

MONTANA

BOARD OF INVESTMENTS

REGULAR BOARD MEETING
October 9, 2024

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 August 28, 2024, Committee Minutes
3. Executive Director Comments
4. Audit Checklist
5. SOC 1, Type 2 Report – **Decision**

B. **Loan Committee – Jeff Meredith, Chair**

Committee Members – Cindy Younkin, Porter Bennett, Tim Kober, Mark Barry

10:30 AM

1. Public Comment – Public Comment on issues with Committee Jurisdiction
2. Approval of August 28, 2024, Committee Minutes
3. In-State Loan Request - **Decision**

C. **Human Resource Committee – Maggie Peterson, Chair**

Committee Members – Meredith, Kober, Trost, Younkin

10:45 AM

1. Public Comment – *Public Comment on issues with Committee Jurisdiction*
2. Approval of May 22, 2024, Committee Minutes
3. Executive Director Comments
4. Exempt Staff Performance Review *CLOSED SESSION*
5. Exempt Staff Position– **Decision**

Tab 1 **CALL TO ORDER – Jack Prothero, Chairman**

11:30 AM

- A. Notice of Video Recording of Meeting
- B. Roll Call
- C. Public Comment – *Public Comment on issues with Board Jurisdiction*
- D. Approval of the August 28, 2024, Meeting Minutes
- E. Administrative Business
 1. Audit Committee Report - **Decision**
 2. Human Resource Committee Report - **Decision**
- F. Comments from TRS and PERS Board Members
- G. Comments from Board Legislative Liaisons

WORKING LUNCH – SPECIAL REPORTS TO THE BOARD *CLOSED SESSION*

12:00 PM

Tab 2 **EXECUTIVE DIRECTOR REPORTS – Dan Villa**

1:00 PM

- A. Member Requests from Prior Meeting
- B. Monthly Snapshot
- C. 2025 Board Meeting Calendar – **Decision**

Tab 3 **INVESTMENT POLICY STATEMENTS – Decision**

1:15 PM

Tab 4 **CEM, INC. - COST REPORTING ANALYSIS**

1:30 PM

Tab 5 **SEPARATE ACCOUNTS INVESTMENT REVIEW**

2:15 PM

BREAK

3:15 PM

Tab 6 FIRST READING - ASSET ALLOCATION – Jon Putnam – *Potential Decision*

3:30 PM

RECAP OF STAFF TO DO LIST AND ADJOURNMENT – Jack Prothero, Chairman

ADJOURN

** **CLOSED SESSION*** – This portion of the meeting relates to matters of individual privacy. The Committee/Board Chair may determine that the demand of individual privacy clearly exceeds the merit of public disclosure. As such this portion of the meeting may be closed.*

MONTANA

BOARD OF INVESTMENTS

REGULAR BOARD MEETING MINUTES

AUGUST 28, 2024

Official meeting minutes are the recordings posted at <https://leg.mt.gov/lspd/>
(timestamps may differ)

Call to Order

The Board of Investment's meeting was called to order by Board Chairman Jack Prothero at 9:52 a.m. on Wednesday, August 28, 2024.

Attendance

Board Members Present: Jack Prothero, Tim Kober, Mark Barry, Cindy Younkin, Maggie Peterson, Dwaine Iverson, Jeff Meredith

Board Members Absent: Dan Trost, Porter Bennett

Legislative Liaisons Present: Representative Bob Keenan

Legislative Liaisons Absent: Senator Jeremy Trebas

Board Staff Present: Austin Kolb, Brenda Thomas, Cort Jensen, Dan Villa, Doug Hill, Eron Krpan, Ethan Hurley, Ian Horwood, Jason Brent, Jessilynn Salois, John Carpenter, John Romasko, Jon Putnam, Julie Feldman, Kirsten Haswell, Louise Welsh, Mark Lodman, Matt Hoffman, Peggy MacEwen, Peggy Saarela, Polly Boutin, Roberta Diaz, Rob Samson, Sam Holman, Savannah Morgan, Sheli Jacoby, Steve Strong, Thomas Winkler, Tim House, Willie Gross

Interested Parties Present: Becky Gratsinger - RVK, John Kevin Balaod – With Intelligence

Tab 1 CALL TO ORDER (00:02 – first recording)

A. Notice of Video Recording (00:23)

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

B. Roll Call (00:34)

The roll was taken. Seven Board members were present, forming a quorum.

C. Public Comment (01:30)

Chairman Prothero asked for public comment. None was given.

Chairman Prothero welcomed Representative Bob Keenan as the Board's legislative liaison.

D. Approval of Minutes (09:33)

May 22, 2024, Regular Board Meeting Minutes

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

E. Administrative Business

1. Audit Committee Report (10:29)

Committee Chair Barry briefed the Board.

2. Loan Committee Report (14:15)

Committee Chair Jeff Meredith briefed the Board.

F. Comments from Pension Board Members (15:50)

Member Trost was absent. Member Peterson briefed the Board.

G. Comments from Legislative Liaisons (19:39)

Senator Jeremy Trebas was absent. Representative Bob Keenan had nothing to report.

Tab 2 EXECUTIVE DIRECTOR REPORTS (20:14)

A. Member Requests from Prior Meeting

Executive Director Villa briefed the Board.

B. Monthly Snapshot

Executive Director Villa briefed the Board.

C. Budget Proposal for Fiscal Years 2026 & 2027 - Decision

Executive Director Villa briefed the Board and answered questions.

Chairman Prothero called for a motion to instruct the Executive Director to pursue moving the Board to a fiduciary fund for administrative expenses. If this pursuit is unsuccessful, the Executive Director is instructed to submit the budget for our costs as it has been for the prior two fiscal years. Member Iverson motioned to approve. Member Peterson seconded the motion, which passed unanimously.

D. Proxy Voting

Executive Director Villa briefed the Board.

E. Budget Status Prior Fiscal Year

Executive Director Villa briefed the Board.

Tab 3 MONTANA LOAN PROGRAM (01:08:12)

A. Commercial and Residential Portfolios Report

Doug Hill briefed the Board and answered questions.

Tab 4 BOND PROGRAM (01:16:52)

A. INTERCAP

Louise Welsh briefed the Board and answered questions.

B. Montana Housing Infrastructure Revolving (MHIR) Bond Program Portfolio Report

Louise Welsh briefed the Board and answered questions.

Tab 5 INVESTMENT POLICY STATEMENTS - Decisions (01:28:32)

CIO Jon Putnam briefed the Board and answered questions.

Chairman Prothero called for a motion to approve the changes recommended by staff to policies 40.207, 40.504, and 40.705. Member Barry motioned to approve. Member Peterson seconded the motion, which passed unanimously.

Tab 6 CORE FIXED INCOME ASSET CLASS REVIEW (00:19 – second recording)

John Romasko, Kirsten Haswell, Sam Holman, and Willie Gross briefed the Board and answered questions.

Tab 7 RVK (53:58)

Becky Gratsinger briefed the Board and answered questions.

Tab 8 INVESTMENT UPDATE

CIO Update (01:37:28)

Jon Putnam briefed the Board.

Macro Attribution (02:01:08)

Eron Krpan briefed the Board.

Domestic Equity, International Equity, and Non-Core Fixed Income (02:04:37)

Jason Brent briefed the Board.

Real Estate and Real Assets (02:14:07)

Ethan Hurley and Rob Samson briefed the Board.

Private Investments (02:24:30)

Thomas Winkler briefed the Board.

Core Fixed Income (02:34:53)

John Romasko briefed the Board.

RECAP OF STAFF TO-DO LIST AND ADJOURNMENT (02:43:00)

Chairman Prothero adjourned the meeting at 4:00 p.m.

