities for fee savings.

II. Purpose

- A. The purpose of this policy statement is to provide a strategic framework for STIP investments under the guidance of the Board.

III. Legal and Constitutional Authority

- A. The Montana Constitution, Article VIII, Section 13, requires that the Legislature provide for a Unified Investment Program for public funds.
- B. Section 17-6-201, MCA, in accordance with state law and the state constitution:
 1. Established the Unified Investment Program.
 2. Created the Board.
 3. Gave the Board sole authority to invest state funds, including STIP.
- C. The Unified Investment program for public funds must be administered by the Board in accordance with the "prudent expert principle," defined 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.

Adopted: November 30, 2021

Revised: ~~May 24, 2023~~ TBD

Reviewed: ~~May 24, 2023~~ December 12, 2023

- D. The Board created STIP to allow qualifying funds, per sections 17- 6-201, 202, and 204, MCA to participate in a diversified pool.
 - 1. State agencies with accounts that retain their interest earnings are legally required to invest in STIP.
 - 2. Local governments may voluntarily participate in the STIP.
- E. The Board, as the investment fiduciary, is responsible for establishing the investment parameters for the STIP.
- F. STIP is not registered with the SEC as an investment company and therefore is not required to abide by the SEC's rule 2a7 of the Investment Company Act of 1940.
- G. STIP has a defined set of investment objectives and investment guidelines, including permitted investments, which are detailed in this policy statement.

IV. Financial Reporting

- A. The STIP financial statements are included in the Board's Consolidated Unified Investment Program financial statements, which are audited by the Montana Legislative Auditor.
- B. On October 6, 2015, the Board approved that for financial reporting purposes the STIP portfolio will be reported on a Net Asset Value basis versus amortized cost.

V. Strategic Investment Objectives

- A. The Board's objective for STIP is to achieve a high level of investment income that is compatible with the preservation of principal, providing STIP participants with liquidity with one (1) day notification, and the prudent investment practices of the Board.
- B. No Guaranteed Return
 - 1. There is no minimum or maximum amount of interest rate or any guaranteed rate of return on STIP shares, or funds invested in STIP shares.
- C. No Warranty
 - 1. The Board makes no warranty that funds will be immediately available in the event of any failure of a third party or that STIP participants will not suffer losses due to acts of God, or other calamities, or other market dislocations or interruptions.
- D. STIP Not Insured Against Loss
 - 1. STIP is NOT FDIC insured or otherwise insured or guaranteed by the federal government, the State of Montana, the Board, or any other entity against investment losses.
- E. Reserve Fund
 - 1. This Policy requires maintenance of a reserve fund to offset possible losses.
 - a) STIP interest earnings may be used to fund this reserve before the net earnings are distributed to the STIP Participants.
 - b) The reserves may not be adequate to cover investment losses.

VI. Reserve

- A. The STIP will maintain a reserve account.
- B. The reserve will be available to offset realized gains or losses.
- C. Additionally, the reserve will be available to offset unrealized gains or losses, or to limit fluctuations in the net asset value (NAV), to the extent deemed prudent by Staff.

D. A deduction from earnings will occur while the amount of the reserve is below one and fifteen hundredths' percent (1.15%) of the NAV.

1. The level of deduction will be calculated based on the deemed best balance between participants' need for current earnings and the increase in safety from building the reserve.
 - a) When the reserve is between one-half percent (0.50%) and one and fifteen hundredths' percent (1.15%) of the NAV the deduction from earnings will be an amount, including recoveries, sufficient to reach the target within three (3) years.
 - b) Should the reserve fall below one-half percent (0.50%) of the NAV, staff will evaluate the amount of deduction appropriate to return the reserve to one-half percent (0.50%) and make recommendations to that effect to the Board.

E. Any use of the reserve will be reported to the Board.

VII. Time Horizon

- A. The STIP investment portfolio shall be managed with the goal of attaining its objectives throughout market and economic cycles, after giving prudent consideration to the investment risk constraints (described as part of the Investment Guidelines in Policy 40.601 of Governance Manual) and the liquidity needs of the participants.
- B. 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.

VIII. Performance Measurement

- A. Investment performance is measured by two (2) integrated long-term return objectives:
 1. The investment policy benchmark.
 - a) The investment policy benchmark represents the return that would be achieved if the Pool implemented a passively managed portfolio. Deviations from the policy benchmark measure the contribution of active investment management throughout the fund and investment implementation generally.
 2. STIP's total performance, before all fees, to appropriate peer universes.
 - a) While the Board seeks to rank favorably compared to peers, the Board recognizes that other short-term investment funds may have investment objectives and risk tolerances that differ substantially from STIP.

IX. Roles and Responsibilities

A. Board of Investments

1. The Board is responsible for approving the IPS and has the authority to manage the Short-Term Investment Pool (STIP) as it considers prudent, subject to such limitations as contained in law and the Constitution.
2. The Board reviews this document periodically and as needed, approves any changes to the policy.
3. 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

1. The Executive Director is empowered by the Board to sign any and all documents required to conduct Board business.
 - a) Unless there are specific written policies or instructions from the Board to the contrary.

2. The Executive Director and the CIO are authorized jointly to contract for investment manager services and if deemed appropriate, terminate them.
3. The Executive Director is responsible for establishing the financial reporting procedures as well as collection and reporting of all income.

C. Chief Investment Officer

1. 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.
2. The CIO, with the support of other staff, is responsible for recommending investment policy changes for Board approval.

D. Staff

1. The investment staff is responsible for, but not limited to, the following:
 - a) Managing day-to-day STIP investment operations;
 - b) Investing STIP assets and monitoring compliance in accordance with this Policy;
 - c) Reporting to the Board the STIP investment results and investment characteristics at the Quarterly Board meetings;
 - d) Reporting any deviations from this Investment Policy to the Board; and
 - e) Reporting any deviations from the IPS Policy to the Board.

E. Investment Consultant

1. The investment consultant assists the CIO and Staff with policy recommendations and provides advice to the Board.
2. The investment consultant shall provide assistance to Staff as requested in conjunction with the management of the STIP.

X. Risk Management

A. Short-term investments held within STIP are exposed to a number of risks.

B. The objective will be to mitigate the inherent risks associated with these securities, primarily liquidity risk, credit risk, and interest rate risk.

C. Liquidity Risk

1. Based on the percentage of STIP Units Value usually necessary to meet the daily distribution requests of STIP participants, the liquidity needs for the STIP are generally low.
2. 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 STIP participants.
3. In order to improve liquidity and manage both the expected and unexpected STIP participants' need for cash, the STIP Investment Objectives and Guidelines (Policy 40.601) require certain percentages of the STIP Units Value to either be invested in cash, direct obligations of the U.S. government, or in securities that will have an effective maturity for specifically defined short periods or time (daily and weekly).

D. Credit Risk

1. Credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligation in making full and timely principal and interest payments.

2. The STIP will utilize credit ratings, issued by at least two of the nationally recognized statistical rating organizations (NRSRO), to assist in the monitoring and management of credit risk.
3. Securities of federal agencies without their own NRSRO rating will use the ratings of the United States government.
 - a) Approved List
 - (1) Purchases of securities other than U.S. government or U.S. Agency obligations are restricted to those which are pre-approved.
 - (2) The approved list shall be maintained by Staff with issuers added or removed from time to time depending on an analysis of their risk characteristics and suitability for use in the portfolio.
 - (a) At least two (2) investment staff must approve names on the list.
 - (3) One (1) of the investment staff should be part of the internally managed fixed income team and the other person from the Risk Management team.
 - (4) Issuers on the list shall be reviewed at least semi-annually for continued inclusion on the approved list.
 - (5) STIP will minimize credit risk by means of the following:
 - (a) Limiting Permissible investments to securities on the "Approved List".
 - (b) Pre-qualifying the financial institutions, broker/dealers, intermediaries, and advisers with whom STIP will conduct business.
 - (c) Diversifying the investment portfolio so that potential losses on individual securities will be minimized.
 - (d) STIP will maintain a reserve account.

E. Interest Rate Risk

1. The STIP portfolio will minimize the risk that the market value of the securities will deviate significantly from cost due to changes in the general level of interest rate by means of the following:
 - a) Structuring the investment portfolio so that securities mature to meet cash requirements for ongoing operations thereby normally avoiding the need to sell securities on the open market prior to maturity.
 - b) Maintaining a dollar-weighted average portfolio maturity of one-hundred twenty (120) days or less.
 - (1) For this purpose, the date to the next coupon reset date will be used for all floating or variable rate securities.
 - c) STIP will maintain a reserve account.

XI. Securities Lending

A. Section 17-1-113, MCA, authorizes the Board to lend securities held by the state.

1. The Board may lend its publicly traded securities held in the investment pools, through an agent, to other market participants in return for compensation.
2. Currently, through an explicit contract, State Street Bank and Trust, the state's custodial bank, manages the state's securities lending program.
 - a) The Board seeks to assess counterparty and reinvestment risk, associated with each aspect of its securities lending program.
 - b) The Board requires borrowers to maintain acceptable and adequate collateral per the terms

of the securities lending authorization agreement.

- c) 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.
- d) In addition to the strict collateral requirements imposed by the Board, the credit quality of approved borrowers is monitored continuously by the contractor.
- e) Staff or the investment manager may restrict a security from the loan program upon notification to State Street Bank.
- f) Staff will monitor the securities lending program, and the CIO will periodically report to the Board on the status of the program.
- g) The Board's participation in securities lending may change over time given Plan activity, market conditions and the agent agreement.
- h) STIP assets are currently ~~not~~ available for securities lending.

XII. Exercise of Shareholder Rights

A. Proxy Voting.

- 1. Per the Montana Constitution, Article VIII, Section 13 "no public funds shall be invested in private corporate capital stock" with the exception of public retirement system and state compensation insurance fund assets.
- 2. The Short-Term Investment Pool (STIP) does not participate in proxy voting.

B. Class Action Litigation

- 1. 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.
 - a) 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.
 - b) Accordingly, the Board maintains a detailed litigation policy, including process steps, outlined in Policy 10.250 of the Governance Manual.

XIII. Investment Policy Review

- A. As stated in the 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, cite 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 website for review by the public. The authority to approve IPS may not be delegated to staff."

Authority: Montana Constitution, Article VIII, Section 13
 Section 2-15-1808, MCA
 Section 17-1-113, MCA
 Sections 17-6-201 through 17-6-204 MCA

Adopted: November 30, 2021

Revised: ~~May 24, 2023~~ TBD

Reviewed: ~~May 24, 2023~~ December 12, 2023

Asset Allocation

Jon Putnam – Chief Investment Officer

Date: October 11, 2023

Key Considerations

- Asset Allocation is critical to the long-term success of the portfolios managed by BOI. Annual approval of the asset allocation is an essential task of the Board.
- Diversification of the portfolio protects against extreme outcomes. Investing is about taking risks but managing those risks.
- There is no asset allocation that is “right” for every plan. The expected return and potential risk changes over time.
- The recommended asset allocation should consider the funding objectives, the characteristics of the plan/account, and the opportunity set of investments.
- Actual results measured over shorter time frames will deviate from the long-term assumptions. This does not mean the long-term assumptions are wrong.

Asset Allocation Process

- Determine if there have been any changes in client objectives and constraints.
- Evaluate any long-term shifts in the global economic environment.
 - Review Capital Market Assumptions produced by RVK and other market participants.
- All senior investment staff submit proposed asset allocations.
- RVK calculates multiple scenarios using the Mean Variance Optimization (MVO) model.
 - Process of weighing risk versus return to determine the most efficient portfolio.
 - Limitations of MVO include:
 - Sensitive to changes in expected return, variance, and correlation of assets.
 - Constraints must be applied to avoid concentrated portfolios.
 - Assumes an efficient market with rational participants; tends to underestimate large, negative events.
- Qualitative judgment must be applied to the process.
- Asset allocation meeting in Portland with RVK to discuss views.

Net Cash Need

- Consideration of liquidity needs is a critical component of asset allocation. Avoid being a forced seller.

Public Employees' Retirement System (PERS)					
<i>Year End</i>	<i>Market Value of Assets (MVA)</i>	<i>Contributions</i>	<i>Benefit Payments</i>	<i>Net Cash Flow</i>	<i>Net Cash Flow as a Percent of MVA</i>
6/30/2015	\$5,061,058	\$230,067	\$336,885	-\$106,818	-2.11%
6/30/2016	\$5,032,807	\$230,471	\$359,842	-\$129,371	-2.57%
6/30/2017	\$5,472,519	\$233,063	\$384,700	-\$151,637	-2.77%
6/30/2018	\$5,779,994	\$243,385	\$415,158	-\$171,773	-2.97%
6/30/2019	\$5,903,306	\$243,613	\$441,225	-\$197,612	-3.35%
6/30/2020	\$5,845,474	\$252,009	\$468,018	-\$216,009	-3.70%
6/30/2021	\$7,210,027	\$267,771	\$496,392	-\$228,621	-3.17%
6/30/2022	\$6,648,899	\$266,891	\$532,117	-\$265,226	-3.99%
* PERS 2022 Actuarial Valuation Study					
Teachers' Retirement System (TRS)					
<i>Year End</i>	<i>Market Value of Assets (MVA)</i>	<i>Contributions</i>	<i>Benefit Payments</i>	<i>Net Cash Flow</i>	<i>Net Cash Flow as a Percent of MVA</i>
6/30/2015	\$3,708,386	\$202,896	\$311,079	-\$108,183	-2.92%
6/30/2016	\$3,656,831	\$205,287	\$328,216	-\$122,929	-3.36%
6/30/2017	\$3,950,705	\$210,521	\$343,449	-\$132,928	-3.36%
6/30/2018	\$4,148,324	\$214,833	\$361,026	-\$146,193	-3.52%
6/30/2019	\$4,220,286	\$220,949	\$376,738	-\$155,789	-3.69%
6/30/2020	\$4,167,840	\$228,563	\$393,336	-\$164,773	-3.95%
6/30/2021	\$5,116,849	\$231,360	\$412,724	-\$181,364	-3.54%
6/30/2022	\$4,724,449	\$243,409	\$428,240	-\$184,831	-3.91%
* TRS 2022 Actuarial Valuation Study					

Asset Allocation History (Pension)

	2019 Asset Allocation
Asset Classes	
Domestic Equity Range	(24% - 36%)
Approved Midpoint	30.0%
International Equity Range	(11% - 21%)
Approved Midpoint	16.0%
Private Investments Range	(11% - 17%)
Approved Midpoint	14.0%
Real Estate Range	(5% - 13%)
Approved Midpoint	9.0%
Real Assets Range	(1% - 7%)
Approved Midpoint	4.0%
Core Fixed Income Range	(15% - 25%)
Approved Midpoint	20.0%
Non-Core Fixed Income Range	(3% - 7%)
Approved Midpoint	5.0%
Cash Equivalents Range	(0% - 4%)
Approved Midpoint	2.0%
Total of Midpoints	100.0%

- Fixed Income asset classes were consolidated.
- High Yield asset class was renamed Non-Core Fixed Income. EMD, Preferred and Convertible strategies were added.
- Diversifying Strategies asset class was eliminated.
- The range for the Cash asset class was applied to the total pension.
- Midpoints were adopted for each asset class to improve transparency of staff decisions.

	2018 Asset Allocation
Asset Classes	
Domestic Equity Range	(24% - 38%)
Midpoint	31.0%
International Equity Range	(12% - 24%)
Midpoint	18.0%
Private Equity Range	(9% - 15%)
Midpoint	12.0%
Real Estate Range	(4% - 12%)
Midpoint	8.0%
Natural Resources Range	(0% - 6%)
Midpoint	3.0%
TIPS Range	(2% - 6%)
Midpoint	4.0%
Broad Fixed Income Range	(0% - 3%)
Midpoint	1.5%
US Treasury/Agency Fixed Income Range	(6% - 15%)
Midpoint	10.5%
Investment Grade Credit Range	(2% - 6%)
Midpoint	4.0%
Agency Mortgage-Backed Securities Range	(2% - 8%)
Midpoint	5.0%
High Yield Range	(2% - 6%)
Midpoint	4.0%
Diversifying Strategies Range	(0% - 4%)
Midpoint	2.0%
Cash Range	(0% - 5%)
Midpoint	2.5%
Total of Midpoints	105.5%

Asset Allocation History

(Pension)

	2022 Asset Allocation	2021 Asset Allocation	2020 Asset Allocation	2019 Asset Allocation
Asset Classes				
Domestic Equity Range	(23% -35%)	(24% - 36%)	(24% - 36%)	(24% - 36%)
Approved Midpoint	29.0%	30.0%	30.0%	30.0%
International Equity Range	(10% - 20%)	(12% - 22%)	(12% - 22%)	(11% - 21%)
Approved Midpoint	15.0%	17.0%	17.0%	16.0%
Private Investments Range	(12% - 20%)	(11% - 19%)	(11% - 19%)	(11% - 17%)
Approved Midpoint	16.0%	15.0%	15.0%	14.0%
Real Estate Range	(7% - 15%)	(6% - 14%)	(5% - 13%)	(5% - 13%)
Approved Midpoint	11.0%	10.0%	9.0%	9.0%
Real Assets Range	(3% - 9%)	(2% - 8%)	(2% - 8%)	(1% - 7%)
Approved Midpoint	6.0%	5.0%	5.0%	4.0%
Core Fixed Income Range	(9% - 19%)	(9% - 19%)	(10% - 20%)	(15% - 25%)
Approved Midpoint	14.0%	14.0%	15.0%	20.0%
Non-Core Fixed Income Range	(5% - 9%)	(5% - 9%)	(4% - 8%)	(3% - 7%)
Approved Midpoint	7.0%	7.0%	6.0%	5.0%
Cash Equivalents Range	(0% - 5%)	(0% - 5%)	(0% - 6%)	(0% - 4%)
Approved Midpoint	2.0%	2.0%	3.0%	2.0%
Total of Midpoints	100.0%	100.0%	100.0%	100.0%

* In 2020, renamed the Natural Resources Asset Class to Real Assets (Commodities, Infrastructure, TIPS)

Asset Allocation History

(TFIP and SFIP)

Trust Funds Investment Pool (TFIP)

	2022 Asset Allocation	2018 Asset Allocation
Asset Classes		
Real Estate Range	(0% - 30%)	(0% - 8%)
Non-Core Fixed Income Range	(0% - 10%)	(0% - 10%)
Real Assets Range	(0% - 6%)	N/A
Investment Grade Fixed Income Range	(60% - 100%)	(0% - 100%)

- Increased the Real Estate Range in February 2020. Added Real Assets in May 2022.

State Fund Investment Pool (SFIP)

	2022 Asset Allocation	2018 Asset Allocation
Asset Classes		
Public Equity Range	(0% - 15%)	(0% - 15%)
Real Estate Range	(0% - 8%)	(0% - 8%)
Non-Core Fixed Income Range	(0% - 7%)	N/A
Real Assets Range	(0% - 6%)	N/A
Investment Grade Fixed Income Range	(70% - 100%)	(75% - 100%)

- Added Non-Core Fixed Income in February 2020. Added Real Assets in April 2023.
- Changed the Investment Grade Fixed Income Benchmark from the Barclays Intermediate Aggregate to the Barclays Aggregate in April 2023.

Asset Allocation Recommendations

No proposed changes to the current asset allocation for CAPP, TFIP or SFIP.

- *There have been no changes to client objectives or constraints. Funding for the public safety plans improved in 2023 with the legislative contribution.*
- *Mean Variance Optimization (MVO) analysis suggested minimal risk/return improvement to current asset class weights.*
- *Recent changes to TFIP and SFIP are still being implemented.*
- *Sufficient flexibility within the current ranges to implement current tactical views.*

Summary

- Review and approval of the asset allocation is a critical task for the Board.
- Selection of an asset allocation is an imperfect process but is a valuable exercise.
- Consideration of liquidity is important to meet participant needs and avoid forced selling.
- Staff constantly evaluates and adjusts portfolios within the approved asset allocation ranges.
- No proposed changes to current asset allocations.



Quarterly Investment Performance Analysis

Montana Board of Investments

Period Ended: September 30, 2023



Montana Board of Investments
Comparative Performance
Retirement Plans

As of September 30, 2023

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	20 Years	2022	2021	2020	2019	2018	Since Incep.	Inception Date
Public Employees' Retirement - Net	-1.90	4.85	9.83	7.34	6.56	7.57	7.47	7.18	-8.48	17.61	11.94	16.77	-2.63	7.57	07/01/1994
Public Employees' Benchmark	-2.65	4.25	11.15	5.99	5.22	6.73	7.11	N/A	-10.81	13.79	12.22	20.26	-5.47	N/A	
Difference	0.75	0.60	-1.32	1.35	1.34	0.84	0.36	N/A	2.33	3.82	-0.28	-3.49	2.84	N/A	
Public Employees' Retirement - Gross	-1.73	5.40	10.60	8.02	7.21	8.20	8.06	7.69	-7.89	18.32	12.53	17.44	-2.03	7.93	07/01/1994
All Public Plans (>\$5B) Total Fund Median	-1.81	4.87	10.16	6.26	6.44	7.45	7.07	7.39	-10.06	17.10	12.12	17.22	-2.46	7.84	
Rank	46	27	39	26	20	17	5	25	35	33	41	42	46	42	
Teachers' Retirement - Net	-1.90	4.84	9.80	7.31	6.55	7.56	7.47	7.18	-8.52	17.61	11.93	16.78	-2.64	7.58	07/01/1994
Teachers' Benchmark	-2.66	4.23	11.11	5.96	5.20	6.71	7.11	N/A	-10.86	13.78	12.21	20.27	-5.47	N/A	
Difference	0.76	0.61	-1.31	1.35	1.35	0.85	0.36	N/A	2.34	3.83	-0.28	-3.49	2.83	N/A	
Teachers' Retirement - Gross	-1.74	5.39	10.57	8.00	7.20	8.18	8.06	7.69	-7.93	18.32	12.52	17.45	-2.03	7.94	07/01/1994
All Public Plans (>\$5B) Total Fund Median	-1.81	4.87	10.16	6.26	6.44	7.45	7.07	7.39	-10.06	17.10	12.12	17.22	-2.46	7.84	
Rank	46	28	39	26	20	18	5	25	35	33	42	41	46	41	
Police Retirement - Net	-1.90	4.85	9.83	7.33	6.56	7.57	7.48	7.13	-8.48	17.58	11.95	16.80	-2.63	7.46	07/01/1994
Police Benchmark	-2.66	4.25	11.15	5.98	5.22	6.73	7.12	N/A	-10.80	13.73	12.23	20.30	-5.46	N/A	
Difference	0.76	0.60	-1.32	1.35	1.34	0.84	0.36	N/A	2.32	3.85	-0.28	-3.50	2.83	N/A	
Police Retirement - Gross	-1.73	5.40	10.60	8.01	7.21	8.20	8.06	7.64	-7.89	18.28	12.54	17.47	-2.02	7.81	07/01/1994
All Public Plans (>\$5B) Total Fund Median	-1.81	4.87	10.16	6.26	6.44	7.45	7.07	7.39	-10.06	17.10	12.12	17.22	-2.46	7.84	
Rank	46	28	39	26	20	17	5	30	35	33	41	41	46	55	

Net performance shown is net of all manager fees and expenses (Net-All). All Public Plans > \$5B 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, 2023

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	20 Years	2022	2021	2020	2019	2018	Since Incep.	Inception Date
Firefighters' Retirement - Net	-1.90	4.85	9.83	7.33	6.56	7.57	7.48	7.15	-8.47	17.58	11.95	16.79	-2.62	7.45	07/01/1994
Firefighters' Benchmark	-2.66	4.25	11.15	5.98	5.22	6.73	7.12	N/A	-10.80	13.73	12.23	20.29	-5.46	N/A	
Difference	0.76	0.60	-1.32	1.35	1.34	0.84	0.36	N/A	2.33	3.85	-0.28	-3.50	2.84	N/A	
Firefighters' Retirement - Gross	-1.73	5.40	10.60	8.01	7.21	8.20	8.06	7.65	-7.88	18.28	12.53	17.46	-2.01	7.80	07/01/1994
All Public Plans (>\$5B) Total Fund Median	-1.81	4.87	10.16	6.26	6.44	7.45	7.07	7.39	-10.06	17.10	12.12	17.22	-2.46	7.84	
Rank	46	27	39	26	20	17	5	27	35	33	41	41	46	57	
Sheriffs' Retirement - Net	-1.90	4.84	9.82	7.34	6.56	7.57	7.47	7.17	-8.47	17.61	11.94	16.75	-2.62	7.48	07/01/1994
Sheriffs' Benchmark	-2.70	4.20	11.08	5.97	5.21	6.72	7.11	N/A	-10.81	13.79	12.22	20.23	-5.45	N/A	
Difference	0.80	0.64	-1.26	1.37	1.35	0.85	0.36	N/A	2.34	3.82	-0.28	-3.48	2.83	N/A	
Sheriffs' Retirement - Gross	-1.74	5.39	10.59	8.03	7.21	8.20	8.06	7.67	-7.87	18.32	12.53	17.42	-2.02	7.83	07/01/1994
All Public Plans (>\$5B) Total Fund Median	-1.81	4.87	10.16	6.26	6.44	7.45	7.07	7.39	-10.06	17.10	12.12	17.22	-2.46	7.84	
Rank	46	28	39	26	20	17	5	26	35	33	41	42	46	51	
Highway Patrol Retirement - Net	-1.92	4.81	9.79	7.33	6.56	7.57	7.48	7.18	-8.46	17.62	11.94	16.78	-2.62	7.48	07/01/1994
Highway Patrol Benchmark	-2.77	4.12	11.00	5.95	5.21	6.72	7.11	N/A	-10.79	13.80	12.24	20.26	-5.45	N/A	
Difference	0.85	0.69	-1.21	1.38	1.35	0.85	0.37	N/A	2.33	3.82	-0.30	-3.48	2.83	N/A	
Highway Patrol Retirement - Gross	-1.76	5.36	10.56	8.02	7.21	8.20	8.06	7.69	-7.87	18.33	12.53	17.45	-2.01	7.83	07/01/1994
All Public Plans (>\$5B) Total Fund Median	-1.81	4.87	10.16	6.26	6.44	7.45	7.07	7.39	-10.06	17.10	12.12	17.22	-2.46	7.84	
Rank	47	29	40	26	20	17	5	25	35	33	41	41	46	52	

Net performance shown is net of all manager fees and expenses (Net-All). All Public Plans > \$5B 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, 2023

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	20 Years	2022	2021	2020	2019	2018	Since Incep.	Inception Date
Game Wardens' Retirement - Net	-1.92	4.82	9.81	7.33	6.55	7.57	7.47	7.13	-8.48	17.62	11.91	16.77	-2.62	7.49	07/01/1994
Game Wardens' Benchmark	-2.77	4.13	11.02	5.94	5.19	6.70	7.10	N/A	-10.82	13.79	12.18	20.25	-5.46	N/A	
Difference	0.85	0.69	-1.21	1.39	1.36	0.87	0.37	N/A	2.34	3.83	-0.27	-3.48	2.84	N/A	
Game Wardens' Retirement - Gross	-1.76	5.38	10.58	8.01	7.20	8.19	8.05	7.64	-7.88	18.32	12.50	17.44	-2.01	7.84	07/01/1994
All Public Plans (>\$5B) Total Fund Median	-1.81	4.87	10.16	6.26	6.44	7.45	7.07	7.39	-10.06	17.10	12.12	17.22	-2.46	7.84	
Rank	47	29	39	26	20	17	5	30	35	33	43	42	46	51	
Judges' Retirement - Net	-1.90	4.84	9.83	7.33	6.56	7.57	7.48	7.17	-8.50	17.63	11.94	16.78	-2.64	7.48	07/01/1994
Judges' Benchmark	-2.66	4.24	11.14	5.98	5.21	6.73	7.11	N/A	-10.84	13.80	12.22	20.27	-5.48	N/A	
Difference	0.76	0.60	-1.31	1.35	1.35	0.84	0.37	N/A	2.34	3.83	-0.28	-3.49	2.84	N/A	
Judges' Retirement - Gross	-1.74	5.40	10.60	8.02	7.21	8.20	8.06	7.68	-7.91	18.34	12.53	17.45	-2.03	7.84	07/01/1994
All Public Plans (>\$5B) Total Fund Median	-1.81	4.87	10.16	6.26	6.44	7.45	7.07	7.39	-10.06	17.10	12.12	17.22	-2.46	7.84	
Rank	46	28	39	26	20	17	5	26	35	33	41	41	46	51	
Volunteer Firefighters' Retirement - Net	-1.91	4.83	9.81	7.32	6.55	7.56	7.46	7.15	-8.50	17.61	11.94	16.79	-2.64	7.31	07/01/1994
Volunteer Firefighters' Benchmark	-2.72	4.18	11.08	5.97	5.20	6.72	7.11	N/A	-10.86	13.85	12.18	20.31	-5.50	N/A	
Difference	0.81	0.65	-1.27	1.35	1.35	0.84	0.35	N/A	2.36	3.76	-0.24	-3.52	2.86	N/A	
Volunteer Firefighters' Retirement - Gross	-1.75	5.38	10.58	8.01	7.20	8.19	8.05	7.65	-7.91	18.31	12.53	17.46	-2.04	7.66	07/01/1994
All Public Plans (>\$5B) Total Fund Median	-1.81	4.87	10.16	6.26	6.44	7.45	7.07	7.39	-10.06	17.10	12.12	17.22	-2.46	7.84	
Rank	47	28	39	26	20	17	5	27	35	33	41	41	47	66	

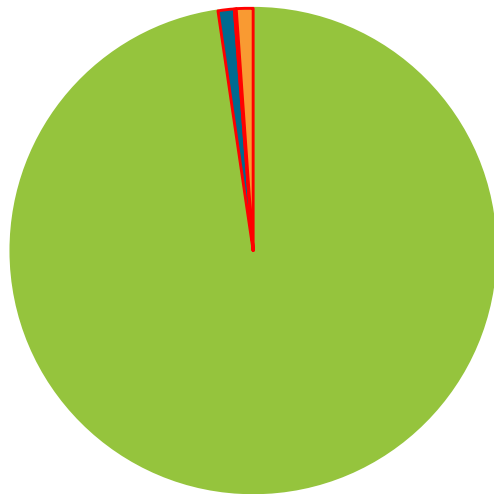
Net performance shown is net of all manager fees and expenses (Net-All). All Public Plans > \$5B Total Fund Median is reported gross of fees. Benchmark returns reflect unmanaged indices which are not impacted by management fees. Fiscal year ends on 06/30. Since inception performance may vary from State 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, 2023

	Consolidated Asset Pension Pool (CAPP)		Short Term Investment Pool (STIP)		Total Fund	
	(\$)	%	(\$)	%	(\$)	%
Public Employees' Retirement	6,639,686,027	48.53	73,035,141	47.53	6,712,721,169	48.52
Teachers' Retirement	4,702,071,444	34.37	55,255,047	35.96	4,757,326,491	34.39
Firefighters' Retirement	599,097,384	4.38	6,540,984	4.26	605,638,367	4.38
Police Retirement	543,387,284	3.97	6,323,607	4.12	549,710,892	3.97
Sheriffs' Retirement	503,998,743	3.68	5,459,428	3.55	509,458,171	3.68
Game Wardens' Retirement	312,192,100	2.28	3,649,166	2.37	315,841,266	2.28
Highway Patrol Retirement	205,906,783	1.51	1,720,288	1.12	207,627,071	1.50
Judges' Retirement	126,020,934	0.92	1,243,724	0.81	127,264,658	0.92
Volunteer Firefighters' Retirement	48,297,932	0.35	431,608	0.28	48,729,541	0.35
Retirement Plans Total Fund Composite	13,680,658,632	98.89	153,658,994	1.11	13,834,317,626	100.00

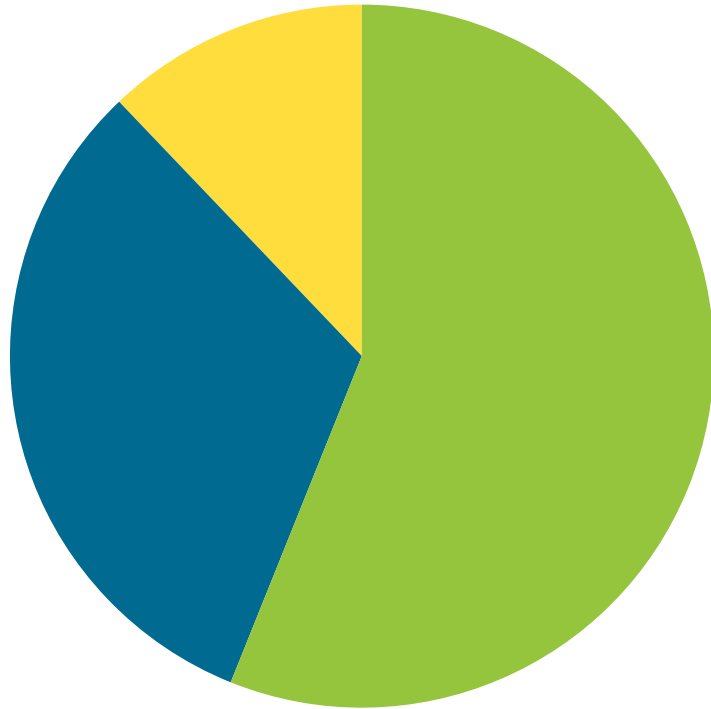
September 30, 2023 : \$13,834,317,626



Segments	Market Value (\$)	Allocation (%)
CAPP Ex Cash	13,514,576,640	97.69
CAPP Cash Pension	149,589,835	1.08
CAPP Asset Class Cash	16,492,157	0.12
Short Term Investment Pool (STIP)	153,658,994	1.11
Total Cash	319,740,986	2.31

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, 2023 : \$24,395,510,575



	Market Value (\$)	Allocation (%)
Consolidated Asset Pension Pool (CAPP)	13,680,658,689	56.08
Short Term Investment Pool	7,759,215,582	31.81
Trust Funds Investment Pool	2,955,636,304	12.12

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, 2023

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2022	2021	2020	2019	2018	Since Incep.	Inception Date
Consolidated Asset Pension Pool (CAPP)	-1.93	4.86	9.89	7.39	6.63	N/A	N/A	-8.60	17.83	12.10	17.12	-2.74	7.43	04/01/2017
CAPP Custom Benchmark	-2.70	4.24	11.20	6.01	5.26	N/A	N/A	-10.99	13.95	12.38	20.70	-5.64	6.43	
Difference	0.77	0.62	-1.31	1.38	1.37	N/A	N/A	2.39	3.88	-0.28	-3.58	2.90	1.00	
Trust Funds Investment Pool	-2.70	-2.13	-0.32	-2.08	1.97	1.51	2.62	-6.26	1.49	7.23	8.98	0.45	5.26	10/01/1995
Trust Fund Custom Benchmark	-2.86	-3.29	-1.76	-2.35	1.90	1.19	2.03	-5.04	0.71	7.51	8.72	0.01	4.46	
Difference	0.16	1.16	1.44	0.27	0.07	0.32	0.59	-1.22	0.78	-0.28	0.26	0.44	0.80	
Short Term Investment Pool	1.35	3.70	4.62	1.84	1.81	1.68	1.25	1.67	0.11	0.73	2.28	1.98	2.34	04/01/1997
Short Term Custom Index	1.39	3.82	4.79	1.85	1.72	1.61	1.20	1.69	0.04	0.36	2.14	1.95	2.26	
Difference	-0.04	-0.12	-0.17	-0.01	0.09	0.07	0.05	-0.02	0.07	0.37	0.14	0.03	0.08	
iMoney.net Money Fund (Gross) Median	1.39	3.89	4.91	1.96	1.93	1.80	1.34	1.83	0.15	0.73	2.45	2.15	2.35	
Difference	-0.04	-0.19	-0.29	-0.12	-0.12	-0.12	-0.09	-0.16	-0.04	0.00	-0.17	-0.17	-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, 2023

September 30, 2023 : \$13,680,658,836



	Market Value (\$)	Allocation (%)
Domestic Equity	3,637,913,178	26.59
Private Investments	2,468,137,713	18.04
International Equity	1,926,849,878	14.08
Core Fixed Income	1,913,251,407	13.99
Real Estate	1,723,211,482	12.60
Non-Core Fixed Income	984,031,236	7.19
Real Assets*	877,674,107	6.42
Cash Pension	149,589,835	1.09

Allocations shown may not sum up to 100% due to rounding.
 *Formerly the Natural Resources pension asset class.