MONTANA BOARD OF INVESTMENTS

APPROVE: _____

Jack Prothero, Chair

ATTEST: _____

Dan Villa, Executive Director

DATE: _____

MONTANA

BOARD OF INVESTMENTS

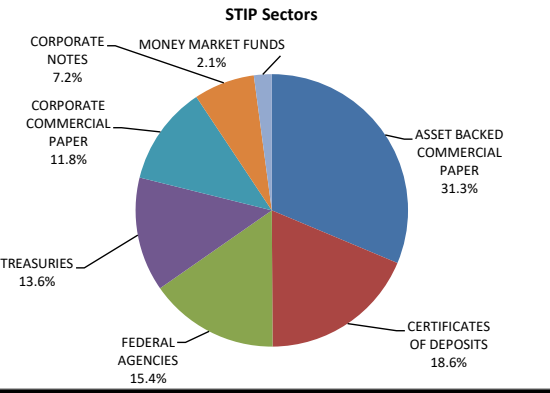
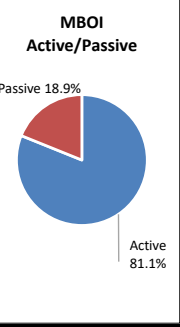
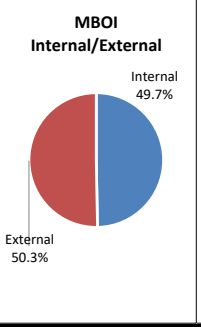
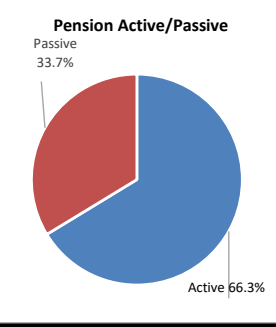
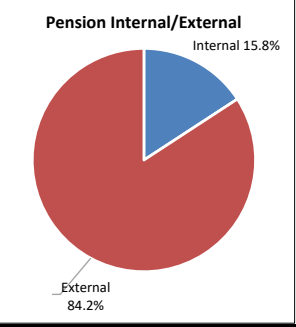
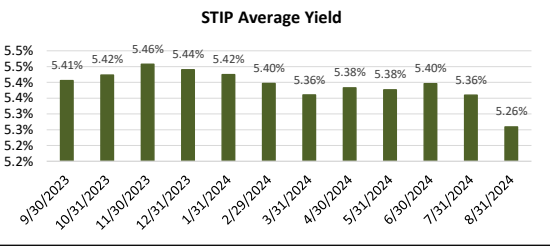
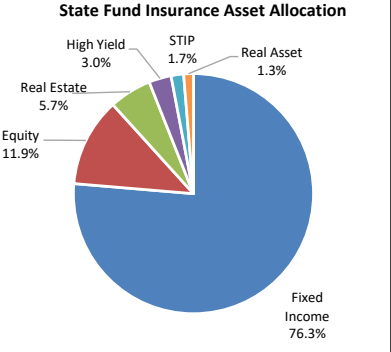
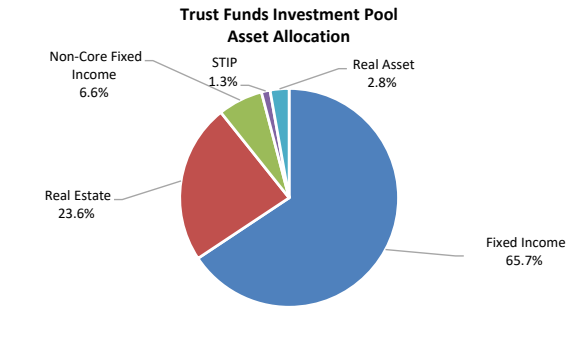
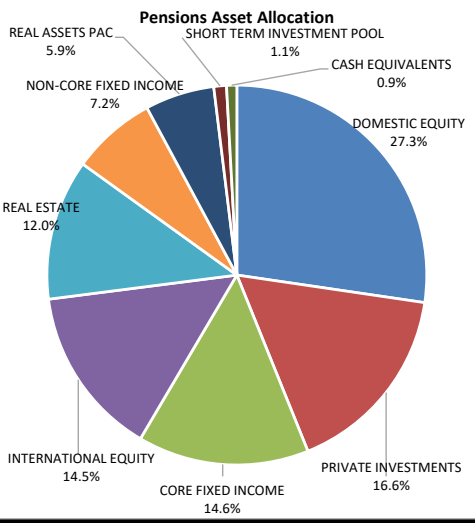
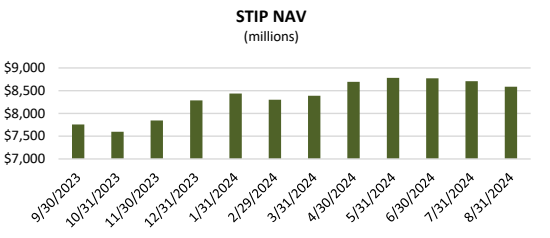
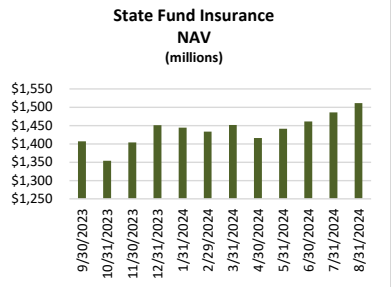
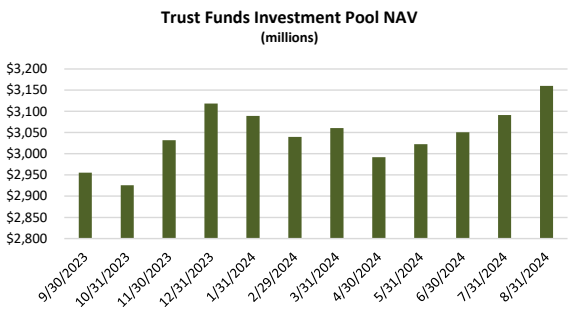
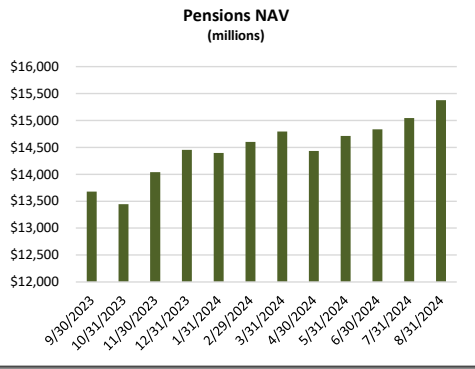
To: Members of the Board
From: Dan Villa, Executive Director
Date: October 9, 2024
Re: Executive Director Report

- A. Member Requests from Prior Meeting
- B. Monthly Snapshot – *Attached*
- C. 2025 Board Meeting Calendar - *Decision*

MBOI Snapshot
Asset Management View
8/31/2024 Unaudited
Assets Under Management \$28,575,517,181



Pensions	NAV	%	TFIP	NAV	%	State Fund	NAV	%	Other Fixed Income & Pending	\$ (331,999,049)	
DOMESTIC EQUITY	\$ 4,201,112,845	27.3%	Fixed Income	\$ 2,075,328,712	65.67%	Fixed Income	\$ 1,168,983,534	76.34%			
PRIVATE INVESTMENTS	\$ 2,548,974,522	16.6%	Real Estate	\$ 745,891,204	23.60%	Equity	\$ 182,993,973	11.95%	STIP*		
CORE FIXED INCOME	\$ 2,242,280,322	14.6%	Non-Core Fixed Income	\$ 210,061,586	6.65%	Real Estate	\$ 87,369,883	5.71%	ASSET BACKED COMMERCIAL PAPER	\$2,767,443,639	31.31%
INTERNATIONAL EQUITY	\$ 2,228,735,971	14.5%	Real Asset	\$ 88,334,385	2.80%	High Yield	\$ 46,087,096	3.01%	CERTIFICATES OF DEPOSITS	\$1,644,009,708	18.60%
REAL ESTATE	\$ 1,840,737,370	12.0%	STIP	\$ 40,605,531	1.28%	STIP	\$ 25,805,641	1.69%	FEDERAL AGENCIES	\$1,360,814,825	15.40%
NON-CORE FIXED INCOME	\$ 1,108,838,807	7.2%	TFIP Total	\$ 3,160,221,417	100.00%	Real Asset	\$ 20,097,036	1.31%	TREASURIES	\$1,199,141,081	13.57%
REAL ASSETS PAC	\$ 907,598,862	5.9%				State Fund Total	\$ 1,531,337,163	100.00%	CORPORATE COMMERCIAL PAPER	\$1,041,232,501	11.78%
SHORT TERM INVESTMENT POOL	\$ 165,657,611	1.1%							CORPORATE NOTES	\$638,831,425	7.23%
CASH EQUIVALENTS	\$ 133,664,771	0.9%							MONEY MARKET FUNDS	\$186,883,390	2.11%
Pensions Total	\$ 15,377,601,081	100.0%							STIP Total	\$8,838,356,569	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 \$470,217,530 is attributable the portion of STIP held within CAPP 132,054,555 and TFIP 40,470,661 as a cash investment and distributions held over month end 297,692,314. Such value is represented in the NAV for the CAPP and STIP columns.

2025 Board of Investments Calendar

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	26
27	28	29	30	31		

FEBRUARY

S	M	T	W	T	F	S
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2	3	4	5	6	7	8
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16	17	18	19	20	21	22
23	24	25	26	27	28	

MARCH

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16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

APRIL

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27	28	29	30			

MAY

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

JUNE

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

JULY

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20	21	22	23	24	25	26
27	28	29	30	31		

AUGUST

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24	25	26	27	28	29	30
31						

SEPTEMBER

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

OCTOBER

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

NOVEMBER

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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

2024

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

2025

February 26-27

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 23

Education:

International Equities Asset Class Review
RVK Annual Capital Market Assumptions

Reports:

Benchmarks Used by the Board

May 28-29

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 20-21

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 15

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

December 10-11

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

MONTANA

BOARD OF INVESTMENTS

TO: Members of the Board
FROM: Dan Villa, Executive Director
Jon Putnam, Chief Investment Officer
DATE: October 9, 2024
RE: Investment Policy Statements

Repayment Account ***New Separately Managed Account***

This account will be established for the earnings and repayment of principal for ARPA funds allocated in the Down Payment Assistance Loan Program.

As the balance grows, a significant portion of the fund is expected to purchase existing State of Montana-approved loans.

State Treasurer's Fund

Staff proposes to amend the State Treasurer's Fund investment policy to permit investment in individual securities or the Trust Funds Investment Pool (TFIP) up to the lowest annual average account balance over the past ten years. The current restriction is one-half that amount.

BOI staff believe Montana can take advantage of higher interest rates and stable budget projections to earn additional income for the general fund.

MONTANA

BOARD OF INVESTMENTS

BOARD ADOPTED POLICY

POLICY NUMBER: 40.954

EFFECTIVE DATE: TBD

TITLE: Repayment Account
Investment Policy Statement

SUPERSEDES: NEW

BOARD ADOPTION: TBD

REVIEWED: October 9, 2024

I. Introduction

- A. The purpose of this policy is to provide a framework for the Repayment Account under the guidance of the Board.
- B. All Separately Managed Accounts are governed by the Separately Managed Accounts Investment Policy Statement, Policy 40.900.
- C. Earnings on and repayments of ARPA funds allocated in the Down Payment Assistance Loan Program will be placed into the account as they are earned or repaid.
- D. The Account is expendable.
- E. The Board will have full discretion to manage the Repayment Account portfolio consistent with 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.
- 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.

II. Purpose

- A. The purpose of this policy statement is to:
 - 1. Establish the investment objectives and performance standards of the Repayment Account; and
 - 2. Provide diversified investment exposure within the guidelines in a prudent and cost-effective manner.

III. Investment Objectives

- A. Strategic - The objective of the Repayment Account fund portfolio is to protect principal and provide income from investments within the parameters established in this policy.
- B. Performance - Success in achieving this objective will not be measured relative to an investment performance benchmark.

C. Time Horizon - The Repayment Account is an expendable account. The Board expects to meet or exceed all objectives over the long-term investment horizon. Over shorter periods, the anticipated market volatility, and specific actions, including risk mitigation efforts by the Board may lead to unfavorable, but expected deviation from these objectives.

IV. Permitted Investments

A. The Repayment Account may only invest in the following:

1. STIP or any cash vehicle at the Custodial Bank;
2. Fully collateralized, interest-bearing Demand Deposit Accounts at Montana domiciled banks and credit unions; or
3. Any state of Montana approved program loan, bond, note, or guarantee.



Authority: Montana Constitution, Article VIII, Section 13
Section 2-15-1808, MCA
Section 17-1-113, MCA
Sections 17-6-201 through 17-6-205, MCA

Adopted: TBD
Revised: NEW
Reviewed: October 9, 2024

MONTANA

BOARD OF INVESTMENTS

BOARD ADOPTED POLICY

POLICY NUMBER: 40.943

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

TITLE: State Treasurer's Fund Investment
Policy Statement

SUPERSEDES: ~~April 20, 2021~~TBD

BOARD ADOPTION: November 30, 2021

REVIEWED: October 9, 2024

I. Introduction

- A. The purpose of this policy statement is to provide a framework for the State Treasurer's Fund investments under the guidance of the Board.
- B. The State Treasurer's Fund consists of both assets of the general fund and all other surplus funds of the state not otherwise expressly segregated and invested separately.
- C. Per Section 17-1-111, MCA, "the state treasurer is the custodian of all money and securities of the state unless otherwise expressly provided by law". Per Section 17-6-101, MCA, "Under the direction of the board of investments, the state treasurer shall deposit public money in the treasurer's possession and under the treasurer's control".

II. Purpose

- A. The purpose of this policy statement is to:
 1. Establish the investment objectives and performance standards of the State Treasurer's Fund account; and
 2. Provide diversified investment exposure within the guidelines in a prudent and cost-effective manner.

III. Investment Objectives

- A. Strategic - The objective of the State Treasurer's Fund portfolio is to attain above benchmark total return within the parameters of this policy with an emphasis on investment income and preservation of principal.
- B. Performance - Success in achieving this objective will be measured by comparing the risk and return of the account to the Short-Term Investment Pool (STIP) benchmark.
- C. Time Horizon - The State Treasurer's Fund is a permanent account. 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 - The Board will have full discretion to manage the State Treasurer's Fund portfolio consistent with 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 State Treasurer's Fund may only invest in the following:
 - a) STIP or any cash vehicle at the Custodial Bank;

Adopted: November 30, 2021

Revised: TBD

Reviewed: October 9, 2024

- b) Deposits held at the state's depository bank;
- c) U.S. Treasury obligations;
- d) Direct obligations of the U.S. mortgage agencies Fannie Mae (Federal National Mortgage Association) and Freddie Mac (Federal Home Loan Mortgage Corporation). These obligations shall consist of only the discount notes, notes and debentures of these two agencies and does not include mortgage pass-through obligations. Coupons may be fixed or floating rate;
- e) Direct obligations of the Federal Farm Credit Bank and the Federal Home Loan Bank. These obligations shall consist of discount notes, notes and debentures with either fixed or floating rate coupons;
- f) Short-term tri-party repurchase obligations (repo) with an approved primary dealer, the Custodial Bank, or the depository bank that are collateralized at one-hundred two percent (102%) of value with U.S. Treasury and U.S. Agency securities. Approved primary dealers will be the same as those dealers approved for repo investments made in STIP;
- g) Fixed income obligations of other U.S. agencies or corporate entities that are directly guaranteed as to both principal and interest by the full faith and credit of the U.S. Treasury;
- h) Any obligation purchased pursuant to the bond credit enhancement program of the Board as authorized pursuant to Board Resolution 219;
- i) State general fund warrants per Section 17-6-212, MCA; and
- j) Investment in the Trust Fund Investment Pool (TFIP).

F. Other Restrictions

1. Securities and TFIP purchases are permitted only up to an amount equal to ~~fifty percent (50%)~~ **of** the lowest twelve (12) month average account balance over the past ten (10) year periods.
 - a) In the event the amount of securities and TFIP held were to exceed this threshold, sales are not required however additional purchases are prohibited until the test can again be met. Prudent sales are required should the amount of securities and TFIP exceed sixty percent (60%).
 - b) U.S. Treasuries held at the state's depository bank are not subject to the projected general fund balance restriction. These securities are held at the depository bank to provide emergency liquidity.
 - c) In addition, any obligations purchased pursuant to the bond credit enhancement program of the Board as authorized pursuant to Resolution 219 of the Board are not subject to the projected general fund balance restriction.
2. Securities purchased for investment are intended to enhance book income and shall normally be held until maturity unless a severe liquidity need were to arise in which case a realized loss may be incurred, if necessary, in the sale of securities to meet immediate liquidity needs. Realized gains may be incurred if the sale of a security prior to maturity is necessary to meet liquidity needs or otherwise is advisable in order to enhance book income by reinvesting the proceeds of such sale.
3. Securities are limited to three years to final maturity.
4. Repurchase agreements are limited to seven days to maturity.
5. Holdings of any one U.S. agency that is not directly or indirectly guaranteed by the U.S. Treasury shall be limited to a maximum \$100 million at book value.
6. Repurchase obligations shall be limited to \$20 million face amount with any one primary dealer. Repos held at the depository bank, or the Custodial Bank are not constrained by this limit given the potential for extenuating market conditions that may require unusually high cash balances to be retained at either bank.
7. Securities restrictions do not apply to holdings in TFIP.

- G. 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 17-1-111 and -113, MCA
Sections 17-6-201 through 17-6-205, MCA

Adopted: November 30, 2021

Revised: [TBD](#)

Reviewed: [October 9, 2024](#)

Montana Board of Investments
Investment Benchmarking Analysis - Summary of Results
For the 5 year period ending December 31, 2023



Key Takeaways

Returns

- Your 5-year net total return was 9.4%. This was above both the U.S. Public median of 8.9% and the peer median of 8.6%.
- Your 5-year policy return was 8.5%. This was above both the U.S. Public median of 7.7% and the peer median of 7.5%.

Implementation impact

- Your 5-year implementation impact was 0.9%. This was below both the U.S. Public median of 1.2% and the peer median of 1.3%.

Cost

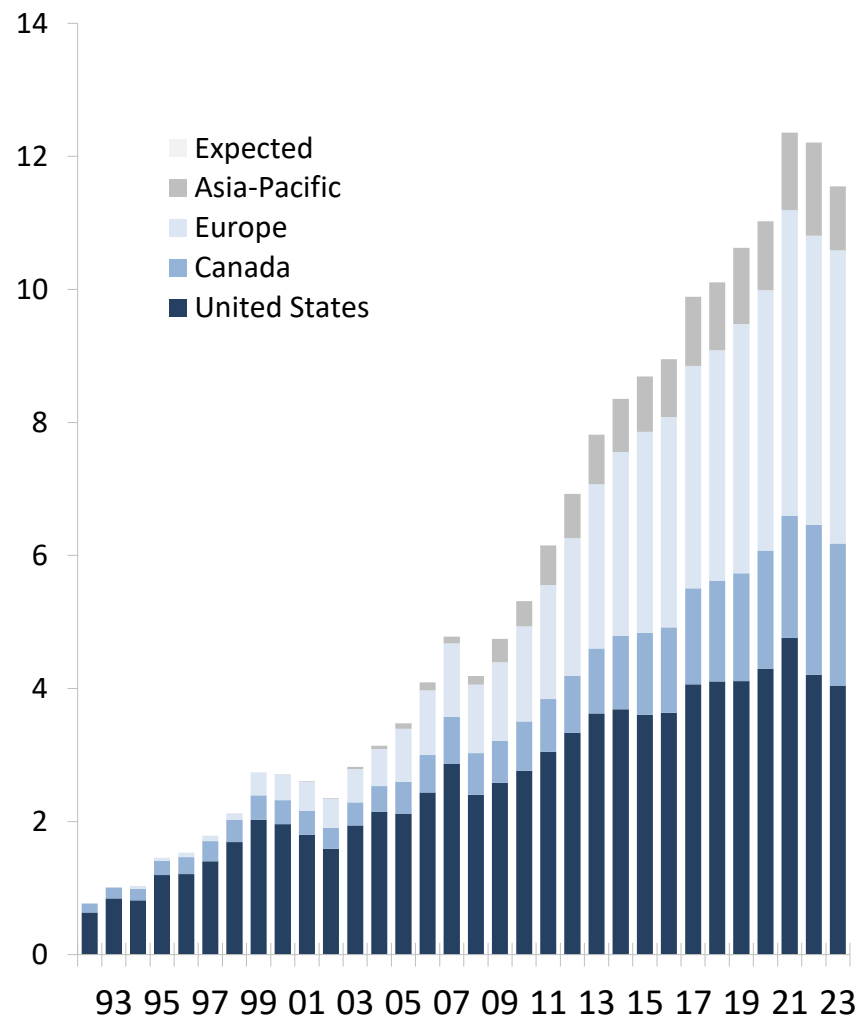
- Your investment cost of 49.6 bps was above your benchmark cost of 44.8 bps.
- Your fund was above benchmark cost because it paid more than peers for some services.
- Despite being 4.8 bps above benchmark cost, you delivered a five-year implementation impact of 86.4 bps.

This benchmarking report compares your cost and performance to the 269 funds in CEM's extensive pension database.

- 140 U.S. pension funds participate. The median U.S. fund had assets of \$9.3 billion and the average U.S. fund had assets of \$28.9 billion. Total participating U.S. assets were \$4.0 trillion.
- 63 Canadian funds participate with assets totaling \$2.1 trillion.
- 58 European funds participate with aggregate assets of \$4.4 trillion. Included are funds from the Netherlands, Norway, Sweden, Finland, Ireland, Denmark and the UK.
- 4 Asia-Pacific funds participate with aggregate assets of \$960.4 billion. Included are funds from Australia, New Zealand, China and South Korea.
- 4 funds from other regions participate.

The most meaningful comparisons for your returns and implementation impacts are to the U.S. Public universe, which consists of 38 funds. The U.S. Public universe assets totaled \$2.8 trillion and the median fund had assets of \$32.9 billion.

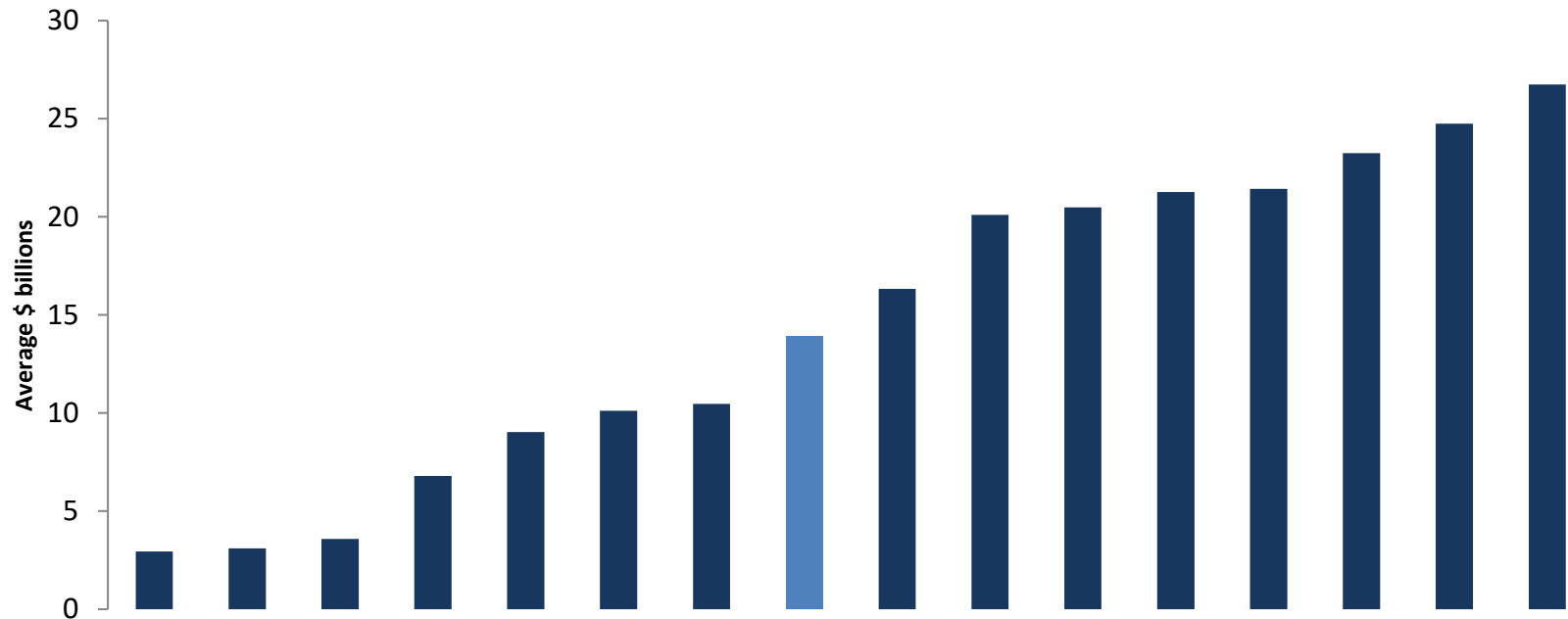
Participating assets (\$ trillions)



The most valuable comparisons for cost performance are to your custom peer group because size impacts costs.