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

As of September 30, 2023

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2022	2021	2020	2019	2018	Since Incep.	Inception Date
Domestic Equity	-3.34	11.97	20.12	10.07	8.87	11.30	10.98	-18.98	27.17	20.09	30.75	-7.09	9.39	05/01/2003
Domestic Equity Custom Index	-3.24	12.58	20.70	9.57	9.31	11.78	11.53	-19.22	26.12	21.10	31.14	-5.20	10.05	
Difference	-0.10	-0.61	-0.58	0.50	-0.44	-0.48	-0.55	0.24	1.05	-1.01	-0.39	-1.89	-0.66	
International Equity	-4.23	4.73	19.25	2.89	2.60	4.81	3.64	-17.62	7.83	13.35	22.86	-14.99	4.42	04/01/1997
International Equity Custom Index	-3.49	5.30	20.19	3.77	2.57	4.73	3.46	-16.58	8.53	11.12	21.63	-14.76	4.69	
Difference	-0.74	-0.57	-0.94	-0.88	0.03	0.08	0.18	-1.04	-0.70	2.23	1.23	-0.23	-0.27	
Core Fixed Income	-3.62	-1.52	0.14	-4.98	0.08	-0.15	1.24	-11.91	-1.54	8.23	6.90	0.95	4.87	04/01/1995
Core Fixed Income Custom Index	-3.23	-1.21	0.64	-5.21	-0.35	-0.44	0.88	-13.01	-1.54	7.51	6.39	0.68	4.25	
Difference	-0.39	-0.31	-0.50	0.23	0.43	0.29	0.36	1.10	0.00	0.72	0.51	0.27	0.62	
Non-Core Fixed Income	-0.36	4.00	9.13	0.25	2.07	2.74	3.41	-11.25	3.21	6.37	13.98	-2.27	6.19	06/01/2009
Bloomberg US HY 2% Issuer Cap Index	0.46	5.87	10.28	1.75	2.95	3.79	4.24	-11.18	5.26	7.05	14.32	-2.08	7.28	
Difference	-0.82	-1.87	-1.15	-1.50	-0.88	-1.05	-0.83	-0.07	-2.05	-0.68	-0.34	-0.19	-1.09	
Real Assets	0.59	6.33	11.39	16.71	4.73	N/A	N/A	15.88	21.24	-13.43	-2.18	5.55	5.50	04/01/2017
Real Assets Custom Index	-1.04	-0.55	9.53	12.54	-1.27	2.83	-0.06	1.36	13.32	-12.32	13.06	-11.75	2.23	
Difference	1.63	6.88	1.86	4.17	6.00	N/A	N/A	14.52	7.92	-1.11	-15.24	17.30	3.27	
Real Estate	-1.15	-5.34	-4.74	9.11	6.68	7.36	8.76	12.00	20.00	-0.35	6.97	9.19	4.65	06/01/2006
Real Estate Custom Index	-2.88	-11.01	-10.73	7.04	2.90	3.52	5.98	20.96	13.64	-19.66	25.84	-4.57	4.85	
Difference	1.73	5.67	5.99	2.07	3.78	3.84	2.78	-8.96	6.36	19.31	-18.87	13.76	-0.20	
Cash Pension	1.02	4.33	5.65	2.18	2.03	N/A	N/A	2.06	0.13	0.84	2.28	2.00	1.91	05/01/2017
Short Term Custom Index	1.39	3.82	4.79	1.85	1.72	1.61	1.20	1.69	0.04	0.36	2.14	1.95	1.69	
Difference	-0.37	0.51	0.86	0.33	0.31	N/A	N/A	0.37	0.09	0.48	0.14	0.05	0.22	
Private Investments*	1.12	4.97	3.66	18.79	14.76	14.55	13.23	5.94	39.81	10.91	12.95	11.55	12.85	05/01/2002
Private Investments Custom Index	-3.06	5.45	13.10	10.92	5.42	9.00	11.05	-13.86	16.54	18.90	27.38	-9.99	10.42	
Difference	4.18	-0.48	-9.44	7.87	9.34	5.55	2.18	19.80	23.27	-7.99	-14.43	21.54	2.43	

For additional information on the Private Investments 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.

Montana Board of Investments
Comparative Performance
Investment Pools

As of September 30, 2023

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2022	2021	2020	2019	2018	Since Incep.	Inception Date
Domestic Equity	-3.33	12.03	20.19	10.21	9.08	11.54	11.25	-18.95	27.47	20.37	31.13	-6.78	9.66	05/01/2003
All Public Plans-US Equity Segment Median	-3.39	10.16	19.17	9.00	8.00	10.69	10.19	-18.06	24.57	18.92	30.04	-5.83	9.49	
Rank	46	22	35	25	23	23	20	63	30	32	28	74	36	
Population	63	61	60	59	53	49	45	65	70	67	65	66	10	
International Equity	-4.21	4.84	19.41	3.13	2.88	5.11	3.95	-17.46	8.18	13.71	23.28	-14.72	4.82	04/01/1997
All Public Plans-Intl. Equity Segment Median	-3.95	5.99	21.45	4.40	3.83	5.95	4.75	-16.99	9.51	12.76	23.71	-13.63	N/A	
Rank	59	78	73	66	77	78	81	56	74	45	62	78	N/A	
Population	64	63	63	60	57	56	49	65	69	68	65	68	N/A	
Core Fixed Income	-3.61	-1.49	0.17	-4.94	0.13	-0.10	1.28	-11.87	-1.48	8.31	6.94	1.00	5.00	04/01/1995
IM U.S. Broad Market Core Fixed Income (SA+CF) Median	-3.14	-0.81	1.06	-4.84	0.54	0.39	1.58	-12.97	-1.24	8.43	9.18	0.06	4.72	
Rank	95	95	93	60	93	98	78	13	63	53	98	7	17	
Population	130	130	130	130	127	126	120	145	152	160	162	169	56	
Non-Core Fixed Income	-0.34	4.30	9.46	0.60	2.50	3.21	3.91	-11.05	3.64	6.91	14.60	-1.71	6.72	06/01/2009
IM U.S. High Yield Bonds (SA+CF) Median	0.71	5.72	9.99	2.26	3.33	3.94	4.39	-9.46	5.31	6.57	14.32	-1.64	7.28	
Rank	97	90	61	95	86	93	78	82	91	44	42	52	78	
Population	135	135	135	133	129	122	110	160	165	179	191	201	89	
Trust Funds Investment Pool	-2.65	-1.93	-0.05	-1.89	2.12	1.64	2.74	-6.02	1.59	7.30	9.06	0.53	5.33	10/01/1995
All Public Plans-US Fixed Income Segment Median	-2.78	-0.40	1.50	-3.66	1.04	0.86	1.85	-11.83	-0.11	8.59	9.25	-0.25	N/A	
Rank	48	85	77	16	9	15	16	14	12	78	53	22	N/A	
Population	65	64	64	62	56	55	51	70	73	74	68	72	N/A	
Real Estate	-0.86	-4.30	-3.50	10.34	8.06	8.85	10.23	13.02	21.37	1.11	8.65	11.12	6.08	06/01/2006
All Public Plans-Real Estate Segment Median	-0.78	-3.90	-4.22	10.48	8.21	9.04	10.27	13.88	20.84	1.66	7.65	9.04	N/A	
Rank	52	55	43	52	52	54	52	56	47	72	39	15	N/A	
Population	47	44	43	37	25	22	15	42	41	38	35	27	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. The All Public Plans US Equity, Intl Equity, US Fixed Income, and Real Estate segments currently do not have enough members to calculate trailing period returns.

Montana Board of Investments
Comparative Performance
Equity Composites

As of September 30, 2023

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2022	2021	2020	2019	2018	Since Incep.	Inception Date
Domestic Large Cap Equity - Net	-3.12	13.53	21.60	10.29	10.00	12.32	11.97	-19.30	28.39	21.44	31.06	-4.71	8.93	12/01/2006
S&P 500 Index (Cap Wtd)	-3.27	13.07	21.62	10.15	9.92	12.24	11.91	-18.11	28.71	18.40	31.49	-4.38	9.04	
Difference	0.15	0.46	-0.02	0.14	0.08	0.08	0.06	-1.19	-0.32	3.04	-0.43	-0.33	-0.11	
Domestic Large Cap Equity - Gross	-3.12	13.54	21.61	10.38	10.14	12.47	12.12	-19.29	28.61	21.66	31.29	-4.52	9.13	12/01/2006
IM U.S. Large Cap Equity (SA+CF) Median	-2.99	11.93	20.89	9.91	9.24	11.83	11.56	-17.09	27.39	18.32	30.43	-4.86	9.08	
Rank	55	33	41	41	31	36	32	67	37	34	42	46	48	
Domestic Mid Cap Equity - Net	-4.20	4.26	15.55	12.16	6.65	8.94	8.35	-13.07	25.15	13.53	28.03	-10.75	8.30	01/01/2005
Russell Mid Cap Index	-4.68	3.91	13.45	8.09	6.38	8.68	8.98	-17.32	22.58	17.10	30.54	-9.06	8.73	
Difference	0.48	0.35	2.10	4.07	0.27	0.26	-0.63	4.25	2.57	-3.57	-2.51	-1.69	-0.43	
Domestic Mid Cap Equity - Gross	-4.20	4.26	15.55	12.16	6.69	9.15	8.68	-13.07	25.15	13.53	28.11	-10.28	8.70	01/01/2005
IM U.S. Mid Cap Equity (SA+CF) Median	-4.20	5.65	15.51	9.91	6.70	9.47	9.41	-13.95	24.74	14.25	30.24	-9.69	9.40	
Rank	51	66	48	32	51	60	75	43	44	58	65	55	84	
Domestic Small Cap Equity - Net	-4.90	3.54	10.76	12.23	4.67	8.36	8.12	-16.81	27.56	13.07	25.76	-10.51	10.66	03/01/2003
Russell 2000 Index	-5.13	2.54	8.93	7.16	2.40	6.62	6.65	-20.44	14.82	19.96	25.53	-11.01	9.53	
Difference	0.23	1.00	1.83	5.07	2.27	1.74	1.47	3.63	12.74	-6.89	0.23	0.50	1.13	
Domestic Small Cap Equity - Gross	-4.89	3.56	10.79	12.41	4.94	8.72	8.58	-16.79	28.00	13.50	26.25	-10.09	11.15	03/01/2003
IM U.S. Small Cap Equity (SA+CF) Median	-4.34	4.49	12.84	11.19	5.12	8.85	8.56	-16.55	23.76	17.43	25.80	-10.30	11.53	
Rank	59	59	65	41	54	54	50	52	33	59	47	49	61	

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, 2023

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2022	2021	2020	2019	2018	Since Incep.	Inception Date
International Large Cap Passive - Net	-3.86	5.72	20.58	3.78	2.69	4.88	3.61	-16.10	7.76	10.81	21.59	-14.04	5.52	06/01/2009
MSCI ACW Ex US Index (USD) (Net)	-3.77	5.34	20.39	3.74	2.58	4.73	3.35	-16.00	7.82	10.65	21.51	-14.20	5.33	
Difference	-0.09	0.38	0.19	0.04	0.11	0.15	0.26	-0.10	-0.06	0.16	0.08	0.16	0.19	
International Large Cap Passive - Gross	-3.85	5.73	20.62	3.83	2.74	4.94	3.67	-16.06	7.82	10.88	21.66	-13.98	5.59	06/01/2009
International Equity Active - Net	-4.75	3.77	17.64	1.91	2.60	4.90	4.12	-19.26	7.77	15.91	25.83	-16.18	3.48	04/01/1997
MSCI ACW Ex US Index (USD) (Net)	-3.77	5.34	20.39	3.74	2.58	4.73	3.35	-16.00	7.82	10.65	21.51	-14.20	4.76	
Difference	-0.98	-1.57	-2.75	-1.83	0.02	0.17	0.77	-3.26	-0.05	5.26	4.32	-1.98	-1.28	
International Equity Active - Gross	-4.64	4.17	18.25	2.44	3.13	5.44	4.65	-18.82	8.30	16.50	26.48	-15.73	3.99	04/01/1997
IM International Large Cap Core Equity (SA+CF) Median	-4.04	6.81	23.55	5.32	3.64	5.72	4.81	-15.93	12.06	11.60	23.58	-14.32	6.60	
Rank	57	83	92	82	69	60	56	75	79	28	31	69	100	
International Value - Net	-2.84	5.72	20.20	6.31	3.16	5.71	4.42	-13.14	9.32	9.31	20.76	-13.97	2.55	11/01/2006
MSCI ACW Ex US Val Index (USD) (Net)	-0.07	8.19	25.17	9.57	2.29	4.57	2.58	-8.59	10.46	-0.77	15.72	-13.97	2.29	
Difference	-2.77	-2.47	-4.97	-3.26	0.87	1.14	1.84	-4.55	-1.14	10.08	5.04	0.00	0.26	
International Value - Gross	-2.74	6.08	20.75	6.82	3.66	6.24	4.95	-12.73	9.85	9.87	21.37	-13.52	3.11	11/01/2006
IM International Large Cap Value Equity (SA+CF) Median	-2.19	9.73	28.64	8.98	4.01	5.82	4.65	-9.17	12.03	4.65	21.12	-14.75	4.21	
Rank	57	79	84	69	57	45	45	69	66	27	45	37	86	
International Growth - Net	-8.34	2.05	15.64	-2.40	2.46	4.11	3.43	-23.99	3.79	23.08	31.39	-16.09	2.85	11/01/2006
MSCI ACW Ex US Grth Index (USD) (Net)	-7.31	2.61	15.84	-1.86	2.54	4.66	3.92	-23.05	5.09	22.20	27.34	-14.43	3.56	
Difference	-1.03	-0.56	-0.20	-0.54	-0.08	-0.55	-0.49	-0.94	-1.30	0.88	4.05	-1.66	-0.71	
International Growth - Gross	-8.24	2.45	16.25	-1.89	3.01	4.68	3.98	-23.58	4.33	23.74	32.10	-15.61	3.39	11/01/2006
IM International Large Cap Growth Equity (SA+CF) Median	-7.44	5.02	19.01	0.96	4.14	6.52	5.33	-23.10	10.72	23.21	29.59	-13.50	5.04	
Rank	63	78	73	74	75	90	89	52	84	48	25	69	97	
International Small Cap - Net	-1.56	3.99	17.38	2.00	1.78	4.34	4.21	-21.69	11.57	14.63	23.91	-18.90	4.00	09/01/2006
MSCI ACWI Ex US Sm Cap Index IMI (USD) (Net)	-1.70	5.03	19.01	4.01	2.58	4.70	4.35	-19.97	12.93	14.24	22.42	-18.20	4.66	
Difference	0.14	-1.04	-1.63	-2.01	-0.80	-0.36	-0.14	-1.72	-1.36	0.39	1.49	-0.70	-0.66	

Gross of fees performance is not available (N/A) for the International Small Cap composite which currently consists of Acadian Ex US Small Cap (SA) and BlackRock ACW Ex US Sm Cap Index (CF).

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, 2023

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2022	2021	2020	2019	2018	Since Incep.	Inception Date
Domestic Large Cap Equity														
BlackRock MSCI US Equity Index (SA) - Net	-3.07	13.52	21.60	9.51	N/A	N/A	N/A	-19.46	26.95	21.33	N/A	N/A	11.42	04/01/2019
MSCI US Index (USD) (Gross)	-3.07	13.53	21.62	9.52	9.87	12.18	11.81	-19.46	26.97	21.37	31.64	-4.50	11.44	
Difference	0.00	-0.01	-0.02	-0.01	N/A	N/A	N/A	0.00	-0.02	-0.04	N/A	N/A	-0.02	
BlackRock MSCI US Equity Index (SA) - Gross	-3.07	13.53	21.61	9.52	N/A	N/A	N/A	-19.45	26.96	21.34	N/A	N/A	11.43	04/01/2019
IM U.S. Large Cap Core Equity (SA+CF) Median	-2.89	11.68	20.76	9.77	9.22	11.83	11.67	-16.49	27.75	17.65	30.06	-5.05	10.80	
Rank	58	26	35	56	N/A	N/A	N/A	77	56	29	N/A	N/A	37	
Northern Trust MSCI US Index (SA) - Net	-3.07	13.52	21.60	9.51	N/A	N/A	N/A	-19.46	26.97	21.34	31.70	N/A	11.67	11/01/2018
MSCI US Index (USD) (Gross)	-3.07	13.53	21.62	9.52	9.87	12.18	11.81	-19.46	26.97	21.37	31.64	-4.50	11.67	
Difference	0.00	-0.01	-0.02	-0.01	N/A	N/A	N/A	0.00	0.00	-0.03	0.06	N/A	0.00	
Northern Trust MSCI US Index (SA) - Gross	-3.07	13.53	21.61	9.52	N/A	N/A	N/A	-19.45	26.98	21.36	31.71	N/A	11.68	11/01/2018
IM U.S. Large Cap Core Equity (SA+CF) Median	-2.89	11.68	20.76	9.77	9.22	11.83	11.67	-16.49	27.75	17.65	30.06	-5.05	11.14	
Rank	58	26	35	56	N/A	N/A	N/A	77	56	28	31	N/A	37	
iShares:Core S&P Tot USM (ITOT) - Net	-3.28	12.66	20.69	N/A	N/A	N/A	N/A	-19.46	N/A	N/A	N/A	N/A	-3.22	12/01/2021
S&P Tot Mkt Index	-3.29	12.42	20.49	9.27	9.01	11.54	11.20	-19.53	25.66	20.79	30.90	-5.30	-3.37	
Difference	0.01	0.24	0.20	N/A	N/A	N/A	N/A	0.07	N/A	N/A	N/A	N/A	0.15	
iShares:Core S&P 500 (IVV) - Net	-3.41	12.78	21.36	N/A	N/A	N/A	N/A	-17.03	N/A	N/A	N/A	N/A	-1.18	12/01/2021
S&P 500 Index (Cap Wtd)	-3.27	13.07	21.62	10.15	9.92	12.24	11.91	-18.11	28.71	18.40	31.49	-4.38	-1.79	
Difference	-0.14	-0.29	-0.26	N/A	N/A	N/A	N/A	1.08	N/A	N/A	N/A	N/A	0.61	
Domestic Mid Cap Equity														
iShares:Core S&P Md-Cp (IJH) - Net	-4.20	4.26	15.55	12.16	6.11	N/A	N/A	-13.07	25.15	13.53	26.24	-13.95	7.10	07/01/2017
S&P Mid Cap 400 Index (Cap Wtd)	-4.20	4.27	15.51	12.05	6.06	8.77	8.94	-13.06	24.76	13.66	26.20	-11.08	7.62	
Difference	0.00	-0.01	0.04	0.11	0.05	N/A	N/A	-0.01	0.39	-0.13	0.04	-2.87	-0.52	

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

Montana Board of Investments
Comparative Performance
Domestic Equity Managers

As of September 30, 2023

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2022	2021	2020	2019	2018	Since Incep.	Inception Date
Domestic Small Cap Equity														
BlackRock MSCI USA Small Cap Index (SA) - Net	-4.90	4.00	12.32	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.56	09/01/2022
MSCI US Sm Cap Index (USD) (Net)	-4.99	3.65	11.81	9.43	4.36	7.92	7.83	-17.55	19.11	18.32	26.74	-10.40	1.08	
Difference	0.09	0.35	0.51	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.48	
BlackRock MSCI USA Small Cap Index (SA) - Gross	-4.89	4.02	12.36	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.59	09/01/2022
IM U.S. Small Cap Core Equity (SA+CF) Median	-4.47	4.32	12.85	11.03	5.06	8.85	8.73	-16.18	24.17	18.54	25.88	-10.11	2.15	
Rank	62	53	55	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	55	
iShares:Core S&P Sm-Cp (IJR) - Net	-4.88	0.72	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-2.22	11/01/2022
S&P Sm Cap 600 Index (Cap Wtd)	-4.93	0.81	10.08	12.10	3.21	7.77	8.15	-16.10	26.82	11.29	22.78	-8.48	-2.04	
Difference	0.05	-0.09	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.18	

Gross of fees performance is not available (N/A) for the following funds: iShares:Core S&P Tot USM (ITOT), iShares:Core S&P 500 (IVV), iShares:Core S&P Md-Cp (IJH), and iShares:Core S&P Sm-Cp (IJR).

The current annual expense ratios for the iShares:Core S&P Tot USM (ITOT), iShares:Core S&P 500 (IVV), iShares:Core S&P Md-Cp (IJH), and iShares:Core S&P Sm-Cp (IJR) are 0.03%, 0.03%, 0.05%, and 0.06%, respectively.

See the Addendum for custom index specification.

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, 2023

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2022	2021	2020	2019	2018	Since Incep.	Inception Date
International Developed Large Cap Equity														
Acadian Asset Non-US Equity (SA) - Net	-0.20	4.76	18.51	8.97	3.66	7.51	5.90	-13.02	16.67	8.89	19.38	-13.44	3.63	11/01/2006
MSCI ACW Ex US Val Index (USD) (Net)	-0.07	8.19	25.17	9.57	2.29	4.57	2.58	-8.59	10.46	-0.77	15.72	-13.97	2.29	
Difference	-0.13	-3.43	-6.66	-0.60	1.37	2.94	3.32	-4.43	6.21	9.66	3.66	0.53	1.34	
Acadian Asset Non-US Equity (SA) - Gross	-0.09	5.12	19.05	9.48	4.16	8.04	6.44	-12.61	17.23	9.45	19.98	-12.99	4.19	11/01/2006
IM ACWI Ex US Value (SA+CF) Median	-2.18	9.54	27.93	8.45	3.94	6.21	4.62	-11.10	11.05	6.52	21.34	-14.78	4.04	
Rank	6	86	88	38	43	14	11	64	7	43	57	26	47	
Lazard Asset Management (SA) - Net	-5.91	6.86	22.22	4.54	2.81	4.25	N/A	-13.28	4.11	9.59	21.70	-14.32	2.99	06/01/2015
Lazard Custom Index	-3.77	5.34	20.39	3.74	2.58	4.63	2.62	-16.00	7.82	10.65	21.51	-15.55	2.52	
Difference	-2.14	1.52	1.83	0.80	0.23	-0.38	N/A	2.72	-3.71	-1.06	0.19	1.23	0.47	
Lazard Asset Management (SA) - Gross	-5.81	7.23	22.78	5.05	3.32	4.78	N/A	-12.84	4.62	10.14	22.31	-13.88	3.51	06/01/2015
IM ACWI Ex US Value (SA+CF) Median	-2.18	9.54	27.93	8.45	3.94	6.21	4.62	-11.10	11.05	6.52	21.34	-14.78	4.56	
Rank	95	73	77	76	63	74	N/A	65	94	39	42	35	71	
BlackRock ACW Ex US SuperFund A (CF) - Net	-3.76	5.59	20.67	3.97	2.79	4.96	3.56	-15.77	8.00	10.80	21.77	-13.99	5.54	06/01/2009
MSCI ACW Ex US Index (USD) (Net)	-3.77	5.34	20.39	3.74	2.58	4.73	3.35	-16.00	7.82	10.65	21.51	-14.20	5.33	
Difference	0.01	0.25	0.28	0.23	0.21	0.23	0.21	0.23	0.18	0.15	0.26	0.21	0.21	
BlackRock ACW Ex US SuperFund A (CF) - Gross	-3.75	5.60	20.71	4.03	2.85	5.03	3.64	-15.72	8.07	10.88	21.85	-13.93	5.62	06/01/2009
IM All ACWI Ex US (SA+CF) Median	-4.34	5.94	21.54	3.66	3.75	5.91	4.86	-17.08	9.43	14.71	25.05	-14.61	6.97	
Rank	39	57	58	46	70	70	82	44	63	60	68	43	89	
iShares:Core MSCI EAFE (IEFA) - Net	-4.67	6.72	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	18.71	11/01/2022
MSCI EAFE IM Index (USD) (Net)	-4.03	6.32	24.51	5.06	2.87	5.09	3.87	-15.53	11.08	8.47	22.44	-14.40	18.35	
Difference	-0.64	0.40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.36	
Baillie Gifford (SA) - Net	-10.29	-1.21	12.51	-6.90	0.87	3.30	N/A	-31.43	1.69	34.22	34.34	-17.35	2.88	06/01/2015
MSCI ACW Ex US Grth Index (USD) (Net)	-7.31	2.61	15.84	-1.86	2.54	4.66	3.92	-23.05	5.09	22.20	27.34	-14.43	3.51	
Difference	-2.98	-3.82	-3.33	-5.04	-1.67	-1.36	N/A	-8.38	-3.40	12.02	7.00	-2.92	-0.63	
Baillie Gifford (SA) - Gross	-10.19	-0.85	13.05	-6.46	1.35	3.81	N/A	-31.11	2.16	34.86	34.99	-16.93	3.39	06/01/2015
IM ACWI Ex US Growth (SA+CF) Median	-7.67	4.76	19.22	0.20	3.77	6.22	5.27	-23.43	9.20	22.06	29.53	-13.65	4.68	
Rank	89	97	99	96	98	99	N/A	92	91	13	9	85	94	

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, 2023

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2022	2021	2020	2019	2018	Since Incep.	Inception Date
Invesco (SA) - Net	-7.13	4.33	17.81	1.09	3.60	4.66	N/A	-17.80	5.60	14.84	29.29	-15.17	3.29	06/01/2015
MSCI ACW Ex US Grth Index (USD) (Net)	-7.31	2.61	15.84	-1.86	2.54	4.66	3.92	-23.05	5.09	22.20	27.34	-14.43	3.51	
Difference	0.18	1.72	1.97	2.95	1.06	0.00	N/A	5.25	0.51	-7.36	1.95	-0.74	-0.22	
Invesco (SA) - Gross	-7.01	4.75	18.46	1.66	4.20	5.28	N/A	-17.32	6.20	15.51	30.05	-14.64	3.91	06/01/2015
IM ACWI Ex US Growth (SA+CF) Median	-7.67	4.76	19.22	0.20	3.77	6.22	5.27	-23.43	9.20	22.06	29.53	-13.65	4.68	
Rank	37	51	60	39	33	77	N/A	22	78	83	44	56	71	
International Developed Small Cap Equity														
BlackRock ACW Ex US Sm Cap Index (CF) - Net	-1.82	4.80	18.91	4.02	2.70	4.87	4.55	-19.65	12.84	14.45	22.68	-17.85	5.89	02/01/2012
MSCI ACWI Ex US Sm Cap Index IMI (USD) (Net)	-1.70	5.03	19.01	4.01	2.58	4.70	4.35	-19.97	12.93	14.24	22.42	-18.20	5.69	
Difference	-0.12	-0.23	-0.10	0.01	0.12	0.17	0.20	0.32	-0.09	0.21	0.26	0.35	0.20	
BlackRock ACW Ex US Sm Cap Index (CF) - Gross	-1.81	4.85	18.99	4.13	2.81	4.99	4.69	-19.57	12.98	14.50	22.90	-17.74	6.03	02/01/2012
IM International Small Cap Equity (SA+CF) Median	-3.72	4.13	20.06	2.58	2.66	5.40	5.46	-21.48	13.78	13.73	24.78	-17.85	7.89	
Rank	28	38	56	38	48	59	74	41	57	48	62	49	93	
Acadian Ex US Small Cap (SA) - Net	-1.41	3.22	17.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-5.90	03/01/2022
MSCI ACW Ex US Sm Cap Index (USD) (Net)	-1.70	5.03	19.01	4.01	2.58	4.70	4.35	-19.97	12.93	14.24	22.42	-18.20	-5.90	
Difference	0.29	-1.81	-2.01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00	
Acadian Ex US Small Cap (SA) - Gross	-1.27	3.71	17.74	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-5.28	03/01/2022
IM International Small Cap Equity (SA+CF) Median	-3.72	4.13	20.06	2.58	2.66	5.40	5.46	-21.48	13.78	13.73	24.78	-17.85	-6.17	
Rank	24	56	65	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	41	
International Emerging Equity														
iShares:Core MSCI EmMkts (IEMG) - Net	-3.45	3.07	13.58	N/A	N/A	N/A	N/A	-21.88	N/A	N/A	N/A	N/A	-11.64	01/01/2022
MSCI Emg Mkts IM Index (USD) (Net)	-2.12	3.38	13.21	-0.29	1.28	3.57	2.39	-19.83	-0.28	18.39	17.65	-15.05	-10.18	
Difference	-1.33	-0.31	0.37	N/A	N/A	N/A	N/A	-2.05	N/A	N/A	N/A	N/A	-1.46	

Gross of fees performance is not available (N/A) for the following funds: iShares:Core MSCI EAFE (IEFA), International Equity Pool STIF, and iShares:Core MSCI EmMkts (IEMG). The current annual expense ratios for the iShares:Core MSCI EAFE (IEFA), and iShares:Core MSCI EmMkts (IEMG): are 0.07%, and 0.09%, 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, 2023

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2022	2021	2020	2019	2018	Since Incep.	Inception Date
US Fixed Income Aggregate - Net	-3.61	-1.56	0.01	-5.04	N/A	N/A	N/A	-11.87	-1.52	7.65	N/A	N/A	-2.18	12/01/2019
Bloomberg US Agg Bond Index	-3.23	-1.21	0.64	-5.21	0.10	-0.09	1.13	-13.01	-1.55	7.51	8.72	0.01	-2.46	
Difference	-0.38	-0.35	-0.63	0.17	N/A	N/A	N/A	1.14	0.03	0.14	N/A	N/A	0.28	

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, 2023

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2022	2021	2020	2019	2018	Since Incep.	Inception Date
Neuberger Berman High Yield (SA) - Net	0.35	4.94	9.40	1.03	2.48	3.05	3.59	-11.34	4.76	6.30	13.75	-1.99	5.44	01/01/2010
Bloomberg US HY 2% Issuer Cap Index	0.46	5.87	10.28	1.75	2.95	3.79	4.24	-11.18	5.26	7.05	14.32	-2.08	5.88	
Difference	-0.11	-0.93	-0.88	-0.72	-0.47	-0.74	-0.65	-0.16	-0.50	-0.75	-0.57	0.09	-0.44	
Neuberger Berman High Yield (SA) - Gross	0.40	5.10	9.62	1.25	2.79	3.41	3.97	-11.16	4.96	6.75	14.26	-1.56	5.86	01/01/2010
IM U.S. High Yield Bonds (SA+CF) Median	0.71	5.72	9.99	2.26	3.32	3.94	4.39	-9.46	5.31	6.56	14.32	-1.64	6.02	
Rank	75	75	57	84	77	82	73	83	60	45	51	49	61	
Oaktree US High Yield (SA) (CAPP) - Net	0.54	5.46	10.37	1.88	3.09	N/A	N/A	-9.92	4.91	6.56	15.44	-3.99	2.88	01/01/2018
Bloomberg US HY 2% Issuer Cap Index	0.46	5.87	10.28	1.75	2.95	3.79	4.24	-11.18	5.26	7.05	14.32	-2.08	3.01	
Difference	0.08	-0.41	0.09	0.13	0.14	N/A	N/A	1.26	-0.35	-0.49	1.12	-1.91	-0.13	
Oaktree US High Yield (SA) (CAPP) - Gross	0.63	5.75	10.78	2.27	3.53	N/A	N/A	-9.60	5.34	7.07	16.02	-3.47	3.33	01/01/2018
IM U.S. High Yield Bonds (SA+CF) Median	0.71	5.72	9.99	2.26	3.33	3.94	4.39	-9.46	5.31	6.57	14.32	-1.64	3.28	
Rank	58	47	30	50	38	N/A	N/A	53	50	42	17	92	46	
Shenkman High Yield Fixed Income (SA) (CAPP) - Net	0.32	5.62	9.58	1.97	3.16	N/A	N/A	-8.87	4.24	6.32	13.65	-1.96	2.94	12/01/2017
Bloomberg US HY 2% Issuer Cap Index	0.46	5.87	10.28	1.75	2.95	3.79	4.24	-11.18	5.26	7.05	14.32	-2.08	3.02	
Difference	-0.14	-0.25	-0.70	0.22	0.21	N/A	N/A	2.31	-1.02	-0.73	-0.67	0.12	-0.08	
Shenkman High Yield Fixed Income (SA) (CAPP) - Gross	0.41	5.93	10.00	2.38	3.61	N/A	N/A	-8.52	4.68	6.82	14.18	-1.46	3.39	12/01/2017
IM U.S. High Yield Bonds (SA+CF) Median	0.71	5.72	9.99	2.26	3.33	3.94	4.39	-9.46	5.31	6.57	14.32	-1.64	3.33	
Rank	73	38	50	45	35	N/A	N/A	37	71	45	52	46	43	

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. No peer group is shown for Cohen & Steers Preferred Securities (SA) due to the lack of suitable Preferred Securities peer groups.

Montana Board of Investments
Comparative Performance
Non-Core Fixed Income Managers

As of September 30, 2023

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2022	2021	2020	2019	2018	Since Incep.	Inception Date
Cohen & Steers Preferred Securities (SA) - Net	0.78	0.32	2.59	N/A	N/A	N/A	N/A	-11.53	3.70	N/A	N/A	N/A	-1.29	11/01/2020
Cohen & Steers Preferred Securities Custom Benchmark	0.02	1.73	4.89	-1.46	N/A	N/A	N/A	-12.02	2.72	N/A	N/A	N/A	-1.50	
Difference	0.76	-1.41	-2.30	N/A	N/A	N/A	N/A	0.49	0.98	N/A	N/A	N/A	0.21	
Cohen & Steers Preferred Securities (SA) - Gross	0.86	0.57	2.94	N/A	N/A	N/A	N/A	-11.23	4.06	N/A	N/A	N/A	-0.95	11/01/2020
Payden & Rygel EMD (SA) - Net	-2.80	2.62	13.31	N/A	N/A	N/A	N/A	-15.45	-3.49	N/A	N/A	N/A	-6.25	01/01/2021
Payden & Rygel EMD Custom Benchmark	-2.54	2.53	10.96	N/A	N/A	N/A	N/A	-15.97	-3.92	N/A	N/A	N/A	-6.64	
Difference	-0.26	0.09	2.35	N/A	N/A	N/A	N/A	0.52	0.43	N/A	N/A	N/A	0.39	
Payden & Rygel EMD (SA) - Gross	-2.73	2.88	13.70	N/A	N/A	N/A	N/A	-15.15	-3.14	N/A	N/A	N/A	-5.92	01/01/2021
IM Emerging Markets Debt (SA+CF) Median	-1.86	3.77	12.10	-1.80	1.33	1.57	2.37	-12.22	-2.45	6.71	14.30	-5.25	-4.95	
Rank	69	60	33	N/A	N/A	N/A	N/A	69	58	N/A	N/A	N/A	73	
Zazove Convertible Bonds (SA) - Net	-2.31	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.07	04/01/2023
Bloomberg US Convert's Liquid Bond Index	-2.47	6.97	9.38	2.43	8.69	9.88	9.21	-20.06	3.07	54.45	22.79	-1.79	2.25	
Difference	0.16	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-1.18	
Zazove Convertible Bonds (SA) - Gross	-2.17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.33	04/01/2023
IM U.S. Convertible Bonds (SA+CF) Median	-2.55	1.83	6.11	1.99	5.93	6.93	6.96	-11.70	6.22	18.71	18.70	-0.72	0.26	
Rank	38	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	34	

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. No peer group is shown for Cohen & Steers Preferred Securities (SA) due to the lack of suitable Preferred Securities peer groups.