Peer group for Montana Board of Investments

- 16 U.S. sponsors from \$2.9 billion to \$26.7 billion
- Median size of \$15.1 billion versus your \$13.9 billion



To preserve client confidentiality, given potential access to documents as permitted by the Freedom of Information Act, we do not disclose your peers' names in this document. For some of the peers, 2022 cost data was used as a proxy for 2023.

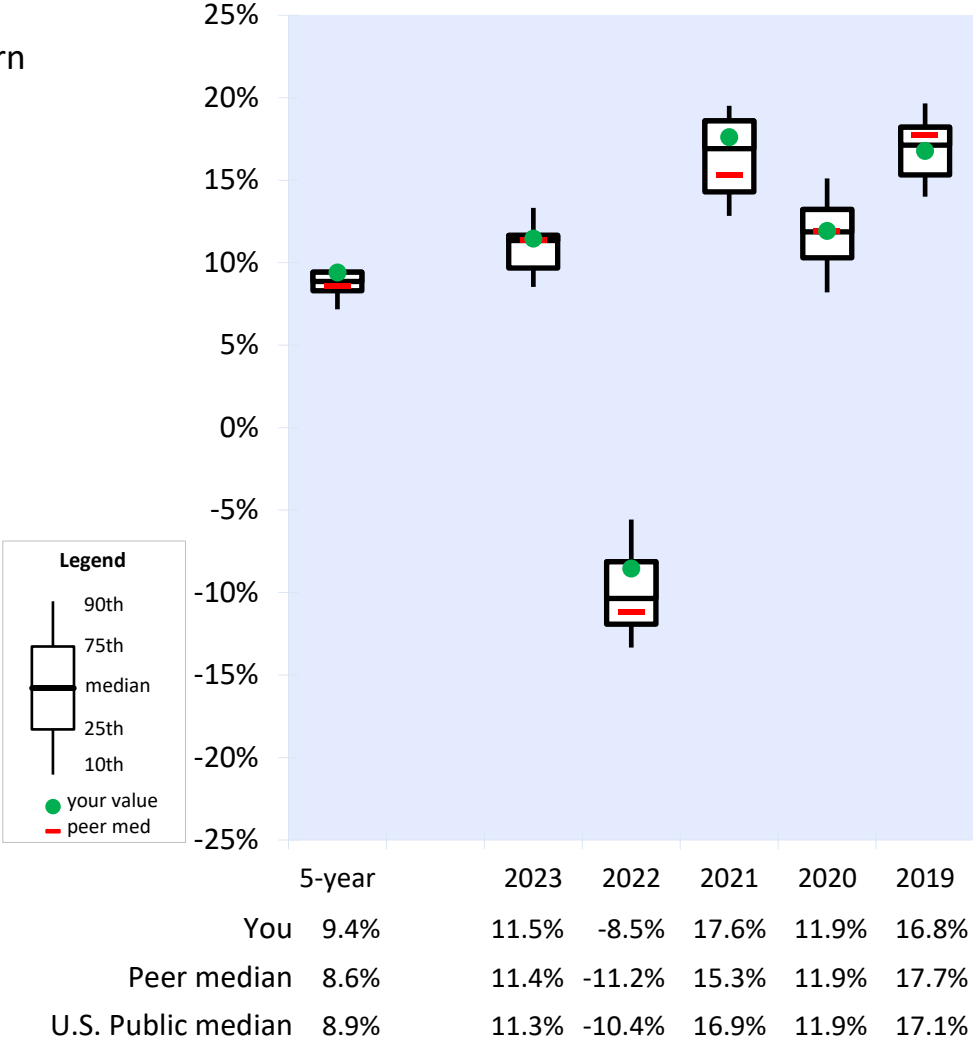
Your 5-year net total return of 9.4% was above both the U.S. Public median of 8.9% and the peer median of 8.6%.

Total returns, by themselves, provide little insight into the reasons behind relative performance. Therefore, we separate total return into its more meaningful components: policy return and implementation impact.

	Your 5-year
Net total fund return	9.4%
- Policy return	8.5%
= Implementation impact	0.9%

This approach enables you to understand the contribution from both policy mix decisions (which tend to be the board's responsibility) and implementation decisions (which tend to be management's responsibility).

U.S. Public net total returns - quartile rankings



Your 5-year policy return of 8.5% was above both the U.S. Public median of 7.7% and the peer median of 7.5%.

Your policy return is the return you could have earned passively by indexing your investments according to your policy mix.

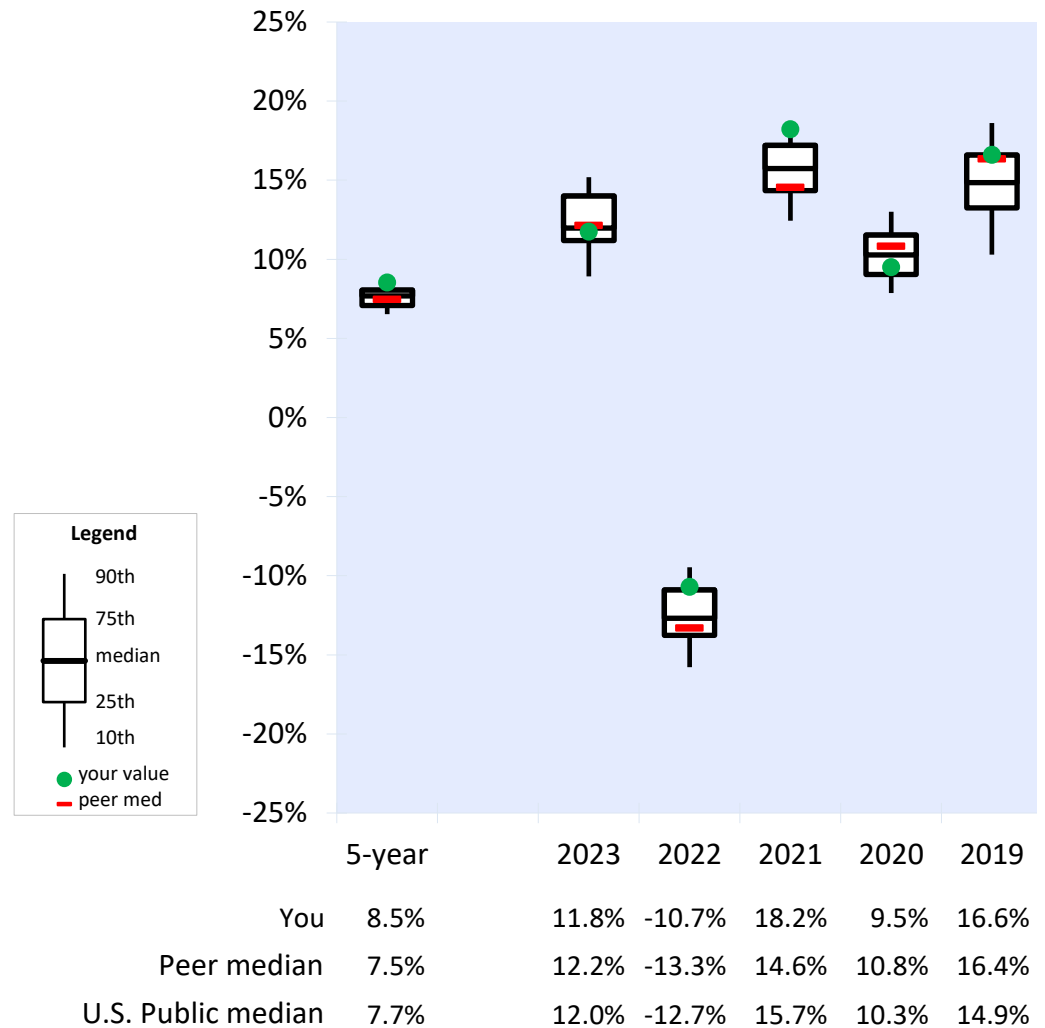
Having a higher or lower relative policy return is not necessarily good or bad. Your policy return reflects your investment policy, which should reflect your:

- Long term capital market expectations
- Liabilities
- Appetite for risk

Each of these three factors is different across funds. Therefore, it is not surprising that policy returns often vary widely between funds.

To enable fairer comparisons, the policy returns of all participants, including your fund, were adjusted to reflect private equity benchmarks based on lagged, investable, public-market indices. Prior to this adjustment, your 5-year policy return was 9.2%, 0.7% higher than your adjusted 5-year policy return of 8.5%. Mirroring this, your 5-year total fund implementation impact would be 0.7% lower.

U.S. Public policy returns - quartile rankings



Your 5-year policy return of 8.5% was above the U.S. Public median of 7.7% primarily because of:

- The positive impact of your higher weight and better benchmark return in U.S. Stock, one of the better performing asset classes of the past five years (your 30% 5-year average weight versus a U.S. Public average of 18%).
- Your higher benchmark returns in total fixed income, primarily driven by your higher allocation to high yield (your 4% 5-year average weight versus a U.S. Public average of 2%).

	5-year average policy mix ¹			5-year benchmark return	
	Your Fund	U.S. Publ Avg.	More/ Less	Your Fund	U.S. Publ Avg.
U.S. Stock	30%	18%	12%	15.4%	15.0%
EAFE/Global/Emerging	17%	29%	-11%	n/a ³	n/a ³
Total Stock	47%	47%	1%	12.3%	11.7%
U.S. Bonds	17%	16%	0%	1.1%	1.3%
Inflation Indexed Bonds	1%	3%	-3%	n/a ³	2.6%
High Yield Bonds	4%	2%	2%	5.4%	5.0%
Fixed income - Emerging	1%	1%	0%	n/a ³	1.5%
Fixed income - Global	0%	1%	-1%	n/a ³	2.2%
Cash	3%	-1%	4%	1.9%	1.9%
Other Fixed Income ²	0%	2%	-2%	n/a ³	n/a ³
Total Fixed Income	25%	25%	0%	2.0%	1.5%
Hedge funds	0%	3%	-3%	n/a ³	4.1%
Real estate incl. REITs	9%	9%	0%	5.1%	5.2%
Other Real Assets ²	5%	3%	1%	n/a ³	n/a ³
Private equity	12%	11%	1%	4.0%	4.0%
Private debt	3%	2%	0%	n/a ³	6.6%
Total	100%	100%			

1. 5-year weights are based only on plans with 5 years of continuous data.