Montana Board of Investments
Comparative Performance
TFIP Fixed Income Managers

As of September 30, 2023

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2022	2021	2020	2019	2018	Since Incep.	Inception Date
Trust Funds Investment Pool Fixed Income	-3.07	-0.23	1.88	-3.81	1.24	0.80	2.01	-11.24	-0.47	8.84	9.12	0.25	5.00	10/01/1995
Bloomberg US Agg Bond Index	-3.23	-1.21	0.64	-5.21	0.10	-0.09	1.13	-13.01	-1.55	7.51	8.72	0.01	4.12	
Difference	0.16	0.98	1.24	1.40	1.14	0.89	0.88	1.77	1.08	1.33	0.40	0.24	0.88	
Trust Funds Investment Pool Fixed Income	-3.07	-0.23	1.88	-3.81	1.24	0.80	2.01	-11.24	-0.47	8.84	9.12	0.25	5.00	10/01/1995
IM U.S. Broad Market Core Fixed Income (SA+CF) Median	-3.14	-0.81	1.06	-4.84	0.54	0.39	1.58	-12.97	-1.24	8.43	9.18	0.06	4.53	
Rank	41	19	13	10	10	16	13	8	21	36	54	28	4	
Shenkman High Yield Fixed Income (SA) (TFIP) - Net	0.27	5.62	9.53	1.93	N/A	N/A	N/A	-9.04	4.31	6.05	N/A	N/A	2.38	07/01/2019
Bloomberg US HY 2% Issuer Cap Index	0.46	5.87	10.28	1.75	2.95	3.79	4.24	-11.18	5.26	7.05	14.32	-2.08	2.31	
Difference	-0.19	-0.25	-0.75	0.18	N/A	N/A	N/A	2.14	-0.95	-1.00	N/A	N/A	0.07	
Shenkman High Yield Fixed Income (SA) (TFIP) - Gross	0.37	5.93	9.96	2.34	N/A	N/A	N/A	-8.68	4.74	6.54	N/A	N/A	2.81	07/01/2019
IM U.S. High Yield Bonds (SA+CF) Median	0.71	5.72	9.99	2.26	3.33	3.94	4.39	-9.46	5.31	6.57	14.32	-1.64	2.73	
Rank	78	38	51	47	N/A	N/A	N/A	38	68	52	N/A	N/A	47	
Oaktree US High Yield (SA) (TFIP) - Net	0.52	5.45	10.60	2.05	N/A	N/A	N/A	-9.51	4.93	6.72	N/A	N/A	2.61	08/01/2019
Bloomberg US HY 2% Issuer Cap Index	0.46	5.87	10.28	1.75	2.95	3.79	4.24	-11.18	5.26	7.05	14.32	-2.08	2.21	
Difference	0.06	-0.42	0.32	0.30	N/A	N/A	N/A	1.67	-0.33	-0.33	N/A	N/A	0.40	
Oaktree US High Yield (SA) (TFIP) - Gross	0.61	5.75	11.02	2.44	N/A	N/A	N/A	-9.20	5.36	7.25	N/A	N/A	3.03	08/01/2019
IM U.S. High Yield Bonds (SA+CF) Median	0.71	5.72	9.99	2.26	3.33	3.94	4.39	-9.46	5.31	6.57	14.32	-1.64	2.67	
Rank	59	47	23	43	N/A	N/A	N/A	48	49	37	N/A	N/A	32	
Neuberger Berman High Yield (SA) (TFIP) - Net	0.35	4.86	9.08	0.98	N/A	N/A	N/A	-11.43	4.62	N/A	N/A	N/A	4.48	04/01/2020
Bloomberg US HY 2% Issuer Cap Index	0.46	5.87	10.28	1.75	2.95	3.79	4.24	-11.18	5.26	7.05	14.32	-2.08	5.68	
Difference	-0.11	-1.01	-1.20	-0.77	N/A	N/A	N/A	-0.25	-0.64	N/A	N/A	N/A	-1.20	
Neuberger Berman High Yield (SA) (TFIP) - Gross	0.39	5.02	9.30	1.19	N/A	N/A	N/A	-11.25	4.81	N/A	N/A	N/A	4.73	04/01/2020
IM U.S. High Yield Bonds (SA+CF) Median	0.71	5.72	9.99	2.26	3.33	3.94	4.39	-9.46	5.31	6.57	14.32	-1.64	5.84	
Rank	76	75	64	85	N/A	N/A	N/A	84	65	N/A	N/A	N/A	82	

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, 2023

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2022	2021	2020	2019	2018	Since Incep.	Inception Date
Abandoned Mine Trust	1.35	3.70	4.61	1.85	1.85	1.65	1.52	1.68	0.13	0.73	2.41	1.85	3.70	12/01/1993
Barker Hughesville St Response	-2.12	-1.32	1.15	-1.05	N/A	N/A	N/A	-3.87	1.36	N/A	N/A	N/A	-0.44	05/01/2020
Belt Water Treatment Plant Fund	-2.02	-1.19	1.25	-0.95	2.51	N/A	N/A	-3.71	1.34	6.80	8.56	N/A	2.39	03/01/2018
Big Sky Economic Development Fund	-2.65	-2.09	0.56	-1.39	2.31	1.76	2.77	-4.27	1.45	7.12	8.67	0.48	4.03	07/01/2005
Butte Area One Restoration	-2.01	-1.07	1.24	-0.82	2.13	1.72	2.12	-3.26	1.26	6.07	6.76	1.24	2.72	11/01/2008
Clark Fork River Restoration	-2.12	-1.17	1.13	-0.85	2.05	1.65	2.16	-3.17	1.19	5.65	7.04	0.96	2.94	11/01/2008
Coal Tax Cultural Trust Fund	-2.53	-1.89	0.72	-1.31	2.33	1.78	2.77	-4.20	1.43	6.99	8.64	0.47	5.34	12/01/1993
Coal Tax Park Acquisition	-2.48	-1.80	0.73	-1.25	2.34	1.79	2.76	-4.02	1.37	6.86	8.63	0.48	5.32	12/01/1993
East Helena Compensation Fund	-0.13	1.82	3.11	0.96	2.35	1.93	2.09	0.48	0.42	2.65	5.52	1.20	1.90	01/01/2013
East Helena Greenway Trail Maintenance	-1.56	-0.46	1.71	N/A	N/A	N/A	N/A	-2.81	N/A	N/A	N/A	N/A	-0.26	03/01/2021
Endowment for Children	-2.46	-1.78	0.81	-1.28	2.33	1.78	2.72	-4.18	1.41	7.01	8.54	0.46	3.97	08/01/2007
Flying J CECRA Facilities Fund	-2.11	-1.30	1.17	-1.03	N/A	N/A	N/A	-3.85	1.36	N/A	N/A	N/A	-0.42	05/01/2020
FWP License Account	-0.21	1.44	3.01	0.28	1.27	1.15	1.04	-1.41	0.46	1.85	3.33	1.50	2.64	11/01/1997
FWP Mitigation Trust Fund	-1.30	-0.21	1.85	-0.49	1.62	1.28	1.25	-2.79	0.98	3.84	5.46	1.14	3.48	12/01/1993
FWP Real Property Trust	-2.49	-1.81	0.74	-1.29	2.31	1.76	2.70	-4.13	1.38	6.83	8.62	0.51	4.78	12/01/1993
Group Benefits	0.24	2.04	3.47	0.84	1.84	1.53	1.46	-0.33	0.63	2.05	4.01	1.37	3.57	12/01/1993
Hail Insurance Investments	-0.69	1.19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	11/01/2022
Harold Hamm Endowment	-2.17	-1.39	1.11	-1.07	2.40	1.80	N/A	-3.94	1.43	6.71	8.45	0.57	1.76	07/01/2016
Invasive Species Trust Fund	-2.63	-1.82	0.51	-1.28	N/A	N/A	N/A	-3.88	1.19	N/A	N/A	N/A	-1.28	10/01/2020
Libby Asbestos Site State Cost	-1.99	-1.14	1.27	-0.93	N/A	N/A	N/A	-3.60	1.25	N/A	N/A	N/A	-0.33	05/01/2020
Luttrell Pit - Operational & Maintenance	-2.04	-1.21	1.17	-0.81	N/A	N/A	N/A	-3.27	1.36	N/A	N/A	N/A	-0.25	05/01/2020
Montana Pole	-1.84	-0.93	1.48	-0.71	2.23	1.76	2.47	-2.92	1.14	5.61	7.48	0.74	4.53	09/01/1996
Montana State University	0.29	2.66	3.94	1.22	1.67	1.56	1.32	0.58	0.30	1.30	2.87	1.87	1.91	08/01/2004
Montana State Library Trust	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10/01/2023
Montana Tech-UM Agency Funds	1.14	3.39	4.40	1.68	1.82	1.67	1.30	1.36	0.20	1.01	2.56	1.91	1.80	03/01/2003
MT BOI - Clark Fork Site	-2.39	-1.72	0.85	-1.18	2.22	1.73	2.51	-3.95	1.44	6.65	8.00	0.67	3.40	11/01/2008
MT BOI UOFM Other	0.02	1.62	2.96	0.83	2.23	1.85	2.00	-0.16	0.73	3.47	4.54	1.42	2.73	08/01/2002
MT Housing Infrastructure Trust	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.90	08/01/2023
MUS Group Insurance	0.85	2.88	4.03	1.29	1.90	1.68	1.59	0.57	0.26	1.70	3.39	1.96	1.46	10/01/2011
MUS Workers Compensation	0.18	2.03	3.43	0.95	2.07	1.78	N/A	0.10	0.46	2.55	4.43	1.62	1.76	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, 2023

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2022	2021	2020	2019	2018	Since Incep.	Inception Date
Older Montanans Trust	-2.50	-1.86	0.74	-1.32	2.36	1.80	2.74	-4.23	1.41	7.19	8.62	0.49	3.83	08/01/2007
Permanent Coal Trust Excl Crp	-1.58	-0.64	1.30	-0.06	2.47	2.09	2.87	-2.02	1.82	5.57	6.81	1.28	5.17	12/01/1993
PERS Defined Cont Disability	-2.91	7.04	14.66	4.28	5.15	6.39	N/A	-15.55	13.16	14.06	20.77	-4.88	5.90	09/01/2015
Potter Trust Fund	-2.17	-1.40	1.10	-1.08	2.40	1.83	N/A	-3.96	1.41	6.78	8.47	0.51	2.08	06/01/2016
Resource Indemnity Trust	-2.68	-2.11	0.54	-1.44	2.34	1.78	2.80	-4.44	1.48	7.23	8.88	0.44	5.41	12/01/1993
School Facilities Fund	-2.70	-2.18	0.52	-1.44	2.07	N/A	N/A	-4.24	1.39	6.97	7.88	-0.13	1.58	01/01/2018
Smelter Hill Up Restorative	-2.08	-1.20	1.18	-0.93	1.69	1.47	1.63	-3.54	1.29	5.62	5.64	1.57	1.86	11/01/2008
State Fund Insurance	-2.41	0.38	3.37	-0.77	2.35	2.32	2.96	-7.68	3.04	7.62	9.65	0.38	4.99	12/01/1993
Streamside Tailings Operable Unit	-2.18	-1.42	1.03	-1.06	2.25	1.75	2.62	-3.70	1.27	6.47	7.92	0.57	4.63	02/01/1999
Subsequent Injury Fund	1.30	4.01	4.90	1.94	1.87	1.72	1.28	1.66	0.13	0.73	2.28	1.98	2.91	12/01/1993
Tobacco Trust Fund	-2.65	-2.05	0.58	-1.41	2.30	1.75	2.77	-4.40	1.51	7.10	8.67	0.46	4.78	01/01/2001
Treasurers	1.13	3.33	4.30	1.60	1.65	1.55	1.19	1.34	0.10	0.63	2.28	1.97	2.72	12/01/1993
Montana Coal Endowment Fund	-2.64	-2.05	0.59	-1.41	2.33	1.78	2.79	-4.37	1.47	7.15	8.81	0.46	5.29	12/01/1993
MT Coal Endowment Regional Water	-2.63	-2.04	0.59	-1.40	2.33	1.78	2.78	-4.37	1.47	7.15	8.80	0.45	4.93	06/01/2000
Trust and Legacy Account	-2.66	-2.08	0.57	-1.42	2.34	1.78	2.80	-4.37	1.47	7.19	8.84	0.43	5.98	07/01/1991
UCFRB Assess/Litig Cost Rec	-2.67	-2.06	0.57	-1.42	2.19	1.67	2.62	-4.37	1.53	6.68	8.50	0.49	4.88	07/01/1999
UCFRB Restoration Fund	-2.54	-1.87	0.72	-1.34	2.28	1.78	2.64	-4.22	1.36	6.90	8.52	0.67	4.82	06/01/1999
Upper Blackfoot Response	1.02	3.24	4.29	1.63	2.27	1.90	1.82	1.22	0.32	1.55	4.24	1.49	1.69	09/01/2010
Weed Control Trust	-2.68	-2.11	0.54	-1.44	2.34	1.78	2.80	-4.44	1.48	7.23	8.88	0.44	4.66	12/01/1993
Wildlife Habitat Trust	-2.47	-1.79	0.76	-1.28	2.30	1.75	2.69	-4.10	1.38	6.75	8.54	0.51	4.79	12/01/1993
Yellowstone Pipeline Cleanup Fund	-1.45	-0.53	1.25	N/A	N/A	N/A	N/A	-1.42	N/A	N/A	N/A	N/A	-0.18	04/01/2021
Zortman/Landusky LT H2O	1.35	3.70	4.61	1.85	1.81	1.66	1.55	1.68	0.13	0.73	2.28	1.98	5.79	09/01/1999
Z/L Long Term H2O Trust Fund	1.35	3.70	4.61	1.85	1.81	1.66	1.58	1.68	0.13	0.73	2.28	1.98	3.82	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), iShares:MSCI EAFE ETF (EFA), and International Equity Pool STIF. 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, 100% MSCI US REIT Index (USD) (Gross) through 06/30/2020, and 100% NCREIF ODCE (AWA) (1 Qtr Lag) Index thereafter.
- The Private Investments Custom Index consists of 100% S&P 1500 Comp Index+4% (1 Qtr Lag) through 03/31/2017, 100% MSCI US Small Cap Index (USD) (Gross) through 12/31/2020, and the portfolio weighted MSCI US SC / S&P LSTA US Leverage Loan 100 Index for PE / PC 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.
- The Cohen & Steers Custom Index consists of 60% ICE BofAML US IG Institutional Capital Securities Index, 20% ICE BofAML Core Fixed Rate Preferred Securities Index, and 20% Bloomberg Barclays Developed Market USD Contingent Capital Index.
- The Payden & Rygel Custom Index consists of 70% JP Morgan EMBI Global Diversified Index, 30% JP Morgan GBI-EM Global Diversified Index.
- The JPM US Equity Custom Benchmark consists of 100% S&P 500 Index (Cap Weighted) through 06/30/2019 and 100% MSCI US Index (USD) (Gross) thereafter.
- The Real Assets Custom Index consists of 100% MSCI All Country World Commodity Producers Index (USD) (Net) through 12/31/2020 and 33.33% MSCI All Country World Commodity Producers Index (USD) (Net), 33.33% MSCI All Country World Infrastructure Index, 33.33% Bloomberg Barclays Global Inflation Linked US TIPS Index thereafter.
- The Core Fixed Income Custom Index consists of 100% Bloomberg US Agg Bond Index through 03/31/2017, the portfolio weighted average of Broad Fixed Income - PAC Custom Blend, Bloomberg US Corp Inv Grade Index, Bloomberg US MBS Index, Bloomberg US Int TIPS Index, Bloomberg US Trsy Int Trm Index through 11/30/2019, and 100% Bloomberg US Agg Bond Index thereafter.
- The plan sponsor peer group was updated from All Public Plans >\$3B Total Fund Median to All Public Plans >\$5B Total Fund Median.
- As of 07/01/2021, the Trust Fund Custom Index Benchmark is the portfolio weighted averaged of the primary benchmark, consisting of NCREIF ODCE Index (1Q lag), Bloomberg US High Yield - 2% Issuer Cap Index, and Bloomberg US Aggregate Bond Index.

Trust Accounts Comments

- Montana State Library Trust was added in 09/2023.
- MT Housing Infrastructure Trust was added in 07/2023.
- Hail Insurance Investments was added in 11/2022.
- The Yellowstone Pipeline Cleanup Fund was added in 04/2021.
- The East Helena Greenway Trail Maintenance Fund was added in 03/2021.
- The Invasive Species Trust Fund was added in 10/2020.
- 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.

Addendum

Manager Transition Comments

- BlackRock MSCI Emg Mkts Index NL (CF) was terminated in 04/2023.
- Zazove Convertible Bonds (SA) was funded in 03/2023.
- American Century Investment Mgmt (SA) was terminated in 03/2023.
- Templeton Investment Counsel (SA) was terminated in 03/2023.
- Reams Asset Core Plus (SA) was terminated in 03/2023.
- iShares:Russ 2000 ETF (IWM) and iShares:MSCI EAFE ETF (EFA) were liquidated in Q4 2022 to fund iShares:Core S&P Small Cap ETF (IJR) and iShares:Core MSCI EAFE ETF (IEFA), respectively.
- BlackRock MSCI USA Small Cap Index was transitioned from a commingled fund to a separate account structure during Q3 2022 to obtain a lower fee structure.
- Acadian Ex US Small Cap (SA) was funded in 02/2022.
- DFA Emg Mkts Sm Cap;I (DEMSX) was liquidated in 02/2022.
- DFA Intl Sm Co;I (DFISX) was liquidated in 02/2022.
- iShares:MSCI Em Mkts (EEM) was liquidated in 01/2022.
- iShares:Core MSCI EmMkts (IEMG) was funded in 12/2021.
- SPDR S&P 500 ETF (SPY) was liquidated in 12/2021.
- iShares:Core S&P 500 (IVV) was funded in 11/2021.
- DFA US Sm Cap Tr (CF) was liquidated in 11/2021.
- Jacobs Levy 130/30 Large Cap (SA) was liquidated in 11/2021.
- J.P. Morgan 130/30 (SA) was liquidated in 11/2021.
- T. Rowe U.S. Structured Research (SA) was liquidated in 11/2021.
- Vaughan Nelson Management (SA) was liquidated in 11/2021.
- iShares:Core S&P Tot USM (ITOT) was funded in 11/2021.
- Payden & Rygel EMD (SA) was funded in 12/2020.
- Cohen & Steers Preferred Securities (SA) was funded in 10/2020.
- 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.
- 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.
- 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.
- INTECH Enhanced Plus was liquidated in 06/2017.
- 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.
- BlackRock Equity Index Fund A (CF) and BlackRock Mid Cap Equity Index A (CF) were liquidated in 05/2017.
- Nicholas Investment Partners was liquidated in 07/2016. Residual assets from liquidation were distributed in 03/2017.
- 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.
- DFA Emg Mkts Sm Cap;I (DEMSX) was funded in 02/2017.
- SPDR S&P 500 ETF (SPY) was liquidated in 01/2017.
- iShares:MSCI Em Mkts (EEM) was funded in 12/2016.
- SPDR S&P 500 ETF (SPY) was initially funded in 09/2015, was then liquidated in 12/2015, and was re-funded in 10/2016.
- 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.

Addendum

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, Preferred Securities and EMD.
- Private Investments currently consist of Private Equity, Private Credit, Venture Capital, and Passive ETFs.
- During Q1 2021 the Natural Resources PAC was renamed to the Real Assets PAC.

**Montana Board of Investments
Fee Schedule**

As of September 30, 2023

	Fee Schedule	Market Value As of 09/30/2023 (\$)
iShares:Core S&P Tot USM (ITOT)	0.03 % of Assets	135,201,490
iShares:Core S&P 500 (IVV)	0.03 % of Assets	26,639,567
iShares:Core S&P Md-Cp (IJH)	0.05 % of Assets	18,199,222
iShares:Core S&P Sm-Cp (IJR)	0.06 % of Assets	65,110,690
iShares:Core MSCI EAFE (IEFA)	0.07 % of Assets	102,706,847
iShares:Core MSCI EmMkts (IEMG)	0.09 % of Assets	65,212,006

ETF fees are sourced from Morningstar and/or the investment manager.

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Investment Update

Board Meeting: December 12, 2023

Information as of: September 30, 2023

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Appendix	54

CIO Update

Economic Environment

- **Leading Economic Index** – Steady decline over the last 12 months. However, the strength/weakness of the underlying components is mixed.
- **Job Growth** – Job and earnings growth have been slowing although unemployment remains relatively low compared to history.
- **Retail Sales** – Retail sales fell slightly in October. This was the first decline in 6 months and suggests consumer spending may be slowing.
- **Inflation** – CPI ex. Food and Energy slowed to 4% year over year in October. Headline CPI slowed to a 3.2% annualized rate.
- **Housing** – Existing home sales and housing starts have fallen sharply as mortgage rates increased. Housing affordability remains near historic lows.
- **ISM Indices** – The ISM Manufacturers Index was 46.7 in October indicating contraction while the Services Index was 51.8 indicating modest expansion.

CIO Update

Economic Environment

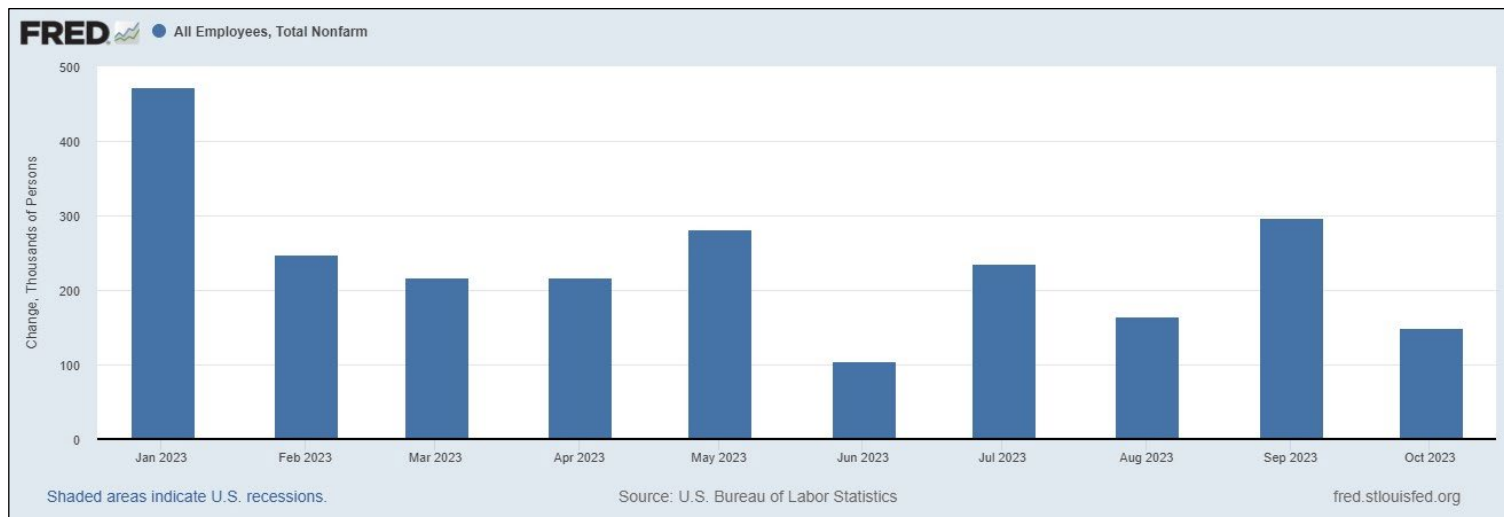
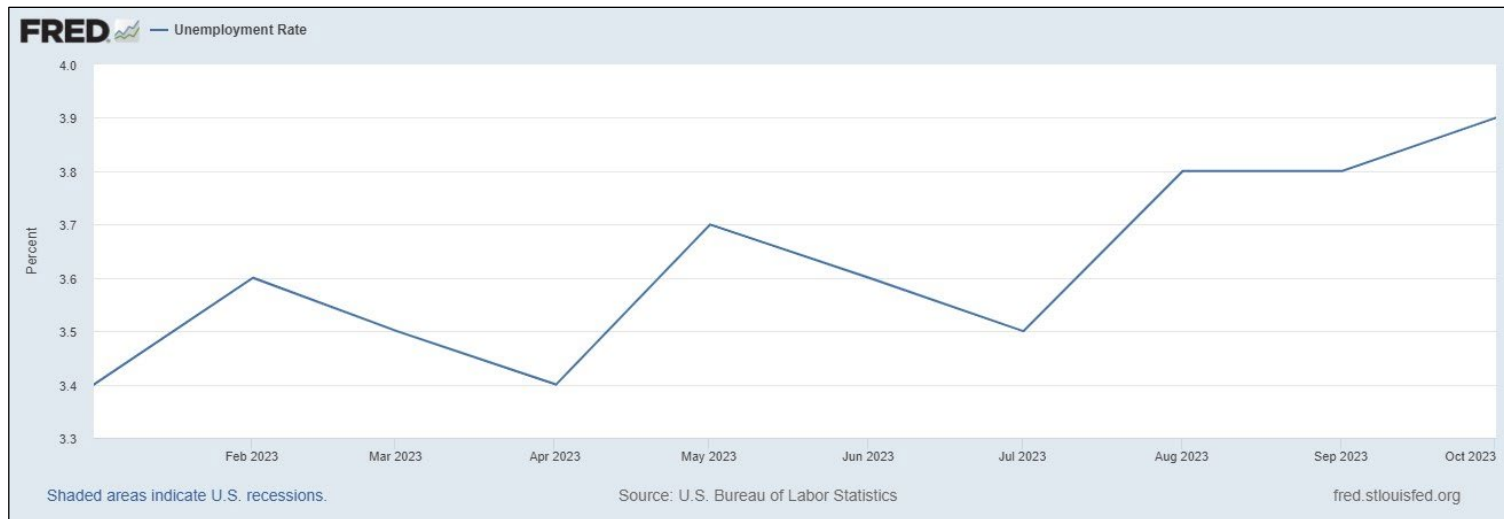
Inflation has declined although remains above the Federal Reserve's 2% goal.



CIO Update

Economic Environment

Employment remains strong but has been weakening the last 9 months.

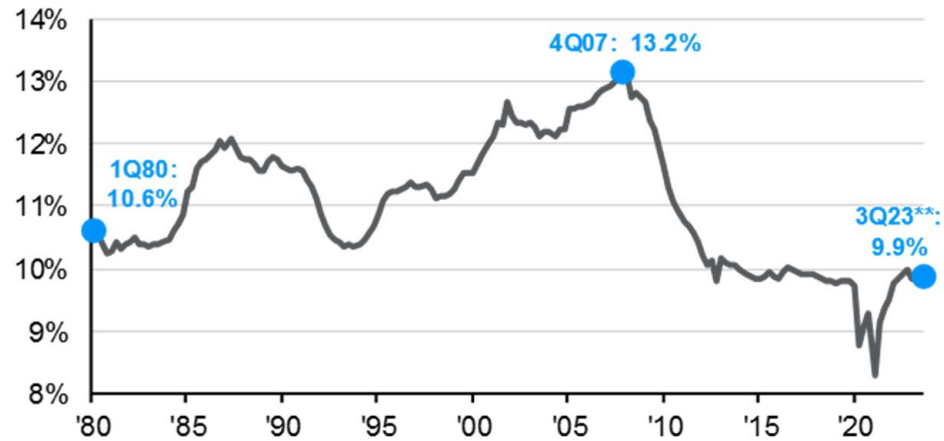


CIO Update

Economic Environment

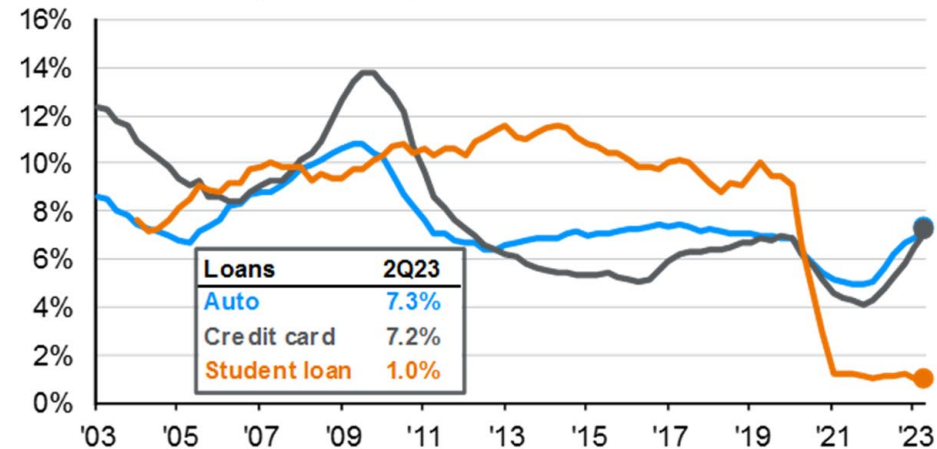
Household debt service ratio

Debt payments as % of disposable personal income, SA



Flows into early delinquencies

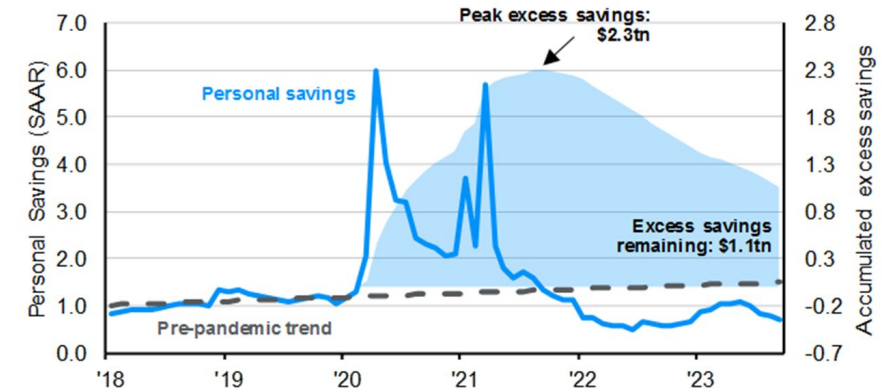
% of balance delinquent 30+ days



Household debt levels and delinquencies are rebounding as stimulus money dissipates.

Household excess savings

Trillions of USD



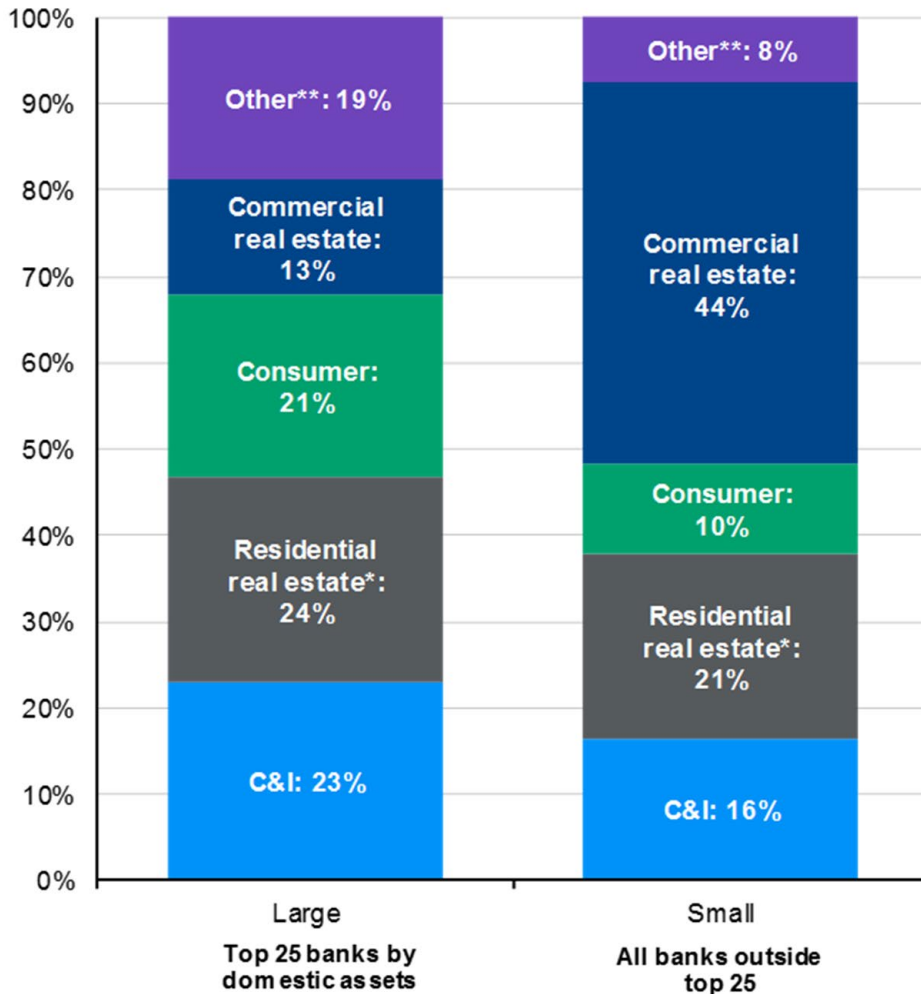
Source: JPM 4Q23 Guide to the Markets

CIO Update

Economic Environment

Asset exposure by bank size

% of total loans and leases, domestically chartered commercial banks

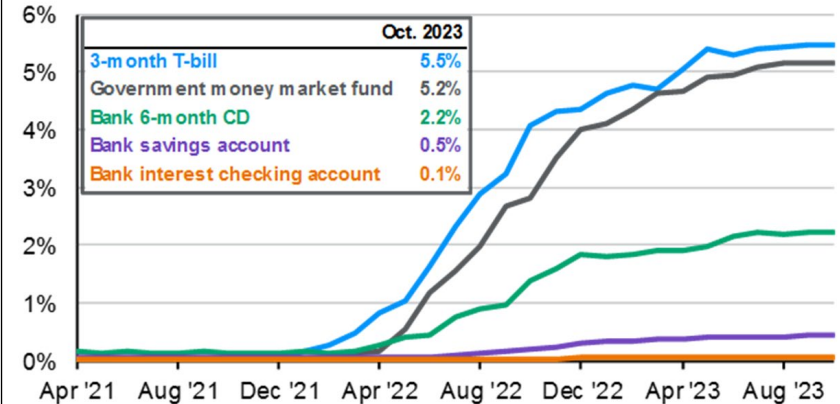


Small bank exposure to commercial real estate is a concern.

Higher rates on deposits also presents a challenge in the short to intermediate term.