2. Other fixed income includes: fixed income - long bonds. Other real assets include: Commodities, Natural resources and Infrastructure.

3. A value of 'n/a' is shown if asset class returns are not available for the full 5 years or if they are broad and incomparable.

Implementation impact is the difference between total net return and policy return. Your 5-year implementation impact of 0.9% compares to a peer median of 1.3% and a U.S. Public median of 1.2%.

Implementation impact for Montana Board of Investments

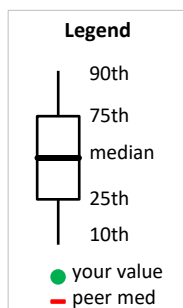
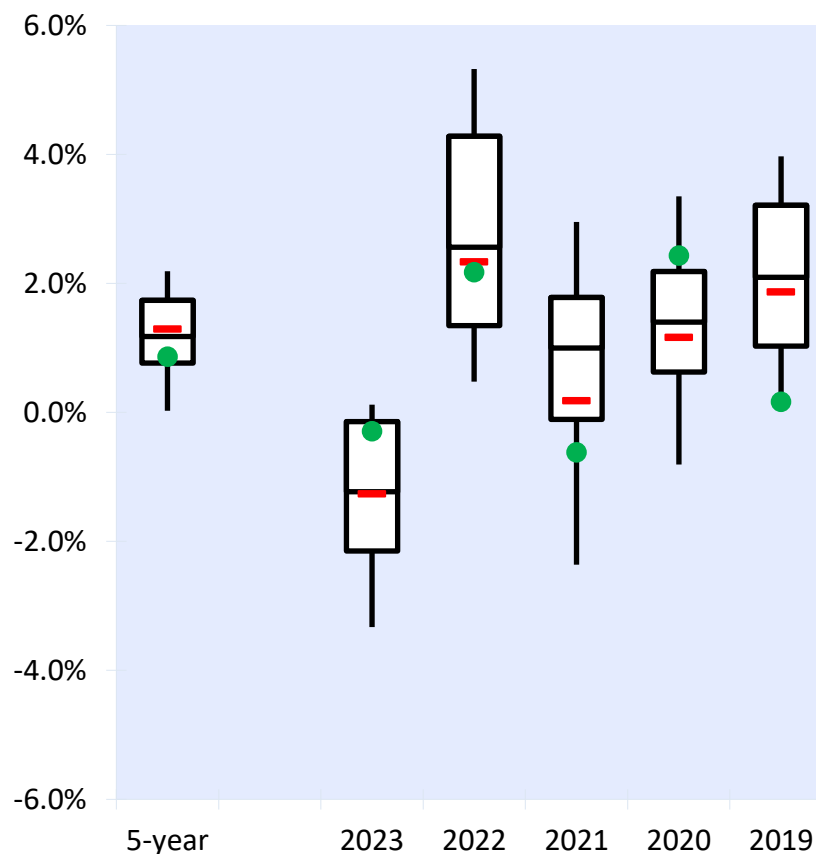
Year	Net return	Policy return	Impl. impact
2023	11.5%	11.8%	-0.3%
2022	-8.5%	-10.7%	2.2%
2021	17.6%	18.2%	-0.6%
2020	11.9%	9.5%	2.4%
2019	16.8%	16.6%	0.2%
5-Year	9.4%	8.5%	0.9%

Implementation typically has a modest impact on total fund returns. Implementation impacts are mainly due to:

- Differences in asset class benchmarks across funds.
- Differences between actual holdings and policy weights for asset classes. These differences may be due to tactical asset allocation or rebalancing policies.
- Net return relative to benchmark returns within asset classes.

To enable fairer comparisons, the implementation impact for each participant including your fund was adjusted to reflect private equity benchmarks based on lagged, investable public market indices. Prior to this adjustment, your fund's 5-year total fund implementation impact was 0.2%.

U.S. Public implementation impact - quartile rankings



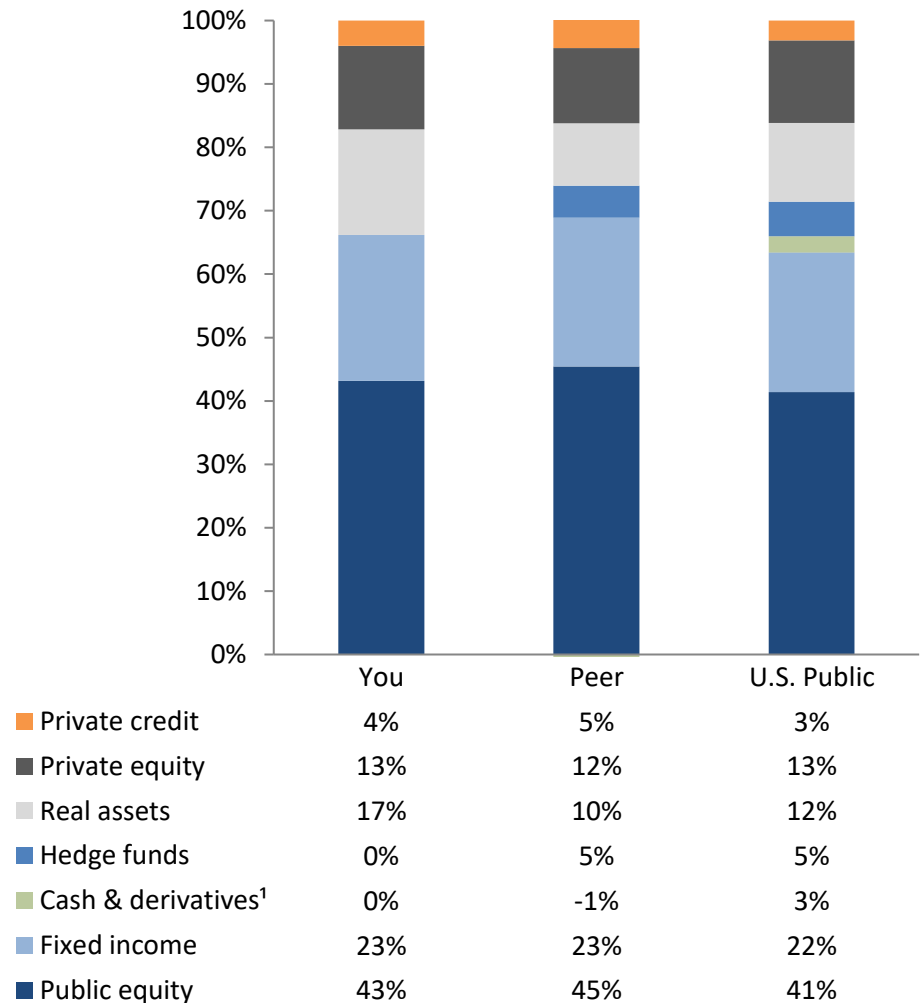
You	0.9%	-0.3%	2.2%	-0.6%	2.4%	0.2%
Peer median	1.3%	-1.3%	2.3%	0.2%	1.2%	1.9%
U.S. Public median	1.2%	-1.2%	2.6%	1.0%	1.4%	2.1%

High-cost assets equaled 34% of your assets at the end of 2023 versus a peer average of 32%.

Alternative asset classes, such as, real estate (excl. REITs), infrastructure, hedge funds, private equity and private credit are typically higher cost asset classes than public asset classes such as public equity and fixed income. You had a combined public market allocation of 66% at the end of 2023 versus a peer average of 70%.

Your alternative asset classes represent 34% of your assets, but 78% of your total costs.

2023 Actual asset allocation



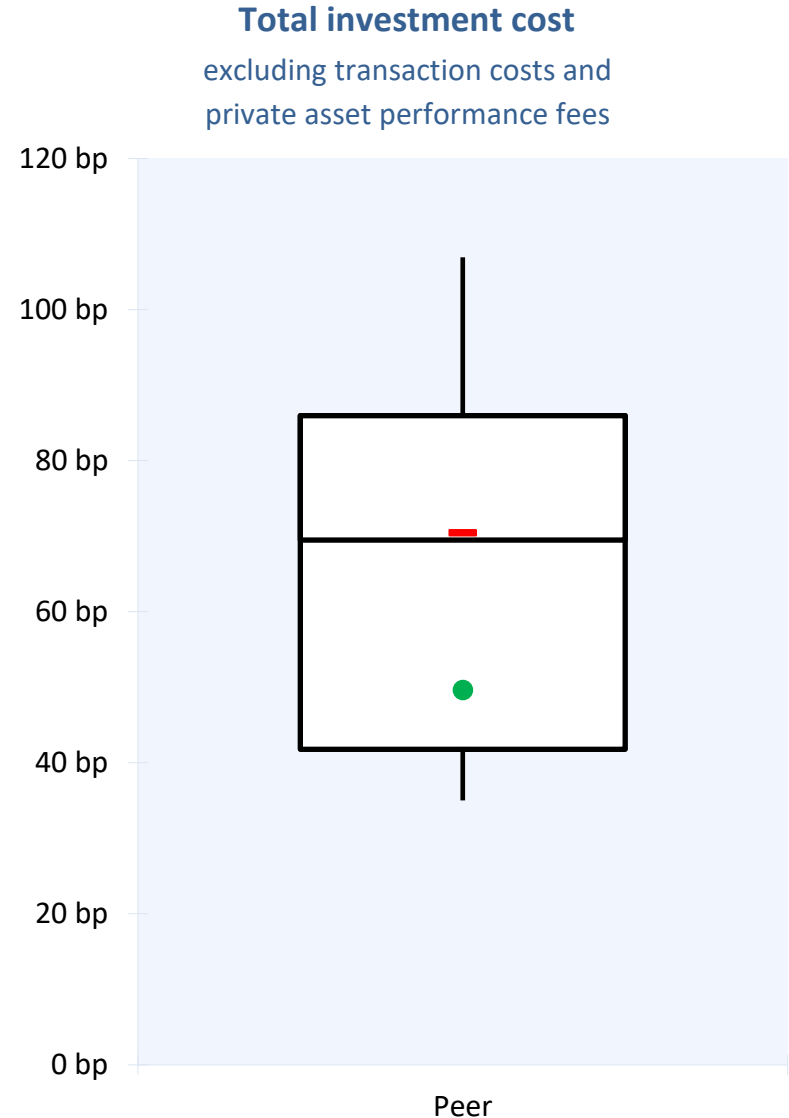
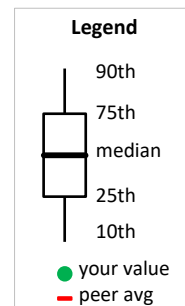
1. Negative allocation indicates the use of leverage.

Before adjusting for asset mix differences, your total investment cost of 49.6 bps was below the peer median of 69.5 bps.

Differences in total investment cost are often caused by two factors that are often outside of management's control:

- Asset mix - private asset classes are generally more expensive than public asset classes.
- Fund size - bigger funds have advantages of scale.