Important market interest rates

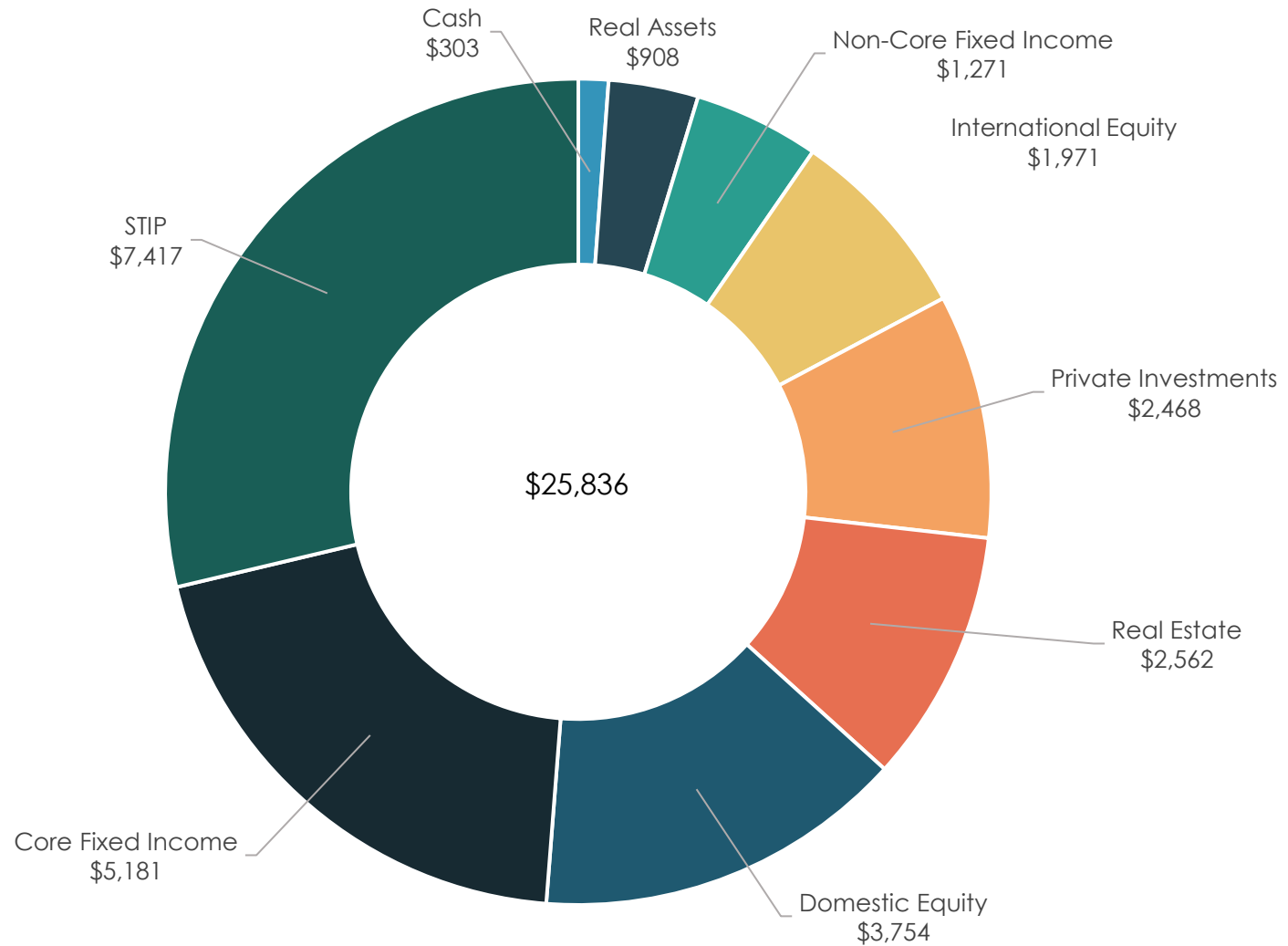
Monthly



Source: JPM 4Q23 Guide to the Markets

CIO Update

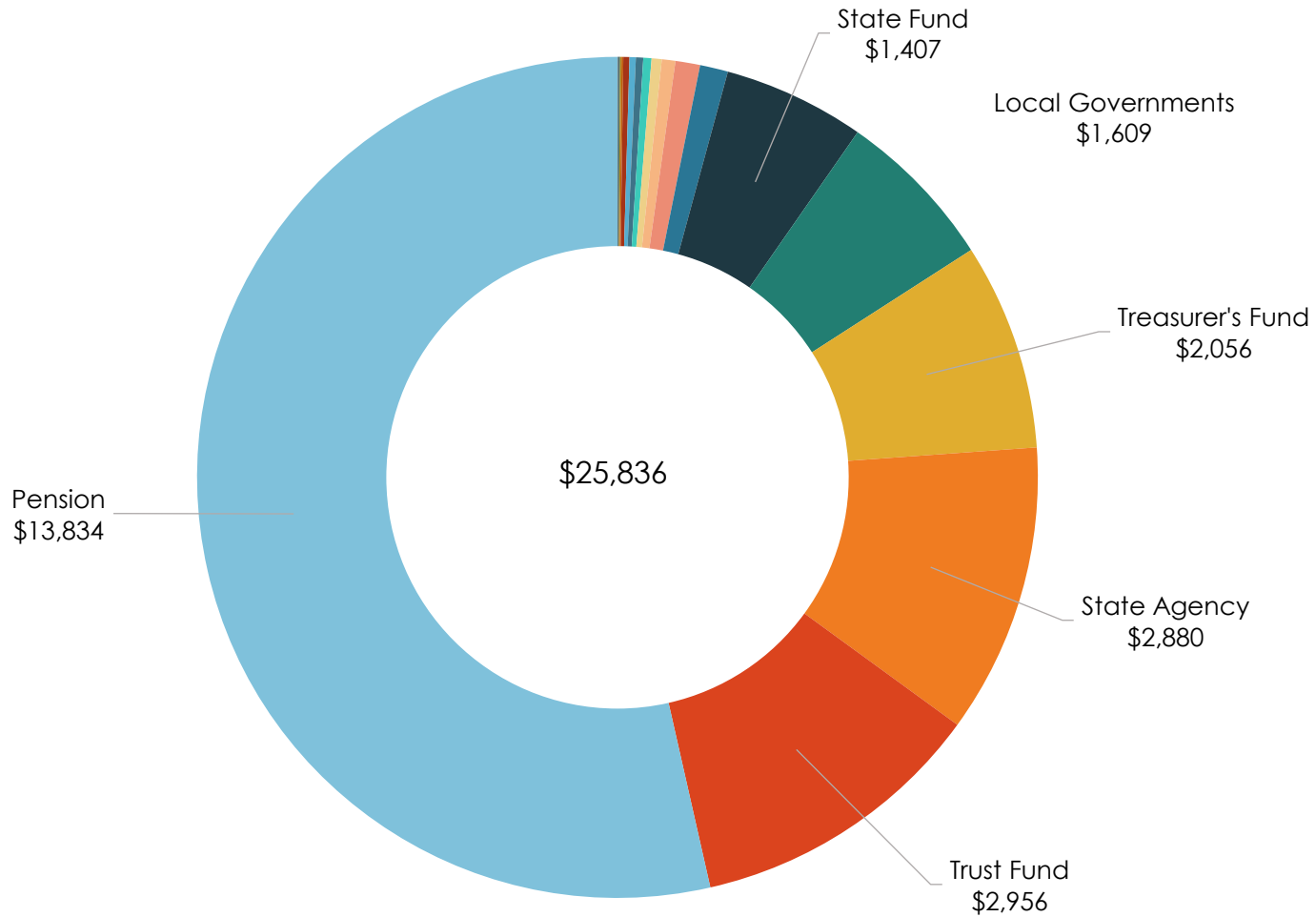
AUM by Asset Class



* Dollar values are in \$1,000,000
September 30, 2023

CIO Update

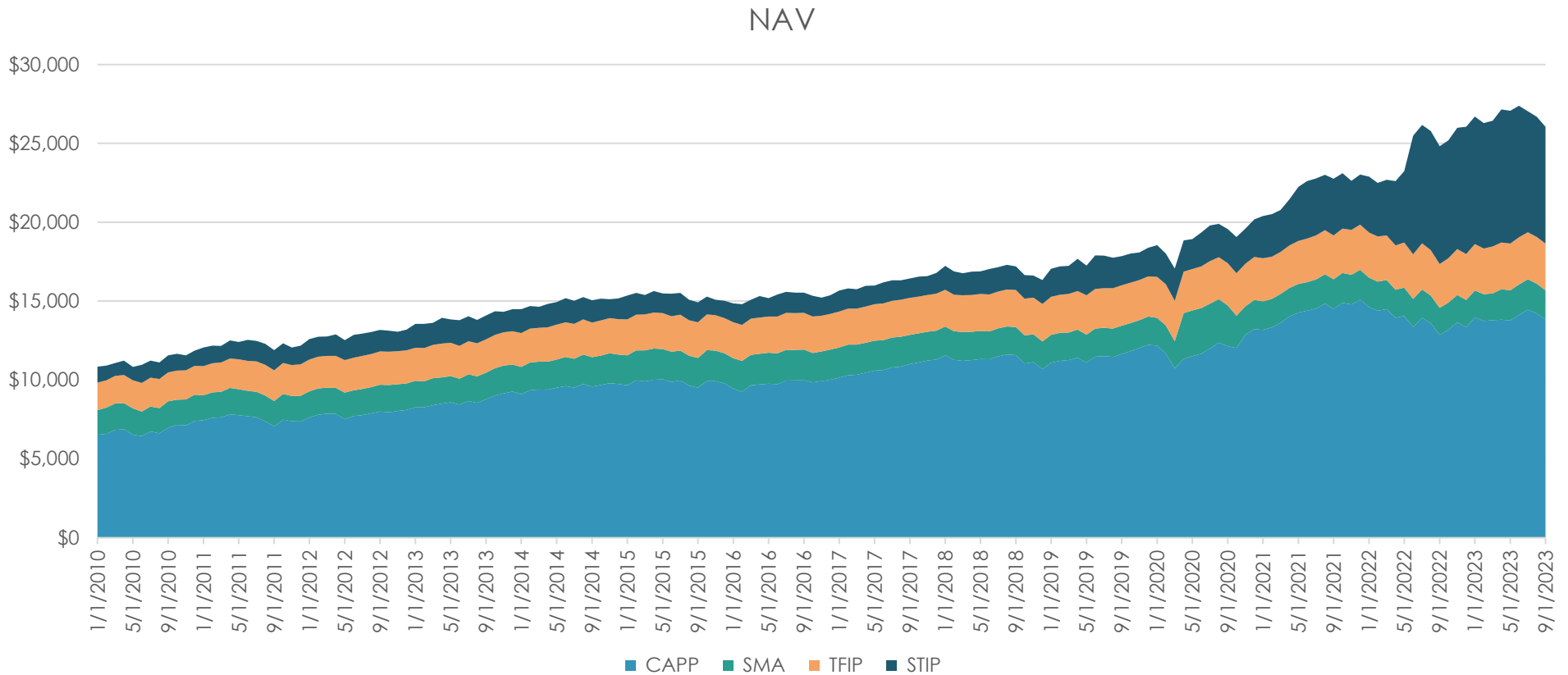
AUM by Participant Type



* Dollar values are in \$1,000,000
September 30, 2023

CIO Update

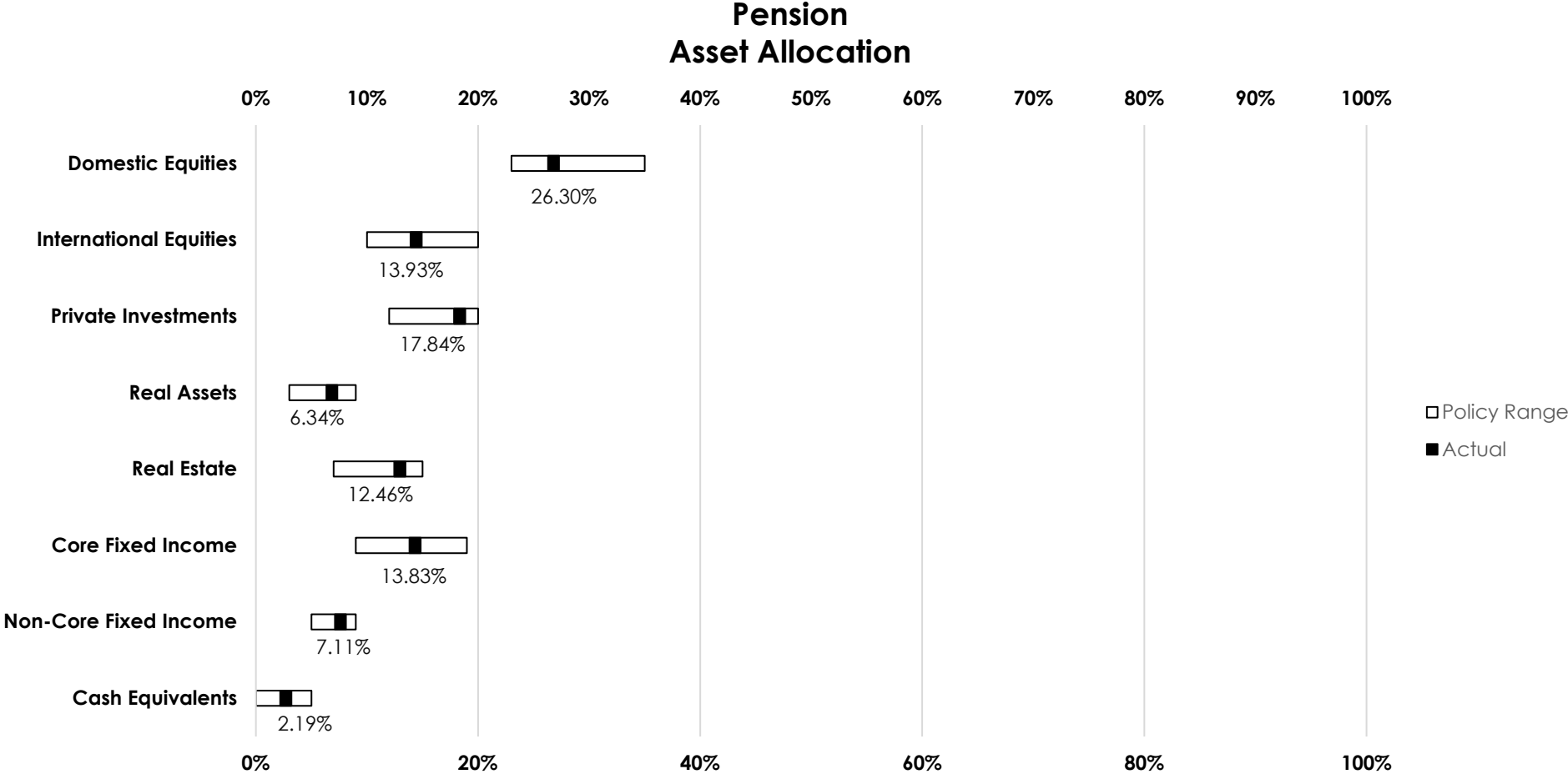
AUM by Pool



* Dollar values are in \$1,000,000
September 30, 2023

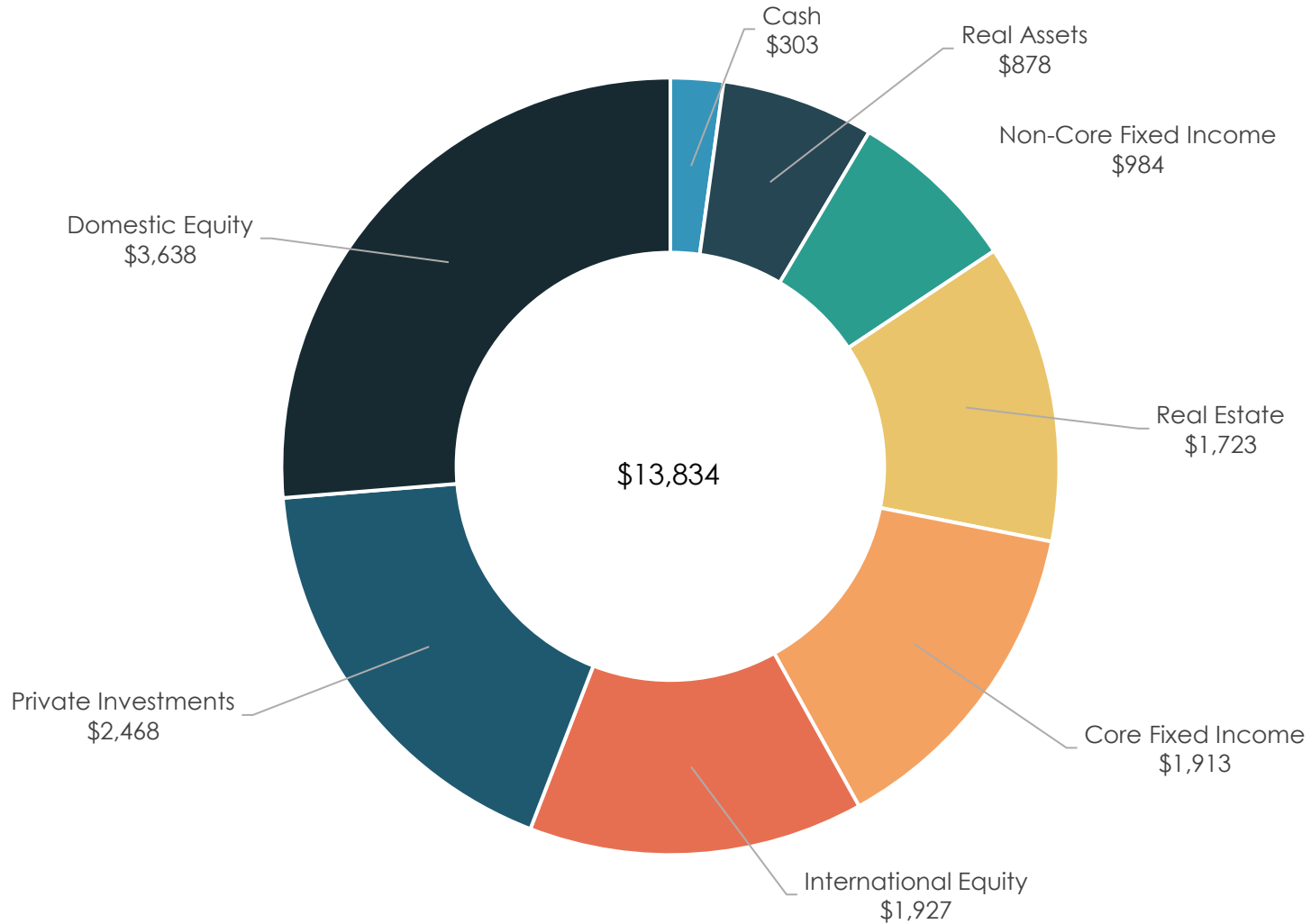
CIO Update

Pension Asset Allocation



CIO Update

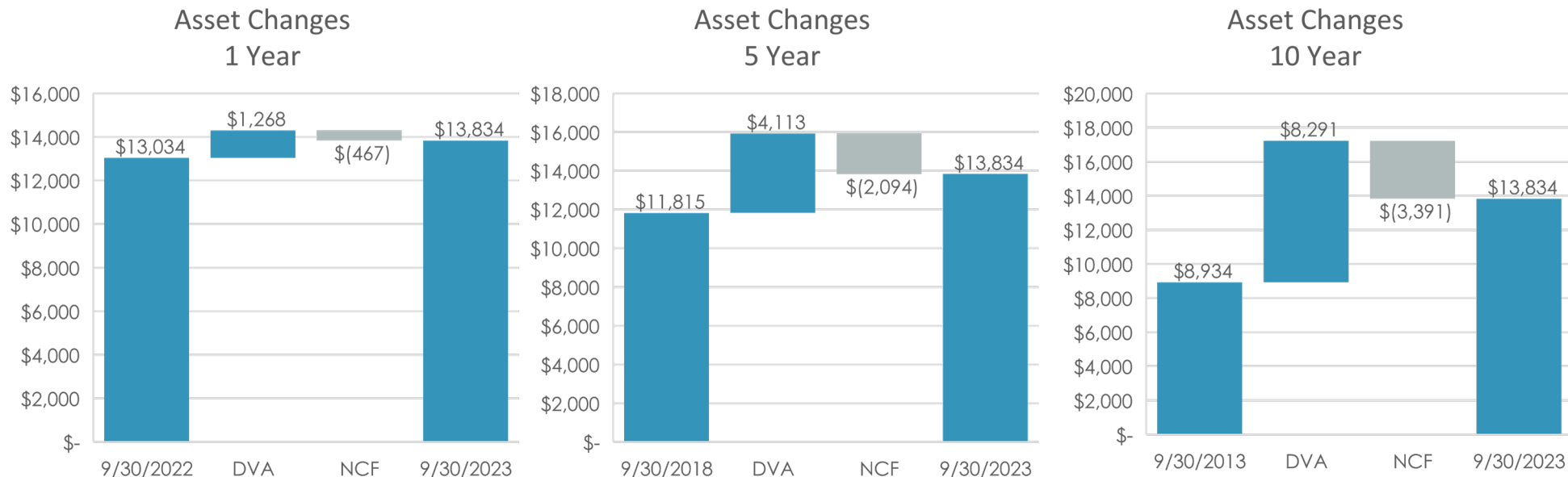
Pension Asset Allocation



* Dollar values are in \$1,000,000
September 30, 2023

CIO Update

Pension Net Performance



- Dollar Value Added – The total dollar return of the portfolio including income and capital gains
- Net Cash Flow - The total dollar amount distributed from portfolio assets to meet the deficit of contributions minus distributions
 - A grey 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

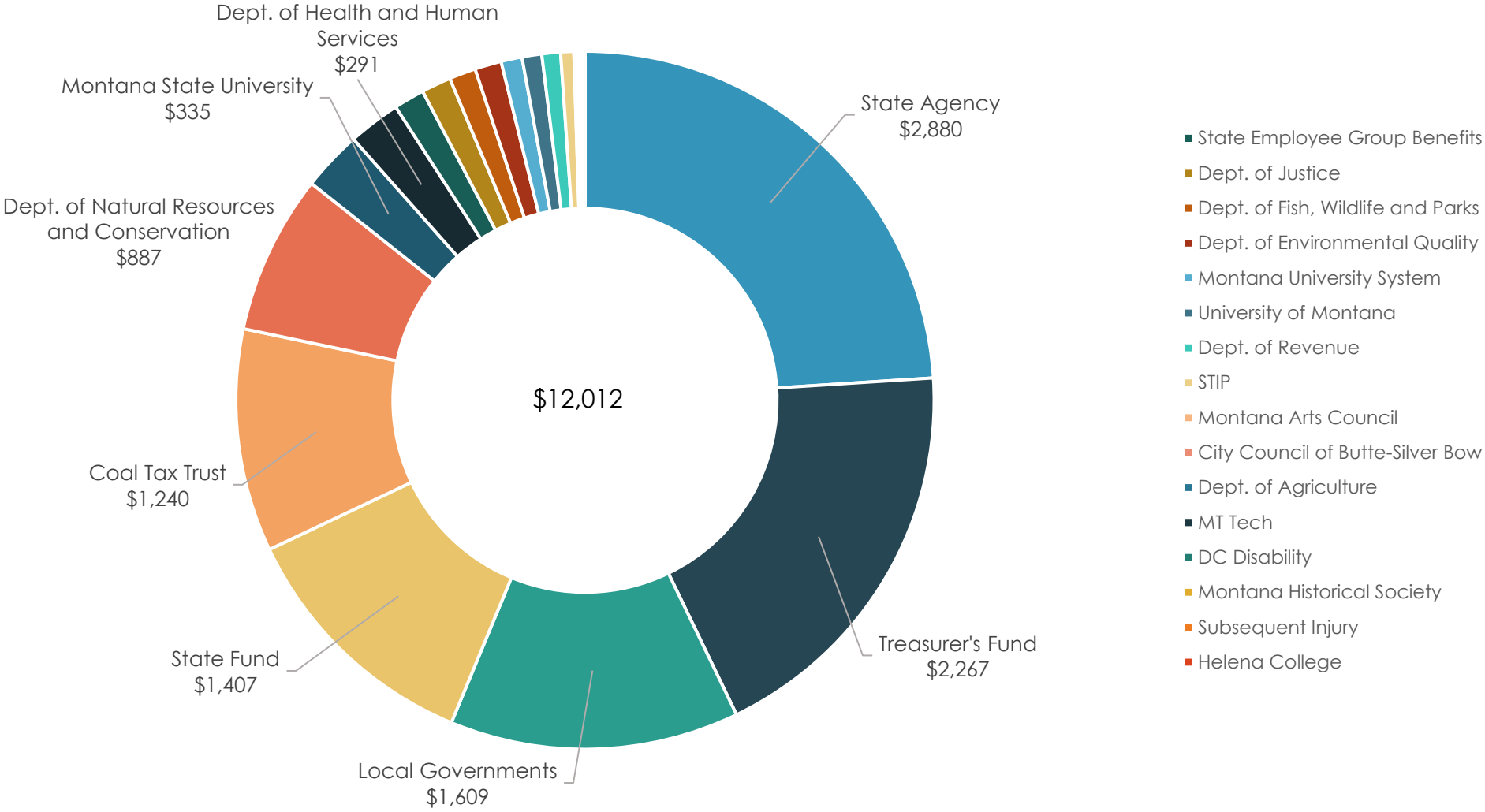
Pension Net Performance

Performance	1 Year	3 Year	5 Year	10 Year	20 Year	Since Inception
Public Employees' Retirement	9.83%	7.34%	6.56%	7.48%	7.18%	7.57%
Police Officers' Retirement	9.83%	7.33%	6.56%	7.48%	7.13%	7.46%
Game Wardens' Retirement	9.81%	7.33%	6.55%	7.47%	7.13%	7.49%
Sheriffs' Retirement	9.82%	7.34%	6.56%	7.47%	7.17%	7.48%
Judges' Retirement	9.83%	7.33%	6.56%	7.48%	7.18%	7.48%
Highway Patrol Retirement	9.79%	7.34%	6.56%	7.48%	7.18%	7.48%
Teachers' Retirement	9.80%	7.32%	6.55%	7.47%	7.19%	7.58%
Vol Firefighters' Retirement	9.81%	7.33%	6.55%	7.47%	7.15%	7.31%
Firefighters' Retirement	9.83%	7.33%	6.56%	7.48%	7.15%	7.45%

Inception 7/1/1994

CIO Update

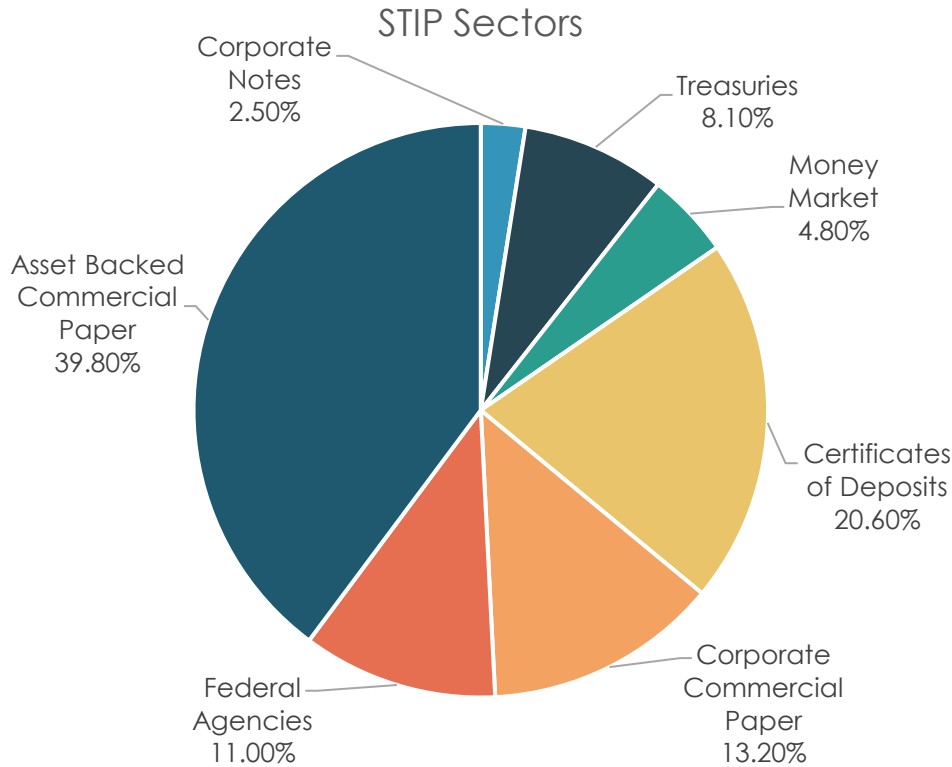
AUM ex. CAPP



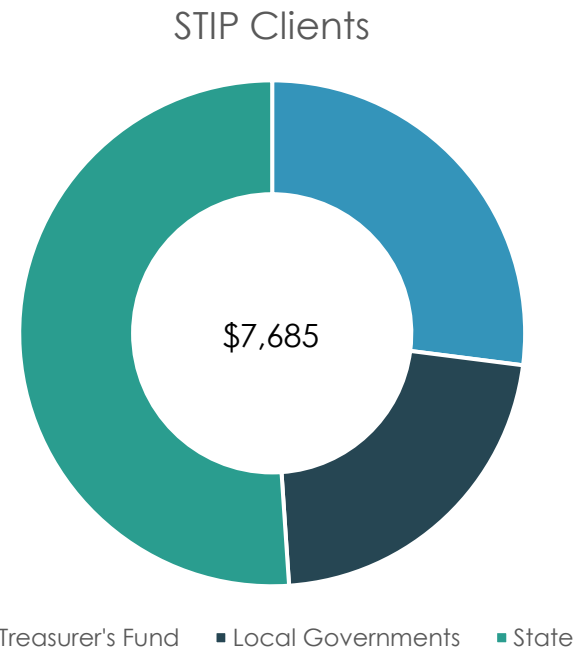
* Dollar values are in \$1,000,000
September 30, 2023

CIO Update

Short Term Investment Pool



- The weighted average maturity of the portfolio was 63 days at quarter end
- The STIP Reserve was \$72.9M at quarter end

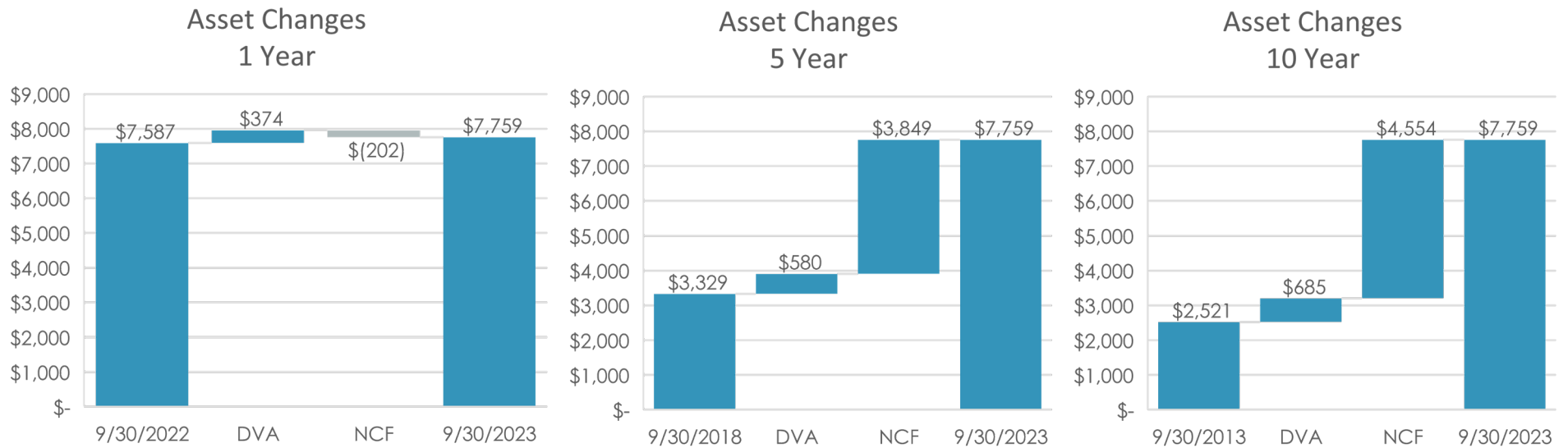


* Dollar values are in \$1,000,000
September 30, 2023

CIO Update

Short Term Investment Pool

STIP Net Performance



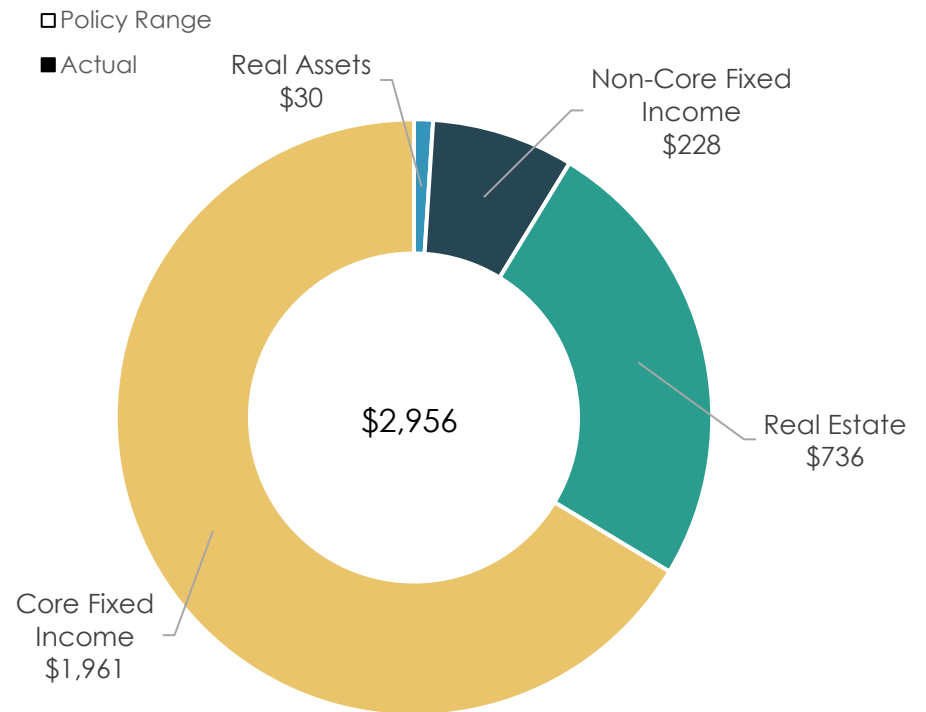
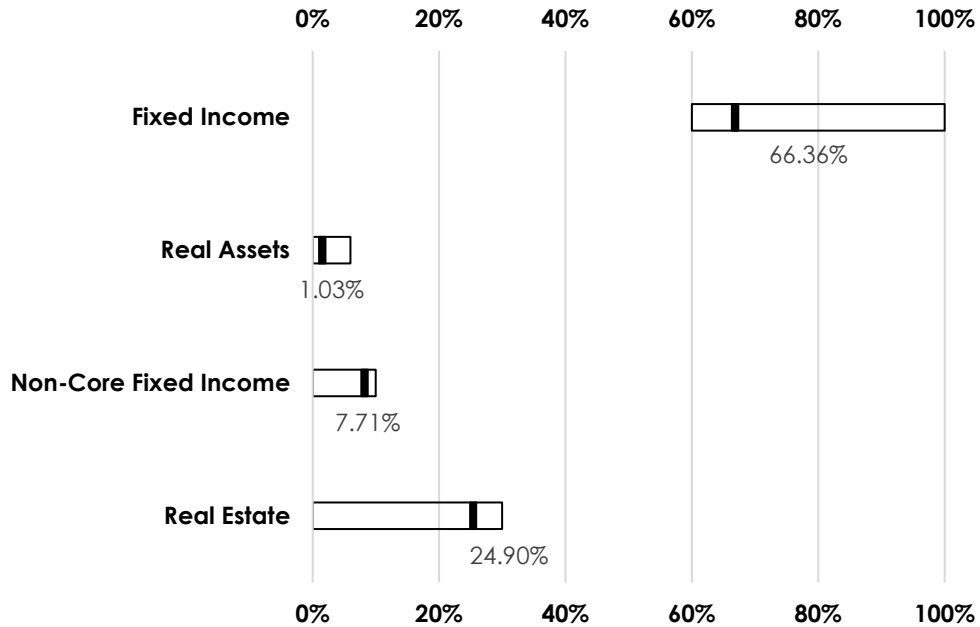
Performance	1 Year	3 Year	5 Year	10 Year	Since Inception
Short Term Investment Pool (STIP)	4.62%	1.84%	1.81%	1.25%	2.34%
Short Term Investment Pool Benchmark	4.79%	1.85%	1.72%	1.20%	2.26%

* Dollar values are in \$1,000,000
September 30, 2023

CIO Update

Trust Funds Investment Pool

**Trust Fund
Asset Allocation**



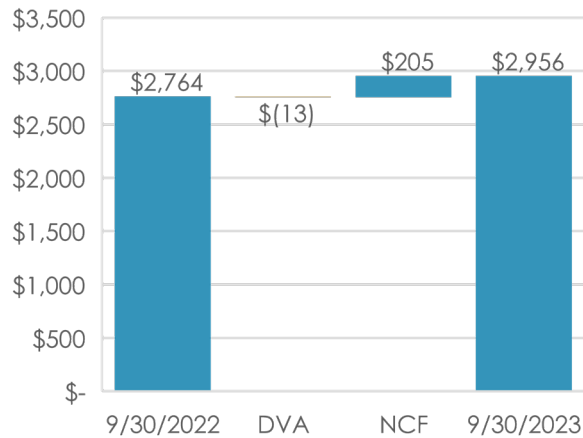
* Dollar values are in \$1,000,000
September 30, 2023

CIO Update

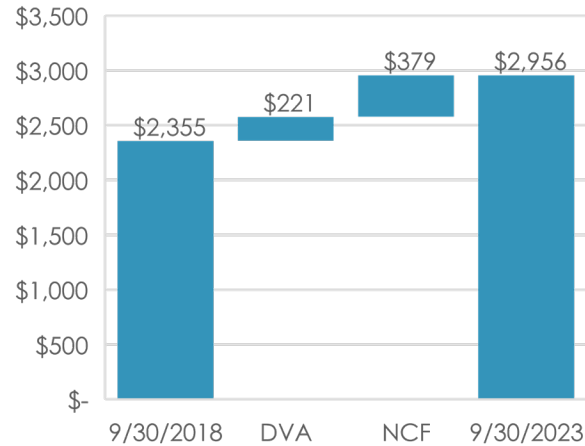
Trust Funds Investment Pool

TFIP Net Performance

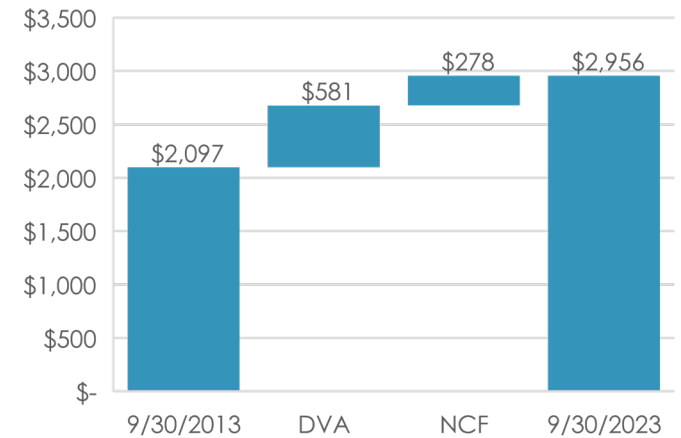
Asset Changes
1 Year



Asset Changes
5 Year



Asset Changes
10 Year



Performance	1 Year	3 Year	5 Year	10 Year	Since Inception
Trust Funds Investment Pool (TFIP)	-0.32%	-2.08%	1.97%	2.62%	5.26%
Trust Funds Investment Pool Benchmark	-1.70%	-2.32%	1.92%	2.04%	4.46%

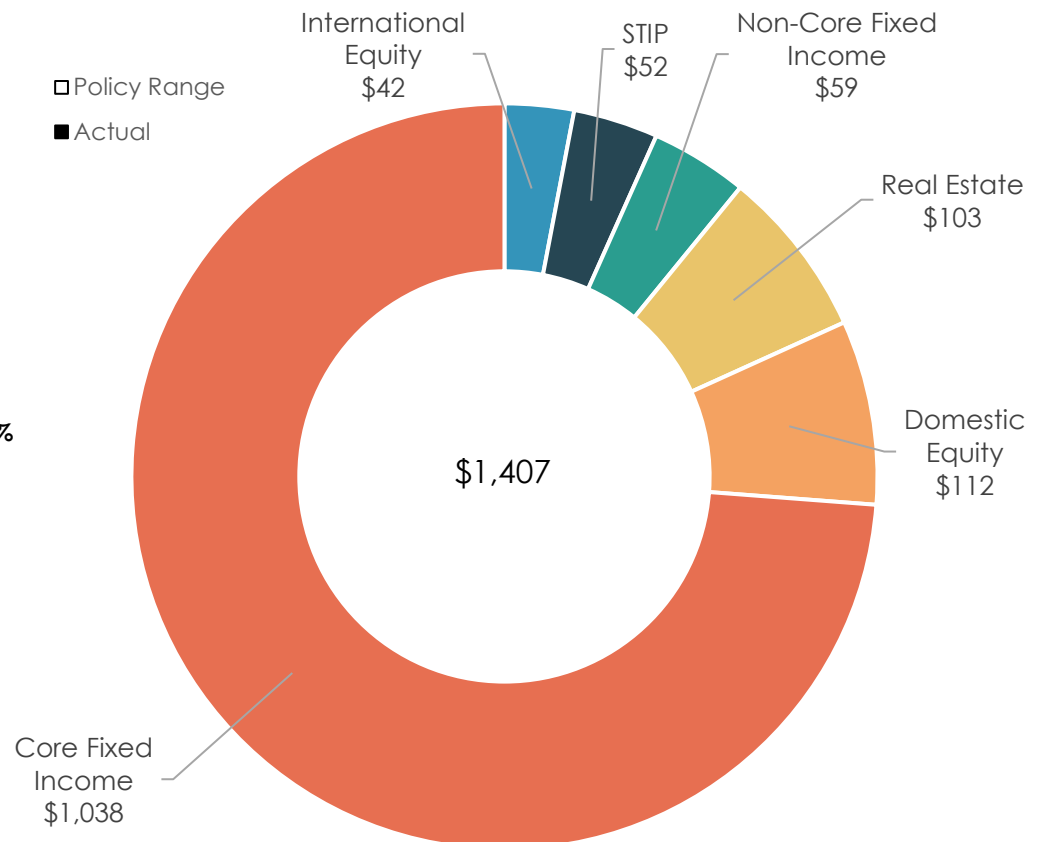
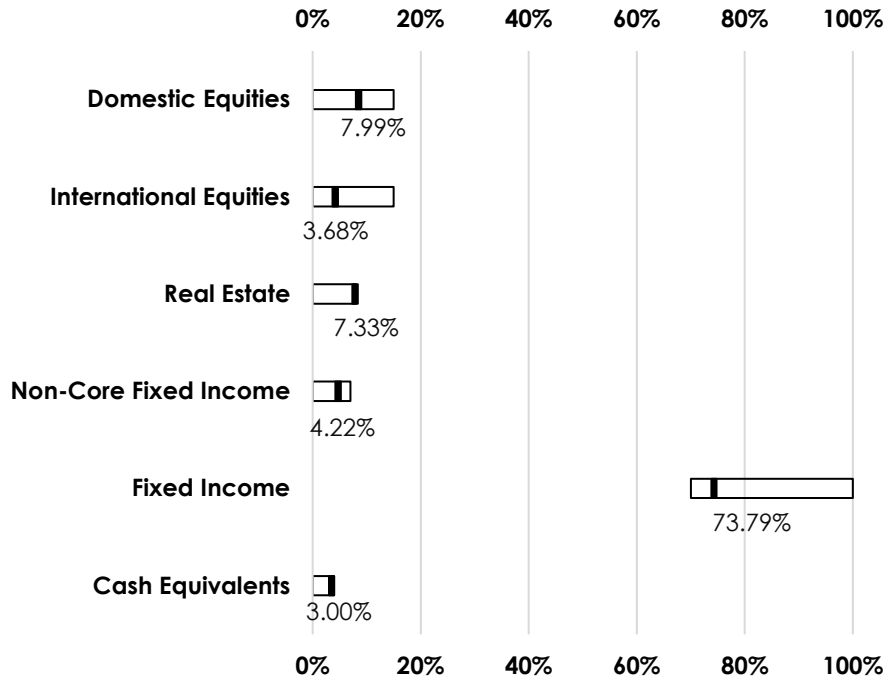
Yield	1 Year	3 Year	5 Year	10 Year
Trust Funds Investment Pool (TFIP)	3.76%	3.23%	3.21%	3.36%

* Dollar values are in \$1,000,000
September 30, 2023

CIO Update

State Fund Investment Pool

**State Fund
Asset Allocation**

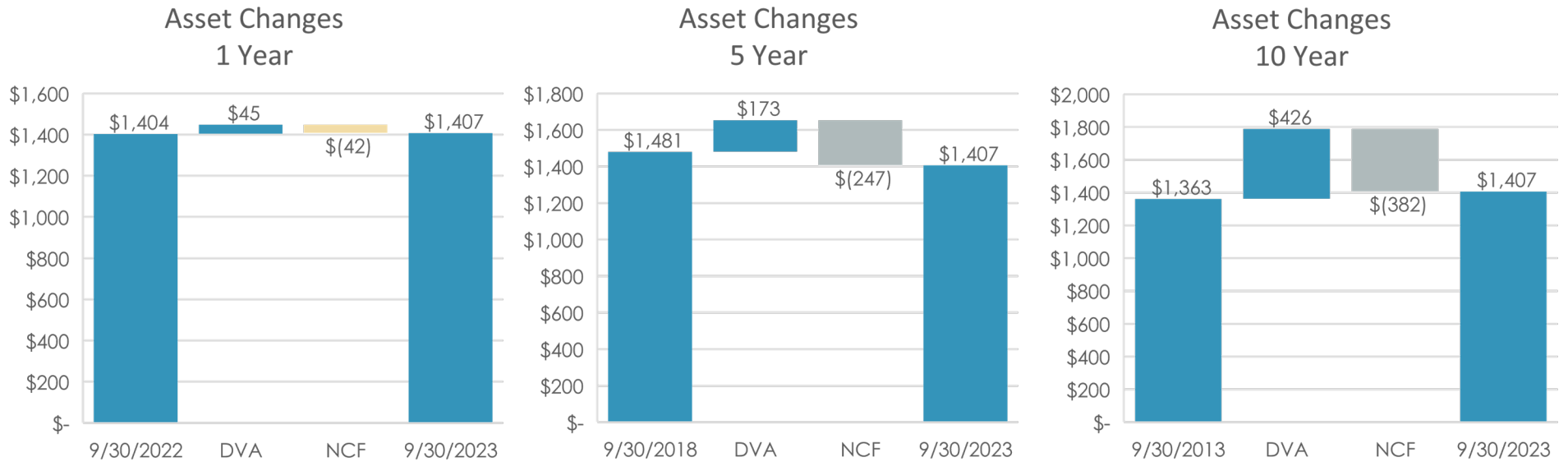


* Dollar values are in \$1,000,000
September 30, 2023

CIO Update

State Fund Investment Pool

SFIP Net Performance



Performance	1 Year	3 Year	5 Year	10 Year	Since Inception
State Fund	3.22%	-0.87%	2.26%	2.91%	4.97%
State Fund Benchmark	1.89%	-1.59%	1.75%	2.50%	4.42%

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

- Federal Reserve rate hikes are successfully slowing the economy. The jury is still out on whether they can achieve a soft landing.
- Maintaining a cautious outlook. Mindful of near-term cash needs for benefits and capital calls.
- Working with the Executive Director to provide TRS/PERS analysis to the SJ4 study commission on pensions. Completed annual letters for TRS/PERS annual reports.
- Working with State Street to add securities lending for T-Bills in STIP which is estimated to add \$900K of revenue given current lending conditions.
- Posted for investment and accounting interns for summer 2024.
- Board training in Boise was a smashing success. All participating board members were returned unharmed.

Macro Attribution

Key Takeaways – 3 Year

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

- All benchmarks except for Core Fixed Income made positive contributions to the pension, policy-neutral, 5.7% return.

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

- About \$800M of equity asset classes were sold and \$333M of fixed income/cash asset classes were bought during the last year. The pension net cash need was \$-467M for the year.
- In aggregate, the overweighting/underweighting of the asset classes relative to their benchmarks increased the pension portfolio's return by 8 bps.

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

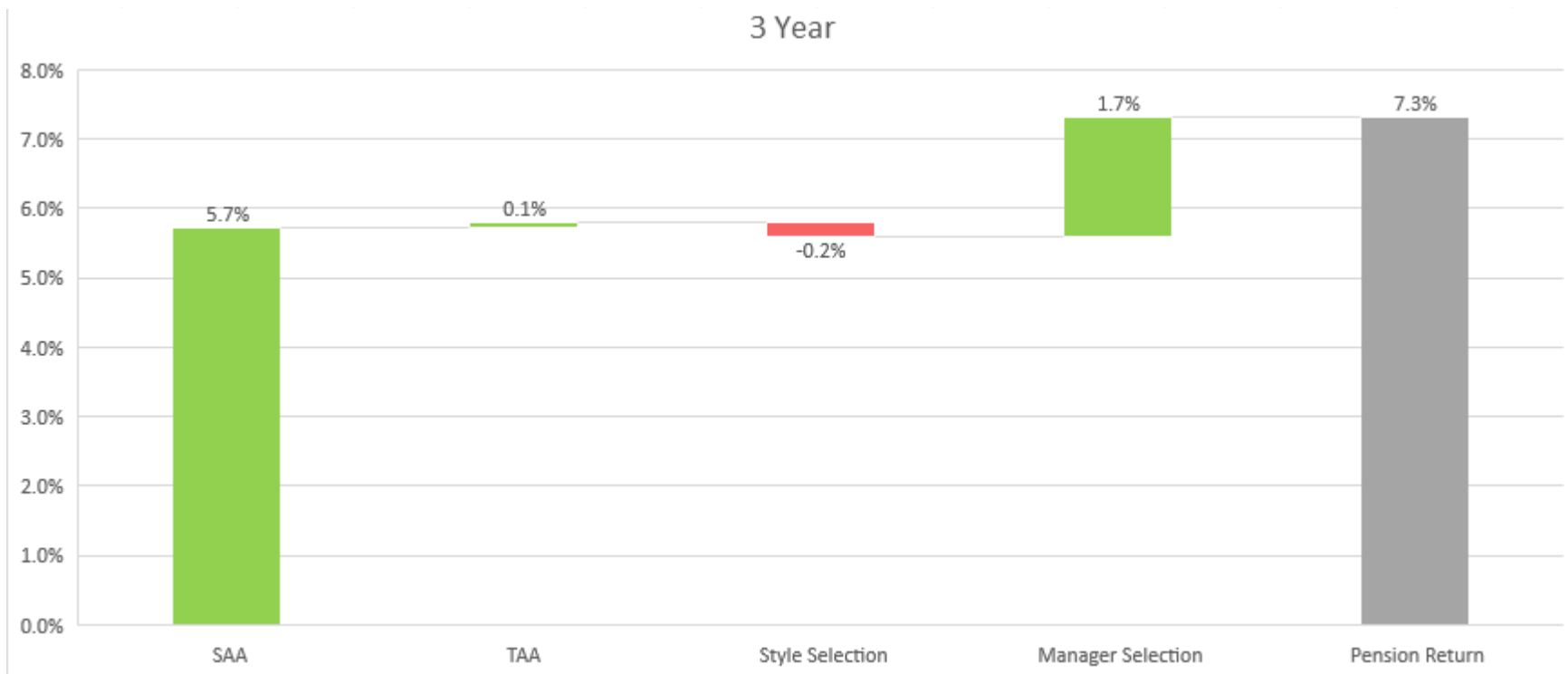
- The International Equity manager benchmarks had an overall higher exposure to growth benchmarks than the asset class benchmark leading to total style underperformance of 14 bps.
- The Real Assets portfolio has about 54% exposure to commodities versus 33% in the custom benchmark. The strong outperformance of the Commodity Producers Index relative to Infrastructure and TIPS resulted in style outperformance of about 23 bps.
- In Real Estate, exposure to a CMBS index was the primary contributor to style underperformance of 22 bps though exposure to REITS was detrimental as well.
- Within Non-Core Fixed Income, exposure to preferred & EMD indexes led to style underperformance of 8 bps.

Manager Selection - *Did the portfolio managers add additional return over their portfolio benchmarks?*

- In International Equity, there was mixed manager performance for a total underperformance of 6 bps.
- Private Investments was by far the main contributor to manager selection outperformance with Private Equity rather than Private Credit being the main contributor. Much of this can be attributed to the lag in pricing of private investments.
- Real Assets had manager selection effects of 10 bps, with Infrastructure providing most of the positive contribution.
- The Private Real Estate Portfolio, CMBS Manager, and REIT Manager all added positive Manager Selection effects totaling 37 bps.

Note: The publicly traded benchmarks for private asset classes are an imperfect proxy for actual holdings due to the pricing of private assets lagging their publicly traded benchmarks.

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.

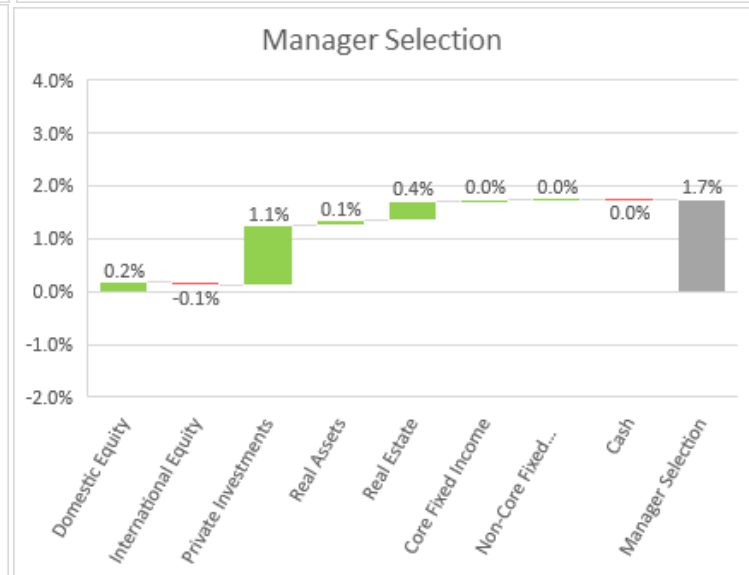
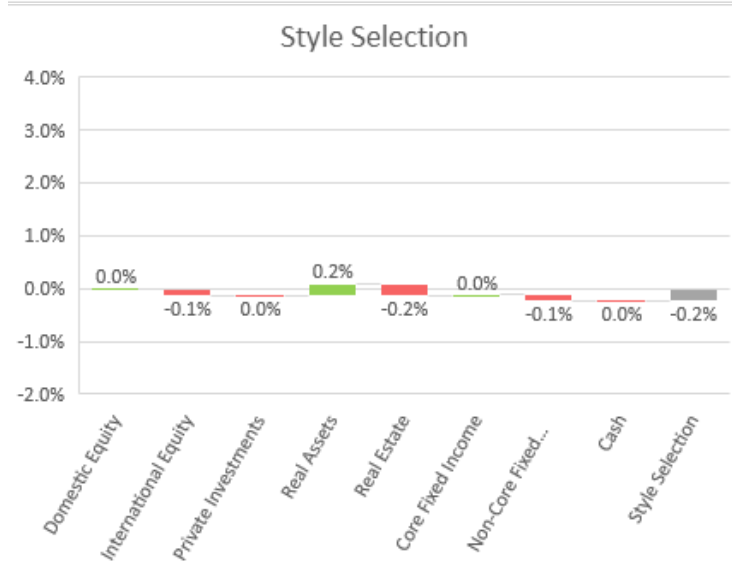
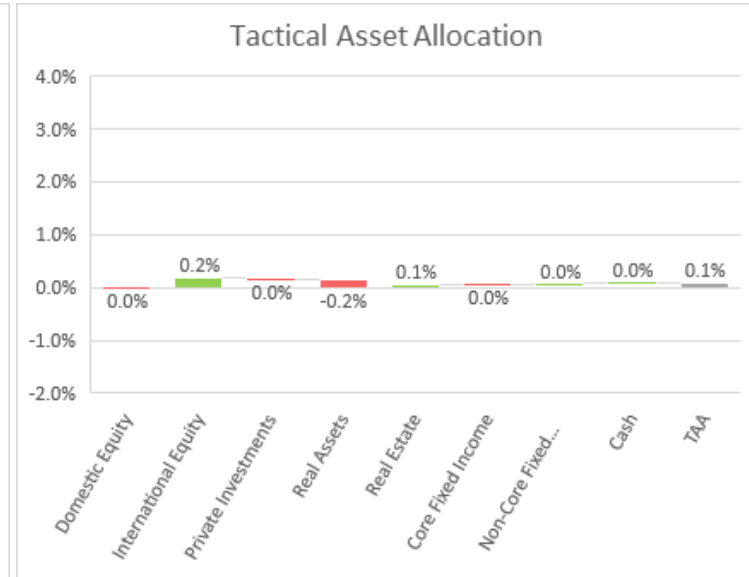
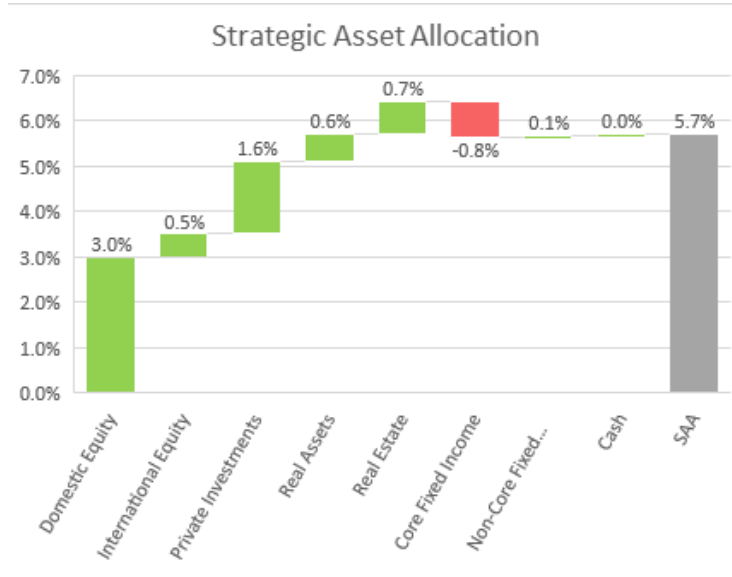
Tactical Asset Allocation (TAA) - The *additional* return earned by investing in the asset class benchmarks at our actual rather than midpoint weights.

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

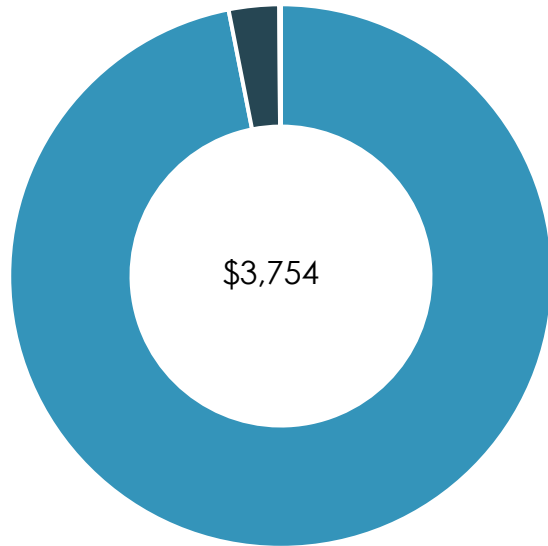
Manager Selection - The *additional* return earned by investing in the underlying managers rather than the underlying manager benchmarks.

* 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.

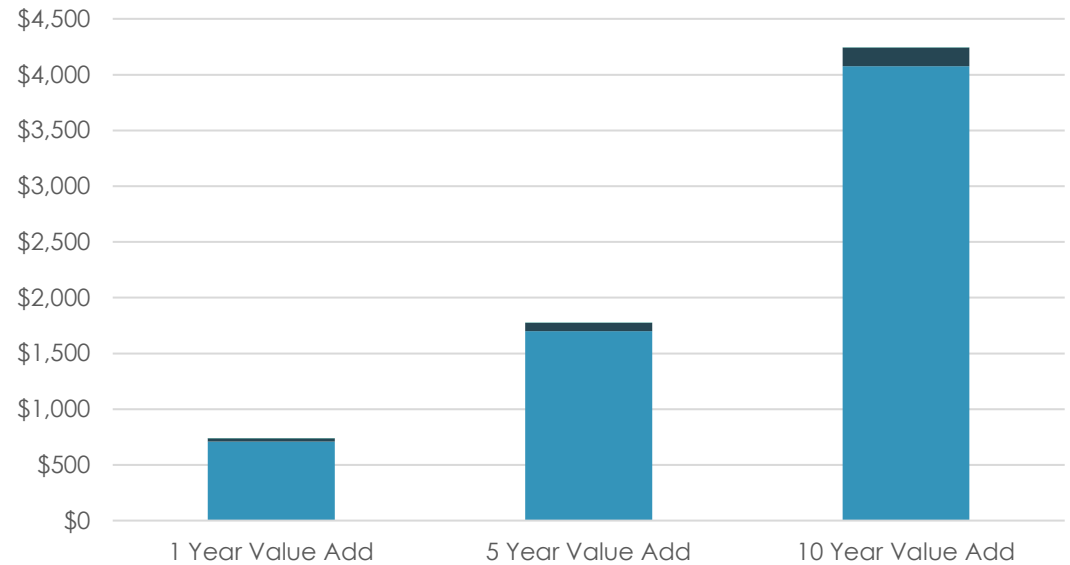
Macro Attribution



Domestic Equity Ownership Breakdown



■ Pension ■ State Fund ■ DC Disability



■ Pension ■ State Fund ■ DC Disability

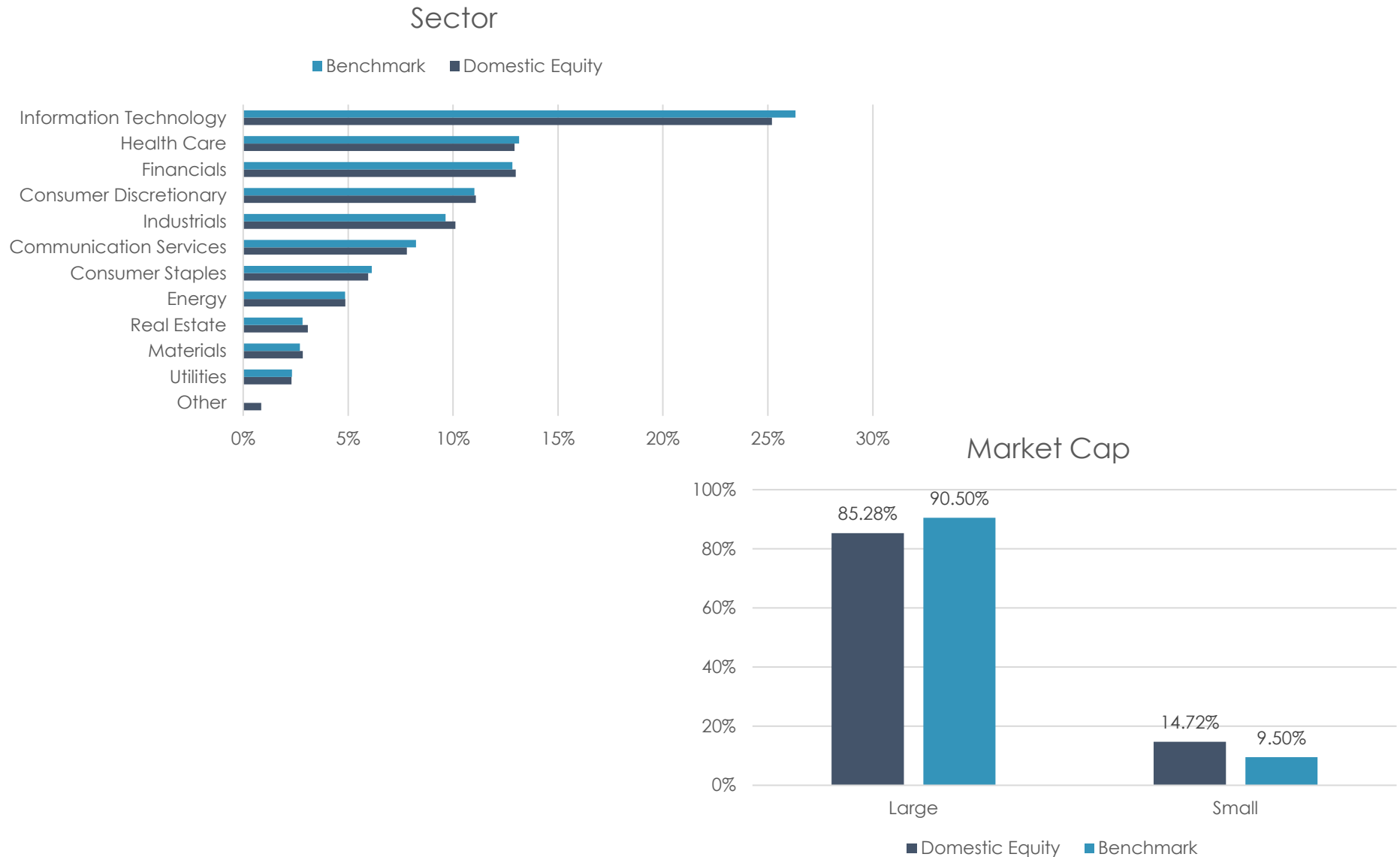
Performance	1 Year	1 Year Benchmark	5 Year	5 Year Benchmark	10 Year	10 Year Benchmark
Pension	20.12%	20.70%	8.87%	9.31%	10.98%	11.53%
State Fund	21.61%	21.62%	9.90%	9.92%	11.91%	11.91%
DC Disability	20.55%	20.49%	9.08%	9.01%	NA	NA

- The stock market rally that began in late 2022 stalled in 3Q23 as investors weighed mixed economic signals and the prospect of “higher-for-longer” interest rates. The rally in Mega-Cap Tech stocks over the last year led to Large Caps and Growth stocks outperforming Small Caps and Value by a wide margin.
- The underperformance of Small Caps in 3Q23 and over the last year has had a negative impact on performance relative to the asset class benchmark.

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

September 30, 2023

Domestic Equity Characteristics - Pension



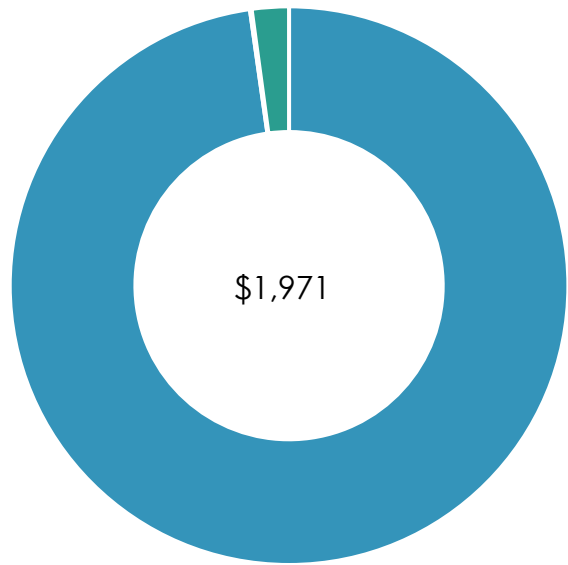
Domestic Equity Valuation

S&P 500 Index - Price/Earnings Ratio
(October 24, 2013 to October 24, 2023)

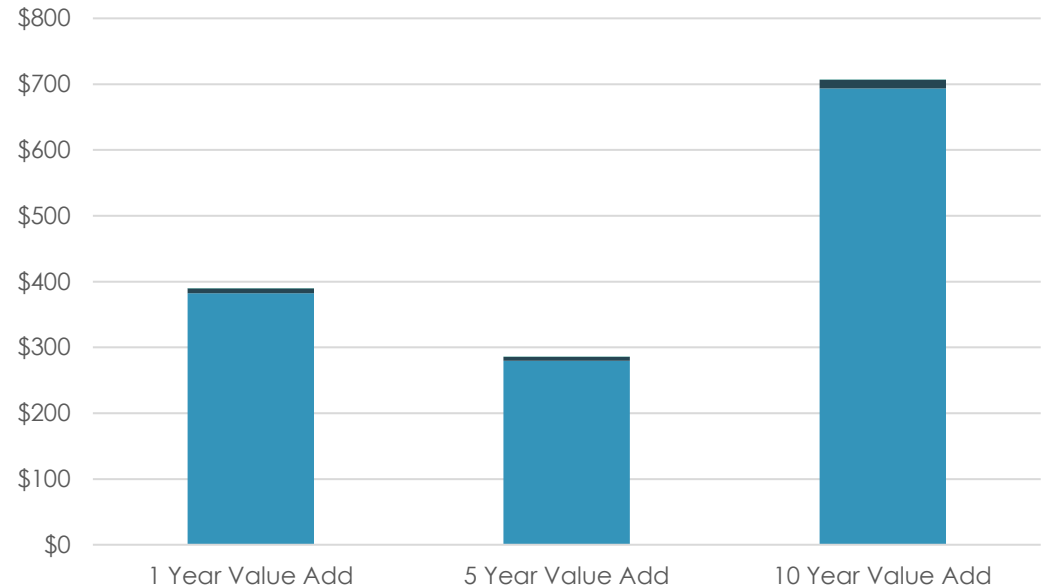


- P/E multiples dropped in 3Q23 from their 2023 peak but remain above long-term averages. The forward S&P 500 P/E ratio ended the quarter at 17.8x, down from 19.1x at the end of 2Q23. Valuation dispersion (the difference between the highest and lowest P/E stocks), remains at a high level.

International Equity Ownership Breakdown



■ Pension ■ DC Disability ■ State Fund



■ Pension ■ State Fund ■ DC Disability

Performance	1 Year	1 Year Benchmark	5 Year	5 Year Benchmark	10 Year	10 Year Benchmark
Pension	19.25%	20.19%	2.60%	2.57%	3.64%	3.46%
State Fund	20.40%	20.39%	2.61%	2.58%	3.39%	3.35%
DC Disability	20.74%	20.39%	2.86%	2.58%	NA	NA

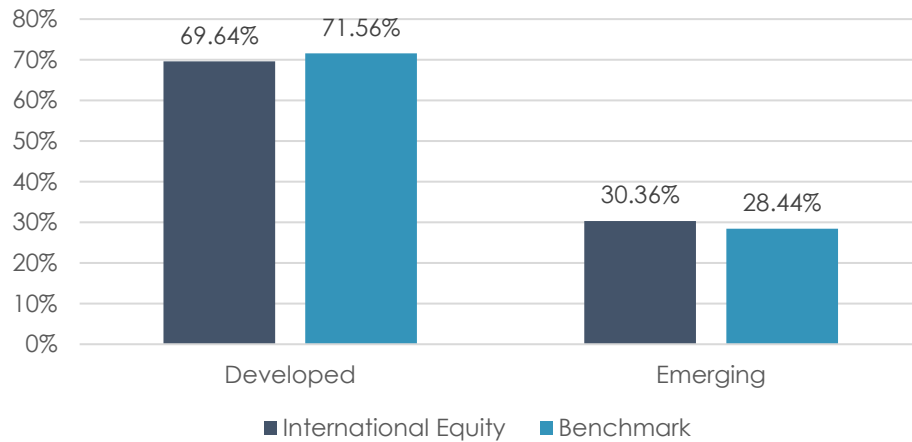
- International Equities cooled in 3Q23, with performance for non-US stocks in line with those of US Equities. US stocks still have a wide return gap over International over the last year. Emerging Markets outperformed Developed Markets, reversing the trend of underperformance vs. DM over the last twelve months.
- Unlike in the US, Value has outperformed Growth over the last year, and Small Caps have had comparable returns vs. Large Caps.

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

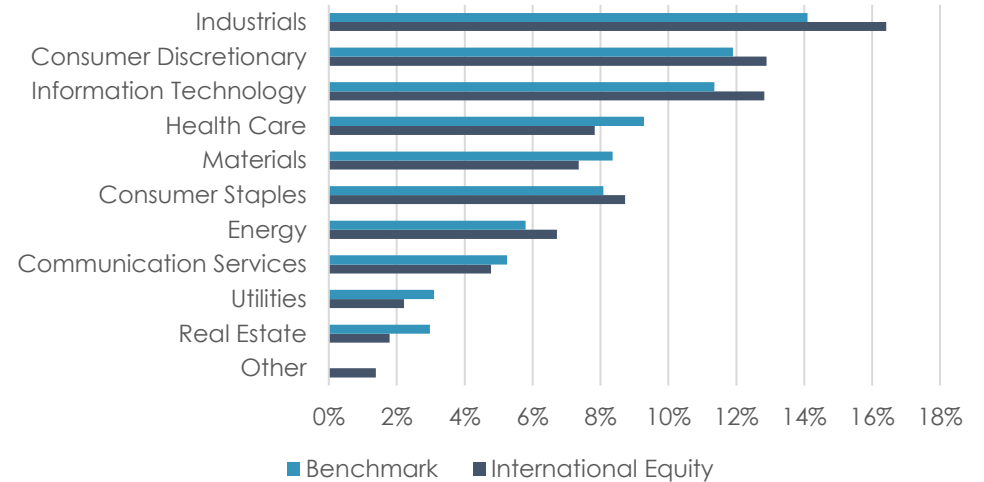
September 30, 2023

International Equity Characteristics - Pension

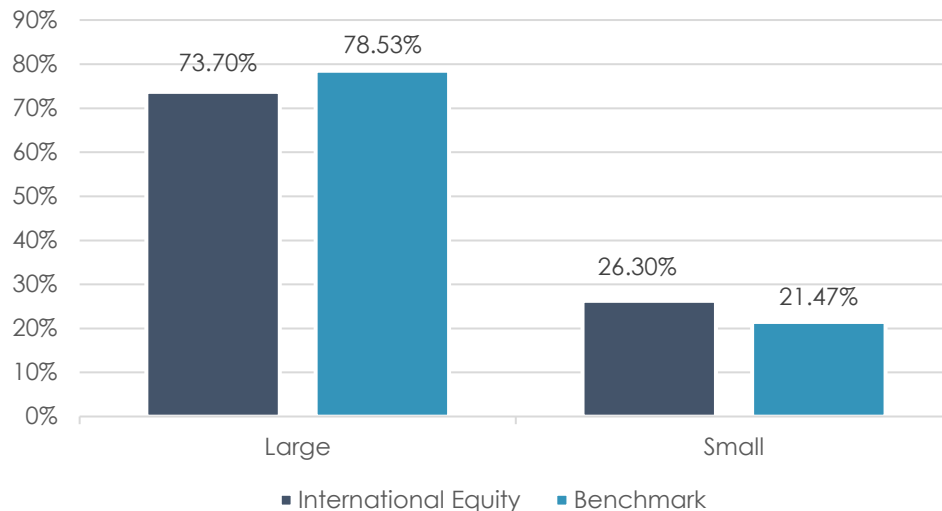
Developed vs. Emerging Markets



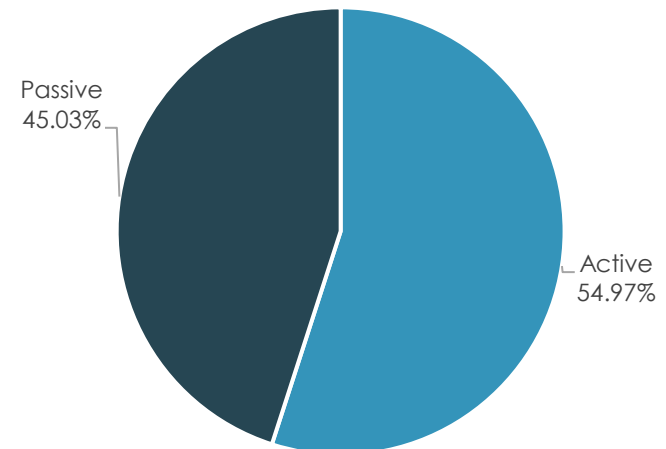
Sector



Market Cap

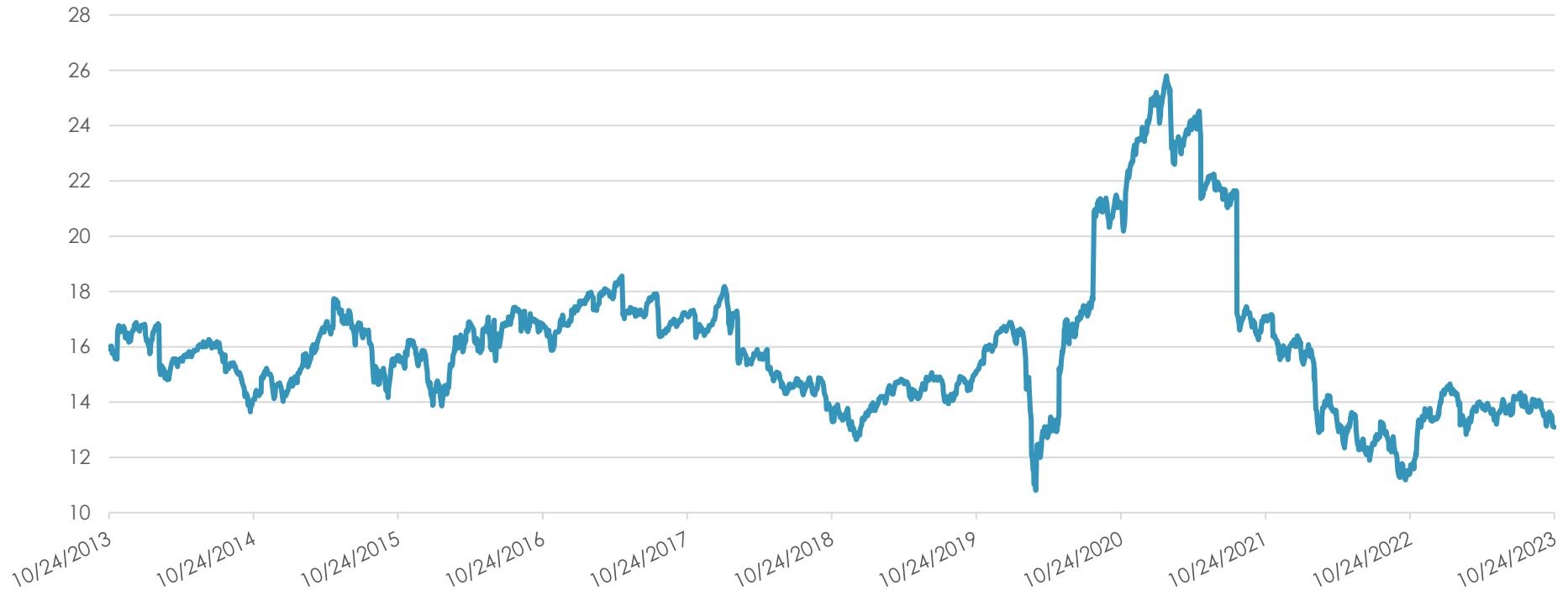


Active vs. Passive



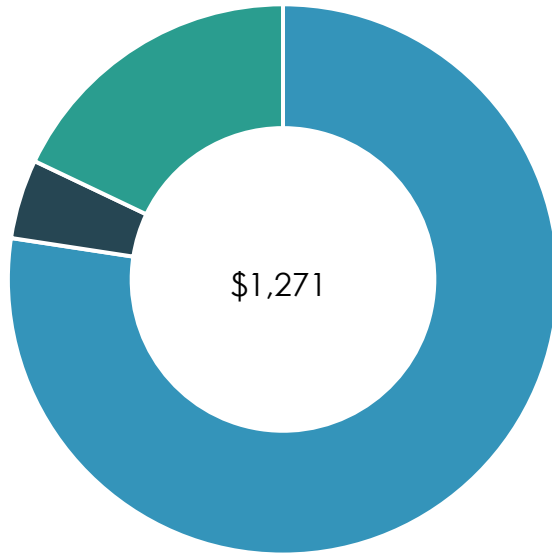
International Equity Valuation

ACWI ex. U.S. Index - Price/Earnings Ratio
(October 24, 2013 to October 24, 2023)

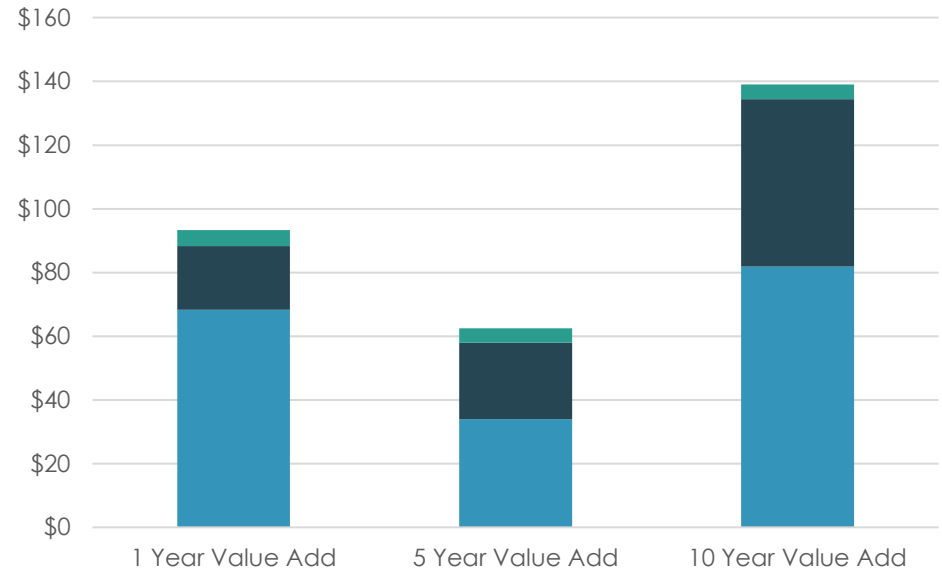


- The forward P/E for the MSCI ACWI ex-US Index was 12.4x at the end of 3Q23, down from 12.9x at the end of 2Q23. The index trades modestly lower than its 20-year average of 13.1x, but at a 31% discount to the S&P 500.