Therefore, to assess whether your costs are high or low given your unique asset mix and size, CEM calculates a benchmark cost for your fund. This analysis is shown on the following page.



Benchmark cost analysis suggests that, after adjusting for fund size and asset mix, your fund was above benchmark cost by 4.8 basis points in 2023.

Your benchmark cost is an estimate of what your cost would be given your actual asset mix and the median costs that your peers pay for similar services. It represents the cost your peers would incur if they had your actual asset mix.

Your total cost of 49.6 bp was above your benchmark cost of 44.8 bp. Thus, your excess cost was 4.8 bp.

In the U.S. public universe, roughly 34% are less than 10% different than their benchmark. Roughly 29% are 10-20% different than benchmark, and the remaining 37% are greater than 20% different than benchmark. You are roughly 10% higher cost than your benchmark.

Your cost versus benchmark

	\$000s	basis points
Your total investment cost	68,907	49.6 bp
Your benchmark cost	62,226	44.8 bp
Your excess cost	6,681	4.8 bp

Your fund was above benchmark cost because it paid more than peers for some services.

Explanation of your cost status

	Excess Cost/ (Savings)	
	\$000s	bps
1. Lower cost implementation style		
• More active management, less lower cost passive	361	0.3
• Less external management, more lower cost internal	(1,814)	(1.3)
• More LPs as a percentage of external	2,033	1.5
• Less fund of funds	(1,756)	(1.3)
• Less co-investment as a percentage of LP/Co	178	0.1
• Less overlays	(646)	(0.5)
	<u>(1,644)</u>	<u>(1.2)</u>
2. Paying more than peers for some services		
• External investment management costs	9,236	6.7
• Internal investment management costs	(198)	(0.1)
• Oversight, custodial & other costs	(714)	(0.5)
	<u>8,325</u>	<u>6.0</u>
Total excess cost	6,681	4.8

Your implementation style was 1.2 bps lower cost than the peer average.

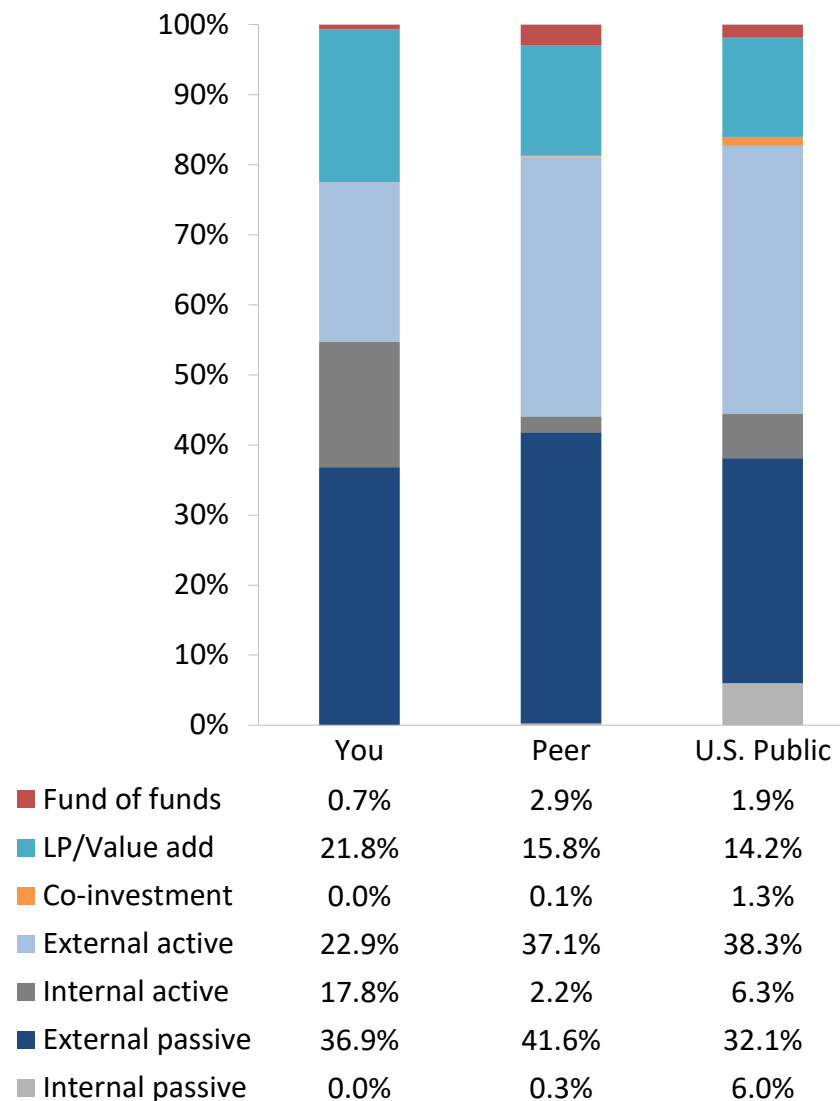
Implementation style is the way in which your fund implements asset allocation. Each implementation choice has a cost. Your first choice is how much to implement passively or actively. The table below summarizes your aggregate choices versus peers and their cost impact.

Implementation choices	Impact
More active, less passive	0.3 bp
Less internal as a % of passive	0.0 bp
More internal as a % of active	(1.3) bp
More LPs as a % of external	1.5 bp
Less fund of funds	(1.3) bp
Less co-investment as a percentage of LP/Co	0.1 bp
Less overlays	(0.5) bp
Total impact	(1.2) bp

The peer and universe style was adjusted to match your asset mix. It equals their average style for each asset class weighted by your fee basis for the asset class. It shows how the average peer would implement your asset mix.

1. Implementation style is shown as a % of total fund fee basis because the fee basis is the primary driver of cost for private assets (e.g., new private equity LP commitments increase costs before LP NAV increases). Style weights are based on average holdings. Cash and derivatives are excluded.

Implementation style¹



Key takeaways

Returns

- Your 5-year net total return was 9.4%. This was above both the U.S. Public median of 8.9% and the peer median of 8.6%.
- Your 5-year policy return was 8.5%. This was above both the U.S. Public median of 7.7% and the peer median of 7.5%.

Implementation impact

- Your 5-year implementation impact was 0.9%. This was below both the U.S. Public median of 1.2% and the peer median of 1.3%.

Cost and cost effectiveness

- Your investment cost of 49.6 bps was above your benchmark cost of 44.8 bps.
- Your fund was above benchmark cost because it paid more than peers for some services.
- Despite being 4.8 bps above benchmark cost, you delivered a five-year implementation impact of 86.4 bps.

SEPARATE ACCOUNTS REVIEW

Presented by:

John Romasko, CFA, Kirsten Haswell, CTP
Sam Holman, and Willie Gross

Date: October 9, 2024

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2. Policy & Portfolio Construction
3. Types of Investments:
 - a. Trust Fund Investment Pool (TFIP)
 - b. Short Term Investment Pool (STIP)
 - c. State Fund Investment Pool (SFIP)
4. Client Interaction and Portfolio Construction Examples

Separate Account Clients

Assets Under Management 06/30/2024

Name	AUM Millions	Name	AUM Millions
Trust Funds - Permanent		Trust Funds - Expendable (Continued)	
COAL SEVERANCE TAX PERM FUND	\$ 1,271.0	EAST HELENA COMPENSATION FUND	\$ 1.8
COAL TAX PARK TRUST FUND	\$ 30.5	FLYING J CECRA FACILITIES FUND	\$ 2.7
CULTURAL TRUST FUND	\$ 16.5	LIBBY ASBESTOS SITE STATE COST	\$ 5.2
ENDOWMENT FOR CHILDREN	\$ 1.4	LUTTRELL PIT - OPER & MAINT	\$ 2.0
FWP MITIGATION TRUST	\$ 10.1	MT POLE SUPERFUND SETTLEMENT	\$ 18.5
HAROLD HAMM ENDOWMENT	\$ 0.1	MT HOUSING INFRASTRUCTURE	\$ 104.5
INVASIVE SPECIES TRUST FUND	\$ 2.8	SMELTER HILL UPLANDS REST FUND	\$ 8.5
MONTANA HISTORICAL SOCIETY	\$ 4.2	STREAMSIDE TAILINGS OU FUND	\$ 16.2
MONTANA STATE LIBRARY TRUST	\$ 1.4	UPPER BLACKFT RESP ACT & REST	\$ 1.0
NOXIOUS WEED MGMT TRUST FUND	\$ 10.1	UPPER CLRK FK RIVER BASIN RES	\$ 22.0
OLDER MONTANANS TRUST FUND	\$ 0.3	UPPER CLRK FK RIVER BASIN REST	\$ 65.0
POTTER TRUST FUND	\$ 0.3	YELLOWSTONE PIPELINE CLEANUPFD	\$ 6.0
PUBLIC SCHOOL TRUST	\$ 891.9	ZORTMAN/LANDUSKY LT WATER	\$ 17.2
REAL PROPERTY TRUST FUND	\$ 7.2	ZORTMANLANDUSKY LT WATER TRUST	\$ 22.3
RESOURCE INDEMNITY TRUST FUND	\$ 104.1	Insurance Funds	
TOBACCO TRUST FUND	\$ 302.9	MONTANA STATE FUND	\$ 1,459.9
WILDLIFE HABITAT TRUST FUND	\$ 16.2	MUS GROUP INSURANCE	\$ 100.3
Trust Funds - Expendable		MUS WORKERS COMPENSATION	\$ 13.6
ABANDONED MINE RECLAMATION	\$ 7.7	STATE EMPLOYEE GROUP BENEFITS	\$ 176.3
BARKER HUGHESVILLE ST RESPONSE	\$ 9.2	HAIL INSURANCE INVESTMENTS	\$ 5.4
BELT WATER TREATMENT PLANT	\$ 26.5	SUBSEQUENT INJURY TRUST FUND	\$ 1.5
BUTTE AREA ONE REST	\$ 5.8	Operating Funds	
BUTTE AREA REDEVELOP AUTHORITY	\$ 13.1	FWP GENERAL LICENSE ACCOUNT	\$ 94.8
CLARK FORK REST	\$ 24.5	MONTANA STATE UNIVERSITY	\$ 293.3
CLARK FORK SITE RESP ACTION	\$ 50.8	MONTANA TECH	\$ 7.9
DEBT AND LIABILITY FREE ACCOUNT	\$ 196.9	STATE TREASURER'S FUND	\$ 3,538.8
E HELENA GREENWAY TRAIL MAINT	\$ 0.9	UNIVERSITY OF MONTANA	\$ 89.4

Separate Account Clients

Policy and Portfolio Construction

- Develop portfolio objectives and constraints in collaboration with clients and investment staff
- Choose an appropriate benchmark and define the investment guidelines
- Construct portfolio based on established guidelines
 - Duration based on interest rate and economic outlook versus market
 - Relative value between sectors / securities
- Monitor portfolio
 - Regular review of portfolio characteristics relative to the benchmark
 - Continuous evaluation of current securities and potential opportunities
 - Regular meetings to discuss news, market events, portfolio structure, relative value, and market conditions