Non-Core Fixed Income Ownership Breakdown



■ Pension ■ State Fund ■ Trust Fund



■ Pension ■ Trust Fund ■ State Fund

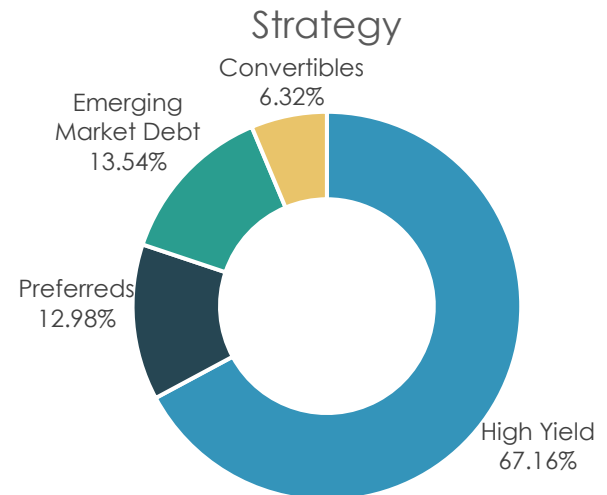
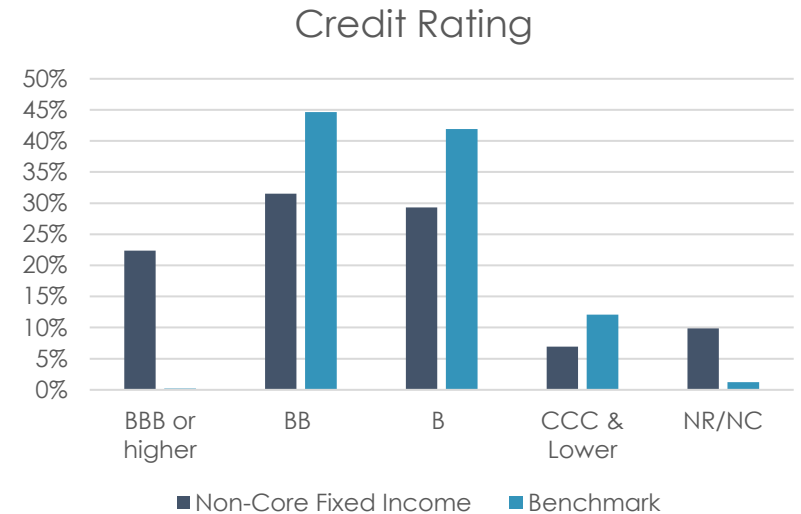
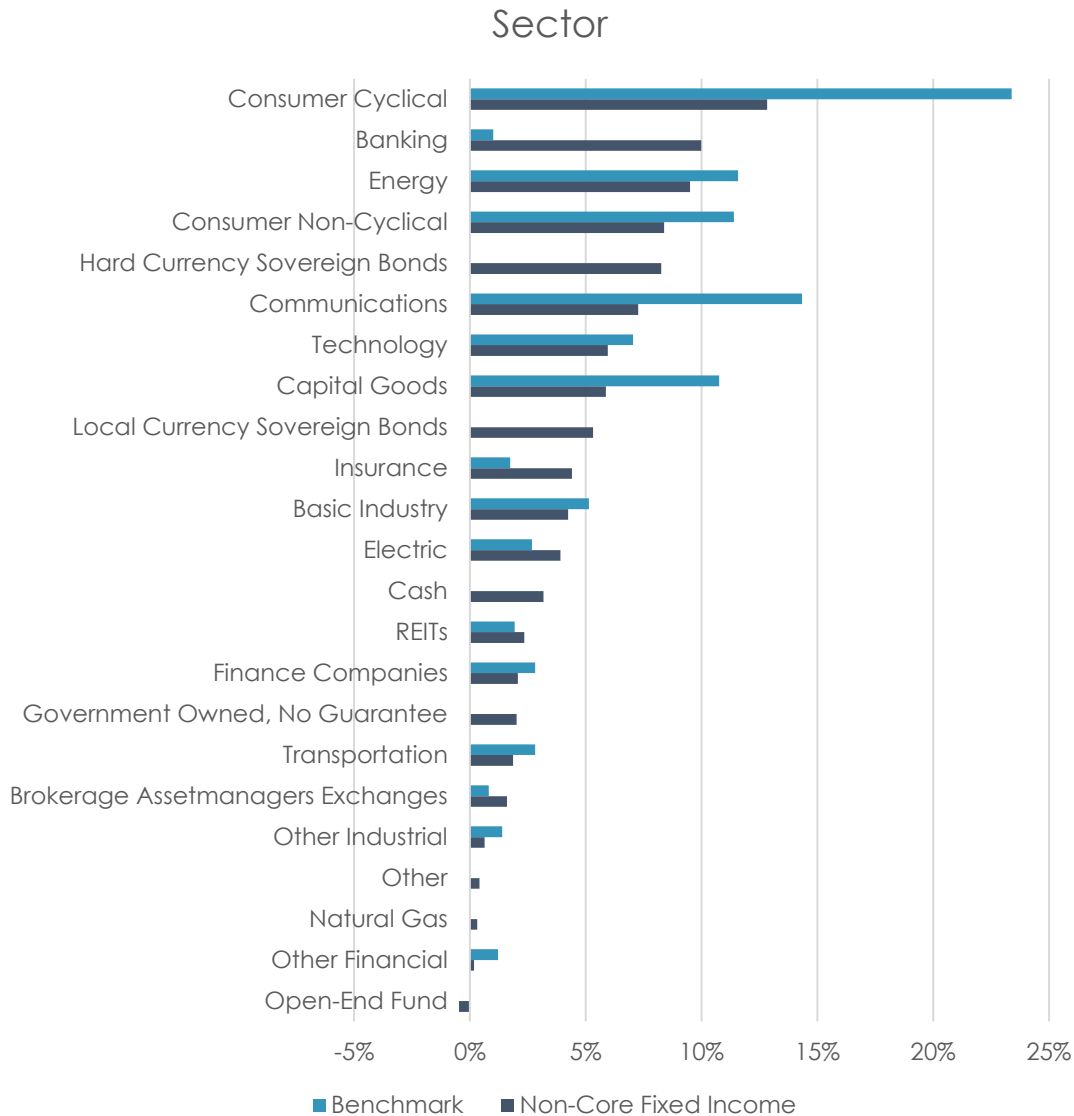
Performance	1 Year	1 Year Benchmark	5 Year	5 Year Benchmark	10 Year	10 Year Benchmark
Pension	9.13%	10.28%	2.07%	2.95%	3.41%	4.24%
State Fund	9.30%	10.28%	NA	NA	NA	NA
Trust Fund	9.78%	10.28%	1.99%	2.95%	3.76%	4.24%

- Solid returns for the asset class over the last year, with Emerging Market Debt and US High Yield bonds posting double-digit returns. Preferred Securities recovered some over the last six months, but the trailing year returns reflect the impact of the banking crisis earlier this year.
- Performance vs. the benchmark lagged over the last year, largely due to the outperformance of lower-quality credits in US High Yield, which is a difficult environment for BOI's conservative approach.

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

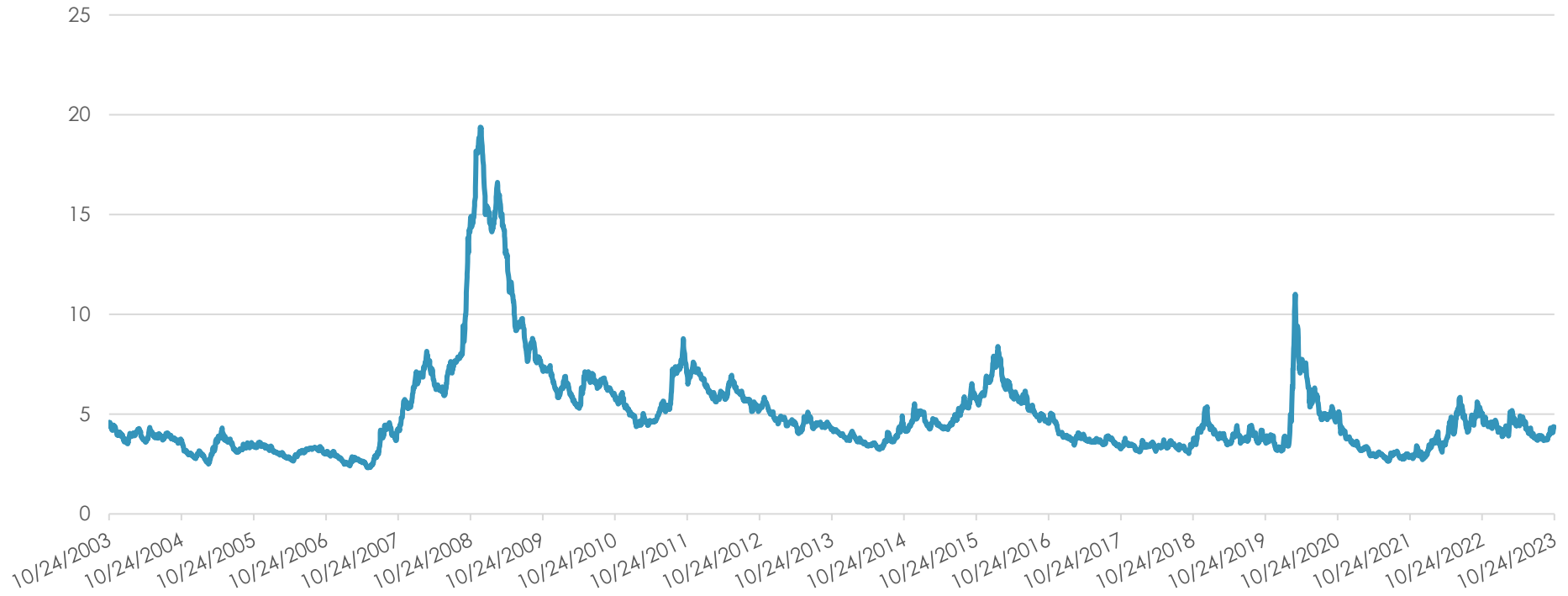
September 30, 2023

Non-Core Fixed Income Characteristics - Pension



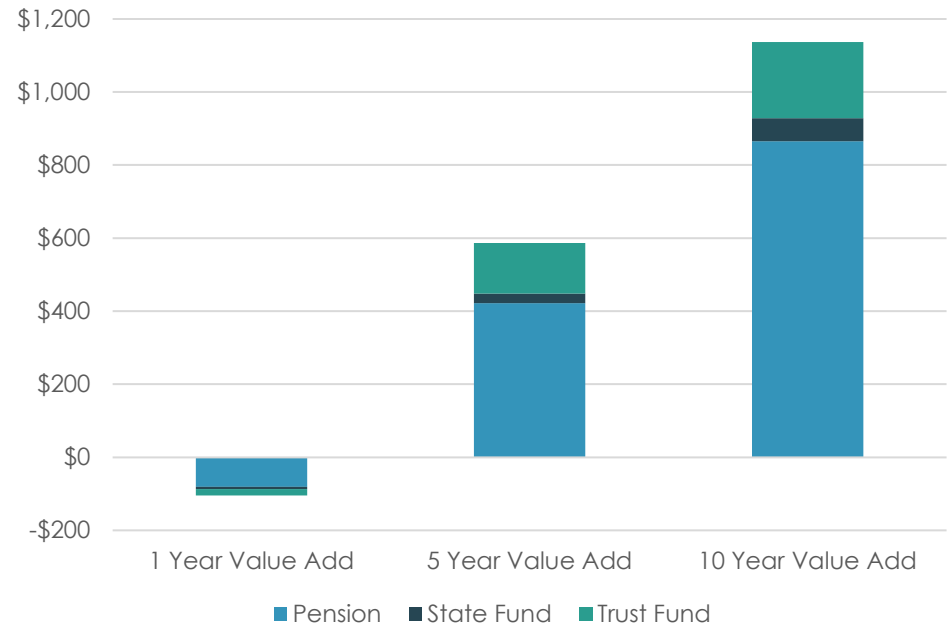
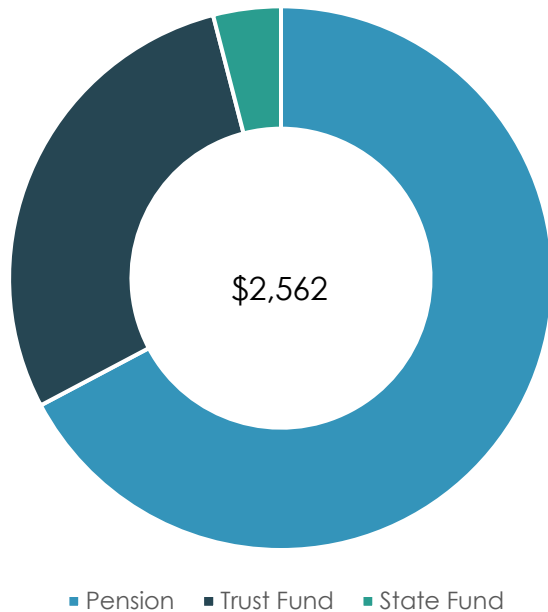
Non-Core Fixed Income Valuation

Bloomberg High Yield Index – Option Adjusted Spread
(October 24, 2003 to October 24, 2023)



- High Yield spreads traded within a narrow range in 3Q23 but have compressed dramatically over the last year. Spreads are at levels that are neither extremely wide (indicating market stress) nor overly narrow (indicating overvaluation). After years of very low interest rates, High Yield bonds now boast yields in excess of 8%.

Real Estate Ownership Breakdown



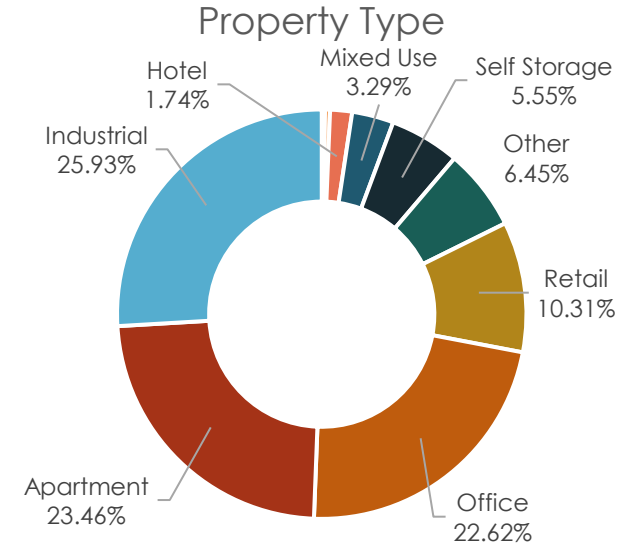
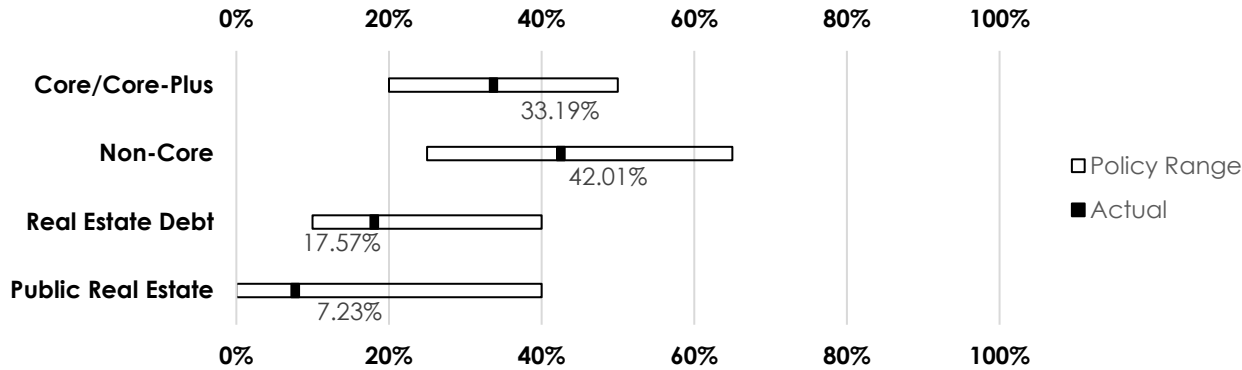
Performance	1 Year	1 Year Benchmark	5 Year	5 Year Benchmark	10 Year	10 Year Benchmark
Pension	-4.74%	-10.73%	6.68%	2.90%	8.76%	5.98%
State Fund	-5.63%	-10.73%	5.11%	5.56%	7.01%	7.77%
Trust Fund	-1.15%	-10.73%	6.22%	5.56%	7.57%	7.77%

- Pricing dislocation remains, transaction volumes still depressed, tight credit conditions persist.
- Fundamentals generally remain solid although the pace of rental rate and occupancy growth has slowed.
- Higher financing costs and capitalization rates continue to weigh on valuations.

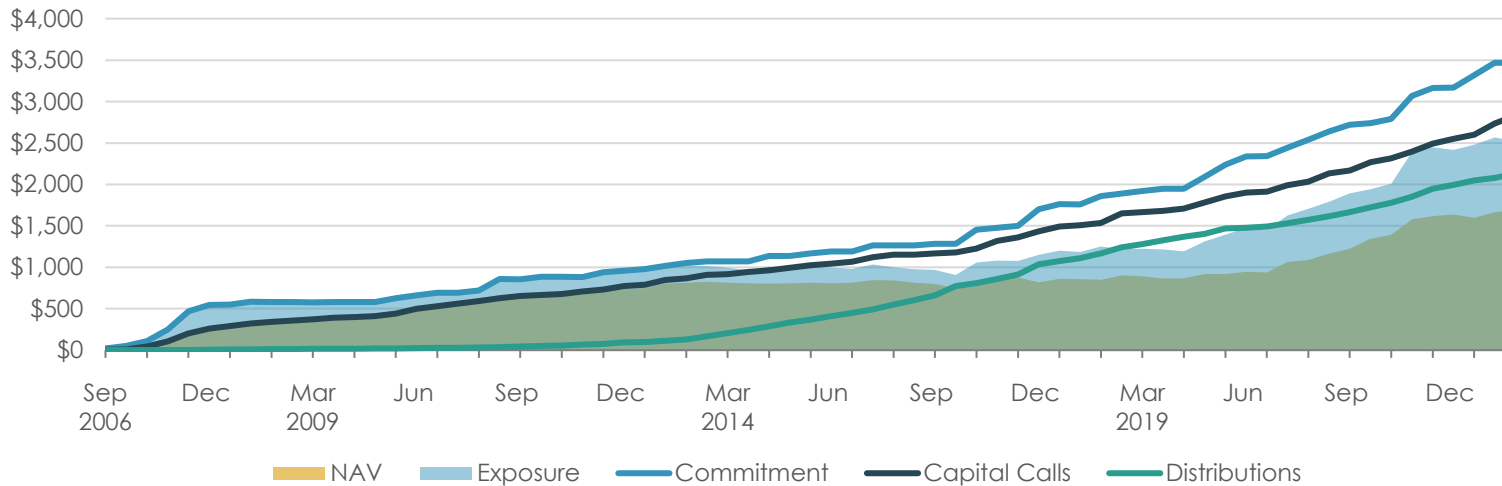
Real Estate

Characteristics - Pension

Real Estate Asset Allocation



Private Real Estate Over Time 2006-2023



* Dollar values are in \$1,000,000
September 30, 2023

Real Estate Valuation

	Index	Change in Commercial Property Values		
	Value	Past Month	Past 12 Mos	Recent Peak
All Property	125.3	-3.3%	-7%	-19%
Core Sector	123.8	-4.5%	-8%	-23%
Apartment	136.2	-8.6%	-14%	-29%
Industrial	213.6	-9.3%	1%	-16%
Mall	81.5	0.0%	8%	-16.0%
Office	78.0	0.0%	-21%	-31.0%
Strip Retail	111.5	0.0%	-2%	-15.0%
Health Care	123.1	-5.8%	-9%	-18%
Lodging	107.6	0.0%	1%	-5.0%
Manufactured Home Park	286.3	0.0%	-3%	-12.0%
Net Lease	97.6	0.0%	-7.0%	-16.0%
Self-Storage	269.0	0.0%	-9%	-14.0%

¹Green Street Commercial Property Price Index® - November 6, 2023

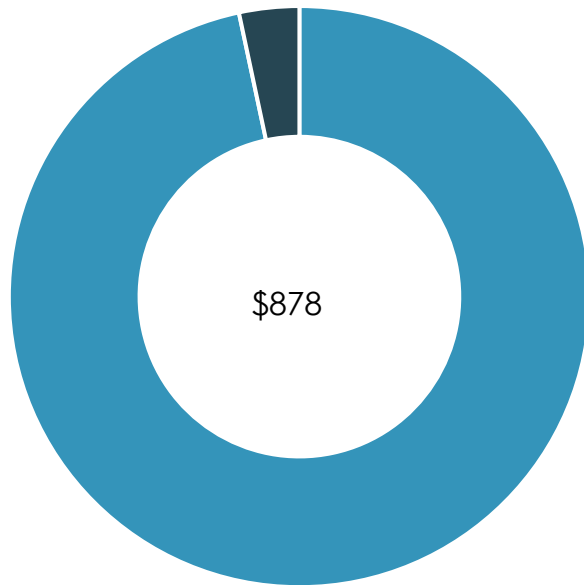
- After a steep decline due to rising interest rates, some recent signs of price stabilization across property types. Modest future declines are expected.

Real Estate

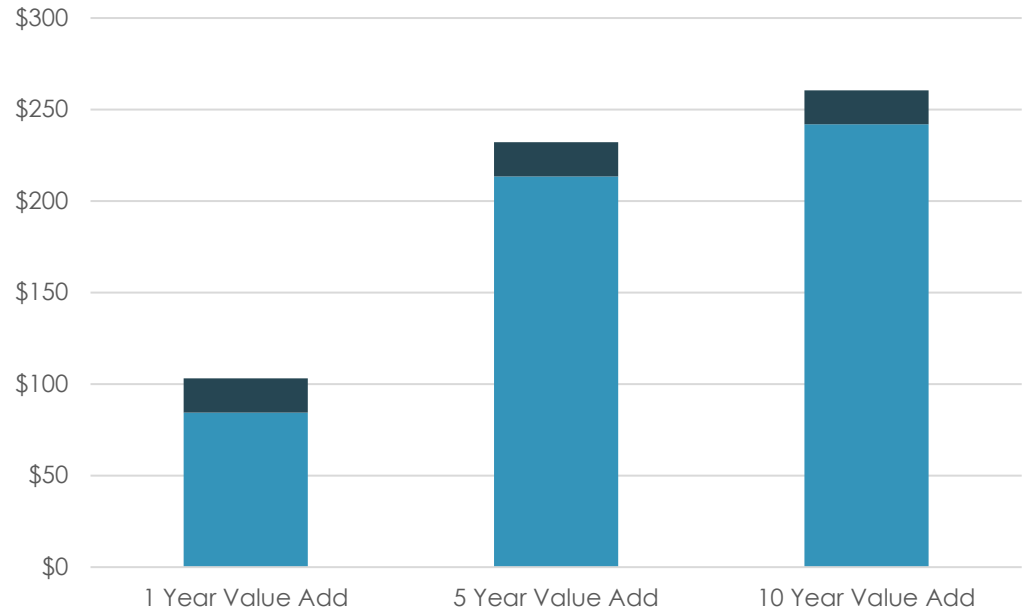
New Commitments FYTD

- Oak Street Real Estate Capital Fund VI, LP - \$50M (CAPP)

Real Assets Ownership Breakdown



■ Pension ■ Trust Fund



■ Pension ■ Trust Fund

Performance	1 Year	1 Year Benchmark	5 Year	5 Year Benchmark	10 Year	10 Year Benchmark
Pension	11.39%	9.59%	4.73%	-1.26%	NA	NA
Trust Fund	NA	NA	NA	NA	NA	NA

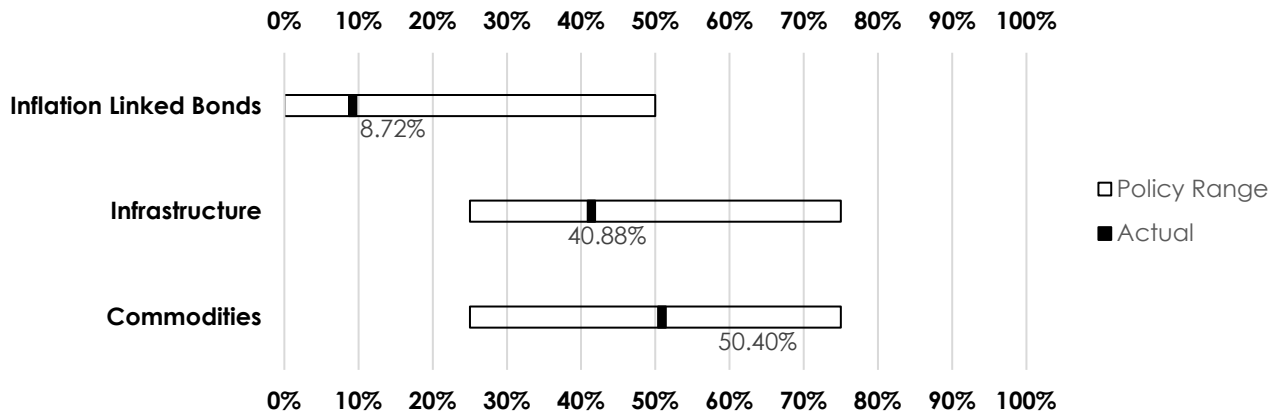
- US recently reached an all-time high in oil production. Saudi Arabia/Russia maintain production cuts.
- Housing starts posted an unexpected gain in September despite high interest rates.
- Construction spending up on a year-over-year basis in September.
- Southern timber stumpage prices were flat in 3Q23.

* Dollar values are in \$1,000,000
September 30, 2023

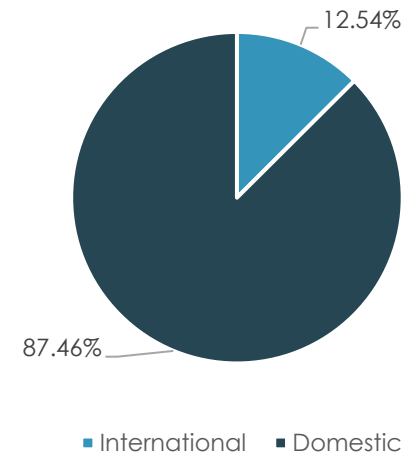
Real Assets

Characteristics - Pension

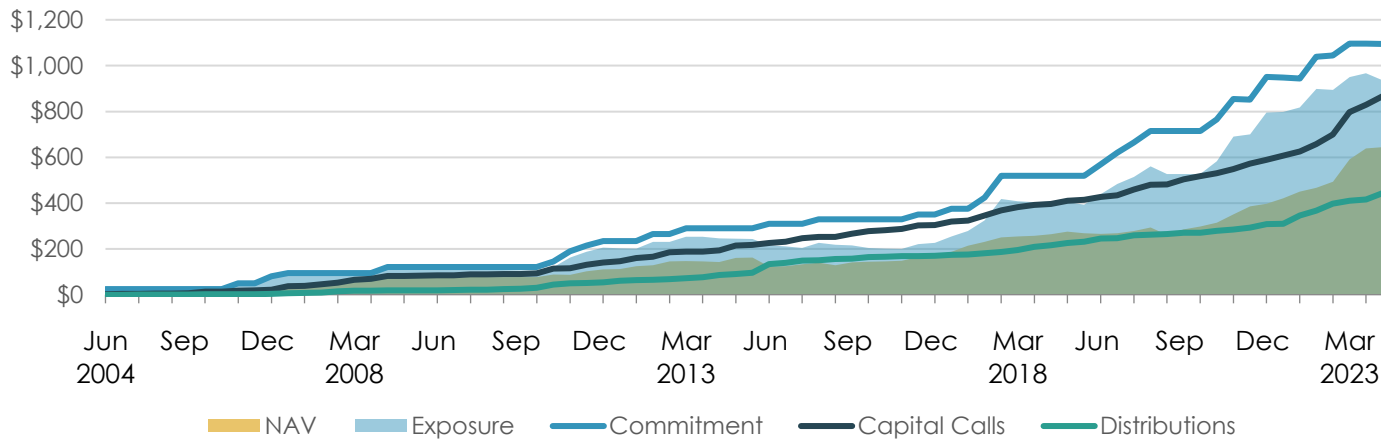
**Real Assets
Asset Allocation**



Domestic vs. International



Private Real Assets Over Time
2004-2023



* Dollar values are in \$1,000,000
September 30, 2023

Real Assets Valuation

Crude Oil (WTI) – Price per barrel
(October 24, 2018 to October 24, 2023)



Lumber – Price per 1000 board feet
(October 24, 2018 to October 24, 2023)



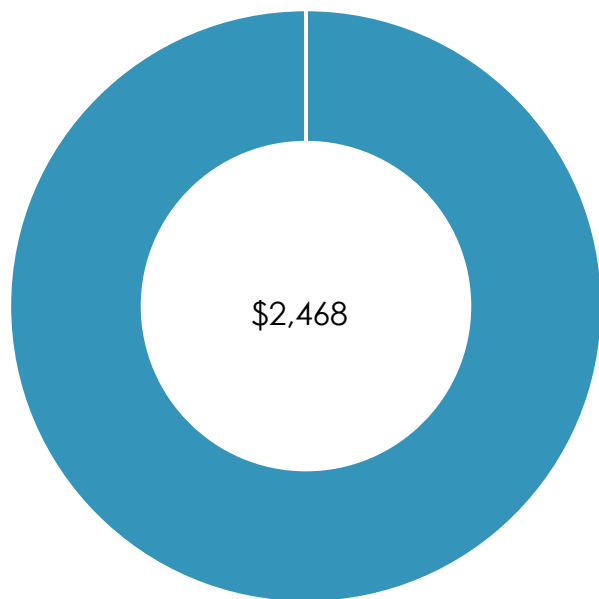
- Rising tensions in the Middle East, depleted supplies and reduced OPEC production, and the backdrop of a potentially slowing economy all contributing to volatility in the oil markets.
- Lumber pricing has firmly settled back to pre-pandemic levels.

Real Assets

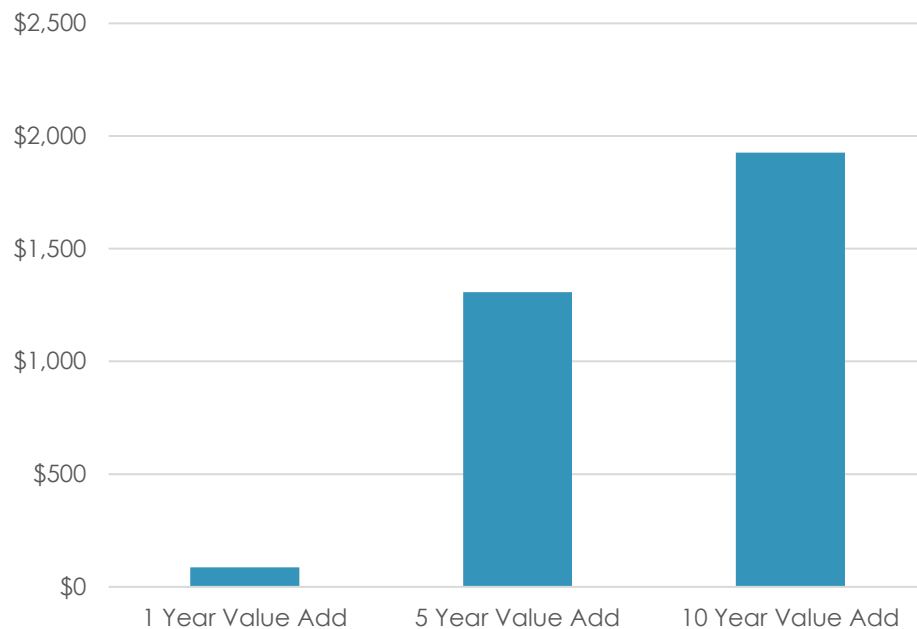
New Commitments FYTD

- **EQT Infrastructure VI, LP - \$50M (CAPP)**
- **EQT Active Core Infrastructure, LP - €50M (~\$55M) CAPP / €35M (~\$38M) TFIP / €15M (~\$16M) MSF**

Private Investments Ownership Breakdown



■ Pension



■ Pension

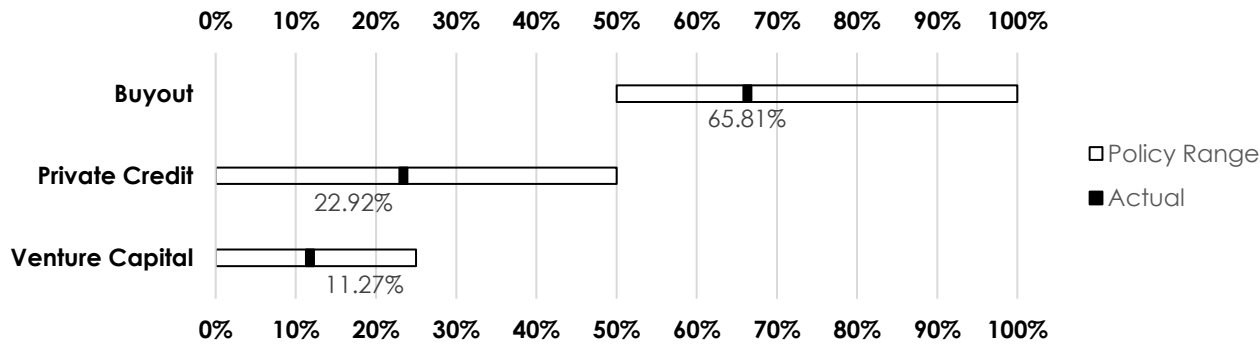
Performance	1 Year	1 Year Benchmark	5 Year	5 Year Benchmark	10 Year	10 Year Benchmark
Pension	3.66%	13.09%	14.76%	5.42%	13.23%	10.90%

- Long-term performance is strong relative to the benchmark and the portfolio continues to outperform.
- Recent markdowns have been modest and primarily focused on the Venture Capital funds. The overall portfolio is holding up well.

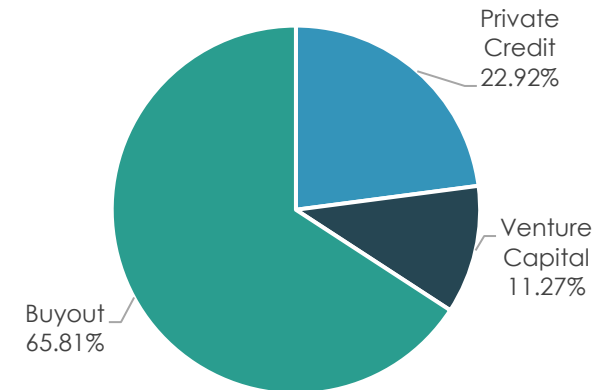
* Dollar values are in \$1,000,000
September 30, 2023

Private Investments Characteristics

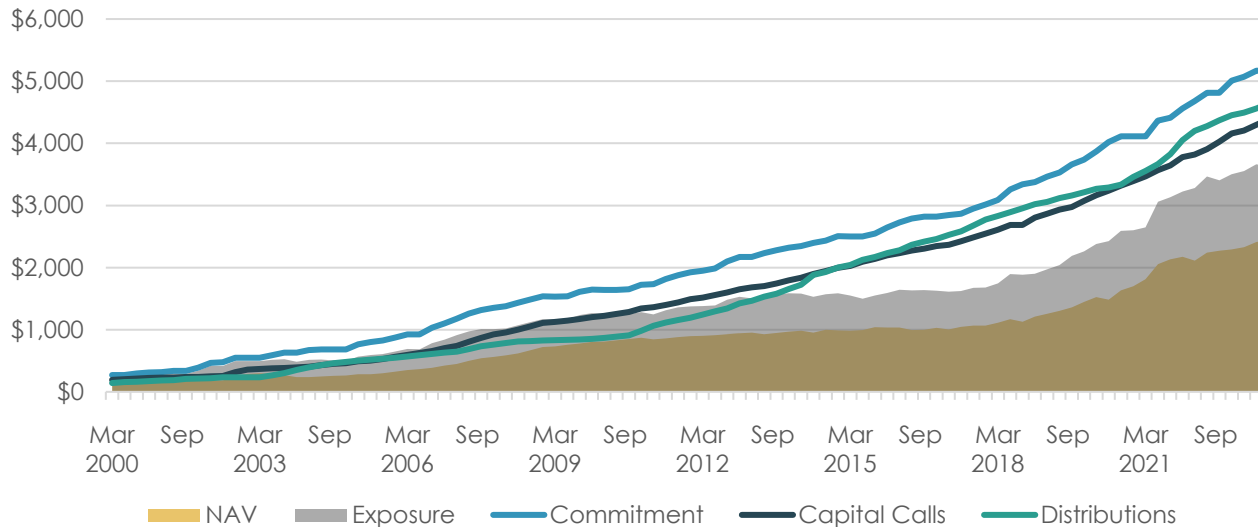
Private Investments Asset Allocation



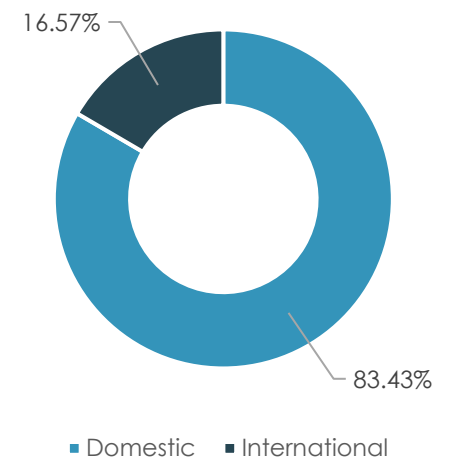
Strategy



Private Investments Over Time 2000 - 2023

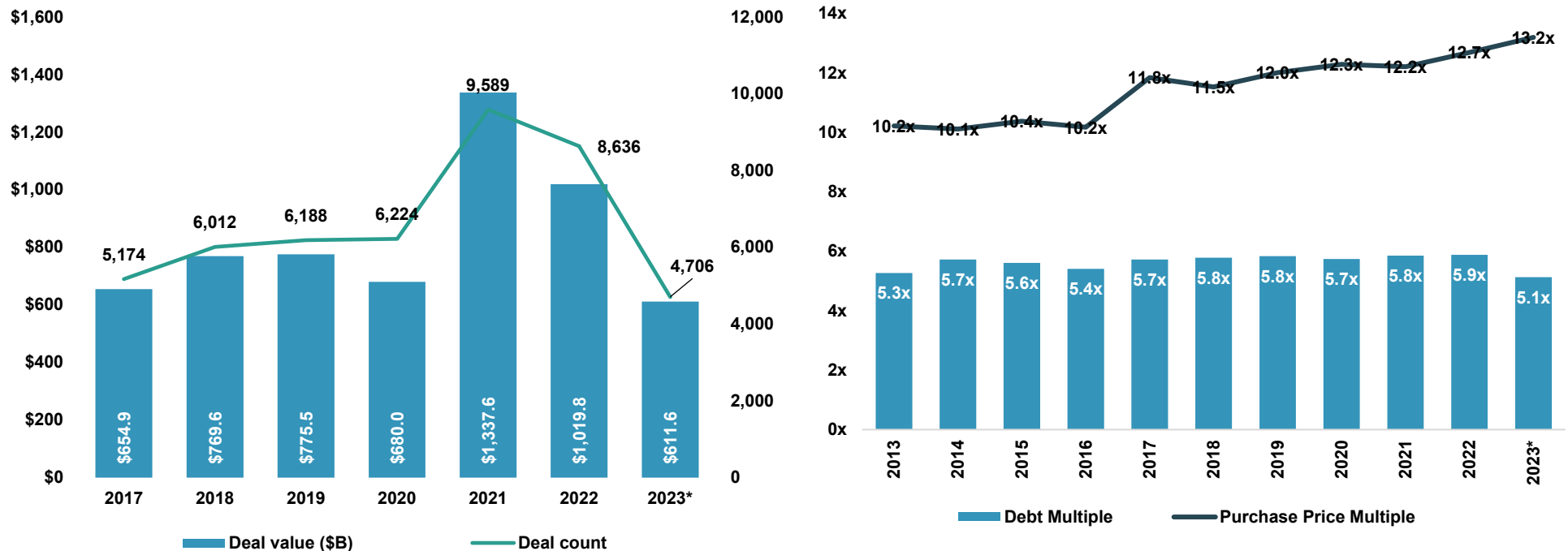


Domestic vs. International



* Dollar values are in \$1,000,000
September 30, 2023

Private Investments Valuation



- U.S. buyout deal making stalled in the third quarter. Cumulative deal value for the quarter was below \$200 billion for the first time since the COVID-19 lockdown in 2020. However, deal count is still on pace to hit pre-pandemic levels by year end.
- Deals on average have gotten smaller, making them more digestible and easier to finance.
- Debt usage continues to be below the long-term average, driven by higher cost of capital and a more risk-averse environment among lenders due to recent issues in the banking sector.

Source: PitchBook. *as of 9/30/2023

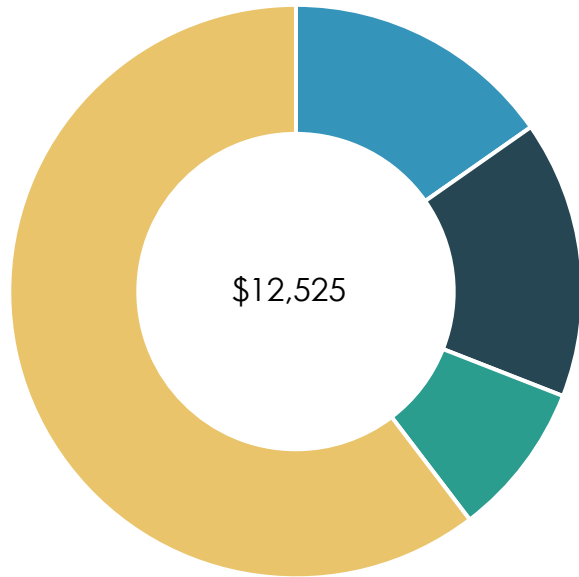
September 30, 2023

Private Investments

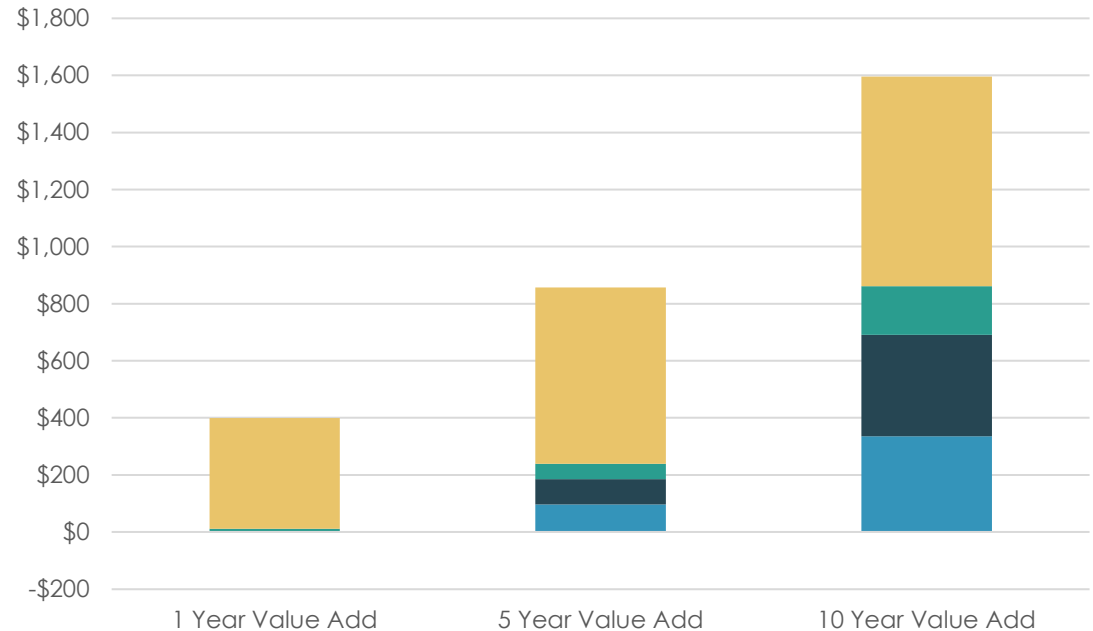
New Commitments FYTD

- **NB Strategic Co-Investment Partners Fund V, L.P. - \$75M**
- **Kester Capital Fund III, L.P. - £40M (~\$50M)**
- **McCarthy Capital Fund VIII, L.P. - \$70M**

Core Fixed Income Ownership Breakdown



■ Pension ■ Trust Fund ■ State Fund ■ STIP



■ Pension ■ Trust Fund ■ State Fund ■ STIP

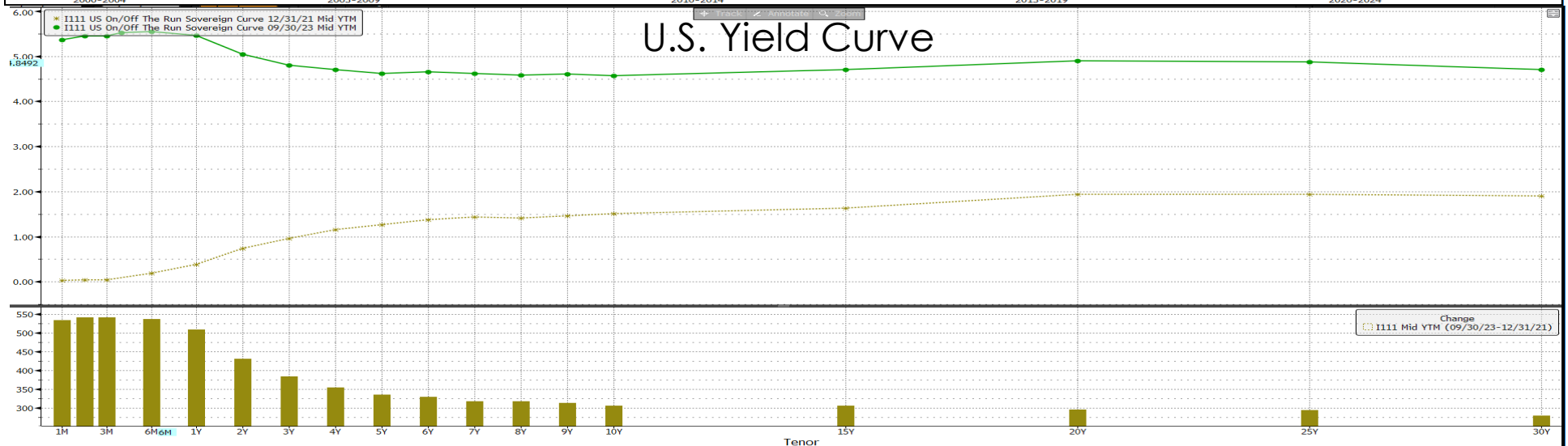
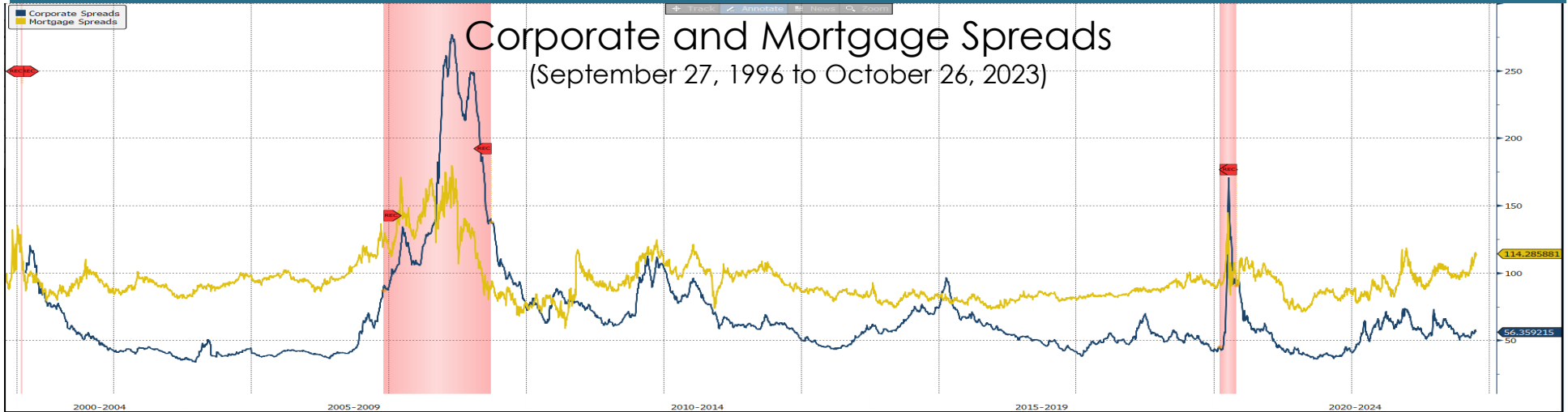
Performance	1 Year	1 Year Benchmark	5 Year	5 Year Benchmark	10 Year	10 Year Benchmark
Pension	0.14%	0.64%	0.09%	0.35%	1.25%	0.88%
Trust Fund	0.23%	0.64%	0.47%	0.10%	1.61%	1.13%
State Fund	1.19%	-0.07%	0.79%	0.16%	1.38%	0.84%
STIP	4.62%	4.79%	1.81%	1.72%	1.25%	1.20%

- Increased yields overshadowed the moderate decline in market values from rising interest rates.
- The market is pricing in a decline in rates over the next year.
- Significant uncertainty exists on future rates of inflation and Federal Reserve actions.

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

September 30, 2023

Core Fixed Income Valuation



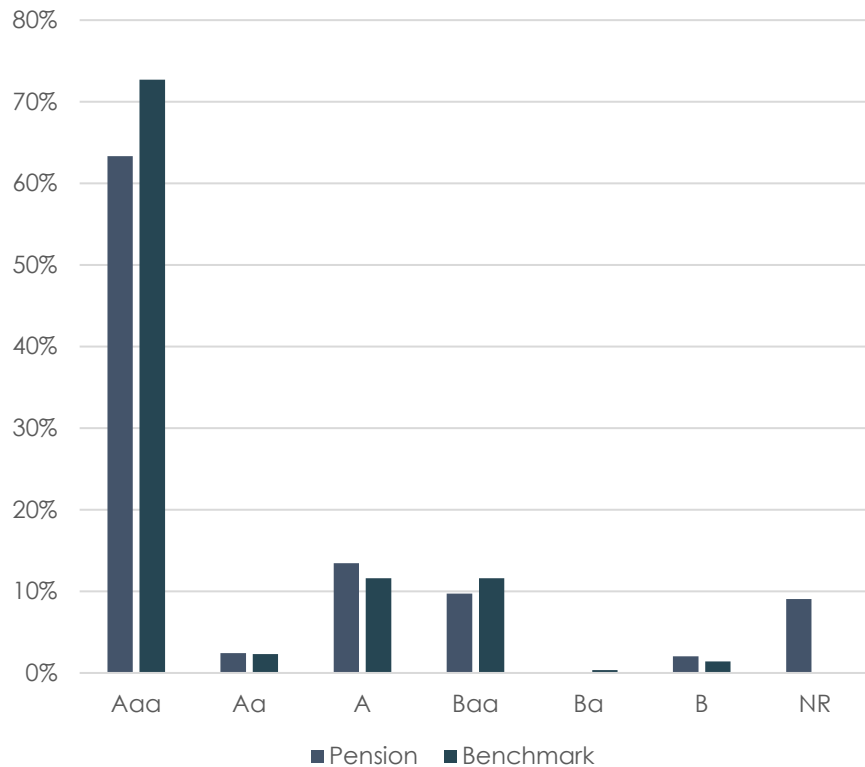
- Risk premiums have declined below historical averages.
- The inversion of the yield curve moderated over the last quarter.

Core Fixed Income Characteristics - Pension

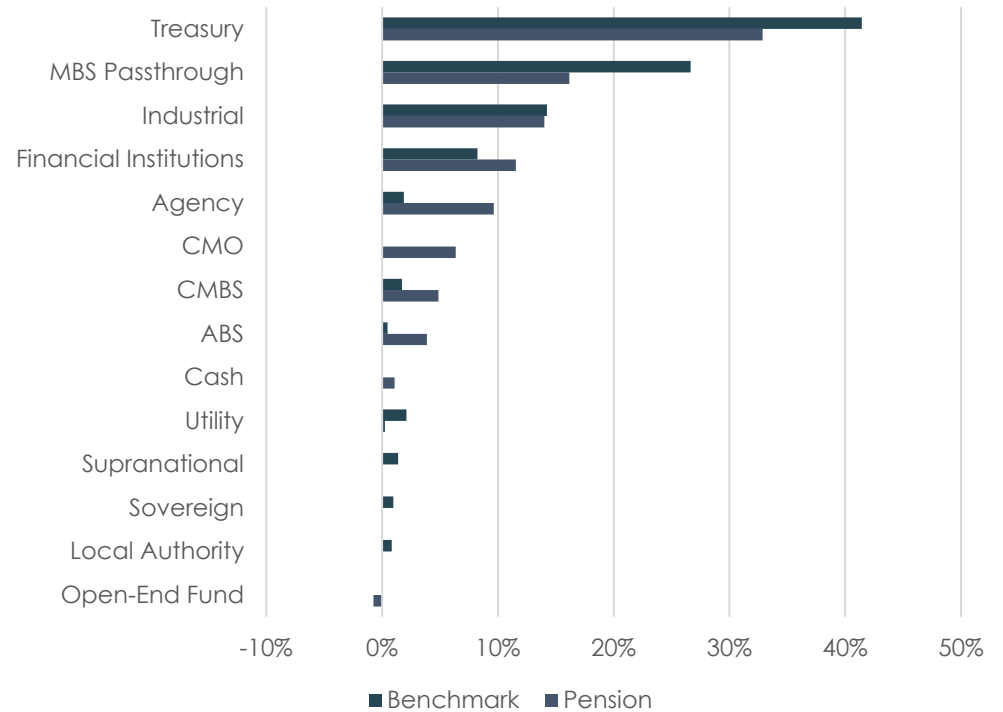
Core Fixed Income

	Portfolio	Index	Difference	% of Index
Duration (Yrs)	6.76	6.08	0.68	111.18%
Yield to Worst	5.51%	5.39%	0.12%	102.23%
CTD from Corporate	1.29	1.66	-0.37	77.71%

Credit Rating



Sector

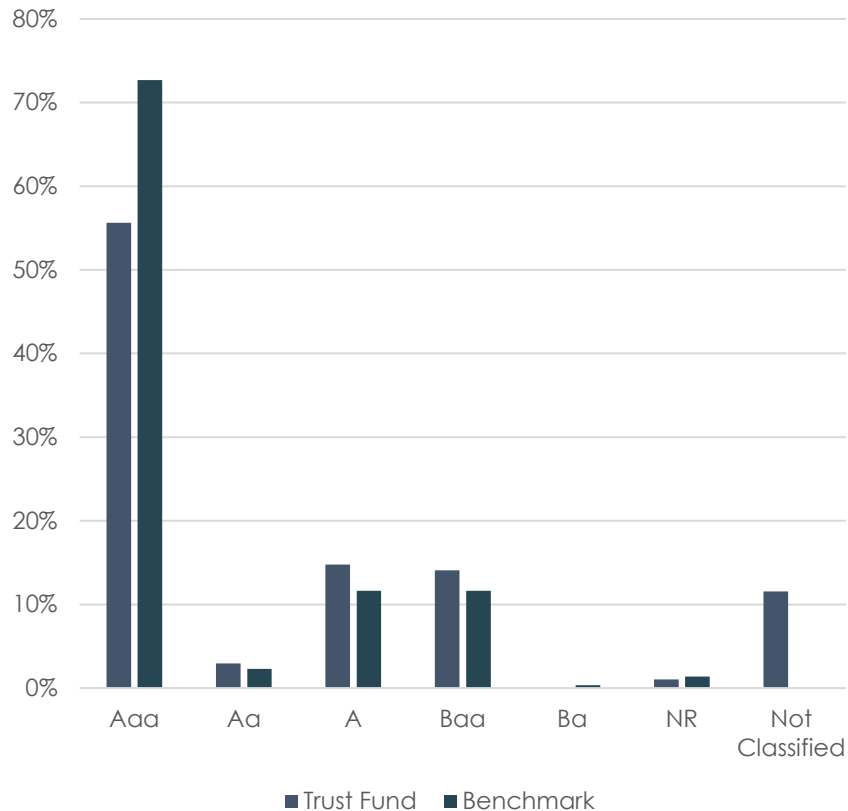


Core Fixed Income Characteristics – Trust Fund

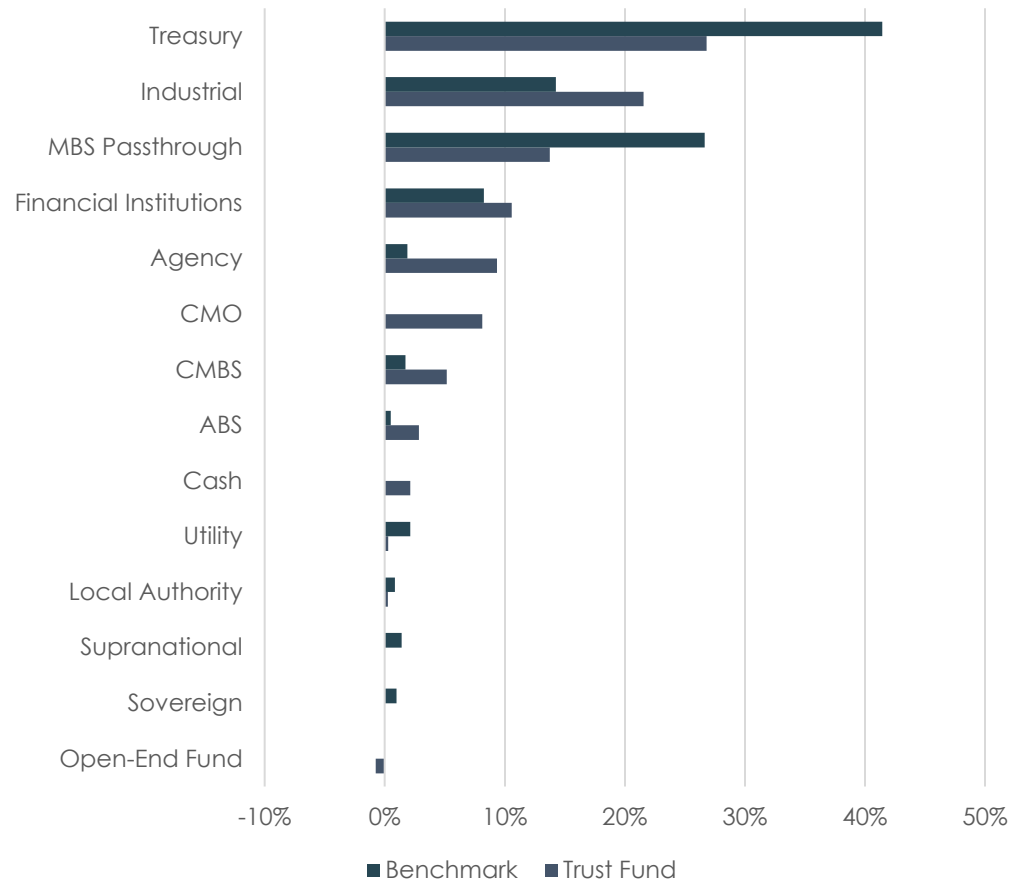
Trust Funds Investment Pool

	Portfolio	Index	Difference	% of Index
Duration	6.67	6.08	0.59	109.70%
Yield to Worst	5.55%	5.39%	0.16%	102.97%
CTD from Corporate	1.65	1.66	-0.01	99.40%

Credit Rating



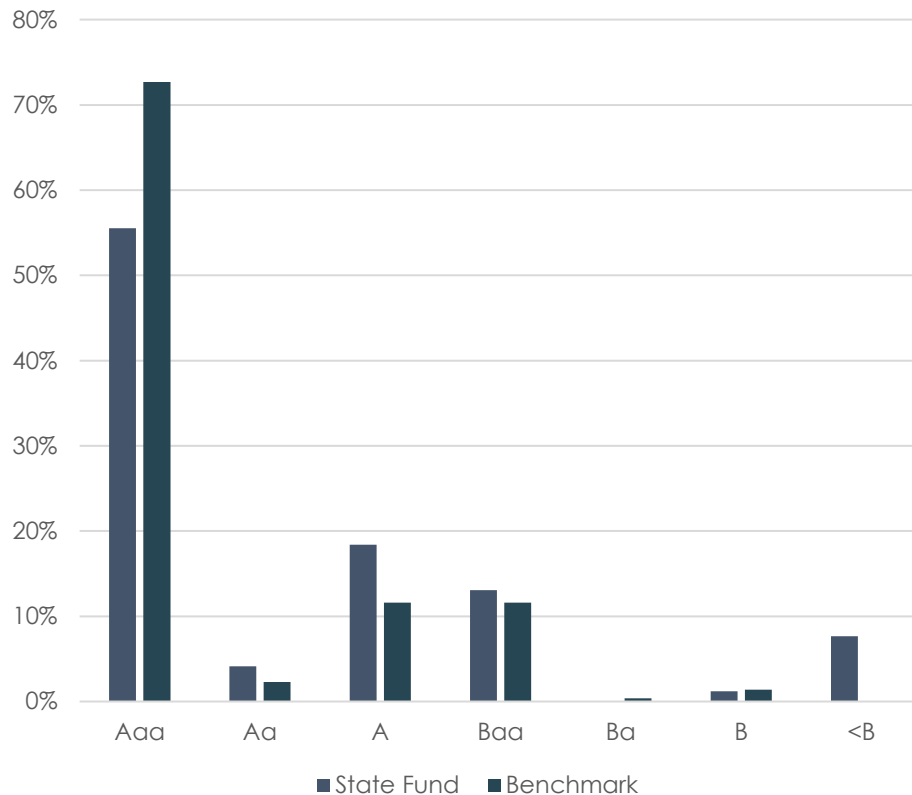
Sector



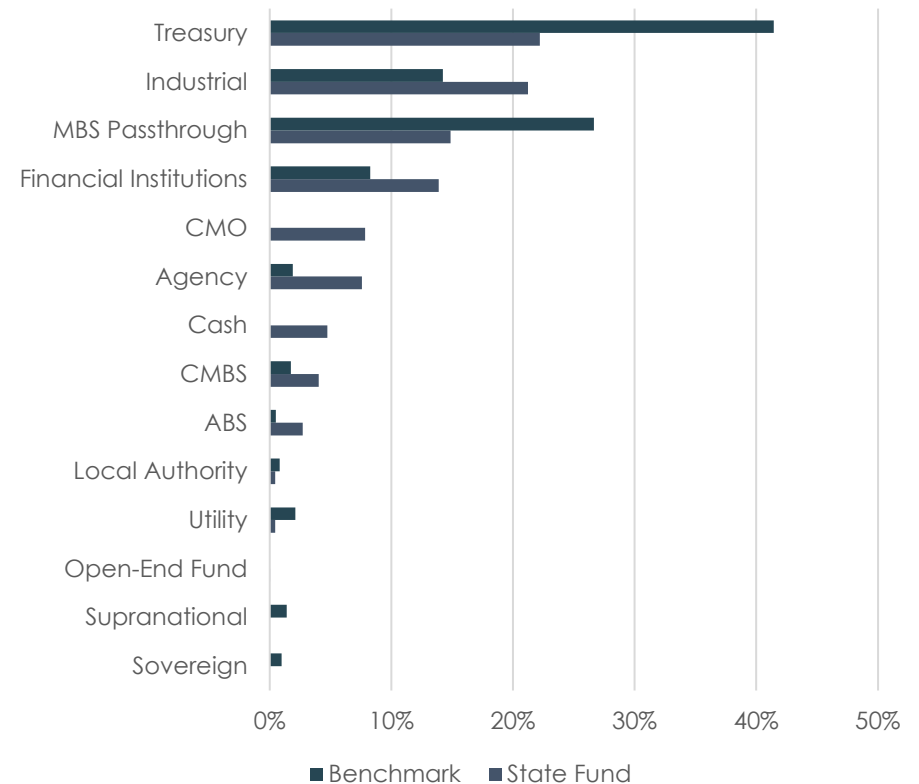
Core Fixed Income Characteristics – State Fund

State Fund Investment Pool				
	Portfolio	Index	Difference	% of Index
Duration	5.36	6.08	-0.72	88.16%
Yield to Worst	5.53%	5.39%	0.14%	102.60%
CTD from Corporate	1.44	1.66	-0.22	86.75%

Credit Rating



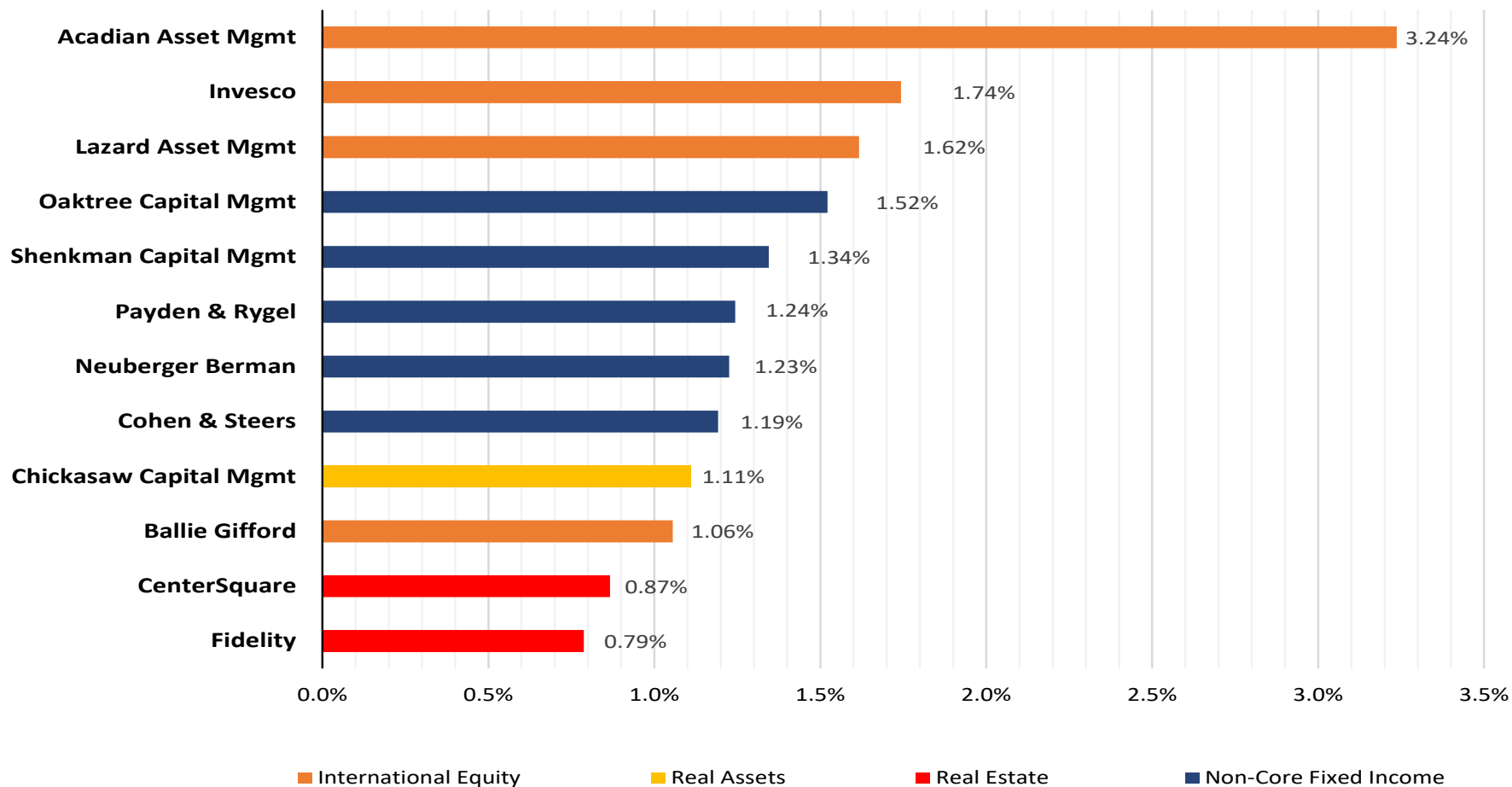
Sector



APPENDIX

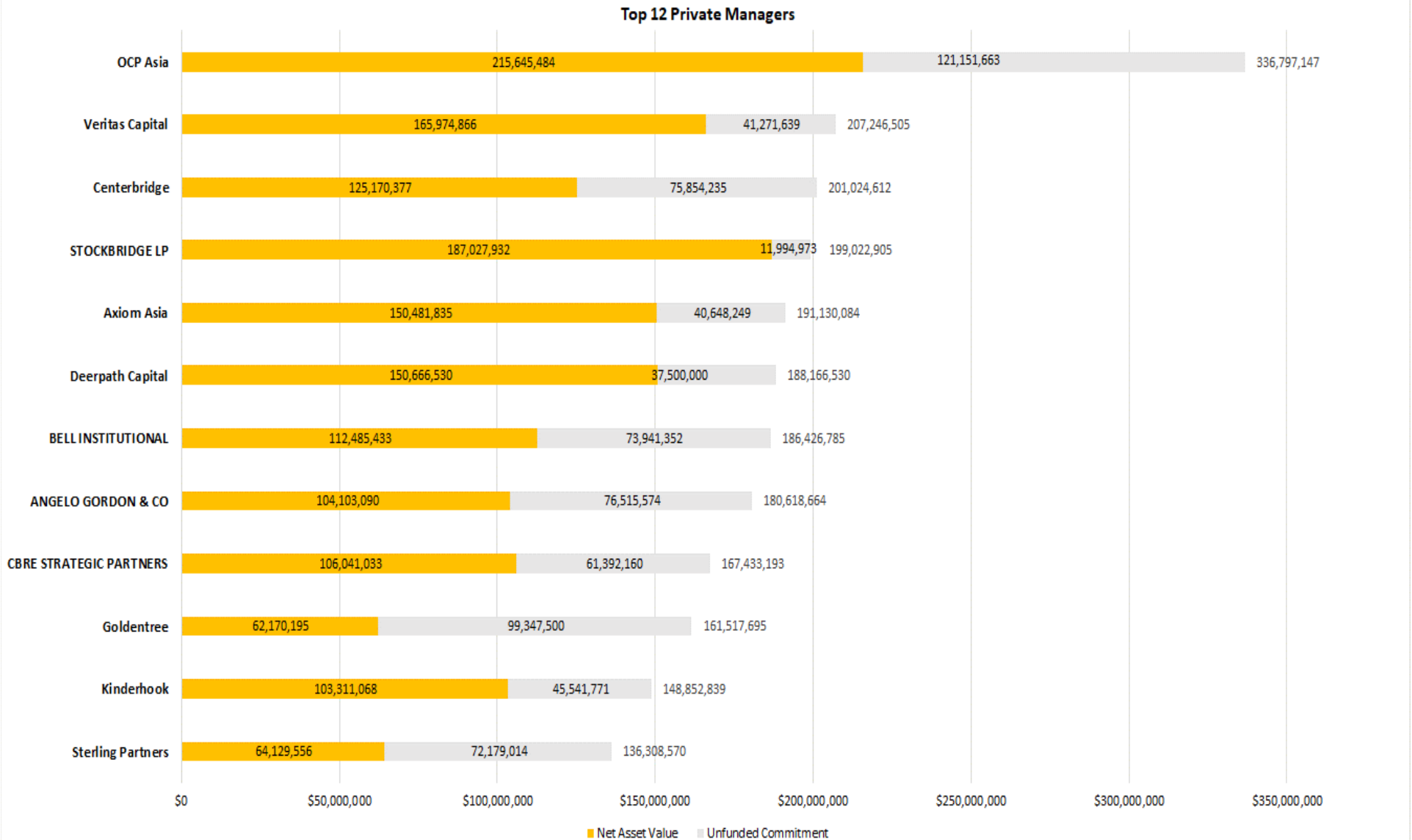
Risk Management Pension Holdings

Top 12 Active Managers



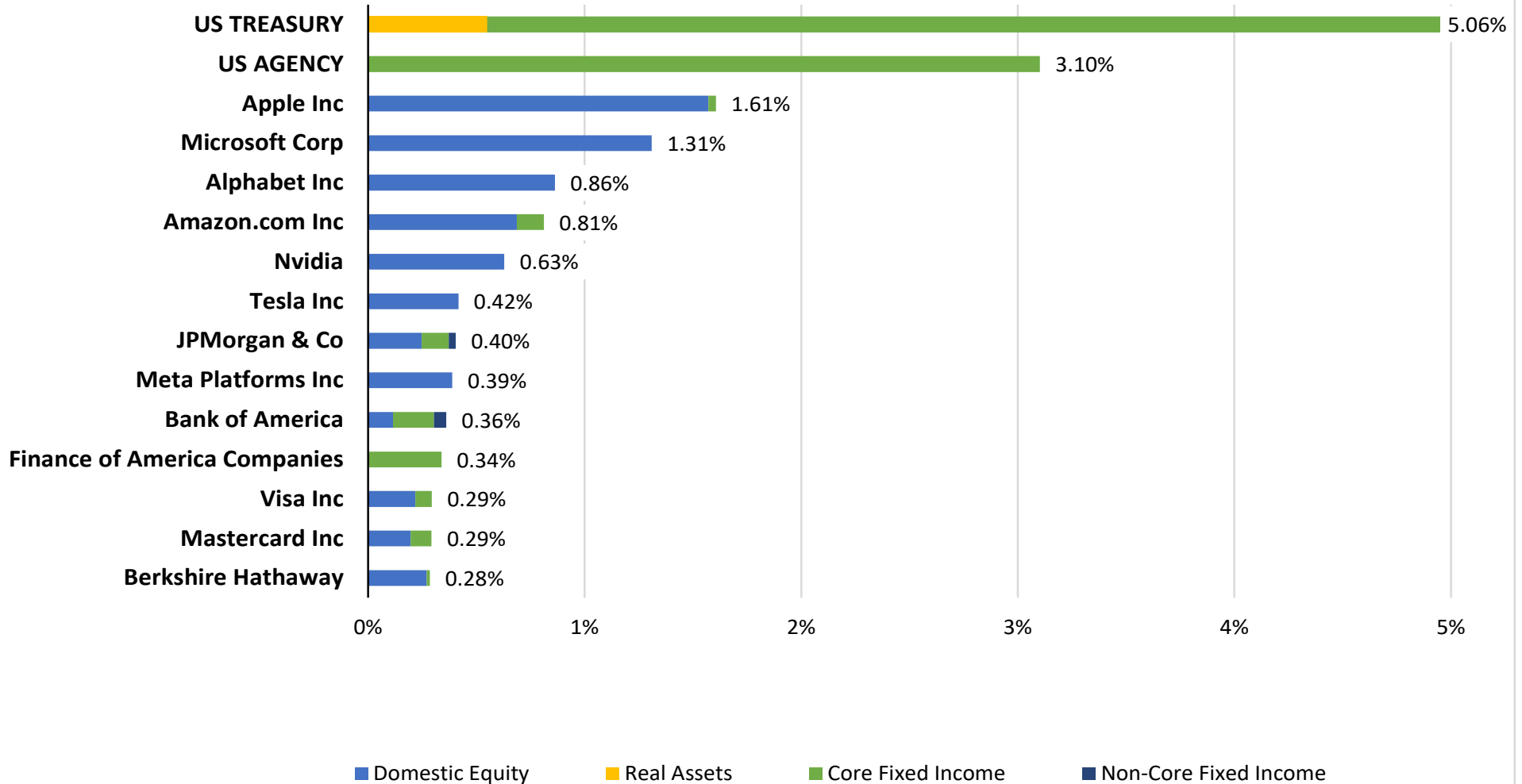
*Montana Public Retirement Plans shall have no greater than 5% of its Net Asset Value managed by any one external manager using an active investment strategy