Separate Account Clients

Types of Investments and Why We Use Them

- Short Term Investment Pool (STIP)
 - Similar to a short-term money market fund
 - Provides liquidity
 - Modest increase in yield
 - Default fund to all investments not otherwise allocated
- Trust Funds Investment Pool (TFIP)
 - Diversify investments
 - Increase yield
 - Enhance Total Return
- Individual Securities
 - Special circumstances

Separate Account Clients

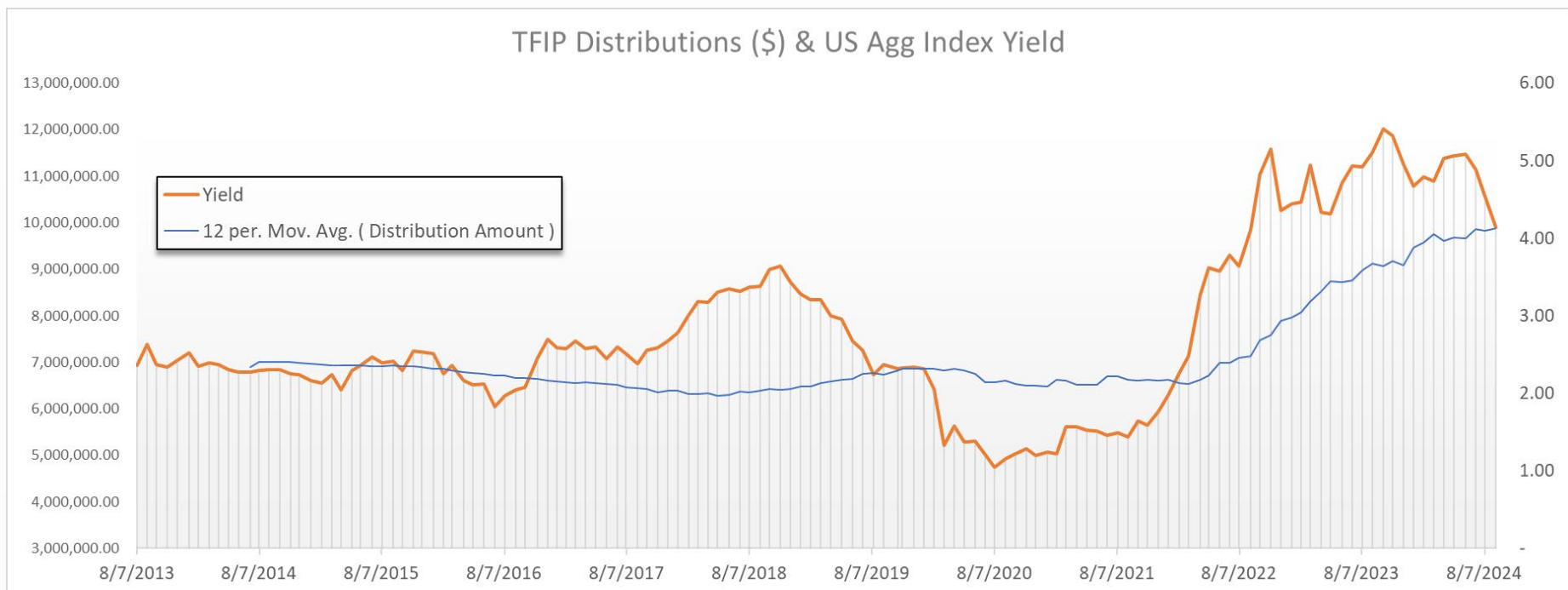
Trust Funds Investment Pool Objectives

- Strategic Objective
 - Provide a diversified investment vehicle for participants that offers returns which support client missions
- Investment Objectives
 - Earn investment income by assuming a prudent amount of risk
 - Preserve principal by diversifying the portfolio across risk factors

Separate Account Clients

TFIP Participant Distributions

- Cash distributions are an important factor to Separate Accounts
- Distributions have been pressured downward with the secular decline in interest rates over the last 30+ years
- Based on the current trend in interest rates, we expect distributions to stabilize.



Separate Account Clients

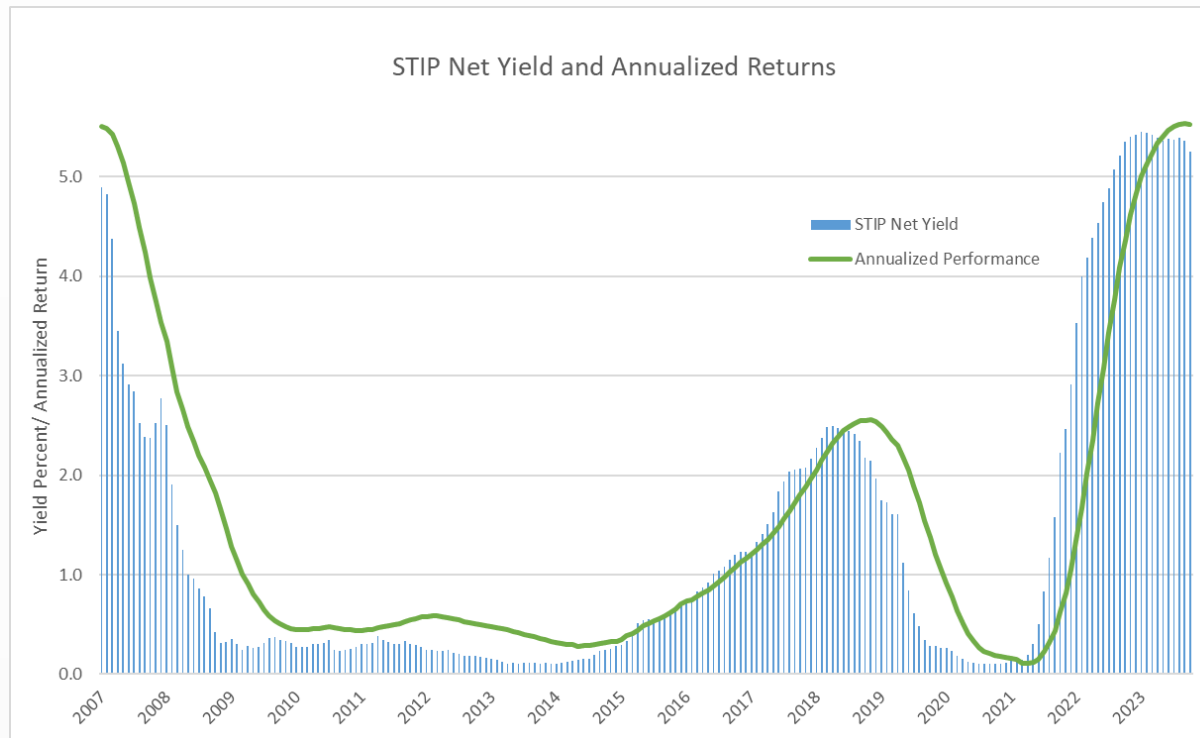
Short Term Investment Pool Objectives

- STIP has three clearly defined objectives in order of importance:
 - Preservation of principal
 - Liquidity
 - Return

Separate Account Clients

Short Term Investment Pool Net Yield

- STIP yield had a sharp increase as the Federal Reserve increased interest rates to offset Inflation
- Based on current market expectations, STIP yield is expected to decrease as the Federal Reserve enters a rate-cutting cycle



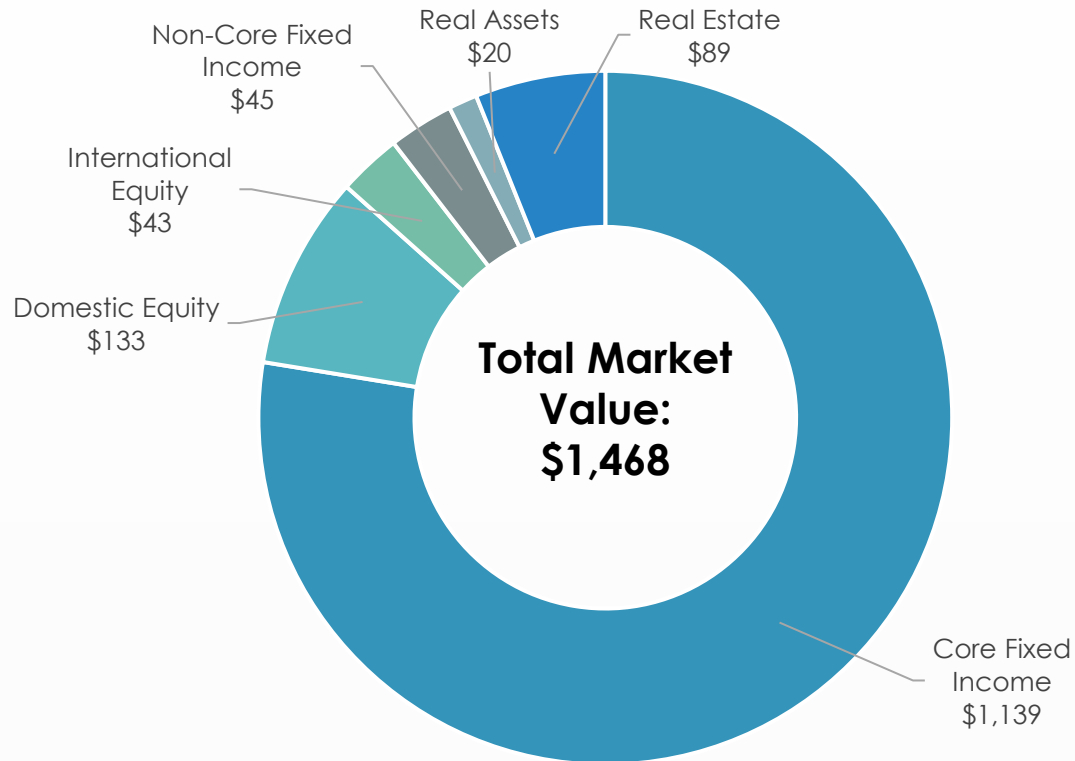
Separate Account Clients

State Fund Investment Portfolio Objectives

- Strategic Objective
 - Achieve returns that assist MSF in meeting obligations as well as maintaining stable, cost-effective rates for workers' compensation insurance
- Primary Investment Objectives
 - Provide investment income by assuming a prudent amount of risk
 - Preserve principal by diversifying the portfolio across risk factors
- Secondary Investment Objectives
 - Long-term capital appreciation in excess of inflation

Separate Account Clients

State Fund Investment Portfolio Characteristics 06/30/2024



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

Separate Account Clients

Client Interaction and Portfolio Development

- All team members participate in portfolio management
- All team members have primary and back up responsibilities
- Belt Water Treatment Plant– Sam Holman
- University of Montana – Willie Gross
- Fish, Wildlife, and Parks General License Account– Kirsten Haswell
- Coal Tax Permanent– John Romasko