Risk Management Pension Holdings



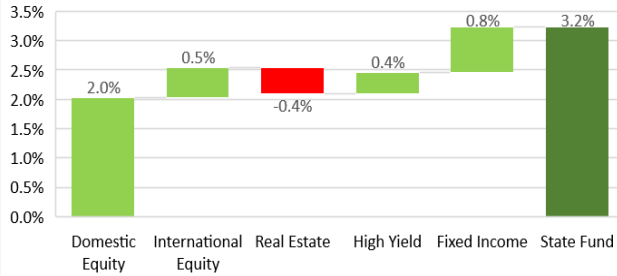
Risk Management Pension Holdings

Top 15 Issuers

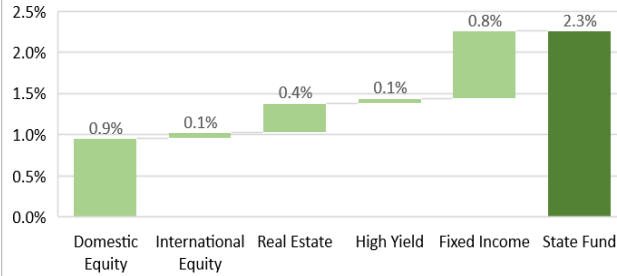


State Fund Performance

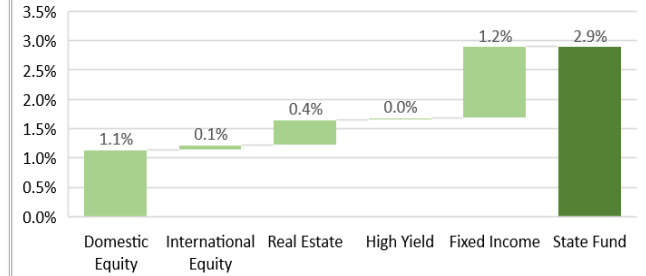
1 Year
Contribution to Total Return



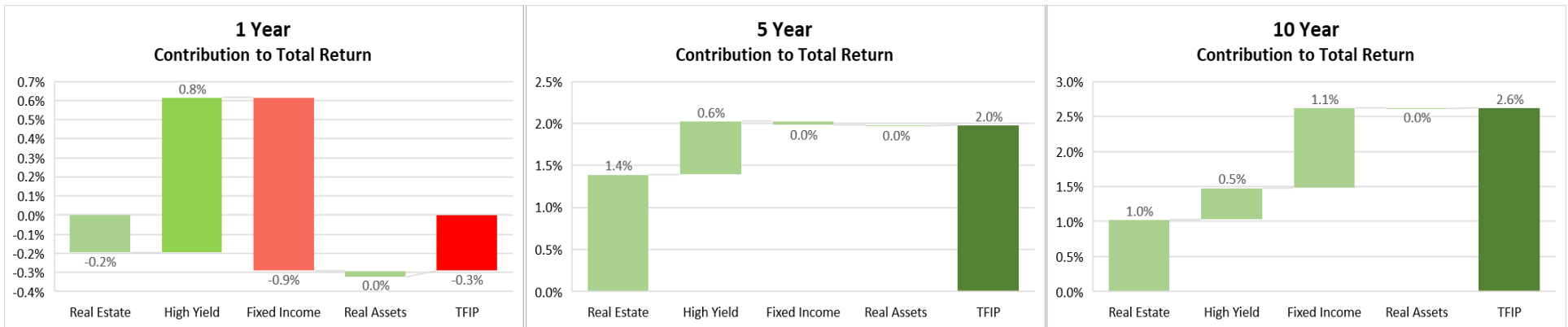
5 Year
Contribution to Total Return



10 Year
Contribution to Total Return



Trust Funds Investment Pool Performance



2023 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
			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				

MARCH						
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	

APRIL						
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						

MAY						
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			

JUNE						
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	

JULY						
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					

AUGUST						
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		

SEPTEMBER						
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

OCTOBER						
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				

NOVEMBER						
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		

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](#)

2024 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
				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		

MARCH

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						

APRIL

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				

MAY

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			1	2	3	4
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12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

JUNE

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						

JULY

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			

AUGUST

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

SEPTEMBER

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					

OCTOBER

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		

NOVEMBER

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

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 AND EDUCATION PLAN

2022

2023

February 16-17

Education:

Outreach Efforts for the Board - In-State Loan and INTERCAP Programs
Short Term Investment Pool

Reports:

Ethics Policy
Disaster Recovery and Emergency Preparedness
Quarterly Reports
In-State Loan Reports
INTERCAP Reports

Committee Meetings:

Audit: Financial Audit Report

April 20

Education:

Domestic Equity Asset Class Review
RVK Annual Capital Market Assumptions

Reports:

Benchmarks Used by the Board

May 25-26

Education:

MT Buildings (Board as Landlord/Tenant Holdings)
Investment Policy Statement Review
Real Estate Asset Class Review

Reports:

Budget Status FYTD
Quarterly Reports
In-State Loan Reports
INTERCAP Reports

Committee Meetings:

Audit: Accounting Staff Review
HR: Staffing Level Review
HR: Exempt Staff Compensation Review

August 3-4

Education:

Core Fixed Income Asset Class Review
Budget Proposal for FY24-25

Reports:

Proxy Voting
Budget Status Prior FY
Quarterly Reports
In-State Loan Reports
INTERCAP Reports

Committee Meetings:

Audit: SOC I, Type 2 Report

October 26-27

Education:

Separate Accounts Investment Review
First Reading - Asset Allocation Range Recommendation

Reports:

CEM, Inc Cost Reporting Analysis

Committee Meetings:

HR: Exempt Staff Performance Review

December 6-7

Education:

2023 Legislative Session
Policy 217 - Reauthorization of Investment Vendors
Adoption - Asset Allocation Range Approval

Reports:

Quarterly Reports
In-State Loan Reports
INTERCAP Reports

Committee Meetings:

Audit: Annual Report and Financial Statements

February 22-23

Education:

Cash Management of State Monies
Custodial Banking Relationship and Continuity

Reports:

Ethics Policy
Disaster Recovery and Emergency Preparedness
Quarterly Reports
In-State Loan Reports
INTERCAP Reports

Committee Meetings:

Audit: Financial Compliance Audit Report

April 12

Education:

International Equities Asset Class Review
RVK Annual Capital Market Assumptions

Reports:

Benchmarks Used by the Board

May 24-25

Education:

State Government Customer Relationships
Investment Policy Statement Review
Real Assets Asset Class Review

Reports:

Budget Status FYTD
Quarterly Reports
In-State Loan Reports
INTERCAP Reports

Committee Meetings:

Audit: Accounting Staff Review
HR: Staffing Level Review
HR: Exempt Staff Performance and Compensation Review

August 23-24

Education:

Trust Funds Investment Review
Non-Core Fixed Income Asset Class Review

Reports:

Budget Status Prior FY
Quarterly Reports
In-State Loan Reports
INTERCAP Reports

Committee Meetings:

Audit: SOC I, Type 2 Report

October 11

Education:

Private Investments Asset Class Review
First Reading - Asset Allocation Range Recommendation

Reports:

Securities Lending

Committee Meetings:

HR: Exempt Staff Performance Review

December 13-14

Education:

MPERA and TRS Relationship
Policy 217 - Reauthorization of Investment Vendors
Adoption - Asset Allocation Range Approval

Reports:

Quarterly Reports
In-State Loan Reports
INTERCAP Reports

Committee Meetings:

Audit: Annual Report and Financial Statements

BOI WORK AND EDUCATION PLAN

2024

2025 (dates TBD)

February 28-29

Education:

Outreach Efforts for the Board - In-State Loan and INTERCAP Programs
Short Term Investment Pool

Reports:

Ethics Policy
Disaster Recovery and Emergency Preparedness
Quarterly Reports
In-State Loan Reports
INTERCAP Reports

Committee Meetings:

Audit: Financial Audit Report

April 10

Education:

Domestic Equity Asset Class Review
RVK Annual Capital Market Assumptions

Reports:

Benchmarks Used by the Board

May 22-23

Education:

MT Buildings (Board as Landlord/Tenant Holdings)
Investment Policy Statement Review
Real Estate Asset Class Review

Reports:

Budget Status FYTD
Quarterly Reports
In-State Loan Reports
INTERCAP Reports

Committee Meetings:

HR: Staffing Level Review
HR: Exempt Staff Compensation Review

August 28-29

Education:

Core Fixed Income Asset Class Review
Budget Proposal for FY24-25

Reports:

Proxy Voting
Budget Status Prior FY
Quarterly Reports
In-State Loan Reports
INTERCAP Reports

October 9

Education:

Separate Accounts Investment Review
First Reading - Asset Allocation Range Recommendation

Reports:

CEM, Inc Cost Reporting Analysis

Committee Meetings:

HR: Exempt Staff Performance Review
Audit: SOC I, Type 2 Report

November 20-21

Education:

2025 Legislative Session
Adoption - Asset Allocation Range Approval

Reports:

Policy 217
LPAC
Quarterly Reports
In-State Loan Reports
INTERCAP Reports

Committee Meetings:

Audit: Annual Report and Financial Statements

February

Education:

Cash Management of State Monies
Custodial Banking Relationship and Continuity

Reports:

Ethics Policy
Disaster Recovery and Emergency Preparedness
Quarterly Reports
In-State Loan Reports
INTERCAP Reports

Committee Meetings:

Audit: Financial Compliance Audit Report

April

Education:

International Equities Asset Class Review
RVK Annual Capital Market Assumptions

Reports:

Benchmarks Used by the Board

May

Education:

State Government Customer Relationships
Investment Policy Statement Review
Real Assets Asset Class Review

Reports:

Budget Status FYTD
Quarterly Reports
In-State Loan Reports
INTERCAP Reports

Committee Meetings:

HR: Staffing Level Review
HR: Exempt Staff Performance and Compensation Review

August

Education:

Trust Funds Investment Review
Non-Core Fixed Income Asset Class Review

Reports:

Budget Status Prior FY
Quarterly Reports
In-State Loan Reports
INTERCAP Reports

October

Education:

Private Investments Asset Class Review
First Reading - Asset Allocation Range Recommendation

Reports:

Securities Lending

Committee Meetings:

HR: Exempt Staff Performance Review
Audit: SOC I, Type 2 Report

November

Education:

MPERA and TRS Relationship
Adoption - Asset Allocation Range Approval

Reports:

Policy 217
LPAC
Quarterly Reports
In-State Loan Reports
INTERCAP Reports

Committee Meetings:

Audit: Annual Report and Financial Statements

BOI TERMINOLOGY

ACTIVE MANAGEMENT (typically with respect to stocks)

Investment method which involves hiring a manager to research securities and actively make investment decisions to buy and sell securities in an effort to outperform an assigned index, rather than purchasing a portfolio of securities that would simply replicate the index holdings (*'passive'* investing).

ACTUARIAL ASSUMED RATE (pension concept)

The investment return rate used by actuaries that enables them to project the investment growth of retirement system assets into the future (typically perpetual).

ACTUARIAL FUNDING STATUS (pension concept)

A measurement made by actuaries to measure a pension system's financial soundness (ratio of actuarial liabilities to the actuarial value of the assets available to pay the liabilities).

ALPHA (investment term)

Return on an investment portfolio in excess of the market return or benchmark return; generally used in the context of *'active'* management (as passive management, by definition, does not seek excess returns, or *'alpha'*).

ALTERNATIVE INVESTMENTS

A wide range of investments, other than traditional assets such as publicly traded stocks and bonds. The most common nontraditional or alternative investments are private equity, real estate, commodities, and hedge funds.

ARBITRAGE (bond program)

A structural or systematic difference between investment types which may allow profiting from the *'difference,'* i.e., arbitrage. The most common context for the use of *'arbitrage'* at the BOI is the federal law that prevents *'arbitrage,'* i.e., the profiting of investing tax-exempt securities (e.g., INTERCAP) into taxable yields investments (such as U.S. Treasuries).

ASSET ALLOCATION AND ASSET ALLOCATION RANGE (general investment principle)

The Board's invested assets are divided or allocated into various asset classes such as stocks and bonds, each with its own characteristics, with the objective of attaining an optimal mix of risk and return. The total expected return of a portfolio is primarily determined by the mix or allocation to its underlying assets classes. Given the importance of *'asset allocation,'* the BOI Board sets the asset allocation *'range'* for each broad investment type or asset class.

ASSET-BACKED SECURITY

Bonds or notes backed by loan paper or accounts receivable originated by banks, credit card companies, or other providers of credit. Not mortgages.

AVERAGE LIFE (fixed income, particularly bonds)

The average time period the debt is expected to be outstanding. This is typically the maturity date for a traditional bond structure; however, it will be shorter for bonds having a sinking fund or amortizing payment structure.

BANKER'S ACCEPTANCE

A short-term credit investment which is created by a non-financial firm and whose payment is guaranteed by a bank. Often used in importing and exporting, and as a discount money market fund investment.

BARCLAY'S AGGREGATE INDEX (fixed income)

A composite of outstanding bond issues, including corporate, structured, and government bonds whose overall investment features such as return and investment type are tracked over many years. This is the most common benchmark used for comparing the performance of a portfolio that invests in U.S. investment grade fixed income securities. Formerly known as the Lehman Aggregate bond index.

BASIS POINTS (investment jargon)

A basis point is 1/100th of a percentage. Ten basis points is one tenth of a percent, typically written as 10 bps.

BENCHMARK (standard investment concept)

The concept of employing a particular independent or market investment return as a measurement to judge an investment portfolio's return; typically chosen investment benchmarks have the following attributes: they are investible, quantifiable, chosen in advance, easily understandable, and have a long history; common examples are the S & P 500 Index and the Barclay's Aggregate Index.

BETA (investment jargon)

A measure of the risk (or volatility) of a security or a portfolio in comparison to the market as a whole. If the stock or portfolio moves identically to that market, its beta value is 1; if its price volatility (or movement) is greater than that market's price volatility, it is said to have beta greater than 1.

CAP, AS IN LARGE 'CAP' (generally for stocks, e.g., public equities)

'Cap' is short for capitalization, as a reference to the market value of a publicly-traded company. The current stock price times the total shares outstanding of the company equals its market capitalization or market 'cap'; often used contextually such as 'large-cap,' 'mid-cap,' and 'small-cap' for different sized public companies.

CERTIFICATE OF DEPOSIT (CD):

A short-or medium-term, interest-bearing deposit obligation offered by banks and savings and loans. These may include "Yankee CDs" which are CDs issued by foreign banks or their U.S. affiliates in the U.S. which are denominated in U.S. dollars

CLAWBACK (private equity)

A clause in the agreement between the general partner and the limited partners of a private equity fund. The clawback gives limited partners the right to reclaim a portion of distributions to a general partner for profitable investments based on significant losses from later investments in a portfolio which ultimately resulted in the general partner receiving more distributions than it was legally entitled to.

COMMERCIAL PAPER

An unsecured obligation issued by a corporation or bank to finance its short-term credit needs, such as accounts receivable and inventory. Maturities typically range from two (2) to two hundred seventy (270) days. Commercial paper is available in a wide range of denominations, can be either discounted or interest-bearing, and usually a limited or nonexistent secondary market. Commercial paper is usually issued by companies with high credit ratings, meaning that the investment is almost always relatively low risk.

CORE (context varies for equity, fixed income, real estate)

In equity and fixed income, 'core' refers to investments that are generally always found in the portfolio and normally expect to hold for a very long time e.g. 'core' holdings of the largest U.S. companies, or U.S. treasuries; in real estate, 'core' generally refers to the best quality of real estate holdings such as prime commercial property in major metropolitan cities that have low leverage and low levels of vacancy.

CORPORATE NOTE

A type of unsecured debt issued by a corporation that may be longer-term than Commercial Paper, but shorter-term than a typical Corporate Bond.

CORRELATION (common statistical concept)

A measure of how two or more investment values or two asset classes move relative to each other during the same time period. A central concept in portfolio construction is to seek investments whose values do not move *together* at the same time, i.e., are uncorrelated. A correlation of 1 means that two or more investments 'move' precisely together.

CREDIT ENHANCEMENT (bond program)

At BOI, the term generally refers to credit support or a bond or loan guarantee. For example, the Board's INTERCAP bonds are 'enhanced' by the BOI's performance guarantee bringing down the yearly interest rate.

CUSTOM BENCHMARK (or sometimes custom index)

A way to measure investment performance using a tailor-made measurement versus a generic industry-standard benchmark. At the BOI, total pension performance is measured against the Board's 'custom index' or 'custom benchmark' which is a weighted blend of all the underlying asset class benchmarks used to measure the asset class returns.

DERIVATIVES (investment jargon)

Investment securities whose performance itself depends (or is 'derived') from another underlying investment return. Examples include stock options, puts/calls, and forward currency contracts whose returns are based on the underlying stock or currency.

DEVELOPED MARKETS (equity)

Countries having a long period of stable industrialization; or are the most economically developed.

DISCOUNT (fixed income, generally)

Used most often with respect to bonds, the price paid that is less than face (or 'par') value. A \$1 million face-value of a bond purchased for less than a million is bought at a 'discount.' Described as the difference between a bond's current market price and its face or redemption value.

DIVERSIFICATION (standard investment concept)

The concept of spreading risk by putting assets in several investment categories, each having different attributes with respect to type, expected return, risk, and correlation, to best protect against the risk of loss.

DURATION (bonds)

Almost exclusively used when discussing fixed income bonds, a measurement of how sensitive a bond's change in price is to a change in general market interest rates, expressed in years (specifically calculated as a weighted average term to maturity of the bond's cash flows). The greater the duration of a bond, the greater the volatility of price for changes in market interest rates.

EFFICIENCY (usually when discussing various stock markets)

Used to describe markets where it is very difficult to achieve return in excess of that of the overall market from individual stock selection. When information is widely available on a company and its securities are traded regularly the market is considered 'efficient.'

EMERGING MARKETS (most often for public equities)

Certain international securities markets that are typically small, new, have low turnover, and are located in countries where below-average income prevails and is developing in response to the spread of capitalism.

ENHANCED (pertaining to stocks)

Generally linked with 'index' as in enhanced index, an indexed investment management style that has been modified to include the portfolio manager's idea of how to outperform the index by omitting some stocks in the index and overweighting others in a limited manner designed to enhance returns but at minimal risk.

EXCESS RETURNS (standard investment concept)

Returns are 'excess' if they are more than the market or more than the benchmark they are measured against.

EXEMPT STAFF VS. CLASSIFIED STAFF (specific to Montana state government)

"Exempt" refers to the Board's eleven employees who, under state law, do not fall under the state's standard employment rules (the 'classified' staff).

FIDUCIARY (from the Latin verb, fidere, to trust)

The concept of trust and watchfulness; a fiduciary is charged with the responsibility of investing the money wisely for the beneficiary's benefit. Board members are the ultimate 'fiduciaries' for the Board's assets and are obligated to be a good agent.

FTE (state government jargon)

An acronym in state government: "full time equivalent" as in full time employee. The concept is a slot or position, not the actual individuals. The BOI is currently authorized for 32 FTE's.

FUND OF FUNDS (private equity)

A concept used in alternative investments referring to using an investment manager to invest in **other** managers or funds, as opposed to making direct investments in funds.

GAAP/GASB (accounting terminology)

GAAP...Generally Accepted Accounting Principles; Montana state law uses GAAP accounting principles unless specifically allowed otherwise. GASB...Government Accounting Standards Board, the board that sets GAAP standards for U.S. governments (FASB...Financial Accounting Standards Board, the entity for commercial and business accounting standards).

GENERAL OBLIGATION (municipal finance term)

Used to describe the promise that a government makes to bond holders, backed by taxing and further borrowing power, it is generally considered the highest level of commitment to bondholders. At the local government level, general obligation bonds typically require a vote of the residents.

GENERAL PARTNER VS. LIMITED PARTNER (private equity)

In private equity, the general partner is responsible for the operations of the partnership and makes the actual underlying investment decisions; the limited partner is the investor, and therefore has limited liability for investment decisions; the BOI is the 'limited' partner in its private equity fund investments (and real estate funds as well).

GROWTH (as to style public equities)

An investment style that more heavily invests in companies whose earnings are expected to grow at an above average rate to the market. A growth stock usually does not pay a dividend, as the company would prefer to reinvest retained earnings in capital projects to grow the company (vs. 'value,' which considers buying established companies they feel are trading at bargain prices to the fundamental analysis of the company's financial statements and internal competitive factors).

INDENTURE (bond and loan programs)

The central document describing the contract between investors and the borrower or user of the proceeds. The Board's INTERCAP program is structured around a bond indenture.

HEDGE FUND (as defined by Investopedia)

An aggressively managed portfolio of investments that uses advanced investment strategies such as *leverage*, long, short and *derivative* positions in both domestic and international markets with the goal of generating high returns (either in an absolute sense or over a specified market *benchmark*).

HURDLE RATE (private equity)

a minimum return per annum that must be generated for limited partners of a private equity fund before the general partner can begin receiving a percentage of profits from investments.

INDEX (investment concept)

Typically, a single measure of a broadly-based group of investments that can be used to judge or be compared to the return performance of an individual investment or manager.

INDEXING (investment concept)

Typically refers to investing in a portfolio to match a broad range of investments that are set within a pre-determined grouping, such as the S&P 500, so as to match its performance; such investing is generally labeled 'passive' or indexed investing; or buying shares in an Index Fund.

IN-STATE LOAN PROGRAM (Montana-specific)

Programs that are funded by the state's coal severance tax monies.

INTERNAL SERVICE VS. ENTERPRISE FUND (state accounting concept)

Within Montana state government: a program whose funding is dependent on **mandatory participation** by another state government program is labeled an 'internal' service fund; a program whose funding is dependent on voluntary participation is labeled an enterprise fund. At BOI, the investment program is an internal service fund because participation is not voluntary; the Board's bond and loan programs, because their use is voluntary, are accounted for as an enterprise.

INVESTMENT GRADE (bonds)

Bond ratings from Moody's, Standard and Poor's, and Fitch high enough to be considered secure enough for most investors (bonds rated AAA – BBB). Below investment-grade bonds (below BBB) are generally considered to have a more speculative outlook and carry more risk of default.

IRR (private equity)

A measure of investment performance, short for 'internal rate of return,' expressed as a percentage (the 'internal rate of return' number, or discount rate) that mathematically will equalize the total future cash flows of an investment to the initial cash outflow of the investment, the concept accounts for the time value of money.

LEVERAGE (investment concept)

As an investment concept, a way to increase a return on an investment through a combination of one's own money and by borrowing additional money to enhance such an investment; high 'leverage' is also associated with high risk.

LINK DEPOSIT

The Link Deposit program can provide a financial institution a long-term fixed rate funding source "linked" to a specific loan. The State of Montana provides the financial institution funding in the form of a deposit through the Montana Board of Investments using coal tax funds.

MASTER LIMITED PARTNERSHIP

An investment structure that combines the tax benefits of a limited partnership with the liquidity of a common stock. While an MLP has a partnership structure, it issues shares that trade on an exchange like common stock. MLPs are often broadly associated with energy companies operating in midstream services.

MEAN VARIANCE OPTIMIZATION MODEL ('Modern Portfolio Theory')

A theory that it is possible to construct a portfolio to maximize the return for the least amount of risk or volatility. This theory is based on various asset types and their level of expected return, risk (volatility) and their correlation with each other or how the asset values move with each other. The central idea of the model is to blend investments so that in total, they provide both the best expected return and optimal amount of diversification to minimize deep performance swings (volatility); a central tenant is that long term historical returns are indicative of future returns.

MEZZANINE FINANCE (private equity)

Subordinated debt with an equity 'kicker' or ability to share in the equity value of the company. It is typically lower quality because it is generally subordinated to debt provided by senior lenders such as banks, thus is considered higher risk.

MULTIPLE (as in "multiple" of invested capital, private equity)

The ratio of total cash returned over the life of the investment plus the investment's residual value over the total cash expended in making the investment. A multiple of 2 means, regardless of the total investment time period, that total cash returned was twice the cash invested.

130/30 STRATEGY (public equities)

Also called 'partial long short,' this strategy involves the establishment of a short position in select stocks while taking the proceeds of those shorts and buying additional long positions in stocks. The net effect is an overall market position that is 100% long, but the active decisions on individual stock selections are amplified by this ability to short. If the stock selections are successful, the strategy enables the portfolio to profit more than if a stock had simply not been owned, as with traditional long-only portfolios.

OPPORTUNISTIC (real estate)

In real estate, a euphemism for the most risky real estate investments, typically distressed, raw land, newly developed buildings or other high risk investments in the real estate sector, (versus, 'core,' which are the best quality fully leased commercial properties).

OVERWEIGHT OR UNDERWEIGHT (investment concept)

Generally, the level of holdings of a certain type of investment that is above or below either a benchmark's weight (portion of total investment), or the percentage held of a particular asset class compared to the Board's asset allocation policy weight. Also used to describe an external investment manager's decision to have more (or less) of a particular investment than the percentage or weighting found in the benchmark.

P/E RATIO (equity)

The price of a publicly traded stock divided by its estimated or actual earnings is the price/earnings or P/E ratio. This can also be calculated for a stock index or portfolio of stocks. Over the last 100 years, the S&P 500 has had an overall P/E ratio of about 15, or a total index price of about 15 times the annual earnings of its underlying companies.

PACING STUDY (private equity)

An analysis of the likely timing and amount of the drawdown of committed but yet uninvested monies and the estimated distributions or returns from the funds held in an alternative investment portfolio, generally used to judge the future size of the portfolio and its potential liquidity needs, i.e., cash funding demands.

PAR (fixed income)

The initial principal amount designated by the issuer of the bond, or face value of a bond.

PASSIVE

For investments, generally not materially participating in an investment decision, meaning an investment portfolio whose returns follows that of a broad market index, such as an investable stock index, i.e. the S & P 500.

PASSIVE MANAGEMENT OR PASSIVE INVESTMENT (most often in public equities, but not exclusively)

An investment style where a fund's portfolio mirrors a market index, such as the S&P 500, with limited selection decisions by the manager, resulting in market returns. Passive management is the opposite of active management in which a fund's manager attempts to beat the market with various investment strategies and buy/sell decisions of a portfolio of securities to enhance returns.

PASSIVE WEIGHT (generally equities)

The percentage of a stock held in a particular index portfolio, or percentage of an overall asset class that is held in passive portfolios.

POLICY PORTFOLIO

A fixed-target asset allocation, as opposed to asset allocation ranges, which theoretically allows gauging whether deviations from the target portfolio had a positive or negative impact on overall performance.

PORTABLE ALPHA (public equities)

An investment strategy which involves the active selection of securities while neutralizing overall beta or market risk. This often involves the use of derivative investments such as futures to replicate the market return, either taking a short or long position, while then selecting securities which are expected to add return in an absolute sense or in addition to the market return. As an example, this strategy can be found with certain hedge funds where a market exposure is shorted while individual securities such as specific stocks are purchased that are expected to outperform the general market. The concept of portable applies when the ability to generate positive alpha can be overlaid or ported onto a portfolio. This is not a strategy employed by any of MBOI's existing managers.

PREMIUM (fixed income)

Most often the amount paid over the stated face amount (often called 'par') of a bond, but also used in other contexts, typically paying more (the premium) than a market price (as in a take-over bid for a company).

PRIVATE ANNUAL WAGE

The private annual wage is determined annually by the Montana Department of Labor & Industry using the average annual employment divided by the total wages.

PROXY (publicly traded companies)

An agent legally authorized to act on behalf of another party. Shareholders not attending a company's annual meeting may choose to vote their shares by proxy by allowing someone else to cast votes on their behalf, but the word 'proxy' is used more frequently colloquially as a 'close approximation.'

PRUDENT EXPERT, PRUDENT PERSON (a central fiduciary concept)

These legal terms have long histories of court-determined standards of care, deriving originally under English common law. The BOI is empowered to operate under the 'prudent expert rule,' which states that the Board shall manage a portfolio:

- a) *with the care, skill, prudence, and diligence, under the circumstances then prevailing, that a prudent man acting in a like capacity and familiar with such matters would use in the conduct of an enterprise of a like character and with like aims;*
- b) *diversify the holdings of each fund within the unified investment program to minimize the risk of loss and to maximize the rate of return unless, under the circumstances, it is clearly prudent not to do so; and*
- c) *discharge the duties solely in the interest of and for the benefit of the funds forming the unified investment program.*

At an 'expert' level; there is more room for accepting risk under the prudent expert rule than the prudent person rule.

REBALANCING (general investment term)

The process of realigning the weightings of the portfolio of assets. Rebalancing involves periodically buying or selling assets in the portfolio to maintain the original desired level of asset allocation and/or to stay within predetermined asset category range; it is part of a disciplined investment approach within modern portfolio theory.

REPURCHASE AGREEMENT

A contract in which the seller of securities, such as Treasury Bills, agrees to buy them back at a specified time and price. May also be called "Repo" or "Buyback." Typically used as a short-term form of collateralized borrowing by a bank or securities dealer.

RESOLUTION (government term)

Generally, a formal and written action by a governmental (or corporate) body that has long term significance and requiring a vote of the governing body. BOI uses 'resolutions' generally only for its most significant and long term actions and/or policies.

REVERSE REPURCHASE AGREEMENT

A purchase of securities with an agreement to resell them at a higher price at a specific future date. The investor essentially borrows money and allows its securities to be held as collateral. Reverse Repurchase Agreements occur most often in government securities or other securities that are highly valued and thus considered a good form of collateral.

SECURITIES LENDING (general investment)

Investments that are temporally borrowed by other investors for a fee; the BOI allows most of its publicly traded investments to be loaned for additional marginal income.

STANDARD DEVIATION (common statistical concept)

A specific statistic that measures the dispersion of returns from the mean over a specific time period to determine the "historical volatility" of returns for a stock, or portfolio, or asset class; more specifically a single unit (i.e., one standard deviation) of dispersion that accounts for approximately 66% of all data around a mean using a 'normal' (or 'uniform' or 'bell-shaped' curve; as opposed to a skewed or asymmetrical) distribution. The standard deviation is used as a gauge for the amount of expected future volatility.

SABHRS (accounting jargon)

Montana state government's State Accounting, Budgeting and Human Resource System; the State's central information management system. BOI investment and other financial data must tie and be reported on this system, which is the official book of record and includes the state's financial statements.

STYLE DRIFT (often in reference to public equity managers, but applicable to other managers, too)

As the name implies, a divergence from an investor's professed investment bias or style or objective.

TRANCHE

A division or portion of a pool or whole; specifically: an issue of bonds derived from a pooling of like obligations (such as securitized mortgage debt) that is differentiated from other issues especially by maturity or rate of return.

TRACKING ERROR (statistical concept in investments)

A measurement of the standard deviation of a portfolio's return versus the return of the benchmark it was attempting to outperform. The concept is often used when discussing investment managers. For example, some styles are expected to have high 'tracking errors,' (e.g., deep 'value' investors who buy companies that may be dogs for years), versus passive managers, whose stock volatility is expected to be very close to their benchmark. Tracking error can either be intentional or unintentional; it can also be regarded as an accepted deviation or contrary to the management agreement. High *unexpected* tracking error is generally a serious concern to be examined and understood.

UNDERWRITER (bond program)

In investments, the agent who buys investments to be resold to the public; at BOI, the investment firms that buy the Board's bonds to be resold to the public.

UNIFIED INVESTMENT PROGRAM (Montana Constitution)

The Program in the State's constitution requiring a central investment program which the legislature has assigned to the BOI.

VALUE (as to style when discussing public equities)

An investment style that focuses on buying established companies that investors believe are undervalued and trading at bargain prices to the fundamental analysis of the company's financial statements and internal competitive factors.

VENTURE CAPITAL (private equity)

A higher-risk/high-return type of investing in startup firms and small businesses with perceived long-term growth potential. Sometimes these are already existing business ventures with limited operating history that need additional management expertise and access to capital. (For start-ups, 'seed capital,' or 'angel investor' are terms differentiating this even higher risk type of investment.)

VOLATILITY (investment jargon)

A statistical measure of the dispersion of returns for a given security or market index. Volatility is typically measured by using the standard deviation of returns from the security or market index. Commonly, the higher the volatility, the riskier the security.

YIELD (general investment, but most often within fixed income)

The amount returned to the investor above the original investment generally expressed as a percentage. Yield can be thought of as the expected return from the combination of interest and price accrual or amortization to maturity (in the case of a bond trading at a discount or premium to par).

YIELD CURVE (fixed income)

A line that plots the prevailing interest rates at a given time for bonds ranging in maturity from as short as three months out to 30 years. When plotted across these various maturities (typically 2, 5, 7, 10 and 30 years), the resultant line is shaped like a curve with generally low interest rates (the yield) for shorter maturities and gradually higher interest rates for longer maturities, because generally investors demand higher interest rates for longer term investments. The yield curve for U.S. Treasury debt is the most common when referring to the prevailing level of interest rates.

MONTANA BOARD OF INVESTMENTS ACRONYM INDEX

ACH.....	Automated Clearing House
ADV.....	Uniform Application for Investment Adviser Registration and Report by Exempt Reporting Advisor
AUM.....	Assets Under Management
ADR.....	American Depository Receipts
AOF.....	All Other Funds
ARC.....	Actuarially Required Contribution
BOI.....	Board of Investments
CAPP.....	Consolidated Asset Pension Pool
CFA.....	Chartered Financial Analyst
EM.....	Emerging Market
FOIA.....	Freedom of Information Act
FWP.....	Fish Wildlife and Parks
FX.....	Foreign Exchange
IPS.....	Investment Policy Statement
IRP.....	Intermediary Relending Program
LDI.....	Liability-Driven Investing
MBOH.....	Montana Board of Housing
MBOI.....	Montana Board of Investments
MDEP.....	Montana Domestic Equity Pool
MLP.....	Master Limited Partnership
MFFA.....	Montana Facility Finance Authority
MPEP.....	Montana Private Equity Pool
MPT.....	Modern Portfolio Theory
MSTA.....	Montana Science and Technology Alliance
MTIP.....	Montana International Pool

MTRP Montana Real Estate Pool

MTSBA Montana School Boards Association

MVO Mean-Variance Optimization

NAV Net Asset Value

PERS Public Employees' Retirement System

PFL Partnership Focus List

QZAB Qualified Zone Academy Bonds

QSCB Qualified School Construction Bonds

RFBP Retirement Funds Bond Pool

RFP Request for Proposal

SABHRS Statewide Accounting Budgeting and Human Resource System

SLQT Securities Lending Quality Trust

SOC1 Service Organization Controls 1 (Audit)

SSBCI State Small Business Credit Initiative

STIP Short Term Investment Pool

TFBP Trust Funds Bond Pool

TFIP Trust Funds Investment Pool

TIF Tax Increment Financing

TIFD Tax Increment Financing District

TRS Teachers' Retirement System

TUCS Trust Universe Comparison Service

UIP Unified Investment Program

VIX Volatility Index

ASSET CLASS ACRONYMS

DEPAC	Domestic Equity Pension Asset Class
IEPAC	International Equity Pension Asset Class
PEPAC	Private Equity Pension Asset Class
NRPAC	National Resources Pension Asset Class
REPAC	Real Estate Pension Asset Class
TIPAC	TIPS Pension Asset Class
BFPAC.....	Broad Fixed Income Pension Asset Class
USPAC	UST/AGY Pension Asset Class
IGPAC	Investment Grade Corp Pension Asset Class
MBPAC.....	MBS Pension Asset Class
HYPAC	High Yield Pension Asset Class
DSPAC	Diversified Strategies Pension Asset Class
CPAC.....	Cash Pension Asset Class