Asset Allocation

Jon Putnam CFA, FRM, CAIA – Chief Investment Officer

Date: October 9, 2024

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.
- Off-site asset allocation meeting 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%
6/30/2023	\$6,920,862	\$287,257	\$559,434	-\$272,177	-3.93%
* PERS 2023 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%
6/30/2023	\$4,920,843	\$248,904	\$436,952	-\$188,048	-3.82%
* TRS 2023 Actuarial Valuation Study					

Asset Allocation History (Pension)

	2023 Asset Allocation	2022 Asset Allocation	2021 Asset Allocation	2020 Asset Allocation	2019 Asset Allocation
Asset Classes					
Domestic Equity Range	(23% -35%)	(23% -35%)	(24% - 36%)	(24% - 36%)	(24% - 36%)
Approved Midpoint	29.0%	29.0%	30.0%	30.0%	30.0%
International Equity Range	(10% - 20%)	(10% - 20%)	(12% - 22%)	(12% - 22%)	(11% - 21%)
Approved Midpoint	15.0%	15.0%	17.0%	17.0%	16.0%
Private Investments Range	(12% - 20%)	(12% - 20%)	(11% - 19%)	(11% - 19%)	(11% - 17%)
Approved Midpoint	16.0%	16.0%	15.0%	15.0%	14.0%
Real Estate Range	(7% - 15%)	(7% - 15%)	(6% - 14%)	(5% - 13%)	(5% - 13%)
Approved Midpoint	11.0%	11.0%	10.0%	9.0%	9.0%
Real Assets Range	(3% - 9%)	(3% - 9%)	(2% - 8%)	(2% - 8%)	(1% - 7%)
Approved Midpoint	6.0%	6.0%	5.0%	5.0%	4.0%
Core Fixed Income Range	(9% - 19%)	(9% - 19%)	(9% - 19%)	(10% - 20%)	(15% - 25%)
Approved Midpoint	14.0%	14.0%	14.0%	15.0%	20.0%
Non-Core Fixed Income Range	(5% - 9%)	(5% - 9%)	(5% - 9%)	(4% - 8%)	(3% - 7%)
Approved Midpoint	7.0%	7.0%	7.0%	6.0%	5.0%
Cash Equivalents Range	(0% - 5%)	(0% - 5%)	(0% - 5%)	(0% - 6%)	(0% - 4%)
Approved Midpoint	2.0%	2.0%	2.0%	3.0%	2.0%
Total of Midpoints	100.0%	100.0%	100.0%	100.0%	100.0%

* In 2019, combined Fixed Income sub-asset classes into Core Fixed Income, Non-Core Fixed Income added EMD, Preferred, and Convertible strategies, Diversifying Strategies was eliminated, and the Cash Asset Class range was applied to total pension AUM.

* 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)

Trust Funds Investment Pool (TFIP)	2023 Asset Allocation Range	2019 Asset Allocation Range
Asset Classes		
Real Estate	(0% - 30%)	(0% - 8%)
Non-Core Fixed Income	(0% - 10%)	(0% - 10%)
Real Assets	(0% - 6%)	N/A
Investment Grade Fixed Income	(60% - 100%)	(0% - 100%)

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

State Fund Investment Pool (SFIP)

State Fund Investment Pool (SFIP)	2023 Asset Allocation Range	2019 Asset Allocation Range
Asset Classes		
Public Equity	(0% - 15%)	(0% - 15%)
Real Estate	(0% - 8%)	(0% - 8%)
Non-Core Fixed Income	(0% - 7%)	N/A
Real Assets	(0% - 6%)	N/A
Investment Grade Fixed Income	(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.

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.

MONTANA

BOARD OF INVESTMENTS

TO: Members of the Board
FROM: Jon Putnam, Chief Investment Officer
DATE: October 9, 2024
RE: Proposed Asset Allocation – First Reading – Potential Vote

After discussing this with staff and RVK, I am proposing changes to the asset allocation for CAPP, TFIP, and SFIP, as shown in the tables below. The proposed policy red lines follow this memo.

CAPP

Asset Class	Current Range	Proposed Range	Current Midpoint	Proposed Midpoint	Midpoint Difference
Domestic Equity	23 - 35%	22 - 34%	29%	28%	-1
International Equity	10 - 20%	10 - 20%	15%	15%	0
Private Investments	12 - 20%	13 - 21%	16%	17%	+1
Real Assets	3 - 9%	3 - 9%	6%	6%	0
Real Estate	7 - 15%	7 - 15%	11%	11%	0
Core Fixed Income	9 - 19%	9 - 19%	14%	14%	0
Non-Core Fixed Income	5 - 9%	5 - 9%	7%	7%	0
Cash Equivalents *	0 - 5%	0 - 5%	2% *	2% *	0

* Target of 2% for Cash Equivalents is lower than the midpoint of the proposed range

CAPP Asset Allocation Changes

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

A. Reduce the midpoint of Domestic Equity from 29% to 28%.

Staff recommends reducing our public equity exposure in favor of private equity exposure. Public Equity valuations are near the top of historical metrics, which generally indicates lower future returns. In addition, the number of public companies has been shrinking as firms decide to remain private for longer.

B. Increase the midpoint of Private Investments from 16% to 17%.

Based on the 2024 Long-Term Capital Market Assumptions for RVK and other industry sources, the expected return for private investments is higher than that of all other asset classes.

BOI has demonstrated an ability to successfully invest in private markets with excellent long-term returns.

TFIP

Asset Class	Current Range	Proposed Range
Investment Grade Fixed Income & Cash	60 - 100%	60 - 100%
Real Estate	0 - 30%	0 - 30%
Non-Core Fixed Income	0 - 10%	0 - 6%
Private Credit	N/A	0 - 4%
Real Assets	0 - 6%	0 - 6%

SFIP

Asset Class	Current Range	Proposed Range
Investment Grade Fixed Income	70 - 100%	70 - 100%
Public Equity (Max 4% in Intl)	0 - 15%	0 - 15%
Real Estate	0 - 8%	0 - 8%
Non-Core Fixed Income	0 - 7%	0 - 6%
Private Credit	N/A	0 - 4%
Real Assets	0 - 6%	0 - 6%

TFIP & SFIP Asset Allocation Changes

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

A. Add an allocation to Private Credit with a range of 0 – 4%.

Staff recommends adding an allocation to Private Credit for both TFIP and SFIP. Private Credit has the potential to deliver higher returns than Core Fixed Income over the long term and provides

additional diversification to both portfolios. The Private Credit market has increased approximately 16% annually over the last decade and is now similar in size to the public high-yield market. Staff anticipates only investing with managers focused on senior secured lending to manage portfolio risk.

B. Decrease the range of Non-Core Fixed Income.

High-yield bonds and private credit have similar debt characteristics. Consequently, staff recommends reducing the Non-Core Fixed Income range in favor of an allocation to private credit.

MONTANA

BOARD OF INVESTMENTS

BOARD ADOPTED POLICY

POLICY NUMBER: 40.201

EFFECTIVE DATE: ~~December 6, 2022~~ TBDTITLE: Montana Public Retirement Plans
Asset Allocation RangesSUPERSEDES: ~~November 30, 2021~~ TBD

BOARD ADOPTION: November 30, 2021

REVIEWED: ~~December 12, 2023~~
October 9, 2024

I. Introduction

A. Permitted Ranges

Asset Class Allocations		
Asset Class	Range Low	Range High
Domestic Equities	23 <u>22</u>	35 <u>34</u>
International Equities	10	20
Private Investments	12 <u>13</u>	20 <u>21</u>
Real Assets	3	9
Real Estate	7	15
Core Fixed Income	9	19
Non-Core Fixed Income	5	9
Cash ¹	0	5
Total		
<p>¹ The combined cash at the plan level and the CAPP level is subject to the range.</p> <p>² Montana Public Retirement Plans shall have no greater than 5% of the Net Asset Value managed by any one external manager using an active investment strategy.</p>		

Authority: Montana Constitution, Article VIII, Section 13
Section 2-15-1808, MCA
Sections 17-6-201 through 17-6-205, MCA
Section 19-2-504, MCA

Adopted: November 30, 2021

Revised: ~~December 6, 2022~~ TBDReviewed: ~~December 12, 2023~~ October 9, 2024

MONTANA

BOARD OF INVESTMENTS

BOARD ADOPTED POLICY

POLICY NUMBER: 40.501

EFFECTIVE DATE: ~~May 26, 2022~~ TBDTITLE: Trust Funds Investment Pool
Allocation RangesSUPERSEDES: ~~November 30, 2021~~ TBD

BOARD ADOPTION: November 30, 2021

REVIEWED: ~~December 12, 2023~~
October 9, 2024

I. Trust Funds Investment Pool Allocation Ranges

A. Permitted Ranges:

Trust Funds Investment Pool Asset Class Allocations		
Asset Class	Range Low	Range High
Real Estate	0	30
Non-Core Fixed Income	0	100
<u>Private Credit</u>	<u>0</u>	<u>4</u>
Real Assets	0	6
Investment Grade Fixed Income & Cash	60	100

Authority: Montana Constitution, Article VIII, Section 13
 Section 2-15-1808, MCA
 Section 17-6-201, MCA
 Section 17-6-205, MCA

Adopted: November 30, 2021

Revised: ~~May 26, 2022~~ TBDReviewed: ~~December 12, 2023~~ October 9, 2024

MONTANA

BOARD OF INVESTMENTS

BOARD ADOPTED POLICY

POLICY NUMBER: 40.701

EFFECTIVE DATE: ~~February 22, 2023~~ TBDTITLE: State Fund Investment Pool
Allocation RangesSUPERSEDES: ~~November 30, 2021~~ TBD

BOARD ADOPTION: November 30, 2021

REVIEWED: ~~December 12, 2023~~
October 9, 2024

I. State Fund Investment Pool Allocation Ranges

A. Permitted Ranges:

State Fund Investment Pool Asset Class Allocations		
Asset Class	Range Low	Range High
Public Equity	0	15
Real Estate	0	8
Non-Core Fixed Income	0	76
<u>Private Credit</u>	<u>0</u>	<u>4</u>
Real Assets	0	6
Investment Grade Fixed Income	70	100

Authority: Montana Constitution, Article VIII, Section 13
 Section 2-15-1808, MCA
 Section 17-1-113, MCA
 Sections 17-6-201 and -202, MCA
 Section 33-1-115, MCA
 Section 39-71-2320, MCA

Adopted: November 30, 2021

Revised: ~~February 22, 2023~~ TBDReviewed: ~~December 12, 2023~~ October 9, 2024

2024 Board of Investments Calendar

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						
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](#)

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

Education:

Core Fixed Income Asset Class Review
Budget Proposal for FY24-25
INTERCAP Annual Detail Report

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
INTERCAP Annual Detail Report

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